



PRIMA PEARL, MELBOURNE

PROJECT CASE STUDY CS 007

Project:

Prima Pearl

Location:

Southbank, Melbourne

Client:

Schiavello/PDG Corporation

Managing Contractor:

LUSimon Builders & Brookfield
Multiplex

Pile Type:

Foundation and Retaining wall
piles

Pile Installation Process:

Jet Grouting – Base Slab/Strut
for Retaining wall
Secant piles – Retaining wall
Continuous Flight Auger and
Conventional Bored under
Polymer – Foundations

Project Duration:

September 2011 – March 2012

Project Value:

\$5.5M

Frankipile Australia was the specialist foundations & geotechnical contractor selected to install the foundation and retention piles for the Prima Pearl development in Southbank, Melbourne.

The structure is an oval-shaped residential tower featuring 72 levels, including a ground level commercial space. Upon completion, the building will stand at 254 metres high; making it the fourth tallest building in Melbourne, and the fifth tallest in Australia.

The site had geotechnical challenges associated with a high water table, deep deposits of Soft Clay (Coode Island Silt), overlying a thin layer of weathered Basalt (across one third of the site) underlain by stiff to very stiff clay, dense sands & gravels over weathered Siltstone bedrock. A 10m deep excavation in soft clay below the water table was required to be supported by piles for the structure's lift core.



Frankipile designed and constructed 22No 1800mm diameter bored piles approximately 40m long. The 1800mm diameter bored piles were drilled under polymer to avoid hole collapse in the soft, unstable clays. High slump, self-compacting concrete and tremie techniques were used to complete these piles. Whilst the bored piles were not dynamically tested due to the very high pile capacities (up to 61MN) the sockets of the piles were verified on site by an experienced Frankipile engineer logging the excavated material and carrying out conventional tests on rock samples collected. The scope also included 56No continuous flight auger (CFA) piles 750mm, 1050mm and 1200mm diameter approximately 35m long.



Locations

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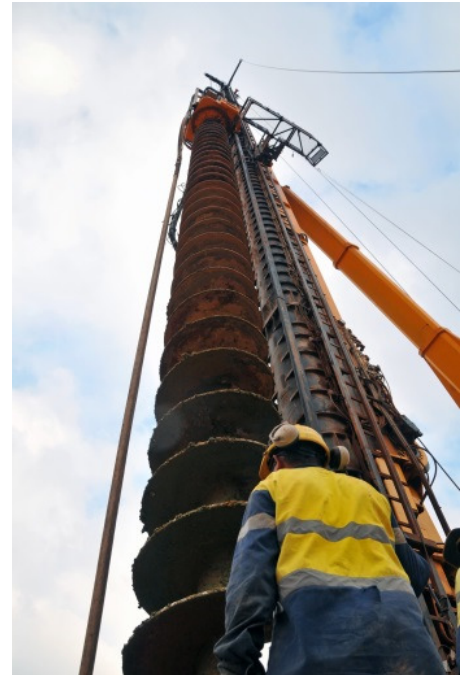
Perth

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150No 600mm diameter secant hard/soft wall piles using the CFA piling method to depths of 15–21m. To facilitate the lift core construction on the project, Frankipile managed the introduction of jet grout columns installed to act as a lateral base slab which supported a secant pile wall cofferdam. The jet grouting was constructed by our sister company Keller Ground Engineering.

Frankipile carried out 8No High Strain Dynamic Pile Tests on 1050mm and 750mm diameter CFA piles using a 20 tonne drop hammer. Pile capacities of up to 2700 tonnes were mobilised on the 1050mm diameter piles successfully.

A 1–2m thick layer of Weathered Basalt at a depth of approximately 20–22m created a challenge to drill through; however, the powerful Fundex 3500 rig, heavy duty augers and experience of the drilling crew enabled this material to be penetrated.



Other related services offered by Frankipile include:

- Enlarged Base “Franki” Piles;
- Driven Precast Piles;
- Displacement Piles.