

CASE STUDY



PROJECT	GREAT KEPPEL ISLAND STP UPGRADE
PRODUCT	Membrane Bioreactor (MBR)
INDUSTRY	Tourism and Leisure
LOCATION	Yeppoon, QLD

BACKGROUND

A tropical island resort on Great Keppel Island, within the Great Barrier Reef, required an upgrade to its ageing sewage treatment infrastructure. The existing system presented a risk to achieving sensitive environmental discharge targets. The location is a Category C cyclone rating island, meaning that the treatment plant needed to be designed for this challenging environment.

Non-compliance could affect public health, damage the surrounding environment and negatively impact tourism, making a reliable, fit-for-purpose wastewater treatment solution essential.

SOLUTION

MAK Water developed a custom, cyclone-rated sewage treatment plant designed for the island's harsh operating environment. The design considered the site's proximity to salt water and the effects of corrosion, ultraviolet exposure, temperature, soil movement, humidity and rainfall.

A Membrane Bioreactor (MBR) with nutrient removal and tertiary treatment was combined with ultraviolet and sodium hypochlorite dosing for disinfection, providing a robust treatment process for high-quality recycled water production.

MAK WATER KEY SOLUTIONS

- Custom cyclone-rated sewage treatment plant designed for a harsh tropical island environment
- Membrane Bioreactor (MBR) with nutrient removal and tertiary wastewater treatment
- Ultraviolet and sodium hypochlorite dosing for disinfection
- Corrosion-resistant SS316 materials for wetted and exposed equipment
- Standby equipment for built-in redundancy and remote access suitable for a remote location
- Operator training to support reliable sewage treatment plant operation



STP enroute to island

RESULTS AND BENEFITS

- **Fit for purpose.** A 100 m³/day Membrane Bioreactor produces Class A+ treated effluent suitable for open-space irrigation.
- **Sustainability.** Effluent reuse reduces potable water demand, including water sourced from desalination.
- **Environmental compliance.** High-quality wastewater treatment supports sensitive environmental discharge targets and reduces risks to public health, the Great Barrier Reef environment and tourism.
- **Reliability.** Built-in redundancy, remote access and materials selected for the harsh operating environment support dependable plant performance.
- **Operational capability.** Operator training supports reliable day-to-day operation of the sewage treatment plant.



STP being unloaded