

Mining Under the Sydney Opera House

Nik Sokol, PG

Associate Tunnel Engineer, Arup

WEDNESDAY, October 1st at NOON in BB W210
- Lunch Provided -



The original traffic arrangements for servicing the Sydney Opera House (SOH) required delivery vehicles to share the open forecourt and boardwalk areas with visitors, complicating logistics and resulting in several vehicle/pedestrian clashes per year. The Vehicle Access and Pedestrian Safety (VAPS) project resolves this conflict by diverting freight traffic through a roadheader-mined tunnel into a new, 14m deep sub-level loading dock with access tunnels linking it to the existing SOH basement and ground level facilities. The design and construction of the tunnels are discussed with particular attention paid to the risks involved in excavating under a UNESCO World Heritage Listed site. The project was further complicated by low rock cover, high surcharge loads, a high horizontal stress regime, extensive underpinning of occupied facilities and a skewed, 17m spanning, flat roof intersection between the tunnel and loading dock. Construction progress is discussed with a focus on excavation methods, temporary ground support and comparisons between design assumptions and observations from the robust ground and structural instrumentation program.



Nik Sokol is an Associate Tunnel Engineer with Arup, a global, multidisciplinary engineering and design firm. Nik has 15 years of experience gained working on geological engineering and tunneling projects on 5 continents, including his role as design manager for the ground support of No. 7 Line Extension 34th St. Station cavern in New York City and most recently as Resident Engineer on the Sydney Opera House VAPS project, which he will speak about today. Nik is a registered professional geologist in California and Pennsylvania and sits on the Benefits of Going Underground committee for the Underground Construction Association of SME.

Questions? Dig in with us at uct.mines.edu or contact us uct@mines.edu

