Engenium has a strong history in mine infrastructure projects in Australia and internationally. We have built a strong reputation in the industry having undertaken projects globally for blue-chip miners, government organisations and emerging resource companies.

Engenium manages mine infrastructure projects from the Strategic level and Feasibility Study stage right through to Detailed Design, Documentation, Construction Management, Commissioning and Handover.

Our understanding of mine operations and cost structures enables us to deliver solutions that not only reduce capital costs, but also ongoing operations and maintenance.

With strong capability in Engineering and Project Management for mine infrastructure projects, Engenium has a track record in:

- Construction camp and village facilities (remote accommodation)
- Remote borefields and reinjection borefields
- Portable water pumping and distribution
- Process/raw water pumping and distribution
- Waste water treatment and management
- Fire protection systems and fire water
- Power generation, transmission and distribution
- Lighting and public space design
- Communication systems for remote sites
- Roads, bulk earthworks and drainage
- Concrete and steel structures
- Airstrips
- Administration offices and EPCM offices
- Workshops and warehouses
- Ammonia nitrate facilities
- Fuel storage and distribution facilities
- Security offices and site access systems
- Security fencing and guard house.

Our Clients have come to depend on us to successfully manage all aspects of mine infrastructure Project Delivery and the value we bring in:

- Project Execution Strategy and Management
- Scope, Budget and Schedule Management
- Contracting and Procurement Strategy and Management
- Engineering and Design Management
- Value Engineering
- Interface Management, Coordination and Communications
- Project Controls and Reporting
- Risk Management
- Estimating and Planning Management
- Construction Management
- Health, Safety and Environmental Compliance.
Since its inception, Engenium has developed a strong track record in the delivery of infrastructure projects to the resource sector. This includes projects for blue-chip miners, emerging juniors, defence and government organisations. Our capabilities include:

**Mine Site Buildings & Infrastructure**
- Workshops, warehouses, maintenance facilities
- Fuel, air, water services and facilities
- Remote first aid and paramedic facilities
- Lighting.

**Camp Villages and Buildings**
- Remote accommodation, camps and villages
- Camp infrastructure and services
- Camp office facilities
- Fly camps.

**Airport Infrastructure**
- Airstrips and lighting
- Buildings and car parks
- Hangers and maintenance.

**Roads and Civil Works**
- Bulk earthworks
- Haul roads
- Access roads
- Culverts
- Sediment ponds
- Dams
- Concrete works and pads
- Pipeline routes.

**Water & Waste Treatment**
- Portable water systems
- Pumping and piping infrastructure
- Filtration, sterilisation and distribution
- Waste water treatment plants
- Storm water drainage
- Pumping systems and control
- Dams and turkeys nests.

**Borefields and Pit Dewatering**
- Piping
- Pumping systems and control
- Borefield development and expansions
- Pit dewatering.

**Power and Electrical Upgrades**
- Standby power generation
- HV reticulation
- LV reticulation
- Lighting
- Substations
- Switchboards
- Motor control centres (MCC)
- Control and instrumentation.

**Communications**
- Communication towers
- Integrated voice and data systems
- Industrial networks (LAN/WAN)
- Telemetry and radio links.

**Mine Site Security**
- Security gatehouses and boom gates
- Fencing
- Security and surveillance systems
- Building services systems.
Mine Infrastructure Experience

Arcelor Mittal
• 20km Haul Road in the Liberian jungle - Bankable Feasibility Study, Detailed Design and Execution.

Atlas Iron
• Pardoo Mine Site Administration Buildings and Utilities - EPCM Services
• Pardoo Exploration Camp - EPCM Services
• Wodgina and Pardoo Access Roads and Ramps - EPCM Services
• Abydos Exploration and Fly Camps - EPCM Services
• Pardoo Retention Ponds - EPCM Services
• Pardoo Pit Dewatering - Procurement and Construction Management
• Pardoo Great Northern Highway Intersection - EPCM Services
• Abydos Northern Access Ramp - EPCM Services.

