Jacking under Lang Park Stadium

A rain saving system that's out of sight

Council crew builds third road bridge
Paul Cammans has been appointed to the new role of Capital Works Sales Manager in Sydney. We also have three new Sales Engineers: Sean Ryan in Brisbane; and Shannon Barr and Andrew Clifton in Melbourne.

Shane Warfe, previously Gold Coast Sales Representative, has been appointed as Western NSW Area Manager, based at Dubbo.

Another vital part of our service commitment is continually increasing customer support levels. An example of this, featured in this issue, is the partnership forged between Rocla and Mills Transport in northern New South Wales which has allowed us to boost service levels in this booming region.

I hope you enjoy reading this edition of The Piper.
Rocla recently supplied large-diameter reinforced concrete jacking pipe for stormwater drainage associated with the redeveloped Suncorp Stadium at Lang Park in the Brisbane suburb of Milton.

Brisbane City Council made the stormwater upgrade a condition of the $280 million redevelopment of the stadium and its associated infrastructure. The development was carried out by the Lang Park Redevelopment Joint Venture (between Multiplex and Watpac).

Relief drainage works for Milton were long overdue. The existing drain was installed in the late 1800s and the pipe, at a depth of 11 metres, needed to be supplemented by relief drainage.

Excavation at that depth was impractical so civil engineers Arup opted for a jacked pipeline to connect to the existing drain.

Rocla supplied a total of 170 metres of 2400mm Class 4 reinforced concrete jacking pipe for the system.

The jacked pipe runs 75 metres, enters a large access chamber, then changes direction and runs a further 95 metres. The line passes under a street and beneath a corner of the stadium buildings at depths of 5 to 11 metres, at times tunnelling between foundation piles.

Works were delayed when it was discovered the site had been used both as a cemetery and for landfill in Brisbane's early days. Urban archaeologists were called in to remove artefacts from the debris, while some human remains from the cemetery were also removed and re-interred.

Rocla also supplied 27 metres of 2400mm Flush-Joint Class 6 concrete pipe for a conventional trench installation as part of the system, as well as 140 metres of 2700mm and 100 metres of 2400mm steel-reinforced pipe.
Queensland civil contractor Construction Siteworks took advantage of the Rocla® Sewer Access System with factory-made bases to save two weeks on the installation of a sewer line for a new sub-division.

A total of 27 maintenance holes were required for The Terraces residential development near Toowoomba, in the Darling Downs west of Brisbane.

Site manager Robin Holmes said the pre-benched and pre-bored bases meant each maintenance hole was virtually completed within an hour.

“The time saving is phenomenal,” Robin said. “Set-out takes about half an hour and once the base is in place, a back-hoe can stack the components up to ground level while another machine is excavating away to the next manhole, ready to lay the pipe.”

“Another advantage is that once you’ve completed the base, the line is secure from the weather,” Robin said.

Time savings were in the order of three hours per maintenance hole, according to Robin. “I estimate there would have been about eleven days of benching if we had formed the bases in situ,” he said. “We had time constraints on this job, which is why we opted for the factory-made bases, but there was also a big cost saving in time.”

WA civil contractor DM Civil recently constructed a culvert under the Perth-Bunbury rail line using Rocla® Concrete Jacking Pipe.

The project, for the WA Water Corporation, was carried out using a 60-inch auger boring machine that was designed and built in-house by DM Civil. The Rocla® 1500mm Class 4 Jacking Pipe forms a culvert for a 1200mm cement-lined steel water main that delivers water from the North Dandalup Dam for the Perth metropolitan water supply. DM Civil’s Bruce Shaw said the combination of the new boring machine and Rocla’s large-diameter Jacking Pipe opened up new opportunities for the company to compete for civil infrastructure contracts in the West.
Rocla EcoRain® supplies green solution for garden irrigation

The first installation of the new Rocla EcoRain® rainwater utilisation system is being used to recycle rainwater for garden irrigation at a townhouse development in Canberra.

