Mahi Tahi

December 12 2023
8.30-9.30 am
Chairing: Andrew Russell and Xan Harding

Participating: Ana Apatu, Anna Madarasz-Smith (from 9 am), Andrew Russell, Carl Nicholson, Craig Thew, Jenny Mauger, Kit Rutherford, Mary Tukiwaho, Richard Wakelin, Steph Howard, Tom Lowry, Xan Harding

Agreed Actions, December 12 2023

Structural support work of the Dorward's Bridge	HDC to check up on latest and provide	TBC
Visibility for community over roading issues and repairs – Communication with the community	HDC to provide communication to go out to the community – via B2R and RD9 Facebook – on roading repairs and the Matapiro Bridge and to reinforce that the community should use the 06 871 5000 number to report issues. Steph to assist as required	Friday, December 15
HBRC workshop with landholders on rights and duties re waterways	HBRC to liaise with B2R re dates, location and landholders to invite	Confirm date before Christmas
Ohiwia-Waitio Subcatchment Strategy	Invitations for first hui to go out December 15	First hui February 11 2024
Hydrological analysis of flowpaths in the area	B2R to circulate a refined RFP and will ask HDC and HBRC to support funding applications to resource that work	Before Christmas
LiDAR – Access to 2021 and 2023 Emergency LiDAR **Manaaki Whenua data and analysis of cyclone slips and erosion susceptibility**	Kit to meet with HBRC GIS Team to discuss B2R needs re LiDAR and process/timeline to access. HBRC staff present to assist lining up meeting. B2R to clarify purpose and use of this information so that HBRC can provide a useable dataset in time for the Ohiwia-Waitio Subcatchment Strategy Meeting	Before Christmas In train
Wānanga on Lake Rūnanga-Ohiti	B2R is organising this wānanga. Further details to come	February 17-18, *or* February 24-25

Ana Apatu opened the meeting with a karakia

Review of agreed actions from November 6: progress

1. Dorward's bridge

HDC noted that there are more frequent inspections of bridges. Due to changes detected in bridges in other areas, resource has been temporarily focussed there.

Action: Craig to check with his team and report back where things are at

2. Visibility for community over roading issues and repairs

On November 10, HDC sent through an update on progress and new information that was underway:

- Road works https://www.hastingsdc.govt.nz/services/roads-and-streets/road-works/
- General Council recovery update page https://www.hastingsdc.govt.nz/cyclone-gabrielle/
- Recovery roads info page (stage 1) https://www.hastingsdc.govt.nz/cyclone-gabrielle/roading-recovery/
- Example detail on major project (Matapiro bridge)

  https://www.hastingsdc.govt.nz/hastings/projects/permanent-bridge-rebuilds/matapiro/

The roading update above is a work in progress with basic information that we will start to provide more input to in the coming weeks. Key communication is the recovery is a multiple year (5-10 year) task, 100m spent on Transport response so far, a further $700m is estimated needed to invest in permanent repairs.

There was discussion about ongoing frustration expressed by the community and that this could largely be resolved through better communication.

HDC reported that:

- Some repairs are 5-7 years out, due to the scale and expense of the repair programme
- The community should use the 06 871 5000 to report issues – not individual staff members' cell phone numbers
- The team is still working through how much of the 40-odd pages of repair programme can be made public. Issues to resolve is how much detail can be provided effectively and how to avoid comms that can cause further frustration – such as how to present schedules, given that these can shift.
- Newsletters updating the community on specific areas – such as the Puketapu Bridge – are due to go out before Christmas.

Ana reported that the community meeting on the Matapiro Bridge that she will chair has to be pushed into the New Year but this does not delay the procurement schedule which is already underway and it is important that the community does not take the delay to the community meeting to mean that repair is also delayed.

Jenny noted that Piringa Hapū has been involved in discussions about the Matapiro and Puketapu bridge repairs and that B2R needs to connect through on that information.

Action: HDC to work on communication to go out to the community – via B2R and RD9 Facebook – on roading repairs and the Matapiro Bridge and to reinforce that the community should use the 06 871 5000 number to report issues. B2R to assist as required.

3. Taihape Road Flooding

Shortly after the last meeting. HDC circulated images and modelling that HDC developed to understand the Taihape Road flooding.

