

Profound IS - Liquid Levelling system

Project: Widening of the Malaysian Penang Bridge

Project description

The Penang Bridge (Jambatan Pulau Pinang in Malay) is a dual-carriageway toll bridge that connects Gelugor on the island of Penang and Seberang Prai on the mainland of Malaysia on the Malay Peninsula.

With 3 interchanges, the 13.5 km Penang Bridge of which 8.4 km is above water is officially open since September 1985. It has 533 spans of which 192 spans are above water.

Constructed with a 6.2 km dual carriageway and 2.2 km three lanes at the main span, this Bridge is the only physical link between the Mainland of Peninsular Malaysia and Penang Island.



Due to the ever increasing traffic, the existing Penang Bridge is being widened from dual-2 lane to dual-3 lane. The structural widening of 4.80 m both sides of the bridge. Total bridge length of the widening is over 5.76 km.

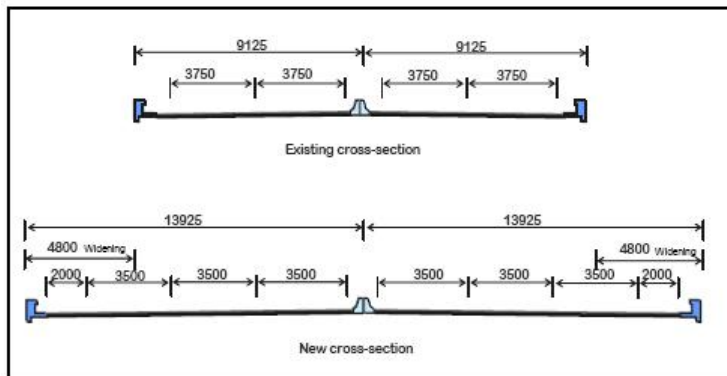


image courtesy of Penang Bridge Sdn Bhd

Automated online monitoring

The monitoring purpose was to be informed and warned in time for any settlements that might arise due to pile the driving activities. Therefore a permanent crew of numerous engineers would be necessary for this project to perform measurements and check measurements manually. With the automatic online settlement monitoring system, only a small number of engineers are involved.

To accurately and continuously monitor the bridge during construction Profound IS-geotechnical monitoring networks have been installed and are in working order since 2006.

The main part is a liquid levelling method of settlement monitoring with an automatic data logging system to an IS-network PC. The data sampled at various intervals are transferred automatically to the command center at the Penang Bridge site office via wireless GPRS/RF. Data at site office server can be accessed via LAN network, and is automatically transmitted to a web server via WAN internet broadband. Users have access to a web based application through normal internet connection.

The Profound Liquid Levelling System monitors any settlements that might occur, showing data online and sending out alarm values. It is a fully automated online settlement monitoring system whereby all sensors have been placed beneath the bridge for optimum measuring conditions.

Main contractor: UEM Construction Sdn Bhd

Client: Soil Centralab Sdn Bhd (CSL)

Location: Malaysia



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