

OCC Building Geotechnical Design – Jeddah Station- Haramain High-Speed Railway Project.

Saudi Arabia.

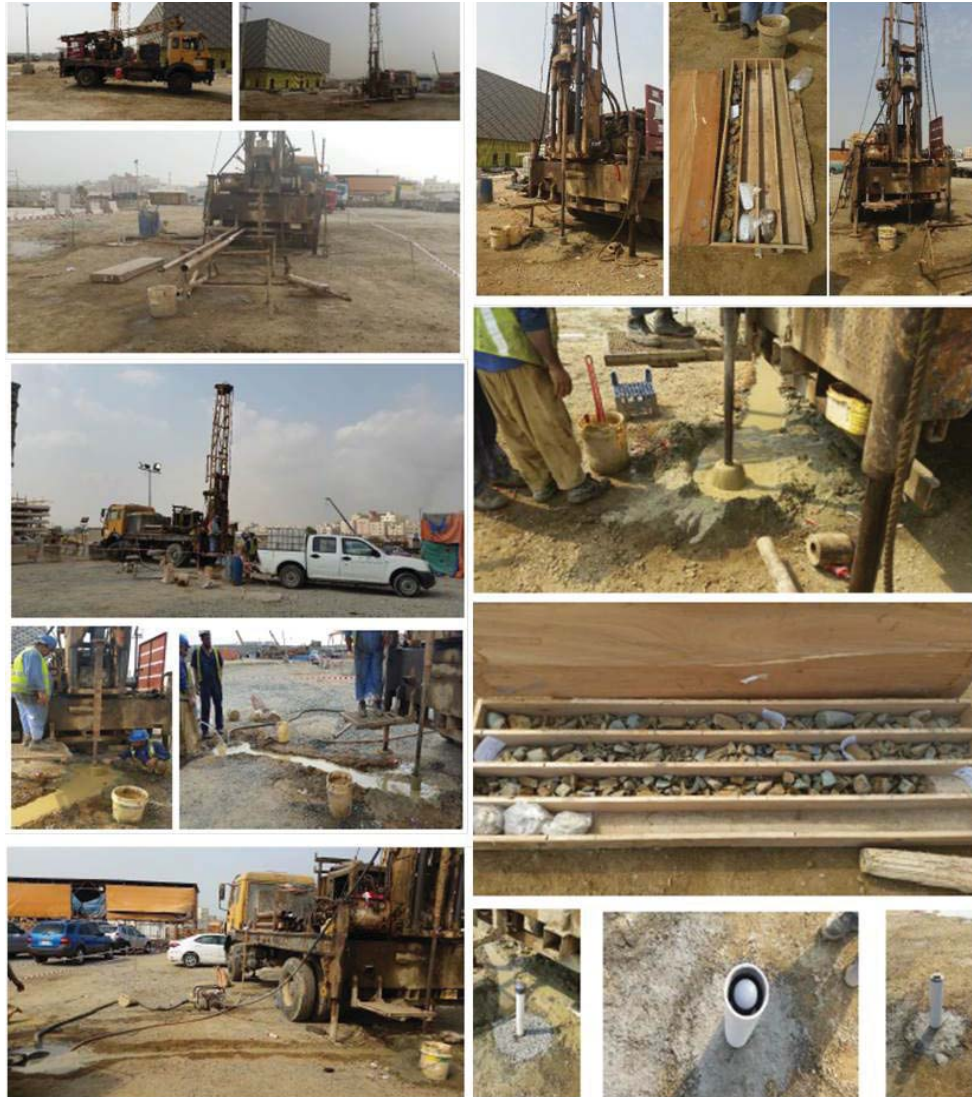
CLIENT	CONSULTRANS- JOINT VENTURE- PHASE 2 HARAMAIN HIGH-SPEED RAILWAY PROJECT
DATE	2014 - 2015
LOCATION	Saudi Arabia
FIELD OF ACTION	Geotechnical Design

Geotechnical design of the Operational Control Center complex (OCC) located at Jeddah High-speed Railway Station.

The OCC complex consists of one central building with square plant surrounded on all four sides by five- storey buildings all of them with rectangular plant. This arrangement of several structures around a central one is connected by an outdoor walkway.

The tasks were the following:

- To determine the ground conditions (ground profile, groundwater levels).
- To determine the geochemical composition for foundation purposes of the soils and groundwater.
- To assess proposed loading conditions and foundation requirements.



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tion and the targets of the study.

This campaign was mainly based on the following:

- Boreholes (3 units). Two (2) boreholes were drilled down to 9.0 m and one (1) borehole was drilled down to 13.50m below the existing ground level. All boreholes will have included the performance of: SPT tests (at 1.5 m intervals) and recovery of subsurface samples for laboratory testing.
- Dynamic Cone Penetration test using 120 kg hammer with 1.0 m drop and measuring blows for each 10 cm down meters depth or refusal.
- Performance of two (2) Electrical Resistivity Test using Wenner Configuration in x-y directions at designated locations.
- Geotechnical and chemical analysis of soil samples were carried out to determine geotechnical design parameters for the strata encountered.
- Groundwater levels checking, groundwater table.
- Geological / geotechnical logging of all strata encountered in the exploratory holes.

- To determine parameters for the detailed design of foundations and geotechnical structures.
- To provide recommendations on the concrete class for buried structures.
- To determine the suitability of

the excavated materials for their use in earthworks.

A specific geotechnical survey was performed; the scope of the geotechnical survey was carried out considering the previous informa-