From:	Denise Hamlin on behalf of Pru Steven
To:	Louise McDonald
Cc:	Gert van"t Klooster; Walter and Sandy Cameron; Pru Steven
Subject:	Deputation - Council Meeting 22 October 2020 - Lower Waitaki Rating District - Erosion Repair Funding
Date:	Tuesday, 27 October 2020 8:33:09 am
Attachments:	Presentation Notes 22 October 2020.pdf Extract Vessey (ECan) evidence NBTC hearing.pdf

Presentation notes attached. Please note that at the hearing I added in a reference to the NBTC consent, although I note that the NBTC consents have now lapsed.

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Presentation by the Adjacent Landowners in speaking to the recommendations in the report:
10.4. Lower Waitaki Rating District - Erosion Repair Funding

I am here to represent the adjacent landowners in speaking to the report and recommendations.

I have represented the farmers for many years, for well over a decade, commencing with the fallout of the abandoned Project Aqua, through the process of hearing and determining the called-in consents, and for the consenting of the NBTC.

The Lower Waitaki Irrigators were very involved in the process including in the hearings and negotiations over the NBT consent conditions, acutely aware of the potential impact that the operation of the tunnel concept would likely have in terms of exacerbating potential for erosion.

Throughout this process, the irrigators developed a relationship of trust and cooperation with MEL and ECan; they are now concerned that this is beginning to fracture.

I am instructed that the farmers feel that they have tried repeatedly to achieve direction and get answers and have been unsuccessful, resulting in feelings of frustration and withdrawal of engagement by stakeholders. I am told that this is the reason why there was a very low response to the Council's recent survey.

However, they are now pleased to see that ECan officers are recognising the urgency of the current situation and supporting the seriousness of the erosion and the effects that it is having on stakeholders.

There remains a number of outstanding issues, including in relation to MEL's operation of its hydro scheme and I will refer to that very briefly , acknowledging that the primary purpose is to speak to the recommendations.

In speaking to the recommendations, it is fair to say the farmers want a solution, and a quick one.

The adjacent land owners support the adoption of recommendation in Clause 1 on the basis that the funding arrangement is approved by MBIE from the Covid-19 projects in the stated proportions.

They wholly support Clause 2 except they would like to add that consultation continue with additional stakeholders, MEL, DOC and LINZ and they would also like to see a commitment to the formulation and implementation of a Project River Recovery Program similar to that undertaken in the Mackenzie between MEL and DOC. (see para 19)

The farmers view this as a short term fix however believe it is imperative to undertake the full works package as per clauses 15 and 17 of the Report and as soon as possible to avoid further damage and cost, loss of land and infrastructure and to address safety issues.

They also believe it is absolutely crucial to have cooperation and collaboration with MEL re river flows whilst undertaking these works, to achieve the best result in a cost effective and timely manner.

By that I mean liaising with MEL to ensure that the flow conditions are optimal to ensure an effective repair strategy which is unlikely to result if there is significant changes in the flows during the period where repair work is being undertaken.

Costings

The adjacent landowners wish to note their concern that ECan did not identify the Lower Waitaki interests as requiring any flood control assistance, which they consider is surprising, given that officers had undertaken 90 site visits between 4 December and 30 June (para 44) and the seriousness of what was happening should have been readily apparent. The landowners were already in negotiation with

ECan, including councillors and engineers, and the Covid Fund and Shovel Ready funding applications were being prepared in May/June.

Having said that, they now support the full works package being considered within the Rivers Covid Recovery Programme reducing the local share of costs from $1.04 million to $375,000.

Some of the landowners are having to bear their share of the cost on their own, without contribution from other stakeholders (Transpower, for instance) and this is unfair and unreasonable.

They also consider it is very timely to consider a review of MEL's 40% contribution and to consider whether there is a means by which those who gain a financial benefit from the river could also be required to contribute.

The farmers know living along the river has some risks, although the Lower Waitaki River is different from other braided rivers in the catchment in that its flows are controlled by hydro electricity generation in its upper reaches and any future management program needs to adequately reflect this.

MEL's activities **are** the primary influence of the river hydraulics and the way in which this is being managed, with the ramping activities in particular, is having a major effect on the damage to the adjoining landowners.

