ROAM MARINE

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Project: **FMG Iron Ore Export Facility**

Project scope: Roam assisted FMG with value engineering review of the preliminary design.

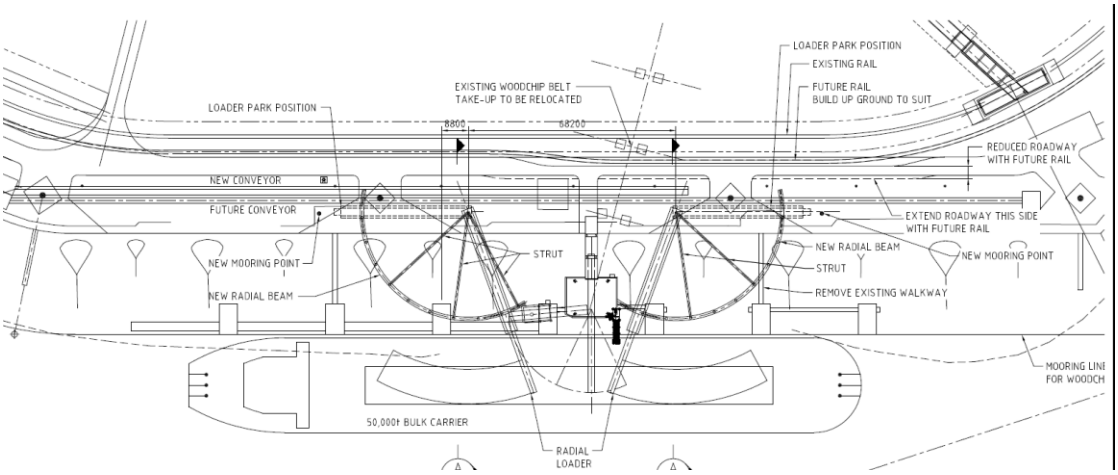
The review proposed changing the shiploader type which reduced the rail centres from 36.8m to 14m. This resulted in considerable savings in wharf structure, improved maintenance access and made it possible to modularise the wharf deck.

FMG then engaged RM for a further 10 months FEED where RM were responsible for all marine structures interfaces – dredging, ship loader, conveyors, services, port authority, approvals, maintenance, operations, future expansion etc. RM were responsible for scope, tender documentation and award of two major contracts – dredging and wharf structures – worth over $350million.

For the next 8 months RM was responsible for the administration of the design & construct marine structures contract with McConnell Dowell. RM was instrumental in modularisation of the wharf and heavy lift installation which saved FMG considerable time and money and effectively put the port ahead of the mine and rail schedules. FMG/BHP/RoyHill then used the same concept for the next 10 berths in Port Hedland.

Project: **Albany Port Authority Berth 6 – Exporting 2mtpa Iron Ore**

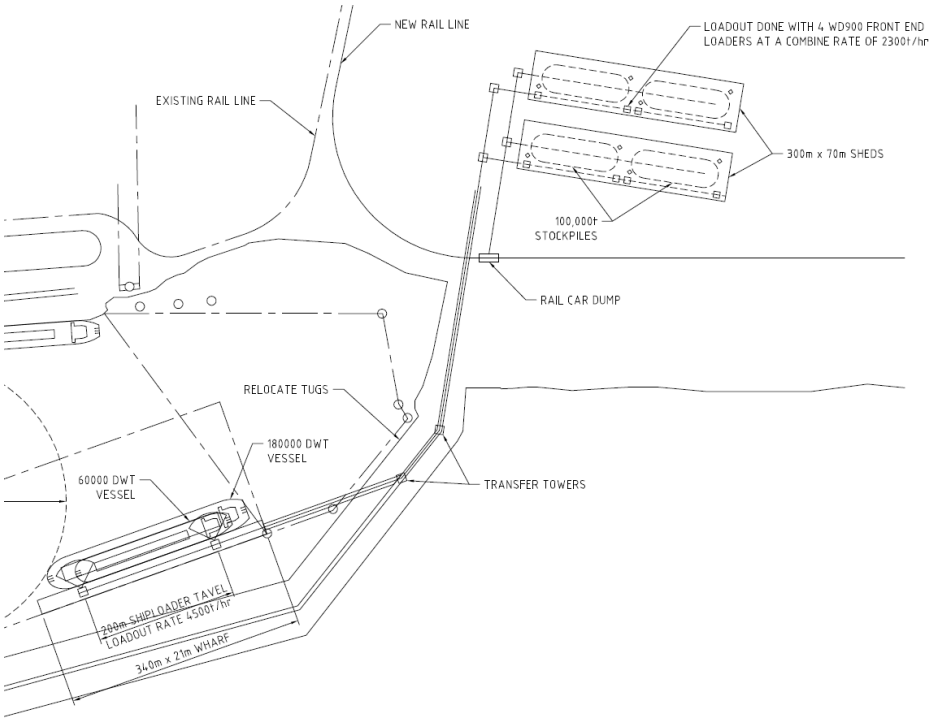
Project scope: Feasibility study on the existing woodchip berth investigating the possibility of exporting 2mtpa of iron ore. Scope includes determining load rates, suitable ship loader, modelling throughput, demurrage, preliminary design of Berth 6 marine works, and upgrade of the onshore including rail corridor, car dumper, stockyard and conveyor options. The berth was to be designed to be shared with future grain export and woodchip export on the existing woodchip shiploader and conveyor system so twin radial stackers were proposed either side of the existing fixed loader. Layouts and budgets were prepared for all facilities downstream of the rail - the marine works, shiploaders, conveyors, rail unloading and operations facilities.



