

SELF-CLEANING INTAKE SCREENS FOR AUCKLAND

Watercare's new water treatment plant by the Waikato River will provide up to 50 million litres of water a day, marking a critical milestone in the organisation's drought response.

The 'Waikato 50' plant has been designed and built in under a year, in response to Auckland's drought. The new plant sits alongside Watercare's existing plant near Tuakau.

The Waikato A Phase 1 project was developed to provide the first stage of the new Water Treatment Plant, with a floating pump station and pipeline from the Waikato River. The plant will obtain water from the more resilient and larger catchment river feed, allowing the water storage dams in the Hūnua and Waitakere ranges, time to recover.

AWMA were involved in the Early Contractor Involvement (ECI) process with multiple contributors. As the project developed AWMA was engaged directly through Watercare Services Ltd to design and manufacture intake screens for the new pump station.

Two AWMA cylinder screens were supplied for the raw water intakes, compliant with the fish and debris exclusion screen regulatory requirements. They were 1400mm diameter x 2000mm long with internal and external cleaning brushes for automated self-cleaning capability. Custom designed retrieval systems were also supplied for each screen, allowing safe and efficient inspection and/or maintenance should it be required, without the need for divers.

The intake screen design process was focused on delivering the required flow rate whilst meeting the specified fish exclusion criteria. This equated to utilising a 1.5mm wedge wire aperture, minimising velocities with a 0.15m/s through screen (slot) velocity rate and maintaining a clean screen surface to accommodate the river weed and debris conditions that were expected.

AWMA's self-cleaning screen system utilising internal and external brushes, was well received by the project partners who declared them the best available technology. The existing water treatment plant intake screens require regular, underwater maintenance, to clean the screens from algae build-up which can be an inconvenient and costly process.

The Waikato River Water Treatment Plant now provides up to 50 percent of the drinking water for the Auckland region.



Photo courtesy of Watercare

GENERALLY SPEAKING

The project featured on the front page of this newsletter was delivered by Watercare and their project partners, in an impressively short time.

Auckland's water supply was relying on it. It is very rewarding to contribute to a project that has a strong focus and is well organised with excellent lines of communication. It is a model that we strive to emulate for all of our projects, large and small.

AWMA do not sell products, we sell solutions. Solutions developed in partnership with stakeholders, delivered by a team of turn-key specialists and backed by a strong Quality Management System.

AWMA have been accredited to ISO 9001 for 11 years.

Our Quality Management System is annually audited against the international Standard. We measure the performance of our business as a whole, in all areas of the process, but it is customer satisfaction that really drives us.

The importance of building strong relationships with our customers from the beginning is the foundation of our company. Excellent lines of communication enable us to fully understand our customers' needs. This in turn, ensures we develop and deliver a solution that will be the best available option for the customer, site, asset owner and operator.



Brett Kelly
Managing Director

awma
Water Control Solutions

HIGH RISE FLOOD PROTECTION

FLOOD/FREE



A commercial and residential, high rise building in the Western suburbs is Sydney's latest apartment block to be protected from flooding, with AWMA's FloodFree Doors and Barriers.

The building's underground car park is protected from flood and storm water ingress with a permanently installed Passive Tilting Flood Barrier, concealed within the buildings infrastructure.

Should water at the car park entrance rise past a designated level, the 8.1m wide Tilting Flood Barrier will automatically deploy across the width of the driveway, to a height of over 1m. If self-deployed, alarms will be triggered to alert anyone in the area of the rising barrier. Once waters recede, so too will the barrier. The barrier can be manufactured to meet surrounding aesthetics and/or requirements such as non-slip surfaces.



Two Flood Doors located in the lobby protect the entrance lift corridors from rising water levels. The Personal Access Flood Doors may be manually closed at any time, isolating the access points. The Flood Doors are outward opening doors of standard sizes. Made-to-order they are powder coated to meet aesthetic requirements and can accommodate requests such as windows, locks etc.



WHERE STORM WATER MEETS TIDAL

Storm water is often discharged at our foreshores. Flap Gates can be utilised to stop the flow of tidal water from entering the storm water systems.

Flap gates are backflow prevention devices. Gravity and head pressure are used to achieve automatic one-way flood, tidal or storm water control.

Pictured is a foreshore location where 15 storm water outlets discharge into the sea. The AWMA Flap Gates prevent sea water entering the storm water drainage system during high tides. The number and configuration of the gates is due to the limited surface level height and pipe invert depth at the discharge point.

LAYFLAT SOLUTIONS

Overshot gates are a popular product, beneficial across a variety of applications.

AWMA's LayFlat is an overshot gate design with over 20 years proven operation, a certified flow algorithm, is custom-designed to meet all specifications and manufactured to the highest international standards.

LayFlat Gates are available in marine grade aluminium, suitable for fresh water applications, and stainless steel for extended design life and/or aggressive service applications.

AWMA were engaged to design, manufacture and supply two (2) LayFlat Gates to replace existing, ageing infrastructure which had reached the end of their service life.

The new gates were specifically designed to fit into the existing structure, deliver superior seal performance and reduce the need for regular ongoing maintenance.

The retrofit design was to meet the exact size and aperture specifications, utilise the existing anchor points and have built-in

electrics for instant plug-and-play capacity.

A unique rubber hinge was engineered for a 30-35 degree stationary angle to reduce any factors of fatigue and further increase longevity of the LayFlat hinge. Should it be required, replacing the hinge was also made easier with an integral retainer with tapped bolts.

The headstock design was modified to position the actuator and optional hand wheel on the side instead of in the middle, for ease of operator access.

Client supervision of the gate's, Factory Acceptance Testing procedure allowed stakeholders and operators first-hand experience with the manufacturing process, installation requirements and operational capacity of the gates prior to on-site commissioning.

As the LayFlats supplied were classified critical infrastructure, a seamless replacement process was vital for plant operation.



STOP BOARDS FOR DAM UPGRADE

AWMA were engaged by Seymour Whyte Constructions for the Melbourne Water Upper Yarra Dam Upgrade.

The water control gates are used to isolate flow into the seepage weir structure at the toe of the dam, for maintenance purposes.

Four large marine grade aluminium Bulkhead gates and frames were manufactured and supplied up to 2300mm aperture width, 3100mm high. The Bulkhead gates are inserted into permanently installed frames to isolate flow in the Dam seepage weir structure. The Bulkheads were designed with integral Butterfly and Ball Valves for the equalisation of head pressure following maintenance isolation.

AWMA also supplied a top sealing TLF Penstock for bypass flow isolation. The penstock was custom designed 1200mm wide x 1700mm high, to withstand 3m operating head pressure, on and off seating.



RECENT PROJECT GALLERY

INNOVATIVE - CUSTOMISED - SUSTAINABLE



FLOOD | ENVIRONMENTAL | IRRIGATION | WATER TREATMENT | DAMS | ENERGY & RESOURCES



HEAD OFFICE

Phone +61 3 5456 3331 Email info@awmawatercontrol.com.au
118 Roviras Road, PO Box 433, Cohuna, Victoria 3568, Australia.

www.awmawatercontrol.com

