



PROJECT DOSSIER

MARSA AL SEEF



PROJECT OVERVIEW

Project	Marsa Al Seef Development Marine Package
Location	Dubai, UAE
Client	Meraas
Contractor	Dutco Balfour Beatty
Consultants	WS Atkins & Partners Overseas/HALCROW
Duration	From September 2015 till date

Marsa Al Seef is a mixed-use development project on Dubai Creek. Spanning 1.8 km on the waterfront, overlooking Dubai's consulate area, the project will feature outdoor recreational facilities and lifestyle amenities that will form part of the Khor Dubai Creek development project.

The scope of work covers the construction of several hotels, markets and restaurants, food and beverage outlets, leisure and entertainment venues, retail stores and marina amenities. The

project benefits from proximity to historic and culture attractions, with an excellent supporting multi-mode transport infrastructure.

The project involved heavy construction activities quite near to the existing Dubai Metro Red Line tunnel. Monitored became necessary for safety of existing metro tunnel during construction works. To ensure that the project proceeds safely it was also important that during construction period, response of ground, groundwater were also monitored.



Monitoring solution

Encardio-rite installed several sensors and geodetic points for monitoring the safety of metro tunnel and construction progress. Our advanced dataloggers, automatic total stations with complex control box along with web based data management system provided online data on client's desk.

Turnkey services

Encardio-rite scope of works included:

- Supply and Installation of geotechnical and geodetic instruments
- Online monitoring of critical parameters and areas
- Manual monitoring of geotechnical instruments
- Automatic as well as manual surveying
- Daily & weekly reporting with evaluation & interpretations
- Pre-construction condition monitoring of tunnel.

Monitored data was available online through our **web based data management system** to the Contractor, Client as well as the Consultant on their desktops. Monitoring reports were also submitted combined for geotechnical and geodetic monitoring data on daily and weekly basis. Monitoring reports included interpretations of variations observed in instrument data with respect to the construction progress in the respective area.



INSTRUMENT USED

Existing Red Line metro tunnel and track monitoring (100 m section between Burjuman to Union Square):

- **Bi-reflex target:** To monitor the convergence in tunnel and crown settlement
- **Strain gage:** To monitor change in strain of tunnel lining
- **Beam Sensor:** To monitor longitudinal and transverse settlement of the track bed.
- **Vibration sensor:** To monitor impact of piling operations on tunnel.

Ground/sub-surface monitoring

- **Multi-point borehole extensometer:** To monitor deformation of sub-surface soil
- **Ground Settlement Point:** To monitor soil settlement and deformation of ground surface
- **Deep levelling datum:** To monitor ground level

Online monitoring was done for geotechnical sensors that were critical using advanced automatic dataloggers and data acquisition systems. **Automatic total stations** with complex control boxes were used for online monitoring of geodetic points.