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31 August 2017

ATT: Paul Murney
Environment Canterbury
PO Box 345
CHRISTCHURCH 8140

Via email: mailroom@ecan.govt.nz

Dear Paul,

ANNUAL COMPLIANCE REPORT – CENTRAL PLAINS WATER LIMITED

Please find enclosed Central Plains Water Limited's (CPWL's) second Annual Compliance Report covering the annual compliance requirements for CPWL's take and use surface water (CRC165680) and discharge of nitrogen to land (CRC165686) resource consents. This report covers Stage 1's second irrigation season which operated from 1st September 2016 – 19th April 2017.

CPWL is nearing completion of the Sheffield Scheme where we will deliver water to 4,000ha from October 2017. Stage 2 (20,000ha) is currently under construction with a target operational date of September 2018.

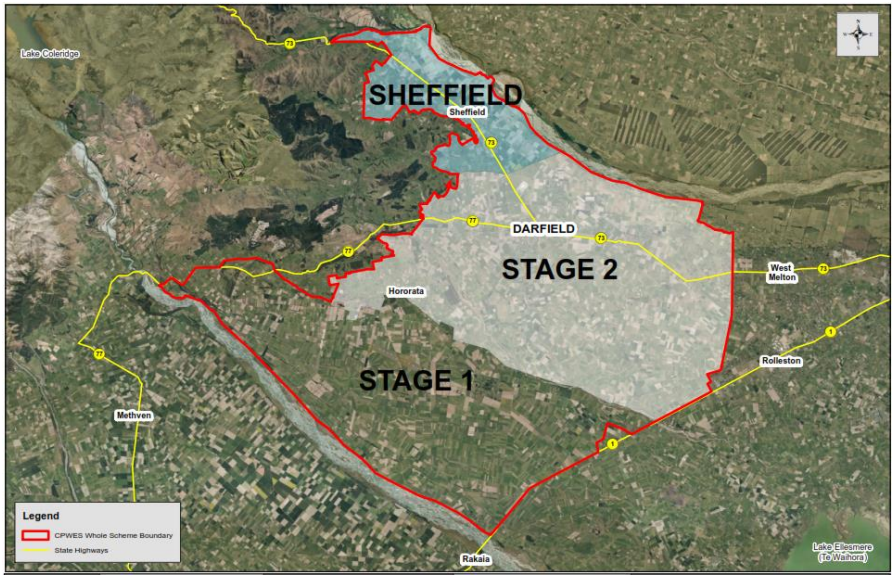

Figure 1. Central Plains Water Limited Scheme Overview

Yours sincerely

Fiona Crombie
Environmental Group Manager
CENTRAL PLAINS WATER LIMITED

Table of Contents

Consent Number:	CRC165680
Location	Rakaia River, CANTERBURY PLAINS
Description:	to take and use surface water
Commencement Date:	6 April 2016
Expiry Date:	25 July 2047

Conditions and Compliance

1.0 CRC165680 to take and use surface water

Water Use Requirements

4. The consent holder shall measure leakage from pipes and structures forming part of the reticulation system that delivers water from the Waimakariri and Rakaia Rivers to the farm supply points for comparison with the target of on average not more than 20% of water taken being lost by leakage from the total reticulation system between 1 September and the following 30 April.

CPWL's use consent and conditions were granted based on an open race (unlined) distribution or piped network which included by-wash discharge points. This system was estimated to lose 20% via race seepage and by-wash.

A significant change to the CPWL infrastructure was the decision to construct a fully piped distribution network and predominantly lined headrace. As this condition has been included in the consent for an infrastructure system specified in the application for consent that is significantly different from the system CPWL has constructed, that mitigates leakage and the actual loses are so low that that they are not measurable this consent condition is now not applicable.

6 Water Application Rates

a) The maximum application rate shall not exceed 5.18 millimetres per day on a scheme-wide basis, provided that if this application rate is shown to result in a particular property exceeding field capacity then the consent holder shall ensure that the application rate is reduced accordingly.

The average scheme-wide application rate for the 2016 - 2017 irrigation season was 2.02 mm/ha. No property exceeded 5.18mm/ha in this season, this includes where relevant their combined CPW and Groundwater take (**Figure 2**). Some of the groundwater taken was used for purposes other than irrigation, e.g. stockwater, dairy shed washdown or domestic use, therefore the results in **Figure 2** are considered conservative.

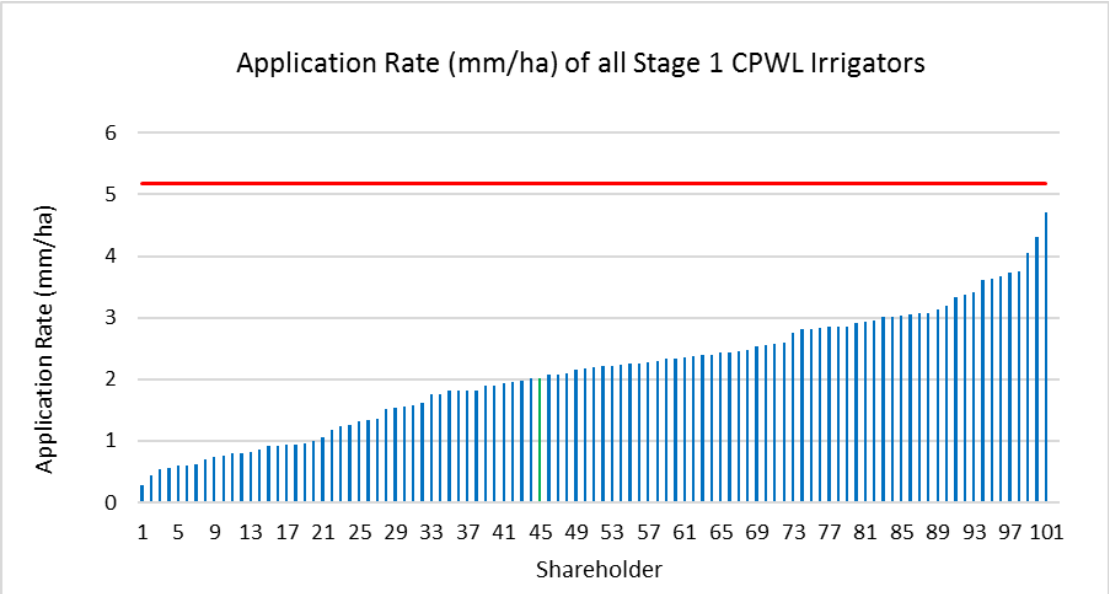

Figure 2. Combined Groundwater and CPWL application rate (mm/ha) for Stage 1 CPWL irrigators.

b) In the event that water authorised for use under this consent is applied to land concurrently with water abstracted from groundwater, the combined volume of water used on that land shall not exceed:

i) 6,250 cubic metres per hectare between the 1st July and the following 30th June; or

ii) The volume authorised on a groundwater irrigation permit if that volume is greater than 6,250 cubic metres per hectare between 1 July and the following 30 June, should the shareholder possess a groundwater permit authorizing irrigation of the same area of land.

