

**Tawhiti Stream
Monitoring Programme
Annual Report
2023/24
Technical Report 2024-20**



Tawhiti Stream

Monitoring Programme

Annual Report

2023/24

Technical Report 2024-20

Taranaki Regional Council
Private Bag 713
Stratford

ISSN: 1178-1467 (Online)
Document: TRCID-176456519-61 (Word)
Document: TRCID-1188382587-423 (Pdf)
April 2025

Executive summary

The Tawhiti Stream Catchment, east of Hawera, is the location of several industries that include an abattoir and meat processing plant, a by-products rendering plant, and a trout hatchery. The companies that run these industries hold a number of resource consents to allow abstraction of water, discharge of water and stormwater to the stream, discharge of emissions into the air, disposal of paunch material to land, and use and maintenance of a dam structure.

This report for the period July 2023 to June 2024 describes the monitoring programme implemented by Taranaki Regional Council (the Council) to assess the companies' 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 the companies' activities.

Ten resource consents are held by the companies, which include a total of 77 conditions setting out the requirements that they must satisfy.

The Council's monitoring programme included site inspections, the collection of discharge water samples, and sampling of the receiving water body for physicochemical analysis. A hydrometric station is maintained on the stream for the continuous measurement of flow rate and temperature.

Silver Fern Farms Ltd (Silver Fern Farms) bought the Graeme Lowe Protein Ltd (Graeme Lowe Protein) site during the 2022/23 monitoring year. This site now operates as Silver Fern Farms By-Products. In February 2023, the Resource Consents 1104-4 and 4033-6 were transferred from Graeme Lowe Protein to Silver Fern Farms. Consents 7610-2 and 7611-2.1 remain under Graeme Lowe Protein's name but were not in use during the monitoring period and are therefore not discussed in this report.

During the monitoring period, Silver Fern Farms Ltd demonstrated an overall good level of environmental and administrative performance.

Silver Fern Farms holds ten resource consents, to allow it to maintain a dam and to take water from the Tawhiti Stream; to discharge to the stream and to land; and to discharge emissions into the air.

Abstraction volumes complied with the consent limit, and inspections and receiving water sampling demonstrated compliance with their consents. Samples of the discharge were not able to be collected as Silver Fern Farms did not notify the Council when this discharge was occurring. A fish survey indicated that the fish pass required remedial works to improve fish passage.

During the period under review, there were no unauthorised incidents reported in relation to activities at the site.

During the monitoring period, Taranaki Fish and Game Council demonstrated a high level of environmental performance and high level of administrative performance.

Taranaki Fish and Game Council (Taranaki Fish and Game) holds two resource consents, to allow it to take and use water from, and discharge to the Tawhiti Stream. Three inspections were conducted during the review period and one sample of the discharge was collected. The results of inspections and sampling indicated that contaminants in the discharge to the Tawhiti Stream were minimal and were not likely to be having a significant environmental effect.

During the period under review, there were no unauthorised incidents reported in relation to activities at the site.

Physicochemical surveys of Tawhiti Stream, carried out on three occasions during the review period, showed no adverse effect on the stream water quality as the result of activities at the sites of Silver Fern Farms and Taranaki Fish and Game.

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.

This report includes recommendations for the 2024/25 year.

Table of contents

	Page	
1.	Introduction	1
1.1	Compliance monitoring programme reports and the Resource Management Act 1991	1
1.1.1	Introduction	1
1.1.2	Structure of this report	1
1.1.3	The Resource Management Act 1991 and monitoring	2
1.1.4	Evaluation of environmental performance	2
1.2	Resource consents	2
1.3	Monitoring programme	3
1.3.1	Introduction	3
1.3.2	Programme liaison and management	3
1.3.3	Site inspections	4
1.3.4	Chemical sampling	4
1.3.5	Fish survey	4
1.3.6	Abstraction, flow and water temperature monitoring	4
2.	Silver Fern Farms Ltd	6
2.1	Process description	6
2.1.1	Inspections	7
2.1.2	Water abstraction	8
2.1.3	Results of discharge monitoring	9
2.1.4	Fish survey	9
2.1.5	Air	10
2.2	Incidents, investigations, and interventions	11
2.3	Discussion	11
2.3.1	Discussion of site performance	11
2.3.2	Environmental effects of exercise of consents	11
2.3.3	Evaluation of performance	12
2.4	Recommendations from the 2022/23 Annual Report	15
2.5	Alterations to monitoring programmes for 2024/25	16
2.6	Recommendations	16
3.	Taranaki Fish and Game Council Trout Hatchery	17
3.1	Process description	17
3.2	Results	17

3.2.1	Inspections	17
3.2.2	Results of discharge monitoring	18
3.3	Incidents, investigations, and interventions	18
3.4	Discussion	18
3.4.1	Discussion of plant performance	18
3.4.2	Environmental effects of exercise of consents	19
3.4.3	Evaluation of performance	19
3.4.4	Recommendations from the 2022/23 Annual Report	20
3.4.5	Alterations to monitoring programme for 2024/25	20
3.5	Recommendations	20
4.	Tawhiti Stream Receiving Environment	21
4.1	Stream flow and stream temperature	21
4.2	Results of physicochemical monitoring	22
4.3	Discussion of receiving environment monitoring results	23
5.	Summary of recommendations	24
	Glossary of common terms and abbreviations	25
	Bibliography and references	27
	Appendix I Resource consents held by industries in the Tawhiti Stream	
	Appendix II Categories used to evaluate environmental and administrative performance	

List of tables

Table 1	Resource consents for industrial activities in the Tawhiti Catchment	3
Table 2	Stream and discharge monitoring sites in the Tawhiti Catchment	5
Table 3	Summary of performance for Consent 1091-4	12
Table 4	Summary of performance for Consent 1103-4	12
Table 5	Summary of performance for Consent 1104-4	13
Table 6	Summary of performance for Consent 4033-6	13
Table 7	Summary of performance for Consent 4832-2	14
Table 8	Summary of performance for Consent 4995-2	14
Table 9	Summary of performance for Consent 5598-2	14
Table 10	Summary of performance for Consent 5599-2	15
Table 11	Physicochemical results for Taranaki Fish and Game discharge pipe, IND002037	18
Table 12	Summary of performance for Consent 0523-3	19
Table 13	Summary of performance for Consent 7546-1	19
Table 14	Contaminant trigger levels drawn from the ANZECC Water Quality Guidelines for Fresh and Marine Waters, 2000	22

Table 15	Results of receiving water sampling conducted during 2023/24	23
----------	--	----

List of figures

Figure 1	Industrial sites and physicochemical monitoring sites in the Tawhiti Catchment	5
Figure 2	Daily water abstraction volume for general purpose (in m ³) by Silver Fern Farms, July 2023-June 2024	8
Figure 3	Flow (m ³ /s) in the Tawhiti Stream measured below the abstraction point of Silver Fern Farms 1 July 2023 to 1 July 2024	21
Figure 4	Temperature (in °C) of the Tawhiti Stream, measured below the abstraction point of Silver Fern Farms and Graeme Lowe Protein from 1 July 2023 to 1 July 2024	22

List of photos

Photo 1	The weir and fish pass on the Tawhiti Stream (fish pass visible on far side)	10
Photo 2	The settling system at Taranaki Fish and Game trout hatchery	17

1. Introduction

1.1 Compliance monitoring programme reports and the Resource Management Act 1991

1.1.1 Introduction

This report is the Annual Report for the period July 2023 to June 2024 by Taranaki Regional Council (the Council) on the monitoring programme associated with resource consents held by two companies¹ in the Tawhiti Stream Catchment near Hawera.

This report covers the results and findings of the monitoring programme implemented by the Council in respect of the consents held by those industries that relate to abstractions of and discharges to water and emissions to air from these sites within the Tawhiti Catchment. The report combines the results for Silver Fern Farms Ltd (Silver Fern Farms) and Taranaki Fish and Game Council (Taranaki Fish and Game) trout hatchery.

One of the intents of the *Resource Management Act 1991* (RMA) is that environmental management should be integrated across all media, so that a consent holder's use of water, air, and land should be considered from a single comprehensive environmental perspective. Accordingly, the Council generally implements integrated environmental monitoring programmes and reports the results of the programmes jointly. This report discusses the environmental effects of the industries' use of water, land, and air, and is the twelfth combined annual report by the Council for the Tawhiti Catchment. Silver Fern Farms was previously reported on individually.

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 RMA and the Council's obligations;
- the Council's approach to monitoring sites through annual programmes;
- the resource consents held by the companies in the Tawhiti Catchment¹;
- the nature of the monitoring programme in place for the period under review; and
- a description of activities and operations conducted in the Tawhiti Catchment.

Sections 2 to 4 present and discuss the results of monitoring for the three Companies during the period under review, including scientific and technical data, the interpretation of the results, and their significance for the environment.

Section 5 presents results of receiving environment monitoring in the Tawhiti Stream. Recommendations to be implemented in the 2024/25 monitoring period are made for each industry, with a summary provided in **Section 6**.

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

¹ Activities of resource consents that are not covered by the Tawhiti Stream Resource Consents Monitoring Programme, for Fonterra Whareroa Dairy Factory and South Taranaki District Council Hawera Landfill, are included in other monitoring programmes carried out by the Council.

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.²

1.2 Resource consents

The resource consents of the industries monitored are listed in Table 1. Details of these consents are also summarised in each section specific to the industry under discussion, and copies of the resource consents are given in Appendix I. Silver Fern Farms bought Graeme Lowe Protein site during the 2022/23 monitoring year. This site now operates as Silver Fern Farms By-Products. In February 2023, the Consents 1104-4 and 4033-6 were transferred from Graeme Lowe Protein to Silver Fern Farms. Graeme Lowe Protein were granted

² 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

renewed Consents 7610-3 and 7611-3 in September 2024, these consents were not used during 2023/24 and are therefore not discussed in this report.

Table 1 Resource consents for industrial activities in the Tawhiti Catchment

Consent holder	Consent number	Purpose	Granted	Review	Expires
<i>Water abstraction permits</i>					
Silver Fern Farms Ltd	1091-4	To take water from the Tawhiti Stream	2013	N/A	2028
Taranaki Fish and Game	0523-3	To take water from the Tawhiti Stream	2010	N/A	2028
<i>Water discharge permits</i>					
Silver Fern Farms Ltd	1103-4	To discharge water from condenser cooling to the Tawhiti Stream	2013	N/A	2028
	5598-2	To discharge stormwater to the Tawhiti Stream	2010	N/A	2028
	1104-4	To discharge stormwater to the Tawhiti Stream	2010	N/A	2028
Taranaki Fish and Game	7546-1	To discharge water from a trout hatchery to the Tawhiti Stream	2010	N/A	2028
<i>Air discharge permits</i>					
Silver Fern Farms Ltd	4033-6	To discharge emissions to air	2010	N/A	2028
	5599-2	To discharge emissions to air	2010	N/A	2028
Discharges of waste to land					
Silver Fern Farms Ltd	4832-2	To discharge paunch waste to land	2010	N/A	2028
<i>Land use permits</i>					
Silver Fern Farms Ltd	4995-2	To use and maintain a dam structure on the Tawhiti Stream	2013	N/A	2028

1.3 Monitoring programme

1.3.1 Introduction

Section 35 of the RMA sets out 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 inspection, conduct investigations, and seek information from consent holders.