Rainwater from about half the roofs of the 15 townhouses is collected and stored in a 10,000-litre underground concrete tank. An electric pump then delivers the water to the sprinkler system at mains pressure to irrigate the common landscaped area. During dry spells, the tank is topped up automatically from the mains supply.

John Gulan, from builder-developer Stylemark Construction, said the original plan was to construct a tank in situ, to meet the requirements of the ACT Government’s greywater reuse program.

“However, our engineer suggested the precast packaged solution as a more efficient option,” John said.

“Rocla supplied the complete system and we were able to install it using our own on-site labour,” he said.

“Our drainer excavated the trench and connected the system to the stormwater drainage, our plumber connected the water pipes, our electrician set up the control box and our landscaper connected it to the irrigation system.” Rocla ecoRain® rainwater utilisation system can supply up to 60% or 70% of household water needs, pumping rainwater to laundry, bathroom and garden taps at mains pressure. The system is low-maintenance, automatic and hidden from sight. Larger commercial systems are also available.

Project
Townhouse development

Location
Banks, ACT

Builder-Developer
Stylemark Construction

Engineers
Sellick Consultants

Installer
Stylemark Construction

Rainwater Utilisation System
Rocla Water Quality

The first installation of the new Rocla EcoRain® rainwater utilisation system is being used to recycle rainwater for garden irrigation at a townhouse development in Canberra.

Rainwater from about half the roofs of the 15 townhouses is collected and stored in a 10,000-litre underground concrete tank. An electric pump then delivers the water to the sprinkler system at mains pressure to irrigate the common landscaped area. During dry spells, the tank is topped up automatically from the mains supply.

John Gulan, from builder-developer Stylemark Construction, said the original plan was to construct a tank in situ, to meet the requirements of the ACT Government’s greywater reuse program.

“However, our engineer suggested the precast packaged solution as a more efficient option,” John said.

“Rocla supplied the complete system and we were able to install it using our own on-site labour,” he said.

“Our drainer excavated the trench and connected the system to the stormwater drainage, our plumber connected the water pipes, our electrician set up the control box and our landscaper connected it to the irrigation system.” Rocla ecoRain® rainwater utilisation system can supply up to 60% or 70% of household water needs, pumping rainwater to laundry, bathroom and garden taps at mains pressure. The system is low-maintenance, automatic and hidden from sight. Larger commercial systems are also available.

Project
Townhouse development

Location
Banks, ACT

Builder-Developer
Stylemark Construction

Engineers
Sellick Consultants

Installer
Stylemark Construction

Rainwater Utilisation System
Rocla Water Quality

The first installation of the new Rocla EcoRain® rainwater utilisation system is being used to recycle rainwater for garden irrigation at a townhouse development in Canberra.

Rainwater from about half the roofs of the 15 townhouses is collected and stored in a 10,000-litre underground concrete tank. An electric pump then delivers the water to the sprinkler system at mains pressure to irrigate the common landscaped area. During dry spells, the tank is topped up automatically from the mains supply.

John Gulan, from builder-developer Stylemark Construction, said the original plan was to construct a tank in situ, to meet the requirements of the ACT Government’s greywater reuse program.

“However, our engineer suggested the precast packaged solution as a more efficient option,” John said.

“Rocla supplied the complete system and we were able to install it using our own on-site labour,” he said.

“Our drainer excavated the trench and connected the system to the stormwater drainage, our plumber connected the water pipes, our electrician set up the control box and our landscaper connected it to the irrigation system.” Rocla ecoRain® rainwater utilisation system can supply up to 60% or 70% of household water needs, pumping rainwater to laundry, bathroom and garden taps at mains pressure. The system is low-maintenance, automatic and hidden from sight. Larger commercial systems are also available.
A partnership with Mills Transport is boosting Rocla’s customer service levels in the booming north coast region of New South Wales.

