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PROBLEM AND SOLUTION OF PILING METHOD

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ABSTRACT

This practical training report is a study and a discovery of the problems that obtained on the site regarding piling works and a good solution to overcome the problems on the site. Problems obtained from the site are common things that happened in the construction industry and it is not a foreign matter to the people that handled the site. For this location which is located at Setia Alam, Shah Alam, Selangor Darul Ehsan, there are common problems from piling works which is the broken pile. There are also factors that lead to a broken pile. It can be the soil condition of the site, it could be the handling of the materials. Furthermore, this matter cannot be predicted and uncertainty because it is related to soil conditions itself. But, these problems can be overcome by the variety of solutions that can be made from the responsible party such as contractors, engineers and so on. Besides, every piling works shall have the official documentation that is valid. These are really important and it will ensure the productivity of the piling works run smoothly throughout the projects.

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CHAPTER 1.0: INTRODUCTION

Piles have been used by humankind for foundation purposes since prehistoric times, but in the last few decades the development in equipment and installation techniques, and the pressure towards constructing in areas with poor subsoil properties, have led to spectacular progress in the piling industry. (Viggiani C. , Mandolini A. , Russo G. , 2012). According to Van Impe (2003) bored and CFA piles account for 50% of the world pile market, while the remainder is mainly covered by driven (42%) and displacement screw piles (6%). Different proportions may be found locally; for instance displacement screw piles represent about 60% of the total installed yearly in Belgium while bored and CFA piles reach more than 90% in Italy. (Viggiani C. , Mandolini A. , Russo G. , 2012). Piles are generally associated with poor surface soils, but there are quite a number of different situations where they can be adopted advantageously. (Viggiani C. , Mandolini A. , Russo G. , 2012). It is a foundation system that transfers loads to a deeper and competent soil layer. Plus, piling is to support the load of the structure. (Ir. Dr. Gue Sew, G&P Geotechnics).

As mentioned before, in the last few decades the development in equipment and installation techniques and the pressure towards constructing in areas with poor subsoil properties have led to spectacular progress in the piling industry. At present the available piles range from micropiles with a diameter of 150 to 250mm and load capacity of a few tens of tonnes to large diameter bored piles and large tubular steel piles of offshore structures with diameters up to two or three metres, length of many tens and sometimes over a hundred metres and load capacities of many hundreds or even thousands of tonnes. (Viggiani C. , Mandolini A. , Russo G. , 2012). Piles are generally associated with poor surface soils, but there are quite a number of different situations where they can be adopted advantageously. They are often used for bridge piers to keep the foundation below the maximum probable depth of scour. Next, an excavation adjacent to the foundation is foreseen, and piles transmitting the load below the depth of its bottom may be employed to prevent the possible adverse effect of the excavation. If swelling or collapsing soils are found near the soil surface, piles may be used to reach deeper soils, not affected by the seasonal water content variations and capable of resisting the upward or downward drag exerted by the shallow soils. (Viggiani C. , Mandolini A. , Russo G. , 2012). The usage of the pile foundations is when inadequate bearing capacity of shallow foundations,