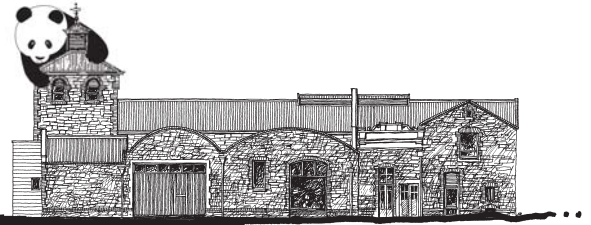


# Wallbridge Gilbert

## Aztec Analysis



NEWSLETTER Number Twenty Six

July 2009

### South Road Upgrade – Glenelg Tram Overpass, SA



Image by Urban Circus.

Wallbridge & Gilbert has been appointed Independent Design Verifier and Proof Engineer for the Glenelg Tram Overpass Project.

The \$32 million overpass project involves construction of a new tram bridge over South Road, with a tram station within the bridge structure. Temporary tram tracks are being constructed around the proposed bridge site to keep the tram line operational during construction.

McConnell Dowell Constructors (Aust) Pty Ltd was awarded the construction contract for the project, which is the next step in the State Government's plan to transform South Road into a continuous, non-stop route from the Southern Expressway to the Port River Expressway.

### The Queen Elizabeth Hospital Research Building, SA

The \$19 million state-of-the-art Basil Hetzel Institute for Medical Research at The Queen Elizabeth Hospital was officially opened in March. The building accommodates more than 120 research personnel and students.

Wallbridge & Gilbert provided the civil and structural services.

Photos by Cheesman Architects



### The University of Adelaide Veterinary School and Hospital



Construction is about to start on the new \$28 million Veterinary School and Hospital at the University of Adelaide's Roseworthy Campus. The 5590 sq m facility, which has received funding from the commonwealth and state governments, will cater for more than 400 students.

Wallbridge & Gilbert carried out civil and structural engineering for the project.

Perspective by Hassell

## Awards

Wallbridge & Gilbert is proud to have acted as the civil/structural consultant for a number of projects recognised at recent award ceremonies.

### VS1, SA Water Offices, Adelaide

#### SA RAIA Architecture Awards

- Keith Neighbour Award for Commercial Architecture
- Commendation for Sustainable Architecture
- Award for Interior Architecture

### Brookman Building Conservation Works, University of SA

#### SA RAIA Architecture Awards

- Commendation for Heritage

### Network Seven Studios, Adelaide

#### Property Council/Rider Levett Bucknall Innovation and Excellence Awards

- Commendation South Australian Innovation & Excellence Award

### Rundle Lantern, Adelaide

#### SA RAIA Architecture Awards

- Architecture Award for Collaborative Design
- Gavin Walkley Award for Urban Design
- The Adelaide Prize 2009



SA Water photo by Trevor Mein and Hassell

### Hawke Centre, University of SA

#### Property Council/Rider Levett Bucknall Innovation and Excellence Awards

- Winner South Australian Innovation & Excellence Award

### Place on Brougham apartments, North Adelaide

#### Property Council of Australia Innovation and Excellence Awards

- Awarded Best Residential Development in Australia

## Klein Point Caisson and Berthing Dolphins, SA

Aztec Analysis has completed the refurbishment of a berthing caisson at Klein Point, on Yorke Peninsula for Flinders Ports. The port is used by Adelaide Brighton Cement's ship, *Accolade II*, which makes daily round trips carrying limestone from Klein Point to the Birkenhead cement plant.



The project involved placing a new 7-metre diameter, 11 metre high, steel sleeve over the original structure from the 40 metre barge *Aquane* and filling the annulus with concrete. The concrete was pumped 250 metres from shore, and placed underwater.

Aztec Analysis is also designing repairs to the berthing structure after an accidental vessel impact in May.

