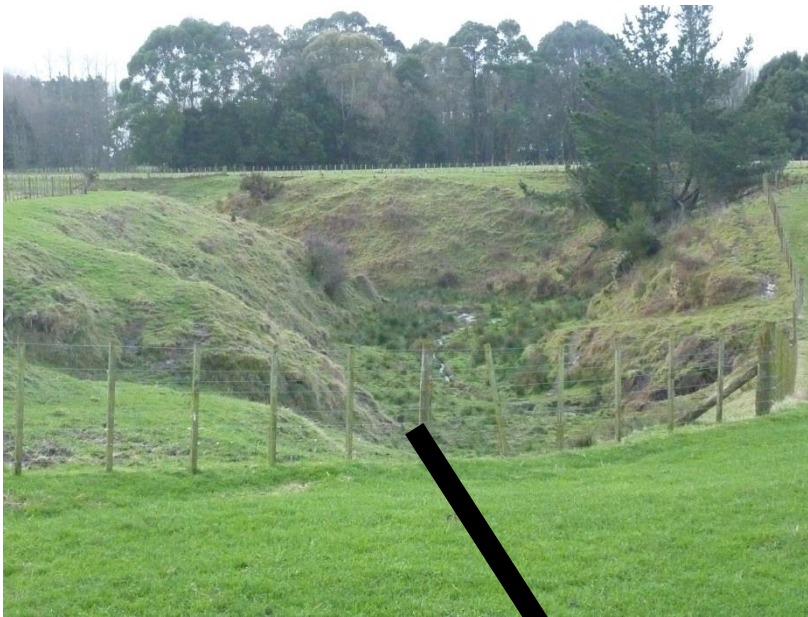




MANGAKOTUKUTUKU STREAM CARE GROUP

Peacockes Riparian Restoration Plan



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Peacockes Riparian Restoration Plan

Summary features of this proposal;

- A. This proposal seeks to remove woody weeds, construct 6km of fencing and to establish 25,400 native plants to restore small seeps, wetlands and streams within the upper Peacockes branch of the Mangakotukutuku Stream, in which threatened and endangered native fish species are known to live.
- B. The restoration of small seeps, wetlands and streams are prioritised for action within this proposal as it has been shown that water quality improvements on small headwater riparian areas are significantly more cost effective and quicker than similar work on larger water bodies.
- C. An indicative three year programme of work is proposed with total costs projected to be \$230,000 (incl.gst) on a cost sharing basis, summarised as follows;

GST inclusive costing				
Activity	totals	Approximate cost share		
		WRC	WRA	Landowners
		35%	50%	15%
Weed control/exotic tree removal	25,300	8,855	12,650	3,795
Pre-plant weed control	7,475	2,616	3,738	1,121
Fencing upgrade	48,300	16,905	24,150	7,245
Native Plants & Planting	138,000	48,300	69,000	20,700
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Culvert fish pass mitigation	2,300	805	1,150	345
Signage	1,150	403	575	173
totals	230,000	80,500	115,000	34,500

- D. The Mangakotukutuku Stream Care Group is reputable group with an established track record in stream/gully restoration work within this catchment and will undertake the planning, project management, liaison with landowners, co-ordination of work and holding of annual planting days involving the community.
- E. The work proposed builds on multiple other riparian restoration works undertaken and in progress within the Mangakotukutuku Stream catchment since 2008 which have been supported by the community, iwi, WRA, WRC, HCC, WCEET, HondaTree Fund and the Department of Conservation.
- F. All work proposed would be undertaken in collaboration with the WRC, subject to WRC standards for fencing and planting and covered by WRC 'Environmental Protection Agreements'.

1. Background to Mangakotukutuku Stream Care Group (MSCG)

The Mangakotukutuku Stream Care Group is concerned about the poor health of some parts of Mangakotukutuku Stream and the lack of attention being given to its ecological values. Survey work has shown that threatened and uncommon native aquatic species (e.g. longfin eel and Giant Kokopu) still live in some parts of Mangakotukutuku Stream, highlighting the ecological potential that could be achieved over a larger scale if conditions within the catchment became suitable. The associated gullies also provide important habitat for a number of other indigenous species (eg long tailed bats and tui).

