



# Recommendation and decision on notification of resource consent application(s) under sections 95-95G of the Resource Management Act 1991 (RMA)

## Summary

I recommend the application is processed on a publicly notified basis. This is because:

- The Mataura River is in a degraded state and I consider that the continuation of the existing wastewater discharge into the river will not result in any improvement in water quality.
- I consider that the discharge of human wastewater into the Mataura River may have more than minor adverse effects on cultural values, and also noting the river is subject to a statutory acknowledgement under the Ngai Tahu Claims Settlement Act.
- It is uncertain whether the proposed discharge will meet more stringent regulatory requirements under the NPS-FM 2020 and the pSWLP.
- The proposal may continue to contribute to adverse cumulative effects on Mataura River water quality and ecosystems that are more than minor.

## The application

### Particulars

Applicant:	Southland District Council
Application reference:	APP-20232970
Site address or location:	The Mataura River at the Edendale-Wyndham Road bridge
New consent(s) for new activity(ies) (s88)	<input type="checkbox"/>
New consent(s) for existing activity(ies) (s88)	<input checked="" type="checkbox"/>
Change to conditions of existing consent(s) (s127)	<input type="checkbox"/>

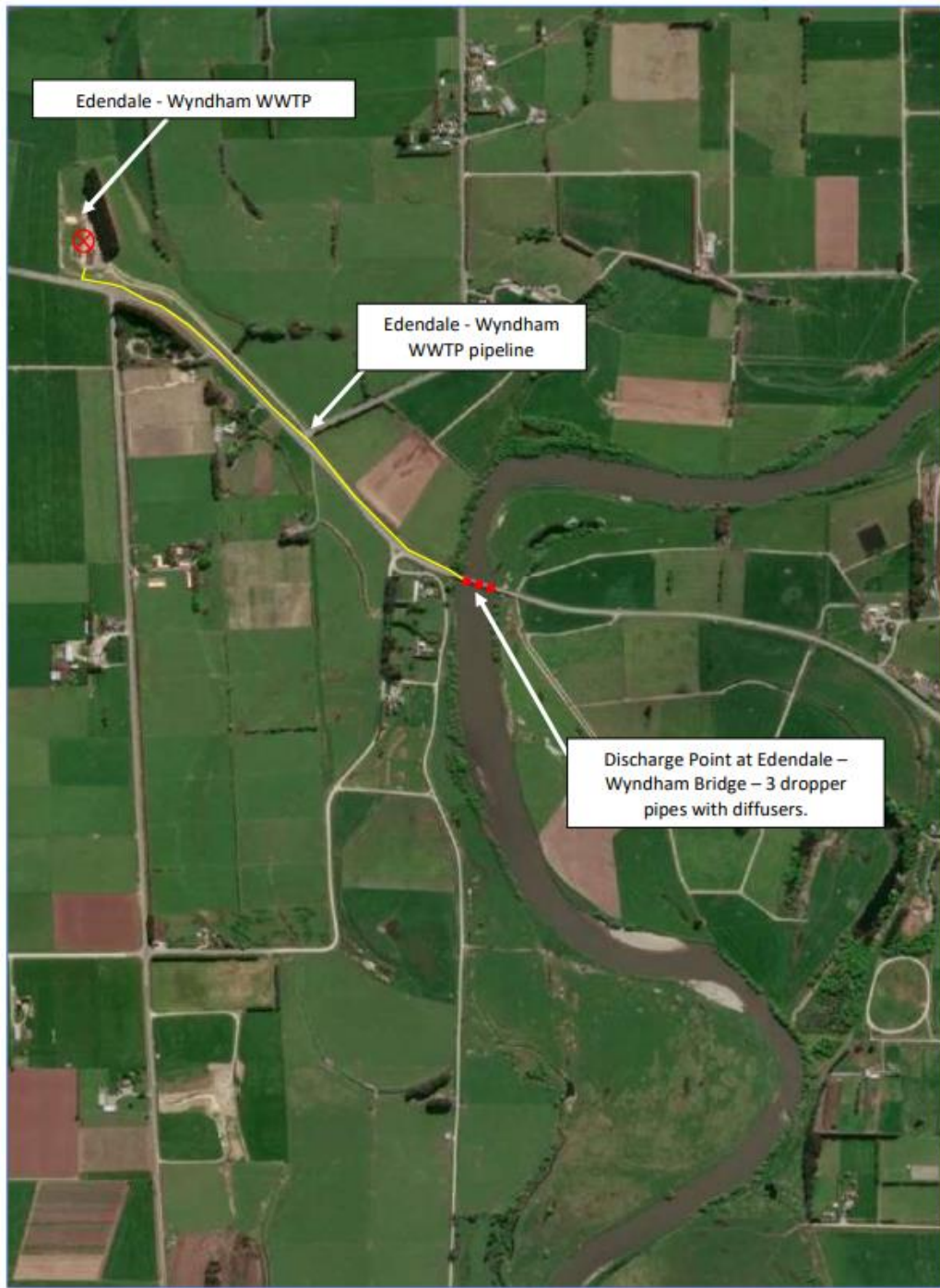
### Abbreviations

RWP	Regional Water Plan
pSWLP	proposed Southland Water and Land Plan
RMA	Resource Management Act
NPS-FM	National Policy Statement for Freshwater Management 2020
TTT	Te Tangi a Tauria (Iwi management plan)
WWTP	Wastewater Treatment Plant
SDC	Southland District Council
NOF	National Objective Framework

## The proposal

Southland District Council (The Applicant) has applied for resource consent to discharge treated wastewater from the Edendale-Wyndham wastewater treatment plant into the Mataura River. Treated wastewater is conveyed via a pipeline alongside Edendale-Wyndham Road to the point of discharge at the Edendale-Wyndham Road bridge approximately 1km south-east of the wastewater treatment plant. The point of

discharge into the river is across the base of the road bridge via three dropper pipes with diffusers. An overview of these locations is indicated in figure 1 below.



*Figure 1 Edendale-Wyndham WWTP and discharge point at Edendale-Wyndham Bridge*

The wastewater is from the Edendale and Wyndham townships sewer systems and is treated via a vermiculture treatment system. The Applicant intends to maintain this wastewater system and disposal method during the proposed consent period while investigations, consenting and constructions is undertaken to upgrade the existing Wastewater Treatment Plant. The requirement for ongoing discharges into the Mataura River and decommissioning of the existing plant, beyond the proposed consent duration, is not clear at this point. This will be addressed as part of the long terms consent.

The pathway of wastewater through the existing treatment system is shown in figures 2 and 3 below.

