

KOONDROOK — PERRICOOTA FLOOD ENHANCEMENT WORKS

PROJECT DETAILS

CLIENT: FULTON HOGAN

LOCATION: BARHAM, NSW

DATE: FEB 2011 — JULY 2013

PROJECT VALUE: AUD80MILLION

REFERENCE:

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DESCRIPTION

The Koondrook-Perricoota Flood Enhancement Works project was one of the largest environmental projects undertaken within Australia.

AWMA were engaged by Fulton Hogan for the design, manufacture and installation of approximately 30 water control structures across six sites.

PRODUCT

A series of five (5) regulator gates were installed. The gates are cable operated using AWMA's proven cable drive system coupled to hydraulic motors. Design, manufacture, install and commission water control gates including:

- 5 off 3950mm wide x 3370mm high marine grade aluminium AWMA LayFlat regulator gates with cable drive actuation system (Offtake Regulator)
- 3 off 3950mm wide x 3370mm high marine grade aluminium segmented roller stoplogs
- 1 off stopboard lifting frame and storage rack (Offtake Regulator)
- 3 off 3950mm wide x 1710mm high marine grade aluminium AWMA LayFlat regulator gates with cable drive actuation system (Return Channel Regulator)
- 1 off 3000mm wide x 6300mm high marine grade aluminium dual leaf decant weir gate (Barbers Creek)
- 1 off 1260mm wide x 1579mm high marine grade aluminium AWMA ULF undershot/sluice penstock (Fishway Exit)
- 1 off 2525mm wide x 3200mm high marine grade aluminium dual leaf undershot/overshot regulator gate (Swan Lagoon Upstream)
- 1 off 2525mm wide x 2050mm high marine grade aluminium AWMA ULF undershot/sluice penstock (Swan Lagoon Downstream)

SERVICES

AWMA provided 100% of the design, manufacture and installation process to the total value of AUD2.1MILLION.

Additionally, AWMA provided extensive documentation, training and support.

As with all design and construct contracts, AWMA regularly liaise with the asset owner (in conjunction with the head contractor) to ensure all parties were satisfied with final design scope and specifications

MANAGEMENT

Early Contractor Involvement:

Initial site visits by AWMA sales and engineering staff to contribute to conceptual design development (12 weeks).

Design and Drafting:

AWMA in-house engineering team (6 weeks) peer reviewed by NSW Public Works on behalf of the client (1 week).

Manufacture:

AWMA in-house manufacturing team including purchasing, fabrication, QA, administration (12 weeks).

Installation:

4 mobilisations by the installation team (per production schedule).

Commissioning:

AWMA Installation Manager (5 days).

Documentation:

Including Safety In Design, ITP, QA, MDR, O&M Manuals, Installation Manuals, Design Reports etc, managed by AWMA in-house administrative and QA departments.

Training:

Onsite by our Installation Manager (1 day), plus on-phone support as required.

DELIVERY

AWMA successfully delivered the project on-time and without variation.

INNOVATIVE SOLUTIONS

Torrumbarray's new 20m wide regulator structure contains some of Australia's largest tilting LayFlat gates. The automated LayFlats allow clear water of 4m wide x 3.5m high per gate.

To meet the needs of project partners and operators, AWMA designed a unique hydraulic control system for the gates. The hydraulic actuation system allows for accurate torque control and long run times required to operate such large gates.

The off take regulator redirects water directly from the Murray River above the Torrumbarray Weir. The site is remote and does not have access to power. AWMA have developed a portable petrol powered Hydraulic Power Pack (HPP). The portable device requires no mains power or manual lifting to operate the 4m gates. A trolley system, Honda petrol motor, oil reserve, control valve and hydraulic pump are some of the components of this new product. The portable hydraulic power pack is housed in a concrete enclosure on site. Vandalism and tampering is a challenge for today's water operators. The AWMA Hydraulic actuation system removes expensive infrastructure from accessible locations.

Other design challenges addressed by AWMA on this project included; reducing OH&S risks associated with operation and maintenance, locking gates in the upper position to eliminate vandalism and for ease of maintenance, eliminating cables from the open water way, engineering to accommodate hydrostatic loads in excess of 50 tons

RELEVANCE TO FUTURE PROJECTS

Sustainable cable winch systems were operated via hydraulic motors. The hydraulic power pack was mobile. This mode of powering the winch system has proven successful on numerous projects where mobile and long run time actuation power is required.



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