

SYDNEY DESALINATION PIPELINE PROJECT, NSW

JET GROUTING WORKS



Sustainable Technology



Client: Sydney Water Cooperation
Consultant: Water Delivery Alliance (WDA)

Specialist Contractor: Austress Menard

THE PROJECT

Sydney Water Cooperation commissioned the Water Delivery Alliance (WDA) to construct a pumping station and an 18km desalinated water pipeline to deliver treated water from the desalination plant in Kurnell to Erskineville in New South Wales, Australia. The pipeline was constructed between a series of deep access shafts where the tunnelling rig would be lowered and recovered before and after excavation, connecting the shafts. The majority of the excavations were required within saturated conditions across a variety of different soil strata.

Austress Menard was engaged to install a series of Jet Grout columns in the base and around the perimeter of each shaft to seal against groundwater during excavation. In addition the jet grouting was used to produce both watertight entry and exit points on the shaft walls to allow breakthrough for the tunnelling rig.

AUSTRESS MENARD'S ROLE

Austress Menard Pty Ltd was awarded the jet grouting works for shafts located in the following locations:

Freight Rail North, Marsh Street, Kyeemagh, Muddy Creek Tempe and Alexandria and Kogarah Golf Course.

The jet grouting works were undertaken utilising a series of interlocking circular columns, drilled from the surface providing a continuous matrix of mass grouted ground. The jet grout columns produced a complete plug in the base of the shaft, up to 20 below ground level, against water movement. At each of these shaft locations, the plug sections were installed within the sheet pile Cofferdam and the soft eye/thrust blocks were constructed adjacent to the external wall of the Cofferdam.

The jet grouting works commenced on 21 July 2008 and was conducted over a seven month time period. The project consisted of installing a total number of 560 columns with an average jet length of 6.5m per column. The diameters of the jet grouted columns varied between 1.3 to 1.7m.

The equipment used enabled all workings to be completed in limited space and without disruption. The plug was installed to the final excavation level preventing unnecessary formation platforms for future tunnelling equipment.