



PORTAL DESIGN GEOTECHNICAL EXPERIENCE

Mining **One** Pty Ltd

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MINING ONE GROUP

Mining One was established in August 2005 to provide technical expertise in the fields of geotechnical engineering, resource geology and mining engineering to the mining industry. The group is led by Gary Davison, Kevin Dugan and Bill Frazer who collectively have over 90 years of technical experience. Their main criteria is to actively manage and provide quality, high performance services which will enable Mining One to deliver excellent results for their clients.

Our group has grown rapidly since its formation and now boasts of team of 60+ experienced and highly professional personnel. We have been involved in a wide variety of mining projects internationally including extensive work in South East Asia, Africa, South America and China.

We offer long term value to our clients by keeping up to date with new technologies and pride ourselves in being innovative with our designs and recommendations for new and existing mining operations.

Mining One strives to provide excellence and commitment to our clients with services ranging from high level strategic to hands on practical design and implementation. Our well respected team has extensive industry knowledge and experience in a diverse range of disciplines.

GEOTECHNICAL SERVICES

Mining One personnel have completed extensive geotechnical work for Australian and overseas mines. Our work extends to both underground and open pit mines, which has enabled us to cover a broad range of services to the mining industry. We also undertake civil geotechnical work which covers designs for infrastructure foundations, tunnels, geotechnical hazard risk assessments, construction supervision, tailing dam investigations and landslide assessment.

Specific Mine Experience

- Cibaliung Project (Java, Indonesia) - Feasibility study and ongoing operational assistance.
- Mt Wright Gold Project (QLD) - Pre-feasibility study including ground support and stope design.
- Tritton Underground Copper Project (NSW) - Ground support and room and pillar designs.
- Victor South, Longshaft (WA) - Numerical modelling, including room and pillar design, stoping guidelines and sequencing, and ongoing assistance.
- Plutonic gold mine (WA) - Operational senior geotechnical engineer role, short-term (fill-in).
- Sally Malay nickel mine (WA) - Numerical modelling, stope design and sequencing.
- Ballarat Goldfields (VIC) - Bankable feasibility study for an underground extension.
- Alliance Resources, Maldon gold mine (VIC) - Ground support reviews and on-going geotechnical advice.
- Lepanto (Philippines) - Assessment of shaft instability including 3D stress modelling.
- CSA Cobar mine (NSW) - Stope design and sequencing, including 3D stress modelling.

Portal Design Experience

Mining One personnel have completed extensive geotechnical work on many portal designs throughout Australia and Indonesia. The mine geotechnical work by personnel from Mining One's Melbourne office has included the following projects:

- A1 gold mine (VIC) - Review of existing portal site and recommendation to relocate following geotechnical site assessment. Produced subsequent reports outlining ground support design and methodologies for portal and initial decline development and review of ground support systems.
- Fosterville gold mine (VIC) - Portal entrance and upper decline ground support designs.
- Hera gold project (NSW) - Geotechnical assessment and ground support design recommendations for boxcut and portal.
- Mt Wright gold project (QLD) - Review of box cut and portal design, including appraisal of empirical and structural analysis methodologies applied.
- Peak gold mine (NSW) - Geotechnical assessment and ground support design recommendations for boxcut, side batters and portal face. Assessment based on site observations, structural/kinematic analysis (DIPS) and empirical ground support assessment (Grimstad and Barton).
- Mt Morgan mines (WA) - Preliminary guide to ground support requirements and site suitability for planned portal location, including recommendation for further geotechnical work.
- Walhalla mine (VIC) - Specified the portal and portal face ground support design for the stripped Eureka Western Adit.
- Cibaliung gold project (Indonesia) - Geotechnical assessment and ground support design recommendations for boxcut, portal and slope stability analysis.
- Avebury nickel mine (TAS)
- New Cobar mine (NSW)
- Ballarat goldfields (VIC)
- Pajingo gold mine (QLD)

PEOPLE

Mining One's staff range from Principal level (35+ and 20+ years experience), to senior, mid-level and junior staff, for site-based assistance. We have several contract geotechnicians that we can call upon for drilling investigations/core logging and mapping if required.

