

FRIENDS of Banks Peninsula Inc.

Akaroa's Community Environment Society since 1990

Soap Box suggestion Wastewater Working Party 12/12/18

Considerations

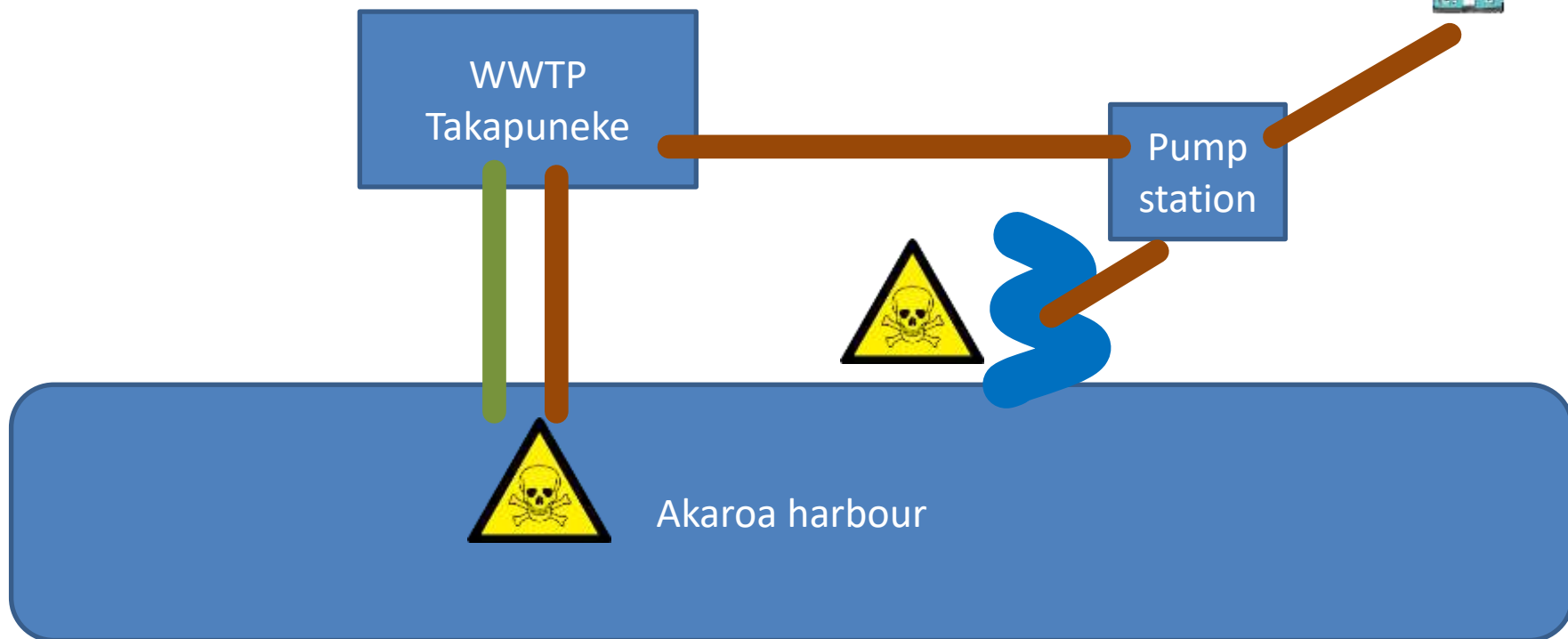
- Treatment to watering leafy vegetables standard to maximise beneficial reuse
- Minimising network overflows
- Minimising environmental risk
- Climate change and risk resilient
 - Storms
 - Electricity failure
 - Sea level rise
 - Beneficial use of resource
- Build soon to replace current failing system
- Meet cultural concerns to the extent practicable

