

TUNNELING · UNDERGROUND

Tunneling & Underground Engineering







Tunnel support design, NATM and TBM advisory, ground freezing, and tunnel dewatering — supporting metro, utility, and underground infrastructure programmes across the Gulf.

[NATM Advisory](#) · [TBM Advisory](#) · [Ground Freezing](#) · [Tunnel Dewatering](#)



Engineering the world below the surface.

Vision International supports tunnel and underground construction programmes — from utility-tunnel design for Kuwait's water and sewage networks to metro-tunnel advisory across the GCC. We deliver pre-construction site investigation, NATM and TBM advisory, support-system design, ground-freezing programmes, and tunnel-dewatering systems. Our underground specialists combine 30+ years of regional ground knowledge with international tunnelling expertise — and our ISO 17025 lab supports every project with rock-mass and rock-fragment testing.

 <p>Tunnel Support Design</p> <p>Shotcrete, rock-bolt, lattice-girder, and steel-rib support systems — for soft-ground and rock tunnels.</p>	 <p>NATM & TBM Advisory</p> <p>New Austrian Tunnelling Method support classes and TBM-pressure / cutter-management advisory.</p>	 <p>Tunnel Dewatering</p> <p>Pre-tunnel dewatering systems — deep wells, well-points, and grout-curtain interventions.</p>
 <p>Ground Freezing</p> <p>Brine and liquid-nitrogen ground-freezing for tunnel cross-passages and shaft construction.</p>	 <p>Convergence Monitoring</p> <p>Tape-extensometer and laser-convergence networks — calibrated against support-system design.</p>	 <p>Settlement Trough Analysis</p> <p>Pre-construction settlement-trough prediction and protection of overlying assets.</p>

HOW WE WORK

From Concept Alignment to Tunnel Handover



Planning a tunnel, shaft, or underground works?
Pre-construction studies, support design, and live monitoring · 30+ years of regional ground knowledge. Engagement within 1 week.

+965 2372 4325
info@visionkuwait.com

Full Tunneling & Underground Service Offering

NATM Methodology

TBM Compatible

ISRM Standards

ISO 17025 Lab

GROUND CHARACTERISATION

- Rock-mass classification (RMR, Q, GSI)
- Discontinuity and joint mapping
- Lab UCS, triaxial, and shear testing
- Permeability and packer testing
- In-situ stress measurement
- Hydrogeology and aquifer characterisation
- Vs30 and seismic site classification

SUPPORT & EXCAVATION DESIGN

- NATM support-class design
- Shotcrete and rock-bolt detailing
- Lattice girder and steel rib design
- TBM cutter and pressure advisory
- Cross-passage and shaft design
- Final lining and waterproofing

DEWATERING & FREEZING

- Pre-tunnel dewatering well systems
- Grout-curtain cut-off systems
- Brine ground-freezing systems
- LN₂ rapid-freeze interventions
- Permeation grouting for sand layers
- Compensation grouting for settlement

MONITORING & RISK

- Tape-extensometer convergence
- Laser-scanner cross-section profiling
- Settlement-trough monitoring
- Building-impact assessment
- Trigger-action response planning
- Vibration and noise monitoring

The Vision Difference — Why Clients Choose Us



Integrated Delivery

Field crews, senior engineers, and accredited ISO 17025 laboratory under one roof — no hand-off delays, no subcontractor gaps.



Engineer-Led Reports

Every deliverable is signed by a senior chartered engineer — findings interpreted for design, not delivered as raw data.



Schedule-Driven

Owned equipment, owned laboratory, owned teams. We hit oil & gas, MPW, KOC, and EPC schedules — every time.

Sectors We Serve

Metro Authorities

Water & Sewage

Power Utilities

Highways

Oil & Gas

Government

2004

ESTABLISHED

2000+

PROJECTS DELIVERED

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ISO CERTIFICATIONS

Kuwait

& GCC COVERAGE