

HELIDON WWTP

Design and Construct Treatment Wetlands



Helidon WWTP- Constructed Wetland

Queensland Urban Utility (QUU). QUU one of the largest water distributor-retailers in Australia, supplying drinking water, recycled water and sewerage services to a population of more than 1.4 million in South East Queensland. They are responsible for treating around 128ML/day of sewage with 27 treatment plants. Their shareholders include the Brisbane, Ipswich, Lockyer Valley, Scenic Rim, and Somerset councils.

PROJECT SUMMARY

QUU was required to upgrade the Helidon Sewage Treatment Plant (STP), located in the Lockyer Valley, Queensland, to meet compliance requirements and forecast flow increases from 60kL/day, to an estimated 220kL/day in 2031. The plant consisted of a primary and secondary facultative sewage lagoon with chlorine dosing prior to discharge into an adjacent privately owned farm dam. The discharge licence for the site set limits for Biological Oxygen Demand (BOD) and Suspended Solids (SS).

2000m²

constructed wetland was added to the existing two stage lagoon system.

3 ha

of tertiary treatment wetlands developed.

30

local native rainforest tree species used in the project.



Initial site preparation and wetland construction



Early construction stage



Mature wetland growth



Results: Influent vs. Effluent

BACKGROUND

QUU recognised the potential for lower cost alternative to achieve process compliance for future flows and commissioned WCG in 2011 to assess the feasibility and performance outcomes from the integration of constructed wetlands. Subsequent to the feasibility study, QUU awarded a team comprising of Trility and The Water and Carbon Group to design and implement the constructed wetland solution.

SOLUTION

A 2000m² constructed wetland was added to the existing two stage lagoon system, designed to achieve licence compliance for both current and forecast future flows. WCG developed the detailed design and constructed the system, including management of all associated sub-contractors, and undertook two years of establishment and maintenance, during which the system performed admirably.



Helidon STP Concept Plan

OUTCOMES

The system exceeded its projected water treatment performance measures throughout the early months of operation producing water quality with BOD<10mg/L, SS<10mg/L and TN<5mg/L. The operational simplicity of the solution and the lower capital expenditure has provided QUU with a reliable and cost-effective solution.

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