# BUILDINGS

# NEW PERTH STADIUM

## Wick Drains, CMC Rigid Inclusions, Dynamic Compaction and Sheet Piling

## AUSTRALIA

**Owner**
WA State Government
**Engineer**
ARUP
**General contractor**
Brookfield Multiplex
**Period of works**
November 2014-May 2016

## Main figures

**Dynamic compaction**
Design & Construction of 20,133m2 of Dynamic Compaction and Surcharge loading
**Piling**
Installation of 2,700m2 of sheet piling to prevent contaminant migration
**Vertical drains**
Design and construction of 8,000m2 of Prefabricated Vertical Drains
**Controlled Modulus Columns**
Design & construction of Controlled Modulus Columns to 60,000m2 of the site

## Project description

WA's new Perth Stadium project incorporates the construction of 60,000 seat multi purpose (AFL, Rugby, Football, Cricket and Concert) venue in conjunction with an expansive public leisure precinct. The site is located on the Burswood Peninsula approximately 5km east of Perth's CBD.

Menard in joint venture with its sister company GFWA were contracted to carry out ground improvement to the entire public precinct encircling the new stadium footprint.

## Ground conditions

Historically the site had a variety of unpleasant uses including a sewage treatment plant, cement works and a waste disposal/landfill facility. The landfill was capped in the mid-1980's and the site converted to a golf course. This use continued until commencement of stadium construction work.

Given the above historical use, site investigations found the upper 8m of ground to consist of fill including concrete, fly ash, car bodies and household appliances. Beneath this fill the estuarine sediment known locally as Swan River Alluvium (SRA) was found to depths of 25m overlying stiffer clays and siltstone.

## Solution

- Installation of 2,700m2 of sheet piling to prevent contaminant migration into the adjacent swan river
- Design & Construction of 20,133m2 of Dynamic Compaction and Surcharge loading. Dynamic Compaction was implemented predominately to collapse large voids such as those created by the presence of car bodies or similar within the fill material.
- Design and construction of 8,000m2 of Vertical Drains to the bus hub area requiring over 50% of the area to be pre-punched/pre-augered to clear obstructions.
- Design and construction of Controlled Modulus Columns to 60,000m2 of the site. A total of 10,000 No. CMCs (200,000 lm) were required to achieve the specified maximum settlement target of 300mm.