

BEFORE THE CANTERBURY REGIONAL COUNCIL

IN THE MATTER OF

The Resource Management Act 1991

AND

IN THE MATTER OF

applications by **Pūkaki Irrigation Company Limited** to disturb the bed of Lake Pūkaki (CRC062866), Pūkaki River (CRC062870, CRC062872), and various unnamed streams (CRC062871, CRC082300) for the purpose of installing and maintaining various intakes structures, pipelines and erosion/discharge structures.

**REPORT AND DECISION OF HEARING COMMISSIONERS PAUL ROGERS, MICHAEL BOWDEN,
DR JAMES COOKE AND EDWARD ELLISON**

PART B – SITE SPECIFIC DECISION

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1 INTRODUCTION

- 1.1 This is a decision on five applications by **Pūkaki Irrigation Company Limited** (the applicant). It is one of many decisions we have made on 104 applications by various applicants for water permits and associated consents in the Upper Waitaki Catchment.
- 1.2 The decision should be read in combination with our Part A decision, which sets out our findings and approach to various catchment wide issues that are common to multiple applications. References to our Part A decision are made throughout this decision as appropriate.

2 THE PROPOSAL

- 2.1 The applicant has applied for five land-use consents (CRC082300, CRC062866, CRC062870, CRC062871 and CRC062872) to allow it to install multiple structures and construct a pipeline across numerous watercourses. This infrastructure will be used to convey water from the location of take to various properties, including Simons Hill Station, Simons Pass Station, and potentially Glentanner and Maryburn (Classic Properties) Stations.
- 2.2 The five applications relate to **three** alternative intake locations as follows:

Option	Intake Location	Intake structure	Piping across watercourses	Discharge structure
1	Pūkaki Canal	Not required	CRC062870 CRC062871	CRC062872
2	Lake Pūkaki	CRC062866	CRC062871	CRC062872
3	Tekapo Canal	Not required	CRC082300	Not required

- 2.3 The above three locations are proposed as alternative options. If granted, the applicant will choose the most viable option and exercise those consents. The consents relating to the other intake locations will not be required.
- 2.4 The location of the proposed activities is shown in **Appendix A** to this decision. The following section provides a summary of the activities proposed by the applicant, separated into the three different options.

Option 1 – Pūkaki Canal

- 2.5 For this option, consent is not required for the intake structure as it is located in the man-made Pūkaki Canal. From this intake, consent will be conveyed by way of an open irrigation canal. Consent is required to pipe the water under various watercourses before it reaches the irrigation areas. In addition, consent is sought for a discharge structure to discharge water back into the Pūkaki River.
- 2.6 There are two relevant applications in relation to pipelines under water courses. The first (**CRC062870**) seeks to construct and maintain a pipeline under the Pūkaki River at or about map references NZMS 260 H38:822-637 to H38:827-637. The proposed activities and mitigation measures can be summarised as follows:
- (a) To excavate a trench up to 12 metres wide, 500 metres long and 5.3 metres deep;
 - (b) To install a 1300 mm concrete encased pipeline at a 4 metre depth below bed level within the river bed;
 - (c) To complete construction within a period of 4 months; and
 - (d) To maintain access to the Pūkaki River for the purposes of river control during construction when the river access road will be closed for a period of 1-2 days.
- 2.7 The second application (**CRC062871**) seeks to construct and maintain a pipeline under three unnamed ephemeral streams or install culverts in these streams at the following locations:

- (a) Ephemeral Stream 1 – at or about map reference NZMS 260 H38:836-631
 - (b) Ephemeral Stream 2 – at or about map reference NZMS 260 H38:843-630
 - (c) Ephemeral Stream 3 - at or about map reference NZMS 260 H38:849-634
- 2.8 In respect of ephemeral streams 1 and 2, the applicant proposes the following:
- (a) To install two 1300 mm diameter culvert pipes within the beds, sufficient to carry a flow of 100 litres per second beneath the Pūkaki Irrigation Company scheme irrigation supply canal;
 - (b) To install armouring in the banks around the entrance and exit of culverts for the purposes of erosion protection;
 - (c) To construct an irrigation supply canal up to 15 metres wide between the toe of each embankment, up to 5.5 metres wide between the crest of each embankment, and up to 3.5 metres high at the crest of each embankment, across the bed of the streams; and
 - (d) To use a 500 mm thick earth liner within the irrigation supply canal, and additional 300 mm gravel cover, to prevent seepage, over the culvert crossing within the bed of the streams.
- 2.9 In relation to ephemeral stream 3, the applicant proposes to excavate a trench and install a 1300 mm concrete encased pipeline under the river bed, at a depth of up to five metres below the lowest bed level to act as a siphon between two sections of the irrigation supply canal.
- 2.10 For all proposed pipelines, the applicant proposes backfill the trench over the installed pipeline with excavated material, compacted to 98% of optimum dry density. In addition, the excavated area will be restored to the level of surrounding river bed and covered with river stones consistent with the surrounding river bed.
- 2.11 In addition to the above works, under this option the applicant has also sought consent to construct, maintain and operate erosion control and discharge structures in the Pūkaki River at or about map references NZMS 260 H38:874-563 and H38:880-540 (**CRC062872**). The upstream discharge location is adjacent to the south-western boundary of Simons Pass Station, and the lower discharge location is adjacent to Simons Hill Station.
- 2.12 The proposed activities involve the installation of two weirs, designed to carry flows of 1,531 litres per second each, concreted rock protection and rip rap within the bed and banks of the river, at the exit of irrigation supply races in each location. In addition, a channel will be excavated from the weir into the river bed.
- 2.13 General mitigation measures proposed for all works by the applicant (and which are also relevant to works under Option 2) include:
- (a) To thoroughly wash machinery off-site prior to working work in the bed or banks of the ephemeral streams, in accordance with Canterbury Regional Council guidelines;
 - (b) To design the culverts, pipelines and associated structures to reduce visual impact;
 - (c) To minimise waste during construction and remove any waste material upon completion of works; and
 - (d) To undertake liaison with Meridian Energy Limited regarding timing of works.
- 2.14 **Option 2 – Lake Pūkaki** In relation to the proposed take from Lake Pūkaki, the applicant has sought consent to construct, maintain and operate an irrigation intake structure between map reference NZMS 260 H38:822-659 and H38:822-652 (**CRC062866**). The proposed activities and mitigation measures can be summarised as follows:
- (a) To design the intake structure and supply pipeline for a maximum flow rate of 3400 litres per second;
 - (b) To install a submersible intake pump and 200 mm thick concrete pad on the lake bed below the minimum lake control level of 518.2 metres above mean sea level;

- (c) To install a section of 1300 mm pipeline on the lake bed between the minimum lake control level of 518.2 metres above mean sea level and the seasonal minimum lake level;
 - (d) To bury a section of 1300 mm pipeline under the lake bed from the seasonal minimum lake level to the lake shore;
 - (e) To install a shed on the lake shore above the maximum lake control level at 535.5 metres above mean sea level, for the purposes of housing switch gear and a booster pump; and
 - (f) To complete construction within a period of 2 months.
- 2.15 Water is conveyed from the intake down an open irrigation canal. As for Option 1, consent is required for piping under three ephemeral streams (**CRC062871**). Consent is not required for piping under the Pūkaki River, as the canal does not pass under this watercourse.
- 2.16 In respect of the piping under ephemeral streams, almost all the details are the same as described for Option 1. The only difference is location, with the stream crossing points being further upstream as follows:
- (a) Ephemeral Stream 1 – at or about map reference NZMS 260 H38: 835-636
 - (b) Ephemeral Stream 2 – at or about map reference NZMS 260 H38: 845-637
 - (c) Ephemeral Stream 3 - at or about map reference NZMS 260 H38: 860-640
- 2.17 Consent is also sought for a structure to discharge water back into the Pūkaki River (**CRC062872**), with the details being the same as for Option 1 above.

Option 3 – Tekapo Canal

- 2.18 The third and final option involves a take from the Tekapo Canal, or more particularly the Tekapo Stilling Basin. No consent is required for the intake structure and there is no discharge associated with this option.
- 2.19 From the intake structure, water would be gravity fed through a buried pipeline to the irrigation areas. Consent is sought under this option for the construction and maintenance of a pipeline under four unnamed ephemeral streams, to enable a water supply to pass under the streams (**CRC082300**).
- 2.20 The locations of the proposed crossing points are between map references NZMS 260 H38:878-657 and H38:879-657 (Crossing Point 1); NZMS 260 H38:845-641 and H38:846-641 (Crossing Point 2); NZMS 260 H38:848-642 and H38:849-642 (Crossing Point 3); and NZMS 260 H38:861-643 and H38:862-643 (Crossing Point 4).
- 2.21 The proposed activities and mitigation measures can be summarised as follows:
- (a) Works shall be limited to the placement and maintenance of a pipeline beneath the bed of ephemeral streams;
 - (b) To excavate a trench approximately 3 metres wide, up to 4 metres deep and up to 15 metres long in the bed of the first ephemeral stream at Crossing Point 1;
 - (c) To excavate a trench approximately 3 metres wide, up to 3 metres deep and between 10 metres and 25 metres long in the bed of the ephemeral streams at Crossing Point 2, Crossing Point 3 and Crossing Point 4;
 - (d) To install a pipeline of up to 1300 mm diameter, up to 2 metres below bed level, in the bed of the first ephemeral stream at Crossing Point 1;
 - (e) To install a pipeline of up to 300 mm diameter, up to 2 metres below bed level, in the bed of ephemeral streams at Crossing Point 2, Crossing Point 3 and Crossing Point 4;
 - (f) To undertake works when the stream beds are dry;

- (g) To backfill the trench, compact and level it, to resemble the surrounding stream bed;
- (h) To undertake works such that disturbance of the bed is minimised;
- (i) To undertake remedial works to restore bank stability where disturbance occurs to the stream banks;
- (j) To undertake works such that they do not cause erosion to the bed and banks of ephemeral streams;
- (k) To thoroughly wash machinery off-site prior to working work in the bed or banks of the lake, in accordance with Canterbury Regional Council guidelines;
- (l) To implement measures to minimise discharge of sediment to air at the site;
- (m) To complete works within one week at each site;
- (n) To undertake works during the hours of 7am and 7pm on week days, and not on weekends or public holidays;
- (o) To advise Canterbury Regional Council and Upoko Runanga of any disturbance of Koiwi Tangata (human bones) or taonga (artefacts) and cease excavation until Kaumatua and archaeologists have certified it is appropriate for works to recommence at the demarcated site;
- (p) To provide a copy of the consent to any person exercising the consent and explain how to comply with conditions;
- (q) To advise Canterbury Regional Council two days prior to the start of works, if required
- (r) To undertake all practicable measures to minimise adverse effects on property, amenity values, wildlife, vegetation and ecological values;
- (s) To remove all spoil and other waste material from site upon completion of works;
- (t) To restore the site to its original condition, as far as practicable, upon completion of works.

The applications

- 2.22 All five applications are for activities in the bed of a lake or river pursuant to section 13 of the RMA. Consent is required under the Natural Resources Regional Plan (NRRP), as discussed below.
- 2.23 Application CRC062866, CRC062870, CRC062871 and CRC062872 were lodged with the Canterbury Regional Council (the Council) on 14 February 2006. Application CRC082300 was lodged later in time on 21 December 2007. All applications were publicly notified and there were a number of submissions that are referred to later in this decision.

Modifications after notification

- 2.24 There have been two key changes since notification of these applications as follows:
- (a) **CRC062866** - On 30 July 2009 the applicant confirmed that the intake location from Lake Pūkaki would not be from the notified location of NZMS 260 H38:822-649 at the Pūkaki Spillway, but from NZMS 260 H38:822-652, approximately 160 metres north of the spillway, as a result of concerns expressed by Meridian Energy Limited.
 - (b) **CRC082300** - On 21 June 2009 the applicant confirmed that the pipeline crossing point over the first ephemeral stream would not be at the notified location of between NZMS 260 H38:884-662 and H38:885-662, but at a site approximately 800 metres downstream of the notified location, between NZMS 260 H38:878-657 and H38:879-657. The applicant specified the reason for changing the crossing point as a change in proposed pipeline route that would be a more direct and efficient route from the Tekapo Stilling Basin to the Pūkaki outwash flats on Simons Pass Station and Simons Hill Station.

