

## ***Ian Brunton***

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### **Principal Geotechnical Engineer**

***Expertise*** Rock Mechanics, Geotechnical Engineering, Numerical Modeling, Drill and Blast, Gravity Flow

***Education*** Ph.D. (Mining Engineering), 2009  
University of Queensland, Queensland, Australia  
M.S. (Mining Engineering), 1997  
University of Queensland, Queensland, Australia  
B.S. (Geological Engineering), 1994  
Royal Melbourne Institute of Technology University (RMIT),  
Melbourne, Australia

***Professional Affiliations*** Member: Canadian Institute of Mining, Metallurgy, and Petroleum

### ***Professional Experience***

2015 - Present *Itasca Australia Pty Ltd, Melbourne, Australia*  
*Principal Geotechnical Engineer*

2012 - 2015 *Newcrest Mining Limited, Cadia Valley Operations, Melbourne, Australia*  
*Geotechnical Superintendent*

2007 - 2012 *University of Queensland, Queensland, Australia*  
*Senior Research Engineer*

2007 - 2012 *Newcrest Mining Limited, Cadia Valley Operations, Melbourne, Australia*  
*Senior Geotechnical Engineer*

2006 - 2007 *Newcrest Mining Limited, Ridgeway Sublevel Cave, Melbourne, Australia*  
*Senior Geotechnical Engineer*

2001 - 2006 *University of Queensland, Queensland, Australia*  
*Research Engineer*

1999 - 2001 *Connell Wagner, Brisbane, Australia*  
*Geotechnical Engineer*

1997 - 1999 *Kalgoorlie Consolidated Gold Mines, Fimiston Operations, Boulder, Australia*  
*Geotechnical/Drill and Blast Engineer*

1995 - 1997 *University of Queensland, Queensland, Australia*  
*Postgraduate Research Student*

***Project Experience******Underground Mining***

***Rock Mass Characterization:*** Collection and analysis of scanline and face mapping, core logging, and geophysics data. Statistical analysis of data to delineate geotechnical domains and associated rock mass properties.

***Ground Monitoring Design and Implementation:*** Convergence, TDR, extensometers (short and deep hole), stress measurement, seismic, and hydrology.

***Excavation Design:*** Numerical and empirical analysis, ground support, mine sequence, and ground control management plan.

***Development and Updating of Mine Major Hazard Management Plans:*** Stability, inrush, air-blast, cave material flow, and cave-surface interaction.

***Cave Propagation:*** Interpretation, propagation, and air-gap geometry.

***Sublevel and Block Cave Material Flow:*** Numerical analysis, monitoring (markers), grade reconciliation, draw strategy, and air-gap management.

***Sublevel and Block Cave Fragmentation:*** Primary and secondary fragmentation prediction, and measurement (photographic and visual assessment).

***Open Pit Mining***

***Rock Mass Characterization:*** Collection and analysis of scanline and face mapping, core logging, and geophysics data. Statistical analysis of data to delineate geotechnical domains and associated rock mass properties.

***Ground Monitoring Design and Implementation:*** Deep hole extensometers, seismic, and hydrology.

***Wall Stability:*** Numerical and empirical stability analysis, ground support design, and wall control management.

***Mine-Floor Stability Management:*** Delineation and management of underground voids and interaction with surface mining.

***Blast Monitoring:*** Maintenance of vibration and overpressure monitoring stations, fragmentation assessment (photographic), and rock mass blast damage (open holes, geophysics, and extensometers).

***Drill and Blast:*** Drill and blast design and implementation, environmental compliance (vibration and overpressure), drill and blast domain delineation, excavator productivity studies, wall control (pre-split and limit blast design), interaction with underground excavations, and mine to mill optimization research and implementation.

***Civil***

***Geotechnical Site Investigation:*** Investigations in soil, soft rock, and hard rock.

***Civil Infrastructure Design:*** Numerical and empirical design for geotechnical aspects associated with foundation, retaining wall, slope, and road basement projects.