



Cardno's New Frontiers

Managing Director's message	02
Cardno's new frontiers	03
Building bridges for the future	04
Waste is not a dirty word	05
Protecting Australia's most valuable resources	06
Strengthening Australia's defences	06
Drought proofing regional Queensland	07
Landmark building raises green standard	07
News at Cardno	08



A message from the Managing Director

Welcome to another edition of *Cardno News*. You may notice that the publication has a new look. This fresh perspective and approach reflects the positioning of Cardno. Like any progressive organisation, Cardno is changing and adapting to meet and exceed the needs of our clients. In the competitive world of professional services, failure to evolve would mean a loss of focus. So we change, expand, refine and reflect. We do this with you, our clients, in mind.

Recently we have further expanded our horizons and are quickly becoming a global enterprise. In July, Cardno merged with international development assistance company, ACIL Australia. ACIL will bring a new dimension to the business and complement the already strong reputation of Cardno's international team. In Aceh Indonesia, the businesses are already working together to provide post Tsunami assistance. Further assistance has also been provided through generous donations to Tsunami reconstruction funds by the Cardno Group and its staff.

At Cardno, we value our foundations. Our local connections define our business. In contrast to other firms, we are expanding across regional Australia. It is important for Cardno to be where you need us; enhanced by the skills and experience of an international firm. Since our last edition of *Cardno News*, we have established offices in Western Australia, and in Toowoomba and Rockhampton in Queensland. We have also expanded our resources in Brisbane, Sydney and Melbourne. Internationally, we have offices in the U.A.E, PNG, China and Indonesia.

We have recently added capabilities in waste management, coastal and marine engineering, as well as town planning and urban design. This edition details some of our work in these areas, and profiles our new partners.

I hope you enjoy reading more about Cardno.

Andrew Buckley
Managing Director

This year
Cardno offers
a greater and
broader range
of skills than
ever before.





Cardno's new frontiers

The Cardno Group is poised to become one of Australia's largest providers of management and engineering services to aid agencies such as AusAID, the World Bank and the Asian Development Bank. This is a result of a recent merger with international development assistance specialist, ACIL Australia.

Cardno Managing Director, Andrew Buckley explains that the reason for the union is simple. "The merger combines the skills of two firms that have an excellent track record in servicing clients in the international development assistance sector spanning more than 35 years." "Collectively, Cardno and ACIL have managed over 700 international development assistance projects across 65 countries in the Asia, Pacific, Eastern Europe and African regions.

"ACIL will lead Cardno's international divisions to offer a more holistic and comprehensive range of services to assist in alleviating poverty and improving governance in developing countries," Mr Buckley said.

According to ACIL CEO, Dr Stephen Moss, the merger presents an opportunity to offer a full spectrum of services to our development partners, from institutional development services through to infrastructure provision.

ACIL's expertise spans a range of development sectors including law and justice; governance; HIV/AIDS; health; education; public sector reform, including institutional strengthening; and natural resource management. This expertise is now complemented by

Cardno's extensive range of engineering and infrastructure management experience spanning transport; water supply and sanitation; environmental management; and health, education and law and order facilities.

Together, Cardno and ACIL intend to make a difference and provide a better way forward in countries where such assistance is needed most.

In recent months Cardno has also been expanding to offer additional services to its Australian-based clients.

Cardno BSD brings a West Australian Dimension

In October 2004, Cardno joined with BSD Consultants adding a West Australian dimension to the business.

"Our Western Australian addition will mean that Cardno can deliver engineering and professional services across the nation – not just on the east coast. The Cardno BSD team is a multidisciplinary group that brings to Cardno new capabilities in town planning and solid waste management," said Mr Buckley.

"These skills can be utilised by clients around Australia. No matter where you are, or the size of your business, Cardno staff can deliver," he said.

Skills enhanced with Cardno Lawson Treloar

Cardno also recently joined with the reputable water resources, coastal and ocean engineering specialists Lawson and Treloar.