In the 2016/17 irrigation season one shareholder exceeded 6,250m^3/ha annual limit for groundwater volume, as shown in **Figure 3**. This shareholder was within their groundwater consented application rate.

The groundwater users combined CPWL and groundwater average application rate was 4,044m^3/ha. 1,245m3/ha average from groundwater and 2,798m3/ha of CPW water.

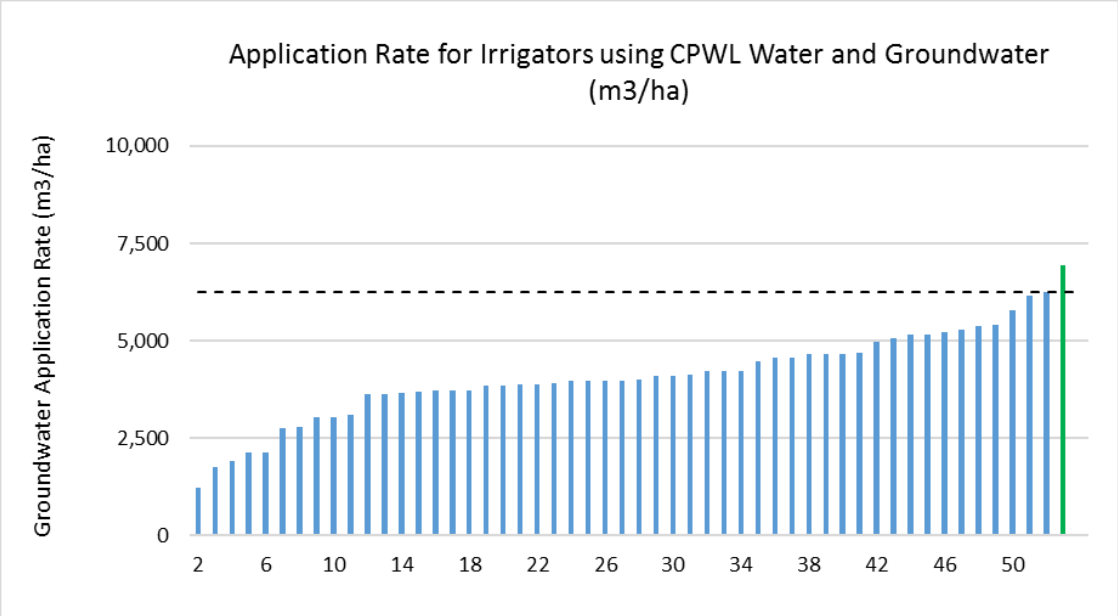

Figure 3. CPWL water and groundwater application rate for groundwater users.

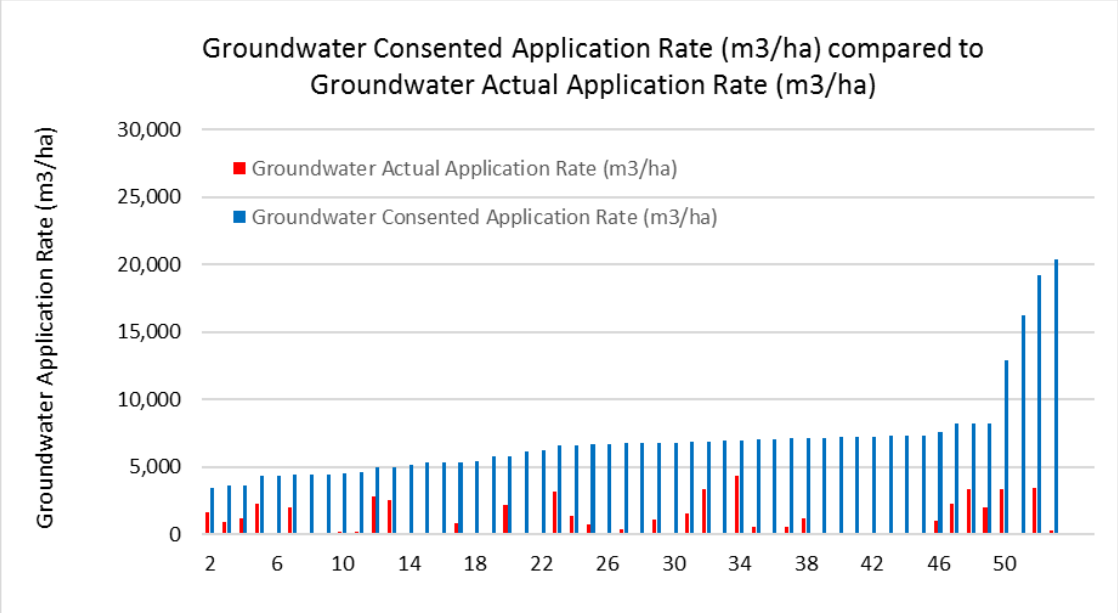

Figure 4. Volume of groundwater used compared to their annual consented volume.

Consent Number:	CRC165686
Location	Rakaia River, Selwyn
Description:	To discharge of nitrogen to land
Commencement Date:	6 April 2016
Expiry Date:	25 July 2047

Conditions and Compliance

2.0 CRC165686 to discharge of nitrogen to land

18 The consent holder shall:

a) Prepare an annual report which includes:

i) Actual land areas using water under CRC165680 or any subsequent replacement or variation thereof;

The total land area managed under CPWL for 2016-2017 Irrigation Season in Stage 1 is 30,526 hectares including Farm Enterprise properties. 26,969 hectares is covered under Water Use Agreements with CPWL. 22,834 hectares is irrigated by CPWL. The irrigation area, shown in **Figure 5**, has increased from 26,477 hectares at the 2015/16 season to 27,386 hectares in the 2016-2017 season due to some farmers spreading their water over a greater area, and new land coming into CPWL.

