



greater WELLINGTON
THE REGIONAL COUNCIL

Assessment of resource consent applications for the continued operation of the Te Ore Ore and Opaki water races

**WAR 010203 – Masterton District Council
(Te Ore Ore water race)**

**WAR 010204 – Masterton District Council
(Opaki water race)**

Attachment 3 to Report 03.670

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5th November 2003

1.0 Background - Description of Activity

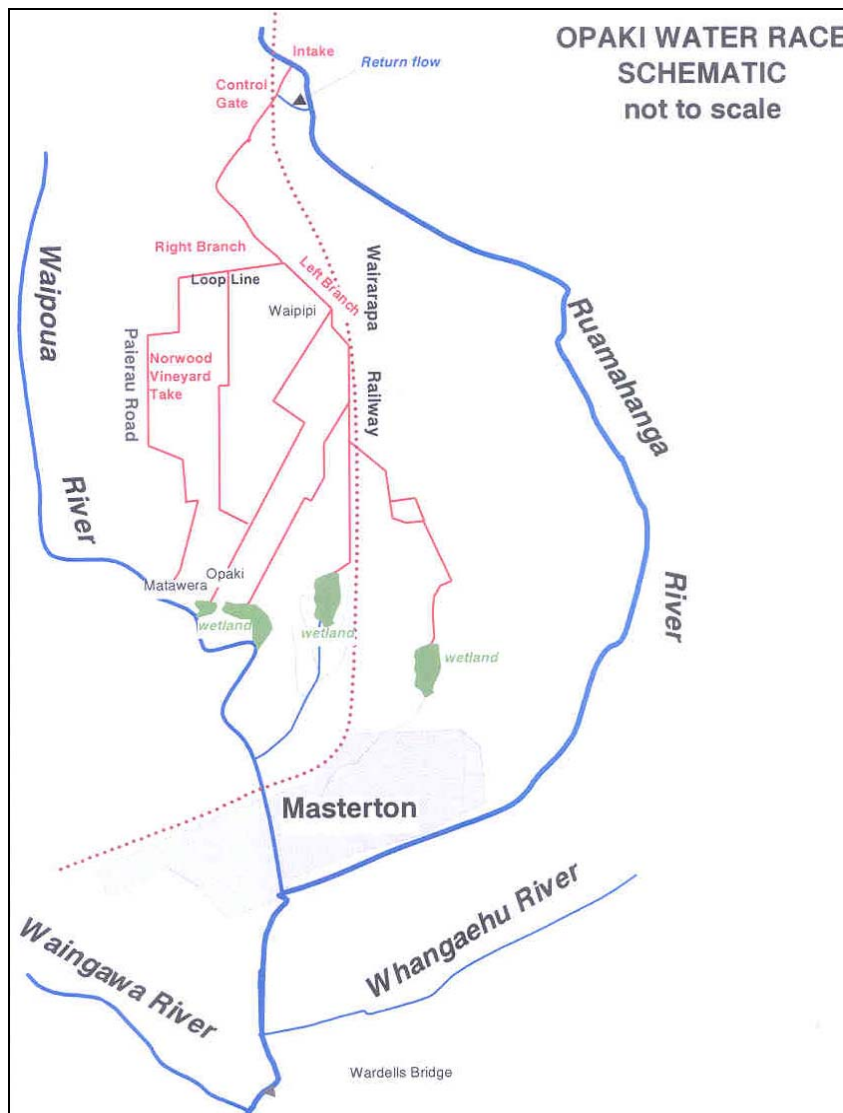
The Masterton District Council (MDC) has applied for a number of resource consents for the continued operation of the Opaki and Te Ore Ore water races.

Both the Opaki and Te Ore Ore water races were constructed about 100 years ago, and they both take water from the Ruamahanga River upstream of the Te Ore Ore bridge. A water race is defined as a branching, gravity-fed open channel system which provides stock drinking water over large areas¹.

1.1 Opaki Water Race

A schematic diagram of the Opaki water race is shown in [Figure 2](#).

[Figure 1](#): Schematic Diagram of the Opaki water race²



¹ Definition taken from Bevin, 1998: Wairarapa Water Races – Issues and Consent Requirements. Water Resource Investigations Section, Wellington Regional Council.

² Copied from Good Earth Matters, 2002: Masterton District Council Opaki water race resource consent application – AEE report.

Water for the Opaki water race is taken via a grated inlet in a side channel of the Ruamahanga River immediately downstream from Double Bridges. From here the water flows into a diversion channel. About 400 metres downstream of the grated inlet a control structure diverts excess water back to the Ruamahanga River (shown in [Figure 1](#)). The control structure consists of a manual control gate and an overflow weir.

The grated inlet in the riverbed requires periodic maintenance, to clear gravel and debris. Also, the side channel in which the grated inlet is located occasionally blocks following flooding. Thus gravels at the start of the side channel itself need to be cleared at times to allow sufficient water to flow to where the inlet to the diversion channel is located.

Various branches of the water race provide stock water to about 30-40 properties. There are six main branches of the water race that flow in various directions over the Opaki plains.

The Opaki water race is required to provide domestic and stock water needs to properties on the Opaki plains. The only irrigation use of the Opaki water race is by Norwood Vineyard (on Loop Line), which takes up to 13 litres/sec from the Paierau Road branch of the water race for irrigation of about 70 hectares of vineyard.

Although there are six branches, the application identified that there are only five discharges to natural watercourses (as shown in [Figure 1](#)). Four of those discharges are via wetland systems and all but one of the discharges flow into the Waipoua River. The exception is one discharge from a wetland into the Hiona Stream, which flows into Henley Lake.

1.2 Te Ore Ore Water Race

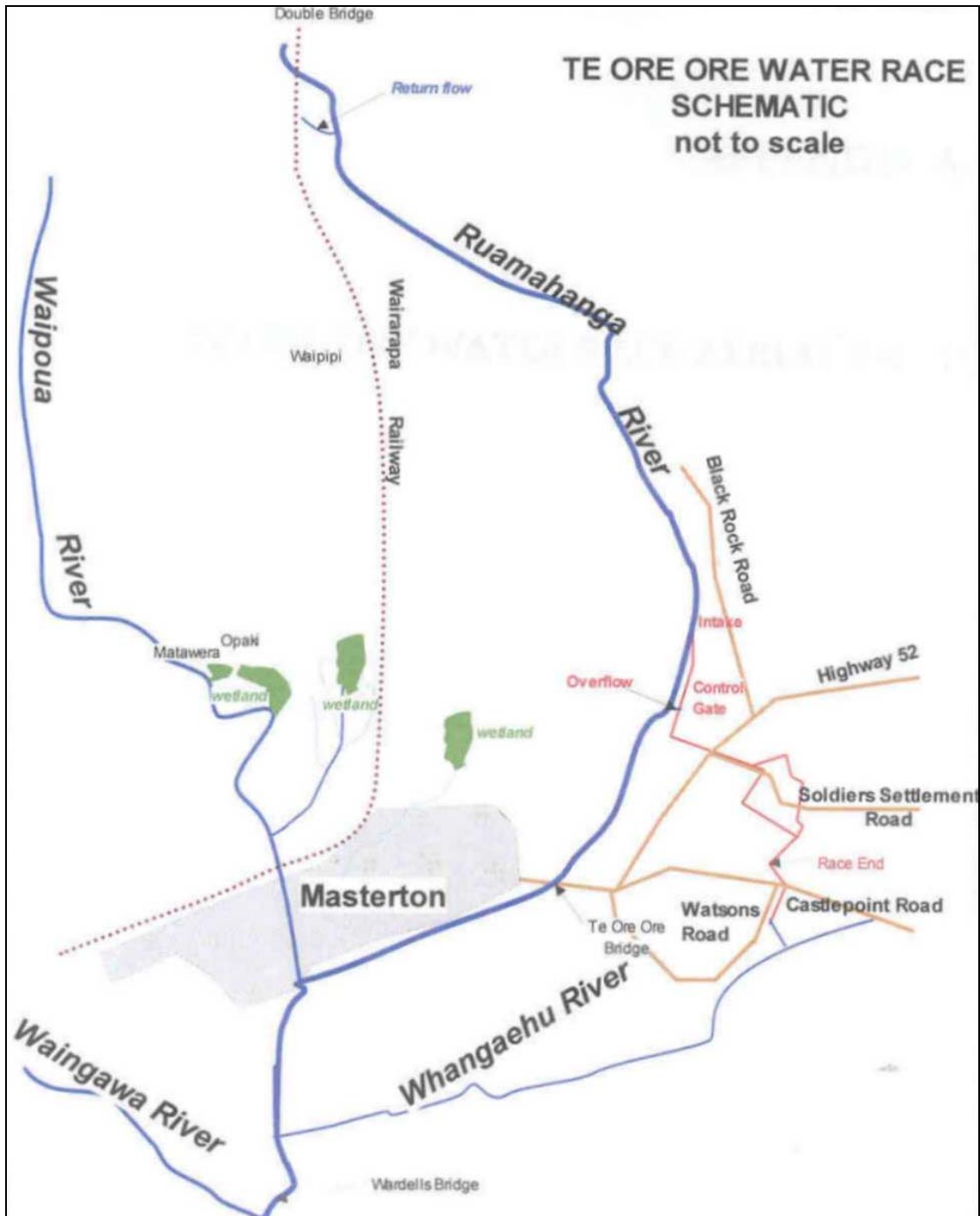
A schematic diagram of the Te Ore Ore water race is shown in [Figure 2](#) on the following page.

Water for the Te Ore Ore water race is taken via a grated inlet in the bed of the Ruamahanga River approximately 3 km upstream of the Te Ore Ore bridge. The grated inlet in the riverbed requires periodic maintenance, to clear gravel and debris. From here the water flows into the diversion channel. About 1000 metres downstream of the inlet a control structure diverts excess water back to the Ruamahanga River (shown in [Figure 2](#)). The control structure consists of a manual control gate and an overflow weir.

The Te Ore Ore water race is essentially a single channel race which provides stock and irrigation water to about 15-20 properties. The race breaks into two channels either side of Soldiers Settlement Rd (as shown in [Figure 2](#)) and then combines into one channel again before it terminates upstream of Masterton-Castlepoint Rd. Residual flow from the water race discharges into a modified ephemeral watercourse that joins the Whangaehu River, which in turn flows into the Ruamahanga River.

The Te Ore Ore water race is required to provide domestic and stock water needs to properties on the Te Ore Ore plains. In summer months however, the primary purpose of the water race is to supply irrigation water to the Stuart's dairy farm properties.

