

Auckland Branch Meeting

Tuesday 27th July 2010

Auckland University, Room 1.401

**Light refreshments, compliments of Hiway Geotechnical from 5:30pm near Room 1.401,
School of Engineering with the lecture commencing at 6:00pm**

DESIGN AND CONSTRUCTION OF TEMPORARY SUPPORT FOR LOW COVER DRIVEN TUNNELS

CLEM7 TUNNEL, BRISBANE

Andrew Campbell, AECOM

Brisbane's Clem7 Tunnel has recently opened to traffic. The design included approx. 3km of roadheader tunnels, with the balance being TBM tunnels. The southern roadheader sections are through areas of mixed ground and low-rock cover at the south portal, involving the construction of adjacent tunnel spans of 18m for the northbound tunnel and 15m for the southbound tunnel. A thin pillar of weathered rock separates the tunnel drives. Construction of the south portal tunnel openings was carried out with less than 5m cover to the finished surface of the South East Freeway, a major trunk road feeding into the city from the south. The cover material comprised embankment fill down to the spring line of the tunnels overlying weathered sedimentary rocks of the Aspley Formation.

Andrew will summarise the ground conditions encountered at the southern portal area, the construction sequence for the tunnel structures and outline the methodology adopted for the design of the excavation and initial support of the tunnels. The design fully incorporated the proposed construction sequence which utilised multiple heading and bench methods; excavation under canopy tubes; and face support with fibreglass dowels. The monitoring regime for the southern portal area will be outlined including how the monitoring results were reviewed and confirmed by the tunnel designers.

Andrew Campbell is manager of AECOM's Ground Engineering and Tunnelling group in Auckland. He has 20 years' experience on a wide range of civil, mining and geotechnical projects in Australia, New Zealand, the UK and Asia. He was directly involved with construction monitoring of the southern roadheader sections of the Clem7 Tunnel.



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