

This EIS has been compiled by Vale Australia Pty Ltd (Vale) in consultation with URS Australia Pty Ltd (URS) and selected area expert consultants.

The following table presents the key study team members involved in the research and writing of each EIS section. Each of the sections was internally peer reviewed by senior consultants prior to being submitted to the technical review team.

EIS Chapter	Team Member	Technical Review
Chapter 1 - Introduction	Sarah Connelly (URS) Livia Maiorana (Vale)	Steve Pilcher (Vale) Rob Storrs (URS) Andrew Clough (Vale) Bob Corbett (Vale)
Chapter 2 - Description of Project	Livia Maiorana (Vale) Sarah Connelly (URS)	Steve Pilcher (Vale) Rob Storrs (URS) Andrew Clough (Vale) Greg Burgess (Vale) Bob Corbett (Vale) Jo MacKenzie (Vale)
Chapter 3 - Project Needs and Alternatives	Livia Maiorana (Vale) Sarah Connelly (URS)	Steve Pilcher (Vale) Rob Storrs (URS) Andrew Clough (Vale) Bob Corbett (Vale)
Chapter 4 - Climate	Li Fitzmaurice (URS)	Abbey Brook (URS) Darlene Heuff (URS) Bob Corbett (Vale)
Chapter 5 - Land	Rod McPherson (Vale) Rod Masters (GSS) Chris Morrison (URS)	Livia Maiorana (Vale) Sarah Connelly (URS) Bronwen Morrison (URS) Bob Corbett (Vale)
Chapter 6 - Land Use	Lucas Batton (URS) Sarah Connelly (URS)	Bob Corbett (Vale) Livia Maiorana (Vale)

EIS Chapter	Team Member	Technical Review
Chapter 7 - Visual Amenity	Noel Corkery (URS)	Steve Pilcher (Vale) Livia Maiorana (Vale) Rob Storrs (URS) Bob Corbett (Vale)
Chapter 8 - Transport	Warren Williams (Maunsells)	Livia Maiorana (Vale) Sarah Connelly (URS) Bob Corbett (Vale)
Chapter 9 - Surface Water and Watercourses	Joe Donnelly (URS) Joni Avenell (URS)	Mike Raymond (URS) Steve Pilcher (Vale) Rob Storrs (URS) Bob Corbett (Vale) Livia Maiorana (Vale)
Chapter 10 - Groundwater	Errol Brieze (AGE) James Tomlin (AGE) Rod MacPherson (Vale)	Mark Stewart (URS) Bob Corbett (Vale)
Chapter 11 - Air	Li Fitzmaurice (URS)	Steve Pilcher (Vale) Fred Turatti (URS) Darlene Heuff (URS) Bob Corbett (Vale) Livia Maiorana (Vale)
Chapter 12 - Noise and Vibration	Colin Speakman (PB)	Steve Pilcher (Vale) Rob Storrs (URS) Bob Corbett (Vale) Livia Maiorana (Vale)
Chapter 13 - Waste	Natasha Reifschneider (URS) Joe Donnelly (URS) Ian Swane (Terrenus)	Livia Maiorana (Vale) Mike Raymond (URS) Greg Burgess (Vale) Jo MacKenzie (Vale) Bob Corbett (Vale)

