

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

ENVIRONMENTAL/GEOTECHNICAL ENGINEERING/GABIONS-FREE STANDING
Product: Maccaferri Galmac+PVC Coated Gabions and Reno Mattresses

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 from septic tanks after which the treated effluent is reused 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 was 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 loadings 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 maximise 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 foundation 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 gabions, 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. It is also anticipated that the gabion walls will become less permeable over time as sludge settles between the voids. The Client was initially concerned that the gabions would be subject to excessive corrosion and not provide the required long term solution. This problem was resolved by specifying Maccaferri Galmac (95% Zinc 5% Aluminium Mischmetal alloy) + PVC Coated Gabions and Reno Mattresses. The Galmac coating is proven to provide up to 3 times the protection offered by a Zinc coating of the same mass. Comprehensive documentation and design assistance was provided by Maccaferri in this regard.

Client name:

DISTRICT COUNCIL OF MOUNT BARKER (SA)

Main contractor name:

Sub-contractor:

GUIDERA O'CONNOR

EARTHTEC

Consultant:

GHD CONSULTING ENGINEERS (Adelaide Office)

Product used:

GALMAC+PVC COATED GABIONS & MATTRESSES

Construction date:

MARCH 2007



During construction

Date: March 2007



During construction

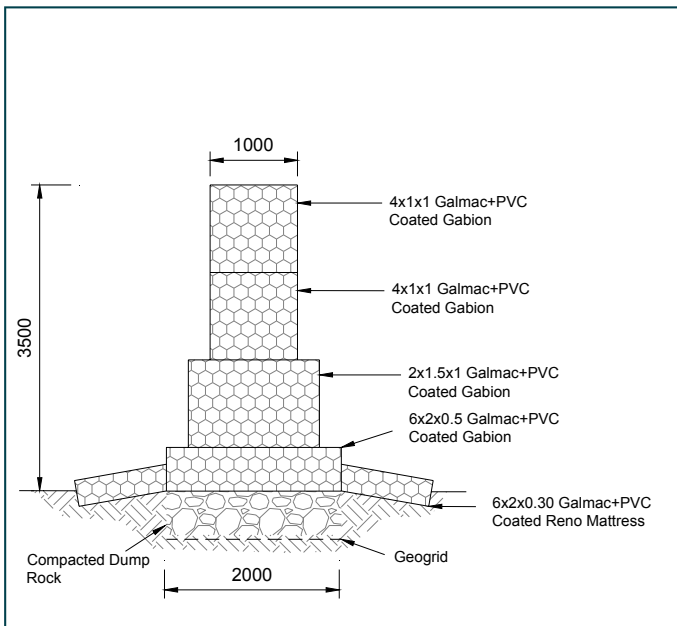
Date: March 2007

MACCAFERRI



4 Months After Completion

Date: July 2007



Project Typical Section



4 Months After Completion

Date: July 2007

Maccaferri Pty Ltd

22 Powers Road, Seven Hills, NSW, 2147 - Australia
 PO Box 575, Seven Hills, NSW, 1730
 Tel. (+2) 8825 6300 - Fax (+2) 8825 6399
 E-mail: sales@maccaferri.com.au - Web site: www.maccaferri.com.au

The information presented herein is, to the best of our knowledge and belief, correct and is subject to periodic review and revision. The validity of the information relative to the subsoil, hydraulic and other engineering conditions must be ascertained by a suitably qualified person. No warranty is either expressed or implied. Unauthorised reproduction or distribution is prohibited. Copyright is vested in Maccaferri or Maccaferri's Principal where applicable.