Community Strategy

toward an

Acceptable solution

to the

disposal of

Akaroa Wastewater

Prepared and adopted by the community of Robinsons Bay

January 15, 2017

I. Executive Summary

This document presents a community proposal to assist Christchurch City Council in finding a solution to the disposal of Akaroa's wastewater that has broad acceptance. The community acknowledges that this is not an easy problem to solve and understands that land-based disposal must be thoroughly investigated by the Council with significant progress made before it reports back to the Environment Court on June 30th.

This proposal:

- establishes principles to govern selection of wastewater disposal sites;
- proposes working collaboratively with Council to find acceptable alternatives meeting these principles;
- delays consultation until Easter to give time to:
  - develop widely acceptable options to replace the current Takamatua and Robinsons Bay valley options,
  - present each option with sufficient detail on infrastructure and placement, risk analysis, and costings to enable robust and meaningful consultation.
  - facilitate consultation that constructively furthers the path toward a resource consent application;
- puts finding a culturally, socially and environmentally acceptable solution first and budget-setting second.

This strategy has been produced by the community of Robinsons Bay, in conjunction with some residents of Takamatua, after nearly 10 months of formal and informal consultation on the issue. It has been endorsed by a well-attended meeting of the Robinsons Bay community held on January 15th 2017, and is being released to the Council wastewater staff, copied to Cr Turner, to alert staff to the suggested way forward.

We are also sharing it with the Takamatua Ratepayers association and our Community Board. We support Ngāi Tahu cultural values and signal our intent to work with our rūnanga toward a solution we all consider acceptable and that benefits this area in the long term.

We anticipate incorporating feedback into our strategy and then presenting it to a full Council meeting as soon as possible.

II. Background

The Akaroa sewage treatment plant is currently situated south of Akaroa on the waterfront of the Takapuneke valley. Treated waste water is discharged to the harbour about 100m out from the plant. Takapuneke is an historic site of great significance to local tangata whenua, and hence the Council has determined to move the treatment plant before its current consent expires in 2020. It has purchased a new site at the top of Old Coach Road and obtained resource consent to build a new treatment plant there. However, its application to discharge the treated water from the new plant back to the harbour was declined by Ecan with a directive to investigate land based alternatives more thoroughly. Ngai Tahu opposed harbour discharge on cultural grounds. The Council has appealed this decision to the Environment Court and is now investigating alternatives. It must report back to the court with significant progress by July.

In April/May 2016 the Council ran an initial consultation exercise proposing several options including a land based disposal in the Takamatua headland and valley. The headland area was subsequently withdrawn on geotechnical grounds. In October Council staff contacted residents of Robinsons Bay indicating new options were soon to be put out for consultation. These included irrigation in Robinsons Bay with water to be absorbed by either a cut-and-carry pasture system or trees, irrigation on the Takamatua Valley floor with water to be absorbed by trees or a more expensive option to use a remote site at the Pompey's pillar headland above Otanerito. Little information has been provided about the location of key infrastructural facilities such as the large effluent ponds needed to store water prior to irrigation or the health, safety and environmental risks associated with land disposal. There has been no recognition of the adverse effects on the adjoining properties and residents or the impact on property values.

The residents of Robinsons Bay and Takamatua have vigorously objected to proposals to dispose of the wastewater in their valleys identifying risks around human and environmental health, flooding, reduced amenity of the valleys, a consequent reduction in the value of their properties and a host of other concerns. They are not part of the Akaroa sewage scheme, but instead already take responsibility for, and bear the cost of, installing and managing their own septic systems on their own properties and see no reason why they should bear the further costs and risks of absorbing Akaroa's wastewater. However, they recongnise that finding a land based solution is not an easy task and have signal to the Council a willingness to work constructively with other parties, including Ngāi Tahu and the Akaroa community, to find an acceptable solution to the problem of Akaroa's wastewater. To this end the residents have developed an understanding of land based disposal of wastewater, participated in meetings with the Council and more recently engaged expert advice with a view to progressing acceptable solutions.

A critical issue is that the Council staff have been constrained in their search for alternative solutions by the original budget with its straightforward harbour discharge. Finding an acceptable land based solution on the steep and slip prone terrain of Banks Peninsula without affecting resident populations is proving much more complex and the budget is likely to need increasing if an acceptable solution is to be found.

