



HAMILTON HARBOUR DEVELOPMENT

PROJECT CASE STUDY CS 002

Project:

Hamilton Harbour
Development

Location:

Kingsford Smith Drive
Hamilton – Brisbane QLD

Client:

Hamilton Harbour
Developments Pty Ltd

Managing Contractor

Devine Limited & Leighton
Properties

Architectural Consultant:

Cox Rayner Architects

Structural Engineer:

Robert Bird Group

Pile Type:

Foundation & Retaining Wall
Piles

Pile Installation Process:

Cased Secant Pile
Continuous Flight Auger
Driven Precast Concrete

Project Duration:

July 2010 – July 2011

Project Value:

\$7M



This challenging project is situated within a busy riverside precinct. The site was previously a heavy industrial area with many obstructions and challenging soil conditions.

The finished structure is a mixed use commercial, retail and residential development consisting of three residential towers and two commercial towers with retail facilities at ground level. The on street car parking is supplemented by a 4 level basement car park providing 850 spaces.

The site has geotechnical challenges associated with dense marine clays and a high water table. Frankipile Australia provided a detailed design and construct option that included different piling techniques to suit the variety of conditions across the site.

Frankipile Australia provided a complete design and construct piling solution for Stages 1 & 2 of the Hamilton Harbour Development consisting of foundations for the two highrise residential towers of 480 apartments, and an 850 space four level basement car park with a commercial tower situated above.

The residential towers were piled with a combination of precast piles to 24m and CFA piles. A 26m plunge column was used to supplement the reinforcement cage for the H1 residential building piles.





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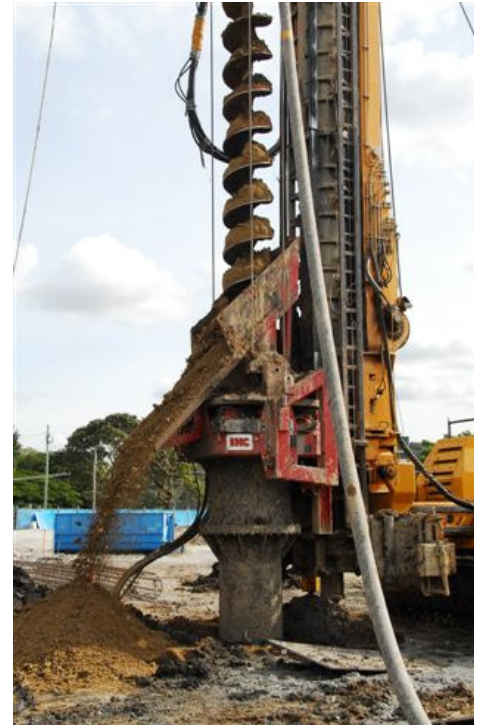
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Traditional diaphragm wall piling techniques for construction of the perimeter car park walls were initially considered against a criteria of value for money and attainment of the best and most cost effective outcome. However, in addition to the environmental challenges associated with diaphragm walls, there was a limited amount of space to contain, recycle and work with materials associated with this type of technique. The presence of hard, layered coal seams also created difficulty for traditional diaphragm wall grab techniques to penetrate.

Frankipile Australia provided the client with an economical design and construct option to replace the diaphragm wall with a Cased Secant Piled wall. This involved a double rotary drilling system (used for the first time in Australia) to construct the secant wall.

Five hundred and twenty piles were installed with an outer casing drilled 14m deep with an internal auger drilling up to 26m deep inside the casing. The system operated with double rotary drive heads attached to the some of Frankipile's largest piling machines. The Fundex F3500 and the Soilmec 622 piling rigs achieved high levels of verticality and pile alignment aided by heavy duty augers and a temporary concrete guide wall. The guide wall provided a sleeve for the positioning of the piling rig casing prior to drilling. Verticality was constantly monitored with <40mm deviation, over the average finished depth of 14m, achieved in most cases. Finished basement levels concluded at around 10m deep with ground anchors and waling systems installed at two levels.



Other related services offered by Frankipile include:

- Large Diameter Bored Piles, Driven Precast and Prestressed Piles
- Franki Piles
- Contiguous, Secant and Soldier Piled Retaining Walls
- Steel Sheet and Tubular Piling