



LAKE  
BAROON  
CATCHMENT  
CARE  
GROUP



# Projects 2011-12

## Upper Obi Obi Creek Restoration



CARING  
FOR  
OUR  
COUNTRY

PROJECT PLAN

Project No. 1112-005

This Project proposal has been prepared by:

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## PROJECT VERSIONS & APPROVALS

<i>Version</i>	<i>Date</i>	<i>Version/Description</i>	<i>Result</i>
1.0	6/4/2012	Draft Project Proposal	n/a
1.0	12/4/2012	Project presented to LBCCG Committee	Approved (Minutes 53.6.8)
1.0	17/4/2012	Project Proposal forwarded to Seqwater for approval (email)	Approved 30/4/2012

*supporting the* **Sunshine Coast Rivers Initiative**

**Cover photo:** *Caring For Our Country Community Action Grant revegetation site on the Farmhouse Macadamias property*

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**i EXECUTIVE SUMMARY**

**PROJECT TITLE:** Upper Obi Obi Creek Restoration

**PROJECT NUMBER:** 1112-005 **DATE:** April 2012

**PROJECT SUMMARY:**

This project will protect and enhance water quality in the Lake Baroon catchment by revegetation of the creek frontage on Obi Obi Creek. The area will be weeded and revegetated with local trees, shrubs and groundcovers to complete connectivity between remnant vegetation (endangered gallery rainforest), previous revegetation areas and the riparian zone. Species selected on their buffering ability and consistent with regional ecosystems will be planted by volunteers, raising awareness, skills and community capacity. The habitat for platypus and endangered mountain crayfish will be enhanced. The property will be a demonstration site to encourage participation in environmental activities by farmers including a field walk.

**APPLICANT/LANDHOLDER DETAILS**

<i>Name/s</i>	Maurie Felsch
<i>Phone Numbers</i>	[REDACTED]
<i>E-mail</i>	[REDACTED]

**PROJECT / SITE LOCATION**

<i>Property Name</i>	Farmhouse Macadamias		
<i>Property Address</i>	300 Maleny Stanley River Road, Maleny, 4552		
<i>RP Numbers (Lot)</i>	SP139505 (1, 2, 3, 4)	RP116239 (2)	
<i>Total Property Size</i>	134.13 ha		
<i>Existing Land-use</i>	Macadamia Orchard		
<i>Sub-Catchment</i>	Obi Obi Creek	<i>Management Unit</i>	OB4
<i>M.U. Priority (LBCCG IP)</i>	<b>Moderate</b>	<i>M.U. Priority (Pollution)</i>	<b>Moderate</b>

**PROJECT PARTNERS/STAKEHOLDERS & ROLES**

<i>Lake Baroon Catchment Care Group</i>	Project coordination, administration & reporting, monitoring & evaluation
<i>Commonwealth Government (Community Action Grants)</i>	Project funding (\$20,000)
<i>Seqwater</i>	Project funding (\$9,540)
<i>Conservation Volunteers Australia (National Green Jobs Corps)</i>	Project support/funding (\$15,381)
<i>Farmhouse Macadamias</i>	Landowner, cost-share, labour & maintenance (\$6,515)

**PROJECT DETAILS**

<i>Project Start Date</i>	June 2011	<i>Project Completion Date</i>	June 2014
<i>Weed Management</i>	2 hectares		
<i>Revegetation</i>	2,000 plants		
<i>Field Day</i>	1		

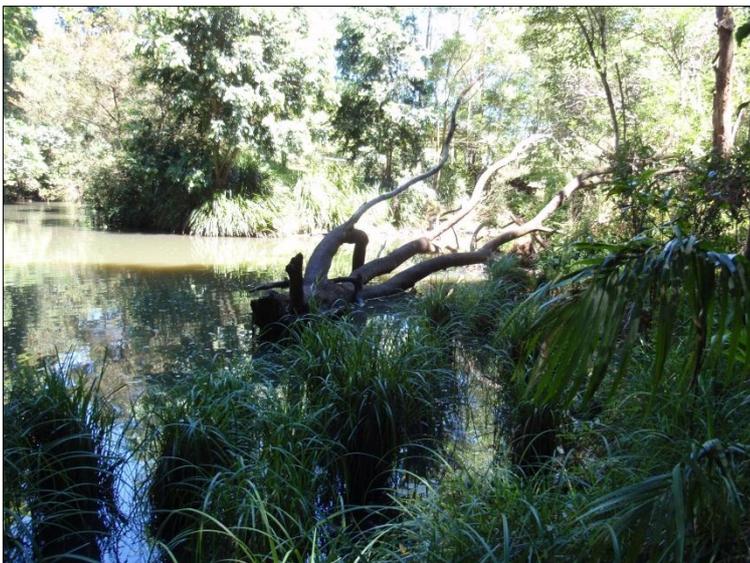


## **1.0 BACKGROUND**

Lake Baroon Catchment Care Group is an on-ground implementation, not for profit community group focussed on improving water quality in the Lake Baroon catchment. These aims are consistent with Seqwater’s objectives of producing cheap, high quality potable water to the Sunshine Coast (and greater South East Queensland) region. Therefore the mutually beneficial partnership between the two organisations has been long-running and highly valuable.

Upper Obi Obi Creek Restoration is a project designed to create a vegetative buffer between the agricultural activities on the Farmhouse Macadamias property and the King’s Lane Weir pool – an integral part of the greater Baroon Pocket Dam catchment. We are also addressing the broader environmental outcomes of creating wildlife corridors, enhancing remnant vegetation, managing weed threats and improving property viability. These numerous environmental benefits fit the criteria for the Commonwealth Government’s Caring for Our Country Community Action Grants funding program, which LBCCG successfully received. This funding is the cornerstone of the project and has been implemented since mid-2011.

This Project Plan details the objectives, methodology and implementation of the CAG funding and secure further funding from Seqwater to ensure the project delivers successful outcomes.



The Farmhouse Macadamias property has approximately 2,500 metres of frontage to the Obi Obi Creek, including a frontage of approximately 600 metres to the King’s Lane Weir pool.