That modelling showed a number of flood paths, some of which may no longer exist due to subsequent earthworks.

That modelling had been done by an HDC team member

Action: Kit will connect with him to get more insight into that modelling.

4. Shanley Road Esplanade Reserve

Xan enquired about what HDC resource would be available – staff time or money – to assist the community come up with a plan for how best to use the reserve.

HDC staff and Ana both reinforced that money/funds are going to be very tight this coming year (at least), however staff said they could assist the community with the planning aspect (depending on timing).

On this latter point, Steph noted that how the reserve would be managed/purposed would likely depend on the Ohiwia-Waitio catchment strategy and, potentially, the flow modelling done for that strategy.

HDC has already had an informal conversation with the rural community board, letting them know that the community may come forward with a management plan for the reserve.

5. Workshop for landholders to understand rights and responsibilities re waterways

HBRC staff has had a conversation with Nic Peet and the next step is B2R liaison person to help define landholders to invite and possible dates.

Action: HBRC staff to liaise with B2R to get this moving.

6. One-pager on council and landholder responsibilities with respect to waterways

B2R put its hand up to draft this and has put that on ice to time it with the above workshop. It was agreed that it might be best to start with non-emergency rights and responsibilities, rather than flood scenarios, although understanding both will be valuable. Steph to liaise with HBRC on this.

7. Making HBRC reports on Lake Rūnanga more accessible

HBRC has been working to digitise and upload reports on the lake from early to mid 2000s that are not digitised. These will be posted on the TANK dashboard and staff are looking into a separate/dedicated landing page for Lake Rūnanga.

8. Access to LiDAR – 2021 and 2023 Emergency LiDAR

HBRC can facilitate access to the 2021 LiDAR (which has been quality-assured) and the 2023 emergency LiDAR that has not (and is subject to uncertainty due to ponding water and standing silt). Xan recommended that Kit get together with HBRC GIS Team to clarify what B2R wants and a timeline for accessing the relevant data. HBRC staff present to help facilitate this meeting.

Action: Kit to meet with HBRC GIS team to discuss B2R needs re LiDAR; LiDAR QA issues; and process/timeline to access.

9. Lake Rūnanga-Ohiti Wānanga

Mary reported on progress organising a wānanga about the lake. Two weekends in February have been pencilled in: February 17-18 and February 24-25. The first day will be focussed on history and post Cyclone. The second day of the wānanga will be hosted at the Ohiti end and will include history there, lake health, a visit to the lake and water testing.

B2R is working on getting Access2Experts resourcing to support the wānanga and the bringing together of the Mātauranga of the lake. B2R has also had a first meeting with the Ngāti Pāhauwera Development Trust scientist who is leading the restoration projects for the shallow lakes in their rohe and sees a lot of opportunity to learn from their experiences and to find ways to work together in the future around a common kaupapa.

10. Ohiwia-Waitio Subcatchment Strategy

Andrew outlined the plan to bring the communities of Ohiwia and Waitio together to develop a catchment strategy. Invitations will be sent out by Friday December 15 and the first hui was planned for Sunday, February 11 at Rūnanga marae.

Xan asked what information support HBRC team could provide.

HBRC staff said that the TANK dashboard held a lot of information that would be relevant. That information is largely pre-Cyclone; she could speak to post-Cyclone state.

Steph asked about the Manaaki Whenua data and analysis on erosion and erosion susceptibility. HBRC staff said that an erosion susceptibility layer is available and that her team could assist with providing this but to ensure that it is relevant and useable, B2R should clearly define the purpose.

Action: If workable, Kit to include this in the LiDAR discussion with Tim Farrier. Alternatively, B2R to provide HBRC with an outline of what data is needed and the purpose for which it will be used.

11. Funding for catchment strategy

HBRC staff has been looked into whether AGMARDT could be a potential funder of such project. AGMARDT is now more oriented to regional resilience; however its ultimate focus is primary businesses. It does not fund extension activities. There are two funding streams: one for grants of up to $30K, which do not require co-funding; and grants $30-200K that require co-funding as well as in-kind funding. There is a rolling schedule, with applications decided at each board meeting. Staff suggested it may be worth exploring a grant for $30K that would resource development of a more substantial project and funding application.