- 2.25 The general principle for modifications after notification is that amendments are allowed provided they do not increase the scale or intensity of the activity or significantly alter the character or effects of the proposal. The key consideration is prejudice to other parties by allowing the change. In this case, we are satisfied that neither of the above changes would significant alter the intensity or effects of the proposal and that no party would be adversely affected by allowing the changes.

Related consents and applications

- 2.26 As noted above, these applications are closely related to various other take and use applications and discharge applications by different applicants. This is summarised in Table 1 below:

Option	Location	Current applications	Related applications		
			Applicant	Ref	Activity
1	Pūkaki Canal	CRC062870 CRC062871 CRC062872	Simons Hill	CRC062842	Take and use water
				CRC062843	Discharge water
			Simons Pass	CRC082311	Take and use water
				CRC062869	Discharge water
			Glentanner	CRC071362	Take and use water
			2	Lake Pūkaki	CRC062871 CRC062872
CRC062843	Discharge water				
Simons Pass	CRC082311	Take and use water			
	CRC062869	Discharge water			
Glentanner	CRC071362	Take and use water			
	CRC092721	Disturb bed			
3	Tekapo Canal	CRC082300	Simons Hill	CRC082304	Take and use water
			Simons Pass	CRC062867	Take and use water
			Glentanner	CRC083609	Take and use water
			Classic Properties	CRC070406 CRC063106	Take and use water

Table 1: Relationship between different consent applications

- 2.27 In a similar manner to the current applications, the different applicants have applied for the related consent applications as alternative options. As such, the decision as to which of these related consents are exercised will correspond with the decision regarding the current applications to install the necessary infrastructure.

3 DESCRIPTION OF THE ENVIRONMENT

Lake Pūkaki

- 3.1 The applicant stated that the outflows and lake levels of Lake Pūkaki are controlled by Meridian Energy Limited for hydroelectricity generation purposes. The lake surface area is approximately 175 million square metres and Lake Pūkaki is considered to have high natural character and high landscape and visual amenity values under the Waitaki Catchment Water Allocation Regional Plan (WCWARP).

- 3.2 Ms Bartlett (s42A report writer for the Council) noted that Lake Pūkaki is a Statutory Acknowledgement Area scheduled in the Ngāi Tahu Claims Settlement Act 1998. The minimum lake level for Lake Pūkaki is specified as 518 metres above mean sea level in the WCWARP and the lake has recreational and amenity values associated with water sports and sightseeing.
- 3.3 The proposed intake site under CRC062866 is adjacent to a public access road off State Highway 8 leading to a lake viewing area, and will be visible from the Lake Pūkaki information centre across the lake to the northwest. The Pūkaki Spillway from Lake Pūkaki is approximately 160 metres south of the proposed intake location.
- 3.4 Species present in the lake include: threatened indigenous aquatic plants; a variety of indigenous wading birds and waterfowl, including endangered species; Canterbury galaxias, koaro, common bully and long-finned eels, as well as brown and rainbow trout.

Pūkaki River

- 3.5 In relation to the Pūkaki River, the applicant stated that it is predominantly dry, subject to flow releases over the Lake Pūkaki spillway, managed by Meridian Energy Limited, with flows ranging from 0 to 1000 cumecs, and an average release flow of 180 cumecs. Environment Canterbury maintains a road on the true left bank of the river for river protection and flood management purposes.
- 3.6 Ms Bartlett noted that there are indigenous species present within the bed and banks of the Pūkaki River, including: two threatened species of grasshopper (*sigaus minutes* and *Brachaspis robustus*); bird species such as NZ pipit, grey warbler, banded dotterel and black fronted terns; lizard species such as spotted skink, common skink, McCanns skink and Southern Alps gecko; and patches of indigenous plant species suited to the stony and dry alluvial surfaces, although sweet briar is common.
- 3.7 The proposed siphon crossing under CRC062870 is adjacent to transmission lines running through the river bed, approximately 1 km downstream of the Pūkaki spillway and 1.8 km east of the Pūkaki Canal, with utility access roads in proximity.
- 3.8 The discharge weir locations under CRC062872 are in an area with few structural elements present, aside from adjacent gravel road, and transmission lines approximately 1.5 km upstream of the upper discharge location.

Ephemeral Streams – Options 1 and 2

- 3.9 In relation to the ephemeral stream covered by application CRC062871, the applicant stated that Ephemeral Stream 1 and Ephemeral Stream 2 disappear to gravel soon after the proposed crossing points, and do not flow during the irrigation season.
- 3.10 Ephemeral Stream 3 has flowed once in 15 years after heavy rainfall, at a rate of 25 L/s for a maximum of a fortnight, with flow disappearing to gravel before reaching Pūkaki River, and flow occurring outside the irrigation season. This stream has a larger catchment than Ephemeral Stream 1 and Ephemeral Stream 2.
- 3.11 Stream crossing points are stony, with vegetation of mainly hieracium, browntop and danthonia, with low environmental value. Test pit excavations, up to 5 m deep, undertaken by Riley Consultants for Pūkaki Irrigation Company Limited found that outwash gravels located within the bed of ephemeral watercourses crossed by the proposed irrigation supply canal were moist or occasionally saturated.
- 3.12 Ms Bartlett noted that (at the time of writing her original report) the width and depth of ephemeral stream beds has not been identified by the applicant, nor had typical flows for Ephemeral Streams 1 and 2. Based on aerial photographs, her estimates of the widths of the streams were as follows:
- (a) Ephemeral Stream 1 - between 220 m and 230 m at both proposed crossing sites;
 - (b) Ephemeral Stream 2 – approximately 130 m at the lower crossing point (associated with Option 1) and 160 m at the upper crossing point (Option 2).
 - (c) Ephemeral Stream 3 – approximately 400 m at the lower crossing point (associated with Option 1) and 330 m at the upper crossing point (Option 2).

- 3.13 Ms Bartlett considered that native species are likely to be present within, and adjacent to, the ephemeral stream beds, including indigenous flora, invertebrates, lizards and birds. She also noted that the 1888 Rabbit Fence, an archaeological site, begins approximately 100 metres southeast of the Option 2 crossing point for Ephemeral Stream 1 and runs approximately 100 metres north of the Option 1 crossing point for Ephemeral Stream 3, with the proposed canal route for Option 1 passing through the fence.

Ephemeral streams – Option 3

- 3.14 In relation to the ephemeral stream covered by application CRC082300, the applicant stated that the bed of the first ephemeral stream is approximately 12 metres wide at Crossing Point 1, and carries a flow of approximately 25 litres per second for up to 2 weeks in winter, which has happened only once in the last 15 years, infiltrating to groundwater before reaching Pūkaki River. The beds of ephemeral streams at Crossing Point 2, Crossing Point 3 and Crossing Point 4 are between 5 metres and 22 metres wide.
- 3.15 There are a total of three ephemeral streams crossed by the pipeline, two of which are tributaries of the first ephemeral stream and have similar flow rate and frequency. Stream crossing points are stony, with vegetation of mainly hieracium, browntop and danthonia, barely distinguishable from the surrounding landscape, with low environmental value.
- 3.16 Ms Bartlett commented that, based on aerial photographs, the width of the first ephemeral stream at Crossing Point 1 and Crossing Point 4 appears to be greater than estimated by the applicant. In related to Crossing Point 3, she noted that aerial photographs did not show a distinguishable channel in this location, and photographs provided by the applicant of this site lack an obvious channel, in comparison to other sites where land form and vegetation tend to indicate a likely flow path. Ms Bartlett expected native species to be present within, and adjacent to, the ephemeral stream beds, including indigenous flora, invertebrates, lizards and birds.

Site visit

- 3.17 We detailed our site visits in Part A and we do not repeat this information here. We confirm that on our land site visits that we gained an appreciation of the general extent and area of the proposed activity from SH8 and our visit to Simons Pass and Simons Hill Stations. On our helicopter reconnaissance of the Basin we viewed the general location and extent of the proposed activities.

4 PLANNING INSTRUMENTS

- 4.1 As discussed in our Part A decision, there is a wide range of planning instruments that are relevant under the RMA. This includes national and regional policy documents, along with regional and district plans. The key planning instruments relevant to these applications are as follows:
- (a) Transitional Regional Plan (TRP);
 - (b) Proposed Natural Resource Regional Plan (PNRRP)
 - (c) Natural Resources Regional Plan (NRRP);
 - (d) Proposed and Operative Canterbury Regional Policy Statement (CRPS); and
 - (e) Mackenzie District Plan (MDP)
- 4.2 The provisions of these planning instruments critically inform our overall assessment of the applications under s104(1)(b) of the RMA, as discussed in Section 14 of this decision. In addition, the rules within the relevant planning instruments determine the status of the activities, as set out below.

Status of the activity

- 4.3 In accordance with section 88A of the RMA, the relevant plans for determining the status of the activity are those that existed at the date the application was lodged. In relation to this application, that was the TRP and the PNRRP.
- 4.4 The TRP is silent on matters relating to works in the bed and banks of rivers and lakes in the

Waitaki catchment. This activity therefore requires consent as a **discretionary** activity under the TRP.

- 4.5 The relevant provisions of the PNRRP (as notified) are as follows:
- (a) Rule BLR2 - the erection or placement of structures in the bed of a lake or river is a permitted activity, subject to compliance with a range of conditions.
 - (b) BLR3 – the excavation, drilling, tunnelling or disturbance within the bed is a permitted activity, subject to compliance with a range of conditions.
 - (c) Rule BLR 8 – if an activity cannot comply with the conditions of Rules BL2 and/or BLR3, is it classified as a discretionary activity
- 4.6 The proposed activities cannot comply with the conditions of permitted activity rules BLR2 and BLR3. As such, the proposed activity is a **discretionary** activity in accordance with Rule BLR8 of the proposed NRRP.
- 4.7 Overall, the proposal is a **discretionary activity** under the TRP and Rule BLR8 of the Proposed NRRP (as notified) and resource consent is required in accordance with section 13 of the RMA.
- 4.8 As noted above, these applications are directly related to various other applications by different applicants, some of which are classified as non-complying activities (e.g. the proposed takes from Lake Pūkaki). Although these activities are effectively part of the same proposal, we have decided that it is not appropriate to “bundle” the activities together for the purpose of determining the activity status.
- 4.9 The reason for this is that we consider that the effects of exercising these consents (if granted) will not overlap with the effects of exercising the other related consents. The effects of the activities are sufficiently distinct such that they can be assessed individually on their merits. This is consistent with approach adopted by the Environment Court in relation to the bundling of consents (*Southpark Corporation Limited v Auckland City Council* [2001] 8NZRMA 350).

5 NOTIFICATION AND SUBMISSIONS

- 5.1 Four of the applications were notified in 2007, with the remaining application notified in 2008. The details of these notifications and submissions received are summarised below.

CRC062866, CRC062870, CRC062871 and CRC062872

- 5.2 Application CRC062866, CRC062870, CRC062871 and CRC062872 were publicly notified on 4 August 2007. 19 submissions in total were made on application CRC062866 and 18 submissions on the other three applications.
- 5.3 Table 2 is based on the relevant s42A reports and summarises of those submissions that directly referenced the application. In addition to those listed, there were other submitters that presented evidence at the hearing that was relevant to this application. The relevant evidence from submitters is discussed in more detail later in this decision. Please note that all submissions hold equal importance, even if not specifically listed below.

Table 2. Summary of submissions on applications CRC062866, CRC062870, CRC062871 and CRC062872

Submitter	Reasons	Position
Canterbury Aoraki Conservation Board	Natural character of rivers, wetlands, lakes and their margins, significant indigenous vegetation, habitats of indigenous fauna and threatened species; freshwater habitats generally through the entrainment of unwanted plants and animals; Landscape change from the development of infrastructure and consequent reduction in the naturalness of the landscape.	Oppose
Meridian Energy Limited	Effects on Meridian infrastructure	Oppose

L H Shand	Preservation of natural character of lakes, rivers and their margins; protect indigenous flora and fauna;	Oppose
Dr D Scott	Support irrigation infrastructure development off hydroelectricity canals and further irrigation scheme development generally	Support
Transit New Zealand	Impact on Transit infrastructure not assessed, piping under the state highway has potential to affect road and reserve due to failure or seepage	Oppose
Department of Conservation	Fish screening; natural character of rivers, wetlands, lakes and their margins, significant indigenous vegetation, habitats of indigenous fauna and threatened species; freshwater habitats generally through the entrainment of unwanted plants and animals;	Oppose

5.4 Overall the key effects of concern to submitters include effects on: ecosystems, water quality, allocations, minimum flows, natural character and landscape, efficiency and cultural values, and generally related to the take, use, damming and diversion of water.