*Left: Deep pool on the Obi Obi surrounded by remnant vegetation.*

Despite the frontage being designated ‘Esplanade’ and technically managed by Sunshine Coast Council, the majority of the riparian zone was devoid of significant native vegetation (there is a relatively small area of high quality ‘Endangered’ remnant vegetation on a steep bend of the Obi mid-way along the property).



In 2004 a partnership between Barung Landcare, LBCCG, Caloundra City Council and various funding bodies established an 11,000 plant buffer on the upstream reaches of the Obi which has resulted in a relatively successful buffer along the waterway.

*Left: Buffer plantings commenced in 2004 with community plantings.*

## **2.0 RATIONALE – RIPARIAN BUFFERS<sup>1</sup>**

An estimated 80% of sediment and 35% of nitrogen in the waterways in South East Queensland come from non-urban diffuse loads. Reduction of these loads clearly represents a major target for action if significant improvements in water quality are to continue to be achieved in South East Queensland.

Modern agricultural activities have been identified as a major source of diffuse pollutants into waterways. Land management practices, such as stocking rates, grazing pressures, land clearing and the application of fertilisers have significant impacts on pasture and land condition. These practices can result in erosion processes, decreased infiltration of soils, and excess nutrient and sediment run-off, all of which impact on local water quality.

Unlike point source pollution where there are generally a number of relatively easily identifiable sources, diffuse source pollution is much more difficult to deal with. The nature of diffuse pollutant discharge makes it difficult for authorities to restrict and monitor the level of diffuse pollutants entering SEQ waterways.

Diffuse pollutants are:

- aggregated within a catchment; but delivered from sources dispersed throughout the catchment
- random in nature with weather playing a critical role in the process of pollutant delivery
- difficult to monitor on a continuous basis for a reasonable cost

Despite these barriers, evidence suggests there is an opportunity to reduce the contribution of non-urban diffuse source pollutants to prevent further water quality degradation throughout South East Queensland.

Buffer strips provide a strip of vegetation that acts as a filter for sediment. They are designed to remove sediment, organic material, nutrients and chemicals carried in run-off. Buffer strips include both vegetative filters adjacent to agricultural land and riparian zones that maintain bank and channel stability. Sediment is removed from the overland flow as velocity is decreased, filtering sediment and allowing particles to settle. A sufficiently dense buffer can also significantly reduce chemical drift from agricultural activities from contaminating water bodies. Buffer strips provide a filtration barrier between a land-disturbing activity and an adjacent waterway.

Particulate or sediment associated nutrients can be removed from surface run-off, although nutrient trapping is generally lower than for sediment. Phosphorus from fertilisers and manure is commonly absorbed by soil particles and organic matter. Soluble phosphorus is likely to be infiltrated and subsequently consumed by plants, diluted and/or transformed. Soluble phosphorus movement through the buffer depends largely on plant-uptake potential, soil properties and subsurface flow paths.

Buffer and riparian zones are considered to be effective in removing nitrates from shallow, subsurface water; however nitrogen retention relies on three major mechanisms – plant uptake, microbial immobilisation and bacterial denitrification.

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<sup>1</sup> Department of Environment and Resource Management, *Development of a water quality metric for south east Queensland*, 2010

### **3.0 LOCATION**

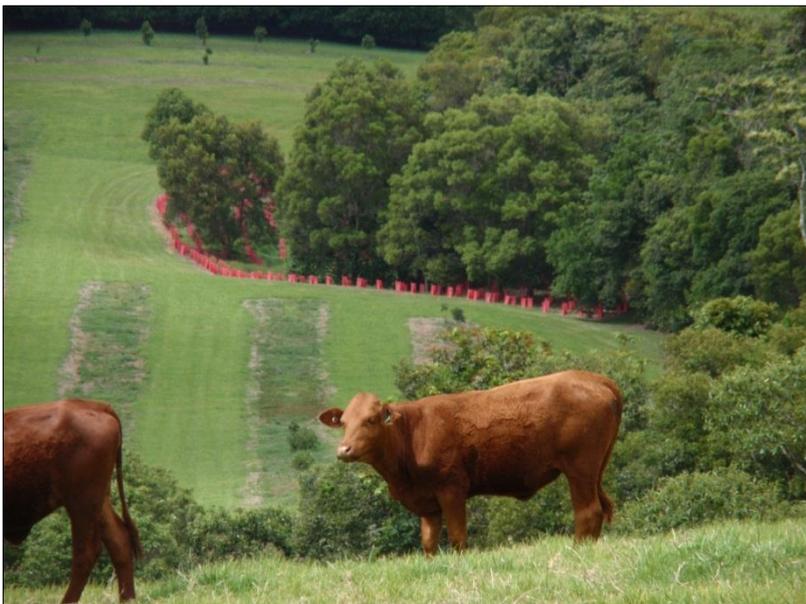
#### **3.1 THE OBI OBI CREEK CATCHMENT**

The Lake Baroon Catchment Implementation Plan (2007) describes the Obi Obi Creek sub-catchment as by far the longest waterway in the Lake Baroon catchment, consisting of 71 km of waterway in a sub catchment of 2880 ha. A mere 18.45% of the sub catchment is covered in vegetation, with much of the area significantly disturbed - mostly supporting beef or dairy cattle.<sup>2</sup>



