

## **Strength parameters as quality control for different types of soil materials, Nile Delta, Egypt**

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Soft and problematic soils, including expansive and stiff clays make problem under foundation. Quality control essentially comprises of evaluating the strength quantity of different types of problematic soils using sonic wave measurements. The sonic test was performed to evaluate strength achieved through the measurement of compression and shear-wave velocities of different types of soils.

The author performed the quality control by measuring the sonic velocities of different types of soils in native state. The test methods were performed to evaluate the strength gain for different types of soils through the measurement of compression and shear-wave velocities of soil types under investigation. X-ray diffraction (XRD), Scanning electron microscopy and electron dispersive X-ray analyses were performed for understanding the relation between engineering properties of soil materials and petrological characteristics.

This paper presents the process and results of engineering properties and sonic strength measurements as a quality control management performed before construction of road base. The quality management program consisted of laboratory and mineralogical tests to address the effectiveness of the engineering behavior of soil materials. Electron dispersive x-ray analysis was performed on raw soil specimens for qualitative understanding of the clay content of soil materials.