

RUAKAKA WASTEWATER LONG-TERM CONSENTS PROJECT

ASSESSMENT OF EFFECTS ON THE ENVIRONMENT

SUMMARY FOR NOTIFICATION PURPOSES

1. General Proposal

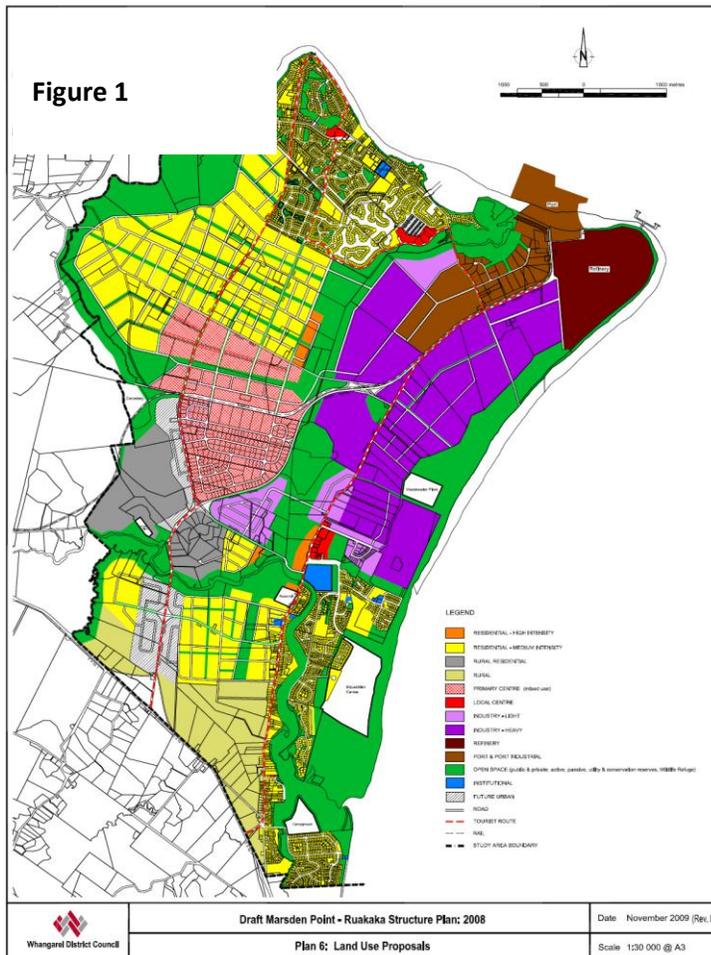
The Whangarei District Council (WDC) has identified the Bream Bay area as a growth node for some time. Investment has taken place over the years on improving the roading network and the water supply system. Consents were also granted in May 2008 for a modest increase in capacity of the wastewater treatment and disposal system. However it became apparent through that process that the increase in capacity would cater for the short term only and would not match the projected medium to long term growth in the area. Work therefore began in 2007 on developing a long term wastewater strategy to manage the provision of wastewater services for One Tree Point, Ruakaka and potentially the wider Bream Bay area. Thus was born the Ruakaka Wastewater Project with a 50 year planning horizon. The strategy is now complete and to put this into effect WDC needs to obtain the necessary resource consents from the Northland Regional Council (NRC).

2. Area to be serviced

The current wastewater scheme was largely built in the 1980s centred on One Tree Point and the then

Marsden Power Station Village. More recent extensions have included Paradise Shores at the south end of Ruakaka, Tamure Place, One Tree Point and Marsden Cove. These areas are being served by the existing wastewater treatment ponds and wetlands which have recently been upgraded. It is envisaged this treatment process with further upgrading will be capable of dealing with incoming flows of up to 1,500 m³/day. Currently the plant is receiving on average about 660 m³/day.

The area to be ultimately served by the proposed wastewater scheme is generally shown in Figure 1. This area is based on WDC's adopted Marsden Point – Ruakaka Structure Plan. Provision has also been made to receive wastewater from the Waipu Sewerage System and potentially from rural residential lots in the general vicinity of the One Tree Point – Ruakaka business and residential areas.



