



Denmark Pumpback Main

Client:
Water Corporation

Location:
Denmark WA

Construction Period:
Apr 15 – Jul 15

Project overview

Water Corporation engaged DM Civil to complete a 3.4 kilometre long PVC water pumpback main from Quickup Dam to the Denmark Water Treatment Plant (WTP). This was in response to low water levels at the dam, the sole water supply, and a drying climate. The contract was classified as urgent and required a rapid response from DM Civil from the initial site visit, assessing the scope, providing pricing on preliminary designs and mobilising to site at full strength.

From the WTP, the main crossed the Denmark River and traversed several farming properties and a section of state forest. The main then crossed the Denmark-Mt Barker Road with an auger bored steel sleeve installed by the DM Civil trenchless division. After a further section of farmland at the point of connection to the existing supply main, a DN250 PE main was laid to the Northern side of the dam where the outfall to the dam was submerged and became a diffuser outlet. The section on the banks of the dam and the submerged diffuser were seated on precast concrete sleepers produced by the concrete crew in the main compound. The submerged main and its concrete supports were installed by our specialist crew and a separate commercial dive team.

Under the threat of an overtopping Denmark River weir, the concrete crews worked throughout the night under lights to ensure that the concrete encased river crossing was in place prior to the onset of winter flows.

Significant achievements and benefits

DM Civil has a history of assisting Water Corporation when emergency or urgent works are required. Previous projects such as the Wiluna wastewater infrastructure and Coral Bay wastewater infrastructure are indicative of the trust placed on DM Civil to perform. Denmark was a further example of this trust and resulted in a positive outcome.

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With award of contract given at the start of winter, meeting programme was always going to be a challenge. The mixed soils along the route included over 2 kilometres of rock in the form of cemented laterite. With standard trenching methods using rippers and hammers, this task would have required several weeks of work on multiple fronts. DM Civil mobilised their TRS Super 1300 rock saw and dug through the material inside a week. To further increase production, 21 day shifts were worked by 4 crews on different fronts.

In addition to the contract, the existing pressure sustaining valve (PSV) located at the gravity flow tank was to be replaced. The existing valve was located below ground in a pit. The task was to remove this valve and backfill the pit. Then a refurbished PSV was to be mounted above ground on a concrete slab with a pipe and valve complex. Modifications including an outfall into the gravity tank were also required and completed with a cut over inside a 2 day window, the maximum town supply buffer.

This project spanned over four months with four crews installing pipe and constructing concrete structures. Over 14,000 man hours were expended without a single minor incident (MI), medical treatment injury (MTI) or lost time injury (LTI). The risk of incident or injury is increased when long shifts of 12 hour days are performed. This performance can be attributed to effective site supervision and management on the project and demonstrates the robust company-wide health and safety culture.

The installation of the new pumpback main will effectively droughtproof Denmark by harvesting winter rainfall in the Denmark River to augment the upstream supply in Quickup Dam.

Contact DM Civil to discuss your pipeline projects.

GUARANTEED PERFORMANCE

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