12. Flow Modelling

B2R is working on a request for proposals for flow modelling for the Ohiwia-Waitio subcatchment and will be putting this out in the New Year to establish the quantum. B2R will run the draft RfP by HDC and HBRC as it makes sense to ensure that it will be relevant to their work (such as Taihape Road solutions) and to get council advice and support for funding applications to get the work done.

Mary closed the meeting with an invitation to the whānau day at Rūnanga Marae, organised by Piringa Hapū, on December 17 and a karakia.

Next Zoom Call: March 4 2024, 4-5 pm

Agenda Item 4: Flow Modelling in the Okawa-Waitio Catchments

From: Kit Rutherford
Date: 5th December 2023

Background

Flooding has occurred in the lower reaches of the Okawa and Waitio streams for several years. Closures of the Napier-Taihape road have occurred on several occasions which have disrupted travel for those living in the upper catchment. Flooding of houses, farm buildings and farmland is an issue with cyclone Gabrielle being an extreme example, but not the only event.

The B2R Community Catchment Group is seeking to develop either a stream flow model of the lower reaches (Puke School to Omahu), or a rainfall-runoff model of the entire catchment (Figure 1). The aim is to have a tool capable of examining possible remedial actions to alleviate flooding including the impacts of climate change. The flow model may also provide information for other investigations of water quality and ecosystem health in the catchment's waterbodies.

The B2R committee and the community have raised the possibility of flood modelling using recently flown LiDAR data. Consultant engineer Dr Will Conley of WSP-NZ Ltd, Palmerston North, accompanied by Carl Nicholson (HBRC), visited three landowners along the Okawa Stream on 9th November 2023 to provide advice about engineering interventions (e.g., excavation and debris removal) to alleviate flooding. During the visit the possibility of modelling floods was discussed.

This synopsis forms the basis of a request for proposals from consultants.

