Port Infrastructure

Capability Statement
Port Infrastructure
Project Delivery

Engenium has a strong history in logistics and port 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. Key personnel within Engenium’s dedicated team are experts in port infrastructure.

Engenium manages infrastructure projects from the strategic level and feasibility study stage through to detailed design, documentation, construction management, commissioning and handover. Our understanding of port 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 infrastructure projects, Engenium has a track record in:

- Heavy haul rail and transportation
- Roads, bulk earthworks and drainage
- Transport intersections
- Port inloading
- Shiploaders
- Conveyor systems
- Storage facilities
- Power generation, transmission and distribution
- Fuel storage and distribution facilities
- Concrete and steel structures
- Administration offices
- Workshops and warehouses
- Security office and site access systems
- Crainage

Our Clients have come to depend on us to successfully manage all aspects of 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.
We understand that all of our Clients have unique project requirements, are structured differently and have varying levels of in-house project capability.

Port services provided by Engenium include:

**Engineering**
- Shiploading
- Product handling including conveyors, feeders and hoppers
- Truck dump reception
- Rail car dumpers
- Railway Engineering
- Electrical Design
- Earthworks and Drainage
- Structural.

**Project Services**
- Contracts Management
- Document Control
- Spares and Inventory Assessments
- Project Monitoring and Audits
- Logistical and Project Planning
- Quality Assurance and Quality Control
- Program Management
- Procurement Controls
- Cost Estimating and Control
- Needs Analysis and Brief.

**Management**
- Project Management
- Training
- Feasibility Studies
- Project Study Leadership
- Risk Management
- Occupational Safety & Health
- Environmental Studies
- Design Management.

**Construction**
- Construction Management
- Operational Interface Management
- Commissioning
- Safety Management.

**Engineering Consultancy Services**
Engenium has been engaged by both public and privately held companies to advise and undertake engineering consultancy services on specific projects. This includes:
- Design and assessment of specifications for port infrastructure at the conceptual through to detailed level.
- Inspect and report on existing port infrastructure.
- Prepare reports on the standards of service delivery.
- Make recommendations on any improvements that a port may require, such as sidings and bulk commodity loading facilities.
- Assist with the preparation of study reports, approvals and regulatory requirements.
- Assessment of operational service standards.
- Assessment of new facilities investment (capital expenditure and construction costs).
- Assessment of costs relating to technical operating matters (operating expenditure), review and approval of operational documents such as the train management guidelines and train path policies.
- Review, analysis and development of operational documents.
Port Infrastructure Experience

Engenium has been involved in the following projects:

- **Macarthur Minerals**
  Magnetite Scoping Study, Haematite Scoping Study and Pre-Feasibility Study
  Investigated Oakajee, Geraldton, Kwinana, James Point, Bunbury, Albany and Esperance Port. Reviewed road and rail logistics, rail and road unloading, stockpile and shed storage, conveyors, container storage and ship loading.

- **Sherwin Iron Scoping Study**
  Investigated Darwin Port and establishing a dedicated port. Reviewed rail logistics, unloading, stockpiling, truck transfer, transhipment, barge and ship loading.

- **Cazaly Resources Port and Logistics Study**
  Investigated Albany and Bunbury Port. Reviewed rail loop, unloading, shed storage, conveyors, ship loading.

- **Cove Resources, Koivu Titanium Project Scoping Study**
  Port of Kokkola (Finland), Port of Pori (Finland) and Port of Rotterdam (Netherlands). Reviewed load haulage and container handling and storage.

- **Atlas Iron, Ridley Magnetite Project Scoping and Pre-Feasibility Study**
  Investigated Utah Point, FMG’s Anderson Point, Berths 3&4, South West Creek and offshore transhipment.

- **Landcorp, Oakajee Industrial Estate**
  Technical advice in the development of the master plan covering land use and infrastructure requirements for the industrial estate.

- **Amex Resources, MBA Delta Ironsands Project Bankable Feasibility Study and Execution**
  Lautoka Port - barge unloading, slurry pond storage, washing and filtering, shed storage, conveyors, ship loading.