EIS Chapter	Team Member	Technical Review
Chapter 14 - Nature Conservation	Dan Simmons (URS) Angus McLeod (URS)	Livia Maiorana (Vale) Rob Storrs (URS) Bob Corbett (Vale)
Chapter 15 - Cultural Heritage	Ben Gall (Archaeo) Rob Storrs (URS)	Livia Maiorana (Vale) Bronwen Morrison (URS) Bob Corbett (Vale)
Chapter 16 - Social Environment	Chris Sunderland (URS) Pat Vidler (URS)	Livia Maiorana (Vale) Rob Storrs (URS) Andrew Clough (Vale) Bob Corbett (Vale)
Chapter 17 - Community Consultation	Christy McConaghy (URS)	Livia Maiorana (Vale) Rob Storrs (URS)
Chapter 18 - Health and Safety	Rob Storrs (URS)	Livia Maiorana (Vale)
Chapter 19 - Economic Environment	Peter Johnson (Prime Economics)	Steve Pilcher (Vale) Sarah Connelly (URS) Livia Maiorana (Vale)
Chapter 20 - Hazard and Risk	Joel Harris (Marsh)	Livia Maiorana (Vale) James Keneally (Marsh)
Chapter 21 - Rehabilitation and Decommissioning	Rod Masters (GSS)	Livia Maiorana (Vale) Bronwen Morrison (URS) Bob Corbett (Vale)
Chapter 22 - Environmental Management Plan	Livia Maiorana (Vale) Sarah Connelly (URS)	Andrew Clough (Vale) Livia Maiorana (Vale) Rob Storrs (URS) Bob Corbett (Vale)

Below is a list of the qualifications of the EIS study team as documented above.

### **Vale Australia Pty Ltd (Vale)**

**Steve Pilcher** - BE (Hons) Mining BEc. and B Economics (UQ).

Stephen was the General Manger for the Broadlea Coal Mine before moving to manage the Ellensfield Coal Project through the FEL 1 Study and then moving into the position as the Executive General Manager for the Project Development Team. Stephen experience includes a number of operational roles managing underground coal mines including West Cliff Colliery, Kestrel Mine, Oaky North Mine. He also holds First Class Managers Certificates (coal) for Queensland and New South Wales.

**Livia Maiorana** - BEng (Chem).

Livia has 3 years experience in the Coal Mining Industry with Vale and AMCI, working as a Risk and Business Analyst for Broadlea Coal and then the Ellensfield Coal Project. Livia completed the Ellensfield FEL 1 Study before moving into the Project Development group to manage project delivery and systems. Prior to that, 4 years working for Marsh as a risk consultant and 3 years in the Water Industry as a Technical Officer.

**Andrew Clough** – BE Mining (Hons), M App. Sc.(Geomechanics), MBA (Technology Management)

Andrew Clough is the Project Manager for the Ellensfield Coal Mine Project. Andrew has over 25 years experience in the mining industry working in both managerial and technical roles. Andrew has worked as a Mining Engineer, Rock Mechanics consultant, Project Engineer, Mines Inspector and various senior operational management roles including General Manager of the Broadmeadow underground coal mine. Andrew has worked in the Bowen Basin for the last 5 years.

**Bob Corbett** – BSc(For)

Bob Corbett, Vale's NSW Environment Manager, has in excess of 25 years experience in environmental management in the mining and extraction industries both in Australia and overseas. Of these, the last 12 years have been primarily associated with the coal mining industry in the Hunter Valley and Gunnedah and Bowen Basins. Bob has extensive experience in the preparation, management and review of environmental impact statements, management plans and associated documents and in the various approvals processes.

**Greg Burgess** – Associate diploma coal mining + numerous certificates and higher certificates.

Greg has over 30 years experience in underground coal mining in which time he has developed an in-depth knowledge of the industry and the mining process. He has statutory qualifications as surveyor, deputy, undermanager and mines rescue.

**Jo MacKenzie** – BEng – Minerals Processing (Hons).

Jo has over 15 years industry experience in minerals processing. Jo has worked with a number of mining companies throughout Queensland and NSW in the areas of coal preparation, mining engineering and management in both operational and project development areas.

**Michael Fitzgerald** - BE (Elec), MBA

Michael has over 20 year experience underground coal in operational and project roles in Qld and NSW including employment as Mines Inspector (Elec - Qld).

**Martin Watkinson** - BSc (Hons) Mining

Martin has over 30 year experience in underground coal mining in the UK, India Iran, Tanzania Siberia, China, Vietnam, New Zealand and Australia. Martin has worked as an international mining consultant, with the Queensland Government in the area of risk assessment and emergency response.