I refer to the evidence of Ross Vessey at NBTC hearing, particularly page 3 where he acknowledges that the development of hydro storage within the mid and upper reaches of the river's catchment has modified upper catchment inflows, acting as effective sediment traps, limiting sediment supply to the lower river (downstream of the dam) to the reworking of bed deposits, erosion of berm land and terrace areas and the influx from the lower catchment tributaries. His evidence is **attached** for your reference.

Presently there are 13 properties all needing immediate remedial work and some are losing valuable irrigated farm land at up to a metre a day, in fact one property was at one time losing that much every hour.

The damage has been ongoing since December 2019 following that heavy rainfall event that caused significant flooding in the Rangitata River. However, I am told that there have been conflicting reports on the management of the Waitaki system during that rainfall event. The event was predicted more than 10 days prior, although the landowners understand the MEL did not start spilling until 3 days after the event.

The adjacent landowners ask whether ECan flood control officers were in discussion with MEL about managing the flood even when it was forecasted as occurred in a significant rainfall event in May 2009?

They have asked but have not been given satisfactory answers to the question as to whether, in light of the lead-in time, MEL began spilling earlier to provide capacity in the lakes and to avoid the significant damage that resulted.

The farmers have asked for an independent legal opinion re the obligations on MEL under their consents to address damage to the land due to erosion. They also have asked for a report on the monitoring of the consent conditions.

They have asked me to emphasise the need for these two streams of work as a matter of urgency and note that they do not accept the legal advice given to you as to the question of whether MEL has been operating in breach of its conditions (refer Ms Dysart's opinion).

This is an issue for ongoing discussion.

Future budget should be increased for maintenance

In recent years, the routine expenditure for river engineering works on behalf of the rating district has cost approximately $500,000 per year. The budget was increased in 2019 to $614,000 to enable more fairway spraying.

The farmers do not consider that this is sufficient, and we recommend that 1.04 m is the sum that is included in the next budget year as the 500 ks in recent years is insufficient.

Prior to 2015 the objective had been to maintain the river system with capacity to convey a flow of 1700 cumecs before overflowing onto the adjacent berm and terrace lands flanking the active bed and to limit erosion of the active bed and vegetated margin. This is no longer happening.

There is no longer a cleared fairway below the Waitaki dam from 400 metre at Kurow and up to 700 meters from the coast.

There should be an active riverbed from a 1000 meters wide at Kurow and 1300 meters at the coast, not filled with islands.

Big islands have been allowed to form over the past 30 years what have increased the damage to adjacent farmland.

Because of these islands, the river can't handle big rainfall events from 1500 – 3000 cumecs), and that is what is necessary to maintaining and open up the centre of the river, to accommodate the flows. A 3000 cumecs flow is 4x as affective of removing the islands as a 1500 cumecs flow.

The landowners note the increase in routine expenditure in to 2019 to enable more fairway spraying. That is supported, although it ought to have started years earlier. The vegetation has now gained a foothold, and resulted in well-established islands that are problematic in terms of ongoing river management.

Their budget should also cater for damage to adjacent land until significant progress is made with a water way management plan (per recommendation).

Bearing in mind that the current funding proposal only caters for the remedial work – it does not recognise the value in loss of land and infrastructure.

Pru Steven QC

22 October 2020

Section 1: Description

1.1 Purpose Of Asset Management Plan

Asset Management Plans define the objectives and performance standards of the river control and drainage schemes for which the Council has the maintenance responsibility and provide the basis upon which the effectiveness of their maintenance can be measured.

This plan:

- Defines the service level for the Lower Waitaki River Special Rating District.
- Defines the level of maintenance needed to retain the operating and service capacity of the river control assets managed by the Council.
- Provides a base against which the Council's performance in maintaining the service capacity of the infrastructural assets can be measured.

1.2 Background

The Lower Waitaki River extends 65 km downstream from the Waitaki Dam to the coast at Glenavy. The bed varies in width between approximately 1000m at Kurow to 1300m at the sea.

In the 1950's, the active bed and, in particular, the braided gravel section became increasingly congested with willow resulting in a loss of hydraulic capacity and a tendency for accelerated erosion and flooding of the river margins. A "pilot scheme" promoted by the Waitaki Catchment Commission and undertaken by the Ministry of Works, bulldozed a path down the central part of the active bed in order to try and restore channel capacity. This was followed in 1977 by the Lower Waitaki Catchment Control Scheme, designed to capture the benefits provided by the Pilot Scheme and lock the river into a 400m wide fairway. This was to be achieved by the strategic placement of gravel cored, rock armoured groynes, berm plantings, fairway spraying and willow removal. The purpose of this work was to increase the area of land available for farming from approximately 2800 ha to 5800 ha. Government subsidy was made available for these works and a classification prepared to recover the local share of the annual costs of capital and maintenance work within the scheme.

