GIVING ADELAIDE WATER FOR FUTURE

Proposals quickly become work in progress when a major city like Adelaide finds itself in prolonged drought conditions and needing a new, secure water supply. The Adelaide Desalination quickly progressed from the design office to bulk earthworks, tunnels and large foundations under the capable management of AdelaideAqua, the multinational consortium working with client SA Water to ensure a reliable, climate-independent water source for the South Australian capital. AdelaideAqua D&C will design and build the plant and marine works. Following the project's completion, the operation and maintenance will be undertaken by AdelaideAqua Pty Ltd.

AdelaideAqua D&C includes engineering and construction firms McConnell Dowell and Abigroup Contractors, who have extensive experience of working together on large projects in Australia, along with entered into a joint venture for this, as for previous projects where their similar company cultures have proven an asset to smooth operations. Their research into desalination technology providers world-wide led them to Spain's ACCIONA Agua, who have an extensive knowledge from a large number of operating desalination plants and ongoing investment in research and development of modern (high efficiency) reverse osmosis systems. When the Adelaide Desalination Plant is completed and running at full capacity, it can produce 100 billion litres of desalinated drinking water each year, enough to meet up to half of Adelaide's water needs.

The fourth member of AdelaideAqua is United Utilities Australia, who in conjunction with ACCIONA Agua as AdelaideAqua Pty Ltd, have won the contract for operation and maintenance of the Desalination Plant for 20 years. Having the O&M operator working alongside in the consortia is essential to bring in the vital operations knowledge, operator needs and long-term durability and operability into the design and build stage. This also ensures ownership by the O&M operator of the facility as it's progressively built and brought on-line.

"There was a very short time between the call for Expressions of Interest by the State Government and the award of the Design and Construct contract," said AdelaideAqua Project Director Duncan Whitfield.

"Meeting a large number of environmental, safety and amenity challenges in a short program remains a challenge to all of us. We had to gear up and get resources up at a rapid rate and this was helped immensely by the Early Contractor Involvement process undertaken by SA Water. We began on site in April 2009 and over the last 14 months we have built around 60 to 70% of the large infrastructure facilities despite having the wettest winter in Adelaide for 20 years."

"The large complex project and a very large geographical spread has required a high level of communications, with connections all through the consortium down to the workers on the ground. It was important to bring the designer and contractors in on the project at an early stage with the client (SA Water) and develop a good relationship. Because the operations and maintenance people were embedded in the management team, we could hold whole-of-life discussions from an early stage."

Within AdelaideAqua D&C the work fronts were divided into disciplinary teams each focused on particular work areas such as tunnelling, marine, civil and mechanical and electrical. The AdelaideAqua staff, workforce and specialist subcontractors are working closely together to deliver the project and achieving milestone targets along the way.

Substantial community, environmental management and monitoring plans are in place. There are 26 separate plans covering every aspect

ADELAIDE DESALINATION PLANT

MAIN CONSTRUCTION COMPANY : Consortium AdelaideAqua
DEVELOPER / CLIENT : SA Water
CONTRACT TYPE : Design, Build, Operate and Maintain
PROJECT END VALUE : 1.37 Billion
COMPLETION : 4th quarter 2011
ENGINEER : SMEC Hatch Joint Venture

including dust, ground water, noise, cultural heritage, explosives, and onsite storage of all vessels containing fuel, including generators. With dredging, drilling and blasting taking place round the clock, noise and vibration monitoring was undertaken to ensure community was not adversely impacted.

Works onsite proceeded from the word go, with 600,000m3 of earth moved within the first two months. At peak construction, a combined AdelaideAqua and subcontractor workforce of 1300 will be onsite, working through the program stages of earthworks; shaft and tunnel construction; building the plant and associated buildings; installation of the reverse osmosis and process technology and associated infrastructure; and marine works offshore connecting risers to the sub-surface tunnels which carry inflow and outfall.

The tunnels were constructed using two human-operated Tunnel Boring Machine's; TBM1-Nessie and TBM2-Cora the Bora, were named by students from Hallett Cove R-12 school at Hallett Cove. The two 150 tonne cutter heads and the 65 tonne of components for each TBM was lowered into the 50m vertical shafts for assembly in-situ, before commencing the arduous task of tunnelling 45 metres below sea level for 800m for the intake and 1.2 km for the outfall.

A diffuser system has been developed for the concentrated seawater outfall, and coupled with extensive modelling and monitoring and a carefully chosen outfall location, impact on the marine environment is negligible.

"The design for the outfall features six risers from 20m under the seabed to the seafloor, each with a diffuser head which has six arms fitted with duck bill head valves designed to open only under a certain pressure, so the system can achieve background within one metre of the outfall. There saline brine is dispersed back to background within the mixing zone approved by the EPA (approximately one hundred metres)," said Duncan.

Ongoing offshore sampling and monitoring of the system's effectiveness will be undertaken by a local university and the Environment Protection Authority will also be conducting routine scheduled monitoring for the life of the plant.

Landscaping will feature a mixture of native vegetation protection and replanting around the plant, as well as construction of a wetland for rainwater runoff storage and reuse. Long-term, the State Government's agreement with AGL for Green Energy supply to the plant minimises the operational carbon footprint.

Another important part of the Adelaide Desalination Project was the construction of a pipeline to transfer desalinated water to the existing supply network, via Happy Valley. This was built by a joint venture between McConnell Dowell and Built Environs.

The construction of a new substation for electrical supply to the plant has been completed by ETSA, South Australia's electricity network provider.

The $1.83 billion Adelaide Desalination Project is part of the State's Water for Good plan to secure water for the future.

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LEADING THE WAY WITH CIVIL PROJECTS

When Adelaide needs infrastructure built, Leed Engineering and Construction bring award-winning skills to the task. For the Adelaide Desalination Plant, Leed were engaged to establish the site prior to the commencement of plant construction.

The company's proven talents in road works, structures, services and other aspects of civil engineering and infrastructure, along with a crew of highly skilled staff, subcontractors and Leed's own fleet of plant, ensured everything was in place for AdelaideAqua and their subcontractors.

Leed constructed sealed access roads and car parking areas for construction workers and staff; security perimeter fencing (including security cameras and lighting); site administration buildings; hard stand lay down areas; a bulk fuel refuelling facility; and service networks for stormwater, sewer, water, power and communications.

Several water-sustainability projects are currently in progress in Adelaide, and Leed are a key player in delivering the outcomes SA Water, and the people of Adelaide, need. In addition to their role at Port Stanvac, Leed has been engaged on the Glenelg to Adelaide Parklands Recycled water Project and the Southern Urban Re-Use project.

The delivery of water related infrastructures is one of the key sectors where Leed's commitment to the community and the environment delivers projects in a safe manner and to specified quality standards. Their previous projects have included water management; recycled and reclaimed water projects, including pipelines and pumping stations; and sewer pipelines. Leed is third party accredited for management systems in Safety to AS 4801, Quality Assurance to AS 9001 and in Environmental Management to AS 14001. The company is also Federally accredited under the Australian Government Building and Construction OHS accreditation scheme.

Other sectors where Leed has delivered major projects include road and bridge infrastructure, such as their recent joint venture with Thiess designing and constructing the Gallipoli Underpass. Other major works also include dam strengthening; microtunneling; bulk and detailed earthworks; services installation; precast, pre-stressed concrete manufacture and structural concrete including dams, water storage and bridges; process plant construction; and support to industry and mining. Leed is a diverse and innovative company, with project delivery experiences including Alliance, Early Contractor Involvement (ECI), Construct Only and Design and Construct (D&C) forms of contract.

Founded in 2001, and with a workforce of around 180 staff, Leed has played a major role in much of the recent upgrading of South Australian civil infrastructure, and have recently won three Engineers Australia Excellence Awards in recognition of their talents.

Leed also has an established presence in Victoria, with a South Melbourne office and a regional office at Bendigo. Leed constructed some of regional Victoria's recent major water infrastructure projects, such as the Epsom to Spring Gully Recycled Water Pipeline and the Goldfields Superpipe Northern Section and there are over 50 personnel including project managers, administrators, safety officers, supervisors, plant operators and construction workers working across the Victorian sites.

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THE FINEST CONSTRUCTION CREW AFLOAT

Works on land are only part of the picture of the Adelaide Desalination Plant project; offshore, construction vessels, dredges and transport barges played a crucial role in constructing the plants intake and outfall structures, and provided an efficient materials transport solution from Port Adelaide to Lonsdale, South Australia. Maritime Constructions supplied AdelaideAqua with both fleet and crews, enabling the offshore works program to be carried out effectively and with zero harm to the sensitive marine environment.

Maritime Constructions is a leading provider of dredging and marine construction services based in South Australia, with a team of over 100 employees and the most comprehensive fleet of marine vessels and floating plant in the State. More than thirty of their staff worked on the Adelaide Desalination Plant project, providing a broad range of expert marine support services.

"We were heavily involved in the development and construction of the Adelaide Desalination Pilot Plant for SA Water in 2008. This plant later provided AdelaideAqua with vital information to adequately design the full scale desalination plant," said Maritime Constructions General Manager – Corporate, Simon Giessauf.

"The project involved the design and installation of an 800m long outfall pipeline / diffuser and 1.6km long intake pipeline structure. Maritime Constructions developed a unique methodology for assembling the pipeline on-shore using steel sinkers that were clamped on to the pipe instead of the traditional method of installing concrete dumps over the pipeline after installing the pipeline on the seabed. This innovation allowed the pipeline to be towed in one piece, installed on site in just one day minimising the requirement for divers. The overall installation was completed in just one day."

One of their initial tasks once work commenced on the full scale plant in 2009 was to provide demarcation of the offshore operating area for marine works, off the cliffs at Lonsdale. Maritime Constructions' 40m self propelled construction vessel, the MV Andrew Wilson with a 12T deck mounted Elmdex crane was used to install nine Marine Exclusion Zone Buoys.

Haulage of many construction supplies for the project was undertaken by sea, with Maritime Constructions also supplying and operating their 40m x 16m 1000T supply barge Aquane between Port of Adelaide and Lonsdale for cargoes including the 1500mm dia x 45m pile casings, grout and other equipment and materials.

Maritime Constructions also supplied an 82m dumb barge, Mandiri 1 with crew, to provide support to AdelaideAqua's jack up barge Santa Fe and to receive and treat dredge and drilling spoil, thus ensuring project environmental objectives of 'zero harm' were achieved. Mandiri 1 was also utilised for pre-cast concrete construction, and the pre-cast units for the intake and outfall structures were cast on the deck prior to Mandiri 1 transporting them to the appropriate point for lifting into place.

Caring for the environment is a core company value, and so the dredging of material from around the intake and outfall riser positions which Maritime Constructions undertook was performed with extreme care. Aquane did double duty, providing service as a construction barge, coupled with Maritime Constructions' 150T crawler crane operating their specially modified high volume submersible agitation pump. Using a unique design by AdelaideAqua, material was dredged from the seabed and pumped through a floating pipeline into the holding tanks and filtration system installed on the Mandiri 1. The onboard treatment system also processed all the drilling spoils; spoil was received, processed and solids then transported by Mandiri 1 to Port Adelaide for disposal on land.

