MIRAKA FARMS
162A & B BOYLE ROAD, HEDDON BUSH
APP-20171594

ADDITIONAL INFORMATION & CLARIFICATION OF PREVIOUSLY SUBMITTED INFORMATION

ASSESSMENT OF RELEVANT OBJECTIVES, POLICIES & RULES OF THE PROPOSED SOUTHLAND WATER AND LAND PLAN (DECISIONS VERSIONS, 2 APRIL 2018)

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INTRODUCTION

Miraka Farms Limited have sought resource consent from Environment Southland as follows:

- To use land for farming activity;
- To discharge dairy shed effluent to land;
- To construct a new agricultural effluent storage facility; and
- To take and use groundwater for dairy use.

The original application seeking these consents was lodged by Civil Tech Limited, on behalf of Miraka Farms Limited, on 1 November 2017. It should be noted that the land use consent to use land for farming including increasing cow numbers from a peak milking of 599 to 740 (calving 750 cows) and increasing the farm area by 5.3ha.

Environment Southland sought further information, pursuant to s.92 of the Resource Management Act 1991, on 14 November 2017. This request was partially met in a response to the Council, from Civil Tech Limited, on 21 December 2017.

In order to progress these applications, the applicant has engaged Ravensdown to complete the application. This including providing an assessment against the objectives, policies and rules of the Proposed Southland Water and Land Plan (decisions version, 2 April 2018). Following a meeting on site between the applicants, Courtney Guise of Environment Southland and Victoria Caseley and Mark Crawford of Ravensdown additional information and clarification was sought (email from Courtney Guise 24 May 2018). This report addresses both the additional information and clarification sought in that email and an assessment against the decisions version of the Proposed Southland Water and Land Plan.

The nutrient budgets for the current and proposed farm systems have been reviewed, and re-assessed and updated using Overseer version 6.3 (Appendix I). As such the attached nutrient budget report replaces all previously submitted nutrient budget reports. As part of reviewing and re-assessing the proposed farm system the nutrient management advisor, Mark Crawford, has discussed, and agreed with, the applicant changes to the farm system which will led to more effective avoidance or mitigation of actual or potential adverse effects on the environment. In addition, a Farm Environmental Management Plan (Appendix II) has been prepared, both in support of this application and for ongoing management and regulatory compliance.

ADDITIONAL INFORMATION & CLARIFICATION

The Processing Officer from Environment Southland, Courtney Guise, provided a further email on 24 May 2018 which set out a number of points related to additional information required or clarification of previously submitted information. These matters are addressed below:

1. The nutrient budgets for the current and proposed farm systems both show an average phosphorus loss of 0.7kg P/ha/yr. Therefore, confirming that the proposed activity over an increased area of land, with an increase in cow numbers, will not give rise to any change in the average annual amount of phosphorus loss.

2. It is formally requested that the following information, either contained within this report or attached, is accepted as replacement for information of the same nature that has previously been supplied:

    - Nutrient budgets and report for the current and proposed farm systems (Appendix I);
    - Farm Environmental Management Plan (Appendix II);
    - Effluent storage pond design – location/engineering plans, dairy effluent storage calculation, and design statement and assessment (Appendix III);
    - Temporary storage pond assessment, cumulative irrigation and effluent data, pond drop test and dairy effluent storage calculation (Appendix IV);
    - Application Plan (Appendix V);
    - Riparian Management Plan (Appendix VI); and
    - Assessment against the Proposed Southland Water and Land Plan (decisions version).

3. The existing effluent storage pond will continue to be used until the new pond has been constructed and commissioned. The new effluent storage pond has also been reviewed and re-assessed. This has led to a new design of the pond, located to the west of the existing storage ponds.

4. An effluent storage pond design – location/engineering plans, dairy effluent storage calculation, and design statement and assessment has prepared by Albie Ford of WSP Opus (Appendix III).

5. The new effluent storage pond is intended to be constructed and commissioned by 31 March 2019 at the latest. Although if this could be earlier. The planned completion date is 1 December 2018 but this is weather and resource consent dependant. Project management for the construction would commence upon issue of resource consent.

