Tunnelling Services

Tunnels connect our world - with mass transit, roads, water, power, underground storage and more. As our infrastructure needs grow, so do the technical demands on tunnels... for greater diameters, longer lengths and to traverse more difficult ground conditions.

To meet those growing needs, Golder has been steadily adding to our tunnelling technical capabilities. To many people around the world geotechnical and environmental services are synonymous with Golder. In those roles, we have been a significant contributor to some of the most technically challenging tunnel projects in the world. Our 130+ tunnelling practitioners have strong geotechnical, hydrogeological, environmental and structural design skills who truly understand ground risk. We are known for practical solutions to our clients’ challenges as demonstrated by our large client base of contractors. Golder has completed more than 600 tunnel projects, covering more than 10,000 km of soft ground and rock tunnel systems for oil and gas, mining, power, water and infrastructure projects worldwide.

Our global team of tunnelling practitioners works collaboratively through our international tunnelling technical community. The community makes efficient use of global resources, providing quick access to the full depth and breadth of Golder’s expertise.
WHOLE PROJECT LIFECYCLE SOLUTIONS

From project planning and procurement through to delivery and operation, Golder provides integrated services throughout a tunnel’s lifecycle.

Our services include:

**Feasibility, Planning and Procurement**
- Ground condition risk assessment and management
- Ground investigation scheduling, management and reporting

**Tunnel Design**
- Geotechnical design
- Temporary and permanent works design
- Sprayed concrete lining
- Hand mined timber headings
- Squareworks
- Micro-tunnelling and pipe jacking
- Segmental shafts and tunnels
- Cut and cover

**Construction Support**
- Geological mapping
- Support selection and input to the permit to tunnel process
- Instrumentation and monitoring
- Construction logistics and methodology
- TBM operations review and advice
- Construction ground condition risk assessments

**Ground Improvement Design**
- Artificial ground freezing
- Fissure grouting
- Jet grouting
- Deep cement mixing

**Environmental Services**
- Air quality management
- Groundwater assessment and numerical modelling
- Environmental impact assessment and management
- Development of spoil reuse and disposal strategies
- Soil contamination assessment, management and remediation

**Expert Consultancy**
- Independent Expert reviews and reports
- Contractual support on changed ground condition issues

**Operations Support**
- Life of asset planning
- Tunnel inspections
- Design of remedial measures