We want to see wider community awareness of and commitment to enhancing the ecological values of Mangakotukutuku Stream, and more action on the ground aimed at improving the health of the stream.

The focus of our group is on the stream ecosystem and its associated freshwater habitats, such as springs and seepages, complementing other initiatives that promote the ecological values of gullies, and contributing to achieving the Vision and Strategy for the Waikato River.

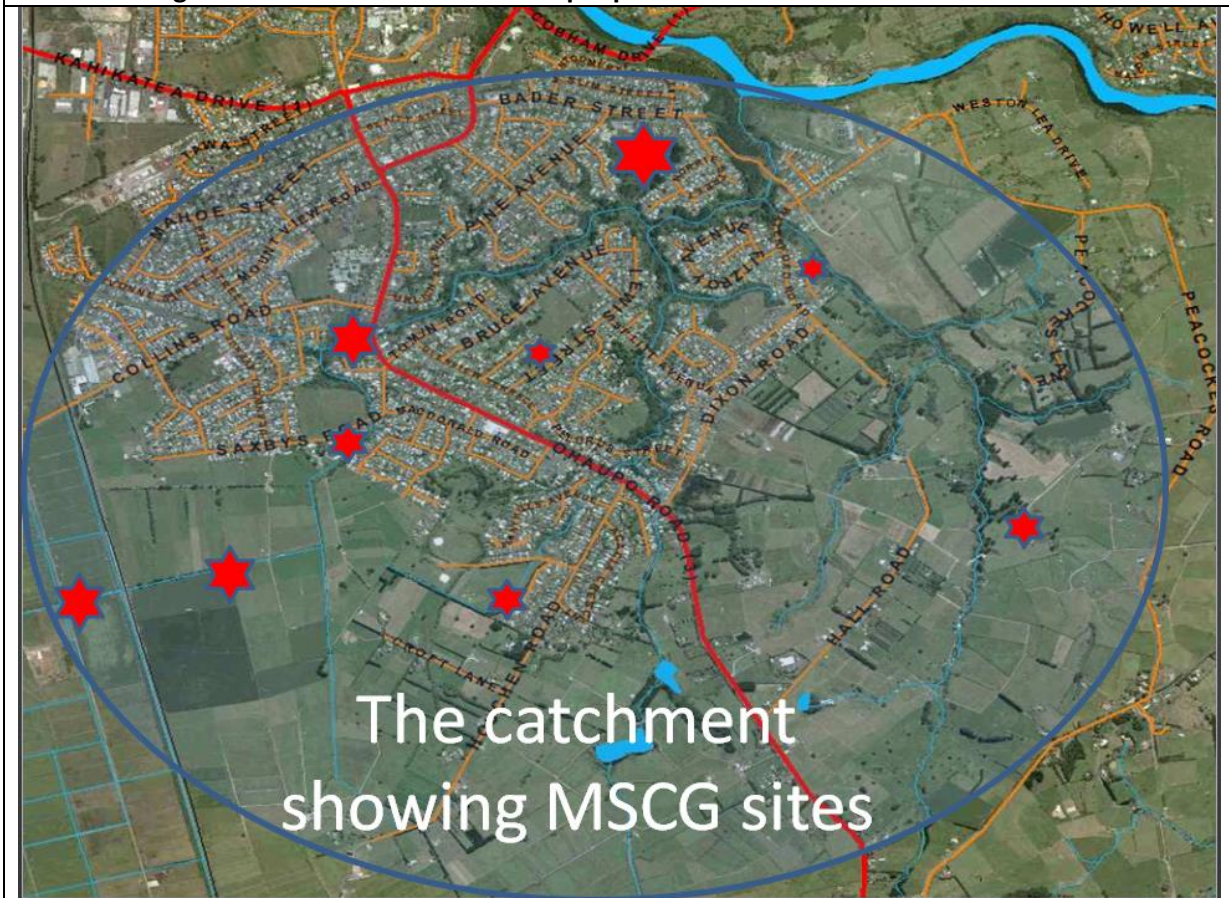
The MSCG is a voluntary, not for profit, incorporated society and registered charity with a membership of over 70 individuals who have been active for the past 8 years and have undertaken a number of projects to further our objectives, including;

