Akaroa Treated Wastewater Disposal Options

Consultation 26 April — 20 May 2016

haveyoursay
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Christchurch City Council

Contents

The purpose of this consultation

The purpose of this consultation is to seek public feedback on six different options for discharge of treated wastewater from a new treatment plant in Akaroa when it is completed in 2020.

Christchurch City Council has been resolved since 2011 to cease use of the wastewater treatment plant and disposal at Takapūneke. It has budgeted $33m in its Long Term Plan to upgrade the Akaroa Wastewater Scheme, including upgrading wastewater mains and three existing pump stations, a new pump station, a new wastewater treatment plant and a new discharge method for treated wastewater.

The Council has obtained resource consents for building and operating the new Akaroa Wastewater Treatment Plant on Old Coach Road and a new pump station in the boat park at Childrens Bay, and for upgrading wastewater mains and the three existing pump stations. However, the Council's applications for consents to construct a new pipe outfall to Akaroa Harbour, and discharge treated wastewater via that pipe outfall, were declined, on the grounds that the discharge was offensive to Ngāi Tahu and because the Hearing Commissioners considered that alternatives to the discharge to the harbour had not been adequately investigated.

The options are:

1. Year-round irrigation to trees
2. Year-round irrigation to pasture
3. Summer-only irrigation, with a wetland or infiltration basin and discharge via a coastal infiltration gallery at other times
4. Subsurface flow wetland and discharge via a coastal infiltration gallery
5. Infiltration basin and discharge via a coastal infiltration gallery
6. Outfall pipeline to the mid-harbour (being the one applied for).

You'll find more information about the different options further on in this consultation booklet. People are also able to propose other options for consideration.

The consent for the existing wastewater treatment plant expires in 2020 and funding for the new Akaroa Wastewater Scheme is included in the Council's Draft Annual Plan 2016–17 and Amended Long Term Plan 2015–25, which is out for public consultation in April 2016. All of the options being considered are within the current budget for the project. Feedback as part of this wider consultation process will also be considered alongside this, more specific, consultation on discharge options.

Background

In November 2011 the Council resolved to build a new wastewater treatment plant away from Takapūneke, that would produce the best quality wastewater, and that the discharge would be to the middle of the harbour.

In June 2014 the Council applied to Environment Canterbury and Christchurch City Council for resource consents for the Akaroa Wastewater Scheme, including:

- A new wastewater treatment plant on Old Coach Road, including membrane filtration
- Upgrade to existing pump stations and wastewater mains
- A new pump station in the boat park at Childrens Bay
- A harbour outfall pipe and discharge to the mid-harbour.

The new Akaroa Wastewater Treatment Plant on Old Coach Road will produce virtually clear water that looks just like tap water and has almost all of the bugs (bacteria and viruses) killed-off. The treated wastewater will be safe for irrigation or watering the garden.

Having a modern, high quality treatment plant in Akaroa will further reduce the risks to public health that may be associated with older wastewater systems, for example shellfish gathering and swimming in the harbour.

During large storms, some stormwater and groundwater gets into the wastewater network, increasing flows to the treatment plant. During this time, peak flows will be treated by a bypass treatment system, which will include screening, UV disinfection and filtration. It is expected that the bypass treatment system will operate about once or twice a year, and the wastewater quality will be slightly lower than for fully treated wastewater, and would not be suitable for watering the garden.

Consents were granted in July 2015 for all of the above apart from the discharge to the harbour and the outfall pipe. Consents for the discharge and outfall pipe were declined on the grounds that a direct discharge to the harbour is offensive to Ngāi Tahu, and the Hearing Commissioners decided that alternatives had not been adequately investigated.

The Council has lodged an appeal against the decline of those consents, but will not be making a decision on pursuing that appeal until it has reassessed alternatives for the discharge.

Ngāi Tahu advises that "Ngāi Tahu rights and interests associated with Akaroa Harbour are strongly focused on mahinga kai (food gathering practices). Discharge of treated wastewater to the harbour is culturally offensive and incompatible with the harbour as mahinga kai. As tāngata whenua, Ngāi Tahu have kaitiaki rights and responsibilities to actively protect natural resources in Akaroa for future generations. Protecting and enhancing the mauri (life force) of the harbour requires the elimination of wastewater discharges to Akaroa Harbour. The Mahaanui Iwi Management Plan (2013) provides further detail on Ngāi Tahu objectives and policies for managing wastewater in Akaroa to protect customary fisheries."

The Council is working with Ōnuku Rūnanga, Wairewa Rūnanga, the Akaroa Taiāpure Management Committee and Te Runanga o Ngāi Tahu (the Ngāi Tahu parties) to explore land-based alternatives to the harbour outfall and is seeking public feedback on a range of options, which are explained in more detail in this consultation booklet.

Public feedback on the outlined options will help inform a decision on which option to progress through the resource consent process.

Detailed options

Once the wastewater has been treated at the new plant, it needs to be discharged. A short list of options for the release of this treated wastewater are outlined below. Several other options were considered and discounted:

- Pumping or tankering wastewater to the Christchurch Wastewater Treatment Plant was discounted because of high capital and operating costs, and negative environmental effects associated with transporting the wastewater for such a long distance
- Overland flow or the use of a Rakahore chamber (typically a concrete chamber with rocks embedded in it which allows the wastewater to come into contact with the land) before discharging to the harbour were discounted as they did not utilise natural processes to restore the mauri of the wastewater, and continues discharge of it into the harbour
- Non-potable reuse of treated wastewater (such as for flushing toilets and watering gardens), as it would require new pipe networks to be built, cost significantly more than the other options, and only use around 20 per cent of the wastewater. In the future the Council may look at this option for Akaroa, but this is not included in the current options.