Rocla® products are now stocked at Mills depots throughout the region, ready for delivery by Mills’ dedicated fleet of trucks. Distribution depots are located at Lismore, Coffs Harbour, Murwillumbah, Casino and Ballina, with a new branch opening soon at Kyogle.

Mills also delivers products stocked at Rocla’s own production facilities at Grafton and Glen Innes. The alliance allows Rocla to offer reduced lead times to civil construction contractors and shire councils in the region.

Products in stock include high demand precast components such as Rocla® Pipes, Box Culverts, Headwalls, Stormwater Pits and Lintels, Sewer Access Systems, Stock Troughs and other rural products.

Rocla Water Quality supplied two Rocla Downstream Defender* stormwater treatment units for the new Adelaide premises of Rocla’s sister company, Stramit Building Products.

The 5000 square metre factory and office at Cavan was purpose-built for Stramit by owner-developer Commercial & General on a leaseback arrangement. The building is flanked by large paved areas for loading Stramit’s roofing and guttering products on to semi-trailers.

Potential oily pollution in the runoff from more than 11,000 square metres of hardstand required a stormwater cleansing system to meet the long-term environmental protection objectives of Commercial & General and the local council.

Two stormwater drains, one on each side of the new building, dispose to the main trunk line that runs along the front of the building. Limited space between the building and the main (less than 3 metres) meant that two separate cleansing devices would be more economical than bringing the two lines to a single point.

A Rocla Downstream Defender* 1200 unit with an upstream control pit (with overflow weir) services the line from the larger paved area (which eventually will be more than 8000 square metres), while another 1200 unit is installed in-line on the drain from the other side of the building (with runoff from some 5000 square metres).

Jamie McClurg, of Commercial & General, said the fact that Rocla and Stramit were both part of the Amatek Group did not influence the specification of the Rocla Downstream Defender* treatment units: “It’s a superior product and we would have specified it regardless of the tenant,” he said.

Rocla Water Quality supplied two Rocla Downstream Defender* stormwater treatment units for the new Adelaide premises of Rocla’s sister company, Stramit Building Products.

The 5000 square metre factory and office at Cavan was purpose-built for Stramit by owner-developer Commercial & General on a leaseback arrangement. The building is flanked by large paved areas for loading Stramit’s roofing and guttering products on to semi-trailers.

Potential oily pollution in the runoff from more than 11,000 square metres of hardstand required a stormwater cleansing system to meet the long-term environmental protection objectives of Commercial & General and the local council.

Two stormwater drains, one on each side of the new building, dispose to the main trunk line that runs along the front of the building. Limited space between the building and the main (less than 3 metres) meant that two separate cleansing devices would be more economical than bringing the two lines to a single point.

A Rocla Downstream Defender* 1200 unit with an upstream control pit (with overflow weir) services the line from the larger paved area (which eventually will be more than 8000 square metres), while another 1200 unit is installed in-line on the drain from the other side of the building (with runoff from some 5000 square metres).

Jamie McClurg, of Commercial & General, said the fact that Rocla and Stramit were both part of the Amatek Group did not influence the specification of the Rocla Downstream Defender* treatment units: “It’s a superior product and we would have specified it regardless of the tenant,” he said.
The Rocla Hydro-Brake® flow control device provided a simple, low maintenance solution to controlling sewage discharge at the bottom of a 1.8-kilometre graded boreline with 45 metres of head.

The new line at Chatswood, in Sydney’s northern business district, is part of Sydney Water’s $2 billion SewerFix Program. It is the longest graded bore in the world and required the use of the latest directional drilling technology by contractor AJ Lucas Drilling.

Considerable redevelopment of the Chatswood CBD and ongoing population growth created the need for a diversion line to reduce the possibility of sewage overflows.

The gravity-fed line drops 45 metres over its almost two-kilometre length and connects to a trunk main that is unable to cope with the entire flow volume.

The problem for Sydney Water was to maintain the volume at below 200 litres a second without the danger of blockages created by a standard orifice plate with an opening of around 100mm.

