Appendix D (3 of 3)

Hutt and Upper Hutt Catchment Characteristics DRAFT

Te Awa Kairangi / Hutt River Catchment

There are 12 sub-catchments within the Te Awa Kairangi/Hutt River Harbour Catchment, most of which flow into the Te Awa Kairangi/Hutt River, the major river system in Te Whanganui-a-Tara, as shown in Figure D 1 to Figure D 4.

The land use within the catchment varies significantly. Water supply areas and regional parks feature large areas of native vegetation, while grassland and peatland dominate the Tangaroa Valley side on the river's eastern side. The Western Hills are a mix of grassland, exotic forest, native vegetation, and urban areas, while the entire length of the valley floor is heavily urbanised. State Highway 2 and the railway shadow the river from Lower Hutt to the base of the Remutaka Range.

The lower part of the Te Awa Kairangi/Hutt River enters Te Whanganui-a-Tara/Wellington Harbour via the Waiwhetū Awa. While the lower reach of the Waiwhetū Awa is heavily channelised and polluted, the mid-range of the awa still retains āhua (natural character), and considerable investment in its restoration has brought the community together.

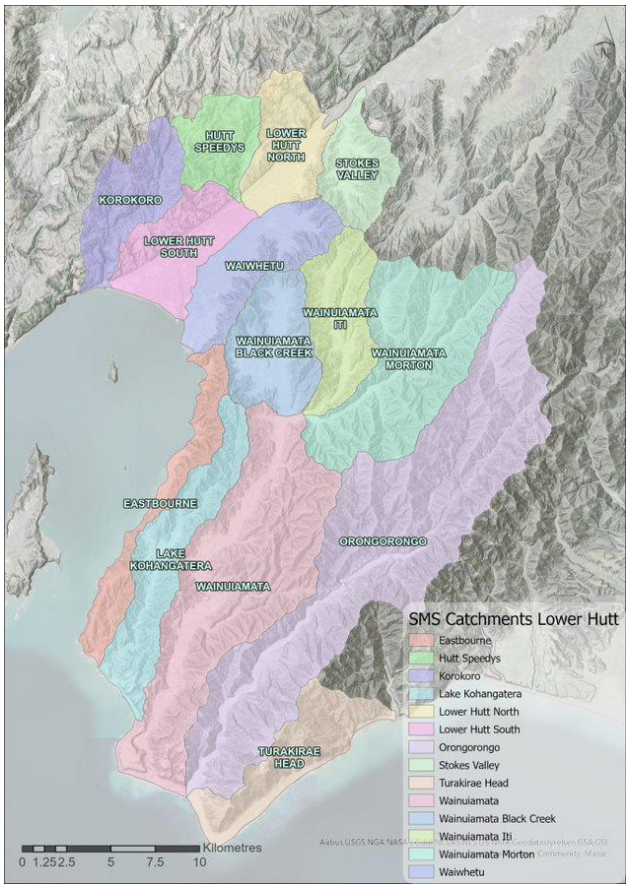


Figure D 1 Map showing Hutt City Catchments

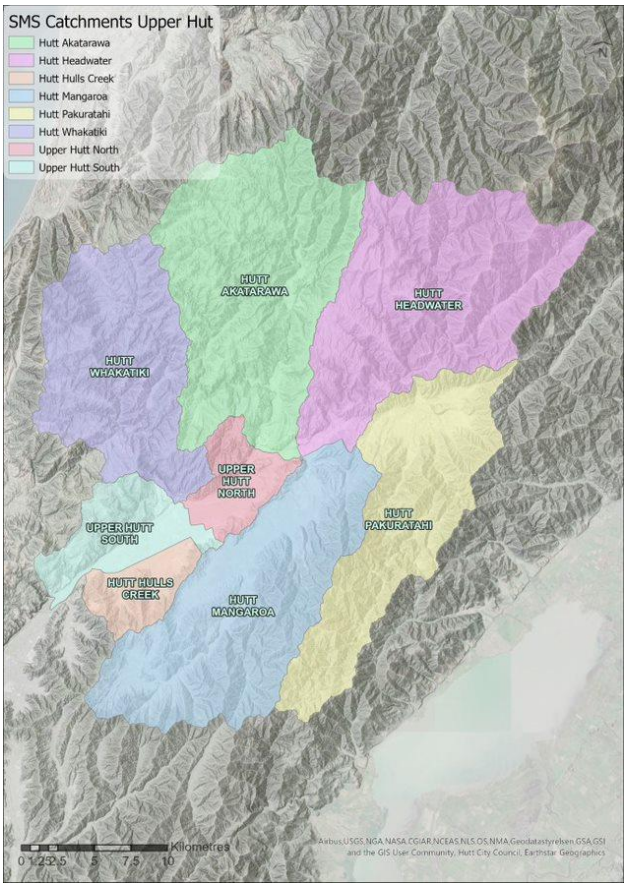


Figure D 2 Map showing Upper Hutt City Catchments

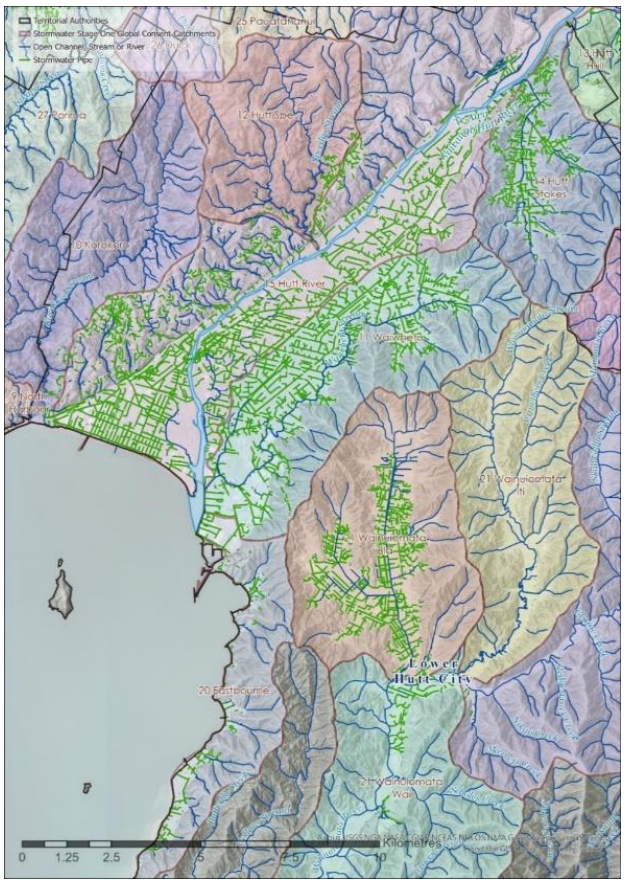


Figure D 3 Map showing the Stormwater network in

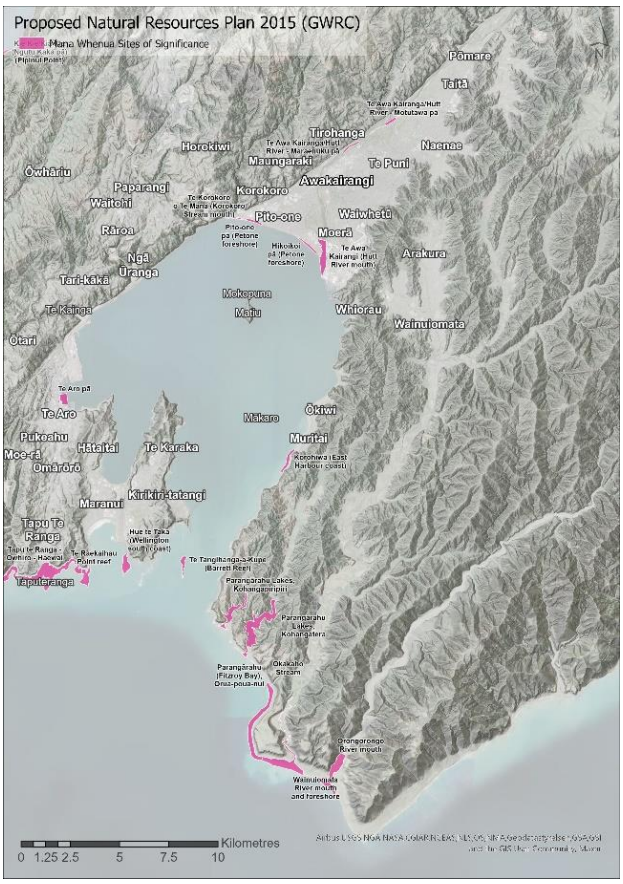


Figure D 4 Map showing the outstanding water Hutt City bodies, Ngā Taonga Nui-a-Kīwa and aquatic sites with significant mana whenua values identified (Sch A-C of NRP)

Current State

Te Awa Kairangi and Waiwhetū are typical of heavily urbanised catchments, with urban development and encroachment, channelisation, pathogens and stormwater contaminants degrading its water quality. The aquifer, which is an essential source of the current water supply system, is also at risk of being contaminated by the city above it.

Most of the urbanised lower reaches of the Hutt Valley is serviced by a piped stormwater network. Under Schedule H2 of the NRP waterways that are prioritised for improvement of fresh and coastal water quality for contact recreation and mana whenua customary use include, Te Awa Kairangi/Hutt River, and Wainuiomata River.

Monitoring results [1] from the Stage 1 Global Stormwater Discharge Consent shown in Figure D 5 and **Error! Reference source not found.** indicate better water in the upper reaches of the Hutt River, but other sites have poor water quality in regards to E. coli, copper, zinc and nutrients, shown in Table D 1 and Table D 2.

