

Reservoir Creek- Restoration of an Urban Stream Re-vegetation Planting Plan



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Community Services Department

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Reservoir Creek: Restoration of an Urban Stream

Re-vegetation Planting Plan

Introduction

Reservoir creek is a small modified urban stream that flows from the Richmond Hills to the Waimea Estuary. The creek is a good example of where surrounding land use has negatively impacted on the values of the stream. Sedimentation created by subdivision, lack of adequate riparian zones and esplanade reserves, pollution by way of storm water discharge, channelisation, and invasive exotic vegetation have degraded the wellbeing of the creek.

Plants play an important role in stream ecology by interacting with stream biota and the surrounding land. Plants enhance aesthetic values, provide shade and shelter which ameliorates the temperature and conditions; shed leaves form a food supply for stream animals and micro-organisms, plant roots control erosion by binding soil and reducing the direct impact of the force of the flood, thereby reducing downstream sedimentation.

Plan Overview

Reservoir Creek has been divided into 8 zones along its length; each zone has had its vegetation features identified, including the existing vegetation, exotic or indigenous. Riparian planting areas have been identified, and plant species suitable for each zone have been listed. Plant type and number have been listed on a separate page for easy reference.

All plants have been grown from seed sourced from within the ecological district and supplied in Tinus root trainers.

Year one plantings are to be carried out during June and July 2007 with groups of local school children to recognise arbour day, Stream Care groups, and interested community groups such as 'Keep Richmond Beautiful'.

Tasman District Council parks staff members will organise the preparation of planting sites and liaise with schools and community groups. On the day of plantings Council parks staff will demonstrate to the planters the best techniques for planting and will also assist with planting.

The re-vegetation planting plan has been prepared for the 'Restoration of an Urban Stream' project which aims to promote sustainable management by enhancement of natural habitats, improvement of water quality and providing public access while maintaining the ability to transport floodwaters is essential.

Plant Schedule Autumn 2007										
Botanical Name	Common Name	Zone 1 Lower	Zone 1 Upper	Zone 2	Zone 3	Zone 4	zone 5	zone 6	Zone 7	Zone 8 Total
Leptocarpus similis	oioi									
Plagianthus divaricatus	coastal ribbonwood									
Muehlenbeckia complexa	pohuehue									
Carex secta	purei	96	96			480				
Carex virgata	pukio									
Carex geminata	rautahi		96							
Phormium tenax	flax	96	192							
Cordyline australis	cabbage tree		96							
Leptospermum scoparium	manuka									
Cortaderia richardii	toetoe		96							
Coprosma propinqua	mikimiki									
Hebe salicifolia	hebe		192	80						
Dodonaea viscosa	akeake									
Myoporum laetum	ngaio									
Coprosma robusta	karamu									
Melicactus ramiflorus	mahoe									
Myrsine australis	mapou									
Pittosporum tenuifolium	kohuhu									
Pittosporum eugenioides	tarata									
Pseudopanax arboreus	fivefinger									
Sophora microphylla	kowhai	48								
Grisebinia littoralis	broadleaf									
Carpodetus serratus	putaputaweta									
Aristotelia serrata	wineberry									
Podocarpus totara	totara									
Dacrycarpus dacrydioides	kahikatea									
Prumnopitys taxifolia	matai									
Alectryon excelsus	titoki									
Prumnopitys ferruginea	miro									
Chamaecytisus palmensis	tree lucerne									
Total Plants		240	768	80		480				

Reservoir Creek- Restoration of an Urban Stream

Riparian Planting Zones



Zone 1

Waimea Estuary to Salisbury Road

Zone 1 Features

1. Lower reaches of stream with inter-tidal esturine zone, steep stream banks. Some native plant species present.
2. Wide stream banks with some shade from willow and eucalyptus trees.
3. Significant perennial weeds present, willow tree regrowth, gorse, convolvulus, briar rose and tradescantia.
4. Some revegetation planting underway along zone but many areas still undeveloped.
5. Sealed walkway, cycleway path bordering stream along this section.

