

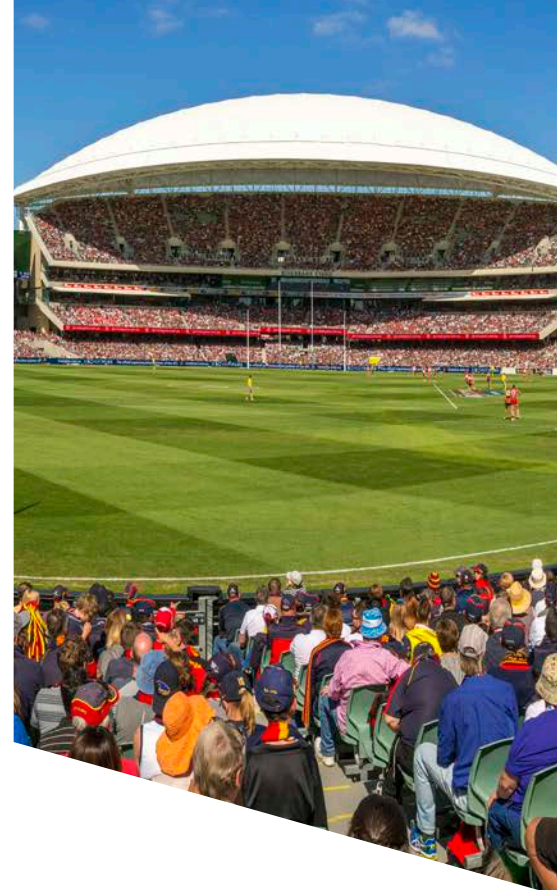
ADELAIDE OVAL REDEVELOPMENT

2015 AUSTRALIAN CONSTRUCTION
ACHIEVEMENT AWARD

Technical Paper

Stage 2 Entry / February 2015 / **ELECTRONIC COPY**





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INTRODUCTION

Client

Department of Planning, Transport and Infrastructure (DPTI)

Commenced

23 March 2012

Completed

Various Separable Portion dates with overall completion by 24 March 2014

Consultants

Architecture, Urban and Interior Design

Cox Architects, Hames Sharley and Walterbrooke

Project Managers

Mott MacDonald

Key Consultants

Arup (Civil, Structural, Fire and Facade Engineering)

Aurecon (Building Services Engineering)

AECOM (Building Services Engineering)

Wallbridge & Gilbert (Civil and Structural Engineering)





BRIEF SUMMARY

Adelaide Oval has been an indispensable part of the State's sporting and social fabric since the 1870s. It has undergone various facelifts over the years, but nothing like its most recent transformation.

The redevelopment has delivered a world-class sports stadium with a seating capacity of more than 50,000 that will be enjoyed for generations to come. The \$535 million redevelopment included a peak construction workforce of more than 900 contractors, with more than 2,300,000 hours worked. Never before has a stadium of this size and scale been delivered in just 100 weeks. Maintaining the heritage and culture of the Adelaide Oval, while creating a modern world-class stadium was fundamental. This intricate balancing act informed all components of the design and delivery phases. Adelaide Oval is a cutting-edge design and technology masterpiece, which brings the crowds closer to the action, connects the Oval to the city and is a superb addition to the Adelaide skyline.

Lauded as one of the most important social infrastructure projects for South Australia, Adelaide Oval is the proud new pulse of city, underpinning future growth and prosperity for all South Australians.



SCOPE

The Adelaide Oval redevelopment project was delivered by Lend Lease on behalf of the Government of South Australia (Department of Transport, Energy and Infrastructure) and is operated by the Adelaide Oval Stadium Management Authority (AOSMA). The Authority is a joint venture between the South Australian Cricket Association and the South Australian National Football League. Construction took place from March 2012 until March 2014 and included the following key construction milestones:

- Northern Mound
- Lighting
- Riverbank Stand and Entrance Plaza
- Drop pitches
- Eastern Stand
- Indoor Centre

The contract type for the Adelaide Oval redevelopment project was an Amended AS4300-1995 Design & Construct. The consultant team novated to Lend Lease in late in 2011. The integrated design office included over 70 consultant team members.

The project objectives were to:

- develop a close working relationship with the wider project team collective
- maintain high levels of customer satisfaction throughout all project phases
- implement Work Method Statements to suit the project breakdown
- eliminate the creation of defects by implementing effective management systems based on a “get it right the first time” approach
- deliver the project on time meeting the agreed client requirements
- reduce and where practicable eliminate the occurrence and costs of error and waste.