[1] *Stormwater Monitoring Plan Annual Report 2020-2021*

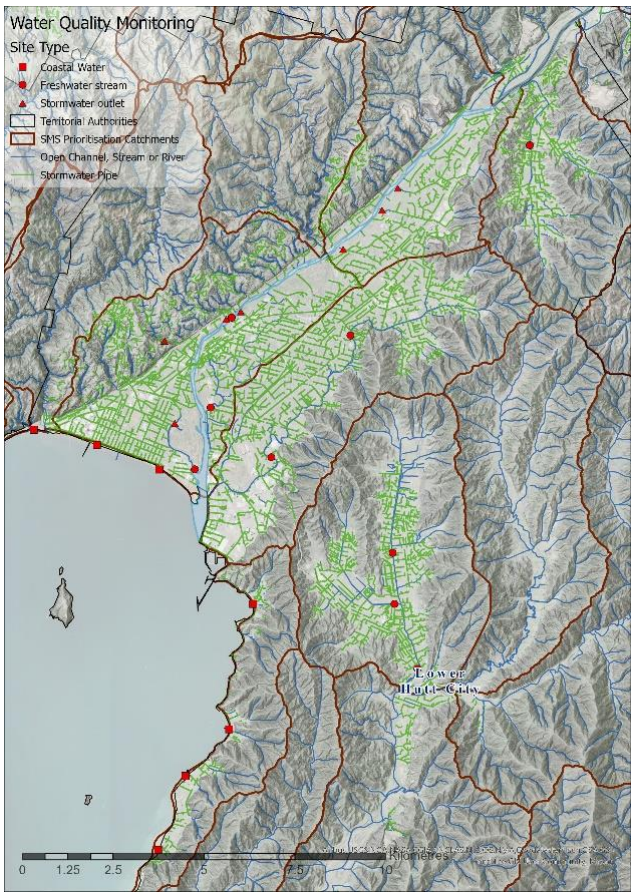


Figure D 5 Monitoring locations for the Stage 1 Stormwater Discharge Consent in Hutt City catchments.

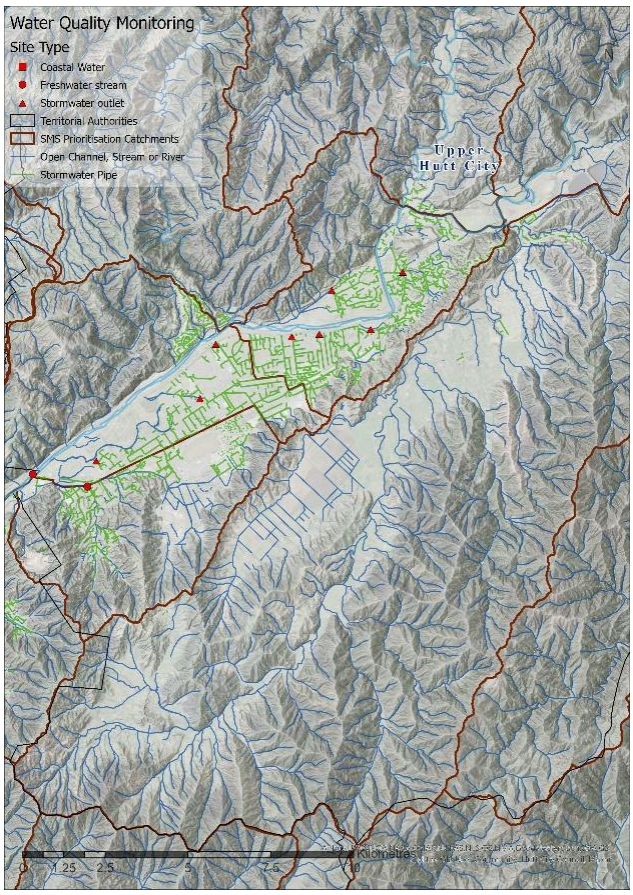


Figure D 6 Monitoring locations for the Stage 1 Global Global Stormwater Discharge Consent in Upper Hutt Catchments

Table D 1 Overview of receiving environment water quality across the Hutt River catchments, based on monitoring data collected for the Stage 1 Global Stormwater Monitoring consent (Stormwater Monitoring Plan Annual Report 2021-2022).

Water Quality parameter	Hutt @Te Marua Lakes	Hutt @Manor Park	Hutt @Boulcott	Hutt @Silverstream	Hutt @Melling Bridge	Petone Beach
E. coli (freshwater, NPS attribute state)	A	D	D	B	E	NM
E. coli (freshwater, NRP O18-95%ile <540)	Met	Not met	Not met	Met	Not met	NM
Enterococci (coastal water recreation, NRP 018-95%ile <540)	NM	NM	NM	NM	NM	Not met
Dissolved reactive phosphorus (NRP attribute state)	A	A	A	NM	NM	NM
Nitrate-N (nutrient, ANZG 2018)	Met	Not met	Not met	NM	NM	NM
Nitrate-N (toxicity NPS attribute state)	A	A	A	NM	NM	NM
Ammonia-N (toxicity NPS attribute state)	A	A	A	NM	NM	NM

Water Quality parameter	Hutt @Te Marua Lakes	Hutt @Manor Park	Hutt @Boulcott	Hutt @Silverstream	Hutt @Melling Bridge	Petone Beach
Dissolved copper (ANZG 2018)	NM	Met	Met	NM	NM	NM
Dissolved zinc (ANZG 2018)	NM	Met	Met	NM	NM	Not met

Note: The current state summary provided above is an indicative assessment based on the results of one or more individual sites reflecting the dominant condition of the waterbody. As instream conditions may differ between sites within a water body the reader is directed to the source document for site specific benchmarking against the NRP, NPS and ANZG. NM=Not measured.

Table D 2 Overview of receiving environment water quality across Black Creek and the Hutt River Tributaries, based on monitoring data collected for the Stage 1 Global Stormwater Monitoring consent (Stormwater Monitoring Plan Annual Report 2021-2022).

Water Quality parameter	Black Creek	Opahu Stream	Hulls Creek	Stokes V. Stream	Te Mome Stream	Waiwhetu Stream
E. coli (freshwater, NPS attribute state)	E	E	E	E	E	E
E. coli (freshwater, NRP O18-95%ile <540)	Not met	Not met	Not met	Not met	Not met	Not met
Enterococci (coastal water recreation, NRP 018-95%ile <540)	NM	NM	NM	NM	NM	NM
Dissolved reactive phosphorus (NRP attribute state)	D	NM	D	D	NM	C
Nitrate-N (nutrient, ANZG 2018)	Not met	NM	Not met	Not met	NM	Not met
Nitrate-N (toxicity NPS attribute state)	A	NM	A	A	NM	NM
Ammonia-N (toxicity NPS attribute state)	B	NM	B	B	NM	NM
Dissolved copper (ANZG 2018)	Not met	Not met	Not met	Not met	NM	Not met
Dissolved zinc (ANZG 2018)	Not met	Not met	Not met	Not met	NM	Not met

Note: The current state summary provided above is an indicative assessment based on the results of one or more individual sites reflecting the dominant condition of the waterbody. As instream conditions may differ between sites within a water body the reader is directed to the source document for site specific benchmarking against the NRP, NPS and ANZG. NM=Not measured.

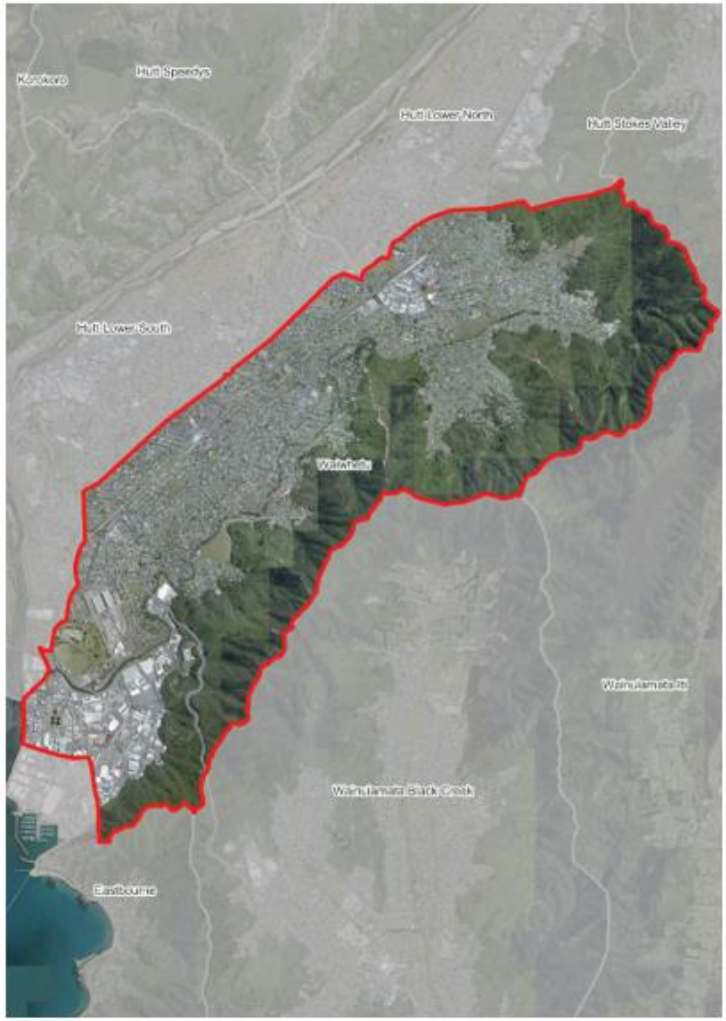
What is currently being done to support our journey to wai ora?