Thirty-one groyne structures were built under the 1977 scheme, with a further three being built in the early eighties at Glenavy. Twenty-five of these groynes were located on the south bank, the balance on the north bank.
It was apparent at the time of a scheme review in 1984 that the cost of maintaining the 400m fairway was prohibitively expensive and an alternative strategy was needed. This was to focus on regular spraying of willow-infested islands within a re-defined central fairway, accompanied by judicious removal of willow where that was necessary. The remaining portion of the bed flanking the central fairway was to be encouraged to develop as a vegetation buffer, assisted with new plantings and lopping, layering and tying of willows to strengthen berm protection. Although not encouraged, some diversion works would be permitted to relieve pressure on threatened berm areas.

In July 1989, the Waitaki Catchment Board adopted as its policy a "Sectional Plan" for the ongoing management of the Lower Waitaki River. This policy developed further the cleared fairway (400m at Kurow and 700m at the coast) and berm management philosophies promoted under the 1984 Scheme Review.

River management practices currently being pursued generally follow these directions, but the scope has been broadened to allow the retention of a limited number of ponding banks, (11 of the groynes constructed under the Pilot Scheme and the 1977 Scheme).

The principal focus of the annual works programme is to maintain a central cleared fairway through spraying and removal of critical obstructions within the braid network. The Waitaki Catchment Commission was formed in 1960, replacing the Waitaki Soil Conservation Committee, which had administered the area since its establishment in 1947. In 1988 the Commission became the Waitaki Catchment Board which was then disestablished in Nov 1989 in the national review of local government. Its powers and functions were transferred to the Canterbury Regional Council.

In 1995, it was recognised that the Canterbury Regional Council did not have the authority to rate the properties within the classified area downstream of Blacks Point on the south bank of the river because this area was within the Otago Region. This, and concerns over the equity and rationale behind the rating classification, led to a review of the classification and adoption of two differential rating districts, one covering the land within the Canterbury Region, the other the land within the Otago Region.

Whilst the Lower Waitaki River is a wide braided gravel river similar to others of its kind in the South Island, it has particular characteristics inherited from its morphological past that influence its behaviour. These behavioural trends have been further enhanced by the development of hydro storage within the mid and upper reaches of the river's catchment. Indications are that the river is in an *underfit* state, primarily through the post Otiran Glaciation development of lakes Pukaki, Ohau and Tekapo but also as a result of the enhancement of these lakes by hydro development. The effect of these storage areas is to modify upcatchment inflows by routing through the available storage. Secondly, these impoundments act as effective sediment traps, limiting sediment supply to the lower river (downstream of Waitaki Dam) to the reworking of bed deposits, erosion of bermland and terrace areas and the influx from the lower catchment tributaries.

Most of the lower catchment tributaries are pseudo-ephemeral, in that their flows enter the Waitaki River by seepage through alluvial fans at their confluence within the Waitaki River. This means that sediment supply is an episodic process, only occurring in volume during periods of tributary flood, usually with flow levels well above the tributary mean annual discharge. The pulsing effect of tributary sediment (particularly where tributary outflows discharge into the active bed areas away from the Waitaki River current main stream and do not directly connect with the higher flows), can cause fan progradation and other localised effects. At a later stage, when the main river migrates laterally into these fan areas, reworking of the tributary deposits occurs, with subsequent transport and deposition downstream and the formation of island bars. These deposits can subsequently modify flow patterns in the active fairway margin and subsequently induce erosion of the vegetated buffer area and the adjacent berm and low terrace area. The combination of the intersection of the river with a prograded fan can also induce localised elevation in water levels on the upstream side of the fan, resulting in overbank flow into the berm or low terrace areas. This is particularly the case where the buffer zone is either absent or thin and old swales exist in the berm area, accessible to the main river at their upstream end.

1.3 River Control Scheme

Berm Vegetation	59 km	estimated value, (June 2002): $8.26m
Groynes & Ponding Banks	11	estimated value $1.07m
		Total (June 2002) $9.33m

(25 Groynes were originally constructed but only 11 of them remain and are maintained.)