## Emergency Services, SA

Wallbridge & Gilbert has a long history of providing civil and structural engineering services for emergency service facilities. Recent examples include:

- **Roxby Downs Police Station**  
This \$10 million facility is due for completion in 2010 and is being built to meet the projected expansion of Roxby Downs and the neighbouring area. The new building will accommodate 30 sworn officers and two administration staff.
- **Seaford Fire Station**  
The new Seaford Fire Station is currently under construction and due for completion in December at a cost of \$4.1 million.
- **Christies Beach Police Station Extension**  
Phase 3 of the Christies Beach Police Station is underway. The \$6 million facility will provide new parking, training and office areas for SAPOL. Wallbridge & Gilbert also carried out civil and structural engineering for Phases 1 and 2.
- **Paradise Fire Station**  
The Paradise Fire Station (*below*) is due to open in July.

Wallbridge & Gilbert provide technical support to South Australia's Urban Search and Rescue (USAR) volunteer capability, which is to be mobilised in the event of a major civil emergency.

W&G's involvement includes training of South Australian Metropolitan Fire Service personnel in structural engineering to prepare them for building damage and collapse from earthquakes or fire. A number of directors are also on call to provide expert back-up to USAR response teams in the field.



Paradise Fire Station photo by Philip Martin

Recent Appointments



- **Clark Sheave Project, Olympic Dam, SA**  
Aztec Analysis has been engaged to provide engineering design and lifting expertise for the replacement of the lower sheaves of the 50m high winding tower at the Clark Shaft, Olympic Dam (above).
- **The University of South Australia Materials and Minerals Science Learning and Research Hub, Mawson Lakes**  
New 5,700 sq m education and research facility with a national and international focus incorporating multidisciplinary laboratories and learning spaces. This \$50 million project is targeting a 5 greenstar rating.



Wilderness School Image by Tridente Architects

- **Wilderness School Multi-Purpose Hall & Music Centre, SA**  
A new multipurpose hall redeveloping the existing hall and incorporating a new three-level service pod, a covered terrace, choir loft and music centre.
- **Tarndanyangga Victoria Square Masterplan, Adelaide**  
W&G is a member of the multi-disciplinary team appointed by the Adelaide City Council to develop a masterplan for this important public space.
- **Domain Road Apartments, South Yarra, Melbourne**  
\$6 million three level apartment building with second floor pool.
- **St Patricks Primary School, Kilmore, Victoria**  
This \$9.6 million primary school relocation project comprises a new gymnasium, administration area, four learning areas, discovery centre, library, art and craft room and associated amenities.

- **Musselroe Bay and Waterloo Windfarms**  
Foundation design for a 56 turbine wind farm at Musselroe Bay, on the north east of Tasmania. Design work on access roads and foundations for another 43 turbine wind farm at Waterloo near Clare in South Australia is also underway.

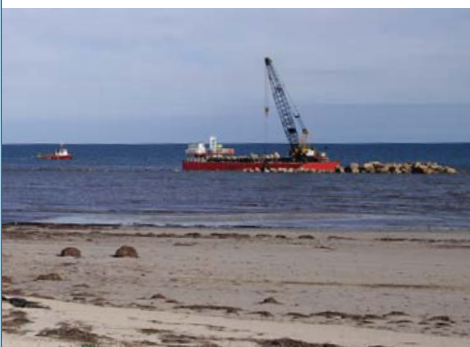
Sacred Heart College, SA



Image by Tridente Architects

Wallbridge & Gilbert provided the civil and structural engineering for this \$3.7 million two-storey classroom building.

Semaphore Park Offshore Breakwater, SA



Aztec Analysis has been retained by Maritime Constructions to provide quality management services for the construction of the new Semaphore Park offshore breakwater, approximately 100 metres offshore.

Following trials with a temporary breakwater using sand filled geotextile bags, a more permanent rock structure is now being built. Rather than building a temporary track from the land, all rock is being transported from Port Adelaide by barge, removing the need for trucks and temporary groin structures on the beach.

