



## PROJECT DOSSIER

# AL RAYYAN ROAD UPGRADE



## PROJECT OVERVIEW

Project	Construction and Upgrade of Al Rayyan Road Project 7, Contract (Phase) 2
Location	Doha, Qatar
Client	Public Works Authority of Qatar ASHGHAL-Infrastructure Affairs
Contractor	Dogus Insaat ve Ticaret A.S. - Onur Taahhüt Tasımacılık ve Ticaret Ltd. Sti JV
Consultants	KBR (formerly Kellogg Brown & Root)
Duration	2016 - 2017

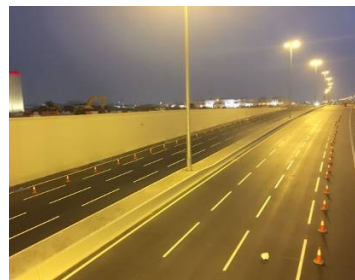
Al Rayyan Road Upgrade project is constructed to create a long term, sustainable road network, reduce traffic congestion and minimize journey time. This project is part Qatar National Vision 2030. The project comprises of 2 phases - Phase 1 involves the upgrade of 2.9 km of Al Rayyan Road from West of Khalid Bin Abdullah Al Atiyya Roundabout (New Rayyan Roundabout) to East of Bani Hajer Roundabout and Phase 2.

Encardio-rite was awarded the monitoring works for Phase 2 that

includes upgrading of a 5.5 km road from west of the Olympic Roundabout to west of Khalid bin Abdullah Al Attiyya Roundabout. It consists of eight lane expressway. In addition, 5.4 km of side and service roads will be revamped as part of this phase. Six multilevel junctions are also a part of project:

- 3 level Al Rayyan Road - Furousiya Street Interchange
- 3 level Al Rayyan Road - Al Bustan Street Interchange
- 4 level Al Rayyan Road - Al Amir Street Interchange
- 2 level Al Rayyan Road - Jassim bin Hamad Street Interchange
- 2 level Al Rayyan Al Qadeem Street - Al Bustan (Bu Erayyen) Street Interchange
- 2 level Al Rayyan Al Qadeem Street - Al Huwar Street Interchange

The project also includes major micro tunneling work, treated sewage effluent networks and upgrades to electrical and telecommunication networks.



## Monitoring solution

Encardio-rite was awarded I&M sub-contract for the complete monitoring solutions for the excavation works.

Monitoring solutions determined existing ground, structure and pore-water pressure movements and trends prior to commencement of construction. Also monitoring of parameters like lateral movements of wall, strut/anchor loads etc. provided a check whether they are within allowable limits. If exceeded, construction methodology required remedial changes. Monitoring also provided deflection and deformation data for the verification of initial design of permanent structures and temporary works supporting excavation. Thus monitoring provided confidence in the construction process.

### Turnkey services

- Supply and installation of geotechnical instruments
- Manual monitoring
- Daily & weekly reporting with evaluation & interpretation
- Calibration of readout units and probes

## INSTRUMENT USED

- **Inclinometer:** Installed around excavation area to determine subsurface lateral movements
- **Load cells:** Installed on ground anchors for monitoring variations in load
- **Standpipe piezometer:** Installed around the excavation to determine the ground water level in relevant areas to continue the construction activity

Experienced and proficient I&M team of Encardio-rite rapidly delivered reliable data/information to ensure the safety of both people and construction.

Monitoring reports including 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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