

# PROJECT WRITE-UP

## G472-WJ2 PV RMM 1 @ KG WIRAJAYA



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### Project Introduction

WJ2 PV RMM 1 @ Kg. Wirajaya is a project by Ambanang Development Sdn. Bhd. / Platinum Victory Development Sdn. Bhd., PV9. The project is located at Persiaran Pertahanan. This development project comprises of 1 block of high rise condominium with 35 storeys, including of 8 storeys of podium car park. The foundation and temporary retaining wall are constructed as per Engineer's design which consist of total 111 numbers of bored piles ranging from 750mm to 2500mm diameter, 77 numbers of pilecap. This is

the **FIRST** project with Platinum Victory that we design at 2500mm diameter. The total construction duration in contract is 8 months which including piling, pile cap works, RC Wall, rubble wall system.

The initial proposal was a combination of small bored pile foundation system. However, in considering to the availability of our bored piles machines and to expedite the overall foundation works, therefore 2500mm bored pile is proposed to replace the pile groups in the tower area.

### Alternative Design Proposal

Moreover, the pile structural capacity is enhanced by adopting concrete grade G40T2 in order to optimise the pile working load and hence optimise the pile length. Based on the soil investigation result given during the tender stage, the piling layout was divided into 4 zones and all the piles were designed based on soil friction and end bearing.

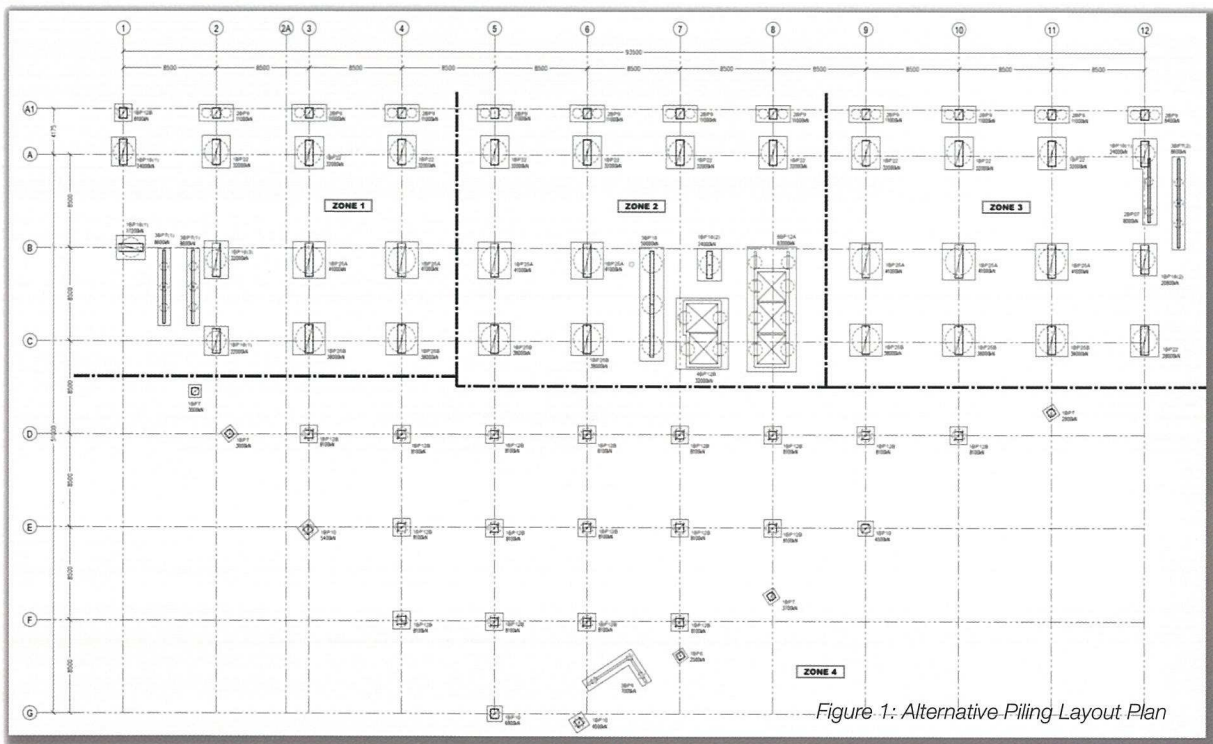


Figure 1: Alternative Piling Layout Plan

## Design Challenges

For this project, soil investigation was carried out almost to every column and wall. The geological profile of the site consists of sandy silt and clayey silt. The piles are designed to be founded on friction and end bearing of the soil.