**Port Bonython Fuels, SA**



A structural investigation of the 2.4km Port Bonython jetty has been conducted by Aztec Analysis to assess the viability of installing a new 600mm pipeline along the length of the jetty. Port Bonython Fuels proposes to load diesel from tankers and distribute it throughout the Eyre Peninsula region.

Aztec also developed a conceptual construction plan for the new pipeline to minimise the impact on current operations.

**Wetlands, SA**

Construction work on the Andrews Farm Wetlands was completed in April this year and planting is now underway. The facility will treat 400 megalitres of stormwater per year for injection into aquifers. Wallbridge & Gilbert was a member of the design and superintendance team.

Earthworks at the Munno Para Wetlands are also well advanced. Planting is due to start in July and is expected to yield almost 550 megalitres of treated stormwater per year for reuse.

In addition W&G, together with SADB, is designing and constructing 12km of distribution main to deliver treated stormwater to several council parks and reserves for irrigation.

The wetlands and distribution network make up a significant portion of the \$26 million Water Proofing Playford project.

**Urban Stormwater Harvesting Opportunity Study (USHOS)**

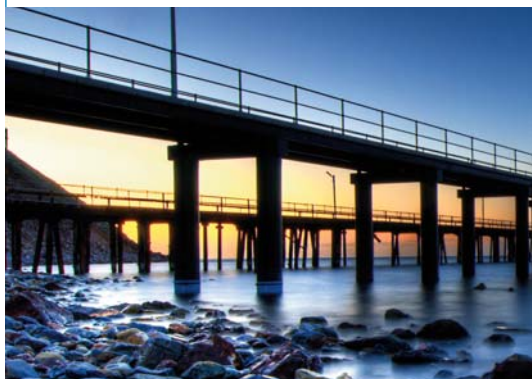
The Stormwater Management Authority has engaged W&G's water engineering group to investigate the volume of urban stormwater that can be practically harvested in the greater metropolitan area of Adelaide. The study has identified sites with sufficient space and which are compatible with existing land uses. The project team includes DesignFlow, Australian Groundwater Technologies and Richard Clark & Associates.

The study covers the urban areas - existing and planned by 2030 - within Adelaide and the Mount Lofty Ranges, an area bounded by the Gawler River to the north, the Hillsface zone to the east and the Willunga Basin to the south.

The project is a cooperative venture between the Stormwater Management Authority, SA Water, Local Government Association, Office for Water Security and the Adelaide and Mount Lofty Ranges Natural Resources Management Board.

**Rapid Bay Jetty, SA**

The new Rapid Bay jetty (*below*) was recently opened by the Minister for Transport, Energy and Infrastructure, the Hon Patrick Conlon. Speaking at the opening ceremony, on behalf of Adelaide Brighton Cement, the owners of the adjoining land, was Mr Malcolm Kinnaird, AO, Geoff and Mark's old boss in the 1970s .



*Photo by Maritime Constructions*

The innovative design by Aztec Analysis incorporated pairs of vertical steel piles and cross heads fully welded into portal frames. The portals, deck beams and precast concrete deck were all constructed progressively from the land, using conventional land-based equipment. This reduced the construction cost from that of the original concept.

**Royal Darwin Hospital Radiation Oncology Centre**

Wallbridge & Gilbert RFP has provided structural design and documentation for the first oncology facility at the Royal Darwin Hospital. The centre includes two massive concrete radiation treatment chambers.



*Perspective by Jackman Gooden Architects (NT)*

A site visit was organised by Engineers Australia during construction, to showcase innovative ideas in its design and construction.

### Adelaide Town Hall

Wallbridge & Gilbert, with its broad experience in the conservation and conversion of heritage buildings, is carrying out a detailed review of the earthquake resistance of the Adelaide Town Hall. This has required engineers to access all parts of the roof structure as well as the clock chamber, bell frame and cupola of the Albert Tower.