**URS Australia Pty Ltd (URS)**

**Rob Storrs** – B Env Sc (Hons), Member EIANZ, RABQSA Environmental Auditor.

Rob Storrs is the URS Project Manager for the Ellensfield Coal Mine Project. Rob has over 12 years experience in managing and investigating environmental issues found on mine sites and on industrial facilities. He has extensive mine site experience including over two years working in the open cut and underground coal mines of the Bowen Basin and Illawarra. He has experience in the management of environmental impact statements, design and management of monitoring programs and EMS. Rob is a qualified QSA Environmental Auditor (contaminated land, report verification and environmental management systems) and has highly developed project management skills.

**Sarah Connelly** - BSc (Hons) (Marine Geography), MSc Environmental Management.

Sarah Connelly has experience in environmental impact assessments for major multi-disciplinary EIS projects across the mining, oil and gas, energy and infrastructure sectors in Queensland. Sarah is experienced in the development of environmental management plans; environmental and planning, approvals and procedures for the mining, oil and gas, energy and infrastructure sectors in Queensland.

**Bronwen Morrison** - BSc (Hons) (Major in Ecology), Bachelor of Laws (Hons), GradDip Professional Legal Education and Training.

Bronwen Morrison has experience in rehabilitation and closure planning, and environmental impact assessment across the mining and infrastructure sectors in Australia and the United Kingdom. Projects worked on include large mining and infrastructure projects in Qld, NSW and NT, and multi-million pound sterling motorway schemes in the UK.

In addition to coordinating, authoring and compiling Environmental Impact Statements, Bronwen has experience in preparing Environmental Management Plans and Programs, and Rehabilitation Plans for mining operations in Queensland. She also has experience in conducting ecological surveys and field work to study the impact of mine and infrastructure development in Australia and the U.K.

Bronwen has experience in consulting and lecturing on the environmental law of most states and territories in Australia as well as New Zealand and Papua New Guinea, with topics including native title, land law, natural resources law and common law.

**Chris Morrison** - MSc (Research) Geochemistry, BSc (Hons) Geology & Applied Geology.

Chris has over 13 years experience as a professional geologist, having worked around the world in many different fields including: contaminated land investigation and remediation; pollution control and remediation; environmental monitoring; geotechnical ground investigation; shallow abandoned mine investigation and consolidation; coal, oil & gas exploration; and mineralogical and geochemical analysis. Since 1994, Chris has worked on projects for major international companies including: Anglo Coal; MIM; Xstrata; Statoil; Shell; Marathon Oil; BPAmoco; ExxonMobil; Glaxo Smithkline, Akzo Nobel and Orica.

**Christy McConaghy** - B. Environmental Management (Sustainable Development), Grad Dip. Design of Buildings in Bushfire Prone Areas.

Christy is an environmental consultant with over five years of experience and qualifications in sustainability and bushfire management. Within the environment industry, Christy has had experience in a range of settings and has developed skills in project administration, contract administration, community consultation, management plans, cultural heritage, erosion and sediment control, mapping, environmental assessment, and environmental monitoring and auditing infrastructure projects.

Christy provides a diversified and specialised combination of skills and experience that delivers projects aimed at achieving holistic and sustainable outcomes. Her key areas of interest are contract administration and community consultation.

**Chris Sunderland** - Bachelor of Arts, Sociology.

Chris is a creative and energetic sociologist with a commitment to technical excellence. He has experience in community dynamics, community and Indigenous People's consultation and a complex understanding of international geopolitics. He has worked on projects in Australia, Canada, French Guiana, Guyana, Guatemala and Panama. He is proficient in a variety of roles with a strong interest in the planning and design of socioeconomic assessments and consultation programs. His focus on Indigenous conflict with government and the law, and rural sociology has provided him with a strong base for socioeconomic impact assessments, particularly in rural areas. Chris is a member of the International Association for Impact Assessment (IAIA), International Association for Public Participation (IAP2) and the International Association for Society and Natural Resources (IASNR).

