PROJECT WRITE-UP

G448-PV D7 RMM/Condo @ Setapak

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PV D7 RMM/Condo @ Setapak is a project by Platinum Victory Development Sdn. Bhd., also named as PV18 condominium. The project is located in front the PV10 Condominium. This development project comprises of 3 blocks high rise condominium with 42 storey, block A 318 units, block B 534 units, block C 398 units. The foundation and temporary retaining wall are constructed as per Engineer's design which consist of total 411 numbers of bored piles ranging from 750mm to 1800mm diameter, 172 numbers of pilecap. The total construction duration in contract is 15 months which including piling, pile cap works, RC Wall system.

Alternative Design Proposal

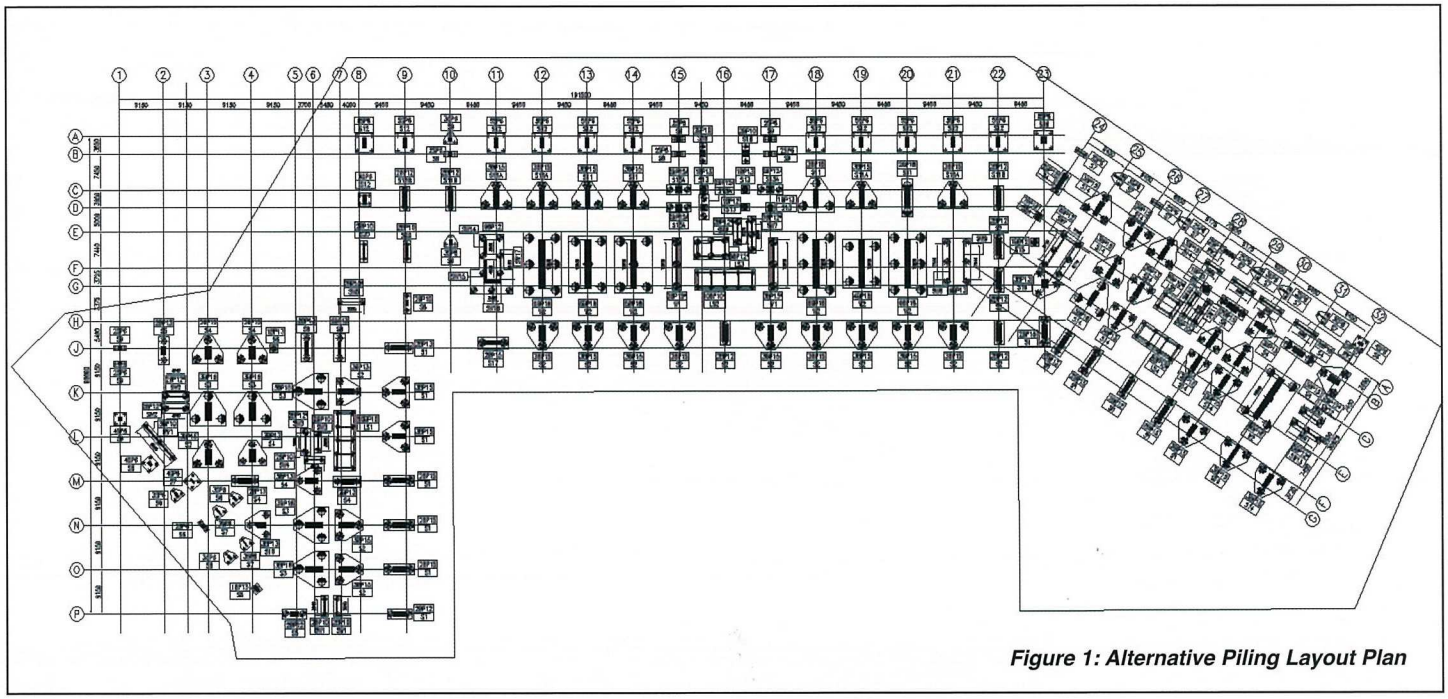

Figure 1: Alternative Piling Layout Plan

The initial proposal was a combination of bored pile and spun piles foundation system. However, in considering to the availability of our bored piles machines and to expedite the overall foundation works, therefore bored pile is proposed to replace the spun piles in the podium area.

Design Challenges

Based on the subsurface investigation (SI) report, the geological profile of the site is LIMESTONE formation with varies of bedrock level and inconsistency of weathering grade of LIMESTONE rock over the site. The pile is designed to be founded on rock socket.

