

**Before the Commissioners appointed by Canterbury
Regional Council**

IN THE MATTER OF The Resource Management Act
1991

AND

IN THE MATTER OF Applications CRC052741,
CRC052742 and CRC052743 by
Otematata Station Ltd for a Land
Use Permit to disturb the bed of
a river, a Water Permit to dam
water, and a Discharge Permit to
discharge water to water.

Section 42A Officer's Report of Claire Penman

Date of Hearing: 21 September 2009

1. This report should be read together with the introductory s42A report which gives an overview of all applications presented at this hearing (Report 1), the planning and technical reports on hydrology and minimum flows (Report 2A and 2B), the planning report outlining annual allocations (Report 3) and the reports on cumulative landscape and water quality effects in the catchment (Reports 4A-F and 5).

INTRODUCTION

2. I understand that the applicant intends to provide further detail and potentially amend these applications. However, at the time of writing this report, any amendments had not yet been made available to CRC and as such, this report is written with the information available at the time, as set out below.

3. Otematata Station Ltd (the applicant) has applied for resource consent to:

CRC052741

- (a) To construct and maintain a compacted earth dam with a capacity of 300,000 cubic metres in an unnamed tributary of Corbies Creek;

CRC052742

- (b) To dam up to 300,000 cubic metres of water in an unnamed tributary of Corbies Creek;

CRC052743

- (c) To discharge water from the emergency spillway of a storage dam in an unnamed tributary of Corbies Creek;

See Attachment One for a map of the location of the proposal.

4. The applicant engaged Mr Bob Hall and Ms Jenny Geddes of GHD Ltd (formerly R J Hall) to prepare the application and assessment of environmental effects on their behalf. Subsequently, Ms Cathy Begley, of GHD Ltd, has been engaged to respond to further information requests.
5. A 16 year duration to 2025 is sought.
6. This is an application for a new activity.
7. A site visit was undertaken during the audit of this application by myself on 10 December 2008.

Background

8. These applications were lodged on 14 November 2003 and considered to be notifiable on 21 March 2005. Requests for further information have been sent covering effects regarding the proposal as a whole and clarification of the works required under these consents.
9. When first lodged the applications were grouped under one consent number (CRC041033), but during the processing of these applications in 2005 it was identified that there needed to be separate consent numbers generated for each activity (CRC052741, CRC052742 and CRC052743).
10. There have been no amendments to the application since notification.
11. In addition to this application, applications CRC041033, CRC052739 & CRC052740 have been lodged by the applicant dealing with the diversion of water, associated discharge, and construction of the intakes, relating to this proposal. These applications are addressed in Report 30B. Application CRC020355 has also been lodged for a separate proposal to abstract water from Lake Waitaki for irrigation of 37 hectares on the lake edge. This application is addressed in Report 30A.

Notification

12. Details of the public notification and wording are contained in Appendix 4 of the introductory section 42A report (Report 1). These consents were notified the December 2003 "ministerial call-in" and August 2007 with 200 other applications for similar activities in the Waitaki catchment.
13. As mentioned above (paragraph 9), originally the whole proposal was under one consent number. As such the 2003 notification of CRC041033 should be treated as if all consents relating to this proposal were notified at that time.

Submissions

14. In the 2007 public notification, 17 submissions in total were made on each application. Of these:
 - (a) 2 were in support;
 - (b) 13 in opposition; and
 - (c) 2 neither supported nor opposed these applications.

15. In the December 2003 “ministerial call-in”, a total of 314 submissions were received on these applications.
16. Details of submissions can be found in Report 30B. None of the submissions received on these applications made specific reference to these activities and were instead focussed on the diversion consent.

