



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

The application

Particulars

Applicant:	M & C Adams
Consents sought:	Dairy effluent discharge, groundwater abstraction and land use consent to use land for farming
Application reference:	APP-20181750
Site address or location:	1570 Otautau Nightcaps Road, RD 1, Otautau
New consent(s) for new activity(ies) (s88)	<input checked="" type="checkbox"/>
New consent(s) for existing activity(ies) (s88)	<input checked="" type="checkbox"/>
Change to conditions of existing consent(s) (s127)	<input type="checkbox"/>
Activity status	Discretionary

The key issues to be considered for the decision on notification relate to the land use consent. Specifically, we must consider whether effects resulting from the proposed change in land use will be more than minor, including in relation to:

- Off-site effects, from the re-location of cows which had previously been wintered on the Northern Block; and
- Nutrient losses from the landholding, in comparison to its current use.

Recommendation and decision

Officer's recommendation

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

- Any adverse effects from the discharge and water activities are expected to be no more than minor;
- The applicant has demonstrated that the nutrient losses resulting from the proposed change in land use are expected to be less than those occurring in the current scenario, including when the off-site effects are taken into account;
- The application is consistent with the objectives directing water quality to be maintained or improved; and
- The applicant has demonstrated that the effects resulting from the proposed change in land use are expected to result in improved water quality in the Waicolo Stream, the waterways downstream of the landholding, and the Jacobs River estuary. Any adverse effects are not expected to be more than minor.

10.1	The application be processed non-notified	<input checked="" type="checkbox"/>
10.2	Public notification is required/recommended	<input type="checkbox"/>
10.3	The application be placed on hold while the applicant tries to obtain written approvals from the affected persons	<input type="checkbox"/>
10.4	Limited notification is required. Persons to be served notice are those listed in 8.2	<input type="checkbox"/>



Lauren Maciaszek
Senior Consents Officer

Date: 11 December 2018

Decision under Delegated Authority

My understanding of the proposal is that:

- Dairy farming on the current land holding is a permitted activity;
- The proposed addition of further dairy cows and expansion of the dairy platform triggers rule 20 of the pSWLP, so land use consent is required for farming;
- When the current and future modelled contaminant losses from the entire landholding are compared, overall N losses are modelled to decrease, and overall P losses increase slightly. The applicant has assessed that P losses overall will, in reality, actually decrease due to the implementation of good management practices and some mitigations however this is hard to quantify as both the plan and OVERSEER assume GMP's are already in place on a property.
- Importantly, the proposal also includes the replacement of current and recent intensive winter grazing with dairy farming on the Northern Block. It also includes replacement of sheep grazing with dairy farming on the Eastern Block;
- When looking at the effects of an expansion onto the new blocks that have previously been used for sheep farming, N, P, sediment and microbial losses will increase from the localised area;
- The applicant's proposal also displaces current activities from the proposed new blocks. Doing so creates 'head room' in the nutrient budget, which they propose to occupy with the new additional dairy farming; and
- Viewing the proposed activities broadly, a consequence of the applicant's proposal will be that new, additional or further intensified wintering of animals may occur elsewhere. The same may be the case for the sheep farming. Losses will increase from a change of land use on land not previously used for dairy farming operations, and the exact effects of that has not been adequately assessed for the proposal.

S 95A notification test

Notification memorandum

The question to be answered at this stage in the consent process is in s 95A(8)(b) and is whether “the activity will have or is likely to have adverse effects on the environment that are more than minor.” For completeness, provisos applying to the assessment of effects are set out in s 95D though none are relevant to this decision. This is because first, the application is for a discretionary activity so s95D(c) does not constrain the assessment, and second, policy 39 of the pSWLP expressly removes the ‘permitted baseline’ test from the assessment.

Leaving these matters aside therefore, there are two main elements in this test in s 95A(8)(b):

- The significance of adverse effects on the environment. This is a question about evaluating the importance of effects, rather than a question about the effects themselves.
- The likelihood of more than minor effects occurring. This is a question of how likely it is that the effects will be more than minor.

Environmental effects

The nutrient budgets provided by the applicant show that environmental effects arising from the activities on the landholding would be negligibly different under the proposed farming scenario. The losses calculated are more or less the same and it follows logically that the environmental effects would also be similar (making some assumptions about timing and intensity of the land uses causing these contaminant losses).

However I do not accept that the environmental effects of the activity proposed are likely to be minor or less than minor, especially when cumulative effects are considered.

For this application I consider that there are three main factors at play that are likely to mean the effects are more than minor:

1. Change of land use on the Eastern block:

An increase of losses, and subsequently environmental effects, will occur on the eastern block, and are likely to have a more than minor effect when compared to the current land use. The application does not assess what these effects are likely to be in detail, especially at block detail and instead the application relies on ‘offsetting’ losses and therefore, effects over the entire landholding.

