



BARCLAY MOWLEM Candac in alliance with Coffs Harbour City Council is in the final stage of the design and construction of a reclaimed water deep-sea ocean release off Boambee Beach at Coffs Harbour, as part of the city's \$170 million sewerage strategy.

Alliance contracting typically involves the establishment of a virtual single project 'company' [the alliance], the sole purpose of which is to deliver successful client outcomes.

BMC has built eight deep sea releases in Australasia and is a world leader in this type of design and construction. The 1.5km long, high density polyethylene pipeline, will be used to release excess reclaimed water into the ocean and result in the closure of three existing shoreline discharges at Woolgoolga, Coffs Harbour and Sawtell.

The pipe is being installed from the water reclamation plant and runs parallel to the North Coast railway line before turning seawards, being buried under the fore dunes and then installed 5m under the seabed through the surf zone before emerging on the seabed and terminating in a diffuser, some 1.05km off shore

Reclaimed water is wastewater that has been given additional treatment so that it complies with the National Water Quality Management Strategy – Guidelines for Reclaimed Water. The quality of reclaimed water is monitored on an ongoing basis. Effectively it looks, smells and has similar qualities to drinking water.

Coffer dam

Work on the deep-sea release began in July 2003. A temporary trestle was built across the beach to allow construction of the pipe under the seabed and through the surf zone until the water is 6m deep. To date 13 pipe sections (approx 240m long) have been laid adjacent to the temporary trestle using a sheet pile cofferdam. The pipe-laying started at the seaward end of the temporary trestle and the cofferdam has been progressively moved in towards the beach.

Three sections of seaward pipe, each 360m, were assembled and the first section was laid on June 26 after the operation was delayed a number of months due to damage to the pipes and equipment caused by adverse weather.

In the first week of February 2004, the three 360m pipe strings were anchored at temporary moorings in the harbour. Huge swells on the nights of 25 and 26 February caused two of the pipes to break free and float undamaged, onto Jetty Beach. The third pipe string was then sunk onto the harbour seabed to protect it while preparations to complete the operation were finalised.

Sea anchors mooring the project's crane barge broke in 6m swells. The barge sustained damage and partially sank. The tail end of cyclonic weather conditions off southern Queensland caused 6m swells in the harbour on the night of 5 March. Three of the five anchors mooring the deep-sea release crane barge (which is to be used to

pick up the pipelines and join them together) broke and the barge partially sank after sustaining damage.

Battered barge

Two-metre sea swells caused the barge to sustain further damage during the night of 22 March and Barclay Mowlem Candac, and its insurers decided that the damage was so extensive that it would have to be dismantled. Work began on dismantling the barge on 9 August 2004. It is expected to take four months to remove the barge from the harbour.

Four heavy lifting excavators were brought in to remove the two pipeline sections off Jetty Beach. Slings were placed under the pipes and the excavators progressively moved them, one by one, towards the waterline. The last pipe was refloated and sunk onto the harbour seabed to protect it on 21 April.

Favourable weather and sea conditions allowed the first pipeline section to be raised on 26 June, towed to Boambee Beach and sunk on the deep sea release alignment. The remaining pipes will be raised, joined and towed to Boambee Beach when conditions are favourable.

The project is due for completion in November 2004. BMC continue to drive sheet pile and move the cofferdam towards the beach. Two PTC vibro-hammers have been used throughout the project – their own 25H2 and Steelcom's new 30H1. This larger standard frequency vibro-hammer is used for larger sheet piles, casings and H piles. □