3. Wastewater Projections

Over the course of the project studies, a number of estimates or projections have been made on the long term wastewater flows looking out to a 35 to 50 year horizon. These have changed due to an expansion of the area shown in successive structure plans and the slowdown in economic growth over the last two to three years. The initial work used wastewater flow projection in the year 2047 of some 24,000 m³/day on an average dry weather day (ADWF). The 2047 date is based on a 35 year consent period which is the maximum duration provided for under the Resource Management Act. However, the 2047 flows were revised downwards in 2010 to 16,000 m³/day (ADWF) to take into account the actual growth rates since 2007 and the expected lower future rates of development with the area than previously allowed for.

4. Ruakaka Wastewater Strategy and Proposed Scheme

A key part of the evolution of the proposed wastewater scheme was the development of the “Ruakaka Wastewater Strategy”. This Strategy is based on an integrated approach to future wastewater management within the One Tree Point – Ruakaka area that will meet a wide range of objectives and drivers. It is made up of five interlinked components. These components are:

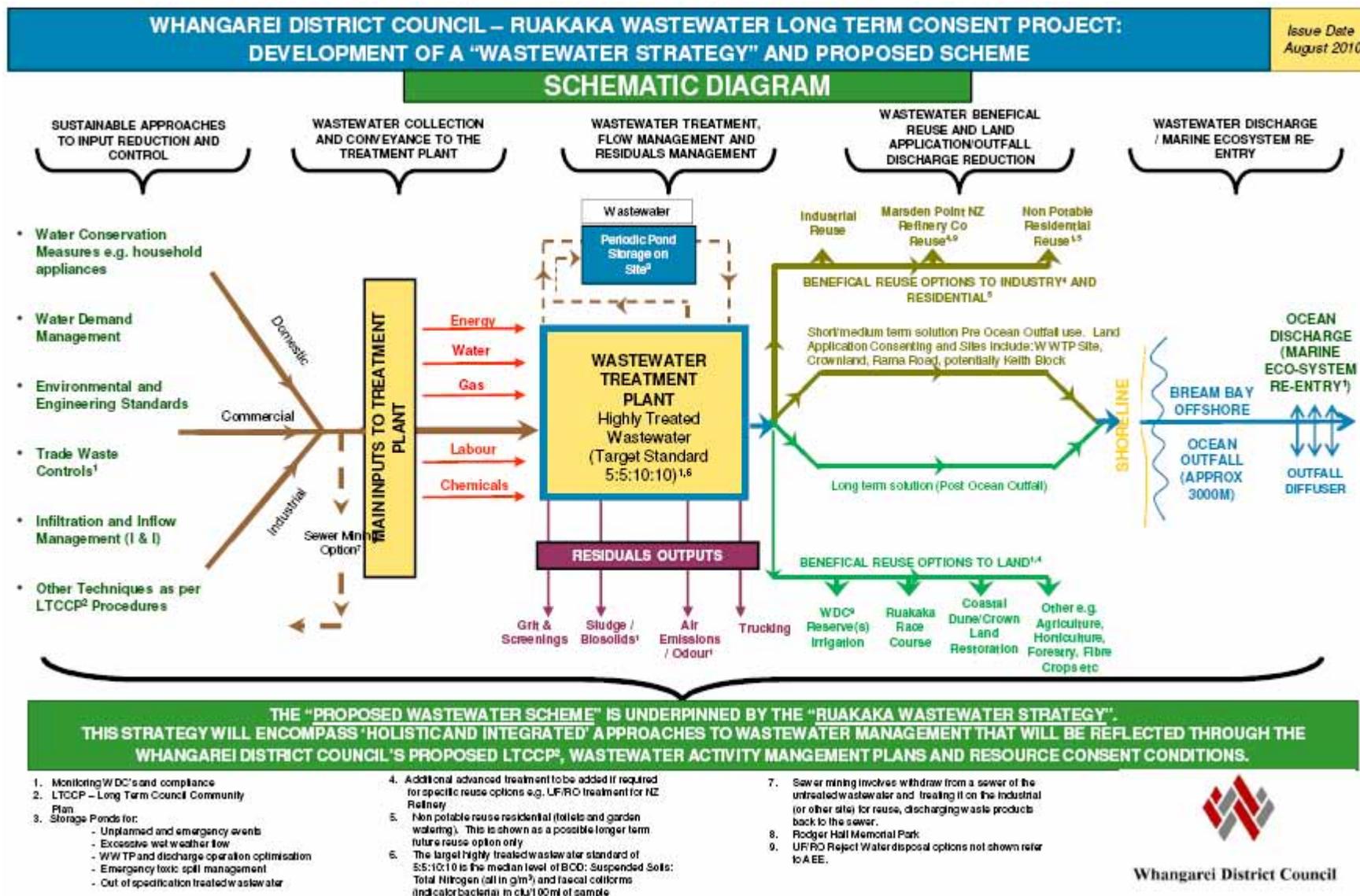
1. sustainable approaches to wastewater input reduction and control.
2. wastewater collection and conveyance.
3. wastewater treatment, flow and residuals management.
4. treated wastewater beneficial reuse.
5. treated wastewater ocean discharge.