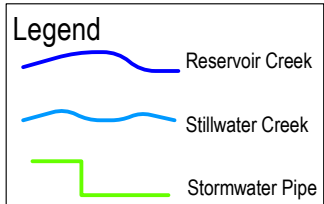


Estuarine margins

1. Clear bank areas of exotic weed species to prepare for re-vegetation plantings
2. Continue plantings to further enhance specialised habitat of this area
3. Continue plantings of coastal ribbon wood, pohuehue, purei, pukio, rautahi, toetoe and mikimiki

Freshwater margins

1. Continue clearing exotic weeds species and prepare for revegetation plantings
2. Due to high light levels restrict initial plantings to the following species
3. purei, pukio, flax, cabbage tree, manuka, toetoe, mikmiki, hebe, pittosporum



Salisbury Rd underpass looking down stream



Reservoir Creek- Restoration of an Urban Stream

Riparian Planting Zones



Zone 2

Salisbury Road to Templemore Pond

Zone 2 Features

1. Wider stream banks with high % of shade from mature willow trees, residential properties on true right have riparian boundaries.
2. Significant perennial weed, tradescantia present in many places.
3. Some native plant species present with re-vegetation plantings underway.
4. Gravel walkway/cycleway path bordering stream along this section.
5. Stream low flow channel wider in some areas with slower moving water.

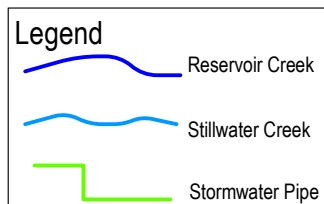
Damp Sites

1. Some wider flatter stream banks in this zone
2. Continue clearing perennial weeds and prepare for revegetation plantings
3. Flax, cabbage tree, mikimiki, fivefinger, mahoe, tarata, karamu

Freshwater Margins

1. Freshwater stream banks predominately under shade from mature willow trees
2. Continue clearing perennial weeds and preparing for revegetation plantings
3. purei, pukio, rautahi, mikimiki, cabbage tree, hebe, fivefinger, putaputaweta, wineberry

Recent riparian plantings just below Templemore Ponds



Templemore Pond Looking down stream



Reservoir Creek- Restoration Project

Riparian Planting Zones



Zone 3

Templemore Pond to Walker Place walkway bridge



Zone 3 Features

1. Very narrow highly modified stream banks typically with rock armourment in lower section of zone, mid and upper section of stream has steep narrow stream banks with high light levels due to an absence of trees.
2. No significant perennial weeds present.
3. No native plant species present or revegetation plantings underway.

Freshwater Margins

1. Lower section of zone stream banks typically covered with rock armourment resulting in very few options for revegetation
2. Work with TDC utilities staff to revegetate between the rocks where possible and amongst the low flow channel as outlined in engineering standards (Outfall details & drainage waterway concepts, Drawing 324)
3. Purei, pukio, cabbage tree, hebe

Freshwater Margins

1. Liaise closely with TDC Utilities staff with planned plantings in this zone
2. Only limited opportunities for planting stream banks due to boundary constraints and steep stream banks
3. purei, pukio, flax, cabbage tree, kohuhu, wineberry



Upstream from Templemore drive road bridge



Legend	
	Reservoir Creek
	Stillwater Creek
	Stormwater Pipe

Reservoir Creek- Restoration Project

Riparian Planting Zones



Zone 4

Stillwater Creek confluence to Hill Street culvert pipe

Zone 4 Features

1. Extensively planted with native and exotic species resulting in high % of stream shading.
2. No perennial weed problems present.
3. Meandering stream with extensive shade in upper section of zone and more open with higher light levels in lower section of zone.
4. Riparian plantings required in lower section of zone.

Freshwater Margins

1. The lower section of this zone is the least developed area still requiring revegetation plantings
2. Continue clearing areas of annual grasses and planting with revegetation species
3. purei, pukio, flax, cabbage tree, toetoe, mikimiki, hebe, kohuhu, tarata, wineberry

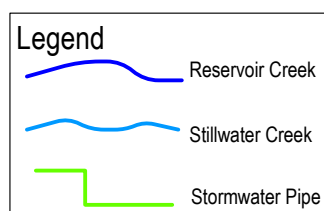
Freshwater Margins

1. The upper section of this zone has established native and exotic species shading the stream
2. Only limited sites require planting
3. putaputaweta, wineberry, fivefinger, mahoe, tarata, kohuhu, hebe, cabbage tree

Typical native and exotic plantings within this zone



Well established native plantings



Reservoir Creek- Restoration Project

Riparian Planting Zones



Zone 5

Walker Place walkway bridge to Hill Street culvert pipe



Zone 5 Features

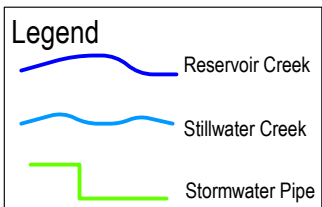
1. Wide gently sloping stream banks with a high % of stream side plantings in the upper reaches of this zone
2. Existing exotic tree plantings and native stream side plantings in the mid and upper areas of the zone contributing positively to the naturalness and aesthetics of the area, Tree plantings starting to create some shading of the stream.
3. Some small willow re growth in low flow channel but no other significant perennial weed problem
4. Riparian plantings required along the lower section of this zone

