



# MARDI DAM

MAIN CONSTRUCTION COMPANY : Baulderstone  
 PROJECT END VALUE : \$41 Million  
 COMPLETION : October 2010

## ENGINEERING SUSTAINABLE WATER SOLUTIONS

Baulderstone's upgrade works at Mardi Dam, on the Central Coast in NSW, will increase water transfer capacity by 60 per cent, bringing it to 160 million megalitres a day. Baulderstone has created a more reliable water supply, which will benefit local communities in this rapidly developing region for decades to come.

Mardi is an off river storage that is vital to communities along the Central Coast, from Wyong Shire to Gosford. Shutting down the dam during construction was hardly an option.

Upgrading the water supply headworks at Wyong posed an interesting challenge even for construction giant Baulderstone with its years of experience. Baulderstone's project team allowed the water level to fall naturally to 84 per cent of capacity, making it possible for them to undertake safe dry excavation in rock 29m deep, immediately adjacent to the dam storage. Work could then

begin on the new and larger water intake tower (which rises 22m above ground).

As work on the new tower advanced, there was a complex eight step sequence integrating the new with the old - decommissioning the existing tower and commissioning the new structure. The water level of the dam was drawn down to as low as 25% of capacity as Baulderstone's work progressed. Once the project team completed the tower the excavation was joined to the dam by cutting a channel through the bank into the dam storage. During this period Wyong Shire was able to draw water when needed from both the Gosford and Hunter region supplies. As soon as this took place, pumping into the dam resumed from local rivers.

The project team kept to its original tight timetable of 60 weeks despite a delay of eight weeks due to heavy rain. Wyong Shire Council also approved some additional works as the project advanced.

Baulderstone's engineering achievements on this project are impressive. In addition to the intake tower, the project team constructed two large pump stations. They also installed over 500m of large diameter (over 1000mm) steel pipes, a 155m long microtunnel (1800mm diameter), another 60m microtunnel, all using mild steel cement lined pipe and fittings ranging from 600NB-1800NB. They installed 30 valves including a counterweight butterfly valve, flow control and dispersion valves, six pumps with variable speed drives fabricated in Germany, CFA piling works, a super T Bridge, new concrete substructure to adjacent buildings and large valve pits, revetment mattress lining of Mardi Creek, culverts under nearby Old Maitland Road, an HV Ring Main and eight transformers.

Despite the level of activity, not one complaint was received from local residents due to good on-site management and proactive stakeholder relations. Baulderstone and Wyong Shire Council conducted regular open evenings and tours to keep residents informed. While local motorists were faced with traffic flow controls implemented around the site they responded with patience and tolerance.

Practical and intelligent recycling was also a feature of the Mardi Dam upgrade. Baulderstone reused over 30,000 cubic metres of material

excavated from the site, to strengthen the dam wall. The project team separated and spread topsoil material over the spoil material on the wall. They mulched and spread lost vegetation around the site. These measures saved \$2.3 million on a contract of \$42 million.

"Creating what matters" – that's the Baulderstone promise. With an annual turnover of \$2 billion, 1400 employees, and a proud record of zero Class 1 injuries over the past five years, Baulderstone is an industry leader in providing tailored project management strategies. Mardi Dam is one of the latest projects on Baulderstone's track record of catering to our nation's infrastructure needs.

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## SUPPLYING SPECIALIST SIGNAGE

We are a Sign Company offering specialised service to Construction Companies.

We have worked with Boulderstone to develop a unified and uniform sign system that ensures a professional approach to ensure a uniform presentation of the Company's sites to the world.

We have created a signage system that makes it easy for Construction Site Staff to organise their site signage. We take care of the all the details of Corporate Branding requirements.

The system ensures that the site is reviewed from the outside in, and covers all aspects from external Traffic Management to individual danger signs within the construction zone.

We view our service as consultative, and ensure that all signage is correctly branded with the Company's corporate branding. Because we recognise the importance of safety culture within professional construction companies, we reinforce the Company's Safety message on every sign.

We also suggest that the perimeter fencing carries at least some corporate branding for public awareness of the Company performing the job.

We have sourced a printable banner mesh with specifications very similar to that of the traditional shade cloth. Thus we supply professional imaging for the entire perimeter of the site that is suitable for use with temporary fencing. This can range from Corporate Branding, to images of the final result, or public interest messages. This has the result of smartening up the public image of the work site, and presenting a professional image to the world.

We visit a site and perform a walk around with the Superintendent. Our "system" is in a living form. This means that on a regular basis, we update the personalised copy of the system held by each Superintendent.

Our service to the Sites means that we visit on a regular basis, and if there is a request at any stage, we go.

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## AN AUSTRALIAN PIONEER

Water brings life. It also destroys and erodes. And that is why Foreshore Protection was called in to secure the channels surrounding the upgrade works at Mardi dam. Its technology is well suited to "swampy" terrain and reduces the environmental impact of construction.

The company has been an industry leader in soil stabilization and erosion control technology since 1973. It has exported its expertise to projects in the USA, the Middle East, Europe, Scandinavia, Asia, the Pacific Islands, Brunei, and New Zealand.

At Mardi the company laid 3500 square metres of its grout-filled 200mm Filter Point Mattress to protect the area between the spillway and Mardi creek.

The fabric used in this double-walled mattress is immune to attack by acids, alkalis, organic solvents and biological organisms. The fibre technology is a multifilament polyester wrap designed for optimum strength, filtering characteristics, and stability, including high ultraviolet resistance. With a lifespan of up to a hundred years, and an average installation rate of 700 square metres per day, this is a cost-effective winner.

During installation the mattress is tailored to fit the site surface and is then injected with grout to create a seal against the penetration of sediment or water. It is anchored by trenches backfilled with soil, or attached with bolts or bars to adjoining structures.

Foreshore's non-toxic colouring product Mattkote can be applied to further prolong U.V resistance and blend with the environment.

Foreshore's technology is highly adaptable. It can be used to line canals, road embankments, bridge abutments, culverts, sea walls, ponds, for pile and pipe protection, and can be installed underwater. A noteworthy feature of the filter point design is that it enables the release of hydrostatic pressure. Other designs allow for vegetation growth, traffic, or other factors specific to each site.

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