The monitoring programme for the Tawhiti Catchment consisted of five 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

The inspections scheduled in the monitoring programme are detailed in the relevant sections related to each industry. With regard to consents for the abstraction of or discharge to water, the main points of interest were; plant processes with potential or actual discharges to receiving watercourses, including contaminated stormwater and process wastewaters. Air inspections focused on plant processes with associated actual and potential emission sources and characteristics, including potential odour, dust, noxious or offensive emissions. Sources of data being collected by the consent holder were identified and accessed, so that performance in respect of operation, internal monitoring, and supervision could be reviewed by the Council. The neighbourhood was surveyed for environmental effects.

1.3.4 Chemical sampling

The Council undertook sampling of both discharges from industrial sites and the water quality in the receiving Tawhiti Stream Catchment. The locations of these sites are shown in Figure 1 and described in Table 2.

The programme specified that the discharges from the meat processing plant, rendering plant, and trout hatchery were to be monitored, together with four sites in the Tawhiti receiving waters.

1.3.5 Fish survey

A fish community survey is undertaken in Tawhiti Stream triennially in order to assess the performance of the fish pass at the water abstraction weir. The fourth triennial survey took place on 13 and 14 December 2023.

1.3.6 Abstraction, flow and water temperature monitoring

Silver Fern Farms provided the Council with daily abstraction rates as per condition 2 of Consent 1091-3 until October 2012, when telemetry of abstraction data directly to Council was established.

A hydrological recording station with telemetry is located in the Tawhiti Stream immediately downstream of the Silver Fern Farms site at Tawhiti Road to assess flow volumes. The hydrometric station is required to be maintained under Consent 1103-4 (held by Silver Fern Farms) which provide for the discharge of cooling water from the meat processing plant.



Figure 1 Industrial sites and physicochemical monitoring sites in the Tawhiti Catchment

Table 2 Stream and discharge monitoring sites in the Tawhiti Catchment

Site Code	Location	NZTM
TWH000295	Outlet of ponded area, upstream of plant	E1711202 N5618450
IND002037	Taranaki Fish and Game trout hatchery discharge pipe	E1711265 N5618454
TWH000300	Approx 100m u/s Tawhiti Road, opposite trout hatchery	E1711313 N5618417
STW001071	Main stormwater discharge from truck wash facility	E1711306 N5618393
STW001072	Stormwater discharge and hide cooler discharge	E1711295 N5618353
TWH000320	Just below Tawhiti Road culvert, u/s of solid waste area	E1711342 N5618260
TWH000350	Approx. 300m d/s of Tawhiti Road, d/s of solid waste area	E1711249 N5617867

u/s = upstream, d/s = downstream

2. Silver Fern Farms Ltd

2.1 Process description

Hāwera meat processing plant

Silver Fern Farms operates a meat processing plant at Tawhiti Road, Hāwera. The plant processes beef (including slaughter, dressing and cold store operations) for export and domestic markets. Throughput of beef peaks at approximately 900 animals per day.

Paunch and stockyard solids are piped under Tawhiti Road to an area of land adjacent to the plant. The solids are separated using two (2 x 1.5mm) rotating milli-screens in series. Screened material containing 15-20% solids is piled on land to compost. The disposal area is bunded and leachate is drained to a clay-lined collection lagoon which is periodically pumped to trade waste via the milli-screens. The stream bank is planted to treat any groundwater seepage, and to control erosion.

Odours can arise due to turning of deposited material. Care is exercised with regards to appropriate weather conditions when turning of the deposited material. Silver Fern Farms notes that any odorous material uncovered is immediately recovered and operations cease.

Waste from meat processing, some of it treated by dissolved air floatation (DAF), is transferred under Tawhiti Road to an effluent balance tank. This tank also receives process waste from the rendering plant, milli-screen liquids and paunch composting leachate, and domestic wastes (after screening) from both plants and from a residential subdivision on Mason Road. The combined wastes are pumped through a dedicated pipeline to Hāwera wastewater treatment plant, and upon completion of treatment is then discharged via an ocean outfall under Consent 5079-1, held by South Taranaki District Council. Therefore, no wastewater discharges occur to the Tawhiti Stream at the Silver Fern Farms site. A contingency pond is available should Silver Fern Farms' access to the Hāwera township sewage system be interrupted. It is sized to allow for the complete wash-down of the plant in the event that a plant shut-down is required.

Stormwater from the site is discharged to the Tawhiti Stream via two outfalls. The main outlet (for all except the livestock entry area), which combines with the old cooling water outfall, has a cage trap to remove large debris. An upgrade to the stormwater system was recently completed. A holding pond has been installed to allow diversion of the stormwater from the Tawhiti Stream as required. An automated monitoring system to control the diversion of stormwater was also installed as a component of the upgrade.

A fish pass was constructed down the true-left side of the weir in April 1999. The fish pass consists of rough concrete with cobbles and boulders fixed into place. A shallow notch was cut in the crest of the weir to ensure that there would always be a flow of water down the channel. The area around the intake structure needs frequent maintenance to control weed growth, which can result in screen blockage.

The layout of the plant can be seen in Figure 1.

Hāwera By-Products plant

The by-products plant on the opposite bank of the Tawhiti Stream, was operated by Graeme Lowe Protein until February 2023. Silver Fern Farms bought the site and the plant is now operating as Silver Fern Farms Hāwera By-Products (By-Products).

The By-Products plant includes blood drying, boilers, storage, office buildings, hot water tanks, wastewater treatment and yard. The plant mainly receives blood from the Silver Fern Farms processing plant. The blood is processed onsite to create export quality blood meal. The By-products site also can receive blood from other processing sites.

The By-Products site receives potable water from the Hāwera processing site which is heated in a gas boiler to generate hot water which is used during the blood drying process. This hot water can also be stored before being piped over the Tawhiti Stream for use at the Silver Fern Farms processing plant.

By-products such as offal and bones from Silver Fern Farms processing plant are piped over the Tawhiti Stream to the By-Product plant where they are taken off-site for further processing.

Stormwater is collected in perimeter drains. Areas with the potential for contamination are bunded with stormwater directed to the process wastewater waste-stream. Wastewater is treated on site with primary screening and a DAF unit, the treated wastewater is sent through Silver Fern Farms Hāwera Site's wastewater system where it is discharged to the South Taranaki District Council ponds for further treatment.

In June 2009, a bark bio-filter was commissioned for treatment of process air from potentially odorous sources owned by Graeme Lowe Protein Limited. The system is 20m by 25m in area with a bark media depth of 1,300mm, and is designed to extract 22,750m³/h at a loading rate of 35m³/h. The bio-filter is located about 100m northwest of the plant. There is an agreement between Graeme Lowe Protein Ltd allowing Silver Fern Farms to use the bio-filter

2.1.1 Inspections

The Silver Fern Farms site in Hāwera was visited on five occasions during the 2023/24 monitoring period. These routine inspections were conducted on 3 August and 9 October 2023 and 31 January, 29 April, and 5 June 2024.

Stormwater drains By-Products site

Inspections were undertaken to assess compliance with resource consent conditions to discharge stormwater from buildings and paved areas at the site of a rendering facility into the Tawhiti Stream and into an unnamed tributary of the Tawhiti Stream. Containment around the site looked fine. No evidence of improperly stored hazardous substances that may cause an issue to stormwater. Stormwater drains are clearly defined and unobstructed around the site.

Stormwater drains Meat processing site

Compliance monitoring inspections were also undertaken to assess compliance with resource consent conditions to discharge stormwater from a meat processing plant into the Tawhiti Stream in the Tangahoe Catchment. Inspections of the main processing site found no discharge in terms of stormwater into the Tawhiti Stream. This side of the river was well sealed to mitigate any potential for entrained contaminants coming off the site into drains. Processing facility yard is otherwise tidy and visually free of potential contamination sources. Any hazardous materials such as any fuels used for onsite activities are stored appropriately so as not to pose a risk to stormwater. Drains were clearly marked on the site to identify stormwater only outlets. The stormwater drains were clear of debris. The truck wash facility uses reticulated water is independently captured and diverted away from any stormwater channels and is emptied out as needed.

Cooling water

From 2022/23, discharge of cooling water to the stream no longer occurs. The cooling water is redirected to the main stormwater system, where the water is tested before being discharged. If the water quality criteria are not met, the stormwater is diverted and discharged to a holding pond for further testing.

No discharge of cooling water was noted at time of any of the inspections. Cooling water is largely reticulated back through the system. During the January inspection it was noted that the pipes going to the

former GLP site had been disconnected, by the pump and on the bridge. GLP and SFF are no longer abstracting water for cooling purpose as the cooling system has been upgraded and it is no longer needed.

Paunch management

The management of the paunch area is checked at each inspection and an assessment of odours is made. Paunch was observed to be coming through at the time of all but one of the inspections. The paunch pit area remained contained with leachates directed to the pond. No overflow of spread noted anywhere. Odours generated from the pile were contained within the site during all inspections, with no offensive or objectionable odours noted.

Dam and intake structures

Inspections of the dam area found it visually and structurally intact. Headwalls on both sides appeared secure and no erosion around the dam embankment was noted. Water flow over the dam was unobstructed and free flowing at this time.

2.1.2 Water abstraction

Under condition 4 on Consent 1091-4, Silver Fern Farms is required to install and maintain water meters and dataloggers to measure and record, to an accuracy of $\pm 5\%$, the rate and volume of water taken for general purposes, and for cooling. Condition 8 requires that the records of water taken be transmitted directly to the Council's computer system, in a format suitable for 'real time' record over the internet.

Also, under the *Resource Management (Measurement and Reporting of Water Takes) Regulations 2010*, Silver Fern Farms was required by 10 November 2012 to take continuous measurements and keep daily records of volume taken and thereafter supply by 31 July each year the record for the preceding 1 July to 30 June period.

Suitable flow meters were already installed, and appropriate data transmission and recording systems in place, when Consent 1091-4 was issued and when the Regulations came into force. Fifteen minute average flow values are recorded. The telemetered abstraction record for general purpose use, from July 2023 to June 2024, is presented in Figure 2. The abstraction volume for cooling water is no longer telemetered as no water is abstracted for cooling purpose since the installation of the new condenser in December 2004.

