



## SPECIALISED GATES FOR NZ

### The \$385 million Central Plains Water Enhancement Scheme is a major construction project located on the South Island of New Zealand.

Stage 1 required 18 months to complete and was delivered on-time. It involved opening up approximately 20,000 hectares of farmland for irrigation in the Canterbury Plains area bordered by the Rakaia and Hororata Rivers. An intake at the Rakaia River will direct water into a 117km long gravity fed headrace canal. A network of underground pipes will distribute water to shareholders downstream of the headrace.

AWMA designed, manufactured and installed a variety of water control equipment along the headrace canal that runs around the islands foothills to irrigate and supply environmental water for New Zealand's largest irrigation scheme.

Engaged by Fulton Hogan/John Holland Joint Venture on behalf of Central Plains Water Limited, Stage 1 involved AWMA supplying;

- Twin 5m x 6m Radial Gates
- Four 2.5m x 2.5m top sealing fixed wheel Intake Gates
- A 2.5m x 2.5m hydraulic drive headrace Undershot Gate
- Ten various sized top sealing Penstocks facilitating offtake isolation
- Isolation Stoplogs up to 5m W x 5m H with lifting frames
- Associated Instrumentation, SCADA, Controls and Electrics
- Walkways and Platforms

The Radial gates are designed to withstand flood and sediment loading totalling 1.2 MN and designed for flat pack transportation and reassembly on site.

The Headrace control gate is subject to 7.5m head pressure and required to control flows into the main supply channel with flows up to 33 cumecs and velocities up to 7m/s.

All equipment was designed for seismic loading in accordance with NZ1170.5. Designs were also developed in accordance with AS4100, AS4991, AS1657, AS1418.1, ASS3990, AS1170.0 & 70.2 and NZ1170.5. Full design reports were prepared with certification to Environment Canterbury (ECAN) requirements.



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# GENERALLY SPEAKING

## Innovation is imperative for success.

Successful companies are constantly evolving and place a strong emphasis on research and development.

AWMA works in partnership with clients to design and manufacture specialised water control equipment that meets their exact requirements. Innovation always plays a key role in developing these solutions.

Early in 2016, AWMA will release a new range of products to complement our water control solutions. The new product range has been developed from our proven designs, but integrated with 'AWMA innovation' to ensure improved operational performance, ease of installation and reduced maintenance with lower whole of life costs.

We look forward to expanding our product range and enhancing our capacity to better service new and existing customers.

Wishing you and your families a safe and happy Christmas with plenty of cheer. Followed by a healthy and successful 2016.

Regards



**Brett Kelly**  
Managing Director

# SEASONS GREETINGS FROM AWMA!

Thank you for your support throughout this very busy year. We wish you a happy holiday season and look forward to working with you in 2016.

# AWMA GOES GREEN

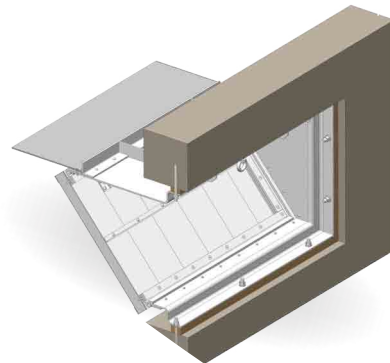
Upgrades to the AWMA Head Office and Manufacturing Facility has resulted in the company operating, almost entirely, on renewable energy.

A commitment to environmental sustainability led AWMA to partner with True Value Solar who installed over 220 solar panels and established a comprehensive power inverter system.

Additional activities involved replacing numerous lights throughout the factory with more energy efficient LED high bay fittings and tube lighting through the offices.

The savings gained by the on-site power generation provides opportunities for further enhancements to the facility and more energy efficient operations.

## PACIFIC FAIR FLOOD GATES



Four Buoyant Flap Gates have been specifically designed to manage flood water through Pacific Fair's underground shopping centre car park.