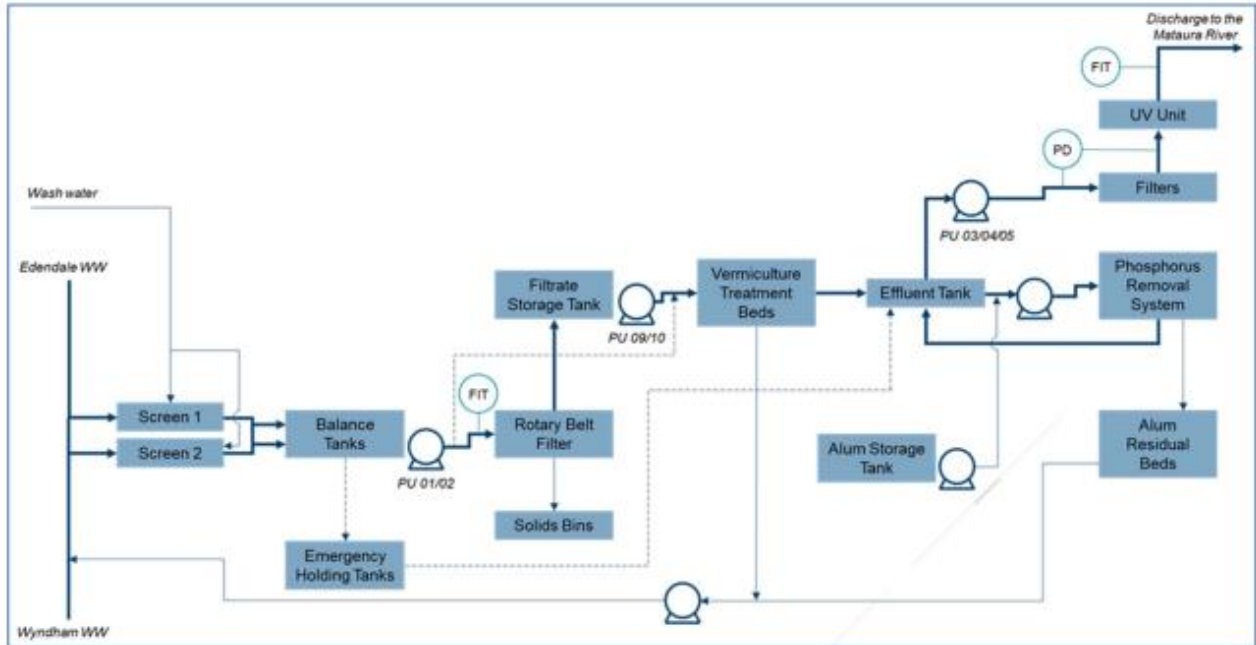


Figure 2 Edendale-Wyndham WWTP Process Flow Diagram

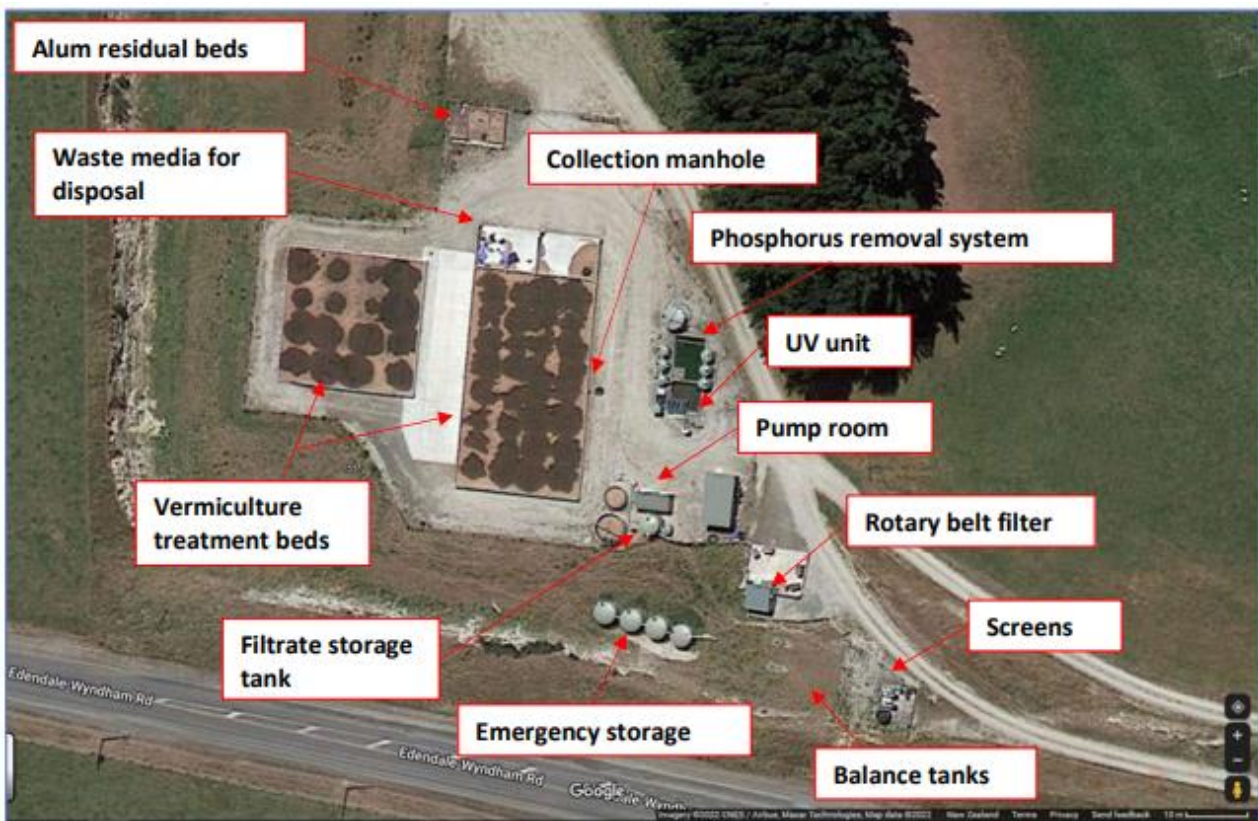


Figure 3 Existing Edendale-Wyndham Wastewater Treatment Plant

The applicant is seeking a 5-year consent period, this will provide the applicant with more time to continue with the ongoing investigations to upgrade and improve the existing performance of the wastewater treatment plant. The investigations will also assess alternative effluent disposal methods that would be appropriate for the Edendale-Wyndham WWTP.

The current application for continued discharge into the Mataura River can be considered as being for a temporary bridging or linking consent until the investigations have been concluded to inform the future Notification memorandum



improvement designs of the WWTP. Depending on the final design, the new system once fully operational, is intended to cease the discharge into the Mataura River. The date at which this would occur is unknown at this stage and would be dependent on the outcome of a second stage long term consent. Hence, noting section 124 of the RMA, there is potential for this current discharge arrangement to continue well beyond the 5 year term.

<b>Discharge permit</b>	
Relevant rule(s)	Rule 33A(b) pSWLP – Non-Complying
Discharge volume (cubic metres per day)	<b>Average daily flow</b> 450m <sup>3</sup> (increasing from 264m <sup>3</sup> )  <b>Maximum daily flow</b> 700m <sup>3</sup> (increasing from 528m <sup>3</sup> )
Discharge map reference (NZTM2000)	1278920E 4861695N
Discharge location	The Mataura River at the Edendale-Wyndham Road bridge
Freshwater Management Unit	Mataura River
Water quality class	Mataura 3
Treatment system	Vermiculture treatment system which includes inlet screens, filter belt press, 5 vermiculture treatment beds (worm beds), a phosphorus removal system, and UV disinfection. The effluent is discharged at the bridge via three dropper pipes with diffusers.

It is not entirely clear which new operative rule applies. It is either 33A(a) - Discretionary or 33A(b) – Non-Complying. The new operative rule 33A is as follows:

***“Rule 33A – Community sewerage schemes (discharge to water)***

*(a) The discharge of effluent or bio-solids from a community sewerage scheme into water in a river, lake, artificial watercourse, modified watercourse or natural wetland where the Appendix E – Receiving Water Quality Standards are met and the discharge does not reduce the water quality below those standards at the downstream edge of the reasonable mixing zone discretionary activity;*

*(b) The discharge of effluent or bio-solids from a community sewerage scheme into water in a river, lake, artificial watercourse, modified watercourse or natural wetland where Rule 33A(a) is not met the discharge is a non-complying activity.”*

My understanding having read the Sixth Interim decision<sup>1</sup> where rule 33A, Policies 15A and 15B, and Appendix E were finalised, is that rule 33A(a) is first seeking to determine if the receiving environment (The Mataura River) meets Appendix E – Receiving Water Quality Standards. Then secondly, whether the discharge does not reduce water quality below those standards at the downstream edge of the reasonable mixing zone. Therefore, I consider that because the Mataura River does not meet Appendix E-

<sup>1</sup><https://www.es.govt.nz/repository/libraries/id:26gi9ayo517q9stt81sd/hierarchy/about-us/plans-and-strategies/regional-plans/proposed-southland-water-and-land-plan/documents/background-documents/appeals/court-minutes-and-directions/%5B2023%5D%20NZEnvC%20051%20Aratiatia%20Livestock%20Limited%20v%20Southland%20Regional%20Council.pdf>

Receiving Water Quality Standards (on account of faecal coliform exceedances), the activity is non-complying under rule 33A(b).

In a further information response received on 20 July 2023<sup>2</sup>, the Applicant conceded that their initial assessment only considered the change of effects of the discharge on water quality beyond the zone of reasonable mixing, and not necessarily the receiving waters upstream of the discharge point. Upon further consideration of how the rule is worded, the applicant now agrees and considers that rule 33A(b) applies due to the Mataura River upstream of the discharge not meeting the Appendix E – Receiving Water Quality standards.

Therefore, the application is considered to be a **Non-Complying** activity.

## Public notification consideration

### 1. Is notification mandatory?

<b>1.1</b>	<b>Has the applicant requested that the application be publicly notified? (s95(3)(a))</b>	<input type="checkbox"/> Yes	Application must be publicly notified. Go to 10.2
		<input checked="" type="checkbox"/> No	Go to 1.2
<b>1.2</b>	<b>Was further information, or commissioning of a report, requested under s92?</b>	<input checked="" type="checkbox"/> Yes	Go to 1.3
		<input type="checkbox"/> No	Go to step 2.1
<b>1.3</b>	<b>If yes, was the request refused, or did the applicant fail to respond or fail to provide the information by the deadline?</b>	<input type="checkbox"/> Yes	Public notification is required by s95C. Go to 10.2
		<input checked="" type="checkbox"/> No	Go to step 2.1

### 2. Is notification precluded?

<b>2.1</b>	<b>Is each activity subject to a rule or NES that precludes public notification?</b>	<input type="checkbox"/> Yes	Rule(s): <input type="text" value="enter rule"/> Go to 4.1
		<input checked="" type="checkbox"/> No	Go to step 2.2
<b>2.2</b>	<b>Is each activity a controlled activity?</b>	<input type="checkbox"/> Yes	Application must not be publicly notified unless there are special circumstances. Go to 4.1
		<input checked="" type="checkbox"/> No	Go to 3.1

### 3. Is notification required?

<b>3.1</b>	<b>Are any of the activities subject to a rule or NES that requires notification?</b>	<input type="checkbox"/> Yes	Application must be publicly notified. Go to 10.2
		<input checked="" type="checkbox"/> No	Go to 3.2
<b>3.2</b>	<b>Will the activity have, or is it likely to have, adverse effects on the environment that are more than minor? (see Note)</b>	<input checked="" type="checkbox"/> Yes	Application must be publicly notified. Complete 3.3 and go to 10.2
		<input type="checkbox"/> No	Complete 3.3 and go to 4.1.

