

dp news

Summer/Autumn 2010

Douglas Partners *Geotechnics • Environment • Groundwater*

ESSENTIAL SERVICES ALTER FOUNDING CONDITIONS AT SYDNEY TOWN HALL

At first glance, looking at the magnificent Town Hall building, it appears that the heritage structure and its surroundings have remained unchanged since construction in 1869. Closer inspection below the surface reveals a different story.

Douglas Partners worked with a variety of stakeholders to provide analysis, design and work method statements for the required excavation, foundation and underpinning works at Sydney Town Hall.

Flanked on three sides by adjacent deep basements and other below ground structures, including a multi-level basement car park with Town Hall Station to the east, Town Hall was founded on an island of rock. To make room for essential services a 5m deep basement beneath the Peace Hall was excavated, further reducing the island of bedrock and leaving a



Beams in place with basement excavation well advanced

// CONSTRUCTION POSED A SIGNIFICANT STRUCTURAL AND GEOTECHNICAL CHALLENGE, AS IT WAS NECESSARY TO SUSPEND THE EXISTING STRUCTURE WHILST EXCAVATIONS TOOK PLACE //

narrow wall of rock along some of the main load bearing walls.


Douglas Partners was involved in the documentation and sequencing of excavations, and consulted on establishing adequate support and underpinning during excavation of the basement.

Commenting on the project, Charles Marais, DP's Principal Engineer explained that "construction posed a significant structural and geotechnical challenge, as it was necessary to suspend the existing structure whilst excavations took place".

He added that "the construction of a two tunnel passage from Town Hall into the pre-existing car park and offices produced some over-riding geotechnical issues. The overall stability and serviceability of the excavation became a key emphasis with potential settlement acknowledged as the most critical issue."

Three dimensional finite difference analyses were carried out to predict settlement prior to proceeding with underpinning. Excavations were completed using a panel approach, with support for each panel installed before the next panel was excavated. Underpinning for the lift shaft and tunnel passages followed a similar strategy.

The project was successfully completed with displacements limited and stability maintained throughout all stages.

Douglas Partners thanks Sydney City Council and TTW (structural engineers) for the opportunity to participate in the Town Hall Essential Service Upgrade Project, and congratulates Bluevisions Project Management, Kell & Rigby (Builder) and Ford Civil (Excavation contractor) on a project well done. 



Front elevation – red shows existing basements

Contact: Charles Marais
PH: (02) 9809 0666



BUILDING THE EDUCATION REVOLUTION ACROSS NSW

“Douglas Partners was recently engaged by Laing O’Rourke Australia Construction (LORAC) in their capacity as Managing Contractor for the roll-out of the ‘Building the Education Revolution - Primary Schools for the 21st Century Program’ across 320 Public Schools in the Riverina and Western NSW Regions”.

The work called for up to nine senior members of DP staff to travel with LORAC led field teams (comprising architects, structural,

hydraulic and electrical engineers, and surveyors) to capture design information for the multiple school projects over a vast geographical area. The schools visited ranged from large public schools in the regional cities such as Dubbo, Orange and Albury, to isolated schools in outback NSW with enrolments of as few as four students.

DP’s Senior Engineering Geologist David Murray commented that: “a very tight timeframe for fieldwork and reporting was set by LORAC. Accordingly it was determined that senior DP staff would accompany the field teams so that our reports could

be written on site then emailed back to DP’s Project Principal for review before being released to the client”.

DP’s challenge was to provide the necessary number of senior engineers or geologists given that a number of DP staff were already working on similar school projects in the Sydney Metropolitan area. Client requirements were met by sourcing appropriately qualified staff from other offices as far a field as Cairns and Melbourne.

Desktop studies were initially undertaken to identify the likely geological setting for each school site. This task was made easier by the fact that DP had previously undertaken investigations at many of the schools during the last 50 years. The subsequent fieldwork and reporting was undertaken over three stages between June and October 2009. ☐



*DP Contact: David Murray
Tel: (02) 9809 0666
Client: Laing O’Rourke Australia
Construction*

DOUGLAS PARTNERS SUPPORTS UNDERGROUND OPERA

The Douglas Partners Rock Mechanics Group are proud to have supported the Underground Opera Company by sponsoring their event at the Jenolan Caves, NSW on February 13th and 14th, 2010.