Figure 2: Schematic Diagram of the Te Ore Ore water race³



2.0 Statutory Reasons for Consent Requirements

Sections 13-15 of the Resource Management Act 1991 (RMA) states the restrictions in river and lake beds, restrictions relating to water, and discharges of contaminants in to the environment. A copy of these sections of the RMA is available on request.

³ Copied from Good Earth Matters, 2002: Masterton District Council Opaki water race resource consent application – AEE report.

2.1 Background to Consent Requirements

Prior to the enactment of the RMA, water takes were controlled by the Water and Soil Conservation Act 1967 (WSCA). When the WSCA was enacted in 1967, all existing uses of water were required to be notified to the Wairarapa Catchment Board before 1st April 1969. The Masterton County Council submitted their notification prior to that date and they were permitted to operate both the Opaki and Te Ore Ore water races under the WSCA with these 'notified use rights'. The notified use right for the Opaki water race (WAR 690393) was for the taking of water from the Ruamahanga River at a maximum rate of 6 cusecs (170 litres/sec). The notified use right for the Te Ore Ore water race (WAR 690392) was for the taking of water from the Ruamahanga River at a maximum rate of 6 cusecs (170 litres/sec).

The WSCA was repealed by the RMA on 1st October 1991. Under section 386 of the RMA all notified use rights under the WSCA were deemed to expire on the tenth anniversary of the enactment of the RMA, in this case the 1st October 2001. Hence the Masterton District Council submitted resource consent applications in 2001 to authorise activities that require resource consents under sections 13-15 of the RMA.

The Stuart's currently have two resource consents to take water from the Ruamahanga River via the Te Ore Ore water race for irrigation purposes. Those consents permit the taking of up to 132.6 litres/sec to irrigate up to 310 hectares. The Masterton District Council were advised prior to the lodgement of the applications that as the irrigation activities were from the water race, they should be authorised in accordance with section 14 of the RMA under any new consents issued for the operation of the Te Ore Ore water race. Accordingly the resource consent applications made for the Te Ore Ore water race include the taking of up to 132.6 litres/sec for irrigation purposes.

There is one irrigation take from the Opaki water race. The same approach as discussed above will be taken with this irrigation take in that authorisation for the take under section 14 of the RMA will be covered through any consents issued for the operation of the Opaki water race.

2.2 Activities that Require Resource Consent

Greater Wellington has prepared the Regional Freshwater Plan for the Wellington Region (Regional Freshwater Plan or RFP) which became operative in 1999. The RFP specifies a number of rules in relation to activities specified in sections 13-15 of the RMA. In summary the resource consent applications made and the relevant rules as to why resource consents are required, is detailed in Tables 1 & 2 below:

Table 1: Resource Consent Applications – Opaki Water Race

Application	Activity	Activity Status
WAR 010204 (21373)	Water permit to take and use surface water from the Ruamahanga River at a maximum rate of 170 litres/sec when the flow in the Ruamahanga River is below 5,000 litres/sec at Wardells Bridge; and at a maximum rate of 230 litres/sec when the flow in the Ruamahanga River is above 5,000 litres/sec at Wardells Bridge	Section 14 RMA Rule 16 RFP – discretionary activity

WAR 010204 (21584)	Water permit to divert surface water from the Ruamahanga River to the intake control structure, and back to the Ruamahanga River via an overflow channel	Section 14 RMA Rule 16 RFP– discretionary activity
WAR 010204 (22298)	Discharge permit to discharge any water which may contain contaminants to the Waipoua River	Section 15 RMA Rule 5 RFP– discretionary activity
WAR 010204 (21585)	Land use consent for works in or on the bed of the Ruamahanga River	Section 13 RMA Rule 49 RFP– discretionary activity

Table 2: Resource Consent Applications – Te Ore Ore Water Race

Application	Activity	Activity Status
WAR 010204 (21373)	Water permit to take and use surface water from the Ruamahanga River at a maximum rate of 250 litres/sec when the flow in the Ruamahanga River is below 5,000 litres/sec at Wardells Bridge; and at a maximum rate of 300 litres/sec when the flow in the Ruamahanga River is above 5,000 litres/sec at Wardells Bridge	Section 14 RMA Rule 16 RFP – discretionary activity
WAR 010204 (21584)	Water permit to divert surface water from the Ruamahanga River to the intake control structure, and back to the Ruamahanga River via an overflow channel	Section 14 RMA Rule 16 RFP– discretionary activity
WAR 010204 (22298)	Discharge permit to discharge any water which may contain contaminants to an un-named tributary of the Whangaehu River	Section 15 RMA Rule 5 RFP– discretionary activity
WAR 010204 (21585)	Land use consent for works in or on the bed of the Ruamahanga River	Section 13 RMA Rule 49 RFP– discretionary activity

The applicant seeks a consent term of 35 years for all the applications made.

3.0 Resource Consent Process

3.1 Notification

The resource consent applications were officially received by Greater Wellington on 29th June 2001. An 'Assessment of Environmental Effects' (AEE) report accompanied the resource consent applications. The applications were placed on hold under Section 92 of the RMA as further information relating to the applications was requested. The additional information was received on 13th November 2002.

The applications were notified under Section 93 of the RMA on 18th December 2002. For the Opaki water race a sign was placed on the corner of State Highway 2 and Opaki-Kaipororo Road, near the intake of the Opaki water race. For the Te Ore Ore water race a sign was placed on Bideford Road (where the Te Ore Ore water race water race passes under the road) and on Watsons Road, near the point of discharge into the Whangaehu River.

A notification advertisement appeared in the Wairarapa Times-Age on 18th December 2002. The following parties were individually notified in writing:

- Carterton District Council
- South Wairarapa District Council
- Department of Conservation
- Wellington Conservation Board
- Royal Forest & Bird Protection Society
- Fish & Game NZ
- Rangitaane o Wairarapa
- Ngati Kahungunu ki Wairarapa
- Te Puni Kokiri
- Ministry for the Environment
- Choice Health
- Opus International Consultants Ltd
- Federated Farmers of NZ (Inc)
- 54 landowners who may be affected by the Opaki water race.
- 14 landowners who may be affected by the Te Ore Ore water race

The notification period for lodging submissions closed on 12th February 2003.

3.2 Submissions – Opaki Water Race

Twelve submissions were received, including seven in support of the applications and three in opposition. Key points from the submissions are summarised in [Table 3](#) below. A late submission (made by Rangitaane o Wairarapa) was not accepted.

Table 3: Summary of Submissions – Opaki Water Race

Submitter	Support/ Oppose	Wish to be heard?	Summary of submission
P L & J Penn	Support	Yes	<ul style="list-style-type: none"> • Fully supports the whole proposal • Relies on the Opaki water race for farming and would like it to continue unchanged
F & B M Parker	Support	No	<ul style="list-style-type: none"> • The Opaki water race is essential for the area as there is very little groundwater • The water races is vital until a more suitable irrigation scheme is implemented.
Department of Conservation	Support	Yes	<ul style="list-style-type: none"> • An equilibrium has been established between river, streams and groundwater in the area due to the long period of time that the races have been operating for • Aquatic habitats have been created in wetlands around the water race discharge points • Alternative options would result in destruction of these wetlands and may adversely impact groundwater levels and other ecosystems that have responded to the equilibrium that has been established.
Alastair Scott	Support	Yes	<ul style="list-style-type: none"> • Water race is required for irrigation and winery on the property • Water use for vineyard is efficient and productive.
K M Campbell	Support	Yes	<ul style="list-style-type: none"> • Does not wish to see the water race closed in the near future • Would like a shorter consent term than 35 years, as changes in land use will increase the value of water • A review of the most efficient use of water or further investigation of alternatives will be required before 35 years passes • Requests Greater Wellington grant the consent with a shorter term and investigate ways to ensure that the water resources are best used to benefit the region.

D J Lawrence	Support	Yes	<ul style="list-style-type: none"> Support the application as the system is effective, as long as no-one downstream is disadvantaged Would like the race to be cleaned more regularly, and objects to upstream users stopping the flow when it is needed during the day for stock water.
Wairarapa Federated Farmers	Support	Yes	<ul style="list-style-type: none"> The water races are essential for the continued farming operation of those who extract water race water, supports the 35 year term requested.
Linton McGill	Oppose	Yes	<ul style="list-style-type: none"> Opposes the use of a nearly fully allocated water resource in systems that have high wastage Opposes the use of water cannons for irrigation when there are more efficient systems available As the water resource is highly allocated this will restrict development of land alongside the Ruamahanga River Requests that a consent term of 1 to 2 years be given Requests that the quantity extracted be reduce to ensure more efficient use Requests that the number of days and hours per day be limited to allow other to use the finite water resource.
Derek Hagar	Oppose	Yes	<ul style="list-style-type: none"> Opposes the high extraction rate and continuous allocation which reduces the allocation available for other land uses such as horticulture and viticulture Believes a 35 year term is too long Requests that allocation be reduced to ½ day per week to each applicant, and wasteful uses of water (such as water cannon irrigation) be prohibited Requests that charges be levied on water use and revoke permits when misuse/waste is apparent Requests that an economic study be initiated to decide on preferred us of the water Requests a term of no more than 5 years to allow regular consideration of water uses.
J M Valentine	Oppose	Yes	<ul style="list-style-type: none"> Does not oppose the continued operation of the water races and recognises the system is long-established Opposes the length of the term requested Believes a 35-year term is inconsistent with objectives and policies in the Regional Policy Statement Land use patterns in the district are changing Requests that a consent term of 10 years be given and the consent require preparation of a comprehensive water management plan by 2008.
Ngati Kahungunu ki Wairarapa	-	-	Was not in the form of a formal submission, but did not raise any issues of concern.
Wellington Fish & Game	-	Yes	<ul style="list-style-type: none"> The Ruamahanga River provides important habitat for trout, and is recognised in the Regional Freshwater Plan as a water body with recreational fishery values of regional significance Is concerned over the use of WAIORA to determine the effects of abstractions on the Ruamahanga River in the Upper Ruamahanga Water Allocation Plan The applications contravenes regional policies and objectives relating to the efficient use of water Alternative options should be given more consideration to improve efficiency Concerned about lack of knowledge regarding number of properties the races service and how much water is used within the systems Supports the reduction in irrigation takes and the concept of a management plan Concern about the lack of description of activities for which the land use consent applications relate, and the potential of these activities to adversely effect trout habitat Not convinced of the positive effects of the water races recharging groundwater and local streams Requests that a term of 10 years be given, during which time

			<p>pipings of the races are investigated and implemented, and quantities and rates of abstraction are monitored</p> <ul style="list-style-type: none"> • Requests that a review clause is time to coincide with the 10-year review of the RFP • Requests that the land use activities be defined and methods investigated to reduce the frequency of instream maintenance activities.
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3.2 Submissions – Te Ore Ore Water Race

Eleven submissions were received, including seven in support of the applications and three in opposition. Key points from the submissions are summarised in [Table 4](#) below. A late submission (made by Rangitaane o Wairarapa) was not accepted.