**Note:** In forming this opinion (a) to (e) apply:

- (a) we must disregard any effects on persons who own or occupy the land on which the activity will occur or any land adjacent to that land (section 95D(a));

<sup>2</sup> Environment Southland Document ID: A946318

- (b) we may disregard an adverse effect of the activity if a rule or NES permits an activity with that effect (subject to Policy 36 of the pSWLP) (95D(b));
- (c) in the case of a restricted discretionary activity, we must disregard any adverse effects that do not relate to the matters over which the rule or NES restricts discretion (95D(c));
- (d) we must disregard trade competition and the effects of trade competition - 95D(d); and
- (e) we must disregard any effect on a person who has given written approval - 95D(e)

### 3.3 Reasons adverse effects on the environment are less than minor / minor / more than minor

#### *The existing environment*

The Applicant operates a wastewater treatment plant (WWTP) located at 155 Edendale-Wyndham Road to treat and then discharge sewage effluent into the Mataura River. The WWTP is based on a vermiculture treatment system comprising of the following elements:

- Inlet screens (2 units)
- Filter belt press
- Vermiculture treatment beds (5 beds), “worm beds”
- Phosphorus removal system
- UV disinfection

The existing WWTP is within a former quarry approximately 1km north-west of the discharge site at the Edendale-Wyndham Road bridge over the Mataura River. Wyndham township is approximately 1.1km east of the bridge discharge site and Edendale is approximately 2.6km west of the bridge discharge site. Surrounding land uses are predominantly farming. The Wyndale Transfer Station is less than 150m south-east of the WWTP and the nearest dwelling is 300m South-east of the WWTP.

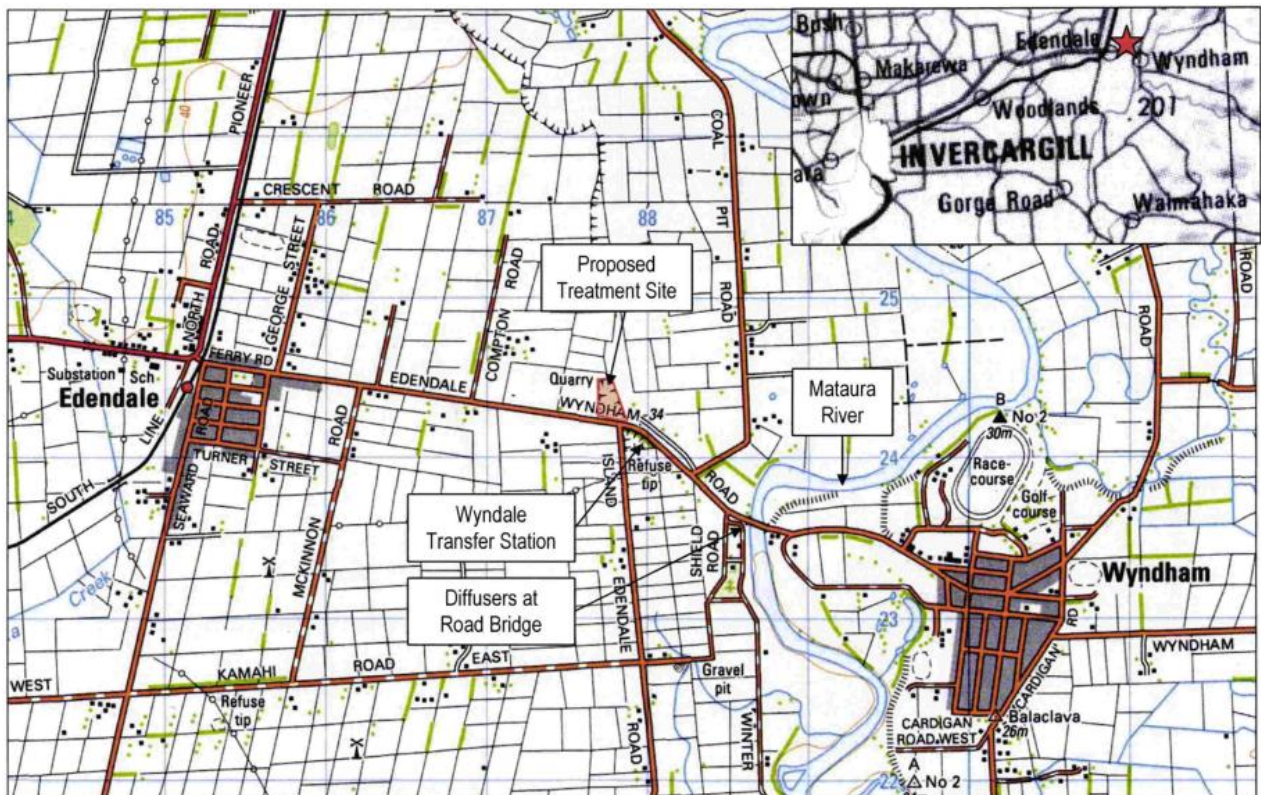


Figure 4 Location map of Edendale-Wyndham WWTP

The Applicant has a current discharge permit (AUTH-204630-V1) which authorises the discharge of up to<sup>3</sup> 528 cubic metres of treated sewage effluent per day into the Mataura River. This permit expires on 10 September 2023. As this current application was lodged more than six months prior to the expiry of the existing permit, section 124 (RMA) continuance rights apply<sup>4</sup>.

Treated sewage from the WWTP is piped underground to the Edendale-Wyndham Road bridge where it is discharged into the Mataura River via three dripper pipes with diffusers. At the discharge site the Mataura River is approximately 60m wide and increases to 90m wide slightly further downstream. The median river flow at the discharge site is 55.75m<sup>3</sup>/s with a mean annual low flow of 18.9m<sup>3</sup>/s. The WWTP percentage of the mean annual low flow of the Mataura River is less than 0.01% at a maximum discharge volume of 700m<sup>3</sup>/day.

The average daily volumes associated with the operation and capacity of the treatment plant were underestimated in the previous design and consent application. This is shown in the daily wastewater flows over the last 10 years (see figure 5 below). In the last three years the average daily volume was 422m<sup>3</sup>/day with the maximum daily volume being 653m<sup>3</sup>/day. This is likely because the projected wastewater flow generation per capita in the original resource consent application was underestimated for the Edendale and Wyndham populations.

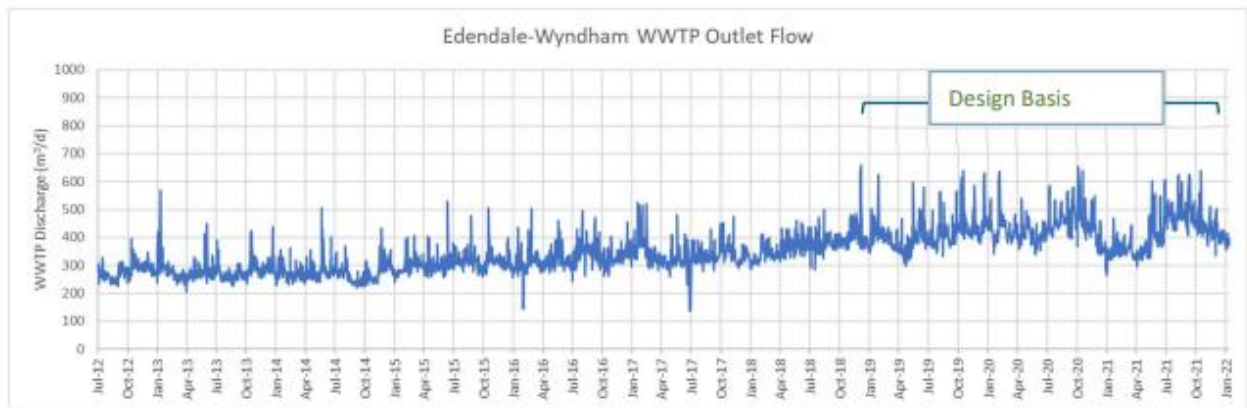


Figure 5 Wastewater daily flow (July 2012 – January 2022)

The volume of the wastewater discharged from the Edendale and Wyndham WWTP is linked with the population of both towns as wastewater generated from households contributes to the towns’ wastewater. The table below presents the population data from the NZ Census 2013 and 2018, as well as estimates for 2022, 2027 and 2052.

