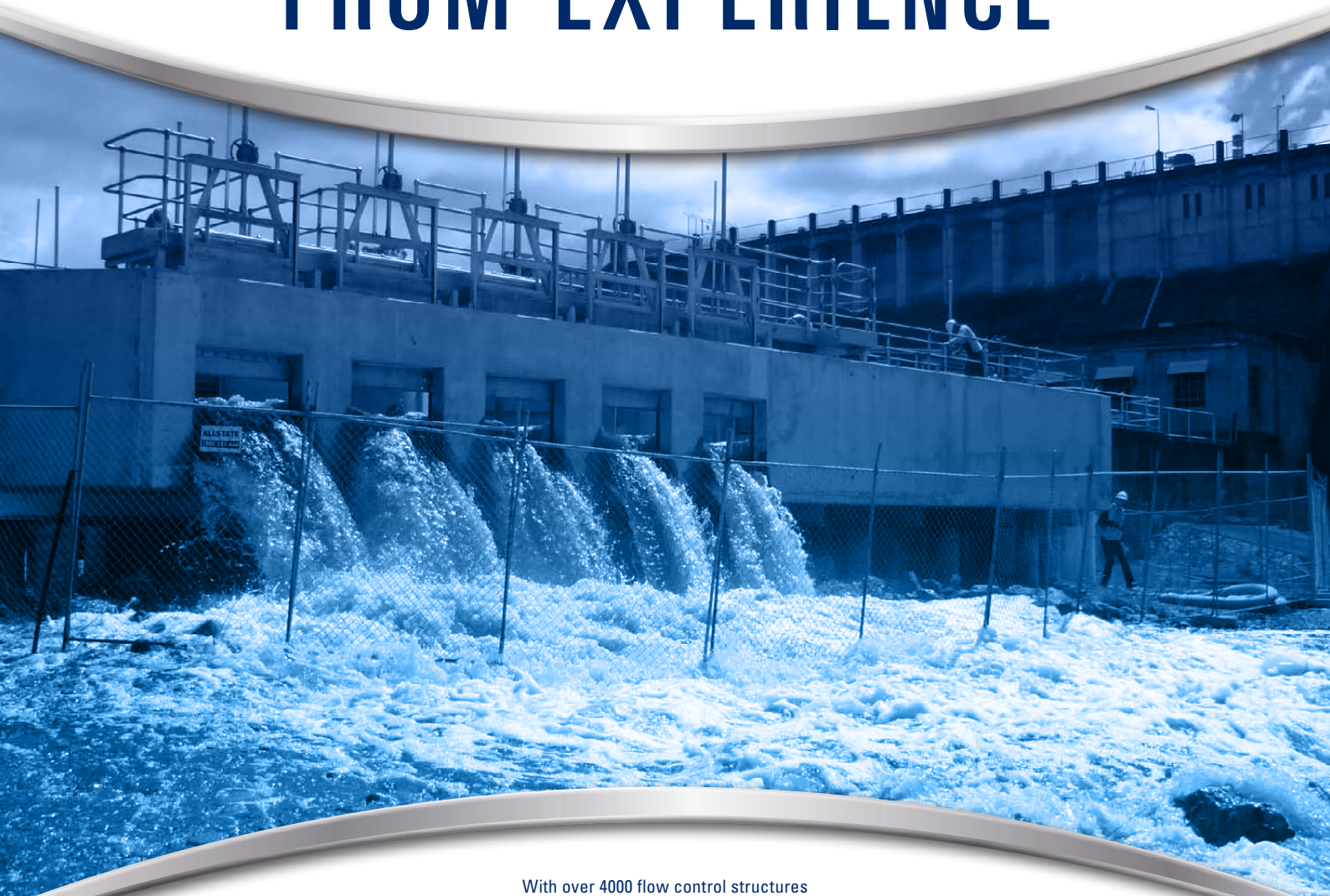
awma
Water Control Solutions
Certified System Quality ISO 9001 SAI GLOBAL
JUNE 2011
NEWS
EDITION 20

DESIGN - MANUFACTURE - INSTALL

KNOWLEDGE FLOWS FROM EXPERIENCE



With over 4000 flow control structures
installed across all sectors of the Australian water industry,
AWMA has battled both drought and flood alongside many Australians over the past decade.
Our company has gained significant knowledge through these experiences.
Experience that will benefit your next project.