CRC082300

5.5 Application CRC082300 was publicly notified on 18 October 2008. The application attracted eight submissions, including two in support and six in opposition.

5.6 Table 3 below is based on the relevant s42A reports and summarises those submissions that directly referenced the application. In addition to those listed, there were other submitters that presented evidence at the hearing that was relevant to this application. The relevant evidence from submitters is discussed in more detail later in this decision. Please note that all submissions hold equal importance, even if not specifically listed below.

Table 3. Summary of submissions on application CRC082300

Submitter	Reasons	Position
Canterbury Aoraki Conservation Board	Sections 6, 7 and 8 of the RMA to be considered; request a financial commitment to fund research that will monitor the effect on water quantity available in adjoining creeks, streams, ponds and wetlands.	Oppose
Fish and Game New Zealand – Central South Island Region	Cumulative effects; term of consent; review clauses; timing of instream works and amenity values	Oppose
Department of Conservation - Twizel	Inconsistent with Part II of the RMA; deficient AEE; effects on ecosystems and water quality; preservation of natural character; fish passage	Oppose
Land Information New Zealand – Murray Mackenzie	Land may require easements on Crown pastoral lease land	Oppose
Meridian Energy Limited	Effects on Meridian infrastructure	Oppose
Irishman Creek Station Limited	Proposed pipeline crosses Irishman Creek Station, no contact from applicant; adverse effects include visual scarring, effects on vegetation, disruption of farming activities, risk of weeds spreading	Oppose
Ruataniwha Farm Limited	Will turn a desert into an oasis; no harm to the streams	Support
Mr A J Gloag	No negative consequences for the natural resource and make the physical resource more sustainable	Support

6 THE PLANNING OFFICER'S REPORT

- 6.1 Two separate section 42A reports on the applications and submissions were prepared by the Council's Consent Investigating Officer, Ms Maria Bartlett. Report 31B related to application CRC082300 and Report 31A related to the other four applications.
- 6.2 The primary reports were supported by a number of specialist s42A reports prepared by Messrs Heller, Hanson, Glasson, McNae and Stewart, and Drs Clothier, Schallenberg, Meredith and Freeman. The key issues addressed by these reports were cumulative water quality effects, landscape effects, and environmental flow and level regimes.
- 6.3 All reports were pre-circulated in advance of the hearing. We have read and considered the content of the reports and refer to them as relevant throughout this decision. Specific points noted from the s42A reports are summarised below.
- 6.4 Ms Bartlett she said that she was satisfied that the applicant had addressed measures required to reduce potential adverse effects of sediment discharge in relation to the Lake Pūkaki intake. Dr Greg Ryder had assessed effects of the Lake Pūkaki intake construction on aquatic species (15.9-15.12), as well the Pūkaki River crossing (para 15.17) and conveyance infrastructure (para 15.20), and concludes that effects will be minor with sediment control measures employed.
- 6.5 Ms Bartlett said that the applicant proposed that the Lake Pūkaki intake structure would be exposed between the minimum lake level of 518 m a.m.s.l. and the location above mean lake level of 525 a.m.s.l., after which point the pipeline will be buried, and as such, erosion protection would be required around the structure. The applicant submitted a concept design for satisfactory erosion protection of the Pūkaki River discharge structures.
- 6.6 Meridian Energy Limited and NZ Transport Agency (formerly Transit NZ) are satisfied that effects on infrastructure within their jurisdictions are acceptable. Ms Bartlett believed that with the inclusion of a condition relating to obtaining authority from NZHPT, consent for the ephemeral stream crossing associated with the Pūkaki Canal could be granted.
- 6.7 The applicant has not addressed effects on Transpower infrastructure in relation to the Pūkaki River crossing associated with the Pūkaki Canal option.
- 6.8 The applicant has confirmed that the Lake Pūkaki intake structure will be exposed between 518 and 525 a.m.s.l, so there will be a permanent effect on visual amenity in this location.
- 6.9 Canterbury Regional Council's landscape expert Chris Glasson has assessed visual effects as acceptable in relation to developments proposed for the Pūkaki Flats and Pūkaki River margins, although infrastructure was not specifically addressed. Ms Bartlett said that she still had concerns relating to potential adverse effects on natural character and landscape with the infrastructure proposed, but which she believed could be avoided (relevant to section 5(2)(c) of the RMA) through development of the alternative buried pipeline proposal. Dr Michael Steven provided an assessment of effects on landscape relevant to the proposed infrastructure applications (paras 84-90) and concluded that effects are minor as a result of screening from the state highway and dominance of mountain backdrop (vertical element).
- 6.10 Ms Bartlett's principal outstanding concerns were
- (a) with respect to application CRC062866 for the Lake Pūkaki intake option was the effect on amenity at the site,
 - (b) with respect to application CRC062870 for the Pūkaki River crossing from the Pūkaki Canal intake option was the effect on Transpower infrastructure, which has not been addressed.
 - (c) with respect to applications CRC062871 for the ephemeral stream crossings and CRC062872 for the Pūkaki River discharge structures was the effect on natural character and landscape values.
- 6.11 Ms Bartlett said that the applicant had expressed a preference for the Tekapo Stilling Basin intake option, which she supported, as there were no outstanding matters in relation to that proposal (CRC082300).

7 THE APPLICANT'S CASE

- 7.1 Legal counsel for the applicants, Mr Kelvin Reid, presented opening submissions and called a large numbers witnesses in relation to the overall irrigation proposals for the various applicants he represented. However most of this evidence concerned the water permits, rather than the activities that are the subject of this decision.
- 7.2 Comment on the proposed works in the bed was provided in the evidence of Mr Titus Smith (engineer), Dr Gregory Ryder (freshwater ecologist) and Dr Michael Steven (landscape architect). Key points from their evidence is summarised below.

Opening legal submissions

- 7.3 Mr Reid presented opening submissions on behalf of five different applicants, including the current applicant. He provided background information on the wider proposals and explained the relationship between the various applications.
- 7.4 Much of his submissions focussed on issues relating to the take and use applications, such as the availability of water, the applicant's approach to thresholds, and assimilative capacity. We have discussed in this evidence in our decisions on the relevant take and use applications and do not repeat this information here.
- 7.5 Mr Reid set out for us the relevant statutory framework for consideration of the applications, which is consistent with the approach we have applied. He then identified the relevant witnesses that would present evidence and summarised some of the key issues they would cover. We have summarised this evidence below as it is relevant to the current discharge applications.

Mr Titus Smith

- 7.6 Mr Titus Lee Smith a Senior Engineer for Riley Consultants Ltd (RILEY) holds a Master of Engineering Science and is a Chartered Professional Engineer he has eight years experience in civil and geotechnical engineering, with water retaining structures, such as dams, canals, pipelines and similar structures being a specialist area of expertise
- 7.7 Mr Smith presented the three development options on drawing 05805/3-01 and generally incorporate:
- (a) **Option 1** an intake from the Pūkaki Canal, with canal conveyance to the escarpment of the Pūkaki River, a buried pipe below the Pūkaki River bed, followed by canal conveyance to the irrigation area.
 - (b) **Option 2** an intake from Lake Pūkaki near the left abutment of the Pūkaki Dam, with a buried piped conveyance around the dam and for an additional 2.1 km adjacent to the Pūkaki River, followed by canal conveyance to the irrigation area.
 - (c) **Option 3** an intake from the Tekapo Canal head pond, with a buried piped conveyance around 8.9 km length south to the irrigation area.
- 7.8 We note that Mr Smith did not number the options in this way, however for consistency we have used the same numbering as that adopted in the s42A reports and which we have used earlier in this decision.

Option 1 – Intake from Pūkaki Canal

- 7.9 Mr Smith said that apart from the Pūkaki River bed, construction is generally outside publicly accessible areas.
- 7.10 The conceptual intake layout, developed through consultation with Meridian was indicated on drawing 05805/3-JUN-2. Mr Smith noted that minimal earthworks were associated with the intake, which were likely to involve:
- (a) Excavation of the pipe trench, which is located above maximum water level within the Pūkaki Canal.

- (b) Installation and concrete encasement of the 1.2 m diameter pipe across the access track at the canal edge.
 - (c) Re-contouring and re-surfacing of the access track to accommodate the 0.66 m increase in level at the pipe location.
 - (d) Installation of the pre-fabricated intake pipe including flared inlet section and intake screen within the canal.
- 7.11 Mr Smith explained that the intake pipe discharges into an open canal around 2 km long for conveyance across to the true right bank of the Pūkaki River. The canal will be formed using cut/fill-balanced earthworks, likely incorporating a range of machinery. The canal formation width varies between around 12 and 25m, and a machinery access/turning corridor 10 m wide adjacent to the canal will need to be allowed during construction. The total earthworks quantity associated with this section of canal is estimated at 43,000 m³ on the basis of terrestrial-based survey of the alignment. It is likely the canal will require an HDPE plastic liner over this section, as suitable earth lining material has not been identified nearby.
- 7.12 He said a pressurised pipe or siphon is proposed to convey the water beneath the Pūkaki River bed. The pipe will be installed with around 4 m cover below the river bed, and protected with heavy rock such as that making up the existing river bed. He noted that since the construction of the Pūkaki Dam, the Pūkaki River flows only when releases from the Pūkaki Spillway occur, such as scheduled recreational releases, flood events or in an emergency. Pondered water is present at times in the riverbed immediately below the dam, likely contributed by groundwater seepage. Pondered water is generally not observed downstream of the proposed siphon location. It is likely that a small amount of water is passing within the riverbed as groundwater, and that seepage will be encountered in the siphon installation trench. The pipe will be buried apart from where it ascends the prominent terrace on the true left of the river, where it will be installed above ground on pedestals.
- 7.13 Mr Smith continued saying that the flow then enters another canal section, which extends around 5.7 km to the nominal farm centreline. Initially, this canal is cut into the upper portion of the Pūkaki River terrace, which it follows downstream around 500 m before attaining the terrace level and directing east toward the irrigation area. This initial section of the canal is estimated to require around a 25,000 m³ cut volume. This initial section of canal will be HDPE lined to ensure canal seepage does not negatively impact on the stability of the over steepened river terrace.
- 7.14 Pre-feasibility level geotechnical investigation of the canal alignment indicates that for most of its subsequent alignment the canal passes through low permeability ground, and will not require lining. The alignment crosses three unnamed ephemeral streams, two of which will be culverted beneath the canal fill, and the irrigation flow piped beneath the third.
- 7.15 Mr Smith believed that the canal width, construction corridor, methodology and machinery would be similar to that for the section to the true right of the Pūkaki River. For the 5.7 km length of canal, the total footprint area of the earthworks is around 110,000 m², and earthworks volume around 120,000 m³ in addition to the culvert fills and terrace cutting volume already noted. Earthworks will be completed using a cut-fill balance approach, so that exporting or importing of fill materials will be minimised.
- 7.16 The total construction duration for the option 1 intake and conveyance is anticipated to be around 6 months. The canal earthworks are anticipated to take around 3 to 4 months.
- 7.17 Ponds within the canal are indicated in the proposed works. Some operational storage will be required for start-up and shutdown of the canal, due to the delay between abstraction rate changes at the intake and their effect at the eastern (downstream) end of the canal. It is anticipated that either the widening of the canal near its eastern end or the provision of small ponds within the canal will provide this operational storage. The length and width of the widened section is subject to confirmation during final design, and will be determined on the basis of the operating characteristics of the irrigation infrastructure installed as well as modelling of the effect the delay between operational intake abstraction rate changes and flow rate at the end of the canal.
- 7.18 Dr Ryder said that the Pūkaki Canal was a channel constructed for power generation, lacks habitat variability and generally supports low aquatic values. He considered the proposed take will have no measurable or meaningful effect on the water level or ecological values of the canal.