The short listed land-based options will require the purchase of land from private owners, lease or license agreements with them (or a combination of all three), and maps are included in this consultation booklet outlining possible sites for each option. These maps are based on a desktop assessment, and on-site investigations will be need to confirm whether the land shown is suitable, so the areas shown on the maps may change.

A desktop study was undertaken to identify possible areas for land treatment options. The following criteria were used:

- not too far from the new wastewater treatment plant on Old Coach Road (a 2 kilometre radius was used), relatively flat (less than 15 degree slope)
- at least 25 metres from a residential area or waterway
- property size of at least 1 hectare
- not known to have land stability issues.

All of these are on Takamātua Peninsula or in the Takamātua Valley and are in private ownership. Options for access to the needed land are purchase, lease or license.

Several of the options require discharge of remaining wastewater in a diffuse way on the coastline, most likely via a coastal infiltration gallery at the end of the Takamātua Peninsula.

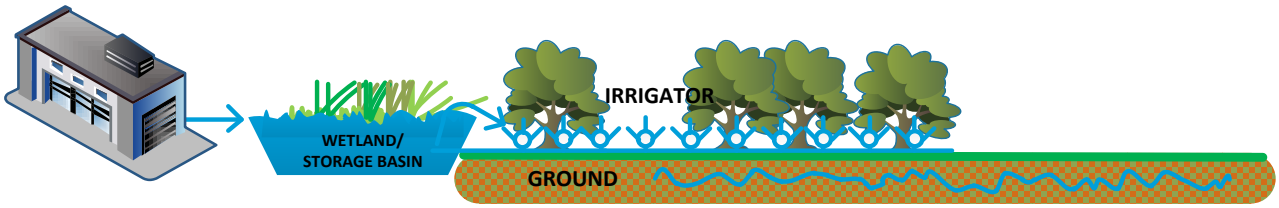
The short listed options are described on the following pages. Comments on advantages and disadvantages are preliminary views of Council staff. People are invited to comment on these, or on any other advantages or disadvantages of the options.

Option 1 – Year-round irrigation to trees

Description

Treated wastewater is irrigated onto the soil beneath trees, where it drains slowly through the ground. The trees absorb nutrients from the treated wastewater and filtration through the soil further removes nutrients, bacteria and viruses. The tree canopy provides some cover when it rains, which means the ground can absorb more wastewater during wet weather than if there were no trees. Various tree species are being considered, with kānuka assessed as being the most suitable at this stage. It is inefficient to spray irrigate due to interference with the trees. Therefore drip irrigation on the surface is the most favourable irrigation method for simplicity and ease of installation and maintenance. There is no discharge of treated wastewater to the harbour associated with this option.

Due to the hilly nature of the area, at least three separate irrigation areas would be required. A storage pond would be needed to buffer peak flows and store wastewater during wet weather when irrigation isn't possible. Please see page 7 for a map showing the areas that meet the criteria for year-round irrigation to trees and the storage pond.



Land required: around 25 hectares for irrigation plus 1 hectare for a storage pond.

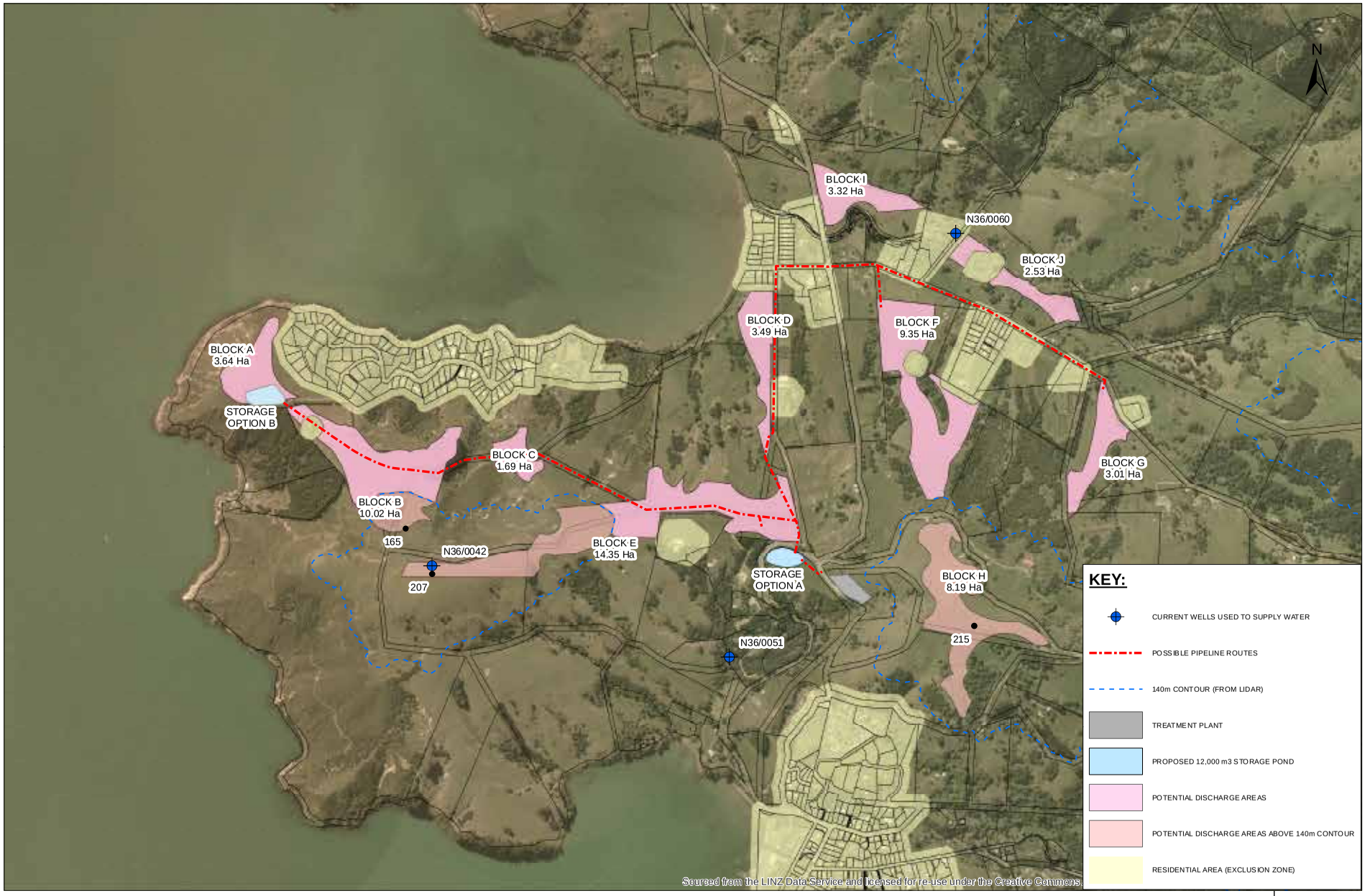
Estimated total cost: $4.1 million–$5.7 million.