The new company is known as Cardno Lawson Treloar and has offices in Brisbane, Sydney and Melbourne.

Mr Buckley said that the addition of specialist teams in water resources, ocean and coastal engineering and data collection have further established the Cardno group's position as a leading player in water and environmental engineering.

With the opening of new regional offices and the recent mergers with ACIL Australia, Lawson and Treloar and BSD Consultants, the Cardno Group now employs over 1,200 people in 25 offices across Australia, the Asia-Pacific region, Eastern Europe, the Middle East, and North America.



Building bridges for the future

Cardno continues to build a formidable reputation for bridge expertise thanks to its current involvement in two high-profile Australian projects.

Baulderstone Hornibrook has appointed Cardno as principal bridge engineering consultant for the new Euston-Robinvale bridge, which, when completed, will form an important strategic link between Victoria and New South Wales and flood-free access across the Murray River.

The \$51 million Roads Traffic Authority and Vic Roads joint project provides a two-lane crossing of the river and floodplain through a 671-metre main bridge, approach roads and minor approach bridges.

And in Sydney, Cardno is continuing to work as specialist bridge consultant on multiple bridge structures for the high profile Lane Cove Tunnel.

The 3.6km Lane Cove Tunnel is a pivotal link in Sydney's orbital motorway network and will include twin, two and three-lane tunnels.

Baulderstone Hornibrook engineering manager Hugh Bishop, who has worked with Cardno teams on several significant projects – including the technically challenging My Thuan Bridge in Vietnam and the Bolte Bridge in Melbourne – said Cardno's expertise was highly regarded in the industry.

"They're certainly leaders in the area of bridge design and we've found them to be one of the leading consultants," he said.

"Certainly, for bridge design and construction, they would be one of our first choices."

Hugh Bishop has also worked with the Cardno team on the Anzac Bridge in Sydney and Panama Bridges, cited the team's responsiveness, client understanding and delivery of optimal project outcomes as their strengths.

"In all of their works, they have continued to do that – they've always delivered," he said.

"When you're confronted with time pressures, responsiveness is a factor that is very highly regarded by me and certainly by Baulderstone as well."

Ken Wheeler, senior principal with Cardno and manager for bridges, said Cardno's bridge unit was well recognised nationally and within South East Asia as providing the full range of specialist bridge engineering services.

Internationally, the team has delivered bridge projects in Malaysia, Indonesia, Thailand, Vietnam, Philippines, China, Republic of Panama,

PNG, Bangladesh and Cambodia, as well as New Zealand.

Closer to home, one of Cardno's long-term bridge clients, Rocla Pipeline Products, continues to regard the Cardno bridge team as integral to their success.

Product manager Bob Druitt said Cardno's involvement 10 years ago in helping to develop the Rocla M-Lock Bridge System – and the team's ongoing product development role – has seen the two companies partner on more than 50 bridges.

The M-Lock Bridge – comprised fully of precast concrete – offers a small span, modular system for replacing timber bridges, and Bob said Cardno's reputation was a powerful tool in winning ongoing work.

"We make no secret of it – we market ourselves as having an alliance with one of the premier bridge designers in Australia," he said.

"That's the power of the Cardno name."

Internationally, the team has delivered bridge projects in Malaysia, Indonesia, Thailand, Vietnam, Philippines, China, Republic of Panama, PNG, Bangladesh and Cambodia, as well as New Zealand.



Waste is not a dirty word

Like the recycling revolution of the 1990s, radical changes are occurring in the way domestic waste is managed.

In Perth, with the help of Cardno BSD, a group of local councils known as the Mindarie Regional Council (MRC) is leading the way in changing attitudes to waste management and is working towards establishing Western Australia's leading Resource Recovery Facility. The facility will be provided through a Build, Own and Operate contract and will process up to 100,000 tonnes of municipal solid waste per annum. The Mindarie Regional Council is endeavouring to develop a facility that enjoys strong community support.

Cardno BSD's Director, John King has been a key advisor to the project since its inception in 1999. Mr King and the member Councils advocated a high level of community involvement from the start.