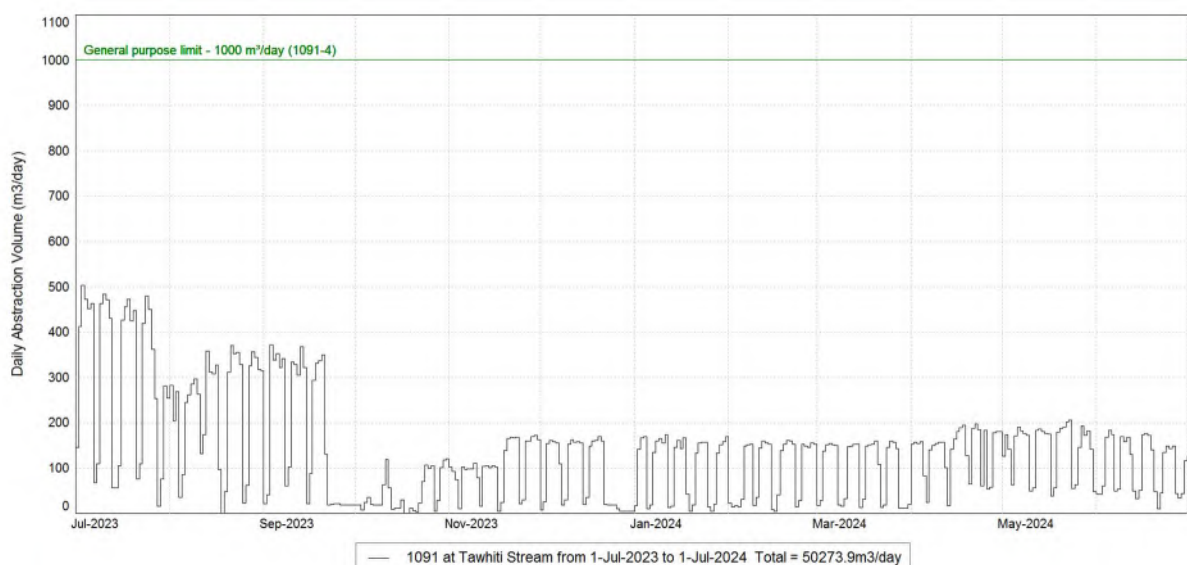


Figure 2 Daily water abstraction volume for general purpose (in m³) by Silver Fern Farms, July 2023-June 2024

The recorded total volume abstracted for general purpose in the 2023/24 monitoring year was 50,274m³. The maximum recorded daily volume was 502m³, on 5 July 2023, which is in compliance with the daily limit of 1,000m³ that is allowed to be taken for general use purposes.

2.1.3 Results of discharge monitoring

A sample of the main stormwater discharge (STW001071) was not able to be collected during the 2023/24 period as the Council was not contacted when stormwater was released. Silver Fern Farms should advise Council when discharging on four occasions during the 2024/25 monitoring period so that samples can be collected.

2.1.4 Fish survey

A triennial fish survey was scheduled to be undertaken in the 2022/23 monitoring year. However, due to the rainy weather during the summer of the monitoring year, the survey was instead undertaken in December 2023.

On 13 and 14 December 2023, a fish trapping survey using standardised protocols (Joy, et. al, 2013) was undertaken at two sites in the Tawhiti Stream, upstream and downstream of the Silver Fern Farms water intake weir. The purpose of the survey was to assess compliance with the fish passage condition of the consent held for this structure (Consent 4995-2).

Three fish species were recorded in the current survey: longfin eel, shortfin eel and rainbow trout. Kōura were also recorded at one site. Longfin eel, shortfin eel, rainbow trout and kōura were all recorded below the weir in low numbers. Most notably, juvenile eel and trout fingerlings were identified. However, only large longfin eels were recorded above the weir.

Fish communities in the Tawhiti Stream near Silver Fern Farms appear to be depauperate, likely a residual effect of the unauthorised ammonia discharge in February 2020. While fish communities downstream of the intake weir are showing signs of recovering from this event, no recruitment is evident upstream of the intake weir in the current survey results. Due to the close proximity of the two sites (1.4km) it would be expected recruitment would occur at both sites.

With regard to whether the weir meets the special condition of Consent 4995-2, there is evidence to indicate that the structure is impeding fish passage, especially with regard to recruitment of juvenile eels. Therefore, condition 1 of the consent appears to be non-complaint as the weir does not allow for the passage of fish.

Recommendations from the report:

- Consider the implementation of eDNA monitoring in conjunction with traditional freshwater fish monitoring methods to perform a more comprehensive assessment of fish communities,
- Conduct more frequent inspections of the weir and fish pass including during both low flow and high flow to establish the potential flow conditions at the weir that could positively or negatively affect fish passage, and
- Undertake remedial works to the weir structure to improve fish passage and allow for recruitment of juvenile eels and trout upstream of the weir.



Photo 1 The weir and fish pass on the Tawhiti Stream (fish pass visible on far side)

2.1.5 Air

The Silver Fern Farms site in Hawera was visited five times in 2023/24 with the purpose of monitoring compliance with Resource Consents 4033-6 and 5599-1 to discharge to air. These inspections were carried out in conjunction with inspections of the plant processes and discharges to water covered in Section 2.1.1.

A number of sources of emissions to air exist at the site. These include the stockyards, truck wash, hide bins, paunch disposal and contingency pond, and the paunch contrashear. Areas within the blood transfer system also have the potential for odours.

Odours were observed around the stockpile of paunch on all of the five inspections, though odours were not detected beyond the property boundary on any occasion.

Odours associated with meat processing operations were evident onsite at the time of the inspections, however, odours did not persist that would be considered offensive or objectionable beyond the boundary of the site. The Paunch rendering and offload areas on the other side of Tawhiti Road appeared well contained and odours from this area were not considered an issue during any of the inspections. There is a bio filter near the old Graeme Lowe Protein site to further aid and assist in the mitigation of odour production.

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 Silver Fern Farms. 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 Silver Fern Farms' conditions in resource consents or provisions in Regional Plans.

2.3 Discussion

2.3.1 Discussion of site performance

The on-site management and operation of the Hawera meat plant site was generally satisfactory.

For water abstraction, there was compliance with the limit on maximum daily rate taken for general purpose from Tawhiti Stream during the period under review. The telemetry system for delivery of abstraction data to Council that was installed in October 2012 was maintained.

2.3.2 Environmental effects of exercise of consents

Routine physicochemical monitoring of the receiving waters did not show any significant adverse impacts from activities on the site. Samples of the discharge were not able to be collected as Silver Fern Farms did not contact Council when they were discharging.

With regard to the discharge of odour, it should be noted that the facility's location increases risk of odour events, as it is located within a sheltered valley. When atmospheric conditions are calm and clear, there is a high potential for emissions to hang over the site and intensify rather than disperse any odour.

Encroachment of residential development towards the facility has aggravated the situation. The Council did not receive any odour complaints during the monitoring period under review. Localised odours were detected in the paunch disposal area during all inspections in the 2023/24 monitoring year however, objectionable or offensive odour from the meat processing plant was found not to extend beyond the site boundary.

2.3.3 Evaluation of performance

A tabular summary of Silver Fern Farms' compliance record for the year under review is set out in Tables 3 to 10.

Table 3 Summary of performance for Consent 1091-4

Purpose: To take water from a dam and intake structure on the Tawhiti Stream for general use in a meat processing plant and for cooling purposes		
Condition requirement	Means of monitoring during period under review	Compliance achieved?
1. Limit on abstraction volume	Metering by consent holder and telemetry of data to Council	Yes
2. Limit on volume not used for cooling	Metering by consent holder	Yes
3. Limit on volume used for cooling, all to be returned to Tawhiti Stream	No water abstracted for cooling	N/A
4. Installation of meters and loggers	Inspection	Yes
5. Certification of meters	Receipt of certification	Yes
6. Actions on failure of monitors	Receipt of notification, inspections	N/A
7. Monitors to be accessible	Inspections	Yes
8. Provision of records	Receipt of records as required	Yes
9. Use of best practicable option	Inspections and liaison	Yes
10. Optional review provision	No further review provision	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 4 Summary of performance for Consent 1103-4

Purpose: To discharge cooling water from a meat processing plant into the Tawhiti Stream		
Condition requirement	Means of monitoring during period under review	Compliance achieved?
1. Limit on volume discharged	Not monitored during period under review, as under limit on condition 4	N/A
2. Limit on temperature increase in Tawhiti Stream, with GLP discharge	Not monitored during period under review, as under limit in condition 3	N/A
3. Trigger volume for temperature monitoring	Inspection	N/A
4. Trigger volume for flow metering	Inspection	N/A
5. Trigger volume for suspension of temperature and flow monitoring	Metering by consent holder, inspection	N/A
6. Methodology for temperature and flow metering	Assessment of records received by Council	N/A
7. Actions on failure of monitors	Inspections	N/A
8. Monitors to be accessible	Inspections	N/A
9. Maintenance of hydrometric station on Tawhiti Stream	Inspections	Yes
10. No contaminant other than heat	Inspections and sampling by Council	N/A
11. Notification of exceedance of volume trigger	Receipt of notification, inspections	N/A
12. Adoption of best practicable option	Inspections and liaison	N/A
13. Provision for lapse of consent	Consent exercised	N/A
14. Optional review provision	No further review provision	N/A

Purpose: To discharge cooling water from a meat processing plant into the Tawhiti Stream		
Condition requirement	Means of monitoring during period under review	Compliance achieved?
Overall assessment of consent compliance and environmental performance in respect of this consent		N/A
Overall assessment of administrative performance in respect of this consent		N/A

N/A = not applicable

Table 5 Summary of performance for Consent 1104-4

Purpose: To discharge stormwater from buildings and paved areas at the site of a rendering facility into the Tawhiti Stream		
Condition requirement	Means of monitoring during period under review	Compliance achieved?
1. Best practicable option to prevent or minimise adverse effects	Inspections	Yes
2. Stormwater catchment area <1.9ha	Inspections	Yes
3. Appropriate storage of hazardous substances	Inspections	Yes
4. Discharge limits	Not sampled	N/A
5. No effects upon receiving water following mixing	Inspections and sampling	Yes
6. Maintenance of contingency plan	Update received July 2023	Yes
7. Prepare and maintain stormwater management plan	Update received July 2023	Yes
8. Notification of event that may have adverse effect on water quality downstream	Liaison with consent holder	N/A
9. Notification of changes to processes or activities	Liaison with consent holder	N/A
10. Optional review provision	No further review provision	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 6 Summary of performance for Consent 4033-6

Purpose: To discharge emissions to air from rendering operations and associated activities		
Condition requirement	Means of monitoring during period under review	Compliance achieved?
1. Adopt best practicable option to minimise discharge to air	Inspections	Yes
2. No objectionable or offensive odours beyond the site boundary	Inspections	Yes
3. Preparation of Air Discharge Management Plan	Update received July 2020	Yes
4. Emissions to be treated by bio-filter	Inspections	Yes
5. Consent holder to minimise emissions and impacts of contaminants	Inspections	Yes
6. Discharge not to give rise to dust	Inspections	Yes
7. Optional review provision on environmental effects	No further review provision	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 7 Summary of performance for Consent 4832-2

Purpose: To discharge screened paunch and stockyard solids onto and into land by spreading and composting in the vicinity of the Tawhiti Stream in the Tangahoe Catchment		
Condition requirement	Means of monitoring during period under review	Compliance achieved?
1. Maximum volume of discharge 4,500 tonnes/year	Inspections of site, Provision of consent holder's records	Yes
2. Consent holder to maintain records of volume disposed	Liaison with consent holder	Yes
3. Consent holder to adopt best practicable option to prevent or minimise adverse effects	Inspections of site	Yes
4. Bunding of areas used for stockpiling and stabilisation to ensure no run-off to Tawhiti Stream	Inspections of site	Yes
5. No direct discharge of contaminants from storage pond to Tawhiti Stream	Inspections	Yes
6. Run-off from storage pond pumped to wastewater holding tank	Inspections	Yes
7. Management plan for paunch disposal area to be maintained	Update received July 2022	Yes
8. Optional review provision	No further review provision	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 8 Summary of performance for Consent 4995-2

Purpose: To use an existing 6 metre high concrete and earth dam and associated intake structure to dam and divert the Tawhiti Stream		
Condition requirement	Means of monitoring during period under review	Compliance achieved?
1. Fish pass providing passage	Fish survey	No
2. Maintenance of structure	Inspection and fish survey	No
3. Optional review provision	No further review provision	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 9 Summary of performance for Consent 5598-2

Purpose: To discharge stormwater from a meat processing plant into the Tawhiti Stream in the Tangahoe Catchment		
Condition requirement	Means of monitoring during period under review	Compliance achieved?
1. Consent holder to adopt best practicable option to prevent or minimise adverse effects	Inspections	Yes
2. Catchment area not to exceed 3.8 ha	Current catchment has been identified as being 17.4ha	No. Consent application lodged
3. Hazardous substances contained	Inspections	Yes
4. Concentrations of contaminants in discharge	Samples not collected as consent holder did not notify Council when discharging	N/A
5. Effects on receiving water	Sampling and inspections	Yes

Purpose: To discharge stormwater from a meat processing plant into the Tawhiti Stream in the Tangahoe Catchment		
Condition requirement	Means of monitoring during period under review	Compliance achieved?
6. Maintenance of contingency plan	Received December 2024	Yes
7. Maintenance of stormwater plan	Received June 2023	Yes
8. Notification of changes to processes	Inspections and liaison with consent holder	Yes
9. Review of consent	No further review provision	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 10 Summary of performance for Consent 5599-2

Purpose: To discharge emissions into the air from meat processing operations and associated activities		
Condition requirement	Means of monitoring during period under review	Compliance achieved?
1. Adopt best practicable option	Inspections of site	Yes
2. Consent holder to minimise emissions and impacts	Inspections of site	Yes
3. Discharge not to give rise to objectionable odour beyond boundary	Inspections of site	Yes
4. Paunch management plan	Received July 2022	Yes
5. Consultation over significant proposed changes	Liaison with consent holder. No significant changes undertaken during year	Yes
6. Optional review provision	No further review provision	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

During the period under review, Silver Fern Farms demonstrated an overall good level of environmental and administrative performance with the resource consents as defined in Appendix II.