A range of options have been developed under each component. These are summarised in the schematic included as Figure 2. Each of these options has been investigated as part of an extensive set of environmental, economic, engineering and cultural studies. The studies have formed a key part of the all important assessment of alternatives (options). These alternatives were evaluated under the headings of (a) wastewater management, (b) reduction in wastewater, (c) treatment plant location & process type, (d) treated wastewater reuse and discharge, (e) residuals management and (e) wider environmental enhancement.

These options studies in conjunction with a wide ranging consultation programme, have been drawn on to develop what is referred to as the Proposed Ruakaka Wastewater Scheme. The key elements of the “Proposed Scheme” are:

1. Sustainable approaches to wastewater input reduction and control at source.
2. Wastewater collection and conveyance system that will minimise future wet weather flows.
3. Continued use of the existing oxidation pond/ wetland treatment plant until 2016-2018.
4. Staged development of a new advanced treatment plant, using the existing site, to treat wastewater to a very high level.
5. Application of treated wastewater in the short to medium term to land adjacent to or near the plant and at the WDC Rama Rd block and on Roger Hall Park adjacent to the Ruakaka Recreation Centre in the medium to long term.
6. Beneficial reuse of treated waster initially at the Marsden Point Oil Refinery
7. In the long-term, use of an offshore ocean outfall (approximately 3 km long) after land application and reuse elements have been utilised

Figure 2 Development of the Ruakaka Wastewater Strategy



5. Standard of Treatment

The WDC made an early decision to base the “Proposed Scheme” on a high standard of wastewater treatment. This is intended to provide (a) maximum flexibility in developing reuse and disposal options, (b) a high degree of protection of the waters of Bream Bay and (c) a response to environmental, cultural and community concerns.

A new wastewater treatment plant is proposed to be built on the existing designated site in close proximity to the existing ponds and wetlands. The new plant will be a modern, best practice, secondary treatment plant with ultra violet disinfection and probably tertiary filtration. The plant will produce wastewater quality that well meets recreational and shellfish gathering standards. It will also utilise the existing oxidation ponds as contingency storage areas to manage any excess wet weather flows.

6. Staging

An important part of the “Proposed Scheme” is the ability to stage the provision of the necessary works. As noted above, the existing consents allow the WDC to upgrade the existing ponds and wetland prior to the construction of a new treatment plant. This is being done progressively. The new treatment plant would then be built in stages as wastewater demand increases above the 1,500 m³/day expected capacity of the upgraded existing plant. This provides an opportunity for future advances in treatment processes and technologies to be incorporated.

While the existing wastewater land disposal area will initially be used, additional land disposal areas will be required in the short to medium term. Figure 3 below shows the location of the majority of the land application areas available to be used if required. Given existing agreements, it is unlikely that the land shown as Zone 6B and Zone 7, which are both within conservation areas, would be used within the periods of the existing resource consents.

