

## Doha, Qatar Green Line Underground

Settlement monitoring with borehole extensometer and Mini-OMNIALog datalogger

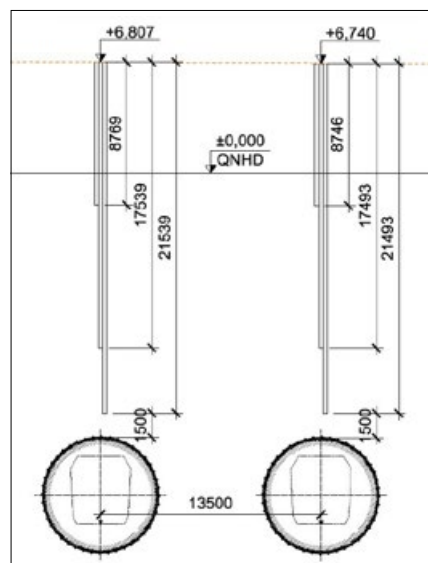


The Doha Metro is part of the Qatar Integrated Rail Programme, which also includes the Lusail City LRT, 38.8 km with 36 stations to be completed in 2016; the West Bay people-mover, a 10 km dual-track, single-bore tunnel with 19 underground stations, linking the new Doha Convention Centre with the West Bay area; a high-speed passenger line; and a 340 km freight rail line. The JV Porr Bau GmbH (Austria) - Saudi Binladin Group Company Ltd - Hamad Bin Khalid Contracting Co. W.L.L. (Qatar) secured the EUR1.69 billion contract for Design and Build Package 4 of Green Line Underground of the Doha Metro. It will build the 15 km-long underground section for the Green Line, which runs north-south through the city.

**Geodetic and geotechnical monitoring:** The JV VMT (Bruchsal Germany) and Noack Ingenieurgesellschaft (Passau Germany) have been contracted to perform geodetic and geotechnical monitoring.

SISGEO International is the supplier of SISGEO instruments to monitor settlements at 11 cross sections. Every cross section is typically equipped with 3-point borehole rod extensometers that include

displacement transducers and a Mini-OMNIALog data logger. Each of the loggers has a GSM-GPRS-Modem to send data via ftp-server and then to the internet based VMT-data management system. In addition to the supply of the 16 extensometers and 11 data loggers Field S.R.L (Bergamo, Italy) was sent in to perform a first installation and to instruct the local field engineer.



Typical extensometer cross section



Sisgeo extensometer head ready for installation



Sisgeo Mini-OMNIALog datalogger mounted to the side of the manhole

**LINKS:**

VMT GmbH  
NOACK INGENIEURGESELLSCHAFT  
SISGEO  
FIELD S.R.L.