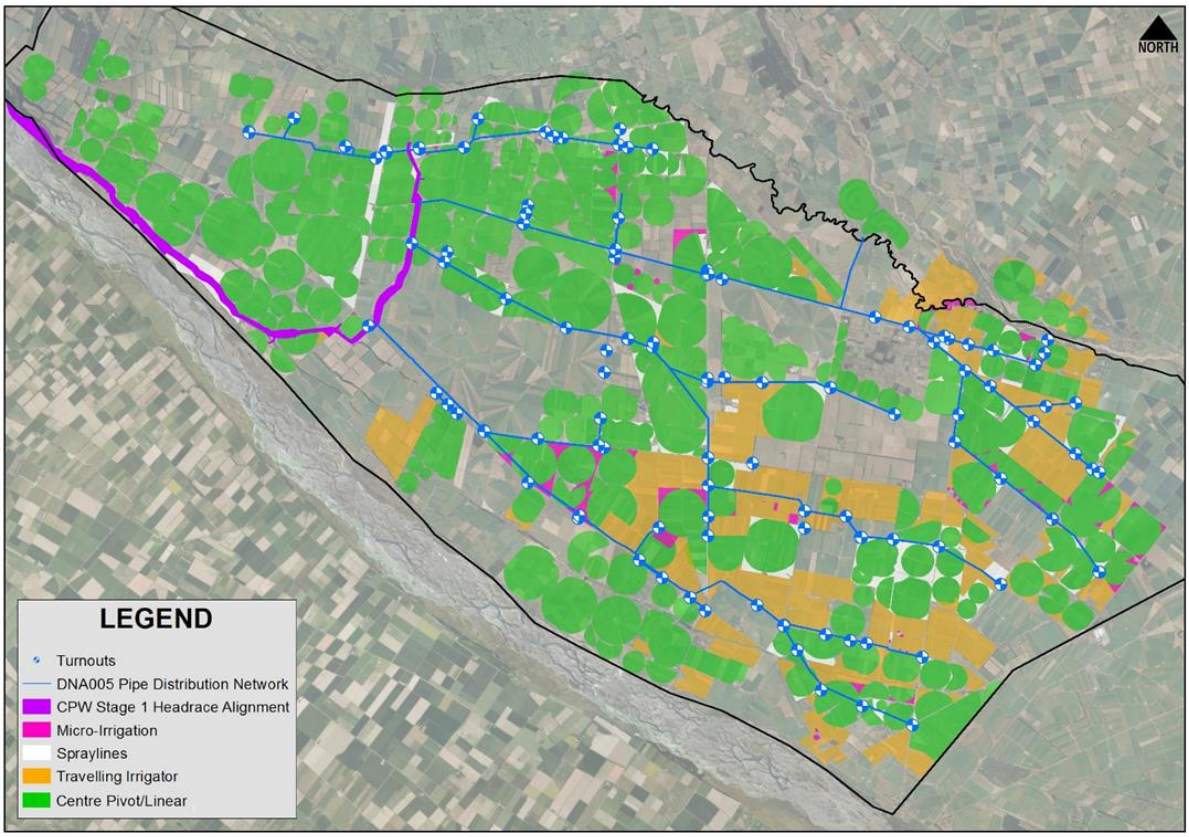

Figure 5. CPW Stage 1 shareholder type of irrigations

ii) A list of users of water under CRC165680, or any subsequent replacements or variations thereof;

Appendix 1 **Schedule CRC165686** lists the Shareholders using CPWL Water during the 2016 – 2017 irrigation season. This list also includes their additional properties that fall under their Farm Enterprise - Category C of Condition 1(a(ii) - *any other properties within the area identified on Plan CRC165686A which forms part of this consent, that are included in and covered by a Farm Environment Plan (FEP) that has been prepared for one of the properties*.

iii) Volume of water supplied to each property specified in Condition 1(a)(i);

The volume of water supplied by CPWL to each shareholder in the 2016-2017 irrigation season is available in Appendix 1 **Schedule CRC165686**. For the 2016 -2017 irrigation season 66,395,044m3 of water was delivered to shareholders. This was a reduction from 91,092,984m3 for the 2015 – 2016 irrigation season.

iv) Land uses for each property specified in condition 1(a)(i);

Appendix 1 Schedule CRC165686 details the land use for each property based on categories defined in OVERSEER® nutrient budgets. **Figure 6** shows the percentage of each land represented in Stage 1.

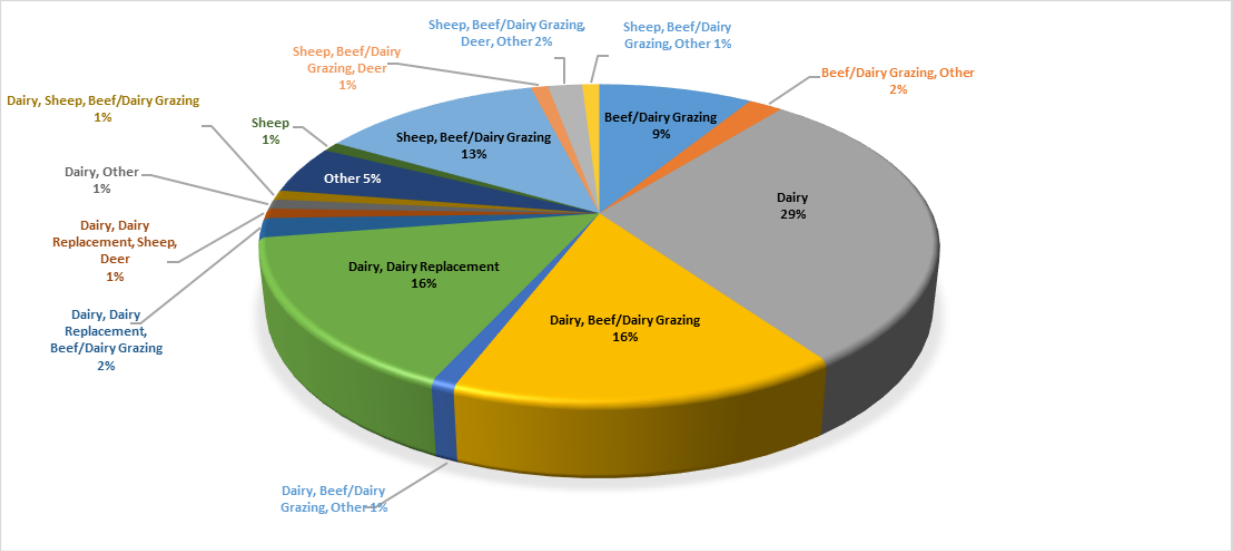

Figure 6. Current land uses for each property based on the land use specified in their nutrient budget.

v) A summary of the FEP audit grades assigned in accordance with condition 13 and Appendix CRC165686 within the last 12 months;

CPWL had 106 FEP Audits, 93% were either A or B grade (**Figure 7**).