Advantages of year-round irrigation of trees

- All wastewater reaches the soil and most of it will be absorbed by trees.
- No discharge of wastewater to the harbour.
- Trees can be grown which may have ecological value and some economic value (e.g. honey production).
- No spray drift, as irrigation would be drip irrigation on the ground surface.
- If native species were chosen, around 25 hectares of regenerating native bush could enhance the Akaroa environment.
- This option is strongly supported by Ngāi Tahu, as it is consistent with their cultural values.

Disadvantages of year-round irrigation of trees

- A large land area is required, which is likely to provide only minimal income.
- People may not want to sell, lease or licence suitable land. Compulsory purchase under the Public Works Act may be required if agreement with landowners cannot be reached.
- There are some ongoing costs to maintain trees and irrigation systems.
- A long establishment time is required to grow the trees (around five years for kānuka), so an alternative discharge for most of the wastewater will be needed once the current discharge consent expires in 2020. This could be a new short-term consent for the current wastewater treatment plant at Takapūneke, or a new coastal infiltration gallery.



SOURCE:
1. CADASTRAL DATA AND AERIAL IMAGERY SOURCED FROM LAND INFORMATION NEW ZEALAND (LINZ) MAY NOT BE SPATIALLY ACCURATE.

AKAROA WASTEWATER LAND DISPOSAL
OPTION 1 AND 2: YEAR ROUND IRRIGATION

SCALE: 1:12,000 (A3)

0 125 250 375 500
METRES

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ISSUE DATE: 05/04/16 VERSION: 2

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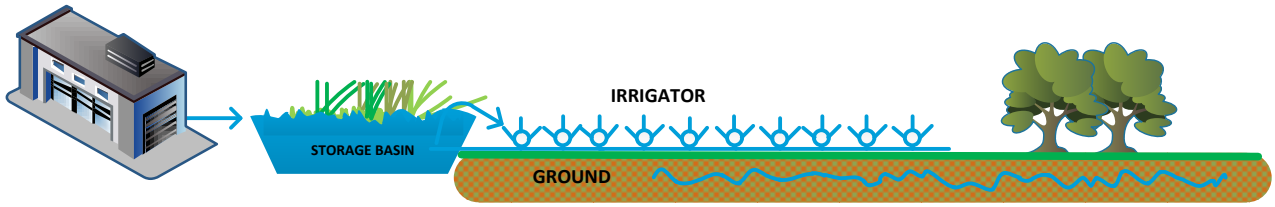
Option 2 – Year-round irrigation to pasture

Description

Treated wastewater is irrigated onto pasture, where it drains slowly through the ground. The pasture absorbs nutrients from the treated wastewater and filtration through the soil further removes nutrients, bacteria and viruses. Spray irrigation is the most cost-effective irrigation method for pasture. There is no discharge of treated wastewater to the harbour associated with this scheme.

Please see page 7 for a map showing the areas that meet the criteria for year-round irrigation to pasture and the storage pond. Due to the hilly nature of the area, at least three separate irrigation areas would be required. A storage pond would be needed to buffer peak flows and store wastewater during wet weather when irrigation isn't possible. This would be much larger than for the option of irrigating to trees, as irrigation wouldn't be possible during the winter months or when the ground was wet.



Land required: around 30 hectares for irrigation plus 1.2 hectares for a storage pond. Options for access to the needed land are purchase, lease or license.

Estimated total cost: $5.8 million–$7 million.

Advantages of year-round irrigation to pasture

- No discharge of wastewater to the harbour.
- A crop of economic value can be grown (e.g. hay).
- There is potential to change the design of the wastewater treatment plant as a high level of nitrogen removal is not required. This could save up to $2 million.
- This option is supported by Ngāi Tahu, as it is consistent with their cultural values.