2.4 Recommendations from the 2022/23 Annual Report

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

1. THAT monitoring undertaken for the Silver Fern Farms Ltd site in Hawera in the 2023/24 year continue at the same level as in 2022/23.
2. THAT additional inspections and monitoring of juvenile fish are undertaken in 2023/24 in order to assess whether the weir and intake structure of Silver Fern Farms Ltd is presenting a barrier to fish passage.
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.

Recommendations one and two were implemented while it was not considered necessary to undertake additional monitoring as per recommendation three.

2.5 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 planned changes have been made to the 2024/25 monitoring programme.

It should be noted that the proposed programme represents a reasonable and risk-based level of monitoring for the sites 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.

2.6 Recommendations

1. THAT monitoring undertaken for the Silver Fern Farms Ltd site in Hawera in the 2024/25 year continue at the same level as in 2023/24.
2. THAT Silver Fern Farms liaise with Council around the discharge of stormwater so that samples can be collected when this is carried out.
3. THAT Silver Fern Farms undertake remedial works to the weir structure to improve fish passage and allow for recruitment of juvenile eels and trout upstream of the weir.
4. 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.

3. Taranaki Fish and Game Council Trout Hatchery

3.1 Process description

The Taranaki Fish and Game Council (Taranaki Fish and Game) trout hatchery is situated beside the Tawhiti Stream about 2km northwest of Hawera. The trout hatchery has been operating on its present site since 1980. The hatchery received 3,000 eyed rainbow trout ova in 2022/23. As trout in the outside raceways grow, they are progressively released into Department of Conservation approved lakes and rivers. The average annual production from the hatchery is about 1,665 rainbow trout, with about 1,415 fish held in the hatchery through to an age of 17 months.

The trout hatchery is situated in a section of Tawhiti Stream where water quality is monitored to assess compliance with resource consent conditions for Silver Fern Farms and Graeme Lowe Protein. A number of water quality parameters are monitored at four sites on the Tawhiti Stream, with one site upstream of the hatchery intake and three sites downstream of the hatchery discharge. Currently, water is diverted from the Tawhiti Stream at a location immediately upstream of Silver Fern Farms' water supply weir. Three 100mm diameter PVC slotted pipes are submerged in Silver Fern Farms' water supply dam; water is then gravity fed to the hatchery. The water is discharged back into Tawhiti Stream at about 60m downstream of the diversion point. The hatchery outflow pipework is configured so that all troughs and raceways discharge to a common silt trap.

The silt, fish faecal matter and uneaten trout food that accumulates on the floor of the fingerling troughs and outside raceways is cleaned out periodically. Water levels are drawn down, the discharge pipe is closed, and the sluiced material is diverted via the 700L silt trap to a series of three small settling/soakage ponds located to the side of the hatchery building (Photo 2). The accumulated solids are disposed of offsite.



Photo 2 The settling system at Taranaki Fish and Game trout hatchery

3.2 Results

3.2.1 Inspections

Three compliance monitoring inspections of the Taranaki Fish and Game trout hatchery site were conducted during the 2023/24 monitoring year. Inspections were undertaken on 9 October 2023, and 31 January and 29 April 2024. Inspections focused on tank cleaning and the discharge to the Tawhiti Stream.

No personnel were onsite during any of the inspections. There was no water abstraction or stormwater discharge noted during any of the inspections.

3.2.2 Results of discharge monitoring

The results of chemical monitoring of the discharge from Taranaki Fish and Game's trout hatchery discharge pipe (Figure 1, Table 2) for the 2023/24 monitoring year are presented in Table 11. A sample was obtained on one occasion.

Table 11 Physicochemical results for Taranaki Fish and Game discharge pipe, IND002037

Parameters	Units	5 June 2024
Temperature	°C	6.8
Turbidity	NTU	8.7
pH	-	7.9
Total suspended solids	g/m ³	19
TBOD ₅	g/m ³	0.6
Conductivity	mS/m	28.4
NH ₃	g/m ³	0.00055
NH ₄	g/m ³	0.054
DRP	g/m ³	0.020

Considering the rate of discharge from this discharge point, and the degree of assimilation available in the Tawhiti Stream, it is considered that this discharge would not have caused a noticeable increase in these parameters in the receiving water body. This was confirmed by visual inspection during sampling. Impacts on the receiving environment are discussed in Section 5.

3.3 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 Taranaki Fish and Game. 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 proactive 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 Taranaki Fish and Game's conditions in resource consents or provisions in Regional Plans.

3.4 Discussion

3.4.1 Discussion of plant performance

The environmental performance of the trout hatchery run by Taranaki Fish and Game during the period under review has been high. In the 2023/24 period, there were no incidents recorded by the Council that

were associated with the Taranaki Fish and Game trout hatchery site. The management of the site has generally been good with no issues arising during the period.

3.4.2 Environmental effects of exercise of consents

Water quality data collected for the receiving waters of Tawhiti Stream suggests that there have been no significant adverse effects as a result of the activities of the Taranaki Fish and Game trout hatchery (in combination with discharges from Silver Fern Farms) during the period under review.

3.4.3 Evaluation of performance

A tabular summary of Taranaki Fish and Game's compliance record for the period under review is set out in Table 12 and Table 13.

Table 12 Summary of performance for Consent 0523-3

Purpose: To take and use water from the Tawhiti Stream in the Tangahoe Catchment for trout hatchery purposes		
Condition requirement	Means of monitoring during period under review	Compliance achieved?
1. Volume of water taken not to exceed 11.4L/sec	Not monitored during period under review	N/A
2. Adopt best practicable option	Inspections	Yes
3. Intake structure to be screened	Inspections	Yes
4. Optional review provision	No further review provision	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 13 Summary of performance for Consent 7546-1

Purpose: To discharge water containing contaminants into the Tawhiti Stream in the Tangahoe Catchment from a trout hatchery facility		
Condition requirement	Means of monitoring during period under review	Compliance achieved?
1. Adopt best practicable option	Inspections of site	Yes
2. Effects not to occur in receiving waters beyond the established mixing zone	Inspections and chemical sampling of receiving water	Yes
3. Prohibition on chemicals except potassium permanganate	Inspections and chemical sampling of discharge	Yes
4. No water through-flow during salt treatment	Inspections	Yes
5. Notification of events that may cause adverse effect on water quality	Liaison with consent holder	N/A
6. Optional review provision	No further review provision	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

During the period under review, the Taranaki Fish and Game demonstrated a high level of environmental and high level of administrative performance with the resource consents as defined in Appendix II.

3.4.4 Recommendations from the 2022/23 Annual Report

The 2022/23 Annual Report recommended:

1. THAT monitoring of abstraction to and discharges from Taranaki Fish and Game trout hatchery in the 2023/24 year continue at the same level as in 2022/23.
2. 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.

These recommendations were followed.

3.4.5 Alterations to monitoring programme 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 planned changes have been made to the 2024/25 monitoring programme.

It should be noted that the proposed programme represents a reasonable and risk-based level of monitoring for the site 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.

3.5 Recommendations

1. THAT monitoring of abstraction to and discharges from Taranaki Fish and Game trout hatchery in the 2024/25 year continue at the same level as in 2023/24.
2. 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. Tawhiti Stream Receiving Environment

4.1 Stream flow and stream temperature

Stream flow

Silver Fern Farms are required by Consent 1103-4 install and maintain a hydrological recording station on the Tawhiti Stream immediately downstream of the Silver Fern Farms site, to measure and record the flow of the Tawhiti Stream. An appropriate station was installed in 2011, prior to the granting of Consent 1103-4. The hydrograph for 2023/24 is given in Figure 3.

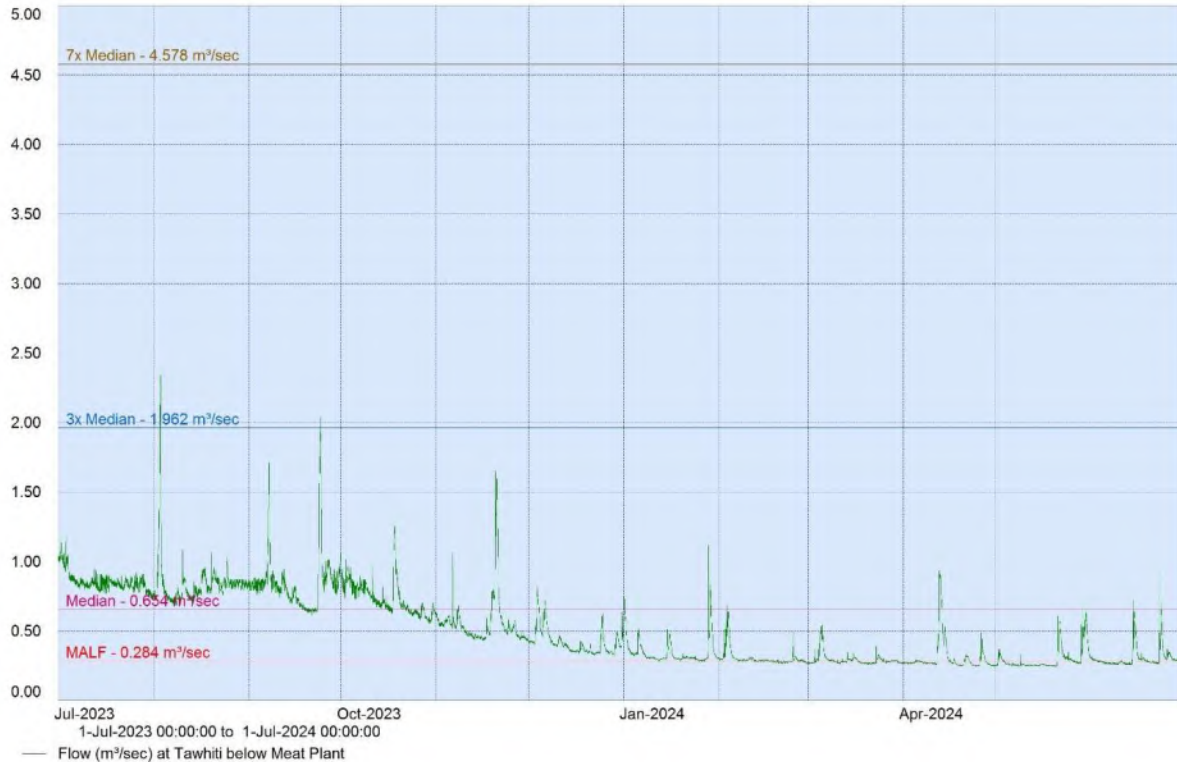


Figure 3 Flow (m^3/s) in the Tawhiti Stream measured below the abstraction point of Silver Fern Farms 1 July 2023 to 1 July 2024

The median recorded flow for the period under review was $0.42\text{m}^3/\text{s}$. The minimum flow was recorded on 11 April 2024 at $0.26\text{m}^3/\text{s}$ and the maximum was on 3 August 2023 at $2.4\text{m}^3/\text{s}$.