Roam also looked into future expansion and an option to export the iron ore from Berth 5, including investigating load rate, providing preliminary marine works and budget costing.

Project: Port Buchanan, Liberia - Exporting Iron Ore for Sable Mining Africa

Project scope: Two feasibility studies with Xstract Mining. The first study was in 2012 to investigate the possibility of exporting 5, 10 or 15mtpa of iron ore. Roam provided concepts for the port and stockyard. The second study was to downsize the concept for export of 3mtpa.

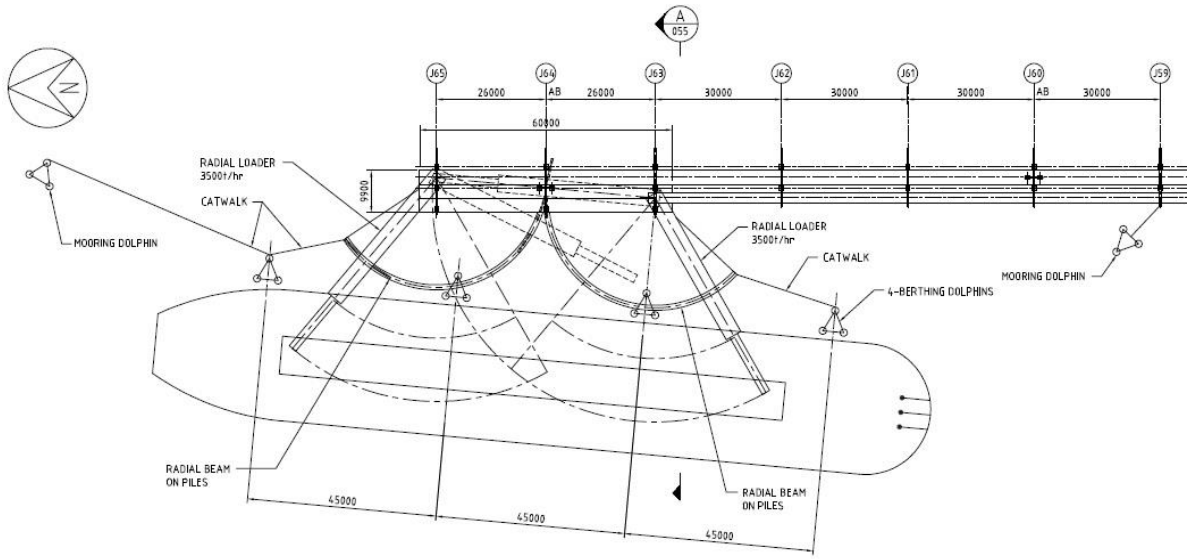


Scope included site visit to finalise port facility requirements including berth location, rail loop, stockyard, conveyors, wharf and shiploader. The port was limited to Panamax vessels so transhipment options were researched so that Cape vessels could be loaded offshore.

Project: Buckland Project Cape Preston East – Iron Ore Holdings

Project scope: Austral Construction engaged Roam to review the tender design and propose alternate design for the proposed IOH wharf at Cape Preston to tranship 3-14mtpa of iron ore. RM proposed smaller tranship vessels because of the tide restrictions and a change to twin radial loaders so that vessels don't have to be warped along the berth. The MOF was moved to deeper water and located to assist with jetty construction over the reef. The alternative structure provided savings in construction cost, pile tonnages, reduced drilling and smaller fewer dolphins. There was also no

requirement for a lift ship and better maintenance access. Facility could be expanded to 14mtpa by adding additional loader, berth and tranship barges.



Project: **Streaky Bay Gypsum Export facility – Pre-feasibility study**

Project scope: Roam produced a brief concept report for a facility near Streaky Bay in SA to export 0.5mtpa of Gypsum. Work included selecting a port site and scoping a minimum cost jetty and loader. A budget was estimated to design and construct a piled jetty, wharf platform with bollards and fendering, shiploader, small boat facilities and navigational aids.

Project: **Quantum – BHP outer Harbour Port Hedland**

Project scope: Roam were engaged to review the constructability of the proposed BHP outer harbour at Port Hedland. Scope included the jetty wharf and dolphins layout construction methods etc.

Project: **Vaghena Island Bauxite Port facilities - Solomon Islands**

Project scope: Concept scope study for port facilities to export 2mtpa of bauxite at Solomons Islands. Study included reviewing bathymetry, navigation, berthing requirements, mooring, tugs shiploader, truck unloading, stockpile sheds and loadout conveyors.