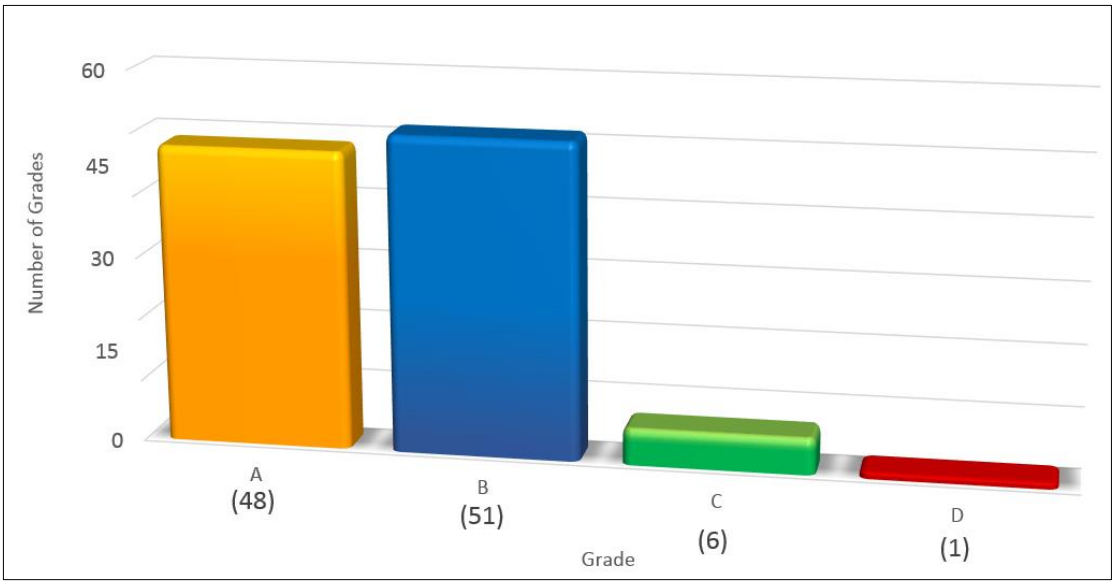

Figure 8. 2016 – 2017 Stage 1 FEP audit grades.

vi) A summary of the reasons for properties receiving a C or D grade;

Seven properties received C or D grades in the first year of auditing, five of the seven received a C or D due to not meeting their effluent management objectives. For Condition 15 of our discharge consent to apply CPWL needs to have audited for two straight years, therefore no water has been restricted due to audit grades at this stage and therefore are compliant.

Appendix 2 outlines the management objectives these properties need improvement on and the auditors reason for the grade.

vii) A Summary of actions taken to address C or D grades;

Appendix 2 details the summary of actions that CPWL will work with the shareholder to achieve. There are two properties that received a C or D due to not meeting management objectives other than effluent. CPWL will assist them in working through the summary of actions highlighted in the Farm Environment Plan Audit and the individual comments received from the auditor.

viii) A list of properties that have been assigned 3 or more C or D grades within the last five years;

The seven properties that have received C or D grades are listed in Appendix 2. All properties have only received one C or D grade in the last five years due to auditing only been completed for one year and therefore are compliant.

ix) The progress achieved for previously identified issues, if applicable;

This condition is not relevant during the first year of auditing.

x) The sum of the annual amount of nitrogen that is lost to water from properties listed in Schedule CRC165686 Groups A and B; and

For 2016-2017 irrigation season the amount of nitrogen lost to water from properties in groups A and B was 1,495 tonne.

xi) The annual amount of nitrogen loss to water for each property listed in Schedule CRC165686 Groups B and C, as calculated in Accordance with Appendix CRC165686;

For 2016-2017 irrigation season the amount of nitrogen lost to water from properties in group C was 88 tonne.