- a) The establishment of approximately 40,000 native plants at multiple sites throughout the catchment and maintaining the lower reaches of the Mangakotukutuku Stream/Sandford Park area to restore indigenous riparian vegetation.
- b) The development of a wetland and in-stream fish habitat structures within the lower Mangakotukutuku Stream /Sandford Park area with a significant milestone being the re-introduction of the threatened Black Mudfish species to this wetland in 2014.
- c) Submissions to HCC notified processes, including the Three Waters Strategy, Variation 14 - Peacocke Structure Plan, HCC Annual Plan, Waste Management Plan, the Peacockes Area Urban Strategy, Southern Links Project, the Proposed Hamilton City District Plan and the HCC Long Term Plan 2015-25.

The MSCG have established a credible track record since 2007 in working collaboratively with councils, other agencies, funding partners, land owners and iwi to plan, project manage and successfully implement riparian restoration project at multiple sites.

The value of the work committed and undertaken by the MSCG currently is estimated to exceed \$600,000. More information about our group can be found at www.streamcare.org.nz

Current Mangakotukutuku Stream Care Group Riparian Restoration Sites



2. Mangakotukutuku Stream Catchment

The catchment originates in agricultural land south of Hamilton before entering the southern suburbs of Glenview, Bader, Melville and Fitzroy, and merging with the Waikato River opposite Hamilton Gardens. Mangakotukutuku translates into English as "stream of the native tree fuchsia".

The total area of the Mangakotukutuku catchment is 2295 ha, made up predominantly of rural land (about 70% of catchment area) followed by residential areas, and much smaller amounts of recreational, community, industrial and commercial land. The Mangakotukutuku catchment has low levels of industry and commercial activity compared to other urban catchments and is much less impacted by human activities than other catchments of streams flowing through Hamilton.

A total of 34 km stream has been mapped in the Mangakotukutuku catchment, but there are also many more unmapped tributaries present. The stream has three main branches that flow through gullies for most of their length, including several schools, council parks and other public land. The Rukuhia (left) branch originates as drains in Rukuhia Swamp before flowing through Melville and Glenview and joining with the middle branch in Sandford Park. The Te Anau (middle) branch drains developed peatland and rolling farmland. This branch flows past Te Anua Park, with a side-stream passing through Fitzroy Park, before entering Sandford Park. The Peacocks (right) branch drains agricultural land in the Peacocks Road area designated for future urban development, and enters Sandford Park through a culvert under Waterford Road.

Borrow pits and other archaeological features indicate that the Mangakotukutuku area has a rich Māori history and includes a number of pa sites. In the Peacockes area, for example, there are three pa sites: Whatukoruru Pa located between two arms of a gully now surrounded by private land, another pa site adjacent to the Glenview Club, and a third site in the Stubbs Road area. Many people lived around the pa and were involved in extensive farming activities. Freshwater springs (puna) in the gullies were used for ceremonial purposes and were also important sources of water for food preparation.

It is the upper catchment of the Peacockes branch of the Mangakotukutuku Stream that is the subject of this proposal and while the Whatukoruru Pa is situated on downstream HCC reserve land, in the future it is envisaged that the riparian restoration work proposed will be extended to connect with the Whatukoruru Pa/HCC reserve land.

3. This Project - the Proposed 'Peacockes Riparian Restoration Plan'

This project seeks to establish appropriate indigenous riparian vegetation on the upper tributaries of the Peacockes branch of Mangakotukutuku Stream and for the primary purpose of;

- a) Improving onsite and downstream water quality and biodiversity values by shading the stream and tributary seeps/wetlands to reduce summer water temperatures and reducing localised areas of stream bank erosion,
- b) Replacing willow and woody weed species with appropriate indigenous riparian vegetation being of low maintenance and compatible with existing and potential future landuses,
- c) Restoring wetlands and small headwater seeps by undertaking weed control, protection from grazing and planting with appropriate indigenous species,
- d) Undertaking remedial works to provide for improved fish passage on culverts within the project area, and,
- e) Giving effect to the 'Vision and Strategy' for the restoration of the Waikato River.