	Edendale	Wyndham	Total
<b>2013 Census</b>	552	552	1104
<b>2018 Census</b>	588	573	1161
	% growth per annum		1.0%
<b>Expected population 2022</b>	613	597	1210
<b>Expected population 2027</b>	645	629	1273
<b>Expected population 2052</b>	834	813	1646

It is assumed that the population data from 2013 and 2018 census is representative of Edendale-Wyndham population and the growth rate is representative of the SDC population projections for 2027 and 2052.

<sup>3</sup> Maximum daily rate of 528 cubic metres with an average daily rate of 265 cubic metres

<sup>4</sup> Section 124 of the Resource Management Act 1991



Based on linear population growth, wastewater flow is expected to increase by approximately 4%. It is envisaged that this can be accommodated within the existing plant with minor augmentation.

The current consent is operating under a 425m reasonable mixing zone from the discharge site at the bridge (See figure 6 below). Mataura River water instream measurements have been undertaken and samples have been collected upstream and downstream of the discharge site between April 2013 and September 2022. These samples have been measured in-situ for temperature, pH, conductivity, clarity and Dissolved Oxygen (DO) and analysed for Total Suspended Solids (TSS) and key contaminants. Monitoring results based on a Mass Balance calculation<sup>5</sup> (see table 1 below) indicate water quality at the end of the reasonable mixing zone is similar to that upstream of the discharge site. This is due to the discharge volume being a tiny fraction of the overall river flow volume (<0.01% of the average Mataura River flow).

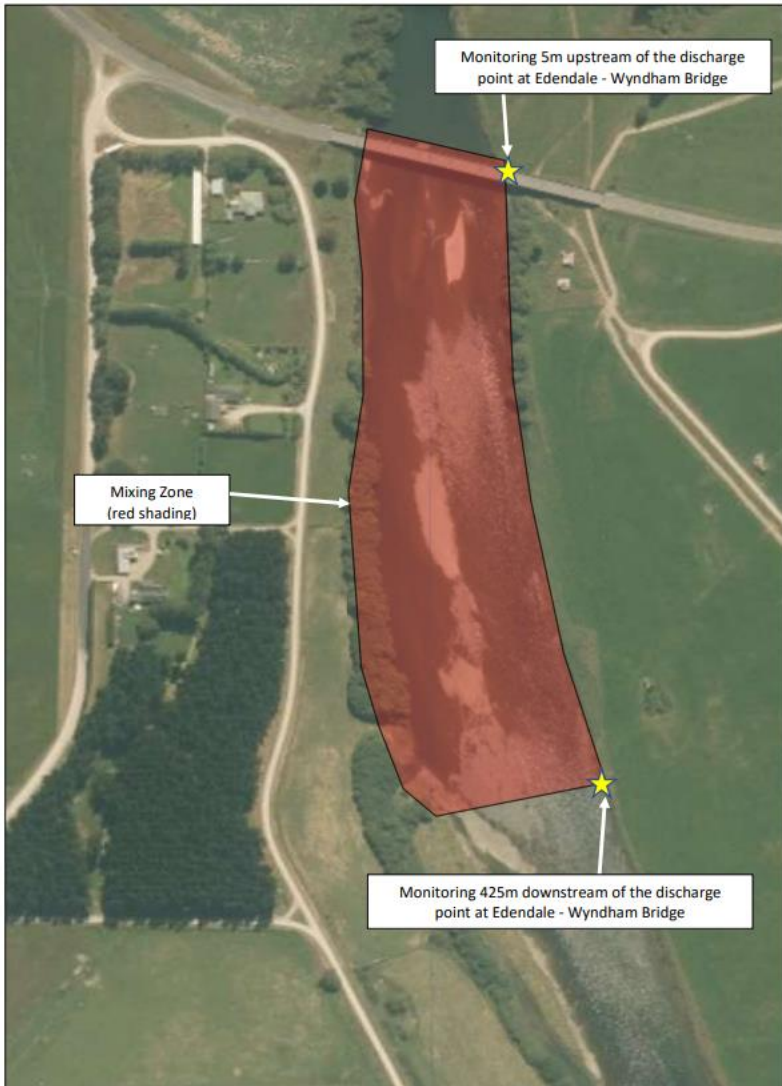


Figure 6: Mixing zone and monitoring sites

Table 1 Mass Balance Calculation

Parameter	Units	Upstream	Discharge	Downstream
Volume	M <sup>3</sup> /day	5,738,200	450	5,738,650
TSS	g/m <sup>3</sup>	11	70	11

<sup>5</sup> mass balance calculation further info response – Environment Southland Document ID: A915193



DRP	g/m <sup>3</sup>	0.1	4	0.1
Ammoniacal N	g/m <sup>3</sup>	0.05	15	0.05
Total Nitrogen	g/m <sup>3</sup>	1.2	30.5	1.2
E. Coli	cfu/100 mL	1,468	1000	1,468
Temperature	°C	14	15	14

Water quality from the WWTP is controlled by current consented limits at the end of the reasonable mixing zone. The limits and recent performance results over the last five years are summarised in table 2 below:

*Table 2 Monitoring results at the end of reasonable mixing zone (425m reasonable mixing zone)*

Parameter	Unit	September 2017 – September 2022		Current consented limit (average) <sup>6</sup>
		Mean	95%ile	
BOD <sub>5</sub>	g/m <sup>3</sup>	10	21	30
TSS	g/m <sup>3</sup>	17	46	70
Dissolved Reactive Phosphorus (DRP)	g/m <sup>3</sup>	2.5	4.2	4
AmmN	g/m <sup>3</sup>	8.7	15	15
TN	g/m <sup>3</sup>	30	40	No limit
E. Coli	MPN/100mL	1696	16,000	6,000 cfu/100mL

In terms of overall water quality of the Mataura River, there is a state of the environment monitoring site downstream of the Mataura River, 'the Mataura River at Seaward Downs'. The data is presented on the Land and Water Aotearoa site<sup>7</sup> and is summarised as follows:

*Table 3 SOE monitoring results*

Parameter	5-year median	Attribute under 2020	State NPS-FM	Trend
E. coli	363 n/100ml	E		Likely Improving
Ammoniacal nitrogen	0.025 mg/L	B		Likely Degrading
Dissolved Reactive Phosphorus	0.0094 mg/L	B		Likely Improving
Total Oxidised Nitrogen	1.183 mg/L	B <sup>8</sup>		Likely Improving
Macroinvertebrate Community Index	86 <sup>9</sup>	D		Likely Improving

The receiving environment within the vicinity of the discharge is classified as Lowland Soft Bed in accordance with the National Objective Framework. The minimum attribute state (as defined by Environment Southland (2020)<sup>10</sup>) and relevant maximum NPS-FM values associated with these attribute states is outlined in table 4 below.

<sup>6</sup> Mean shall be from any four consecutive samples taken at the Mataura River prior to the outfall

<sup>7</sup> <https://www.lawa.org.nz/explore-data/southland-region/river-quality/mataura-river/mataura-river-at-seaward-downs/>

<sup>8</sup> Note: The State of the Environment data is presented for Total Oxidised Nitrogen, which includes Nitrate Nitrogen and Nitrite Nitrogen. However the Attribute State under NPSFM 2020 refers only to Nitrate Nitrogen.

<sup>9</sup> <https://www.stats.govt.nz/indicators/river-water-quality-macroinvertebrate-community-index>

<sup>10</sup> Environment Southland. Draft Murihiku Southland Freshwater Objectives. Technical Report November 2020

Table 4 NOF data

Parameter	Desired attribute state	Meeting attribute state	Units	Statistic	Number of data points used in calculation	Maximum limit to achieve attribute state	Upstream actual	Downstream actual
Temperature <sup>^</sup>	C		°C	5-day CRI	2	<=23	16.8	16.2
Clarity (m)	C	Yes	C	Annual Maximum	5	<1.6	1.0	1.0
Ammoniacal **N (eq. pH 8)	B	Yes	g/m <sup>3</sup>	Annual Median	5	<=0.24	0.04	0.03
Ammoniacal **N (eq. pH 8)	B	Yes	g/m <sup>3</sup>	Annual Maximum	5	<=0.4	0.118	0.122
Nitrate N*	B	Yes	g/m <sup>3</sup>	Annual Median	5	<=2.4	1.0	1.0
Nitrate N*	B	Yes	g/m <sup>3</sup>	Annual 95 <sup>th</sup> percentile	5	<=3.5	1.5	1.5
E. Coli*	B	No	cfu/100 mL	Median (5 years)	24	<=130	510	540
E. Coli*	B	No	cfu/100 mL	95 <sup>th</sup> percentile (5 years)	24	<=1000	3300	2800
DO	A	Yes	mg/L	7 day mean minimum (1 Nov – 30 April)	NA	<=8	#	#
DO	A	Yes	mg/L	1 day mean minimum (1 Nov – 30 April)	3	<=7.5	7.6	8.1

<sup>^</sup>The statistic is to be measured over the summer period (1 December to 30 March) and is an average over the five hottest days during this period. Calculated values are based on the two data points during this latest period.