Support services such as towing of barges was undertaken, through the supply and operation of a 21T bollard pull tug, KC Campbell. The tug was required to tow various barges to and from Port Adelaide and Lonsdale, and also performed anchor handling, barge manoeuvring operations, and the bunkering of fresh water and fuel to facilitate site operations.

The company's skills extend to design and construction of marine structures. In the early stages of the Lonsdale project, they provided fabrication and supply of a number of the main piling and drilling frames used on the Santa Fe barge. Their fabrication services were also used to complete the provision of both the 1500mm diameter piles, used as the outfall casings, and the 3000mm diameter x 45m long steel intake casing, which were supplied in two sections and spliced together on site..

Maritime Constructions are experienced in all aspects of marine projects, from design through to construction, maintenance, repair and salvage. Their skills and vessels have been utilised on wharves, jetties, pontoons, marinas, mooring systems and marine piling, including navigational aids.

Other major projects their fleet and workforce are contributing to include refurbishment works on the Semaphore Jetty for the SA Department for Transport Energy and Infrastructure; Port Adelaide maintenance dredging for Flinders Ports; and replacement of the Aids to Navigation at the Port Wakefield Proof Ranges for the Department of Defence. Maritime Constructions also provided emergency dredging services at Narrung for the SA Department of Water, Land, Biodiversity and Conservation, as part of the Lake Albert Spoil Treatment and Channel Preparation project.

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incospec and Associates Australia

INDEPENDENT COATING & CORROSION ENGINEERS

It only takes one tiny but crucial flaw to potentially create asset headaches. Incospec and Associates Australia's mission is to prevent this from happening.. At the Adelaide Desalination Plant project, their eagle eye was utilised in multiple ways, from the creation of coating specifications during the project's design stage, through to performing independent coating inspections of the concrete surfaces and steel work associated with the plant, tunnels, pipelines, pump stations and other structures.

Incospec has been offering independent authoritative advice in the field of corrosion engineering since 1981. Since then it has grown to become the largest independent consulting firm of its type in Australasia, offering advice and support from project conception to completion.

They provide independent corrosion engineering consultancy services including: protective/architectural coating specifications; coating inspection; failure analysis; expert witness; metallurgy and materials consulting; cathodic protection (design, hardware supply and commissioning services); welding inspection and supervision; and the widely adopted Guardian™ Asset Maintenance Management System, training and coating inspection equipment.

"Our involvement on the Adelaide Desalination project is on several levels - we were engaged by the AdelaideAqua Consortium, and by a number of the subcontracting companies," said Incospec's Alex Shepherd.

"Incospec were involved with producing the protective coating specifications for both steel and concrete substrates, determining which would perform best in the highly aggressive environments that will be encountered. There is also an end client requirement for extended warranties on the protective coating systems, so we have also been engaged to inspect the substrate surfaces before coating application, during the coating process and at the completion of the applied system, to ensure the specifications are followed. In the highly aggressive environment, it is imperative that the protective coatings are applied correctly and inspected by an independent expert. It is a lot cheaper in the long term to do it right the first time."

The cathodic protection system they designed for the project incorporates an impressed current cathodic protection (ICCP) system, utilising an anode groundbed and power supply at the Happy Valley surge tank site, which delivers protective current to the 12km length of transfer pipeline running from Port Stanvac to Happy Valley. There are also independent ICCP systems within the Port Stanvac site's pump station, involving closely distributed wire anodes along the various lengths of buried pipelines. Completing the cathodic protection network for the project are sacrificial anodes located on the twin pipelines between the Happy Valley surge tanks and the Reservoir. Several independent ICCP systems were also designed for the AdelaideAqua site's suction, bypass and treated water pipelines.

Other tasks Incospec undertook included QA/QC audits and coating inspections for various subcontracting steel fabricators, and working for AdelaideAqua on site performing random QA/QC inspections for the concrete protective coating systems. Incospec's Ron Jonker is testing the concrete for quality of surface preparation, pH and moisture, and undertaking concrete strength tests.

"There are all sorts of concrete structures: tankage, underground pipes, the process plant, chemical sheds, there is underground inspection required in the tunnels. Special safety training was required for that. The concrete was tested at various stages, as there are extensive warranties on the concrete coatings which provide acid protection," said Ron.

"The site steel work is fairly straightforward to inspect, but concrete is a very subjective substrate to deal with, it is very difficult. There are many levels of inspection, including the South Australian Government inspectors. Our role is to 'keep them honest' (the contracted applicators) and within specifications to ensure the plant is acceptable to be handed over to the Government."

Incospec's recent domestic assignments have included Submarines at ASC, The new Western Grandstand at Adelaide Oval, BHP's Olympic Dam tank refurbishments, GWM Water, and extensive survey work in the Bass Strait, the North-West Shelf of WA.

Incospec's current activities abroad include projects in The North Sea, Vietnam, Solomon Islands, and China, where Incospec are now involved with independent inspections on vessels bound for the Wonthaggi Desalination Plant in Victoria, now under construction.

Incospec are NATA accredited, and subject to regular NATA audits. They have developed multiple testing methodologies for dozens of standards under AS/NZ, ISO, NACE and ASTM, and have published large numbers of technical papers both in Australia and overseas. The company has seventy staff working from offices in Perth, Sydney, Brisbane, Melbourne, and a head office in Adelaide, servicing projects throughout Australia, New Zealand, UAE, Angola, Nigeria, Brunei, Vietnam China, The North Sea and South Korea.

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DOING THE JOB RIGHT NOW - FOR THE FUTURE'S SAKE

Answering a call out any hour of the day or night to perform urgent dewatering at the Port Stanvac Adelaide Desalination Plant located at the Port Stanvac site is an example of the dedication Envirogen Industrial Services give to clients. They bring over 60 years combined experience in industrial services and a complete focus on environmental protection to the tasks they undertake, which at Port Stanvac included green cutting of concrete, water recovery in the hydrostatic testing, scabbling of concrete, cleaning areas prior to concrete pours and dewatering of trenches.

"We were required at minimal notice in order to prepare concrete, and carry out green cutting and scabbling, so they can pour the next slabs; we are also needed to provide a quick response for removal of the water after hydro static testing so they can continue to put the pipes together," explained Envirogen Director, Robert Feleppa.

"There were small windows of opportunities to get in and complete our workloads in order to minimise project down time and allow all the other trades to keep to their schedules."

Envirogen also performed cleaning in the underground tunnels, and underground concrete scabbling. The crew on the job undertook special training in underground emergency evacuation procedures, part of a wider company commitment to ongoing training where required by a project or task.

Enormous volumes of water were removed by Envirogen's vacuum trucks,. One dewatering exercise carried out when torrential rain inundated the site saw around a million litres of water removed from just one trench. None of this water was wasted. All water removed from one area is reused or recycled on site, and only contaminated water, such as that removed from fuel and oil pits, is removed. Once offsite, the water is taken to an EPA approved treatment plant which then supplies the recycled water to market gardens. On some jobs, where removal of water with suspended soils is carried out, the water is delivered to specific companies for use in their compost soils.

Innovation and adaptability are hallmarks of this growing company's completed projects. On the Naval Destroyers project, Envirogen came on site to tackle a task that so far had defeated all methods – the cleaning up of 13.5 km of rail track. Their 4 off 5000psi pressure cleaners and a crew of eight used water and 15 ton of sand in conjunction to work wonders, gaining the company ongoing work at the site. Envirogen has a vast range of high pressure water cleaners ranging from 1000psi up to 40000 psi, so with their knowledge and capabilities, there are few jobs they can't do.

"The Naval Destroyers project had a problem they couldn't solve, we suggested solutions that would work based on years of experience," said Robert Feleppa.

"When we are undertaking concrete cutting, we suggest different ways of boring the holes, for some jobs, I have introduced diamond cutting wire saws. Envirogen are always changing to new technologies and techniques in order to achieve the short time frames required on projects such as Port Stanvac, and we have introduced different ways in order to prepare concrete in hard to get at places.

"Envirogen has the latest equipment available. We constantly upgrade our equipment to keep with the latest technology. We picked the best of the best in the industrial services field for our staff, and our work ethics are of the highest standards. We have earned our reputation in the industry of providing quality workmanship in the smallest time frames at a low price. Envirogen is only 2 years old and already setting bench marks for our competitors to try to keep up with."

Another major South Australian project where Envirogen have demonstrated their expertise is the Coast 2 Coast Tramways project, where they have carried out hydroexcavation. This has involved the removal of millions of litres of water and soil from the site over many months, with every load transported to specific companies for adaptive re-use in producing compost soils.

"Envirogen is committed to the protection and conservation of our environment, this commitment is paramount for our future and future generations to come," said Robert Feleppa.

"We strive to conduct all our activities in a manner that is responsible in ensuring minimal or No impact on our environment, will comply with all government legislations and site requirements, and strive to continuously update our policies and procedures to ensure all our personnel have more than adequate information available to assist them in performing their duties correctly.

"The bottom line for us is ultimately to take the right actions now, which ensure the future of the planet for our children."

Currently operating throughout South Australia, Envirogen plans to expand their operation into all Australian states and territories.

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At Quarry Mining we have been designing and manufacturing high performance drilling equipment, precision made to the most rigorous standards, for over 25 years.

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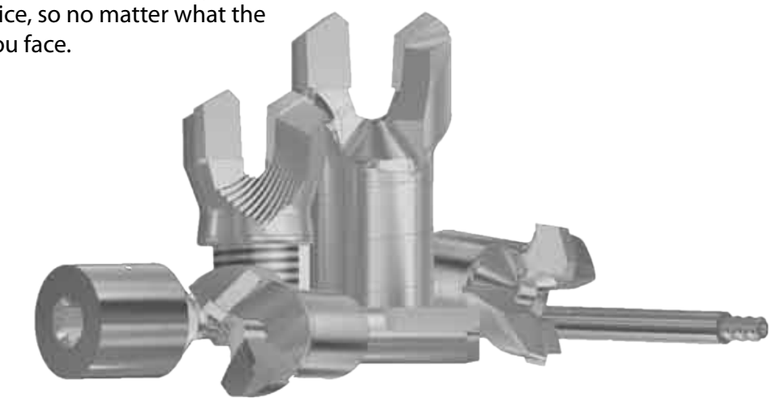

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EXPERTS ON THE UNDERGROUND

Barnesy got put to work at the Adelaide Desalination Plant – not Barnesy as in the front man for Cold Chisel, Barnesy as in the Elphinestone R1300G front end loader supplied as hire plant by ET Underground Solutions. ET also supplied Jeff, a Sandvik Tamrock Monomatic HS105C, single boom drill; Jimmy and James, two Minimatic HS1205-40 boom drills; Brandon, the Caterpillar R1300G and Bandit the R1700II front end loaders and Stevie, the Meyco Potenza shotcrete spray machine used for the tunnel construction for inflow and outflow tunnels and capable of spraying up to 30m3/hr. Recently, ET have become a Brokk agent, and also supplied two Brokk 90's to the project.