Originally a floodplain, the site is prone to flood inundation. The Scentre Group approached AWMA to design a flood management system that would autonomously allow the retention of up to 600mm floodwater in the basement before isolating the structure from further inundation.

AWMA's design team developed the innovative Buoyant Flap Gate which automatically closes as the water within the basement rises. Once flood levels reach the nominated depth, the gates are in the fully closed position, thereby preventing further ingress of floodwater.

## SIDEWINDING WETLAND CONTROL

**AWMA were engaged by civil construction company Rokon Pty Ltd for a Melbourne Water Wetland Management Project.**

adjustability and is potentially prone to blockages which generally leads to substantial aquatic and margin plant losses.

A custom manufactured side winding penstock valve was specifically designed for Melbourne Water to use in wetland outfall pits, to provide an adjustable 'Extended Detention Depth' (EDD) control.

To maximise the wetland aquatic and margin plant survival through the establishment period, the penstock is kept in the fully open position initially and then gradually adjusted as the plants establish, to achieve the design intent of "Extended Detention Time" (EDT) of approximately 72 hours.

Melbourne Water advised that the adjustable EDD control concept is intended to replace the orifice baffle plate concept that offers no





# SURVIVING SEVERE DROUGHT USA

AWMA joined an Australian delegation to the American Water Works Association Annual Conference & Exposition (ACE) 'Uniting the World of Water', held near California USA.

The Australian delegation was led by the Australian Water Association (AWA), with support from the Department of Foreign Affairs and Trade, Austrade and the NSW Trade and Investment. More than 11,000 water professionals attended with much of the focus placed on the severe drought conditions in California.

During the 15 years AWMA have been operating within the Australian Water Industry, water control equipment has constantly been evolving to meet new environmental and operational requirements. AWMA now look to assist other countries also experiencing the same changes in water scarcity and subsequent demands for new innovation.

AWMA are proud to be providing support to global representatives of the water sector who are requesting Australia's assistance regarding sustainable water equipment and management practises.

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# NEW DECANT DESIGN



The specialised mechanism in AWMA's NEW DLF utilises positive drive cables to mitigate risks associated with component wear in high frequency, modulating applications.

AWMA were engaged by Haslin Constructions to develop penstocks with a specialised decant mechanism for Clarence Valley Council's Yamba STP Augmentation Works.

Prior to the project design commencing, council staff and AWMA discussed council's "lessons learned" from previous decant mechanism installations.

The AWMA decant gate at Yamba STP has been designed to address issues identified through council's, and AWMA's, experiences to date. It is expected that incorporating the knowledge and experiences of both parties in the gate design will minimise the overall operation and maintenance costs.

Four 7m wide DLF Penstocks and four TLF Penstocks were custom designed, manufactured and installed by AWMA. The DLF design utilises positive drive cables rather than spindles to minimise the high risk of mechanical failure common in equipment with high frequency duty cycles.

# FISH FRIENDLY GATES

AWMA were engaged by Leed Engineering and Construction to design, manufacture and install three new environmental regulators on the Mullaroo Creek, near the South Australian and Victorian border. All sites are of significant environmental value, located within the iconic Living Murray Lindsay-Wallpolla Islands and Floodplain.