\* Attribute data should be determined by using a minimum of 60 samples over a maximum of 5 years.

\*\* Calculated values not adjusted for pH equivalence.

# insufficient data to calculate.

Shaded cells indicate non-compliance with required attribute state.

Calculated Actual data is based on previous 12 months of data (unless otherwise specified).

The results in table 4 above indicate that E.Coli is not meeting the desired attribute state. Additionally, the data compiled for many of the above parameters is largely incomplete due to a lack of samples (Temperature, DO, E.Coli and Nitrate N), or calculations not being adjusted for pH (Ammoniacal N). Therefore data related to these parameters cannot be relied upon to confirm whether those parameters meet their desired attribute state.

The Mataura River supports a number of freshwater species, including trout, lamprey and numerous macro invertebrates such as mayflies. Trends over the last 10 years of data shows that the Macroinvertebrate Community Index (MCI) is likely improving, Semi-Quantitative Macroinvertebrate Community Index (SQMCI) is likely deteriorating and the percentage of Ephemeroptera, Plecoptera and Trichoptera (%EPT) is very likely to improve.

The Mataura River is the second largest river in Southland. It is renowned as a source of brown trout and is a well-known dry fly river, drawing national and international fishers. The river has been identified as an important bird area because it supports breeding colonies of the Endangered Black Billed Gull.

The Mataura River is also subject to the Water Conservation (Mataura River) Order 1997 (WCO). The WCO sets out provisions relating to discharges, stating that a discharge permit must not be granted for any discharge into protected waters, if the effect of the discharge would breach specified water quality provisions and standards. These matters are detailed in the effects assessment below.

The Mataura River is a statutory acknowledgement area under schedule 42 of the Ngāi Tahu Claims Settlement Act 1998, which means that Ngāi Tahu has an acknowledged cultural, spiritual, historic and traditional association with the river. There are archaeological sites 17km, 22 and 26km downstream. These include oven sites, adze artefacts, and a canoe find spot.

In terms of other users in the area, Fonterra holds a consent (AUTH-205500-V1) to discharge 9,300m<sup>3</sup>/day of treated dairy wastewater, up to 20,700m<sup>3</sup>/day of condensate, cooling and denitrification water and demineralisation water from the Edendale dairy factory to the Mataura River. The discharge point is about 200m upstream of the Edendale-Wyndham Road bridge. The consent expires on 31 October 2023 (an application to replace this permit has been lodged). No other permits from any other user are downstream of the discharge site.

The WWTP is located within the oxidising physiographic zone. The oxidising physiographic zone is characterised by soils and aquifers which have little to no ability to remove nitrogen (i.e. denitrification). This zone is generally found in elevated gravel terraces where there is little weathering. Soils generally have good permeability although some soils in this zone have low subsoil permeability making them susceptible to waterlogging and artificial drainage. Overland flow can also occur when rainfall intensities exceed the soil's ability to absorb water. This zone has a high risk of nitrogen build up in soils and aquifers (due to little denitrification ability). Soils in the area are Gore and Tuturau soils which have moderate to very severe nutrient leaching potential to groundwater.

There are no registered drinking water sites downstream of the discharge at the Edendale-Wyndham bridge.

### ***Adverse effects of the proposed activities on the environment***

Adverse effects that require consideration include:

- Effects on water quality in the river
- Effects on aquatic ecology and organisms
- Impacts on public health, access, and recreational use
- Cultural effects
- Cumulative effects

### **Water Quality**

Discharging treated wastewater into the Mataura River may impair water quality and ecological communities if it is not managed appropriately. When the wastewater discharge brings excessive loads of

organic material into the waterways, aerobic bacteria consuming the material deplete dissolved oxygen in the water. When the wastewater brings excessive nutrients into waterways, the growth of algae and scum is stimulated, which can reduce levels of dissolved oxygen. In both cases, aquatic life suffers. If there is an overwhelming amount of wastewater in the waterway, all oxygen will be used up and the anaerobic bacteria will take over. This can have far reaching consequences on ecosystems and oxygen dependent life.

Water quality is maintained by ensuring there is no reduction in water quality beyond the zone of reasonable mixing. The current WWTP discharge has complied with water quality standards beyond the reasonable mixing zone according to current consent conditions. This is despite discharge volumes occurring which were well in excess of the consented limits (up to 653m<sup>3</sup>/day).

Under the pSWLP the limits for faecal coliforms are reduced significantly from 6,000 MPN/100mL to 1,000 MPN/100mL. The average over the last 5 years has been 1,696 which exceeds this new limit. Faecal coliforms are considered as one of the worst contributors affecting water quality according to the state of the environment report<sup>11</sup>. However, since the management of the WWTP was changed in 2020, there has been an improvement in the performance of the WWTP. From December 2020 to September 2022, E. coli counts ranged between 3.1 MPN/100ml and 85 MPN/100ml well below the consented baseline (see figure 7 below). This improvement has been attributed to more regular site inspections and the replacement of worm filter beds (wood shavings). These filter beds have a limited lifetime and are essentially the ‘work horse’ of the treatment process as it contains the worms and microorganisms that remove wastewater contaminants. When these filters are not well managed and maintained, the microorganism are severely affected which subsequently reduces their treatment ability.

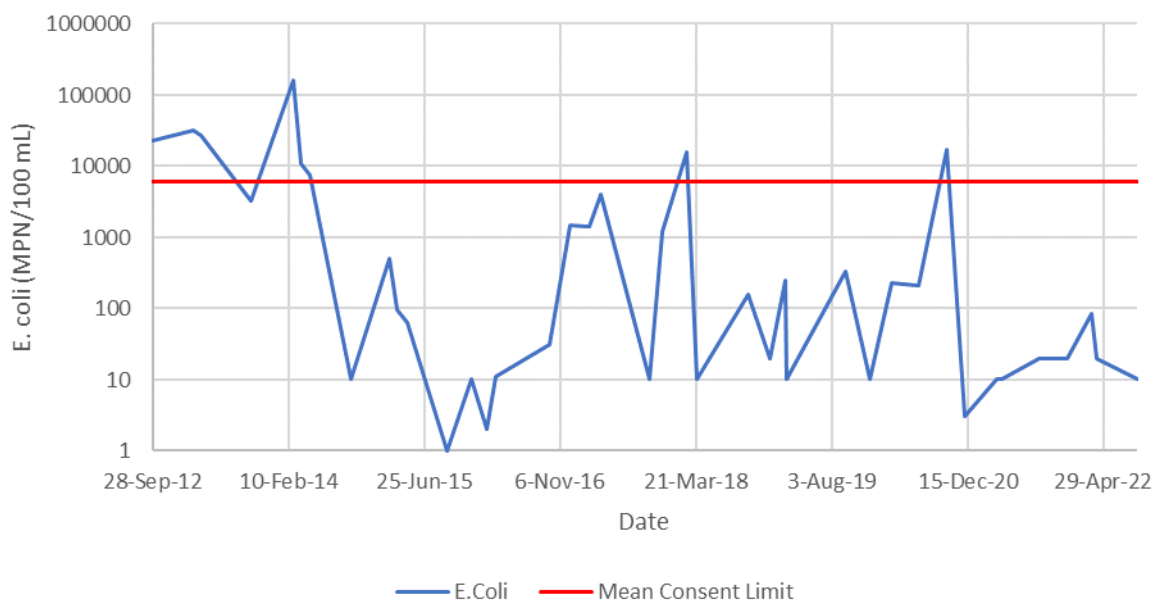


Figure 7 E. coli data

The recent sampling data demonstrates that the change in management of the WWTP has resulted in an improvement in E. coli counts. Therefore, it could be considered that this period (between December 2020 and September 2022) is more reflective of the expected E. coli counts over the next five year period based on the improved management regime.

Table 5 below demonstrates how the proposed discharge, based on the short term average data over recent years, could result in a reduction in contaminant loads compared to the consented baseline from the previous consent (1,584,000 n/day) and the proposed consented baseline (450,000 n/day).