2. Overseer, pSWALP and GMP/ Mitigations:

The applicant has relied heavily on modelling software, Overseer, and have supplied detailed calculations that relate to their modelling, to formulate their assessment of environmental effects, and to quantify how effective putting in place GMP and mitigations will be for reducing losses. However Overseer only informs on possible losses from below the root zone of pasture and does not assess where losses will move to and what impact losses will have on the wider receiving environment.

Intensive winter grazing displaced from the Northern Block has been modelled by Overseer on similar land elsewhere. While the modelling itself is accepted as appropriate, the use of Overseer to quantify nutrient losses still has inherent uncertainty.

My confidence in the use of overseer is further reduced by the fact that the model assumes that GMP’s are in place on the property – for both the current and proposed scenario. However, the applicant has offered that to reduce losses, they will implement GMP moving forward but the model has already assumed this for their current operation. Furthermore, the pSWALP requires all farms to implement GMP

in order to operate as a permitted activity, so the GMP's that have been offered in the proposal to reduce losses are required by the plan anyway for the current operation. Mitigations are considered to be actions or infrastructure that go "above and beyond" the required level of GMP and the applicant has offered only minimal actual mitigations to reduce their losses for the proposal.

Because of these factors, I am not convinced that the actual effects of the activity will be as minimal as the application details.

3. Displacement of intensive winter grazing from Northern block:

The application is also clear that past and current intensive winter grazing and sheep farming form part of the existing environment, for the purposes of assessing the effects on the environment arising from the proposal. Ceasing those activities on the Northern and Eastern blocks obviously would reduce the contaminant losses occurring there. This is recognised by the applicant, and is deliberately part of the proposal, as it provides for a different activity (dairy farming) to occur there instead without increasing contaminant losses from the landholding as a whole.

Conclusion

In the applicant's nutrient budget for the landholding, which remains more or less neutral for the property as a whole, an additional 150 dairy cows will be accommodated on the landholding. While the applicants have used Overseer and additional calculations to demonstrate that nutrient losses are expected to decrease over the landholding as a whole, there is still a level of uncertainty due to the Overseer margins of error and the mitigation measures or good management practices which are already expected to be in place.

While the nutrient losses over the landholding as a whole could decrease under the proposal, the change in land use on the Eastern Block from sheep farming to dairying is expected to result in an increase in nutrient losses from that part of the property. These losses have not been specifically quantified.

The significance of environmental effects, for the purposes of s 95A(8)(b), is derived by looking at the effects themselves in the context of the relevant regional plan policies and objectives. This is the approach that should be employed as confirmed some time ago in *Discount Brands* and more recently in *Tasti*.

In the case of the pSWLP, the objective of principle importance in this case is Objective 6 which states that:

There is no reduction in the overall quality of freshwater, and water in estuaries and coastal lagoons, by (a) maintaining [...] and (b) improving the quality of water [depending on its status]

The context for considering the significance of the effects of this proposal, therefore, is that water quality must, as a minimum, be maintained. In my view, when applying a framework where there must be 'no reduction in water quality,' it is hard to see how anything other than a trifling effect on water quality could be viewed as "less than minor".

, I cannot conclude that this is more likely than not to have a trifling effect on water quality, which could be viewed as less than minor. The context for assessing these effects, meaning the policy framework in the pSWLP, is so intolerant of additional effects on water quality that I consider the effect of the proposal is likely to be more than minor.

- In my opinion the adverse effect on the environment is 'more than minor'.
- The likelihood that more than minor effects will occur is high.

11.1 I agree with the recommendation	<input type="checkbox"/>
11.2 The application will be processed non-notified	<input type="checkbox"/>
11.3 The application will be publicly notified	<input checked="" type="checkbox"/>
11.4 The application shall be placed on hold while the applicant tries to obtain written approvals from the affected persons	<input type="checkbox"/>
11.5 The application will be limited notified. The parties to be served notice are those listed in section 8.2	<input type="checkbox"/>

This decision is made under delegated authority by:



Aurora Grant
Acting Consents Manager

Date: 11 January 2019

The proposal

This application

The applicants own an existing dairy farm near Nightcaps, which was converted to dairy farming in 2014. The applicants are applying to replace the existing consents to authorise:

- The abstraction of up to 126.5 cubic metres per day of groundwater;
- The discharge of dairy shed effluent from up to 1,150 cows; and
- The use of land for dairy farming of up to 1,150 cows and the inclusion of additional land in the dairy platform.

As part of this application:

- Two additional blocks of land will be added to the dairy farm, which are referred to in the application as the Northern Block and the Eastern Block.
- The landholding is the existing dairy platform and the two new blocks. They do not own any lease blocks or run-off blocks.
- 530 cows owned by other farmers will be sent elsewhere for wintering if the application is granted. The effects of this are assessed further on in this report.
- N losses on the property are expected to decrease by 6kg/ha in comparison with the current scenario and P losses are expected to decrease overall. The effects of this are assessed further on in this report.