BHP Billiton
• MAC Potable Water Treatment and Distribution - Definition Phase Study
• WAIO Fuel Distribution - Fuel Master Plan Review
• East Pilbara Exploration Team - Office and Core Facility Selection and Definition Studies
• Jinidi Offices and Bore Setup - Selection Phase Study
• RGPS Rail Infrastructure and Facilities - Engineering Design
• Newman Heavy Vehicle Workshops - Engineering, Selection and Definition Phase Studies
• Yandi OHP I Substation Replacement Project - Detailed Engineering Design and Technical and Project Management for Execution.

Department Of Defence
• APOD-W Timor Leste - Aerial Port Engineering Design.

DORIC
• Hope Downs 4 Village 920 Personnel Camp - Engineering Design.

Fortescue Metals Group
• Cloudbreak Mine and Port Hedland Facilities - Engineering Operational Support
• IO Camp Works, 250 Man Camp - Detailed Design.

Norton Gold Fields
• Enterprise Mine Infrastructure - EPCM Services.

Pilbara Minerals
• Lithium-Tantalum Mine Non-Process Infrastructure and Camp - Detailed Design and Documentation.

Rio Tinto
• Light Vehicle Wash Bay Upgrade - Prefeasibility Study and Detailed Design
• Brockman 2 Buried Services Study and Engineering
• Yandi Northern Borefields Upgrade - EPCM Services
• Yandi Pipelines and Pit Dewatering - EPCM Services
• Tom Price In-Pit Watering - Detailed Design
• Yandi Overhead Power Lines Extension - EPCM Services
• Tom Price - Culvert Design Engineering Services
• Tom Price - Landfill Engineering Services
• Hope Downs 4,920 Man Camp - Engineering Design.
**Northern Borefield Project**

Engineering, Procurement and Construction Management

**Client:** Rio Tinto Iron Ore - Pilbara Iron

**Project Location:** Yandicoogina, Eastern Pilbara, Western Australia

**Project Summary:** The Northern Borefields project included the fit out of four new bores including head works, piping, instrumentation and electrical infrastructure. The bores will spur into the new DOS pipeline discharging at Mariliana Creek. Additionally, the installation of two re-injection bores were constructed in the Billiard area. The two new re-injection bores required new head works, piping and instrumentation to connect to the Southern Borefield tank.

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**IO Project - Camp**

Design Services

**Client:** FMG

**Project Location:** Approximately 100km north of Newman in the Pilbara Region, Western Australia

**Project Summary:** Engenium was engaged by FMG to carry out detailed engineering and design for a 250 person camp for an early ore project. The project elements included bulk earthworks and drainage, in ground services, camp layout for buildings and facilities, access roads including emergency vehicle access, gen set power station, fuel storage, waste water treatment plant and spray field, portable water treatment plant and storage tanks, fire fighting system, communications including microwave link infrastructure to Christmas Creek Mine and recreational facilities. All engineering was undertaken with 3D modelling, which provides the opportunity for identifying conflicts and unlimited view for comprehension. Engenium liaised closely with the construction contractor to optimise constructability outcomes.

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**Eastern Pilbara Exploration Team Offices and Core Facility**

Selection and Definition Phase Studies for The Eastern Pilbara Exploration Team Offices and Core Facility

**Client:** BHP Billiton Iron Ore Limited

**Project Location:** Whaleback Mine Site in Newman, Western Australia

**Project Summary:** Engenium were commissioned by BHPBIO to work on a non-process infrastructure project involving the construction of new offices, core logging and storage facilities for their exploration team. The completed facility measured 530 x 75 metres and included two separate office buildings, the main office complex suitable for 79 employees and the core shed office suitable for 10 employees. The core facility comprised of a pulp shed (30 x 24 metres), consumable shed (20 x 10 metres) and core shed (60 x 16 metres). Design of the facility had to tie in with the adjacent Newman warehouse expansion. Engenium were involved in all aspects of the planning and design stages including architectural, mechanical, structural, electrical and communications.

Work completed during the Definition Phase Study included the following:

- Completion of the engineering design issued for tender
- Completion of the engineering design issued for construction of the civil works
- Procurement of long lead items such as the main office complex, sheds, sub-station and switchboard kiosk, high voltage cable and BioMAX systems
- Completion of HAZID workshop.