

looking at THE Alternatives

Has Council considered alternative methods of wastewater treatment and disposal? The answer to this frequently asked question is YES! To date Council has considered 22 treatment and disposal systems for Raglan. This has been done in two stages.

Stage One

The Raglan Sewerage Consultative Group (RSCG) was established in 1994 to look at options for upgrading the wastewater treatment system. The group of 10 included Raglan community, tangata whenua and Council representatives. The RSCG evaluated 12 options that year. The current proposal is based on the RSCG's preferred system as recommended to the Raglan Community Board.

The other 11 options ranged in cost from \$1.4M to \$5.2M and included release via ocean outfall, release to harbour and final

discharge through land application. These options were not favoured for a variety of reasons including tangata whenua concerns, the standard of treatment offered and the state of the present outfall.

Stage Two

Between 1997, when consent applications were lodged, and 1999, when the consent hearing was held, Council considered 10 further alternatives offered by interested parties. These alternatives ranged in cost from \$5.1M to \$12M. They included a variety of treatment and disposal systems utilised by other towns such as Kaikoura (porous coastal soils), Tokoroa (gravel-filled trench) and Whangamata and Rotorua (land disposal).

None of these alternatives offered the standard of wastewater treatment and discharge required for Raglan at an affordable cost.

The Decision

To ensure its success, Council has several key requirements of any new system. It must:

- work reliably, based on proven technology
- allow for future growth
- have minimal impact on the Raglan Harbour and the wider environment
- be affordable for Raglan ratepayers.

With all these advantages, plus its flexibility for future expansion as new technology becomes available, the proposed system became the preferred option.

A sheet detailing the alternatives considered and explaining why they were not preferred, is available from Council's Raglan Office on Bow Street

APPEAL ISSUES

The appeals to the resource consents for Raglan's new wastewater scheme raise a number of issues including land disposal and tangata whenua concerns. Let's look at how Council has addressed these issues.

LAND DISPOSAL

Land disposal is basically the practice of using treated wastewater to irrigate land. It involves building a network of sprinklers over a large area of land and irrigating a crop such as trees or rye grass.

A large area of flat land with soil that can absorb large amounts of water year-round, like pumice sand, is essential for land disposal.

Around 92 hectares of suitable land would be needed to accommodate the 3,400 tonnes - that's almost four full Bow Street water reservoirs - of treated wastewater Raglan creates every day (allowing for population growth).

Investigations by an AgResearch soils scientist revealed that there is no land suitable for this method in the Raglan

area - mainly because Raglan is surrounded by hilly clay country.

Even if suitable land was available, the \$12M+ price tag (almost \$9,000 + GST per ratepayer) for implementing this system is not affordable for the 1,358 ratepayers connected to the town's wastewater system. In contrast, Council's preferred option would be funded through \$400 per ratepayer for 10 years, with Council subsidising the project by \$70,000 per year.

TANGATA WHENUA CONCERNS

Tangata whenua believe part of the present treatment site is the domain of the local taniwha.

This significance is recognised by Council and was considered in designing the layout of the proposed wetland. It also influenced decisions to restore the original tidal stream crossing the existing front pond after the ponds are decommissioned and for the planting of the surrounding area (about one hectare) as a tidal wetland.



Stormwater inflow usually happens during heavy rainfall when stormwater gets into the wastewater system.

Raglan, like many other towns, suffers from a high rate of stormwater inflow - mainly due to water running off roofs and yards directly into the system. This inflow can overload the capacity of the present wastewater discharge pipeline and risk overflowing the treatment ponds.

Managing stormwater inflow is a long and costly process. About \$320,000 worth of works are programmed over the next nine years with known trouble spots being targeted first. Council has also surveyed about one third of the properties in Raglan over the last year to locate illegal stormwater connections and repair defective manholes. It was found that about one in 20 properties had illegal connections! The next stage is to locate and repair damaged pipes.

Any significant reduction in peak stormwater inflows resulting from this work will help extend the life of your treatment system and reduce pumping costs.

Would You like to Know More?

Pop into the Council's Raglan Office on Bow Street and look at the Raglan Wastewater Display...

