

Talk on Diaphragm Wall Technique and Construction in Difficult Ground Conditions

FORUM



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THE evening talk on Diaphragm Wall Technique and Construction in Difficult Ground Conditions was organised by the Geotechnical Engineering Technical Division on 28 September 2012 at the Tan Sri Prof. Chin Fung Kee Auditorium, Wisma IEM. The talk was delivered by Mr. Author BI. The talk was attended by 69 participants.

The speaker started his talk with the definition of various difficult ground conditions (e.g. rock, layers with stones, boulders and inclined rock surface) and the associated problems. Subsequently, he introduced some techniques of excavation, such as, the BC cutter, DHG hydraulic grab and chisel as shown in Figure 1, and highlighted the advantages and disadvantages of each technique. For example, DHG hydraulic grab provides high performance in “normal” soil conditions but would face difficulty when excavation is carried out in hard soil such as those with SPTN>100. He then mentioned that it is through the combination of all techniques that success could be achieved in a project.

The formation of an effective water barrier within the soil and rock formations beneath dams is still one of the most important tasks in dam construction. The oldest method of providing a barrier beneath dams which is still widely used even today is the grout injection technique. The impermeability of such grout curtains is governed by the spacing of the grout holes. They will soon reach their economical and technical limitations in alluvial soils especially when they are mixed with stones and cobble. As such, there is also an increasing demand for the use of the diaphragm wall technique as a permanent water barrier below the dam structure especially in heterogeneous soil conditions with high permeability. Under such conditions, where an added advantage would be its capability to socket



Figure 1: Excavation Techniques in Difficult Ground Condition.

the cut-off wall into bedrock.

The speaker also shared with the audience four historical cases where a diaphragm wall had been successfully constructed at site as a cut-off wall for dams. Figure 2 shows the adoption of diaphragm wall as cut-off wall for a dam.

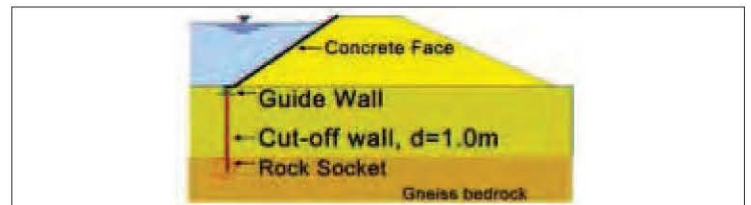


Figure 2: Adoption of Diaphragm as Cut-off Wall in a dam project

At the end of the talk, the speaker was fielded a number of questions from the audience. Lastly, a token of appreciation was presented to the speaker. The talk ended with a big round of applause from the floor. ■

Ir. Lee Peir Tien is currently a Committee Member of IEM Geotechnical Engineering Technical Division (GETD) and he is also an Associate Director of G&P Geotechnics Sdn. Bhd.