

Stories written for Australian Ports News – February 2017

Port of Townsville Berth 4 upgrade to double container-handling capacity

Three companies have been shortlisted and asked to submit proposals to operate a general cargo and container terminal at Berth 4 in the Port of Townsville.

They are Australian Amalgamated Terminals (AAT) Pty Limited, DP World Australia and Townsville Bulk Storage and Handling. The successful organisation will operate the multi-purpose terminal after the completion of a \$40.7-million upgrade project which is currently underway.

“The Port of Townsville is a vital and strategic trading port for North Queensland, and is Northern Australia's largest container, automotive and general cargo port,” said Ports Minister Mark Bailey.

POTL Chief Executive Officer Raneë Crosby said that the successful bidder would invest in state-of-the-art cranes and equipment which would effectively double the port's container handling capacity and lead to more shipping visiting the port.

Berth 4 was originally built of timber which was later replaced by a skeleton concrete deck in two stages between 1987 and 1991. Berth 4's quay line could not be extended seaward to match that of Berth 2&3 due to the close proximity of a pier housing Berths 6&7 (prior to its demolition in 2016).

In order to provide shipping with room to access Berth 6, Berth 4's quay line was left 7 metres behind the adjacent Berth 3 and its deck was 600mm lower. The situation was not optimal for the smooth running of the port and increasing cargo, containerisation and growing ship size in general prompted POTL to consider upgrading the berth as a precursor to their long-term Port Expansion Project (PEP).

A review of the B4 Upgrade design and a process of stakeholder engagement began in 2015 following approval of the project to ensure the design incorporated the latest capabilities and forecast requirements.

The original scope of work included the installation of a new deck with a quay line which was to be aligned with Berth 2&3's and at the same level. In addition, the berth was to be able to accommodate Panamax-size vessels, including general and bulk cargo types with an overall length of 230m, a displacement of 70,000t and a draft of 12.2m at all tides and the ability to berth vessels up to 140,000t displacement by simply replacing the fender cones.

The berth was also to have an increased live load capacity, provide full-length Portainer crane access and maintain Cement Australia operations during the upgrade. The existing delivery pipelines for molasses, caustic soda and cement were to be located in covered pits in the wharf deck and accessed by removable standpipes to provide maximum flexibility for cargo handling.

The options were to demolish the existing concrete and steel pile wharf structure, or attempt to incorporate it into the new structure. Incorporation offered the chance to make significant cost savings, increase construction flexibility and assist in the trade operation during construction but posed some risks.

One of these was whether the existing piles would be adequate to meet the design life and potential limitations on operational loading. As part of the design process the piles were physically load tested and their capacity was determined to be sufficient.

The solution to incorporate the existing structure was chosen due to the fact that demolition would have added additional costs, maintaining cargo operations would have been complex and it would not have supported POTL's commitment to local employment.

A pre-tender design review was undertaken in 2015 and the original scope of work was essentially maintained. There were some refinements including the change to discrete fenders at the quay line and confirmation of access for mobile harbour cranes equivalent to the Liebherr LHM550.

Keeping the berth operational during the upgrade, especially for cement imports, was extremely important for the port and contractors tendering for the project were required to view vessels discharging their cargo to get an accurate idea of the steps they would have to take to keep the berth operational.

Work on the demolition of Berths 6&7 began in mid 2014 and was completed in 2016 shortly after the contract for the upgrade was awarded to Townsville firm CivilPlus Constructions. Work began on-site in April 2016 and at February 2017 40% of the new piles had been driven, the Berth 3 component had been completed and the first pour of concrete for the Berth 4 deck had taken place.

Upgrade Project Manager Martin Gledhill said that, when completed, the new berth, would bring much-needed extra capacity and flexibility to the port. He said it would be able to accommodate larger vessels and that the continuous quay line and crane access from Berth 2 through 4 would allow different combinations of vessels to be berthed at one time.

MCS ship loading solution for Sun Metals in Townsville

Mobile Conveying Systems (MCS) is in the final stages of constructing a ship loader and conveyor system for Sun Metals at the port of Townsville.

The mobile towable unit will be used by Sun Metals to load ships with zinc ferrite for export. The product is produced at the Sun Metals plant as a by-product of their zinc refining process.

MCS managing director Graeme Cooney said that the big challenge for his company was the system had to be fully enclosed with a negative air pressure internally.

He said that the 60m conveyor and 20m telescoping loading chute were based on Superior Industries products and had been enclosed with parts fabricated by his company. MCS also supplied and fitted an extraction and filtering unit to maintain negative air pressure in the conveyor to prevent dust escaping.

The conveyor system has a height of 20m and will be fed by a fully enclosed truck unloader designed and supplied by Page Macrae in New Zealand.

Zinc ferrite will be delivered to the wharf from the Sun Metals plant by truck, transferred from the truck unloader to the ship loader via a 20 m conveyor also supplied by MCS and delivered into the ships' holds via a retractable chute.

MCS received the order from Sun Metals for the system in July 2016 and expects to deliver and commission it in Townsville by March 2017. The system will be erected and tested in MCS's yard at Narangba before being transported to the site.