6. An assessment of effects on using the existing storage pond, while the new one is constructed, has been prepared by Albie Ford of WSP Opus. This assessment is attached as part of Appendix IV. In response to previous comments raised on this assessment, where they have not been addressed elsewhere, I provide the additional comments:

    - Cumulative irrigation information is attached and this information is included within the dairy effluent storage calculation based on actual data.
    - The existing storage pond is being emptied over the winter and will start this season with an empty pond. This will ensure there is 27 days storage at the commencement of the season.
    - The applicant has the ability to discharge 2 days' worth of effluent a day by moving the existing pods twice a day. These pods are able to discharge 68m^3 of eluent per day if shifted twice. Any effluent discharge via slurry and/or umbilical systems would be in addition to this amount.
    - Should the applicant shift the existing pods four times a day, if needed, because of an extreme wet period, then over a 30-day period they would be able to discharge, via irrigation, the majority of the effluent produced over a 30-day period. The attached dairy effluent storage calculation (Appendix IV) provides a fuller qualitative assessment.

7. Mr Ford has also completed a dairy effluent storage calculation (DESC) for the existing pond (Appendix IV). However, he has made the following comments in relation to this calculation:

"For reporting purposes, you need to shorten the milking season to only include the period in question. This is pointless however as the DESC is not set up to report this type of reporting. For example, the earliest the yard diversion can start is 1 January so the attached DESC includes all rainfall in January. The basis for pond sizing within the DESC is a water balance model that is based on assumptions that are not applicable in this situation. The DESC does a simple yes/no check when determining whether the client can irrigate based on the soil moisture deficit meeting the threshold. The client has the ability to do the following if needed;

- *Irrigate lower depths when the SWD is lower.*
- *Irrigate more than the 68m³ by continuing to shift the irrigator.*
- *Use slurry tankers/umbilical systems as contingency.*

When preparing my memo, I used the DESC to set up a typical season then analysed the period in question from 1 August to 1 December. The DESC displayed the effluent volumes produced over the period which is relatively constant and also the irrigation days (refer to graphs in Appendix IV). This data provided the basis for my analysis."

8. It is confirmed that the Heddon Bush monitoring site will be used to guide effluent disposal.

9. It is proposed to discharge liquid and solid effluent over the whole farm, that forms part of this application, subject to applicants proposed setbacks, required setbacks from property boundaries, watercourses, bores and structures, riparian strips and buffer zones. This gives a total effluent discharge area of 220.4ha. However, in reality this will be closer to 200ha per annum as crops and a proportion of the fodder crop will not have effluent applied.

PROPOSED SOUTHLAND WATER & LAND PLAN

The following is an assessment of the relevant objectives, policies and rules of the Proposed Southland Water and Land Plan (decisions version) (pSWLP) applicable to this application.

The pSWLP was publicly notified in 2016 to address activities that are known to have a significant effect on water quality. These activities include land use, such as farming, intensive winter grazing, discharge of effluent and ground water abstraction and use. The decisions of the hearing panel were publicly notified on 4 April 2018 and therefore an assessment is required against this decisions version of the pSWLP.

The applications that have been submitted on behalf by Miraka Farms are for:

- A land use consent to use land for farming which involves the extension an existing dairy farm and an increase in cow numbers;
- A land use consent for an effluent storage pond;
- A discharge permit for liquid animal effluent (renewal, but over a larger area); and
- A water permit (renewal, but with an increased take).

The relevant objectives, policies and rules of the pSWLP applicable to these applications are as follows:

Objectives: 1, 2, 3, 4, 6, 7, 8, 9, 11, 12, 13, 13A, 14, 17 and 18.

Policies: 2, 5, 10, 13, 14, 15A, 16, 17, 18, 20, 21 and 22.
(Policies 39A, 40, 41 and 42 are applicable to the consideration of the resource consent application by the Regional Council).

Rules: 5, 14, 20(e), 32B(b), 32D, 35(c), 38 and 54(d).

Table 1, below, provides the relevant rule assessment. Given the information set out below the application overall is for a Discretionary Activity. In accordance with the Resource Management Act 1991 the rules are a trigger by which to determine the status of the activity and any specified considerations that need to be taken into account when assessing the application against the Plans' objectives and policies.