Freshwater Margins

1. The lower section of this zone is the least developed area still requiring revegetation plantings
2. Continue clearing areas of annual grasses and planting with revegetation species
3. purei, pukio, flax, cabbage tree, toetoe, mikimiki, hebe, kohuhu, tarata, wineberry

Freshwater Margins

1. The upper section of this zone has established native and exotic species with some shading the stream
2. Only limited sites require planting
3. putaputaweta, wineberry, fivefinger, mahoe, tarata, kohuhu, hebe, cabbage tree



Looking up stream from Walker Place walkway bridge



Reservoir Creek- Restoration Project

Riparian Planting Zones



Zone 6

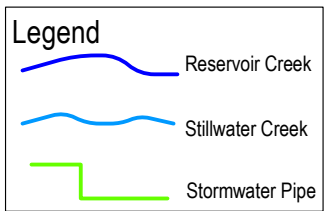
Hill Street culvert pipe to Easby Park culvert pipe

Zone 6 Features

1. The creek flows through stormwater pipes for its entire length through this zone. The storm water pipe passes predominantly through privately owned land.
2. In its present state there is no potential for any creek restoration work to take place.



Stormwater pipe runs under this accessway off Hill Street



Looking into Easby Park from Selbourne Avenue
stormwater pipe runs under this reserve





Zone 7 Features

1. Wider natural stream banks with a high % of shade from existing vegetation especially in the upper zone.
2. Extensive exotic and native stream side plantings are contributing to a good degree of naturalness and a high % of shading in the upper reaches of this zone.
3. Some small willow re growth in low flow channel but no other significant perennial weed problem.
4. Riparian plantings required along the lower section of this zone to complement existing trees to improve diversity.

Freshwater Margins

1. The lower section of this zone is the least developed area still requiring revegetation plantings
2. Continue clearing areas of annual grasses and planting with revegetation species
3. purei, pukio, flax, cabbage tree, toetoe, mikimiki, hebe, kohuhu, tarata, wineberry

Freshwater Margins

1. The upper section of this zone has well established native and exotic species creating extensive shading of the stream
2. Only limited sites require planting
3. putaputaweta, wineberry, fivefinger, mahoe, tarata, kohuhu, hebe, cabbage tree



Upper reaches of zone 7

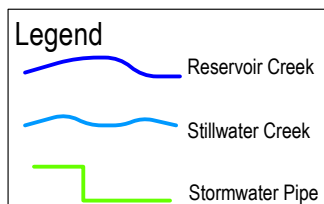
Reservoir Creek- Restoration Project

Riparian Planting Zones



Zone 7

Easby Park culvert pipe to Dellside Reserve



Reservoir Creek- Restoration Project

Riparian Planting Zones



Zone 8

Dellside Reserve to Reservoir Creek dam

Reservoir Creek Dam



Zone 8 Features

1. Natural un-modified stream banks with a high % of shade from existing vegetation along the entire length of this zone.
2. Extensive exotic and native vegetation is contributing to a high degree of naturalness and shading throughout this zone.
3. All of this zone is on privately owned land and any stream restoration work needs to be carried out in consultation with the land owner.

Freshwater Margins

1. This zone has 100% vegetation cover consisting of exotic and native vegetation.
2. High % of exotic vegetation can be described as woody weed species: Barberry, Hawthorn, Woolly nightshade
3. purei, pukio, flax, cabbage tree, toetoe, mikimiki, hebe, kohuhu, tarata, wineberry



Looking up stream from Dellside reserve



Legend

- Reservoir Creek
- Stillwater Creek
- Stormwater Pipe



Reservoir Creek- Restoration of an Urban Stream

Riparian Planting Zones



Zone 1

- 1. Waimea Estuary to Salisbury Road

Zone 2

- 1. Salisbury Road to Templemore Pond

Zone 3

- 1. Templemore Pond to Walker Place walkway bridge

Zone 4

- 1. Stillwater Creek confluence to Hill Street culvert pipe

Zone 5

- 1. Walker Place walkway bridge to Hill Street culvert pipe

Zone 6

- 1. Hill Street culvert pipe to Easby Park culvert pipe

Zone 7

- 1. Easby Park culvert pipe to Dellside Reserve

Zone 8

- 1. Dellside Reserve to Reservoir creek dam

Scale 1:7000