This newsletter has been produced for your information by Waikato District Council.

If you would like to discuss anything in this newsletter please phone Mike Safey, Development Services Engineer, on 07 824 8633.

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Bulletin

A SPECIAL UPDATE ON RAGLAN'S WASTEWATER UPGRADE

Impression of Tidal Stream Restoration for the proposed wastewater upgrade

Raglan Outgrows its Wastewater System

Raglan is an ideal lifestyle destination and the increasing number of people choosing to live, work and play in the town know it!

This growth spurt unfortunately means that Raglan has almost outgrown its wastewater (sewerage) treatment infrastructure. Originally built back in the 70s, the system is now struggling to cope with Raglan's growing population.

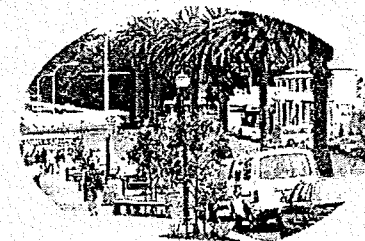
It was this rapidly growing population as well as changing perceptions of the environmental impact of wastewater that prompted Waikato District Council to plan for a new treatment system.

Before Council could start constructing the new treatment system it had to show that the system could meet the environmental requirements of the Resource Management Act 1991. To do this Council went through the process of obtaining resource consents, which were granted in April of this year.

A small number of people are unhappy that Council was allowed to proceed and the consents are now under appeal. Their concerns relate mainly to the disposal method Council wants to use and cultural issues.

Council's philosophy is simple. It is committed to resolving these appeals without going to a full Environment Court hearing. After all, it makes more sense to spend money on installing the new system rather than on expensive legal proceedings!

To date Council has spent over \$400,000 on developing the proposal and obtaining consents.



Raglan's popularity as a lifestyle destination is causing problems for the town's wastewater system

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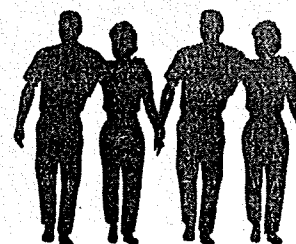
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Achieving a Community Solution Through Consultation



Waikato District Council is committed to achieving a community solution to Raglan's wastewater problem through consultation.

Council was granted consent in April to go ahead with the new wastewater treatment scheme. Since then four appeals have been lodged by groups and individuals opposing the plans. Most disagreement centres on the sea outlet for the proposed facility, with some objectors favouring a land disposal system instead.

Mark Buttimore, Council's Acting Chief Executive, said, "Council is working to resolve these appeals. We don't want to see them end up in the Environment Court and cost Raglan ratepayers even more money."

But Council isn't just focused on resolving the objections to its plans.

"We're also committed to talking to the wider community about Raglan's wastewater development and listening to any concerns there may be," Mark said.

A public meeting is scheduled for November to talk about the project and newsletters such as this one will appear in your mail-box over coming months to keep you informed of progress. So keep an eye out!

Council will continue to look at options for enhancing the new scheme but, at the same time, feasibility and affordability have to be kept in mind.

looking at THE Preferred Option

What is Proposed?

So, what's this proposed new system all about?

As the site plan opposite shows, the new system involves a number of components including treatment ponds and a constructed wetland. Gravity would carry the wastewater through each of the system's components and it would be cleansed more and more thoroughly with each stage.

The system would initially consist of three treatment ponds, with two additional ponds to be constructed in future years to accommodate population growth.

From the ponds, the wastewater would flow into a constructed wetland incorporating ultraviolet (UV) disinfection. This part of the process is designed to naturally cleanse the wastewater and kill any remaining bacteria.

The wetland would be created by partially filling the two existing oxidation ponds. It would also include an area for storing the treated wastewater.

From there the wastewater be released on the outgoing tide through a new outfall

located 100m out into the harbour channel.

The new outfall is designed to provide controlled release on outgoing tides of water that will meet New Zealand's latest bathing water guidelines.

The existing discharge pipeline (through Te Kopua, the former golf course), will be decommissioned in recognition of concerns expressed by the present land owners.