<sup>11</sup> <https://environment.govt.nz/assets/publications/environment-aotearoa-2022.pdf>



Table 5 Calculated E.coli loading from the wastewater discharge

	Average E. coli limit	Average Discharge volume	Maximum average total E. coli Daily Load
	MPN/100 mL	M <sup>3</sup> /day	n/day
Consented Average <sup>12</sup>	6,000	264 (actual: 422)	1,584,000
Actual Average long term*	1,700	422	716,000
Actual Average short term**	33	422	13,962
Proposed in Consent Application	1,000	450	450,000

\* Based on the average of all discharge date over a 5 year period (Sept 2017 to Sept 2022)

\*\* Based on the average of discharge data over 4 consecutive samples (Dec 2020 to Sept 2022)

There is potential uncertainty regarding water quality after the discharge following reasonable mixing. This is because the zone of reasonable mixing currently extends 425m downstream from the Edendale/Wyndham bridge discharge point where contaminant levels are measured. However, the pSWLP has a stricter reasonable mixing zone which sets a maximum mixing zone of 200m, significantly less than the current 425m. This may result in water quality standards not being maintained (or improved) by the proposed discharge due to the reduced zone of reasonable mixing.

It is worth considering that the discharge only represents a tiny fraction of the flow of the river (<0.01%). Therefore, even if there is uncertainty as to whether or not the discharge can improve water quality beyond the zone of reasonable mixing, the fact that the discharge is such a tiny percentage of the river flow suggests that a smaller mixing zone will not have a material difference on expected measured contaminant levels after the zone of reasonable mixing.

The upstream and downstream water quality data since the change in management in 2020 is outlined in the below (table 6). Overall, water quality downstream is similar to that upstream.

Table 6 upstream and downstream water quality

Receiving waters Upstream-Resource Consent 204630 2021-22								
Date	Dissolved Oxygen (g/m <sup>3</sup> )	Electrical Conductivity (mS/cm@25C)	pH	Total Ammonia Nitrogen (g/m <sup>3</sup> )	Nitrate Nitrogen (g/m <sup>3</sup> )	Dissolved Reactive Phosphorous (g/m <sup>3</sup> )	Total Suspended Solids (g/m <sup>3</sup> )	E-coli MPN/100mL
3/09/2021	11.4	103	7.12	0.03	1.4	0.012	4	150
16/12/2021	8.9	90	7.24	0.11	0.9	0.005	3	350
15/03/2022	9.3	99	7.44	0.04	1.0	0.006	3	590
6/04/2022	7.6	115	7.33	0.12	0.7	0.006	3	1500
Mean	9.3	102	7.28	0.08	1.0	0.007	3	648
Median	9.1	101	7.285	0.08	1.0	0.006	3	470
Maximum	11.4	115	7.44	0.12	1.4	0.012	4	1500
Minimum	7.6	90	7.12	0.03	0.7	0.005	3	150

<sup>12</sup> Average over 4 consecutive samples

Receiving waters Downstream-Resource Consent 204630 2021-22								
Date	Dissolved Oxygen (g/m <sup>3</sup> )	Electrical Conductivity (mS/cm@25C)	pH	Total Ammonia Nitrogen (g/m <sup>3</sup> )	Nitrate Nitrogen (g/m <sup>3</sup> )	Dissolved Reactive Phosphorous (g/m <sup>3</sup> )	Total Suspended Solids (g/m <sup>3</sup> )	E-coli MPN/100mL
3/09/2021	10.6	101	7.17	0.03	1.4	0.009	4	97
16/12/2021	8.1	88	7.33	0.13	0.9	0.005	14	510
15/03/2022	8.5	99	7.55	0.03	1.0	0.005	3	700
6/04/2022	8.5	109	7.36	0.09	0.9	0.009	3	1100
Mean	8.9	99	7.4	0.07	1.0	0.007	6	602
Median	8.5	100	7.35	0.06	0.9	0.007	3	605
Maximum	10.6	109	7.55	0.13	1.4	0.009	14	1100
Minimum	8.1	88	7.17	0.03	0.9	0.005	3	97

The Mataura River is subject to the Water Conservation (Mataura River) Order 1997 (WCO). The Mataura Water Conservation Order (MWCO) states that a discharge permit must not be granted if the effects of the discharge breaches any of the following provisions and standards:

***“Provisions relating to discharges***

1. *A discharge permit must not be granted and a regional plan must not be made for any discharge into the protected waters if the effect of the discharge would be to breach the following provisions and standards:*
  - a. *any discharge is to be substantially free from suspended solids, grease, and oil:*
  - b. *“...”(discharge point not within reference area):*
  - c. *“...”(discharge point not within reference area):*
  - d. *after allowing for a reasonable mixing of the discharge with the receiving waters in those parts of the protected waters other than the parts specified in paragraphs (b) and (c),—*
    - i. *the natural water temperature must not be changed by more than 3 degrees Celsius:*
    - ii. *the acidity or alkalinity of the waters as measured by the pH must be within the range of 6.0 or 9.0, except when due to natural causes:*
    - iii. *the waters must not be tainted so as to make them unpalatable, nor must they contain toxic substances to the extent that they are unsafe for consumption by humans or farm animals, nor must they emit objectionable odours:*
    - iv. *there must not be any destruction of natural aquatic life by reason of a concentration of toxic substances:*
    - v. *the natural colour and clarity of the waters must not be changed to a conspicuous extent:*
    - vi. *the oxygen content in solution in the waters must not be reduced below 5 milligrams per litre.*
2. *Where it is impracticable, because of emergency overflows or the carrying out of maintenance work or any other temporary situation, to require compliance with the relevant provisions of subclause (1), water permits, and discharge permits may be granted by the Southland Regional Council.”*

The discharge has been occurring for over 10 years and sampling to date has shown no discernible difference in water quality upstream and downstream of the discharge point. Since the consent was granted there has been no recorded exceedances of the limits relating to the MWCO.

Even though the discharge contributes less than 0.01% of the mean annual low flow of the Mataura River, it still contributes to its degraded state where it does not meet water quality standards of Appendix E nor the NOF. Any discharge into the river that is a continuation of the status quo will continue to contribute to the poor water quality of the Mataura River. Therefore, due to the existing degraded state of the Mataura River being below water quality standards, and because this is a continuation of the same discharge activity that contributes to the existing degraded state of the river, I consider that the discharge may have adverse effects on water quality that are more than minor.

#### Aquatic ecology and organisms

High levels of nutrients discharged into a waterbody can result in aquatic weed and algae growth. Some forms of nutrients can become toxic (eg. Ammoniacal Nitrogen) to aquatic life at high concentrations, particularly under certain temperatures and pH conditions. In cases where organic matter increases in a waterbody, decomposers grow and increase, which could lead to the depletion of oxygen which can kill aquatic organisms harming the ecosystem.

E. Coli and suspended sediment have been identified as the main water quality issues within the Mataura River at the current discharge location. Increasing the discharge volume (and loading) will continue to contribute contaminants to the river. Therefore, I consider that the proposed activity is likely to have adverse cumulative effects on aquatic ecology and organisms.

#### Public health, access, and recreational use

The surface water discharge at the Edendale-Wyndham bridge potentially causes health risks associated with contact recreation or fishing within the mixing zone. The bridge is located between two townships less than 4km apart, and has the potential to attract anglers and recreational users to this part of the Mataura River. Access to the Mataura River is often limited to road access points such as this due to adjacent private land often blocking access to the river. Signs are in place within the mixing zone to warn the public against accessing the river. Whilst this effectively excludes the public from accessing the Mataura River in this zone, these signs have been in place for some time, and the health risks and warnings for public access is well understood. Given this proposal is for a short term consent to enable a future discharge to land, I consider adverse effects on public health, access, and recreational use as a result of the discharge to be minimal.

#### Cultural effects

The Mataura River has been identified as a statutory acknowledgement according to schedule 42 of the Ngāi Tahu Claims Settlement Act 1998. This means Ngāi Tahu have a cultural and spiritual association with the river. The Mataura River was a significant source of mahinga kai (food-gathering place) for local iwi, and was tribally renowned for its abundance of kanakana (lamprey).

Te Tangi a Tauria (TTT) is the relevant iwi Management Plan and within it is an overarching policy direction that wastewater should not be discharged directly to surface water. Instead discharges should first go to land due to the sensitivity of the waterbody compared to land.

Water quality results show that contaminants are similar downstream outside the current 425m mixing zone compared to the water quality upstream of the discharge point. Faecal coliforms limits at the discharge point will also be reduced from 6,000 MPN/100mL to 1,000 MPN/100mL as per current standards.

