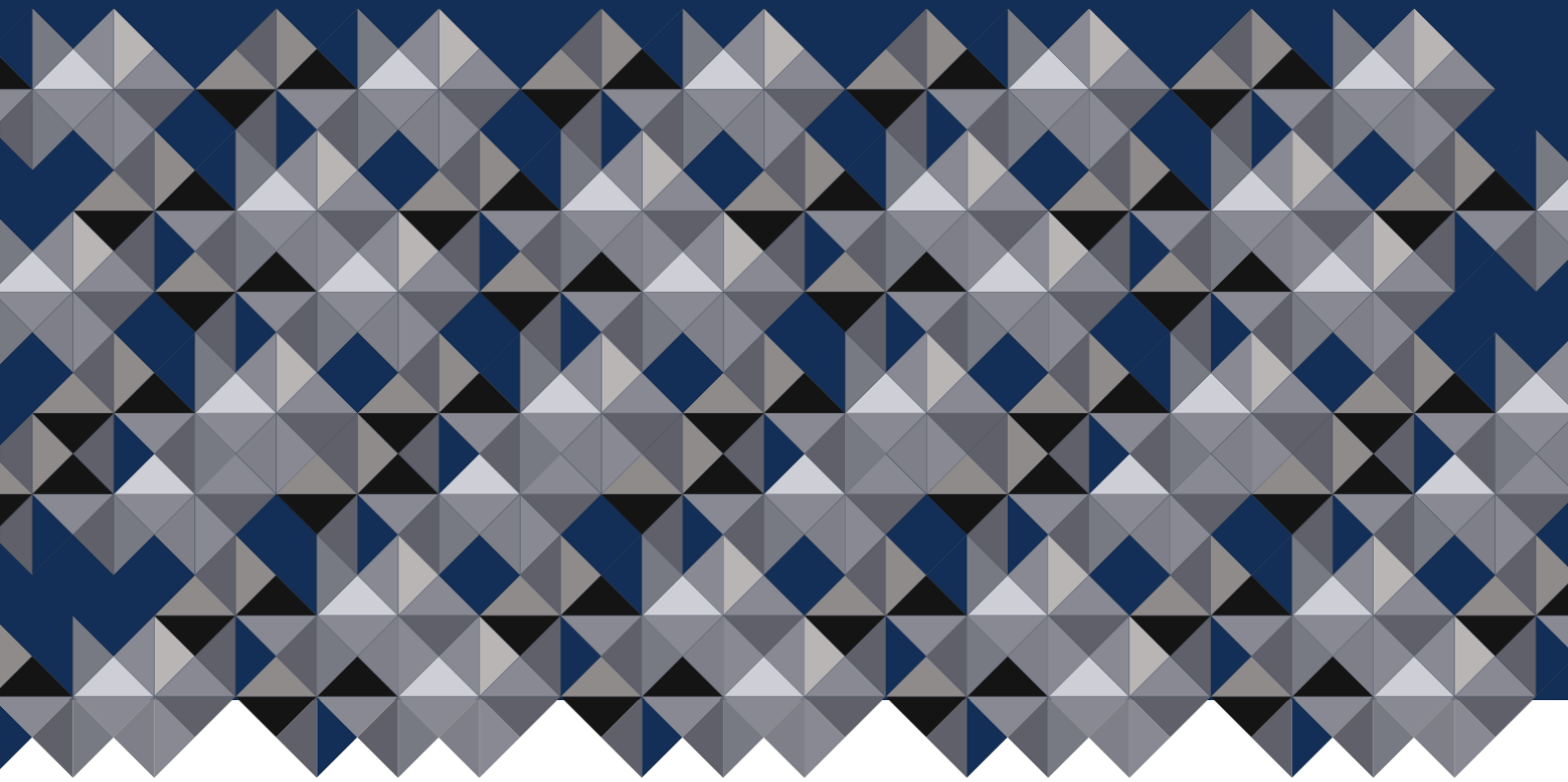




PERTH  
BUNBURY

# CAPABILITY STATEMENT





*A leading provider of quality engineering & project delivery services  
working in close collaboration with our clients to provide  
cost effective, value driven solutions*



## WELCOME TO JMD ENGINEERING

JMD Engineering was formed in 2007 and is a leading provider of engineering design, drafting and project delivery solutions for the mining and mineral processing sector. With offices located in Perth and Bunbury, Western Australia, JMD are a highly experienced team of dedicated professionals. JMD have a proven track record of delivering successful project solutions, from small maintenance improvements to major plant expansions, for a wide range of clients.