**Pat Vidler** - Bachelor of Engineering (Class I Hons Civil Engineering), Master of Engineering Science (Environmental Engineering), Master of Arts in Rural Development.

Pat Vidler has over 25 years experience working with remote and regional communities in a range of capacities, delivering services such as rural enterprise advice; infrastructure program development and implementation; development assistance project identification, appraisal and evaluation; stakeholder consultation, mobilisation and engagement; community development strategy development; and the facilitation of cross sector partnership agreements.

Pat has undertaken project work in Australia and countries throughout Asia and the Pacific for AusAID, government and private sector organisations across a variety of industries, in particular infrastructure development and mining. He is experienced and skilled in communicating across all levels, from villager to company and Government executive and political levels, and draws on his training and experience in engineering and applied social science to identify key issues and develop social impact management strategies that are both achievable and effective in delivering developmental results.

Pat specialises in the identification and management of impacts and opportunities arising from the development of infrastructure and mineral resource development projects in proximity to remote and regional developing communities. His focus is on developing practical and sustainable measures to manage social risk and secure an ongoing 'social license to operate'.

**Joe Donnelly** - BS Civil Engineering, MS Civil Engineering.

Joe Donnelly has over five years of consulting experience predominately related to hydraulic, hydrologic and pollution engineering. Joe's work experience includes surface water hydrology analysis including precipitation and flood risk analysis, rainfall-runoff modeling, storm water management, and hydrologic characterization. His hydraulic design projects including spillways, energy dissipaters, channels, culverts, channel stability analysis, and erosion control structures. In addition to spillway design, he has dam engineering experience performing slope stability and seepage analysis of water supply and tailings dams. He has worked with closed conduit optimization including evaluation of piping networks, pumps and valves particularly related to heap leach systems, water supply, and slurry pipelines. In addition he has experience performing non-point source pollution studies from mining and agricultural watersheds including water quality monitoring, loading analysis, equilibrium modeling, and risk assessment.

**Mike Raymond** - Bachelor of Engineering Civil (Hons).

Mike is a Hydrologist and Civil Engineer with over 18 years experience in consulting on water management matters. He has managed and undertaken investigation, feasibility, planning and design for water resources and environmental studies and in larger multi-disciplinary projects for mining, infrastructure and development projects. Mr Raymond has extensive experience in flooding assessments and mine water management projects in tropical areas across Australia and in the Asia Pacific Region.

**Joni Avenell** - Bachelor of Science (Environmental Science).

Joni has over seven years experience specialising in water quality assessment. With a background in environmental and analytical chemistry, she has worked on a variety of industrial, infrastructure and urban applications. Joni works in project management, water quality assessment, water quality monitoring programmes, sampling, water analysis and Environmental Impact Assessment. Joni has been a key project management member as well as managing the surface water components of EIS for major

projects in Queensland including the Eastern and Northern Busways, Airport Link and the Wiggins Island Coal Terminal.

**Natasha Reifschneider** - Bachelor of Applied Science – Planning, Diploma of Natural Resource Management

Natasha has over 7 years experience in Planning and Environmental Management including the development of Environment Impact Statements, Coastal Management Plans, Preliminary Environmental Assessments, Environmental Management Plans, Legislative Development Approvals, Assurance and verification of Corporate Sustainability Reports and Social Impact Assessments.

**Mark Stewart** - B.Sc Geology

Mark has over 15 years of experience in the supervising, undertaking and reviewing of groundwater investigations. Mark has undertaken work in Australia and Africa and specialises in mine dewatering and groundwater supplies and fate and transport modelling of contamination sources.

**Fred Turatti** - BSc (Hons I), (Chemistry), PhD, (Atmospheric Chemistry).

Dr Fred Turatti has over 13 years experience in the industrial, academic research and environmental consulting sectors. His environmental project management experience has included projects for ammonia and urea plants, alumina refineries, aluminium smelters, open cut mines, landfills, LNG plants, electricity generation, distribution and retailing, paint manufacturing and oil refineries. Fred specialises in atmospheric science including air quality management and dispersion modelling, greenhouse gas emissions assessment and management, odour impact assessment, and in the compilation of regional, local and site-specific emissions inventories. He is known for high-level analytical, mathematical and conceptual skills and is a skilled project manager.

