

TUNNELLING SERVICES



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To many people around the world, geotechnical and environmental services are synonymous with Golder Associates. Within these areas our team of experienced specialists cover the full range of technical disciplines. We apply innovative and practical techniques to challenging projects; our objective is to deliver appropriate solutions that balance cost, risk and time.

Golder Associates is respected around the globe for providing consulting, design and construction services in our specialist areas of earth and environment, and the related areas of energy. Employee owned since formation in 1960, Golder has experienced over five decades of sustained growth. Golder now employs more than 6,500 people and operates from offices throughout Africa, Asia, Australasia, Europe, North America and South America.

WHOLE PROJECT LIFECYCLE SOLUTIONS

From initial investigations to construction, Golder Associates provides integrated services throughout the project lifecycle.

Our services include:

Planning and Investigation

- Desktop studies
- Field investigation and *in-situ* testing
- Geological and geotechnical mapping
- Geophysical survey and analysis
- Ground characterisation
- Geographic Information Systems (GIS)
- Evaluating tunnel machine performance
- Laboratory testing
- Natural and man-made hazard assessment

- Pre-feasibility and early engineering studies
- Route surveys and terrain evaluation
- Slope stability assessment
- Environmental planning approvals

Design Services

- Tunnel alignment and geology studies
- Excavation support designs
- Stability analyses
- Numerical modelling
- Ground structure interaction analysis of tunnel liners
- Design of temporary tunnel support systems in soil and rock
- Design of permanent tunnel support systems in rock
- Subsurface risk assessment and management
- Risk-based estimating
- Analysis of excavation effects on neighboring structures
- Applied research in geotechnical tunnel design
- Instrumentation design
- Blast design and control

Construction Support

- Assessment / confirmation of conditions
- Construction mapping and advice on excavation support
- Construction control and monitoring
- Contract specifications and documentation

- Instrumentation installation and interpretation
- Materials quality control

Expert Consultancy

- Claim assessments
- Dispute Resolution Boards (DRB)
- Due diligence reviews
- Expert witness
- Independent checking and verification

Environmental Services

- Archaeological and cultural heritage services
- Air quality management services
- Surface water and groundwater modelling
- Contamination transport
- Environmental impact assessment and management
- Waste management of excavated material
- Soil contamination assessment, management and remediation





These are some of the projects on which Golder Associates has made a significant contribution for our clients.



Clem Jones Tunnel (CLEM7), Brisbane, QLD

Excavation set out, design of temporary support for surface works and underground excavation; foundation design for approach structures, groundwater inflow assessments and monitoring and inspection services during construction.



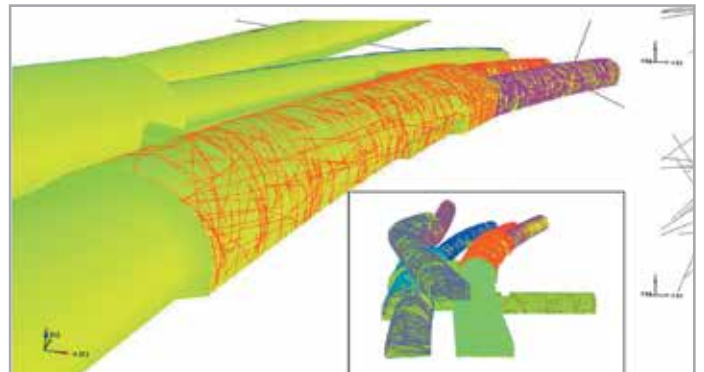
MetroRail Project, Perth, WA

Temporary works design verification for strutted sheet piling, jet grouting, compensation grouting, soil mix walls, dewatering systems. Construction monitoring of groundwater quality, ASS investigations, contaminated soil assessments and material classification for off site disposal.



Melbourne Main Sewer Replacement, Melbourne, VIC

Geotechnical proof engineering reviews of the tunnel, shaft and cofferdam temporary works designs and completion of EPB TBM and Slurry MTBM face pressure calculations for all of the tunnel drives.



Airport Link, Brisbane, QLD

Temporary works design for the Lutwyche Caverns including development of construction sequences, excavation set out, temporary support and instrumentation and monitoring requirements.



M5 East Motorway, Sydney, NSW

Geotechnical, hydrogeological and environmental services from tender stage to completion of construction.



Bakun Hydroelectric Scheme, Luzon, Philippines

Field investigation, portal, tunnel and shaft design, TBM evaluation, diversion weir, desanders and conveyance line design.

MAKE YOUR BUSINESS DECISIONS ON A SOLID FOUNDATION.
CHOOSE A COMPANY WITH THE TECHNICAL EXPERIENCE AND COMMITMENT
TO SERVICE EXCELLENCE AND SUSTAINABILITY THAT YOU NEED TO BE SUCCESSFUL.

JUST ASK GOLDER



solutions@golder.com
www.golder.com

Africa + 27 11 254 4800
Asia + 852 2562 3658
Australasia + 61 7 3721 5400

Europe + 356 21 42 30 20
North America + 1 800 275 3281
South America + 55 21 3095 9500