DESCRIPTION OF THE PROPOSED ACTIVITY

17. A description of the proposal as a whole can be found in Report 30B.
18. The proposed compacted earth dam will hold up to 300,000 cubic metres of water and be constructed in an ephemeral tributary of Backyard Stream which only takes runoff from the area in heavy rainfall. Currently the proposed dam would have the following dimensions:
 - (a) Length of water behind dam = 380 metres
 - (b) Height of crest = 11 metres
 - (c) Depth of crest = 4 metres
 - (d) Freeboard = 1.5 metres
 - (e) Width of crest = 120 metres
 - (f) Spillway = 10 metres x 1.5 metres
19. A chimney drain or seepage blanket will be installed with a cutoff in the foundations and a grassed spillway over the face of the dam.
20. Works will be required in the bed to construct the dam which are expected to involve stripping of the dam footprint, stockpiling topsoil, removing weak or organic material, cutting keyway, placing and compacting selected fill, installing seepage blanket and or chimney drain, excavating spillway, placing topsoil over disturbed areas, and planting grass seed on the crest, bank and spillway.
21. In addition, there may be the requirement for emergency discharges from the dam in peak floods. Any discharge from the spillway would be onto grassed paddocks which would eventually result in water reaching Corbies Creek.
22. The applicant proposes the following activities:

CRC052741

 - (a) To construct and maintain a compacted earth dam with a capacity of 300,000 cubic metres in an unnamed tributary of Corbies Creek, at or about map reference NZMS 260 H40:796-163.
 - (b) No further details or mitigation measures have been provided.

CRC052742

 - (c) To dam up to 300,000 cubic metres of water in an unnamed tributary of Corbies Creek, at or about map reference NZMS 260 H40:796-163.

- (d) The dam shall have a crest height of 11 metres and a freeboard of 1.5 metres.
- (e) No additional design details of the dam have been provided by the applicant.

CRC052743

- (f) To discharge water from the emergency spillway of a storage dam in an unnamed tributary of Corbies Creek, at or about map reference NZMS 260 H40:796-163.
- (g) The discharge shall only be water held in the dam in accordance with resource consent CRC052742.
- (h) No further details about the direction of discharge or frequency of discharge have been provided.

LEGAL AND PLANNING MATTERS

Consent Requirements

- 23. An overview of the consent requirements under the Resource Management Act (RMA), Transitional Regional Plan (TRP) and Waitaki Catchment Water Allocation Regional Plan (WCWARP) for water permit applications is provided in the introductory s42A report (Report 1). These applications were lodged in 2003. The TRP is the regional plan which controls the activity type for the discharge and landuse permit applications (pursuant to section 88A(1) of the RMA). The WCWARP is the regional plan which controls the activity type for the water permit application (as outlined in Report 1).
- 24. A summary of the requirements for this application is provided below:

Water Permit

TRP

The damming of intermittently flowing streams are permitted under the provisions of the TRP, provided certain conditions are met. The provisions will not be met for this activity. Therefore it would be classified as a discretionary activity.

WCWARP

- (a) Rule 2, clause (1)(a) – The applicant does not propose a minimum flow beneath the dam. However, as this is an ephemeral waterway, the 5-year 7-day low flow would technically be zero. Therefore, the proposal will comply with this rule.
- (b) Rule 2, clause (1)(b) – There is no instantaneous allocation limit for this water body (Table 3, row (xxii)).
- (c) Rule 6 – The allocation for this activity is included under the diversion consent. It is within the allocation limit of 275 million cubic metres for agricultural activities upstream of Waitaki Dam (see Report 3 for annual allocation and priority tables).
- (d) Rule 15 - Classifying rule – discretionary activity

25. Overall, the proposed water permit to dam water is a **discretionary** activity under Rule 15 of the WCWARP and the TRP and resource consent is required in accordance with section 14 of the RMA.

Land use permit

TRP

The TRP is silent on matters relating to works in the bed and banks of rivers and lakes in the Waitaki catchment. These activities require resource consent as a discretionary activity pursuant to section 77C(1)(b) of the RMA.

26. The proposed land use permit is a **discretionary** activity under the TRP and resource consent is required in accordance with section 13 of the RMA.

Discharge permit

TRP

There is authorisation which permits the discharge of water into water in the TRP. This activity requires resource consent as a discretionary activity under section 77C(1)(b) of the RMA.

27. The proposed discharge permit is a **discretionary** activity under the TRP and resource consent is required in accordance with section 15 of the RMA.

Priority

28. There is no instantaneous allocation limit for damming of “all other rivers and streams” under Rule 2.
29. For Rule 6, annual allocation, refer to Report 3 for a full list of all existing consent holders and all applicants in priority order.
30. For application CRC052742, the allocation limits are not exceeded and there are no priority issues

Derogation Approval

31. No derogation approval is required from Meridian Energy Limited (MEL) for the dam activity as approval is being sought for the diversion consent which will feed the dam.

