



Kalgoorlie DN800/DN900 Horizontal Thrust Boring

Client:
Water Corporation

Location:
Kalgoorlie WA

Construction Period:
Jan – May 09

Project overview

The overall project involved Water Corporation's Construction Branch constructing a DN800/DN900 MSCL water main to improve Kalgoorlie's water supply infrastructure. We were contracted to install all the road and railway under bores for the project. These had to be constructed ahead of the pipe laying crews to ensure no delays occurred and impact on the local community was minimised.

Our scope of works included obtaining all necessary stakeholder approvals, traffic management, excavation and management of pits, installation of rail and road under bores and temporary backfill and compaction of affected areas. Our previous experience in completing bores under railways proved beneficial, with the approval process being streamlined and completed well ahead of the allocated timeframe.

The hard ground anticipated and the possibility of rock required consideration of the appropriate trenchless methodology. We elected to use thrust boring for all installations due to its flexibility and cost effectiveness in these ground conditions. It involved boring a DN1050 steel casing into position, sleeving, then grouting the MSCL pipe inside the casing.

Using our Auger Boring equipment and specialised rock heads, we were able to drill through hard rock under various roads and rail crossings without any impact on the existing asset, a significant benefit for the client.

Significant achievements and benefits

Given the number of rail and road under bores required, Water Corporation needed a contractor that could provide a high level of accuracy. DM Civil were able to offer the most cost effective trenchless method using auger boring complete with our 42" disc cutter rock head.



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Overall fourteen shots were required to be installed for varying pipe sizes. Eight under rail bores were completed with the remaining bores crossing under major roads. This totalled 344m of boring completed over the fourteen shots. It involved ten thrust bores of DN1050 mild steel casing with either DN800 or DN900 MSCL pipe sleeved and grouted inside and four thrust bores of DN400 mild steel casing with DN200 PVC pipe sleeved and grouted inside.

One of the most challenging aspects of this project was a 42m DN1050 crossing under the Maritana Street and Piccadilly Street intersection. This is one of the major traffic light intersections in Kalgoorlie. A high degree of planning and liaising with the local shire and residents was required in order to complete this crossing in a fast and professional manner. The end result was a successful bore with no disruption to local residents. The local shire expressed their appreciation for this outcome.

This contract allowed for the continuous construction of the DN800 and DN900 MSCL pipeline through existing streets in Kalgoorlie without any road closures or major disruptions to the local residents and businesses.

A DN1050 horizontal bore was required to be installed under the Trans Australia Railway in hard rock that was determined to have hardness in the vicinity of 100MPa UCS. We completed this drive utilising our 42" Disc Cutter Rock Head which is capable of drilling rock up to a hardness of 170Mpa UCS. This under rail bore was successfully completed without any disruptions to standard train movements.

All bores were successfully completed through Kalgoorlie's town centre with no disruptions to local residents, traffic flow or train movements.

Contact DM Civil to discuss your trenchless technology projects.

GUARANTEED PERFORMANCE

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