Disadvantages of year-round irrigation to pasture

- This option requires the largest area of land and largest storage volume required.
- People may not want to sell, lease or licence suitable land. Compulsory purchase under the Public Works Act may be required if agreement with landowners cannot be reached.
- This is potentially the most expensive option, although this may be partially offset by changing the design of the wastewater treatment plant and income earned from growing an economic crop.
- There may be spray drift, although this is limited and of very low risk to public health as there will be separation distances between the irrigation system and neighbours and the wastewater is very well treated.
- There are ongoing costs to maintain pasture and irrigation systems.

Note: a hybrid option utilising some irrigation to trees and some irrigation to pasture may be possible.

Option 3 – Summer-only irrigation, with wetland or infiltration basin and discharge via a coastal infiltration gallery at other times

Description

Treated wastewater is irrigated onto pasture or trees when ground conditions allow. Spray irrigation is the most cost-effective irrigation method for pasture, drip irrigation is the most appropriate irrigation method for trees. The plants take up the treated wastewater and the soil filters out nutrients, bacteria and viruses.

When the ground is too wet or there is more wastewater than usual, it would need to be passed through a subsurface flow wetland or infiltration basin (see more detail about these in Option 4 and Option 5) and discharged to the harbour via a coastal infiltration gallery. This involves a buried infiltration structure made of locally sourced rock, with a central slotted or drilled pipe running along its length. For discharge to the harbour at the coast, the infiltration structure would be buried in the beach past the point of low tide and would not be visible. Please see page 10 for a map showing the areas that meet the criteria for irrigation, storage pond and a wetland or infiltration basin, as well as a possible location for the coastal infiltration gallery at the end of the Takamātua Peninsula near Lushingtons Bay. This area was identified because it is relatively inaccessible and not widely used for recreation.
Land required: around 12 hectares for irrigation, plus 3 hectares for the storage pond and wetland or infiltration basin.

Estimated total cost: $4.7 million–$6.2 million.

Advantages of summer-only irrigation

- During summer, most of the wastewater will be absorbed by the plants, with very little going further than the roots.
- A crop of economic value can be grown (e.g. hay).
- Less land is required compared to year-round irrigation.

Disadvantages of summer-only irrigation

- A large area of land is required, although less than half that required for year-round irrigation.
- People may not want to sell, lease or licence suitable land. Compulsory purchase under the Public Works Act may be required if agreement with landowners cannot be reached.
- There is a possible risk associated with spray drift, although this is limited and of very low risk to public health as there will be separation distances between the irrigation system and neighbours and the wastewater is very well treated.
- There are ongoing costs to maintain plants and irrigation systems, as well as the infiltration basin or wetland.
- A coastal infiltration gallery is needed to discharge treated wastewater not taken up by pasture/trees. Mixing and dilution will be less than for the mid-harbour outfall option, so there may be a slightly higher public health risk from contact recreation or eating raw shellfish.
- The Ngāi Tahu parties have significant reservations about this option, as it does not use natural processes to restore the mauri of the wastewater, and continues discharge of it into the harbour, which is culturally offensive to them.

SOURCE:
1. CADASTRAL DATA AND AERIAL IMAGERY SOURCED FROM LAND INFORMATION NEW ZEALAND (LINZ) MAY NOT BE SPATIALLY ACCURATE.

AKAROA WASTEWATER LAND DISPOSAL
OPTION 3: SUMMER ONLY IRRIGATION

SCALE: 1:12,000 (A3)

0 125 250 375 500
METRES

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ISSUE DATE: 05/04/16 VERSION: 2

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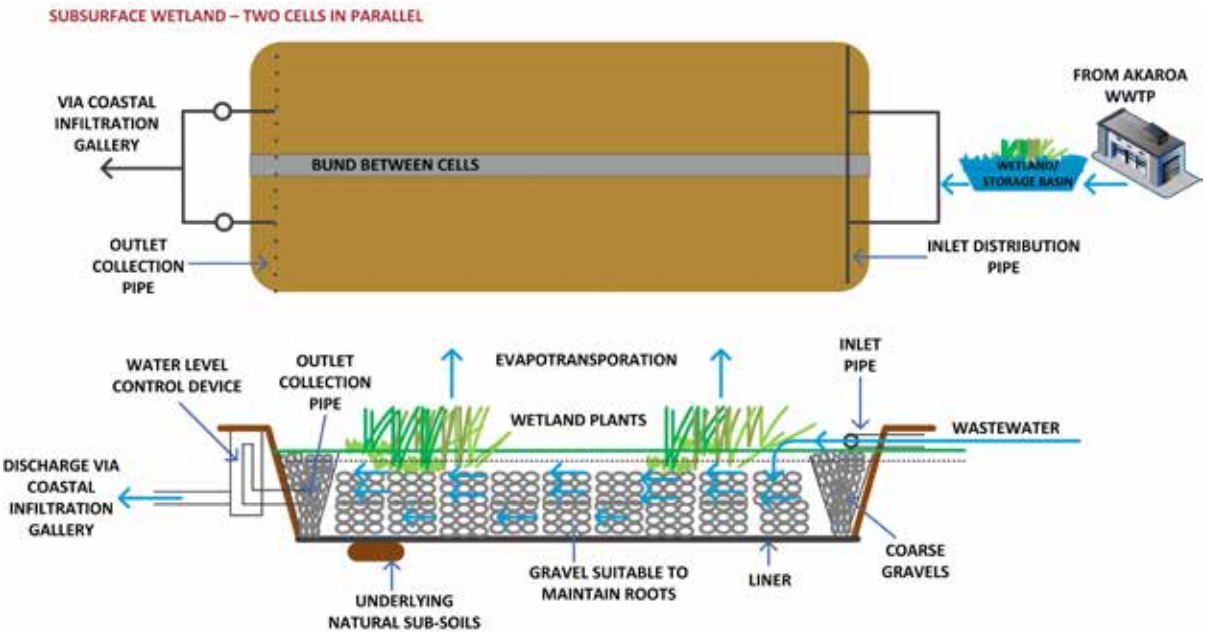
Option 4 – Subsurface flow wetland