CONSULTATION

32. No consultation has been undertaken by the applicant either prior to or post notification.

DESCRIPTION OF THE AFFECTED ENVIRONMENT

33. A description of the values of the Waitaki Basin in general is provided in the introductory s42A report (Report 1).
34. A description of the environment in general as it applies to this proposal is contained in Report 30B.
35. The applicant has estimated the mean annual flood to be in the order of 600 litres per second, 100 year flood in the order of 2,140 litres per second, 200 year flood in order

of 2,410 litres per second, and the probable maximum flood in the order of 4,810 litres per second

36. The applicant also notes the following about the ephemeral tributary, with which I agree:
- (a) It does not contain flow year round and only flows during heavy rainstorms capturing overland runoff or during spring snow melt;
 - (b) There are no aquatic values as there is no significant habitat (see photos in Attachment Two).
 - (c)

ASSESSMENT OF PROPOSED ACTIVITY

37. The proposed water permit is a discretionary activity and must be considered in the context of s104 of the RMA.
38. Section 104(1) outlines matters that the consent authority must have regard to when considering an application for a resource consent, including any actual and potential effects on the environment, any relevant statutory provisions, and any other matter the consent authority considers relevant.

Assessment of actual and potential effects (s104(1)(a))

39. The effects that have been considered for this type of activity (damming, works in the bed of a river and discharge to water) are presented in the introductory s42A report (Report 1). That report includes the presentation of the relevant planning provisions which direct us to consider these effects. A summary table regarding the assessment of individual effects for this application is provided below and a detailed discussion of those outstanding matters or areas of concern is provided in the following sections.

Dam permit – CRC052742

Adverse Effects	Applicant's assessment	My assessment	My Conclusion
Ecosystems	Consider that no fisheries values in tributary and no minimum flow required.	Agree that as fish screen will be installed as part of the diversion consent and having observed the tributary during my site visit, there are no ecological values that may be affected by the proposed dam.	Effects minor.
Other water users	No other water users downstream will be affected by the proposed dam.	While I note there are no other users of this tributary, I cannot conclude that effects on other users will be minor as no assessment of dam breach has been undertaken. I suggest the applicant address this at the hearing.	Effects may be more than minor.
People, communities & recreational values	No affect on recreational or amenity values as not visible to general public.	The irrigation area is not visible from the State Highway. I agree that the location is suitable and will not result in adverse effects on landscape or recreational values.	Effects acceptable.
Dam break analysis	No assessment has been undertaken.	As no assessment has been undertaken, I cannot conclude that the effects of a dam of this size is appropriate for this location and that	Effects may be more than minor.

		effects on people downstream are minor.	
Water quality	No assessment of water quality in the dam itself has been provided.	I recommend the applicant provide an assessment on effects on water quality within the dam at the hearing in order to satisfy me that the effects are minor.	Effects may be more than minor.
Tangata Whenua values	No assessment provided.	Submissions are concerned about effects on Tangata Whenua values & have not been addressed by applicant.	Effects uncertain.

Water Permit Conclusion

40. With regard to s104(1)(a), the actual and potential effects of the activities have been discussed above. In particular, there is uncertainty regarding the following effects relating to this application:

- (a) The impacts on water quality in the dam;
- (b) Whether there is a high risk to downstream land owners and users of Corbies Creek in the event of a dam breach;
- (c) The effects on cultural values in the area.

41. I recommend the applicant address these outstanding matters at the hearing.

Discharge Permit – CRC052743

Adverse Effects	Applicant's assessment	My assessment	My Conclusion
Flood-carrying capacity & erosion	No assessment has been made of the potential downstream effects of any emergency dam discharge in times of flood or dam break.	An assessment should be provided by the applicants at the hearing.	Effects may be more than minor, but could be mitigated if further detail and mitigation is provided by the applicant.
Water quality & ecosystems	The discharge may be more turbid water with higher sediment load. The applicant considers this would be similar to any flows if the dam was not in place.	As the applicant has not provided a full assessment of the potential impacts on water quality and ecosystems downstream of the discharge, I cannot be satisfied that effects are minor.	Effects may be more than minor.
Downstream users and amenity values	No assessment provided.	There are no downstream users on the unnamed tributary, but there are other users on Corbies Creek that may be affected by the discharge of water.	Effects may be more than minor.
Tangata Whenua values	No assessment provided.	As other effects may be more than minor, I am not satisfied that effects on Tangata Whenua values minor.	Effects may be more than minor.

