



SMART, EXPERIENCED TEAM VERSATILE AND EFFICIENT FLEET

Rob Carr Pty Ltd was one of Australia's first contractors to utilise microtunnelling technology.

With 20 years of trenchless construction experience since 1999, we have used microtunnelling techniques to successfully construct tunnels for pipeline infrastructure beneath major roads, railways, waterways and environmentally sensitive areas.

We typically use two specific techniques to undertake trenchless construction—slurry pressure balanced microtunnelling and pilot auger soil displacement. Either is used to address access challenges, site footprints, ground conditions, minimise urban disruption, or to efficiently cover large distances. Both techniques are used to construct critical drainage, water or energy utilities infrastructure.

Rob Carr owns a fleet of 34 microtunnelling machines up to diameters of 2200mm OD covering all ground conditions. The machines are supported with wide ranging ancillary items in the form of control cabins, jacking frames, slurry separation, gantries, power generation and guidance equipment. We typically use Iseki Unclemole and Unclemole Super machines, which have a reputation for versatility, efficiency and environmental sustainability.

SLURRY PRESSURE BALANCE

The slurry pressure balanced technique can be used in all ground conditions and greatly limits the potential for over-excavation. These machines are commonly used to construct pipelines between DN300 and DN2100 over long distances under live rail, roads and water ways. The slurry generated and recycled by the tunnelling process is used to counterbalance earth and hydrostatic pressure at the face of the machine to provide immediate tunnel support. The technique is especially beneficial in ground consisting of a high water table. As the machine progressively moves forward constructing the tunnel, rigid jacking pipe is immediately thrust behind the machine to ensure the tunnel is lined with structural pipe, ensuring the integrity and full continuous support of the tunnel at all times.

PILOT AUGER SOIL DISPLACEMENT

The pilot technique is used in soft, dry or wet non supporting soils for small diameters, typically DN150, DN225 and DN300. The pilot machine has a very small footprint and can comfortably fit in a back or front yard setting. The machine is commonly used to construct pipelines up to 90m in length in such settings for large backlog or infill sewer projects where the technique is advantageous in minimising disruption to local residents and business owners. The technique requires a small diameter pilot rod to be pushed through on line and grade from the launch to reception shaft. Once through, a casing pipe with auger attached is used to remove material along the alignment with the carrier pipe being progressively installed behind the casing to construct the pipeline.



Alphington Sewer Project

ALPHINGTON VIC

CLIENT Lendlease

WORKS COMPLETED Rob Carr constructed approximately 1km of pipeline via slurry pressure balanced microtunnelling over four separate drives. Drive lengths varied between 80m (DN700) and 585m (DN1500), with the DN1500 lines constructed on a curved alignment through environmentally sensitive parkland. Rob Carr used a custom built TBM to suit the harsh ground conditions, which consisted of 300 MPa UCS native rock. Rob Carr met all challenges with skill and determination, constructing a single 585m curved drive using DN1500 concrete jacking pipe, within critical stakeholder boundaries. A second 280m curved drive was also constructed through existing infrastructure at key points, which necessitated the diversion of major sewage flows during this time. To facilitate the TBM launch and reception and undertake detailed connections to existing assets, we constructed access shafts via the underpinned caisson technique up to 16m deep and 9m in diameter.



Metro Tunnel Early Works - Domain South Yarra Sewer

SOUTH YARRA VIC

CLIENT John Holland

WORKS COMPLETED A major component of the project consisted of Rob Carr constructing pipeline infrastructure using our Iseki TCS Unclemole Super to construct a 161m tunnel from Albert Road to Domain Road beneath busy St Kilda Road and local tram lines. A 16 m access shaft was built at Albert Road to launch the TBM which our team operated remotely from the Albert Road site office. This tunnel was a significant landmark for the major Metro Tunnel project with our machine being the first TBM to launch and finish on the project. This new section of sewerage pipeline replaced a 100-year-old brick pipeline so that construction of a new station at Domain can commence. The new pipeline has the capacity to manage flow volume equivalent to two Olympic-size swimming pools every hour.



Green Square Stormwater Drain

SYDNEY VIC

CLIENT Drying Green Alliance, a joint venture formed between Seymour Whyte Constructions, UGL Engineering, Parsons Brinckerhoff, RPS Manidis Roberts and client partners Sydney Water and the City of Sydney.

WORKS COMPLETED The project site was located in a dense urban and flood prone area in Sydney and typically consisted of restricted and hazardous fill material with a high water table. Rob Carr met the challenge head on, using multiple slurry pressure balanced machines to combat the difficult ground conditions and deliver the project in good time. For 20 months, our team worked to construct 4km of DN1800 concrete drainage pipeline infrastructure in twin and triple parallel formation over a 1.3km section of the alignment. In one particular area, Rob Carr constructed three parallel tunnels (286m each) on a curved alignment to avoid critical existing infrastructure. To facilitate the trenchless construction, Rob Carr self-performed the construction of five in situ concrete caissons between 10m and 12m in diameter in critical locations as well as eight other conventionally constructed shafts. This allowed for tunnelling equipment access and recovery and enabled the team to construct other key complex drainage infrastructure.

In almost 20 years of trenchless construction experience since 1999, we have used microtunnelling to construct small tunnels and install pipelines beneath major roads, railways, waterways and other environmentally sensitive areas.

For more information please visit rob carr.com.au or call 1300 883 602