Our primary underground geotechnical personnel are:

Kevin Dugan

Kevin Dugan is Mining One's Principal Geotechnical Engineer and a founding partner of the company. Kevin has over 30 years experience throughout Australia, SE Asia, New Zealand and Africa, including 10 years at the Snowy Mountains Engineering Corporation (SMEC). He has had extensive experience in the practical aspect of rock mechanics covering major hydroelectric projects, tunnels and most of Australia's mining projects (e.g. Olympic Dam, Northparkes, Century, Mt Isa).

His experience covers the geotechnical input and peer review to major projects from conceptual to bankable studies and detailed design. He has also been retained as a peer review consultant on a wide range of projects, including numerous due diligence, technical audits and expert witness roles of major mining projects.

He has lectured at Ballarat University, RMIT University and the Australian Mineral Foundation (AMF in Adelaide) on ground support and safety aspects.

Michael Bijelac

Michael Bijelac has been with Mining One Pty Ltd since its establishment in August 2005. He has over 15 years geotechnical experience in both underground and open-cut, metalliferous and coal mines. Michael has considerable experience in numerical modelling and slope stability analyses. He has extensive operational and design/analysis in the geotechnical field. Michael's underground experience includes support design and 3D stress modelling.

Jeremy Doolan

Jeremy has over 5 years experience in the mining industry after completing the RMIT Geological Engineering Degree. His experience in Geotechnical Engineering roles has included underground mining operations such as George Fisher Mine at Mt Isa and Ballarat Goldfields. He also has approximately one year experience in open-cut mines. His strengths are in the areas of ground support design and installation, and slope stability analysis. Jeremy is skilled in Vulcan and MineSight and many geotechnical programs including Map3D

Nick Kerr

Nick has over 5 years experience in geotechnical consulting. During this time he has been involved in several operational and project based roles in underground and open pit mining. He has gained extensive experience with limit equilibrium and stress modelling for slope stability and underground design modelling using a variety of different modelling packages.

Ceirín Byrne

Ceirín Byrne graduated from RMIT University in 2000 and has over five years geotechnical experience in both underground and open-cut, metalliferous and coal mines. He also has two years experience as a reservoir engineer in the oil and gas sector. Ceirín has significant experience in geotechnical investigation and ground support design, including numerical modelling (PHASE 2). He has extensive operational and design/analysis experience in locations throughout Australia and overseas. Ceirín has

worked as a geotechnical engineer on a number of underground and open pit mining projects including Pike River Coal Mine (NZ), Stawell Gold Mine, Savage River, Alliance Maldon, Cibaliung Gold Mine (Indonesia), Cameby Downs Coal Project, Mt Tom Price - Rio Tinto and Perseverance Fosterville Gold Mine.

HEALTH, SAFETY AND ENVIRONMENT POLICY

All Mining One Pty Ltd operations are carried out in a manner that will protect the health and safety of employees, contractors, customers and the community. Mining One Pty Ltd's services will conform to this policy, and adequate advice will be provided to encourage a safe and responsible service.

To achieve this, Mining One shall:

- Provide and maintain healthy and safe work places and ensure that equipment is in a safe condition;
- Keep reviewing areas, equipment and work methods, to further improve safety and health in the belief that all occupational injuries and illness can be prevented;
- Provide systems of work to prevent accidental spillages and releases, and seek to minimise discharges to air, water and land that may harm the environment or cause harm to the health of employees, contractors and others living and working in the vicinity of our operations;
- Provide health and safety training to employees and our sub contractors;
- Implement an effective return to work policy for ill or injured workers;
- Provide services that are safe, without endangering the health of employees, users and others; and
- Co-operate with clients to ensure that our policies and work methods are consistent with their requirements for site access.

All managers, supervisors, operations personnel and sub contractors are accountable for health and safety performance in their areas.

Mining One's OH&S Manual can be provided upon request.

INSURANCES AND WORKCOVER

Mining One has the following current insurance:

- Professional Indemnity Insurance \$5 million
- Public Liability Insurance \$ 20 million
- WorkCover Insurance

Certificates of Currency for each of the above can be supplied upon request.