

INTRODUCTION

This document provides an overview and guidance on the opportunity to allow wastewater from Masterton's Homebush wastewater treatment plant to be effectively utilised on and beyond the current water discharge area.

BACKGROUND

Masterton District Council (MDC) was granted resource consent in May 2009 to discharge wastewater from its upgraded Homebush WWTP to adjacent land and the Ruamahanga River. The irrigated area receives wastewater under a non-deficit regime, meaning that a considerable portion is lost to drainage. Further, albeit with the exception of low flows, a portion of wastewater can be discharged to the Ruamahanga River.

Community preference is to reduce and potentially eliminate any wastewater discharge to the Ruamahanga River. Ideally all water would be used for beneficial use, and ideally at a rate that minimises drainage and ultimately any loss to surface water.

MDC HOME BUSH WASTEWATER TREATMENT PLANT WORKING PARTY

MDC convene a Working Party group of 13 members who share an interest in the operation and management of the Homebush WWTP and its discharge. The group consists of community members, iwi, elected councillors and council staff. The group provide opinion and feedback on current and proposed operations concerning the Homebush WWTP to council staff.

In early 2017 the Working Party group participated in a series of meetings to contribute towards the establishment of strategic plan for the management of wastewater produced at the Homebush WWTP. The development of this plan was assisted by council staff and Lowe Environmental Impact, specialists in wastewater land treatment and community wastewater discharges.

STRATEGIC PLAN

An initial strawman Strategic Plan was developed, and following engagement with the Working Party has evolved into the following plan. This plan includes a:

- Vision
- Goals
- Objectives

The preparation of the Vision, Goals and Objectives was assisted with an analysis of risks and opportunities, using both a SWAT and PESTE analysis. These analyses are attached in Appendix A and B.

- VISION

The following Vision has been established:

“Wastewater is managed in an environmentally and fiscally sound way for our community.”

- GOALS

The following Goals have been established:

WE (the community and council) will take a staged approach to:

- *being well engaged and educated in managing wastewater*
- *taking an innovative and affordable approach to wastewater solutions*
- *being recognised as a smart manager of wastewater*
- *minimising volume*
- *minimising land and water effects*

- OBJECTIVES

To implement the Vision and Goals, the following objectives have been developed.

- *Objective 1 – Project Plan: Establish an overall project plan with clear timelines*
- *Objective 2 – Engagement: Have the community understanding the importance of, and actively manage, their water and wastewater solutions*
- *Objective 3 – Land Identification - Identification of land suitable for treated wastewater irrigation (and available for purchase, lease or collaboration with owners)*
- *Objective 4 - Flow and Volume Characteristics: Gather comprehensive data and information on flow and volume characteristics of water to be available to farmers/owners*
- *Objective 5 - Develop Market: Develop means of on-selling available water*
- *Objective 6 - Develop Infrastructure: Develop plan and implement infrastructure*
- *Objective 7 – Reduce River Discharge: Over time reduce river discharges and ideally eliminate any direct river (piped) discharge, particularly during lower flows*
- *Objective 8 - High Flow Land Passage: Any (reduced) discharge to river is via land passage*

Further detail on the objectives is provided in Appendix C, including how the objectives will be implemented and how success will be measured.

- IMPLEMENTATION AND FORWARD PLAN

Following confirmation and approval of the Vision, Goals and Objectives by Council, an implementation and forward plan can be developed. This will detail a programme of works for the next 20 years, and provide linkage to Object 1; being the development of a Project Plan.

APPENDICIES

APPENDIX A: SWAT ANALYSIS

- Strengths
 - Council and community are well informed and familiar with issues
 - There is good coordination and information exchange
 - There is good access to contacts
 - There is a general preparedness to develop innovative ideas.
- Weaknesses
 - Fiscal constraints
 - Potential need to build winter storage; and
 - Amount of access to large land areas away from houses
- Opportunities
 - Water deficit/demand in general area
 - Combine infrastructure with regional irrigation scheme
 - High potential cost offset due to value to farmers of the resource (water, in particular)
- Threats
 - Breakdown in coordination within project team
 - Loss of opportunities to use suitable land as clean water systems are developed and land is developed into smaller properties
 - Change in public perception of applying wastewater to land
 - Adverse perception of ratepayers providing infrastructure for private business
 - Change in industry acceptability of wastewater grown produce

APPENDIX B: PESTE ANALYSIS

- Political
 - Changes in local government = restriction of funds
 - Policy to reduce discharges to water
 - Industry perception of wastewater irrigation
 - Treaty of Waitangi = cultural drivers for land application
- Economic
 - Irrigated land returns = viability of land application
 - Cost restrictions of clean water irrigation schemes
 - Allocation of rateable funds restricts development
- Social
 - Greater environmental pressure from interest groups
 - Perception of acceptability, and NIMBYism creates limits
 - Changes are made to water use and management
 - Cultural perceptions and initiatives may increase land application opportunities
- Technological
 - New technology = higher level of treatment = surface water discharge at an affordable rate...???? cheaper than the development of irrigation.
 - Irrigation technology advances, and at a lower cost, provides for a greater uptake of irrigation.
- Environmental
 - New environmental standards = less water to be discharged to the river
 - New environmental standards = more water to be discharged to the river.