- 7.19 He said the irrigation intake structure would be located in the wall of the canal. A fish screen, designed in accordance with the "Fish Screening Good Practice Guidelines for Canterbury", will be installed on the intake or a screen approved in consultation with Fish & Game. He considered that the proposed intake design should be effective at safely screening a wide range of fish sizes, including adult and juvenile salmonids. Consequently, Dr Ryder expected effects on fisheries in the canal will be less than minor.
- 7.20 Dr Ryder explained that local aquatic communities would be disturbed during construction of the intake. However, as the canal was an artificial watercourse, aquatic communities will already be of a limited nature. Macroinvertebrate communities and some fish (e.g. common bully) and bully eggs may be removed or displaced during excavation, however more mobile fish species (e.g. salmonids) will quickly move to avoid the excavation area. He considered the aquatic values in the area very limited, so any effects of construction will be less than minor.
- 7.21 Dr Ryder also said that the Pūkaki Canal option included a pipeline beneath the bed of the Pūkaki River. The Pūkaki River is generally dry as the only water source is occasional spilling from Lake Pūkaki. He therefore expects that there are no permanent aquatic ecosystems in the pipeline area that could be affected by disturbance of the bed during installation, so effects of the pipeline on aquatic ecosystems should be less than minor.
- 7.22 Mr Smith then detailed some of the mitigation techniques that will be used during construction to avoid adverse effects:
- (a) Sediment control will be in accordance with Environment Canterbury Erosion and Sediment Control Guidelines 2007. For both canal and pipe earthworks, three levels of sediment control are anticipated:
 - (b) At the Pūkaki River and ephemeral stream crossings, specific clean water diversions will be installed and off stream decant structures constructed to intercept silt generated by work within stream beds and margins.
 - (c) At areas likely to encounter concentrated overland flows during flood events, or adjacent to natural channels, silt fences will be deployed.
 - (d) For sections of canal located away from overland flow channels, areas of exposed soil are to be limited during construction and progressive stabilisation of completed fill surfaces by grassing.
 - (e) excessive open trench lengths shall be avoided, and backfilling around installed pipes completed progressively to minimise the area and time.
- 7.23 An establishment and storage area will be required for each of the proposed conveyance options. Such areas will generally be located out of site from the State Highway, and will incorporate appropriate bunding and environmental protection works where fuel storage and machine maintenance is to be carried out.
- 7.24 Mr Smith said because earthworks were to be carried out during dry weather in summer months dust was likely to be generated at times. Due to the remoteness of the site however, dust is not considered to pose a significant nuisance to people, or hazard to the environment.

Option 2 – Intake from Lake Pūkaki

- 7.25 The conceptual intake and road crossing layout, developed through consultation with Meridian is indicated on drawing 05805-3-AUG-1 and JUL-2. Due to challenges associated with maintenance of the submerged intake and pumps within the highly turbid lake water, a flexible/removable coupling has been allowed around the minimum seasonal lake level, so that temporary raising/detaching of the submerged intake components can be easily achieved.
- 7.26 Historical records indicate the mean lake level in October is around RL 524 m for the period 1979 to 2008. It is therefore intended that the flexible/removable coupling will be set at RL 525 m, and that lake bed earthworks will only occur above this level. Below this level, only prefabricated units will be used which will rest on the lake bed and be removable for inspection and maintenance.
- 7.27 Construction is likely to involve:

- (a) Installation of a buried pipe within the lake bed down to around RL 525m. This would be completed near the end of winter, when lake levels are at their seasonal lowest. Trench excavation and pipe installation to this level would be completed by hydraulic excavators in the dry, above lake water level to minimise the potential for sediment discharge into the lake. The lake bed would be reinstated over the buried pipe, in character with the surrounding area.
 - (b) Installation of the pre-cast concrete connection structure at RL 525 which will allow pivoting and/or disassembly of the submerged intake and pump section, which extends to around RL 516.
 - (c) Construction of a booster pump shed on the lake shore above RL 535.5m
- 7.28 The time period for construction work in the lake bed is estimated at one month, which would be timed to coincide with the minimum seasonal lake level, typically in the period July to October. The volume of earthworks within the lake bed is estimated at 450 m³. Any excess material resulting from installation of the pipe will be removed from site and incorporated into the conveyance canal earthworks.
- 7.29 Dr Ryder explained that the proposed rate of water take from Lake Pūkaki equates to just 1% of the natural annual inflow into the lake, excluding inflows from power canals. When total inflows are used, the proposed rate of water take equates to less than 0.6% of the inflows. Given this very minor abstraction, he considered it will have no measurable or meaningful ecological effect on the level of Lake Pūkaki.
- 7.30 The irrigation intake design, consisting of an infiltration gallery buried beneath the bed of Lake Pūkaki. In his opinion, this design should be effective at safely screening a wide range of fish sizes, including adult and juvenile salmonids. Consequently, he expects effects on lake fisheries will be less than minor.
- 7.31 Dr Ryder said that local aquatic communities will be disturbed during construction of the intake. Macroinvertebrates and macrophytes on the lake bed within the intake gallery area will be directly removed or displaced during excavation. Macroinvertebrate communities in Lake Pūkaki are dominated by snails and worms and he anticipated such species assemblages being present in the general location of the proposed intake. He said such communities were typical of those found in other South Island lakes and were not unique in any way.
- 7.32 Dr Ryder explained that some fish (e.g. common bully) and bully eggs may also be removed, but more mobile fish species (e.g. salmonids) will quickly move to avoid the excavation area. Disturbance of the lake bed would suspend fine sediments that, depending on local currents, would disperse outside of the excavation area and resettle on the lake bed. Macroinvertebrates and less mobile fish within that area may be temporarily affected by elevated suspended sediment levels and by increased surface deposition of fine sediments. However, this would be a temporary effect and following gallery construction benthic macroinvertebrates and fish will re-colonise the area. In my experience, this could take between 2 and 6 months depending on the time of the year when construction is undertaken and the species at issue.
- 7.33 Dr Ryder believed best practice guidelines to reduce sediment inputs to water courses during construction should be followed where applicable and he recommended that Environment Canterbury's Erosion and Sediment Control Guidelines be adopted. He said he understood that a requirement to adhere to those guidelines had been included into draft consent conditions.
- 7.34 Dr Ryder said the spilling of containments from machinery into waterways is always a possible risk associated with construction activities within waterbodies, but the risk is low provided contractors are provided with appropriate construction and environment management plans to work with. To minimise any potential contaminant spill to the lake from the intake, he said the pumping station will be located 20 m away from the high water level of the lake and the mechanics of the pump will be secured in a concreted, banded underground enclosure.
- 7.35 To satisfy Meridian safety requirements, the pipe will cross State Highway 8 within natural ground outside the dam abutment. Drawings showing how the pipe will pass beneath the road have been submitted for NZTA approval. Installation of the pipe beneath the road will require the road to be reduced to one lane for 1 to 2 weeks. The effects of the construction work on traffic are considered to be minor.
- 7.36 The pipe will then descend into the Pūkaki River valley for a distance of around 2.1 km, before

rising up the terrace and discharging into an open canal as indicated on drawing 05805/3-JUN-1. The pipe will be buried, except as it ascends the river terrace where it will be installed above ground on pedestals.

- 7.37 The open canal conveyance alignment to the nominal centre of the irrigation area has not been investigated in detail. However, it is broadly similar to that of option 1, but translated north by several hundred metres. It is inferred that the canal will generally pass through low permeability soil deposits, and is not likely to require lining. Typical canal cross sections for conveying approximately 3 cumecs are indicated in drawing 05805/1-5 for unlined, earth lined and HDPE lined options.
- 7.38 The total construction duration for option 2 intake and conveyance is anticipated to be around 6 months. The canal earthworks are anticipated to take around 3 to 4 months.

Option 3 – Intake from Tekapo Head pond

- 7.39 Mr Smith said the intake location is on the south side of the Tekapo Head pond near the transition to the Tekapo Canal. The site was selected as it allowed the intake works to be entirely founded in natural ground (as opposed to earth fill) reducing the risk of any seepage related issues associated with the work.
- 7.40 Mr Smith said the original resource consent application indicated the intake would be located further to the west. However Meridian subsequently requested that the site be moved to the current location so that the intake and pipe were located well away from the Tekapo Head pond fill embankment.
- 7.41 The conceptual intake and road crossing layout, developed through consultation with Meridian was indicated on drawing 05805/3-08.
- 7.42 Mr Smith pointed out that construction was likely to involve:
- (a) Closure of the Tekapo Canal Road for a period of around 10-15 working days
 - (b) Excavation of the pipe trench, which is located above maximum water level within the Tekapo Canal.
 - (c) Installation and concrete encasement of the 1.2 m diameter pipe beneath the road
 - (d) Re-contouring and re-surfacing of the road to accommodate the 0.81 m increase in level at the pipe location.
 - (e) Installation of the pre-fabricated intake pipe including flared inlet section and intake screen within the canal.
- 7.43 He said the earthworks quantities associated with the intake and road crossing were in the order of 70 cubic metres.
- 7.44 Dr Ryder said that the proposed rate of water take from the Tekapo Canal is 1328 litres/second. He said that, constructed for power generation, the stilling basin generally supports low aquatic values. In his opinion, the natural values and potential effects of the water take would be identical to those for the Pūkaki Canal water take option. Dr Ryder expected any effects on fisheries and of construction on aquatic communities would be less than minor.
- 7.45 Mr Smith explained that the pipe between the intake location and the irrigation area is around 8.9 km in length, and 1.2 m in diameter. It will be buried with a minimum cover of 0.5 m, with topsoil and vegetation reinstated afterward. The total earthworks quantity associated with the pipe installation is estimated to be around 70,000 cubic metres. He had derived this estimate from aerially obtained 5 m ground contours of the pipe alignment, and a preliminary pipe vertical alignment design.
- 7.46 He anticipated construction plant and practices would vary depending on the final pipe type selected. However they will generally include excavation of the pipe trench (around 1.5 to 4 m deep) with a hydraulic excavator, transport and installation of the pipe, backfill, re-spreading of topsoil and grassing.
- 7.47 The pipe alignment intersects State Highway 8. Mr Smith presented drawings showing how the

pipe will pass beneath the road. These plans had also been submitted for NZTA (formerly Transit NZ) approval and were subsequently approved. Installation of the pipe beneath the road will require the road to be reduced to one lane for 1 to 2 weeks.

- 7.48 Mr Smith said that one ephemeral stream crossing was required along the pipe alignment, south of the road crossing. He said that local landowners have reported that flow within the stream is rare, and only occurs during heavy rainfall events or snow melt. Any flow in the stream will be temporarily diverted and/or pumped past the pipe trench excavation during construction. An appropriately sized sediment pond will be constructed adjacent to the water course, and all diverted water will pass through the pond prior to being discharged back to the stream. The stream bed will be reinstated to its original level and geometry, with erosion protection appropriate to the natural stream bed used, if required.
- 7.49 He estimated the total construction duration for option 3 intake and pipe conveyance to be around four months.

8 SUBMITTERS

- 8.1 Set out below is the summary of the issues raised by submitters who appeared before us. We emphasise that we have read and considered all submissions made, both in support and in opposition to the application, as well as reviewing and carefully considering evidence advanced before us.

NZ Transport Agency

- 8.2 NZ Transport Agency (formerly Transit NZ) withdrew its submission in opposition, based on consultation with the applicant and provision of design details (letter received by CRC on 23 November 2009).

Meridian Energy Limited

- 8.3 Meridian Energy Limited also advised that there were no longer outstanding concerns with regards to effects on hydroelectricity infrastructure (e-mail to CRC dated 21 September 2009, general evidence of Mr Richard Turner, paras 85-88, and Mr Turner's evidence on individual applications, paras 18-21).

Mackenzie Guardians – Ms Di Lucas and Ms Ann Steven

- 8.4 Ms Di Lucas assessed landscape effects of proposed development on the Pūkaki Flats (evidence, paras 118-122), as did Ms Ann Steven (paras 68-176), and both concluded that effects would be significant on landscape values. However the focus of this evidence was on the related water permit applications and the effects on landscape values associated with irrigating new areas of land. It did not focus on the effects of the infrastructure that is the subject of these applications.

9 UPDATES TO THE SECTION 42A REPORTS

- 9.1 In her s42A addendum report, Ms Bartlett provided the following additional comment in response to matters discussed at the hearing:

CRC062866, CRC062870, CRC062871 & CRC062872

- 9.2 Based on the information provided at the hearing, Ms Bartlett was satisfied that a number of her original concerns had been addressed, including:
- (a) the impact on water quality and ecosystems associated with potential sediment discharge in relation to the Lake Pūkaki intake;
 - (b) potential erosions in relation to the Pūkaki River discharge structures;
 - (c) impacts on the infrastructure of Meridian Energy Limited and NZ Transport Agency.
- 9.3 Notwithstanding the above, she still had a number of concerns with the proposal as summarised below:
- (a) CRC062866 – The applicant has confirmed that the Lake Pūkaki intake structure will be

exposed between 518 and 525 a.m.s.l, so Ms Bartlett considered that there would be a permanent effect on visual amenity in this location.