From the preliminary instrumented test pile results, we are able to achieve

Average soil skin friction of  
 3 for  $N < 50$ ,  
 2.5 for  $50 \leq N < 100$ ,  
 2.0 for  $100 \leq N \leq 200$ ;

Ultimate end bearing capacity more than 4500 kPa.

In addition, the communication flow between design department (Pn.Saidatul/Carmen) and operation team (Pn.Jannah) must be very effective in order to improve productivity and avoid mistake.

Secondly, the consultant team was the first people to fully realize that where the design wall level shall follow the road level instead of the existing earth level, as shown on *Figure 2* in the legend of red colour. After the incident, it is vital that we OPERATION TEAM had changed the thinking about how to do work and how to work together. Because all of the jobs were directly connected, with no comfort zone and it was necessary that everyone think about standard work, and how to get the work done right the first time, every time. Every step of every job was now charted by the work team and posted for everyone to see, by conducting the internal meeting weekly.

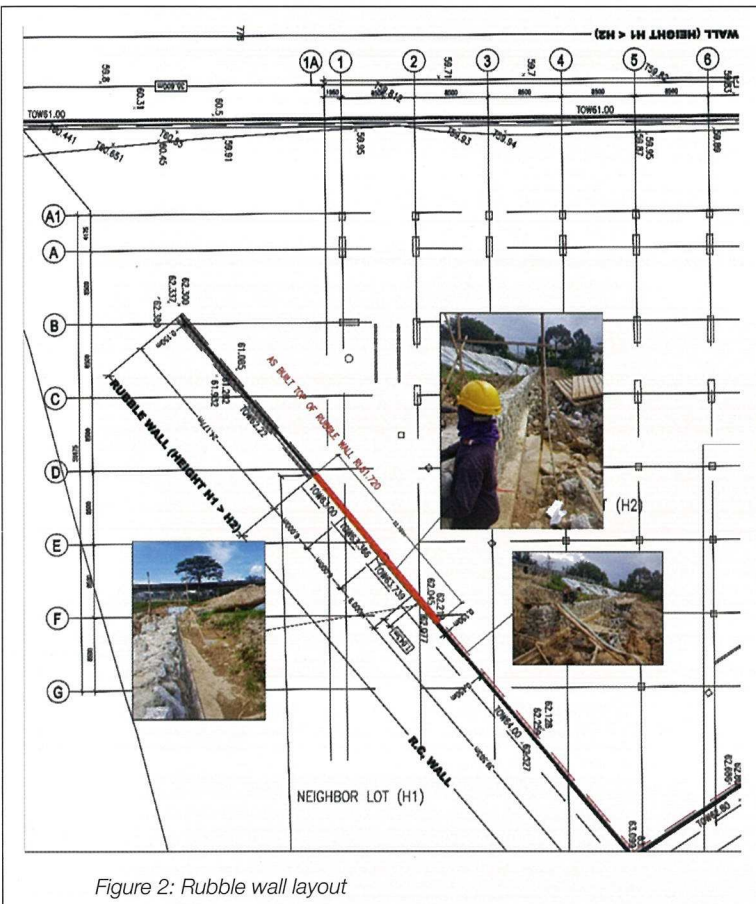


Figure 2: Rubble wall layout

The most challenging part of this project during design stage is that each pile is designed based on individual soil investigation result of the particular column. Waiting for design information, is major sources of uncertainty, frustration and waste in projects. By systematically ensuring that everything necessary is in place before a task is due to start. Hence, at peak, we maintained at least 4 SI machines to produce work volume. Design team plays important roles by deliver the design pile length after receiving the Soil Investigation data from the SI contractor.



