



Challenges of Implementing \$400 million of Regional Water Quality Infrastructure

Mr Mark Liebman², Mr Ross Jennings¹

¹Blacktown City Council, Blacktown, Australia, ²Sustainability Workshop and Blacktown City Council, Blackheath and Blacktown, Australia

Overview

Blacktown is delivering approximately \$400m of regional water quality treatment infrastructure as part of the development of the North West Growth Centre. This presents Council with significant challenges at every stage. The risks associated with delivery, at this scale, of a relatively immature form of infrastructure are considerable. This paper discusses the challenges and the risk management measures being put in place to ensure the roll out is successful.

Key challenges in delivery of regional water quality infrastructure are principally driven by time, cost and quality of outcomes. Capacity to take on ownership and maintenance is equally challenging.

Treatment is generally a gross pollutant trap(s) as pre-treatment followed by multi cell bioretention basins. The majority of bioretention basins are co-located within stormwater detention basins, adjacent to creek lines and frequently with significant aboriginal heritage value. It can take 12 months to obtain a heritage impact permit. Most basins are constructed on saline, dispersive soils which poses its own construction challenges.

The paper will discuss the time challenges particularly relating S94 funding which follows on site work and results in a lag between development and the end of line water quality treatment. We will also discuss community and developer expectations during temporary stages.

We discuss cost related challenges including those borne out of the Section 94 planning process, and design assumptions which have to be refined as cost information is returned.

We also discuss quality challenges via multiple objective design and a relatively poorly skilled construction industry.

Objectives

The objective of this paper is to highlight the challenges of implementing regional infrastructure, specifically bioretention, and share information on how these have been overcome by Blacktown City Council. With the aim of achieving the most streamlined process for the delivery of stormwater quality infrastructure whilst constructing facilities that achieve the desired water quality outcomes, within budget and which are easily maintainable and wherever possible providing dual use as either passive or active open space for the public in an increasingly dense suburban setting.

Method

The paper will discuss in detail the challenges and the risk management measures which are being put in place. It is based on observation not on empirical evidence. We will provide evidence of a refined design criteria and refined life cycle design, with examples, and present a discussion on hydraulic loading rate as a design criterium and the challenges Council faces in this area. We demonstrate how a comprehensive research project will help reduce risk and cost.

We will discuss how different parts of the organisation are reacting to the challenge of delivery including Council's newly appointed City Architect, Council's Construction and Maintenance teams.

Results

The paper will identify the challenges faced when attempting to deliver such a substantial roll out of regional water quality infrastructure.

Risk management techniques that can be implemented will also be provided.

Conclusions

The paper will provide readers with a broad overview of the substantial challenges being faced by a Council tasked with delivery of regional water quality infrastructure. We will share lessons learnt and provide readers with an appreciation for the standard that Council is striving for. The paper will also provide techniques for reducing and managing the risk.