1.4 Rating District Classification

The targeted differential catchment works rate for the Lower Waitaki River Rating District comprises three classes and is levied per $100,000 capital value.

Category of rateable land	Differential relationship between categories
Class A	60
Class B	30
Class U1	30

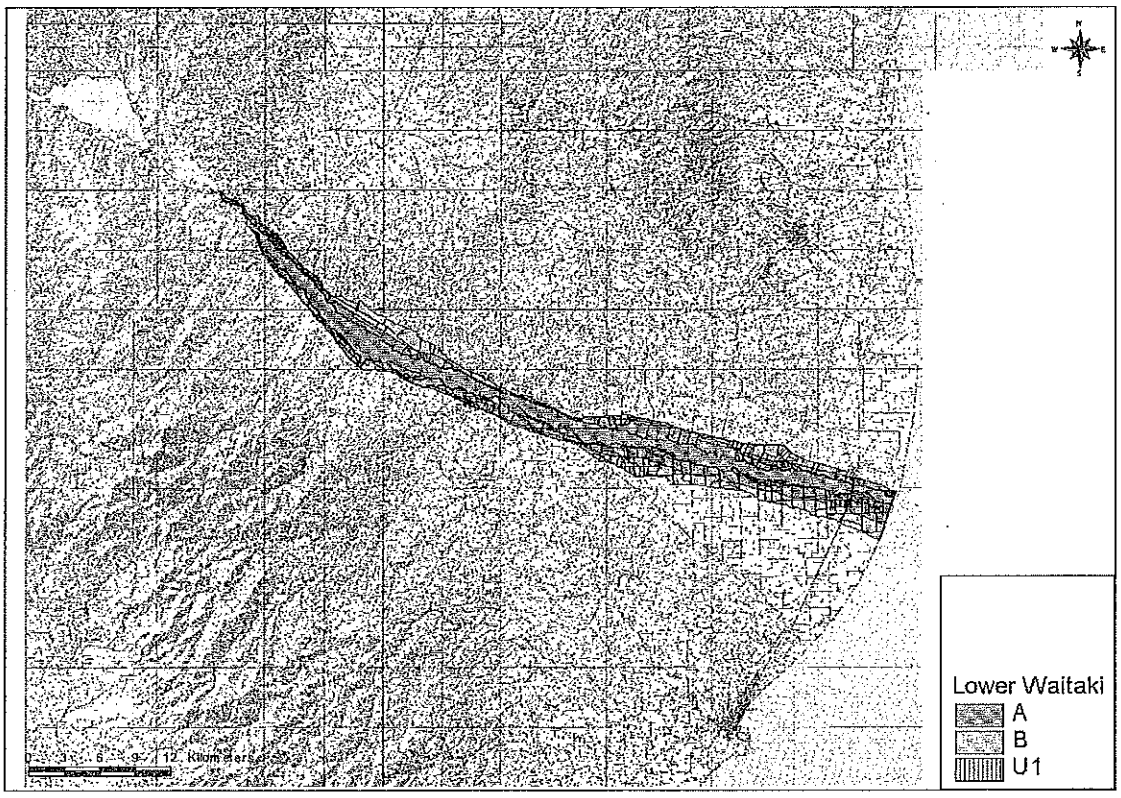


Figure 1: Rating district classification map.

1.5 Funding

Funding for works in the Lower Waitaki River comes from three sources, with subsets shown as follows:

- Environment Canterbury

Equal contributions from the Canterbury Regional Council's

- Differential targeted rate (classified Lower Waitaki River Rating District (Canterbury)),
- Works and Services Rate. (uniform targeted rate over Waimate district),
- General Rate (uniform rate over Canterbury region),

- Otago Regional Council
  - Differential targeted rate (classified Lower Waitaki River Rating District (Otago)),
  - Contribution equivalent to the works and service plus general rate input from Canterbury.

The ratio of total targeted rate collected from the Canterbury and Otago region's parts of the two classified rating districts is in proportion to the total capital values of the properties within each classified district. The shares of general and works and service rates or their equivalent is in the same proportions.

- Meridian Energy
  Direct contribution equal to two times the sum of the differential targeted rates levied by Canterbury and Otago Regional Councils.

  Meridian Energy's contribution was negotiated in 1992 with ECNZ (the then manager/operator of the Lower Waitaki hydro electric power stations) and is their contribution towards the costs of maintaining the river control scheme. It is based on the level of damage done by the normal operation of the power generation (elevated low flows, suppression of flood flows and rapid and frequent fluctuations in flow rate.) and the added difficulties involved in working in a river with artificially elevated 'low flows'.