Table 4: Summary of Submissions – Te Ore Ore Water Race

Submitter	Support/ Oppose	Wish to be heard?	Summary of submission
Cameron Stuart	Support	Yes	<ul style="list-style-type: none"> • Supports controlled usage of the Te Ore Ore water race system • Agrees with the positive effects of the water race as outlined in the AEE report • Uses the water race for stock water, irrigation and storm water runoff • If the consent application were declined there would be a direct and negative effect on his business and change the nature of farming.
John & Piki Carroll	Support	No	<ul style="list-style-type: none"> • Request that the consent be granted for a 10 year term
Department of Conservation	Support	Yes	<ul style="list-style-type: none"> • An equilibrium has been established between river, streams and groundwater in the area due to the long period of time that the races have been operating for • Aquatic habitats have been created in wetlands around the water race discharge points • Alternative options would result in destruction of these wetlands and may adversely impact groundwater levels and other ecosystems that have responded to the equilibrium that has been established.
J F & C A Percy	Support	-	<ul style="list-style-type: none"> • Rely on the water race, would like to see the flow maintained for practical and environmental purposes • The discharge of the water race into the Whangaehu River on their property is valuable for maintaining flow in the river during dry periods.
K M Campbell	Support	Yes	<ul style="list-style-type: none"> • Does not wish to see the water race closed in the near future • Would like a shorter consent term than 35 years, as changes in land use will increase the value of water • A review of the most efficient use of water or further investigation of alternatives will be required before 35 years passes • Requests Greater Wellington grant the consent with a shorter term and investigate ways to ensure that the water resources are best used to benefit the region.
Wairarapa Federated Farmers	Support	Yes	<ul style="list-style-type: none"> • The water races are essential for the continued farming operation of those who extract water race water, supports the 35 year term requested.
Linton McGill	Oppose	Yes	<ul style="list-style-type: none"> • Opposes the use of a nearly fully allocated water resource in systems that have high wastage • Opposes the use of water cannons for irrigation when there are more efficient systems available • As the water resource is highly allocated this will restrict

			<p>development of land alongside the Ruamahanga River</p> <ul style="list-style-type: none"> • Requests that a consent term of 1 to 2 years be given • Requests that the quantity extracted be reduce to ensure more efficient use • Requests that the number of days and hours per day be limited to allow other to use the finite water resource.
Derek Hagar	Oppose	Yes	<ul style="list-style-type: none"> • Opposes the high extraction rate and continuous allocation which reduces the allocation available for other land uses such as horticulture and viticulture • Believes a 35 year term is too long • Requests that allocation be reduced to ½ day per week to each applicant, and wasteful uses of water (such as water cannon irrigation) be prohibited • Requests that charges be levied on water use and revoke permits when misuse/waste is apparent • Requests that an economic study be initiated to decide on preferred us of the water • Requests a term of no more than 5 years to allow regular consideration of water uses.
J M Valentine	Oppose	Yes	<ul style="list-style-type: none"> • Does not oppose the continued operation of the water races and recognises the system is long-established • Opposes the length of the term requested • Believes a 35-year term is inconsistent with objectives and policies in the Regional Policy Statement • Land use patterns in the district are changing • Requests that a consent term of 10 years be given and the consent require preparation of a comprehensive water management plan by 2008.
Ngati Kahungunu ki Wairarapa	-	-	Was not in the form of a formal submission, but did not raise any issues of concern.
Wellington Fish & Game	-	Yes	<ul style="list-style-type: none"> • The Ruamahanga River provides important habitat for trout, and is recognised in the Regional Freshwater Plan as a water body with recreational fishery values of regional significance • Is concerned over the use of WAIORA to determine the effects of abstractions on the Ruamahanga River in the Upper Ruamahanga Water Allocation Plan • The applications contravenes regional policies and objectives relating to the efficient use of water • Alternative options should be given more consideration to improve efficiency • Concerned about lack of knowledge regarding number of properties the races service and how much water is used within the systems • Supports the reduction in irrigation takes and the concept of a management plan • Concern about the lack of description of activities for which the land use consent applications relate, and the potential of these activities to adversely effect trout habitat • Not convinced of the positive effects of the water races recharging groundwater and local streams • Requests that a term of 10 years be given, during which time piping of the races are investigated and implemented, and quantities and rates of abstraction are monitored • Requests that a review clause is time to coincide with the 10-year review of the RFP • Requests that the land use activities be defined and methods investigated to reduce the frequency of instream maintenance activities.

3.3 Informal Consultation & Drafting of Consent Conditions

The applicant declined an invitation by Greater Wellington staff to hold a pre-hearing meeting to discuss issues raised in the submissions. The applicant wished to consult with individual submitters who opposed the resource consent applications.

A hearing was set down for 4th June 2003, however this was postponed as the applicant wished to conduct a meeting with submitters who opposed the application. Greater Wellington staff attended that meeting. A key outcome of the meeting was that Greater Wellington would draft some consent conditions that addressed statutory requirements and issues raised in submissions.

Agreement in principle was gained from the applicant on the proposed consent conditions. Following this, Greater Wellington sent out the proposed consent conditions to all submitters and the applicant for written approval. All submitters (who requested to be heard at a hearing) and the applicant have provided written approval to the proposed consent conditions. Hence a formal hearing is not required to determine these applications as those submitters and the applicant have withdrawn their right to be heard at a hearing. Copies of the written approvals provided by the applicant and submitters is available on request.

A decision on the resource consent applications is therefore delegated to the Rural Services and Wairarapa Committee

4.0 Matters to be Considered

4.1 Decisions on Resource Consent Applications (Sections 104-108 of Resource Management Act 1991)

Section 104(1) of the RMA outlines the matters that a consent authority is to have regard to when considering any resource consent applications and any submissions received. This section is subject to Part II (sections 5-8) of the RMA – the purpose and principles. A summary of Part II is outlined below:

Section 5 of the RMA sets out the purpose of the Act, which is to promote the sustainable management of natural and physical resources. Section 5 defines sustainable management as:

“managing the use development and protection of natural and physical resources in a way, or at a rate, which enables people and communities to provide for their social, economic and cultural well being and for their health and safety while:

- (a) Sustaining the potential of natural and physical resources (excluding minerals) to meet the reasonably foreseeable needs of future generations; and
- (b) Safeguarding the life-supporting capacity of air, water, soil and ecosystems; and
- (c) Avoiding, remedying or mitigating any adverse effects of activities on the environment.”

Section 6 concerns matters of national importance, specifically:

- Preservation of the natural character of wetlands, rivers and their margins;
- Protection of outstanding natural features and landscapes;
- Protection of areas of significant indigenous vegetation and fauna;
- Maintenance and enhancement of public access to rivers; and

- The relationship of Maori and their culture and traditions with ancestral lands, water, sites, waahi tapu and other taonga.

Section 7 addresses other matters, such as kaitiakitanga, efficient use and development of natural and physical resources and their finite characteristics, amenity values and ecosystems, heritage values, quality of the environment, and the habitat of trout and salmon.

Section 8 requires that the principles of the Treaty of Waitangi be taken into account. There is no land associated with the application that is in Maori ownership or of particular interest to Maori. The Treaty is addressed in general terms by ensuring that the effects of the proposal are adequately assessed and conditions set to provide protection of the environment.

Under **section 104(1)**, the relevant matters in considering these applications are:

- Any actual and potential effects on the environment of allowing the activity; (*An assessment of the actual and potential effects is provided in section 5 of this report.*)
- Any relevant regulations;
- Any relevant regional policy statement; (*The Regional Policy Statement for the Wellington Region is discussed in section 4.2 of this report.*)
- Any relevant objectives, policies, rules or other provisions of a plan or proposed plan; (*The Regional Freshwater Plan for the Wellington Region is discussed in section 4.3 of this report.*)
- Any relevant district plan or proposed district plan, where the application is made in accordance with a regional plan; (*There are no matters in Masterton District Plan that are not covered under the RPS or RFP.*)
- Any other matters the consent authority considers relevant and reasonably necessary to determine the application.

Furthermore, **section 104(3)** of the RMA states that where an application is for a discharge permit, the consent authority shall have regard to the following when considering the actual or potential effects of the activity on the environment:

- The nature of the discharge and sensitivity of the receiving environment, and the applicant's reasons for making the proposed choice.
- Any possible alternative methods of discharge including discharge into any other receiving environment.

Under **Section 105(1)(b)** of the RMA, the consent authority may grant or refuse a consent application for a discretionary activity and (if granted) may impose conditions under Section 108 of the RMA. In this case all the resource consent applications made are discretionary activities as discussed in section 2 of this report.

Also under **Section 105(2)(a)** of the RMA, the consent authority shall not grant a resource consent which is contrary to the provisions of the Section 107 of the RMA. This section outlines the restrictions on the granting of discharge permits. The relevant parts of this section state:

- 1) *A consent authority shall not grant a discharge permit ... allowing—*

- (a) *The discharge of a contaminant or water into water... if, after reasonable mixing, the contaminant or water discharged (either by itself or in combination with the same, similar, or other contaminants or water), is likely to give rise to all or any of the following effects in the receiving waters:*
- (c) *The production of any conspicuous oil or grease films, scums or foams, or floatable or suspended materials:*
- (d) *Any conspicuous change in the colour or visual clarity:*
- (e) *Any emission of objectionable odour:*
- (f) *The rendering of fresh water unsuitable for consumption by farm animals:*
- (g) *Any significant adverse effects on aquatic life.*

Sections 104(3) and 105(2)(a) are discussed further in section 5.3 of this report.

4.2 Relevant Provisions of the Regional Policy Statement for the Wellington Region

The applicant in the AEE reports identified one objective and three policies in the Regional Policy Statement (RPS) that were relevant to the applications. I have assessed the RPS and believe that all three objectives and eight policies below are relevant in assessing and considering the applications made.

