

**MOUNT BARKER WASTEWATER TREATMENT PLANT
MT BARKER, SOUTH AUSTRALIA, AUSTRALIA**

Mass Gravity Retaining Walls

Problem

GHD Consulting Engineers were engaged to design and manage construction of upgrades to the Mount Barker Wastewater Treatment Plant (WWTP) for the District Council of Mount Barker, which is located about 35km east of Adelaide. The WWTP receives effluent in gardens and agriculture. A major aspect of this upgrade was to provide the redesign of an existing aeration lagoon.

A suitable baffle system, which challenging due to the size of the lagoon (200mx130mx3.5m Deep), was achieved through the design and construction of four free standing Gabion Walls, each approximately 90m long by 3.5m high.

Solution

The large wind and wave loading resulting from the long length of baffles and the distance between them ruled out traditional baffle methods such as fabric curtains or fence construction. It was also necessary to maximize the wastewater volume in the lagoon, therefore construction of bulky earth embankments was not a viable option. The ideal solution would need to accommodate differential settlements due to poor foundations conditions, would need to be long lasting, quick to install, withstand wave and wind loads, be as vertical as possible and be cost effective. The walls were initially designed to include an impermeable clay membrane housed between gabion wall cages on either side. The motivation for this was to ensure the wastewater in the lagoon would not short circuit through the gabion walls, which are permeable. However, upon further consideration and in order to optimise costs, this was considered unnecessary since there would be minimal flow through the gabions as compared to the flow in the lagoon around the gabion walls.

Client: DISTRICT COUNCIL OF MOUNT BARKER (SA)
Designer / Consultant: GHD CONSULTING ENGINEERS

Contractor: GUIDERA O'CONNOR

Products used (Qty.)

- Reno Mattress 9999
- Gabion 9999

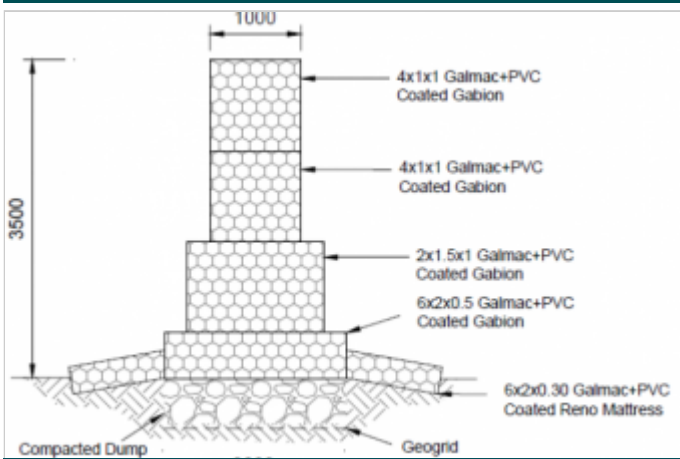
Date of construction: 01/2007 - 03/2007



During construction



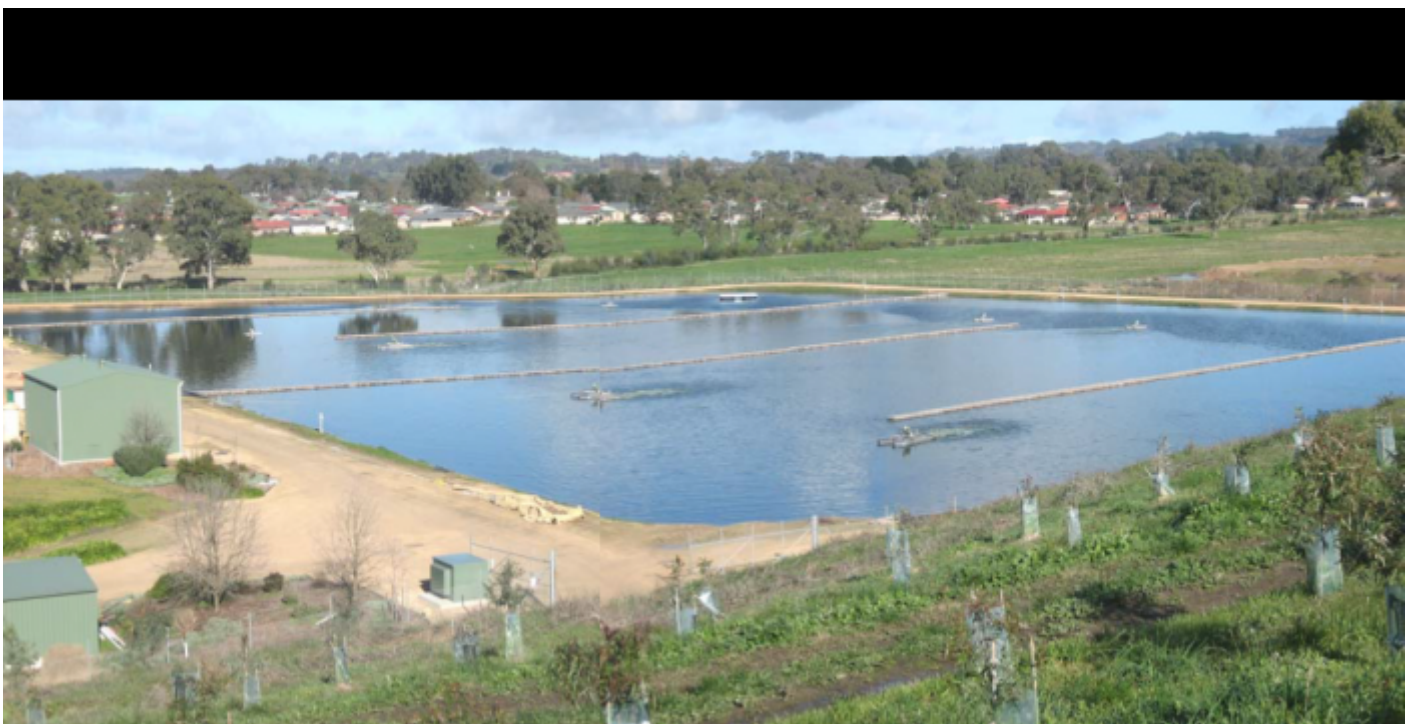
During construction



Project Typical Section



4 months after completion



4 months after completion