Figure 3 Overview of Wastewater Land Application Zones and Areas

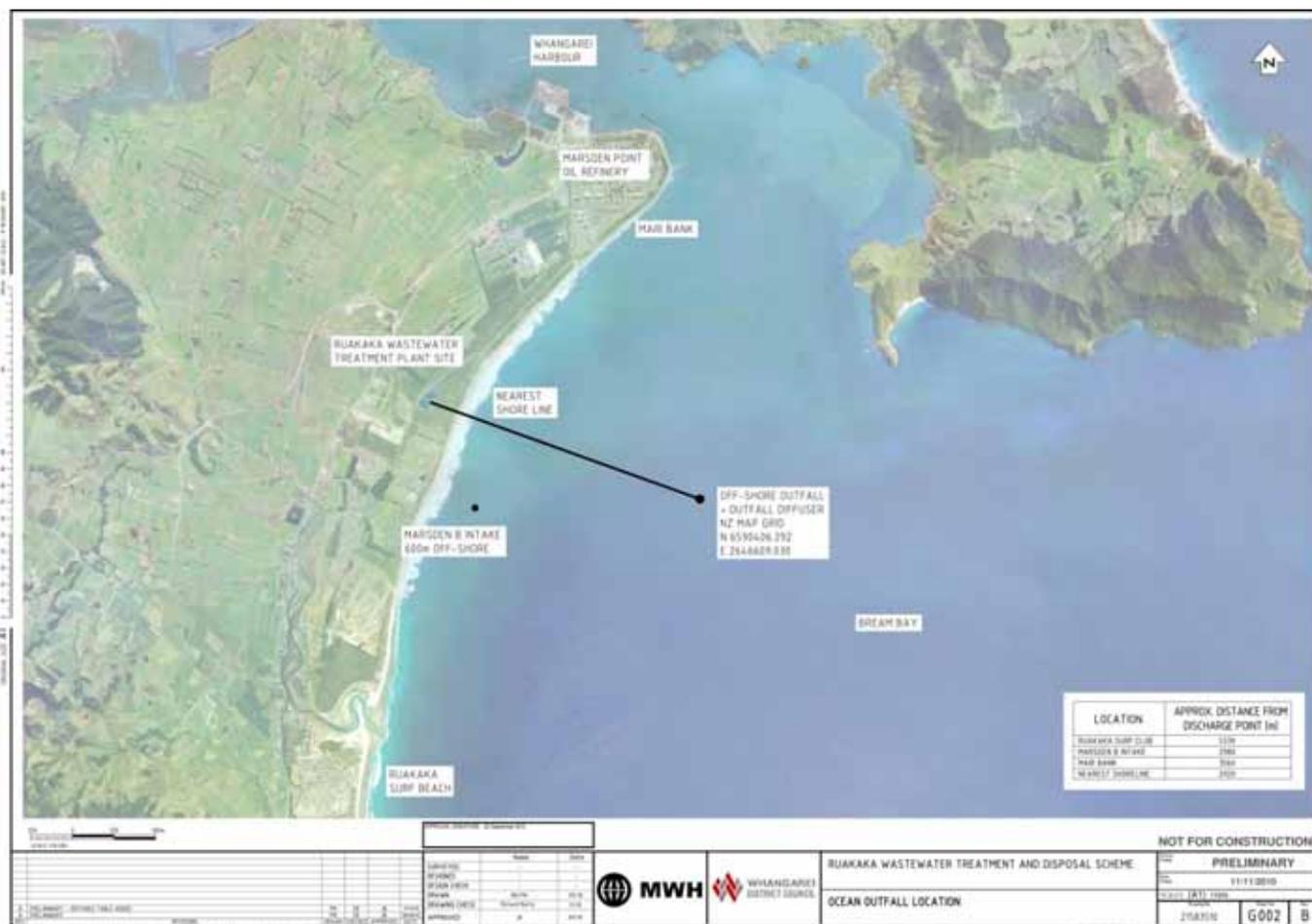


The provision of further advanced treatment facilities to meet the water needs of the Marsden Point Oil Refinery is planned to take place as development in the area leads to further wastewater inflows.

This option is expected to utilise 2,000 m³/day of treated wastewater, and potentially up to 4,000 m³/day, which would otherwise need to be disposed of elsewhere.

