Whangamatā

Stormwater Stakeholders Engagement
Team Meeting

21 February 2025

Agenda

- Review minutes from meeting 24 July 2024
- Stormwater Capital Works 2024/25 Update
- Williamson Park Stormwater Pond Update
- Stormwater modelling specifications

2024/25 Stormwater Capital Works Program

- Six-year capital works programme of stormwater works in Whangamata.
- Aim to improve performance of the stormwater network and mitigate habitable floor flooding.

Proposed works for FY2024-25 included upgrades to outfalls at:

- Hetherington Road
- Harbour View Road

The design incorporated at each location:

- Upsized outfall pipe
- Installation of a non-return valve
- Gross Pollutant Trap (GPT) water quality treatment device

Proposed 2024/25 Capital Works Program

Harbour View Road Stormwater Outlet:

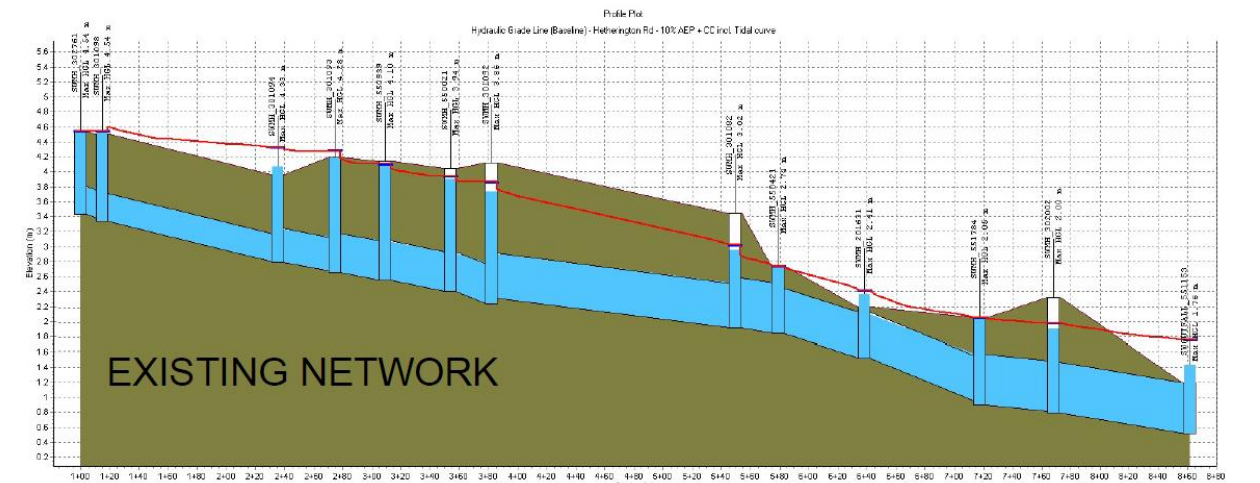
- Proposed to now defer project as priority has lowered
- Harbour View Road Stormwater sub-catchment is signficantly smaller than original estimated
  - Survey confirmed Mako Road stormwater network does not discharge to Harbour View outlet
  - Flooding experienced is localised
  - Not impacted by upstream catchments
- Significant risk of sea level rise on lifetime of outlet
  - Coastal inundation with 1.0m mean sea level rise
- This options benefits fewer properties than initially anticpated

