ROB CARR

CBD SEWER AUGMENTATION STAGE 2A - LONSDALE ST

CLIENT

City West Water

LOCATION

Melbourne, VIC

TYPE OF CONTRACT

Design and Construct

VALUE RANGE

$10 million - $15 million

CONSTRUCTION PERIOD

Jun 2019 - Oct 2020

OVERVIEW

Melbourne's sewer network is more than a century old and a range of sewer works have been tabled by the Victorian State Government in order to prevent the prospect of an outdated and unusable system. Rob Carr was appointed by CWW in June 2019 to deliver the second instalment of a four-stage strategy to install a secondary 900 m long DN1400 GRP sewer line under Lonsdale Street in the heart of Melbourne's CBD.

Overall, the project involved the construction of a 900 m tunnel completed in two shots of 550 m and 350 m respectively, using a 1,500 mm outside diameter glassfibre reinforced plastic pipe. Both drives were launched from a 23m deep 6m ID segmental caisson launch shaft built by Rob Carr on Lonsdale Street between King and William streets in Melbourne's CBD with the first 550 m drive heading towards a 9m deep concrete secant piled receiving shaft at the intersection of Lonsdale St and Elizabeth St. Piling was necessitated to cater for the bespoke shape of this given its proximity to a heritage building, overhanging building hoardings and limited real estate on the road to maintain a traffic lane wide enough to allow adequate flow of traffic and additionally, existing in ground services. Upon completion, the second 350 m drive headed towards the intersection of Lonsdale St and Spencer St into a pre built shaft which required excavation and modificaiton works to allow for the MTBM entry.

Other works completed or soon to be constructed include shorter DN700 lines aiding connection to the existing infrastructure, 3m diameter precast GRP manholes, and testing and live connection works to same. The work is undertaken directly along Lonsdale Street in Melbourne's CBD, requiring intricate community and stakeholder management, detailed traffic control and management and additionally careful logistical planning to ensure minimal disruption to the surrounding environment.

PROJECT HIGHLIGHTS

- 350 m and 550 m drives using VMT computerised Guidance System achieving 1:444 grade requirement
- Zero incidents working in tight corridor in Melbourne CBD adjacent to historic buildings
- In house construction techniques to deliver infrastructure including microtunnel, caisson and piling
- Currently on time to achieve target completion date Oct 2020 reducing overall impact on CBD environment
- Use of remote micro-tunnelling technology to reduce disruption and cost of construction in CBD
- Significantly reduced carbon footprint and reduction in environmental impact using microtunnelling in lieu of open excvation construction in CBD

PROJECT SCOPE

- Temporary works design
- Permanent works design
- Construction of 23m deep segment caisson
- Construction of 9m deep concrete piled shaft
- 900m of Microtunnelling DN1400 GRP
- Microtunnel constructed at a grade of 1:444
- Microtunnel in Melbourne Formation and Basalt rocks (DN1400) and alluvial ground (DN700)
- Long term Traffic Control including detours
- Construction of 3m GRP manholes to 23m deep
- Relocation of existing services
- Dilapidation survey and inspections of historic buildings and continuous settlement monitoring
- Intricate ommunity and stakeholder engagement
- Connections to live infrastructure
- Work in confined environment Melbourne CBD

QUEENSLAND
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NEW SOUTH WALES

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Top: 6 m ID segment caisson shaft to 23 m deep on Lonsdale Street | **Bottom Left:** Setting of jacking frame to launch shaft MTBM on Lonsdale Street | **Bottom Right:** 99th GRP Jacking Pipe being installed within launch shaft for first 550 m drive