APPENDIX 1

Schedule CRC165686

SCHEDULE CRC165686									
	Shareholder ID	Property Area (ha)	Group (A, B, C)	FEP Audit Grade	Land use Baseline	Land use Current	Type of Irrigator	2017 Nitrogen Discharge Allowance (NDA) (kg)	CPWL water used 2016-2017 Irrigation Season (m3)
1	R002070219	253	A	C	Sheep, Beef/Dairy Grazing	Sheep, Beef/Dairy Grazing	New Irrigator	21175.00	301290.10
2	R002070219	402	C	C	Sheep, Beef/Dairy Grazing	Sheep, Beef/Dairy Grazing	Existing Irrigator	27825.50	
3	R002070219	193	C	C	Sheep, Beef/Dairy Grazing	Sheep, Beef/Dairy Grazing	Existing Irrigator	7189.48	
4	R000187634	100	A	B	Sheep, Beef/Dairy Grazing	Sheep, Beef/Dairy Grazing	New Irrigator	2879.13	104954.90
5	R000187635	221	C	B	Sheep, Beef/Dairy Grazing	Sheep, Beef/Dairy Grazing	Dryland	4601.00	
6	R601618338	120	A	B	Dairy Grazing	Beef/Dairy Grazing	New Irrigator	8836.00	460788.70
7	R000190421	517	A	A	Dairy	Dairy	Existing Irrigator	4806.00	844190.56
8	R000190422	362	A	A	Beef/Dairy Grazing	Beef/Dairy Grazing	Existing Irrigator	19108.00	
9	R601154421	401	A	B	Sheep, Beef/Dairy Grazing	Sheep, Beef/Dairy Grazing	New Irrigator	42095.00	494899.73
10	R601531691	188	A		Beef/Dairy Grazing	Beef/Dairy Grazing	Existing Irrigator	7433.00	394893.30
11	R000075436	355	A	A	Sheep, Beef/Dairy Grazing	Beef/Dairy Grazing	New Irrigator	22635.00	561305.10
12	R600354248	361	A	B	Consultant	Dairy, Dairy Replacement	Existing Irrigator		841853.90
13	R601514346	348	A	A	Dairy	Dairy	Existing Irrigator	26172.00	1565306.30
14	R002337584	2717	A	A	Consultant	Dairy, Beef/Dairy Grazing	Existing Irrigator		6579448.68
15	R601249286	214	A	B	Dairy, Dairy Replacements, Beef/Dairy Grazing	Dairy, Dairy Replacement, Beef/Dairy Grazing	Existing Irrigator	18518.00	101185.18
16	R601337363	214	A	B	Dairy, Dairy Replacements	Dairy, Dairy Replacement	Existing Irrigator	8891.00	383490.00
17	R002061376	325	A	B	Dairy	Dairy	Existing Irrigator	13061.00	1438983.40
18	R002071568	201	A	B	Dairy, Dairy Replacements	Dairy, Dairy Replacement	Existing Irrigator	22617.50	846905.30
19	R002340551	347	A	A	Beef/Dairy Grazing	Beef/Dairy Grazing	Mixed	16847.02	475120.70
20	R601154439	217	A	A	Dairy, Beef/Dairy Grazing	Dairy	Existing Irrigator	18984.00	924720.40
21	R600615084	255	A	C	Dairy, Dairy Replacement	Dairy	Existing Irrigator	8701.50	371625.40
22	R600615085	72	A	C	Beef/Dairy Grazing	Beef/Dairy Grazing	New Irrigator	3841.00	48691.55
23	R601412047	207	A	B	Sheep, Beef/Dairy Grazing	Sheep, Beef/Dairy Grazing	New Irrigator	4225.00	475120.70
24	R601390451	82	A	B	Sheep, Dairy Grazing, Deer, Horses	Beef/Dairy Grazing	New Irrigator	4677.00	110371.80
25	310034746	372	B	A	Dairy	Dairy	Existing Irrigator	51548.00	1048117.50
26	R002060451, R000194731	394	A	A	Sheep, Beef/Dairy Grazing	Sheep, Beef/Dairy Grazing	New Irrigator	9242.00	256250.70
27	R601617684	234	A	B	Dairy, Dairy Replacement	Dairy, Dairy Replacement	Existing Irrigator	23572.00	710542.60
28	R002381672	447	A	A	Dairy, Dairy Replacement, Beef/Dairy Grazing		Existing Irrigator	14867.00	256250.70
29	R600293168	237	A	B	Dairy, Beef/Dairy Grazing	Dairy, Dairy Replacements	Existing Irrigator	4556.00	709282.80
30	R600293168	258	A	B	Dairy, Dairy Replacements	Dairy, Dairy Replacements	Existing Irrigator	31950.00	864549.00
31	R600293168	28	C	B	Dairy, Dairy Replacements	Dairy, Dairy Replacements	Existing Irrigator	1570.00	0.00
32	R002069261	284	B	B	Beef/Dairy Grazing	Beef/Dairy Grazing	Existing Irrigator	23863.00	47477.50
33	R002069571	184	A	A	Dairy	Dairy	Existing Irrigator	9027.00	695612.90
34	332066676	242	A	B	Dairy	Dairy	Existing Irrigator	8210.00	1137784.00
35	332066676	335	A	B	Trees and Scrub	Beef/Dairy Grazing	New Irrigator	32613.00	1269536.90
36	332066676		A	B	Dairy	Dairy, Beef/Dairy Grazing, Other	Existing Irrigator	30528.00	
37	R601521369	377	A	A	Sheep, Beef/Dairy Grazing	Dairy	New Irrigator	20802.00	1330914.21
38	R601563665	256	A	B	Beef/Dairy Grazing	Beef/Dairy Grazing	New Irrigator	29031.00	694502.90
39	R002077434	327	A	A	Sheep, Beef/Dairy Grazing, Deer, Other	Sheep, Beef/Dairy Grazing, Deer, Other	Mixed	24921.83	293586.10
40	R601235498	340	A	B	Sheep, Beef/Dairy Grazing	Beef/Dairy Grazing	New Irrigator	34692.00	513944.90
41	R000189061	265	A	A	Sheep, Beef/Dairy Grazing	Sheep, Beef/Dairy Grazing	Mixed	9673.00	538876.80