Where will it be located?

Okay, where will Council put it?

The proposed new system will be developed in the vicinity of the present oxidation ponds on Wainui Road.

Council has purchased nine hectares of land for the system. The land would be developed into new treatment ponds, with the present ponds converted to wetland.

The layout of the wetland area was redesigned last year in response to tangata whenua concerns regarding the site's historical importance, particularly as the habitat of the local taniwha.

Why Ponds & Wetlands?

Well, why is a system of ponds and wetlands the best option?

Ponds are a natural and effective land-based treatment for wastewater. Ponds are ideally suited to small communities because they are robust, require little maintenance and produce virtually no smell.

Wetlands effectively 'polish' the treated wastewater after it leaves the ponds. Wetlands, like ponds, provide natural land-based treatment and require little maintenance. Wetlands provide a valuable wildlife habitat and, in Raglan's case, they would also improve the appearance of the site from Wainui Road.

Interestingly, Te Kauwhata's recently constructed wetlands are producing a discharge 10 times cleaner than the treatment plant was able to before the wetland was constructed. With the UV treatment as an additional part of its process, Raglan should have an even more impressive result!

Over 80 New Zealand communities are now using constructed wetlands as part of their wastewater treatment systems.

Raglan Harbour - the bigger picture

The perception that single point discharges, such as those used for wastewater, are the only source of harbour contamination is wrong.

In fact, the harbour water quality is affected to a much greater extent by other sources of pollution such as farm runoff, erosion and natural processes like decaying vegetation.

Did you know it is widely accepted that shellfish in Raglan Harbour (and other New Zealand harbours) should not be eaten for several days after heavy rainfall because of the contamination caused by farm runoff?

As part of its commitment to helping improve the Harbour, Council has:

- ✦ closed and cleaned-up the Raglan Landfill
- ✦ completed erosion and slip repairs
- ✦ produced 'clean stormwater' education material and attached 'Tip No Waste' plaques on stormwater catchpits
- ✦ provided financial support to Whaingaroa Harbour Care for tree planting along stream banks in the harbour catchment.

When completed, the wastewater treatment upgrade will add to these achievements.

Effects Explained

It is important to understand exactly what the upgraded treatment system will produce, where the product will go and what effect it will have.

WATER QUALITY

Faecal coliforms are a common measure of how effective a treatment process is at removing bacteria from wastewater. With a median treatment level of 200 faecal coliforms per 100ml, the proposed system would meet New Zealand bathing water guidelines even before being released and further diluted by the sea. This is essentially a **20-fold** improvement over the current treatment.

Any bugs left alive as they travel through the wetland will be hit with a fatal dose of UV. So, that means that only two or three bacteria, out of every 20,000 that enter the treatment ponds, will survive the treatment process.

DISCHARGE SYSTEM

As part of the proposed upgrade, a new outfall (in the main harbour channel) would

jet treated wastewater across the bar and about 1km out to sea on the outgoing tide - a vast improvement on the current system.