III. Path forward

In an attempt to assist the Council to move forward constructively this document sets out:

- principles residents consider land based wastewater disposal needs to meet to be acceptable;
- community partnership strategy to assist the Council to complete a thorough investigation of alternatives to harbour discharge with a view to finding and costing a solution acceptable to all parties within the timeframe dictated by the court

IV. Principles

We identify the following principles to underpin the search for an acceptable solution to the disposal of Akaroa waste water:

A. Wastewater treatment must be consistent and to the highest standard

- *Under the current proposals, sewage will bypass the treatment plant during times of heavy rain and only be subject to basic filtering and minimal UV treatment before passing out of the plant to the effluent storage ponds. If the ponds are full, then the sewage will not be sent to the treatment plant but instead be discharged raw to the Grehan Stream. Neither are acceptable. The storage facility at the plant needs to be sufficient to hold all foreseeable water arriving, even in storm conditions, so that it can be treated to a consistent standard. This means catering for all but the most extreme and unexpected weather events such as a 1 in 100 year event.*
- *The community appreciates that the treatment plant will not remove all viruses, hormones, pharmaceuticals or heavy metals, but stipulates that it must be treated to the highest standard possible and that any further treatment using natural processes to neutralise these (such as passing through soil) must not expose humans, livestock, other animals or the environment to increased health risks.*

B. Disposal must be in the right area, not one that externalises risks and costs onto adjoining residents, or destroys the amenity or health of the environment

- *Current proposals for land disposal would put the health, safety and environment of the receiving area at risk and lower the amenity and value of surrounding and nearby properties*
- *Property setbacks from infrastructure and irrigation must ensure that effects such as spray drift, infiltration run-off and shading are not imposed on neighbouring properties and residences*
- *Ideally remote areas should be prioritised for consideration*

C. Solution must be sustainable in the long term and robust in the event of natural disasters

- *If land disposal is used, it must not build up nutrients or pollutants over time that nullify the continued use of that land*
- *Water that is still contaminated must not make its way to waterways. If land disposal is the only option used there must be a mechanism to cope if storage ponds are full.*
- *Infrastructure must be robust enough to respond to storms, earthquakes, tsunamis and rising sea levels without creating floods, slips or environmental disasters*
- *A comprehensive risk monitoring and management program needs to be in place*

D. Solution must meet Ngai Tahu cultural values

- *Alternative solutions must meet Ngai Tahu cultural values and Ngai Tahu representatives must be engaged in the process*
- *Recognise that many other cultures also find wastewater offensive*

E. Akaroa must be actively involved in the solution

- *Actions taken at the top of the pipe can have large downstream effects, both positive and negative.*
- *Solution must include plans to minimise the volume of water and maximise the quality of water arriving at the treatment plant*
- *Reducing inflow reduces the size of the outflow disposal problem*

- *The current outflow volume dictates the need for effluent storage ponds occupying up to 3 hectares. Finding a suitable and safe location for these huge ponds on the steep Peninsula topography is one of the most challenging aspects of a land based solution. A reduction in volume, particularly over winter, would ease this.*
- *A large percentage of the water arriving at the treatment plant is stormwater that has infiltrated the sewer pipes.*
- *Currently there are no incentives for existing Akaroa properties or developers of new property to install water recycling systems on site*
- *There is little to prevent harmful material entering the system or public education to minimise this risk.*

F. Managed process and infrastructure

- *The proposed infrastructure and its ongoing management and whole of life cost of management must be identified and in place at the outset, and subject to public and expert scrutiny to ensure that it is fit for purpose, sustainable and includes rapid and effective response to community concerns.*

G. Ideally find a solution that makes beneficial use of the water

- *Search for beneficial solutions needs to be realistic about the quality and consistency of the effluent. Under the treatment regime currently proposed the uses of treated water are limited to those which do not give rise to inhalation or ingestion by humans. It is unclear what applies when the effluent is contaminated by wet weather bypass flows*
- *Solution should not facilitate the private financial benefit of some parties while externalising costs and risks onto others*
- *Solution would include a start on re-use in suitable applications in Akaroa and a commitment to install a lavender pipe system to return water to Akaroa.*

