CHAPTER FIVE

CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusion

A laboratory experimental program has been conducted to examine the engineering behavior of expansive undisturbed and remolded soil along Citraland site surabaya. Atterberg limits, unconfined compression strength, suction, and volume change (swelling, shrinkage) tests. From the results of this study the conclusions can be made with regard to the following point:

1. During drying and wetting cycle the void ratio of remolded slurry soil appears less than in undisturbed soil this may be due to soil structure.

2. Along the drying and wetting process for undisturbed and remolded slurry soil it was observed that, there is a significant decrease in the soil water content with increasing soil suction in the lower suction ranges, until a de-saturation or air entry point. Beyond this point, the magnitude of the decrease in soil water content for the equal increment of applied soil suction is less. At this stage the draining of water out of the soil pores becomes more and more difficult; this is believed to be due to the increasing surface tension force at the contractile layer as the suction increases.

3. The de-saturation point of a particular soil appears to be dependent on the amount of clay content. Higher amount of fines in the soil constitute a more compact particle arrangement and a smaller pore size. Soils with smaller pore sizes de-saturate at higher matric suction.

4. During drying and wetting cycle the strength of remolded slurry soil was found approximately near to that of undisturbed soil. This may be due the intensity of remolded dry density.
5. The volumetric deformation for loading and unloading curves in saturated soil which obtained from Oedometer test in an undisturbed soil, may be the same as soil-water characteristic curves, the uniqueness constitutive relation in loading (drying) decreased void ratio and lead to soil shrinkage, and unloading (wetting) increased void ratio and lead to soil swelling.

6. The study of behavior unsaturated expansive undisturbed and remolded soil under drying-wetting cycle has great significance, because the most engineering problem involving unsaturated soils are commonly the result of environment changes. The accumulation of water below a house may result in a reduction in soil suction and subsequent heaving of the structure.

**Recommendations**

Topics for the future research are suggested based on the findings of the present work. The following recommendations are made for future research.

- Based on the result of this study the measurements of remolded slurry soil suction with the filter paper technique highly dependent on the calibration curve employed, filter paper water content gave results higher than in the calibration curve. To increase the level of accuracy it is recommended to carry out an extensive laboratory testing in future research programs.