Consents currently authorise the abstraction of up to 110 cubic metres of groundwater per day for stock drinking water and dairy shed washdown and the discharge of effluent from the milking of up to 1,000 cows.

Previous application

The applicants had first lodged an application to include the additional land and increase cow numbers to 1,300. It was decided that that application would be publicly notified due to the off-site effects of cows which had been wintered on the additional land needing to be wintered elsewhere. This was because the removal of the wintering operation from the property essentially created the space within the nutrient budgets to allow for the increase in cow numbers, but did not account for the increased losses of those cows being wintered elsewhere. The applicants re-considered their proposed activities and lodged this application to milk fewer additional cows and winter the whole herd on the expanded dairy farm.

Water permit	
Relevant rules	RWP: Rule 23(c)(i) – restricted discretionary pSWLP: Rule 54(d) - discretionary
Source of water	Bore D45/0318
Groundwater zone	Upper Aparima (RWP & pSWLP)
Aquifer type	Terrace
Rate of take (L/s)	1.5L/s when averaged over 24 hours Maximum capacity of the pump is 2.9L/s
Freshwater storage onsite? How much?	120m ³
Daily volume (m ³ /day)	126.5
Consistent with 120 L/cow/day?	Equates to 110L/cow/day

Yearly volume (m ³ /year)	46,172.5
Discretionary allocation (m ³ /year)	46,500,000 (RWP) 56,930,000 (pSWLP)
Amount currently allocated (m ³ /year and % of discretionary allocation)	1,939,405 (RWP – 7.3% of allocation and 1% of land surface recharge) 3,591,650 (pSWLP – 3.9% of allocation)

FDE discharge permit	
Relevant rule(s)	RELAP: Rule 5.4.6 - discretionary ¹ pSWLP: Rule 35(c) - discretionary
Cow numbers	1,150
Stocking rate (cows/ha)	2.4 (whole property including expansion)
Winter milking proposed?	No
Other sources of effluent?	200m ³ vat stand, tanker stand, and other concreted areas
Effluent disposal area (ha)	245
Irrigation method	Travelling irrigator, low rate pods, and slurry tanker
Application rate and depth	10mm/hour rate and 15mm depth for travelling irrigator and pods Slurry tanker – 5mm depth
Storage available (m ³)	6,136m ³ of pumpable storage
Massey pond calculator 90% storage requirement (m ³)	4,752 (based on milking 1,300 cows)

Land use consent	
Relevant rule	Rule 20(e) - discretionary
Increase in cow numbers?	From 1,000 to 1,150
Increase in farm area? Size of increase in ha	From 328 to 488ha

The consent to convert the property to dairy farming is still current, but the applicants have advised that they would like to surrender it. There are no conditions of the conversion consent which this application would contradict.

The applicant has modelled predicted nutrient losses using the Overseer Software. The applicant has taken a conservative approach to modelling the current scenario and the nutrient budgets have been reviewed for a 'sensitivity check' by Kelly Heckler, who is a Certified Nutrient Management Advisor. She has confirmed that the figures that have been used in the budgets are appropriate and that the Overseer Best Practice Data Input Standards have been followed.

The table below shows the nutrient losses from the current and proposed scenarios, including the off-site effects that have been modelled to help inform the assessment of the effects of the proposed scenario which would occur outside of the landholding.

¹ As the activity includes the discharge at low rates to land mapped as Category C, the discharge is not specifically addressed by the RWP and will revert to Rule 5.4.6 of the RELAP instead.

	Current scenario	Proposed scenario (on-site)	Off-site effects of proposed scenario	Total proposed
N Loss to water (kg/ha/yr)	51	45	148	
N Loss to water (kg/yr)	24,685	21,893	2,560	24,453
P Loss to water (kg/ha/yr)	1.1	1.2	1.6	
P Loss to water (kg/yr)	560	579	28	607

The expansion of the dairy farm to add two additional blocks of land and increase cow numbers is to be undertaken in accordance with proposed mitigation measures and current good management practices (GMPs). Each of these has a varying degree of effectiveness in terms of nitrogen, phosphorus, microbes (e.g. E.coli) and sediment. The mitigation measures and GMPs for the landholding relate to the specific characteristics of the physiographic zones and are shown in the table below:

Mitigation/GMP	Assessed in Overseer?	Effectiveness	Implementation timeframe	Mitigation measure or GMP?
Fencing and planting of streams	Yes	52-61%	Done	Good management practice
Appropriate vegetated buffers from waterways	No	38-58%	Done	Both, as not assessed in Overseer
Leave vegetated areas around critical source areas	No	38-58%	From first exercise of new consent	Both, as not assessed in Overseer
Provide sufficient effluent storage to enable deferred application	Partially	12-17%	Done	Good management practice
Minimising run-off from tracks, lanes, and stream crossings using cut-offs and shaping	No	Up to 30%	From first exercise of new consent	Both, as not assessed in Overseer
Decommissioning lane adjacent to waterway on Northern Block	No	Up to 100%	Prior to consent being exercised	Mitigation measure
Using low rate effluent application	Yes	25-32%	Done	Good management practice
Cultivate along contours on sloping ground on Northern Block	No	Unknown	From first exercise of new consent	Good management practice
No grazing on steeper slopes when soils are near saturation	No	Unknown	From first exercise of new consent	Good management practice
Spread fertiliser evenly and precisely	Yes	Unknown	Done	Good management practice
Avoid applying fertiliser directly to streams	No	Unknown	Done	Good management practice
Targeting optimum Olsen P	Yes	Unknown	Done	Good management practice
Restricted grazing	Unlikely	42-70%	From first exercise of new consent	Good management practice
Shifting break fences strategically	No	86%	From first exercise of new consent	Good management practice

The table above shows which measures identified by the applicants are mitigation measures and which are good management practices. Overseer assumes that good management practices are being used, which means that some of the GMPs are already accounted for in Overseer. Other good management practices are not accounted for in Overseer and are therefore not taken into account by the budgets, which means that they could be considered both a GMP and a mitigation measure as they represent something additional that the applicants are putting in place to mitigate the effects as modelled.

This means that the mitigation measures are of most importance to assessing this application, as they represent the difference between the effects of the change that have been modelled, and additional steps taken to mitigate those effect. These are:

- Maintaining appropriate vegetated buffers from waterways;
- Leaving vegetated areas around critical source areas;
- Minimising run-off from tracks, lanes, and stream crossings using cut-offs and shaping; and
- Decommissioning the lane adjacent to the waterway on the Northern Block.

Nitrogen

The budgets show that the N losses on the property are expected to decrease by 6kg/ha in comparison with the current scenario. The total N losses on the landholding are modelled as decreasing by 2,792kg (11%) compared to the current scenario.

In addition to modelling the losses on the landholding, the applicants have addressed the effects which could be expected to occur off-site. This is because 530 cows which were previously wintered on the Northern Block will be displaced and will have to be wintered elsewhere. The applicants have modelled the 530 cows being wintered on 17.3ha of fodder beet on a site with similar characteristics to the Northern Block. This resulted in a modelled average N loss per hectare of 148kg, and a total N loss of 2,560kg.

This means that the expected N losses of the off-site effects need to be added to the N losses resulting from the proposed scenario on the property in order to compare the total nutrient losses resulting from the proposed expansion of the dairy farm. The total combined N losses resulting from the proposed scenario and the off-site effects are 24,453kg, which is a decrease of 232kg (0.9%).

Phosphorus

The budgets show that the P losses on the property are modelled to increase by 0.1kg/ha and increase by 19kg in total (3%). However, most of the good management practices and mitigation measures identified above are not recognised by Overseer and will relate directly to mitigating P losses. Reasons that the P losses are expected to be lower than those modelled include:

- Overseer assumes that 30% of the P on laneways is lost to water, which means that additional laneways will automatically result in an increase of P. However, no new laneways will be adjacent to waterways;
- Wintering on the Northern Block will occur less often as it will be rotated around the landholding. This means there will be bare soil on the sloping Northern Block less often;
- Overseer does not account for mitigation measures within a block, such as managing critical source areas; and
- The waterways on the property are already fenced and planted.

The off-site wintering model showed an average P loss per hectare of 1.6kg, and a total P loss of 28kg. This means that the expected P losses of the off-site effects need to be added to the P losses resulting from the proposed scenario on the property in order to compare the total nutrient losses resulting from

the proposed expansion of the dairy farm. The total combined modelled P losses resulting from the proposed scenario and the off-site effects are 607kg, which is an increase of 47kg (8%).

The applicant has provided calculations outside of Overseer to demonstrate that P losses will actually reduce below the losses modelled in the current scenario. While there are a range of mitigation measures and GMPs which the applicant has stated are expected to reduce P losses, they have chosen to demonstrate three areas where the P losses are less than those modelled. These are shown in the table below.

