

**JOBS FOR NATURE****Horowhenua Freshwater Management Unit Water Quality Interventions****Community Stakeholder Group meeting**

Wednesday 23<sup>rd</sup> November 2022, Rimu Room, Te Takeretanga o Kura-hau-pō, Levin (and via Zoom).

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**NOTES****In Attendance****Community Stakeholder Group members:**

Sam Ferguson (Co-Chair), Michelle Sands (Zoom), Geoff Kane, Charles Rudd, Vivienne Bold, Phil Teal, Trevor Hinder, David Blakiston, Christine Moriarty, Jay Clarke, and Dan Tuohy.

**Support:**

Logan Brown, Sonya Shortt, Mark Madison (Jacobs), Angela Pratt (Jacobs).

**Others:**

Michael Kay, Joan.

**Apologies:**

Adam Duker, Dean Wilson, Mike Campbell, and Peter Matich.

**Welcome**

Sam opened the meeting with a karakia, and welcomed everyone to the meeting.

**Introduction and Oranga wai: (Sam)**

- Oranga wai is about community vision/s for freshwater management.
- The wetland complex is one part of our freshwater management/interventions required for Lake Horowhenua and its catchment. A number of interventions will be required to restore the health of Lake Horowhenua.

**Discussion of plans: (Angela and Mark)****Phase 1**

- Initial budget to cover this phase only.
- Diverting flow from the Kohitere Stream and Joblins drain onto land.
- Bioreactors installed to filter nutrients from ground water. These are to be placed into the Joblins and Kohitere drains when the new channels are commissioned (i.e. only capturing groundwater).
- The culvert at the existing sediment trap is to be closed to force water through the sediment trap and change it to functioning as a wetland rather than a sediment trap.

- Maintain deep channel of Arawhata Stream to capture shallow ground water while surface water is diverted and put onto adjacent land.
- Increase drain depth on both sides of Arawhata Road. Divert this water into wetland if the elevation is right or let it continue to flow down to road bridge and into the existing sediment trap for treatment.

### Phase 1 questions and comments:

- How are we treating groundwater in the Arawhata Stream?
  - *Jacobs - Kohitere drain flows into the wetland and surface water is diverted onto land. The surface water within the wetland will be up to 0.5m deep in places (at the top end) for sediment removal treatment and biological treatment for bacteria etc. There will be deeper channels with medium to filter nutrients out (bioreactors in the existing Kohitere and Joblin drains once the new streams are created). Later phases of the project will have more groundwater treatment than phase 1 which focuses more on sediment control.*
- Kohitere drain has a sediment trap in the design but not the other drains. Comment that Whelans drain carries the most sediment of the three. Why is this not addressed in this phase.
  - *Jacobs - The design should have sediment traps on all drains feeding into the eastern side of the wetland. The sizing of these sediment traps will be worked through with the flows and sediment concentration data that is currently being collected and will be done in the detailed design.*
- We want to know if enough sediment control has been considered in the design and has modelling been done in high pulse events vs. normal conditions?
  - *Jacobs - Modelling to date is based on the current data available. The detailed design will include modelling for the larger events if the monitoring to date has not captured these larger events as is normal practice for such projects*
- Landowners can provide footage of sediment movement in high flows.
  - *Jacobs - Designers would appreciate the extra info.*
- The community thought this proposal was about saving the lake from land use upstream and that this was going to be achieved in phase 1. Sediment and contamination is mainly coming from the east side of the wetland so what area are we focusing on?
  - *Jacobs - In phase 1 we are focusing on Joblins and Kohitere drains as they are the most easily treated within the project budget.*
- Sediment removal needs to be addressed before it enters the main wetland complex and there is worry that this step has been missed in the design. High flows needs to be catered for in the design as these flows move large volumes of sediment into the lake.