Description

A basin is constructed and lined, then filled with gravel and planted as a wetland on the surface. Treated wastewater flows horizontally through the gravel, below the surface of the wetland rather than over the top. Wetland plants absorb a limited amount of nutrients and water, with the treated wastewater discharged through a coastal infiltration gallery. A storage pond would be required to smooth out peak flows and ensure wastewater always remains below the surface of the wetland. The treated wastewater would then be discharged via a coastal infiltration gallery.

Please see page 12 for a map showing the areas that meet the criteria for a subsurface flow wetland and storage pond, as well as a possible location for the coastal infiltration gallery at the end of the Takamātua Peninsula near Lushingtons Bay.

This option is being considered as the Council is investigating whether it would address some of the cultural offensiveness of direct discharge of treated wastewater to the harbour.



Land required: Approximately 1.4 hectares for the subsurface wetland and storage pond.

Estimated total cost: $3.5 million–$3.9 million.

Advantages of subsurface wetland

- Reduced discharge in summer, as wastewater is absorbed by wetland plants.
- Wetland plants can be used for other purposes eg. flax weaving.
- Small area of land required, so obtaining enough land should be easier than for irrigation options.
- This is the lowest cost option.
- Wastewater is not present on the surface of the ground.
- Wastewater can still be treated by the wetland during rainfall.

Disadvantages of subsurface wetland

- Discharge of treated wastewater to the harbour is required. If discharge is at the coast, mixing and dilution will be less than for the mid-harbour outfall option, so there may be a slightly higher public health risk from contact recreation or eating raw shellfish.
- This option is not supported by the Ngāi Tahu parties, as it does not use natural processes to restore the mauri of the wastewater, and continues discharge of it into the harbour, which is culturally offensive to them.

AKAROA WWTP LAND DISPOSAL INVESTIGATION

SOURCE:
1. CADASTRAL DATA AND AERIAL IMAGERY SOURCED FROM LAND INFORMATION NEW ZEALAND (LINZ) MAY NOT BE SPATIALLY ACCURATE.

AKAROA WASTEWATER LAND DISPOSAL
OPTION 4: SUB-SURFACE WETLAND AND
COASTAL INFILTRATION GALLERY

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ISSUE DATE: 05/04/16 VERSION: 2

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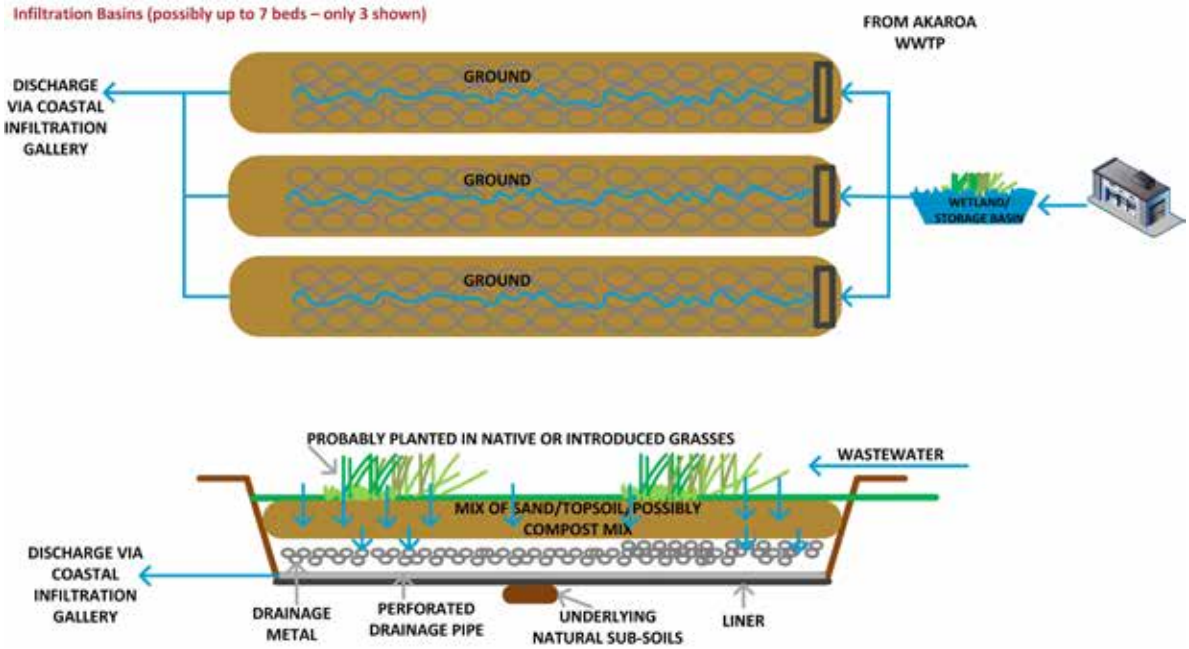
Option 5 – Infiltration basin

Description

Several basins are constructed and lined, then filled with soil, sand and compost which allows the wastewater to pass through at a controlled rate. Treated wastewater is discharged onto the surface of the basin and flows vertically through the soil. These basins are not usually planted, but grasses can be used to help absorb some nutrients. Filtration through the soil, sand and compost removes some nutrients and reduces bacteria and viruses. The scheme would require several basins, to allow for rotating discharge of wastewater and giving time for it to drain away. The treated wastewater would then be discharged into the harbour via a coastal infiltration gallery.

