



PROJECT DOSSIER

AL GARHOUD BRIDGE



PROJECT OVERVIEW

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| Project | Al Garhoud Maintenance Facility for Marine Light Vessels at Dubai Creek |
| Location | Dubai, UAE |
| Client | Roads & Transport Authority (RTA) |
| Contractor | Dutco Balfour Beatty LLC |
| Consultants | Consultant HSS |
| Duration | November 2016 to May 2017 |

The purpose of the project was to provide maintenance facility for marine light vessels at Al Garhoud, Dubai Creek. The proposed maintenance facility was in the close vicinity of 8~9 years old Al Garhoud Bridge which is 520 m long with 14 lanes and is ~16 m above the water. It was important to monitor the response of three piers of bridge during quay wall construction (in close vicinity) to ensure the safety and durability of existing Al Garhoud Bridge.



Monitoring solution

Looking at the criticality of safety of existing running Al Garhoud Bridge, automatic online monitoring was decided. Data from both tilt meters and geodetic instruments were recorded with automatic dataloggers and automatic total stations and transferred to server using GSM/GPRS, to provide online data.

Turnkey services

Encardio-rite got the sub-contract for complete monitoring works of the project. Scope of works included:

- Pre-construction (Dilapidation) condition survey of bridge piers and viaduct.
- Supply and Installation of geotechnical and geodetic instruments
- Automatic monitoring of tilt meters at the 3 piers of Al Garhoud bridge
- Automatic as well as manual surveying

INSTRUMENT USED

- **Tilt meter:** Installed at bridge piers to monitor tilt.
- **Building settlement point:** Installed at pier base slab to monitor settlement
- **Prism target:** Installed at bridge piers to monitor displacements and deformations

Installation of tilt meters & prism targets on the existing piers was very critical. Scaffoldings were fixed on pier base slab for installation and water boats were used to access piers.

Monitored (geotechnical and geodetic) data was available online through our web based data management system to the client on their desktop in tabular as well as informative graphical formats.

Monitoring reports were also submitted on weekly basis. Monitoring reports included interpretations of variations observed in instrument data with respect to the construction progress in the respective area.

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