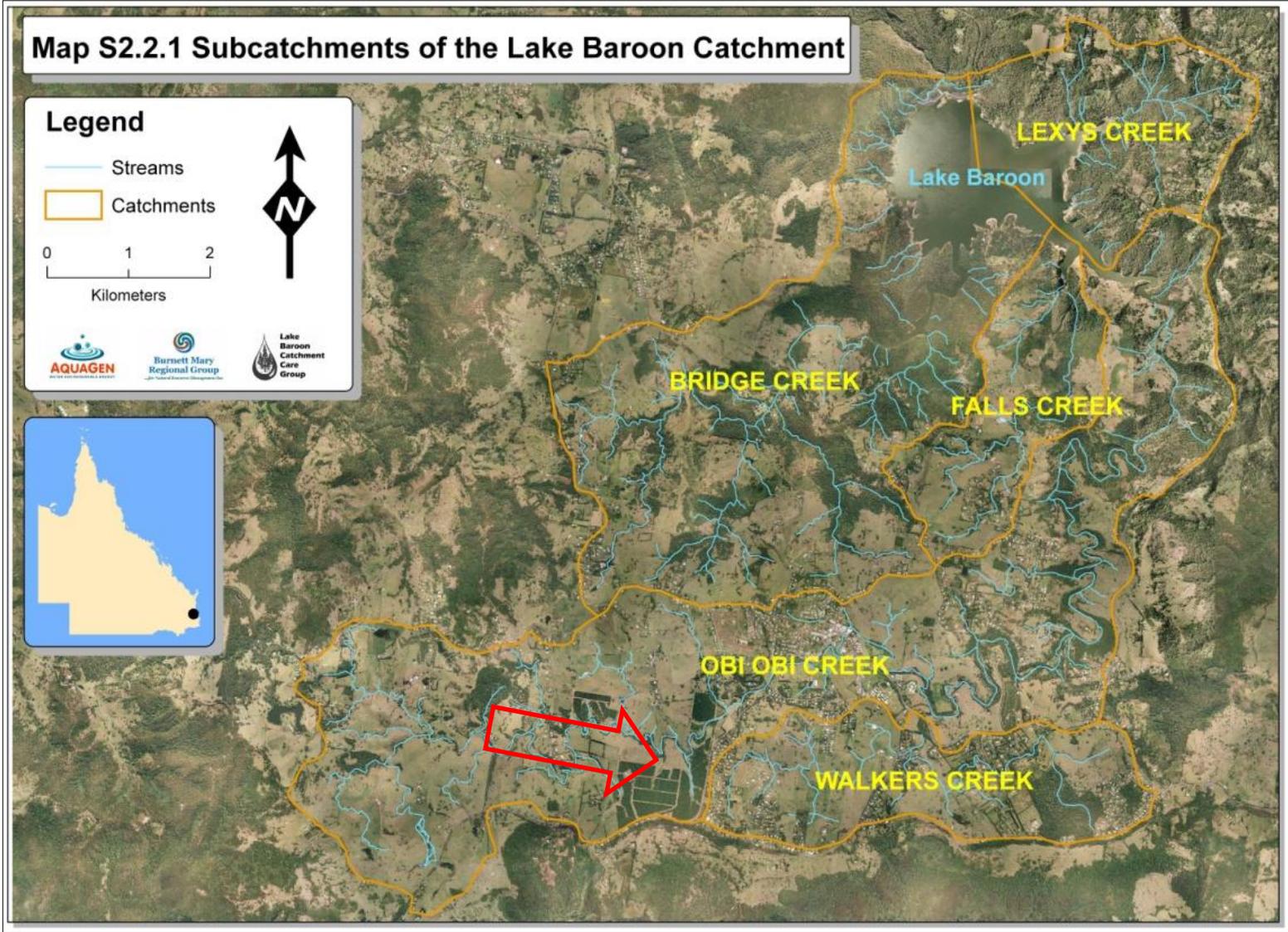
*Left: Obi Obi Creek is the largest sub-catchment of Lake Baroon. Maleny's water supply comes from two weirs on the waterway – the proposed project is in the headwaters of the waterway; upstream of King's Lane Weir. This reach of Obi Obi Creek is threatened by sediment and nutrient loads entering the waterway through erosion in the catchment.*

Obi Obi Creek has been divided into nine management units that reflect property boundaries, physiography, vegetation, land use, point and diffuse source impacts, and administrative convenience. The Farmhouse Macadamias property is in Management Unit OB4.



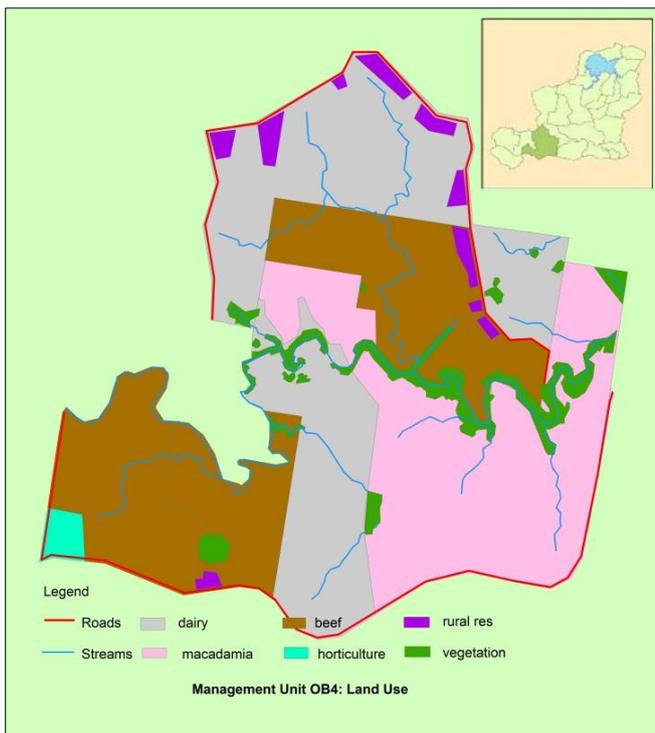
*Left: The Farmhouse Macadamia property from King's Lane. The orchard is surrounded by dairy farms, beef properties and rural residential areas.*

<sup>2</sup> Dunstan, M. 2007, Lake Baroon Catchment Implementation Plan, Aquagen Water & Renewable Energy, Palmwoods



*Above: Farmhouse Macadamias is positioned in the upper catchment of Obi Obi Creek with the southern frontage to King's Lane Weir.*