DESIGN - MANUFACTURE - INSTALL

PH 1800 664 852 www.awma.au.com

GENERALLY SPEAKING

EXPERIENCE ON TAP

How often do you wish you had the luxury of hindsight to improve an outcome?

Every day we see, in our lives and in the news, situations where experience would have significantly improved an outcome. It could be as tragic as a young drivers lack of experience caused a loss of life or the corporate world learning the hard way through the recent global financial crisis.

It is always easier to know how it should have been done. Infrastructure projects are no exception. Experience has been proven to make for better decisions, resulting in improved long term financial and operational outcomes.

AWMA invite you to draw on our experiences to make decisions about your next project and control the outcome.

During the last eleven years AWMA has supplied over $70M worth of infrastructure. Whilst delivering these projects AWMA has gained a great depth of experience. Experience that you and your organisation will benefit from next time you partner AWMA, for water control infrastructure.

Brett Kelly
Managing Director

SCREEN INLET PENSTOCKS

AWMA recently partnered OVIVO to provide Melbourne Water with infrastructure for their Grit & Screenings Upgrade at the Eastern Treatment Plant.

Water Resources Alliance is responsible for the project designed to screen 100% of incoming sewage through 5mm aperture band screens.

AWMA ULF penstocks provide a contingency measure to allow sewage to effectively bypass the band screens in case of failure or capacity limitations. Measuring 2m x 5.8m with a 5m spindle, the control gates are fully automated to facilitate flow to any one of four 5.1kL/s band screens. The stainless steel penstocks are sealed with odour covers that were specifically designed to minimise OH&S risks as each removable section weighs no more than 20kg.

Each band screen and inlet penstock is enclosed between an inlet and outlet bulkhead slot, for isolation during maintenance procedures.

The AWMA bulkheads are interchangeable allowing all four to be used across eleven different control points. The inlet chamber bulkheads are 2.1m x 4.3m in size, whilst the outlet chamber bulkheads are 3.9m x 4.6m. The bulkheads also feature a knife gate equalisation valve to reduce water pressure enabling effortless removal via a manually operated gantry crane.

Also supplied were AWMA's new TLF-P penstocks which feature a plastic (UHMWPE) frame and stainless door sheet. Ideally suited for this small scale application, the TLF-P provides drainage for 150mm drainage pipes to be manually operated via a 5m spindle with a removable hand piece.

WETLAND WORKS FOR THE TERRITORY

AWMA's participation in Early Contractor Involvement (ECI) of site specific flow control structures provides clients with specialised expertise to develop viable solutions.

Custom designed water control gates including a segmented stopboard and TLF penstock have been installed at the Bellamack Headworks Elrundie Avenue Wetland for the Northern Territory Department of Planning and Infrastructure. AWMA supplied contractor Brierty Limited with the 3m high stopboard structure to be operated with a set of manual lifting ladders. The TLF was a topsealing penstock supplied with non-rising spindle, removable manual tee-handle and 1m extension bar.

Due to the remote location of the site, Brierty utilised AWMA's literature and support services to successfully install and commission the products.

