

## Challenges in the Construction of a 6M Diameter and 1.6km Long Tunnel Under Crossing a Channel in the West of Singapore

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**Abstract :** To increase the conveyance capacity to Western Singapore and to meet Singapore's long-term water needs in a more cost-effective manner, four new transmission pipelines consisting of two 2200 mm diameter water pipes and two 1200mm diameter water pipes will be needed by 2024 to convey water from a Water Reclamation Plant to existing networks in the west region of Singapore. Out of the several possible routes studied, the most cost-effective and technically feasible route was selected to lay the proposed 1.6km-long pipelines that cross a channel via a 6m diameter subsea tunnel. This paper outlines the challenges the team faced throughout the project thus far. It also examined the difficulties such as (1) construction of a 56m-deep launching shaft near a highly sensitive 700mm diameter Gas Transmission Pipeline (GTP) and at a location with high groundwater; (2) manpower and supply disruptions caused by the COVID-19 pandemic situation.

**Keywords :** underwater tunnel, subsea engineering, subsea tunnel construction, waterpipe construction

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