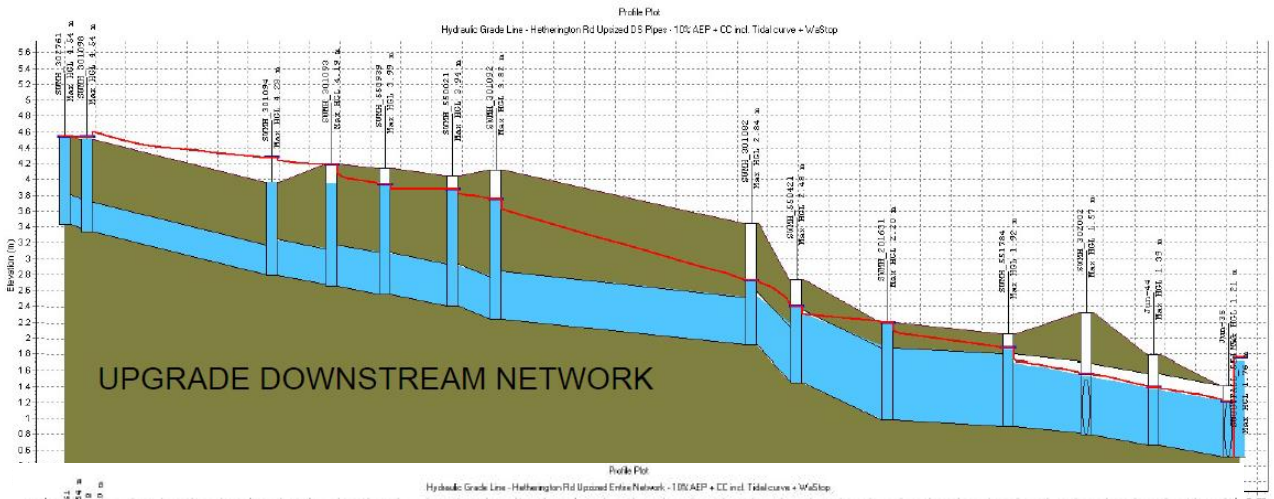
SW Sub-Catchments

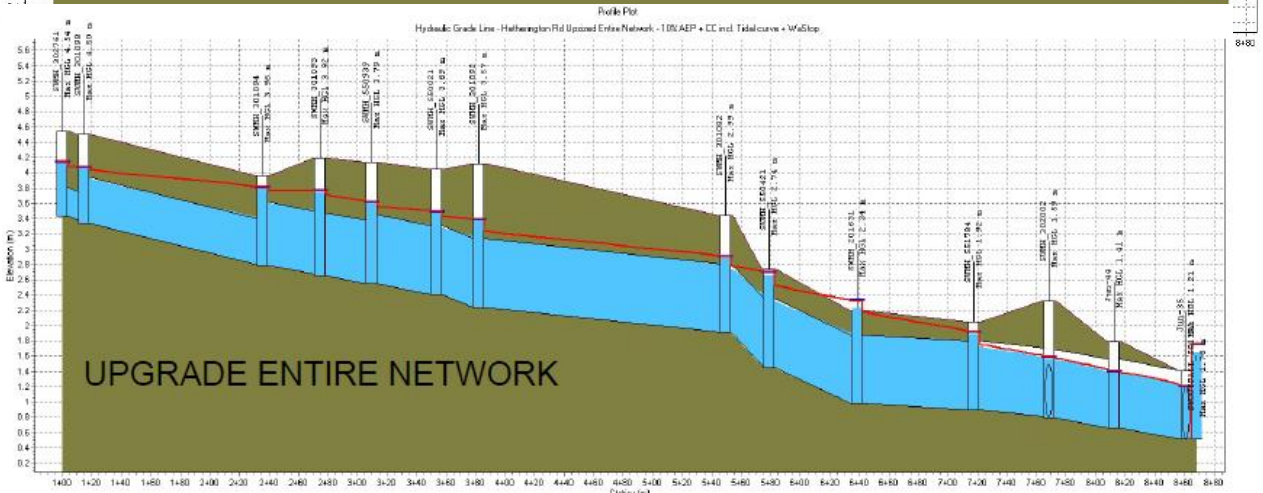
- Harbour View Road – northern end of Harbour View Road
- Mako Road – upstream catchment includes Barrowclough and Rutherford Road discharging to the western side of the Marina Swale and outlet on southern side of Marina.
- Hetherington Road – Hunt Road, Port Road, Casement Road, Martyn Road and The Square