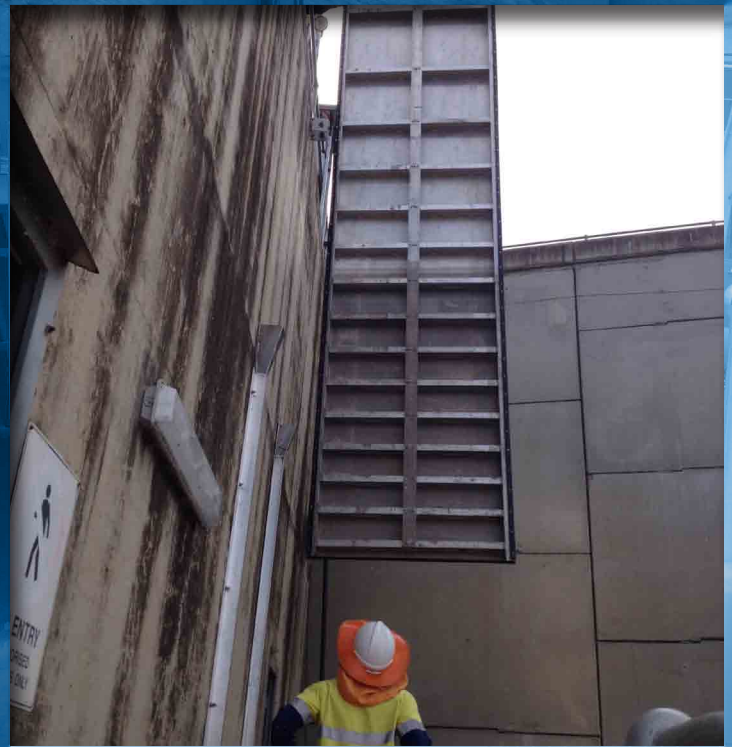
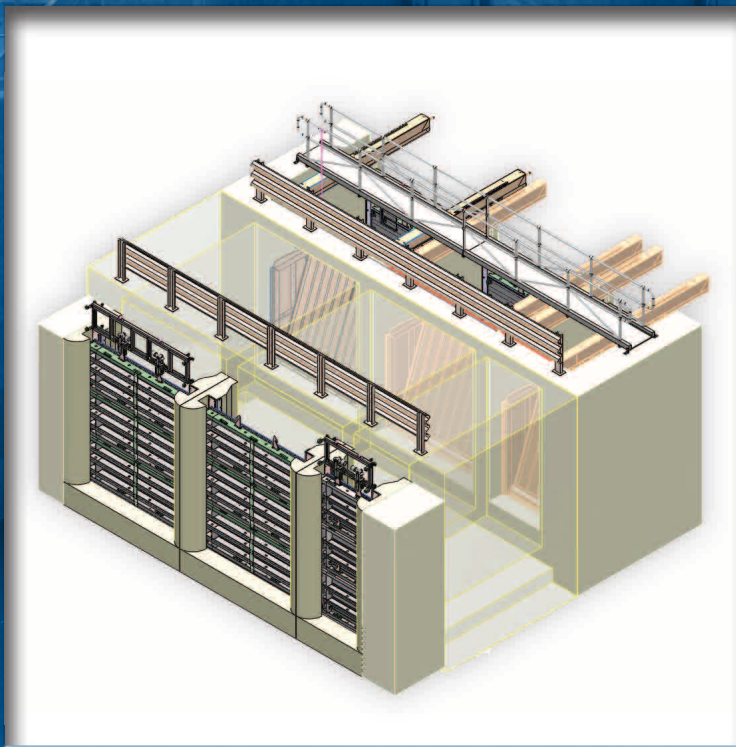
For the main environmental regulator AWMA supplied three LayFlat Gates up to 3m wide with hydraulic actuation systems, six sets of Segmented Stoplogs (some featuring rollers for insertion under full flow), two self-engaging Stoplog Lifting Frames and Storage Racks. Segmented Stopboards with Lifting Ladders and Storage Racks were also provided for the adjoining fishway. All infrastructure was designed and manufactured to encourage safe fish passage and improved wildlife habitat.

SA Water and the Mallee Catchment Management Authority (Mallee CMA) worked in partnership to develop the proposal and coordinate the construction of the Mullaroo Creek regulator. SA Water will facilitate the operation of the structure. The completion of the new and improved environmental water control infrastructure provides resources and opportunities for improved management, monitoring and control of environmental flows.





# BIG OR SMALL AWMA DO IT ALL



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**awma**  
*Water Control Solutions*

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