Stream temperature

Silver Fern Farms are required by Resource Consent 1103-4 to measure and record the temperature of their respective cooling water discharges, and of the Tawhiti Stream above and below the discharge point(s). The records must be transmitted directly to Council. These requirements may be suspended if the rate of cooling water discharge is below specified volumes for an extended period of time.

Silver Fern Farms has not discharged cooling water to the stream since the stormwater system was upgraded in the 2021/22 monitoring period. Council has not required the temperature of cooling water or of the Tawhiti Stream above the discharge point to be monitored but has required the continuation of temperature monitoring below the discharge point, at the Tawhiti Road Hydrometric Station.

The telemetered temperature record, from July 2023 to July 2024 is presented in Figure 4.

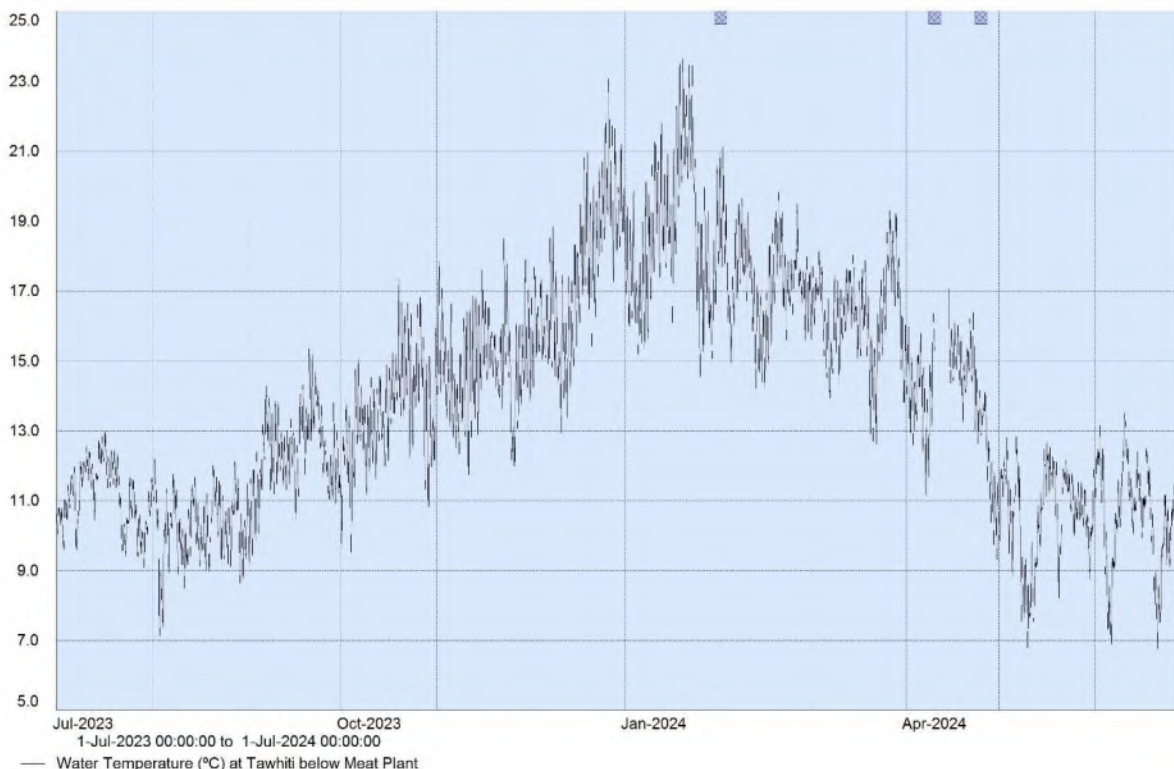


Figure 4 Temperature (in °C) of the Tawhiti Stream, measured below the abstraction point of Silver Fern Farms and Graeme Lowe Protein from 1 July 2023 to 1 July 2024

The recorded median temperature was 13.6°C. The maximum temperature recorded was 23.7°C, on 19 January 2024 and the minimum temperature recorded was 6.7°C on 10 May 2024. The temperature exceeded 20°C regularly between 18 December 2023 and 2 February 2024 (3% of record).

4.2 Results of physicochemical monitoring

The Tawhiti Stream was sampled at four sites, upstream and downstream of the various discharges, on three occasions in 2023/24. The sites were sampled in accordance with the monitoring programme requirements allowing possible impacts from stormwater discharge and solid waste disposal practices to be assessed. The receiving water body is sampled for Silver Fern Farms (Meat plant and By-products) and the Taranaki Fish and Game trout hatchery because all three sites discharge within the same reach of the Tawhiti Stream. The three sites therefore have the potential to discharge with combined effect and consequently are assessed in conjunction with each other.

Consents 5598-2, 1104-4 (Silver Fern Farms), and 7546-1 (Taranaki Fish and Game) all contain conditions stating that the stream must not be made unsuitable for consumption by farm animals and that there must be no adverse effects on aquatic life. Table 14 outlines the acceptable levels of contaminants for the protection of aquatic systems.

Table 14 Contaminant trigger levels drawn from the ANZECC Water Quality Guidelines for Fresh and Marine Waters, 2000

Contaminant	Acceptable levels for the protection of aquatic ecosystems	Acceptable level for stock drinking water
Biological oxygen demand (g/m ³)	Less than 2	-
Conductivity (mS/m)	A change of less than 50	Less than 373
Ammonia (g/m ³)	Less than 2.2	-
Nitrate/nitrite nitrogen (g/m ³)	Less than 1.5 – 4.0	-
pH	In the range of 6.6 – 8.0	-

Table 15 gives the results of the receiving water surveys at the pond outlet upstream of industrial discharge (1=TWH000295), 100m upstream of Tawhiti Road (2=TWH000300), the culvert on Tawhiti Road (3=TWH000320), and 300m downstream of Tawhiti Road (4=TWH000350). Refer to Table 2 for an explanation of sampling sites.

Table 15 Results of receiving water sampling conducted during 2023/24

Date	Site	Temp °C	pH	Turbidity FNU	SS g/m ³	Condy mS/m	TBOD ₅ g O ₂ /m ³	NH ₄ g/m ³	NNN g/m ³	DRP g/m ³
3 Aug 2023 Flow 1.2 m ³ /s	1	7.3	7.3	46	77	22.5	3.3	0.22	2.2	0.024
	2	7.6	7.4	27	77	22.6	3.6	0.22	2.2	0.024
	3	7.8	7.5	43	67	22.9	3.3	0.20	2.2	0.022
	4	7.9	7.4	46	65	23.2	3.2	0.20	2.3	0.021
9 Oct 2023 Flow 0.53 m ³ /s	1	11.1	7.7	9.8	23	26.4	0.9	0.019	2.5	0.013
	2	11.3	7.9	10.2	20	26.4	0.5	0.018	2.5	0.013
	3	11.6	7.9	12.7	20	26.9	<0.4	0.017	2.5	0.014
	4	11.6	7.9	12.0	19	26.4	<0.4	0.014	2.4	0.014
5 Jun 2024 Flow 0.31 m ³ /s	1	6.7	7.9	17.0	27	28.0	0.6	0.052	2.3	0.018
	2	6.7	7.9	11.7	20	28.0	0.7	0.059	2.3	0.020
	3	6.9	7.8	11.6	27	28.3	0.6	0.042	2.3	0.020
	4	6.9	7.9	11.8	17	28.0	0.5	0.034	2.3	0.019

Site 1 = TWH000295, Site 2 = TWH000300, Site 3 = TWH000320, Site 4 = TWH000350

Sampling results show little variation in the tested parameters within the monitored reach of the Tawhiti Stream on the routine monitoring occasions, indicating that the discharges were not significantly affecting water quality.

Variation between sampling occasions related largely to the season and any recent rainfall events in the catchment. Sample results were generally below/within the ranges of the ANZECC water quality guidelines indicating good water quality (Table 14). Total BOD was elevated in the samples collected on 3 August 2023, turbidity, suspended solids and flow were also high in these samples indicating recent rainfall was the reason for this.

4.3 Discussion of receiving environment monitoring results

The concentrations of most tested parameters were found to be similar between sites with little variation between upstream and downstream of the discharges.

The BOD and ammonia in the discharge from the fish hatchery was at similar levels to those recorded in the Tawhiti Stream.

5. Summary of recommendations

Silver Fern Farms Ltd

1. THAT monitoring undertaken for the Silver Fern Farms Ltd site in Hawera in the 2024/25 year continue at the same level as in 2023/24.
2. THAT Silver Fern Farms liaise with Council around the discharge of stormwater so that samples can be collected when this is carried out.
3. THAT Silver Fern Farms undertake remedial works to the weir structure to improve fish passage and allow for recruitment of juvenile eels and trout upstream of the weir.
4. 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.

Taranaki Fish & Game (trout hatchery)

1. THAT monitoring of abstraction to and discharges from Taranaki Fish and Game trout hatchery in the 2024/25 year continue at the same level as in 2023/24.
2. 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.