**Darlene Heuff** - BSc MSc DipMet PhD

Darlene has over 12 years of relevant professional experience. She has a comprehensive background in the science underlying a wide range of air quality issues including numerous air quality assessments of dust-related impacts associated with mining and quarrying activities. Darlene has recently supervised and reviewed air quality and greenhouse work undertaken on other coal mining EIS projects in the Bowen Basin area.

**Abbey Brook** - B.E. (Chem), M.E. (Research).

Abbie Brooke has 12 years experience in air quality consulting and engineering research. Abbie specialises in air quality impact assessment, meteorological assessments, greenhouse gas inventories, mitigation measures, sustainability assessments and verification audits.

Abbie's knowledge of advanced air quality and meteorological modelling covers a wide range of industrial sites from major industrial facilities and mines through to agricultural processing plants and highways. Her modelling skills involve the use of a range of advanced models including Calmet, Calpuff and TAPM for regional air shed modelling, and site-specific assessments using Ausplume, Aermot, ISC and Caline.

Abbie is experienced in conducting Greenhouse Gas Inventories for a diverse range of industrial projects, including major open cut and underground mines, interstate highways and small to medium power stations. Key projects include recommending and costing greenhouse gas mitigation measures for mining and industrial companies. She is a Lead Verifier for the AGO Greenhouse Challenge Plus program, and an accredited Verifier for the AGO Generator Efficiency Standards program and the NSW Greenhouse Gas Abatement Scheme.

Abbie has been a key player in the development of sustainability strategies for a green fields mining company in Queensland. She recently presented a paper entitled "*Integrating Sustainable Thinking into Greenhouse Impact Assessment*" at the International Union of Air Pollution Prevention Association Conference.

**Li Fizmaurice** - Ph.D., Atmospheric Science, M.S., Atmospheric Boundary Layer and Air Quality Meteorology, B.S., Atmospheric Physics and Environment.

Li has over 10 years experience in atmospheric modelling and meteorology. She has an extremely strong background in air quality modelling and data analysis and has worked at the University of California-Davis (a world leader in atmospheric sciences) for the Californian EPA and the Queensland Climate Change Centre of Excellence.

**Dan Simmons** - Bachelor of Applied Science (Environmental Resource Management)

Dan has over nine years experience in undertaking flora and fauna studies and biological assessments. He has been responsible for the co-ordination, preparation and project management of numerous ecological assessments as a component of a number of major environmental impact studies, significant species management and monitoring plans, vegetation management and rehabilitation plans, and ecological restoration projects. This work has been undertaken for a wide range of clients including industrial and corporate projects and government authorities in south-east, central and outback Queensland, northeast New South Wales and the Northern Territory. Dan has been involved in over 10 projects associated with mining developments in the Bowen basin. He was responsible for the flora component of this EIS.

**Angus McLeod** - Bachelor of Applied Science (Natural Systems and Wildlife Management)

Angus possesses over 12 years experience as an ecologist with specialist abilities in the planning and implementation of flora and fauna surveys and vegetation mapping projects. He is also highly experienced in the preparation of Ecological Investigations, Environmental Management Plans, Environmental Assessment Reports, Vegetation Management Plans and Environmental Impact Statements. He was responsible for the fauna component of this EIS.

**Lucas Batton** - Bachelor of Environmental Planning

Lucas Batton is a project environmental planner with over five years experience. Lucas has experience in the fields of environmental impact assessment; environmental planning and management; approvals; strategic planning, and community engagement. Luke has experience in working on the land use component of other Bowen Basin coal mine EIS projects.

**Noel Corkery** - B.Sc. (Forestry), Master of Landscape Architecture, MBA.

Noel Corkery has more than 30 years of landscape and environmental consulting experience throughout Australia and Asia. He has developed specialist skills in project management, landscape master planning, urban design, environmental restoration and management and visual impact assessment.