Hetherington Road Stormwater Upgrade

- Proposed full upgrade of SW pipeline designed in separable sections;
    1. Outlet to Martyn Road round-about, wa-stop and GPT
    2. Martyn Road round-about to Rutherford Road intersection
    3. Rutherford Road intersection to Port Road round-about
- Extending the stormwater pipeline in Hetherington Road provides significant benefit to the surface water flooding experienced within the catchment
- Graphs are the hydraulic grade line of pipeline 10% AEP + CC







Hetherington Road Reticulation Upgrade

- Key enabler for a series of subsequent capital works upgrades in areas with significant stormwater flood issues.
  - Port Road
  - Barbara Avenue
  - Tuck Road
  - Casement Road
- Water Services Team have been tracking flood complaints received from residents. Significantly higher complaints and enquiry from residents located on roads connected to the Hetherington Road network compared to Harbour View Road.
- Temporary but major impact of traffic management on Hetherington Road

Williamson Park Pond Upgrade Works Stage 3

- Water quality testing undertaken at inlet and outlet of pond
- Sampling undertaken at ‘first flush’ rainfall event.
- 5 sample sets taken between August and November 2024
- Water quality testing indicates the dry detention basin does not provide significant improvement across the basin apart from TSS

Table 1: Contaminant Concentration and Removal Percentage. Red indicates increase from inlet to outlet.

Contaminant	Typical Concentration in Urban Stormwater Runoff [1]	Inlet Average Concentration	Outlet Average Concentration	Unit	Removal %
Total Nitrogen	0.66 to 1.1	0.590	0.743	mg/L	+26.0%
Total Phosphorus	0.02 to 26	0.103	0.113	mg/L	+9.10%
Total Suspended Solids	2 to 1100	11.28	7.73	mg/L	-31.4%
Copper	3 to 60	4.08	4.90	ug/L	+19.9%
Lead	1.2 to 11	0.600	0.640	ug/L	+5.6%
Zinc	10 to 1400	9.48	9.75	ug/L	+2.9%

Williamson Park Pond Upgrade Works Stage 3

- Water quality test results did confirm the incoming stormwater runoff has a low pollutant load
- Representative of the low-density residential catchment
- Stormwater runoff quality entering the network is improved by on-lot soakage devices and roadside swales

➢ Does not justify implementation of a full water quality wetland as per Stage 3b of Williamson Pond planned works

Figure 1: Pre-existing inlets and pond (March 2024)

Figure 2: Finished dry detention basin (September 2024)

Proposed Planted Dry Detention Basin

- Planted dry detention basin provides water quality treatment via;
  - ➢ Biofiltration
  - ➢ Increased hydraulic retention
- Combination of the Gross Pollutant Traps (GPT) and planted dry basin is predicted to remove 85% of influent total suspended solids (TSS) as devices in series;
  - ➢ The GPT remove 50% TSS
  - ➢ Planted basins can remove <75% TSS
  - ➢ Calculated hydraulic residence of the planted dry detention basin is 9.4minutes
- ✓TSS removal and hydraulic residence times meets WRC SW Management Guideline
- ✓Compliance with Comprehensive SW Discharge Consent

Planted Dry Detention Basin

- Basin in naturally revegetating;
  - Native river bullrush, Tall flat sedge and Many-spike flat sedge
- Planted dry detention basin requires no further earthworks
  - Weed control assessment
  - Plant with native grasses, sedges and flaxes
  - Provide ecological benefit and aesthetic enhancement of park
- Next Steps;
  - Currently engaging with WRC, community and Iwi
  - Develop the planting plan with community planting session proposed between April and June 2025

Stormwater Modelling Specification

- TCDC is developing a specification document for stormwater modelling
- To provide a concise minimum standard to ensure that they are suitable for council's purposes. For example - minimum model grid resolution, climate change scenarios, output format etc
- The specification is being produced in collaboration with WRC

THANK YOU