



Port Hedland, WA

## Dampier Salt Ltd - Port Hedland Wet Salt Dump Bridge

### Overview

As part of their continuous maintenance plan, Dampier Salt Ltd planned to replace the existing wet salt dump bridge main steel deck at the Port Hedland site as it was failing due to fatigue loads. The design of the replacement bridge deck for the wet salt dump bridge required fitting into the main existing structure. The sub-structure was still in adequate condition with only the bolted splice connections of the main beams requiring replacement as they were failing due to fatigue loads.

### Type of Engineering Work

Structural Engineering - Industrial & Mining

### Work Timeframe

November 2017 - July 2018

### Contract Value

Commercial in Confidence

### McDowall Affleck Contact

Alberto Puccini & Ben Galvin

### Scope of Work

- Alternative concept options to improve constructability and reduce installation time
- Planning of load test with strain gauges monitoring
- Structural design and documentation for fabrication of bridge deck replacement and main beams welded connections
- Fatigue assessment
- Preliminary lift study of main welded frames
- On site consultancy during construction and installation

### Project Challenges

- Short timeframe for installation, minimisation of site work
- Non-flexible geometric constraints
- Fatigue governed design
- Limited crane access

### How we managed this

- Offsite prefabrication was maximised to reduce amount of site welding
- Purpose fabricated welded beams
- Detailed 3D structural FEA under moving load

### Value Engineering

- Design of the main deck in two large welded frames fabricated in developing markets
- Design of adjustable interfaces to minimise installation risks
- Presence of McDowall Affleck's design engineer on site during the critical stages of installation