Cause	Reduction expected	Reasoning
Laneway management	12kgP/year	Have calculated the total volume of P on lanes, and modelled by Overseer as being lost to water. This will increase by 31kgP/year with the additional cows and land, but with the mitigation measures in place (which are conservatively expected to be 38% effective), 12kgP/year will be mitigated.
Critical Source Area management on the Northern Block	45kgP/year	Based on the blocks entered into the Overseer budgets for the Northern Block, and assuming a 38% reduction from the use of vegetated buffer zones (which is the conservative end of the 38-58% expected effectiveness of the mitigation measure).
Existing environment for off-site effects	10kgP/year	While not a mitigation measure, the applicant has demonstrated the possible P losses forming the existing environment if the 17.3ha of land modelled as the off-site intensive winter grazing had been previously used for sheep farming. It shows that rather than an increase in P losses of 28kg/year, the increase is only expected to be 18kg due to the 10kg that would form the existing environment.

Overall, the applicant has demonstrated that through these three causes of change to the losses modelled in Overseer, the P losses resulting from the proposed activity are expected to be at least 20kg lower than in the current scenario. This is an overall decrease of 4.6% in the proposed scenario compared to the current scenario.

Public notification consideration

1. Is notification mandatory?

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

2. Is notification precluded?

2.1 Is each activity subject to a rule or NES that precludes public notification?	<input type="checkbox"/> Yes	Rule(s): enter rule Go to 4.1
	<input checked="" type="checkbox"/> No	Go to step 2.2
2.2 Is each activity a controlled activity?	<input type="checkbox"/> Yes	Application must not be publically notified unless there are special circumstances. Go to 4.1
	<input checked="" type="checkbox"/> No	Go to 2.3
2.3 Is each activity a residential activity and a discretionary activity or a restricted discretionary activity?	<input type="checkbox"/> Yes	Application must not be publically notified unless there are special circumstances. Go to 4.1
	<input checked="" type="checkbox"/> No	Got to 3.1

3. Is notification required?

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

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

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

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

The existing environment

The dairy farm is located predominantly within the Waicolo Stream catchment, with parts of the property within the Opio Stream and Wairio Stream catchments. The Waicolo Stream flows adjacent to the Northern Block and through the current dairy platform. All three of these streams are part of the wider Aparima River catchment.

Additional land

The applicants are applying to include two additional blocks of land within the dairy farm, which are referred to in the application as the Northern Block and the Eastern Block.

The Northern Block is immediately north of the current dairy platform, and is adjacent to the south-eastern edge of Nightcaps. The Waicolo Stream flows along the north-eastern boundary of the Northern Block. Its predominant physiographic zones are Gleyed, Bedrock/Hill Country, and Lignite-Marine Terraces, all of which have the overland flow variant.

The Northern Block has previously been used for intensive winter grazing, with the area of crop and number of cows grazed continually over the last four years.

The Eastern Block is north-east of the existing dairy platform, and is adjacent to the Opio Stream. It is within the Gleyed physiographic zone, part of which has the overland flow variant to the west.

The Eastern Block has previously been used as a sheep breeding and finishing block prior to its purchase by the applicants in December 2017, and has since been used as a silage block.

Soils and Physiographic zones

According to Topoclimate soil maps, the landholding is located on Aparima, Ohai, and Makarewa soils. All three soil types are present in the proposed discharge area, with the Aparima soils being the predominant soil type within the discharge area.

Soils	Soil Type	Vulnerability Factors		
		Structural Compaction	Nutrient Leaching	Waterlogging
	Aparima	Moderate	Moderate	Moderate
	Ohai	Slight	Slight	Severe
	Makarewa	Moderate	Slight	Severe
FDE land classification (discharge area)	Category A (artificial drainage or coarse soil structure) - 80% Category C (sloping land) – 20%			
Physiographic zones	Gleyed – no variant Gleyed – overland flow variant Bedrock/Hill Country – artificial drainage variant Bedrock/Hill Country – overland flow variant Lignite-Marine Terraces – overland flow variant Lignite-Marine Terraces – artificial drainage variant			
Groundwater quality	Low levels of groundwater nitrates shown in nearby bores (0.05-4.2mg/L in 5 closest bores from 2012-2017)			

The discharge area and physiographic zones on the property indicate that the primary risk of effluent discharge is to surface water via overland flow or artificial drainage. Similarly, the primary risk of nutrient loss from the farming operation on the landholding as a whole is to surface water via overland flow or artificial drainage.

Surface water quality

The application includes data from Land and Water Aotearoa, from the Otautau Stream at the Otautau-Tuatapere Road monitoring site, which is the nearest downstream site. The application states that the results they had included showed that water quality for all parameters measured was not good when compared with other lowland rural sites.

All three waterways on the landholding flow into the Otautau Stream and then the Aparima River, which flows into the Jacobs River Estuary. The application identifies that water quality in the estuary is moderately to highly degraded (low clarity, elevated faecal coliforms, elevated nutrients), and that sedimentation has resulted in areas of soft muds which are poor in oxygen with elevated sulphide concentrations. Nuisance blooms of macroalgae are also common, and the application describes the water as often having a greenish tinge.