It is not often that an opportunity arises to support the arts in an environment that borders ones own industry. Specialising in the fields of geotechnics, environment and groundwater, including aspects of mining and tunnelling,

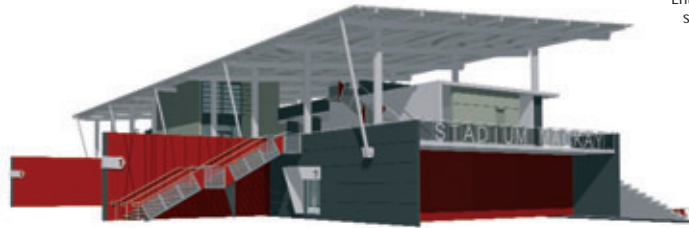
Douglas Partners was able to relate to the opera venue in a truly unique way.

Douglas Partners congratulates The Underground Opera Company for an outstanding concept and resonating performances. Over the coming months the Opera travels to various locations including Rockhampton, QLD, Bendigo, VIC and Wellington, NSW. See www.undergroundopera.com.au for further details. ☐

MACKAY STADIUM

The new Mackay Stadium is a long awaited project that will provide numerous social and sporting benefits for this rapidly expanding Central Queensland city.

The proposed stadium will be located in the existing Mackay junior rugby league fields between the Mackay city centre and the airport. The new \$8.8 million project incorporates a main grandstand on the western side of the grounds, upgraded parking and access including a drop-off zone for taxis and coaches, and for people with disabilities. Improved lighting will also assist in bringing the facility to a 12,000-seat capacity. While the facility will be largely used by the local senior and junior rugby league clubs, it will be built to a national standard capable of holding NRL fixtures and will also be suitable for other sports and community activities that can utilise a rectangular-shaped field.



Entry view of main stadium building

At the request of Alliance Design Group (the project managers), DP participated in the project by providing geotechnical consulting services, including investigation of the subsurface conditions for the design of earthen viewing mounds and foundations for the new grandstand. DP's Townsville branch manager Bruce Stewart noted that "the Mackay city area is underlain by about 25 m of lagoonal and alluvial sediments, including considerable depths of stiff clays and silts. Deep investigations have enabled the identification of a suitable sand layer for the support of piles beneath the grandstand and

also permitted an assessment of a likely range of settlements below the earthen viewing mounds".

The provision of geotechnical consulting services for several stages of the Dairy Farmers Stadium redevelopment (also performed by DP's Townsville office) was recognised as having provided valuable knowledge and experience, which in turn enabled the development of practical design and construction solutions for this project. ☐

*DP Contact: Bruce Stewart
Tel: (07) 4779 9866
Client: Alliance Design Group*

CONTAMINATED SITES IN WESTERN AUSTRALIA

The Contaminated Sites Act 2003 requires owners, occupiers and polluters in Western Australia to report sites with 'known or suspected' contamination to the Department of Environment and Conservation (DEC). Failure to notify within 21 days can incur large penalties.

Sites reported to the DEC are classified based on the risks posed to human health and the environment. Seven classifications exist ranging from 'contaminated with remediation required' to 'decontaminated'. These classifications can be viewed at www.dec.wa.gov.au/.

In reviewing submitted information, the DEC may require documented investigations to be performed on sites (including environmental site

assessments, remedial plans and validation reports). These must be prepared within the framework of published guidelines (also available on the DEC website).

The DEC may also request site investigations under other regulatory conditions, including situations where DEC issues investigation, clean-up, or hazard abatement notices under Sections 49, 50 and 51 of the CS Act.

Local Government planning conditions and Western Australian Planning Commission (WAPC) conditions may also warrant investigations that are in accordance with DEC guidelines. This commonly applies to Development Applications where a change in land use is proposed, from a less sensitive land use to a more sensitive land-use, e.g. service station to residential apartments.

Regulatory conditions in most cases will require the engagement of a DEC accredited Contaminated Sites auditor. The auditor's role is to provide an independent review of the site investigation and/or remediation undertaken at a site and to provide a corresponding auditor's report to DEC.

Douglas Partners employs its own accredited contaminated sites auditor and Douglas Partners Perth has all the necessary skills to assist land owners or occupiers in the assessment and remediation of contaminated land or groundwater.