The three objectives relating to freshwater in the RPS are:

- The *quantity* of fresh water meets the range of uses and values for which it is required, safeguards its life supporting capacity, and has the potential to meet the reasonably foreseeable needs of future generations;
- The *quality* of fresh water meets the range of uses and values for which it is required, safeguards its life supporting capacity, and has the potential to meet the reasonably foreseeable needs of future generations; and
- Freshwater resources of significance or of high value for cultural, spiritual, scenic, ecosystem, natural, recreational, or other amenity reasons are protected or enhanced.

The RPS has sixteen policies in relation to fresh water. The relevant policies or parts of policies that need to be taken into consideration when assessing these applications are:

- Policy 1 – To manage fresh water quantity for a wide range of uses and values, while safeguarding its life supporting capacity, sustaining its ability to meet the reasonably foreseeable needs of future generations, and avoiding, remedying or mitigating any adverse effects on aquatic ecosystems.
- Policy 2 – To promote the conservation and efficient use of freshwater.
- Policy 4 – To maintain and protect quality of fresh water so that it is available for a wide range of uses and values, while safeguarding its life supporting capacity, sustaining its ability to meet the reasonably foreseeable needs of future generations, and avoiding, remedying or mitigating any adverse effects on aquatic ecosystems.
- Policy 5 – To improve water quality so that it is appropriate for its desired uses and natural values.

- Policy 6 – To ensure that effects of contaminants in point source discharges on fresh water quality and aquatic ecosystems is avoided, remedied, or mitigated, and allow for reasonable mixing.
- Policy 9 – To avoid, remedy, or mitigate the adverse effects of modification of river beds on water quality, aquatic ecosystems, and the amenity and cultural values of water.
- Policy 10 – To manage the quality of water in, and the flows and beds of, water bodies so that heritage, recreational, scientific or other amenity or intrinsic values are protected (*includes the Ruamahanga River*).
- Policy 12 – To avoid, remedy, or mitigate any adverse effects on natural character of wetlands, lakes, or rivers and their margins.
- Policy 13 – To recognise cultural relationship of tangata whenua with rivers including managing significant sites.

4.3 Relevant Provisions in the Regional Freshwater Plan for the Wellington Region

The Regional Freshwater Plan (RFP) outlines the issues, objectives, policies, rules, and methods for managing freshwater resources in the Wellington Region.

Section 4 of the RFP outlines general provisions for the use and development of fresh water resources. These general provisions are grouped into tangata whenua values, natural values, amenity values, and use and development – nearly all of which are relevant in some way to these applications. The policies that are pertinent to these applications are:

- Policy 4.2.1 – Manage sites of special value to tangata whenua
- Policy 4.2.4 – Avoid, remedy, or mitigate any adverse effects on habitats of species traditionally harvested by tangata whenua.
- Policy 4.2.5 – Have regard to values and customary knowledge of tangata whenua.
- Policy 4.2.9 – Have regard to natural characteristics of wetlands, rivers, lakes and their margins. In particular ecosystems, habitats and species, water quality, natural flow characteristics and hydraulic processes, and topography and physical composition of the environment.
- Policy 4.2.11 – Avoid, remedy or mitigate the adverse effects of the use and development of water bodies on aquatic habitats and freshwater ecosystems by having regard to maintenance of biological and physical processes, habitat, diversity, fish movement and spawning, and prevention of irreversible adverse effects.
- Policy 4.2.12 – Promote maintenance and enhancement of aquatic habitats and ecosystems when considering adverse effects outside of river and lake beds.
- Policy 4.2.14 – Avoid, remedy, or mitigate any adverse effects on important trout habitat (*includes Waipoua River at discharge point of the Opaki water race*) by having regard to other water quality policies (*see policy 5.2.3*)
- Policy 4.2.15 – Avoid, remedy, or mitigate any adverse effects on regionally important water bodies for their amenity and recreational values (*includes the Ruamahanga River*) by having regard to other water quality and water quantity policies (*see policies 5.2.4 and 6.2.2*), and the timing of the use and development of the water body.
- Policy 4.2.23 – Have regard to the benefits arising from the proposal.
- Policy 4.2.24 – Have regard to effects on other established activities.

- Policy 4.2.25 – Encourage users of fresh water to adopt an ethic of guardianship for future generations.
- Policy 4.2.26 – Adopt a precautionary approach where information is incomplete or limited.
- Policy 4.2.29 – Recognise needs of existing lawful users by allowing progressive upgrades in environmental performance.
- Policy 4.2.31 – Ensure that the process for making decisions is fair and transparent.
- Policy 4.2.32 – Encourage the development of “Codes of Practice” and “Guidelines”.
- Policy 4.2.33 – Provide for activities which have no more than minor adverse effects on the environment.
- Policy 4.2.34 – Avoid, remedy, or mitigate any adverse effects on cultural, natural, amenity, and recreational values by placing conditions on resource consents.
- Policy 4.2.35 & 4.2.36 – Matters to have regard to when placing conditions on resource consents.

Section 5 of the RFP outlines issues, objectives, policies, and methods for water quality. Relevant policies in this section are:

- Policy 5.2.3 – Manage water quality *in the Waipoua River* for trout fishery and fish spawning purposes.
- Policy 5.2.4 – Manage water quality *in the Ruamahanga River and Waipoua River* for contact recreation purposes.
- Policy 5.2.6 – Manage water quality *in the Waipoua River* for aquatic ecosystem purposes.
- Policy 5.2.8 – Have regard to Water Quality Guidelines in *Appendix 8* of the RFP.
- Policy 5.2.9 – Enhance the water quality *in the Ruamahanga River* for contact recreation purposes.
- Policy 5.2.11 – Factors to consider when determining mixing zone for any discharge standards on any receiving waters.

Section 6 of the RFP outlines issues, objectives, policies, and methods for water quantity and the taking of fresh water. Relevant policies in this section are:

- Policy 6.2.1 – Manage the allocation of water and flows *in the Ruamahanga River* by recognising the minimum flow, authorising the taking of no more than the core allocation, authorising the taking of a supplementary allocation, and authorising the taking of no more than the first and second stepdown allocations.
- Policy 6.2.6 – Allocate water for irrigation (subject to Policy 6.2.1) up to a maximum rate of 350 m³/hectare/week.
- Policy 6.2.7 – Encourage the use of groundwater as an alternative to surface water.
- Policy 6.2.9 – Encourage and support “user committees” to assist in managing the taking and use of fresh water.
- Policy 6.2.11 – Have due regard to the relevant provisions of the RFP when considering water permits for the take of water for water races.
- Policy 6.2.15 – Allow for diversion of water provided adverse effects are avoided, remedied or mitigated; and significant adverse effects are avoided on tangata whenua values, nature or amenity values, water quality and flows, biological and physical processes, sediment transport processes, and fish passage.

- Policy 6.2.16 –Ensure that, for any proposal to divert water between catchments, there has been consultation with the tangata whenua in accordance with tikanga Maori.
- Policy 6.2.18 – Have regard to whether the amount of water required is reasonable given the intended use, and the need for accurate measurement of the take.
- Policy 6.2.19 – Encourage water conservation, particularly in water short areas.

4.4 Upper Ruamahanga River Water Allocation Plan (May 2000)

The Upper Ruamahanga River Water Allocation Plan (URRWAP) is a non-statutory document developed following extensive consultation with resource users, interest groups, and the wider community. The key provisions in the plan are now incorporated in the RFP. The plan is considered relevant when assessing these resource consent applications. The plan contains issues, objectives, and policies.

The URRWAP details a core allocation, supplementary allocation, and minimum flows for takes from the catchment as shown below:

(1) Minimum Flow - Restrictions on Takess (50% of allocation)	2700 litres/sec ¹
(2) Minimum Flow - All Takess Suspended (0% of allocation)	2400 litres/sec ²
(3) Core allocation	800 litres/sec ^{3,4}
(4) Supplementary allocation flow level	5000 litres/sec

1. Takess for the water races and Henley Lake (and appropriate restrictions) will be considered individually when these resource consents are process.
2. Restrictions on groundwater takes that are shown to have an effect on surface water flow in the Upper Ruamahanga River will be imposed.
3. The core allocation assumes that 100 litres/sec is lost from Henley Lake water take and discharge.
4. No further allocation of water is considered sustainable upstream of the Waingawa River.

Full details of relevant policies in the RPS and RFP, and sections 104 and 107 of the RMA (including Part II of the Act) can be provided on request.

The Rural Services and Wairarapa Committee is required to have regard to Sections 104-108 of the RMA and the relevant provisions of the RPS, RFP, and URRWAP when considering the applications made by the Masterton District Council.

5.0 Assessment of Actual and Potential Effects

The applicant submitted an 'Assessment of Environmental Effects' (AEE) report for each of the water races with the applications, as well as a report on the water quality monitoring undertaken. This section provides an assessment of the AEE reports and other information available to Greater Wellington on potential environmental effects associated with the activity. The assessment of actual and potential effects is grouped into the following broad categories:

- Positive effects
- Effect of taking and diverting water on the Upper Ruamahanga River
- Effect of discharges on the receiving water environment
- Effect of maintenance works in the Ruamahanga River
- Water efficiency and alternative methods
- Tangata whenua values

Within each assessment category discussion is provided on submitters relevant concerns and consent conditions are suggested to avoid, remedy, or mitigate any potential adverse effects.

5.1 Positive Effects of Water Race Systems

The AEE reports identified a number of positive effects of the continued operation of the Opaki and Te Ore Ore water races. The positive effects identified included:

- The water races provide a water supply for stock water, irrigation, some domestic use, and fire-fighting.
- The recharge of water lost from the water races to local groundwater aquifers.
- Augmenting local stream flow, particularly during low flows in the Waipoua and Whangaehu Rivers.
- Providing stormwater drainage during winter.
- Amenity, aesthetic, and economic value to properties the water races serve.
- Helps maintain aquatic habitat in the water races and associated wetlands.
- Maintain equilibrium between rivers, streams, and groundwater established over the last 100 years.

The submission made by the Department of Conservation noted the aquatic habitats that have been created by the Opaki and Te Ore water races, and supported the applications on this basis. Although there have been no formal studies on the aquatic life found in the race and wetland areas, there is no doubt that the water races does have positive effects on aquatic ecosystems in the area by providing habitat. A number of other submission from landowners adjacent to the water race systems supported the applications made.

Policy 4.2.23 of the RFP requires the Council to consider the benefits of any proposed activity, and through the above assessment this has been adequately completed. I concur with the positive effects provided in the AEE reports, although it should be noted that many of the positive effects identified have not been quantified.

