

# CASE STUDY



# GEOFEM

## City of Dreams, Limassol



An integrated resort (IR) comprises a hotel and casino combined with other facilities for conventions, retail and dining. The City of Dreams Mediterranean in Limassol will become the largest IR in Europe when it opens its doors in Summer 2022. It includes vast areas of swimming pools and landscaping and it was these parts of the development that needed a special blend of satellite analysis and engineering expertise to identify the right engineering solution.



Trial pit showing the clay and shallow water table

### THE CHALLENGE

- The ground conditions comprised a high plasticity clay and the groundwater level was shallow and fluctuated due to nearby extraction for irrigation. All ideal conditions for damaging heave and subsidence of the ground surface.
- To avoid damage to the proposed swimming pools and landscaped areas on shallow foundations, the plan was to excavate several metres of the clay and replace with granular fill across the whole site – costing around €300k.

### THE SOLUTION

- Additional site investigation to determine the clay's swelling potential across the site more precisely.
- Retrospective InSAR analysis to measure actual heave/subsidence in recent years.
- Engineering reappraisal of the risk posed by the ground conditions, negating the need for the costly ground improvement.

### THE BENEFITS

- Significant reductions in construction cost (€300k), time and carbon footprint associated with the original dig out and replace option.



Satellite analysis with engineering insight