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
BOD	Biochemical oxygen demand. A measure of the presence of degradable organic matter, taking into account the biological conversion of ammonia to nitrate
BODF	Biochemical oxygen demand of a filtered sample
Bund	A wall around a tank to contain its contents in the case of a leak
cfu	Colony forming units. A measure of the concentration of bacteria usually expressed as per 100 millilitre sample
Condy	Conductivity, an indication of the level of dissolved salts in a sample, usually measured at 25°C and expressed in $\mu\text{S}/\text{cm}$
FNU	Formazin nephelometric units, a measure of the turbidity of water
fresh	Elevated flow in a stream, such as after heavy rainfall
g/m^3	Grammes per cubic metre, and equivalent to milligrammes 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
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
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
L/s	Litres per second
MALF	Mean annual low flow
mS/m	Millisiemens per metre
$\mu\text{S}/\text{cm}$	Microsiemens per centimetre
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
NH_4	Ammonium, normally expressed in terms of the mass of nitrogen (N)
NH_3	Unionised ammonia, normally expressed in terms of the mass of nitrogen (N)
NNN	Nitrate and nitrite concentration, normally expressed in terms of the mass of nitrogen (N)

NO ₃	Nitrate, normally expressed in terms of the mass of nitrogen (N)
NTU	Nephelometric Turbidity Unit, a measure of the turbidity of water
O&G	Oil and grease, defined as anything that will dissolve into a particular organic solvent (e.g. hexane). May include both animal material (fats) and mineral matter (hydrocarbons)
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
Physicochemical	Measurement of both physical properties (e.g. temperature, clarity, density) and chemical determinants (e.g. metals and nutrients) to characterise the state of an environment
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
Temp	Temperature, measured in °C (degrees Celsius)
Turb	Turbidity, expressed in FNU

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

Bibliography and references

- ANZECC (Australia and New Zealand Environment and Conservation Council) and Agriculture and Resource Management Council of Australia and New Zealand (2000): *Australia and New Zealand Guidelines for Fresh and Marine Water Quality, 2000. National water quality management strategy*. Volume 1: The Guidelines. October 2000.
- Joy, M., David, B., Lake, M. 2013: *New Zealand freshwater fish sampling protocols*. The Ecology Group – Institute of Natural Resources Te Kura Matauranga o nga Taonga a Papatuanuku, Massey University, Palmerston North, New Zealand.
- Taranaki Regional Council (September 2024): *Fish survey of the Tawhiti Stream in relation to the abstraction of water and the intake weir, Silver Fern Farms, December 2023*. Internal memorandum FB009.
- Taranaki Regional Council (2024): *Tawhiti Catchment Monitoring Programme Annual Report 2022-2023*. Technical Report 2023-10.
- Taranaki Regional Council (2022): *Tawhiti Catchment Monitoring Programme Annual Report 2021-2022*. Technical Report 2022-19.
- Taranaki Regional Council (2021): *Tawhiti Catchment Monitoring Programme Annual Report 2020-2021*. Technical Report 2021-62.
- Taranaki Regional Council (2020): *Tawhiti Catchment Monitoring Programme Annual Report 2019-2020*. Technical Report 2020-51.
- Taranaki Regional Council (2019): *Tawhiti Catchment Monitoring Programme Annual Report 2018-2019*. Technical Report 2019-20.
- Taranaki Regional Council (2018): *Tawhiti Catchment Monitoring Programme Annual Report 2017-2018*. Technical Report 2018-18.
- Taranaki Regional Council (2017b): *Fonterra Whareroa Compliance Monitoring Programme Annual Report 2016-2017*. Technical Report 2017-66.
- Taranaki Regional Council (2017b): *Tawhiti Catchment Monitoring Programme Annual Report 2016-2017*. Technical Report 2017-63.
- Taranaki Regional Council (2016c): *Fonterra Whareroa Compliance Monitoring Programme Annual Report 2014-2015*. Technical Report 2015-81.
- Taranaki Regional Council (2016b): *Tawhiti Catchment Monitoring Programme Annual Report 2015-2016*. Technical Report 2016-51.
- Taranaki Regional Council (2016a): *Tawhiti Catchment Monitoring Programme Annual Report 2014-2015*. Technical Report 2015-118.
- Taranaki Regional Council (2015): *Tawhiti Catchment Monitoring Programme Biennial Report 2012-2014*. Technical Report 2014-72.
- Taranaki Regional Council (2014): *Fonterra Whareroa Compliance Monitoring Programme Annual Report 2013-2014*. Technical Report 2014-73.
- Taranaki Regional Council (2012): *Tawhiti Catchment Monitoring Programme Biennial Report 2010-2012*. Technical Report 2012-96.
- Taranaki Regional Council (2011): *Regional Air Quality Plan for Taranaki*.

- Taranaki Regional Council (2010): *Tawhiti Catchment Monitoring Programme Annual Report 2009-2010*. Technical Report 2010-97.
- Taranaki Regional Council (2009): *Tawhiti Catchment Monitoring Programme Annual Report 2008-2009*. Technical Report 2009-96.
- Taranaki Regional Council (2008): *PPCS (Hawera) Limited Monitoring Programme Annual Report 2006-2007*. Technical Report 2007-114.
- Taranaki Regional Council (2007): *Graeme Lowe Protein Limited Monitoring Programme Annual Report 2005-2006*. Technical Report 2006-96.
- Taranaki Regional Council (2006): *PPCS (Hawera) Limited Monitoring Programme Annual Report 2005-2006*. Technical Report 2006-53.
- Taranaki Regional Council (2005b): *Graeme Lowe Protein Limited Monitoring Programme Annual Report 2004-2005*. Technical Report 2005-100.
- Taranaki Regional Council (2005a): *Richmond (Hawera) Limited Monitoring Programme Annual Report 2004-2005*. Technical Report 2005-62.
- Taranaki Regional Council (2004b): *Richmond (Hawera) Limited Monitoring Programme Annual Report 2003-2004*. Technical Report 2004-105.
- Taranaki Regional Council (2004a): *Graeme Lowe Protein Limited Monitoring Programme Annual Report 2003-2004*. Technical Report 2004-104.
- Taranaki Regional Council (2003b): *Richmond Limited (Hawera) Monitoring Programme Annual Report 2002-2003*. Technical Report 2003-95.
- Taranaki Regional Council (2003a): *Graeme Lowe Protein Limited Monitoring Programme Annual Report 2002-2003*. Technical Report 2003-62.
- Taranaki Regional Council (2002b): *Richmond Limited (Hawera) Monitoring Programme Annual Report 2001-2002*. Technical Report 2002-49.
- Taranaki Regional Council (2002a): *Graeme Lowe Protein Limited Monitoring Programme Annual Report 2001-2002*. Technical Report 2002-18.
- Taranaki Regional Council (2001b): *Richmond Limited (Hawera) Monitoring Programme Annual Report 2000-2001*. Taranaki Regional Council Technical Report 2001-39.
- Taranaki Regional Council (2001a): *Graeme Lowe Protein Limited Monitoring Programme Annual Report 2000-2001*. Technical Report 2001-08.
- Taranaki Regional Council (2000b): *Richmond Limited (Hawera) Monitoring Programme Annual Report 1999-2000*. Technical Report 2000-69.
- Taranaki Regional Council (2000a): *Graeme Lowe Protein Limited Monitoring Programme Annual Report 1999-2000*. Technical Report 2000-70.
- Taranaki Regional Council (1999): *Graeme Lowe Protein Limited Monitoring Programme Annual Report 1998-99*. Technical Report 99-80.
- Taranaki Regional Council (1999): *Richmond Limited Monitoring Programme Annual Report 1998-99*. Technical Report 99-15.
- Taranaki Regional Council (1998): *Lowe Walker Hawera Ltd, Meat Processing Plant Air and Water Monitoring Programmes Annual Report 1997-98*. Technical Report 98-47.

- Taranaki Regional Council (1997): *Lowe Walker Hawera Ltd, Meat Processing Plant Air and Water Monitoring Programmes Annual Report 1996-97*. Technical Report 97-23.
- Taranaki Regional Council (1996): *Lowe Walker Hawera Ltd, Meat Processing Plant Air and Water Monitoring Programmes Annual Report 1995-96*. Technical Report 96-39.
- Taranaki Regional Council (1995): *Lowe Walker Hawera Ltd, Hawera Meatworks Monitoring Programme Annual Report 1994/95*. Technical Report 95-37.
- Taranaki Regional Council (1994): *Lowe Walker Hawera Ltd, Hawera Meatworks Monitoring Programme Annual Report 1993/94*. Technical Report 94-66.
- Taranaki Regional Council (1993): *Lowe Walker Hawera Ltd, Hawera Meat Processing Plant Monitoring Programme Annual Report 1992/93*. Technical Report 93-12.
- Taranaki Regional Council (1992): *Lowe Walker Hawera Ltd, Hawera Meat Processing Plant Monitoring Programme Annual Report 1991/92*. Technical Report 92-29.
- .

Appendix I

Resource consents held by industries in the Tawhiti Stream

(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.

Silver Fern Farms Ltd

Water Permit
Pursuant to the Resource Management Act 1991
a resource consent is hereby granted by the
Taranaki Regional Council

Name of
Consent Holder: Silver Fern Farms Limited
PO Box 941
Dunedin 9054

Decision Date 18 March 2013

Commencement Date 18 March 2013

Conditions of Consent

Consent Granted: To take water from a dam and intake structure on the
Tawhiti Stream for general use in a meat processing plant
and for cooling purposes

Expiry Date: 1 June 2028

Review Date(s): June 2022

Site Location: Tawhiti Road, Hawera

Grid Reference (NZTM) 1711265E-5618342N

Catchment: Tangahoe

Tributary: Tawhiti

*For General, Standard and Special conditions
pertaining to this consent please see reverse side of this document*

General condition

- a. The consent holder shall pay to the Taranaki Regional Council all the administration, monitoring and supervision costs of this consent, fixed in accordance with section 36 of the Resource Management Act 1991.

Special conditions

1. The volume of water taken shall not exceed 3,500 cubic metres per day.
2. The volume of water used for general purposes (that is, for purposes other than cooling) shall not exceed 1,000 cubic metres per day.
3. The volume of water used for cooling shall not exceed 2,500 cubic metres per day. All used cooling water shall be returned to the Tawhiti Stream in accordance with consent 1103-4.
4. Before exercising this consent, the consent holder shall install, and thereafter maintain water meters and dataloggers. The water meters and dataloggers shall be tamper-proof and shall separately measure and record, to an accuracy of $\pm 5\%$, the rate and volume of water taken for:
 - (a) general purposes (condition 2); and
 - (b) cooling water (condition 3).

Records of the date, the time and the rate and volume of water taken for each use, at intervals not exceeding 15 minutes shall be kept and provided to the Chief Executive, Taranaki Regional Council in accordance with condition 8.

Note: Water meters and dataloggers must be installed, and regularly maintained, in accordance with manufacturer's specifications in order to ensure that they meet the required accuracy. Even with proper maintenance water meters and dataloggers have a limited lifespan.

5. The consent holder shall provide the Chief Executive, Taranaki Regional Council with a document from a suitably qualified person certifying that water measuring and recording equipment required by the conditions of this consent ('the equipment'):
 - (a) has been installed and/or maintained in accordance with the manufacturer's specifications; and/or
 - (b) has been tested and shown to be operating to an accuracy of $\pm 5\%$.

The documentation shall be provided:

- (i) within 30 days of the installation of a water meter or datalogger;
- (ii) at other times when reasonable notice is given and the Chief Executive, Taranaki Regional Council has reasonable evidence that the equipment may not be functioning as required by this consent; and
- (iii) no less frequently than once every five years.

Consent 1091-4

6. If any measuring or recording equipment breaks down, or for any reason is not operational, the consent holder shall advise the Chief Executive, Taranaki Regional Council immediately. Any repairs or maintenance to this equipment must be undertaken by a suitably qualified person.
7. The water meters and dataloggers shall be accessible to Taranaki Regional Council officers at all reasonable times for inspection and/or data retrieval.
8. The records of water taken shall:
 - (a) be transmitted directly to the Council's computer system, in a format suitable for providing a 'real time' record over the internet;
 - (b) be in a format that, in the opinion of the Chief Executive, Taranaki Regional Council, is suitable for auditing; and
 - (c) specifically record the water taken as 'zero' when no water is taken.
9. At all times the consent holder shall adopt the best practicable option to prevent or minimise any actual or likely adverse effect on the environment associated with the taking of water, including, but not limited to, the efficient and conservative use of water.
10. In accordance with section 128 and section 129 of the Resource Management Act 1991, the Taranaki Regional Council may serve notice of its intention to review, amend, delete or add to the conditions of this resource consent by giving notice of review during the month of June 2015 and/or June 2016 and/ or June 2022 for the purposes of ensuring that the conditions are adequate to deal with any adverse effects on the environment arising from the exercise of this resource consent, which were either not foreseen at the time the application was considered or which it was not appropriate to deal with at the time.