To achieve these objectives the following physical works will be required;

- a) Removal of existing aging riparian exotic trees
- b) Willow and woody weed spraying/removal
- c) Upgrading and re-alignment of riparian fencing
- d) Pre-plant weed/grass spraying
- e) Planting and aftercare of riparian vegetation
- f) Replacement of any failed plantings and ongoing surveillance, control of woody weeds and maintenance of plantings
- g) Remediation of fish passage issues identified on stream culverts

This project is proposed to be undertaken as a collaborative effort between the landowners, the Mangakotukutuku Stream Care Group (MSCG) and the Waikato Regional Council (WRC).

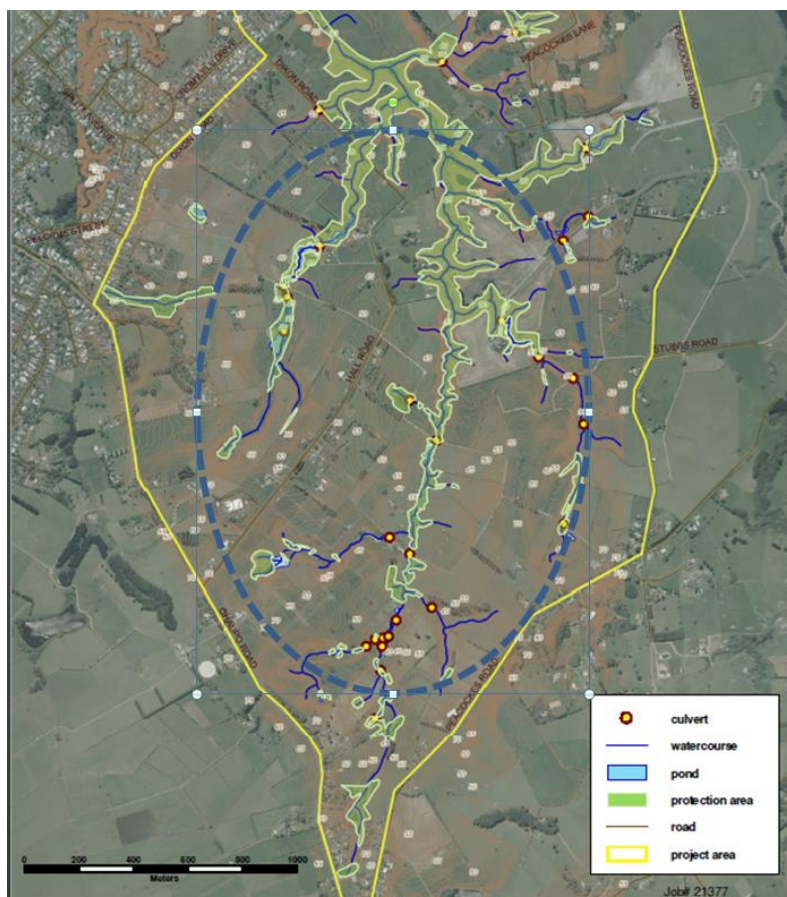
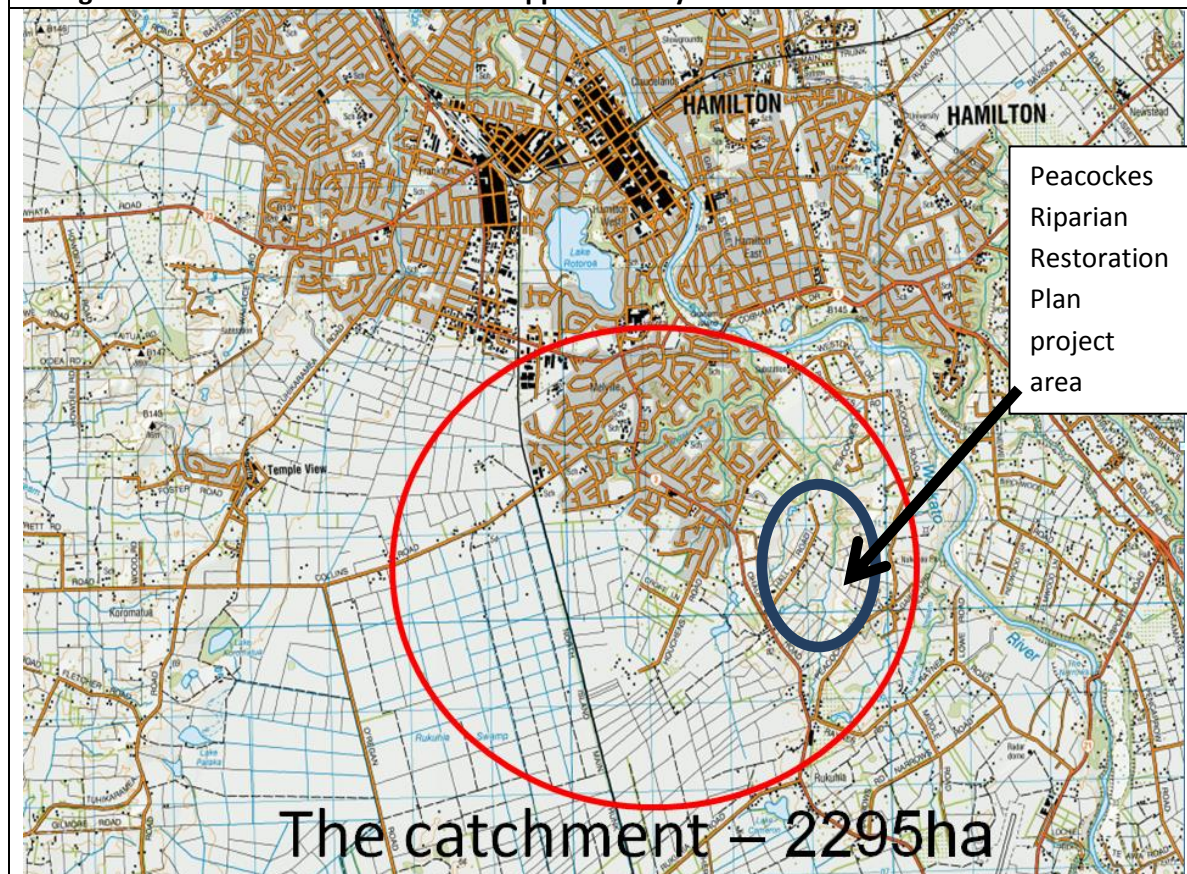
Cost sharing is proposed on the following basis;