Slope

The northern part of the proposed discharge area, the western part of the Eastern Block, and most of the Northern Block are shown by the FDE land classification as Category C land, which means that it is sloping above 7 degrees. However, more recent slope data is available on Council's GIS system, which was informed by LIDAR imaging. It shows that there is no slope above 7 degrees on the property.

On the site visit for the previous application, I viewed all parts of the property and noted that the current dairy platform is gently rolling, the Eastern Block is flat to gently rolling, and the Northern Block is rolling.

Adverse effects of the proposed activities on the environment

Consideration of the following effects is required:

- effects on water quality, including potential for contamination of groundwater and surface water, and effects on sources of human drinking water;
- effects on water quantity (including stream depleting effects);
- soil health; and
- odour.

Water Quality

Discharge of effluent to land

Potential adverse effects of discharging effluent onto land include contamination of groundwater and contamination of surface waterways. The applicant has proposed mitigation measures that will be adopted to minimise adverse effects arising from the activity:

- The use of the proposed discharge methods is appropriate because the low rate pods are available, the slope is suitable for a travelling irrigator, and the travelling irrigator is able to apply at a rate of less than 10mm/hour.
- There is a large amount of storage available on the property, with the Dairy Effluent Storage Calculator showing that there is approximately 1,300 cubic metres of pumpable storage above the 90% probability volume identified by the calculator. The calculation is also conservative as it is for 1,300 cows rather than 1,150 proposed in the application.

The effluent storage pond is clay-lined and has not been drop tested. However, I do not consider it necessary to drop test the pond during the course of this application, because:

- It was constructed relatively recently in 2014;
- I have viewed pond on the site visit and it is in well-kept condition;
- Its use in relation to Rule 32D of the pSWLP is currently permitted under section 20A; and
- As the existing discharge consent does not expire until 2024, the discharge of dairy shed effluent to land using the pond forms part of the existing environment until 2024. The proposed plan and its provisions relating to the use of effluent storage ponds is expected to be operative in about 2020,

and the applicant would be required to ensure that the use of the pond is permitted or apply for consent within 6 months of the rule becoming operative.

When applied to soils in an appropriate manner, the effluent can act as a nutrient. The proposed storage capacity (detailed in Section 1.1 of this report) will allow for the scheduling of effluent irrigation based on soil moisture deficits. This will decrease the potential for nutrient loss to water.

Over application, or application at the wrong time, when soils are at field capacity, would likely accelerate the loss of those nutrients out of the root zone and into groundwater (and/or surface water via artificial drainage networks).

Land use consent – use of land

Off-site effects

In assessing the off-site effects, the applicant has assumed that the wintering of the 530 displaced cows will take place on similar land. This is likely to be a conservative assumption (particularly in relation to P losses), as the rolling land on the Northern Block has a high level of risk of overland flow. The assessment of the off-site effects includes the following notes:

- Different locations (including with different soil types and climate) would result in different loss data; and
- Modelling the off-site effects for consideration of the proposed scenario assumes that all cows will be wintered in Southland and on crop.

There will also be a small increase in losses resulting from young stock being raised off-site. Young stock from the property are raised with graziers, and the modelling shows an increase in calves on the farm (until the end of December each year) from 234 in the current scenario to 300 in the proposed scenario. A corresponding increase in the number of young stock would be expected to be raised by graziers off-site, but the effect of this is expected to be minimal because the activity is of lesser impact when compared to dairy farming or intensive winter grazing. Between the conservative modelling undertaken for the current scenario and the expected decrease in losses resulting from that modelling, the change in land use is expected to reduce nutrient losses to compensate for any increase in losses related to young stock.

Effects of the proposed use of land

The four key contaminants to consider in relation to the application are nitrogen, phosphorus, sediment, and *E. coli*. Nitrogen and phosphorus have been addressed in detail above. I accept the applicants' explanation that sediment and *E. coli* are expected to have the same predominant pathway to surface water via overland flow as phosphorus, and that the same mitigation measures would apply. The good management practices which reduce N losses via deep drainage will also help to reduce *E. coli* losses to groundwater if any losses do occur via deep drainage, but the predominant contaminant pathway for the property is overland flow to surface water.

The applicants have considered the effects of the proposed change in land use on the waterways which flow through or adjacent to the property:

- The western part of the landholding is in the Wairio Stream catchment. The Wairio Stream flows to the west of the farm, approximately 250m away from the boundary at its closest point. There are two roads in between the stream and the landholding boundary, and is not expected to be at risk of overland flow from the activities on the farm.
- The Opio Stream runs along the eastern boundary of the Eastern Block. The land on the Eastern Block is flat, and the stream has already been fenced. The applicants have advised that there is already established riparian vegetation in place, and that changes to the stream are not expected from the proposed change in land use.