Risks

- Environmental risks
 - **System overload spills untreated sewage**
 - **Plant failure discharges inadequately treated wastewater**
 - Capacity overload spills treated wastewater containing nutrients, emerging contaminants into local waterways (streams, springs, shallow bays)
 - Potential contamination of land by nutrient overloading, emerging contaminants
 - Potential contamination of harbour by nutrient overloading, emerging contaminants
- Causes of risk
 - Limits exceeded
 - Extended power failure
 - Extended adverse weather effects
 - Natural disaster (storms, earthquakes)
 - Sea-level rise

Current system

- **Main risk: plant/infrastructure limits exceeded**
- Outfall breaches CFU limits every summer
"...when an increased loading was received at the plant considered to coincide with the high summer seasonal holiday population."
- Shore CFU limit breached continuously since December 2017

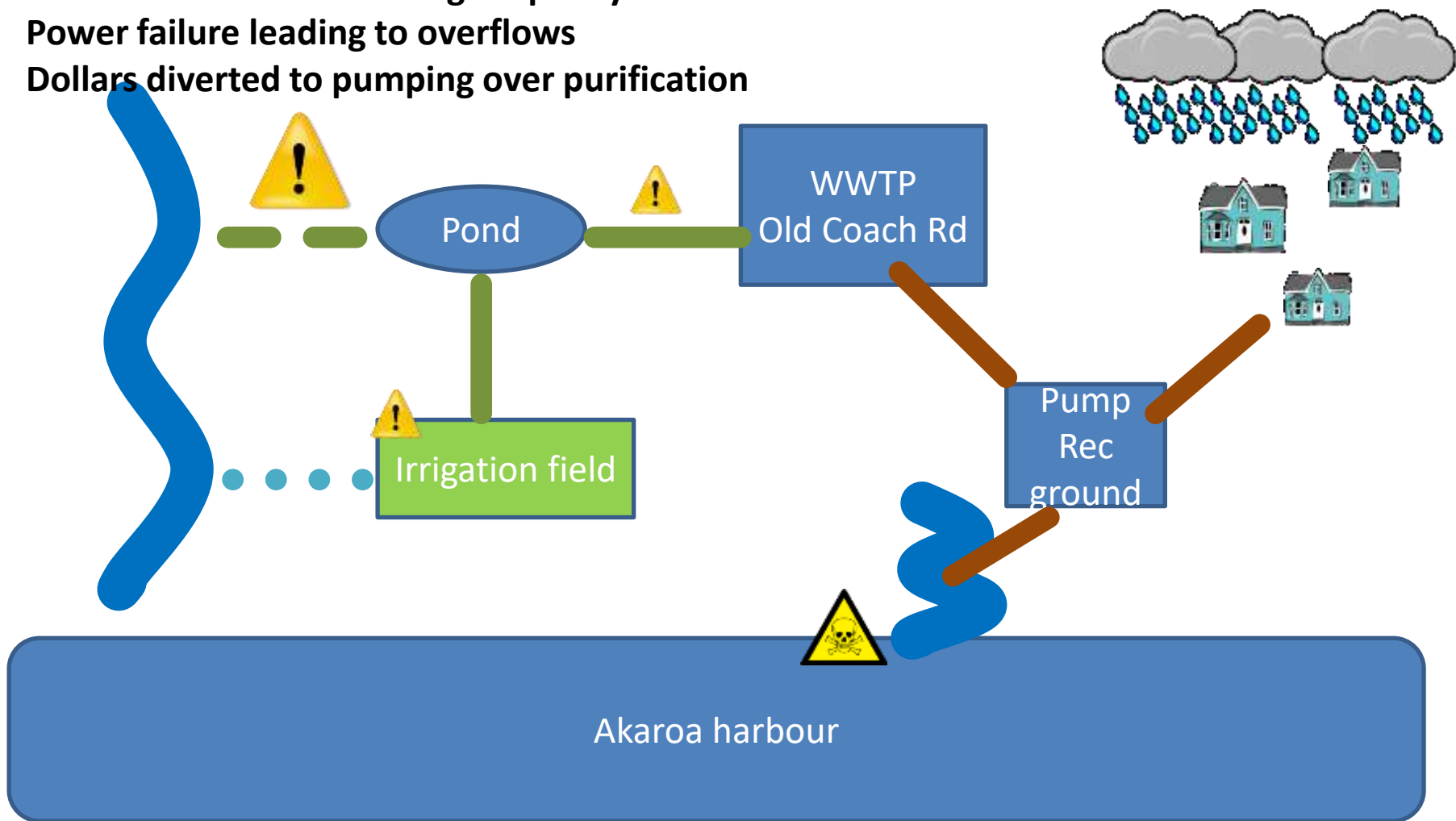


Soapbox Options

1. Farm irrigation – Pompeys Pillar
2. Misty Peaks – low level irrigation
3. High treatment, Shared purple Pipe

Option 1: remote farm irrigation

- Main additional risk: storage capacity exceeded
- Power failure leading to overflows
- Dollars diverted to pumping over purification



Pompeys Pillar or Hickory Bay - irrigation to pasture

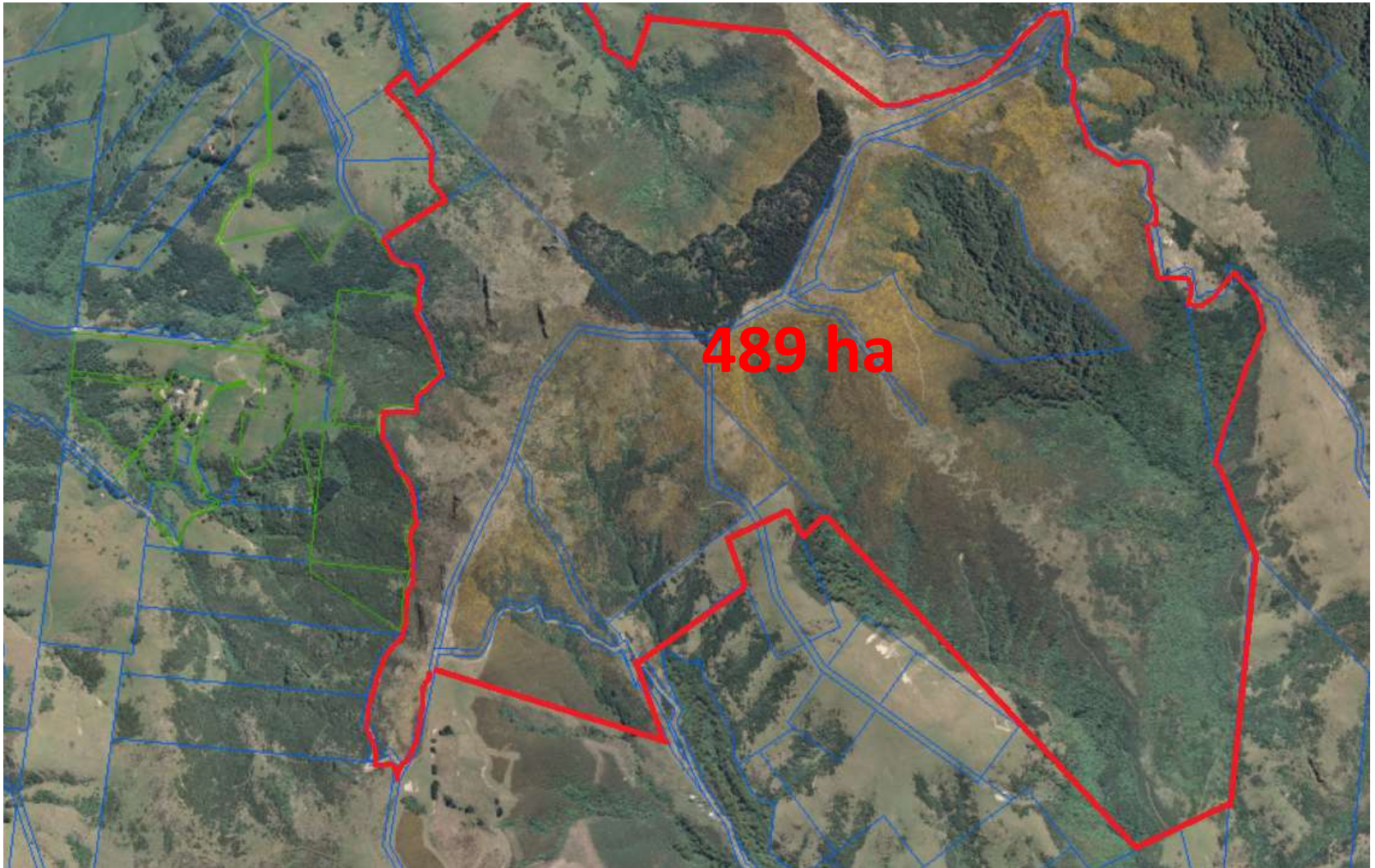
Principle	Assessment	Reasons/impacts
Treatment standard suitable?		No bypass flows; Nitrogen/phosphorus load could be beneficially taken up by land (reduced treatment needed)
Risk		Nitrogen has large area to disperse, no waterways Remote agricultural area: lower stigma concern Currently pastoral; less amenity change
Sustainable in the long term		Nitrogen has large area to disperse, no waterways Single point of failure mitigated by large area
Ngai Tahu cultural values	?	Immediate closure of Takapuneke Meets cultural concerns?
Akaroa actively involved		Potential for inclusion of fire ponds, Potential to draw off water for re-use
Obviates compulsory purchase		Beneficial to farmer – willing sale or long-term lease?
Environmental impact		+ Already a farming environment (minimal disturbance) - High energy/carbon footprint
Beneficial use of resource		+ benefit to farm from increased production - Cost outweighs benefit?

