

# BERMUDA STREET SHOPPING CENTRE

GOLD COAST  
GROUND IMPROVEMENTS



Sustainable Technology



**Client:** Eastlink Projects Pty Limited

**Consultant:** Weathered Howe Pty Ltd **Contractor:** Austress Freyssinet Pty Ltd **Specialist Contractor:** Austress Menard Pty

**Earthworks:** Lund Constructions

## THE PROJECT

As part of the Varsity Lakes development on Queensland's Gold Coast, Eastlink Projects proposed the development of a shopping village complex immediately adjacent to an existing residential housing estate. The 6-hectare site, located on Bermuda St, Robina (opposite Bond University) was to be developed in two stages. The 32,000m<sup>2</sup> Stage 1 of the development was designed to incorporate a supermarket, specialty retail shops, fast food outlets, petrol station and associated car parking.

### THE PROBLEM

The previously undeveloped site had lain dormant awaiting a suitable cost effective construction solution to be proposed for the difficult underlying ground conditions. The geology varied greatly from sandy clay fill overlying medium dense to dense sands in the southern end of the site to loose fill and old topsoil over lying 5 to 6 meters of very soft organic clays in the north eastern end. Several construction methods were investigated to provide stable foundations for the building structures and surrounding car-parking areas, to meet the engineer's design requirements of providing maximum post construction settlements in the order of 40mm and maximum differential settlements in the order of 15 in 10,000.

### AUSTRESS MENARD'S ROLE

Austress Freyssinet, in conjunction with Menard Soltraitement, proposed a full turnkey design and construct project utilising Menard Ground Improvement techniques.

This solution was able to manage the variability of the ground conditions encountered across the site, and also addressed the developer's concerns regarding differential settlements. A guaranteed maximum lump sum contract was negotiated that incorporated the following aspects:

#### Preliminary Phase:

- Construction of temporary site access
- Clearing and grubbing the site
- Development of a borrow pit for 70,000m<sup>3</sup> of building platform materials
- Condition Surveys of 19 residential houses immediately adjacent to the site

#### Ground Improvement Phase

- Additional Site Investigation and Trial Compactions
- Dynamic Compaction – 10,000m<sup>2</sup>
- Dynamic Replacement – 10,000m<sup>2</sup>
- Ironing Compaction – 12,000m<sup>2</sup>
- Verification Testing – Plate Load Tests and Pressuremeter Tests

#### Bulk Earthworks

- Winning, transportation, placement and compaction of approx. 50,000m<sup>3</sup> of bulk fill
- Detailed Excavation and drainage
- Final Trim of building platforms
- Turfing of Drainage Areas
- Environmental, Storm Water and Acid Sulphate Management

The project commenced in April 2002 and was successfully completed in July 2002

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