

# The Correlations and Soil Properties Analysis of Temerloh, Pahang

Muzamir bin Hasan<sup>1</sup>, Amizatulhani binti Abdullah<sup>2</sup>, Aminaton binti Marto<sup>3</sup>

<sup>1,2</sup>Faculty of Civil Engineering & Earth Resources, Universiti Malaysia Pahang, Jalan Tun Razak, 26300 Gambang, Kuantan, Pahang.

<sup>3</sup>Faculty of Civil Engineering, Universiti Teknologi Malaysia, 81310 Skudai, Johor

Email: <sup>1</sup>muzamir@ump.edu.my, <sup>2</sup>amizatulhani@ump.edu.my, <sup>3</sup>aminaton@utm.my

## ABSTRACT

*The characteristics of silty clay soil are different compared to other soils due to their low strength and high compressibility. It is also difficult to get an undisturbed sample for this type of soil for laboratory testing. Hence, the correlation between basic properties and depth or between basic properties itself will be useful to engineers especially for preliminary design purposes. An attempt was made to correlate the Atterberg limits itself and Atterberg limits with depth. In general, the correlations show that the liquid limit and plasticity index increase with the moisture content. The plasticity index also tends to increase with liquid limit. An attempt was also made to get correlation between the liquid limit with the clay/silt content. It is found that the liquid limit increases with the increase of clay/silt content, probably due to the clay particles tend to pull or absorb water to the surface of soil particle, making the liquid limit to be much higher. The results give an alternative for engineers to use the basic soil properties to predict the strength of soil. One can also determine the shear strength of the soil at certain depth below ground level. This will allow a quick and economic design for construction on clay.*

**KEYWORDS:** *Correlations, soil properties analysis, basic properties, silty clay.*

## 1.0 INTRODUCTION

The emergence of development in construction industry has minimized the preferred site of geotechnical quality for construction although these sites are known to reduce technical problems and thus the cost associated with their construction. By that, socio-economic and political considerations have forced the use of sites of lower quality and in particular, of sites covered by compressible soils. In developed country such as Malaysia, the chances to have a good quality construction sites become rarer and it seems like it is necessary to choose sites that include compressible soils, especially for industrial structure and transportation projects. Therefore, the tasks to do constructions on these compressible soils have become a challenge for geotechnical engineers all over the world.

Soils with characteristics of low strength and compressible exist all over the world. One of the most significant problem arises because of its characteristics is its difficulties in supporting loads on such foundation. The problem arises with low strength is that leads to difficulties in guaranteeing the stability of the embankment. On the other hand, this type of soil also associated with high compressibility which leads to large settlements and deformations of the structure.