### 3.2 LAND USE

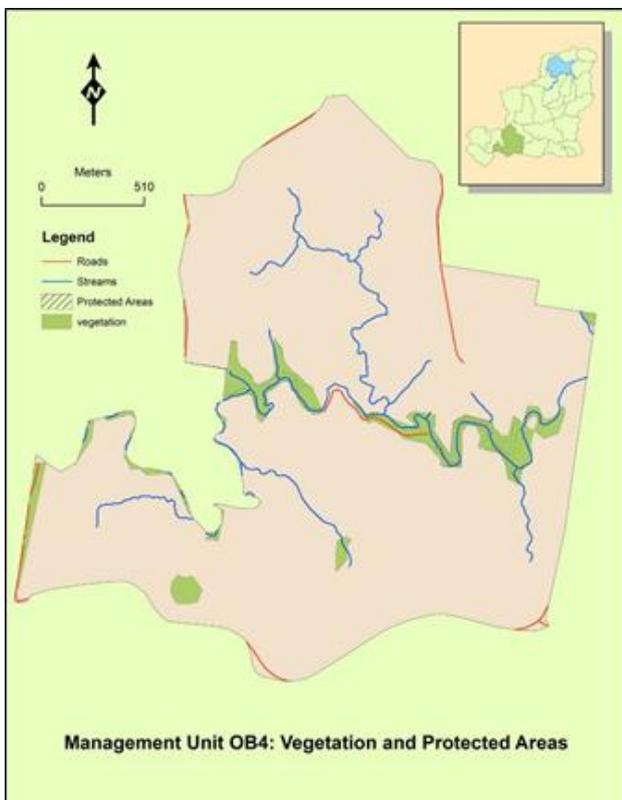


Land use in the Management Unit is almost equally split between dairying, non-dairy grazing (beef production) and horticulture (macadamias). Other minor land use includes minor rural residential and cut-flower production.

Farmhouse Macadamias is the largest property in the catchment. Kings Lane Weir on the Obi Obi Creek is in Management Unit OB4.

*Left: Land use is equally split between dairying, beef grazing and horticulture (macadamias).*

### 3.3 GEOLOGY, SOILS & STABILITY



Less than 3% of the sub-catchment is vegetated, although approximately 30% of the waterways have riparian cover.

There have been vast improvements to the state of the waterways in this MU over past years as landowners have revegetated large lengths of waterway and enhanced habitat corridors and the small patches of rainforest that remain.

Despite the extremely stable geology of OB4, the MU contributes a significant nutrient load to the waterway (more than 70% of samples exceeded guideline levels).

*Left: The MU is very stable – largely due to the presence of Red Ferrosol soils.*

<sup>3</sup> Dunstan, M. 2007, Lake Baroon Catchment Implementation Plan, Aquagen Water & Renewable Energy, Palmwoods

#### **4.0 WATER QUALITY**

Water quality monitoring and analysis (1997-2005) sampled at King's Lane Weir (Obi Obi Creek) indicates, as would be expected from the land use, the catchment contributes significant nitrates, ammonia, phosphates, phosphorus and faecal coliforms.<sup>3</sup>

#### **4.1 STATISTICAL ANALYSIS OF WQ DATA – KING'S LANE WEIR (OBI OBI CREEK)**

<i>Parameter</i>	<i>pH</i>	<i>Turbidity</i>	<i>NOx (N)</i>	<i>NH3 (N)</i>	<i>PO4 (P)</i>	<i>Total P</i>	<i>Faecal Coliforms</i>
<i>(units)</i>	<i>(pH units)</i>	<i>(NTU)</i>	<i>(mg/L)</i>	<i>(mg/L)</i>	<i>(mg/L)</i>	<i>(mg/L)</i>	<i>(number/100 mL)</i>
<i>Guideline Value</i>	<b>6.5-8.2</b>	<b>&lt;25.0</b>	<b>&lt;0.040</b>	<b>&lt;0.010</b>	<b>&lt;0.030</b>	<b>&lt;0.030</b>	<b>&lt;100</b>
<i>Max</i>	8.9	25.5	0.368	0.510	0.117	0.167	11900
<i>Min</i>	6.6	1.0	0.001	0.000	0.003	0.009	0
<i>Mean</i>	7.1	3.6	0.068	0.077	0.021	0.043	540
<i>Median</i>	7.1	2.2	0.018	0.030	0.012	0.035	36
<i>Standard Deviation</i>	0.3	4.6	0.091	0.110	0.022	0.033	2079
<i>20<sup>th</sup> Percentile</i>	6.9	1.6	0.007	0.006	0.006	0.023	20
<i>80<sup>th</sup> Percentile</i>	7.3	3.7	0.122	0.120	0.031	0.051	106
<i>Count above GV</i>	1	1	25	38	14	37	14
<i>Count</i>	65	65	62	61	64	63	63
<i>% above GV</i>	1.54	1.54	40.32	62.30	21.88	58.73	22.22



Left: King's Lane Weir is an important component of the water supply system for the Sunshine Coast and Maleny.

<sup>3</sup> Traill, C.B. 2007, *State of the Lake Baroon Catchment, Volume 2: Appendices*, AquaGen Water and Renewable Energy, Palmwoods.

## **5.0 PURPOSE & OBJECTIVES**

The Lake Baroon Catchment Implementation Plan (2007) rates OB4 a MODERATE priority for rehabilitation works. When assessing the Management Unit using a modified version of the Prioritisation Process, which prioritises MU's on pollution input levels and land instability parameters, OB4 also rates as a MODERATE priority.

A healthy aquatic ecosystem is one that is stable and sustainable; maintaining its physical complexity, biodiversity and resilience. It has the ability to provide ecosystem services that provide good water quality, wildlife habitat and recreation. A good revegetation site will resist weed invasion and require minimal maintenance in the long term.

The project will buffer the Obi Obi Creek and King's Lane Weir pool from agricultural activities – primarily pesticide and herbicide spraying and aerial fertiliser application. Additionally the establishment of indigenous vegetation will provide a buffer to overland flows of water reducing erosion and trapping sediments, which may carry chemicals and nutrients. Furthermore the vegetation will extend and enhance the existing wildlife corridor on the banks of the Obi Obi Creek.

The revegetation of riparian zones improves the properties viability and productivity by removing areas that are not commercially viable and are costly and time consuming to manage (slashing and weed management).

