

6.0 Waimate District Urban Stormwater

6.1 Overview

Stormwater is collected by kerb and channel in the Waimate Urban Ward and to a limited extent in the St. Andrews, Makikihi and Morven Townships.

No kerb and channel collection is provided in Glenavy and Hakataramea Townships.

Transit New Zealand is responsible for the kerb and channel on State Highways in the Waimate, St. Andrews and Makikihi Townships.

6.2 Reticulation System

The Waimate Township kerb and channel collection discharges into natural water courses and five stormwater pipes. Waimate Township is situated on mildly sloping terrain, which gradually slopes towards the Waimate Creek.

A Plan describing Waimate Township stormwater reticulation system is given at Appendix G.

Generally the condition of pipes is good with 90% of pipes are constructed with concrete. 80% of the pipes are under 50 years and not well advanced in its life cycle. (The expected life for most pipe materials is 100 to 150 years).

6.2.1 Street Channels

Type	Length km
Deep Kerb & Channel	6.5
Shallow Kerb & Channel	38
Dish Channel	1
Grass Swale	1

6.2.2 Stormwater pipe Material

Material	Length km
Concrete Pipe	5.3
PVC Pipe	0.5
Earthenware Pipe	0.1
Concrete Arch/Box	0.8

6.2.3 Stormwater pipes/drains

Size	Length km
150mm	0.4
225mm	0.8
300mm	2.0
375mm	0.9
450mm	1.0
600mm	0.6
750mm	0.5
900mm	0.5
Total Pipes	6.7
Open Drain	2.3

6.2.4 Stormwater pipes age

Age Years	Length km
0 to 10	0.3
11 to 20	0.1
21 to 30	1.3
31 to 40	2.3
41 to 50	1.5
51 to 60	0.3
61 to 70	0.0
71 to 80	0.0
81 to 90	0.1
901 to 100	0.8
Total pipe length	6.7

6.3 Discharge Points

The Waimate Township has stormwater reticulation has 14 discharge points to natural watercourses, 10 direct from channels and 4 from pipes via open drains.

Type	Area	To
Channel	Hays St	Waimate Creek
Channel	Mortimer St	Waimate Creek
Channel	Smith St	Waimate Creek

250mm pipe	Point Bush Rd	Waimate Creek
Channel	Naylor St	Waimate Creek
Channel	Queen St	Waimate Creek
450mm pipe	Waihao Back Rd	Waimate Creek
Channel	Massy St	Waimate Creek
Channel	William St	Waimate Creek
Open drain	McNamars Rd	Waimate Creek
Open drain	Rugby St	Watercourse to Molloy's Rd
Open drain	Timaru Rd	Watercourse to Bathgates Rd
Open drain	Regent St	Waituna Stream
Open drain	Gorge Rd	Racecourse Area

6.4 Network Capacity

6.4.1 Primary System

Pipelines generally have been sized with the discharge derived from the rational method of analysis with a design of 20% AEP (Annual Exceedance Probability) a 1 in 5 year return period.

The limited extent of the pipe network leads to localised areas of road side flooding where the stormwater flow exceeds the kerb and channel capacity.

6.4.2 Secondary system

The township has an overall gradient towards the east and overland flow tends to follow the street system in this direction. Street intersections form a succession of weirs ponding floodwaters behind, these results in some minor flooding.

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The main stormwater pipe starting at Queen Street, Glasgow intersection has the capacity to discharge at least 5% AEP (Annual Exceedance Probability) a 1 in 20 year return period.

There has been no recorded major stormwater flooding in the Waimate Township.

6.4.3 Makikihi Reticulation System

The Meehan place subdivision has 3 discharge points to the Makikihi River. Pipes are concrete and were installed in 1975.

Stormwater pipes/drains size	Length km
225mm	0.13
300mm	0.08

6.5 Treatment / Water Quality

The Stormwater system has no treatment.

Water quality in watercourses and rivers is adversely affected by discharges from the public stormwater system. The sources of these pollutants range from natural mineral sourced to vehicle and illegal discharges from commercial, industrial and construction activity (including fuel, paints, oil, floatables, pesticides, fertilisers and faecal matter).

6.6 Stormwater Risk

The following risks are identified. as shown in the table below.

Flooding where stormwater network unable to cope, resulting in public and private property loss and erosion.

Stormwater Contamination resulting in a health scare due to contaminated drinking water.

Stormwater Contamination resulting in adverse effects on the receiving waters.

Earthquake resulting in major damage to reticulation.

	Exposure	Probability	Consequences	Level of Risk
Flooding	where stormwater network unable to cope, resulting in public and private property loss and erosion.	Unlikely	Minor	Low Risk
Stormwater Contamination	resulting in a health scare due to contaminated drinking water.	Rare	Moderate	Moderate Risk
Stormwater Contamination	resulting in adverse effects on the receiving waters.	Possible	Minor	Moderate Risk
Earthquake	resulting in major damage to reticulation.	Unlikely	Minor	Low Risk