- *Logan - There is continuous data collection occurring at the site to inform the final design which is still evolving. This data (including modelling) will ensure the design team has the correct information of flows and sediment loads to appropriately size these sediment capture devices.*
- For the bioreactors do, you think it is appropriate to treat groundwater if it could be contaminated by sediment that is in the surface water? The wetland needs to be maintainable; will there be access issues if these systems fail?
  - *Jacobs - The design is made to ensure that there is no sediment in shallow ground water and it will keep separated from surface water to minimise required maintenance of this treatment area, apart from the sediment traps.*
  - *Comment from Jay – The gravel in his farms novaflow pipes are clear from sediment, so it looks like the solution will work for treating ground water.*
- Charles – Has historic maps of farm drains. Commercial water takes have lowered the ground water level in the area. Cleared land used to have spring water upwelling.
  - *Jay – only one spot on his property has a spring.*
- Viv - There was a suggestion that the upper portion of Kohitere stream (near Buller Rd), historically ran in Lake Waiwiri. **Response:** There is no historical or topographic evidence that this was the case as the water would have to flow in an uphill gradient to reach Lake Waiwiri. If information exists to support this please provide this through to the project team.
- What are the retention times within the wetland for N removal? How effective will the wetland results be i.e. is it fit for purpose?
  - *Jacobs – Phase 1 is modelled to be 69% effective at treating N based on current modelling of the Kohitere and Joblin drains. The monitoring stations on the property feed into this model. Phase 2 will have slightly better results as it is a larger area with a smaller flow so there is potential to put some of the phase 1 flows into phase 2 design to get a more even treatment. The model is based on average flows from data collected up until August this year.*
  - *Logan – This report with the modelled outputs is yet to be finalised but everyone will receive the information once it is ready (on the project website).*
  - *General – want to know effectiveness of wetland treatment for a range of flow conditions.*
- What is the timeframe on phase 1 completion?
  - *Logan – MFE funding requires the construction to be completed by December 2024.*

- Will consents be required?
  - *Logan – yes.*

## **Phase 2**

- Design incorporate Whelans drain.
- Water diverted across surface of lower elevation areas.
- Irrigation onto higher elevation land to cover a larger area

## **Phase 2 questions and comments:**

- What happens if the wetland goes dry? His farm has bores which could be pumped onto the wetland and N rich water from the Arawhata Stream could be irrigated onto his farm to support crop growth too.
  - *Jacobs - The wetland will establish a seed bank in the soil which should ensure regeneration of wetland species even after a dry period. Plants that can tolerate short dry periods will be utilised in the wetland and these species will be similar to those that were originally present. There is also more flow now due to higher water use in the basin which means a slightly longer wet period.*

## **Phase 3**

- Focus on the other side of Arawhata Road.
- Establishment of native forest in the upper elevation of the farm and walking trails for the community.
- Create a dispersed outlet into the lake.

## **Phase 3 questions and comments:**

- Will a trail block the flow through the wetland? There should be no dogs allowed on the trail to prevent scaring of stock.
  - *Jacobs – The trail will be designed to ensure it does not block the flow through the wetland.*
- What is the gap on the design plans between the DoC reserve land and the proposed forest planting?
  - *Logan – The area was for a potential nursery idea, however the planting is now proposed to go all the way to the boundary.*
- The Hōkio Beach Road drain collects stormwater and discharge from an industrial area which could contain heavy metals which will contaminate the sediment trap.
  - *Jacobs – The Hōkio Beach Rd drain will go through the existing sediment trap converted wetland, other treatment options on the wetland complex land would require it to be pumped somewhere to be treated. Heavy metals generally attach to sediment particles*

which provides an opportunity for these to be removed in the existing sediment trap.

- *Comment from Jay – they have been doing water quality testing on all the eastern drains including the road drain and nitrate levels have been noticeably higher compared to the other farm drains.*
- *Logan – There is access issues for establishing monitoring stations on this drain as it is not within the wetland complex. This means there is less information available compared to the other drains.*
- Could the road drain be diverted into the town’s water treatment plant instead?
  - *Topic outside of scope of this meeting.*
- Was the botulism in the lake caused by the road drain?
  - *Topic outside of scope of this meeting.*

**Wrap up and next steps:**

- The next Governance Group meeting will review feedback from the community and decide what changes are required to be made to the plan.
- Consenting strategy formed for timeframes. Fast track consenting is still on the table.
- The group will be updated in the New Year.

**Comments:**

- Christine - How will the remaining land not utilised in phase 1 be managed before phase 2 and 3 eventuate? The land could be sold to a local farmer or used to create more funds to ensure the next phases have funding.

Key issues
<ul style="list-style-type: none"> <li>• There does not seem to be enough sediment control for Joblins and Whelans drains considered in the current design.</li> <li>• More information needs to be provided on how the wetland will handle different flow conditions and how effective treatment will be for a range of flows.</li> </ul>