Please see page 14 for a map showing the areas that meet the criteria for infiltration basins and a storage pond, as well as a possible location for the coastal infiltration gallery at the end of the Takamātua Peninsula near Lushingtons Bay.

This option is being considered as the Council is investigating whether it would address some of the cultural offensiveness of direct discharge of treated wastewater to the harbour.



Land required: approximately 1.5 hectares is required for the infiltration basins and storage pond.

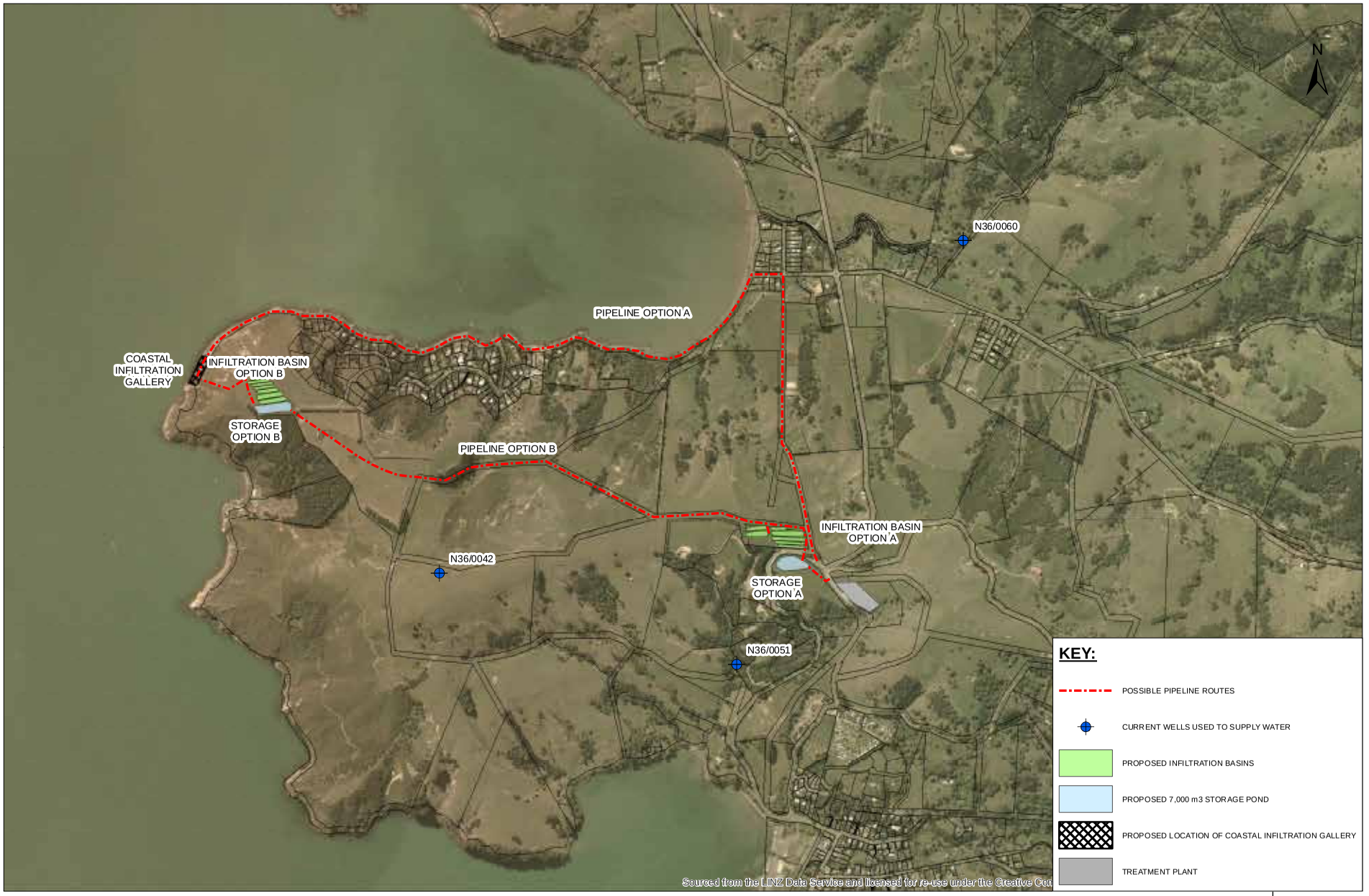
Estimated total cost: $4.2 million–$4.7 million.

Advantages of infiltration basin

- Requires the smallest storage pond because of the number of basins used.
- Small area of land required, so obtaining enough land may be easier than for irrigation options.
- This is the one of the lowest cost options.
- Wastewater is not present on ground surface long enough to provide a habitat for midges or mosquitos.
- Wastewater can still be treated during rainfall.