The Riverlink project in Hutt City in the case study below highlights several challenges and opportunities for stormwater management where the available space to incorporate and retrofit water quality devices is limited within the existing urban footprint.

Case Study 5: Riverlink Project (Belmont Wetland)

In the River Link project location there is no treatment of stormwater discharges to the Te Awa Kairangi/Hutt River. The proposed stormwater design for the Riverlink Project at the Belmont Wetland includes treatment of discharges from the area of the highway upgrade, the railway station development, the new bridge and areas of road narrowing and carpark upgrade. The addition of treatment at Belmont Wetland will result in a reduction in the contaminant load discharged to the Te Awa Kairangi/Hutt River. This will result in improvements in water quality in the receiving environment, particularly during and immediately following rainfall events.

Waiwhetu



Catchment Description

The Waiwhetu catchment is located between the Lower Hutt and Wainuiomata boundaries. It has an area of [redacted] and the Waiwhetu Stream is the primary channel. The Wainuiomata Hills are to the west of the catchment with some low-lying land at the base of the hills. Settlement, gorse and broom, and broadleaved indigenous forest dominate the land use types and there are over 20 contaminated land sites which include a railway, landfill and metal works. There is a small area to the northeast of the catchment that is susceptible to a 0.1% AEP flood event from the Wainuiomata River.

Modelled Priority Outcomes

Priority ranking: **High Priority**

Pollution Sources			Social Consequences		Contaminant Risk
Asset Management	Natural Environment	Land Use	Social Values	Cultural Values	
Over half of the stormwater and wastewater pipes are in poor condition. Contamination risk is high.	17.74% of the catchment is natural. Modification to the natural environment is extensive.	7.8% of the catchment area is contaminated land and there is low contamination risk from road sources.	Due to pollution bathing does not occur. There is no data for public engagement.	No Data in this field.	High Risk

Te Oranga Wai Kaupapa Classification: ⚠ **Wai Mate – Dead water**

Management Options

- Upgrading and refitting wastewater and stormwater pipes.
- Infiltration device.
- Biorientation Device.
- Stream naturalisation.

Eastbourne

Catchment Description

Located along the eastern shoreline of the Wellington Harbour, the Eastbourne Catchment is primarily a coastal area with steep hills reaching elevations up to 343m. The catchment area is [] and Gollans Stream is the primary channel. There is some settlement with indigenous forest and broadleaved indigenous hardwoods being the primary land use. Eastbourne has no classified flood risk and there are more than 20 contaminated land sites including chemical and fuel storage.

Modelled Priority Outcomes

Priority ranking: **High Priority**

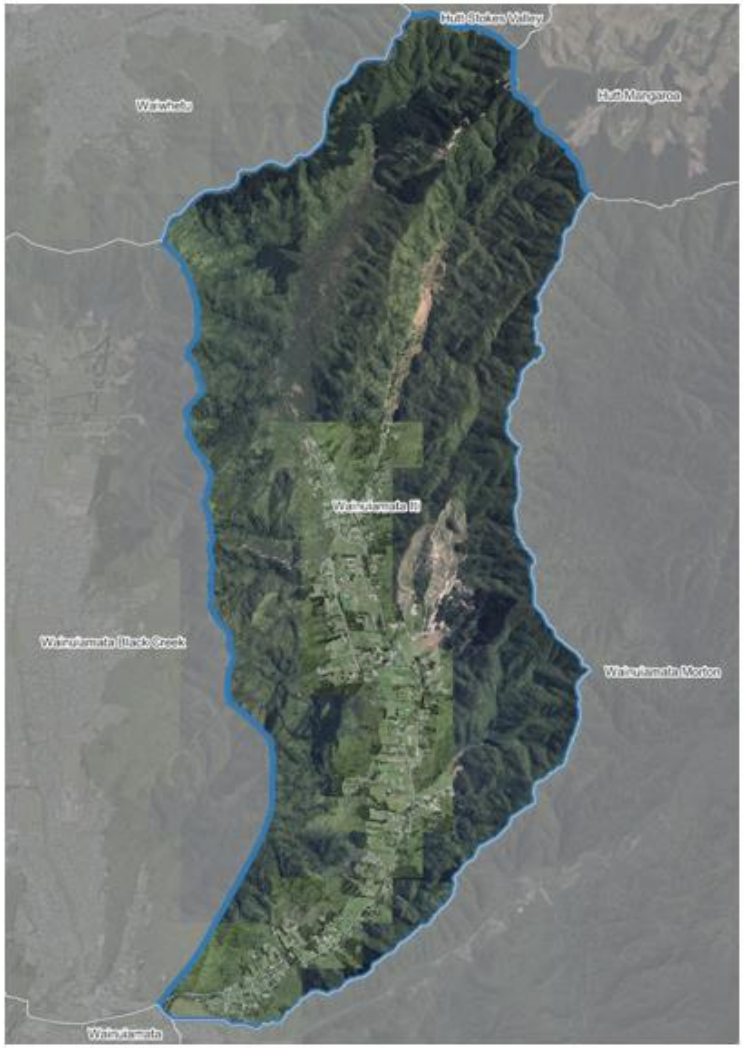
Pollution Sources			Social Consequences		Contaminant Risk
Asset Management	Natural Environment	Land Use	Social Values	Cultural Values	
Over half of the stormwater and wastewater pipes are in poor condition. Contamination risk is high.	86.68% of the catchment is natural. Modification to the natural environment is low.	0.1% of the catchment area is contaminated land and there is low contamination risk from road sources.	Bathing does occur. There is no data for public engagement.	No Data in this field.	High Risk

Te Oranga Wai Kaupapa Classification: ⚠ **Wai Kautu – At risk**

Management Options

- Upgrading and refitting wastewater and stormwater pipes.
- Gross pollutant trap.
- Swale.

Wainuiomata - Iti



Catchment Description

The Wainuiomata – Iti catchment is located west of the Wainuiomata township. The Wainuiomata Stream runs through the valley in the catchment and is surrounded by steep hillslopes. High producing grassland, Manuka and Kanuka and settlement are common land use types and there are no contaminated land sites. The areas south east of the catchment is susceptible to flooding from the Wainuiomata River in a 0.1% AEP event.

Modelled Priority Outcomes

Priority ranking: **Low Priority**

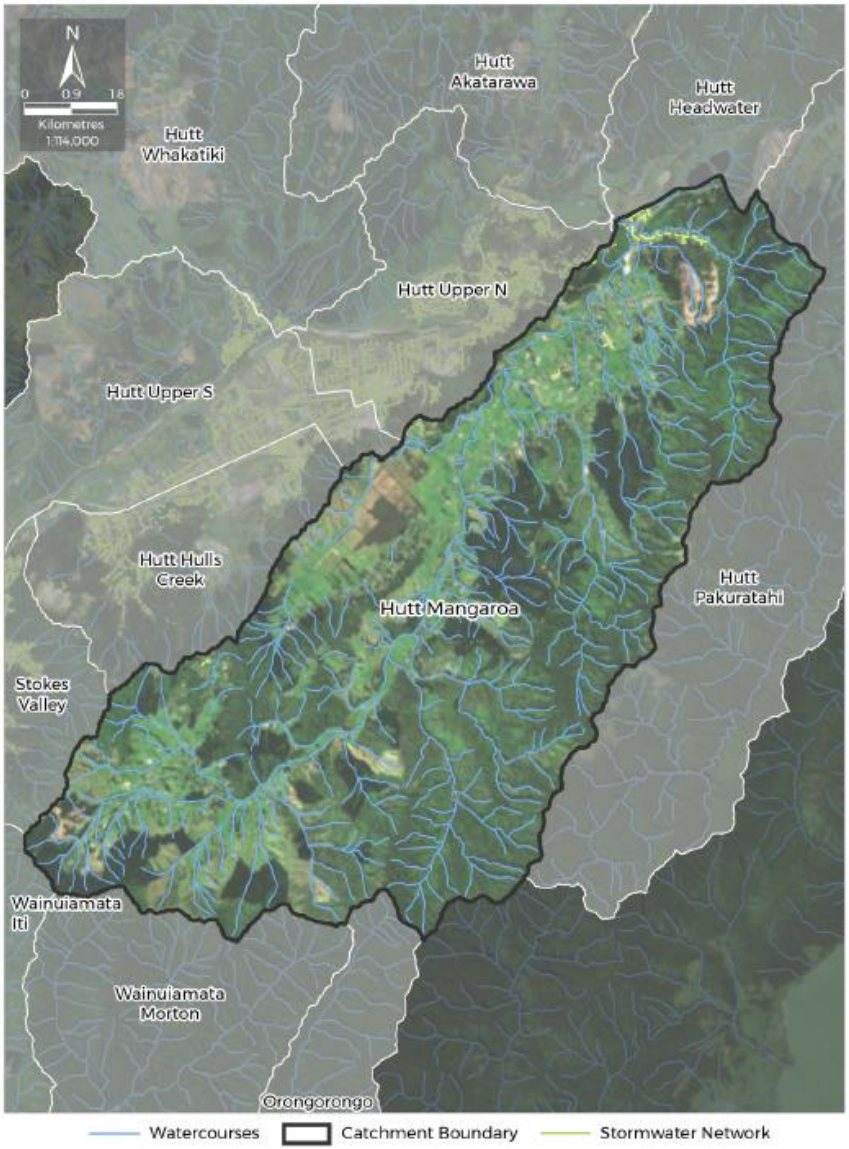
Physical Consequences			Social Consequences		Contaminant Risk
Asset Management	Natural Environment	Land Use	Social Values	Cultural Values	
There is only 4.79km of stormwater pipes and these are in excellent condition. Contamination risk is very low.	93% of the catchment is natural. Modification to the natural environment is low.	There are no contaminated land sites and there is no contamination risk from road sources.	No bathing occurs and there is no data for community engagement.	No Data in this field.	Low Risk

Te Oranga Wai Kaupapa Classification: ⚠ **Wai Kino – Dangerous polluted water.**

Management Options

- Wetland
- Bioretention Device
- Wet Pond/Retention Basin

Hutt – Mangaroa



Catchment Description

The Hutt – Mangaroa catchment is the largest catchment in the area covering the eastern areas of Upper Hutt through to Stokes Valley. The topography is steep and land use is primarily indigenous forest and high producing exotic grassland as well as some settlement. There are ten contaminated land sites which include a landfill and chemical storage. The around surrounding the Mangaroa River, which flows through the centre of the catchment, are susceptible to a 1% AEP flood event.