All this specialized equipment suitable to tunnelling requirements was supplied as wet or dry hires for periods between five weeks and six months, depending on the need at hand. In addition, three experienced Underground Jumbo operators were supplied through ET's separate labour hire division, Tunnel Force. These operators fulfilled a scope of works including undertaking the drill and blast sections of the inflow and outfall tunnels, plus installing the dynamic wall support in the Launch Cavern extraction.

ET has fulltime maintenance and service divisions, which not only ensures projects proceed with minimal downtime, but also modifies equipment as required. For the Adelaide Desalination project, Swellex units were installed on the drills for ground support installation. The Swellex unit is a bolt that through high pressure water injection changes it existing configuration up the hole once installed, creating initial roof support.

"ET maintain a close working relationship with both operations and maintenance personnel based onsite; we maintain fortnightly visits to site, depending on what stage each client is currently at and what stage in the hire cycle our equipment is in. If there are any issues onsite with our machinery we are very proactive as to rectifying any immediate production downtimes firstly and then discussions about prevention for any future situations following," explained ET's, Pat Ngaropo.

"We can provide onsite training to operators and maintenance personnel if required, and we provide operators manuals/service and parts manuals also from the OEM also."

ET's Hire Division has one of Australia's largest underground mobile equipment hire fleets, with new machines being added to their resource regularly. Their fleet includes underground loaders, underground trucks, development Jumbos, production drills, rock bolting machines, charge up units, service machines and the requisite tyres, spare parts and other consumables for mobile plant. All of ET's drills can be reconfigured to suit the client's tunnel design requirements and they come with either diesel hydraulic or 1000volt powered options. ET's fixed plant stock includes primary and secondary ventilation fans, electrical boxes, transformers, sub stations, compressors, pumps, scrapers, spare parts and attachments.

Major projects around the country have relied on ET's equipment and experience to undertake critical works, either through purchase of equipment or hire of equipment and labour. Brisbane Airport Link purchased a Mitsui S300 and two Atlas Copco Boltec units, capable of installing a number of different types of ground support types on a single pass operation.

Melbourne Northern Sewerage Project was supplied with machines for the Drill and Blast section of the NSP2 section (Newlands Road) over a period of 16months. Equipment supplied included one brand new Caterpillar/ Elphinstone R1300G front end loader; one Tamrock H205/40 with split feeds to enable both boring and bolting in limited working areas; a Sandvik/ Tamrock HS105C, single boom drill; two Minimatic HS1205-40 boom drills; and a Caterpillar IT62G integrated tool handler.

ET supplied Baulderstone/Fox Mining with both equipment and specialized operators for the M5 Filtration project: an Atlas Copco Boltec unit, Caterpillar/Elphinestone R1700II, IT 28G, Jacon Maxijet, Tamrock Diesel Hydraulic and three specialized operators were provided over a period of six months.

All of these projects were also supplied with a range of fixed plant including Fans, Jumbo Boxes, Trailing cables, Flyght Pumps, Scrapers and Electrical Boxes.

ET's team has over a century of experience in underground mining and tunnelling, giving them a hands-on understanding of all the fixed and mobile plant an underground job requires. The company's procurement division's strong buying power ensures ET can move rapidly when the opportunity arises, assisting clients with 'end of mine' liquidations, specialty procurement and valuation of machinery and plant. With a database of mining companies both in Australia and overseas, ET can act as an agent for both buyers and sellers. Furthermore, the company's advanced logistics and strong relationships with contract transport ensures smooth and timely deliveries. ET is based in Perth and in Victoria.

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SUPPLY CHAINS FUNCTION EFFICIENTLY WITH AGILITY

Whether the challenge is a shut down of airspace due to volcanic ash or getting an out of gauge load from one end of the country to another, Agility Project Logistics have the global network and organisational skill to ensure a project like the Adelaide Desalination Plant gets the deliveries it requires on site, on time.

Agility handled over 80,000 Revenue Tons of overseas, interstate and intrastate cartage for AdelaideAqua, ranging from small volumes of consumables to large out of gauge equipment including machinery and construction materials. Their delivery vehicles carted on average between 15-20 loads a week, while the 650sqm warehouse the company managed on site was operating from 6am to 6pm, seven days a week. Occupational Health and Safety has been a major consideration, not only for onsite operations but throughout the transport chain, including following standard Dangerous Goods procedures for certain loads with specified risk ratings. Agility worldwide has a fleet of over 8,000 vehicles. At Port Stanvac, their onsite equipment included both owned and hired plant and vehicles including truck/trailer, mobile crane, forklifts and delivery vehicles for transport from their warehouse site to the specified laydown areas. Agility have their own warehousing inventory system used at their own premises, WMS, and also utilised AdelaideAqua's provided inventory system, MMS. AdelaideAqua also have access to Agility's web based Online Status Report (Agility OSR). This system is a track and trace tool that has total visibility to all of the location of each order that is transported by Agility at any given time.

Overseas orders handled by Agility for the project have included FCL, LCL, Break Bulk shipments by seafreight and various volumes of airfreight, with countries of origin including Austria, Belgium, China, Germany, Korea, Singapore, United Kingdom and USA.

A limited number of orders from Europe were affected by the ash cloud from the Icelandic volcano which closed down parts of Europe's airspace. "The delays incurred were minor and did not affect the project," explained Agility Project Manager, Greg Lalor.

"Agility has a worldwide network that could come up with a contingency should something like this occur again and goods are of extreme urgency. This would include such options of moving goods by land to airports that are not affected and uplift from there. "All projects have challenges and this one is no different. There are the usual deadlines to meet due to urgency of goods along with outside measures such as weather and travel restrictions.

"Agility has handled many loads by sea, air and land that have been outside the standard general freight parameters. These include, but are not limited to, over-dimensional loads by domestic trucks that required permits and escorts and loads that are discharged 'underhook' from the vessel and transported across states with permits / escorts. "As with all projects there is no such thing as an average day. All Agility staff are trained to be proactive where possible however there are circumstances whereby they need to be reactive to get the job done. This means taking all necessary care, in particular making sure OH & S is of the highest priority.

"The project is exciting and challenging and Agility look forward to being part of the final construction when handed over for full commissioning."

Agility in Australia is part of a global network with over 500 offices in 120 countries across Asia Pacific, Europe, the Americas, Africa and the Middle East. The corporate mission centres on facilitating trade through innovative supply chain solutions, working in some of the globe's most challenging environments. Agility's organisational skills, networks and efficiency enable the delivery of customised integrated logistics solutions in both developed and emerging economies.

A demonstrated commitment to Green supply chain strategies was recognised in July this year, with Agility being awarded the Best Green Service Provider – Logistics Operator Award at the Asian Freight and Supply Chain Awards (AFSCA) in Shanghai. The AFSCAs are organized by CargoNews Asia and are very highly prized in the industry as only shippers can vote for logistics service providers. Their nomination was based on the fulfilment of criteria including compliance with green freight transport regulations set by national and global bodies and consistent application of these environmental standards; investment in green initiatives, technology and action plans; ongoing training of staff in green initiatives and in measures to lower company carbon footprints.

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INNOVATIVE MANAGEMENT OF GROUNDWATER AND DREDGING WATERS TO PROVIDE CLEAN AND CLEAR OUTCOMES

Managing groundwater to enable the construction of a large desalination plant with tunnels extending some 60 metres below ground surface level and under the sea becomes a whole lot more challenging when you are located immediately adjacent a sensitive marine environment and with a neighbour being a former petroleum refinery. AdelaideAqua (AA) called in the groundwater assessment and remediation experts, Soil and Groundwater Consulting (S&G) to design, install and operate, not one, but four innovative water management systems at the Adelaide Desalination Plant (ADP) project. These treatment plants were used to:

1. treat groundwater extracted from the site to a level which enabled either aquifer reinjection or marine discharge in accordance with regulatory requirements, and
2. treat dredging waters to remove effectively almost all suspended solids suitable for direct injection to the marine environment without any sediment plume with the local EPA regulations and Dredging licence.

At the outset of the project, AA identified that the two challenges the dewatering system had to address were firstly, a volume of up to 40 - 60 litres per second of water requiring treatment, and secondly, the potential for groundwater contamination plumes that are located under the former Port Stanvac petroleum refinery site which could be drawn towards the ADP construction site were there to be extensive removal of groundwater and disturbance of the local watertable.

S&G was engaged to develop a site specific strategy for groundwater treatment and injection to effectively limit any influence of the extraction of groundwater in the direction of the former refinery site. The re-injection system solves both challenges, with 25 x 200 mm large diameter bores which go down 60 - 80 metres below ground surface level. By achieving these challenges, AA was able to maintain dry excavations without influencing the groundwater or any contaminant plumes beneath the refinery site.

"There are extensive monitoring wells and data management systems to check that the water levels are behaving as we need them to. We manage the entire water injection system for AdelaideAqua" said Andrew Nunn, Director of Soil & Groundwater Consulting.

To manage the water extracted from the shaft excavation works, two S&G treatment plants were located adjacent to the main shafts at the northern part of the site to treat all the water pumped out during the excavation works. With intake and outlet tunnels 60 metres down and extending 1km out into the seabed, there was a vast quantity of water to treat. The treatment plants remove all sediment adjusts the pH, then re-injects the water into the ground to minimise the impact of works on the site watertable. At the southern end of the site, a third S&G plant treated up to 15L/s of site waste water, largely from the shaft works. As further water injection would not be possible without potentially compromising the management of the water levels at the boundary, this additional water was treated then discharged to the ocean with regulatory approvals.

The treatment system utilised a remediation media which is the product of collaboration between S&G and the research body Cooperative Research Centre for Contamination Assessment and Remediation of the Environment (CRC Care). This material provides a cost effective tool for removing organics from water and the material regenerates itself to increase its adsorptive capacity.

To manage the offshore dredging and drilling activities, an offshore water treatment system was located on the barge undertaking the dredging works. These activities created a sediment laden waste stream which was separated at the surface to remove the bulk of the solids. Then the residual muddy water was completely clarified before ocean discharge. This was a great improvement over typical dredging activities which result in sediment plumes due to turbid waters being returned to the environment.

"Whilst we understand that construction activities are sometimes required in sensitive environment, it is important to us at S&G that we work with construction companies to mitigate the impact of these works to those environments. To this end, we understand that the regulatory authorities undertook an inspection of the dredging treatment works and noted that the lack of turbidity in the discharge water was an excellent result for the marine environment and a testament to the treatment system design" said S&G Director, Andrew Nunn.

"This system utilised a customised and proprietary polymer delivery and media filtration system which enabled the removal of the fine sediment and the treatment of the water from the dredging process. The plant has been treating about 100 L/s with the total treated volume in the realm of gigalitres, with all processed water returned to the ocean crystal clear.

"Once the system is set up, it is operated remotely via computer. We can log in from anywhere. We have been doing these remote operational systems for six or seven years, and we have now built in excess of twenty fully automated treatment systems capable of removing a wide range of chemical and physical contaminants in groundwater and surface waters."

