



Roe Highway Sewer Pump Main Relocation

Client: Gateway WA/
Water Corporation

Location:
Welshpool WA

Construction Period:
Nov 15 – Jan 15

Project overview

DM Civil was approached by Gateway WA to realign an existing steel pipeline. As a part of the Perth Airport and Freight Link road network project, the abutments for the bridge widening works on Roe Highway intersected the existing St Johns sewage pressure main. The contract required the realignment of a 200 metre section of pipe using trenchless techniques beneath existing Roe Highway. The location and ground conditions suited the use of the Iseki TCC 600 microtunnelling machine. 110 metres of DN600 reinforced concrete jacking pipe was tunneled into position under a 13m high embankment. The ground conditions encountered were extremely variable and included sand, rock and clay with a very high plasticity index. A DN350 HDPE pressure pipe was installed into the DN600 jacking pipe to complete the relocation of the crossing under the highway.

The remainder of the pipeline was installed through conventional open trench methods except for a minor access road which was also negotiated with trenchless methods. This section was installed with a 24 inch auger boring machine using a 12 metre length of DN800 steel casing.

The microtunnelling under the Roe Highway was completed ahead of schedule and within tolerance despite the varied soil conditions.

Significant achievements and benefits

The time frame allowed for this realignment was short with bridge abutment construction scheduled to start within 2 months of appointment. With the capacity to provide a trenchless crew and an additional civil crew working to carry our non-trenchless tasks, the completion deadline was met with ease.

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Valuable programme time was consumed with complications such as asbestos lined wrapping of the existing pipe, inconsistent pipe size data and ground water. The DM Civil engineering and HSE departments worked to overcome these challenges to successfully deliver the project. Cutting into the existing pressure main posed a significant risk in managing the large flows with isolation of the existing pressure main. DM Civil and Water Corporation operations teams worked seamlessly to coordinate the shutdown using a fleet of tanker trucks.

The variability of the soils encountered when drilling, is a fundamental element in production. Ideally, a geotechnical investigation is carried out or provided in advance of mobilisation, to assist in machine selection and drilling fluid composition. With limited information in this regard, the slurry returns had to be monitored carefully to determine whether changes were required to the fluid mix to counter the effects of changing soil types.

Quality control and Health, Safety and Environmental compliance levels were extremely high for the Gateway project, being a large and high profile operation. With a robust and mature integrated management system, DM Civil was able to deliver this aspect of the works in a 'business as usual' manner with no additional measures required to meet standards. This highlighted our presence on site and produced regular positive feedback from the client.

The performance of DM Civil on this high profile project reinforces to the engineering and civil construction industry in Western Australia that there is a 'one stop' local company able to provide trenchless construction solutions anywhere in the state.

Contact DM Civil to discuss your trenchless technology projects.

GUARANTEED PERFORMANCE

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