- The Waicolo Stream flows along the eastern boundary of the Northern Block and then flows through the existing dairy platform. The applicants have described that an improvement in water quality in this stream is expected, through the good management practices explained in earlier sections. They are expected to result in less run-off of sediment and associated contaminants (primarily phosphorus and *E. coli*) through overland flow, and a reduction in nitrogen losses below the root zone and to water.

The water quality for all parameters measured at the nearest downstream surface water quality monitoring site was not good when compared with other lowland rural sites. The applicants have identified that the levels of dissolved reactive phosphorus at the nearest downstream monitoring site are likely degrading, and that the proposed change in land use in accordance with the mitigation measures and GMPs is expected to result in a reduction of P losses to water. This will help to improve the levels of dissolved reactive phosphorus at this site. The *E. coli* levels at the nearest downstream monitoring site are currently of concern as they are in E band for the National Objective Framework under the NPSFM 2017, which means that there is a high risk of infection to waders/boaters. However, the trend is likely improving, and the expected reduction in *E. coli* losses to water from the proposed change in land use on the landholding is expected to assist in further reduction in *E. coli* levels at this monitoring site.

Water quality in the Jacobs River estuary is described as moderately to highly degraded, with eutrophication and sedimentation being issues for the estuary. As the proposed change in land use is expected to result in less nitrogen, phosphorus, sediment, and *E. coli* being lost to water, the applicants expect a corresponding decrease in the contaminants being transported down to the estuary. They have stated that this will help to reduce the risk of adverse effects associated with elevated nutrient levels, sediment, and microbial contamination in the estuary, including on coastal ecosystem health and human health.

I accept that the nutrient losses are expected to reduce as a result of the proposed change in land use, as demonstrated by the applicants through nutrient budgets and calculations. As a result, I agree with the applicants' assessment that the effects of the change in land use will be:

- A reduction in nitrogen, phosphorus, sediment, and *E. coli* entering the Waicolo Stream;
- Improvement in water quality as measured at the nearest downstream monitoring site; and
- A reduction in the sediment, nutrient, and microbiological contaminant load being transported downstream to the Jacobs River Estuary.

Conclusion

Overall, I consider that the applicants have accurately demonstrated that the key contaminants of concern will reduce as a result of the proposed change in land use. This is because:

- Nitrogen losses are modelled as decreasing in the Overseer budgets;
- Additional calculations have been provided to demonstrate that phosphorus losses will decrease;
- Sediment and *E. coli* losses to water are expected to be addressed by the same mitigation measures as phosphorus;
- While there will be a small increase in the number of young stock raised off-site and the nutrient losses from this increase are unknown, any increase in losses is expected to be minimal.
- The applicants have modelled the existing environment conservatively, which reduces the margin by which nutrient losses will decrease and provides Council with additional certainty;
- The applicants have included the off-site effects which will occur when wintering of cows from other farms will be displaced, and modelled these off-site effects conservatively.

The applicants have accounted for the specific vulnerabilities of the receiving environment through the adoption of mitigation measures specific to the contaminant pathways for the property. The calculations provided related to the over-estimation of losses occurring on laneways (which will be further managed

as a mitigation measure), and the management of critical source areas and their margins, which are among the key mitigation measures identified. I agree with their assessment that the changes on the property will result in a reduction of nitrogen, phosphorus, sediment, and E. coli losses to water, and that the change will contribute towards an improvement to water quality in the Waicolo Stream, downstream waterways, and the Jacobs River estuary.

Water Quantity

The rate of abstraction is 1.5 litres per second when averaged over 24 hours. At this rate of abstraction, Council's Science team have advised that stream depletion effects are not expected.

The Upper Aparima groundwater zone will not be fully or over-allocated under either the RWP or the pSWLP as a result of the proposed abstraction.

Soil Health

The effluent disposal field will be 245 hectares. This figure is more than the area needed to meet the minimum requirement of 4 hectares per 100 cows, which is calculated to achieve a maximum loading of 150 kg of nitrogen/hectare/year from effluent irrigation and more than the 8 hectares per 100 cows as recommended in the Best Practice Guidelines Booklet².

Provided the effluent is applied at the appropriate rate and depth (as specified in the consents conditions), soil health and available nutrients should be maintained and enhanced.

Odour

As long as the effluent is applied in accordance with the specified application rates and depths, and the buffers specified by recommended consent conditions are maintained, then there should be little risk of adverse effects from odour and spray drift on surrounding land owners and occupiers.

Adverse effects that have been disregarded

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

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

Council may also disregard an adverse effect if a rule or national environmental standard permits an activity with that effect.

Effects on parties who own or occupy adjacent land have been disregarded from this consideration of effects on the environment. Effects on specific parties are considered in sections 6-8 below.

Planning provisions (policies and objectives) relevant to adverse effects

Currently the Southland Regional Council is working with three regional plans, the operative Southland Water Plan, the RELAP and the proposed Southland Water and Land Plan (decisions version). As the adverse effects of the activity relate largely to the use of land I have focused my attention on the pSWLP and the land use activity.