Table 1 Relevant Rule Assessment Proposed Southland Water and Land Plan (Decisions Version) for Miraka Farms App-20171594

Rule No.	Activity	Activity Status	Comments
5	Discharges to surface waterbodies	Discretionary	Contaminants are being discharge onto land and may enter a watercourse. These discharges are able to meet condition (1) of the rule where the water quality upstream of the application site meets the standards set for Middle Creek and these are not reduced downstream of the application site by this application.
14	Discharge of fertiliser	Permitted	Fertiliser application is able to meet the conditions of Rule 14(a) relating to setbacks and soil moisture conditions. The Farm Environmental Management Plan will ensure these conditions are met.
20(e)	Farming	Discretionary	The proposed activity is unable to meet the permitted rule standards in that the existing discharge consent has expired (20(a)(ii)(2)), it is proposed to increase cow numbers (20(a)(ii)(3)) and land area (20(a)(ii)(6)). The proposed activity is also unable to meet the restricted discretionary rule standards in that the cattle mob size proposed to be grazed of 270 is more than the rule standard of 120 (20(a)(iii)(3)(E)). All other applicable conditions of Rule 20 are able to be met.
32B(b)	Construction, maintenance and use of new agricultural effluent storage facilities	Controlled	The proposed activity is unable to meet the permitted rule standards in that the storage capacity of the proposed pond at 5,400m^3 exceeds the permitted volume of 35m^3 (32B(a)(i)). The proposed storage pond meets all the required setbacks, has been designed by a Chartered Professional Engineer in accordance with IPENZ practise notes and an operational plan has already been submitted with the original application documents.
32D	Existing agricultural effluent storage facilities	Permitted	The temporary use of the existing effluent storage pond was authorised by a previous resource consent and is still within its normal operating parameters of the pond drop test criteria and therefore is able to meet the permitted rule conditions.

35(c)	Discharge of agricultural effluent to land	Discretionary	The effluent discharge is unable to meet the permitted standard of Rule 35(a)(i)(1) in that the dairy shed serves a maximum peak milking of 740 cows (750 cows calving). Neither is the activity able to meet the restricted discretionary conditions that cows numbers are not increasing (35(b)(ii)). Therefore, the activity falls to be considered as a discretionary activity as all the setback required are able to be met.
38	Animal and vegetative waste	Permitted	Solid animal waste application is able to meet the conditions of Rule 38(a) relating to waste composition, nitrogen loading, frequency, setbacks and depth. The Farm Environmental Management Plan will ensure these conditions are met.
54(d)	Abstraction and use of groundwater	Discretionary	The maximum daily volume of water abstracted is proposed to be $90m^3$/day. This exceeds the permitted standard of $86m^3$/day (54(a)(i)(1)) and as such the activity to abstract and use groundwater falls under Rule 54(d) as a discretionary activity. Information previously submitted show that the proposed activity is able to meet the abstraction, minimum flow, allocation limits, 'acceptable' interference effects and cut-off requirements of Rule 54(d). Environment Southland have confirmed that the proposed take is within the primary allocation limits for the Waimatuku and Central Plains Groundwater Zones.

Objectives 1 and 2 relate to the integrated management of natural resources and recognise that both land and water are an enabler of primary production, while Objectives 3 and 4 relate to Maori values, recognising the life-force of waterbodies. Water quality, quantity and allocation are addressed by Objectives 6-9, 11 and 12. These objectives seek sustainable management, maintaining water quality, avoid over allocation and the efficient use of water. The use and development of land and soils is enabled by Objective 13, however, Objective 13A seeks that soils are not irreversibly degraded. Objective 14 seeks to maintain or enhance waterbody ecosystems while Objective 17 seeks to protect natural character from inappropriate use or development. Finally, Objective 18 seeks that activities are operate in accordance with good management practises (GMP).

Taken as a whole these objectives are inextricably linked. Whilst they acknowledge that the use and development of land and water is necessary for economic, social and culture wellbeing this cannot occur at the expense of the environment and, in particular, Maori values, water quality and quantity and ecosystems. The objectives acknowledge that activities operating at and beyond recognised good management practises will enable the overall thrust of the Water and Land Plan to be met. As part of the application the applicant has submitted a current and proposed nutrient budget and a Farm Environmental Management Plan (FEMP) that requires the applicant to implement and operate at, and beyond, GMP if they are to comply with these documents. Given this it is considered that the activities are able to meet the relevant objectives and their overall direction.