- **Polaris Metals, Yilgarn Iron Ore Project Logistics and Port Study**
  Kwinana Port and Esperance Port - rail loop and siding options, unloading, shed storage, conveyors and ship loading.

- **Golden West Resources - Wiluna West Project Pre-Feasibility Study**
  Geraldton, Esperance and Oakajee Ports - road and rail logistics, unloading, shed and stockpile storage, conveyors and ship loading.

- **Blackham Resources, Scaddan Project Scoping Study**
  Esperance Port - rail loop and siding options, unloading, shed and stockpile storage, conveyors, overland conveyors and ship loading.

- **Iron Road, Warramboo Iron Project Order of Magnitude Study**
  Port Thevenard (Ceduna), Port Lincoln, Elliston Port and Whyalla Port in South Australia.

- **North West Infrastructure Land Side Infrastructure Study**
  South West Creek Port - Stacker, reclaimer and stockpile options.
MBA Delta Ironsands Project
Engineering and Study Management for a Bankable Feasibility Study, Detailed Design, Contracting and Procurement of Port Infrastructure for Execution.
Client: Amex Resources
Project Location: North West of Viti Levu, the main island within the Fiji Island Group, covering an area of more than 132 km² at the mouth of the Ba River.

Project Summary: Engenium was engaged to conduct a bankable feasibility study for the MBA Delta Ironsands project which included a dredge in the inter-tidal delta, a floating concentrator, barging to the port washing and storage facility and ship loading. Following completion of the bankable feasibility study Engenium was appointed to undertake the detailed design, contracting and procurement for the port washing and storage facility. The land side facility included a barge unloading reclaimer, filtration plant, product storage shed, conveyor system, ship loader and process water tanks. The project team tendered and evaluated eleven procurement contracts and six construction contracts.

Port Facilities for Various Atlas Iron Projects
Project Management, Engineering, Procurement and Construction Management
Client: Atlas Iron
Project Location: Pilbara Region, Western Australia

Project Summary: Engenium has worked closely with Atlas Iron for several years providing services from scoping studies, pre-feasibility studies to execution. Engenium has provided these services on a number of Atlas projects including Pardoo, Wodgina, Turner River Hub, Mount Webber and Rook East.

The port options investigated for these projects included an existing public access berth (Port Hedland Port Authority), Utah Point (Port Hedland Port Authority), berths 3 and 4 at South West Creek (Port Hedland Port Authority), Fortescue’s facilities at Anderson Point and offshore transhipment.

The facilities designed included truck dump receival facilities, stockpiles, conveyors, overland conveyors and ship loading.

Ullaring Haematite Project and Lake Giles Magnetite Project
Engineering and Study Management
Client: Macarthur Minerals
Project Location: Yilgarn Region, Western Australia.

Project Summary: Engenium was appointed as the study manager for the scoping study for the Lake Giles Magnetite Project. The project investigated the mining and export of 10 Mtpa of magnetite concentrate. The logistics and port options explored were the proposed Oakajee Port, Esperance Port, existing proposed berths at the Kwinana based facilities of Fremantle Port and the proposed James Point Port.

Engenium was also engaged to undertake a scoping study and a subsequent pre-feasibility study for the Ullaring Haematite Project. The Ullaring Project was a 2 Mtpa Direct Shipping Ore operation including road haulage to existing rail, then rail haulage to Esperance Port. During the study the following Ports were investigated Esperance Port, Fremantle Ports - Kwinana Bulk Berth, James Point Port, Bunbury Port, Albany Port, Geraldton Port and Oakajee Port. Most ports were quickly established to be not cost effective. Following discussions with Fremantle Ports, James Point Port and Esperance Port, the Port of Esperance was selected as the preferred option.

Esperance Ports existing facilities were at capacity, the port was space constrained and the transport corridor had existing noise and community issues. Engenium developed a number of options including rail sidings, rail loops, rotary car dumpers, overland conveyors, storage sheds, open stockpiles and ship loading.