## **5.1 PRIORITY ACTIONS (IN PRIORITY ORDER) FOR OBI OBI CREEK (HEADWATERS TO MALENY WEIR)<sup>4</sup>**

1. Provision of advice, encouragement and incentives to landholders to maintain adequate riparian buffers and erect riparian fencing and manage stock access to waterways. This includes the provision for off stream watering, shade and hardened waterway access points and livestock laneways.
2. Encourage good farming practices, particularly on floodplains and steep slopes which reduces the rate of soil loss to below that of natural soil forming processes.

## **5.2 TARGETS**

**Project Objectives:**

- \* community benefit
- \* environmental benefits
- \* water quality benefits
- \* demonstration of best practice

**Re-vegetation Objectives:**

- \* restore riparian tree canopy with moderate diversity through revegetation
- \* restore 75% canopy within 3 years

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<sup>4</sup> Traill, C.B. 2007, *State of the Lake Baroon Catchment, Volume 2: Appendices*, AquaGen Water and Renewable Energy, Palmwoods.

- \* retain grasses between rows and in waterway channel until revegetation establishes
- \* after 2 years encourage natural regeneration to enhance diversity
- \* establish a vegetative buffer between Obi Obi Creel/King's Lane Weir pool and agricultural activities on Farmhouse Macadamias

**Community Awareness:**

- \* raise community awareness of the importance of natural areas and riparian zones and the potential impacts from urban areas
- \* raise community awareness pesticide, herbicide and chemical impacts
- \* raise community awareness stormwater impacts
- \* raise community awareness weed management

**Target Condition:**

- \* stable waterway with erosion reduced to natural levels
- \* 75% canopy closure (revegetation) in 3 years (90% in 5 years)
- \* extend vegetation corridor by 300 metres
- \* reduce targeted weed infestation by 90% with ongoing maintenance program
- \* provide 1 hectare of new habitat; improve quality (by 90%) of 1 hectare of existing degraded habitat
- \* hold Field Day to promote the importance of water quality, and partnerships



*Above: The Farmhouse Macadamias property from Arley Farm.*

## **6.0 OUTCOMES**

The primary aim of the project is to improve the water quality of Obi Obi Creek and the waterways that flow directly into Lake Baroon. By reducing erosion and the associated sediment, nutrient and chemical inputs into the properties waterways, the quality of water in the Obi Obi Creek catchment will be significantly improved. Ultimately this improves the quality of water entering Lake Baroon which leads to a lowering in drinking water production costs, as well as improving the recreational and amenity value of Obi Obi Creek and the storage.

### **6.1 SPECIFIC OUTCOMES**

#### **1. Reduce nutrient delivery to waterways.**

*Nutrient delivery to waterways is continuous increasing dramatically during episodic rain events.*

Rehabilitated laneways direct run-off contaminated with excessive nutrients to pasture that can trap and filter nutrients, rather depositing directly to watercourses.

#### **2. Reduce sediment delivery to waterways.**

*Soil from erosion leads to high turbidity and is transported to Baroon Pocket Dam and beyond.*

Rehabilitated laneways significantly reduce erosion in high stock traffic areas resulting in less sediment run-off. Good drainage directs any sediment onto pasture that can trap and filter top soil.

#### **3. Raise community awareness.**

*The majority of land in the Lake Baroon catchment is privately owned and without landholder and community support activities improving catchment health and water quality is impossible.*

The project will demonstrate the importance of reducing erosion and the associated delivery of sediments, nutrients and pathogens to the catchment's waterways (and ultimately to water storages on Obi Obi Creek and Baroon Pocket Dam).

On-ground works provide the opportunity for land managers to apply their knowledge and experience at the local level whilst contributing to landscape scale outcomes increasing the skills in the community.

#### **4. Improve farm productivity.**

*Riparian zones are difficult to manage in the farm management context.*

Riparian zones for non-grazing properties can become weed dominated and waterlogged making management difficult. Weed management is expensive, time consuming and potentially hazardous to the riparian environment. Restoration of riparian zones can reduce costly and time consuming management as well as reducing harbour for pests.

#### **6. Whole farm approach to property management.**

*Clear property management objectives that take into account environmental considerations lead to efficient and effective projects.*

Macadamia orchards are highly regulated agricultural businesses and are required to have and maintain clear Property Management Plans. This includes management of the properties riparian zones and will ensure all activities will be implemented in a permanent and cost effective manner.

## **7.0 IMPLEMENTATION**

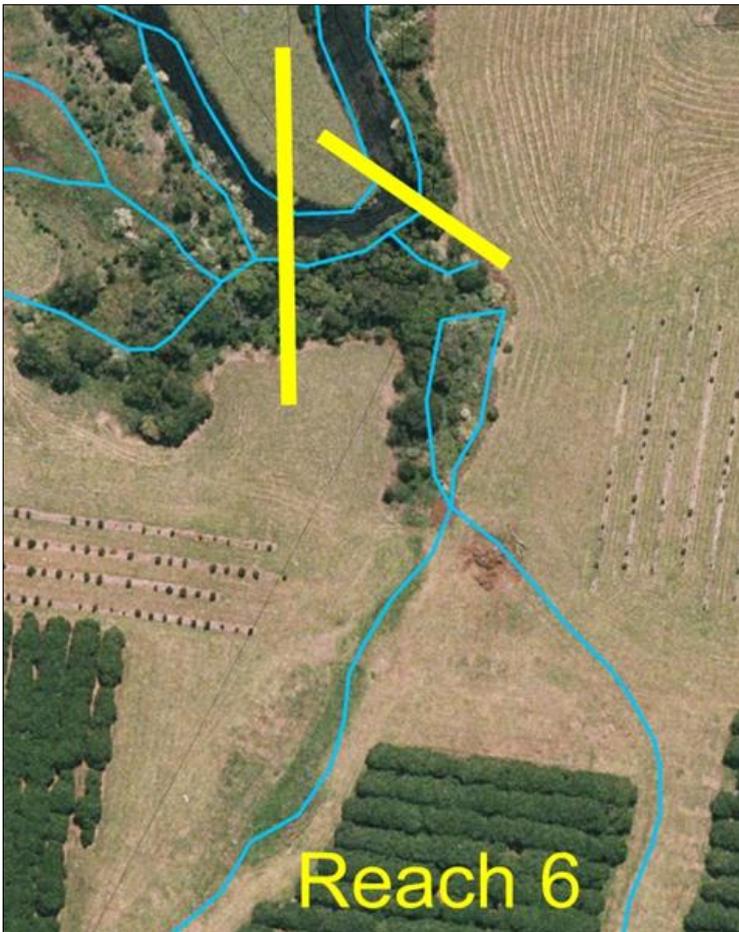
### **7.1 REACHES**

With a frontage to the Obi Obi Creek in excess of 2,500 metres we have split the properties waterways into smaller, more manageable ‘Reaches’. The individual Reaches reflect the different characteristics, issues, past projects and management regimes and will simplify management.