"I knew that there could be a lot of opposition to the establishment of this service if the consultation process was not managed properly. It was therefore critical to educate the public and associated stakeholders that the Resource Recovery Facility was not going to be simply another landfill site, but a facility designed to take a long-term, proactive, and sustainable approach to waste management," he said.

Mr King said that it was always the plan to establish the standards, the location of the site and technologies utilised in consultation with the community.

MRC Chief Executive Mr Kevin Poynton said the project team, led by John King, had performed to high professional standards.

"We are very pleased with the quality of service we have received," Mr Poynton said.

"The extent to which community consultation and research was undertaken, acknowledged and responded to was exceptional, and was commended by the Environmental Protection Authority," Mr Poynton confirmed.

The establishment of the Resource Recovery Facility is designed to divert 70% of the region's household waste away from landfill. As a result of the Mindarie Regional Council's desire for community involvement, a Community Partnership Agreement has been developed and formally adopted by the member Councils.

The Community Partnership Agreement identifies 20 issues of most concern, and 65 outcomes and undertakings of the MRC to address those concerns. The community partnership process will ultimately result in the development of a better facility.

"In response to community feedback the facility will have its own education centre and it will also produce marketable products such as recycled packaging, compost and energy," said Mr King.

"We're confident that, when the facility becomes operational, it will be a first-class

example of what can be achieved when the community, local government and a truly professional project management team work in partnership, rather than as adversaries," Mr Poynton said.

The successful implementation of the proposal is expected to generate considerable environmental benefits and assist the State government in achieving its vision of zero waste by 2020.

In response to community feedback the facility will have its own education centre.

Cardno and BSD Consultants merged in October 2004 expanding the Cardno Group's range of services into Western Australia. With representation in Perth and Busselton, Cardno BSD is a multidisciplinary consultancy specialising in civil engineering, environmental services, town planning and community consultation for infrastructure planning.

Protecting Australia's most valuable resources

Cardno's team of highly qualified water resources and coastal engineers are being sought for some of Australia's most challenging and high profile projects.

The Cardno Lawson Treloar team includes specialist engineers together with ecologists, marine biologists and specialised scientists.

One of the biggest projects to date for the team has been an ongoing role in the Murray mouth morphological investigations.

Cardno Lawson Treloar staff have investigated how best to use barrage river flows to maintain an open entrance, given that there are significant flow diversions from the river for industrial, agricultural and domestic uses.

Project engineer David Taylor said working on such a significant project was "very satisfying" because it would result in the management of future environmental flows – and better environmental protection – for the river mouth.

"As a firm, we are committed to understanding, managing, protecting

and assessing the effect and impact of all environments – both man-made and natural ones – along Australia's coastline, and in marine, estuarine and urban settings," he said.

Just as satisfying has been an ongoing relationship with the South Australian Environmental Protection Authority, which first engaged Cardno Lawson Treloar to undertake water quality and hydraulic modelling for the Port River in Adelaide.

David said the team's work included setting up and calibrating the software to provide the EPA with a model to determine maximum permissible nutrient loads for licensed discharge in the estuary – including power stations, wastewater treatment plants and major industrial facilities.

SA EPA water quality modeller Peter Christy said the relationship with Cardno had been "very productive and worthwhile".

"The thing that underpins it is their sheer competence," he said.



▲ *Advanced modelling techniques can predict changes in water temperature as seen in Adelaide's Port River*

"And at the end of the day, we got very good value for money," he said.

Cardno Lawson Treloar continues to be involved in some of Australia's most far-reaching engineering projects – including one of the most significant international projects – the PNG/ Queensland gas pipeline, which, when fully under way will have a project price tag of \$5 billion.

Strengthening Australia's defences

Cardno's Engineering Analysis Group has scored another hit with the design and finite element analysis of structures to support radomes (radar assembly) on three Australian Navy frigates.

The Sydney-based group, led by David Beneke, was commissioned by long-term client Sofraco Engineering Systems to provide the preliminary design and structural analysis for the radome support structures.