The answer was the Rocla Hydro-Brake® flow control, which provides a 215mm orifice yet maintains a 200 L/s flow by harnessing the energy of the flow field to create back pressure and reduce the discharge.

Rocla Hydro-Brake® flow controls have no moving parts and no external energy requirements. The simple design consists of an intake, a volute and an outlet. Flow is directed tangentially into a volute to form a vortex.

High peripheral velocities induce an air-filled core that creates back pressure. The Rocla Hydro-Brake® flow control provides improved hydraulic performance over conventional flow regulators, with reduced maintenance requirements. With clear openings three to six times larger than conventional flow controls, the risk of blocking is reduced to a minimum.

Storage volume requirements are also reduced, lowering project costs.

The Rocla Hydro-Brake® flow control can be used for stormwater and sewer flow control, as an inlet control, or for regulating outflow from detention ponds.

---

**Project**

Chatswood Sewer Upgrade

**Location**

Northern Sydney

**Principal**

Sydney Water

**Contractor**

AJ Lucas Drilling

**Flow Control Device**

Rocla Water Quality

---

Hydro-Brake controls sewage flow in longest graded boreline

---

Image: AJ Lucas
The engineering performance of the Rocla M-Lock® precast bridge system was tested recently by a request for a 60-metre bridge that could withstand being overtopped by floodwaters a couple of times a year at flow rates of up to 5 metres a second.

Mackay City Council required a single-lane road bridge over the O’Connell River that would meet HLP 320 live load conditions, withstand flood overtopping and minimise debris catchment.

The remote location of the site, at Bloomsbury 80km north of Mackay, made a precast modular bridge the ideal solution. Rocla’s engineers worked with Cardno MBK to design a Rocla M-Lock® bridge with 5 spans of 12 metres each, with special connections to increase the tie-down strength of the system.

The bridge, which is mounted on 12 octagonal prestressed concrete piles, includes 6 precast headstocks, 20 deck planks and 2 end protection beams, plus castellated kerbs to allow the bridge to drain after overtopping.

The Rocla MassBloc® retaining wall system was recently employed to construct two massive walls to retain earth embankments at a new BHP Billiton coal mine.

Coal from the Dendrobium Mine, near Wollongong in NSW, will be loaded directly on to rail cars inside a loading tunnel cut through a hill.

The Rocla MassBloc® walls retain the earthworks at the approaches to both ends of the tunnel, where a higher level road provides vehicular access to the rail line.

The walls, one approximately 30 metres long and the other 70 metres, vary in height between 3 and 7 metres. The Rocla MassBloc® system provided an economical earth retention structure that was easy to transport and quick to install. Precast permeable concrete blocks, each weighing around 18 tonnes, are interlocked by a nib precast into the back of the block. The nib holds the blocks in place, while also providing the set-back for each course.

Construction is mortarless and an experienced crew can place up to 70 square metres of wall a day. Rocla MassBloc® components are wet-cast, making them durable and resistant to cracking.

The walls at the Dendrobium Mine comprise some 650 blocks, including full size and half-blocks. Stephen Bailey, from civil contractors Walter Constructions, said the walls went together easily and were much less labour intensive than the gabion walls originally planned for the site.
The day labour crew at Evans Shire Council is now an expert bridge building team, after completing its third Rocla M-Lock® precast bridge.

Evans Shire, in the NSW Central West, built its latest Rocla® bridge on a major rural road over McGeorges Creek at Bathurst. The bridge, built on behalf of the NSW Roads & Traffic Authority, was constructed in two stages, one lane at a time.

The new 12-metre long single-span crossing replaces an existing timber bridge that was badly dilapidated and beyond repair.

Because of the geometry of the road, the new bridge could not be relocated, so to maintain constant traffic flow the old bridge had to be kept in service while it was being replaced.

Half of the existing timber bridge was demolished, leaving a single traffic lane, while the first half of the precast bridge was installed beside it on new concrete piles. Then traffic was diverted over the new crossing while the remaining half of the timber bridge was removed and replaced.

