

LOADTEST

O-cell Technology in Kuala Lumpur, Malaysia



Project: **Four Seasons Centre**
Location: KLCC, Kuala Lumpur, Malaysia
Client: Econpile (M) Sdn. Bhd.
Consultant: ADG Matrix Malaysia

Project Description:



Artists Rendering
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Situated adjacent to the world famous Petronas Towers, the Four Seasons Centre is another exciting landmark to hit the skyline of Kuala Lumpur. A mixed use development within the broader Kuala Lumpur City Centre project comprising a 42 storey Four Seasons Hotel and a 72 storey condominium. The architecture of the towers has been specifically designed to compliment the Petronas Towers and enhance the overall skyline of Kuala Lumpur.

Fugro Loadtest was engaged by the foundation contractor to carry out two full scale multi level O-cell bi-directional load tests at the project site to value engineer the most economical foundation design.

Two trial piles with almost identical length at just under 61 m were excavated under bentonite. The 1.5 m and 1.8 m diameter test piles were provided with two 22 MN and two 27 MN capacity O-cell assemblies respectively with total gross test load potential of 66 MN and 81 MN. The multi level method allows for discrete sections of the soil to be isolated to determine the geotechnical behavior as well as allowing for full length pile behavior to be computed.

An interesting feature of the tests was the low end bearing device. As the pile design was based on skin friction only, the lower pile section capacity could be significantly reduced by eliminating the end bearing. The removal of end bearing also allows for increased lower pile section movement during stage 1 of the multi level test and a larger created "gap" for mid pile section movement during stage 2.

The testing demonstrated that the O-cell multi level technique was an excellent solution for these test piles which revealed the near ultimate capacity of each of the pile sections (upper, mid and lower sections) allowing the geotechnical design to be optimized.

