Upper Black Snake Creek Improvement Plan

Summary

A Total Water Cycle Management Approach to the Management of the Upper Black Snake Creek Catchment

TABLE OF CONTENTS

INTRODUCTION

The Black Snake Creek Catchment in South East Queensland is located approximately 55 km South West of Brisbane and 17 km North West of Ipswich. Sponsored by the Ipswich City Council this Plan has been developed in conjunction with local representatives to address community concerns regarding water related issues such as flooding, rising of salinity levels and declining water quality.

This plan presents three separate but closely related action plans designed to build the resilience of both the landscape and the community. The three action plans presented are:

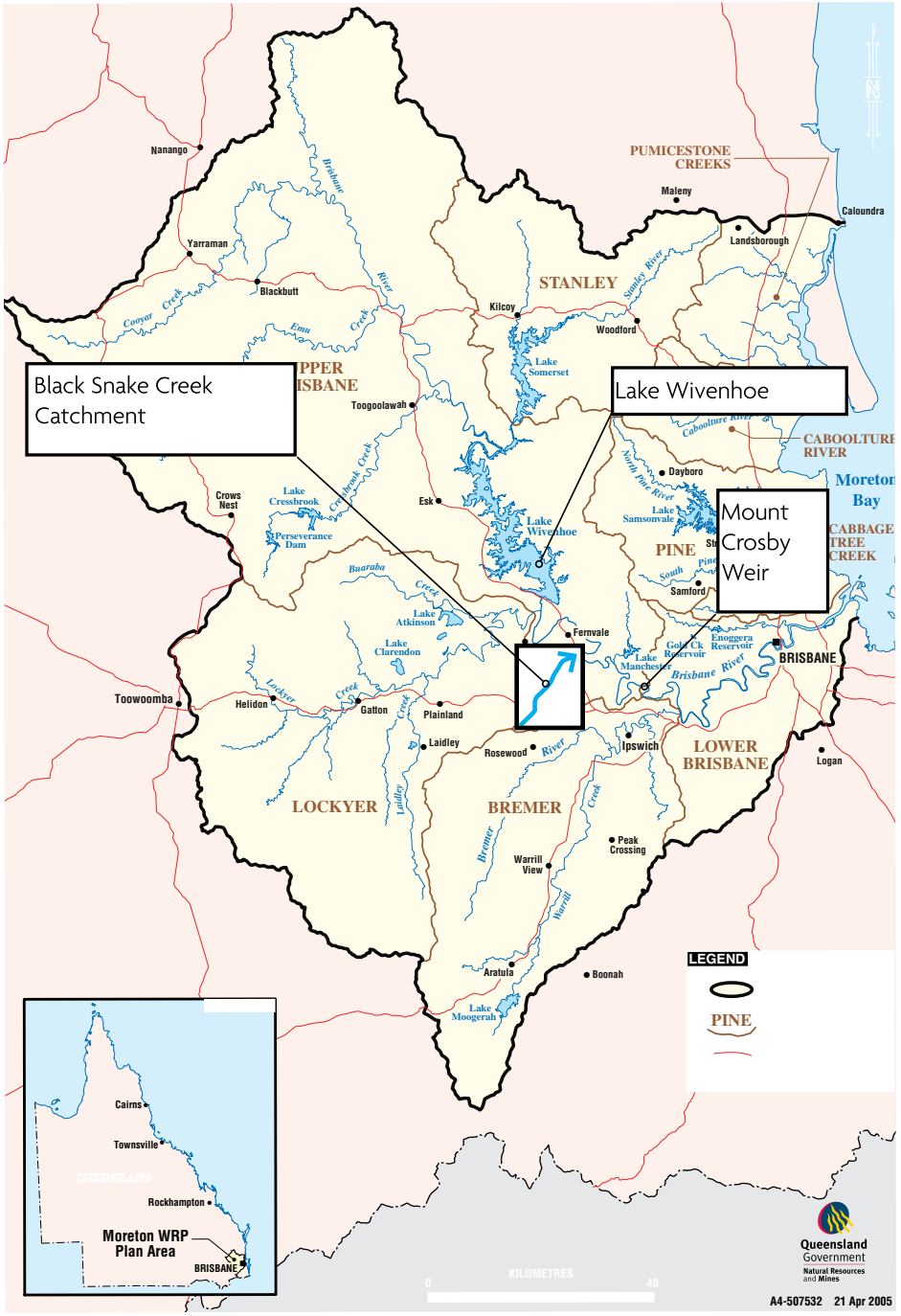
1. Local Flood Risk Mitigation
2. Salinity Mitigation
3. Landscape Restoration and Water Quality Improvement

The focus of this plan is on the upper catchment area which falls within the Ipswich City Council Local Government Area although many elements of the action plans are applicable to the entire catchment.