DESIGN CHALLENGES & INNOVATION

The new Adelaide Oval is a cutting-edge design and technology masterpiece that brings the crowds closer to the action, connects the Oval to the city and is a superb addition to the Adelaide skyline.

The key was to create a new Adelaide Oval that retained its sense of history, its world-famous views and a feeling of having separate pavilions rather than being a large colosseum. The three pavilions form a composition around the northern mound, which is characterised by its grassed foreground set against a backdrop of Morton bay fig trees, heritage scoreboard and St Peter's Cathedral views.

Each pavilion has been created in response to the site context, the function and program of the internal space, and as a portrayal of their role in the events occurring on the pitch. Through these unique qualities each stand establishes a personality and material form that contributes to the expression of the complete project as a landmark sports and events platform. The refurbished Oval design places a strong emphasis on quality of space, connecting the public realm to the internal stadium environment and enhancing the spectator experience. Large volume entries greet visitors on arrival, generous width concourses and movement systems bring the fans to their seats, which offer a high degree of comfort and excellent sightlines for viewing the game.

The Adelaide Oval Redevelopment is truly a spectacular stadium that represents the forefront in the structural and building services engineering. The team applied their passion and knowledge to create an exemplary stadium that will benefit the local, national and international communities and serve as a benchmark for future Stadia with Australia and around the world." Simon Gorr, National Venues Manager, Australian Football League.



CONSTRUCTION CHALLENGES & INNOVATION

The delivery of this iconic project presented a number of challenges and complex degrees of difficulty. More than 280,000 tonnes of earth had to be removed to begin construction of the new Riverbank and Eastern stands, much of which has been reused across the project. A total of 60,000 cubic metres of concrete (almost 150,000 tonnes) has been used to construct the new stands.

All of this work continued while first class and international cricket was played at the venue.

With a peak construction workforce of 900, the sheer scale and complexity presented coordination and logistical challenges. Working within the existing operational facility, the project commenced excavation one month after contract close and the design process had only just commenced. It was imperative that a strong team culture was established and included clear goals, roles, responsibilities and accountability. Daily planning sessions were held, major activities were analysed from transport to erection and problems were workshoped until successful outcomes were achieved.

Fast Facts:

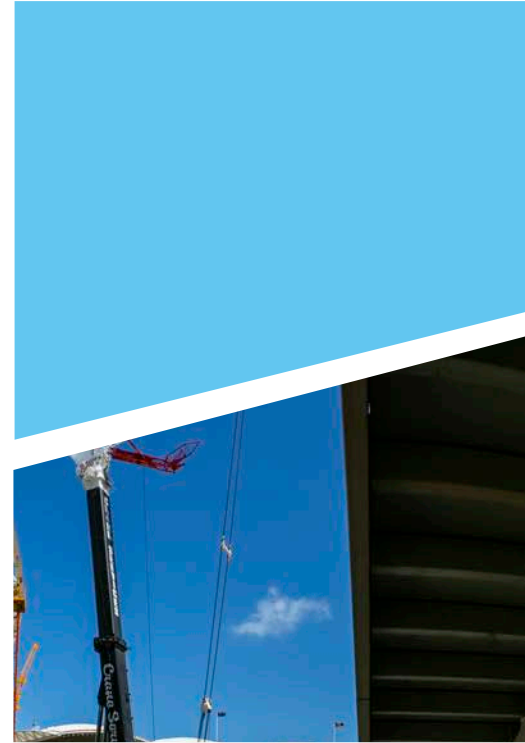
- The construction workforce at Adelaide Oval peaked at 900.
- More than 280,000 tonnes of earth had to be removed before building of the new Riverbank and Eastern stands could begin.
- About 60,000 cubic metres of concrete was laid to construct the new stands.
- The project has clocked up approximately 2,300,000 person hours worked on site.
- As well as 14,000 bolts, the Riverbank Stand used approximately 450 tonnes of steel.
- Work had to be completed in 100 weeks.