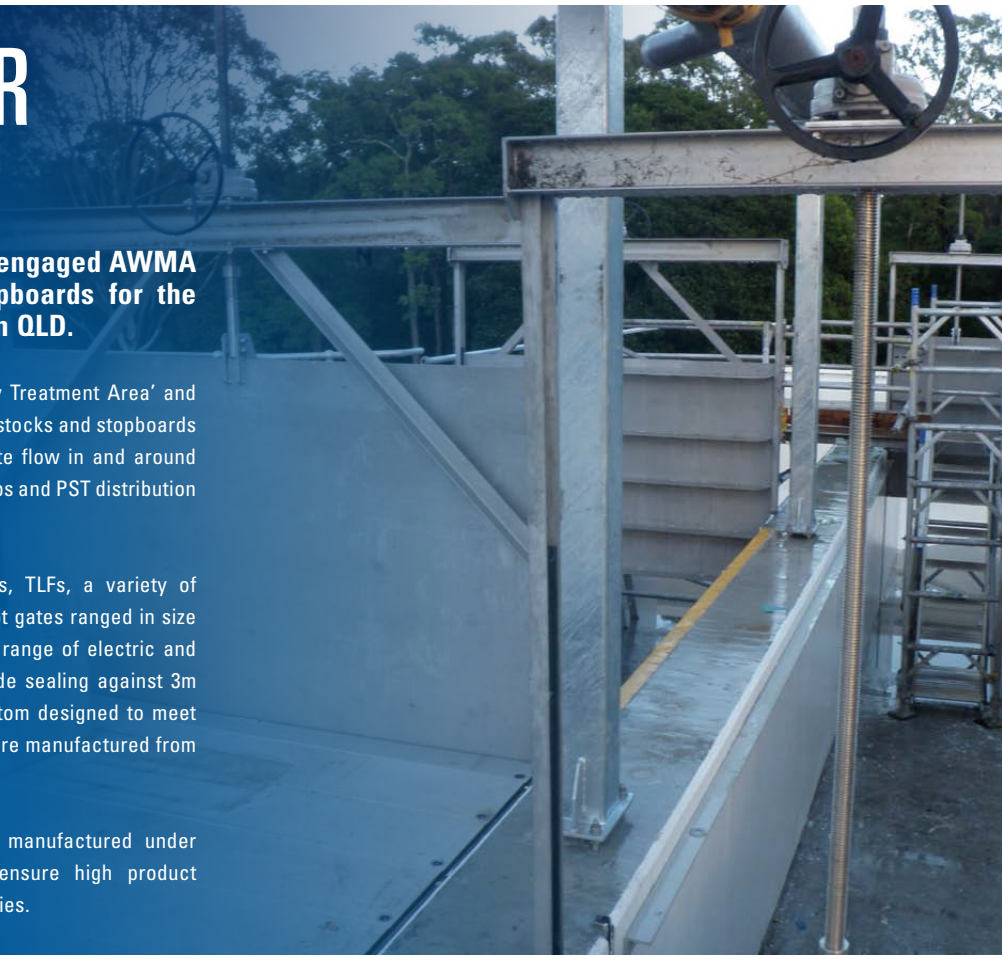
8M GATE FOR QLD WWTP

Contractor United Group Limited (UGL) engaged AWMA to supply over 20 penstocks and stopboards for the Elanora Waste Water Treatment Plant in QLD.

UGL Infrastructure is constructing a new 'Preliminary Treatment Area' and 'Odour Control Facility' for the Elanora WWTP. The penstocks and stopboards supplied by AWMA will be used to control and isolate flow in and around various channels connecting the band screens, grit traps and PST distribution chambers.

Control gates specified for the works include ULFs, TLFs, a variety of stopboard designs and an overshot DLF. The undershot gates ranged in size with frames up to 7.6m x 2.5m to be controlled via a range of electric and modulating actuators. The TLF was required to provide sealing against 3m head pressure whilst two stopboard designs are custom designed to meet clear water up to 2.5m. All products for this project were manufactured from grade 316 stainless steel.

The control structures were custom designed and manufactured under AWMA's strict quality assurance procedures, to ensure high product standards in-line with specifications for the new facilities.



FLOOD ENHANCEMENT WORKS

For the **Gunbower Koondrook-Perricoota Forests**

AWMA environmental regulators and fishways will provide vital flow control solutions at a number of iconic sites within the Murray-Darling Basin.