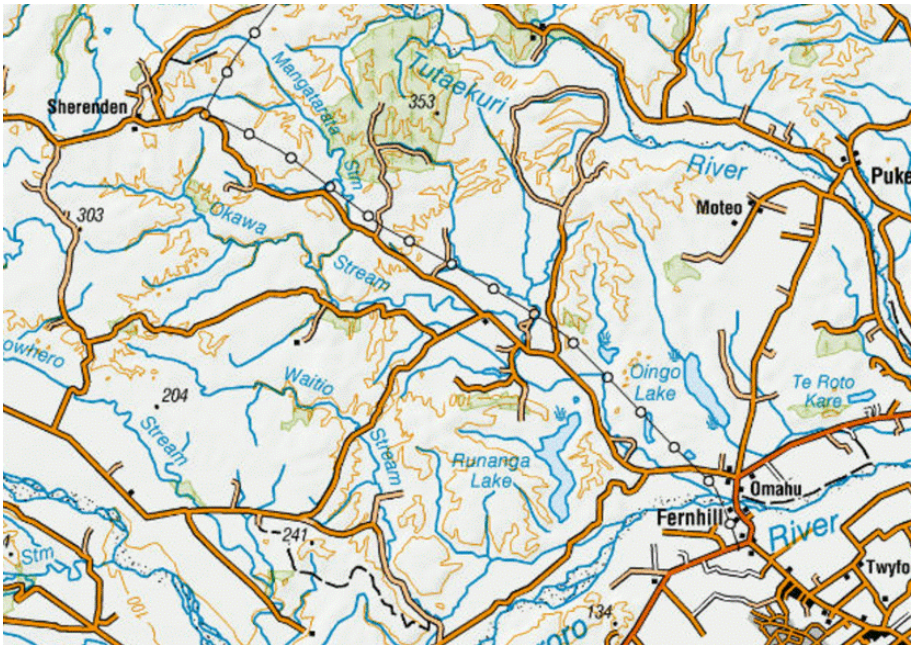

Figure 1. Map of the Okawa-Ohiwia-Waitio-Runanga system

Information needs

a. A dynamic flow model that will predict the effects on flood flows of

    a. remedial actions in the lower catchment (e.g., modifying stop banks, encouraging ponding, opening flood spillways, deepening the channel etc), notably in relation to road closures and inundation of property and farmland, and/or
    b. climate change (viz., predicted increased in frequency and magnitude of rainfall events and floods) and land use change (e.g., conversion of pasture to forest) in the entire catchment.
b. Information to inform the community about the causes of flooding and the range of options for remediation (including cumulative effects, risks, cost-benefits). This includes information about historic flow pathways, recent changes brought about by construction of stop banks and lake level controls, and the effects these have had on flooding.
c. The ability for the community to model different scenarios of rainfall events and remedial actions, to assess risks and cost-benefits of remediation.
d. Information to help the community engage with Councils and other agencies to seek solutions.

Modelling options

Two modelling approaches could be taken.

a. Streamflow model between Puke School and Omahu, or

The streamflow model requires 'design hydrographs' (flow versus time) to be specified at the upstream boundary (Puke School). It would predict stream flow, depth and velocity at downstream locations and overbank flow. The model would be used to examine interventions such as widening stop banks, diverting high flows (e.g., onto farmland or through Runanga Lake[1]), raising flood banks etc. Several 'design storms' would need to be modelled (e.g., 100, 50, 10-year return period storms) which requires their hydrographs (flow versus time) to be determined separately at the upstream boundary.

b. Rainfall-runoff-streamflow model of the whole catchment.

The rainfall-runoff-stream flow model requires 'design rainfall' (rainfall versus time including any spatial variation across the catchment), landcover (trees, pasture, impermeable surfaces) and evaporation. It can be used for not only the same questions as (a) but also changes in landuse (e.g., more trees/less pasture) and climate change (provided 'design rainfall' can be estimated). There are several different models available that vary in complexity and implementation cost. Choice of models is determined by (a) question(s) being addressed, (b) level of certainty required (e.g., scoping options or final design) and (c) available resources (viz., funding, in house or consultant capability). B2R is looking to draft a strategy to discuss with the stakeholders which includes identifying what hydrology/hydraulic modelling would be valuable and feasible.

[1] Historically the Okawa Stream flowed through Rūnanga Lake. Until recently flood flows from the Okawa Stream flowed into Rūnanga Lake. The lower reaches of what is called the Okawa on recent maps is known by mana whenua as the Ohiwia. Source: conversations with mana whenua.

Available information
It appears that:

a. There are no flow monitoring sites on the Okawa or Waitio streams.
b. There appear to be no channel cross section or level survey data.
c. LiDAR has been flown recently by HBRC and James Brassington. Data have not been sighted.
d. HDC has done some work on flood levels, thought to be static analysis using LiDAR or DEM data.
e. There appears to have been no steady state or dynamic flow analysis done.
f. There is information (including oral tradition, historic photographs, diaries, newspaper articles and records of stop bank construction) held by the community about changes in flow pathways and flooding that have occurred in recent decades[2].

Data required to develop, calibrate and test the models is sparse. The modelling needs to clearly identify uncertainties and critical information needs.

Timeframe and funding
Phase 1 – scoping
The B2R Community Catchment Group has some limited resources that would fund initial discussions with consultant to scope and cost model development.
Deliverable: Report setting out the scope and cost of model development.
Completion date: March 2024
Budget: TBC

Phase 2 – funding support
B2R would need to seek external funding with some input from the consultant.
Completion date: May 2024

Phase 3 – model development
Deliverable: Operable model, tested as far as practical, capable of running semi-quantitative scenarios, running up to 6 scenarios
Completion date: within 6 months of signing the Phase 3 contract.
Budget: to be agreed between B2R and the consultant based on the agreed scope of modelling.

Phase 4 – refinement and scenario modelling
Deliverables:

a. Agreed model refinements stemming from evaluation of Phase 3 findings.
b. Running addition scenarios as agreed with B2R and the community.

Completion date: TBA
Budget: TBA

[2] The Okawa Stream used to flow through Rūnanga Lake before being diverted. The relic flow path can be seen in aerial photographs. Construction of a weir at the outlet of Rūnanga Lake has altered its water level regime.

HERETAUNGA HASTINGS DISTRICT COUNCIL

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Map Produced Using Intramaps | Monday 06 November 2023 | 1:5000 on A3