This plan provides a coordinated approach for this investment and importantly has been developed with input from key stakeholders with a vested interest in attaining the catchment improvements sought by the plan.

This is a summary of the full Upper Black Creek Improvement Plan.

The full plan along with a questionnaire to provide feedback is available by contacting Philip Smith at blacksnakecreek@ipswich.qld.gov.au or (07) 3810 6666.

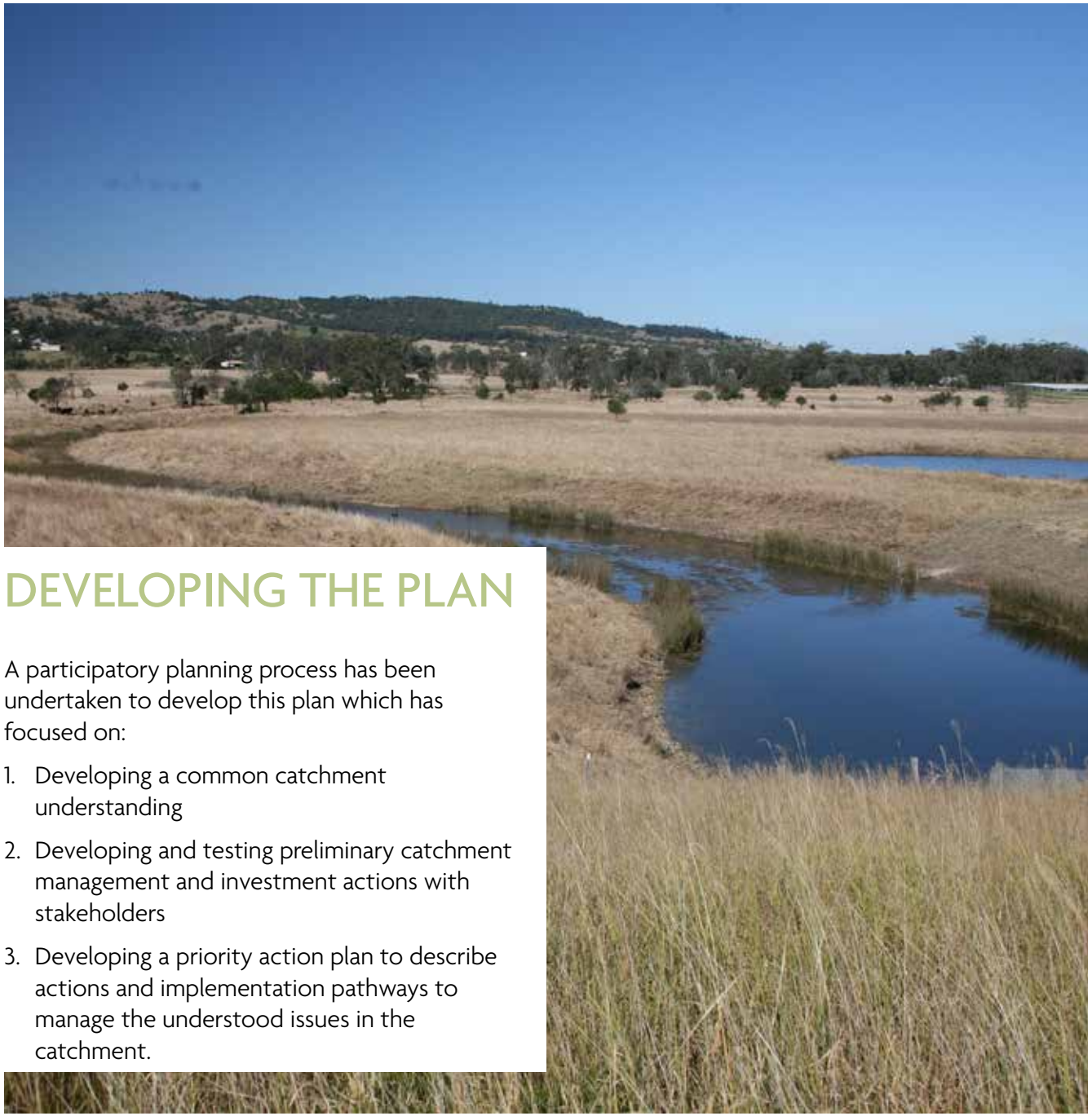


RATIONALE FOR INVESTMENT IN THE BLACK SNAKE CREEK CATCHMENT

Extensive historical clearing in the 19th century has created the basis for severe flooding, salinity and water quality issues. The catchment's proximity to the Mt Crosby Water Treatment Plants that supply more than 50% of the capacity of the South East Queensland Water Grid means that investment of public and private funds in the catchment is both prudent and efficient.