The Gunbower Koondrook-Perricoota River Red Gum Forests is one of the six icon sites identified under the Living Murray Initiative. The Murray River flows between the forest, with Gunbower on the southern side and Koondrook-Perricoota on the northern side of the river. Together, they form the second largest River Red Gum Forest in Australia with a total area of 50,000ha. Recognised for their many environmental, social and economic values, both forests are currently undergoing progressive works aimed to mimic natural flooding regimes, manage high flows and achieve ecological benefits.

The key objective of the **Koondrook-Perricoota Forest** Flood Enhancement Project is to create a diversion channel with associated control structures that enable the natural flow of water through the forest from the Torrumbarry Weir pool. AWMA have been engaged by Fulton Hogan for the design, manufacture and installation of approximately 30 water control structures required for the State Water project.

Major works for the **Gunbower Forest** aim to increase the frequency of flooding to river red gums in the mid-section of the forest by diverting water from Gunbower Creek via an existing irrigation channel into an arm of Spur Creek.

The proposed option will involve the construction of a new environmental regulator and levees on Gunbower Creek. The AWMA water management structures will have the flexibility to be operated under a number of flow scenarios, in accordance with seasonal conditions and available water. Products to be supplied by AWMA include a range of penstocks and fishway control structures with improved actuation options including a new range of portable actuators. This project is a joint initiative of the North Central Catchment Management Authority, Department of Sustainability and Environment, Murray-Darling Basin Authority, Goulburn-Murray Water and Parks Victoria.

FLOOD & TIDAL ISOLATION

AWMA supplied a Flap gate to prevent tidal waters from flooding Brisbane streets.

Brisbane City Council required an AWMA Flap gate 1.9m x 2.5m and Bulkhead 2m x 3m for the Bowen Hills project. AWMA Flap gates are designed with a hinge mechanism, using gravity to prevent backflow.

This design is an economical solution to automatically isolate pipelines, without manual intervention, during flood and tidal events.

The Flap gate, to be installed later this year, will isolate a stormwater pipeline and prevent high tides from flooding local streets. The AWMA bulkhead will be stored off-site for installation when maintenance of the upstream chamber is required.

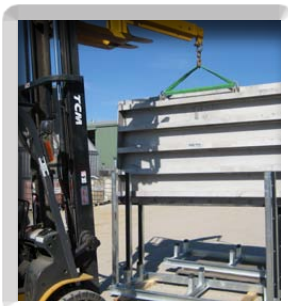
AWMA SEGMENTED STOPBOARDS & STOP LOGS

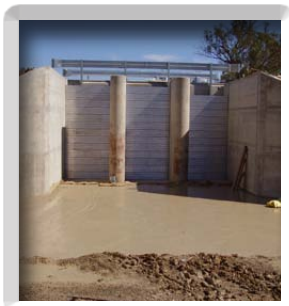
The AWMA range of Segmented Stopboards and Stop logs now incorporate design alternatives to safely operate a range of sizes from 100mm to 20m.

Manually operated Stopboards utilise lifting ladders to position modular segments. Stopboards are designed in 100mm segments that can weigh up to 20kg for use by one operator, or up to 40kg to be managed by two.

Larger Stop logs are operated by purpose designed lifting frames. The lifting frames automatically engage and disengage the Stop log without the need for operator intervention. Stop log frames are usually lifted by crane or jib.

AWMA Stopboard designs accommodate on and off seating conditions within the one structure. All design options incorporate secure fail safe features. Stop logs supplied to the Victorian desalination plant allow operators to safely install and retrieve segments to a depth of 20 metres. The Stop logs are located at the first line of isolation from Bass Strait into the $4B plant and withstand nearly 200 tons of water pressure.