The Albert Tower is part of the original Town Hall, which was built in "proper stone" after a design competition, won by the colonial architect Edmund Wright. It was opened in 1866 with an all day inauguration ceremony and an evening banquet "for gentlemen" and, two days later, a Grand Opening Ball for 800 guests.



### Building the Education Revolution

Wallbridge & Gilbert is playing a big part in the federal government's Building the Education Revolution (BER) program, carrying out civil, structural and environmental work for over 100 primary schools in South Australia and Victoria.

These projects, comprising the first stage of the National Building Economic Stimulus Package, are being accelerated to get work started on the sites as soon as possible.

W&G is also involved in over 25 private school development projects, and is expecting to take a lead role in the follow-on BER phases.

### Altitude Stage 2, Adelaide, SA

Construction of the Altitude Apartments at The Precinct on Morphett St is progressing. The six-storey concrete podium over a two-level underground carpark is complete, with work on the 12 storey steel tower now underway.

Two 32m high feature columns (*below*) were recently erected on site. The 1.3m diameter steel columns are designed to support an eight-storey wing of the tower.



### Alexandrina Council, SA

Two new effluent collection and treatment systems designed by Wallbridge & Gilbert are providing the Alexandrina Council with up to one gigalitre of recycled water a year for community use.

A new Waste Water Treatment Plant (WWTP) at Goolwa, and an upgraded effluent system were opened by Minister Karlene Maywald in May 2009.

The WWTP has been designed to treat 1.5 megalitres per year and can be upgraded to 3 megalitres

per year. Further upgrades are planned to treat captured stormwater.

W&G is also designing a new WWTP at Strathalbyn which will produce treated effluent to irrigate the Strathalbyn race course and nearby lucerne crops.



*New 120 megalitre storage lagoon at Strathalbyn*

### OneSteel Screening Plant, SA



Aztec Analysis was recently involved in removing the old conveyor galleries from the Whyalla steelworks hematite feed line, working with Alex Fraser Demolition who managed the project. The main gallery sections were removed with a dual crane set-up, using 180 tonne Grove and 250 tonne Liebherr all terrain cranes.

Aztec conducted detailed lift studies, weight estimates, including weight tests using load cells, for each section of the structure.

The most complex lift (56 tonnes) was the main gallery, which was removed, in two pieces, over an existing workshop, during a five-day outage.

### Imparja Studio, Alice Springs, NT



Photo by Woodhead Architects

After outgrowing its previous premises, Imparja Television at Alice Springs has moved to a new building. The new \$5 million facility features a TV studio, editing suites, general office areas and an extensive undercroft car parking area.

The project received a Commendation Award for Commercial Architecture at the recent RAI NT Chapter Awards night. Wallbridge & Gilbert carried out civil and structural engineering.

### Harbourtown, SA



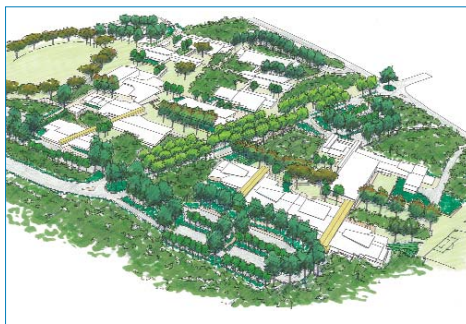
The recently opened Stages 4, 5 and 6 of the Harbourtown development at Adelaide Airport was successfully designed and constructed inside 12 months. Wallbridge & Gilbert designed all civil, structural and traffic aspects of this \$19.6 million project, incorporating brand direct outlets and a new Woolworths supermarket.

Photo by HASSELL

### Rosebery Schools, Palmerston, NT

The new 16 building Rosebery Schools campus will comprise a primary and middle school and accommodate up to 1600 students. The \$59 million project follows W&G's successful involvement with the Darwin Middle School in 2007.

Wallbridge & Gilbert RFP was part of the successful design-and-construct team for this significant project.



Perspective by Jackman Gooden Architects (NT)

# W&G

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# AZTEC

Aztec Analysis

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