APPENDIX C: OBJECTIVE DETAIL



Objective 1 – Project Plan

What will we achieve	Establish an overall project plan with clear timelines
How will we do this	<ul style="list-style-type: none"> • Determine targets; • Determine budget; • Determine responsibilities; and • Establish timeline. <p>Include: Investigation of treatment and irrigation opportunities, management of storage</p>
Success will mean	<ul style="list-style-type: none"> • Timeline developed with appropriate budget established within 2 years



Objective 2 – Engagement

What will we achieve	Have the community understand the importance of, and actively manage, their water and wastewater solutions
How will we do this	<p>Engage with the community to help them:</p> <ul style="list-style-type: none"> • understand the importance of wastewater management • collectively identify and develop management solutions • understand individual accountability and responsibility • understand the importance of managing stormwater ingress • understand the importance of managing water use
Success will mean	<ul style="list-style-type: none"> • within 5 years a survey of the community would show that 75% of the community would know what a wastewater treatment pond is. • within 5 years a survey of the community would show that 75% of the community would know the percentage of wastewater discharged to the river and aware of the impact on the river. • dry weather ww flows are reduced by 15% in 20 years.

Objective 3 – Land Identification

What will we achieve	Identification of land suitable for treated wastewater irrigation (and available for purchase, lease or collaboration with owners).
How will we do this	<ul style="list-style-type: none"> • Inventory of suitable land in given radius (10 km), • Concentrate on large titles (over 100 ha) • Discussions regarding feasibility with prospective water users • Establish MoU <p>And</p> <ul style="list-style-type: none"> • Consider opportunities to make available water to small properties closer to the WWTP
Success will mean	<ul style="list-style-type: none"> • Identification of 5x required land area for irrigation within. • MoUs entered into for 2 x land area. • Properties within 3 km of WWTP know water is available. <p>All within the time identified in the project plan.</p>

Objective 4 - Flow and Volume Characteristics

What will we achieve	Gather comprehensive data and information on flow and volume characteristics of water to be available to farmers/owners
How will we do this	<ul style="list-style-type: none"> • Existing monitoring data collated and used to model flows <ul style="list-style-type: none"> • determine how much and when available • determine storage management requirements • Consider implications of community growth • Consider implications of I and I management • Consider implications of water conservation
Success will mean	<ul style="list-style-type: none"> • Accurate flow model created that can predict water on hand at any time, with such information available at a time set in the project plan.

Objective 5 - Develop Market

What will we achieve	Develop means of on-selling available water
How will we do this	<ul style="list-style-type: none"> • Run an awareness prog. and marketing campaign for investors (farmers/businesses etc) to identify the opportunities in participating in a water reuse prog. • Work with our community to recognise the potential of water use • Establish level of interest of farmers/businesses in investing in the development of the infrastructure and the resources required • Establishing a series of preferential packages for farmers/businesses • Assist with guidance on design and consenting of on-farm/business infrastructure
Success will mean	<ul style="list-style-type: none"> • On going local demand created for irrigation water (more water sought than available) • Water users are not compelled to take water • Water users are prepared to invest in infrastructure/pay for water use

Objective 6 - Develop Infrastructure

What will we achieve	Develop, Plan and Implement Infrastructure
How will we do this	<ul style="list-style-type: none"> • Design pumping infrastructure • Following funding and feedback input, establish pumping infrastructure • Determine if 'additional treatment' is needed • Following funding and feedback input, establish additional treatment if required • Design critical reticulation infrastructure (and optimise direction) • Following funding and feedback input, install critical (to property boundary) reticulation infrastructure • Determine appropriate storage requirements • Following funding and feedback input, install storage • Assist with guidance on design and consenting of on-farm/business infrastructure
Success will mean	<ul style="list-style-type: none"> • Affordable, effective irrigation and/or water use scheme designed and installed to supply water to property boundaries

Objective 7 – Reduce/Eliminate River Discharge

What will we achieve	Over time reduce river discharges and ideally eliminate any direct river (piped) discharge, particularly during lower flows
How will we do this	<ul style="list-style-type: none"> • Prepare daily water balance to determine timing and volume of discharges • Explore and maximise opportunities for non-river discharges • Reduce volumes entering the wastewater system
Success will mean	<p>In 10 years time no discharge below 20 m³/s (1.5x median) flows</p> <p>In 20 years time no discharge below 37 m³/s (3x median) flow</p> <p>In 30 years piped discharges only occur in exceptional circumstances</p>

Objective 8 - High Flow Land Passage

What will we achieve	Any (reduced) discharge to river is via land passage.
How will we do this	<ul style="list-style-type: none"> • Prepare daily water balance to determine timing and volume of discharges • Identify the extent of land required to achieve a high volume land passage i.e. determine what level of treatment and contact time is required • Address cultural protocols
Success will mean	<ul style="list-style-type: none"> • A high volume land passage system is implemented for any river discharge at a time identified in the project plan.