*Above: The Farmhouse Macadamia property with the Obi Obi Creek and tributaries split into ‘manageable’ Reaches.*

### 7.1.1 REACH 6



This Reach is a mere fifty metres in length; however it includes a second northerly flowing tributary that is approximately 650 metres in total length.

This Reach includes the King's Lane Weir pool.

There is a reasonably wide buffer (almost 40 metres) between the Obi and orchard operations however a small area of remnant vegetation is under threat from environmental weeds.

This Reach is considered Moderate priority due to the proximity to the weir pool, the small remnant and the largely un-vegetated tributary.

Reach 6 is Revegetation Site 1.

*Left: Reach 6*



*Above: The small area of remnant vegetation on the Obi Obi Creek tributary.*



*Above: The King's Lane Weir pool in Reach 8.*

### 7.1.2 REACH 8



*Above: Reach 8.*

*Right: King's Lane Weir in Reach 8.*

Reach 8 is downstream of Reach 6 and includes the main pool created by King's Lane Weir (including the Weir itself) and another northerly flowing tributary of approximately 630 metres in length. The Obi in this Reach measures 220 metres and at the Weir is 40 metres wide.

The tributary has sparse remnant trees and has been invaded by environmental weeds – the main concern being Morning Glory.

This area however provides the best opportunity for buffer revegetation as it adjacent to the greatest surface area of water in King's Lane Weir and has scattered remnant trees.

Reach 8 is Revegetation Site 2.

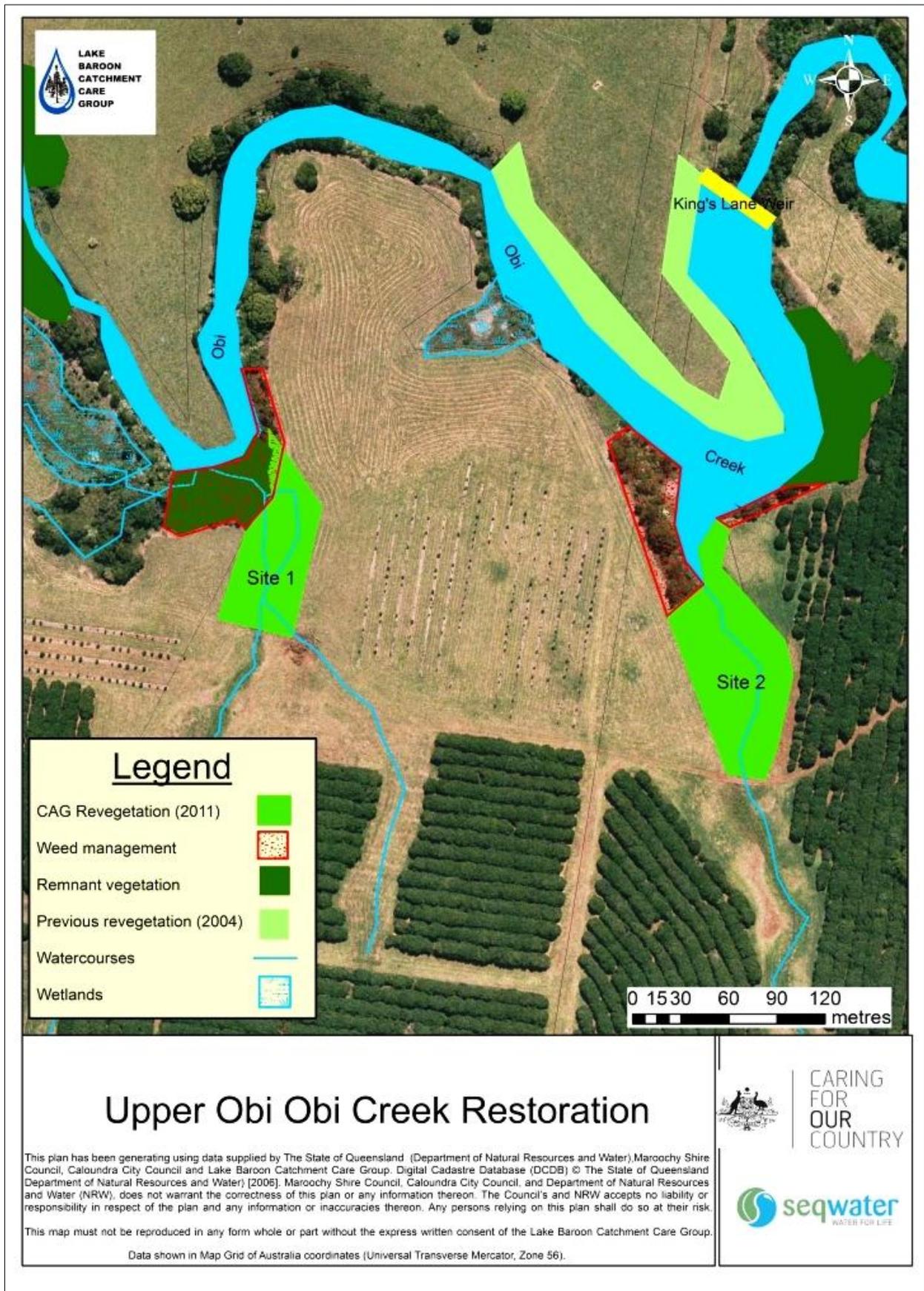


*Above: King's Lane Weir pool.*



*Above: Obi Obi Creek tributary.*

## 7.2 PROJECT OVERVIEW



*Above: Project Overview - proposed on-ground works.*

### **7.3 ACTIVITIES**

#### **7.3.1 WEED MANAGEMENT**

Major environmental weeds pose a serious and immediate threat to native vegetation and water quality due to their ability to alter the structure and composition of plant communities. Small leaf privet can thrive in low-light conditions and over time will dominate riparian zones, out-competing native species and effectively developing mono-culture systems. Natural regeneration is reduced below sustainable levels and only mature individual native flora species will persist.