Transferred at Stratford on 26 November 2018

For and on behalf of
Taranaki Regional Council

A D McLay
Director - Resource Management

Discharge Permit
Pursuant to the Resource Management Act 1991
a resource consent is hereby granted by the
Taranaki Regional Council

Name of
Consent Holder: Silver Fern Farms Limited
PO Box 941
Dunedin 9054

Decision Date 18 March 2013

Commencement Date 18 March 2013

Conditions of Consent

Consent Granted: To discharge cooling water from a meat processing plant
into the Tawhiti Stream

Expiry Date: 1 June 2028

Review Date(s): June 2022

Site Location: Tawhiti Road, Hawera

Grid Reference (NZTM) 1711295E-5618303N

Catchment: Tangahoe

Tributary: Tawhiti

*For General, Standard and Special conditions
pertaining to this consent please see reverse side of this document*

General condition

- a. The consent holder shall pay to the Taranaki Regional Council all the administration, monitoring and supervision costs of this consent, fixed in accordance with section 36 of the Resource Management Act 1991.

Special conditions

1. The volume of cooling water discharged shall not exceed 2,500 cubic metres per day.
2. The discharge, in combination with the discharge authorised by consent 7611-2 (Graeme Lowe Protein Limited), shall not alter the ambient temperature of the receiving water by more than 3 degrees Celsius or cause it to exceed 25 degrees Celsius, as determined by simultaneous measurements immediately upstream and 150 metres downstream of the point of discharge.
3. From the date that the discharge first exceeds 100 m³ per day, the consent holder shall measure and record the temperature, to an accuracy of ± 0.1 °C, of the:
 - (a) cooling water discharge;
 - (b) Tawhiti Stream immediately upstream of the discharge point; and
 - (c) Tawhiti Stream 150 metres downstream of the discharge point.

Records of the date, the time and the water temperature at intervals not exceeding 15 minutes, shall be kept and provided to the Chief Executive, Taranaki Regional Council in accordance with condition 6.

Note: To avoid duplication this equipment may be installed and maintained jointly with the holder of Consent 7611-2 (Graeme Lowe Protein Limited)

4. From the date that the discharge first exceeds 100 m³ per day, the consent holder shall install, and thereafter maintain a water meter and datalogger that measures and records the rate and volume of cooling water discharged, to an accuracy of $\pm 5\%$. Records of the date, the time and the rate and volume of cooling water discharged at intervals not exceeding 15 minutes shall be kept and provided to the Chief Executive, Taranaki Regional Council in accordance with condition 6.

Note: Water meters and dataloggers must be installed, and regularly maintained, in accordance with manufacturer's specifications in order to ensure that they meet the required accuracy. Even with proper maintenance water meters and dataloggers have a limited lifespan.

5. The Chief Executive, Taranaki Regional Council may suspend the requirements for measuring and recording specified in condition 3 and/or condition 4 if the rate of discharge of cooling water is less than 100 m³/day for an extended period of time. The measuring and recording required by these conditions must resume before the discharge exceeds 100 m³/day again.
6. The records of cooling water discharged, and temperature monitoring, shall:
 - (a) be transmitted directly to the Council's computer system, in a format suitable for providing a 'real time' record over the internet; and
 - (b) be provided in a format that, in the opinion of the Chief Executive, Taranaki Regional Council, is suitable for auditing.

Consent 1103-4

7. If any measuring or recording equipment breaks down, or for any reason is not operational, the consent holder shall advise the Chief Executive, Taranaki Regional Council immediately. Any repairs or maintenance to this equipment must be undertaken by a suitably qualified person.
8. The water meters, dataloggers and temperature sensors shall be accessible to Taranaki Regional Council officers at all reasonable times for inspection and/or data retrieval.
9. Before exercising this consent, the consent holder shall install (in conjunction with Graeme Lowe Protein Limited), and thereafter maintain a hydrological recording station immediately downstream of the Silver Fern Farms Limited site to measure and record the flow of the Tawhiti Stream. The cost of installation and maintenance shall be met by the consent holders.
10. The discharge authorised by this consent shall contain no added contaminant other than heat when compared with the water abstracted by the consent holder under resource consent 1091-4.
11. The consent holder shall notify the Chief Executive, Taranaki Regional Council as soon as practicable if the volume discharged is to exceed 100 m³/day. Notification shall include the date and reason for the discharge, and shall be emailed to worknotification@trc.govt.nz.
12. The consent holder shall at all times adopt the best practicable option, as defined in section 2 of the Resource Management Act, to prevent or minimise any adverse effects on the environment from the exercise of this consent.
13. This consent shall lapse on 31 March 2018, unless the consent is given effect to before the end of that period of the Taranaki Regional Council fixes a longer period pursuant to section 125(1)(b) of the Resource Management Act 1991.
14. In accordance with section 128 and section 129 of the Resource Management Act 1991, the Taranaki Regional Council may serve notice of its intention to review, amend, delete or add to the conditions of this resource consent by giving notice of review during the month of June 2015 and/or June 2016 and/ or June 2022 for the purposes of ensuring that the conditions are adequate to deal with any adverse effects on the environment arising from the exercise of this resource consent, which were either not foreseen at the time the application was considered or which it was not appropriate to deal with at the time.

Transferred at Stratford on 26 November 2018

For and on behalf of
Taranaki Regional Council

A D McLay
Director - Resource Management

Discharge Permit
Pursuant to the Resource Management Act 1991
a resource consent is hereby granted by the
Taranaki Regional Council

Name of
Consent Holder: Silver Fern Farms Limited
PO Box 941
Dunedin 9054

Decision Date: 24 August 2010

Commencement Date: 24 August 2010

Conditions of Consent

Consent Granted: To discharge screened paunch and stockyard solids onto and into land by spreading and composting in the vicinity of the Tawhiti Stream in the Tangahoe catchment

Expiry Date: 1 June 2028

Review Date(s): June 2022

Site Location: Tawhiti Road, Hawera

Grid Reference (NZTM) 1711349E-5618167N

Catchment: Tangahoe

Tributary: Tawhiti

*For General, Standard and Special conditions
pertaining to this consent please see reverse side of this document*

General condition

- a. The consent holder shall pay to the Taranaki Regional Council all the administration, monitoring and supervision costs of this consent, fixed in accordance with section 36 of the Resource Management Act 1991.

Special conditions

1. The maximum volume of paunch and stockyard solids to be discharged to land at the paunch disposal area shall not exceed of 4,500 tonnes in any processing year (1 October to 30 September).
2. The consent holder shall keep records of the volumes of paunch and stockyard solids discharged to land. These records shall be made available to the Chief Executive of Taranaki Regional Council upon request.
3. The consent holder shall at all times adopt the best practicable option, as defined in section 2 of the Resource Management Act 1991, to prevent or minimise any adverse effects on the environment from the exercise of this consent.
4. All areas used for the stockpiling and stabilisation of screened paunch and stockyard solids shall be bunded or run-off from these areas shall be diverted by a drain to the storage pond in order to ensure that no run-off from these areas enters the Tawhiti Stream.
5. There shall be no direct discharge of contaminants from the storage pond into the Tawhiti Stream.
6. Run-off stored in the storage pond will be pumped to the wastewater holding tank for treatment along with other effluent produced at the meat processing plant.
7. The consent holder shall prepare and thereafter maintain a management plan for the paunch and stockyard disposal area that, to the satisfaction of the Chief Executive of the Taranaki Regional Council, details how paunch disposal is to be managed to ensure there is no discharge of contaminants from this area into the Tawhiti Stream. The plan shall include but not necessarily be limited to:
 - a) Description of disposal areas and buffer zones;
 - b) Application rate and method;
 - c) Depth and frequency of coverage;
 - d) Composting management;
 - e) Prevention of run-off to the stream;
 - f) Minimisation of groundwater seepage to the stream; and
 - g) Contingency procedures.

Consent 4832-2

8. In accordance with section 128 and section 129 of the Resource Management Act 1991, the Taranaki Regional Council may serve notice of its intention to review, amend, delete or add to the conditions of this resource consent by giving notice of review during the month of June 2016 and/or June 2022, for the purpose of ensuring that the conditions are adequate to deal with any adverse effects on the environment arising from the exercise of this resource consent, which were either not foreseen at the time the application was considered or which it was not appropriate to deal with at the time.

Transferred at Stratford on 26 November 2018

For and on behalf of
Taranaki Regional Council

A D McLay
Director - Resource Management

Land Use Consent
Pursuant to the Resource Management Act 1991
a resource consent is hereby granted by the
Taranaki Regional Council

Name of
Consent Holder: Silver Fern Farms Limited
PO Box 941
Dunedin 9054

Decision Date: 18 March 2013

Commencement Date: 18 March 2013

Conditions of Consent

Consent Granted: To use an existing 6 metre high concrete and earth dam and associated intake structure to dam and divert the Tawhiti Stream

Expiry Date: 1 June 2028

Review Date(s): June 2022

Site Location: Tawhiti Road, Hawera

Grid Reference (NZTM) 1711196E-5618439N (Intake structure)
1711218E-5618472N (Dam)

Catchment: Tangahoe

Tributary: Tawhiti

*For General, Standard and Special conditions
pertaining to this consent please see reverse side of this document*

General condition

- a. The consent holder shall pay to the Taranaki Regional Council all the administration, monitoring and supervision costs of this consent, fixed in accordance with section 36 of the Resource Management Act 1991.

Special conditions

1. The dam shall include a concrete overflow channel that is roughened and has rocks fixed within it in a manner that, the Chief Executive, Taranaki Regional Council, has certified as providing passage for the migratory fish species that are likely to be present.
2. The structure licensed by this consent shall be maintained, to the satisfaction of the Chief Executive, Taranaki Regional Council. The dam shall remain the responsibility of the consent holder and be maintained so that:
 - a) it does not become blocked and at all times allows the free flow of water over it;
 - b) the integrity of the structure is protected;
 - c) fish passage is not impeded; and
 - d) any erosion, scour or instability of the stream bed or banks that is attributable to the structure authorised by this consent is remedied by the consent holder.
3. In accordance with section 128 and section 129 of the Resource Management Act 1991, the Taranaki Regional Council may serve notice of its intention to review, amend, delete or add to the conditions of this resource consent by giving notice of review during the months of June 2016 and/or June 2022 for the purpose of ensuring that the conditions are adequate to deal with any adverse effects on the environment arising from the exercise of this resource consent, which were either not foreseen at the time the application was considered or which it was not appropriate to deal with at the time.

Transferred at Stratford on 26 November 2018

For and on behalf of
Taranaki Regional Council

A D McLay
Director - Resource Management

Discharge Permit
Pursuant to the Resource Management Act 1991
a resource consent is hereby granted by the
Taranaki Regional Council

Name of
Consent Holder: Silver Fern Farms Limited
PO Box 941
Dunedin 9054

Decision Date: 27 July 2010

Commencement Date: 27 July 2010

Conditions of Consent

Consent Granted: To discharge stormwater from a meat processing plant into the Tawhiti Stream in the Tangahoe catchment

Expiry Date: 1 June 2028

Review Date(s): June 2022 and/or within 3 months of receiving a notification under special condition 8

Site Location: Tawhiti Road, Hawera

Grid Reference (NZTM) 1711288E-5618349N

Catchment: Tangahoe

Tributary: Tawhiti

*For General, Standard and Special conditions
pertaining to this consent please see reverse side of this document*

General condition

- a. The consent holder shall pay to the Taranaki Regional Council all the administration, monitoring and supervision costs of this consent, fixed in accordance with section 36 of the Resource Management Act 1991.

