Metro Tunnel Project - Cross Passage 21

Melbourne, Australia

Keller designed and fabricated two jack-up working platforms to enable elevated access to work area whilst providing uninterrupted access for tunnel operations.

The project

Keller was called on to provide a ground improvement solution to allow the safe excavation of one of the cross passages between the completed twin tunnels in the Domain Precinct.

The challenge

The ground required improvement in strength and permeability to enable safe excavation of the cross passage. This work would normally be carried out from the surface, however the cross passage was located beneath major roads, tram lines, electrical services and gas mains making access difficult. An in-tunnel grouting solution was proposed, but presented the challenges of drilling through potentially unstable ground from beneath the water table, whilst minimising the impact on ongoing tunnel operations.

The solution

Keller worked closely with our client to develop a permeation grouting solution to improve the strength and reduce the permeability of the soils within, and immediately above, the cross passage excavation. A specially modified, restricted access drill rig and drilling system were used to install tube à manchette (TAM) pipes a distance of approximately 12m horizontally from one tunnel to the other. Keller also designed and fabricated two jack-up working platforms to enable the drill rig to access the drilling locations and provide a working area for the grouting works. The use of the jack-up platforms ensured uninterrupted access for the ongoing tunnel operations.

Project facts

Owner(s)
Rail Projects Victoria

Keller business unit(s)
Keller Australia

Main contractor(s)
Cross Yarra Partnership

Solutions
Tunnelling

Markets
Infrastructure

Techniques
Permeation grouting