

## SECANT PILE WALLS

Secant piled walls are embedded retaining wall structures mainly utilised to allow deep excavation in water charged ground conditions. The walls are constructed by installing piles in a predetermined sequence. Soft (normally unreinforced) piles are installed first followed by hard (reinforced) piles which overlap, cutting into the two soft piles on either side. Once the wall is complete the end product is a ground and water retaining wall that can also be load bearing. This design is also suitable for retaining fine sands and very soft wet ground and may be used for cut-off walls such as cofferdams. The purpose of the secant piled wall is to ensure that the ground or composition behind the wall is securely and safely held in place despite its lateral and downward pressure against the retaining structure.

Secant pile walls can be constructed using different piling methods such as CFA, Bored Pile, Cased Secant Pile (CSP) or turbo jet (soil mixing).

### Advantages

Minimal ground disturbance to adjacent property.

Low noise and vibration.

Excavations kept sufficiently dry that dewatering is not essential.

Can be incorporated into permanent works to form part of the structural foundations.

Can be used as a temporary structure.

### Specifications

Secant Piled walls constructed using CFA – Diameters range from 450mm to 1200mm.

Secant Piled walls constructed using Bored Piles with segmental casing- Diameters range from 450mm to 1500mm.

Secant Piled walls constructed using Turbo Jet - Diameters range from 600mm to 1200mm.



# PROJECTS

## Penrith Government Building, NSW

PROJECT OUTLINE: The Government Office Building is comprised of three levels of underground parking with approximately 120 car spaces and is a 7 storey Office Building of approximately 8,400 m<sup>2</sup> of NLA.

AVOPILING SCOPE OF WORKS: Design and construction of a secant wall comprising of 600mm diameter soft and hard piles was installed using the Continuous Flight Auger (CFA) method, max depth of the piles 14m.



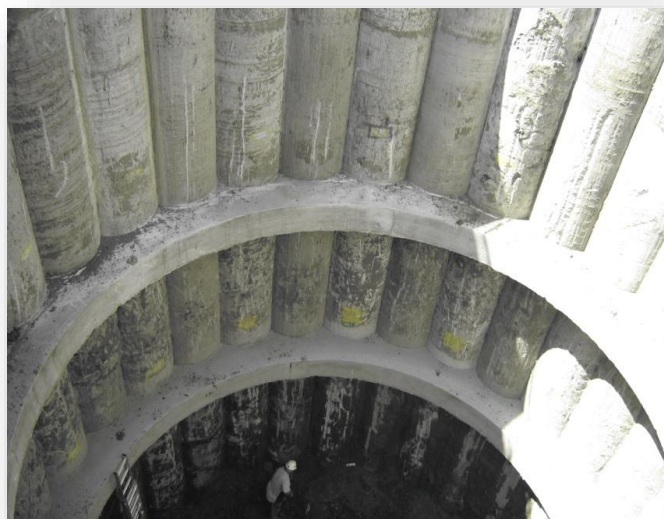
## Bremer River Shaft, QLD

PROJECT OUTLINE:

In 2007 the Queensland government embarked on an ambitious program to drought proof Southern Queensland by means of a water pipeline grid. A component of this pipeline network is the Western Corridor Recycled Water Pipeline which will deliver water to the Ivanhoe Dam inland from Ipswich.

AVOPILING SCOPE OF WORKS:

Construction of a 29m deep x 8m Diameter launch shaft and 31m deep x 6m diameter receiving shaft inside 1.2m diameter secant pile perimeter wall.



## Northern Beaches Storage, NSW

PROJECT OUTLINE:

The Northern Beaches Storage Project (NBST) is a key project for Sydney Water Program to improve the wastewater system and protect public health and the environment reducing waste overflows.

AVOPILING SCOPE OF WORKS:

Design and construction of secant pile wall comprising of 750mm diameter CFA piles for pump station, jacking pit shaft and inlet pipe launch pit, max depth of the piles 30m.



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