S&G are groundwater and contaminated soils management and mitigation experts with a client base including BHP Billiton, General Motors Holden and Incitec Pivot Limited, major mine operators and industrial sites. S&G has also undertaken significant civil projects including a major project for the South Australian Government intercepting and remediating water before it enters sensitive receiving environments. S&G is a member of the Australian Contamination Land Consultants Association (ACLCA), the Institute of Engineers and the International Association of Hydrogeologists, and has offices in Melbourne and Adelaide. Director Andrew Nunn is an Environmental Auditor in South Australia, Victoria and Western Australia, and there are another two Environmental Auditors on staff.

In 2008, S&G won a BHP Billiton award for innovative groundwater remediation works undertaken by the company in the coal mines in North Queensland, and in 2010 was presented with a Star Award through the Cooperative Research Council (CRC) for works associated with the development of a world first method for removing the Persistent Organic Pollutant, $PF^{6}OS$, from water.

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CERTIFIED MASTERS OF ALL THINGS METAL

Fabricating components and equipment to handle ultra-demanding tasks and environments is a specialty of Williams Metal Fabrications (WMF). The full range of these skills in the metalworkers trades was utilised on the Port Stanvac Desalination Plant, where they undertook fabrication of specific parts and equipment at their 2,000m² workshop, and onsite works, including welding, fabrication, installation, labour hire and drilling - working on the ground, under it, and also over water.

Their current clients are the finest testament to the company's abilities in the design and fabrication field, and include many of South Australia's biggest civil, mining, and infrastructure projects, sites where superior workmanship is critical. WMF have a Quality Management System certified to ISO9001:2008, and have a demonstrated track record of meeting the specific needs of demanding projects, whether the challenge is intricate design or tight timeframes and remote locations.

Both Adelaide Aqua and other subcontractors utilised their talents. For one of the working barges, The Santa Fe, they fabricated the 12T outrigger. The original lead time was 5-6 weeks, but WMF implemented full rotating day, afternoon and night shift to deliver in a fortnight. They also fabricated and supplied the Santa Fe's Diffuser, Cargo Hatch, Support Frame, Lifting Clevis and Eyes, Pandrol Plates, Rail Stops, Cleats and Stainless Steel Sump Cover.

Their expert tradesmen undertook the on-site assembly of the shaft cover, including craneage, welding, NDT, fitting mesh and fitting a secure blast mat. They also supplied and installed the shaft cover angle bracing, and supplied the support legs, lugs for the actual shaft, and lugs for the cover (both top and bottom). WMF also designed, fabricated and supplied a Dangerous Goods crane basket rated for explosive materials, and fabricated and supplied Bird Cages, pipe supports, brackets, bolts, U-Bolts and support frames.

A range of site infrastructure was fabricated and installed: a free standing storage Shed 7m x 9m, Large Platform for the Slurry Plant, Fence Panels for the Working and Intake Shafts, a Helipad Shelter, Handrails, Handrail Panels and Handrail Support Brackets; and underground, fabrication and installation of a 2.5 tonne X 20 m Monorail, Working Shaft Pit Floor, so the 2x 30 tonne Locomotives could travel in and out of TBM1 & TBM2, Slurry Plant Tank Penetrations, and 2", 6" & 8" Pipe for the Feed of and Return into the TBM's (Tunnel Boring Machines), plus various works and welding on the Tail Skin for TBM1. The WMF workshop also produced the Stage 1 and 2 TBM cradles, a TBM concrete segment trolley and fabricated spider plates.

All of this work involved the combined talents of the 22 company's staff: six working directors, one administrator, two apprentices, two trade assistants and eleven qualified tradesmen, working with the aid of the latest 3D modelling software and top of the line fabrication equipment.

"Generally concept sketches are provided by the engineer for quoting purposes, if we get the job we will model it up using Inventor 3D software and provide a set of fabrication drawings for approval. During this process it helps identify any design issues, possible improvements can be suggested and implemented once they have been approved by the engineer. Using the modelling software also ensures it is fabricated extremely accurately," said Stuart Rogers, WMF Business Development Manager.

"The quality of our work is assured through a traceable system starting with Material certificates, then NDT, weld inspections, surface treatment data reports, and any other relevant information."

"A pre-requisite of gaining the Adelaide Aqua contract was having our Quality Management System independently certified to ISO9001:2008, which happened in April 2009. We also had to gain Government compliancy (Construction Industry)," explained Kylie Williams, WMF Quality Manager.

"The certifications we now have will continue to open more doors for our company now and in the future, as most major projects and contractors now require their vendors to have these systems in place. In addition, we are looking to implement and gain certification in both OH&S and Environmental Management systems in the near future, as both of these are increasingly becoming requirements of major contracts as well."

WMF was founded in 1998 by Ross Williams, and specialises in specialist and general steel fabrications, installation work and project management. They cater for the mining, civil and construction industries, with design and fabrication capabilities including structures such as walkways, control rooms, weighbridges, rails, pipes, bridge columns, barriers and brackets; equipment such as gantry grab buckets, basket presses, Reverse Osmosis desalination water treatment containers, mobile concrete plants and winch drums; and components such as Hold Down Bolts for Wind Farms and bridges, cast-in items for mine infrastructure, washers and anchor plates. They also refurbish and update equipment.

Current and recent projects include Prominent Hill Mine, Olympic Dam at Roxby Downs, WA's Nifty Birla project, Beverley Uranium Mine, Berth 7 at Port Adelaide, Belair Rail & Noarlunga Rail Upgrades, Common User Facility at Techport Australia, Pinkenba Malting Plant QLD and SA's Northern Expressway.

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MACHINERY SUPPLY NAILS AUSTRALIA'S BIGGEST PILING JOBS

In the waters off Port Stanvac at the Adelaide Desalination Plant construction site, Machinery Supply's operators used one of the world's largest hydraulic hammers – the IHC Hydrohammer - to pound in the largest pile ever driven in by hydraulic hammer in Australia. They are actually one of only two companies in the world who could have done it.

"The size of the pile at Port Stanvac is unusual at 3m diameter, this size is usually only seen in projects like European windfarms, usually Australian offshore piles are 1.2-1.6m diameter. The hammer is very large, only two companies provide hammers of that size. We ship the IHC Hydrohammers around the world; it was imported from Holland to Port Stanvac in January 2010, and stayed on site for four months before being shipped back," explained Machinery Supply Managing Director, Glenn Kearney.

"The pile driving is a round-the-clock shifts operation, carried out from a ship at sea. On a typical job, the crew might spend a month over water hammering six or seven piles. It is totally dependent on weather, on both the surface conditions and the currents under the sea, the crew have to be very careful.

"We are very strong offshore, there is only one other company in the world which does this work. Our long-term staff operators have special training initially in Holland with IHC, then they do hands-on experience with a Dutch supervisor. Our Australian staff have gone overseas for jobs in the UK, China, NZ, South East Asia, they go all over the world."

Other recent Australian offshore works include the Pluto job for Woodside, Blacktip in Darwin for TS Marine, work on multiple coal terminals and coal conveyors in Queensland, and pilings for a wharf for Clough at Karratha. This year they are also working in Bass Strait, and are looking at the Curtis Island project, which will provide ongoing work for the next few years.

Machinery Supply is an independent, privately owned company who have provided niche services since 1977. They are Australasian representatives for the IHC Merwede Group of Companies, supplying IHC Hydrohammers, IHC Handling equipment, IHC Fundex and IHC Merwede Dredgers. With offices and workshops in Perth and Sydney, Machinery Supply provide equipment rental, parts, technical services and factory trained servicemen and operators to sites throughout Australia and Asia. They also supply heavy cranes, Sea Steel subsea piling frames and provide onshore piling services.

IHC hold around 60 percent of the world market for dredgers, and as their agent here, Machinery Supply are responsible for the dredgers such as the capital works dredgers used in Port Phillip Bay and mining dredgers at CRL at Brisbane and Bemax near Broken Hill. They specialise in meeting the needs of mining operations, as well as the supply of dredgers for capital projects, including works in rivers and harbours.

All of their machinery and techniques are aimed at zero harm to the environment.

"Our product is designed to prevent environmental catastrophes," said Glenn. "We use biodegradable oil in the hammers and use sound suppression mechanisms to reduce sound degradation. We are looking at a job on the Barrier Reef, where we will use innovative technology to suppress vibration in the water. The solution involved includes an air curtain, alternatively double wall casion around the area which prevents the sound waves travelling.

"One of the universities in Holland has put considerable time and effort into developing techniques which prevent interference with sea life. Currently under test in Holland is a new development for undersea, where they replace the hydraulic oil with sea water, it is a world first which we hope to see in use in Australia by the end of the year. It uses the sea water which can be discharged directly into the sea so there is no possibility of contamination.

"Being environmentally friendly is taken very seriously in the piling industry, as is safety. Our company is working under water and over water and our track record is 100 per cent, there have been no disasters."

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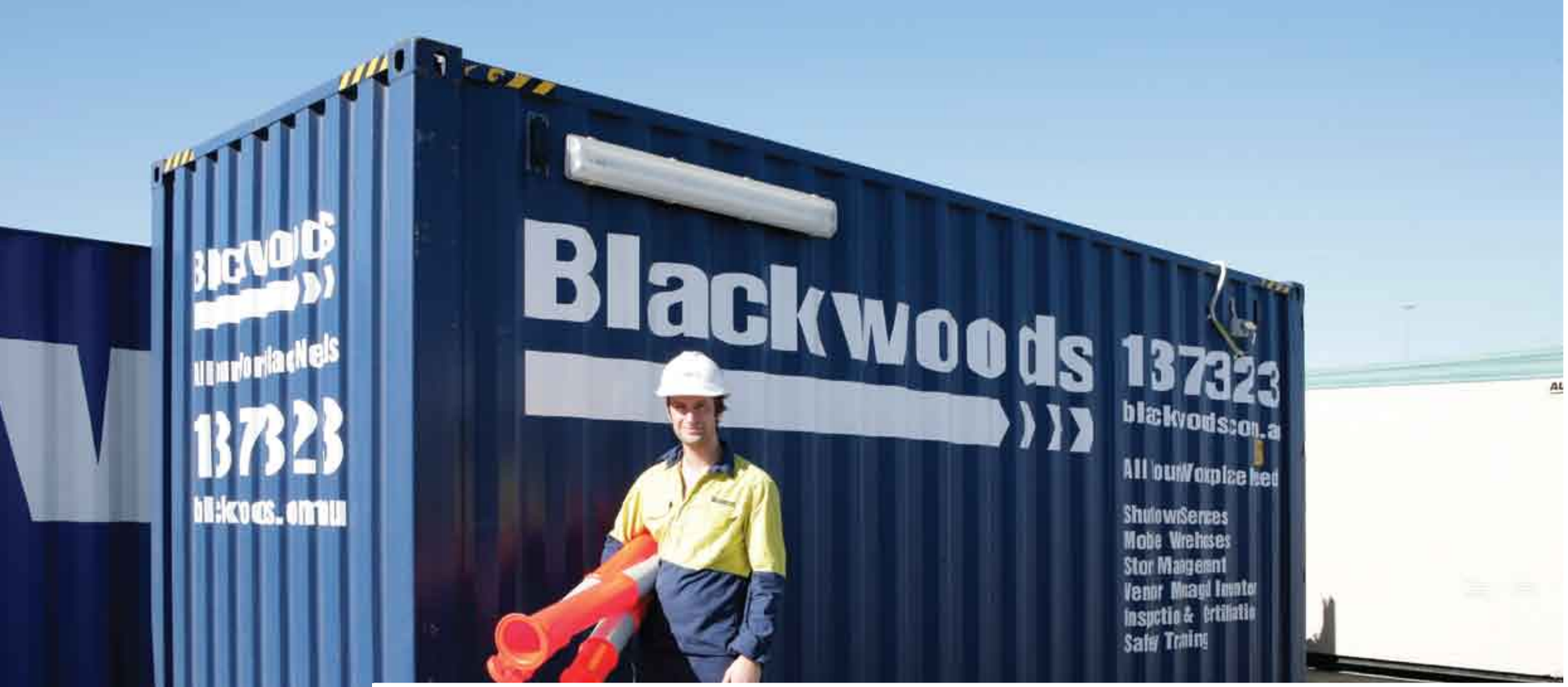

BLACKWOODS SLASHES SUPPLY LEAD TIMES

A cracking pace for civil works makes fast delivery of critical parts and equipment essential. AdelaideAqua, a consortium of companies, ensured the Adelaide Desalination Plant project was well-supplied by bringing in Blackwoods, the experts at providing a one-stop "on-site" shop for industrial and safety supplies.