- Waikato River Authority – 50%
- Waikato Regional Council – 35%
- Landowners – 15%

The MSCG will undertake planning work, project management, liaison with landowners, co-ordination of works and hold annual planting days involving the community.

The Peacocks Riparian Restoration Plan' project area is shown approximately as follows;

Mangakotukutuku Stream Catchment – approximately



**Project
Area**
(targeting
headwater
stream, gully
wetland and
seeps)

4. Photographs of Typical Catchment and Riparian Conditions

The following photographs show a range of typical sites proposed for restoration.
Some sites are small seepage/wetland areas currently subject to stock grazing;

	
Wet gully seeps – fencing and planting proposed, currently impacted by stock access.	Wet gully– fencing and planting proposed, currently impacted by stock access.

Others sites are more extensive gullies with small perennial streams and some man made ponds;

	
Pond/wetland– fencing and planting proposed	Wet gully– fencing and planting proposed

As the main stream gully increases in size downstream, so too does the extent of willows/plant pests requiring removal and the extent of gully floor wetlands;

	
Wet gully– fencing and planting proposed	Main Stream gully – willows and weeds proposed for removal and native planting

	
Willow dominated wetland in gully bottom, proposed for woody weed removal/in-situ poisoning and planting with appropriate native wetland and riparian species.	

Impressive gully restoration work has been undertaken on the property of Ian and Elaine Williams, which lies within the project area. The Williams have undertaken significant weed control and planting with native vegetation over the past 10 years, propagating and planting most of the vegetation themselves. MSCG have assisted with planting events over recent years.