An offshore ocean outfall is expected to be required in the long term. Based on current expected growth projections, it is not envisaged that an ocean outfall would be required for a further 15 years or around 2026-2027. At that point wastewater volumes are projected to be approaching 5,000 m³/day. However the “Proposed Scheme” has been developed to allow for the outfall construction to be either delayed or brought forward in response to wastewater flows, other land based options and technological developments. Figure 4 below shows the proposed location of an ocean outfall. This was selected as being the most suitable after a detailed evaluation of 23 alternative locations.

Figure 4 Proposed Ocean Outfall Location



7. Resource Consents Applied For

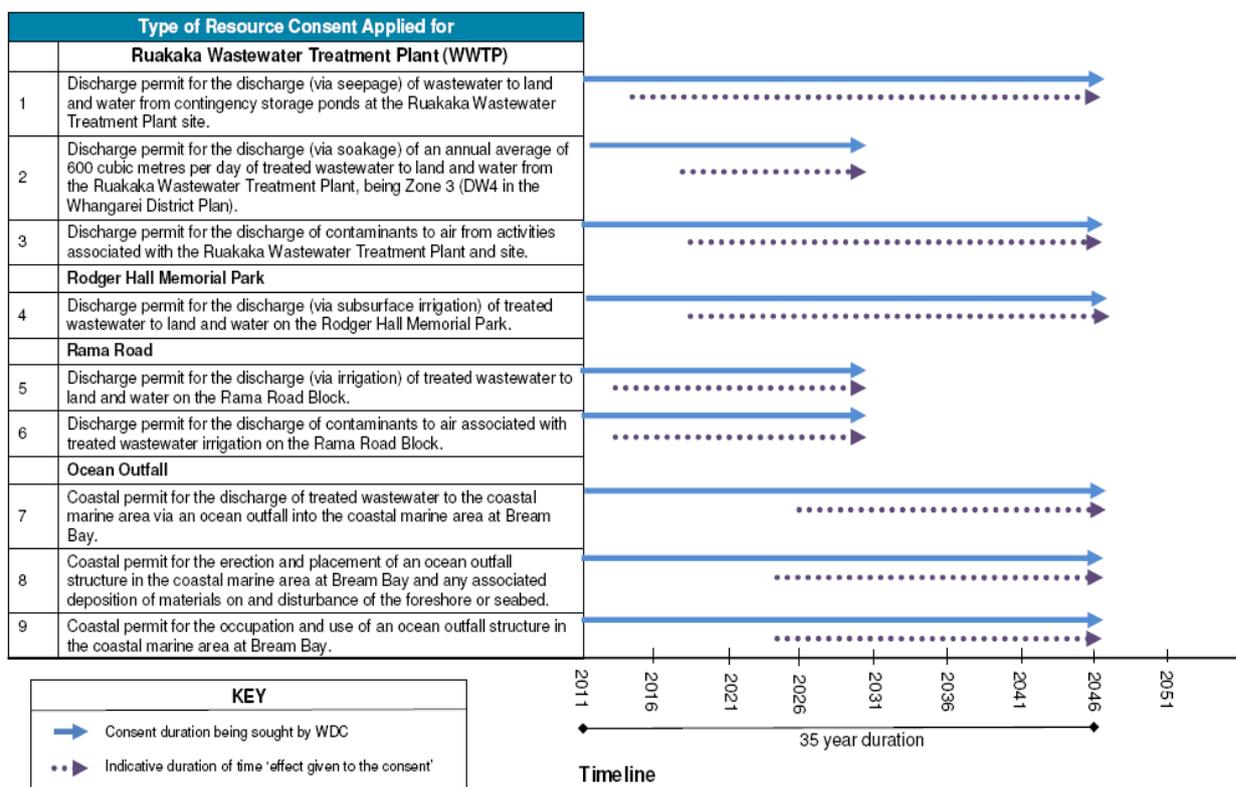
To be able to put the “Proposed Scheme” into place, nine new resource consents are required.