"We provided AdelaideAqua's project with Blackwood's On Site Services (BOSS) for the term of the project," said Grant Augostin, Blackwoods Field Sales Manager for SA/Tas.

"We basically set up as a remote branch with 700 critical stock items, and two full time Blackwoods staff 12 hours a day, six days a week. All stock taken from the on-site store is scanned and sent electronically straight to our Regency Park warehouse for immediate replenishment. All other enquiries or sourcing of non-standard product also come direct to Regency Park and are sourced for the customer as required. This improves delivery times, reduces downtime on site and ultimately reduces costs for our client.

"Delivery on time is always a challenge when servicing the Construction Industry. Because you cannot always forecast what is going to be required, the pressure mounts when items are required next day and need to come from interstate. Utilizing our National Blackwood's supply network we can expedite within the required time frames.

"This project is one of the largest of its type in the Construction Industry for which Blackwood's have utilized the BOSS system. In the first five months, we supplied over 4,000 line items and over 140,000 parts," said Augostin.

Products supplied to the site were a broad cross-section of Blackwoods' product categories, which include protective clothing, machine parts, sealants, tools, office supplies, welding consumables, personal protective equipment, site safety equipment, gasket materials, fasteners and fixings, pumps, bearings, hardware, abrasives, lubricants, hose and fittings, hygiene supplies, pipe and tube fittings and automotive parts. The full catalogue runs to many thousands of products meeting a wide range of materials needs for construction projects of every kind. Blackwoods vast experience in similar projects gave Adelaide Aqua a sound foundation on which to base their own BOSS on-site range.

The BOSS system can either work within a project's existing store, or Blackwoods provide their own onsite mobile warehouse, comprising customised 20' and 40' containers stocked with the parts the project needs. Another aspect of the service which is of great benefit to project mangers is BOSS's customised reporting, which provides vital information including usage and cost reporting, savings, compliance and exceptions, and KPI summary reporting.

Blackwoods have over 20 years of experience of effective inventory control at hundreds of on-site facilities. BOSS Vendor Managed Inventory can be provided for either short term construction or maintenance periods, or as a long term ongoing solution for inventory control. BOSS also meets the needs of planned or sudden maintenance shutdowns, offering staff, systems and supplies tailored to meet the client's needs.

The company also offers business services including eBusiness Solutions, Safety Training, Site Safety Audits and Export Services, and a range of product services such as Testing and Certification, Hose Assembly Audits, Product Customisation, Embroidery and Outfitting and Toolkit Assembly.

Blackwoods began as a supplier to the shipping industry. Over 130-plus years of business has seen them supply projects in the mining, maritime, agricultural, industrial, commercial and construction sectors, including supplying some of Australia's most recognisable projects, including the Sydney Harbour Bridge, Parliament House, The Olympic Site and The Snowy Mountain Scheme. Since 2001, Blackwoods have been part of the Wesfarmers Group, Australia's largest private sector employer. Wesfarmers have made sustainability a core priority across the Group, which makes sense given their origin servicing the climate-dependent agricultural sector. Blackwoods ensure the products they supply are sourced from reliable supply partners and are made with care for both workers and our global habitat.

In an industry where innovation is constant, equipment and supplies need to also come from the leading edge. To ensure the quality of their products, Blackwoods draw on many years of experience, fostering international and local supplier relationships.

"We also keep in touch with industry trends by attending trade shows in Australia and overseas, ensuring our customers have access to the very latest technology. We have a vast supplier base who are constantly providing us with new products. We also employ a team of people overseas who source products on our behalf. As one of the largest industrial suppliers in the country, we have people approaching us on a daily basis offering their products." said Rebecca Gray, Blackwoods Regional Marketing Coordinator.

For customers large and not so large, Blackwoods offers a great variety of products, reliability and a whole range of services to help get the job done.

BLACKWOODS
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blackwoods.com.au

TRU-BLU MEANS QUALITY EQUIPMENT AND DEDICATED SERVICE

For vital hire plant and equipment backed by onsite servicing and maintenance, the Adelaide Desalination Plant project relied on the skilled services and comprehensive equipment catalogue of Tru-Blu Hire. Their onsite office and yard in close proximity to the main construction site has been operational for the life of the project, supplying equipment including lighting towers, boom lifts, scissor lifts, and generators ranging from 5kva to 600kva, also a major selection of electrical tools, saws and jack hammers, and a large selection of specialized tooling such as torque equipment, pressure pumps, chain blocks and high head submersible pumps.

"Because we are set up on site, our days may range from small tooling going out for one or two hours, helping contractors set up pumps or lighting towers. We carry out all our onsite delivers with our 12t Tilt tray which was purchased especially for this project," explained Tru-Blu Branch Manager, Sean Knox.

"We have six full time staff on site, consisting of branch manager, hire controller, site clerk, two mechanics and a driver/serviceman. We have a 40ft onsite office, three 40ft containers equipped with shelfing and racking for equipment and a 20ft workshop container fitted out with workbench, power tools and other equipment. We currently work 6 til 6 Monday to Friday and ½ day Saturdays, and are on call 24/7 for breakdowns and additional equipment required. We carry out all servicing and repairs on site. Working close to the ocean is a challenge especially for corrosion. When we first set up on site we coated our machines in lanotec to help prevent problems with corrosion. To date we have had no reported problems."

Tru-Blu's field mechanic has been carrying out constant on site servicing, as a project of this scale needs a proactive approach to equipment and the company takes pride in delivering quality equipment backed by personalised service. A service plan has been implemented which includes weekly servicing of all the different divisions on site.

Tru-Blu has a support branch located in Sheriffs Rd, Lonsdale only a few minutes away from the Adelaide Desalination Plant Project. This proved ideal for supplying extra support and for rapid collection of extra equipment when required.

The Hire operations are part of the wider Tru-Blu Group, which began operations in Kalgoorlie in 1994 servicing the building, industrial and mining sectors. Steady growth led to the formation of three divisions: Tru-Blu Torque, Tru-Blu Hire and NT Hire, with 19 branches around Australia.

"The growth of Tru-Blu Hire has been largely attributed to the quality of equipment and the service provided to our customers; all of our equipment must pass a thorough checking procedure after each hire regardless of the hire period and for longer term hires complete servicing to OEM specifications is mandatory as our minimum standard," said Tru-Blu Administration Manager Peter Atkinson.

"All of our operations are available 24/7 so our customers can be assured if there is a problem or they just need some equipment they have someone to contact that will be able to help them."

Tru-Blu Torque specialises in hydraulic torque, rail and jacking equipment with all calibrations and repairs conducted in-house at the company's NATA accredited and ISO 9001:2008 Quality Assured laboratory in Henderson. All Torque wrenches used by the Hire Division's maintenance and service teams are also calibrated at Henderson.

Tru-Blu Hire and NT Hire offers general, specialised and industrial hire equipment ranging from access equipment, earthmoving, compressors, hydraulic equipment, generators, rollers and compaction, fencing, trailers and lighting. The company employs approximately 110 staff with 30 trade qualified maintenance staff across 19 operations.

Other major projects include the Pluto LNG Project, where the company is supplying large quantities of quality hire equipment and service to Woodside's $12 billion Pluto LNG project in Western Australia's Pilbara region from our Karratha branch. Tru-Blu Hire have also been supplying hire equipment to the Boddington Gold Mine project south of Perth since construction commenced, and are providing ongoing service to the mine from a branch in Boddington.

"Tru-Blu Hire has developed some good relationships with people involved in the construction of the Adelaide Desalination Plant, so we are looking at opening more branches in South Australia to service our new clients in other areas," said Peter Atkinson.

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Lonsdale Hire Branch:
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Manager: Nick Martin

SWIFT DELIVERY OF SPECIALISED STEEL PIPE ANYWHERE

When Trans Vent Spiral Tubing says they can fill an order fast, they deliver on the promise. For the Adelaide Desalination Plant at Port Stanvac, they produced duct tubes and bends for the construction stage which were delivered to site within five days of the order being placed – no mean feat given the custom-fabricated bends were made in Queensland and the ducting in New South Wales.

"Adelaide Aqua rang on Thursday afternoon, and we had the order delivered Monday morning," said Trans Vent's Sydney Manager, Michael Denham. The order was for twelve off 1200mm diameter, 6m long spiral duct tubes and four 90-degree bends, with another eight of the tubes added to the order later.

"Our staff started fabrication of the duct tubes on Friday. Finished the order Saturday, on the same day the bends which were fabricated in our Queensland workshop were delivered to our New South Wales factory. I came in on Sunday, picked up the truck with the order and drove to Adelaide for Monday morning delivery."

Trans Vent have been a family owned company for 35 years, and are experts at fabricating spiral tubing for an array of purposes: ducting for exhausts, air intake or extraction, dust extraction, flues; column formers and pier liners; void forming tubing; culvert tubing and underground drainage; spiral welding and high pressure tubing; along with a range of accessories and fittings. The original spiral ducting fabrication machinery was created by company founder, Keith Denham in 1975, and innovation is ongoing. Trans Vent designed and custom built the 'TRS Pier' for the M7 freeway project, from 1mm thick steel with a large corrugation, which would withstand the crushing forces of the backfilling of the site's unstable soil.

"If someone comes to us and says they have a problem, we usually can provide a solution; we are willing to modify machines to make different things. A lot of people ring up and say, 'I need a pipe'; we ask, what do you require the pipe to do?" said Michael.

"The key element to our business is working with the customer. We get a contact on site and liaise on the timeframes, we get the product to them when we say we will and when it is needed.

"For the Hume Highway upgrade (near Tarcutta) we fabricated bridge voids. There were 100 lengths to deliver of 1650mm diameter tubing, and twenty days to deliver from the time of order. We could manage to get four Tubes a day to the site on our own transport, and met the timeframes.

"We have got products that don't get used often, but are kept in stock for certain customers, where their timeframe does not always allow for a long lead time.