	
Gully restoration underway	Gully restoration completed
	
Gully restoration underway, including animal pest control	Gully restoration completed – well established native vegetation shown on edge of a large restored gully area.

The photographs below show completed gully restoration undertaken by the Williams and provide an excellent example and inspiration to others as to what can be achieved and what this project is seeking to achieve on adjacent properties and the wider catchment;



5. Proposed Work Programme

A planned annual programme of work over three years is proposed for manageable lengths of waterway, including woody weed control (where required), upgrading of existing fences, riparian planting and maintenance, discussed further as follows;

6. Weed Control

Several sections of waterway proposed for work have areas of woody weeds, ranging from isolated willows and other shrubby weeds, dense in channel shrubby willows, barberry and privet. It is critical to the success of future native plantings and to ensure that future maintenance is reduced to a minimum by the control of existing woody weeds. Estimates have been made for the cost of woody weed control, in some cases allowing for treatment over successive years to ensure a high level of control prior to planting.

7. Fencing

Where electric fencing currently exists, it will often require upgrading to a minimum of four hot wires and including sufficient posts. In several areas existing fences will need to be moved further out from the waterways to provide sufficient room for riparian plantings and where isolated areas of erosion have occurred. In some locations it is recommended that fences be re-aligned along gully terrace edges to reduce the area and costs required for planting and future maintenance.

8. Planting

It is proposed to plant a range of colonising native grasses, shrub and tree species with emphasis on those that are easy to establish, cost effective to obtain and low maintenance. Plants will be selected to provide a primary function of shading to improve water quality and habitat onsite and downstream, but also to provide subsidiary biodiversity benefits and potential a food source for native birds. In addition to colonising species, it is proposed to plant hardy long lived canopy species, such as Kahikatea and Totara.

All areas that are fenced will be planted in a range of appropriate eco-sourced indigenous grass, shrub and tree species. The main stem of the Mangakotukutuku Stream will require significantly more effort and resources to restore (due to size and woody weed issues) and it is proposed that smaller riparian/wetland areas that currently have stock access will be targeted as a priority.

Further details on species proposed for planting and guidance notes are attached within Appendix 1.

9. Mitigation of Culvert Fish Passage Issues

Where fish passage issues are identified on existing stream culverts, remedial work will be considered and funded as part of the work proposed within this project. Remedial work is expected to be minor, not require resource consents and consist of localised work to re-instate flooded culvert outlet conditions or in some cases, to install mussel rope for climbing fish species where other methods are not cost effective. MSCG members have access to specialised technical advice concerning remediation of fish passage issues, which will be sought on a case by case basis.

10. Maintenance

Maintenance of fences and weed control will be needed on an ongoing 'as required' basis. Maintenance of planted areas will be essential to ensure the success of this project, including weed control and blanking any failed plantings. Some provision has been made in this project for maintenance of plantings although most maintenance required will be outside of the 3 year time frame proposed for funding of this project.

11. Other Water Quality Issues

Controlling erosion, excluding stock from gullies (which are the primary contaminant pathways) and the reducing sediment discharge helps to reduce phosphorous (P) and E.coli contaminant discharges to waterways.

In addition, the construction and maintenance of runoff diversions from tracks and water crossings to manage stormwater into sumps or onto pasture will be recommended to landowners to reduce the potential for direct discharges to waterways. Riparian strips with strong vegetation cover filter sediment to minimise sediment discharge to ephemeral waterways during storm events. Wetland or marsh areas managed as riparian/filter zones are also useful for reducing nitrogen (N) discharge, which can occur through overland and groundwater flows. Other options for reducing N discharge include split fertiliser applications when applying urea, utilisation of dairy shed effluent, use of feed/standing pads and reduced stocking rates during winter.

12. Signage

Parts of the project area are highly visible from Peacockes Road and it is proposed that signage would be erected to inform the public of the project and to acknowledge the partners involved.

13. Protection of the Work Undertaken.

All work undertaken will be subject to the standard 'Environmental Protection Agreement' requirements of the Waikato Regional Council – refer to example conditions attached within Appendix 2.