LEADERSHIP IN SUSTAINABILITY

The Adelaide Oval redevelopment aligns with the State Government strategy of creating a vibrant city by providing a world-class facility that is central to activating and energising the surrounding Riverbank and parklands precinct. It is a reinvigorated destination encouraging an increase in the use of public spaces by the community, a hub of community-based activity and delivering a unique facility that every South Australian can enjoy year-round. The project provides a sustainable solution to South Australia's need for a modern major sporting venue, focusing resources to a central and easily accessible CBD location with strategic linkages to public transport and services that enhance the public's experience and enjoyment of attending recreational, social and entertainment events at the Oval. A comprehensive Construction Environmental Management Plan was a key element of the Adelaide Oval redevelopment ensuring construction activities did not adversely impact, but enhanced, the environment, indigenous and non-indigenous heritage, local and neighbouring communities and construction workers.

"The benefits of the new Adelaide Oval stretch well beyond its role as a sporting and entertainment venue into economic and social realms.....The new Adelaide Oval is a great launching pad for the future success of our State... No longer do we need to compare ourselves to what's happening across our borders – we're a city and State becoming increasingly confident with its unique and often quirky ways" Premier Jay Weatherill, opening of Adelaide Oval speech, 29/3/2014.



LEADERSHIP IN SAFETY

Maintaining high standards of safety and quality throughout the project was paramount to the team. This was particularly challenging due to the tight programme and many construction work faces being constructed at any one time, overlaid with an extensive workforce. Detailed management systems were in place and supported and monitored by the project team throughout the project. Safety in Design (SID) of the grandstand structure was critical. The SID process incorporated a series of workshops where safety risks were identified for all stages of the project – construction, maintenance, operation and even demolition. Through this early assessment proactive design solutions were incorporated including:

- strategic location of roof access via areas easily accessible using boom access
- provision of walkway and ladder access to the roof and material selections to reduce maintenance demand
- detailed egress modelling for ground evacuations
- careful placement of light fixtures within atriums to ensure that boom or scissor access was possible.

Chris Leopold, General Manager of Lend Lease's Building Business in South Australia said the redevelopment "is one of those once in a generation projects".

"We feel extremely fortunate to have been afforded the opportunity to deliver this landmark project, which has long been one of Australia's premier sporting and entertainment venues and that will now be enjoyed and celebrated by Australia's future generations in its new format."



INDUSTRY PERCEPTION



891 ABC ADELAIDE (891am)
The Rolling Stones wowed a massive crowd at Ad rock band's opening concert of its Australian tour redeveloped stadium for the highly anticipated sh a ticket filled the surrounding parklands. The so return to Adelaide after cancelling their perform for the oval. Many fans say it was worth the v

MIX (102.3fm)
The State Government is hoping to attract success of last night's Rolling Stones con packed the redeveloped stadium to see travelled from interstate to attend, while to listen in. The next event at Adelaide South Africa on November 5.

ADELAIDE ADVERTISER
"The Rolling Stones have left Adel concert venue and promoters ex

THE DREAM becomes a Reality at ADELAIDE OVAL

Building the new Adelaide Oval was a once-in-a-generation project for Lend Lease, says Chris Leopold, General Manager of Lend Lease's Building Business in South Australia.

Adelaide Oval has been an indispensable part of the State's sporting and social fabric since the 1870s. It has undergone various facelifts over the years, but nothing like its most recent transformation. The redevelopment has delivered a world-class sports stadium with a seating capacity of 50,000 that will be enjoyed for generations to come.

Boulderstone, now a part of Lend Lease's Building business, won the construction contract in October 2011. The team commenced on site shortly after, faced with the formidable task of delivering a world-class stadium in just 100 weeks.

"If you look anywhere in the southern hemisphere, such a delivery program is unprecedented," says Chris Leopold, General Manager of Lend Lease's Building business in South Australia.

"This required a fast tracked design, detailed methodology planning, successful execution, and continual dedication from the team and trade contractors throughout the project phases and the staged handovers.

"For Lend Lease, the Adelaide Oval is one of those once-in-a-generation projects"

We are extremely proud to be part of this transformation story and work with our state government partners, trade contractors and consultants. "Working with our partners to deliver an iconic project to be enjoyed by many for years to come was an enormous privilege. This is a remarkable achievement and a true credit to the hard work and ingenuity of all involved," said Chris.



Lend Lease

Lend Lease Building Contractors Pty Ltd
ACN 002 625 130

South Australia Office
Level 14, 431 King William Street
Adelaide SA 5000
Telephone (08) 8202 8888

www.lendlease.com