3D SITE SOLUTIONS

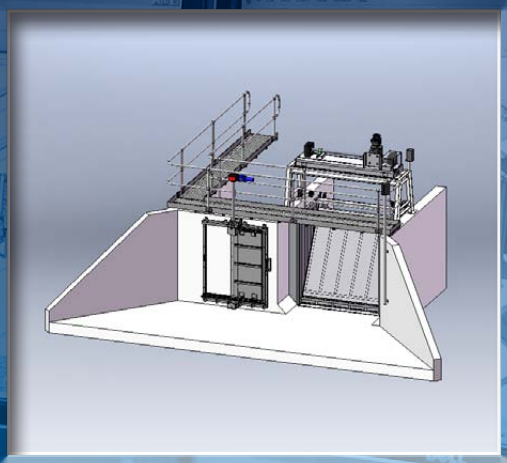
Designs drafted in 3D demonstrate complete site solutions for the water and fish passage works at Kalamia Dam in Queensland.

AWMA were engaged by GHD to provide an automated flow management structure for the Kalamia Flood Drainage Infrastructure Project due for completion mid 2011.

A stainless steel sidewinder provides the vertical slot fishway recommended for optimal fish passage, whilst a 2m LayFlat provides flow regulation.

Complex software developed for the project allows environmental and flow conditions to determine gate operation.

Pictured is an example of the 3D site drawings AWMA supplied the asset owner, Burdekin Shire Council.



CURRENT PROJECTS INCLUDE...

VIC

- **John Holland Tunnelling:** The Melbourne Main Sewer Replacement project is estimated at $220 million and requires custom designed stop logs and a round bottom WLF penstock.
- **Goulburn-Murray Water:** AWMA Environmental regulators and fishways enhance ecological values across a number of 'Lower Landscape' sites within the Gunbower Forest as part of the Living Murray program.
- **Thiess Degrémont Joint Venture:** The $4B Victorian Wonthaggi Desalination Plant now incorporates ULF penstocks, TLF penstocks and stopboards complete with customised lifting equipment.
- **Eastern Tertiary Alliance:** Over 50 TLF penstocks and stopboards will be incorporated into the Tertiary Upgrade at Melbourne Water's ETP.
- **Barwon Water Alliance:** Automated LayFlat Gates and manual ULF penstocks are required for a fishway and flood protection works on Dewings Creek.
- **Goulburn-Murray Water:** 16 ULF penstocks will assist Flood Mitigation Works on Goulburn-Murray Water's Macorna Main Channel at Pyramid Creek.
- **Ward Brothers Earthmoving:** The Northern Victorian Irrigation Renewal Project (NVIRP) requires AWMA ULF and TLF gates for flow isolation.
- **John Holland:** Stainless steel TLF penstocks assist Melbourne Water's Northern Sewerage Project.
- **Process Engineering Technologies:** AWMA penstocks assist with odour control at St Marys WWTP.
- **Fulton Hogan:** Stainless steel TLF penstocks will isolate flow for Melbourne Water's Dights Falls fishway.
- **Barwon Water:** Two 2m Trash Racks will be manufactured for Barwon Water's Yan Gurt Syphon.

NSW

- **Fulton Hogan:** State Water's Koondrook-Perricoota Forest Flood Enhancement Project requires approximately 30 water control structures to be installed on the Murray River Floodplain, upstream of Barham.
- **Murrumbidgee Irrigation:** Ongoing works will upgrade control structures across the irrigation area.
- **Civil Team Engineering:** AWMA penstocks to provide a fish way at State Water's Stevens Weir.
- **Coleambally Irrigation Cooperative Limited:** Segmented bulkheads are required as part of the PIIOP irrigation modernisation program through the Water for the Future initiative.
- **Wagga Wagga City Council:** Two 2m Flap gates will eliminate backflow in pipelines.
- **Gleeson Excavation:** Stopboards will regulate a fishway at the Brewarrina Weir.

SA

- **SA Department for Water:** Approximately 20 water control gates will provide drainage and rain water isolation to benefit the Salt Creek Wetlands.
- **York Civil:** Sidewinders and segmented stopboards provide a fish way system for SA Water Corporation's Chowilla floodplain.

WA

- **Water Corporation:** AWMA TLF's will control flow at the Ellenbrook Pumping Station.

New Zealand

- **McConnell Dowell:** The Christchurch City Council will utilise a DLF to control a sewer over flow structure.

awma Water Control Solutions

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