² Farm Dairy Effluent, Best Practice Guidelines (2007), Environment Southland Notification memorandum

The Council's decision on the pSWLP was publicly notified on 4 April 2018. On and from that date, the pSWLP is amended in accordance with the Council's decision (see clause 10(5) of Schedule 1 of the RMA). This means that on 4 April 2018, the notified version of the pSWLP is replaced by the decisions version of the pSWLP. Accordingly, the decisions version of the pSWLP is the relevant document which must be considered under section 104(1)(b).

A policy assessment has been included in the consent application. I have reviewed this assessment and also examined the relevant planning documents. Within the relevant plans, the key policies relate to water quality, effluent management and water quantity. Where activities are covered by more than one regional plan, generally more weight is being placed on the provisions of the pSWLP due to its stage in the Schedule One process.

There is clear policy direction in the pSWLP that water quality should be maintained and improved. This is particularly relevant to the land use component of the application. The main relevant policy is Policy 16, which requires that applications to intensify dairy farming are generally not granted where the adverse effects cannot be avoided or mitigated. Policies 13 and 15A-C require that land use is managed to maintain or improve water quality. Policy 6 is specific to the three physiographic zones on the property and requires that good management practices are implemented to manage adverse effects on water quality from contaminants transported via artificial drainage and overland flow, and that Council have particular regard to contaminants transported via artificial drainage and overland flow.

Conclusion: significance of adverse effects on the environment

The above policies have been used to inform and determine the level of adverse effects associated with the proposed activity, as the direction of the policies help establish what effects are acceptable and therefore whether the adverse effects of the proposed activities are less than minor, minor or more than minor.

I do not consider that the adverse effects arising from the activity are likely to have a more than minor effect on the environment. This has been explained in more detail in the effects and issues section at the beginning of this report. I consider that the proposed change in land use is consistent with the relevant policies of the pSWLP. The applicants have provided Overseer nutrient budgets to demonstrate that nitrogen losses will decrease on the landholding as a result of the proposed change in land use, and have provided additional calculations to demonstrate that the phosphorus losses will also decrease. With the applicant's mitigation measures and good management practices described in the application, it is expected that the effects of the dairy farm's expansion (both on the landholding and occurring off-site) will be avoided or mitigated, which is consistent with the relevant policies. The changes are expected to result in an improvement in water quality in the Waicolo Stream, waterways downstream of the landholding, and in the Jacobs River Estuary.

Overall, I consider that adverse effects of the proposed activities on the environment will not be more than minor.

4. Special circumstances and public notification

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

4.2 Reasons why special circumstances do or do not exist

I do not consider there to be special circumstances, as the activity is not out of the ordinary and the circumstances around the application are not unusual or exceptional (*Peninsula Watchdog Group (Inc) v Minister of Energy* [1996] 2 NZLR). The recent *Urban Auckland* case clearly sets out the requirements for special circumstances with regards to the decision on notification under s95A(4) of the RMA. I do not believe that the proposed activity will trigger the requirement for special circumstances, as the regional plans provide appropriate guidance which relate to this application for abstraction of water, discharge of dairy shed effluent to land, and use of land for farming. It is also unlikely that public participation would elicit additional information that may be relevant for consent conditions.

Affected Parties and Limited Notification

5. Protected Customary Rights Group or Customary Marine Title group

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

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

N/A

6. Statutory Acknowledgement Areas

6.1 Is the activity on or adjacent to, or may it affect, a statutory acknowledgement area?	<input type="checkbox"/> Yes	Go to 6.2
	<input checked="" type="checkbox"/> No	Go to 7.1
6.2 Are the adverse effects on Te Rūnanga o Ngāi Tahu minor or more than minor?	<input type="checkbox"/> Yes	Include TRONT in 8.2 and go to 6.3
	<input checked="" type="checkbox"/> No	Go to 6.3

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

The proposed activities are not within or adjacent to statutory acknowledgement areas, and any effects on the environment are expected to be no more than minor.

7. Is limited notification precluded?

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

8. Are any people adversely affected?

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

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

N/A

Note: In forming this opinion (a) to (c) apply:

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

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

I do not consider that any parties will be affected by the proposed activities, as the application is consistent with Council's standard buffer distances, and odour or spray drift will not be authorised beyond the property boundary.

At an average abstraction rate of 1.5L/s, Council's science division have indicated that bore interference effects are not expected. The nearest bore on a neighbouring property is approximately 450 metres away.

The effects of the proposed change in land use are expected to result in an improvement in water quality, and are not expected to result in adverse effects on any specific party.

9. Special Circumstances – Limited Notification

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

9.2 Reasons special circumstances exist and persons to be notified

N/A