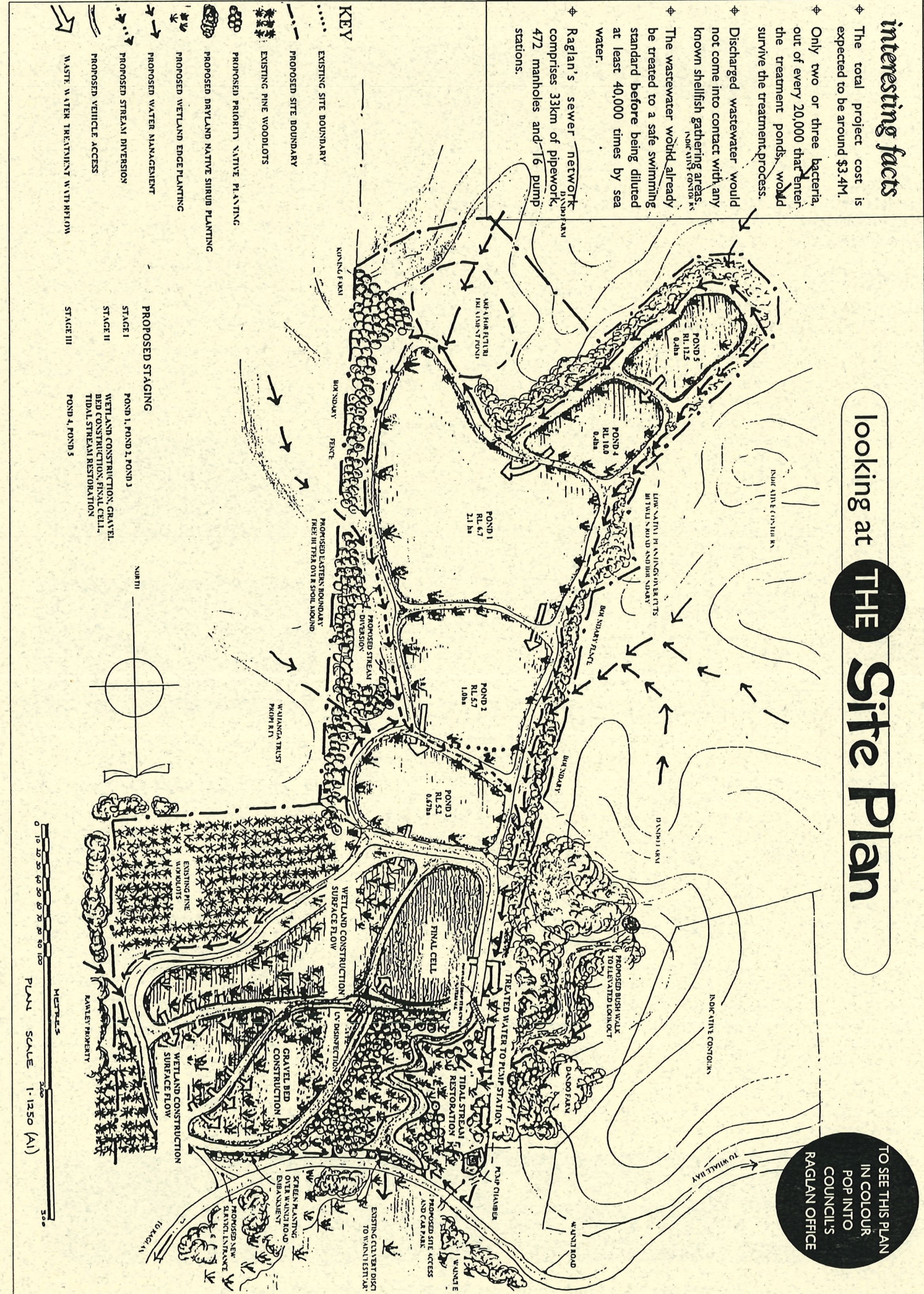
The wastewater would already be treated to a safe swimming standard before being diluted at least 40,000 times by sea water. That means there would be no risk to swimmers and surfers.

Council is monitoring water in the vicinity of the present outfall to determine how the present discharge is affecting the harbour's water, if at all. The results will provide a baseline for measuring water quality improvements after upgrading works are completed.

SHELLFISH GATHERING

Discharged water would not come into contact with any known shellfish gathering areas. The dilution within a short distance of the outfall would meet New Zealand water quality guidelines for shellfish gathering.

- ### interesting facts
- ✦ The total project cost is expected to be around \$3.4M.
 - ✦ Only two or three bacteria, out of every 20,000 that enter the treatment ponds, would survive the treatment process.
 - ✦ Discharged wastewater would not come into contact with any known shellfish gathering areas.
 - ✦ The wastewater would already be treated to a safe swimming standard before being diluted at least 40,000 times by sea water.
 - ✦ Raglan's sewer network comprises 33km of pipework, 472 manholes and 16 pump stations.