Discharge Permit Conclusion

42. With regard to s104(1)(a), the actual and potential effects of the activities have been discussed above. For the discharge permit, I do not consider that under s104(1)(a), the actual and potential effects of the proposed activity are acceptable as insufficient mitigation and assessment has been provided in respect of flood-carrying capacity and erosion, water quality and ecosystems, downstream users, and tangata whenua values.
43. Should a sufficient assessment of the discharge and mitigation be proposed, I may be satisfied that the effects are acceptable.

Land use permit – CRC052741

Adverse Effects	Applicant's assessment	My assessment	My Conclusion
Flood-carrying capacity & erosion	No assessment has been provided for the works required.	As no assessment or mitigation has been proposed, I do not have a clear understanding of what the works will entail and how these effects will be mitigated.	Effects may be more than minor.
Man-made structures	The applicant has not identified any downstream man-made structures	I do not consider that the works will lead to any effects on man-made structures. Using CRC's GIS system no man-made structure are located within vicinity of the proposal. While there is a large distance to the nearest structure, no information or details on the works have been provided to ensure that effects are minor.	Effects may be more than minor.
Water quality	No assessment has been provided or mitigation to ensure that the works do not affect water quality.	The applicant should address this at the hearing to satisfy me that the proposed works will not adversely affect water quality downstream of the works area.	Effects may be more than minor. Applicant needs to provide more detail regarding the proposed mitigation measures.
Riparian plants and animals	The applicant has not assessed this effect.	I note that the construction works will require significant disturbance of vegetation on the banks of the tributary. However, this appeared to be mostly grazed pasture during my site inspection. In addition, there are no aquatic habitat values in the bed of the tributary.	Effects likely to be minor.
Tangata Whenua values	No assessment provided.	As other effects may be more than minor, I am not satisfied that effects on Tangata Whenua values minor.	Effects may be more than minor.

Land Use Permit Conclusion

44. With regard to s104(1)(a), the actual and potential effects of the activities have been discussed above. For the land use permit, I do not consider that under s104(1)(a), the actual and potential effects of the proposed activity are acceptable as detail of the proposed works and insufficient mitigation has been provided with regards to flood-carrying capacity and erosion and water quality from the construction works, and an assessment is required to determine if there would be effects on these.
45. Should a sufficient assessment of the works and mitigation be proposed, I may be satisfied that the effects are acceptable.

Statutory Assessment (s104(1)(b))

46. Section 88A(2) of the RMA states that any plan or proposed plan which exists when an application is considered must be had regard to in accordance with section 104(1)(b). For this reason, it is appropriate to consider the objectives and policies of the PNRRP that are relevant to the applications to discharge water and undertake works in the bed and banks of the river, despite the fact that these applications were lodged in 2003. A discussion of the relevant plan provisions is provided below.

Regional Policy Statement (RPS)

47. Under Section 104(1)(b)(iii) of the RMA, the consent authority shall have regard to any relevant regional policy statement. The Canterbury Regional Policy Statement has been operative since 26 June 1998.
48. Of significance to this application is Chapter 9, which relates to the management of the Region's water resources and Chapter 10 which relates to beds of lakes and rivers. The WCWARP and PNRRP take into account policies in the RPS and address the issues outlined in more detail. Any assessment of effects has been made using these documents and therefore I have had regard to the RPS throughout this assessment.

Waitaki Catchment Water Allocation Regional Plan (WCWARP)

49. For the dam permit application, the objectives and policies of the WCWARP that are relevant to each potential adverse effect have been identified in the introductory s42A report.
50. I have considered the relevant objectives and policies in the WCWARP as they relate to dams. As the proposed dam is in an ephemeral tributary with very little value, the dam permit does not appear to be inconsistent with the Objectives and Policies in the plan. However, I note that the WCWARP does not provide any policies that address the potential effects of dam breach.

Proposed Natural Resources Regional Plan (PNRRP)

51. For the discharge and landuse permit applications, the objectives and policies of the PNRRP that are relevant to each potential adverse effect have been identified in the introductory s42A report. A discussion of the relevant objectives and policies is provided below.