Noel has visual impact assessments for infrastructure projects including wind farms, high voltage powerlines, industrial facilities, power stations, highways and mining projects.

### **Global Soil Systems (GSS)-**

**Rod Masters** –Diploma of Applied Science (Agriculture), Diploma of Geoscience, Master of Science, Certified Professional Soil Scientist (Stage 3) with the Australian Soil Science Society

Rod is a former District Manager of the NSW Soil Conservation Service. Rod has 23 years experience in undertaking soil and land capability surveys, formulating erosion and sediment control plans, conducting land reclamation and revegetation programs, preparing water management plans and assessing environmental impact of a variety of mining projects.

Having fulfilled the roles of extension officer, regulator, consultant & contractor, Rod is in the unique position of having an intimate knowledge and understanding of the “soil & water industry” from all perspectives. Rod was recently engaged by the NSW Department of Environment & Conservation (DEC) to prepare the Mines & Quarries Chapter for the soon to be released Volume 2 of “Managing Urban Stormwater: Soils & Construction”, the benchmark reference for erosion and sediment control in NSW.

Rod has conducted soil & land capability surveys at many coal mine sites throughout NSW & Queensland in recent years. These include and Ulan, Saddlers Creek, Wambo, United, Warkworth, Hunter Valley Operations, Mt Owen, Narama, Bengalla, Cumnock, Glendell, Donaldson, Tasman, Liddell, Bulga, Mt

Thorley, Awaba & Anvill Hill mines in NSW and Rolleston, Peak Downs, Tarong, Norwich Park, Saraji, Blackwater, Goonyella Riverside, Moura, Broadlea, Carborough Downs, Sonoma, Lenton & Olive Downs in Queensland. Rod has represented the relevant clients at Bengalla, Ardlethan & Donaldson Commissions of Inquiry (COIs).

### **Marsh**

**Joel Harris** – Bachelor of Engineering (Environmental)

Joel has over 10 years environmental and risk experience including considerable experience in open-cut and underground mining with BHP Coal. Central to this was the identification of environmental risks, development of environmental management systems, auditing protocols and mitigation strategies. In addition to this, Joel has project management experience of gas pipeline construction, assisting in gaining regulatory approvals, management plan development and implementing project controls to ensure appropriate management performance.

Prior to joining the Risk Consulting team, Joel worked in business development and major account management for Visy Recycling and Veolia Environmental Services. Within this capacity, Joel has had exposure across the manufacturing, shipping, property and local government industry sectors.

**James Keneally** – Bachelor and Masters of Agricultural Science

James is a risk management professional who consults on the implementation of effective risk management systems. In addition to his consulting role, James is responsible for managing a team of consultants based in Brisbane and Adelaide.

Prior to joining Marsh Risk Consulting, James worked with Sydney Water, NSW Agriculture, Electricity Trust of South Australia (ETSA) and Consolidated Rutile Limited. James played a major part in managing and conducting a variety of environmental projects for these organisations.

James has gained considerable experience in all aspects of risk management including identification, assessment techniques, development of management plans and auditing systems to institute improvement strategies. He has consulted to many different industries on risk management including mining and mineral processing, major project development, financial services, real estate, public infrastructure and utility sectors.

### **Australasian Groundwater & Environmental Consultants Pty Ltd (AGE)**

**Errol Briese** – Bachelor of Science (Hons), Graduate Diploma in Management.

Errol has over 30 years experience in hydrogeology/ groundwater engineering throughout Australia, South East Asia and the Pacific region, working with governments and consulting engineers at all stages of project work; feasibility studies, design, construction, planning and management. Much of his work has been related to mine development: water supplies, dewatering, environmental impact and monitoring. He has worked on numerous, coal, base metal, gold, mineral sand and magnesite mines throughout Australia and in Argentina. Errol has had extensive experience appearing as an expert witness in the Planning and Environment Court in Queensland and the Land and Environment Court in NSW.