Policy 2 requires that any relevant iwi management plans are taken into account when assessing an application. The relevant iwi management plan for this region is Te Tangi a Tauira, Ngai Tahu ki Murihiku Natural Resource and Environmental Iwi Management Plan. This plan set out the values of the natural environment to Ngai Tahu ki Murihiku by identifying the primary natural resources issues and articulates their policies and management guidelines for management of the environment, wahi

tapu and wahi taonga. In particular Te Ra a Takitimu – Southland Plains section is relevant to this application. This section of the iwi management plan considers, amongst other matters, farm effluent management, water quality, water quantity and riparian areas. These are all matters that have been addressed by the pSWLP and in the attached FEMP. In meeting the direction of the pSWLP and identifying and addressing these issues in the FEMP it is considered that the application has considered and can meet the iwi management plan and Policy 2.

Policies 5, 10, 13, 14, 15A, 16, 17 and 18 relate to the activity of farming and the discharge of agricultural effluent.

The application site falls within two physiographic zones, Central Plains and Oxidising. These two zones are addressed by Policies 5 and 10 respectively. These policies require the implementation of GMP and for additional dairy farming of cows to not increase contaminant losses.

Whilst this application does see an increase in the number of dairy cows from a peak milking of 599 to 740 (calving numbers 750) this is proposed to be done in such a way that allows for contaminant losses to be maintained or to slightly decrease. The proposed farm system has a number of strategies to reduce the risk of nitrogen loss to water. These include:

- an effluent discharge system that has uses low application depths;
- a greater disposal area;
- greater effluent storage to allow for deferred applications during periods of wet weather;
- continued use of crop to minimise soil damage over the spring period;
- a greater total grazing area; and
- a reduced winter stocking rate by grazing most cattle off-farm.

For the latter, it is proposed that during June and July only the lighter cows (approximately 100) and first calving heifers (approximately 170) will remain on the farm.

Other proposed farm system changes which further mitigate nitrogen losses include:

- removing cull and dried off cows immediately;
- bringing forward by one week the herd drying off date;
- annually spreading effluent sludge from the storage pond;
- a reduction of fertiliser application in December;
- effluent discharge only occurring between August and April;
- reducing the winter cropping area;
- planting a summer fodder crop to graze milking cows on in autumn; and
- adding an additional 5.3ha into the total farm area.

The greatest area of phosphorus risk is run-off from the tracks and yards into the farm drains and other waterbodies. Riparian strip planting, capture of sediment from crops and laneways through adequate buffer zones plus ensuring optimal phosphate levels are all practices which will reduce the risk of phosphorus losses.

By implementing the above and other GMP elements through the adoption and implementation of the FEMP the nitrogen leaching loss to water decreases from the current load of 34kg N/ha/yr to 32kg N/ha/yr, while the phosphorus runoff to water is the same under the current and proposed farm system, being 0.7kg P/ha/yr. Given the implementation of GMP and the flat topography of the farm

it is considered that there will also be no greater discharge of sediment or microbiological contaminants. It is therefore considered that Policies 5 and 10 are able to be met.

Policy 13 recognises the importance of the use and development of land and water resources for primary production but requires them to be managed in a way that maintains water standards where they are currently met (Policy 15A), while Policy 14 sets out a preference for discharges to be to land. In this case the proposed discharge is to land but it is proposed to occur over a greater area than that previously granted. As set out above this greater area will assist in providing an overall decrease in the nitrogen losses. Combining this with the ceasing of effluent discharges to land at the end of April and greater effluent storage capacity will ensure that the discharge is managed in such a way that water standards are maintained and adverse effects on the environment are able to be avoided or mitigated. It is therefore considered that Policies 13, 14 and 15A are able to be met.