5.2 Effect of taking and diverting water on the Upper Ruamahanga River

5.2.1 Effect of taking water on the Upper Ruamahanga River flow regime

Although information on the flow regime in the Upper Ruamahanga River was provided in the AEE reports, no assessment of the individual effect on the flow regime was given, particularly in regard to the percentage of water taken.

In considering the actual and potential effect of the individual take on the flow regime in the Upper Ruamahanga River, it is most appropriate to consider the flow at Mt Bruce as there are no major tributaries entering the river between Mt Bruce and the take point at Double Bridges.

The application for the Opaki water race is to take up to 170 litres/sec (when the Ruamahanga River is less than 5000 litres/sec at Wardells Bridge). The take equates to approximately **13%** of the 7-day Mean Annual Low Flow⁴ (MALF) at Mt Bruce, and approximately **18%** of the 1 in 10-year 7-day low flow.

The application for the Te Ore Ore water race is to take up to 250 litres/sec (when the Ruamahanga River is less than 5000 litres/sec at Wardells Bridge). The take equates to approximately **19%** of the 7-day MALF at Mt Bruce, and approximately **26%** of the 1 in 10-year 7-day low flow.

Although the takes seems a significant proportion of low flow there are no other consented takes between Mt Bruce and the Opaki water race. In the case of the Te Ore Ore water race the Kopuaranga River enters the Ruamahanga River a short distance downstream of Double Bridges (resulting in significantly higher flows at Wardells Bridge).

The AEE reports did evaluate the potential cumulative effects of all consented takes in the Upper Ruamahanga. In considering the cumulative effects, it is most appropriate to consider the flow at Wardells Bridge, as the majority of takes are upstream of this flow monitoring site. The first task in assessing the cumulative effect of all takes is evaluating the existing consented takes. This is completed in Table 5 below:

Table 5: Consented Takes from Upper Ruamahanga River

Consent	Consent holder	Water source	Take (litres/sec)	Comments
WAR980039	Daniell	Henley Lake intake	17	
WAR990141	Ashby	Ruamahanga River	23	
WAR930028	MDC (Henley Lake)	Ruamahanga River	150	Net take or core allocation
WAR990120	Dyrhberg & McLean	Ruamahanga River	3	
WAR010203	MDC (Te Ore Ore w/r)	Ruamahanga River	250	
WAR010204	MDC (Opaki w/r)	Ruamahanga River	170	
WAR970003	McLachlan	Ruamahanga River	70	
WAR970224	Oldfield Aggregates Ltd	Ruamahanga River	15	
WAR990097	Stuart	Ruamahanga River	80	N/A if WAR 010203 granted
WAR990098	Stuart	Ruamahanga River	52.6	N/A if WAR 010203 granted
WAR020017	Sullivan	Ruamahanga River	40	
WAR960223	Ireland	Waipipi Stream	3.5	
		Total take	741.5 litres/sec	<i>(Excludes Stuart's allocation of 132.6 l/sec)</i>

If these consents are granted, the total consented takes from the Upper Ruamahanga River will be 741.5 litres/sec when the flow in the river is below 5000 litres/sec. This equates to approximately **23%** of the 7-day MALF at Wardells Bridge. When the flow in the Upper Ruamahanga River is above 2700 litres/sec, the most that the river will be reduced by is about **27%**.

⁴ MALF = Mean annual low flow, which is the lowest mean flow over 7 consecutive days that occurs, on average, every year.

I consider that both the individual and cumulative effect of the takes on the flow regime in the Upper Ruamahanga River to be minor as less than a quarter of the available flow in the river is taken for consumptive use.

5.2.2 Effect of taking water on aquatic ecosystems, water quality, and amenity/recreational values

The AEE reports evaluated the cumulative effects of all takes on instream habitat and water quality in the Upper Ruamahanga River. The assessment of cumulative takes on instream habitat provided (based solely on the use of the WAIORA⁵ modelling programme used in the development of the URRWAP) tested the compliance of cumulative takes against various environmental guidelines for instream habitat. This showed that:

- Although reductions could be expected in active flowing channel depth and width, this was considered minor as the reduction was less than 10%.
- Flow velocity would only decrease by 4%.
- The temperature change as a result of the cumulative takes would only increase the temperature by less than 0.5 °C or 2%.
- Minimum dissolved oxygen concentration would decrease by only 2% as result of the cumulative takes.

Apart from flow velocity, all other factors assessed above were compliant with environmental guidelines for instream habitat. The Upper Ruamahanga River only has optimum flow velocity conditions for 41% of the time even without the effect of cumulative takes. The flow velocity guideline is based on the water velocities required to ensure that fine material isn't readily accumulated on the active river channel. Accumulated fine material on the active river channel can restrict food habitat for fish species. In the case of the Upper Ruamahanga River, this environmental guideline is less critical than other guidelines, as there are frequent freshes in the Upper Ruamahanga River that "clean out" fine material from the active river channel.

The Wellington Fish & Game Council raised concerns in their submission about the use of WAIORA in the development of the URRWAP. These concerns have had the opportunity to be expressed through the change to the RFP completed last year, in which the core allocation and minimum flows developed in the URRWAP were proposed to be inserted into policy 6.2.1 of the RFP. There has been no appeals on the Council decision to include the core allocation and minimum flows in the Upper Ruamahanga River, hence I do not consider that this concern is relevant to the determination of this particular application.

The key issue in the development of the URRWAP was the impact of cumulative takes on water quality in the river. During low flow conditions, water quality parameters monitored by Greater Wellington were non-compliant with environmental guidelines. In particular, periphyton growths exceeded Ministry for the Environment guidelines. These guidelines state that if more than 40% periphyton cover is noted that the site is unsuitable for contact recreation. Because non-compliance was observed during these low flows periods, minimum flows were determined at the levels specified in section 4.5 of this report.

The applicant wishes to continue taking water from the Upper Ruamahanga River below minimum flows specified in the RFP. The main area of concern in terms of potential effects

⁵ WAIORA – Water Allocation Impacts On River Attributes

will be on water quality. Before considering this potential effects of taking water on water quality during extreme low flows, it is important to outline the RFP framework for water allocation, to which I will now turn.

5.2.3 Consideration of minimum flow and core allocation policies in the RFP

In the RFP, the Ruamahanga River has been divided into two reaches for water allocation and minimum flow management purposes as follows:

1. The Upper Ruamahanga River (which is from the headwaters to the confluence with the Waiohine River)
2. The Lower Ruamahanga River (which is from the confluence with the Waiohine River to the boundary with the coastal marine area).

The Opaki and Te Ore Ore water races take water from the Upper Ruamahanga River reach.

Policy 6.2.1 of the RFP sets out the water allocation and minimum flow provisions for the Upper Ruamahanga River. This policy was formulated through the development of the Upper Ruamahanga River Water Allocation Plan (URRWAP). Key provisions in this policy and the URRWAP are:

- The **core allocation** for the Upper Ruamahanga River is **800 litres/sec**. This is the amount of water that can be taken from the river above minimum flows. No more takes under the core allocation are considered appropriate for any locations upstream of Wardells Bridge.
- The **minimum flow** for the Upper Ruamahanga River where all the **first stepdown allocation** (i.e. restriction to 50% of take) is applied is **2700 litres/sec** at the Wardells Bridge monitoring site.
- The **minimum flow** for the Upper Ruamahanga River where all the **second stepdown allocation** (i.e. take is required to cease) is applied is **2400 litres/sec** at the Wardells Bridge monitoring site.
- The supplementary allocation flow level for the Upper Ruamahanga River is **5000 litres/sec** at the Wardells Bridge monitoring site. The taking of water from the river can exceed the core allocation above this flow.

The URRWAP stated that the application of any minimum flows for the Opaki and Te Ore Ore water races will be considered when applications for resource consents are assessed.

The URRWAP aimed to

“avoid as far as practicable the potential adverse effects that water abstractions can have on water quality, particularly for contact recreation purposes, and instream habitat, by setting appropriate minimum flows and allocation levels in the Upper Ruamahanga River”

Both water take applications for the Opaki and Te Ore Ore water races comply with the core allocation in the RFP (policy 6.2.1) and URRWAP as the cumulative take of 741.5 litres/sec is less than the maximum core allocation of 800 litres/sec. Also no additional water (below the supplementary flow level) has been applied for, which complies with the URRWAP requirement that there be no new or increased takes from the river upstream of Wardells Bridge.

No additional assessment was provided in the AEE reports to evaluate the effect of taking water for the Opaki and Te Ore Ore water races below the minimum flows of 2700 litres/sec and 2400 litres/sec. The URRWAP identified that in terms of potential effects of takes on instream habitat, the Upper Ruamahanga River could possibly sustain more takes and lower minimum flows. However as previously stated the key issue in the development of the URRWAP was the potential effects of takes on water quality.

The minimum flows were derived as baseline water quality monitoring results for the Upper Ruamahanga River showed that some water quality parameters were compromised when the flow fell below the MALF. Policy 5.2.9 of the RFP requires that the Upper Ruamahanga River requires water quality enhancement for contact recreation purposes.

Given that there could be potential adverse effects of taking water below the minimum flows particularly on water quality, a natural assumption would be that the taking of water for the water race should cease at this time as is what is required for any other consented take. Although the applicant provided no assessment of the potential adverse effects of taking water below minimum flows, justification for the need of continuous flow in the water race for domestic and stock water has been provided.

Because of the positive benefits outlined in section 5.1 and the potential adverse effects on the natural ecosystem within the water race if the take was to cease, I believe that in this case it is appropriate to permit some water to flow into the water race below minimum flows. The potential adverse effects of not allowing water into the water race could be greater than potential adverse effects of taking water from the Upper Ruamahanga River below minimum flows. Policy 6.2.1 of the RFP does not explicitly restrict the taking of water for the water races below the minimum flows for the Upper Ruamahanga River.

The only mitigation measures suggested by the applicant in the AEE reports was that the irrigation takes from the water races should comply with the minimum flows in the URRWAP. I concur with these mitigation measures and minimum flows for irrigation takes out of the water races are proposed as consent conditions. However I do not concur with the mitigation measures proposed by the applicant to allow the race to continue to taking water at its normal rate for domestic and stock water use. In the absence of potential adverse effects of taking water below minimum flows being avoid, at a minimum the potential adverse effects should be minimised or mitigated.