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16/12/2018

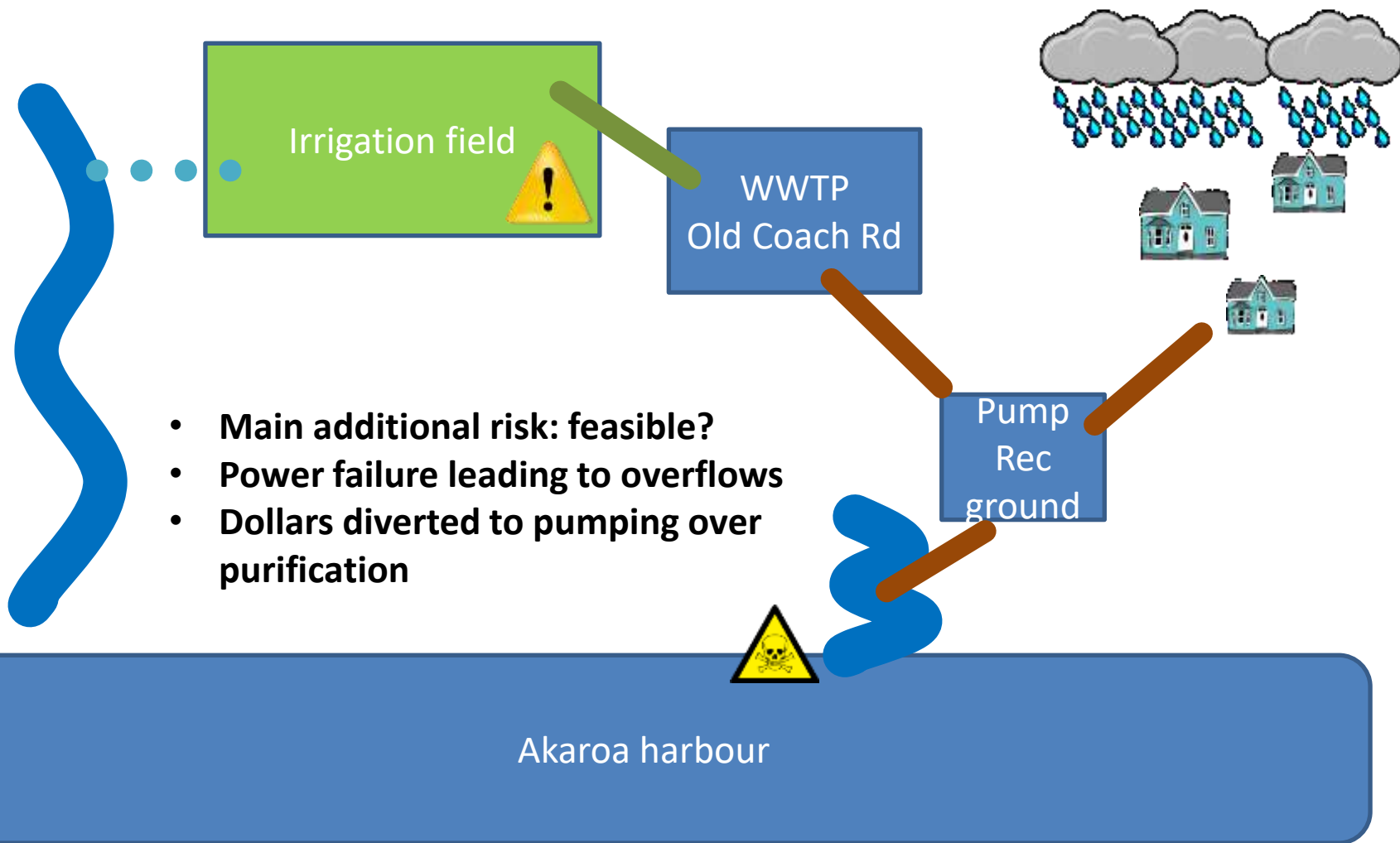
Option 2: Misty Peaks low level irrigation



Option 2: Misty Peaks low level irrigation

- **Decision criticised limited scope of investigation**
 - Minimal land, intensive application only considered
 - What if more land was used at a lower application rate?
 - 20% annual increase of water on the land over average rainfall
- **Is this low enough to avoid instability risks?**
 - 489ha, varying slope, Council-owned
 - 286,000m³ per year = 0.6mm per day, 213mm/yr
 - Slopes up to 35 degrees if irrigable area is large enough?
(BECA Blenheim report November 2007)
 - Maximum of 25% increase (non-summer) recommended based on peninsula historic slip analysis (Geotech Consulting 2010)
- **Would such a low rate still be beneficial in summer?**
- **Costs?**
 - Requires pumping the treated wastewater to up to 800m
 - Capital/running costs comparable to Pompeys Pillar?
- Carbon footprint would be fully sequestered over time
- Ecological benefits
- If considered viable then Working Party should make a submission by Dec 18