In this case the option of treating the symptoms of historical land clearing in the Black Snake Creek Catchment are demonstrably more cost efficient than managing the issues at the region's major water treatment plants.

Any investment of public and private funds should aim to achieve the maximum outcome across a range of values and issues and be of benefit to the community at large. Expenditure in the Black Snake Creek Catchment fulfils the above criteria and represents a significant return on investment to the population of South East Queensland.



DEVELOPING THE PLAN

A participatory planning process has been undertaken to develop this plan which has focused on:

1. Developing a common catchment understanding
2. Developing and testing preliminary catchment management and investment actions with stakeholders
3. Developing a priority action plan to describe actions and implementation pathways to manage the understood issues in the catchment.

THE CATCHMENT IN CONTEXT

BLACK SNAKE CREEK LOCATION

The Black Snake Creek flows through the townships of Marburg, Glamorgan Vale and Fairney View before discharging to the Mid Brisbane River above the Mt Crosby Weir.

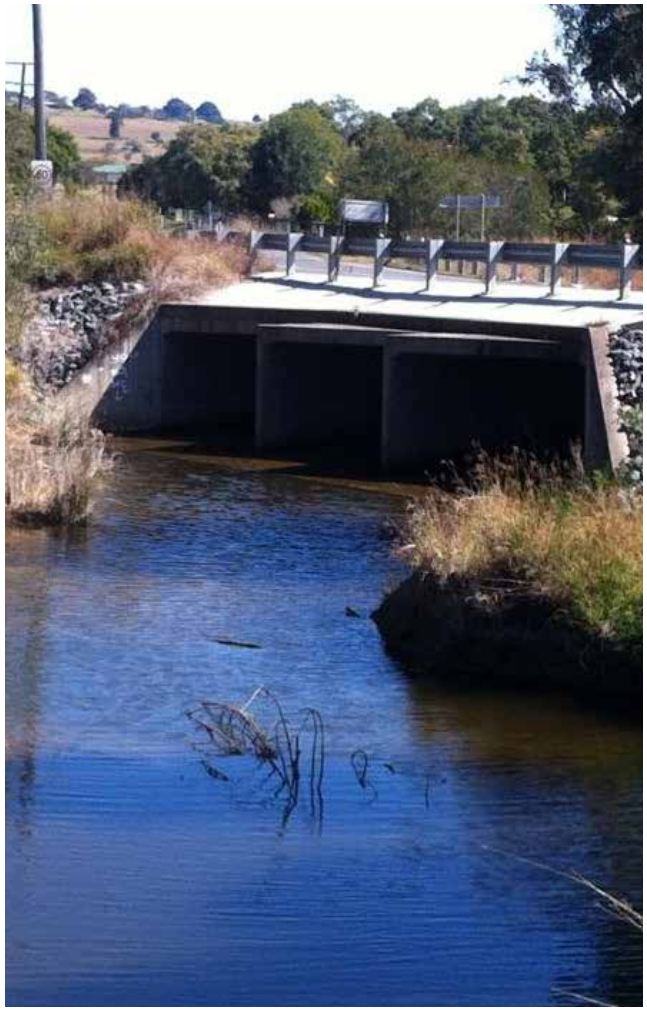
The Black Snake Creek Catchment is one of the closest catchments discharging into the Mount Crosby Weir pool meaning that detention times are short.

The catchment has been identified as a key risk to the operational continuity of the Mount Crosby Water Treatment Plant because of its salinity and pathogen loads.

BLACK SNAKE CREEK CATCHMENT HISTORIC CONDITION

The catchment was historically covered by dense dry, rain and vine forests indigenous to the area (Rosewood Scrub). This vegetation would have slowed run off, protected waterway habitats and managed groundwater levels. In its natural state the Black Snake Creek would have resembled a chain of ponds set within an actively engaged floodplain.