- Two consents are required for the operation of a new wastewater treatment plant to permit the discharge to ground of treated wastewater and discharge to air of contaminants (mainly odour).
- Four further consents are required for the land application of treated wastewater beyond, those already held by WDC. These include a discharge to ground of treated wastewater for land immediately adjacent to the plant (Zone 3), another discharge to ground of treated wastewater for the Roger Hall Park, and a discharge to ground of treated wastewater and a discharge to air of contaminants for the WDC Rama Rd block
- Three consents are required for the offshore ocean outfall. These are a coastal permit for the erection and placement of the outfall, another coastal permit for the occupation and use of the

foreshore and seabed for the outfall, and a coastal permit for the discharge of treated wastewater to the coastal marine area.

The duration sought for these various consents is tied to the expected timing of wastewater volume increases and the timely provision of the treatment, reuse, and disposal facilities needed to cater for these flows. All consents once granted need to be either used (put into effect) within a certain timeframe otherwise they will lapse. The consent durations and lapse times have been designed to provide for the staged development and flexibility for timing of the scheme installation. Figure 5 below shows this diagrammatically

Figure 5 Consent Durations Applied for and expected time consent put into effect



Note: Chart is based on consents issued in 2011. Consent durations will govern – not dates

8. Assessment of Effects on the Environment/ Means of Mitigation

For each component of the “Proposed Scheme, the activity and associated consent(s) a range of potential environmental effects were assessed and the means to avoid, mitigate and remedy any adverse effects were developed. These are set out below showing the key effects and some means as to how they might be addressed. Please refer to the full Assessment of Effects on the Environment (AEE) for details of these assessments.

Discharges to Air for the new treatment plant and the Rama Rd Block:

Potential Adverse Effect	Extent of Effect & Means of Mitigation
Odours beyond the boundary of the site.	Effect seen as localised and short term. This can be largely addressed by plant and irrigation/application design, management, operation and monitoring
Compromise the mauri of the air -to tangata whenua.	The most appropriate means is to minimise the extent of discharge of odours and contaminants to air and to continue to engage with the Patuharakeke Te Iwi Trust Board.

Discharges of treated wastewater to ground (land application) at the Rama Rd Block:

Potential Adverse Effect	Extent of Effect & Means of Mitigation
Ground water contamination	Based on existing Zone discharge to ground no significant effects on Ruakaka Beach. Maintain high standard of treatment and regular groundwater monitoring
Public Health risk associated with seepage into Bercich Drain	Potential risk as being low due to high level of treatment proposed and suggested monitoring programme
Public Health risk associated with seepage to Bream Bay	Risk assessed as being minimal
Risk to indigenous vegetation	Effect assessed as being low. Apply wastewater away from susceptible species. Monitor health of vegetation
Build up of salts and other contaminants in the soil.	Effect assessed as being low by managing application volume and salt concentrations below trigger levels. Continued groundwater salt concentration monitoring

Discharges of treated wastewater to ground (land application) at Roger Hall Park:

Potential Adverse Effect	Extent of Effect & Means of Mitigation
Potential contamination of soil and groundwater.	Considered to be no more than minor
Potential for treated wastewater ponding if sub surface irrigation system malfunctions.	Effect short term and no more than minor. Low application rates, high standard of treatment, documented operating planes effective buffer zones and monitoring plan

Discharge of Treated Wastewater into Bream Bay from the offshore Ocean Outfall

Potential Adverse Effect	Extent of Effect	Means of Mitigation
Water quality including visual, aesthetic and aquatic	Assessed as being minor at edge of 100m mixing zone	Need to monitor Bream Bay water quality, regular review of consent conditions, available technologies and catchment growth. Provision of additional treatment capacity in a timely manner.
Contact recreation – Microbiological & undesirable biological growths	Assessed as being minor at edge of 100m mixing zone & within Bream Bay.	As above
Shellfish gathering	Minor at Mair Bank & other shellfish gathering sites	As above and monitoring of abundance and health of shellfish at these sites
Commercial Aquaculture	Minor at Aquaculture Park seawater intake	As above and monitoring of seawater quality at intake, further research on susceptibility of species at site on variation in seawater quality.
Recreation and Amenity Effects	Minor at edge of 100m mixing zone	
Maori Cultural and Spiritual Effects	Partly minimised & mitigated adverse effects exist	As above and maximising opportunities for reuse of wastewater and land application. Ongoing involvement with tangata whenua

Construction and Occupation of an Ocean outfall on the sea bed

It is proposed that the effects of the construction of the ocean outfall will be managed in accordance with a Construction Management Plan. The effects would be short term (during construction) and are considered to be manageable. WDC has decided to adopt a trenchless construction technique, involving horizontal underground drilling or thrusting, for the land and beach section of the outfall pipeline. This will mean that there will be no, or minimal, disturbance of vegetation, sand dunes and the beach, and no need for beach access limitations in the vicinity of the outfall alignment.