## COMPANY OVERVIEW

# SERVICES & EXPERTISE

### Process Plants

JMD has significant experience in delivering process plant design and plant upgrade solutions across a wide range of minerals and commodities. Our multi-discipline design specialists have knowledge and expertise in designing process plants from simple crushing and screening circuits through to more complex processing plants.

JMD can assist in process plant design from feasibility through to detailed design and drafting. We utilize a range of 3D modelling software to ensure accuracy of design, integration of disciplines and interactive reviewing.

Our process plant capabilities include development of flowsheets, process flow diagrams, piping & instrumentation diagrams, project capital estimates, conceptual plant design, detailed design & shop detailing, project management, construction and commissioning support.

JMD have completed a multitude of process plant design projects including gold CIL circuits, tailings facilities, elution circuits, gravity circuits, material storage and load out plants, slurry storage and unloading, minerals concentration plants, tailings reprocessing, dense media separation and water treatment plants.

### Materials Handling

JMD have wide ranging experience and extensive capabilities in the design of materials handling systems for various materials ranging from standard conveying, chutes and hoppers through to unique and custom handling processes.

Our design capabilities include ROM, crushing and screening, conveyors (overland, inclined, radius, static & rotating stackers etc.), feeders (belt, apron, screw), bucket elevators, bins, hoppers, silos, transfer stations, port facilities, shiploading, road and rail and slurry pipelines.

Our experience spans across a wide variety of ore & materials including gold, iron ore, mineral sands, bauxite, alumina, manganese, diamonds, spodumene, copper concentrate, coal and grain.

### Civil Design

JMD's multi-discipline capabilities extend to the provision of Civil engineering and design. Our comprehensive Civil design capabilities are founded on engineering expertise and project based practical experience.

Our Civil design capabilities include processing plant civil infrastructure, minesite infrastructure development, bulk earthworks, road design and upgrades (to WA Main Roads requirements), carparks, drainage systems, culverts and sumps.

### Chemicals & Dangerous Goods

JMD have significant expertise in the design of chemical and dangerous goods storage and handling facilities.

Our capabilities include engineering design of bunded areas, storage equipment, transfer pumps, pipeline and equipment in compliance with dangerous goods standards and regulations.

Our design experience includes acid storage facilities, water treatment plants, elution facilities, reagents storage and hydrocarbons.

### Pumping & Piping

Utilising a range of flow modelling software and a wealth of knowledge and experience, the design of pump and piping circuits is a core capability of JMD.

JMD can provide a full spectrum of fluid mechanic design and support services including slurry pumping systems, pipeline and pumping systems, slurry rheology analysis, site investigation and audits, system optimization and installation and commissioning support.

Previous slurry pumping and pipeline projects include tails pumping, waste disposal, thickener underflow, mill discharge, cyclone feed and various other Newtonian, Non-Newtonian and settling slurries.

JMD have also completed numerous water system design projects including pumping stations, decant return, thickener overflow process water supply systems, potable water systems, fire water systems and gland water systems.

Our project experience also extends to the pumping and piping of other media including natural gas, acids and reagents.

### Plant Equipment

Utilising our depth of knowledge, expertise and practical site experience, JMD have completed numerous equipment design projects including belt feeders, apron feeders, screw feeders, belt reelers, belt pulleys, elution/acid wash columns, carbon regeneration kilns, conveyor trippers and bore restoration rigs.

Our capabilities also include engineering design and certification of classified plant including pressure vessels, crane and lifting equipment. We have also designed numerous process vessels, storage tanks and related equipment.

### Site Scanning & Measurement

Employing the latest 3D laser scanning technology for over a decade, JMD has established an efficient and effective workflow to collect site data and integrate it accurately into our designs. This allows us to develop design models and ensure full consideration of existing infrastructure and elimination of any potential issues. Overlaying 3D scan data with detailed models provides an interactive design approach for both internal design development and client operational and maintenance reviews.





## SERVICES

- Process Design
- Feasibility Studies
- Design Drafting
- Detail Drafting
- Engineering Verification and Design
- Finite Element Analysis
- Site Measuring
- 3D Laser Scanning
- Root Cause Analysis
- Workshop Processing
- Fluid modelling – Media Flow Analysis
- Multiple disciplines – Mechanical, Structural, Piping, Electrical and Civil.
- Greenfields and Brownfields Project Management and Design
- Turnkey Project Solutions from:
  - o Project Feasibility
  - o Project Management
  - o Conceptual Design
  - o Detail Design
  - o Procurement
  - o Fabrication Management
  - o Site Construction Management
  - o Statutory Compliance Management

## SOFTWARE

JMD utilises a variety of quality products, to consistently produce to the highest standards and thus exceed our client's expectations. These products include:

- Inventor
- AutoCAD
- PowerCAD
- Revit
- Plant 3D
- Space Gass
- Autodesk Simulation Mechanical
- Femap
- Leica 3D scanning
- Microstation
- Helix Conveyor Design
- Helix DEM (Discrete Element Modelling)
- Fluid Flow

## EXPERTISE

JMD has demonstrated specialised services in the following areas:

- Materials Handling – Conveying, Chutework
- Gold Mining and Processing
- Grain handling
- Mineral Sands
- Power Generation
- Manganese
- Lithium
- Iron Ore
- Woodchips
- Water Treatment
- Fabrication and Construction Services
- Dense Media Separation
- Bauxite/Alumina
- Slurry Systems
- Crushing and Screening Circuits
- Refineries
- Industrial Gases
- Commercial and Industrial Infrastructure





## PROJECTS

### MECHANICAL, STRUCTURAL, PIPING, ELECTRICAL & CIVIL

#### Gold

JMD has extensive experience in the engineering design and project delivery for gold processing circuits. JMD have provided ongoing plant design services to Newmont Boddington Gold since 2010 as well as to numerous gold region operations including KCGM, Saracen (Carosue Dam, Thunderbox), Goldfields (St Ives, Agnew, Darlot), MetalsX (Higginsville), HBJ (Jubilee), Newcrest (Telfer) and Silver Lake Resources (Tukabianna, Mt Monger) etc.

#### Non-Ferrous Metals

JMD have assisted and continue to assist many clients in the Non-Ferrous Metals sector. This partnership includes continued ongoing plant design, upgrades and improvements for South32, Worsley Alumina, Alcoa, Simcoa, Global Advanced Metals, OM Manganese, Talison Minerals etc.

#### Iron Ore

JMD has performed numerous works for the Iron Ore industry including major chutework, ROM bins and Feed Hoppers, Feeders and Conveyors, Head Chutes and Structural Steel.

#### Mineral Sands

JMD has extensive project experience in the mineral sands sector from minor upgrades to new circuit development. JMD have completed in greenfields plant design as well plant upgrade and expansion projects for Iluka, Image Resources, Doral and Cristal.

#### Grain Handling

JMD has completed numerous upgrades to existing facilities for the Grain Industry. From ongoing design support to full turnkey solutions, JMD has developed excellent Grain Handling knowledge.

#### Port Facilities

Due to our portside location and unique skillset, JMD has become a primary supplier of engineering solutions to Southern Ports Authority Bunbury Port facilities. JMD has completed a variety of projects including plant layout development, conveyor and transfer point design, system upgrades, drainage design, ship loader upgrades and project support services. JMD has assisted in Port infrastructure upgrades since 2008.

#### Gases

JMD has completed engineering and design projects for various gas delivery systems including LPG, medical gases and other pressurised piping systems for clients such as Alcoa and BOC Gases.

#### Dense Media Separation

JMD has substantial knowledge and experience in the design of Dense Media Separation (DMS) plants. JMD have successfully designed DMS plants for various products including Diamonds and Manganese. Our experienced personnel can provide specialised knowledge to our clients to maximise any DMS requirements.

#### Product Development

JMD are experienced in the design of mobile/modular mining plant & equipment and proven capabilities in the design of specialized equipment to suit client project requirements. JMD has produced numerous packages of fabrication drawings for our client base since our inception in 2007. Since that time, JMD has continued to expand to providing full design and construct facilities, including robust Project Management services. JMD is the one-stop company for clients seeking fabrication and construction of any infrastructure, from simple concept, right through to commissioning.



## PAST PROJECTS & CLIENTS INCLUDE :

- Bauxite Surge Bin – South32 Worsley Alumina
- Mobile Mining Units - RCR Mining
- Dense Media Separation unit – OM Manganese
- Plant Expansion / ROM Bin – Talison Lithium
- Elution Circuit Upgrade - KCGM
- Life of Mine Tailings - KCGM
- FMG Belt Feeders – RCR Mining
- Gold CIL Gravity Circuit – Silverlake Resources
- Ongoing Technical support – Newmont Boddington Gold
- Ongoing Technical support – South32 Worsley Alumina
- Water Treatment Plant – Talison Lithium

*JMD Engineering strives to improve our products and services through continuous evaluation of all business activities. JMD is currently undergoing accreditation to achieve ISO 9001.*

- Iluka • BHP Billiton • SP (Southern Ports) • South32 • Alcoa • Monadelphous • Synergy
- BOC Gases • KCGM • Orontide • Silverlake Resources • St Ives • Downer EDI • Norton Goldfields
- Cristal Global • Talison Lithium • Saracen • Newmont • Newcrest • Global Advanced Metals

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