## Construction Difficulties Encountered

In the case between the resident and our construction site, trees totalling of 28 nos on Ambanang' property had to be completely removed because the trees unduly obstructed the future development of rubble wall. The trees were to be removed and the cost of doing so paid by the developer.

Another incident was violence against late working hour, at 8p.m. The concreting work was dragged to 7.30p.m., due to limited lorry trips from the supplier. Unfortunately, the flat' resident was not happy with how our piling contractor handling the concreting hour. However, our management had decided to give up the 1800mm diameter (12m) new casing without pulling out for the sake for staff SAFETY. The sacrificing had driven our team to do things we never imagined we could; it is the power of love that gives each

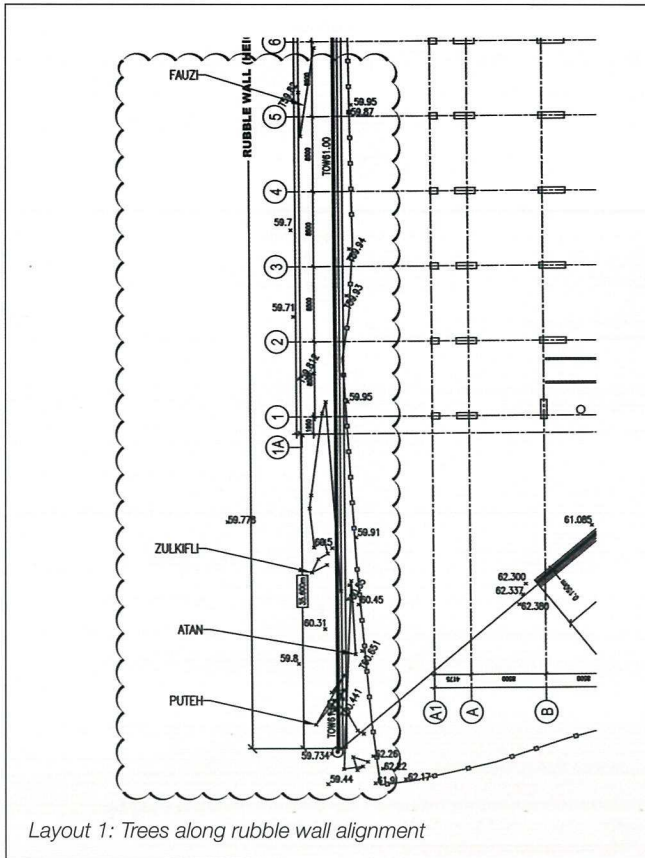


Figure 3: Trees on rubble wall alignment

of us unparalleled strength to face the extreme perils that life sometimes throws our way.

I wish to take this opportunity to thank you, for CKWong, Helmy, Jannah, KSWong, Khairulizham, & Zainuree hard work and your help during these months. Especially Helmy who himself had the situation and under control. To counter this challenge, we added a unit of BG to the maximum of 3 machines (BG38 x 2 nos, and BG20 x 1 nos), on December 2017.

### Overall Performance of the Project

Let's take a simple example, operation typically calculate the performance in the following manner, as shown in the left column of *Table 1.0 Comparison between D7 & WJ2*

Description	D7 (Previous write-up)	WJ2 (Newly completed flagship project)
Month	Aug-17	Jan-18
Casted nos	27	22
Boring rate	1.5m/hr	2.7m/hr (Improved)
Concrete wastage	41.80%	9.50% (Improved)
Steel wastage	8.70%	5.00% (Improved)

Table 1.0 Comparison between D7 & WJ2

Note that D7 is limestone formation. In fact, the wastage on concrete and steel was reduced drastically due to different type of formation and LEAN management skill. As per my previous project write-up, we lost three (3) casings at Lot225 (due to difficult ground condition), one (1) casing at D7 (improved, due to new method-polymer, one (1) casing at WJ2 (due to working hour).

This was clearly an acknowledgement of superior performance under the leadership of Project Director, Ir.Oh CW.