Objective WQL1.1 – Water quality outcomes for rivers

This objective aims to maintain and improve water quality, physical and chemical characteristics of the rivers. The proposed discharge into the unnamed tributary and an unnamed tributary may not be consistent with the outcomes required by this

objective, as no assessment has been provided to determine the nature of the activity.

Policy WQL1 – Point source discharges into surface water

This policy refers to consideration of whether the discharge is necessary, or whether other options are available. Consideration of the zone of non-compliance, the assimilative capacity of the receiving body, effects on cultural values and ecosystems are also referred to. Not enough detail about the proposed discharge to be certain that it will meet the water quality standards for “Class HILL” rivers.

Policy WQL5 – Management of riparian margins

This policy aims to ensure that activities that disturb the bed of a river do not result in sediment discharge and do not increase erosion in the water body. I cannot be satisfied that the discharge would not result in erosion of the stream, nor that the construction works would not result in sediment discharge into the stream.

Objective BLR1 – Activities within the beds and margins

This objective aims to ensure that works in the beds and banks of rivers and streams can be undertaken while minimising effects, including flood-carrying capacity, natural character, ecosystems, other structures, erosion, Ngai Tahu values. As there is no proposed mitigation with respect to water quality and ecosystems, or flood-carrying capacity and erosion, I cannot conclude that the works will be consistent with the outcomes required by this objective.

Policy BLR1 – Effects of activities within the bed or margins

This policy aims to control activities within the bed and within 7.5 metres of the banks or any flood control structure to ensure that objective BLR1 is achieved. This may include restricting activities so that do not affect flood-carrying capacity, erosion or create plant infestations. I cannot be certain that the proposed activity will be consistent with this policy.

Conclusion

52. With regard to s104(1)(b), the relevant provisions of the RPS, WCWARP and PNRRP have been considered above. I do not consider that the applications are consistent with these provisions as there is an absence of detail regarding the works required and mitigation measures to make a full assessment.

Other Matters (s104(1)(c))

53. I do not consider that there are any other relevant matters to be considered.

PART II PURPOSE AND PRINCIPALS

Purpose of the RMA (s5)

54. Under Section 104, the consent authority must consider applications “subject to part II” of the RMA. The purpose of the RMA (Section 5(1)) is to:

“promote the sustainable management of natural and physical resources.”

55. Section 5(2) defines the meaning of “sustainable management”, which is to manage resources in a manner that provides for the social, economic and cultural wellbeing of communities while protecting the life-supporting capacity of the environment for the

needs of future generations. This section also states that this should be achieved while "safeguarding the life-supporting capacity of water" and "avoiding, remedying or mitigating" the adverse effects of activities.

56. 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 however has not proposed measures to "safeguard the life-supporting capacity of water" and "avoid, remedy or mitigate" the potential impacts on the environment as required in Section 5(2)(c).

Matters of National Importance (s6)

57. Sub-sections (a) and (e) of Section 6 of the RMA are particularly relevant to this application. The proposal may result in effects on water quality and ecosystems that have not been adequately mitigated. The applicant has not yet proposed measures to address these effects. The applicant has not assessed the impacts on cultural values, and runanga have submitted in opposition on this application.

Other Matters (Section 7)

58. In achieving the purpose of the RMA, the consent authority is directed to have particular regard to a number of matters as set out in (a) – (j) of Section 7.
59. Sub-section (f) is specifically relevant to this application and should be considered when deciding the acceptability of effects resulting from the proposed damming, discharge and earthworks in an unnamed tributary of Corbies Creek.
60. Section (f) refers to the maintenance and enhancement of the quality of the environment. The applicant has not proposed mitigation measures to ensure that this objective is achieved, particularly with regards to water quality and flood-carrying capacity and erosion..

Principles of the Treaty of Waitangi (s8)

61. Section 8 of the RMA requires the consent authority to take into account the principles of the Treaty of Waitangi. The site lies within the rohe of Moeraki Runanga. Runanga were informed separately when ECan received the application and later when the application was notified. Submissions have been received from Ngai Tahu and runanga on this application.