looking at THE Site Plan

TO SEE THIS PLAN
IN COLOUR
POP INTO
COUNCIL'S
RAGLAN OFFICE

FINAL DISCHARGE VIA OCEAN OUTFALL

COST

REASONS FOR REJECTION

<p>1. Minimum action - increase capacity of existing pond system Extend the present oxidation pond system and duplicate the present outfall pipeline to cope with increased flows.</p>	<p>\$ 1.4M</p>	<p>♣ Ponds remaining on existing site unacceptable to tangata whenua. ♣ Insufficient standard of treatment. ♣ Present outfall inadequate</p>
<p>2. Increase capacity of existing ponds, upgrade outfall As for (1) but with the extension of the outfall point further into the channel to improve dispersion.</p>	<p>\$ 1.9M</p>	<p>♣ Ponds remaining on existing site unacceptable to tangata whenua. ♣ Insufficient standard of treatment.</p>
<p>3. Upgrade existing ponds, add wetlands, upgrade outfall As for (1) but with addition of a two hectare constructed wetland. Upgrade existing ponds by extending pond one and/or supplementing with mechanical aeration.</p>	<p>\$ 2.2M</p>	<p>♣ Ponds remaining on existing site unacceptable to tangata whenua. ♣ Insufficient standard of treatment.</p>
<p>4. Upgrade existing ponds, add three additional maturation ponds, wetlands, UV disinfection and upgrade outfall Retain present ponds, add two new maturation ponds plus a three hectare constructed wetland to the area south of the existing ponds, followed by UV disinfection before discharge via an upgraded pipeline and ocean outfall.</p>	<p>\$ 2.5M</p>	<p>♣ Ponds remaining on existing site unacceptable to tangata whenua.</p>
<p>5. Upgrade existing ponds, add four additional maturation ponds, wetlands and UV disinfection and upgrade outfall (NIWA 2A) Similar to (4) except with ponds one and two combined to form a single large primary facultative pond, with minimal supplementary aeration to cope with summer peak waste loads. Two new ponds added behind the existing ponds, with two further 0.85 ha maturation ponds added after seven and 15 years. Other details as for (4).</p>	<p>\$ 2.5M</p>	<p>♣ Ponds remaining on existing site unacceptable to tangata whenua.</p>
<p>6. Construct new pond system, convert ponds to wetlands, UV disinfection, upgrade outfall Similar to (4) except with one facultative and four maturation ponds constructed behind existing ponds with the existing ponds converted to a three hectare surface and subsurface constructed wetlands.</p>	<p>\$ 3.4M</p>	<p>Option selected by RSCG ♣ Not perceived as a "natural" land-based treatment system ♣ High cost unaffordable for Raglan community ♣ Not perceived as a "natural" treatment system</p>
<p>7. Convert existing ponds to an IDEA system, upgrade outfall Replacement of existing ponds with an Intermittently Decanting Extended Aeration mechanical treatment plant plus an upgraded pipeline and outfall.</p>	<p>\$ 5.2M</p>	<p>♣ Discharge to sensitive inner harbour estuarine areas considered unacceptable by community including tangata whenua. ♣ Unproven treatment system. ♣ Permaculture ponds cannot be built in upper catchment due to land instability. ♣ High cost.</p>
<p>FINAL DISCHARGE TO HARBOUR</p>		
<p>8. Replacement with Permaculture system Wastewater passes through duckweed-covered wetland ponds, extending up to the closed landfill. Final discharge to the Wainui arm of the estuary immediately below the existing ponds.</p>	<p>\$ 4.4M</p>	<p>♣ Ponds remaining on existing site unacceptable to tangata whenua. ♣ Insufficient standard of treatment. ♣ Unsuitable soil types in Raglan area. ♣ Risk of runoff from disposal site to sensitive inner harbour estuarine areas. ♣ Risk of erosion and land instability at irrigation site. ♣ Ponds remaining on existing site unacceptable to tangata whenua. ♣ High cost. ♣ Unsuitable soil types in Raglan area. ♣ Risk of runoff from disposal site to sensitive inner harbour estuarine areas. ♣ Risk of erosion and land instability at irrigation site. ♣ High cost. ♣ Unsuitable soil types in Raglan area. ♣ Risk of runoff from disposal site to sensitive inner harbour estuarine areas. ♣ Risk of erosion and land instability at irrigation site.</p>