Investigations into the operating flow of the water race showed that the water race can sustain a reduced take whilst supplying water to all parts of the race network. Hence I believe it is appropriate to restrict the taking of water below the minimum flow of **2400 litres/sec** in the Upper Ruamahanga River to only **120 litres/sec** in the case of the Opaki water race and **80 litres/sec** in the case of the Te Ore Ore water race. This is in my opinion a fair and reasonable approach to weighing the benefits and needs of the water race system with the instream water needs of the Upper Ruamahanga River. The applicant and submitters have agreed to the proposed stepdown allocation regime for both water races.

5.2.4 Effects of taking water outside of low flow periods

Much of the discussion to date has focussed on the effects of the takes during low flow periods. The effects of taking water during moderate to high flows needs to be assessed to

ensure that the take will not adversely affect the river's extremes. High flows are important influence on ecological processes within a water body.

The application for the Opaki water race is to take up to 230 litres/sec when the flow in the Ruamahanga River at Wardells Bridge is greater than 5,000 litres/sec. In essence the Opaki water race wishes to take an additional 60 litres/sec as a supplementary take. In the case of the Te Ore Ore water race, the application is for the taking of up to 300 litres/sec when the flow in the Ruamahanga River at Wardells Bridge is greater than 5,000 litres/sec. This is an additional 50 litres/sec above the maximum amount required during low flow periods. Flow is above the supplementary take allocation level of 5000 litres/sec approximately 84% of the time. During these conditions the cumulative take from the Upper Ruamahanga River will be about **965 litres/sec**.

At the threshold of 5,000 litres/sec the cumulative take could reduce the flow by **19%** over the irrigation season, and by **13%** out of the irrigation season.

I am satisfied that at the taking of the additional supplementary water by the Opaki water race (when the flow at Wardells Bridge is above 5,000 litres/sec) will not adversely affect the moderate flows in the Upper Ruamahanga River and will not result in a flattening of flood peaks. This is not likely to become an issue unless a large volume of 'supplementary' water is applied for.

5.2.5 Effects of diverting water

Water is diverted from the Ruamahanga River and back to the river via the control structures of both water races. The point of entry back into the river is approximately 700 metres downstream in the case of the Opaki water race and 1200 metres downstream in the case of the Te Ore Ore water race. The rate at which water is diverted is not specified, and the AEE reports state that it is a function of undulations in the Ruamahanga River levels. However, the rate is also dictated by the size of the intake structure, and the amount that the diversion channel can hold without overflowing.

The diversion of water for the Opaki water race may result in an adverse effect to recreational users of the reach where the diversion occurs. The diversion draws water away from the main channel within which a very popular swimming hole exists. Water is diverted back to the river downstream of this swimming hole. As the diversion quantity is not specified the exact impact on the swimming hole (in terms of a reduction in depth) cannot be determined. However, personal observations are that during times of low flow a high proportion of the river's flow is diverted down the side channel to the Opaki water race, away from the swimming hole. Towards the end of summer algae can be present in the swimming area. This may result in some degree of adverse effect on recreational and aesthetic values.

The AEE reports did not provide information on the effect of the water diversion on low flow, except to state that at times of low flow a significant (but unquantified %) of the Ruamahanga flow is diverted. Although the diversion is for a relatively short distance in both cases, to mitigate the potential effects of diverting either the majority or entire flow of the river (and its associated effects on recreational users in particular), no more than 25% of the active flowing channel shall be diverted into the water race systems.

Policy 6.2.15 of the RFP allows for diversion of water provided that any potential adverse effects are avoided, remedied, or mitigated. The proposed consent condition outlined above in my view satisfies this policy.

5.3 Effects of discharges back to receiving waters, particularly the Waipoua River (Opaki water race) and Whangaehu River (Te Ore Ore water race)

The discharge of water from the Opaki and Te Ore Ore water races into its receiving waters may include the discharge of any contaminants in the race waters. The AEE reports identified that contaminants from non-point source pollution such as surface water runoff into the water race systems, fertiliser use, stock drinking and associated faecal contamination. Also maintenance and cleaning of the water races could lead to increases in suspended sediment.

There is only one direct discharge from the Opaki water race into the Waipoua River, the other discharges are via wetlands. In the case of the Te Ore Ore water race, the discharge is to an ephemeral stream which discharges into the Whangaehu River.

No information quantifying the potential effects of the discharges on the receiving waters of the Waipoua and Whangaehu Rivers was provided in the AEE reports. As a result of requesting further information, an additional monitoring report was submitted to support the resource consent applications and AEE reports. This report summarised the results of a water quality monitoring programme completed between March 2002 and May 2002. Only five samples were taken as part of the monitoring programme, hence only early indications of the potential effects of the discharge can be assessed.

5.3.1 Potential effects on Whangaehu River

The monitoring completed to determine the effects of the discharge on the Whangaehu River showed that in general, the discharge had a beneficial effect and the quality of the discharge water was better than that of the receiving waters. This was particularly so for physical and chemical water quality parameters tested. Although there was some degradation in total nitrogen and total phosphorus concentrations over the length of the race, the concentration found were considerably higher in the Whangaehu River upstream of the discharge than the intake from the Ruamahanga River.

However there were some signs that the discharge of water from the Te Ore Ore water race into the Whangaehu River was creating additional bacterial pollution in the Whangaehu River as shown in Table 6 below:

Table 6: E.coli at 44 °C/100 ml

Date	Site 1	Site 2	Site 3	Site 4	Site 5
1/3/02	100	600	440	33	167
3/4/02	47	580	647	313	360
17/4/02	130	840	3333	107	233
2/5/02	300	607	347	167	147
16/5/02	120	627	2027	60	1953
Median	120	607	440	107	233

Site 1: Intake
 Site 2: Castlepoint Rd culvert
 Site 3: Discharge to Whangaehu River

Site 4: Whangaehu River upstream of discharge
 Site 5: Whangaehu River downstream of discharge

The increase in bacterial pollution through increased E.coli counts is likely to be due to intensive agricultural land use practices within the race system. To mitigate this potential effect a consent condition has been proposed that requires the applicant to complete a water quality audit by 2005. This audit involves evaluating appropriate mitigation measures to minimise adverse effects of land use practices on water quality including ways in which total nitrogen and total phosphorus concentrations and bacterial contamination can be decreased. The applicant has agreed to completing this water quality audit. This audit is consistent with policy 4.2.29 of the RFP which recognises the needs of existing lawful users by allowing these users to upgrade progressively their environmental performance.

The minimum discharge standards under Section 107 of the RMA and Appendix 8 of the RFP are included as a condition of consent. More specific standards on nitrogen and phosphorus concentrations and also E.coli were not considered relevant in this case as no monitoring of water quality is required for the Te Ore Ore water race. The reasons for this are discussed in section 7.4.2.

5.3.2 Potential effects on Waipoua River

There is only one direct discharge of the Opaki water race to the Waipoua River. The remaining discharges are to wetland systems which in turn overflow into drains or natural watercourses. The monitoring programme completed between March 2002 and May 2002 evaluated the quality of discharges from two of the wetlands systems and the direct discharge to the Waipoua River. A summary of the median values of the monitoring programme is given in Table 7 below:

Table 7: Median Water Quality Results – Opaki Water Race

Parameter	Site 1	Site 2	Site 3	Site 4	Site 5	Site 6
Temperature (°C)	11.5	12.5	12.7	12.8	12.3	11.6
pH	7.45	7.29	7.31	7.28	7.15	6.76
Conductivity (uS/cm)	46	46	62	62	46	62
Dissolved oxygen (g/m ³)	11.65	10.49	10.91	10.89	10.27	4.85
Turbidity (NTU)	0.58	2.7	0.33	0.45	1.2	1.3
DRP (mg/m ³)	5	8	7	8	9	32
Total phosphorus (mg/m ³)	8	21	13	12	28	68
Ammonia nitrogen (mg/m ³)	2.5	13	2.5	2.5	7	22
Nitrite nitrogen (mg/m ³)	1	2	1	1	2	2
Nitrate nitrogen (mg/m ³)	59	8	354	323	46	7
Total nitrogen (mg/m ³)	98	270	408	408	235	268
Suspended solids (g/m ³)	0.5	4	0.5	0.5	2	2
E.coli at 44°C (/100ml)	287	740	60	93	200	67

Site1: Intake
 Site 2: Outlet to Waipoua River
 Site 3: Waipoua River upstream of discharge
 Site 4: Waipoua River downstream of discharge

Site 5: Outlet of swamp (wetland) to Waipoua River
 Site 6: Outlet from dam (wetland) to Hiona Stream

The water quality monitoring programme showed that:

- On all five sampling occasions dissolved reactive phosphorus, total phosphorus, ammonia nitrogen, total nitrogen, turbidity and suspended solids increased over the length of the water race ;
- In most cases the increases in concentration of these parameters was statistically significant ($p = 0.10$);
- *E.coli* counts increased substantially over the length of the race on all but one sampling occasion.

In my opinion the data shows a degradation in water quality between the intake from the Ruamahanga River and the direct outlet to the Waipoua River (i.e. over the length of the Opaki water race). However the key issue to be assessed is effect that the discharge of water has on water quality of the Waipoua River.

The monitoring report concluded that there was no significant difference in water quality between the monitoring sites upstream and downstream of the direct discharge from the Opaki water race. This is supported by the data. However, on four of the five sampling occasions the *E.coli* counts in the Waipoua River downstream of the Opaki water race discharge were considerably higher those upstream. The small sample size probably resulted in this not being significant at the 95% confidence level. Turbidity also tended to increase between the sites.

The discharged water (the water at the outlet of the Opaki water race) tended to be higher in turbidity, total phosphorus, ammonia nitrogen, suspended solids and *E.coli* compared to water in the Waipoua River. The effect that this has on the river is therefore a function of the river's dilution capacity, which will relate to flow at that time. The flow in the river was not measured at the time the water quality samples were taken.

It is possible that during extremely low flows in the Waipoua River, or if 'unusual' events occur in the race, the effect of the discharges on water quality may be more pronounced. There are two reports on the Greater Wellington incident database relating to complaints from members of the public about the effect of the discharge on the Waipoua River. On one of these occasions sampling by Greater Wellington found that the Opaki water race was increasing suspended solid levels in the Waipoua River from less than 1 g/m^3 to 40 g/m^3 downstream of the main Opaki water race discharge. On both of the above occasions the Waipoua River was experiencing low flow conditions.