- (b) CRC062870 – Ms Bartlett noted that the applicant has not addressed effects on Transpower infrastructure in relation to the Pūkaki River crossing associated with the Pūkaki Canal option.
- (c) CRC062871 and CRC062872 – She considered there were potential adverse effects on natural character and landscape related to the infrastructure proposed. Although CRC landscape expert Chris Glasson had assessed visual effects as acceptable in relation to developments proposed for the Pūkaki Flats and Pūkaki River margins, infrastructure was not specifically addressed.

CRC082300

9.4 Ms Bartlett noted that the applicant has expressed a preference for the Tekapo Canal intake option. She supported this option, as she considered that there were no outstanding matters in relation to that proposal and that the above outstanding concerns could be avoided if this option was favoured.

Conditions

- 9.5 If consents were to be granted, Ms Bartlett suggested the following changes to conditions:
- (a) CRC062871 – include advice note *AN01* listed in S42A Report 1, Appendix 6 relating to the requirement for an authority from the New Zealand Historic Places Trust to disturb any recorded archaeological site; and
 - (b) All other consents – include advice note AN04 listed in S42A Report 1, Appendix 6 relating to approvals from Land Information New Zealand to occupy the bed of a stream or to cross Crown land.

10 APPLICANT'S RIGHT OF REPLY

10.1 Mr Reid presented closing submissions on behalf of the applicant. In addition, supplementary and rebuttal evidence was provided from several witnesses. Understandably, these submissions and evidence focused on the more controversial aspect of the wider proposal, being the related applications to take and use water. This material did not include any comment on the issues relevant to these applications.

11 STATUTORY CONTEXT

- 11.1 The relevant statutory context for a **discretionary** activity is set out in detail in our Part A decision. In accordance with those requirements, we have structured this evaluation section of our report as follows:
- (a) Evaluation of effects
 - (b) Evaluation of relevant planning instruments
 - (c) Evaluation of other relevant s104 matters
 - (d) Part 2 RMA
 - (e) Overall evaluation

12 EVALUATION OF EFFECTS

- 12.1 Drawing on our review of the application documents, the submissions, the Officers' Reports, the evidence presented at the hearing and our site inspection, we have concluded that the effects we should have regard to are:
- (a) Effects on infrastructure
 - (b) Effects on Pūkaki River

- (c) Landscape effects
- (d) Cultural effects
- (e) Other effects

Effects on infrastructure

- 12.2 Meridian initially were concerned about potential effects on their infrastructure, however Meridian advised us during the hearing that there are no longer outstanding concerns with regards to effects on hydroelectricity infrastructure. Effects on Transit NZ infrastructure is also no longer a concern as NZ Transport Agency (formerly Transit NZ) has withdrawn its submission in opposition, based on consultation with the applicant and provision of design details.
- 12.3 The section 42A reporting officer raised the issue that the applicant had not obtained the approval of Transpower to carry out construction adjacent to their infrastructure. Transpower have not submitted on these applications and regardless of that the granting of these consents would not relieve the applicant of obtaining any approval to carry out such work required by legislation other than the RMA.

Effects on Pūkaki River

- 12.4 Dr Greg Ryder assessed effects of the Pūkaki River crossing (CRC062870) and conveyance infrastructure, and sediment discharge and works material on-site over the two month construction period of the proposed Lake Pūkaki intake. He concluded that the effects will be minor provided sediment control measures are employed. We concur with that opinion.
- 12.5 Mr Ian McIndoe provided design details for proposed discharge structures in the bed and banks of the Pūkaki River and Mr Titus Smith provided concept designs for each of the proposed intakes, crossings of the State Highway and canal cross sections relevant to the ephemeral stream crossings (attachments to Mr Smith's evidence), and proposed construction method, including sediment control measures. We are satisfied that the applicant has addressed measures required to reduce potential adverse effects of sediment discharge in relation to these consents.
- 12.6 The applicant has also provided a concept design regarding erosion protection associated with the Pūkaki River discharge structures. Based on this information we are satisfied that there will be no adverse effects on erosion in relation to the Pūkaki River.

Landscape effects

- 12.7 Effects on landscape and visual amenity are one of the key outstanding concerns identified by Ms Bartlett in respect of these applications. Unfortunately we were not assisted by Mr Glasson's evidence on this occasion. Although he did assess the visual effects of development on the Pūkaki Flats and Pūkaki River, he did not specifically address the effects of irrigation infrastructure.
- 12.8 Ms Di Lucas and Ms Ann Steven on behalf of Mackenzie Guardians both provided an assessment of the landscape effects of proposed development on the Pūkaki Flats. However these assessment suffered from the same shortcoming as Mr Glasson in that they did not include specific comment on the proposed infrastructure that is the subject of the current applications
- 12.9 Dr Michael Steven (landscape architect) provided two briefs of evidence in relation to the proposed development of Simons Hill and Simons Pass Station on behalf of other related applicants. However his evidence clearly states that it relates to the effects and issues arising from the application of water to the subject land, and not the taking and discharge of water. This is reflected in his assessment of effects, which does not address the potential effect on the landscape of the structures that are covered by these applications.
- 12.10 This leaves us with a circumstance where we have no expert evidence directly on point. The only evidence is Mr Bartlett's comment that she considers this matter to be outstanding. Given this absence of evidence and in accordance with our general conclusions on landscape matters in Part A, we do not consider that the effect of these structures in the landscape would be significant. One of the key reasons for this is the relatively small size of the visible structures compared to the vastness of the landscape, which will ensure that the structures do not noticeable detract from landscape values and amenity. The more significant issue in respect of landscape is the effect of applying water to the land, which we comment on in the relevant take and use decisions.

Cultural effects

- 12.11 The applicant did not provide an assessment of effects on cultural values. Lake Pūkaki is a Statutory Acknowledgement area which provides for the recognition of Ngāi Tahu mana to be reflected in the management of activities that affect Lake Pūkaki. The proposed area covered by the options have not been identified as having any recorded archaeological sites located nearby, however absence of evidence is not evidence of absence. An accidental discovery protocol would be necessary given the potential scale of earthworks the proposals involve.
- 12.12 In their 2007 submission Ngāi Tahu identified among the effects of sedimentation on waterways was an issue of concern. The potential for sedimentation impacts on waterways and watercourses will require particular attention. We consider that the sedimentation control measures proposed by the applicant will mitigate this issue.
- 12.13 Representatives of Te Runanga o Ngāi Tahu and the local Papatipu Runanga when presenting evidence to the Panel raised no issues against the respective "options" to construct infrastructure for the conveyance of water across land, through and under streams and or rivers, The activity associated with this application was of an indirect nature to the principal cultural concern which was focused on the intensification of land use and cumulative effects on downstream water resources and ecosystems.
- 12.14 We believe that with the condition set proposed that the effects arising from any of the three options proposed will have less than minor effects on cultural values.

Other effects

- 12.15 In relation to potential effects on archaeological sites that may be present, the applicant stated that it would consult with the New Zealand Historic Places Trust (NZHPT) prior to the construction of infrastructure. We are satisfied that with the inclusion of an advice note as proposed by Ms Bartlett and the requirement to obtain any necessary authority from NZHPT, consent for the ephemeral stream crossing associated with the Pūkaki Canal (CRC062871) could be granted.
- 12.16 In relation to effects on other landowners, we note that the applicant has consulted with properties in the path of the proposed pipeline from Tekapo Stilling Basin and has lodged application with LINZ regarding easement for the pipeline route, as well as consulted with LINZ regarding the alternative conveyance routes. We are satisfied that these measures are appropriate and note that the obtaining of any additional approvals from such landowners remains an issue for the applicant to address irrespective of our decision on these applications.

Key conclusions on effects

- 12.17 In relation to the actual and potential effects of the proposal, we are satisfied that all adverse effects will be no more than minor. In particular, we consider that any effects on infrastructure, the Pūkaki River, landscape and cultural values are acceptable. Other effects relating to archaeological matters and effects on other landowners are the subject of separate processes and can be address by way of advice notes.

13 EVALUATION OF RELEVANT PLANNING INSTRUMENTS

- 13.1 Under s 104(1)(b) of the Act, we are required to have regard to the relevant provisions of a range of different planning instruments. Our Part A decision provides a broad assessment of those planning instruments and sets out the approach we have applied to identification and consideration of the relevant provisions. The following part of our decision should be read in combination with that Part A discussion.
- 13.2 In relation to the current applications, we consider that the most relevant and helpful provisions are found in the regional plans, including in particular the NRRP. In addition, the Proposed and Operative CRPS and the relevant District Plans are of assistance in relation to landscape issues that arise. The following sections of this decision provide our evaluation of the key objectives and policies from these planning instruments.

Activities in beds of lakes and rivers

- 13.3 The key objectives and policies that are relevant to these land use application can be found in Chapter 6 of the NRRP, which relates to activities in the beds of lakes and rivers. The chapter contains one objective and two related policies.

- 13.4 Objective BLR1 aims to ensure that works in the beds and banks of lake, rivers and streams can be undertaken while minimising effects, including flood-carrying capacity, natural character, ecosystems, other structures, erosion, Ngāi Tahu values. Given the conclusions we have reached on these matters above, we consider that, subject to appropriate conditions, the proposed works are consistent with this objective.
- 13.5 Policies BLR1 and BLR2 aim to control activities associated with the erection, placement, use and maintenance of structures within the bed of rivers to ensure that Objective BLR1 is achieved. This may include restricting activities so that they do not affect flood-carrying capacity, erosion or create plant infestations. For the reasons discussed above, with the imposition of appropriate conditions, we consider that the proposed works in the bed are consistent with these policies.

Landscape and amenity

- 13.6 We discussed the relevant objectives and policies for landscape in our Part A Decision. In summary these are primarily found in the Proposed and Operative CRPS and the NRRP. In broad terms these provisions seek the protection of outstanding natural landscapes from inappropriate use and development.
- 13.7 For the reasons already advanced we think that the landscape effects for this proposal are acceptable and that granting consent to this proposal will be consistent with the relevant objectives and policies relating to landscape.

Tangata whenua

- 13.8 Objective 1(a) of the WCWARP relates to the integrity of mauri and is closely linked to Objective 1(b). If we are satisfied that the health of a particular water body is being safeguarded then the mauri is being safeguarded also.
- 13.9 Objective WQN1 from Chapter 5 of the NRRP seeks to enable present and future generations to access the regions surface water and groundwater resources to gain cultural, social, recreational, economic and other benefits, while (c) safeguarding their value for providing mahinga kai for Ngāi Tahu and (d) protecting wāhi tapu and other wāhi taonga of value to Ngāi Tahu. This objective aligns with the Ngāi Tahu philosophy “Ki Uta, Ki Tai”, or recognising the interconnected nature of the Waitaki catchment and safeguarding the associated cultural values. Our finding is that there is unlikely to be deterioration in water quality of the receiving waters as a consequence of this proposal and that this application is consistent with this Objective

14 EVALUATION OF OTHER RELEVANT S104 MATTERS

- 14.1 Under s104(1)(c), we are required to have regard to any other matter that we consider to be relevant and reasonably necessary to determine the application. After hearing all the relevant evidence, we consider that no such matters exist in relation to this application.

15 PART 2 RMA

- 15.1 Section 104(1) states that the matters which we have discussed above are subject to Part 2, which covers section 5 through section 8 inclusive. These sections are set out in full in our Part A decision and are discussed below in the context of the current applications.

Section 6 – Matters of national importance

- 15.2 Section 6 identifies matters of national importance that we must “recognise and provide for” when making our decision, including in particular preserving the natural character of lakes and rivers (s6(a)), protecting outstanding natural features and landscapes (s6(b)) and the relationship of Maori with the environment (s6(e)).
- 15.3 In respect of s6(a) we recognise that preservation of the natural character of lakes and rivers is the imperative. In this case, given the short duration of the works and the nature of the proposed structures, we consider that the grant of consent would recognise and provides for these matters. .
- 15.4 In terms of s6(b), we have evaluated the natural features and landscape and have reached the view that the grant of consent in this case is not inappropriate because it will not, in our view, diminish the natural features and landscapes such as they are in any significant way.