<p>FINAL DISCHARGE VIA LAND APPLICATION</p>		
<p>9. Upgrade existing ponds, add 3 additional maturation ponds, add wetlands followed by land application As for option (4) except omitting UV disinfection and with final discharge via land application. Because of a lack of suitable land disposal sites, this was later amended to the system described in option (12) below.</p>	<p>\$ 3.8M</p>	<p>♣ Ponds remaining on existing site unacceptable to tangata whenua. ♣ Insufficient standard of treatment. ♣ Unsuitable soil types in Raglan area. ♣ Risk of runoff from disposal site to sensitive inner harbour estuarine areas. ♣ Risk of erosion and land instability at irrigation site. ♣ Ponds remaining on existing site unacceptable to tangata whenua. ♣ High cost. ♣ Unsuitable soil types in Raglan area. ♣ Risk of runoff from disposal site to sensitive inner harbour estuarine areas. ♣ Risk of erosion and land instability at irrigation site. ♣ High cost. ♣ Unsuitable soil types in Raglan area. ♣ Risk of runoff from disposal site to sensitive inner harbour estuarine areas. ♣ Risk of erosion and land instability at irrigation site.</p>
<p>10. Upgrade existing ponds, add 4 additional maturation ponds, add wetlands followed by land application As for option (5) except omitting UV disinfection and with final discharge via land disposal (as in (9) above).</p>	<p>\$ 4.2M</p>	<p>♣ Ponds remaining on existing site unacceptable to tangata whenua. ♣ Insufficient standard of treatment. ♣ Unsuitable soil types in Raglan area. ♣ Risk of runoff from disposal site to sensitive inner harbour estuarine areas. ♣ Risk of erosion and land instability at irrigation site. ♣ High cost. ♣ Unsuitable soil types in Raglan area. ♣ Risk of runoff from disposal site to sensitive inner harbour estuarine areas. ♣ Risk of erosion and land instability at irrigation site. ♣ High cost. ♣ Unsuitable soil types in Raglan area. ♣ Risk of runoff from disposal site to sensitive inner harbour estuarine areas. ♣ Risk of erosion and land instability at irrigation site.</p>
<p>11. Construct new pond system, convert existing ponds to wetlands, followed by land application As for (6), except omitting UV disinfection and with final discharge via land disposal as in (9) above.</p>	<p>\$ 4.8M</p>	<p>♣ High cost. ♣ Unsuitable soil types in Raglan area. ♣ Risk of runoff from disposal site to sensitive inner harbour estuarine areas. ♣ Risk of erosion and land instability at irrigation site.</p>
<p>12. Construct new pond and wetland system followed by land application Similar to (11) except new multi-pond and wetland system constructed at new site (Wainui Reserve or similar), followed by intermittent application of the treated wastewater to suitably planted hill slopes via a series of perforated pipes laid along the contour. Because of the low permeability of the soil and frequent high levels of saturation, waters applied would move by a mix of surface-flow across and subsurface-flow through the soil. The treated wastewater would then be collected and piped to the valley bottoms (to avoid gully erosion), where it would flow through enhanced natural wetland areas, before mixing with natural waters draining from the catchment into the Wainui arm of the Estuary.</p>	<p>\$ 4.4M</p>	<p>♣ High cost. ♣ Unsuitable soil types in Raglan area. ♣ Risk of runoff from disposal site to sensitive inner harbour estuarine areas. ♣ Risk of erosion and land instability at irrigation site.</p>