Disadvantages of infiltration basin

- Construction can be complex as the basins need to be deeper than other options.
- Wastewater will pond on the surface briefly before draining away.
- A coastal infiltration gallery is needed to discharge treated wastewater to the harbour. Mixing and dilution will be less than for the harbour outfall option, so there may be a slightly higher public health risk from contact recreation or eating raw shellfish.
- This option is not supported by the Ngāi Tahu parties, as it does not use natural processes to restore the mauri of the wastewater, and continues discharge of it into the harbour, which is culturally offensive to them.



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1. CADASTRAL DATA AND AERIAL IMAGERY SOURCED FROM LAND INFORMATION NEW ZEALAND (LINZ) MAY NOT BE SPATIALLY ACCURATE.

AKAROA WASTEWATER LAND DISPOSAL
OPTION 5: INFILTRATION BASIN AND
COASTAL INFILTRATION GALLERY

SCALE: 1:12,000 (A3)

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PATTLE DELAMORE PARTNERS LTD

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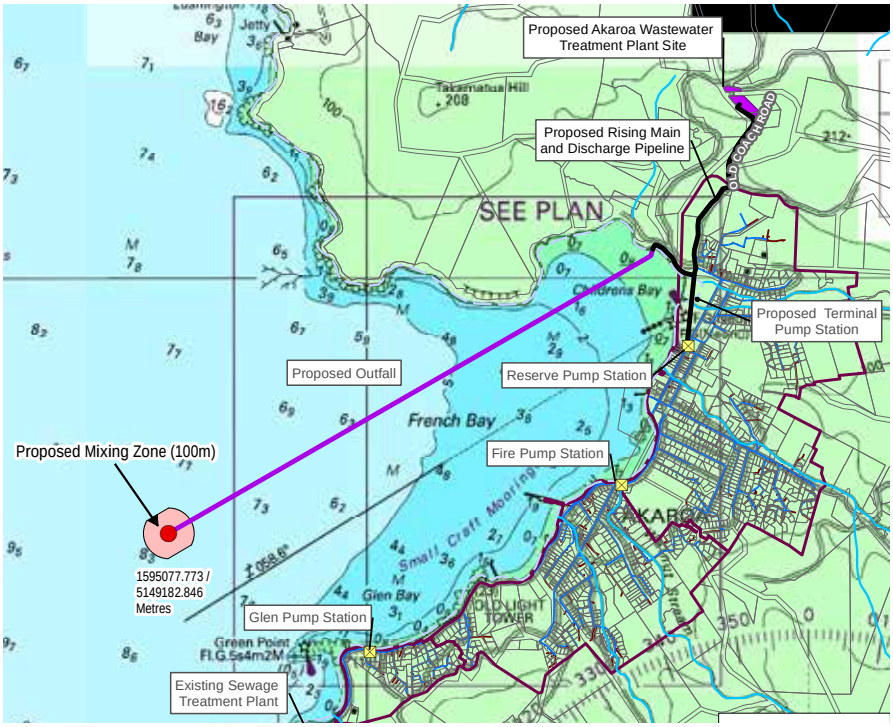
ISSUE DATE: 05/04/16 VERSION: 2

Option 6 – Harbour outfall pipeline

Description

This is the option that the Council originally preferred and sought resource consent for. Resource consent was declined and the Council has lodged an appeal in the Environment Court. The Council will be making a decision on whether to pursue that appeal following this reassessment of the options. This consultation is assisting the Council's consideration of whether a land-based discharge option is preferred now or whether the harbour outfall pipeline remains the Council's preferred option.



The outfall pipe would reach from the new treatment plant, out into the middle of the harbour (around 2.5 km out from Childrens Bay) with a diffuser at the end for the discharge. This compares with the current outfall pipe from the existing treatment plant at the Takapūneke site, which only goes out 100 metres from Redhouse Bay. The outfall pipe would be fully buried over its whole length in Council land and roadway, and then out into the harbour in Childrens Bay. The potential location of the outfall has been discussed with the Harbourmaster to ensure there is no conflict with boat mooring sites.

The diffuser would be 9.5 m below the water surface, and the wastewater would be diluted at least 78-fold before it reaches the surface, and further dilution is achieved as the plume spreads out, so that it becomes virtually undetectable. A public health risk assessment found that the illness risk to swimmers was generally low (one per cent) when compared to tolerable risks inherent in the New Zealand water quality guidelines for recreational areas. It also found that the illness risk to people eating raw shellfish was higher than for swimmers, but was still low (one per cent to five per cent). This is a significant improvement on the public health risks from the current discharge from Redhouse Bay. There are no ecological effects from the harbour outfall, other than disturbance of seagrass beds at Childrens Bay during construction, which would be replanted afterwards.

This option requires the Council to be successful in its appeal against the decline of resource consents for the harbour outfall.

Land required: none

Estimated total cost: $6.7 million

Advantages of the harbour outfall pipeline

- No additional land area required.
- Public health risks are slightly lower than for the options which include a coastal infiltration gallery (Options 2–5).
- Wastewater flows by gravity from the treatment plant and out the outfall, so ongoing operation and maintenance costs are very low.

Disadvantages of the harbour outfall pipeline

- This is potentially the most expensive option.
- There is some risk to public health from contact recreation or eating raw shellfish.
- This option is culturally offensive to the Ngāi Tahu parties and it was strongly opposed by them and others in the resource consent hearing.

Have your say

Your views on the six short-listed options for the Akaroa Wastewater Scheme are important to us, and we encourage you to provide feedback. Anyone can comment on any or all of the options or suggest other options. Written submissions can be made to the Council during the consultation period which opens on Tuesday, 26 April and closes at 5pm on Friday, 20 May, 2016.

