

## Sewer Amplification by Microtunnelling and Pipjacking, Penrith Sydney, Australia

Sydney  
Australia

### Project Brief

TTI Consulting Engineers were the pioneering consultants to introduce Slurry Shield microtunnelling in Sydney, Australia in 1995. As a turnkey consultant, TTI designed and executed in association with Nissho Iwai Corporation Ltd, Australia the first microtunnelling project involving the installation of a sewer through cobble stones. It used Iseki's super Uncle-mole to excavate cobble stones of strength in excess of 200Mpa.

For more technical details, please see a technical paper: "Slurry Shield tunnelling in Siltstone and Cobble Stones: Australian Experience" by Bala K Balasubramaniam and Charles Di Francesco presented at International No-Dig 96 Conference in New Orleans, USA.

### Financing Agency

Sydney Water Corporation.

### Client Name.

Sydney Water Corporation/Nissho Iwai Corporation Ltd.

**Year and Period of consultancy.** 1995/96 , 6 months.

### Length of pipeline involved.

Installation of 100 m long 700 mm dia sewer by microtunnelling and pipejacking method in cobble stones.

### Method adopted/ systems used.

Microtunnelling and Pipejacking.  
Iseki's SuperUnclemole TCS 600 system.

**Consultant's Role.**:Prime Consultant.

### Technical documents prepared by TTI.

- ❖ Bid documents & Bill of Quantities.
  - ❖ Quality Assurance for Microtunnelling works.
  - ❖ Technical Guidelines for microtunnelling works.
  - ❖ Design of Jacking and Receiving shafts.
- Design of Jacking Pipes.

### Project Cost (USD).

US\$ 100,000 .

### Publications on the project.

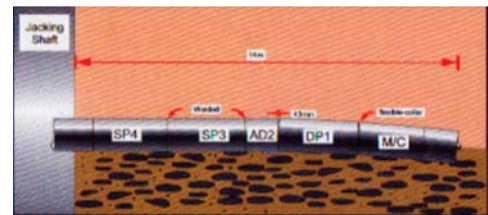
Presented a paper titled " Slurry Shield tunnelling in Siltstone and Cobble Stones:- Australian Experience by Bala K Balasubramaniam & Charles Di Francesco, at the International No-Dig 96 Conference held in New Orleans, USA in April 1996.



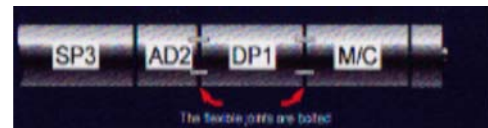
Field demonstration on 600mm dia shield



The shield after excavating cobble stones



Dipping of sheets due to its weight



Modification to adopter /dummy pipes

**TTI Consulting Engineers, Sydney**  
32 Newington Technology Park  
8 Avenue of Americas  
Newington NSW 2127  
Sydney, Australia  
Tel: 61 2 96483644  
Fax: 61 2 96483944

**TTI Consulting Engineers(I) Pvt. Ltd,**  
No.5, Shri Maruthi Chambers  
1<sup>st</sup> Main Road, Thimmaiah Garden  
R.T. Nagar,  
Bangalore-560 032.  
Tel (+91) 80 26577922  
Fax: (+91) 80 23436022

**TTI Consulting Engineers(I) Pvt Ltd,**  
Delhi Project Office  
DJB Pumping Station  
Opp. Azad Bhawan, I.T.O  
New Delhi-110 002.  
Tel +91-11-23378736  
Fax: +91-11-23378489