

Update on colossal Changi project

A year after breaking ground, the Changi Water Treatment Plant in Singapore—a massive project requiring millions of cubic yards of concrete, 5,000 on-site workers and hundreds of engineers—is right on budget and schedule.

With an estimated construction value of \$1.3 billion over seven years, the facility is one of the world's largest and fastest-paced wastewater construction projects. Changi is the second phase of Singapore's Deep Tunnel Sewerage System, which virtually replaces the island's entire wastewater system.

Construction Services, a group in CH2M HILL's Design and Construction Organization, is providing all construction management. Keeping the project on track is an extraordinary task, considering a majority of the construction is underground and includes 22 contractors. When completed, the Singapore Deep Tunnel Sewerage System will replace the island's primary wastewater conveyance system and treatment facilities and will initially treat 211 million gallons per day and will be expandable to 645 million gpd.



Aerial photo of the Changi Water Treatment Plant construction site.



Changi's cool stats

- 5,000 project workers living on site
- Main design period: 30 months
- 300-person engineering team; 700,000 man-hours (29,166.67 days or 79.9 years)
- Design done and delivered to contractors in three-dimensional design
- 81-month construction contract, April 2001 to December 2007
- 7,800 drawings, making a stack more than 2 1/2 feet high
- Total computer server storage space required for design: 800 gigabytes
- Total volume of excavation: 158,895,000 cubic feet of dirt
- Total concrete poured: 5,650,347 cubic feet or enough concrete to build a two-lane highway 40 feet wide and 267.5 miles long
- Excavated to a depth of 72.2 ft below sea level, the equivalent of a 5 1/2 story building (story = 13 feet)

All figures are as of April 30

Pump station No.2 excavation and construction



1,400 out of 3,300 pilings have been placed

