

RENEWING SYDNEY WATERS STORMWATER ASSETS THROUGH CHANNEL NATURALISATION TO IMPROVE WATERWAY HEALTH AND LIVEABILITY

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Sydney Water owns and maintains a stormwater system that services over 500,000 customers across about 20% of metropolitan Sydney. The asset base includes mainly trunk drains consisting of open channels, culverts and large pipes, many constructed along the alignment of creeks and rivers between the 1890s and the 1940s.

Sydney Water's stormwater asset inspection and condition assessment program identified several aging stormwater assets in need of renewal. These are primarily concrete trapezoidal channels in intertidal zones. In 2016, Sydney Water engaged ENSure, a joint venture between engineering firms Jacobs and GHD, to identify options for renewal or replacement of five tidally influenced concrete lined channels. ENSure subsequently engaged Thompson Berrill Landscape Design (TBLD) to provide design expertise for waterway rehabilitation and naturalisation.

In the past, the standard approach for renewing these types of channels was to replace them like for like with concrete. In 2015, Sydney Water completed its first naturalisation stormwater renewal by replacing 1.1 kilometres of steeply sloped concrete banks of the Cooks River with gently sloped banks stabilised with sandstone and native plants. This project received overwhelming support from stakeholders and the community due to the vast improvements to waterway aesthetics, ecology and amenity. The success of this project encouraged Sydney Water to consider green infrastructure approaches to stormwater renewal whenever feasible. The current approach is to explore opportunities to lead and influence urban waterway management to maximise liveability and waterway health.

The current sites being investigated for naturalisation represent just over 2.7 kilometres of large open channel with an estimated cost to renew of approximately \$60 Million. To build an effective argument for renewal, a spectrum of options was considered including leaving the assets as they are, like for like replacement, a sandstone block layback of the banks with new concrete base, and finally to an integrated naturalisation of channel banks and base.

The preferred option was determined using a Multi-Criteria Analysis. The assessment criteria were based on the objectives of the project, outcomes of community and stakeholder consultation, environmental outcomes, and ongoing maintenance requirements. The presentation will explore the opportunities, constraints, option

appraisal process used for the package of naturalisations. One location will be used as a case study to demonstrate the journey to enhance Sydney's waterways and contribute to a more liveable and resilient city.