Modelled Priority Outcomes

Priority ranking: **Medium priority**

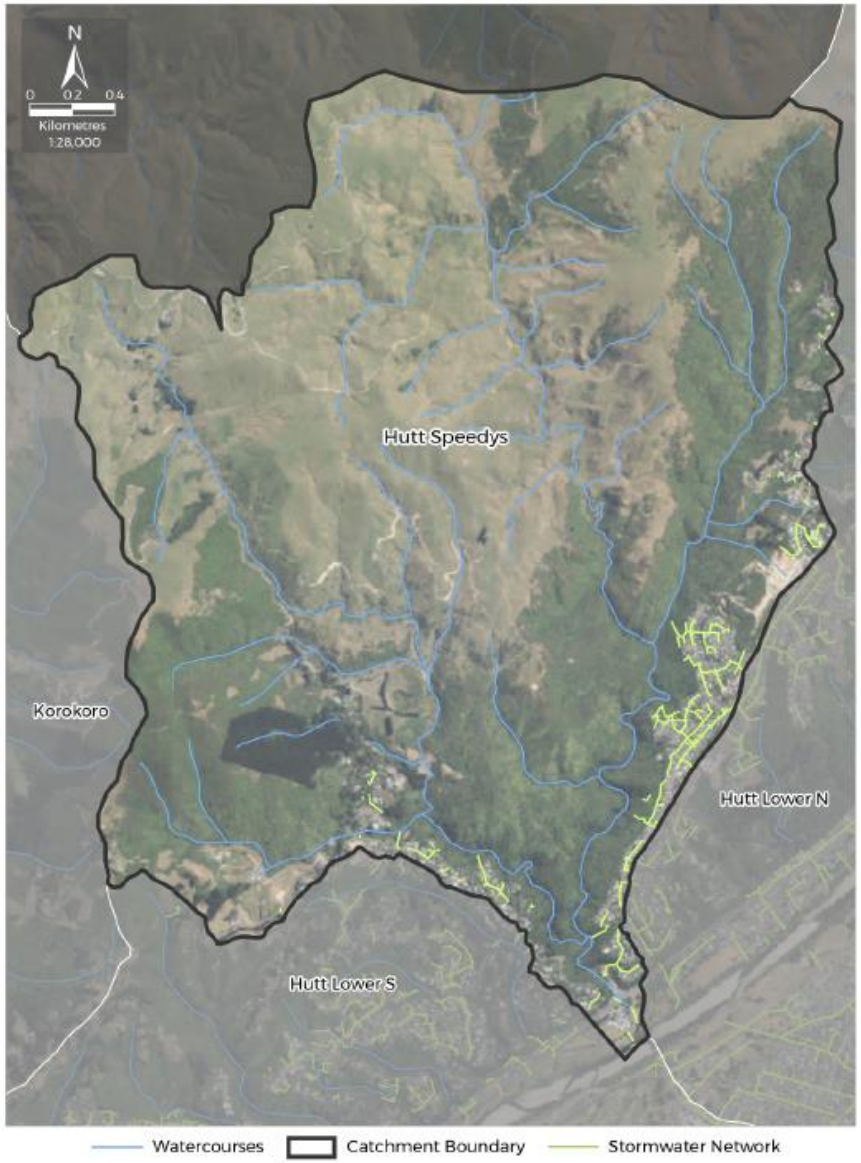
Physical Consequences			Social Consequences		Contaminant Risk
Asset Management	Natural Environment	Land Use	Social Values	Cultural Values	
96.1% and 43.8% of the wastewater and stormwater infrastructure is in moderate to very poor condition.	Modification to the natural environment is very low.	SLUR sites and roads account for less than 30% of the total land area. Risk of contamination is low.	Bathing sites are not monitored by GWRC. There is no data for public engagement.	No Data in this field.	Moderate risk

Te Oranga Wai Kaupapa Classification: **Wai Kino – Dangerous polluted water**

Management Options

•

Hutt – Speedys



Catchment Description

Located on the hills to the west of Lower Hutt the Hutt – Speedys catchment resides on the rolling hills that slope into the Hutt Valley. High producing grassland and broadleaved indigenous hardwoods are the predominant land uses with one historic contaminated land site. There is no flood risk classified in this catchment.

Modelled Priority Outcomes

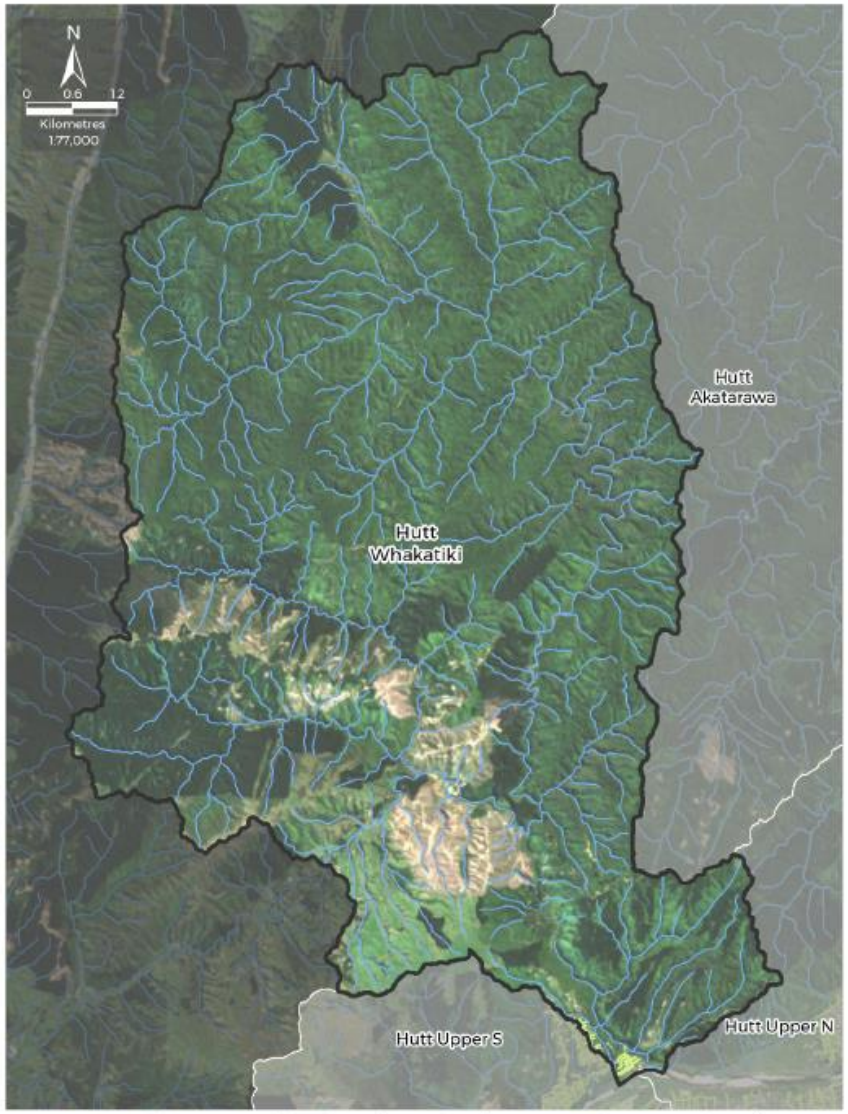
Priority ranking: **Medium priority**

Physical Consequences			Social Consequences		Contaminant Risk
Asset Management	Natural Environment	Land Use	Social Values	Cultural Values	
11.2% and 54.5% of the stormwater and wastewater network is in moderate to very poor condition.	Natural environment is not degraded.	There is no contamination from SLUR sites or roads.	Bathing sites are not monitored by GWRC. There is no data for public engagement.	No Data in this field.	Moderate risk

Te Oranga Wai Kaupapa Classification: **Wai Mate – Dead water**

Management Options

Hutt – Whakatikei



Catchment Description

The Hutt – Whakatikei catchment is located to the west of Upper Hutt. The topography of the catchment is made up of hills that slope into the Hutt Valley. Native forest, indigenous forest and exotic forest are the key land use types and there are no contaminated land sites. Areas within this catchment have been classified as susceptible to a 0.23% AEP flood event, located at the confluence of the Whakatikei and Hutt Rivers.