If you have any queries or would like Douglas Partners to give a more detailed presentation on contaminated site investigations please contact us. ☐

Contact: Glyn Eade (08) 9204 3511

Staff Profile



GLYN EADE
ASSOCIATE/SENIOR
ENVIRONMENTAL SCIENTIST

Glyn Eade graduated in the UK with a MSc and has over 13 years experience in environmental consulting. Glyn joined DP in 2000 and has been with the WA office since 2007. His key experience is in DEC compliant contaminated land and groundwater assessments. Glyn also assesses third party reports on projects requiring auditing to WA DEC Guideline requirements, in collaboration with DEC accredited auditor - Mike Nash.



ROBERT SHAPLAND
ASSOCIATE/ENVIRONMENTAL
CHEMIST

Rob Shapland is an Associate of DP and has over six years of experience in a wide range of environmental projects for a variety of land uses. His key experience is in acid sulphate soil assessment and management, dewatering in acid sulphate soil environments and contaminated site assessment. Rob has worked on numerous large scale residential subdivisions, commercial developments and major infrastructure projects across Western Australia.



JOHN RUSSELL
ASSOCIATE/ENVIRONMENTAL
SCIENTIST

John has worked for DP since 2003 on numerous contaminated land projects subject to independent audits under the Contaminated Sites Act (2003). John has completed a number of complex projects involving soil and groundwater investigation and remediation, contaminant fate and transport modelling in groundwater, soil vapour management and human health risk assessment in WA. ☐

NEW MANAGER FOR CAMPBELTOWN OFFICE

CHRIS KLINE has been appointed manager of the Campbelltown office, where he will be joining Tony Sweetland (Earthwork and Laboratory Manager) to grow what is already a very successful practice. Campbelltown office has recently relocated into new premises at Smeaton Grange and this appointment is a key component in the anticipated future growth of the office.

Chris has BE and MEngSc degrees from UNSW and since graduating has worked with DP in both the Sydney and Wollongong Offices. His specific work interests include Land Capability assessments for large urban subdivision



releases, salinity investigations and groundwater investigations.

One of the major project areas Chris was successful in winning for Douglas Partners whilst based in the Wollongong Office was the land capability assessments for the proposed land release areas in Western Sydney (in the Campbelltown and Camden Council areas). This work was initially undertaken for the Growth Centres Commission of NSW, a state government agency acting on behalf of the landowners. A substantial part of this work is now well into the design phase and some areas are already into construction thus providing a range of consulting opportunities for the new office. ☐

BRISBANE

439 Montague Rd
West End QLD 4101
Tel: (07) 3237 8900
Fax: (07) 3237 8999

CAIRNS

13 Industrial Avenue
Stratford QLD 4870
Tel: (07) 4055 1550
Fax: (07) 4055 1774

CAMPBELLTOWN

Unit 5/50 Topham Rd
Smeaton Grange NSW 2567
Tel: (02) 4647 0075
Fax: (02) 4646 1886

CANBERRA

Unit 1/1-7 Waramanga Pl
Waramanga ACT 2611
Tel: (02) 6287 2555
Fax: (02) 6287 2577

DARWIN

3/59 Winnellie Rd
Winnellie NT 0820
Tel: (08) 8947 4400
Fax: (08) 8947 4455

GOLD COAST

Unit 4, 482 Scottsdale Dr,
Varsity Lakes QLD 4227
Tel: (07) 5568 8900
Fax: (07) 5568 8999

MELBOURNE

68 Brighton Street
Richmond VIC 3121
Tel: (03) 9428 1831
Fax: (03) 9428 7841

NEWCASTLE

15 Callistemon Close
Warabrook NSW 2310
Tel: (02) 4960 9600
Fax: (02) 4960 9601

PERTH

36 O'Malley Street
Osborne Park WA 6017
Tel: (08) 9204 3511
Fax: (08) 9204 3522

SUNSHINE COAST

1/28 Kessling Avenue
Kunda Park QLD 4556
Tel: (07) 5351 0400
Fax: (07) 5351 0499

SYDNEY

96 Hermitage Road
West Ryde NSW 2114
Tel: (02) 9809 0666
Fax: (02) 9809 4095

TOWNSVILLE

Unit 2, 56 Pilkington St
Garbutt QLD 4814
Tel: (07) 4779 9866
Fax: (07) 4725 1224

WOLLONGONG

1/1 Luso Drive
Unanderra NSW 2526
Tel: (02) 4271 1836
Fax: (02) 4271 1897

WYONG

7 Donaldson Street
Wyong North NSW 2259
Tel: (02) 4351 1422
Fax: (02) 4351 1410