- 15.5 In terms of section 6(c), it is our view, taking into account the evidence received, that there are not areas of significant indigenous vegetation and significant habitats of indigenous fauna that are at risk thus requiring protection as a consequence of the grant of consent.
- 15.6 In relation to section 6(e) we are cognisant of the relationship that Ngāi Tahu hold with the natural resources of this area, and while no specific values were specified by Ngāi Tahu in relation to this application, we believe that the mitigation measures and conditions provide for the cultural relationship to this catchment that is of importance to Ngāi Tahu.
- 15.7 For the above reasons, we consider that granting consent to the proposal would recognise and provide for s6 matters, as we are required to do under the RMA.

Section 7 – Other Matters

- 15.8 Section 7 lists “*other*” matters that we shall “*have particular regard to*”. We make the following observations in relation to each of those matters as they are relevant to this application, referring to the sub paragraph numbers of s7:
- 15.9 Sub-section (a) refers to kaitiakitangā. Having particular regard to kaitiakitanga in this context means paying special regard to the Ngāi Tahu view about the appropriate manner in which natural and physical resources of the Upper Waitaki are should be managed. Ngāi Tahu have not submitted on this application, we note that where Ngāi Tahu have identified cultural issues on other applications subject to this hearing the focus has been on maintaining or enhancing water quality and associated ecosystem values. This application is for an activity that has an indirect relationship with mahinga kai resources in the catchment, and with the proposed conditions will have less than a minor effect on cultural values. The incorporation of the accidental discovery protocol in the conditions will also recognise kaitiakitanga of the respective Papatipu Runanga in regard to potential archaeological values on the land area subject to this consent.
- 15.10 Sub-section (c)(d) and (f) refers to the maintenance and enhancement of amenity values, the intrinsic values of ecosystems, and the maintenance and enhancement of the quality of the environment. We have considered these matters and concluded that, based on the low risk of adverse effects, the grant of consent with appropriate conditions imposed will ensure that such values are safeguarded.
- 15.11 Having particular regard to the above matters in the context of section 7, we conclude that the grant of consent could be supported

Section 8 – Treaty of Waitangi

- 15.12 Finally, section 8 requires that we shall take into account the principles of the Treaty of Waitangi (Te Tiriti o Waitangi).
- 15.13 The cultural values of tangata whenua are appropriately recognised in the relevant planning documents applicable to the Mackenzie Basin sufficient to alert applicants to the need to address such values. We are satisfied that the notification of the appropriate Runanga and tribal authority has been followed and that the applicant was a contributor to the general assessment of the impact of irrigation activities on cultural values.
- 15.14 We are satisfied that the consultation procedures provided Ngāi Tahu the opportunity to understand and respond to the proposed activity.

Section 5 – Purpose of the RMA

- 15.15 Turning now to the overall purpose of the RMA, that is, “to promote the sustainable management of natural and physical resources”.
- 15.16 In combination with the related take and use applications (if granted), the proposal will allow the development of land to occur, which may provide for the economic and social well-being of the community. The applicant has proposed measures to “avoid, remedy or mitigate” the potential impacts on water quality and ecosystems, artificial structures, landscape and amenity, and Tangata Whenua values, as required in Section 5(2)(c).

16 OVERALL EVALUATION

- 16.1 Under s104B of the RMA, we have a discretion as to whether or not to grant consent. This requires an overall judgment to achieve the purpose of the Act and is arrived at by:
- (a) Taking into account all the relevant matters identified under s 104;
 - (b) Avoiding consideration of any irrelevant matters;
 - (c) Giving different weight to the matters identified under s 104 — depending on our opinion as to how they are affected by the application of s 5(2)(a), (b), and (c) and ss 6-8 — to the particular facts of the case; and then in light of the above; and
 - (d) Allowing for comparison of conflicting considerations, the scale or degree of conflict, and their relative significance or proportion in the final outcome.
- 16.2 For all five applications, we are satisfied that there are no outstanding adverse effects of the proposed activity that have not been addressed through appropriate mitigation measures. When considering the matters outlined in section 104(1) of the RMA, we are satisfied that the actual and potential effects of the proposed activity are acceptable.
- 16.3 Mr Bartlett was of the view that Option 3 involving the take from the Tekapo Canal should be preferred over Options 1 and 2 on the basis that there were no outstanding issues with this option. However given our above, we are satisfied that the all three options are acceptable and that, in relation to the works in bed, there is no valid basis to prefer one over the other.
- 16.4 We note that only one of the three options will be exercised by the applicant. However given that some of the applications relate to more than one option, it may be unnecessarily complicated to provide for this outcome in conditions. Instead, we are relying on the conditions for the associated take and use applications, which (if granted) will clearly state that only one of the three options may be exercised. This will have a corresponding impact on the activities carried out under these consents. In the event that some of these consents are not required, they may simply be surrendered by the applicant.
- 16.5 Having reviewed the application documents, all the submissions, taking into account the evidence to the hearing and taking into account all relevant provisions of the RMA and other relevant statutory instruments we have concluded that the outcome which best achieves the purpose of the Act is to **grant** consent to all applications.
- 16.6 Notwithstanding the above, we note that in separate decisions we have declined consent to take and use water directly from Lake Pūkaki (CRC071362, CRC062867 and CRC062842). As such, the consent to install an intake structure in Lake Pūkaki (CRC062866) may therefore be of no practical use to the applicant, which may choose to the surrender the consent particularly given the availability of other alternative take options which have been granted consent. While this may be a somewhat unusual circumstance, we considered that we were obliged to consider and determine this application on its merits, despite our finding on the related take and use applications.

17 DECISION

- 17.1 Pursuant to the powers delegated to us by the Canterbury Regional Council; and
- 17.2 For all of the above reasons and pursuant to sections 104 and 104B of the Resource Management Act 1991, we **GRANT** the following applications and activities by Pūkaki Irrigation Company Limited:
- CRC062866** - To construct, maintain and operate an irrigation intake structure at Lake Pūkaki.
 - CRC062870** - To construct and maintain a pipeline under the Pūkaki River.
 - CRC062871** - To construct and maintain a pipeline to be laid under three unnamed streams or install culverts on the beds of the streams.

CRC062872 - To construct, maintain and operate an erosion control and discharge structure in the Pūkaki River.

CRC082300 - To construct and maintain a pipeline under four unnamed ephemeral streams, to enable a water supply to pass under the streams.

17.3 Pursuant to section 108 RMA, the grant of these consents is subject to the conditions specified at **Appendices B-F**, which conditions form part of this decision and consents.

17.4 The duration of these consents shall be for 35 years from the commencement of the consents.

DECISION DATED AT CHRISTCHURCH THIS 9TH DAY OF MARCH 2012

Signed by:

Paul Rogers	 _____
Dr James Cooke	 _____
Michael Bowden	 _____
Edward Ellison	 _____

APPENDIX A: INDICATIVE LOCATION PLAN



APPENDIX B: CONDITIONS OF CONSENT (CRC062866)

Construct, maintain and operate an irrigation intake structure at Lake Pūkaki

Limitation on works

1. Works in the bed and banks of Lake Pūkaki shall be limited to construction, operation, and maintenance of:
 - a. an irrigation intake structure, consisting of a submersible pump and 1300 mm diameter pipeline, sufficient to carry a maximum flow of 3400 litres per second;
 - b. erosion protection works.
2. Works shall only be carried out within the bed and banks of Lake Pūkaki between map reference NZMS 260 H38:822-659 and H38:822-652, which will enable the proposed intake structure to extend below the minimum lake level of 518 metres above mean sea level.
3. Prior to commencing excavation, a copy of this resource consent shall be given to all persons undertaking activities authorised by this consent.
4. The Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager shall be notified not less than 48 hours prior to the commencement of works.
5. Works to install the intake structure and erosion protection described in Condition 1 shall take no longer than 2 months to complete.
6. Works shall not be carried out on weekends or public holidays.
7. If further excavation at the site, within the bed or banks of the lake, is not to occur within seven days following the last working at the site, then the following shall occur:
 - a. All deposits of gravel, sand and other natural material shall be levelled to the natural level of the lake bed and banks; and
 - b. The excavation area shall be reshaped and formed to a state consistent with the surrounding natural lake bed and banks.
8. There shall be no stockpiling of material at the works site.
9.
 - a. All practicable measures shall be undertaken to prevent oil and fuel leaks from vehicles and machinery.
 - b. There shall be no storage of fuel or refuelling of vehicles and machinery within 20 metres of the bed and banks of Lake Pūkaki.
 - c. Fuel shall be stored securely or removed from site overnight.
10. Cement shall be stored securely or removed from site overnight.
11. Machinery shall be free of plants and plant seeds prior to arrival at the works site, and prior to use within the lake bed.
12. To prevent the spread of Didymo or any other aquatic pest, the consent holder shall ensure that activities authorised by this consent are undertaken in accordance with the Biosecurity New Zealand's hygiene procedures.

Note: You can access the most current version of these procedures from the Biosecurity New Zealand website <http://www.biosecurity.govt.nz> or Environment Canterbury Customer Services.
13. All practicable measures shall be undertaken to minimise adverse effects on property, amenity values, wildlife, vegetation, and ecological values.

14. The consent holder shall ensure that no construction or maintenance work is undertaken within 100 m of any bird breeding or nesting site. For the purposes of this condition, birds are defined as those bird species listed in **Schedule 1**.
15. Works shall not cause erosion of the banks and bed of Lake Pūkaki.
16. All practicable measures shall be undertaken to minimise the discharge of sediment to Lake Pūkaki, arising from the works, including but not limited to:
 - a. Minimising disturbance of the lake bed
 - b. keeping works in water to the minimum practicable to undertake the works; and
 - c. planning to undertake works during periods of low lake levels

Completion of works

17. All spoil and other waste material from the works shall be removed from site on completion of works.
18. Upon completion of works, the site shall be restored to its original condition, as far as is practicable.

Accidental discovery protocol

19. In the event of any disturbance of Koiwi Tangata (human bones) or taonga (treasured artefacts), the consent holder shall immediately:
 - a. Advise the Canterbury Regional Council of the disturbance;
 - b. Advise the Upoko (head or leader) Runanga of Arowhenua, Waihao and Moeraki, or their representatives, and the New Zealand Historic Places Trust, of the disturbance; and
 - c. Cease earthmoving operations in the affected area until an area has been marked off around the site, and Kaumatua and archaeologists have given approval for the earthmoving to recommence. Note: This condition is in addition to any agreements that are in place between the consent holder and the local Runanga or the New Zealand Historic Places Trust.

Review of conditions

20. The Canterbury Regional Council may, once per year, on any of the last five working days of May or November, serve notice of its intention to review the conditions of this consent for the purposes of dealing with any adverse effect on the environment which may arise from the exercise of the consent and which it is appropriate to deal with at a later stage.

Lapsing of consent

21. The lapsing date for the purposes of section 125 shall be 5 years from the commencement of this consent.

Advice note

Prior to the exercise of consent any additional approvals required under the Land Act 1948 and the Crown Pastoral Land Act 1998 in association with easements to occupy the bed of a stream or to cross crown land or for discretionary action shall be obtained from Land Information New Zealand.

APPENDIX C: CONDITIONS OF CONSENT (CRC062870)

Construct and maintain a pipeline under the Pūkaki River

Limitation on works

1. Works in the bed and banks of the Pūkaki River shall be limited to construction, operation, and maintenance of an irrigation supply pipeline, including:
 - a. excavation of a trench up to 12 metres wide, 500 metres long, and 5.3 metres deep; and
 - b. installation of a concrete encased 1300 mm diameter pipeline.
 - c. The pipeline described in 1(a) shall be buried to a depth of 4 metres below lowest bed level.
2. Works shall only be carried out within the bed and banks of the Pūkaki River between map references NZMS 260 H38:822-637 to H38:828-637, to ensure the buried pipeline extends the full width of the river bed.
3. Prior to commencing excavation, a copy of this resource consent shall be given to all persons undertaking activities authorised by this consent.
4. The Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager shall be notified not less than 48 hours prior to the commencement of works.
5. Works to install the intake structure and erosion protection described in Condition 1 shall take no longer than 4 months to complete.
6. At least 20 working days prior to the commencement of the works, the consent holder shall submit to the Canterbury Regional Council, Attention: RMA Enforcement and Compliance Manager an Erosion and Sediment Control Plan (ESCP) that includes, but is not limited to the following:
 - a. a locality map; and
 - b. detailed drawings showing the type and location of erosion and sediment control measures, on-site catchment boundaries, and off-site sources of run-off; and
 - c. drawings and specifications of all designated erosion and sediment control measures with supporting calculations; and
 - d. a programme of works, which includes but is not limited to a proposed timeframe for the works;
 - e. a schedule of inspections and maintenance of erosion and sediment control measures; and
 - f. details of when the erosion and sediment control measures are to be established and decommissioned; and
 - g. measures to ensure that there is no tracking of mud or earth onto the surrounding road network, including the provision of shaker ramps and/or wheel washes where appropriate; and
 - h. measures to be undertaken should erosion and sediment control measures fail and result in contamination of any watercourse or water body.
7. The ESCP shall be prepared in general accordance with the Environment Canterbury Erosion and Sediment Control Guidelines 2007 (ECAN ESC Guidelines).
8. The ESCP shall be communicated to all persons undertaking activities authorised by this consent and a copy of the ESCP shall be kept on site at all times.