Farming activities that affect water quality are addressed by Policy 16. Under this policy the establishment of new dairy farms of cows or new intensive winter grazing activities are discouraged in close proximity to Regionally Significant Wetlands and Sensitive Waterbodies. Whilst this application is not for a new dairy farm it does nevertheless seek an increase in cow numbers. Appendix A has been assessed and there are no Regionally Significant Wetlands and Sensitive Waterbodies identified in close proximity to the application site.

As there are currently no specific freshwater objectives Policy 16 seeks to ensure that any further intensification of existing dairy farms, such as sought here, are generally not granted where adverse effects, including cumulative effects, on waterbodies cannot be avoided or mitigated, or where water quality is already degraded or where water quality standards are not met. As can been seen from the attached nutrient budget report the actual and potential nitrogen losses to water actually decrease slightly while the phosphorus loss remains the same. The reasons for this have already been outlined above in addressing Policies 5 and 10. Therefore it is considered that these activities will avoid or mitigate adverse effects. In addition, there is nothing to suggest, following consideration of the water quality in the Middle Creek that this catchment is subject to cumulative adverse effects. The water quality in this area is not degraded and is able to meet the water quality standards.

Policy 16 also requires all farming activities implement a FEMP and identify and manage critical source contaminant areas for the property. The FEMP for the property addresses these matters and is attached. It is proposed that this FEMP will be a 'living' document and will need to be amended from time to time to reflect improve technology, current farm practises and industry recognised GMP's to meet the identified objectives and targets.

Lastly Policy 16 seeks consideration that related farming activities be addressed within a single application. This is the case with this application where the assessment of effects on the environment and the consideration of the relevant planning documents has been completed in an integrated application. Considering this and the above, it is considered that Policy 16 is able to be met.

Agricultural effluent storage and discharge management is addressed by Policy 17. This policy requires the avoidance of significant adverse effects on water quality and for other adverse effects arising from effluent discharges to be avoided, remedied or mitigated. The policy seeks that the design, construction and location of effluent systems are in accordance with best practice, that they are maintained and operated in accordance with best practise guidelines and that contamination of water does not occur from either direct or indirect discharge of the agricultural effluent. The activity proposes the construction of a new effluent storage pond. This has been designed by a Chartered Professional Engineer in accordance with IPENZ Practice Note 21: Farm Dairy Effluent Pond Design and Construction (2013). In addition, an assessment has also been provided for the use of the existing

effluent storage pond which shows that adverse effects are able to be avoided or mitigated while the new proposed effluent storage pond is constructed. Given this it is considered that this policy is able to be met.

Policy 18 requires stock to be excluded from waterbodies. Fencing of waterbodies and stock exclusion have already been implemented on the application site. It is proposed to progressively increase the fenced setbacks and a riparian planting and maintenance programme is identified as needing to be implemented through the FEMP. Through these actions it is considered that Policy 18 is met.

Policies 20, 21 and 22 relate to water quantity and water management, allocation and the effects of use. These policies recognise the importance of water to primary production but seek that they are used efficiently and at sustainable abstraction rates. Environment Southland staff have confirmed that the proposed take is within the primary allocation limits for the Waimatuku and Central Plains Groundwater Zones. The FEMP sets out GMP and other practises to be implemented that are specific to this property and which will ensure the efficient use of the water abstracted whilst avoiding adverse effects on the groundwater and nearby surface waterbodies. Using Appendix L.4 of the pSWLP it suggests that the peak and average dairy water use for 740 lactating dairy cows would be 103.6m^3. The activity seeks a maximum daily volume of 90m^3 thereby confirming that the proposed volume of water sought is reasonable for the intended use. Given the above it is considered that Policies 20, 21 and 22 are able to be met.

The above assessment against the objectives, policies and rules of the pSWLP show that overall the combined application is for a Discretionary activity in relation to this plan and that it is able to meet the overall direction and thrust of these objectives and policies.

Although the pSWLP is still only a proposed Regional Plan it has been subject to public submissions and a hearing process. As some appeals have been received on this plan and are as yet unresolved it is submitted that Environment Southland cannot place complete assessment weight on these provisions. However given that they are substantially through the public process then it is suggested that as a minimum equal weigh should be given to both the operative plans and this proposed plan in any assessment under section 104B of the Resource Management Act 1991.