	Shareholder ID	Property Area (ha)	Group (A, B, C)	FEP Audit Grade	Land use Baseline	Land use Current	Type of Irrigator	2017 Nitrogen Discharge Allowance (NDA) (kg)	CPWL water used 2016-2017 Irrigation Season (m3)
42	R601293021	4	A	B	Other	Other	Lifestyle Block	Less than 10 hectares	3596.90
43	R002071801	140	A	B	Beef/Dairy Grazing	Other	Existing Irrigator	6918.23	29383.73
44	R601429187	26	A	B	Trees	Sheep, Beef/Dairy Grazing	New Irrigator	1714.00	50506.69
45	R600613928	232	A	B (draft)	Dairy, Dairy Replacement	Dairy, Dairy Replacement	Existing Irrigator	7333.00	260883.80
46	R002064545	459	A	A	Sheep, Beef/Dairy Grazing	Sheep, Beef/Dairy Grazing	New Irrigator	36964.00	1325112.60
47	R002070197	346	A	B	Sheep, Beef/Dairy Grazing	Sheep, Beef/Dairy Grazing	New Irrigator	7274.00	299632.80
48	R002065487	205	A	A	Dairy, Dairy Replacement, Beef/Dairy Grazing	Dairy, Dairy Replacement	Existing Irrigator	11199.00	970402.80
49	R601414287	160	A	A	Sheep	Dairy	New Irrigator	6527.00	
50	R601408619	58	A	B	Sheep, Beef/Dairy Grazing	Sheep, Beef/Dairy Grazing	Mixed	3213.11	213722.50
51	R601607751	120	A	B	Sheep, Beef/Dairy Grazing	Dairy, Sheep, Beef/Dairy Grazing	New Irrigator	5682.00	312206.43
52	R002061091	351	A	D	Dairy	Dairy	Existing Irrigator	33301.00	1365734.10
53	R000193524	283	A	A	Dairy	Dairy, Beef/Dairy Grazing	Existing Irrigator	12277.00	873566.30
54	R000192382	496	A/C	B	Sheep, Beef/dairy Grazing	Sheep, Beef/dairy Grazing	Mixed	20648.36	43390.85
55	333296357	528	A	B	Dairy, Beef/Dairy Grazing	Dairy, Beef/Dairy Grazing	Mixed	25998.42	1445955.00
56	R002067374	86	A	B	Beef/Dairy Grazing	Beef/Dairy Grazing	New Irrigator	2374.00	121440.60
57	R601772868	223	A	B	Dairy, Other	Dairy, Other	Existing Irrigator	34225.00	438801.00
58	R601546221	417	A	B	Dairy, Sheep, Beef/Dairy Grazing	Dairy, Beef/Dairy Grazing	New Irrigator	18627.00	1290451.30
59	R601330385	210	A	A	Beef/Dairy Grazing	Dairy	New Irrigator	8094.00	897470.10
60	R002066912	196	A	B	Outdoor Sows (including gilts), boars, ewes, heifers,	Sows, Beef/Dairy Grazing, Dairy Replacements	New Irrigator	8091.00	251240.80
61	R600851471	256	A	B	Beef/Dairy Grazing	Dairy, Beef/Dairy Grazing	New Irrigator	16415.00	906871.20
62	R600851471	204	A	B	Beef/Dairy Grazing	Beef/Dairy Grazing	New Irrigator	8467.00	469045.20
63	R002340585	280	A	A	Dairy	Dairy	Existing Irrigator	17897.00	980735.40
64	R600724088	315	B			Dairy, Dairy Replacement	Existing Irrigator		175645.98
65	R600724088	370	B			Dairy, Dairy Replacement	Existing Irrigator		1600390.00
66	R601604001	368	A	A	Sheep, Beef/Dairy Grazing	Dairy, Dairy Replacement, Sheep, Deer	New Irrigator	14645.00	313930.52
67	R601231409	239	A	B	Beef/Dairy Grazing, Deer	Beef/Dairy Grazing, Deer	New Irrigator	17039.00	341126.10
68	R601456541	122	A	A	Sheep	Sheep	New Irrigator	6327.00	405743.80
69	330446099	200	A/C	C	Sheep, Beef/Dairy Grazing	Sheep, Beef/Dairy Grazing	Existing Irrigator	14068.00	146438.00
70	R002065266	248	A	B	Dairy	Dairy	Existing Irrigator	17970.45	1215219.30
71	R601639840	383	B	B	Beef/Dairy Grazing	Beef/Dairy Grazing	Existing Irrigator	34309.00	519582.90
72	R600529722	347	A	B	Sheep, Beef/Dairy Grazing	Sheep, Beef/Dairy Grazing	New Irrigator	12413.00	84490.80
73	R002067447	533	A	A	Dairy	Dairy	Existing Irrigator	21664.00	1868182.10
74	R601562693	565	A	B	Sheep, Beef/Dairy Grazing	Sheep, Beef/Dairy Grazing	New Irrigator	28490.72	467156.80
75	R601327309	356	A	C	Dairy	Dairy	Existing Irrigator	21562.50	708649.70
76	R601327309	230	A	A	Arable	Beef/Dairy Grazing	New Irrigator	16171.00	774885.20
77	R002070626	418	A	B	Sheep, Beef/Dairy Grazing	Beef/Dairy Grazing	New Irrigator	30236.00	1143229.40
78	R601651939	196	A	B	Dairy, Dairy Replacement	Dairy, Dairy Replacement	Existing Irrigator	34302.25	550089.50
79	R601521351	243	A	B	Dairy, Dairy Replacement	Dairy	Mixed	219.43	761680.50
80	R601612747	308	A	B	Sheep, Beef/Dairy Grazing	Dairy	Mixed	13326.24	1107167.58
81	R601651947	243	A	A	Dairy, Dairy Replacement	Dairy	Mixed	243.81	851169.00
82	R601700301	156	A	A	Beef/Dairy Grazing	Dairy	Existing Irrigator	8508.00	465617.08

	Shareholder ID	Property Area (ha)	Group (A, B, C)	FEP Audit Grade	Land use Baseline	Land use Current	Type of Irrigator	2017 Nitrogen Discharge Allowance (NDA) (kg)	CPWL water used 2016-2017 Irrigation Season (m3)
83	R601724235	252	A	A	Dairy, Beef/Dairy Grazing	Dairy, Beef/Dairy Grazing	Existing Irrigator	28451.00	983492.10
84	R601700301	394	C	C	Dairy	Dairy, Diary Replacements	Existing Irrigator	18167.00	
85	R600582216	43	A	B	Sheep, Beef/Dairy Grazing	Sheep, Beef/Dairy Grazing	New Irrigator	5067.00	91079.10
86	R002064588	181	A	B	Dairy	Dairy	Existing Irrigator	20030.00	901405.00
87	333059762	297	A	A	Dairy, Beef/Dairy Grazing	Dairy, Beef/Dairy Grazing	Mixed	30764.56	780300.00
88	R002071894	313	A	B		Dairy, Dairy Replacement	Existing Irrigator		1427390.90
89	310034592	314	B	A	Dairy	Dairy	Existing Irrigator	38120.00	1123233.10
90	R002066874	114	A	A	Sheep, Beef/Dairy Grazing	Beef/Dairy Grazing	New Irrigator	3061.00	369694.40
91	R002066874	426	C	A	Sheep, Beef/Dairy Grazing	Beef/Dairy Grazing	Existing Irrigator	26732.00	
92	R002071533	195	A	B	Dairy, Dairy Replacement	Dairy, Dairy Replacement	Existing Irrigator	16098.00	798869.90
93	R601617692	195	A	C	Dairy, Dairy Replacement	Dairy, Dairy Replacement	Existing Irrigator	16438.00	784226.60
94	R002333457	164	A	A	Dairy	Dairy, Dairy Replacement	Existing Irrigator	10565.00	555782.00
95	R002333457	263	A	A	Beef/Dairy Grazing, Deer	Beef/Dairy Grazing	New Irrigator	7563.00	596183.30
96	R002333457	193	A	A	Dairy	Dairy	Existing Irrigator	17954.00	659540.30
97	332079042	226	A/C	A	Dairy	Dairy, Dairy Replacements	Existing Irrigator	15944.50	796765.20
98	332079042	80	A	A	Sheep	Beef/Dairy Grazing	New Irrigator	3596.00	247066.80
99	332079042	83	A	A	Other (Pine)	Beef/Dairy Grazing	New Irrigator	5256.00	268712.60
100	R601396718	809	A	B	Sheep, Beef/Dairy Grazing	Sheep, Beef/Dairy Grazing	Mixed	18109.49	945201.10
101	332079841	215	A	B	Dairy	Dairy, Dairy Replacement	Existing Irrigator	25295.00	1254702.00
102	R601602440	117	A	A	Dairy, Dairy Replacement	Dairy, Dairy Replacements	New Irrigator	5628.00	249353.20
103	R600948997	132	A	B	Dairy	Dairy	Existing Irrigator	6348.00	385193.20
104	R600948998	57	A	B	Sheep, Beef/Dairy Grazing	Dairy	New Irrigator	3033.29	188005.60
105	R002340593	419	A	B	Dairy, Beef/Dairy Grazing	Dairy, Beef/Dairy Grazing	Existing Irrigator	20517.00	1402588.10
106	R601005280	116	A	B	Beef/Dairy Grazing	Dairy	New Irrigator	11899.00	343723.50
107	R002070413	276	A	A	Dairy	Dairy	Existing Irrigator	14519.00	655118.40
108	R002070414	94	A	A	Dairy, Beef/Dairy Grazing	Beef/Dairy Grazing	New Irrigator	2528.00	111898.90
109	R600582216	187	C	B	Sheep, Beef/Dairy Grazing	Sheep, Beef/Dairy Grazing	Dryland	2002.02	