Option 2: Misty Peaks low-level irrigation

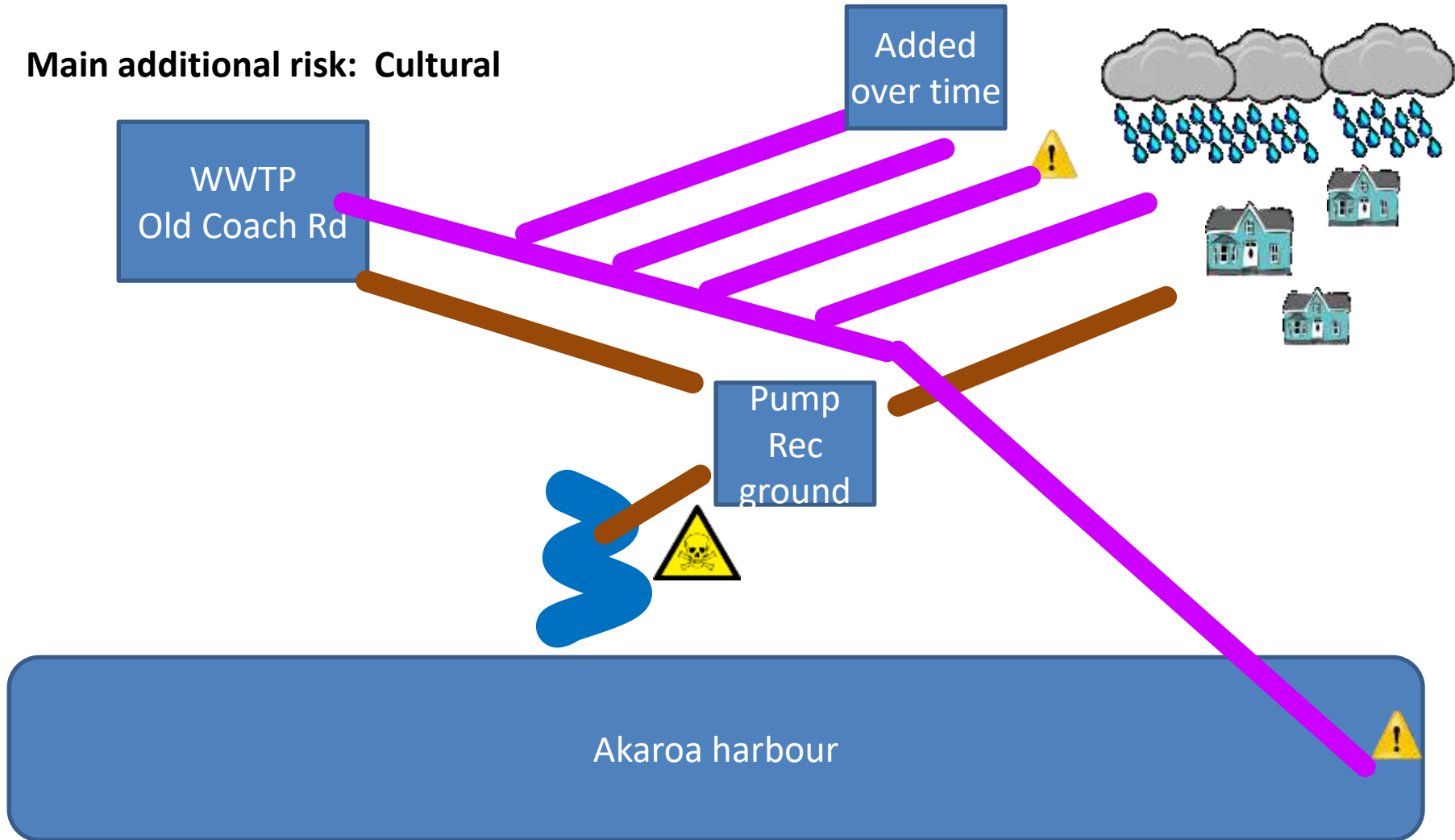


Misty Peaks – native forest regeneration

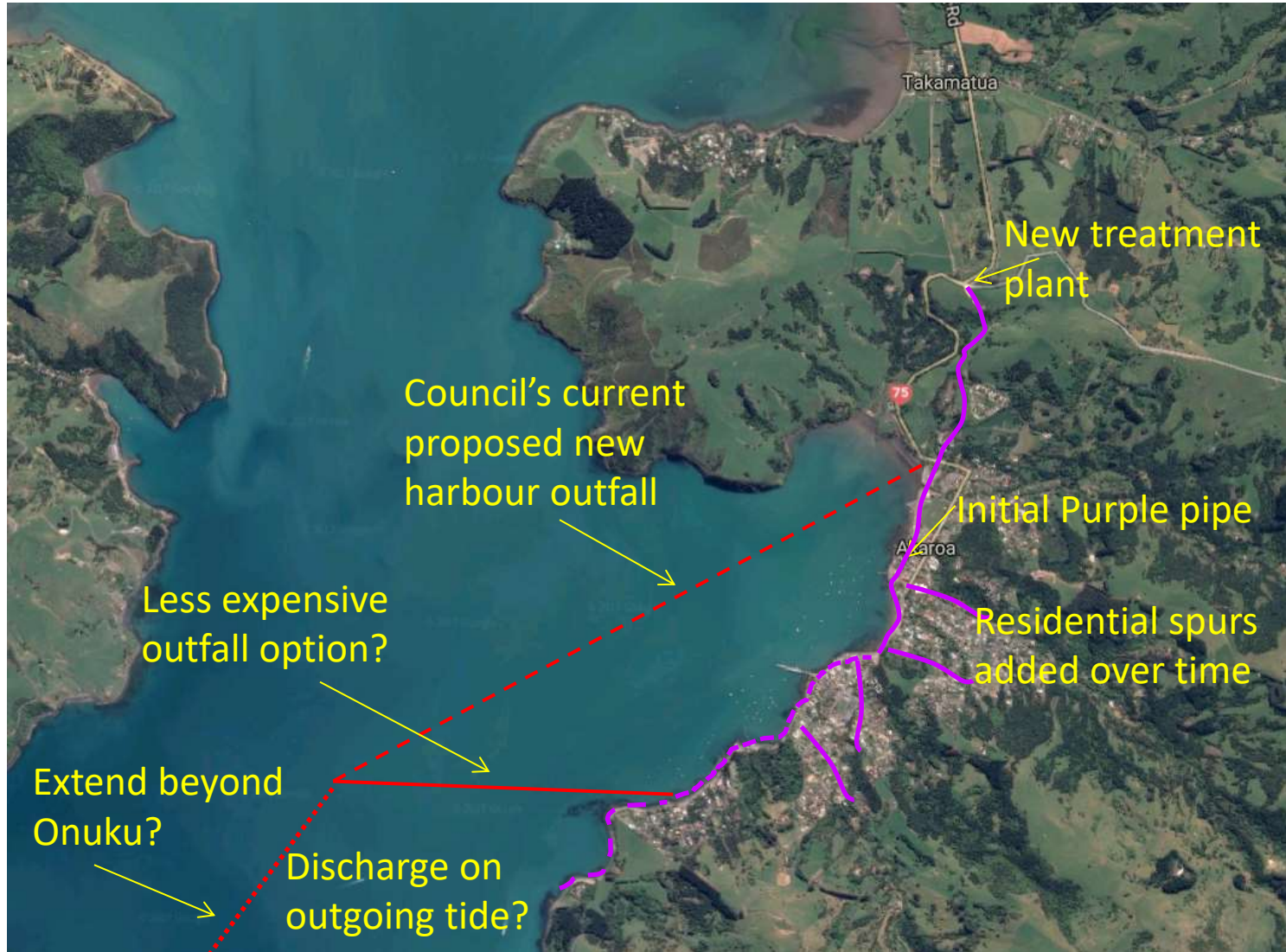
Principle	Assessment	Reasons/impacts
Water standard		No bypass flows; Nitrogen/phosphorus load could be beneficially taken up by land (reduced treatment needed)
Risk	?	Slope issues mitigated by land area? Nitrogen has large area to disperse, no waterways Remote bush area: low stigma concern Currently gorse/regeneration; positive amenity change
Sustainable in the long term		Nitrogen has large area to disperse, no waterways Single point of failure mitigated by large area
Ngai Tahu cultural values	?	Immediate closure of Takapuneke Meets cultural concerns?
Akaroa actively involved		Pipeline runs above Akaroa, potential for fire ponds, potential to draw off water for re-use
Obviates compulsory purchase		No land purchase
Environmental impact		+ native forest regeneration, carbon sequestration - High energy/carbon footprint (200t < sequestered)
Beneficial use		Native habitat regeneration; fire ponds for Misty Peaks forest, Akaroa basin and outer bays