In the higher areas of the catchment groundwater moves vertically through the catchment until it reaches the comparatively impermeable Walloon Coal Measures. At this point of contact the fresh ground waters move laterally to emerge as freshwater seepages. Salinity and salt loading in the catchment is most significantly associated with the Walloon Coal Measures. Seepages of saline groundwater occur on hill slopes where water flows from this geology layer encounter layers of rock with reduced permeability.



Vegetation clearing in the time since European settlement has led to a highly modified landscape and many of the water related issues under examination in this plan.

UPPER CATCHMENT SETTING

Land in the upper catchment is predominantly privately owned and is primarily used for grazing. Other current land uses include rural residential, urban and other agricultural activities. Within the urban designation there is some scope for further residential development. A transitional area on the southern edge of the township has been set aside for equestrian related rural living activities. Within the rural zoning there are areas to the east and the west of the township designated as rural living.

Population growth within the Ipswich City Council area is likely to have a significant impact on the township and the rural landscape. The population of Ipswich is predicted to more than double from its present level to between 380,000 and 435,000 people by 2031. This population growth is likely to place greater demands on the Black Snake Creek Catchment to provide opportunities for rural living, recreation and small scale agricultural activities such as poultry, turf, nurseries, kennels and horse related activities.

PRELIMINARY ACTION PLAN 1 – MANAGING LOCAL FLOOD RISK

ACTIONS INCLUDE:

- Develop Marburg Community Flood Plan
- Investigate existing detention basin optimisation systems
- Replace inadequate culverts and infrastructure
- Remove existing blockages to flood flow on Eastern tributary
- Undertake revegetation of mid slopes areas and along the riparian corridor of the eastern and western tributary to slow flood flows
- Re-alignment of upstream channel and culverts at Rosewood-Marburg Road to reduce the frequency of flooding and address existing erosion
- Planning scheme regulations to avoid inappropriate development within flood constrained areas
- Flood relief channel on Western Tributary

BENEFITS FOR THE ABOVE ACTIONS INCLUDE:

- Reduced risk for community members
- Reduction in the number, severity and impact of small scale local flood events
- Improved amenity and water quality
- Extension of detention basin utility and lifespan
- Reduced sediment loads in waterway
- Only appropriate development within flood prone areas

PRELIMINARY ACTION PLAN 2 – SALINITY MITIGATION

ACTIONS INCLUDE:

- Artificial lowering of shallow groundwater table and re-use of brine
- Restore deep rooted trees
- Undertake geomorphic restoration of creek channel
- Develop landholder guidebook for salinity and water quality management
- Community landscape asset vision
- Community capacity building program
- Encourage landholder planting and preservation of existing vegetation on private lands

BENEFITS FOR THE ABOVE ACTIONS INCLUDE:

- Lowered groundwater
- Lessening of salinity outbreaks and levels
- Improved water quality, visual amenity and creek habitats
- Reducing surface runoff volumes and velocities
- Bed and bank stability
- Improved landholder capacity and a reduced risk from new farm dams intercepting saline ground waters
- Enable community to undertake landscape regeneration activities
- Revegetation/protection of endemic species

PRELIMINARY ACTION PLAN 3 – LANDSCAPE RESTORATION AND WATER QUALITY IMPROVEMENT

ACTIONS INCLUDE:

- Undertake landscape restoration
- Restore/re-create floodplain wetlands
- Implement protective riparian fencing and restoration program
- Develop septic system management education program
- Monitor water quality to strengthen understanding of water quality issues (e.g. source of pollutants)
- Future sewage management infrastructure

BENEFITS FOR THE ABOVE ACTIONS INCLUDE:

- Reduction of water quality risk and flood flow velocities
- Lowered groundwater
- Lessening of salinity outbreaks
- Improved visual amenity
- Reduced risk to human health and regional water supply
- Delay or avoidance of costly sewering of town
- Up-to-date water quality trend information to inform management decisions
- Understood direction for future sewage management in Marburg
- Water quality protection

DELIVERING THE PLAN

The investor – landholder – facilitator partnership will be critical in the delivery of many of the proposed actions within the Upper Black Snake Creek Catchment after wider consultation with the community.

1. Upper Black Snake Creek Improvement Plan – Priority Action Plan

   Identifies key areas in the landscape for works and programs to occur

2. Projects

   Individual programs of work to address key issues. Projects are determined through an iterative process between investors, landholder willingness to participate and facilitation opportunities. Projects delivered according to standard project management framework.

3. Outcomes

   Increased flood resilience, reduced salinity and improved water quality outcomes