H. Obviate the need for compulsory purchase

- *An acceptable solution that does not harm the receiving community, and for which adequate compensation is paid to landowners and any other affected parties should obviate the need for compulsory purchase*

I. Options put out for public consultation must be sufficiently detailed for the public to make an informed choice

- *Clear information must be given about the quality of the water and how it can be used.*
- *Where water is to be used for any kind of farming, the with-holding periods need to be identified.*
- *Options must indicate the locations of key infrastructure such as effluent storage ponds, pumping stations and pipes and their proximity to neighbouring properties and residences.*
- *Options must include a risk analysis across the full set of risks identified by the community*
- *There needs to be clear information on costings, including how they have been arrived at, and providing the overall land purchase budget for each option.*

V. Community Partnership Strategy

Under the following strategy the community will work collaboratively and constructively with the Council to ensure that alternatives to harbour discharge are thoroughly investigated and reported back to the Environment Court by July. The aim is to find a solution meeting the principles outlined above and acceptable to all parties.

A. Community to develop and share Risk Analysis Framework

Regardless of how sophisticated a treatment system is put in place, there is an undeniable risk attached to being on the receiving end or downstream, downhill or downwind of a wastewater disposal system. Problems may occur due to unexpected contaminants entering the system, failures of the treatment plant, failure of the soil to absorb the water, power outages, and natural events such as earthquakes. When that disposal system is on a large scale, coping with the water from a much larger community including a transient population of visitors and tourists, the risks are greater. To date the Council has singularly failed to acknowledge these risks, and hence has come up with options that include the disposal of wastewater into populated areas.

We consider that any land based wastewater disposal system should not compromise the health, amenity or property values of any residents in the receiving environment and should be environmentally sustainable long term and robust in the face of natural events such as storms, earthquakes or tsunamis.

Based on our local knowledge, the understanding we have gained of reticulated wastewater land disposal and an analysis of the Council's current proposals, the communities of Robinsons Bay and Takamatua have identified a series of risks that need to be further investigated and taken into account in the design of any acceptable solution.

The community is now funding high-level, professional analysis of these risks from three different perspectives.

- Wastewater engineer Andrew Dakers has been engaged to review the current models from a geotechnical and soil moisture perspective and to advise the community on the science supporting land based disposal. Work is already under way with the Council technical experts, including a review of the current parameters around slope stability and water application rates to see whether steeper land can be included.
- Valuer Phil Wilkinson has been approached to produce a desktop exercise of the effect on property values expected in Takamatua and Robinsons Bay based on the Council's latest set of proposals. The purpose is to assess the economic cost externalised onto residents so that this can be included in cost comparisons of options.
- Environmental and social risk analysis is also being commissioned to assess the risks identified by the community to health of nearby residents, their properties and the environment in general. This will include system responses in the event of a natural disaster such as storms, earthquakes and tsunami.

The community undertakes to share this analysis with the Council to provide a risk analysis framework against which potential solutions can be meaningfully measured and assessed.

B. Council to withdraw current options and develop options acceptable to the community

The Community will expect the Council to withdraw its currently unacceptable proposals for intensive disposal into Robinsons Bay, Takamatua or any other populated areas, delay the consultation until Easter and use the intervening time to develop and cost alternative options that meet the principles outlined in this document and are fully analysed against the risk analysis framework produced by the community.

The community undertakes to work with the Council staff in a timely manner to identify such alternatives.

Based on work to date, the community suggests that potential options may include:

- Looking for suitable land for a disposal area where there are not affected residents or neighbours. The Pompey's Pillar land has already been identified by Council staff, there is a potentially willing landowner, and Council needs to work with the landowner to thoroughly investigate options for agricultural or other use of the land. Depending on the technical group work, if steeper land is a possibility for irrigation at a lower level of application then more suitable remote land options may become available;
- Dispersal over a wider area using a network of much smaller ponds screened by native planting in biodiversity reserves to benefit the environment and improve slope stability;
- A remotely sited artificial wetland area with subsequent disposal of treated water to harbour;
- An ocean outfall with overland piping to ocean;
- Staging of any or all of the above.