The simplicity of installing the Rocla M-Lock® system made the unusual construction method a relatively straightforward procedure.

Council’s own labour force was able to construct the bridge after the piles were installed, as well as control traffic flow during construction.

To ensure the bridge would be wide enough while only one lane was in use, the width was increased to 8 decking planks each 1200mm wide, a total of 9.6 metres.

In addition to the headstocks and planks, Rocla also supplied 8 Rocla Duraspun® hollow precast concrete piles and a precast approach slab.
Rocla recently supplied a huge triple cell culvert for an environmentally sensitive residential development in central Victoria.

Canadian Lakes Estate is 3km from the centre of Ballarat, Victoria’s largest rural city. The sub-division will provide some 180 housing lots, set among 18 acres of parklands with permanent lakes and a wetland ecosystem.

Canadian Lakes boasts world-class environmental features such as ecologically sound urban design and recreational facilities.

Future works include beautification of the Canadian Gully and Canadian Creek Reserves, which will house playground and barbecue facilities.

The main access road, Canadian Lakes Boulevard, crosses over the existing Canadian Creek, which will run between the two main lakes. The creek will be diverted from its present course to run under the boulevard, through the concrete culvert system.

The Kondinin Salt Lake is part of a chain of shallow, mostly dry, salt lakes that form the headwaters of the Avon River. Rocla supplied Box Culverts, Kerbs and Wing Walls, as well as a heavy-duty Base Slab, all with an enhanced design to combat the aggressive environment.

Rocla assembled the modular components in a “dry run” before Kondinin Shire workers transported the system to the remote location for installation.
Civil infrastructure specialists Abergeldie Contractors designed and built an unusual exposed gross pollutant trap at Guildford in western Sydney that is contributing to the water quality of Parramatta River and, ultimately, Sydney Harbour.

Based on a Rocla CleansAll® GPT 1350, the customised pollutant trap cleans stormwater run-off from a large residential area that drains via an open channel into Duck Creek, a tributary of Parramatta River.

The design and construct contract was part of Sydney Water’s stormwater quality improvement program.

Custom solution helps prevent river pollution

Sydney Water was concerned that an in-line GPT could cause flooding because of the high flow rates generated by the narrow, open stormwater channel.

The challenge was to devise an appropriate hydraulic solution that would meet the flow requirements and the concerns of Sydney Water.

Abergeldie and its engineering consultant Cattarin & Co, together with Rocla’s engineers, created an off-line solution based on the Rocla CleansAll® GPT located in a diversion channel.

The new branch channel passes through a customised Rocla CleansAll® 1350 unit and returns to the main channel downstream.

A diversion weir was constructed in the main channel to divert low flows into the GPT while allowing higher flows to overtop and continue down the main channel, minimising the risk of water backing up and flooding during heavy rains. The modular, precast components of the Rocla CleansAll® GPT allowed the treatment chamber to be supplied separately, without the inlet structure and bypass weir.

Rocla Engineering worked closely with Abergeldie to estimate flow depths and loss through the system, while Cattarin & Co created extensive hydraulic modelling to ensure the system met Sydney Water’s requirements.

Project
Stormwater quality improvement

Authority
Sydney Water

Design & Construct
Abergeldie Contractors

Engineering Consultant
Cattarin & Co.

Gross Pollutant Trap
Rocla Water Quality
For further information on products from
Rocla Pipeline Products and Rocla Water Quality

Call Rocla on 131 004

E-mail your inquiry to solutions@rocla.com.au
Visit our website www.pipe.rocla.com.au

Sydney
•
Dapto
•
Dubbo
•
Newcastle
•
Glen Innes
•
Grafton
•
Canberra
•
Melbourne
•
Avoca
•
Traralgon
•
Wodonga
•
Brisbane
•
Cairns
•
Mackay
•
Toowoomba
•
Adelaide
•
Perth