"We ask 'when do you want it?' And as long as they tell us exactly what's needed, the next phone call the customer gets is from the truck driver saying they are at the site, and 'where do you want it?'".

Trans Vent's skill base includes high-level metal fabrication and roll forming expertise, with a team of tradesmen on staff qualified in sheet metal work and boilermaking. Michael's brother, Warren, an electronics technician, does the wiring for the machinery, which is maintained and modified where required by DG Engineering, a long term family associate. Only certified quality materials which meet the Australian Standards for steel are used. The workshops' machinery is capable of making up to 2mm thick tubing in lock seam, and 5mm thick for welded seam. All welds are inspected and any product which does not meet their strict quality standards is crushed and recycled.

Decades of experience with their products means Trans Vent can give accurate advice on what product will meet particular pressures and scenarios.

"If we don't think it will work, we won't supply it, it will only upset the client," said Michael.

Trans Vent products are used around the nation: they supplied Hamilton Island with column formers, have sent air conditioning duct and pier liners to Darwin; supplied pipe to the Argyle Diamond Mine in Western Australia; and have major infrastructure contractors such as ABI Group and John Holland as regular customers.

TRANS VENT
SPIRAL TUBING PTY LTD.

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RIGHT GASKETS RIGHT ON TIME

Superior manufacturing equipment and processes make South Eastern Gaskets (SEG) leaders in the sealant field, with the ability to meet the needs of complex projects on tight timeframes.

For the Adelaide Desalination Plant, they supplied a range of purpose-designed gaskets. These were produced on SEG's state of the art CNC knife cutting machine.

"This machine gives us the flexibility to meet all our customer requirements in a very short lead time. It also offers our customers the convenience to simply Email a DXF or DWG File of their gasket requirements which in turn reduces costs and lead times, as the need for tooling has been eliminated," explained SEG Managing Director, Robert Green.

"We are pleased to be associated with such a great infrastructure undertaking as the Adelaide Desalination Plant in South Australia" Mr Green said.

"Because of our manufacturing capabilities and technical expertise, we have been able to supply the gaskets to the plant's high quality requirements, in the specified time to maintain the construction momentum of such a project" Said Mr Green.

Other elements of SEG's manufacturing capacity include the capability to mould gaskets with a new 100 tonne CNC compression moulding machine, along with hydraulic and mechanical presses ranging from a 5 tonne high speed press for large volume production up to 80 tonne hydraulic presses for the largest processing requirements. The Braeside workshop also has its own in house tool room facility where SEG can produce moulds and washer dies while keeping the costs down to a minimum. All these capabilities are coupled with the experience gained from 35 years of operation.

"I hope the team at South Eastern Gaskets can be of assistance with all your sealing requirements, and to have the opportunity to establish solid long standing associations with such projects as the desalination plant in the future," said Robert Green.

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TAKING CARE OF THE PROJECT'S BUSINESS

Panurgem was selected by SA Water to provide specialist Project Management, Construction Management and support services for the Adelaide Desalination Plant project: Panurgem has been involved from the early planning and approvals stage through to providing a support role in coordinating the preparation of the Environmental Impact Statement, overseeing the project reporting and controls function and providing key resources to the Project delivery team. Panurgem's committed staff aim to ensure that projects have a smoothest possible path, by bringing to the table their approach and their project management skills and knowledge. The goal is not only to deliver on the agreed brief but to provide certainty with regards to all of the aspects of project management.

Tasks undertaken by the Panurgem team at Port Stanvac included providing services for project reporting, both for the plant and the transfer pipeline; field monitoring; reviewing work packages; compliance; verifying completion of stages and quality of work; communication with stakeholders; management of site ancillary works, including environmental works; and ensuring the site itself was a suitable fit for the local community.

"We supported planning for communicating site activities to the local community, and ensured all the targets and objectives of the communications had been met in the best manner possible. The key to our work is making sure we build-in good governance and risk management into our thinking considering the risks to the environment, people and the project," said Panurgem's General Manager - Brenton Scroop.

Being such a significant infrastructure project for South Australia, large systems and processes had to be developed, people trained and due diligence aspects built-into the process so that we can demonstrate, meet and exceed the targets, "Panurgem is proud to be associated with this iconic project and to work so closely with SA Water" said –Brenton.

"We used a lot of new approaches to dealing with the vast volume of records and documentation, making sure the information was readily available across multiple sites, whilst ensuring that commercially confidential information was secured and kept safe. A large number of Panurgem staff have been committed for the duration of the project from inception to completion, building on an existing and enduring relationship with the water industry. Panurgem have undertaken numerous water related projects for SA Water, PIRSA and the Office for Water Security, and were involved with the Murray Futures projects, constructing potable and irrigation pipelines, projects completed in 2009.

Since the company's founding in 1994, Panurgem have offered a comprehensive, client-focused and flexible approach to project management. They can provide clients services for external relations processes such as Government submissions and documentation; community consultation; management of project OH&S, environment and risk plans; site monitoring; in addition to assistance with internal processes such as assessment of business practices and funding and business case submissions.

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MAKING ALL SYSTEMS GO

A project as important as the Adelaide Desalination Plant needs reliable power from the word 'go'. South Australia's Lai Industries Pty Ltd brought forty years experience in building electrical systems to the site, designing and manufacturing all the temporary power distribution systems.

This included five fan starter control panels, one transformer cabinet, a pump starter control panel, 1600amp distribution board, 250amp distribution board, two 2000amp temporary main switch boards, 1200amp temporary distribution board, 800amp temporary distribution board and 42 100amp temporary power outlet boards. Lai Industries Pty Ltd is also designing and manufacturing all the plant's permanent main distribution boards, light and power distribution boards.

This project utilised the full scope of in-house talent for design, metal fabrication, painting, electrical fit out, testing and checking of all works and shipping and delivery to site. The 3000m^2 workshop's state-of-the-art CNC machinery also contributed to successful, timely completion of the wide-ranging fabrication tasks.

Founded in 1969, Lai Industries Pty Ltd design and manufacture custom built, low voltage switchgear and control gear assemblies. They are specialists in designing and constructing custom main switchboards, distribution and meter boards, temporary power boards, motor control centres, switchroom packages and enclosures, using mild steel, aluminium or stainless steel. Projects choose Lai Industries for their quality product and professional service.

The company also offers powdercoating, sheetmetal fabrication, laser engraving and onsite modification. All Lai Industries Pty Ltd products are backed by Quality Assurance certification, which was achieved in 1994. The Quality Management system is in accordance with AS/NZ ISO 9001:2008 and the company strives for continual improvement in business activities and products. With 65 employees including estimators, designers, trade-qualified fabricators, painters and powder coaters, electricians, engravers and CNC machinery programmers, and workshop and office space currently being expanded by 2000m^3, the company is equipped to handle multiple major assignments concurrently. Being part of NESMA, the National Electrical Switchboard Manufacturers Association, allows them to share issues and innovations with other switchboard manufacturers and aid progress in the industry.

Other major projects across Australia with nerve centres built by Lai Industries Pty Ltd include Beverley four mile project, Wagga Wagga water treatment plant, United Water Aldinga, Lower Lakes pipeline SA Water, Transfer pipeline system SA Water, Santos mine, Werribee western water, BHP Olympic dam and Iluke Mine.

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HONING THE SKILLS THAT HOLD EVERYTHING TOGETHER

Water isn't the only priceless resource the Adelaide Desalination Plant project gives South Australia, it also enhanced some crucial skills in the construction workforce, with AWS Global contracted by AdelaideAqua to provide specialist welder training and welding quality inspection training.

"AdelaideAqua and SA Water want to create a legacy for South Australia in terms of welding skills. It is not a trade that has been attracting enough new workers, but it can offer a complete career path, with specialisations like welding engineering," explained AWS Managing Director Neville Cornish. "Welding engineering is the best way of ensuring weld integrity."

"People often don't realise a project's reliance on competent welds and inspection. The AWS Centre of Excellence is a training facility, which is not just a training area, it is a wholistic facility covering a career path within the welding field," said AWS Consultant Christine Edwards.

"Welding of Plant is listed under OH&S, and all projects have a duty of care with welded plant; this is one of the reasons we need to upskill the industry. A lot of work slips past which is not up to the level of quality required, and a lot of sub contractors and engineers are not entirely aware of the applicable welding standards. The documentary evidence for Welded Plant needs a trail from welding design through to final inspection."

AWS has accreditation AS/NZS ISO / IEC 17020 as a class A Inspection body, is the only NATA accredited welding consultancy, and brings a combined 150 years of hands-on metal fabrication, engineering and inspection experience across industry sectors to improve the level of diligence applied on sites. As infrastructure project consultants, AWS ensures all Welding and Welded Structures, Welded Plant, Welded Components, and Pressure Plant meet the mandatory requirements, and have serviced major projects including desalination plants, submarines, wind towers, tunnels and bridges in both the private and government sectors.

AWS Centre of Excellence offers accredited training in specialist welding, engineering, metal fabrication and inspection, with diploma courses in addition to career path modules for experienced engineers, welders and fabricators. The training has been specifically designed in response to the growing skills shortage in the industry, and ensures workmanship of the standard required to protect human life and the capital value of plant and projects.

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AWS IN SERVICE INSPECTION
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LINKING IT ALL TOGETHER OVER THE AIRWAVES

South Australian company Tetracom gave the Adelaide Desalination Plant at Port Stanvac construction team a radio communication system which does just about everything - short of broadcast a top 40. It even has its own slice of the national bandwidth.

The site has two separate but linked radio systems, one for above ground operations and one for underground in the tunnels and chambers. Originally there were 120 hand held radios provided for use by supervisors, leading hands and other key personnel including safety officers however this has now grown to well over 200 units. Tetracom also supplied 30 plus vehicle and base station radios, and provided training for trainers on site during installation and handover of the system.

"The original tender request that was originally specified was considered under-resourced, so a consultative process was undertaken with Adelaide Aqua to ascertain their real needs and at the end of the day we came up with a turn-key solution to meet those stated operational requirements which also included all licence applications and associated permits," said Tetracom spokesman, Mark Gale.

"The system we designed includes a site-wide emergency channel which, with one button press, alerts the above ground security/emergency response team who can then form one single radio network of all the below ground radio channels to security if required. All underground channels are also linked to above ground repeaters to provide full site wide communications.

"The challenge was in the number of people on site, and the number of channels required to meet the operational needs. We produced a custom fit solution to meet the project's needs, which provides flexibility and reliability within the budget."

Other major projects have undertaken include communications for the OZ Minerals mine at Prominent Hill near Coober Pedy; replacing all radio infrastructure equipment for Santos Cooper Basin gas project; partnering with Telstra constructing communications for the Alice Springs to Darwin rail link; upgrade of the SA Country Fire Service fire ground radio units including supplying 3,000 plus fire ground radios and working with British Aerospace on radio communications for Kakadu & Uluru National Parks.

Tetracom are an accredited Government Radio Network (GRN) installation and service provider and performs qualified installation and supply services to GRN radio users including CFS, Police, SA Ambulance and are In-Skill accredited. With one of the largest service divisions in the industry in SA their maintenance department looks after a range of installations throughout South Australia, Western NSW & Victoria as well as the Northern Territory, including Uluru.