  Meridian Energy's contribution is for scheme works only and is not intended for remedial works perceived to be caused by their management or mismanagement of river and flood flows outside the framework of the scheme objectives.

  Meridian Energy's grant portion is in fixed proportion to ratepayer contributions and increases or decreases in a fixed manner depending on the size of the rates levied.

- Funding Ratios

- Differential targeted rate.	20%
- Works and Services Rate and Otago equivalent.	20%
- General Rate and Otago equivalent	20%
- Meridian Energy	40%

1.6 Assets Being Protected

The capital value of the area receiving scheme protection on the north side is $60.3m (April 2004). Otago Regional Council makes a contribution to the rating district on behalf of the portion of the district that is within their region.

1.6 Maintenance Expenditure

Part A, Appendix F shows expenditure for the years 2000-2004 for the Lower Waitaki Rating District. The average expenditure in this period on maintenance has been $266,487. This is above the recommended range ($31,180 - $62,360) for a scheme of this type because the annual expenditure includes the establishment of new works that increase the value of the rating district's assets.

Expenditure in the 1995/96 year was $408,000 as a result of repair works following the December-January floods of 1995/96.

An annual programme of maintenance will be prepared each year. This programme will be discussed with a liaison committee of ratepayer representatives, prior to adoption by the Council for inclusion in the LTCCP. The programme will typically be based on a normal maintenance requirement with the asset manager having the authority to rearrange as necessary. Approval will be sought from the liaison committee and the Council for proposed expenditure exceeding the annual budget by more than 10%.

In preparing the annual maintenance programme consideration will be given to:

- Works identified as necessary.
- Works that can be anticipated given a 'normal' season.
- Flexibility to meet unbudgeted damages.
- Affordability.
- Environmental effects.

1.7 Resource Consents

The following Resource Consents are held by the Canterbury Regional Council issued under the Resource Management Act 1991 to enable scheme works to be undertaken on the Lower Waitaki River.

Resource Consent No. CRF 96017

Granted:	23 August 1995
Expires:	23 August 2005
Purpose:	Permit disturbance of the bed and to plant trees in the bed of the Waitaki River.

1.8 Maintenance Standards

Maintenance aims to provide for

- The containment flows up to 800 cumecs within the cleared fairway, and 1700 cumecs within the river system (fairway plus vegetated berms) between Kurow and the sea
- To minimise within financial constraints lateral erosion directly affecting developed farmland.

The maintenance works comprise the systematic spraying of the cleared fairway on a three-year rotation on a rolling programme to eliminate crack willow infestation of the island bars. Aerial spray application is done by helicopter, with follow-up hand application where necessary.

Where stranded willows pose a threat in terms of flow diversion, island bar formation or bank erosion, snagging is undertaken to remove the trees to safer locations, either for destruction or incorporation into bank protection works.

A limited number of pilot cuts are undertaken where it is evident that such activity will provide immediate and necessary relief to active erosion sites and there is a reasonable likelihood that such action will provide longer-term benefits (weeks, months). Similar diversion works are undertaken to dewater sites to enable protection works to be constructed and established.

The establishment of primary vegetated protection in the area between the cleared fairway and the boundary of the active riverbed is sought to be achieved through the retention of existing vegetation (willow, gorse, broom, flax, toi toi, sedge) and the strengthening of it through lopping, layering and tying of willows and the planting of more appropriate willow species. Fairway edge stabilizing involves lopping, layering and tying of willows and the planting of selected willow species on a 10-year rolling programme for the whole river.

Maintenance of groynes and replacement or repair of dislodged rock rip-rap facing are restricted to selected structures that are deemed to play an integral part in the achievement of the primary scheme objectives. Other structures that do not fulfil this role are considered redundant and scheme funds are not used for their maintenance.

Shingle extraction management is carried out to help meet the schemes objectives.

Systematic removal of vegetation along the fairway margin by land development activities is of major concern and reduces the performance of the scheme, not only on the property concerned, but also on those downstream. Removal of vegetation from this buffer zone exposes the margin, berm and terrace lands beyond and the developments such as fencing, tracks and irrigation races to erosion and flooding. . In addition, permanent fencing associated with this land development is cutting off access to the river and making maintenance more difficult and expensive.

