

# SYDNEY DESALINATION PIPELINE PROJECT, NSW

## JET GROUTING WORKS



**Client:** Sydney Water Corporation  
**Consultant:** Water Delivery Alliance (WDA)

**Specialist Contractor:** Menard Bachy Pty Ltd

## THE PROJECT

Sydney Water Corporation commissioned the Water Delivery Alliance (WDA) to construct a pumping station and an 18km pipeline to deliver desalinated 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 into which the tunneling rig could be lowered before and recovered after the tunnel excavation connecting the shafts. Excavations of the shafts involved dealing with saturated ground conditions in a variety of soil strata.

To address these problems Menard Bachy was engaged to install a series of Jet Grout columns to form a solid plug in the base and around the exterior perimeter of each shaft to seal against groundwater ingress during excavation of the shafts and resist the hydrostatic uplift forces. Additionally jet grouting was used outside the shaft to create watertight entry and exit points at the shaft walls to secure a safe breakthrough for the tunneling rig.

## MENARD BACHY'S ROLE

Menard Bachy 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 comprised a series of overlapping circular columns creating a continuous matrix of treated ground. The columns were formed by drilling from the surface, down to as much as 20m below ground level, to the base of the intended treatment and jet grouting up over the designed interval. By means of this treatment, a water tight plug was created in the base of each shaft, and the break in, break out blocks were constructed external to the shaft walls.

The jet grouting works commenced in July 2008 and continued over a period of seven months. The project involved installing a total 560 columns with an average jetted 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 operations to be completed in limited space without disruption. The base plugs were installed, so that their tops were coincident with the final excavation level, thereby providing the platform for future tunneling equipment.