As the company's skills and product knowledge are second to none, Tetracom can provide systems which link to Building Management Systems to automatically report alarms, are capable of tracking people in buildings such as hospitals or shopping centres, or offer point to point data transfer via microwave. They can provide satellite telephony, GPS tracking and vehicle management systems, pocket paging, voice based two-way radio and in conjunction with system integrators, radio and RF links for remote switching. Equipment is available for lease or can be procured for purchase, whether one radio or hundreds.

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TAKING THE 'PHEW' OUT OF LOOS

Australian English has an incredible range of monikers for the humble dunny, and an equally impressive range of adjectives for unpleasant ones. Fortunately, for workers at the Adelaide Desalination Plant, one adjective describes amenities serviced by Transliquid Services – clean.

Transliquid has been doing the pumping out of toilet blocks and septics on the site for over a year now, shifting up to 12 tanks of waste, three times a week. As the primary waste liquid contractor to most of the major hire companies in Adelaide, Transliquid were involved with the project through Ausco, who provided the site's hire buildings, including the loos.

Toilet pumping might not be a starring role on a project, but it's one of the absolute essentials, because without clean facilities, a whole site's Occupational Health is compromised.

"Our company is set apart from other liquid waste companies, because we specialise in the servicing of toilet, singles and blocks to the building trade. While most liquid waste companies can pump out toilets, generally that is all they do. Our staff clean inside, refill toilet paper, chemicals, handwash and towels, as required," explained Transliquid's Roxane Siciliano.

"Our vehicles often draw comments, as apart from being so distinctive, they show no outside signs of the job we do. We always try to be discreet and respectful, by planning our arrival times onto sites. We also can transport portable toilets; many building companies have their own facilities, so we deal directly with them. Every day we service the entire greater Adelaide area, plus often travel to places as far away as Tailem Bend, Cape Jervis, Balaklava and Clare.

"Our staff all have white cards and often undertake OH&S training. We have guest speakers at our tool box meetings to cover different issues that may arise. Naturally all our vehicles have flashing lights, audible beepers, UHF, First Aid kits and Fire Extinguishers."

The vast quantity of work at Adelaide Desalination Plant created another position within the company, who now have six full time staff and a fleet of seven vehicles ranging from a 400L tank fitted to a 4 wheel drive, up to 7,500L tankers. Their manoeuvrable vehicles mean Transliquid can access restricted access sites, including carparks, basements and small laneways.

In addition to the core business of amenities management, Transliquid also have the capability to undertake broader commercial cleanup and liquid disposal, including waste water removal, wash bay pits servicing and dewatering foundation piers.

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MACCAFERRI INNOVATION PUTS EXTRA STRENGTH UNDERGROUND

To maximise the strength and performance of the concrete in the tunnels beneath the Adelaide Desalination Plant site, AdelaideAqua used a product new to the Australian market - Maccaferri Wirand® Fibres. The Wirand FF3 fibres were supplied for use in the pre-cast tunnel segments, and Wirand FS3N Fibres for the permanent shotcrete lining.

Internationally, Maccaferri has been one of the leading manufacturers of concrete fibres in Europe for many years. The Wirand concrete fibres are a newly developed product with a combination of unique characteristics. The key characteristics are the "openness" of the hooked ends as well as their length, which is shorter than all other fibres in the Australian market. These two properties combine to produce better performance and easier finishing of the concrete elements or surface. The shorter length of the fibres also has the advantage of providing more fibres per kilo in the concrete mix, thereby assisting with the overall performance of the concrete.

Three months of intensive and rigorous testing before the product was selected gave ample proof that the unique qualities of Maccaferri Wirand® Fibres would deliver outstanding results. The performance of the fibres ensured the pre-cast segments were undamaged during transport from the Bendigo manufacture site to Adelaide, and that the segments could withstand the extreme forces of the Tunnel Boring Machines during installation. Maccaferri also delivered excellent cost savings.

The common concern when offering singular fibres is the possibility of concrete balling. This issue can be virtually eliminated with the unique fibre blowing machine Maccaferri has just introduced to the Australian market. In conjunction with the fibre blowing machine, Maccaferri offers systems that will allow you to measure the fibres by weight accurately with little impact to the concrete batching process.

Maccaferri Australia calls on its worldwide experience in this market and local concrete technology knowledge to deliver cost effective solutions applicable to all tunnelling, flooring and shotcrete designs. As a leading supplier of materials to civil engineering, building and landscaping projects throughout Australia, Maccaferri products have been specified and incorporated into many high profile projects by major consultants and contractors for nearly 30 years.

The extensive product portfolio also includes double twist mesh gabions; Reno® mattresses and rockfall netting; non-woven and woven geotextiles for all applications, from lightweight non-woven grades for filtration to high strength woven PET geotextile for soil reinforcement; geogrids; sludge dewatering tubes; drainage products; erosion control products; and sub-surface irrigation. A quick look at the company website www.maccaferri.com.au shows the breadth of applications and project types Maccaferri Australia can provide for.

MACCAFERRI AUSTRALIA PTY LTD
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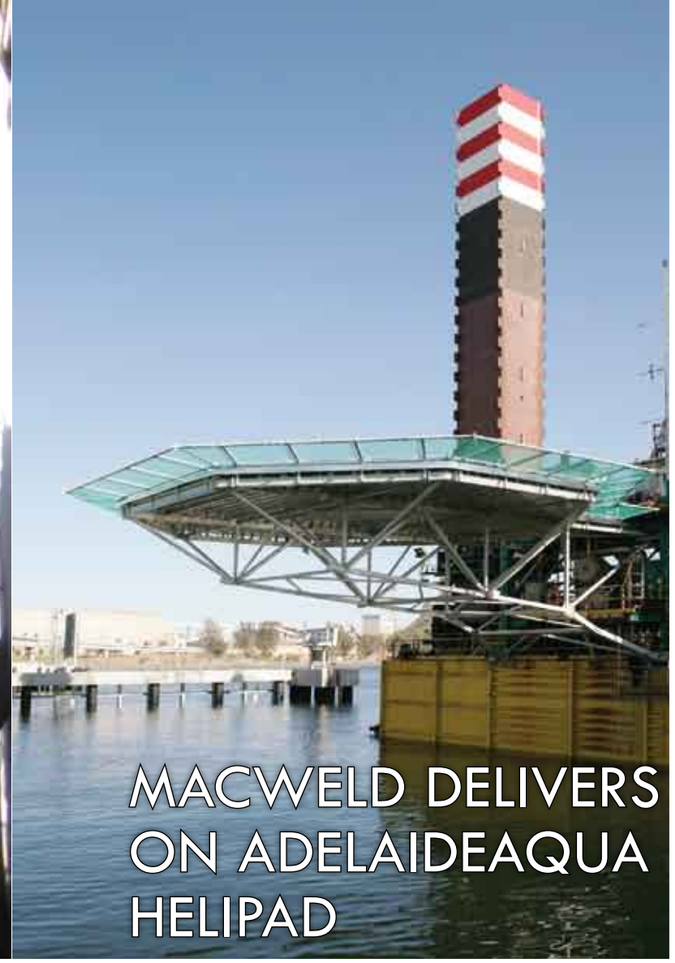

MACWELD DELIVERS ON ADELAIDEAQUA HELIPAD

Macweld Industries is a diverse engineering company with accreditation to AS/NZS ISO 9001:2000 and AS/NZS ISO 4801, enabling the company to provide excellence of service and product; absolute conformance to the customer specification and requirements; and an effective continuous improvement program.

As structural fabricator for the AdelaideAqua Santa Fe Barge Upgrade, this excellence was again exhibited as Macweld met the extremely tight delivery time frames and strict tolerances required on this key infrastructure project.

Macweld undertook the detail design, fabrication, transport, cranage and erection of the Helipad steelwork required for the Santa Fe Barge Upgrade. The Helipad steelwork was designed to be cantilevered off the Santa Fe Barge.

The Helipad enabled AdelaideAqua to rotate and transport their employees safely and without delay by helicopter to and from the ocean location of the Santa Fe Barge. The Helipad also allowed AdelaideAqua to increase operational efficiency during the Barge's working periods, and eliminated the high risk of transporting employees by boat, with inclement weather and high seas creating serious safety issues.

All fabrication work was completed in-house by the highly experienced Macweld team, who have continually and successfully completed projects in a diverse range of industries since the company's inception in 1962.

A privately-owned company, Macweld offers a range of services including Project Management, Structural and Mechanical Design (ProSteel and AutoCAD), Mild Steel Fabrication, Stainless Steel Fabrication, On-site Maintenance, Labour Hire, Shutdown Management and Coordination, Site Installation and Steelwork Erection and 24 hr Crane Hire with lifting capacities up to 100T.

Macweld Industries other recent and current projects include the design, fabrication, surface treatment, and installation of both Structural Steelwork and Mechanical Packages for Amcor Stage 3 Upgrade; Fabrication of Bulkheads and Framework for the Air Warfare Destroyer Defence Contract; Design, fabrication, surface treatment and installation for a wide range of Primary Schools and High Schools under the Government Incentive Scheme; Design, fabrication, surface treatment and installation of steelwork for Adelaide Oval Redevelopment; Design reports, removal / re-installation including crane hire and fabrication / repairs of Crane Boom (5.2m wide x 6m high x 43m long – 55 Tonne) damaged during operation.

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A FITTING TASK FOR PIRTEK

Innovation and initiative has propelled Pirtek forward many times over the last 30 years. Pirtek have developed (and are still developing) a broad market for distribution of world class products delivered via more than 320 mobile service units and 89 Service and Supply Centre's nationally. During the last 30 years we believe that we have created a company that is sensitive and tuned into its market, one that insists on providing quality products and services and nurturing a philosophy of readiness for adaptation.

It is for these reasons that when AdelaideAqua required a supplier of Hoses & Fittings to meet the demands of the new Adelaide desalination plant project, Pirtek was the obvious choice to support them and their subcontractors.

"We were onsite from the first cut in March 2009, and will be there until first water and beyond", said Pirtek South Adelaide's Centre Manager, Stephen Linscott.

In order to meet the scope of work of a project of this scale Pirtek South Adelaide combined a site container workshop fully stocked with hoses & fittings inclusive of hose making facilities, with 24hr 7 day mobile service support. Support included bulk supply of hoses & fittings, portable bunding for environmental spills and replacement hoses & fittings for machinery and infrastructure.

Pirtek's mobile service responded to machinery breakdowns and supplied the TBM store for the tunnel boring process, while the on-site workshop manufactured hoses on demand as need arose during contract drilling. Being part of the National Network of Service & Supply Centre's enabled Pirtek South Adelaide to draw on experience from other Centre's who had been successful in supplying to interstate desalination plant construction at Kurnell in NSW, Gold Coast in QLD and most recently in LaTrobe Valley in Victoria.

Over the last 16 years Pirtek South Adelaide have grown into a supplier of choice for major local projects including the Adelaide Freeway Tunnel, the Southern Expressway, the Tramways Upgrade and the Belair Railway Line.