The system includes the enclosed conveyors built on trailers plus a mobile generator and fuel pods. It will be able to load vessels up to Panamax in size at a rate of 1200 tons per hour.

Mr Cooney said that his company's expertise in ship loading was proving valuable to clients across Australia. He gave a recent example where MCS loaded woodchip for Allied Natural Wood Exports at Eden Port after their ship loader had been destroyed in a storm.

He said that the company was currently busy assisting a client in Western Australia with a difficult project by loading mineral sands off a very narrow berth using MCS's truck-mounted conveyors and mobile truck unloader.

MCS is the Australian agent for a number of materials handling suppliers including Superior Industries and they have extensive experience in customising these products to suit individual client requirements and in fabricating solutions for clients where these are not available off-the-shelf.

Page Macrae designs hopper/truck unloader solution for Sun Metals

New Zealand-based engineering firm Page Macrae Engineering has undertaken a major project for Sun Metals in Townsville.

The company was asked by Sun Metals to design a solution to load shipments of zinc concentrate arriving at the port of Townsville onto trucks for transport to their plant and, at the same time, the system was also to be capable of loading ships with low grade zinc concentrate delivered by truck to the wharf from the plant.

"As far as we know, the hopper/unloader solution we designed for Sun Metals is a world-first in that it will facilitate both the export and import of products for the company," said Page Macrae Port Equipment Manager, Bruce Ennis.

He said that the job had provided a number of challenges for Page Macrae: Not only did the operation need to be engineered to eliminate dust emissions, the product itself proved to be difficult to handle being very sensitive to compaction and had a tendency not to flow well. The final challenge was the extremely tight delivery deadline.

The client's requirement was for a fully enclosed truck unloader to receive zinc ferrite from the Sun Metals plant via side-tipping triple road trains, each with a load capacity of 85 tonnes, and to feed the product onto a conveyor and ship loading system.

Working in reverse, the system was to receive zinc concentrate delivered by ship by a crane-mounted grab into a hopper and then load that into the triple road trains for transport to the Sun Metals refinery.

Mr Ennis said that Page Macrae, on receiving a request from Sun Metals for their proposed solution, had retained the services of a specialist consultant to carry out laboratory testing on the zinc concentrate and report on any handling difficulties.

In the light of the consultant's findings, Page Macrae determined that a radical new solution was needed. The hopper opening was much larger than originally planned and in addition, the hopper would dispense product into a smaller batching hopper which would, in turn, load the trucks beneath. The result, filling of each triple road train was achieved in less than 10 minutes.

As the truck unloader and hopper unit was designed to eliminate any dust emissions resulting from loading and unloading the product, it was enclosed and fitted with a dust extractor and filter system. This enabled the hopper to maintain a negative air pressure inside preventing dust from escaping.

The extractor system is equipped with two filter banks each containing 106 two metre long filters. The system is self-cleaning with a filter row automatically selected for cleaning from the filter banks, cleaned and returned to service with the filter cake being returned to the product stream.

Page Macrae was awarded the contract for the system in January 2016 and design and construction of the 220-ton unit was completed in October then shipped to Townsville. The system has since been tested and is currently undergoing commissioning by the company. It has been used to unload three shipments of zinc concentrate to date.

"We are very happy with the results achieved by our solution for Sun Metals and believe that it meets all their requirements as well as allowing them to comply with the applicable dust suppression regulations," said Ennis. "It was an exciting year for our company with the challenges of the Sun Metals job and we look forward to seeing where the experience and innovation will take us going forward into the future."

Hart Marine build first ORC 173 pilot boat in Australia

Melbourne-based boat builder Hart Marine recently completed the commissioning and sea trials of the first ORC 173 (17.3m) fast pilot boat ever built in Australia.

Hart Marine general manager Graeme Taylor said the vessel was ordered by Svitzer Australia in 2014 and named 'Svitzer Seara' after Seara Olsen, a Svitzer employee killed in a quad bike accident after a brave fight with breast cancer over a number of years.

Marine services firm Svitzer will place Seara on charter with Chevron where she will be employed at the Wheatstone Oil and Gas Project ferrying pilots to and from gas tankers calling at the site. Construction began in December 2015 and was completed a year later after which she underwent sea trials in Port Phillip Bay prior to the 1400nm voyage to Fremantle and her expected deployment at Wheatstone in March.

The ORC 173 fast pilot boats were designed by French naval architects Pantocarene and are a refinement of the highly popular and proven ORC 181 (18m) model which have been in production for nearly 20 years.

Mr Taylor said that the ORC 173s could do the same job as the 18m models but had a greater hull efficiency which would give them a higher top speed, significantly improved fuel efficiency, greater manoeuvrability and better sea and course keeping.

A number of Pantocarene's European clients have received ORC 173s and, finding them a significant improvement over the previous model, have decided to order more examples; even replacing existing ORC 181s in their fleet with them.

Hart Marine was so convinced by the value offered by the new model that they made the major commitment of obtaining a full set of female tooling to build the new craft. Mr Taylor said that the new design not only offered improved performance and reduced operating costs but it was also cheaper to build and maintain.