9. Suggested Resource Consent Conditions

An extensive suite of specific conditions have been suggested by WDC for each of the nine resource consents which have been applied for. In addition a number of special resource consent conditions have been suggested in respect of (a) Patuharakeke Te Iwi Trust Board, (b) Bream Bay Land Owners Association, (c) NIWA in respect of the Bream Bay Aquaculture Park and (d) a proposed Wastewater Liaison Group. Furthermore, a Development, Technology and Environmental/ Monitoring Review Condition is also suggested.

All the suggested conditions have been structured to ensure the potential and actual adverse effects of the wastewater treatment plant operation, the treated wastewater disposal and discharges, and associated structures are appropriately avoided, remedied or mitigated for the duration of the consents applied for. These special conditions will be considered and possibly further developed by NRC during the statutory consent process.

10. Consultation

To ensure that the consultation was carried out in a manner that effectively engaged those parties interested in or affected by the Project, a Consultation Approach (strategy) was developed and implemented prior to finalising and lodging the consent applications. Those consulted included Tangata whenua, NIWA, BBLOA, NZRC other businesses, recreational and local community groups, statutory bodies and the community at large

A wide range of consultation activities were undertaken including open days, newsletters, WDC website, stakeholder meetings, and hui. A Project Advisory Group played an important role in terms of advice on consultation activities during the earlier part of the Project. Consultation has played a major role in establishing the “Ruakaka Wastewater Strategy”, the “Proposed Scheme” and WDC’s suggested resource consent conditions

11. Conclusion

The present Ruakaka Wastewater Scheme and the ‘Proposed Scheme’ is a critically important part of the infrastructure of the Ruakaka area as it contributes significantly to the health, safety and well-being of the Ruakaka, One Tree Point and wider Bream Bay residents, visitors to the area, and businesses. It is intended to support and underpin the area’s growth and economic development. The Ruakaka Wastewater Project has involved extensive investigations, evaluation and consultation over a four year period. This work has allowed WDC working, with tangata whenua, key stakeholders, and the wider community, to determine a ‘Proposed Scheme’ and associated ‘Ruakaka Wastewater Strategy’. When implemented in a staged manner to match the growth in the area, it is designed to achieve a high level of environmental protection.

The ‘Proposed Scheme’ and ‘Ruakaka Wastewater Strategy’ is considered by WDC to meet the Best Practicable Option (BPO) approach as provided for under the RMA. There are number of identified physical adverse effects of the ‘Proposed Scheme’ associated its construction and operation. These have been assessed by WDC as minor and include effects associated with the wastewater treatment plant and the land disposal areas in the short to medium term, wastewater reuse and the offshore ocean outfall discharge into the Bream Bay in the medium to long-term. The proposed Scheme design, construction, management operation and suggested resource consent conditions are intended to avoid, remedy of mitigate any adverse environmental effects.

Tangata Whenua have identified a number of potential adverse effects, most of which it is considered can be mitigated to a reasonable level. It is acknowledged that there are adverse cultural and spiritual effects to tangata whenua associated with the mauri of the water from the discharge to the coastal marine area of Bream Bay and the mauri of the air from air discharge associated with the wastewater treatment plant.

12. More Information

More information by way of the full Assessment of Effects on the Environment, the Companion Volume and the accompanying support documents are viewable at NRC Whangarei offices and WDC Whangarei and Ruakaka Offices.

Questions regarding the Proposal, the consents being sought and the AEE should be directed to the Whangarei District Council through either Fraser Campbell (09 437 7905) or Curt Martin (09 430 4200)

Questions regarding the consent submission and decision-making processes should be directed to the Northland Regional Council through Glenn Mortimer (09 436 5687)

Prepared 24 June 2011