From the instrumented test pile result, we are able achieved average:

ROCK QUALITY RQD<30%,
Ultimate friction of LIMESTONE more than 600 kN/m2 and
Ultimate end bearing capacity more than 4,500 kN/m2.

ROCK QUALITY RQD>30%,
Ultimate friction of LIMESTONE more than 1,200 kN/m2 and
Ultimate end bearing capacity more than 6,000 kN/m2.

The most challenging of this project during design stage is all piles need to design lesser than 60 degrees from hit rock level (HRL) to adjacent piles HRL. The pile design is to be socketed more into rock in order to prevent slipping of piles. Also, the rock samples with no crack line to be considered in RQD, to enhance the geotechnical capacity.

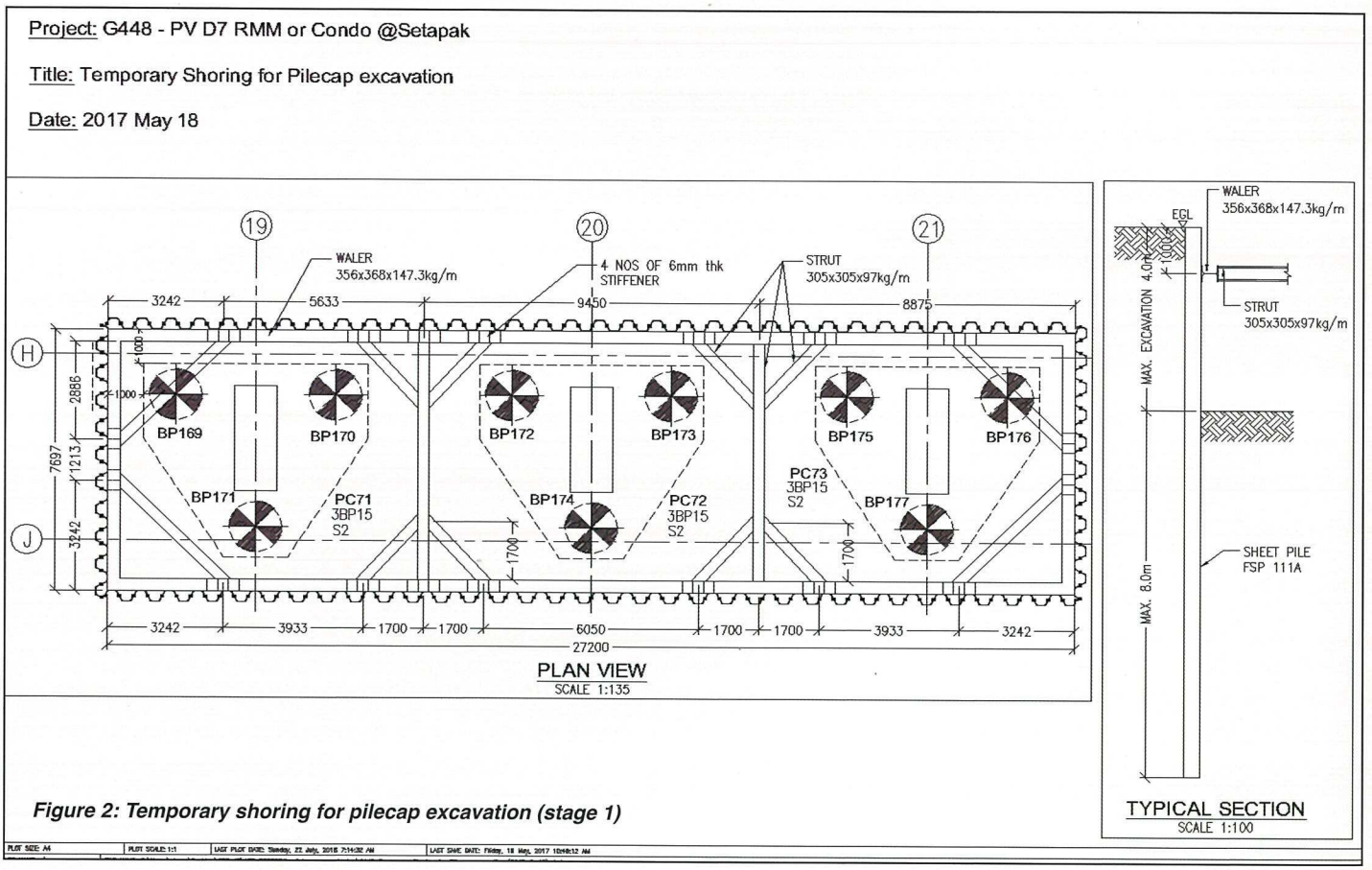

Figure 2: Temporary shoring for pilecap excavation (stage 1)