**James Tomlin** - Bachelor of Science (Environmental Studies), Master of Science (Hydrogeology), Certificate of Science (Geology).

James has over 14 years experience in hydrogeological and contaminated site investigation. He has wide experience in site investigations including installation of monitoring bores in the alluvial and overburden aquifers as well as the construction and calibration of numerical groundwater flow models that simulate the impact of a project on groundwater levels and regional groundwater users. James also has skills in the simulation of groundwater inflows to the underground mines. James was involved in the hydrogeological investigation for the neighbouring Carborough Downs Coal Mine.

### **ARCHAEO Cultural Heritage Services**

**Ben Gall** - Bachelor of Arts, (History and Communication), University of Central Queensland, Currently completing Bachelor of Design Studies (Hons), University of Queensland.

Ben is a Director of Historic Heritage for ARCHAEO Cultural Heritage Services, running a team of experienced professionals including heritage engineers, architects, historians and archaeologists. Ben has substantial experience delivering high level outcomes for a wide variety of cultural heritage sites and places across Australia.

### **PARSONS BRINCKERHOFF (PB)**

**Colin Speakman** - Bachelor of Engineering (Honours) (Mechanical), University of Tasmania; Certificate in Civil Engineering, Hobart TAFE

Colin has over 20 years experience in the engineering field and over 16 years experience as a mechanical engineer working in the noise control field. He has been involved in the design of noise controls for major projects throughout Australia, Asia, Europe and the USA. He has particular skills in industrial acoustics (design, manufacture and assessment), environmental acoustics (modelling, measurement and assessment), architectural acoustics and occupational health and safety assessment for noise exposure.

### **Terranus Pty Ltd (Terranus)**

**Ian Swane** - Bachelor of Environmental Science - Geology (Hons), Ph.D. (Hydrogeochemistry).

Ian Swane has more than 13 years professional and paraprofessional experience as an earth and environmental scientist, and has specialist knowledge in the fields of geochemistry, geology and hydrogeology, particularly related to mining and quarrying.

Ian has undertaken geochemical assessments of potential for acid, saline and metalliferous drainage to develop at numerous coal and metalliferous mines in Australia, Indonesia, Africa and Turkey. Projects have included sample program design and liaison with exploration team, sample collection, laboratory liaison, data interpretation (static tests, shake/roll tests and kinetic leach column tests), reporting for regulatory approvals and recommendations for management of mining wastes to minimise environmental impacts. Assessments have also included soil testing for environmental and revegetation management.

### **Maunsells**

**Warren Williams** – BE (Civil)

Warren has over 12 years experience in the planning and design of major road transport and civil infrastructure as a design leader and project manager.

Warren has planning, design and construction experience on roadway projects ranging from complex urban and motorway road systems to mining and rural roads. His technical expertise in traffic management and corridor planning studies combined with his construction experience and knowledge of construction practices enable him to lead the development of practical and constructible solutions to complex problems.

### **Prime Economics**

**Peter Johnson** - B.Eng. (Honours) in Chemical Engineering, B.Econ. (Honours), Doctor of Philosophy.

Peter is a Director of Prime Research and specialises in economic modelling and economic impact analysis using input-output and computable general equilibrium (CGE) modelling techniques. These methods can be applied at the regional, state and national level; Peter's work has a strong focus on regional and state level analysis.

Peter has developed numerous input-output tables for Western Australia, as well as tables for many of the State's regions. Peter has also developed input-output tables for the Northern Territory, Victoria, New South Wales, Queensland and various regions of these states.

Peter has also worked with and developed CGE models for Australian states and their regions.

Peter has undertaken numerous economic impact assessments at the regional, state and national level of major projects using input-output or CGE modelling techniques.

In addition to his economic modelling work, Peter is experienced in general economic research, particularly with respect to Australia's minerals and energy sectors. Peter's expertise in these areas result not only from the economic analysis he has performed, but also from his work as a Chemical Engineer in Australian resource industries.