Blue morning glory, although requiring high light levels (and therefore not a major threat to good quality remnant vegetation) spreads vegetatively and rapidly envelopes all other vegetation and in time will kill those plants (native and exotic) it covers through the elimination of light. Morning glory rapidly forms a mono-culture ground cover – even out-competing exotic pasture grasses. Although morning glory covers ground surfaces, it is weakly-rooted and does not protect the ground surface from erosion during heavy rainfall events and high creek flows. Similarly it does not provide an effective buffer to overland flows and will not filter sediments and nutrients effectively.



*Above: Riparian zone on Site 1; camphor laurel, small leaf privet, barner grass, morning glory and wild tobacco dominate this Reach.*

*Above: Riparian zone on Site 2; dominated by environmental weeds – particularly morning glory vine.*

Initial weed management on both sites has concentrated on the clearing of weeds to allow revegetation. Morning glory was sprayed with herbicide and was followed up with mechanical removal along with any other environmental weeds – particularly small leaf privet. Large tree weeds were retained as these will provide important frost protection for the revegetation during frost. Once the threat of frost is gone (September 2012) the remaining environmental weeds will be removed.

Initial weed management has been funded by the Community Action Grant, with continued control funded by LBCCG/Seqwater in a staged process. It is important to stage weed management; not just frost protection for the planted seedlings, but also to gradually open up light penetration – which encourages weed growth and maintenance costs.

A weed free buffer also needs to be established around the revegetation sites to ensure weeds do not recolonise the planted areas.

### **7.3.2 REVEGETATION**

Revegetation was carried out between September and November 2011 by National Green Jobs Corps participants. This program is provided by Conservation Volunteers Australia and LBCCG was allocated 20 days of support for the project. Several days were lost due to poor weather although two days were used immediately across the creek on the accessible LBCCG project 'King's Lane Weir Maintenance' thereby indirectly contributing to the Farmhouse Macadamias project.



*Above: Site 1 post site preparation but prior to revegetation.*



*Above: Site 1 following revegetation.*

Approximately 2,000 tube-stock were planted on both Site 1 and 2. A lengthy dry period placed tube-stock on Site 2 under considerable duress however good December rainfall minimised damage. On the whole revegetation has been very successful with favourable conditions since December combined with excellent soils giving the plants a good start.



*Above: Site 2 post initial site preparation but prior to revegetation.*



*Above: Site 2 following revegetation.*

The revegetation (tube-stock, materials and planting equipment) was funded by the Community Action Grant however additional funding is required for replanting of 10% of plants (approximately 200) and the replacement of approximately 200 weed mats.



Wild dogs have systematically removed weed mats from around the newly planted tube-stock and uprooted the guards.

These weed mats require replacing to ensure weeds do not grow inside the guard impacting on plant survival and maintenance costs.

*Left: Planting was performed by National Green Jobs Corps participants, engaged through Conservation Volunteers Australia.*



*Left: Wild dogs have uprooted the tree guards and removed (or damaged) weed mats from around approximately 200 plants. Note the bite marks on the guards.*



*Left: Revegetation in late 2011.*

### **7.3.3 MAINTENANCE**

Good maintenance is an extremely important component of re-establishing vegetation particularly in the first 3 years of planting. Weed growth is very rapid on the Maleny plateau – particularly over the summer months where maintenance must be performed every six weeks. Failure to do so can result in plant mortality, weed infestation and frustrating labour – all of which results in excessive spending to re-capture the site.

It is desirable, if not essential, to employ specialists who have the equipment, skills and knowledge to successfully manage revegetation sites and establish a functioning buffer. Barung Landcare is usually the preferred contractor for LBCCG projects. Landholders are rarely capable of managing all the maintenance required on large revegetation sites (more than 500 plants) and therefore in an effort to ensure success, LBCCG provides the bulk of support for maintenance.



*Above: Grass is maintained between the revegetation rows to minimise erosion and to function as a sediment and nutrient trap during high rainfall events.*

Grass is maintained between the rows of revegetation to reduce erosion and to act as a filter and trap sediments and nutrients during high rainfall events.

Herbicide is sprayed immediately around the ‘Think-Pink’ guards reducing competition while weed mats placed under the guards minimises weed growth inside the guard.

The grass between the rows is occasionally brush-cut so that access is maintained and the site does not become over-grown. This is particularly important on this site as considerable effort is placed on keeping weeds and long grass under control. This is primarily for reducing potential rat harbour – which predate on macadamia nuts.

Maintenance so far has been performed by Farmhouse Macadamia staff with support, assistance and advice from LBCCG Coordinator Mark Amos.

Funding is required to continue maintenance on the site for three years. This is to ensure the revegetation successfully establishes.

### **7.3.4 COMMUNITY AWARENESS**



*Above: Field Day held in 2004.*

A Field Day will be conducted at the conclusion of the project's implementation.

The Day will be funded by the Community Action Grant.

The Field Day will address water quality decline in the catchment, the degradation of remnant vegetation, weed spread, vegetation fragmentation, urban pollution impacts on waterways, erosion and sedimentation.

