CASE STUDY

the WATER & CARBON group

ARATULA STP TREATMENT WETLANDS DESIGN AND CONSTRUCT

LONG TERM LICENCE COMPLIANCE, LOW ENERGY & 40% CAPITAL COST SAVING

Aratula STP Wetland

CLIENT

Queensland Urban Utilities (QUU) are 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

The Water and Carbon Group was awarded the design and construct contract to upgrade the Aratula Sewage Treatment Plant (STP) to meet forecast flow growth from 45kL/day, to 200kL/day in 2026. The existing system comprised of a series of two facultative lagoons with chlorine disinfection prior to discharge into an adjacent creek. The treatment licence for the site set limits for Biological Oxygen Demand (BOD) and Suspended Solids (SS).

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Aratula STP during construction – 2013

Aratula STP wetland cell 1 – 2013

Aratula wetland Cell 1 showing dense vegetation

SOLUTION

WCG designed and constructed the STP, consisting of a high-density wetland in 2013 and provided 2 years of operational support under a performance guarantee. The system was designed to harness gravitational flows resulting in near zero electricity usage. The only power requirements are for a small chlorine dosing unit and telemetry. WCG designed and constructed the STP in close collaboration with QUU utilising Trility as a key partner.

While many treatment wetlands around Australia are implemented specifically to target nutrient removal, the Aratula treatment wetlands were designed and constructed to meet licence compliance for biochemical oxygen demand (BOD) and suspended solids (not nutrients).

OUTCOMES

The WCG solution has enabled the Aratula STP to comply with licence requirements both now and as flows increase over the The wetlands were successfully commissioned in 2013 and the initial months of operation exceeded effluent quality targets. Although not required for licence compliance, the wetlands have also significantly reduced nutrient concentrations. Within eight months operation, the effluent from the Aratula lagoon/wetland system was achieving TN values between 2-4mg/L.

“The WCG system cost approximately 40% less than a traditional system. The projected ongoing operating costs of the STP using this technology are also significantly reduced over the life of the plant. Commissioned in January 2013, the plant is already performing beyond expectations.” QUU CEO, Submission for State Government Sustainability Award.