These matters require appropriate policies or instruments to mitigate this threat. In the first instance, these instruments could include:

(a) The acquisition of control over Crown land within the riverbed and adjoining riparian areas as the leases on these lands are renewed or at such other times as present procedures for their administration permits. (Environment Canterbury approached Land Information New Zealand on this issue in 2003 and is waiting on a response).

(b) The introduction of a Regional Plan incorporating rules on land use in specified areas.

Failure to attend to this aspect of the river management programme may ultimately lead to the compromising of the Scheme objectives.

From time to time, landowners wish to carry out works to a standard higher than those provided under the scheme, to work on groynes and ponding banks deemed superfluous to the scheme or to provide structures which are not considered a primary benefit to the scheme. In these situations, arrangements may be made to have the works undertaken by the Canterbury Regional Council works section at the cost of the promoter. The responsibility for acquiring the necessary resource

consents prior to construction rests with the landowner as does the on-going repair and maintenance.

Best practice for managing infrastructure assets (as required by the 1992 Local Government Act) is being applied and this is starting to identify issues that the district will need to address.

In the times that schemes such as this were set up, landowners willingly agreed to give up the use of a portion of their land for the collective and individual benefit that they would receive from the proposed works. The berm planting component of this scheme is still being constructed.

This land is often not viewed in the same way by current owners as it was when the scheme was set up and the effectiveness of the scheme is being threatened. The most significant need is to develop a plan that defines the berm planting zone that is needed to meet the performance requirements of this scheme and put measures in place to ensure that the rating district receives the level of protection it requires.

1.9 Project Aqua

Project Aqua was a proposed hydro power scheme investigated by Meridian Energy during the period 2000 – 2004 and finally abandoned at the stage resource consents had been applied for but not processed.

The scheme proposed diverting flows from below the Waitaki Dam to a canal on the south bank of the Waitaki and generating power at six stations between Kurow and state highway one with the flows being returned to the river above SH1.

One of the effects of this scheme would have been to lower the 'normal' flows in the river bed, modifying the shingle carrying and vegetation control effects of those flows.

The investigations into this project produced significant studies into the geomorphic impacts, coastal effects and vegetation impacts on the river system both from the existing regime and the regime if Project Aqua was built. The investigations and discussions also raised public awareness and expectations for the future of the river and development opportunities to enhance recreation and commercial use of the river bed.

This expectation could require a modification to the level of service, funding and objectives of the Lower Waitaki River Control Scheme in the future.

Section 2: Service Levels

2.1 Objective

To maintain the Lower Waitaki River system downstream of the Waitaki Dam so that it has the capacity to convey a flow of up to 1700 cumecs before over-flowing onto adjacent berm and terrace lands flanking the active bed and to limit erosion of the active bed vegetated margin.

2.2 Historic flood sizes

The following floods have been recorded or estimated over recent years.

Waitaki River at Kurow.

26/11/57	1735 cumecs
23/12/84	1825 cumecs
15/12/95	2956 cumecs

2.3 Potential Damage

River control works are constructed in a very high-energy environment with the purpose of resisting and absorbing some of that energy. No matter what the standard of maintenance, damage to such systems is inevitable.

The active riverbed, comprising cleared fairway and vegetated buffer zone (including groynes and ponding banks), is the area where erosive activity is at its greatest and where major exposure to damage exists. Damage can arise in flood events above the mean annual flow of 850 cumecs (controlled by hydro developments) or when periods of extended high flow occurs (600 cumecs/4 weeks or more). NB: Floods on the Lower Waitaki River can occur either from:

(a) Controlled releases through the hydro lake system, or
(b) The routed outflows from Lake Ohau, Pukaki and Tekapo merging with flows from the Ahuriri, Otamatapaio, Otematata Rivers and other smaller mid catchment tributaries, or
(c) Lower Catchment tributaries, primarily Hakataramea, Kurow, Maerewhenua, Otiaki, Otekaike, Penticotio, Elephant Hill, Awamoko and Henderson-Waikaura Diversion Channel.

Generally upper catchment floods are generated by nor-west conditions and snow melt in the main divide and do not coincide with lower catchment floods, which occur primarily from south-south east storms. The possibility does exist for great floods to occur from outflows from both parts of the catchment where nor-west systems back to the south-south east and the lagged outflow from the upper catchment results in super-positioning of flood peaks with lower catchment flows. Some opportunity exists through the use of catchment hydro storage to modify up-country inflows by routing them through the hydro lakes storage and reducing downstream flow levels. The opportunity for such intervention will depend on the availability of up-catchment storage, event size, rainfall, forecasts and energy demand/supply factors. Flow modification of this kind is at the sole discretion of Meridian Energy.