The ORC 173 shares the Pantocarene-patented beak bow with the other ORC models including the popular compact ORC 156 (15.6m) model. The beak bow reduces the vertical acceleration experienced by the crew and passengers at sea and greatly improves their comfort and reduces fatigue.

User comfort is enhanced by the vessels' resilient-mounted cabins which shield them to a very great extent from engine noise and vibration. A new engine muffler design has been fitted to Seara which has reduced cabin noise levels even further.

Seara is fitted with a Furuno electronics package twin Yanmar 6HYM-WET motors which develop 700HP @ 2250rpm and feed their power through a ZF : 500-1A to two Veem Star Interceptor 5-blade 750mm propellers. She has a top of 30 knots, cruises at 25 knots with a range of 400 nautical miles and can carry two crew and six passengers.

Mr Taylor said that he was convinced that the new ORC 173 would cement the position of Hart Marine-built ORC boats as the premier pilot boat of choice in the Australasian region. He said the company's order book was looking very solid with a number of vessels currently under construction including another ORC 173; for the Port of Gladstone.

ANWE export facility back in action after storm

Allied Natural Wood Exports (ANWE) reached a major milestone in November when a newly commissioned conveyor system was used to load a woodchip carrier at the company's wharf in Eden Port.

ANWE GM Jarrod Wallis said that a severe storm in June had destroyed a 130m section of the jetty and the conveyor system which the company used to load vessels with woodchip destined for export. He said that a NSW-record 17m wave had been recorded and that the storm had been so fierce that it had even destroyed the piles in the 130m section of jetty.

The local economy is heavily dependent directly and indirectly on the ANWE mill's continued woodchip exports and local state member for parliament Andrew Constance MP described the damage as significant in the aftermath of the storm. He said he was very concerned about the impact on jobs and the local economy.

Mr Wallis said that the adjacent general purpose wharf built for the navy had luckily been undamaged and ANWE had appointed Mobile Conveying Services to load woodchip from that facility. He said that the wharf had not been optimal for the task because it had been unable to accommodate the larger specialist woodchip carriers.

The mobile conveying equipment also did not have the capacity of a fixed conveyor transfer from the stockpile and woodchip had had to be trucked to the wharf but, he said, the solution did allow the mill to maintain an adequate level of exports and keep customers supplied.

ANWE also requested Acora Reneco to produce a general arrangement for making good the damage caused by the storm and getting a new conveyor system up and running with the minimum of delay. The company then produced a detailed design and moved to fabricate the required components.

Along with this, ANWE requested Australasian Marine Constructions to provide a design and construct solution to the repair of the 130m of damaged jetty.

The project was completed under extremely challenging deadlines so that the first vessel could be loaded at the wharf from November 11, with the rest of the project including the jetty access roadway expected to be complete in December.

"We are very pleased to be up and running again so quickly," said Mr Wallis. "Full credit is due to all the contractors and our own staff for putting in long shifts seven days a week to put us in a position where we will be back to normal operation in 2017."

"We are also very glad to note that the local economy did not suffer greatly as a result of our loading facility being put out of action and that about 80% of the contract work was performed by local people to the benefit of the community."

Acora completes Eden Port woodchip conveyor project

Timber materials handling specialist Acora Reneco recently completed a project bringing the ANWE woodchip loading conveyor at Eden Port back online after it had been destroyed in a storm in June, 2016.

Acora MD Roger Timms said that the storm had destroyed the 230 m of conveyor and a large section of the jetty which was used by ANWE to load woodchip produced in their nearby mill onto vessels calling at the port.

“The event which interrupted the export of woodchip was viewed very seriously due to the impact it would have on the local economy,” said Mr Timms. “ANWE immediately appointed Acora to produce a concept design for a solution to get the conveyor up and running again as soon as possible.”

Once the concept was approved Acora moved immediately to create a detailed design for the project which included working with Australasian Marine Constructions (AMC) who were clearing the debris of the old conveyor and the section of the jetty that had been destroyed.

Next, the plan called for new piles from AMC in a 130m section of the jetty and for these to be driven to an agreed resistance which would make them able to withstand future severe storms.

New headstocks were then to be installed to support the pier access roadway and the trestles for the new conveyor which were designed, fabricated and blasted/painted to marine specification by Acora in their Eden plant.

To simplify the project design and speed up construction, the new conveyor starts 1.5m above the level of the previous one and runs in a straight line with a minimum of about 8m clearance above the highwater mark which will help in reducing the effect on it of future storms.

Engineering work on the project began in mid-July and the conveyor was completed end of October with the loading of the first vessel beginning on schedule on November 11. Work on completing the access roadway continues and is expected to be completed in December.

Mr Timms said the clearing of the debris, piling and the installation of the headstocks, trestles and conveyor had been completed against the clock with crews, ably assisted by the mill’s own staff and local contractor Jamie Michelin Engineering working seven days a week, operating in sometimes challenging weather conditions amid all the hazards of working at height in a marine environment.

The result was a safe and on time completion with zero lost time injuries.

Acora Reneco has nearly fifty years of experience in sawmill design and implementing materials handling solutions for the timber industry. The company partners with leading manufacturers of sawmill equipment around the globe.