

100 St Georges Terrace: Century City

DIAPHRAGM WALLS & ANCHORS



Developer: ISPT
Main Contractor: Multiplex

Specialist Contractor: GFWA

THE PROJECT

Century City, located at 100 St Georges Terrace, is a 24-storey, 103 m high mixed retail and commercial property skyscraper in Perth, Western Australia. The retail component is made up of three floors of shops and food outlets between St Georges Terrace and the Hay Street Mall.

The project was to be the largest retail development in the Perth central business district since 1989. The complex is made up of an office tower fronting St Georges Terrace with 17 storeys of offices, rising above three levels of retail between the Hay Street Mall and the Terrace. Floor plates in the office building are 1,765 m² in area. There is a total of 39,400 m² of floor space in the development.

The plans included four levels of underground car park, and thus the need for up to 17 m of excavation from street level. However, an excavation with a vertical face below groundwater level would have only been possible using retaining walls.

THE ROLE OF GFWA

GFWA was awarded the design and build contract for the retaining structure at the periphery of the bulk excavation, and proposed diaphragm walls (D-Walls).

While most of the wall system was supported by five rows of anchors, on one side where execution of anchors had limitations, a buttress D-Wall system was used.

The total area of the diaphragm walls was more than 5,500 m². Wall thickness were 500 and 600 mm. The deepest D-Walls' toes were about 25 m below street level.

More than 250 anchors were used to support the D-Walls. The anchor lengths and number of strands per anchor were variable according to the design.

Post excavation monitoring was able to confirm that none of the control points had moved on the sensitive excavation side of Trinity Church.