CHAPTER 3

METHODOLOGY

3.1 INTRODUCTION

This chapter will explain about the research that conducted and explain the study carried out. In this chapter, explanation about the materials used, the research planning and the testing conducted find suitability of the usage of polyethylene waste as clayey soil stabilizer. This part also will give the clear point of view about the research and clearly shows how the objective of this research achieved. At the early stage, the data and the literature review were been collected from the previous study. The source of the study such as books, journals, research papers, articles, and internet. The discussion between was crucial in order to improve and gain the knowledge and information regarding the scope of the research.
3.2 FLOW CHART

Understanding problem statements and objectives

Literature review

Preparation and selection of materials

Preparation of samples

Conducting the test

Before reinforcement
i. Specific Gravity of Soil

ii. Atterberg Limits

iii. Specific Density Test

iv. Hydrometer Test

v. Unconfined Compression Test

After reinforcement
i. Unconfined Compression Test

Analyzing results and data interpretation

Discussion and Conclusion

Project Presentation
3.3 SAMPLES PREPARATION

The collected clayey soil was first oven dried for 24 hours and then crushed into smaller pieces and sieved passing 2mm for uniformity. All the test specimens were compacted at their respected maximum dry density and optimum moisture content corresponding to the value obtained in standard proctor compaction test. There were 39 samples were prepared, 3 samples for each percentage (0%, 5%, 10% and 20%) for two different type of fibers; polypropylene and polyethylene fibers. In order to ensure uniformity, fiber and soil was mixed layer by layer by hand making sure all the fibers were mixed thoroughly to achieve fairly uniform mixture and then required water was added. There were three layers for each specimen. For example, the soil that was taken for each sample preparation was 250 g. The percentage of fiber was taken from the weight of soil. As an illustration, for 5% reinforcement is equal to 12.5 g of fiber that will be used. The 250 g of soil were divided by 3, as for the 12.5 g of fiber. Hence, each layer now had approximately 83 g of soil and 4.2 g of fiber content. The material were mixed and with required amount of water and inserted in the cylindrical sampler mould and blown 20 times for each layer. Another batch of layer will be added in the mould and the process continued until the last layer. Lastly, the sample extruded by extruder machine.