Modelled Priority Outcomes

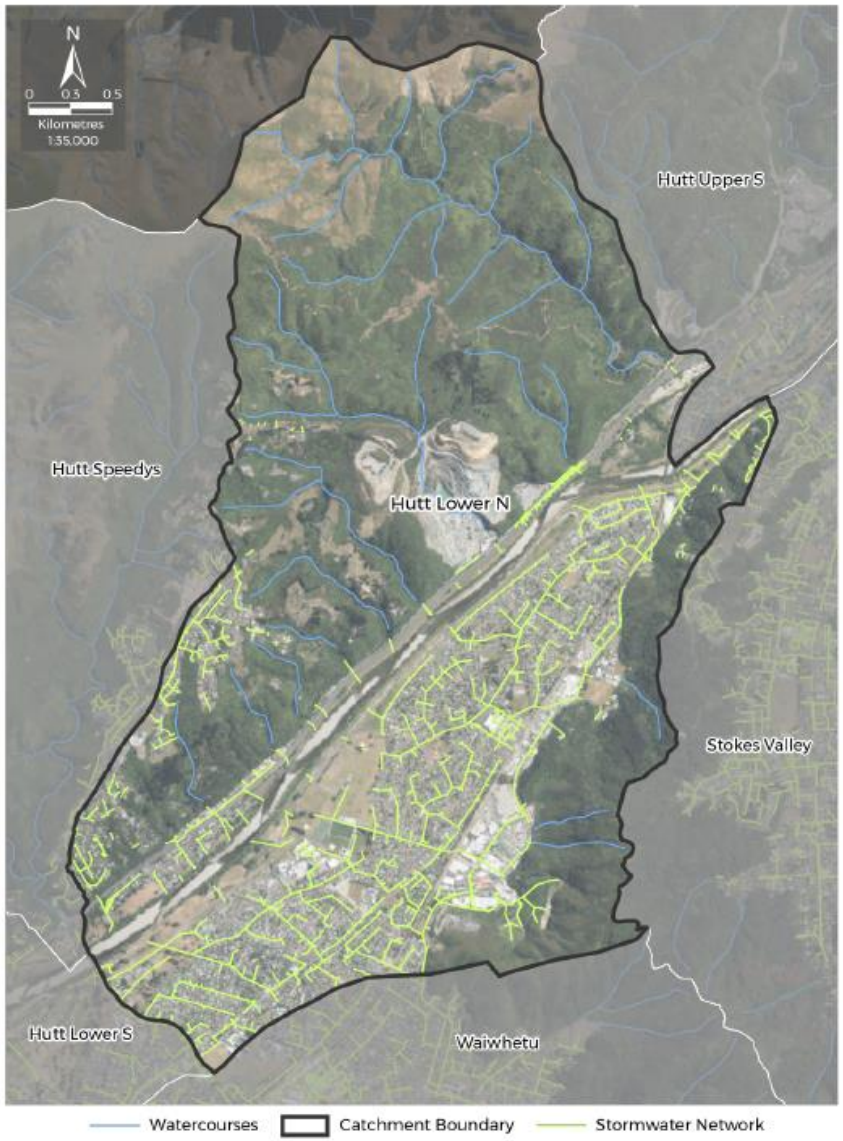
Priority ranking: **Lowest priority**

Physical Consequences			Social Consequences		Contaminant Risk
Asset Management	Natural Environment	Land Use	Social Values	Cultural Values	
There are 12 known overflow locations. Contamination risk is low.	Very low modification to the natural environment.	There is no contamination from SLUR sites or roads.	Bathing sites are not monitored by GWRC. There is no data for public engagement.	No Data in this field.	Very low risk.

Te Oranga Wai Kaupapa Classification: **Wai Ora – Healthy water**

Management Options

Hutt – Lower North



Catchment Description

Hutt – Lower North is an urban catchment with State Highway 2 running through the catchment following the Hutt River. The topography is relatively flat, due to being located on the flood plain of the Hutt River, and rolling hills are located to the east and west side of the catchment. The land use type is predominantly settlement, gravel rock, and gorse and broom. There are more than 20 contaminated land sites which include service stations and mining sites. The catchment is susceptible to a 0.23% AEP flood event with the most at risk areas located around the river as well as the suburbs Avon and Wingate.

Modelled Priority Outcomes

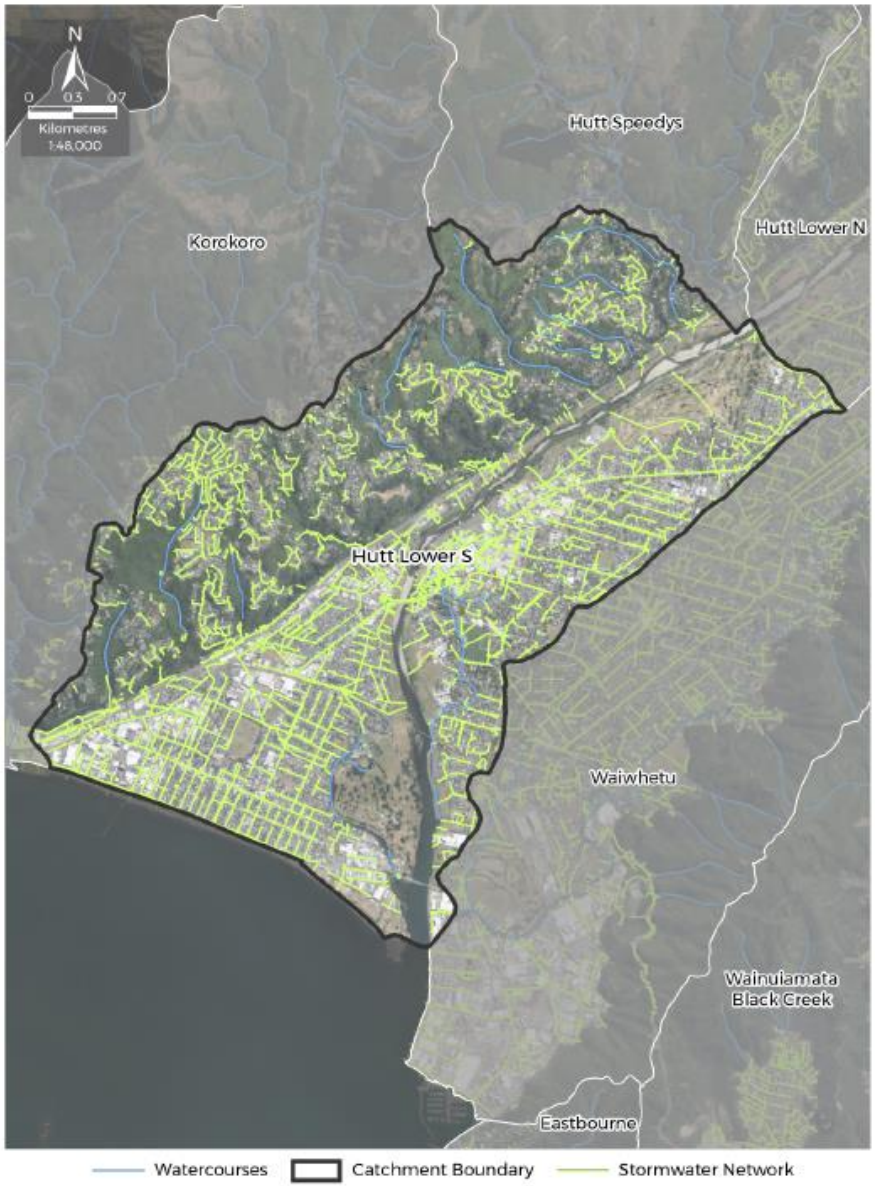
Priority ranking: **High priority**

Physical Consequences			Social Consequences		Contaminant Risk
Asset Management	Natural Environment	Land Use	Social Values	Cultural Values	
71.5% and 82.2% of the stormwater and wastewater infrastructure, respectfully, are in moderate to very poor condition.	Moderate modification.	SLUR sites account for 7.572% of the total land area.	Bathing sites are not monitored by GWRC. There is no data for public engagement.	No Data in this field.	High risk

Te Oranga Wai Kaupapa Classification: **Wai Mate – Dead water**

Management Options

Hutt – Lower South



The Hutt – Lower South catchment is primarily urban and contains the suburbs of Lower Hutt and Petone, as well as the mouth of the Hutt river into the Wellington Harbour. The topography is predominantly flat and coastal. Settlement and transport infrastructure are the major land use types and there are more than 20 contaminated land sites. Areas within the catchment are susceptible 0.23% AEP flood events with the areas surrounding the Hutt River and the entire Petone area at risk. Petone Seaview is also susceptible to a 0.1% AEP flood event.