**8.0 ALIGNMENT WITH LAKE BAROON CATCHMENT IMPLEMENTATION PLAN**

The project's outcomes are consistent with the Lake Baroon Catchment Implementation Plan (2007)

<i>LBCIP Activity Theme</i>		<i>Implementation Activity</i>	<i>BMRG Program</i>
On ground	OG1	Develop on ground works for water quality improvement and aquatic biodiversity maintenance & improvement	Water Quality & Equitable Use
			Biodiversity Conservation
On ground	OG2	Support and develop on ground works for habitat recovery	Biodiversity Conservation
On ground	OG3	Locate high value areas within catchment and target for protection and remediation	Biodiversity Conservation
On ground	OG4	In-stream aquatic habitat restoration for Mary River Cod and Queensland Lungfish, Spiny Cray	Biodiversity Conservation
Weeds & pests	WP1	Weeds and Pest Management	Weeds and Pest Management
Weeds & pests	WP3	Aquatic and riparian weed projects	Weeds and Pest Management
Catchment management	CM1	Develop a program where by all landholders involved in on ground activities initiate PMP's as part of application process	Biodiversity Conservation
Catchment management	CM2	Property Management Planning Toolkit	Sustainable Use
Catchment management	CM3	Weeds toolkit	Weeds and Pest Management
Catchment management	CM4	Adoption of BMP for point and concentrated diffuse pollution	Water Quality & Equitable Use
Catchment management	CM6	Community involvement	Community Capacity and Partnerships
Catchment management	CM7	Stakeholder Survey	Community Capacity and Partnerships
Catchment management	CM8	Transition in NRM practice	Community Capacity and Partnerships
Catchment management	CM12	Training and skilling stakeholders in NRM	Community Capacity and Partnerships
Monitoring & research	MR5	Identification of point and concentrated diffuse pollution	Water Quality & Equitable Use







## **10.0 ACTION PLAN**

<i>Action</i>	<i>Responsibility</i>	<i>Start Date</i>	<i>Completion Date</i>	<i>Measurable Output</i>	
Community Action Grant application	LBCCG Coordinator			Project grant	
Project Proposal	LBCCG Coordinator & landholder	Feb 12	Mar 12	Project Plan	
Project presented to LBCCG Committee for approval (includes Seqwater rep.)	LBCCG Coordinator & Committee	Mar 12	Mar 12	n/a	
Pre-works monitoring (including photo points)	LBCCG Coordinator	Mar 11	Aug 11	Photo & data set	
<b>WORKS IMPLEMENTATION</b>	Site preparation	Landholder	Aug 11	Nov 11	n/a
	Weed management	Contractor & landholder	Aug 11	Dec 14	1 hectare
	Revegetation	NGJC	Sep 11	Nov 11	2,000 plants
	Maintenance	LBCCG & Barung Landcare	Dec 11	Dec 14	90% survival
	Field Day	LBCCG Coordinator	Jun 12	Jun 12	1 event
Post-works monitoring.	LBCCG Coordinator	Dec 12	Jun 14	Photo & data sets	
On maintenance Report (on-ground works completed & inspected for compliance with Project Plan)	LBCCG Coordinator	Jun 12	Jul 12	On Maintenance Report	
Continuing quarterly progress reports.	LBCCG Coordinator	Jun 12	Mar 14	11 Progress Reports	
Project completed/signed off. Final Report.	LBCCG Coordinator & Committee	Dec 14	Jan 15	Final Report	

 Completed (Community Action Grant funding)

**Note – the Project Action Plan will be used as the basis for Quarterly Reporting**

## **11.0 COMMUNICATION**

### **11.1 MONITORING & EVALUATION**

Monitoring and evaluation strategies are essential components of any environmental rehabilitation project. Evaluation is the best way to improve our knowledge about what works, what doesn't and how we can best direct our rehabilitation efforts. Monitoring strategies are key components of the overall evaluation process that allows you and others to learn from the project and assess whether rehabilitation aims have been met.

Photo point monitoring will provide valuable evidence of works completion, a record of changes over time, and provide an important assessment tool to evaluate the project.

Furthermore, monitoring results and information will be used to:

1. Raise awareness and encourage further remediation works with priority landholders (primary producers and large landholders in the Lake Baroon catchment).
2. Promote cooperative projects between Lake Baroon Catchment Care Group, Seqwater, and other Natural Resource Management organisations.
3. Critically examine techniques and methods used throughout the project to continually improve the service to landholders conducting on-ground works in the catchment and improve best practice management.
4. Develop cost-effective strategies and techniques to perform on-ground activities.
5. Continue to develop monitoring and evaluation program that meets the requirements of funding bodies, but also provides the relevant information and feedback to the LBCCG and Seqwater to improve project delivery.

Monitoring of rehabilitation activities, particularly the laneway rehabilitation component will be split into periodic and episodic monitoring.

Periodic monitoring is important to measure the effectiveness of the activities over time and will occur on a quarterly basis by LBCCG with assistance from the landholder.

Episodic monitoring will occur following significant storm/rainfall events and will check all project activities - particularly the laneway integrity.

## **11.2 REPORTING**

Reporting on the progress of the project is an essential component of delivering successful on-ground outcomes. Therefore the following reporting schedule will be implemented to ensure all stakeholders are informed in a comprehensive and timely way.

<i>Report</i>	<i>Recipients of Report</i>	<i>When</i>
Progress Reports (presentation & brief summary).	LBCCG	Monthly
Progress Reports (written report). Based on Project Action Plan (see above)	LBCCG Seqwater Stakeholders	Quarterly
On Maintenance Report	LBCCG Seqwater Stakeholders	On-ground activities completed (excluding maintenance).
Final Report (includes evaluation & further recommendations for project)	LBCCG Seqwater Stakeholders	Completion of project

## **12.0 AUTHORISATIONS**

<i>Role</i>	<i>Individual</i>	<i>Organisation</i>
<b>Project Sponsor</b>	Tim Odgers	Seqwater
<b>Project Approval</b>	Brad Heck	Seqwater
<b>Project Owner</b>	Peter Stevens	LBCCG
<b>Project Committee</b>	Steve Skull	LBCCG
	Gillian Pechey	LBCCG
	Keith Schelberg	LBCCG
	Marek Malter	LBCCG
<b>Project Manager</b>	Mark Amos	LBCCG

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