GEOTECHNICAL CHARACTERISTICS OF MARSHY LOW LYING AREA

K.T.R. Lakshman and N. Sivakugan
National Building Research Organisation.

The rapid rate of industrial and economic development witnessed in the past two decades throughout the city of Colombo and suburbs, and the subsequent sky rocketing land values have made the developers consider poor grounds which were previously regarded as unsuitable for buildings. These lands located in Kotte, Nawala, Nugegoda, Orugodawatte, and Peliyagoda are presently undergoing development on a large scale.

These low lying areas are predominantly of organic soils which have very low shear strength and very high compressibility. Inadequate understanding of the behaviour of these soils and lack of experience in similar soil conditions has resulted in very conservative designs of foundations, assuming bearing capacities as low as 0.2 kg/cm^2. On the other hand, there are several buildings in these low lying areas which exhibit significant distress. Further, the buildings constructed in these areas are generally of low cost and it is not justified to perform laboratory or field investigations. Therefore, it is very much desirable to have prior knowledge of the soil characteristics or any simple correlations to predict them.

In this paper, typical values of shear strength and compressibility characteristics of the organic soils of the low lying areas are given. Based on the data collected at the National Building Research Organisation during consultancy and research projects, several simple correlations are proposed to predict these characteristics. These simple correlations and the typical values given would be very useful in the preliminary studies where limited data is available.