9. The ESCP and any revisions of that document shall be submitted to the Canterbury Regional Council Attention: RMA Compliance and Enforcement Manager for certification that the Erosion and Sediment Control Plan meets all the requirements of the conditions of this consent.
10. No activities authorised by this consent shall commence or be undertaken other than in full compliance with an ESCP that has been certified by or on behalf of the Canterbury Regional Council RMA Compliance and Enforcement Manager.
11. If the applicant is aware that flow release from Pūkaki Spillway is planned within the next 48 hours, then the following shall occur:
 - a. All deposits of gravel, sand and other natural material shall be levelled to the natural bed level; and
 - b. Reject material and equipment shall be removed from the river bed; and
 - c. Measures shall be undertaken to prevent the discharge of sediment to Pūkaki River arising from the works.
12. If further excavation at the site, within the bed or banks of the river, is not to occur within seven days following the last working at the site, then the following shall occur:
 - a. All deposits of gravel, sand and other natural material shall be levelled to the natural bed level; and
 - b. The excavation area shall be reshaped and formed to a state consistent with the surrounding natural river bed.
13. There shall be no stockpiling of materials within the bed or banks of the river.
14. Works shall not occur in flowing water.
15.
 - a. All practicable measures shall be undertaken to prevent oil and fuel leaks from vehicles and machinery.
 - b. There shall be no storage of fuel or refuelling of vehicles and machinery within 20 metres of the bed of a river.
 - c. Fuel shall be stored securely or removed from site overnight.
16. Cement shall be stored securely or removed from site overnight.
17. Machinery shall be free of plants and plant seeds prior to arrival at the works site, and prior to use within the river bed.
18. To prevent the spread of Didymo or any other aquatic pest, the consent holder shall ensure that activities authorised by this consent are undertaken in accordance with the Biosecurity New Zealand's hygiene procedures.

Note: You can access the most current version of these procedures from the Biosecurity New Zealand website <http://www.biosecurity.govt.nz> or Environment Canterbury Customer Services.
19. Habitats and communities of significant indigenous flora, including threatened species, present within the site of works shall be identified prior to commencement of works, and all practicable measures shall be undertaken to avoid effects on species identified.
20. All practicable measures shall be undertaken to minimise adverse effects on property, amenity values, wildlife, vegetation, and ecological values.
21. Works shall not occur when birds are nesting or rearing their young within 100 metres of the site of works. For the purposes of this condition, birds are defined as those bird species listed in **Schedule 1**.

22. Access to the Pūkaki River for the purposes of river engineering, erosion control and flood protection shall be maintained throughout the period of works.

23. Works shall not cause erosion of the banks and bed of the Pūkaki River.

Accidental Discovery Protocol

24. In the event of any disturbance of Koiwi Tangata (human bones) or taonga (treasured artefacts), the consent holder shall immediately:

- a. Advise the Canterbury Regional Council of the disturbance;
- b. Advise the Upoko Runanga of Arowhenua, Waihao and Moeraki, or their representatives, and the New Zealand Historic Places Trust, of the disturbance; and
- c. Cease earthmoving operations in the affected area until an area has been marked off around the site, and Kaumatua and archaeologists have given approval for the earthmoving to recommence. Note: This condition is in addition to any agreements that are in place between the consent holder and the local Runanga or the New Zealand Historic Places Trust.

Completion of works

25. After installation of the pipeline described in Condition 1, the trench shall be backfilled over the pipeline with excavated material, compacted to 98% of optimum dry density.

26. All spoil and other waste material from the works shall be removed from site on completion of works.

27. Upon completion of works, the site shall be restored to its original condition, as far as is practicable, including, but not limited to, levelling the excavated area to the level of surrounding river bed and covering the area with river stones consistent with the surrounding river bed.

Review of conditions

28. The Canterbury Regional Council may, once per year, on any of the last five working days of May or November, serve notice of its intention to review the conditions of this consent for the purposes of dealing with any adverse effect on the environment which may arise from the exercise of the consent and which it is appropriate to deal with at a later stage.

Lapsing of consent

29. The lapsing date for the purposes of section 125 shall be 5 years from the commencement of this consent.

APPENDIX D: CONDITIONS OF CONSENT (CRC062871)

Construct and maintain a pipeline under three unnamed ephemeral streams,
or install culverts in these streams

Limitation on works

1. Works in the bed and banks of ephemeral streams shall be limited to installation, operation, and maintenance of three irrigation supply canal crossings, including:
 - a. Installation of two 1300 mm diameter culvert pipes, to pass beneath the irrigation supply canal, within the bed of the first and second ephemeral streams; and
 - b. Construction of an irrigation supply canal up to 15 metres wide between the toe of each embankment, up to 5.5 metres wide between the crest of each embankment, and up to 3.5 metres high at the crest of each embankment, across the bed of the first and second ephemeral streams; and
 - c. Installation of erosion protection works within the bed and banks of the first and second ephemeral streams, upstream and downstream of the proposed canal crossing, and
 - d. Installation of a concrete encased 1300 mm pipeline at a depth of up to five metres below the lowest bed level, under the bed of the third ephemeral stream, to act as a siphon between two sections of the irrigation supply canal.
2.
 - a. Works described in 1(a) and 1(b) above shall only be carried out within the bed and banks of the first ephemeral stream at map reference NZMS 260 H38:836-631 or map reference NZMS 260 H38:835-636, and within the bed and banks of the second ephemeral stream at map reference NZMS 260 H38:843-630 or map reference NZMS 260 H38:845-637.
 - b. Works described in 1(c) above shall only be carried out within the bed and banks of the third ephemeral stream at map reference NZMS 260 H38:849-634 or map reference NZMS 260 H38:860-640.
3. Prior to commencing excavation, a copy of this resource consent shall be given to all persons undertaking activities authorised by this consent.
4. The Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager shall be notified not less than 48 hours prior to the commencement of works.
5. There shall be no stockpiling of materials within the bed or banks of ephemeral streams.
6. Works shall not occur in flowing water.
7. At least 20 working days prior to the commencement of the works, the consent holder shall submit to the Canterbury Regional Council, Attention: RMA Enforcement and Compliance Manager an Erosion and Sediment Control Plan (ESCP) that includes, but is not limited to the following:
 - a. a locality map; and
 - b. detailed drawings showing the type and location of erosion and sediment control measures, on-site catchment boundaries, and off-site sources of run-off; and
 - c. drawings and specifications of all designated erosion and sediment control measures with supporting calculations; and
 - d. a programme of works, which includes but is not limited to a proposed timeframe for the works;

- e. a schedule of inspections and maintenance of erosion and sediment control measures; and
 - f. details of when the erosion and sediment control measures are to be established and decommissioned; and
 - g. measures to ensure that there is no tracking of mud or earth onto the surrounding road network, including the provision of shaker ramps and/or wheel washes where appropriate; and
 - h. measures to be undertaken should erosion and sediment control measures fail and result in contamination of any watercourse or water body.
8. The ESCP shall be prepared in general accordance with the Environment Canterbury Erosion and Sediment Control Guidelines 2007 (ECAN ESC Guidelines).
9. The ESCP shall be communicated to all persons undertaking activities authorised by this consent and a copy of the ESCP shall be kept on site at all times.
10. The ESCP and any revisions of that document shall be submitted to the Canterbury Regional Council Attention: RMA Compliance and Enforcement Manager for certification that the Erosion and Sediment Control Plan meets all the requirements of the conditions of this consent.
11. No activities authorised by this consent shall commence or be undertaken other than in full compliance with an ESCP that has been certified by or on behalf of the Canterbury Regional Council RMA Compliance and Enforcement Manager.
12.
 - a. All practicable measures shall be undertaken to prevent oil and fuel leaks from vehicles and machinery.
 - b. There shall be no storage of fuel or refuelling of vehicles and machinery within 20 metres of the bed of a river.
 - c. Fuel shall be stored securely or removed from site overnight.
13. Cement shall be stored securely or removed from site overnight.
14. Machinery shall be free of plants and plant seeds prior to arrival at the works site, and prior to use within the bed of ephemeral streams.
15. Habitats and communities of significant indigenous flora, including threatened species, present within the site of works shall be identified prior to commencement of works, and all practicable measures shall be undertaken to avoid effects on species identified.
16. Works shall occur, as far as practicable, from established access roads and tracks, to minimise disturbance of flora and fauna present within and adjacent to the site of works.
17. All practicable measures shall be undertaken to minimise adverse effects on property, amenity values, wildlife, vegetation, and ecological values.
18. Works shall not cause erosion of the banks and bed of the ephemeral stream.
19. Works shall not adversely affect the flood carrying capacity of ephemeral streams.
20. Batters and side castings formed shall be stabilised by appropriate measures such as seeding, re-vegetation, compacting and/or drainage.
21. Works shall not occur when birds are nesting or rearing their young within 100 metres of the site of works. For the purposes of this condition, birds are defined as those bird species listed in **Schedule 1**.

Accidental discovery protocol

22. In the event of any disturbance of Koiwi Tangata (human bones) or taonga (treasured artefacts), the consent holder shall immediately:
 - a. Advise the Canterbury Regional Council of the disturbance;
 - b. Advise the Upoko Runanga of Arowhenua, Waihao and Moeraki, or their representatives, and the New Zealand Historic Places Trust, of the disturbance; and
 - c. Cease earthmoving operations in the affected area until an area has been marked off around the site, and Kaumatua and archaeologists have given approval for the earthmoving to recommence. Note: This condition is in addition to any agreements that are in place between the consent holder and the local Runanga or the New Zealand Historic Places Trust.

Completion of works

23. All spoil and other waste material from the works shall be removed from site on completion of works.
24. Upon completion of works in the ephemeral streams, the sites shall be restored to their original condition, as far as is practicable, including, but not limited to, levelling the excavated areas to the level of the surrounding river bed and covering the area with river stones consistent with the surrounding river bed.
25. The culverts shall be maintained in good working order.
26. In the event of any damage to the canals, culverts or pipeline, the consent holder shall maintain the flood carrying capacity of the affected ephemeral stream and take all practicable measures to minimise erosion.

Review of conditions

27. The Canterbury Regional Council may, once per year, on any of the last five working days of May or November, serve notice of its intention to review the conditions of this consent for the purposes of dealing with any adverse effect on the environment which may arise from the exercise of the consent and which it is appropriate to deal with at a later stage.

Lapsing of consent

28. The lapsing date for the purposes of section 125 shall be 5 years from the commencement of this consent.

Advice notes

Prior to the exercise of consent any additional approvals required under the Land Act 1948 and the Crown Pastoral Land Act 1998 in association with easements to occupy the bed of a stream or to cross crown land or for discretionary action shall be obtained from Land Information New Zealand.

This proposal will affect recorded archaeological sites. Works affecting archaeological sites is subject to a consent process under the Historic Places Act 1993. An authority (consent) from Historic Places Trust must be obtained for the work prior to commencement. It is an offence to damage or destroy a site for any purpose without an authority. The Historic Places Act 1993 contains penalties for unauthorized site damage. The consent holder is advised to contact the New Zealand Historic Places Trust for more information.

APPENDIX E: CONDITIONS OF CONSENT (CRC062872)

CRC062872: Construct, maintain and operate erosion control and discharge structures in the Pūkaki River at or about map references NZMS 260 H38:874-563 and H38:880-540.

