Design and Construction of ANZAC station, Melbourne Metro Tunnel project

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The Metro Tunnel is a Victorian Government major public transport project that, when completed, will enable our train network to cater for Melbourne's population growth. By taking three of the busiest train lines (Cranbourne, Pakenham and Sunbury) through a new tunnel under the city, the Metro Tunnel will untangle the City Loop. Near the south of the CBD, Anzac is one of the five new train stations under construction as part of the $12 billion Metro Tunnel Project. The station will connect directly to the Anzac tram interchange at street level. The station has been named for the nearby Shrine of Remembrance in honor of the Anzac spirit of 'service and sacrifice'.

The new station has been strategically placed to ease pressure on St Kilda Road/Swanston Street tram corridor, which is arguably one of the busiest tram corridor in the world. 690 linear meters of diaphragm wall for a 20m deep, 300m long metro station, all installed within a live tram and road corridor.

Design for the Metro Tunnel was carried out through an international collaboration between leading Australian consultants as part of the CYP Design and Construction JV. Close collaboration and an observational design approach facilitated efficient construction methods and work sequencing. This paper will focus on the design aspects of ANZAC Station and challenges encountered. Advanced numerical analyses guided the design of the primary support and permanent diaphragm walls, with temporary steel plunge columns to enable top-down construction method. This paper will present various components of the design and construction of this deep underground station and the numerous challenges and solutions put forth for its successful completion including the construction staging and impact on design. The details of design and construction as well as specific challenges are explained, and the solutions selected to overcome these difficulties are described.