ALTERNATIVES CONSIDERED SINCE 1997 FOR RESOURCE CONSENT HEARING

<p>13. Deep bore disposal Injection of treated wastewater to a series of deep disposal bores along the harbour foreshore.</p>	<p>\$ 5.1M</p>	<p>♣ High cost. ♣ remote chance of finding a suitable rock layer for ground injection. ♣ Tangata whenua concern about risk of groundwater contamination. ♣ High probability of bore failure by clogging. ♣ High cost. ♣ Maori burial grounds in the area, exact location unknown.</p>
<p>14. Land disposal to sand dunes (spray irrigation) Develop treatment plant as proposed. Pipe across harbour to spray irrigate sand dunes at Horea on northern side. Re-vegetate dune area.</p>	<p>\$ 6.1M</p>	<p>♣ Antiquated system with likely adverse effects on coastal waters. ♣ No gravel soils on Raglan foreshore.</p>
<p>15. Infiltration along coastal shoreline (Kaikoura) Infiltration of effluent from a single oxidation pond through porous coastal soils (pea gravel) to the sea.</p>	<p>Not assessed</p>	<p>♣ High cost. ♣ Unsuitable soil types in Raglan area. ♣ Risk of runoff from disposal site to sensitive inner harbour estuarine areas. ♣ Sea outfall still needed.</p>
<p>16. Dual disposal (Wainui Reserve/sea outfall) Develop treatment plant as proposed and construct overland flow irrigation over eastern slopes of Wainui Reserve. Irrigation during dry periods, sea discharge during winter/wet periods.</p>	<p>\$ 5.5M</p>	<p>♣ High cost. ♣ Unsuitable soil types in Raglan area. ♣ Risk of runoff from disposal site to sensitive inner harbour estuarine areas. ♣ Sea outfall still needed.</p>
<p>17. Land disposal at Te Uku (spray irrigation) Develop treatment plant as proposed and construct spray irrigation over farmland in the Te Uku</p>	<p>\$ 11.9M</p>	<p>♣ High cost. ♣ Unsuitable soil types in Raglan area. ♣ Risk of runoff from disposal site to sensitive inner harbour estuarine areas.</p>
<p>18. Land disposal at Te Hutewai (spray irrigation) Develop Wainui Road treatment plant as proposed. Construct spray irrigation over farmland in the Te Hutewai area approximately 5 km south of treatment site.</p>	<p>\$ 8.8M</p>	<p>♣ High cost. ♣ Unsuitable soil types in Raglan area. ♣ Risk of runoff from disposal site to sensitive inner harbour estuarine areas.</p>
<p>19. Tokoroa Develop mechanical treatment plant as at Tokoroa with discharge to shallow gravel-filled trench to stream</p>	<p>\$ >6M</p>	<p>♣ High cost. ♣ Sea outfall still needed. ♣ Not perceived as a "natural" treatment system. ♣ Less suited to Raglan's highly variable wastewater flows. ♣ Tangata whenua do not support trench disposal concept.</p>
<p>20. Whangamata, Rotorua Develop land disposal as per Whangamata and Rotorua. Spray irrigation to established pine forest.</p>	<p>\$ 12M</p>	<p>♣ High cost. ♣ Unsuitable soil types in Raglan area. ♣ Risk of runoff from disposal site to sensitive inner harbour estuarine areas.</p>

FURTHER ALTERNATIVES CONSIDERED SINCE RESOURCE CONSENT HEARING

<p>21. Vault (including composting) toilet plus greywater treatment and disposal Retro-fit vault toilets and on-site greywater (washwater, bathwater etc) treatment and disposal systems to all dwellings and businesses in Raglan.</p>	<p>\$ 10.1M</p>	<p>♣ High cost ♣ Some sections too small to accommodate greywater soakage disposal fields. ♣ Many homes not designed to accommodate vault toilets. ♣ Many sections too small to accommodate onsite wastewater/greywater disposal fields. ♣ Raglan clay soils unsuited to effluent disposal by ground soakage. ♣ Difficult to obtain resource consents to install individual septic tanks where public wastewater system already exists.</p>
<p>22. On-site Wastewater treatment and disposal Retro-fit filtered septic tanks and on-site effluent disposal fields to all dwellings and businesses in Raglan.</p>	<p>\$ 10.5M plus resource consent costs for each site.</p>	<p>♣ High cost ♣ Some sections too small to accommodate greywater soakage disposal fields. ♣ Many homes not designed to accommodate vault toilets. ♣ Many sections too small to accommodate onsite wastewater/greywater disposal fields. ♣ Raglan clay soils unsuited to effluent disposal by ground soakage. ♣ Difficult to obtain resource consents to install individual septic tanks where public wastewater system already exists.</p>