APPENDIX 2

CRC165686 Condition 18 Summary

Table: CRC165686 Condition 18 Summary				
Farm	Grade	Objectives Impacting Grade	Summary of Actions	Reason for C or D Grade
Farm 1	C	• Irrigation • Nutrient • Collected Animal Effluent	• Bucket Test • Soil Moisture Probes • Nutrient Budget needs amending to reflect current farm system • Implement plan including timelines to ensure effluent is only applied when there is room in the soil.	One farm block would get no higher than a B because of their Nutrient Budget and they do need soil moisture monitoring. They had a much better attitude than the farm managers on one of their other farm blocks.
Farm 2	D	• Irrigation Management • Collected Animal Effluent • Water Body • Point Source	• Calibrate and adjust trigger points on Aquaflex to accurately reflect wilting point and field capacity • Update OVERSEER® budget to reflect actual farm system (irrigation type/management and water applied) • Investigate options to reduce farm N losses by 2022. • Implement plan (including timelines for completion) to increase effluent storage so that effluent is only applied when their capacity in the soil profile to receive it without reaching field capacity. • Ensure track run off does not flow to a waterway. There was one location. • Provide evidence that silage pit leachate is minimised • Investigate options for plastic rubbish disposal • Locate silage pits the required distance from waterways and in a non-irrigated area	This farm received a C grade because of the sediment and animal access to water, and point source management predominantly. They would receive a B if the discrepancies in their Nutrient Budget were fixed and the soil moisture probes had been calibrated.
Farm 3	C	• Irrigation Management	• Complete bucket test to check distribution uniformity, provide evidence that this has been done and detail any corrective actions required. • Develop irrigation on and off evidence and have available for auditing. • Develop a system for the measurement of soil moisture status and utilise as a scheduling aid. • Construct 2015/16 OVERSEER® budget reflective of actual practices/irrigation area. • Provide evidence of fertiliser application rate, type and location and confirmation that supplier is Spreadmark certified and have proof of placement tracking. • Commence soil testing and construct a nutrient management plan. • Commence developing a plan for how the required nitrogen loss reduction from 2022 can be achieved. Follow CPW communications and support to begin this process if appropriate. • Include additional nutrient management CPW consent requirements in FEP (CPW will contact to assist). • Include additional waterbody management CPW consent requirements in FEP (CPW will contact to assist).	They were not assessed on effluent due to it not being applicable, therefore the C grade stands.
Farm 4	C	• Irrigation • Nutrient • Soil	• Keep records of maintenance of irrigators (e.g. recording in diary as discussed) and invoices from company which has undertaken repairs when required. • Keep records of climate data and actual rainfall utilised to inform irrigation scheduling decisions. • Undertake calibration testing undertaken i.e. a bucket test to check application depth and uniformity of both irrigators. • Investigate and select an option for undertaking quantitative measurements of soil moisture status as scheduling aid. During transition, the use of soil water budget would be a way of demonstrating that irrigation decisions are justified. • Include additional CPW consent requirements (CPW will contact to assist) • Commence developing a plan for how the required nitrogen loss reduction from 2022 nitrogen can be achieved. Follow CPW communications and support to begin this process if appropriate. • Consider more strategic use of N and P applications which align with good management practice (refer to the Good Management Practice Booklet provided). For example, this would include avoiding the application of N during the months of May, June and July, avoiding the application of P during the high-risk months of June - September). Consideration should also be given to plant requirements e.g. will the 92kg of N presently applied in Nov and Dec to the spring barley all be utilised or would this be better applied in smaller amounts more regularly?	They were not assessed on effluent due to it not being applicable, therefore the C grade stands. There are concerns relating to practices which do not reflect good management practice, for example the timing and rate of the use of nitrogen and phosphorus fertilisers and lengthy fallow periods in particular. However, they were quickly able to identify a solution for these when discussed and if they can implement these over the coming year the auditors' level of confidence in regards to minimising the risks from farming activities would be much greater. The farm has several challenges with a number of ephemeral waterways on the farm, some of which were flowing at the time of the audit. These waterways can have significant flood events and they have given careful consideration to the management of these and farming activities.