Special conditions

1. The consent holder shall at all times adopt the best practicable option, as defined in section 2 of the Resource Management Act 1991, to prevent or minimise any adverse effects on the environment from the exercise of this consent.
2. The stormwater discharge shall be from a catchment area on the site not exceeding 3.8 hectares.
3. Any significant volumes of hazardous substances (e.g. diesel fuel, hydrochloric acid and sulphuric acid) on site shall be:
 - a) contained in a double skinned tank, or
 - b) stored in a dedicated bunded area with drainage to sumps, or to other appropriate recovery systems, and not directly to the site stormwater system.
4. Constituents of the discharge shall meet the standards shown in the following table.

Constituent	Standard
pH	Within the range 6.0 to 9.0
suspended solids	Concentration not greater than 100 gm ⁻³
oil and grease	Concentration not greater than 15 gm ⁻³

This condition shall apply before entry of the treated stormwater into the receiving waters at a designated sampling point approved by the Chief Executive, Taranaki Regional Council.

5. After allowing for reasonable mixing, within a mixing zone extending 100 metres downstream of the discharge point, the discharge shall not, either by itself or in combination with other discharges, give rise to any or all of the following effects in the receiving water:
 - a) the production of any conspicuous oil or grease films, scums or foams, or floatable or suspended materials;
 - b) any conspicuous change in the colour or visual clarity;
 - c) any emission of objectionable odour;
 - d) the rendering of fresh water unsuitable for consumption by farm animals;
 - e) any significant adverse effects on aquatic life.
6. The consent holder shall maintain a contingency plan. The contingency plan shall be adhered to in the event of a spill or emergency and shall, to the satisfaction of the Chief Executive, Taranaki Regional Council, detail measures and procedures to be undertaken to prevent spillage or accidental discharge of contaminants not authorised by this consent and measures to avoid, remedy or mitigate the environmental effects of such a spillage or discharge.

7. The consent holder shall maintain a stormwater management plan. This plan shall be adhered to at all times and shall, to the satisfaction of the Chief Executive, Taranaki Regional Council document how the site is to be managed in order to minimise the contaminants that become entrained in the stormwater. The plan shall include but not necessarily be limited to:
- a) the loading and unloading of materials;
 - b) maintenance of conveyance systems;
 - c) general housekeeping; and
 - d) management of the interceptor system.

A Stormwater Management Plan template is available in the Environment section of the Taranaki Regional Council's web site www.trc.govt.nz.

8. The consent holder shall notify the Chief Executive, Taranaki Regional Council, prior to making any changes to the processes or operations undertaken at the site, or the chemicals used or stored on site, that could alter the nature of the discharge. Any such change shall then only occur following receipt of any necessary approval under the Resource Management Act. Notification shall include the consent number, a brief description of the activity consented and an assessment of the environmental effects of any changes, and be emailed to worknotification@trc.govt.nz.
9. In accordance with section 128 and section 129 of the Resource Management Act 1991, the Taranaki Regional Council may serve notice of its intention to review, amend, delete or add to the conditions of this resource consent by giving notice of review:
- a) during the month of June 2016 and/or June 2022; and/or
 - b) within 3 months of receiving a notification under special condition 8 above;

for the purpose of ensuring that the conditions are adequate to deal with any adverse effects on the environment arising from the exercise of this resource consent, which were either not foreseen at the time the application was considered or which it was not appropriate to deal with at the time.

Transferred at Stratford on 26 November 2018

For and on behalf of
Taranaki Regional Council

A D McLay
Director - Resource Management

Discharge Permit
Pursuant to the Resource Management Act 1991
a resource consent is hereby granted by the
Taranaki Regional Council

Name of
Consent Holder: Silver Fern Farms Limited
PO Box 941
Dunedin 9054

Decision Date: 31 August 2010

Commencement Date: 31 August 2010

Conditions of Consent

Consent Granted: To discharge emissions into the air from meat processing operations and associated activities

Expiry Date: 1 June 2028

Review Date(s): June 2022

Site Location: Tawhiti Road, Hawera

Grid Reference (NZTM) 1711249E-5618267N (Meat Processing Site)
1711306E-5618098N (Paunch Disposal Site)

*For General, Standard and Special conditions
pertaining to this consent please see reverse side of this document*

General condition

- a. The consent holder shall pay to the Taranaki Regional Council all the administration, monitoring and supervision costs of this consent, fixed in accordance with section 36 of the Resource Management Act 1991.

Special conditions

1. The consent holder shall at all times adopt the best practicable option, as defined in section 2 of the Resource Management Act 1991, to prevent or minimise any adverse effects on the environment from the exercise of this consent.
2. The consent holder shall minimise the emissions and impacts of contaminants discharged into air from the site by:
 - a) the selection of the most appropriate process equipment;
 - b) process control equipment and emission control equipment;
 - c) the methods of control;
 - d) supervision and operation;
 - e) the proper and effective operation, supervision, maintenance and control of all equipment and processes; and
 - f) the proper care of all stock on the site.
3. The discharges authorised by this consent shall not give rise to an odour at or beyond the boundary of the site that is offensive or objectionable.
4. The consent holder shall prepare and thereafter maintain a management plan for the paunch disposal area that, to the satisfaction of the Chief Executive of the Taranaki Regional Council, details how paunch disposal is to be managed to ensure there is no offensive and objectionable odour beyond the boundary of the site.
5. The consent holder shall notify the Chief Executive, Taranaki Regional Council, prior to making any changes to the processes or operations undertaken at the site, or the chemicals used or stored on site, that could alter the nature of the discharge. Any such change shall then only occur following receipt of any necessary approval under the Resource Management Act. Notification shall include the consent number, a brief description of the activity consented and an assessment of the environmental effects of any changes, and be emailed to worknotification@trc.govt.nz.

Consent 5599-2

6. In accordance with section 128 and section 129 of the Resource Management Act 1991, the Taranaki Regional Council may serve notice of its intention to review, amend, delete or add to the conditions of this resource consent by giving notice of review during the month of June 2016 and/or June 2022, for the purpose of ensuring that the conditions are adequate to deal with any adverse effects on the environment arising from the exercise of this resource consent, which were either not foreseen at the time the application was considered or which it was not appropriate to deal with at the time.

Transferred at Stratford on 26 November 2018

For and on behalf of
Taranaki Regional Council

A D McLay
Director - Resource Management

Taranaki Fish and Game Council

Water Permit
Pursuant to the Resource Management Act 1991
a resource consent is hereby granted by the
Taranaki Regional Council

Name of
Consent Holder: Taranaki Fish & Game Council
P O Box 4152
WANGANUI 4541

Decision Date: 29 July 2010

Commencement
Date: 29 July 2010

Conditions of Consent

Consent Granted: To take and use water from the Tawhiti Stream in the Tangahoe catchment for trout hatchery purposes at or about (NZTM) 1711249E-5618475N

Expiry Date: 1 June 2028

Review Date(s): June 2016, June 2022

Site Location: Tawhiti Road, Hawera

Legal Description: Pt Lot 2 DP 3291 Blk VI Hawera SD

Catchment: Tangahoe

Tributary: Tawhiti

*For General, Standard and Special conditions
pertaining to this consent please see reverse side of this document*

General condition

- a. The consent holder shall pay to the Taranaki Regional Council [the Council] all the administration, monitoring and supervision costs of this consent, fixed in accordance to section 36 of the Resource Management Act.

Special conditions

1. The volume of water taken shall not exceed 11.4 litres per second.
2. At all times the consent holder shall adopt the best practicable option to prevent or minimise any actual or likely adverse effect on the environment associated with the abstraction of water, including, but not limited to, the efficient and conservative use of it.
3. The consent holder shall ensure that the intake structure is screened and designed to avoid fish entering the intake.
4. In accordance with section 128 and section 129 of the Resource Management Act 1991, the Taranaki Regional Council may serve notice of its intention to review, amend, delete or add to the conditions of this resource consent by giving notice of review during the month of June 2016 and/or June 2022, for the purposes of ensuring that the conditions are adequate to deal with any adverse effects on the environment arising from the exercise of this resource consent, which were either not foreseen at the time the application was considered or which it was not appropriate to deal with at the time.

Signed at Stratford on 29 July 2010

For and on behalf of
Taranaki Regional Council

Director-Resource Management

Discharge Permit
Pursuant to the Resource Management Act 1991
a resource consent is hereby granted by the
Taranaki Regional Council

Name of
Consent Holder: Taranaki Fish & Game Council
P O Box 4152
WANGANUI 4541

Consent Granted
Date: 1 April 2010

Conditions of Consent

Consent Granted: To discharge water containing contaminants into the
Tawhiti Stream in the Tangahoe catchment from a trout
hatchery facility at or about (NZTM) 1711201E-5618461N

Expiry Date: 1 June 2028

Review Date(s): June 2016, June 2022

Site Location: Tawhiti Road, Hawera

Legal Description: Pt Lot 2 DP 3291 Blk VI Hawera SD

Catchment: Tangahoe

Tributary: Tawhiti

General condition

- a. The consent holder shall pay to the Taranaki Regional Council [the Council] all the administration, monitoring and supervision costs of this consent, fixed in accordance to section 36 of the Resource Management Act.

Special conditions

1. The consent holder shall at all times adopt the best practicable option, as defined in section 2 of the Resource Management Act 1991, to prevent or minimise any adverse effects on the environment from the exercise of this consent.
2. That allowing for a mixing zone of 25 metres, the discharge shall not give rise to any of the following effects in the receiving water:
 - a) the production of any conspicuous oil or grease films, scums or foams, or floatable or suspended materials;
 - b) any conspicuous change in colour or visual clarity;
 - c) any emission of objectionable odour;
 - d) the rendering of fresh water unsuitable for consumption by farm animals;
 - e) any significant adverse effects on aquatic life, habitats or ecology.
3. No additional chemical except potassium permanganate at a rate no higher than 20 ml/300 litres of water shall be added to the water abstracted [as described in the application].
4. No water through-flow shall be provided to those troughs receiving salt treatment.
5. If, as a consequence of the activity authorised by this consent, an event occurs that may have a significant adverse effect on water quality at Fonterra's registered drinking-water supply abstraction point [grid ref: 1711488E-5614967N] the consent holder shall, as soon as reasonably practicable, telephone the Taranaki Regional Council and [Fonterra Co-operative Group] and notify them of the event.
6. In accordance with section 128 and section 129 of the Resource Management Act 1991, the Taranaki Regional Council may serve notice of its intention to review, amend, delete or add to the conditions of this resource consent by giving notice of review during the month of June 2016 and/or June 2022 for the purpose of ensuring that the conditions are adequate to deal with any adverse effects on the environment arising from the exercise of this resource consent, which were either not foreseen at the time the application was considered or which it was not appropriate to deal with at the time.

Signed at Stratford on 1 April 2010

For and on behalf of
Taranaki Regional Council



Director-Resource Management

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.