

Picnic Bay STP



The State-Of-The-Art in Wastewater Treatment, in a Tropical Paradise!

Located in the Great Barrier Reef off the coast of central Queensland, Magnetic Island is the island playground of Townsville, featuring prominently in the profile of the city.

Plant Description:

- First commercial submerged membrane plant in Australia.
- Designed to treat effluent from an initial population of 2,000 persons, upgradable to 8,000 persons.
- An environmentally sensitive area located in the world heritage protected Great Barrier Reef, the longest coral reef in the world.
- 540m³/d flow to full treatment.
- Very low noise production.
- Very low odour production
- Very small plant footprint

Current Status:	Under construction, commissioning/testing expected Jan. 2002
Client:	CitiWater (Main contract Aquatec-Maxcon P/L)
Brief Description:	Submerged membrane bio-reactor plant at world heritage area

MBR Atıksu Arıtma Sistemleri Ltd.

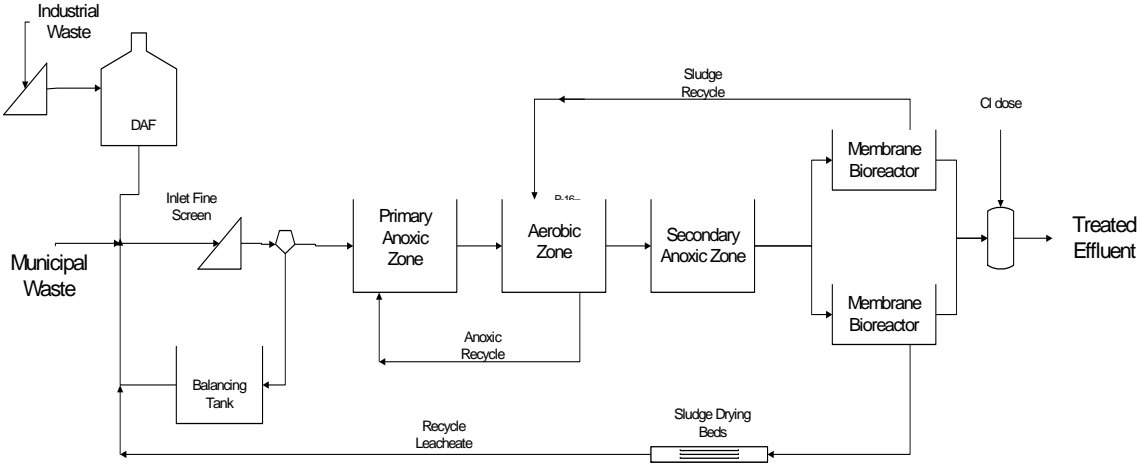
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Picnic Bay STP



Outstanding Effluent Quality

BOD ₅	< 5 mg/L
Suspended Solids	<5 mg/L
NH ₃ -N	< 1 mg/L
Total-N	<3 mg/L
Total-P	<0.1 mg/L
Turbidity	<0.2 NTU
F.Coliforms	<5 / 100mL

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Process Description:

Designed to meet possibly the most stringent consent ever placed on a municipal wastewater plant of this size, the process is designed around a modified 4-stage denitrification process incorporating Kubota submerged membranes.

Preliminary treatment is carried out by 3mm fine screens and grit removal, while the industrial stream is also passed through a DAF for grease reduction. Flow is balanced such that a maximum of 3ADWF is allowed to pass to the membrane plant.

The treatment tank comprises four separate compartments: Primary Anoxic, Aerobic, Secondary Anoxic, and Membrane Basin.

Recycled sludge is sent to the Aerobic Zone, that is subject to D.O. control. In this way the constant air supply to the membrane units is able to be incorporated into the conventional design.

Designed to operate at up to 18,000mg/L MLSS, the process is designed at an elevated sludge age (30 days not including membrane tank) so as to produce a stabilised, largely mineralised and easily treated waste sludge.

Waste sludge is dried in drying beds and collected leachate sent back to the head of the plant.

Alum dosing is carried out prior to the membrane basins for the purpose of phosphorous reduction.

The permeate from the membranes is dosed with a small amount of hypochlorite to achieve further reduction in faecal coliforms.

The very high quality, fully disinfected effluent will be suitable for a large number of re-use options.

Design Data

Flow to full treatment	540 m ³ /d
BOD load	135 kg/d
Nitrogen load	24.3 kg/d

Plant Data

Aeration/Bioreactor volumes	115 / 202m ³
1 st Anoxic/2 nd Anoxic volumes	41 / 75m ³
No of membrane units	10 x J200

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