14. Proposed Activities, Estimated Costs and Timetable

Approximately 6km's of fencing is proposed and the planting of some 24,500 native plants. To achieve this extensive woody weed control will be required in the main gully, most likely by in-situ poisoning leaving some protection from the dead trees for native plantings.

A detailed work programme and costings have not been prepared at this point and would be subject to on the ground planning, WRC and landowner agreements. It is not envisaged that any of this work will proceed until suitable funding has been secured to implement the proposed project.

Based on current projects and recent costs for similar sites, indicative activities, costs and timeframes are as set out within Appendix 3 and summarised as follows;

GST inclusive costing				
Activity	totals	Approximate cost share		
		WRC	WRA	Landowners
	\$	35%	50%	15%
Weed control/exotic tree removal	25,300	8,855	12,650	3,795
Pre-plant weed control	7,475	2,616	3,738	1,121
Fencing upgrade - 6km's	48,300	16,905	24,150	7,245
Native Plants (25,400) & Planting	138,000	48,300	69,000	20,700
Blanking & Maintenance	7,475	2,616	3,738	1,121
Culvert fish pass mitigation	2,300	805	1,150	345
Signage	1,150	403	575	173
totals	230,000	80,500	115,000	34,500

The MSCG will undertake planning work, project management, liaison with landowners, coordination of works and hold annual planting days involving the community. The 'in kind' cost associated with MSCG's non cash contribution to the project has not been costed but is anticipated at approximately 5-10% of the total project cost (ie \$11,500 - \$23,000) based on a nominal hourly rate of \$20/hr for volunteer labour.

It is important to note that no allowance has been made for the value of land retired as part of the landowner's contribution in the calculation of relative share of costs between the parties. It is not the practice of MSCG to include the assumed paper value of land retired in cost sharing calculations, but if retired land was nominally valued at \$10,000/ha this would double the landowners input to approximately 30% of the overall cost based on 3ha of land retired.

Appendix 1 – Standard WRC Environmental Programme Agreement

1. *Waikato Regional Council and the Landowners agree to undertake the works in partnership as outlined in this Agreement, in accordance with the Objectives, Proposed Solutions and timeframes. If works are not carried out within the time frames indicated in the proposal, annual grant funding may be re-allocated to other programmes unless specific arrangements have been made with Waikato Regional Council.*
2. *For River and Catchment and/or Clean Streams works where Waikato Regional Council's grant contribution exceeds \$10,000, Waikato Regional Council and the Landowners will enter into a Memorandum of Encumbrance or other covenant in respect of this Environmental Programme Agreement.*
3. *Works will generally be in accordance with those set out in this Agreement, but may be varied or extended subject to consultation with Waikato Regional Council. A review will be undertaken every five years.*
4. *Funding for works outlined in this agreement are subject to availability. Funding is to be reviewed on an annual basis. Grant rates will be in accordance with those specified in the Funding Summary table. Grant claims will be accepted on the basis of actual and reasonable costs, subject to proof of cost or other supporting documentation.*
5. *Where the Landowners are registered for GST the Landowners must provide Waikato Regional Council with a valid tax invoice at the time a Grant claim is submitted.*
6. *The Landowners are responsible for maintenance of works carried out under this agreement. Grant assistance up to 35% of cost may be available from Waikato Regional Council, subject to application and approval.*
7. *The Landowners will at reasonable times allow Waikato Regional Council or its agents, upon prior notification, to inspect the condition of the works and to review related management issues.*
8. *The Landowners will notify Waikato Regional Council of any pending change of ownership, including subdivision, to facilitate an up-to-date record of Landowners details. This agreement shall be binding on the landowners and the landowner's successors in title. The landowners will remain liable for any financial costs until Waikato Regional Council receives a completed Deed of Accession.*
9. *If the Landowners fail to implement or maintain works as agreed in this Environmental Programme Agreement, Waikato Regional Council will notify the Landowners in writing specifying the action or repairs required and a suitable timeframe to complete the actions or repairs. If the Landowners fails to comply with the notice Waikato Regional Council by its servants, agents or contractors may (but without obligation to do so) enter upon the land and carry out works deemed necessary and recover costs of doing so from the Landowners.*
10. *Dispute resolution. In respect of any dispute between the parties arising out of or in connection with this agreement, the parties shall first attempt to negotiate a resolution.*
 - 10.1 *If negotiations fail, either party may elect to have the dispute resolved by a sole mediator jointly appointed by the parties or if the parties cannot agree on the mediator, then a mediator appointed by the President for the time being of the New Zealand Law Society of his or her nominee. The election to mediate is to be made within ten (10) working days of notice of the dispute or at any other time as agreed between the parties.*
 - 10.2 *If mediation is not elected or if mediation is unsuccessful then the matter can be referred to arbitration if both parties agree in writing to this occurring. Such agreement must be reached within ten (10) working days after the parties' right to elect mediation has elapsed or the conclusion of the mediation process.*
 - 10.3 *If arbitration is not elected pursuant to clause 10.2 then the dispute shall be resolved by the Courts.*