Modelled Priority Outcomes

Priority ranking: **High priority**

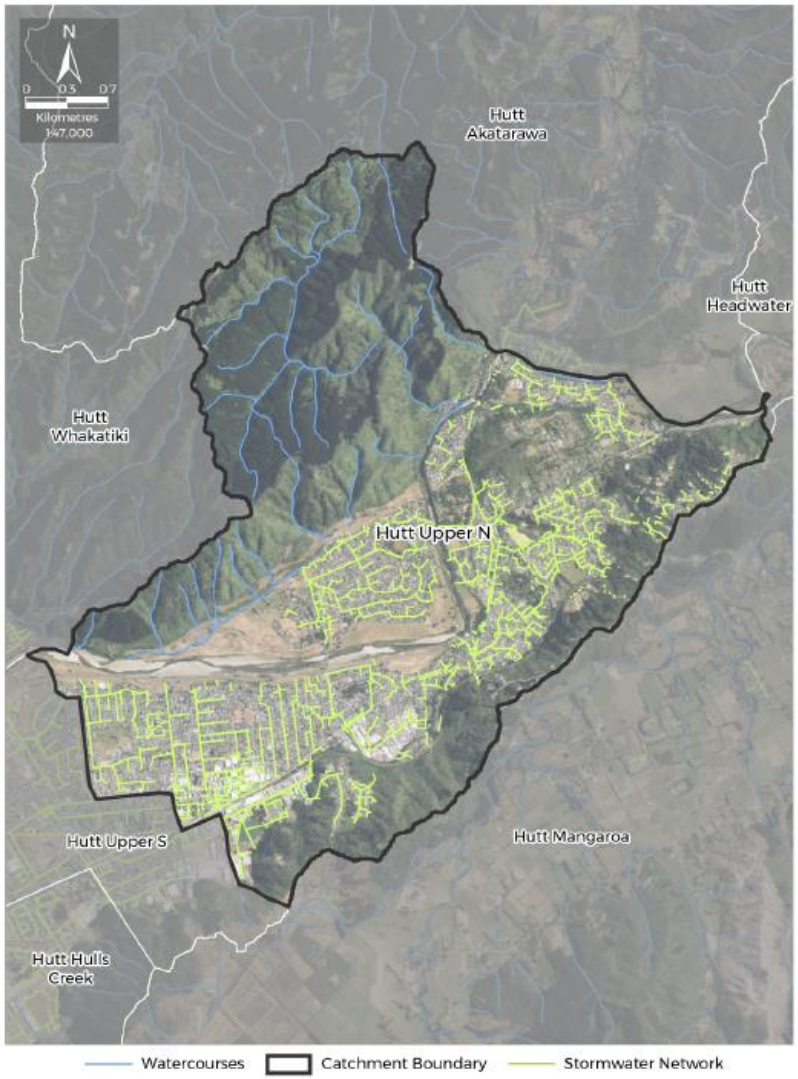
Physical Consequences			Social Consequences		Contaminant Risk
Asset Management	Natural Environment	Land Use	Social Values	Cultural Values	
More than half the stormwater and wastewater infrastructure are in moderate to very poor condition.	Natural environment is moderately degraded.	SLUR sites and roads account for 4.01% and 68.38% of the total land area respectfully.	Bathing sites are monitored by GWRC. There is no data for public engagement.	No Data in this field.	High risk

Te Oranga Wai Kaupapa Classification: **Wai Mate – Dead water**

Management Options

- Upgrading and refitting wastewater and stormwater pipes.
- Infiltration device.
- Biorientation Device.
- Stream naturalisation.

Hutt – Upper North



Catchment Description

Located north of the Hutt Valley from Upper Hutt Central to Te Marua is the Hutt – Upper North catchment. This catchment is primarily flat land with rolling hills that slope towards the Hutt River with settlement and broadleaved indigenous forest dominating the land use types. There are more than 20 contaminated land sites, and the catchment is susceptible to a 0.23% AEP flood event. Areas most susceptible to flooding are located on the flat land surrounding the Hutt River.

Modelled Priority Outcomes

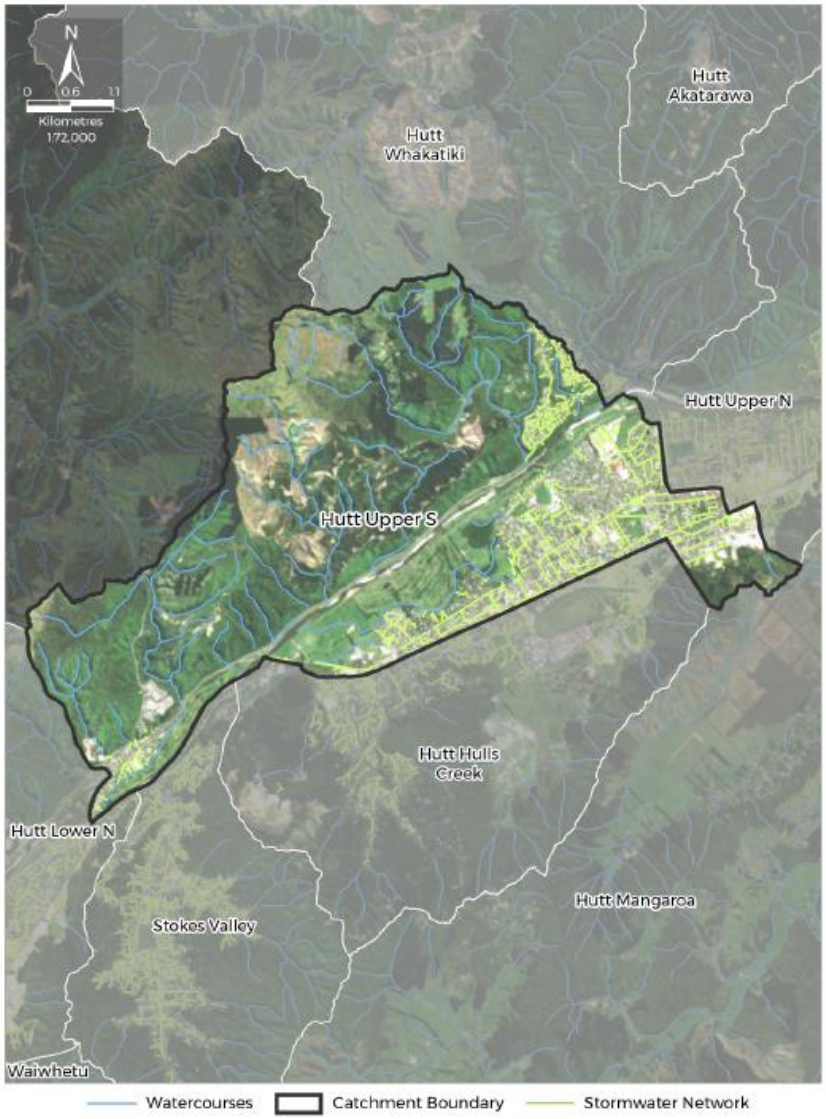
Priority ranking: **Medium to high priority**

Physical Consequences			Social Consequences		Contaminant Risk
Asset Management	Natural Environment	Land Use	Social Values	Cultural Values	
Less than half of the wastewater and stormwater network are in moderate to very poor condition.	Natural environment if moderately degraded.	SLUR sites and roads account for 2.02% and 20.51% of the total land area respectfully.	Bathing sites are monitored by GWRC. There is no data for public engagement.	No Data in this field.	Moderate risk

Te Oranga Wai Kaupapa Classification: **Wai Mate – Dead water**

Management Options

Hutt – Upper South



Catchment Description

The Hutt – Upper South catchment is in the Hutt Valley between Lower Hutt and Eldersea. Many tributaries of the Hutt River flow trough this catchment. The topography is flat with the Hayward Hills to the eastern side of the catchment. Transport infrastructure, settlement and broadleaved indigenous hardwoods are the main land use types and there are more than 20 contaminated land sites. The catchment is susceptible to a 0.23% AEP flood event with the flat urban land being the most at risk areas.

Modelled Priority Outcomes

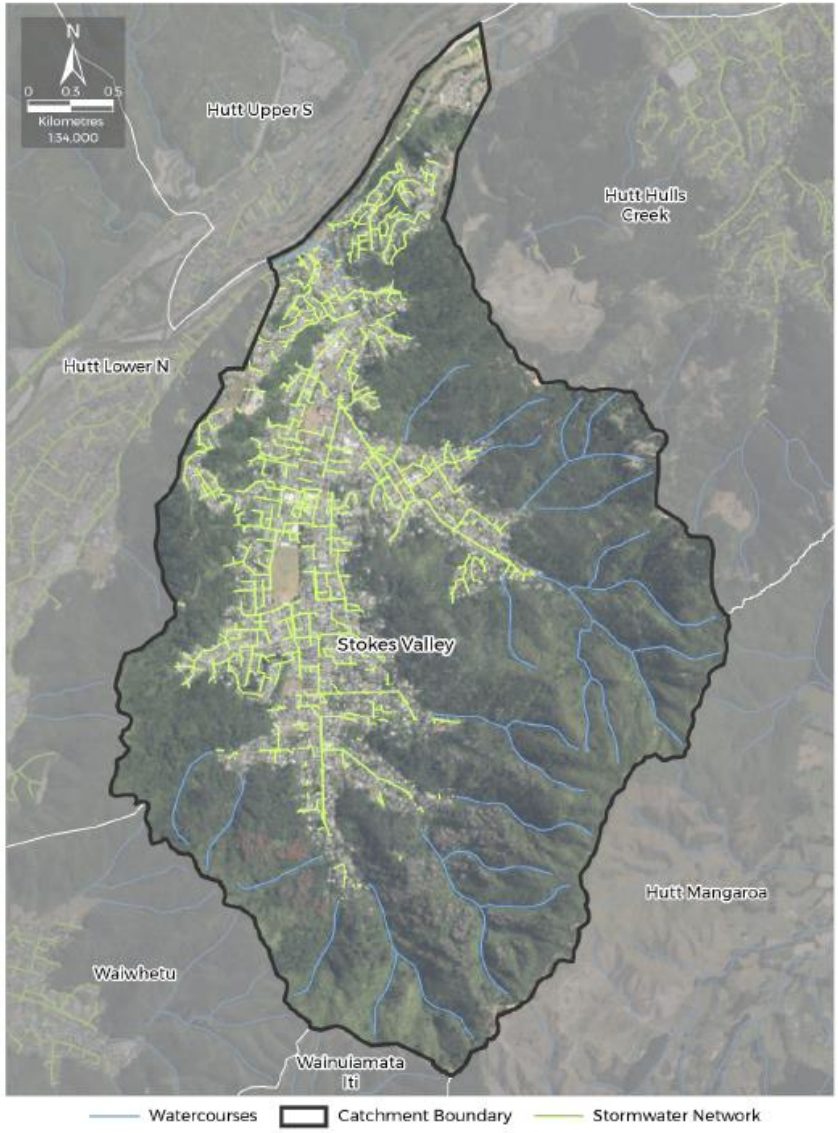
Priority ranking: **High priority**

Physical Consequences			Social Consequences		Contaminant Risk
Asset Management	Natural Environment	Land Use	Social Values	Cultural Values	
57.8% and 63.8% of the stormwater and wastewater infrastructure, respectfully, are in moderate to very poor condition.	Low modification of the natural environment.	SLUR sites and roads account for 6.79% and 23.92% of the total land area respectfully.	Bathing sites are monitored by GWRC. There is no data for public engagement.	No Data in this field.	High risk