The proposal is not consistent with the Iwi Management Plan due to the direct discharge to water. However, this application is for a temporary period of 5 years until the new wastewater treatment investigations have been completed and an appropriate system constructed. The investigations do include alternative land disposal options for consideration. Until such a system is in place however, I consider the proposed activity

may have significant adverse cultural effects. Case law has also established that effects which are or may be more than minor should not be “discounted” due to the fact that the proposed term of consent is relatively short.

### Cumulative effects

The discharge is in the Lower Mataura Surface Water Management Zone. The Mataura River at Mataura Island Bridge monitoring site indicates:

- There is an increased health risk (less than 1%) for wading or boating activities,
- The macroinvertebrates quality is fair,
- There is regular or longer duration algal blooms, indicating high nutrient levels and/or significant natural flow or habitat disruption.

The Edendale – Wyndham WWTP has been discharging treated wastewater into the Mataura River since 2008 and compliance with water quality limits has been achieved. The Mataura River is 240km long and high nitrate levels are a result of the cumulative impact of all activities along the length of the river and its tributaries. Based on compliance results with the current consent, the proposed discharge does not seem to make a significant difference to water quality despite the volume of the discharge being in excess of current consent limits.

E. Coli and suspended sediment have been identified as the main water quality issues within the Mataura River at the current discharge location. I consider it unlikely that the increasing volume of discharge (and subsequent contaminant loading) will improve water quality in the Mataura River in such a way that it will result in compliance with water quality standards (faecal coliforms in particular) at the edge of the reasonable mixing zone. Therefore, I consider that the proposed activity is likely to have adverse cumulative effects on water quality, aquatic life, and other users.

### ***Adverse effects that have been disregarded***

Consideration has been given to section 95D, which requires that effects in relation to the following circumstances must be disregarded:

- Parties who own or occupy the land or adjacent land;
- Effects outside the scope of restricted discretion;
- Trade competition; or
- Effects on a party who has provided written approval.

Section 95D also states that a Consent Authority may disregard any adverse effect if a rule or NES permits an activity with that effect.

### ***Planning provisions (policies and objectives) relevant to adverse effects***

A policy assessment has been included in the consent application. I have reviewed this assessment and also examined the relevant planning documents. Within the NPS-FM, TTT, RWP and pSWLP the key policies relate to water quality and wastewater management. I have given more weight to the pSWLP as the objectives, relevant rule, and most of the policies in the pSWLP are now being treated as operative.

### Regional Water Plan

Policy 3            Notwithstanding any other policy or objective in this plan, allow no discharges to surface water bodies that will result in a reduction of water quality beyond the zone of reasonable mixing, unless it is consistent with the promotion of the sustainable management of



natural and physical resources, as set out in Part 2 of the Resource Management Act 1991, to do so.

Policy 4 For surface water bodies outside Natural State Waters, manage point source and non-point source discharges to meet or exceed the water quality standards referred to in Rule 1 and specified in Appendix G “Water Quality Standards”, unless it is consistent with the promotion of the sustainable management of natural and physical resources, as set out in Part 2 of the Resource Management Act 1991, to do so and so avoid levels of contaminants in water and sediments that could harm the health of humans, domestic animals including stock and/or aquatic life.

Proposed Water and Land Plan (Proposed provisions)

Policy 15B Where existing water quality does not meet the Appendix E Water Quality Standards or bed sediments do not meet the Appendix C ANZECC sediment guidelines, improve water quality including by:

1. avoiding where practicable and otherwise remedying or mitigating any adverse effects of new discharges on water quality or sediment quality that would exacerbate the exceedance of those standards or sediment guidelines beyond the zone of reasonable mixing; and
2. requiring any application for replacement of an expiring discharge permit to demonstrate how and by when adverse effects will be avoided where practicable and otherwise remedied or mitigated, so that beyond the zone of reasonable mixing water quality will be improved to assist with meeting those standards or sediment guidelines.

Proposed Water and Land Plan (provisions ‘treated as operative’)

Objective 1 Land and water and associated ecosystems are sustainably managed as integrated natural resources, recognising the connectivity between surface water and groundwater, and between freshwater, land and the coast.

Objective 2 The mauri of water provides for te hauora o te taiao (health and mauri of the environment), te hauora o te wai (health and mauri of the waterbody) and te hauora o te tangata (health and mauri of the people).

Objective 4 Tangata whenua values and interests are identified and reflected in the management of freshwater and associated ecosystems.

Objective 6 Water quality in each freshwater body, coastal lagoon and estuary will be:

- (a) Maintained where the water quality is not degraded; and
- (b) Improved where the water quality is degraded by human activities.

Policy 14 Prefer discharges of contaminants to land over discharges of contaminants to water, unless adverse effects associated with a discharge to land are greater than a discharge to water. Particular regard shall be given to any adverse effects on cultural values associated with a discharge to water.

- Policy 17A      1.    Avoid where reasonably practicable, or otherwise remedy or mitigate, any adverse effects on water quality, and avoid, remedy, or mitigate other adverse effects of the operation of, and discharges from, community sewerage schemes by:
- (a)    designing, operating and maintaining community sewerage schemes in accordance with recognised industry standards; and
  - (b)    implementing measures to reduce the frequency and volume of wet weather overflows from community sewerage schemes; and
  - (c)    ensuring community sewerage schemes are operated and maintained to minimise dry weather overflows occurring.
2.    .....
- Policy 32      Protect significant indigenous vegetation and significant habitats of indigenous fauna and maintain indigenous biodiversity associated with natural wetlands, lakes and rivers and their margins.

Te Tangi a Tauria (Iwi Management Plan)

Section 3.5.2 Wastewater Disposal (Southland Plains)

- Policy 6      Avoid the use of water as a receiving environment for the direct, or point source, discharge of contaminants. Even if the discharge is treated and therefore considered “clean”, it may still be culturally unacceptable. Generally, all discharge must first be to land.
- Policy 7      Assess waste disposal proposals on a case by case basis, with a focus on local circumstances and finding local solutions.
- Policy 8      Wastewater disposal options that propose the direct discharge of treated or untreated effluent to water need to be assessed by the kaitiaki rūnanga on a case by case, individual waterway, basis. The appropriateness of any proposal will depend on the nature of the proposal, and what waterway is involved. Individual waterways possess their individual mauri and values, and kaitiaki rūnanga are in the best position to assess the potential impacts of a proposal on such values.
- Policy 10     Require that the highest environmental standards are applied to consent applications involving the discharge of contaminants to land or water (e.g. standards of treatment of sewage).

National Policy Statement for Freshwater Management 2020 (NPSFM 2020)

- Objective     The objective of this National Policy statement is to ensure that natural and physical resources are managed in a way that prioritises:
- a) First, the health and well-being of water bodies and freshwater ecosystems
  - b) Second, the health needs of people (such as drinking water)
  - c) Third, the ability of people and communities to provide for their social, economic, and cultural well-being, now and in the future.
- Policy 1      Freshwater is managed in a way that gives effect to Te Mana o te Wai.
- Policy 2      Tangata whenua are actively involved in freshwater management (including decisionmaking processes), and Māori freshwater values are identified and provided for.

- Policy 3            Freshwater is managed in an integrated way that considers the effects of the use and development of land on a whole-of-catchment basis, including the effects on receiving environments.
- Policy 5            Freshwater is managed through a National Objectives Framework to ensure that the health and well-being of degraded water bodies and freshwater ecosystems is improved, and the health and well-being of all other water bodies and freshwater ecosystems is maintained and (if communities choose) improved.
- Policy 8            The significant values of outstanding water bodies are protected.
- Policy 9            The habitats of indigenous freshwater species are protected.
- Policy 10           The habitat of trout and salmon is protected, insofar as this is consistent with Policy 9.
- Policy 12           The national target (as set out in Appendix 3) for water quality improvement is achieved.
- Policy 13           The condition of water bodies and freshwater ecosystems is systematically monitored over time, and action is taken where freshwater is degraded, and to reverse deteriorating trends.

Te Mana o te Wai is a concept that refers to the fundamental importance of water and recognises that protecting the health of freshwater protects the health and well-being of the wider environment. It protects the mauri of the wai. Te Mana o te Wai is about restoring and preserving the balance between the water, the wider environment, and the community.

There is a hierarchy of obligations in Te Mana o te Wai that prioritises:

- (a) first, the health and well-being of water bodies and freshwater ecosystems
- (b) second, the health needs of people (such as drinking water)
- (c) third, the ability of people and communities to provide for their social, economic, and cultural well-being, now and in the future.