We also recommend that the Council appoint an interdisciplinary team as finding a solution will require a broader knowledge base than purely engineering.

C. Proposed timeframe and steps

The timeframe below outlines a series of steps to achieve this:

- **January/February** – community develops its risk analysis framework and works with its experts to identify any potentially acceptable solutions. Community presents its case to Council through the Long Term Plan submission process to set an expectation for budget increase over harbour discharge on the basis that the acceptable solution should determine the budget, not the other way around.
- **March** – Council prepare a consultation document with acceptable solutions meeting the principles, and assesses each against the risk analysis framework
- **April** – consultation document released including the location of infrastructure and risk analysis for each option. The public response period includes Easter and the school holidays
- **May** – Council staff analyse the consultation results and prepare final costings for selected solutions
- **June** – Council considers the options and allocates any further budget necessary and produces its report to the Environment Court

Schedule 1 Draft Risk Analysis Framework

The community has identified that land based disposal of waste water will create risks around:

- Health, amenity and property
- Long term sustainability
- Robustness in the event of natural disasters

The following pages present a table for each of these risk areas, listing out the acceptability requirements we have identified in our position as potentially affected parties, our reasoning, the progress made to date on researching these risks, and the further work needed to properly assess them. We note that our current view of the acceptability requirements may later be refined in light of a more thorough risk analysis.

These tables will form the basis of the work we commission to produce a risk analysis framework.

Table 1 – Risks around the Health, Amenity and Property in populated areas

Requirement	Reason	Progress to date	Further work needed to assess
No health risk to population in receiving area	A land based solution should not increase the health risk to anyone The health risk is markedly different to harbour discharge; wastewater discharge to the harbour is rapidly diluted and then flushed out to sea by the tides.	No health risk assessment has been done by Council. Corners appear to be being cut around setbacks which are less than land based disposal elsewhere and have been arbitrarily reduced over time.	Health and Safety assessment detailing what the water contains, what it can be used for and identifying setbacks and other safeguards used elsewhere in New Zealand.
No spray irrigation/cut and carry system in valleys populated areas	2016 consultation rejected spray irrigation and cut and carry for valley sites. Council has indicated (Akaroa Wastewater Concept Design Report for Alternatives to Harbour Outfall, Section 4.2.3 12 May 2016) that $2million on the treatment plant capital costs and reductions in running costs would be achieved with a lower quality of treatment than other disposal methods by	Amenity affects identified include the large storage pond required for this method, potential land contouring and deep ripping, industrialisation of rural areas with noise and traffic movements) Health risks from spray drift or contact with contaminated poorly treated water and exacerbated by high winds in valley.	As above Wind monitoring in Robinsons Bay and Takamatua

Requirement	Reason	Progress to date	Further work needed to assess
	relying on cut grass to absorb the nutrients and bacteria . 15% of water to be lost to spray drift and volatisation		
No large ponds to be sited near houses or visible from houses or public viewing areas	Visual impact on landscape Negative impact on local residents and amenity	Established that cut-and-carry pasture requires much larger ponds than tree irrigation.	Siting of ponds needs to be included in any meaningful consultation
No Bypass flows	No expectation of seasonal bypass flows built into a land based disposal as it undermines any health or environmental assessment and increases health risks.		Need to push back on Council to provide a bigger balance tank prior to treatment plant. Andrew Dakers to pursue with technical group. Needs to be modelled to determine tank size and placement.
No contamination of water supplies	Rural residents use springs and bores for their water supplies	No recognition or analysis done	Include in Health and Safety risk assessment
No shading of properties	Residents should not suffer having their properties shaded by trees	No acknowledgement of shading and setbacks from properties and dwellings patently inadequate to protect sun to properties as trees grow. Minimum setback for trees from any property boundary is that the property will not suffer additional shading at any time of year.	
Compensation paid for any externalised costs	Affected parties should not absorb externalised costs for a problem not of their making. We anticipate huge drops in	Valuer has been approached to do a desk top assessment of the depreciation in property values from affected valleys.	Initial feedback from valuer expected in mid Jan and we will then need to develop a brief and let a contract. Apply to FOBP