Te Oranga Wai Kaupapa Classification: **Wai Mate – Dead water**

Management Options

Hutt – Stokes Valley



Catchment Description

Located to the east of Lower Hutt bordering the boundary with Upper Hutt, the Hutt – Stokes Valley Catchment is a low-lying catchment nestled into valleys of steep hills. The catchments land use is predominantly settlement and broadleaved indigenous hardwoods. There are four contaminated land sites which include mechanics and the Silverstream Landfill. Areas within the catchment are susceptible to a 0.23% AEP flood event with the most at risk areas at the confluence of the Stokes Valley Stream and the Hutt River.

Modelled Priority Outcomes

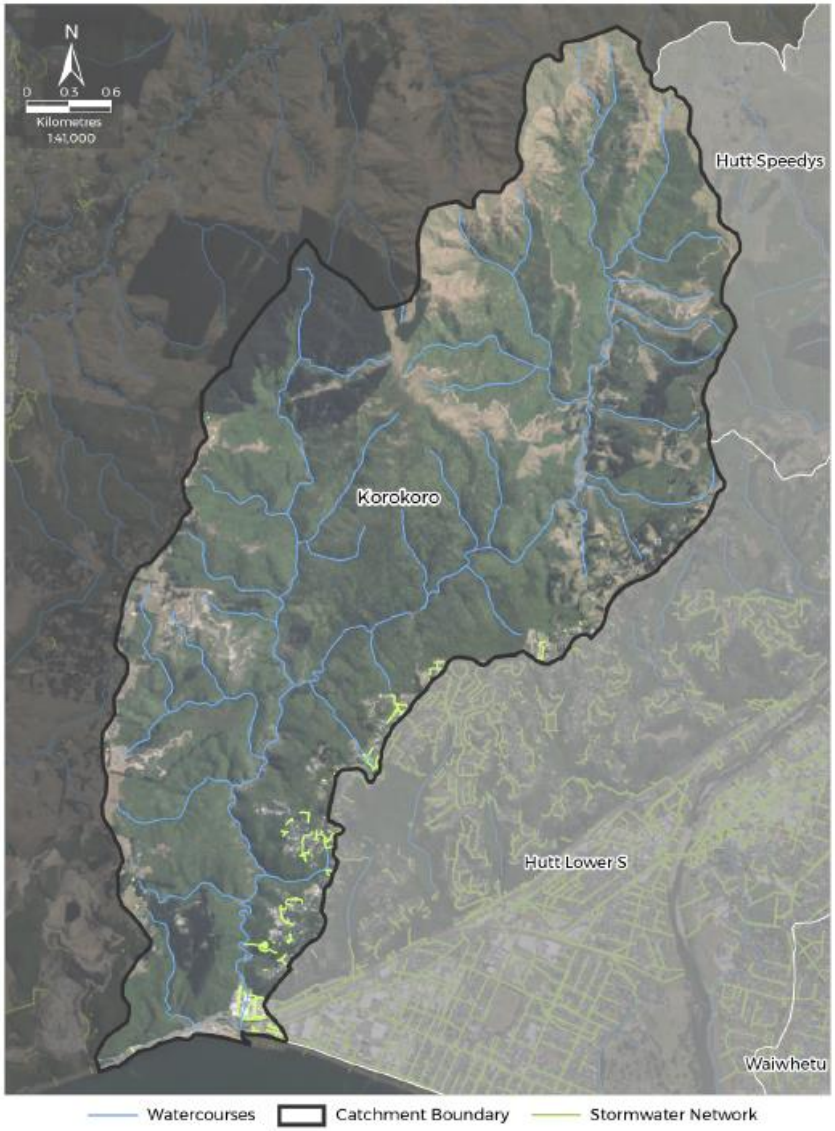
Priority ranking: **Medium to high priority**

Physical Consequences			Social Consequences		Contaminant Risk
Asset Management	Natural Environment	Land Use	Social Values	Cultural Values	
42.1% and 79.2% of the stormwater and wastewater infrastructure, respectfully, are in moderate to very poor condition.	Moderate modification of the natural environment.	SLUR sites account for 0.05% of the total land area respectfully.	Bathing sites are not monitored by GWRC. There is no data for public engagement.	No Data in this field.	Moderate risk.

Te Oranga Wai Kaupapa Classification: **Wai Mate – Dead water**

Management Options

Korokoro



Catchment Description

The Korokoro catchment is located to the west of Petone with the Korokoro Stream tributaries flowing into the Wellington Harbour. Steep hillslopes make up the topography of the catchment with broadleaved hardwood forest, exotic forest and high producing grassland being the main land use types. There are four contaminated land sites in the catchment that include a wastewater treatment plant. Areas along the bottom of the catchment, around State Highway 2 are susceptible to a 1% AEP flood event.

Modelled Priority Outcomes

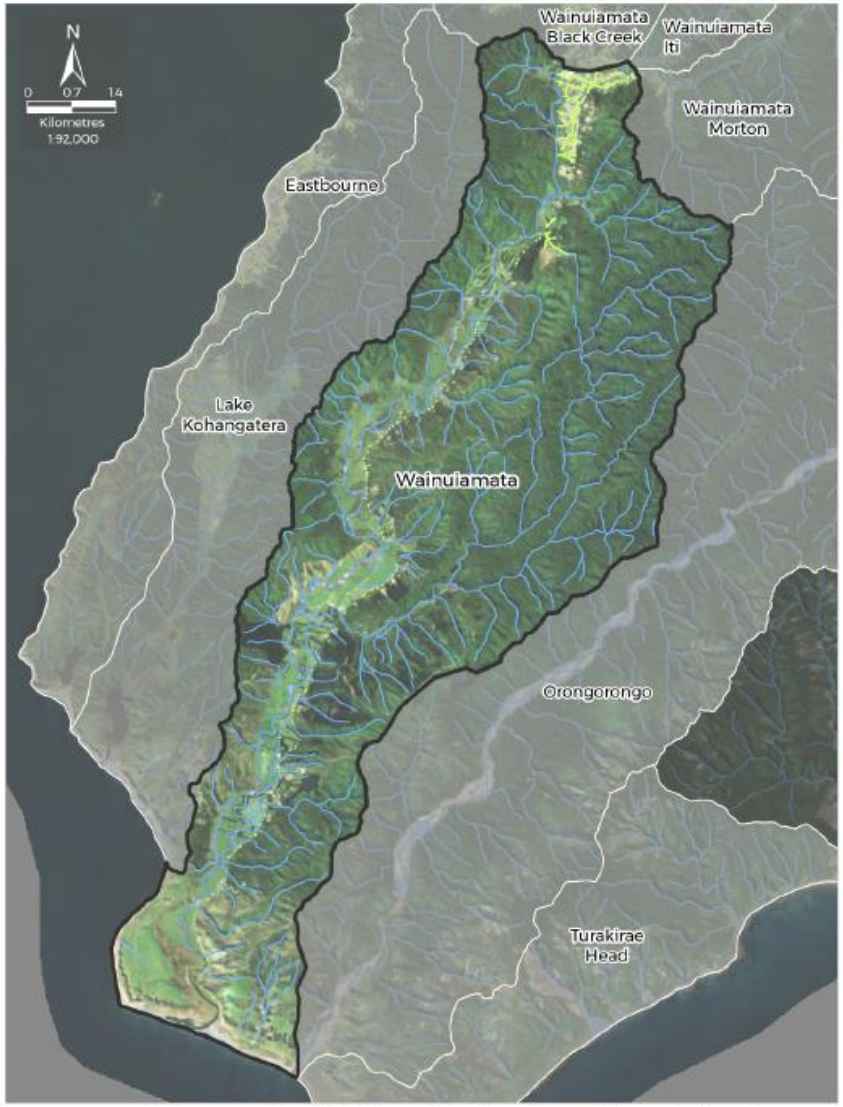
Priority ranking: **High priority**

Physical Consequences			Social Consequences		Contaminant Risk
Asset Management	Natural Environment	Land Use	Social Values	Cultural Values	
Over 60% of the stormwater and wastewater infrastructure are in moderate to very poor condition.	Low modification of the natural environment.	Roads account for 43.4% of the total land area. SLUR sites are below 1%.	Bathing sites are monitored by GWRC. There is no data for public engagement.	No Data in this field.	High risk

Te Oranga Wai Kaupapa Classification: **Wai Kautu – At risk**

Management Options

Hutt – Wainuiomata



Catchment Description

The Wainuiomata catchment is located on the peninsula to the east of the Wellington Harbour. The topography is varied with some flat low-lying land near the Wainuiomata River and some hilly areas, such as Mt Grace. Land use in this catchment is predominantly settled with a mixture of exotic and indigenous vegetation. There are four contaminated land sites, including a wastewater treatment plant. The flat land surrounding the Wainuiomata River is susceptible to a 0.1% AEP flood event.