Under policy 5.2.3 and policy 5.2.6 of the RFP, the water quality of the Waipoua River is to be managed for trout fishery and fish spawning purposes as well as aquatic ecosystem purposes. Greater Wellington monitors water quality in the Waipoua River at Colombo Road in Masterton, near its confluence with the Ruamahanga River. Results from this site show generally good water quality, with aquatic ecosystem guidelines for dissolved oxygen, pH, ammonia and temperature being met on all sampling occasions in recent years⁶. However, there are sometimes nuisance periphyton growths and macroinvertebrate sampling has indicated possible mild pollution. It is likely that this results from many discharges to the water (including Masterton's stormwater and non-point source agricultural runoff) and

⁶ Warr, S., 2001: Annual Freshwater Quality Report for the Wellington Region 2000 to 2001. Publication No WRC/RINV-G 01/34. Resource Investigations, Wairarapa Division, Wellington Regional Council.

indirect affects due to extreme low flows experienced in the Waipoua River rather than being directly attributable to the water races.

Due to the potential adverse effects outlined above, I believe that in addition to a consent condition requiring minimum standards under section 107 of the RMA and Appendix 8 of the RFP, an additional discharge standard should be applied to the direct discharge to the Waipoua River. Hence a consent condition is proposed specified that from 12 consecutive samples no more than 2 samples shall exceed an E.coli count of 550 cfu/100ml. This value is taken from the Ministry for the Environment and Ministry for Health Freshwater Microbiological Water Quality Guidelines (Draft). Under policy 5.2.4 water quality in the Waipoua River is to be managed for contact recreation purposes. The implementation of this condition ensures that this policy is satisfied.

A proposed consent condition also requires a water quality audit to be completed on the Opaki water race. This audit involves evaluating appropriate mitigation measures to minimise adverse effects of land use practices on water quality including ways in which total nitrogen and total phosphorus concentrations and bacterial contamination can be decreased. The applicant has agreed to completing this water quality audit and it is required to be completed by 2006. Again, this audit is consistent with policy 4.2.29 of the RFP which recognises the needs of existing lawful users by allowing these users to upgrade progressively their environmental performance.

5.3.3 Consideration of RMA provision for discharges

As explained in section 4.1 of this report, under section 105(2)(a) of the RMA Greater Wellington cannot grant a resource consent which is contrary to section 107 of the RMA. The minimum requirements of section 107 have been included as conditions of consent, hence I am satisfied that section 105(2)(a) has been appropriately considered.

Furthermore, under section 104(3) of the RMA, Greater Wellington is required to have regard to the nature of the discharge and sensitivity of the receiving environment and any possible alternative methods of discharge. The receiving environment of the discharge from the Opaki water race (the Waipoua River) is sensitive particularly during low flow periods when dilution is reduced. For this reason, a discharge standard for E.coli has been included as a proposed consent condition. The only alternative method available for the discharge is to create a treatment process for the discharge. This has not been considered by the applicant, however if the discharge standard is not complying in the future, the applicant may be required to revisit alternative methods of discharge.

Through assessment of the discharges on the receiving environment and proposing various consent conditions, I believe that the relevant provisions of the RMA relating to discharge permits (particularly sections 105(2)(a), section 104(3), and section 107) have been appropriately considered. Furthermore the discharge and mitigation measures proposed as consent conditions ensure that policies 5.2.3, 5.2.4, and 5.2.6 of the RFP are satisfied.

5.4 Effects of intake structure and maintenance on bed of the Ruamahanga River

Clearing of debris and gravel from the intake and the clearance of gravel from the side channel of the Ruamahanga River will disturb the riverbed. It is reasonable to expect that the

proposed works will temporarily affect water quality. Any movement of bed materials will disturb fine silts and sands, which will increase suspended solids and raise turbidity levels.

The AEE reports state that maintenance on the intake structure is minimal and is required normally after a major flood or when there is significant changes in the river bed level. Such maintenance requires the regrading of the river bed to ensure that sufficient water is conveyed to the water races.

The AEE reports identified that the two principle effects would be the discoloration of water (and corresponding increase in suspended sediment load) and the potential restriction on fish passage. Consent conditions are proposed to minimise the impact on the active flowing channel and therefore reduce the sediment loading in the river. A consent condition is proposed that requires fish passage to be maintained at all times.

The timing of the works could potentially affect public access and recreational users. I would consider the area to be of high frequency and value in terms of recreational use and public access, particularly the intake for the Opaki water race. For that reason, a consent condition is proposed that requires public access to not be unnecessarily restricted. Also a consent condition is proposed that regulates the timing of the works that excludes public holidays, weekends, and after 5 p.m. unless the works are essential and unavoidable.

The use of mechanical equipment in the river bed has the potential to release contaminants into the river environment, hence a consent condition is proposed that require the consent holder to minimise the risk of contaminants entering water from mechanical equipment.

The assessment of maintenance works and consent conditions that are proposed to avoid, remedy, or mitigate any potential adverse effects are consistent with conditions set down for a consent issued to the Operations Department, Greater Wellington for gravel extraction in the Ruamahanga River catchment. The proposed conditions also satisfy relevant policies in the RFP.

5.5 Water efficiency and alternative methods

5.5.1 Efficiency of water races

The AEE reports assessed the efficiency (i.e. the amount of water actually used) of both water water races to be between 1-5%. Flow gauging work completed by Greater Wellington on the Opaki water race showed that up to 30% of the water taken from the Ruamahanga River is not discharged to either the Waipoua River or wetland systems. In essence a reasonable proportion of water is 'lost' from the water race system.

The water losses are likely to include evaporation, seepage through the channels to groundwater, and poor maintenance resulting in either increased seepage and over flow. The losses to groundwater are often cited as a positive impact of the water races. However, little data exists to support the claim that the water races recharges groundwater. In the Opaki area this is likely to be of little benefit, where the groundwater resource is limited and not extensively used.

5.5.2 *Alternative options and methods*

The AEE reports attempt to address the issue of water efficiency through evaluating alternative options and methods. Two options and methods were presented including:

- Piped community water system
- Alternative water sources

In terms of a piped community water system, it was identified that such a system could increase water efficiency to 90%. The advantages and disadvantages of both a piped supply and the existing open channel supply were evaluated at length. The conclusion drawn in the AEE reports was that a piped community water supply is not feasible in the short to medium term, due to the financial outlay required and the adverse effects on the race ecosystems.

In terms of alternative water sources, a number of different options were suggested in the AEE reports including utilising groundwater bores and harvesting and storing water in a reservoir. The advantages and disadvantages of these alternative water sources were discussed and the conclusions drawn were that it is not feasible to provide an alternative water source to the Opaki and Te Ore Ore areas. Policy 6.2.7 of the RFP encourages the use of groundwater as an alternative to using surface water resources. I would agree with the AEE reports which state that groundwater for the amount of flow required is not sustainable.

I believe the consideration of alternative options and methods provided in the AEE reports was very limited. The applicant tended to focus on an 'all or nothing' approach to assess alternative options. No consideration was given to how efficiencies in the existing water race systems could be achieved. Also no actual evaluation of the specific options for either of the two water races was provided. In the case of the Opaki area, there is an existing piped water supply that services a large area of Opaki plains. No mention of this was provided in the AEE report. The actual reliance of the water race for domestic and stock water purposes was not evaluated. In the case of the Te Ore Ore water race, I consider that the water race is primarily used for irrigation purposes. Alternative options for supplying irrigation purposes to the relevant properties was not provided. I consider the supply of water for an irrigation take through a open channel system to be an inefficient use of water.

5.5.3 *Consideration of RMA, RPS, & RFP provisions for water efficiency*

It is clear that the water race systems are inefficient in their water use. I believe that in the long term this does not promote the sustainable management of natural and physical resources, which is the cornerstone of Part II of the RMA in Section 5(1). Furthermore in Section 5(2)(a) there is a requirement to meet the reasonably foreseeable needs of future generations and also in Section 7(b) of the RMA clearly states that Greater Wellington is to have particular regard to the efficient use of natural and physical resources. The inefficient use of water is inconsistent with Policy 2 of the RPS and policy 6.2.18 of the RFP.

Hence on face value, the applications for taking water could be justified to be declined on water efficiency grounds. However through the proposing of consent conditions, I believe that the fundamental requirements of Part II of the RMA can be met.

Several submitters (Wellington Fish & Game Council, K Campbell, L McGill, D Hagar and J Valentine) directly or indirectly expressed concern about both water races being an inefficient

use of water. The issues of water efficiency and alternative options, were the key concerns presented by submitters. There has been significant movement from the applicant and submitters to gain agreement on a way forward to deal with these water efficiency issues. The proposed consent conditions relating to water efficiency that are discussed below and the consent terms for each of the water races have been agreed to by all parties.

A consent condition has been proposed that requires the applicant to completed a review of the use and efficiency of the Opaki water race. This review is to be completed by 2007, and is to encompass a field survey of all properties to determine the actual reliance of various properties on the Opaki water race.

A more comprehensive review of the Te Ore Ore water race network is required to be completed by 2008. The purpose of the review shall be to determine whether the Te Ore Ore water race shall remain open. In many respects, this task should have been completed as part of the process of preparing the AEE report. Unless clear demonstration is provided as to why the water race is to remain open following the expiry of this consent, I would consider that any resource consents issued for the Te Ore Ore water race are non-renewable.

For both water races, a proposed consent conditions requires water to be maintained in the water race channel. No overland flow out of any water race channels is permitted, except when there is high flow in the races due to either high flows in the Ruamahanga River or high intensity rainfall events where stormwater runoff is elevated.

5.5.4 Efficiency of irrigation takes

The Opaki water race is used by one landowner (Norwood Vineyard) for irrigation. The irrigation of 70 hectares takes about 14 hours at an application rate of 18 litres/sec. If irrigation occurs every day this would equate to an application rate of 91 m³/ha/week. This complies with the maximum application rate of 350 m³/hectare/week for irrigation specified in Policy 6.2.6 of the RFP.

The Te Ore Ore water race is used by Neil and Cameron Stuart for irrigation of approximately 310 hectares of dairy pasture. The irrigation application rate equates to 259 m³/hectare/week. This complies with the maximum application rate of 350 m³/hectare/week for irrigation specified in Policy 6.2.6 of the RFP.

For both irrigation takes from the water races, a proposed consent condition requires the takes to comply with policy 6.2.6 of the RFP.

In general, I consider that existing irrigation takes from the Opaki & Te Ore Ore water races are inefficient in that considerably greater volumes of water are needed to be directed to the irrigation intakes that what would normally be expected from an irrigation take from a direct source of water such as a groundwater bore or river/stream intake.

Hence only those identified existing irrigation takes recognised in the AEE reports will be authorised under any consents issued. If other landowners wish to irrigate out of the water race systems, then the applicant will need to apply for a variation of resource consent. In general this practice should be discouraged for the above reasons.