Requirement	Reason	Progress to date	Further work needed to assess
	the value of properties in affected valleys.		for funding, determine whether exercise covers both Robinsons Bay and Takamatua
Liability.	If something goes wrong the Council must be responsible, not adjoining property owners and any increased risk to health or property must be covered by the Council's insurance to the satisfaction of potentially affected parties	Issue has not been acknowledged	A statement or contract with potentially affected parties stating the Council would wear the risk
Insurability	Residents and landowners must be able to obtain insurance for their properties	Topic has not been addressed	Would insurance companies have any comment on the risk of flooding, ponds etc? How would it affect insurance premiums

Table 2 – Risks around Long term sustainability

Requirement	Reason	Where are we at now with this	Further work needed to assess
Any solution implemented lasts a long time	We don't want to repeat this exercise Its difficult, costly and a negative exercise to conduct and even more costly if it goes wrong and has to be done again.	Rushed!	Determine what needs to be done to satisfy the Court that significant progress has been made and present it with options
No degradation of waterways in receiving environment	Ensure that land based disposal is actually working. Risks to health and environment from contact with water	Andrew Dakers doing some work on run-off	Environmental risk assessment needed
No residue build up in receiving environment	Long term pollution of environment needs to be considered	No information on residues of pharmaceuticals, microbeads, hormones.	Environmental risk assessment needed
System	Land disposal system will need careful	No information provided about how	All solutions proposed in consultation need

Requirement	Reason	Where are we at now with this	Further work needed to assess
management detailed	monitoring and management to ensure water applied only when soil moisture levels permit and all plant is operating correctly.	various solutions would be managed. Concerns about poor CCC management of area currently. (ie all drains to sea currently blocked in Robinsons Bay, French Farm toilets debacle – residents ignored, poor state of maintenance of many Council assets in the area, constant staff changes).	to include the detail of how they will be managed.
Options for phased introduction explored	All or nothing cut over is a high risk. Any land based disposal should be gradually introduced so that the effects in practice on Peninsula soils is measured and assessed.	No information on timeframes and phasing	Any land based disposal option should explain how the receiving environment will be prepared (ie length of time for trees to establish, what is planned in terms of shelter belts) and what sort of back up or phasing is available if the irrigation is not working or causing problems.
Commitment to stormwater infiltration reduction	Biggest gains on capacity by controlling infiltration – particularly winter which causes the storage issues	Research shows infiltration could be as much as 80% of the water flowing through the system. There is currently much less difference between winter and summer flows than the population alterations in Akaroa alone would cause.	
Commitment to directly incentivise Akaroa households and businesses to reduce and re-use	Capacity control and addressing Akaroa water shortage issues	Nothing being done	

Table 3 – Risk around the system robustness in the face of natural events

Requirement	Reason	Where are we at now with this	Further work needed to assess
No increase in land slip risk in receiving environment	Slips devalue land, pollute waterways, can cause flooding and compromise the land based disposal receiving environment.	Slope and application rates being reconsidered by technical group	Environmental risk assessment needed
No increase in flooding risk in receiving environment	Particularly important where residences are downstream, and for storage ponds stability and containment of water.	Flooding risk has not been addressed	Environmental risk assessment needed
Plant will withstand tsunami	Tsunami could destroy infrastructure including ponds leading to contamination of waterways and surrounding area through pond destruction and large scale system failure	Tsunami risk has not been addressed	Environmental risk assessment needed
Plant will withstand earthquake	Earthquakes could lead to pond failure, pipe breakages	Earthquake risk has not been addressed	Environmental risk assessment needed
Plant will withstand sea level rise of at least 1 metre	Council documents anticipate 1m sea level rise	Sea level rise has not been addressed	Environmental risk assessment needed
Plant will withstand storms with high winds, rain and tidal surges	Climate change predictions are for increased storms	Storms effects and their predicted increase in frequency and strength has not been addressed	Environmental risk assessment needed
System will cope with power outages of	Land based systems will require pumping stations. Major power lines are above ground.	Power outages have not been addressed Impact of other infrastructural issues has	Environmental risk assessment needed

Requirement	Reason	Where are we at now with this	Further work needed to assess
indeterminate length	Storms, earthquakes and tsunamis are all likely to cause power outages and may take several weeks to repair. They may impact transport routes	not been addressed	