Option 3: purple pipe-based system

- **Main additional risk: Cultural**



Option 3: High treatment, Shared purple Pipe



Extended purple pipe + outfall

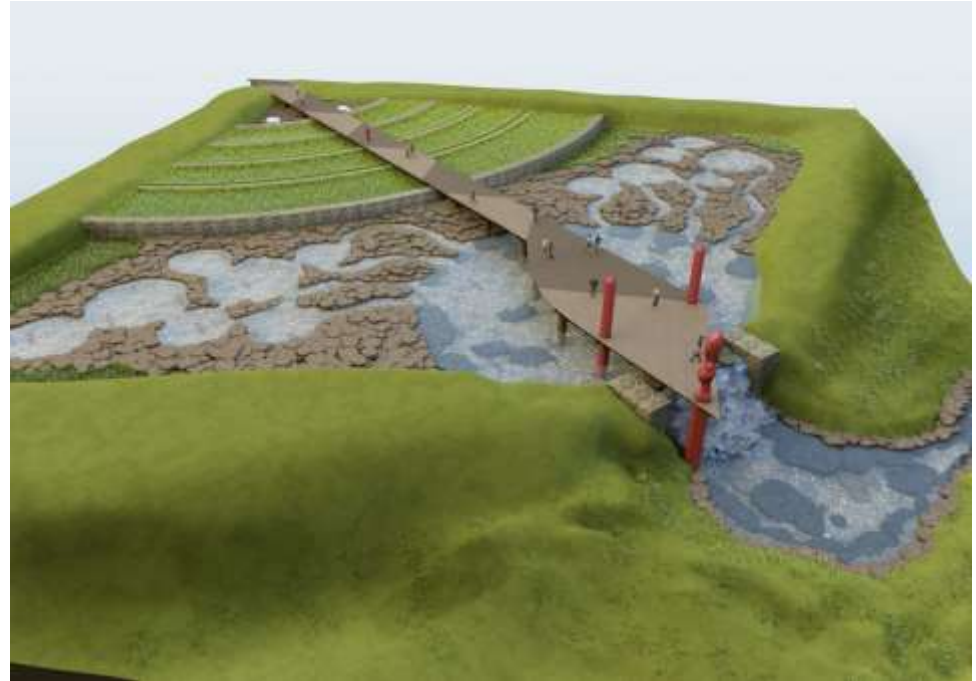
Principle	Assessment	Reasons/impacts
Water standard to lettuce watering		No bypass flows; safe water level (chlorination + UV) Safe for watering means high quality for outfall
Risk		No additional fixed limits on capacity Lessens power and pump failure risks Akaroa community takes risk for its own system
Sustainable in the long term		No additional fixed limits on capacity
Ngai Tahu cultural values and impact	?	+ Immediate closure of Takapuneke plant + Immediate improvement of harbour water quality - Does not avoid harbour discharge in the short term + Potential to use all water in the longer term
Akaroa actively involved		Akaroa-based solution
Obviates compulsory purchase		No land purchase
Environmental impact		Reduce summer water take on Akaroa streams Minimal additional energy/carbon footprint
Beneficial use of resource		Water is re-used for summer watering Water restrictions lifted

Blenheim system



- Constructed wetland to further polish/cleanse/renew the water
- Water released on the outgoing tide only
- Land-based options found to be infeasible or too costly
 - Soil suitability
 - Land area, slope
 - Storage prohibitive

Rotorua consent application



- Land based disposal system being de-commissioned due to environmental issues
- Land contact bed proposed then discharge to lake
- Strong cultural and environmental themes in the new system