



PROJECT DOSSIER

EDUCATION CITY STATION



PROJECT OVERVIEW

Project	Education City Station, Major Stations, Doha Metro
Location	Doha, Qatar
Client	Qatar Rail Company
Contractor	Samsung C&T - Obrascon Huarte - Qatar Building Co. JV (SOQ JV) - 2013 to 2016 Consolidated Contractors Group
Consultants	The Louis Berger Egis Rail Joint Venture (LBER JV)
Duration	2013 - 2019

Doha Metro in Qatar's capital city will be one of the most advanced rail transit systems in the world when Phase I becomes operational by the end of 2019. Eighty two km of metro tunnel incorporating 26 stations will run underground in Phase 1.

Education City Station, one of the Major Stations of Doha Metro-Phase 1, is the hub station connecting Green Line of Doha Metro and Gulf Cooperation Council (GCC) rail network to connect students from across the region to Qatar's higher education hub.

The Education City Station is located at the open area beside Garafat Al Rayyan and adjacent to the Dukhan Highway. It is approximately 30 m below ground level & 300 m in length. The station access from the street to ticketing and the train platform is provided by stairs, concourses, escalators, elevators and tunnels. The station is designed to minimize overcrowding and improve flow.

The excavation for Education City Station which goes upto 30 m below ground level is quite deep and therefore Instrumentation and Monitoring (I&M) works play an important role in the project.



Monitoring solution

Encardio-rite was awarded the I&M sub-contract for the complete monitoring and surveying solutions for the deep excavation, ground and structures falling within the zone of influence of Education City Station.

Turnkey services

- Supply of geotechnical instruments, precise survey instruments and targets
- Installation of geotechnical instruments including the drilling works for subsurface instruments and survey targets
- Manual and automatic monitoring
- Optical Surveying-precise levelling & 3D deformation monitoring
- Programming and commissioning of data acquisition systems
- Setting up online web based data management system (WDMS) and maintenance during the contract period
- Spiral test for inclinometer installed in soil
- Daily & weekly reporting with evaluation & interpretation
- Calibration of dataloggers and sensors.

INSTRUMENT USED

- **Inclinometer:** To monitor lateral movement in ground around the excavation
- **In-place inclinometer (IPI):** Installed in critical inclinometer gage wells and monitored every four hours automatically to check the lateral movement of ground
- **Standpipe piezometer:** To monitor ground water level around the station area
- **Surface settlement points:** Installed in soil and pavements to monitor surface settlement around excavation works
- **Building settlement points:** Installed at Qatar Foundation villa located near the construction site to monitor settlement
- **Prism targets:** Prism targets were installed on the excavated face of the ground to monitor 3D deformations
- **Automatic data acquisitions systems and compact dataloggers:** For automatic monitoring of IPIs

Experienced and proficient I&M team of Encardio-rite provided services for almost **2 years**. Monitoring reports included interpretations of variations observed in instrument data, mentioning the factors likely to affect their behavior e.g. construction, dewatering, third party activities etc. were provided to the contractor on a regular basis.



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