With Pirtek celebrating our 30th year of operation in 2010, the Adelaide Aqua/Pirtek partnership is a demonstration of our capacity to provide class leading support across our entire product and services portfolio. The same products and services provided by Pirtek South Adelaide are also available nationally from all Pirtek Service and Supply Centre's. **Call 134 222, 24 hours 7 days for your nearest centre or visit www.pirtek.com.au.**

GOLDER HELPS DESALINATION GROWTH IN SA

Water scarcity is a growing global problem and one that South Australia has experienced firsthand.

Increased desalination is one way to help combat this problem and the services of ground engineering and environmental consultancy, Golder Associates, are increasingly being called on for projects associated with the desalination process.

"Desalination is an important growth area for Golder across Australia and particularly here in South Australia. Desalinated water will be an increasingly important part of our water supply and we are excited to bring our expertise to desalination projects," said Senior Geotechnical Engineer for Golder in South Australia, Tom Hills.

Most recently, a geotechnical team from Golder in South Australia provided specialist advice for the design and construction of the Adelaide Desalination Transfer Pipeline and Pumping Station, a project by the McConnell Dowell Built Environs Joint Venture (MDBEJV).

The team utilised local and interstate Golder knowledge to provide the best design-stage input and technical solutions for this challenging MDBEJV project, which included 10 km of transfer pipeline to connect the Desalination Plant with Happy Valley Reservoir in the city's southern suburbs.

Geotechnical investigations comprised of geological mapping, borehole drilling and test pit investigations and were undertaken at the sites for the pump station, break pressure tanks and along the route for the pipeline.

Golder's NATA accredited Adelaide Laboratory were utilised for testing throughout the project.

Subsurface conditions across the project site were variable, comprising areas of extensive fill and highly expansive clays and shallow rock, all of which presented unique sets of ground engineering challenges to the project team.

Throughout the construction phase of the project, Golder's contribution helped MDBEJV achieve its tight deadline. The team provided temporary works solutions, excavation stability advice, design verification, materials testing services and earthworks quality assurance to achieve successful and timely project outcomes.

Contact: Tom Hills, Senior Geotechnical Engineer, +61 8 8213 2103, THills@golder.com.au

CERTIFIED BEST-PRACTICE SCAFFOLDING

With their impeccable safety record, comprehensive material and manpower resources and third party Certification by TQCSI to AS/NZ 4801 and ISO 9001, Caledonia Contractors can rightly claim to be Australia's leading privately owned scaffolding company. AdelaideAqua has been relying on their services since September 2009, to provide scaffolding equipment and scaffolders/riggers across the Lonsdale site.

To date, Caledonia have supplied 1079 tonnes of scaffolding on the Adelaide Desalination Plant project, from modular scaffolding for general construction works through to specialized hung scaffolding for the Santa Fe Barge and hand built tube scaffolds weighing over 5 tons that can be lifted by crane for tanks on site. A large number of Caledonia's highly trained scaffolders and supervisory staff have been on the site full time throughout, and are likely to stay on site well into 2011.

Safety is a major priority for Caledonia. All their workers have weekly toolbox meetings, and are given ongoing training in safety at heights, confined spaces and general mining and construction industry best practice OH&S. A member of the company's team at BHP Billiton's Olympic Dam mine site was awarded the Olympic Dam Best Award by Dean Dalla Valle, BHP's Global President, Uranium, for the team's superior commitment to safety which was repeatedly demonstrated over a two year scaffolding project.

"Our biggest challenge with the Adelaide Desalination Plant has been coordinating the jobs between departments, who can call on our services across the project at any given time, sometimes at very short notice. We implemented a scaffold request system and set up site-specific procurement, delivery and supervisory systems to ensure smooth logistics," said Caledonia's General Manager, David Stephen.

The project's massive requirement for scaffolding components was easily resourced from Caledonia's fully stocked yard by the company's own fleet of transport vehicles. A decade of experience in the mining, construction, oil and gas sectors has honed the company's expertise. Caledonia maintain full time work crews on site at Prominent Hill for Oz Minerals, Roxby Downs, Honeymoon and Snapper Mines; and also provide regular services to Hansen Yuncken, Transfield Services, Lucas Earth Movers, Mossop, Sarah Constructions, United Water, Leighton Contractors, Worley Parsons, Nyrstar and Newmont Gold.

Having up to 75 scaffolders on staff and their own scaffolding equipment allows Caledonia to service multiple major projects concurrently throughout South Australia, The Northern Territory, regional New South Wales and Queensland. They offer a complete service, supplying HSEC, administration, procurement and logistics with the scaffolding team, and provide clients with daily time sheets, weekly reports and monthly invoices, so clients such as AdelaideAqua can easily track costs. Essentially, if a project needs scaffolding, Caledonia is the company to call for a safe, cost-effective, logistically smooth and comprehensive service.

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AS INSTANT AS A GASKET CAN GET

AdelaideAqua and their subcontractors have relied on the skills and superior service of Industrial Gaskets to meet an extraordinary range of orders, and in most cases have received their order the same day, whether it was for a 1800mm gasket with an outer dimension of over two metres, or multiple 15mm gaskets.

All up, Industrial Gaskets have supplied over 2,500 gaskets to the project to date, in addition to 1,500 metres of Mylar Insulating Sleeve and 3,500 Insulating Washers. All have been delivered via a direct courier service straight from the manufacturing site in Melrose Park South Australia to the Port Stanvac site.

The addition of an Aristomat Digital Knife Cutting Machine to the company's manufacturing capital gives Industrial Gaskets the ability to rapidly draft and manufacture non-standard size gaskets of all kinds, without comprising quality. All the products they manufacture are Certified to ISO9001:2008, and meet the relevant pipe Standards, their manufacturing approach is precise and cost-effective for clients, and protective of both the environment and employee's health and safety.

"Industrial Gaskets' little to no lead times and streamlined manufacturing processes has enabled it to service the Desalination project and site engineers at an "on call" basis for the majority of the project," explained Business Manager, Michelle Wolanin.

Founded in 1985, Industrial Gaskets was involved predominantly with die cut components and rubber products for the car, whitegoods and electrical industries. The addition of more staff and evolution of manufacturing processes has enabled Industrial Gaskets to manufacture and supply products for blue-chip projects including Prominent Hill Copper Gold Project in South Australia, Northern Connector Pipeline Project in QLD, Ravensthorpe Nickel Mine Project in WA, BHBP Olympic Dam Tails Leach Circuit Upgrade in Regional South Australia and Honeymoon Uranium Project in Regional South Australia. They manufacture and supply across sectors including Defence, Mining, Water Treatment, Oil and Gas, Petrochemical, Pharmaceutical and General Engineering Australia-wide, and export to Malaysia, Hong Kong, Thailand, New Zealand, Dubai and Singapore.

The product range includes: cut gaskets of any size/style; spiral wound gaskets; all Elastomers; gasket sheet; fibreglass products; ceramic products; gland and valve pump packing flange insulation kits; insulating sleeves, washers and bolt insulators; rubber and metallic expansion joints; flexible bellows and exhaust bellow; PTFE cord, tape, sheet and cut components; graphite products; Fluorogreen Modified PTFE gasket sheets or pre-cut gaskets; Ring Type Joint Gaskets; Cathodic Protection; and CNC Cutting.

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Adelaide Desalination Plant , Port Stanvac, SA

FACTFINDING AND FORESIGHT ENSURE SUCCESS

Extremely detailed engineering knowledge, a firm grasp on the finer details and solid connections with both client and suppliers enabled Husking Rail and Water (HRW) to prepare estimates for AdelaideAqua's bid for the Adelaide Desalination Plant project at Port Stanvac. This is HRW's speciality – preparing estimates and tender documents for desalination plants and rail infrastructure; another recent assignment was the Sydney CBD Metro rail Project. HRW undertakes work around the country, providing services to leading contractors such as Abigroup Contractors.

Director, Bob Husking, has 40 years experience in rail and water projects. Through a thorough understanding of the client requirements, the design, the ability of the market to supply the project's needs and materials lead times, HRW prepared three fixed cost estimates for the project's desalination component, working to tight timeframes.

"The estimate must be based on a solid program and so a lot of work goes into ensuring the program is robust. Risks are a major consideration such as availability of Resources – Staff, Skilled workforce, plant and equipment. Where there are concerns the likely costs of addressing these concerns has to be included in the estimate," Bob Husking said.

"For ESD we have to consider Energy Waste and Water – most considerations come from the designers but the estimator considers the commercial viability of options. The challenge is what presents value for money for the Client when the tender is being prepared in a competitive situation."

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CUTS & CORES AROUND THE CLOCK

Across the Adelaide Desalination Plant site, BK Innovative Concrete Services have been cutting and coring concrete for pipework and services, opening up doorways and putting expansion joints in freshly poured concrete. The AdelaideAqua Building Alliance comprising McConnell Dowell, Abigroup and Built Environs, and have all been calling on their expert services since late 2009.

"No job is too hard, no job is too small for us. We take pride in doing accurate, clean work and leaving a nice clean site behind us," said General Manager Kon Hatedakis. "Whether it's a hard job or an intricate little task, we listen to the customer and client needs, and look for the most cost-effective way to achieve the end result."

BK Innovative's other major projects include Port Adelaide's new Submarine Base and Shipbuilding Yard; stage one of the Tramways Extension; Port Adelaide to Newport Quays; Centro Colonnade Shopping Centre; City Central Tower; and ASC at Osborne for CUF. Currently they are working on Glenside Campus, the Adelaide Film Centre and Adelaide Oval, where BK Innovative won an award from Built for having the best safe work practices.

BK Innovative's OH&S policy is implemented through project-specific safety plans. Ongoing training of their nine employees and the use of top quality Husqvarna equipment, Bianco diamond tools and Stihll saws, puts this company's 24 hour service a cut above the rest.

BK INNOVATIVE CONCRETE SERVICES PTY LTD
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VOLTEX KEEPS THE WATER IN – AND OUT

CETCO's VOLTEX® Volclay Waterproofing System was chosen by AdelaideAqua to waterproof critical areas in and around the treated water tanks and surrounding areas. VOLTEX® was chosen for its ease of installation in any weather condition, its high waterproofing performance and its superior adhesion to concrete.

For speed of installation and to ensure that there were minimal overlapping joints, AdelaideAqua chose VOLTEX® in 200 square metre rolls, however VOLTEX® is available in smaller 66 & 6 square metre rolls for ease of installation.

VOLTEX® is a highly effective waterproofing composite comprised of two high strength geotextiles and 4.88kg of Volclay® sodium bentonite per square metre. The high swelling, low permeable sodium bentonite is encapsulated between a non-woven and a woven geotextile. A patented needle-punched process interlocks the geotextiles together forming an extremely strong composite that maintains the equal coverage of bentonite, as well as, protects it from inclement weather and construction related damage. Once backfilled, VOLTEX® hydrates and forms a monolithic waterproofing membrane. VOLTEX® contains zero VOC, can be installed in almost any weather condition to green concrete, and most importantly, has proven effective on both new and remedial waterproofing projects worldwide.

For further information on Volclay Waterproofing Systems please contact **www.cetco.com**