1. Works in the bed and banks of the Pūkaki River shall be limited to the installation, operation and maintenance of two discharge structures, and associated erosion protection works, including:
 - a. Installation of two weirs, up to 20 metres wide and up to 5 metres high, designed to carry flows of up to 1,531 litres per second each, at the exit of irrigation supply races in two locations; and
 - b. Installation of concreted rock protection within the banks of the river, within an area up to 20 metres wide and up to 100 metres long, immediately downstream of each weir; and
 - c. Installation of rock rip rap within the banks of the river, within an area up to 10 metres wide and 20 metres long, immediately downstream of each area of concreted rock protection; and
 - d. Excavation of a discharge channel up to 10 metres wide, 5 metres deep and 100 metres long, immediately downstream of each weir.
2. Works described in Condition 1 above shall only be carried out within the bed and banks of Pūkaki River at map reference NZMS 260 H38:874-563 and H38:880-540.
3. Prior to commencing excavation, a copy of this resource consent shall be given to all persons undertaking activities authorised by this consent.
4. The Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager shall be notified not less than 48 hours prior to the commencement of works.
5. At least 20 working days prior to the commencement of the works, the consent holder shall submit to the Canterbury Regional Council, Attention: RMA Enforcement and Compliance Manager an Erosion and Sediment Control Plan (ESCP) that includes, but is not limited to the following:
 - a. a locality map; and
 - b. detailed drawings showing the type and location of erosion and sediment control measures, on-site catchment boundaries, and offsite sources of run-off; and
 - c. drawings and specifications of all designated erosion and sediment control measures with supporting calculations; and
 - d. a programme of works, which includes but is not limited to a proposed timeframe for the works;
 - e. a schedule of inspections and maintenance of erosion and sediment control measures; and
 - f. details of when the erosion and sediment control measures are to be established and decommissioned; and
 - g. measures to ensure that there is no tracking of mud or earth onto the surrounding road network, including the provision of shaker ramps and/or wheel washes where appropriate; and
 - h. measures to be undertaken should erosion and sediment control measures fail and result in contamination of any watercourse or water body.

6. The ESCP shall be prepared in general accordance with the Environment Canterbury Erosion and Sediment Control Guidelines 2007 (ECAN ESC Guidelines).
7. The ESCP shall be communicated to all persons undertaking activities authorised by this consent and a copy of the ESCP shall be kept on site at all times.
8. The ESCP and any revisions of that document shall be submitted to the Canterbury Regional Council Attention: RMA Compliance and Enforcement Manager for certification that the Erosion and Sediment Control Plan meets all the requirements of the conditions of this consent.
9. No activities authorised by this consent shall commence or be undertaken other than in full compliance with an ESCP that has been certified by or on behalf of the Canterbury Regional Council RMA Compliance and Enforcement Manager.
10. If the applicant is aware that flow release from Pūkaki Spillway is planned within the next 48 hours, then the following shall occur:
 - a. All deposits of gravel, sand and other natural material shall be levelled to the natural bed level; and
 - b. Reject material and equipment shall be removed from the river bed; and
 - c. Measures shall be undertaken to prevent the discharge of sediment to Pūkaki River arising from the works.
11. If further excavation at the site, within the bed or banks of the river, is not to occur within seven days following the last working at the site, then the following shall occur:
 - a. All deposits of gravel, sand and other natural material shall be levelled to the natural bed level; and
 - b. The excavation area shall be reshaped and formed to a state consistent with the surrounding natural river bed.
12. There shall be no stockpiling of materials within the bed or banks of Pūkaki River.
13. Works shall not occur in flowing water.
14.
 - a. All practicable measures shall be undertaken to prevent oil and fuel leaks from vehicles and machinery.
 - b. There shall be no storage of fuel or refuelling of vehicles and machinery within 20 metres of the bed of a river.
 - c. Fuel shall be stored securely or removed from site overnight.
15. Cement shall be stored securely or removed from site overnight.
16. Machinery shall be free of plants and plant seeds prior to arrival at the works site, and prior to use within the river bed.
17. To prevent the spread of Didymo or any other aquatic pest, the consent holder shall ensure that activities authorised by this consent are undertaken in accordance with the Biosecurity New Zealand's hygiene procedures.

Note: You can access the most current version of these procedures from the Biosecurity New Zealand website <http://www.biosecurity.govt.nz> or Environment Canterbury Customer Services.
18. Habitats and communities of significant indigenous flora, including threatened species, present within the site of works shall be identified prior to commencement of works, and all practicable measures shall be undertaken to avoid effects on species identified.

19. Works shall occur, as far as practicable, from established access roads and tracks, to minimise disturbance of flora and fauna present within and adjacent to the site of works.
20. All practicable measures shall be undertaken to minimise adverse effects on property, amenity values, wildlife, vegetation, and ecological values.
21. Works shall not cause erosion of the banks and bed of the Pūkaki River.
22. Works shall not adversely affect the flood carrying capacity of Pūkaki River.
23. Works shall not occur when birds are nesting or rearing their young within 100 metres of the site of works. For the purposes of this condition, birds are defined as those bird species listed in **Schedule 1**.

Accidental discovery protocol

24. In the event of any disturbance of Koiwi Tangata (human bones) or taonga (treasured artefacts), the consent holder shall immediately:
 - a. Advise the Canterbury Regional Council of the disturbance;
 - b. Advise the Upoko Runanga of Arowhenua, Waihao and Moeraki, or their representatives, and the New Zealand Historic Places Trust, of the disturbance; and
 - c. Cease earthmoving operations in the affected area until an area has been marked off around the site, and Kaumatua and archaeologists have given approval for the earthmoving to recommence. Note: This condition is in addition to any agreements that are in place between the consent holder and the Upoko Runanga (Cultural Site Accidental Discovery Protocol) or the New Zealand Historic Places Trust.

Completion of works

25. All spoil and other waste material from the works shall be removed from site on completion of works.
26. Upon completion of works, the site adjacent to installed structures shall be restored to its original condition, as far as is practicable.
27. The weirs and erosion protection works shall be maintained in good working order.
28. In the event of any damage to the weirs and erosion protection works, the consent holder shall maintain the flood carrying capacity of the Pūkaki River and take all practicable measures to minimise erosion.

Review of conditions

29. The Canterbury Regional Council may, once per year, on any of the last five working days of May or November, serve notice of its intention to review the conditions of this consent for the purposes of dealing with any adverse effect on the environment which may arise from the exercise of the consent and which it is appropriate to deal with at a later stage.

Lapsing of consent

30. The lapsing date for the purposes of section 125 shall be 5 years from the commencement of this consent.

APPENDIX F: CONDITIONS OF CONSENT (CRC082300)

Construct and maintain a pipeline under four unnamed ephemeral streams,
to enable a water supply to pass under the streams,

Limitation on works

1. Works in the bed and banks of ephemeral streams shall be limited to installation, operation, and maintenance of a buried irrigation supply pipeline, including:
 - a. Installation of a 1300 mm diameter pipe within the bed of the ephemeral stream at the first crossing point; and
 - b. Installation of a 300 mm diameter pipe within the bed of ephemeral streams at the second, third and fourth crossing points.
2.
 - a. Works described in 1(a) above shall only be carried out within the bed and banks of the ephemeral stream at the first crossing point between map references NZMS 260 H38:878-657 and H38:879-657.
 - b. Works described in 1(b) above shall only be carried out within the bed and banks of ephemeral streams at the second crossing point between map references NZMS 260 H38:845-641 and H38:846-641, the third crossing point between map references NZMS 260 H38:848-642 and H38:849-642, and the fourth crossing point between map references NZMS 260 H38:861-643 and H38:862-643.
3. Prior to commencing excavation, a copy of this resource consent shall be given to all persons undertaking activities authorised by this consent.
4. The Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager shall be notified not less than 48 hours prior to the commencement of works.
5. At least 20 working days prior to the commencement of the works, the consent holder shall submit to the Canterbury Regional Council, Attention: RMA Enforcement and Compliance Manager an Erosion and Sediment Control Plan (ESCP) that includes, but is not limited to the following:
 - a. a locality map; and
 - b. detailed drawings showing the type and location of erosion and sediment control measures, on-site catchment boundaries, and offsite sources of run-off; and
 - c. drawings and specifications of all designated erosion and sediment control measures with supporting calculations; and
 - d. a programme of works, which includes but is not limited to a proposed timeframe for the works;
 - e. a schedule of inspections and maintenance of erosion and sediment control measures; and
 - f. details of when the erosion and sediment control measures are to be established and decommissioned; and
 - g. measures to ensure that there is no tracking of mud or earth onto the surrounding road network, including the provision of shaker ramps and/or wheel washes where appropriate; and
 - h. measures to be undertaken should erosion and sediment control measures fail and result in contamination of any watercourse or water body.

6. The ESCP shall be prepared in general accordance with the Environment Canterbury Erosion and Sediment Control Guidelines 2007 (ECAN ESC Guidelines).
7. The ESCP shall be communicated to all persons undertaking activities authorised by this consent and a copy of the ESCP shall be kept on site at all times.
8. The ESCP and any revisions of that document shall be submitted to the Canterbury Regional Council Attention: RMA Compliance and Enforcement Manager for certification that the Erosion and Sediment Control Plan meets all the requirements of the conditions of this consent.
9. No activities authorised by this consent shall commence or be undertaken other than in full compliance with an ESCP that has been certified by or on behalf of the Canterbury Regional Council RMA Compliance and Enforcement Manager.
10. There shall be no stockpiling of materials within the bed or banks of ephemeral streams.
11. Works shall not occur in flowing water.
12.
 - a. All practicable measures shall be undertaken to prevent oil and fuel leaks from vehicles and machinery.
 - b. There shall be no storage of fuel or refuelling of vehicles and machinery within 20 metres of the bed of a river.
 - c. Fuel shall be stored securely or removed from site overnight.
13. Machinery shall be free of plants and plant seeds prior to arrival at the works site, and prior to use within the bed of ephemeral streams.
14. Habitats and communities of significant indigenous flora, including threatened species, present within the site of works shall be identified prior to commencement of works, and all practicable measures shall be undertaken to avoid effects on species identified.
15. Machinery and personnel shall, as far as practicable, enter and exit the work site from established access roads and tracks, to minimise disturbance of flora and fauna present within and adjacent to the site of works.
16. All practicable measures shall be undertaken to minimise adverse effects on property, amenity values, wildlife, vegetation, and ecological values.
17. Works shall not cause erosion of the banks and bed of the ephemeral stream.
18. Works shall not occur when birds are nesting or rearing their young within 100 metres of the site of works. For the purposes of this condition, birds are defined as those bird species listed in **Schedule 1**.

Accidental discovery protocol

19. In the event of any disturbance of Kōiwi Tangata (human bones) or taonga (treasured artefacts), the consent holder shall immediately:
 - a. Advise the Canterbury Regional Council of the disturbance;
 - b. Advise the Upoko Runanga of Arowhenua, Waihao and Moeraki, or their representatives, and the New Zealand Historic Places Trust, of the disturbance; and
 - c. Cease earthmoving operations in the affected area until an area has been marked off around the site, and Kaumatua and archaeologists have given approval for the earthmoving to recommence. Note: This condition is in addition to any agreements that are in place between the consent holder and the Upoko Runanga (Cultural Site Accidental Discovery Protocol) or the New Zealand Historic Places Trust.

Completion of works

20. All spoil and other waste material from the works shall be removed from site on completion of works.
21. Upon completion of works the sites shall be restored to their original condition, as far as is practicable, including, but not limited to, levelling the excavated area to the level of the surrounding stream bed.
22. In the event that works cause damage to stream banks, remedial works shall be undertaken to restore bank stability, to the approval of the Council, but at no cost to the Council.

Review of conditions

23. The Canterbury Regional Council may, once per year, on any of the last five working days of May or November, serve notice of its intention to review the conditions of this consent for the purposes of dealing with any adverse effect on the environment which may arise from the exercise of the consent and which it is appropriate to deal with at a later stage.

Lapsing of consent

24. The lapsing date for the purposes of section 125 shall be 5 years from the commencement of this consent.

Advice notes

Prior to the exercise of consent any additional approvals required under the Land Act 1948 and the Crown Pastoral Land Act 1998 in association with easements to occupy the bed of a stream or to cross crown land or for discretionary action shall be obtained from Land Information New Zealand.

List of bird species

South Island Pied Oystercatcher

Black Stilt

Pied Stilt

Wrybill

Banded Dotterel

Black-fronted Dotterel

Spur-winged Plover

Paradise Shelduck

Grey Duck

NZ Shoveler

Grey Teal

NZ Scaup

Black-billed Gull

Red-billed Gull

Caspian Tern

White-fronted Tern

Black-fronted Tern

White-winged Black Tern

Australasian Bittern

Marsh Crake

Spotless Crake

Cormorant/shag colonies