



AL FALAH COMMUNITY DEVELOPMENT

AL FALAH – UAE

DYNAMIC COMPACTION

Category: Residential & Commercial
Developer: ALDAR
Engineer: HYDER
Contractor: N/A
Area / Quantity: 4,842,000 m²



PROJECT DESCRIPTION

Al Falah Community is one of the biggest developments part of Abu Dhabi's future master plan.

The development is located 4km east of Abu Dhabi International Airport, providing all requirements for its residences includes 5000 villas, 2300 townhouses, 2100 apartments, 14 schools, a hospital, hotels & health clubs & one village shopping mall center, total area of more than 16km².

The enormous platform was designed to undertake a bearing capacity of 150kPa. Maximum total settlement was specified to be 25 mm. & 1:500 differential settlements using isolated footings.

Liquefaction was also part of the project criteria, holding a magnitude of 6 & a: 0.15g.

SOIL CONDITION / GEOTECHNICAL PROBLEM

Project soil profile:

The site was previously undeveloped.

The geotechnical investigation showed that the upper 0 to 18 m layer of soil consisted of superficial deposit, loose to very loose layer of silty SAND with SPT blow counts as low as 4.

This layer was underlain immediately by SANDSTONE and MUDSTONE.

Ground water level was observed at the depth of average 15 m below ground level.



MENARD SOLUTION

Menard proposed the implementation of *dynamic compaction*.

In this technique the in-situ soil material is dynamically compacted until project requirements are satisfied.

A variety of phases, grids, poulder weights, and number of blows were utilized to optimize ground improvement works.

Eleven cranes were mobilized to carry out ground improvement works in less than 8 months.



QUALITY CONTROL

1/25,000sqm post treatment Pressuremeter tests were carried out to ensure that the design criteria were satisfied. The test results showed that the project requirements were readily achieved.