An assessment of maximum damage potential to river scheme assets in a single flood event is $3,050,000, June 2002. (Refer to Part A, 3.1.2).

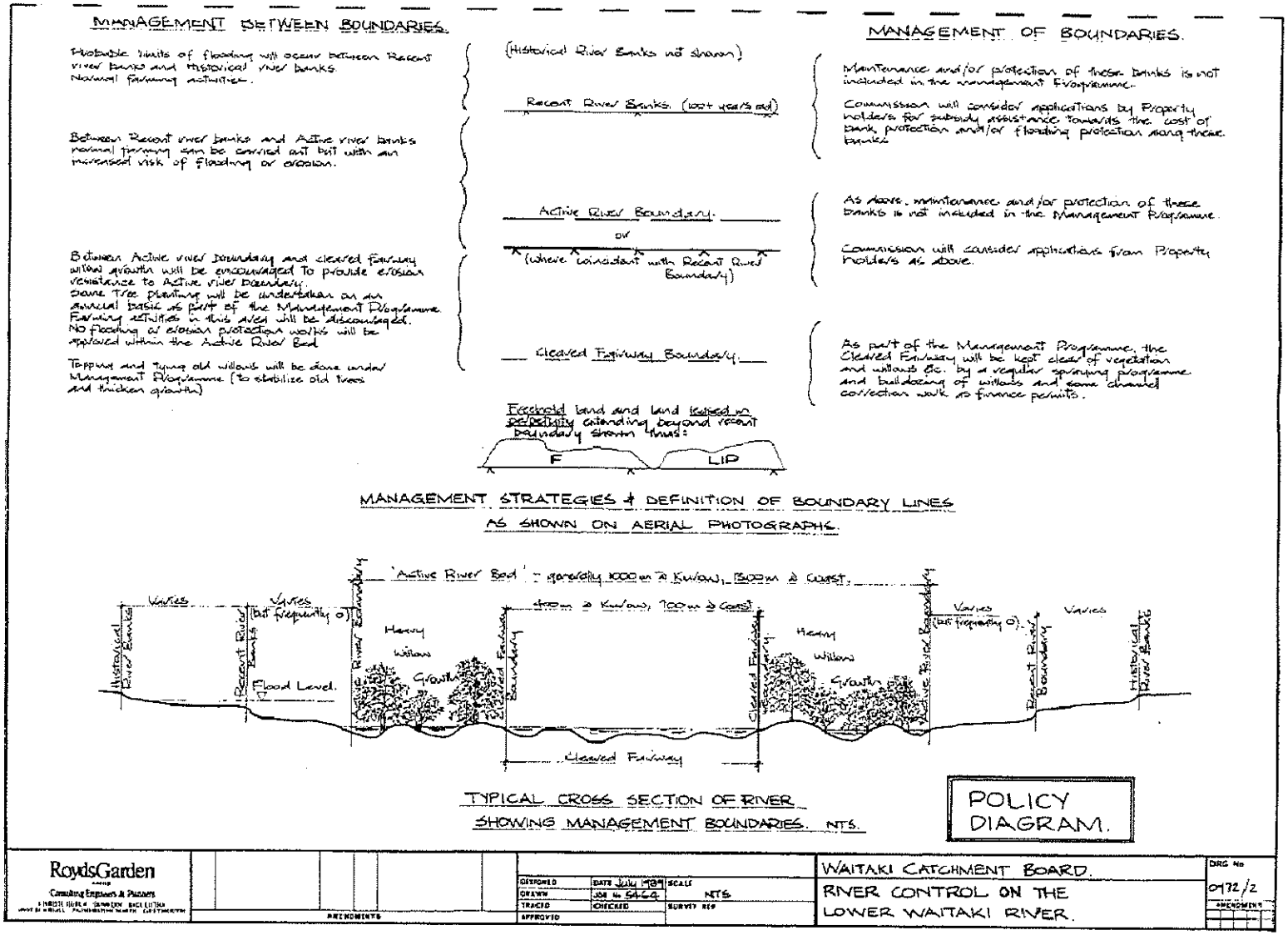
2.4 Reporting On Performance Levels

The monitoring and reporting procedure outlined in Appendix 1 (and Asset Management Plan Part A, Section 6) will be used to assess the standard of maintenance carried out and the performance of the scheme.