Modelled Priority Outcomes

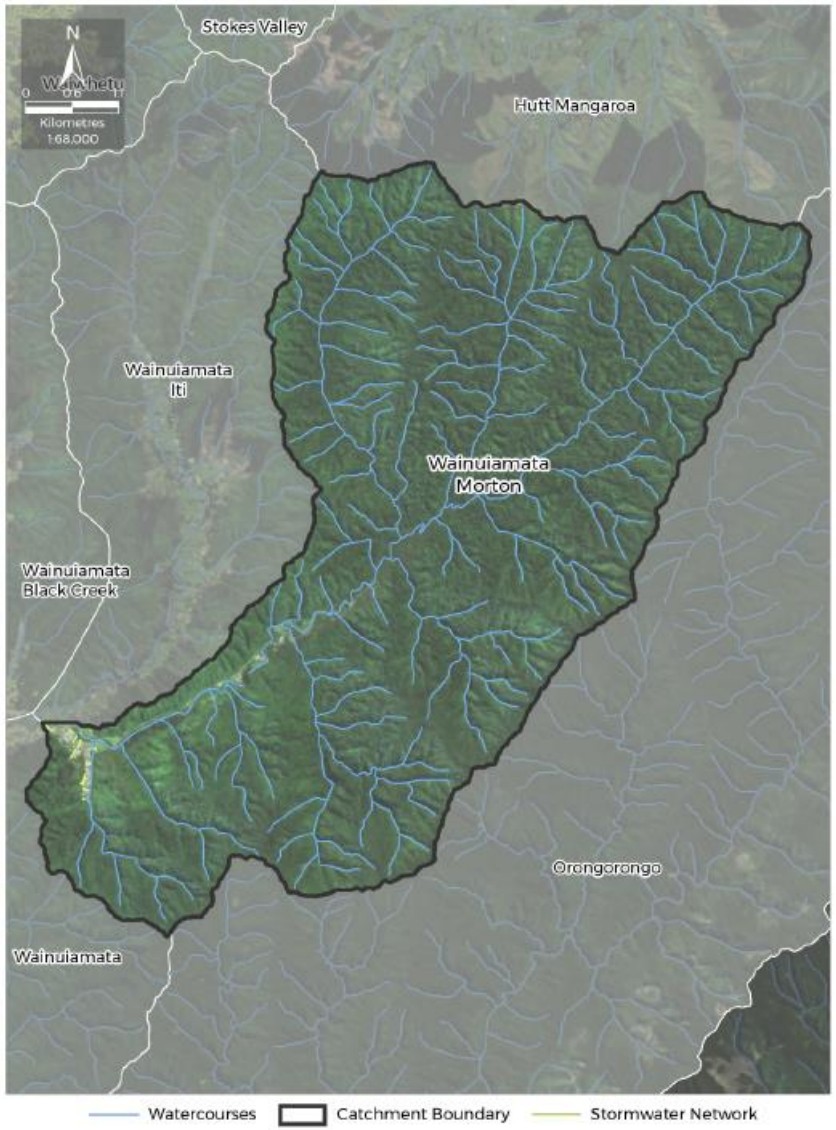
Priority ranking: **Medium priority**

Physical Consequences			Social Consequences		Contaminant Risk
Asset Management	Natural Environment	Land Use	Social Values	Cultural Values	
Only 8% of the stormwater network is in poor condition. However, 46.4% of the wastewater network is in poor condition.	Low modification of the natural environment.	SLUR sites account for 3.07% of the total land area.	Bathing sites are not monitored by GWRC. There is no data for public engagement.	No Data in this field.	Moderate risk.

Te Oranga Wai Kaupapa Classification: **Wai Kino – Dangerous polluted water.**

Management Options

Wainuiomata - Morton



Catchment Description

The Wainuiomata Stream flows through the centre of the catchment. The topography of the catchment is very hilly with steep slopes and ridges as well as many stream tributaries. Indigenous and exotic forest dominates the land use types and there are no contaminated land sites in the catchment. The area to the south east of the catchment is susceptible to a 0.1% AEP flood event from the Wainuiomata River.

Modelled Priority Outcomes

Priority ranking: **Low priority**

Physical Consequences			Social Consequences		Contaminant Risk
Asset Management	Natural Environment	Land Use	Social Values	Cultural Values	
There is no stormwater network but 100% of the wastewater network is in moderate to very poor condition.	Low modification of the natural environment.	There are no SLUR sites or gazetted roads.	Bathing sites are not monitored by GWRC. There is no data for public engagement.	No Data in this field.	Low risk

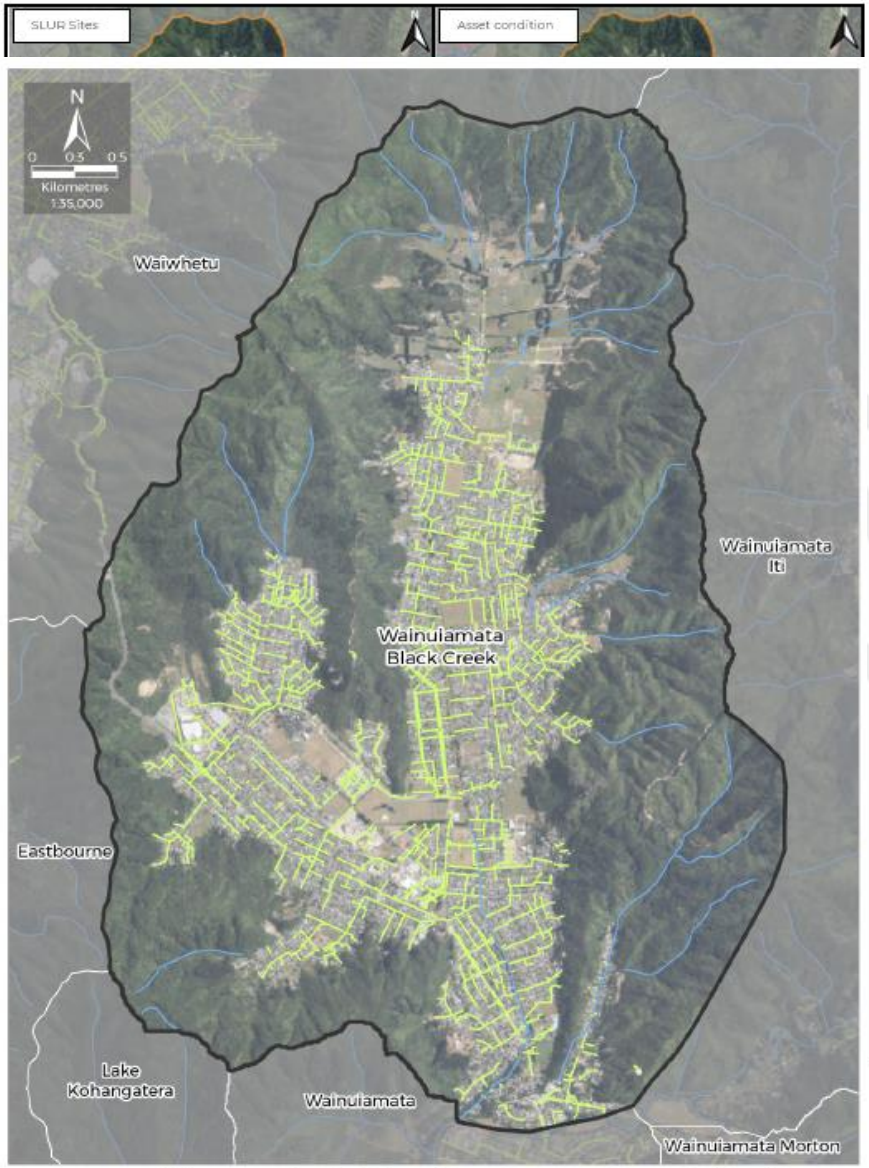
Te Oranga Wai Kaupapa Classification: **Wai Ora – Healthy water**

Management Options

Wainuiomata – Black Creek

Te Oranga Wai Kaupapa Classification: **Wai Mate – Dead water**

Risk ranking: **Medium**



Catchment Description

The topography is varied with low lying flat land surrounded by rolling hills. Land use on valley floor predominantly sub-urban settlement with central stream-side green space areas, hills are a mix of indigenous and exotic vegetation. North catchment branch is identified for urban growth.

Modelled Outputs

Physical Consequences			Social Consequences		Risk Ranking
Asset Management	Natural Environment	Land Use	Social Values	Cultural Values	
< 50% of SW and WW network is moderate to very poor. 10 known overflows.	Moderate modification of the natural environment.	15 SLUR sites 0.09% of total area.	Bathing sites not monitored by GWRC.	No Data in this field.	Medium

Issues Focus

- Wai Mate – Dead Water classification in Te Mahere Wai
- Wastewater network overflows
- Poor network condition (contamination risk)
- Urban environment impact on stormwater run-off
- Controls on development required to respond to growth pressures
- Straightened channel form in urban area

Management Options

- In-line treatment devices.
- Open channel naturalization opportunities.
- Development controls
- Education & Awareness Programme
- Compliance and repair/fix cross connections
- Network upgrades and renewals