David said the group designed the structure as a welded array of hollow sections, fabricated from T6061-T6 aluminium.

Modelling of the structure used finite element analysis – including linear elastic and linear

buckling analysis – to determine induced stresses from applied loading such as ultimate wind loads, ship movement and shock from exploding ordinances.

The team also evaluated the existing deck on the FFG-class frigates to examine its support of the radome structure, resulting in the team recommending minor amounts of additional strengthening.

David said the challenge for the team was the complex level of hand calculations required to "nail the design" before analysis of a virtual 3D model could begin.

The accuracy of the team's design calculations showed the supports for the radome would be strong enough to withstanding a number of potential loading conditions.

Sofraco engineering manager David Lassau said the complexity of Cardno's work could not be underestimated.

"It required a very high level of expertise because a ship isn't a stationary structure – it rolls around, it goes in cyclonic regions and the frigates are battleships, so you have to consider shock loads due to possible explosions," he said.

"Because this structure is constantly moving, you're at risk of earlier structural fatigue because of the load and accelerations going in all directions.

"For example, a ship may be rolling to the side and pitching forward in one moment, so there are two different accelerations there.

"Add the wind blowing from a completely different angle and there's three different accelerations at once."

He said his firm chose Cardno because of their specialist analytical experience.



◀ *FFG Class Frigate with deformed shape of radome support structure under transverse shock insert.*

Drought proofing regional Queensland

Like many cities and towns throughout Australia, Maryborough, a town of 26 000 256 km North of Brisbane, needed to review its water management practices to ensure it could meet the needs of a growing population.

In August 2004 Maryborough City Council requested Cardno's help to formulate an interim Drought Management Plan. The plan involved a review of the city's existing water management practices. Issues in relation to water allocation, infrastructure, relevant legislation, historical consumption and rainfall, as well as risk strategies and procedures were identified.

Rolf Rees, Cardno's Manager Planning and Environmental – Water Supply and Sewerage led the review.

"The plan was developed in consultation with Maryborough City Council. Cardno had to appreciate the social, environmental, legal, and economic impacts of our recommendations and the resources of the Council," said Mr Rees.

Cardno developed an interim plan aimed at helping the Council better manage its water resources. The plan defined a series of demand management responses and documented the

procedures required to ensure Maryborough could manage a prolonged drought.

The plan established the parameters for the implementation of restrictions, the liabilities if policies were violated and the criteria for exemption. It also provided the parameters on which restrictions would be lifted.

Mr Rees said that Cardno developed response triggers for three drought risk levels.

Cardno developed an interim plan aimed at helping the Council better manage its water resources.

"Cardno's plan developed a series of water restrictions or bans for water users with key consumers identified at each risk level," confirmed Mr Rees.



▲ *Water needs to keep flowing even during drought. Cardno's plan will help the city prepare.*

"The plan developed by Cardno met all the criteria that was set by council," commented Mr Wayne Sweeney, Maryborough City's Director of Engineering Services.

"Since the plan was endorsed the council has followed the recommendations of the report. We have also been very lucky with our rainfall. Since the Drought Management Plan was written it hasn't rained as much in years!" mused Mr Sweeney.

Landmark building raises green standard

The Canberra-based Cardno Young team has been integral in the design and construction of Australia's first five-star Green Star environmentally sustainable building, located in the Canberra International Airport business precinct.

The international five-star accreditation recognises the integration of environmentally sustainable energy, transport, water, land use and ecology in the design and construction of buildings.

The Federal Government has now ruled all new federal buildings with state government tenants must attain at least four-star accreditation – but the Brindabella Business Park building is Australia's first five-star building.

Cardno Young project manager Brad Williams said Cardno's expertise played a significant role in the successful accreditation of the landmark building.

"We advised on the engineering of the building hydraulics, as well as water

sensitive urban design and water conservation throughout the building, water emissions and the re-use of stormwater," he said.