APPENDIX I

Annual and six-yearly Compliance Report Form

Appendix 1. Extract from River Control on the Lower Waitaki River, Sectional Plan -1, Waitaki Catchment Commission and Regional Water Board, 14 July 1989.



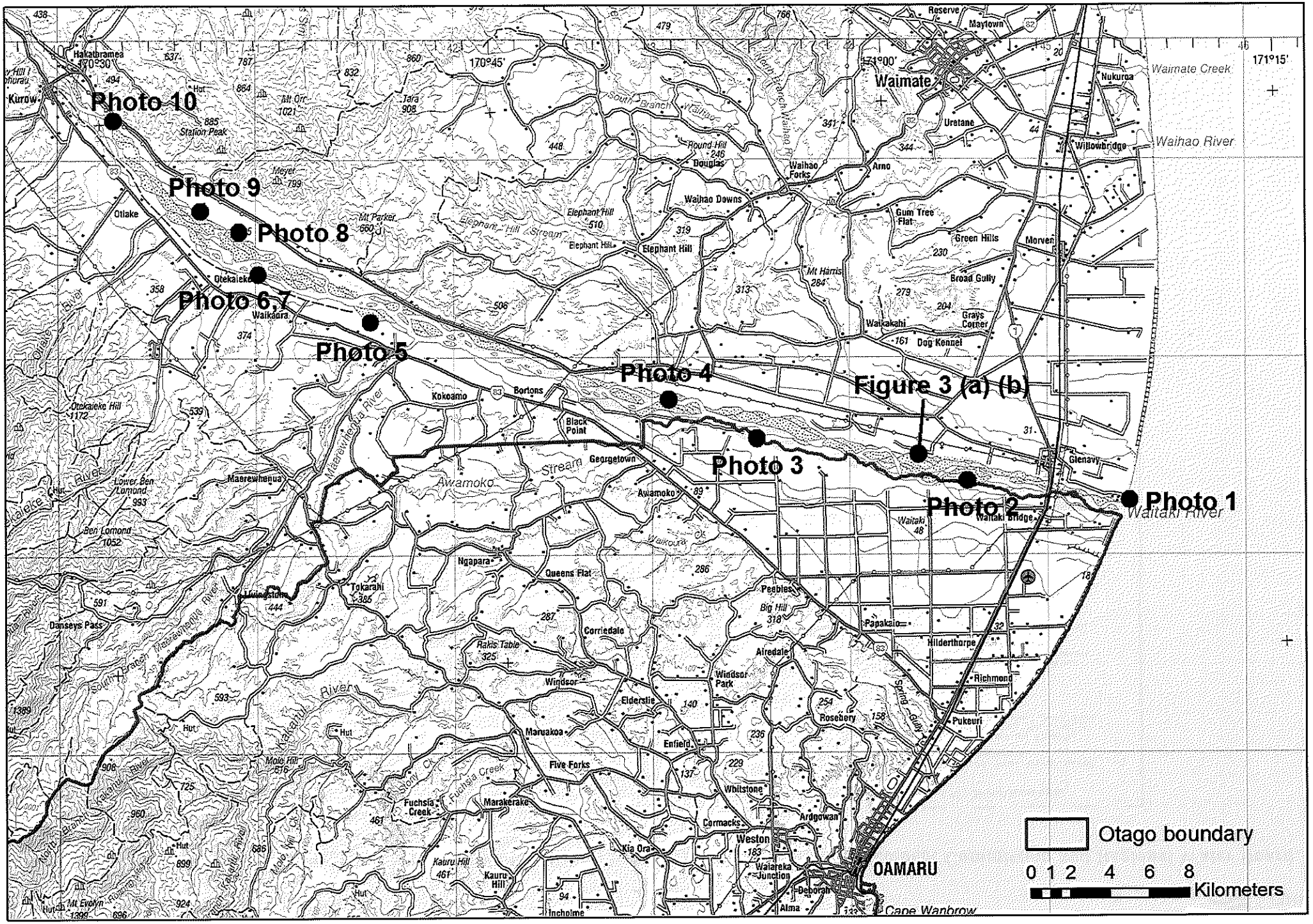


Figure 4. Location map for photographs.