Appendix 2: Typical Plants Selection for Mangakotukutuku Stream Riparian Planting

Species	Common Name
Aristotelia serrata	Wineberry
Carex secta	Purei
Carpodetus serratus	Putaputaweta
Coprosma rigida	Rigid mikimiki
Coprosma robusta	Karamu
Cordyline australis	Cabbage tree
Cortaderia fulvida	Toetoe
Dacrycarpus dacrydioides	Kahikatea
Hoheria sextylosa	Lacebark
Kunzea ericoides	Kanuka
Leptospermum scoparium	Manuka
Myrsine australis	Mapou
Phormium cookianum	Mountain flax
Phormium tenax	Swamp flax
Plagianthus regius	Ribbonwood
Podocarpus totara	Totara
Sophora microphylla	Kowhai

Planting Guidelines

- Large gully areas – specific planting plans to be established, wetland/riparian species on gully floor, hardy medium height shrubs on steep gully slopes.
- Tributary stream areas- plant mixed species at 1m average, Carex at 0.8m, others at 1.2m average (eg 3 rows per side, average 1m spacing = 6 plants/m)
- Wetland/seep areas- plant Carex at 0.8m, plus spaced cabbage/flax/Manuka and other suitable species at 1.2m spacings

Appendix 3: Indicative Costs and Activities

Peacocks Riparian Restoration Project							
Indicative Annual Work Programme 2016 - 2019					Approximate cost share		
Work Area & Task (all years)			Specifications (excl GST)		WRC	WRA	Landowners
Woody weed control			as required		35%	50%	15%
Fencing upgrade			4w electric, \$7/m		35%	50%	15%
Native plants & planting			\$5/plant (pb3)		35%	50%	15%
Native plant maintenance (2 x releases/yr)			\$0.50 / plant /release		35%	50%	15%
Work Area & Task			Total Costs (excl GST)		WRC	WRA	Landowners
	Areas	length (m)	plant no's				
Year 1 - 1 July 2016 to 30 June 2017							
Weed control/exotic tree removal	main gully			5000	1750	2500	750
Pre-plant weed control				1500	525	750	225
Fencing upgrade		2000		14000	4900	7000	2100
Native Plants & Planting			6000	30000	10500	15000	4500
Blanking & Maintenance			300	1500	525	750	225
Year 2 - 1 July 2017 to 30 June 2018							
Weed control/exotic tree removal				9000	3150	4500	1350
Pre-plant weed control				2000	700	1000	300
Fencing upgrade		2000		14000	4900	7000	2100
Native Plants & Planting			8000	40000	14000	20000	6000
Blanking & Maintenance			500	2000	700	1000	300
Culvert fish pass mitigation				1000	350	500	150
Year 3 - 1 July 2018 to 30 June 2019							
Weed control/exotic tree removal				8000	2800	4000	1200
Pre-plant weed control				3000	1050	1500	450
Fencing upgrade		2000		14000	4900	7000	2100
Native Plants & Planting			10000	50000	17500	25000	7500
Blanking & Maintenance			600	3000	1050	1500	450
Culvert fish pass mitigation				1000	350	500	150
Signage				1000	350	500	150
Project Total		6000	25400	\$200,000	\$70,000	\$100,000	\$30,000

Summarised Costings;

GST inclusive costing				
Activity	totals	Approximate cost share		
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