Rozelle Interchange Project develops innovative sheet piling methodology

The Rozelle Interchange Project team recently used an unconventional sheet pile restraint system for the construction of the Whites Creek sheet pile cofferdam.

The need for an unconventional shoring system was established when the JHCPB City West Link (CWL) construction team identified multiple site constraints. These consisted of hard undulating rock underlying very soft and saturated soils, an excavation requirement to 3m below sea level and the construction site's location adjacent to existing heritage structures.

JHCPB's City West Link Engineers analysed numerous alternative construction methods for the sheet piles. One possible solution was the extended construction of secant piles along the full length of the channel. However, the construction of secant piles was forecast to be less time efficient and more expensive.

The team conducted extensive research to find a more suitable solution and suggested consideration of a vertical rock bolting technique, commonly used in Nordic countries where ground conditions often consist soft, saturated soils similar to those at Whites Creek, and are not conducive to conventional sheet piling methods.

After further exploration the CWL team proceeded with the innovative sheet piling methodology.

The sheet piles were installed successfully and excavation works inside the cofferdam have been completed, enabling the construction of the Whites Creek Channel Duplication 3m below sea level.

The adopted methodology was completed efficiently in line with the project's program.