

Water for Our Community Project

COUNCIL NAME

Canada Bay City
Council

WEB ADDRESS

www.canadabay.nsw.gov.au

SIZE

20 square kilometres

POPULATION

84,906

Overview

The Water for Our Community project is a stormwater harvesting scheme providing water for irrigation of playing fields and golf courses in the City of Canada Bay.

Stormwater harvested from St Luke's Canal in Concord, is treated on-site at Cintra Park and distributed via the 4km reticulation pipe network to 15 sports fields and two public golf courses. We have storage capacity for 4.9million litres of water. Each year the stormwater harvesting scheme will produce around 180ML of recycled water, meeting 95% of the irrigation needs of the end-user sites and reducing the City of Canada Bay's entire reliance on potable water by 75%.



Background

The project was initially identified in 2006 when Council developed its first Water Savings Action Plan – it was during a drought and it was highly evident that an alternative option was needed for irrigating Council's open spaces and reduce reliance on potable water. The project was developed further and attracted funding from the NSW Office of Environment and Heritage (OEH) in 2007. Council advanced the project by developing a Water Security Masterplan which supported our application for funding from the Australian Government in 2012 and from there, the project was formally established.

The key objectives for the project were:

- Provide water security in the City of Canada Bay - Identified as part of the Water Security Masterplan (2011)

- Reduce Council's reliance on potable water - Identified as an action in the Water Savings Action Plan
- Produce approximately 180 million litres of recycled water per year for irrigation. The irrigation demand for 15 playing fields and two golf courses in the Concord area was determined as part of the Water Security Masterplan
- Improve the condition of sports fields and public golf courses – the community identified this in the Community Strategic Plan: FuturesPlan20.

Implementation

The project was conceptualised in 2006, yet project funding was fully secured in 2012. To allow technologies unique to stormwater harvesting to be explored for their efficacy, we trialled two technologies concurrently as follows:

- Pilot 1: Ceramic membranes - to assess their capabilities with variable stormwater flows and loads.
- Pilot 2: nextSand - trialled to determine the efficacy of the media and the possibility of achieving filtration with no coagulation requirement.

The full-scale treatment plant incorporates the following treatment train:

Screening <3mm - Filtration (Prism Si4 media) - Filtration (nextSand media) - UV - Chlorine (for residual)

Prism Si4TM

- Very low operational pressure loss during filtration minimising energy consumption,
- Properties such as the microscopically smooth surface and aseptic characteristics of Prism Si4(TM) Technology prevent bacteria from proliferating within filters, which eliminates the need of chemical biocidal products
- Fully recycled product

nextSand:

- very unique properties :- high Opal content (very hard) and is higher in purity
- High surface area equals higher filtration efficiency and effectiveness
- provides more than twice the capacity of multimedia filtration

Project partners were City of Canada Bay, NSW Office of Environment and Heritage, Federal Department of the Environment, Permeate Partners (lead consultant), Waterform Technologies (Design, Construct, commission treatment plant), and Sydney Water (asset owner of harvest location).

The project budget was \$5.2 million

- Preliminaries/Procurement: November 2012 - December 2014 (\$428k)
- Construction of 4.9million litres of Storage Tanks: March - June 2013 (\$799k)
- Construction of treatment building: June - July 2013 (\$180k)
- Design and tender of stormwater off-take structure, pumps and reticulation pipework: July 2013 - February 2014
- Construction of off-take structure and reticulation pipeline: February - July 2014 (\$2.56million)
- Pilot Trials: May - October 2014 (\$60k)
- Electrical Upgrade: August 2014 - March 2015 (\$394k)
- Treatment plant Tender: September - December 2014

- Design, Construction and commissioning of treatment plant: January - October 2015

Outcomes

The City of Canada Bay is providing a community wide, non-potable water to two golf courses and 15 playing fields. Typically, stormwater reuse projects only provide water to one or two separate areas. Providing a non-potable grid maximises the benefits whilst providing economies of scale in treatment and storage. City of Canada Bay has provided leadership on delivering a stormwater harvesting scheme of this size.

Key Learnings

A key lesson learnt was that it is important to know the composition and quality of your source water. Council had limited information about the variability of the stormwater composition, but obtained this information throughout the project by piloting two treatment technologies, which greatly assisted the design of the full scale treatment plant.

Next steps are to fine tune the operation of the scheme, obtain licensing for the scheme under the *Water Industry Competition Act 2006* (WICA) and share the lessons learnt and knowledge gained with peers and networks, particularly in local government as we may one of the first councils to obtain a licence to operate under the recent changes to the WICA.

Contact

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This project was the 2015 winner of the Water Conservation Award at the LGNSW Excellence in the Environment Awards.