

ABSTRACT

The appropriate information or data is the keystone of any successful design. In any engineering system, accuracy of the system output depends on the accuracy of the system inputs.

Soil investigation phase of any geotechnical design plays a vital role to provide the geotechnical engineer by the most appropriate data to ensure that the design data represent the investigated soil. The purpose of a soil subsurface investigation is to provide data concerning the engineering properties of the soil for a proper design and safe construction of a project. Soil investigation aims to reduce the uncertainty of ground conditions by various combinations of field and laboratory testing.

One of the greatest causes of foundation failure is due to insufficient knowledge of ground conditions. Uncertainty in ground conditions can cause significant cost overruns and time delays for both client and contractor. Insufficient geotechnical investigations are currently one of the most common sources of costly, overdesigned foundation, project delays, disputes, claims, and project cost overruns. Inadequate characterization of the subsurface conditions may contribute to either a significantly over designed solution that is not cost-effective, or an under designed, which may lead to potential failures.

The research main goal is to study the impact of varying the scope of a soil investigation on the cost and time of the construction projects. By quantifying this effect, a conclusion might be reached about the importance of the soil investigation, and how is the soil investigation cost minimum comparing to the sequences that might occurs due to ignoring such factor.

Unforeseen site conditions may have an impact on time and cost of construction project. Sometimes they may prevent the contractors from performing the contractual obligations, and other times they only make it harder or more costly to perform the contract.

The contract is the main reference in case of any disputes between the contract parties. The contract must be drafted in a way at which its clauses do not conflict with law. Another purpose for this research is to know how the issue of the soil investigation can be effectively handled in the Egyptian law and construction contracts respectively.