Cardno Young engineers also consulted on the most appropriate transport and car parking solutions.

Canberra International Airport executive director Tom Snow said Cardno Young had been central to the entire Brindabella Business Park project – worth well over \$100 million in total – and so was an obvious choice for the challenging Green Star project.

"We have used Cardno throughout the business park," he said.

"Given their experience in terms of what we were doing and because we were seeking to push the envelope with sustainability, they were the obvious choice."

Tom said attractive factors in appointing Cardno Young were their overall expertise across many engineering areas and their proximity to the project.



▲ *Brindabella Business Park Australia's first five-star building*

"It is extremely useful to have local knowledge and talent in a team," he said.

Brad said the Cardno Young group aimed to provide innovative, environmentally sustainable solutions for clients within the Canberra region.

"The highlight for us of being involved in this project was spearheading something that's going to be the norm for commercial buildings in the future," he said.

"Already, because of this five-star building, a lot of clients are coming to us because we've been through the process and we're familiar with what is required."

Brad said green buildings had been proven to benefit both workers as well as the environment.

News at Cardno



Gold Coast Shines with Awards of Excellence

All eyes have been on the team at Cardno's Gold Coast office recently. Thanks to their outstanding work at Coomera Waters Village and Resort, Cardno's client Austcorp nominated them for the UDIA Consultants Excellence Award. Beating a number of other prestige entries, Cardno, together with planners PMM, were jointly recognised at the Queensland UDIA awards as the State's leading consultants.

Just over a month later, Cardno did it again winning the Queensland Division's Engineering Excellence Award for outstanding Project Management. The award recognised Coomera Waters as a project which achieved client requirements in harmony with the environment, business and community considerations, while meeting time, cost and quality targets.

New Board member for Cardno



At its recent board meeting, Cardno welcomed Dr Stephen Moss, Chief Executive Officer of ACIL Australia Pty Ltd, as Executive Director.

Dr Moss brings to the Cardno board extensive experience in professional services. Since being appointed CEO of ACIL in 2003, Dr Moss has focused on building ACIL's reputation in the Asia-Pacific Region and forming new alliances with European and USA consultancies and donor agencies.

Dr Moss was a partner with Coopers & Lybrand and then Price Waterhouse from 1984 to 1995. He then held several executive management positions prior to joining ACIL, including as Managing Principal of IBM's regional consulting business.

As well as continuing in his role as CEO of ACIL, Stephen now also leads the international consulting engineering operations of Cardno.

Record Year for Cardno Share Price

During the 2004/5 financial year Cardno's shares performed outstandingly with the high

point of \$3.00 per share. During last financial year Cardno also announced two significant profit upgrades. In December 2004, Cardno announced a 15% to 20% upgrade on the results published in its last Prospectus. In May this year, after experiencing strong business conditions across many sectors of its operations, Cardno announced a further profit upgrade – anticipated to be 40% above the Prospectus forecast. Cardno Chairman, Mr John Massey, said the further upgraded profit forecast continued to reflect the success of the company's growth strategy. The final results of the 2004/05 financial year will be released in late August.

Security – Planning is the Key



Cardno has recently expanded its security and defence capabilities. Ross Thompson, a former Officer with the British Army, has joined Cardno after completing

assignments in Iraq where he designed and managed the construction of security systems. Ross joins Cardno at a time when security threats are at an all time high. Ross can advise clients (from key government owned infrastructures to small businesses) on security practices and crime prevention. Ross can provide an independent audit of your current security operations and develop practical cost effective recommendations. For more information email wthompson@cardno.com.au

TOP 100 Engineers – AGAIN



Cardno's Managing Director, Andrew Buckley was named one of only fifteen consulting engineers in the recently released 2005 *Engineers Australia's* Top 100 list. Dick Kell, a Director of Cardno, also was nominated in the top 100 for his position as President of the International Federation of Consulting Engineers. Both Andrew and Dick were recognised for their significant contribution to the engineering profession and their leadership skills. Andrew and Dick were also included in the Top 100 list in 2004.



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