

PEZZIMENTI TUNNELBORE

Specialising in: Highly Accurate, Laser-Guided Microtunnels



PENRITH

OPEN-FACED SHIELD

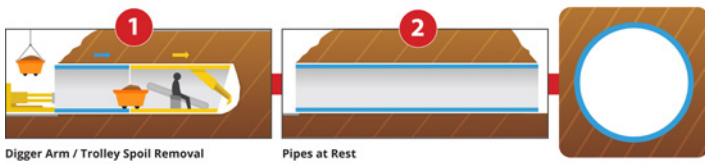


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CULVERT REPLACEMENT - PIPEJACK METHOD WITH DIGGER ARM

Pipejack with Open-Faced Shield



TOTAL

99m
+ 83m

DIAMETER

Ø1500



GROUND

Sand + Clay
+ Cobbles

CARRIER PIPE

Ø1200
RCJP

OUTER CASING

Not
Required

As part of the Mulgoa Rd widening works, McConnell Dowel (MCD) was required to lay 250m of DN1200 RCJP stormwater from adjacent to Mulgoa Rd Penrith to the nearby Peachtree Creek.

The new main runs parallel to an existing concrete stormwater pipe of similar diameter and directly adjacent to the Nepean District Competition Tennis Courts. In fact, the edge of the main is directly below the Eastern most courts.

Open cut was not an option in this instance given the mains proximity to the courts and the imminent chance of settlement. Thus microtunnelling was chosen as the preferred method of installation.

Client / Head Contractor
MCCONNELL DOWELL

Location
PENRITH

Length / Diameter
99M + 83M
Ø1500

Categories
OPEN FACE MICRO SHIELD

THE INFAMOUS NEPEAN COBBLES



Ground Condition

The ground conditions consisted of clay, sandy clay and the infamous Nepean cobbles. These cobblestones can be anything from lucky stone to coconut size and up to 200MPa in strength. When in amongst the softer sand and clay strata, they cannot be broken up using a traditional microtunnelling cutters. When previously encountered, they have broken diamond cutters and worn away steel face shields. As there is no bearing capacity to push and break them, they tend to get thrown around the face and overcut can occur.

Thus, an open face, piloted microtunnel shield was required. This technique is traditionally used in risky fill ground when challenging ground is expected or culvert replacements in the larger diameters (1200mm and above).

Whilst a DN1200 pipe is very tight for a piloted system, it's advantages are:

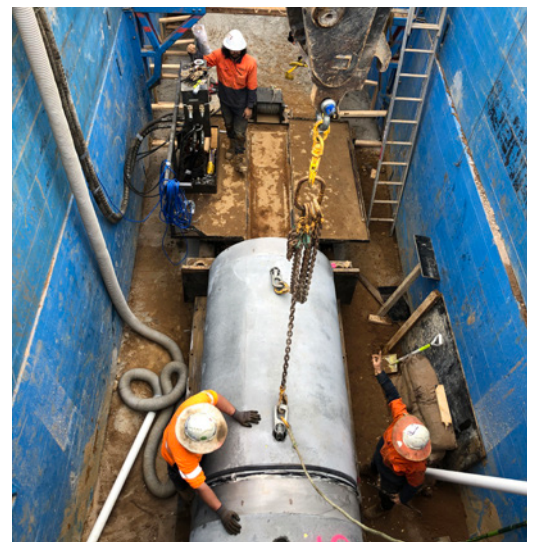
- Access to the face should a blockage or foreign object be present
- Ability to transport larger volumes of spoil via a skip from the face – clay and cobbles together
- Dry spoil removal – no need to take it to a tip





The Project went as planned at a rate of 2 to 3 pipes per day. No settlement occurred along the alignment or the tennis courts.

For more information on the Open-Face Shield microtunnelling method used in this project, contact Pezzimenti and book a presentation session with your team.





For all inquiries – including Job
Inspections, Quotations and Project
Feasibilities – please don't hesitate to
contact Pezzimenti Tunnelbore. We
are confident we'll hit the mark on your
next microtunneling project.

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WHEN ACCURACY MATTERS