AUSTRALIAN NAVAL INFRASTRUCTURE

THE MORSE Osborne Naval Shipyard Project Newsletter

he changing face of the Osborne Naval Shipyard is becoming more evident as expansion works progress with new signage at the Veitch Road entrance and within the shipyard and, more recently, the installation of the first of seven 'megadoors' and one 'gigadoor' as part of the Osborne South Development Project (OSDP).

The OSDP is well advanced at more than 70% complete and is scheduled for handover to ASC Shipbuilding in March 2020. In this newsletter we talk about the largest building - the Block Outfitting and Ship Erection Hall which has been constructed using a unique approach that has minimised the need for workers to work at height, reducing safety risks and enabling a more efficient construction process.

The next stage of expansion at the Osborne Naval Shipyard - the Osborne North Development Project (ONDP) - is also about to commence. Early works for the new submarine yard will be commencing in September

The changing face of the Osborne Naval Shipyard

and involves the setup of site facilities for the Project Management Team and construction workers, as well as earthworks and piling in readiness for the construction of the first building.

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Since the last newsletter, we've held two Community Drop-ins at the Osborne Community Hall to give the local community the opportunity to find out more about what's happening at the Osborne Naval Shipyard (ONS). We've also had visits from the Finance Minister, the Premier of SA and the British High Commissioner to Australia to view progress and activities across the shipyard.

OSBORNE NAVAL SHIPYARD

Osborne South Development Project

he construction of the new buildings that form the expanded Osborne South Development Project (OSDP) - a Blast and Paint Hall, Steel Fabrication and Unit Assembly Hall, Block Assembly Hall, and a Block Outfitting and Ship Erection Hall - are well advanced at 70% complete.

The largest building - the Block Outfitting and Ship Erection Hall - is 187m long, 87.4m wide and stands at 50m high. It features a steel framed structure comprising approximately 4000T of structural steel. Two large gantry cranes, capable of lifting 200T, will operate inside this hall.

To build such a structure, using conventional construction methods would involve extensive time working at height and the design and installation of considerable temporary works - both posing increased risk to worker safety and the time taken to construct the Hall.

A solution needed to be found that enabled the Hall to be built in a manner that reduced the time spent working at height and improved the construction process.

It was decided the safest and most efficient method was to build the walls and roof at ground level in sections - complete with all steelworks, cladding, services and fixtures - then rotate or lift each section into place using a method known as strand-jacking.

This resulted in the building being divided into ten wall sections and two roof sections. Each section is being built on the ground, and then rotated into place.



Strand-jacking is used to lift very heavy loads, particularly for the erection of bridges, lifting of rooftops, major buildings and other structures where the use of conventional cranes is impractical.

On the OSDP, multiple hydraulic jacks are attached to the concrete walls around the perimeter of the Hall. These jacks can be operated in tandem using a remote control to enable the lifting of very heavy and large loads - in this instance, approximately 220T for each wall section, and 585T for the roof modules. The second will be 50% heavier.

Once a wall section is rotated into place, temporary props are installed to hold it in place, and the jacks are removed and reused on subsequent sections, as seen in Figure 2.



Walls are pre-assembled at ground level.



Hydraulic jacks and davit arms are installed onto the concrete wall. Safety and engineering checks are undertaken, then the jacks are engaged.



The wall module starts its rotation to 90°.



Temporary props are installed and are removed once the roof section is lifted and bolted to the wall. The temporary props are then removed.

Figure 2: The Wall Rotation Process



Figure 3: With the wall sections rotated into place, the first of two roof sections was constructed



The first of two roof modules was recently lifted into place using strand jacks installed and supported on top of the rotated wall sections, as shown in Figure 3 above. The impressive size of the structure is evident in this photo - just look at how little the workers on top of the roof section appear!

In Figure 4, the roof lift process has commenced. Weighing in at 585T, this process took 9 hours to complete. Figure 5 shows the roof being bolted into place.





rom the 11th to the 13th of October 2019, approximately 30 employees from Lendlease and 7 ANI employees volunteered to participate in a local community project as seen in Figure 6.

In conjunction with Keep South Australia Beautiful (KESAB), this project was implemented through the community clean-up of areas surrounding the Osborne worksite.

Over the course of three days, workers were encouraged to leave their desks for a few hours in

Clean Marine Community Day

an initiative described as having "a meaningful and positive impact" by Cate Harris, Lendlease's Group Head of Sustainability and Lendlease Foundation.

Armed with collection bags, tongs and the ever-important sun protection gear, volunteers headed out to several planned sites along the Mersey Road North area in Osborne. Within half an hour, one volunteer collected half a rubbish bag of waste just by walking to the planned clean-up site.

This was near Mutton Cove, a popular waterside area for locals. Some of the undesirable items collected were cans,

bottlecaps and plastic, all having an impact on the environment.

For more than 24 years Lendlease has supported over 100 national causes through the Lendlease Foundation's Annual Community Day initiative. KESAB and Lendlease, together with ANI, support the community education of environmental protection through the removal of litter in coastal and marine environments and demonstrate this through involvement in projects such as Community Day.

Osborne North Development Project

he next stage of expansion at the Osborne Naval Shipyard - the Osborne North Development Project (ONDP) - is about to commence.

The ONDP involves the construction of new infrastructure to facilitate the manufacture of the 12 Attackclass Submarines that form part of the Federal Government's Naval Shipbuilding Plan.

New infrastructure for this submarine yard will be constructed over the next six years between Mersey Road North and the railway line at Osborne.

Two buildings are scheduled for delivery as part of Phase 1 - a Combat System Physical Integration Facility (CS-PIF), and a Platform Land-Based Testing Facility (PLBTF).

To be constructed by Managing Contractor, Laing O'Rourke, these first two buildings will be built on vacant land owned by ANI on Annie Watt Circuit. Nelcebee Street will be permanently closed as part of these works. Annie Watt Circuit will remain open for local business operations until the end of 2019. Early works for these buildings commenced in August 2019 involving the setup of site facilities for the Project Management Team and construction workers, and earthworks in readiness for the construction of the CS-PIF building, as seen in Figure 7.

Piling for the CS-PIF is expected to commence in November this year and will progress for approximately four weeks, whilst construction of the building foundation slab and steel framing will commence in early 2020. Piling will only occur during the day, and a separate notification with timings and details will be mailed to nearby residents prior to these works commencing.

Phase 2 works for the new submarine yard are still in the planning and design stage, with construction works expected to commence during 2020.



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Other Activities

ther current activity within and around the Osborne Naval Shipyard include the relocation of 66kV powerlines from the closed section of Mersey Road to enable a clear path for the transfer of ships and submarines from the new yards through to the existing ship lifts.

In addition, upgrade works continue for utilities infrastructure such as telecommunications, power, water and gas - all of which are needed to adequately service the new and expanded yards.

Environmentally sustainable development initiatives are being adopted throughout the site, where feasible. For instance, with such a great expanse of roof space available, the installation of solar panels is being investigated and planned to assist in energy generation for the precinct, and the reuse of stormwater captured from ancillary buildings throughout the site is also being adopted. Solar hot water is being installed in our new amenity facilities, and provisions will be made for secure bicycle storage for workers who ride to work.

Additionally, ANI is working closely with the City of Port Adelaide Enfield Council Flinders Ports, and members of community groups such as PAREPG to assist in developing options for the remediation of Mutton Cove Conservation Reserve.