The NPSFM 2020 also inserts the following policy into the regional plans:

*The loss of river extent and values is avoided, unless the council is satisfied:*

- (a) *That there is a functional need for the activity in that location; and*
- (b) *The effects of the activity are managed by applying the effects management hierarchy.*

The NPSFM 2020 also requires that any such application not be granted unless:

- (a) *the council is satisfied that the applicant has demonstrated how each step in the effects management hierarchy will be applied to any loss of extent or values of the river (including cumulative effects and loss of potential value), particularly (without limitation) in relation to the values of: ecosystem health, indigenous biodiversity, hydrological functioning, Māori freshwater values, and amenity; and*
- (b) *any consent granted is subject to conditions that apply the effects management hierarchy.*

Loss of value, in relation to a natural inland wetland or river, means the wetland or river is less able to provide for the following existing or potential values:

- (a) ..... or
- (b) any of the following, whether or not they are identified under the NOF process:
  - (i) ecosystem health
  - (ii) indigenous biodiversity
  - (iii) hydrological functioning

- (iv) Māori freshwater values
- (v) amenity

The effects management hierarchy requires that:

- (a) adverse effects are avoided where practicable; and
- (b) where adverse effects cannot be avoided, they are minimised where practicable; and
- (c) where adverse effects cannot be minimised, they are remedied where practicable; and
- (d) where more than minor residual adverse effects cannot be avoided, minimised, or remedied, aquatic offsetting is provided where possible; and
- (e) if aquatic offsetting of more than minor residual adverse effects is not possible, aquatic compensation is provided; and
- (f) if aquatic compensation is not appropriate, the activity itself is avoided

**Conclusion: significance of adverse effects on the environment**

I consider that adverse effects on the environment are likely to be more than minor.

My main reasons for this view are:

1. The activity may have adverse effects on cultural and spiritual values because the discharge of treated wastewater to the Mataura River may be culturally offensive and inconsistent with the Iwi Management Plan and Māori freshwater values.
2. It is uncertain whether the proposed discharge will meet more stringent regulatory requirements of the NPS-FM 2020 and the pSWLP.
3. The Mataura River does not currently meet water quality standards and is degraded.
4. The proposal will continue to contribute adverse cumulative effects on water quality and ecosystems.

The pSWLP has more stringent requirements compared to current consent conditions. These relate to faecal coliforms, sediment limits, clarity, MCI and QMCI indices, and the size of the reasonable mixing zone. Additionally, policy direction in both the NES-F and pSWLP requires an improvement in water quality for degraded water bodies that do not meet water quality standards.

Whilst there has been a recent improvement in the management of the WWTP, I do not have confidence that the discharge from the existing WWTP will improve water quality in the Mataura River. Furthermore, it is out of scope to consider future wastewater improvements or alternative disposal options, as this does not form part of this current application. It is commendable that the applicant is exploring options for a future discharge to land option, however for the time being, I must only consider the effects of the proposed discharge into the Mataura River. Therefore, considering the effects of the proposal in light of the context provided by the provisions of the NPSFM, TTT, and the pSWLP, I consider that adverse effects on the environment are likely to be more than minor.

**4. Special circumstances and public notification**

<b>4.1 Do special circumstances exist in relation to the application that warrant the application being publicly notified?</b>	<input type="checkbox"/> Yes	Application must be publicly notified. Explain reasons in 4.2 and go to 10.2
	<input checked="" type="checkbox"/> No	Explain reasons in 4.2. If each activity is a controlled activity go to 10.1. Otherwise go to 5.1



## 4.2 Reasons why special circumstances do or do not exist

Special circumstances are those that are unusual or exceptional, but less than extraordinary or unique. The WWTP is a community asset and proposes to continue a short-term discharge to a freshwater body that the community has expressed a desire to improve. While this is a somewhat unusual feature, I do not consider that amounts to special circumstances.

## Affected Parties and Limited Notification

### 5. Protected Customary Rights Group or Customary Marine Title group

<b>5.1</b> Is the activity in the coastal environment, within an area where it may adversely affect a protected customary rights group(s) or a customary marine title group(s) (see s95G)?	<input type="checkbox"/> Yes	Go to 5.2
	<input checked="" type="checkbox"/> No	Go to 6.1
<b>5.2</b> May the activity have adverse effects on a protected customary right carried out in accordance with the requirements of Part 3 of the Marine and Coastal Area (Takutai Moana) Act 2011?	<input type="checkbox"/> Yes	The customary rights group(s) is an affected customary rights group(s). Application must be limited notified on them. Record in 5.3 and go to 6.1
	<input type="checkbox"/> No	Go to 6.1

### 5.3 Adversely affect a protected customary rights group(s) or a customary marine title group(s):

N/A

### 6. Statutory Acknowledgement Areas

<b>6.1</b> Is the activity on or adjacent to, or may it affect, a statutory acknowledgement area?	<input checked="" type="checkbox"/> Yes	Go to 6.2
	<input type="checkbox"/> No	Go to 6.3
<b>6.2</b> Are the adverse effects on Te Rūnanga o Ngāi Tahu minor or more than minor?	<input checked="" type="checkbox"/> Yes	Include TRONT in 8.2 and go to 6.3
	<input type="checkbox"/> No	Go to 6.3

### 6.3 Reasons why adverse effects on Te Rūnanga o Ngāi Tahu are less than minor, minor or more than minor:

The activity may have adverse effects on cultural and spiritual values because the discharge of treated wastewater to the Maitai River may be culturally offensive and inconsistent with the Iwi Management Plan and Māori freshwater values. Adverse effects on Te Rūnanga o Ngāi Tahu may therefore be more than minor.

### 7. Is limited notification precluded?

<b>7.1</b> Is each activity subject to a rule, NES or regulation that precludes limited notification?	<input type="checkbox"/> Yes	Go to 9.1
	<input checked="" type="checkbox"/> No	Go to 8.1

## 8. Are any people adversely affected?

- |   |   |           |
|---|---|-----------|
| 8.1 Are the adverse effects on a person minor or more than minor (but not less than minor)? | <input checked="" type="checkbox"/> Yes | Go to 8.2 |
|   | <input type="checkbox"/> No             | Go to 8.3 |

### 8.2 Person(s) considered to be adversely affected (complete and go to 8.3)

Person	Effect on person (see Note)
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**Note:** In forming this opinion (a) to (c) apply:

- We may disregard an adverse effect of the activity on the person if a rule or an NES permits an activity with that effect; and
- We must, if the activity is a controlled activity or a restricted discretionary activity, disregard an adverse effect of the activity on the person if the effect does not relate to a matter for which a rule or a national environmental standard reserves control or restricts discretion; and
- Must have regard to every relevant statutory acknowledgement made in accordance with an Act specified in Schedule 11.

### 8.3 Reasons why no other person is considered to be adversely affected

I consider the proposal will have adverse effects that are more than minor, therefore public notification is recommended.

## 9. Special Circumstances – Limited Notification

- |   |  |   |
|---|--|---|
| 9.1 Are there special circumstances that warrant limited notification of any other persons? | <input type="checkbox"/> Yes           | Application must be limited notified to those persons and any other affected persons. Go to 9.2 |
|   | <input checked="" type="checkbox"/> No | Go to 10  |

### 9.2 Reasons special circumstances exist and persons to be notified

Special circumstances are those that are unusual or exceptional, but less than extraordinary or unique. The WWTP is a community asset and proposes to continue a short-term discharge to a freshwater body that the community has expressed a desire to improve. While this is a somewhat unusual feature, I do not consider that amounts to special circumstances.

## Recommendation and decision

### 10. Officer's recommendation

- |   |                                     |
|---|-------------------------------------|
| 10.1 The application be processed non-notified  | <input type="checkbox"/>            |
| 10.2 Public notification is recommended   | <input checked="" type="checkbox"/> |
| 10.3 The application be placed on hold while the applicant tries to obtain written approvals from the affected persons. If they are not obtained, the application will be limited notified. | <input type="checkbox"/>            |
| 10.4 Limited notification is required. Persons to be served notice are those listed in 8.2  | <input type="checkbox"/>            |



**Ryan Hodgson**  
**Senior Consents Officer**

**Date:** 28 July 2023

***Decision under Delegated Authority***

<b>11.1</b>	<b>I agree with the recommendation</b>	<input checked="" type="checkbox"/>
<b>11.2</b>	<b>The application will be processed non-notified</b>	<input type="checkbox"/>
<b>11.3</b>	<b>The application will be publicly notified</b>	<input checked="" type="checkbox"/>
<b>11.4</b>	<b>The application shall be placed on hold while the applicant tries to obtain written approvals from the affected persons. If they are not obtained, the application will be limited notified.</b>	<input type="checkbox"/>
<b>11.5</b>	<b>The application will be limited notified. The parties to be served notice are those listed in section 8.2</b>	<input type="checkbox"/>

This decision is made under delegated authority by:



**Bruce Halligan**  
**Consents Manager**

**Date:** 28 July 2023