5.6 Effects on tangata whenua values

Rangitaane o Wairarapa and Ngati Kahungunu ki Wairarapa were both consulted prior to the applications being lodged. Rangitaane o Wairarapa made a submission in opposition to the applications, but the submission was late and the applicant would not agree to the submission being accepted. Ngati Kahungunu ki Wairarapa made a submission stating that they had no concerns with the application.

Concerns of Rangitaane o Wairarapa, as expressed in their submission, have been incorporated into this report. Other than stating that some preliminary consultation was undertaken, the AEE reports did not address tangata whenua values.

Relevant tangata whenua values include:

- The relationship with traditional sites used for food gathering
- The relationship with ancestral sites, waahi tapu and other taonga
- The mauri ('life essence') of water bodies.

Tangata whenua concerns are likely to relate to:

- The reduction in water quantity in the Ruamahanga River during times of low flow;
- The protection of the river for use by future generations;
- The potential reduction in water quality of the races and resulting impact on receiving waters; and
- The mixing of waters from different catchments.

The impacts of the proposed take on water quantity have been discussed in section 5.2 of this report. The RFP aims to protect instream and spiritual and cultural values through the establishment of a minimum flow and progressive reductions in water takes during low flow periods. I believe that tangata whenua concerns over water quantity can be addressed by ensuring consistency with the policy 6.2.1 of the RFP.

The protection of the river for use by future generations is an issue because of the high level of allocation from the Upper Ruamahanga River (in relation to the core allocation), and because a 35-year term has been applied for. Rangitaane o Wairarapa expressed concern over a 35-year term if the management, efficiency and knowledge of the water races and their impact will not be improved. Further discussion of this matter is given in section 7.3 of this report.

The artificial mixing of waters is of major concern to tangata whenua. Although this concern should not be dismissed, it is difficult to address as to avoid this occurring the races would need to be closed or redesigned. Given that the receiving waters (the Waipoua River and Whangaehu River) do enter the Ruamahanga River (i.e. they are tributaries rather than a completely separate catchment), the water races are unlikely to conflict with tangata whenua values as strongly as it would if the two catchments were completely separate.

The water quality issues associated with the water races were discussed in section 5.3 of this report. Rangitaane o Wairarapa expressed concern over management of the water races in relation to water quality, and stated that they would like to see water quality improved. The planting of riparian vegetation and reduction in stock crossings were suggested as methods of

achieving this outcome. I would recommend that the applicant consult Rangitaane o Wairarapa when completing the water quality audit on both water race systems.

6.0 Summary of assessment of resource consent applications

The effects of taking and diverting water from the Ruamahanga River are considered to be minor. The individual and cumulative effects of taking of water is consistent with the core allocation provisions specified in the URRWAP and policy 6.2.1 of the RFP. The taking of water for domestic and stock water purposes below minimum flows specified in policy 6.2.1 of the RFP was weighed against the need of water during those times. In applying the purpose and principles specified in Part II of the RMA, I believe that the Opaki and Te Ore Ore water races do require a minimal amount of water during such periods and the benefits to the community of supplying that water outweigh the potential adverse effects.

Proposed consent conditions avoid, remedy, or mitigate any potential adverse effects identified in the assessment. In particular, the taking of water is restricted during low flow periods. Furthermore all irrigation takes from the Opaki and Te Ore water races are required to cease when the minimum flow of 2400 litres/sec in the Upper Ruamahanga River is reached. The diversion of water to the intake control structures of both water races is restricted to a maximum take of 25% of the available flow in the river.

There was limited information provided to make an accurate conclusion on the potential effects of discharge water into the receiving water environment. Water quality does degrade over the length of both water races, however the effect on the receiving water environment, particularly in the case of the Te Ore Ore water race, would appear to be minor and that there are no significant adverse effects. Further monitoring of water quality is required to make more conclusive observations.

Resource consents for the discharges can only be granted under section 107 of the RMA if certain minimum discharge standards are met. These standards are included as consent conditions. Furthermore a more specific standard that limits microbiological contamination of the Waipoua River has been included as a consent condition, in order to mitigate any potential adverse effects.

For both water races, the applicant is required to complete water quality audits with the aim of improving water quality at the discharge points. This is consistent with by 4.2.29 of the RFP which encourage existing lawful users to progressively upgrade their environmental performance.

The effects of maintenance works in the bed of the Ruamahanga River are considered to be minor. A number of consent conditions avoid, remedy, or mitigate any potential adverse effects of these activities.

The main area of concern in the assessment of the resource consent applications, is that water efficiency of the Opaki and Te Ore Ore water race may be contrary to Part II of the RMA, and more specifically policy 2 of the RPS. Very limited assessment was provided by the applicant on water efficiency and alternative options. Hence the resource consent applications could be justified to be declined on this basis alone.

However I believe that it is important in this case to take into consideration the long standing nature of the water race systems, the positive benefits of the water races, and all other potential effects on the environment as a result of the activity that are considered to be minor. With this in mind, I believe that improvements in water efficiency should be targeted (as supported by policy 4.2.29 of the RFP) and this is reflected in the proposed consent conditions which require a comprehensive review of water efficiency with both water races. With these reviews forming part of the conditions of consent, then I would consider that Part II of the RMA and policy 2 of the RPS is satisfied.

Hence I am satisfied following the above assessment of the applications, the resource consent applications should be granted subject to the proposed consent conditions.

7.0 Other Matters

7.1 Consent Term

A consent term of 35 years was sought by the applicant. I recommend that a term of 15 years is appropriate for the Opaki water race and 10 years is appropriate for the Te Ore Ore water race.

Key reasons for these recommended consent terms are:

- I believe a conservative approach should be made in recommending consent terms, particularly as some the information provided on the potential effects of the water races was limited. Policy 4.2.26 of the RFP states that in such circumstances a precautionary approach should be adopted.
- The granting of the applications will 'lock up' a reasonable proportion of the core allocation for the Upper Ruamahanga River. Given that the use of water has been assessed as been inefficient, a shorter consent term is considered necessary.
- In the case of the Te Ore Ore water race, I consider the primary use of the water race is for irrigation purposes and not domestic and stock water purposes as specified in the AEE report. It is rare for consent terms for irrigation takes to exceed ten years. Also the conveyance of water via an open channel for irrigation purposes is considered to be highly inefficient, hence a shorter consent term of ten years for this water race is necessary.
- Several submitters requested that a shorter consent term be given. The submitters and the applicant have agreed to the recommended consent term.

7.2 Review Conditions

Stringent review conditions are proposed. This is seen as vital given that a number of investigations and monitoring is required to be completed throughout the term of the consent.

The review can be enacted by Greater Wellington at any of the following times:

- Within three months of the fifth or tenth (Opaki water race only) anniversaries of the grant date of the consents.

- Within three months of any changes to the RFP.
- Within three months of any of the reviews/audits been completed.

7.3 Management Plan & Users Forum

The AEE reports identified as part of adopting measures to avoid, remedy, or mitigate adverse effects, a management and operation plan would be prepared for each of the water races. These plans would essentially adopt “best practice” methods into the on farm management and operation of the water race systems. A proposed consent condition required the plans to be prepared and submitted by 2005. The plans would help implement any water efficiency measures and land use practices to improve water quality. This is consistent with policy 4.2.25 of the RFP which encourages users of fresh water to adopt an ethic of guardianship for future generations. The plans are required to be reviewed once any reviews/audits of the water races are completed.

Policy 6.2.9 of the RFP encourages the use of “user committees” to assist in the managing the taking and use of fresh water. I consider that such a committee would be of value to both water race systems. A proposed consent condition requires the applicant to hold an annual forum for all water race users. This will be an appropriate forum to discuss the implementation of the management and operation plans.

7.4 Monitoring

7.4.1 Water Quantity

The only monitoring proposed in the AEE reports was that flow monitoring would be carried out regularly (i.e. fortnightly over summer) to verify that the take is not exceeding 170 litres/sec in the case of the Opaki water race and 250 litres/sec in the case of the Te Ore Ore water race.

Greater Wellington and the applicant have come up with an agreed monitoring programme for measuring water quantity. The following monitoring is required as part of proposed consent conditions:

- A water flow monitoring site is to be installed by the beginning of 2004. In order to achieve the desired degree of accuracy, this will require either a concrete flume or weir to be placed in the races.
- The water flow monitoring site is to be rated and maintained in accordance with the Hydrologists Field Manual (NIWA, 1991).
- Measurements of the flow between December and May are to be taken at least once a week or once a day when the Ruamahanga River reaches its first minimum flow of 2700 litres/sec.
- The monitoring results are to be submitted to the Council on a quarterly basis.

Submitters have also agreed to the above monitoring programme. If the monitoring programme is not successful (i.e. monitoring not completed) or if non-compliance is observed on a frequent basis, then an automatic recorder such as a pressure transducer may be required to be installed.

7.4.2 Water Quality

No monitoring of water quality was proposed in the AEE reports. A water quality monitoring programme is specified as a consent condition for the Opaki water race only. This programme, which has been agreed to by both the applicant and submitters, required the following to be completed:

- Fortnightly monitoring at the discharge outlet to the Waipoua River, the Waipoua River upstream of the discharge, and the Waipoua River downstream of the discharge.
- Water quality parameters to be monitored are E.coli, total nitrogen, total phosphorus, pH, conductivity, dissolved oxygen, and suspended solids.
- The monitoring results are to be submitted to the Council on an annual basis.

Although it is not specified as a consent conditions, it is recommended to the applicant to monitor the water quality of the intake to the Opaki water race.

No water quality programme has been specified for the Te Ore Ore water race. This is for two reasons:

- The long term viability of this water race is under question. Only a 10 year consent has been issued and strong justification will need to be provided in the review of the water race if it is to remain open.
- The effects of the discharge on the receiving environment of the Whangaehu River are minor. In many cases the quality of the discharge water (albeit worse than the quality of water at the intake) is better than the upstream water quality in the Whangaehu River.

8. Concluding Remarks

The AEE reports submitted with the resource consent applications provided a helpful assessment of the potential effects on the environment in some areas. There were many areas though where the information provided was sub-standard when considering the nature and scale of the water races. Nevertheless the deficiencies in these areas, have been overcome through the setting of appropriate consent conditions.

The success in gaining agreement of proposed consent conditions between Greater Wellington as consent authority, applicant, and submitters who requested to be heard will go some way forward to ensuring that the ongoing operation of the Opaki and Te Ore water races is managed in a sustainable manner in compliance with the RMA.