RECOMMENDATION

Grant or Refuse

62. Section 104B applies to any application which is a discretionary or non-complying activity and states that the consent authority may grant or refuse the application and may impose conditions under s108.
63. The proposal may result in economic and social benefits to the wider community through improved providing a water storage source for pasture production.
64. There are however, a number of outstanding issues associated with this proposal as listed below:

CRC052741

- (a) *Flood-carrying capacity & erosion* – No mitigation for effects of erosion during the construction works;
- (b) *Water quality* – No mitigation to ensure water quality effects will be minor;
- (c) *Scope* – I am unsure as to the scale of works required including when works will occur and for how long.

CRC052742

- (d) *Water quality* - No impact assessment or measures to address the water quality impacts that could arise from creating a dam at this site. Given the conclusion regarding the potential cumulative adverse effects on water quality, it is premature to make any recommendation to grant or refuse this application as it relates to cumulative water quality;
- (e) *Effects on other users/Dam break analysis* – No assessment has been provided to determine the potential effects on people below the dam;
- (f) *Scope* – The applicant has only provided limited design details and no plan of the proposed dam;
- (g) *Cultural values* – The applicant has not provided any assessment on cultural values and there are outstanding submissions from runanga in opposition to this proposal.

CRC052743

- (h) *Water quality & ecosystems* – No mitigation has been provided to ensure that the effects of the discharge are minor;
- (i) *Flood-carrying capacity & erosion* – No assessment to ensure emergency discharge will not erode or damage downstream water bodies;
- (j) *Downstream users* – No assessment of discharge on downstream users in terms of likelihood of damage or inundation;
- (k) *Cultural values* - The applicant has not provided any assessment on cultural values and there are outstanding submissions from runanga in opposition to this proposal.

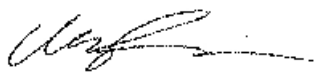
65. Having considered all relevant matters outlined in section 104(1), I am not satisfied that the actual and potential effects of the proposed activity are acceptable due to concerns regarding the effects on the matters listed above. On this basis, I cannot recommend these applications (CRC052741, CRC052742 & CRC052743) be granted.

RECOMMENDED CONDITIONS

66. I have not been able to make any recommendations for conditions due to the absence of detail regarding the scope of the proposal and potential effects.

67. If the Commissioners decide to grant these applications, a list of conditions that are usually included in a dam permits, discharge permits and land use permits are provided in Appendix 6 of the introductory s42A report.

Signed:



Date: 31st August 2009

Claire Penman
Consents Investigating Officer

REFERENCES

Canterbury Regional Council 2004. Proposed Natural Resources Regional Plan – Chapter 4: Water Quality.

Canterbury Regional Council 2004. Proposed Natural Resources Regional Plan – Chapter 5: Water Quantity.

Canterbury Regional Council 2004. Proposed Natural Resources Regional Plan – Chapter 6: Beds and margins of Lakes and Rivers

Canterbury Regional Council 1998. Regional Policy Statement. Report No R98/4. ISBN 1-86937-337-5.

Canterbury Regional Council 1991. Transitional Regional Plan. October 1991.

Department of Conservation 2003. Bog Roy Station Tenure Review - Conservation Resources Report.

Gabites, S, & Horrell, G. 2005. Seven day mean annual low flow mapping of the tributaries of the Waitaki River. Canterbury Regional Council Report R05/16. ISBN: 1-86937-570-X.

Keller, J & Pfluger, Y. 2005. Working papers about the Natural and Physical Resources of the Waitaki catchment by locality. Report provided to the Waitaki Catchment Water Allocation Board.

Ministry for the Environment, 2006. Waitaki Catchment Water Allocation Regional Plan.

Te Maire Tau, Anake Goodall et al., 1990. Te Whakatau Kaupapa: Ngai Tahu Resource Management Strategy for the Canterbury Region. ISBN: 0-908925-06-9.

The Resource Management Act 1991. Consolidated version including the Resource Management Amendment Act 1995. August 2005.