Farm	Grade	Objectives Impacting Grade	Summary of Actions	Reason for C or D Grade
			• Calibrate equipment used for spreading urea. • Correct discrepancies in nutrient budget. • Review the long fallow period of some rotations. As discussed, if these crops could be sown earlier e.g. April this would assist minimise the risk of run-off nutrients and sediments.	
Farm 5	C	• Irrigation • Nutrient • Collected Animal Effluent	• Implement Soil Moisture Monitoring or water budgeting to inform irrigation decision making and keep records • Complete staff training on-farm and record in weekly report. Encourage INZ irrigation training. • Update CPW irrigation map to include small pivot and gun. • Work with nutrient budget modeller so NB accurately reflects farm system and practices, irrigation types and areas, stock numbers/categories, pasture production. • Apply N fertiliser only when 9am soil temp is >6°C at 10cm to minimise risk of excessive leaching. • Follow CPWL guidance and commence developing a plan to look at reducing N loss by 2022. • Revise FEP to include Target 4 and commence developing a plan to achieve this target (Further reducing the nitrogen loss calculation from 2022 where a property or farming enterprise's nitrogen loss calculation is greater than 15 kg of nitrogen per hectare per annum). • Obtain report of storage saucer size/capacity for this farming system/herd size e.g. Dairy Effluent Storage Calculator. • If low storage capacity, have available and implement plan to increase storage and/or prevent effluent application to unsuitable soil conditions (near field capacity, onto frozen or snow covered ground). • Remove effluent solids from permeable land. Ensure solids bunker area is managed to always contain solids on impermeable surface, which may require increasing the impermeable surface area/bunker size. • Provide evidence of effluent procedures training.	The reason for the C grade was because of poor effluent solids management and not achieving the effluent objective. Without this a B grade, would have been given.
Farm 6	C	• Irrigation • Nutrient • Collected Animal Effluent	• Install soil moisture monitoring to better inform decision making. • Correct OVERSEER® budget to reflect actual fertiliser use. • Investigate options to reduce farm N losses by 2022. • Develop emergency plan if there was a wet period and effluent cannot be applied to the land or in the event of a spill. • Run the dairy effluent storage calculator to determine how much storage is now needed. • Investigate the option of extending the area effluent is applied to, this may require a new effluent consent. • Develop a plan to increase effluent storage and the area effluent is applied to. • Ensure all staff are trained to make sure the effluent system is compliant 365 days of the year. • Reduce water use in the dairy yard in periods of wet weather to lengthen the amount of storage available.	The farm would have been a B grade, however, the week of the audit they had issues with their effluent management.
Farm 7	C	• Irrigation • Collected Animal Effluent	• Put rain gauge under sprinklers to determine amount applied in 12 hours. • Get your irrigation supplier to adjust the pivots/dials so that the application depths are correct. • Investigate and implement a way to avoid applying water to the river riparian strip. • When OVERSEER® budget is next updated get the OVERSEER® modeller to review the irrigation trigger points to ensure they align with those used in the soil moisture decisions, this should reduce N loss modelled. • Revise decision rules for effluent application so that the effluent pond is kept at a lower level. • Investigate options to divert clean water from the dairy shed roof away from the effluent pond and either use or dispose of it elsewhere. • Record effluent start/finish or pump use. • Do bucket test/ put rain gauge under effluent pivot when applying without irrigation water on inner and outer span to determine rates. • Ensure all staff are trained to make sure the effluent system is compliant 365 days of the year.	The C grade for this audit is due to lack of confidence that the effluent system is compliant 365 days of the year. Unfortunately, effluent was applied to saturated soils on the day of the audit as the effluent pond was very full. The farm also does not comply with CPW's water take consent CRC155611, clause 11c - Avoid the use of water onto non-productive land such as impermeable surfaces and river or stream riparian strips. One of the centre pivots is watering into the river riparian strip. They have discussed this issue with CPWL and Environment Canterbury (ECan). I am happy to change the audit report regarding this issue if ECan provide further information. If they can implement the required actions before the next audit the farm will be in a good position to get an A grade. The C grade of this audit does not reflect all the hard work that has been put into improving this farm.

APPENDIX 3

Schedule CRC165686 – List of Users

Shareholder
The Craig
Thwaites Farming Ltd
Ardlui Ltd
AS and AC Chaffey Ltd
Blackhills (2012) Ltd
Cordylea
Burmont Holdings Ltd
Canlac Holdings 2014 Ltd
Canterbury Grasslands
Carlow 1 Ltd
Carrieante Dairies Ltd
Finchley
Cascade Farm Ltd
Chiswick Farm Ltd
Clovernook Farm Ltd
D Dot Holdings Ltd
Ardleish Farm Ltd
Dean & Lorraine Loveridge
Delware Holdings Ltd
Dunfield Farming Ltd
Dunsandel Farms Ltd
Birchdale Dairy
Fairfax Stonehouse Farm Two Ltd
Fairfax Stonehouse Farm One Ltd
Farfield Ltd
Southbank Dairies Ltd
Haglea Farm Ltd
Heatherlea Trust
Highbury Farm Ltd
James Philip Reardon & Fiona Joyce Reardon
James Mckellow & Thomas Mckellow & Mckellow Trustees Ltd
John James Cromie & Joy Mavis Cromie
John Aubrey Ballagh & Leatitia Gillian Ballagh
John Maxwell Michael
John Campbell Stewart
Karalea Ltd
Kenneth Hardy Cookson & Timothy Raymond Cookson
Kenneth Leslie Searle & Doreen Helen Searle
Kilvarock Farming Co Ltd
South Two Chain Ltd
Leo Peter Van Den Beuken & Kathryn Leanne Van Den Beuken & Abvan Trustee Company Ltd
Lieuwes Abbott Ltd
Longview Te Pirita Ltd & Murray Ross Keeley & Irene Patricia Keeley
Mackie Farm Ltd
Martin Andrew Bruce & John Stewart

Mckavanagh Holdings Ltd
Michael Jan Groters & Karen Alwyn Groters
Michael Charles Loe
Mildara Dairy Ltd
Mitchells Road Dairies Ltd
Paul Mcmillan Davey & Sally Ann Davey
Plains Farming NZ Ltd
Prairie Farm Ltd
Purata Farming Ltd
Quartz Hill Station Ltd
Jennifer Daly & Richard Daly
Richard Walter Bell & Catherine Jane Bell & Timothy James Keenan
Rodney Philip Ridgen
Ferriman Family Trust
Saunders Dairy Ltd
Scotswood Ltd
Mundtville
Shelterdale
Silverdale Farm Ltd
Silverwood Trust
Southern Pastures (Longmead Farm) Limited Partnership
Southern Pastures (Matariki Farm) Limited Partnership
Southern Pastures (Pareka Farm) Limited Partnership
Southern Pastures (Te Maania Farm) Limited Partnership
Southern Pastures (Terrace View) Limited Partnership
Southern Pastures (Kowhai Farm) Limited Partnerships
Southern Pastures (Ngamarua Farm) Limited Partnership
Stephen Herbert Harris & Janet Patricia Harris
Stuart M Litchfield & Gayle L Litchfield
Stuartfield Farms Limited (Stoneybrook)
Tallarook Dairies Ltd
Te Pirita Dairy Ltd
Terracefields Farm Ltd
Tobruk Farms Ltd
Tripleton Farm Ltd
Tui Company Ltd
Tui Company Ltd
Twin River Dairies Ltd
Two Geckos Ltd
Wainui Enterprises Ltd
Waterford Dairy Farm Ltd
Westmere Co (2007) Ltd
Willsden Farm Ltd
Windwhistle Pastoral Limited Farming Company
Wolff Farms Ltd
Stephen Herbert Harris & Janet Patricia Harris