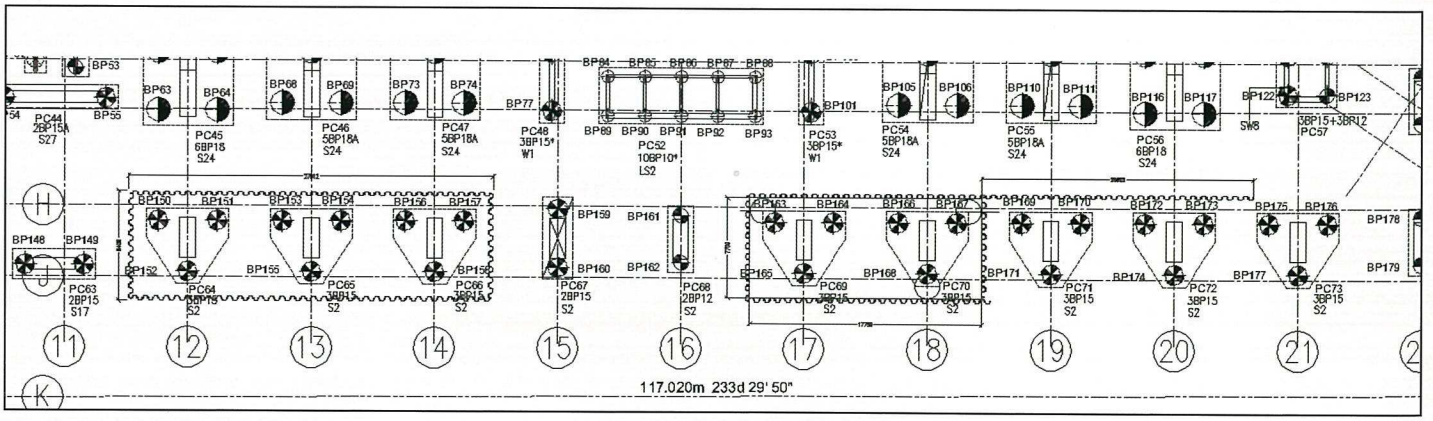

Figure 3: Temporary shoring for pilecap excavation (stage 2)

During the soil boring works and part of the pilecap excavation works in Block B, we have encountered unforeseen adverse ground condition of soft clay soil varies from of 3m to 8m below existing platform level. This information was not being revealed and disclosed in the soil information report given during the tender stage.

The present of soft overburden marine clay made open excavation to the affected pilecaps impossible and thus,cofferdam and strutting were proposed in order to carry out the work safely. This was further demonstrated with the evidence of pilecap excavation in PC171, PC172 and PC173 which required extensive sheetpile cofferdam coupled with the internal strutting. The most challenging during the sheet pile installation is to provide sufficient space for the bored pile, pilecap which are concurrently in progress. Draught women Nor Efiza assigned the strut spacing to avoid any clashing with the stump, and wall. The affected pilecap area within the suspected sort clay zone is at gridline C-G/11-20 as highlighted as above layout.

Construction Difficulties Encountered

Due to the inclined rock geotechnical issue, work sequence to be created to carry out the construction of the bored pile. Pile to be bored deeper in some localized area as per Engineer's instruction. Upon the completion of the bored pile, next piling to be selected which will not deter our planning after the casting of the said piles.

Another construction challenge is that the site located near to resided PV10, where the working hour is restricted and all boring works to be completed by 7p.m. To counter this challenge, we added a unit of BG to the maximum of 5 machines on August 2017. However, with the consent of Langkawi apartment committee, we obtained DBKL 's approval for our night work.

Another construction challenge is the un extractable casing, where we lost 3 casings at previous nearby project at Lot 225. Thus, polymer is adopted to minimize the usage of casing. As a result, we only lost 1 casing in this project.

Overall Performance of The Project

Last planner has been carried out for this project, all datas are collected to analyse. For example, casted 27 nos for the month of August 2017, average production of 4.5 days/pile, with the average soil boring 1.5m/hour, rock boring at 0.3m/hour. Average concrete wastage control at 41.8% with steel wastage 8.7%. It is part of new way of thinking about the management production in construction environment. It is difficult, but not impossible.