Once the consultation has closed, a report on the options and the feedback will go to the Council's Infrastructure, Transport and Environment Committee (ITE), who will make a recommendation to the Council, who will be the decision makers on which option to pursue for the purposes of obtaining Land and Resource Management Act processes. Before the Council makes its decision, the project team will inform submitters of the community feedback and update you on the next steps. Feedback and comments are being sought during the consultation period from Tuesday 26 April 2016–Friday 20 May 2016.

Drop-in sessions

Date	Time	Venue
Wednesday 27 April 2016	12–2pm	Akaroa Sports Centre, Rue Lavaud, Akaroa
Thursday 5 May 2016	4–6pm	Civic Offices, 1st floor training room, opposite the function room, 53 Hereford Street, Christchurch

You can make your views known at the drop-in sessions.

How to give us your feedback

You can make a submission by:

- Visiting the Council's Have Your Say webpage **ccc.govt.nz/HaveYourSay** and filling out the submission form online.
- Emailing your submission to tara.king@ccc.govt.nz
- Hand-delivering a written submission to the Civic Offices at 53 Hereford Street and marking it for the attention of "Tara King".
- Posting the attached written submission to:

  Freepost 178 (no stamp required)
  Tara King, Senior Engagement Advisor
  Akaroa Wastewater Project
  Christchurch City Council
  PO Box 73013
  Christchurch Mail Centre
  Christchurch 8154

- Filling out a submission form at one of the drop-in sessions shown above.

Please make sure you include your full name and address with your submission (no anonymous submissions/feedback will be accepted).

Please also let us know:

- If you would like to speak to the Infrastructure, Transport and Environment Committee
- If you are making a submission as an individual or as part of an organisation

Copies of this consultation booklet are available:

- Online via the Council's website: **ccc.govt.nz/HaveYourSay**
- At Civic Offices, 53 Hereford Street, Christchurch
- At all Council libraries and customer service desks.

If you have any questions, contact Tara King, Senior Engagement Advisor on (03) 941 5938 or email tara.king@ccc.govt.nz

Please make sure your submission arrives with the Council before the close of the consultation at 5pm, Friday 20 May 2016.

Submission form

haveyoursay
www.ccc.govt.nz/haveyoursay

PLEASE READ BEFORE COMPLETING YOUR SUBMISSION

Christchurch City Council is seeking your feedback on the six proposed options for the Akaroa wastewater project:

- **Option 1 Year-round irrigation to trees**
- **Option 2 Year-round irrigation to pasture**
- **Option 3 Summer only irrigation, with wetland or infiltration basin and discharge via a coastal infiltration gallery at other times**
- **Option 4 Subsurface flow wetland and discharge via a coastal infiltration gallery**
- **Option 5 Infiltration basin and discharge via a coastal infiltration gallery**
- **Option 6 Previously proposed mid-harbour outfall**

Submissions are public information

Subject to the provisions of the Local Government Official Information and Meetings Act 1987, we will make all written or electronic submissions publicly available, including the name and address of the submitter.

If you consider there are reasons why your contact details and/or submission should be kept confidential, please contact the Council, phone (03) 941 8999 or 0800 800 169.

How to give us your feedback

You can use this submission form or you can provide your feedback in a number of ways:

- **Online:** You may enter your submission using the online form provided on the Council's website at **ccc.govt.nz/haveyoursay**
- **By email:** tara.king@ccc.govt.nz
  Please make sure your full name and address is included with your submission.
- **By mail (no stamp required):**
  Freepost 178
  Attention: Tara King, Senior Engagement Advisor
  Akaroa Wastewater Scheme
  Christchurch City Council
  PO Box 73013
  Christchurch Mail Centre
  Christchurch 8154
- **By hand delivery to:** Civic Offices, 53 Hereford Street, Christchurch or at the drop-in sessions

Consultation closing date

Friday 20 May 2016

Consultation dates 26 April – 20 May 2016

Please rate the options listed below with a numerical number according to your preference, with one being your most preferred option and six your least preferred option (please note: the options below are in no particular order).

☐	Option 1	Year-round irrigation to trees
☐	Option 2	Year-round irrigation to pasture
☐	Option 3	Summer only irrigation, with wetland or infiltration basin and discharge via a coastal infiltration gallery at other times
☐	Option 4	Subsurface flow wetland and discharge via a coastal infiltration gallery
☐	Option 5	Infiltration basin and discharge via a coastal infiltration gallery
☐	Option 6	Previously proposed mid-harbour outfall

Please state your reason for this ranking order:

If you do not want to rank the options, and/or want to comment on anything else, you can make comments below.

Do you have any other comments? (please use additional paper if required):

Thank you for taking the time to respond. Please include you contact details over the page.

Submission form continued

Contact details

Contact name _____

Organisation name (if representing) _____

Contact address _____

_____

_____ Postcode _____

Phone number (day) _____ Phone number (evening) _____

Email (if applicable) _____

Signature _____ Date _____

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Would you like to speak to your submission at the appropriate Infrastructure, Transport and Environment Committee meeting prior to the Council making a decision? Please tick one of the boxes below:

☐ Yes – I/We would like to speak

☐ No – I/We do not want to speak

No anonymous submissions/feedback will be accepted.

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FREEPOST Authority No.178

Christchurch City Council

Free

Attention: Tara King, Senior Engagement Advisor
Akaroa Wastewater Scheme
Christchurch City Council
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Attention: Tara King, Senior Engagement Advisor
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Christchurch City Council