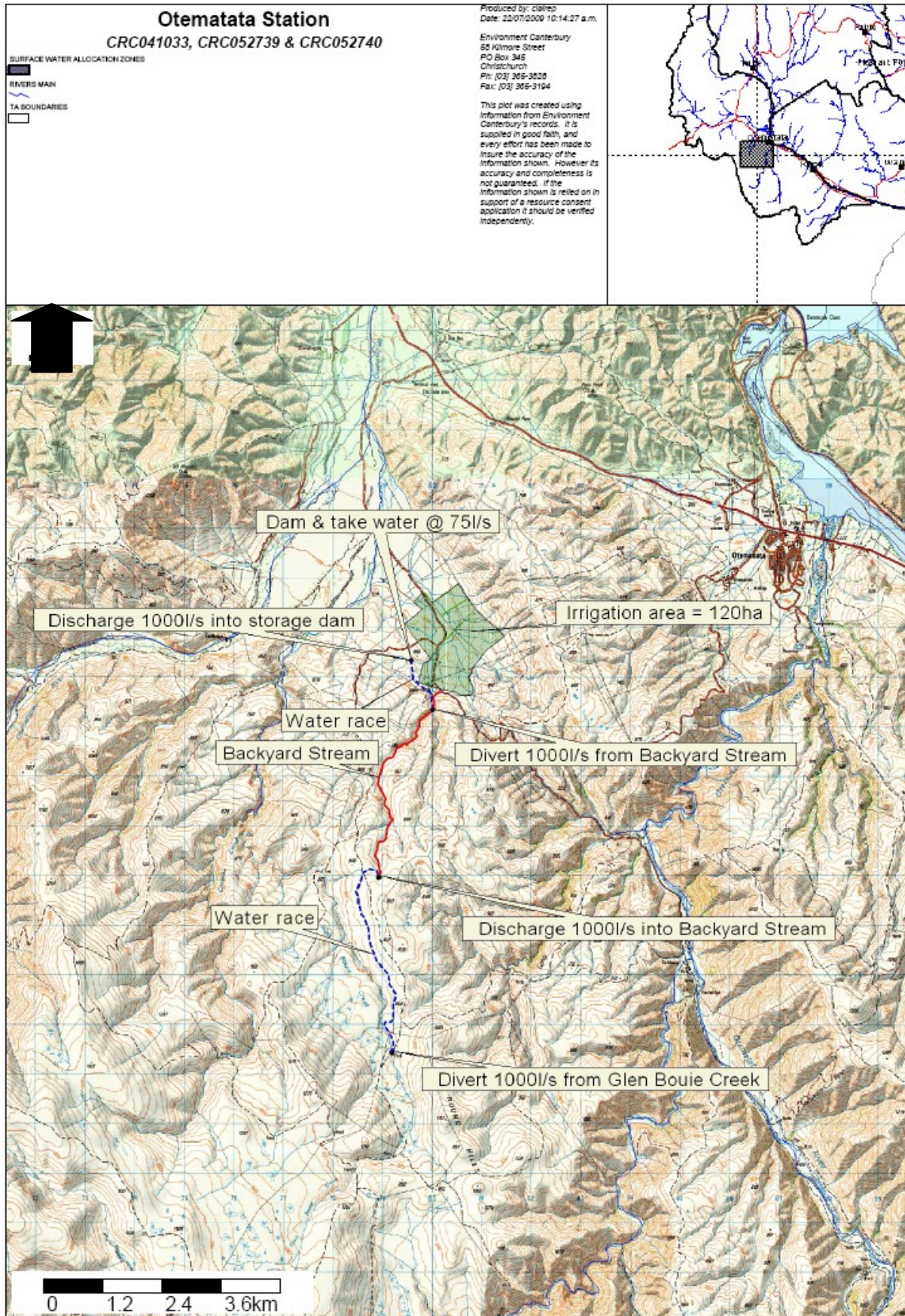
Waitaki Catchment Water Allocation Board 2006. Waitaki Catchment Water Allocation Regional Plan. ISBN: 0-9582620-7-1.

Waitaki Catchment Water Allocation Board 2006. Waitaki Catchment Water Allocation Regional Plan, Material Incorporated by Reference. ISBN: 0-9582620-6-3.

Waitaki Catchment Water Allocation Board 2006. Waitaki Catchment Water Allocation Regional Plan, Annex 1 – Decision and principal reasons for adopting the Plan provisions. ISBN: 0-9582620-4-7.

Waitaki Catchment Water Allocation Board 2006. Waitaki Catchment Water Allocation Regional Plan, Section 32 Report. ISBN: 0-9582620-5-5.

ATTACHMENT ONE – LOCATION MAP



ATTACHMENT TWO – PHOTOS OF DAM LOCATION ON 8 DECEMBER 2008 BY CLAIRE PENMAN



Dam site looking upstream



Dam site looking downstream