

## Cantara @Ara Damansara

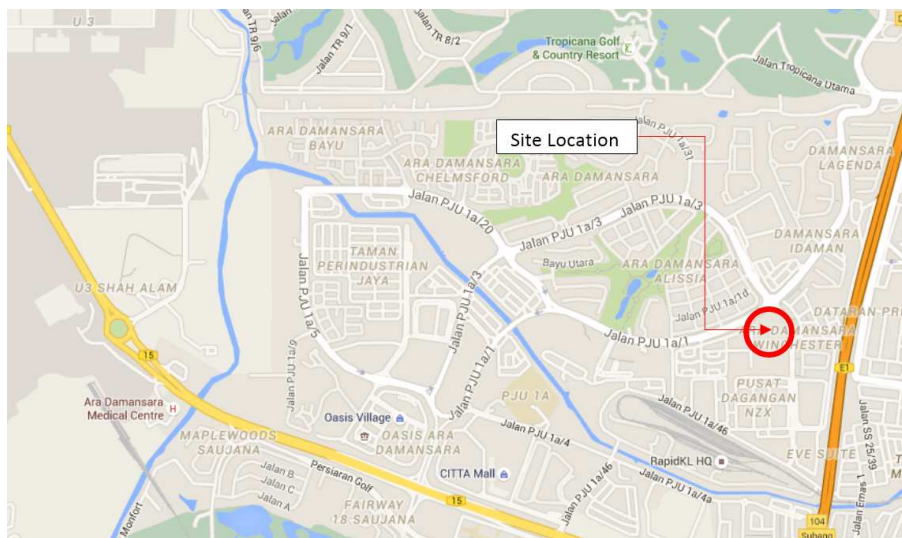
### Additional SI Borehole for Optimisation of Pile Length Design

(by Mr. Jeremy Lim, Sr. Project Manager) (2016 Apr-Jun)



Aerial View at Site during Construction Stage

This development project locates at Ara Damansara. The workscope consists of piling work (i.e. Bored piling for tower blocks while jack-in spun pile for podium), pilecap, retaining wall and some minor M&E work.



Site Location

ABH9				LEGEND	
29.764				CON	CONCRETE
Depth (m)	STP-N	Colour	Soil	Phy	PHYLLITE
0	0	medium orange	sSi	C	CLAY
1.5	6	orangish yellow	sSi	Si	SILT
3	5	orangish grey	scSi	S	SAND
4.5	5	greyish brown	scSi	Gr	GRAVEL
6	5	greyish brown	scSi	GN	GRANITE
7.5	2	dark brown	scSi	LM	LIMESTONE
9	4	light brown	S	SD	SANDSTONE
10.5	6	pale grey	cSi	SI	SILTSTONE
12	5	pale grey	cSi	MD	MUDSTONE
13.5	3	light brown	cSi	Sch	SCHIST
15	5	light brown	cSi	SH	SHALE
16.5	16	greyish yellow	S	Qtz	QUARTZ
18	23	greyish yellow	S	WD	WOOD
19.5	17	greyish yellow	S	cSi	clayey SILT
21	26	yellow	sSi	cS	clayey SAND
22.5	26	yellow	sSi	grS	gravelly SAND
24	30	greyish yellow	cSi	siC	silty CLAY
25.5	40	greyish yellow	cSi	siS	silty SAND
27	250	yellowish brown	sSi	sC	sandy CLAY
28.5	>300	no recovery		sSi	sandy SILT
29.5	40%0%	medium grey	GN	p	pavement
31	40%0%	medium grey	GN	SPT Values -Blows / 30cm	
32.5	50%0%	medium grey	GN		
34	56%0%	medium grey	GN		0-10
35.5	73%0%	medium grey	GN		11-30
37	80%0%	medium grey	GN		31-49
38.5	END @ 38.5m				50& ABOVE
					ROCK

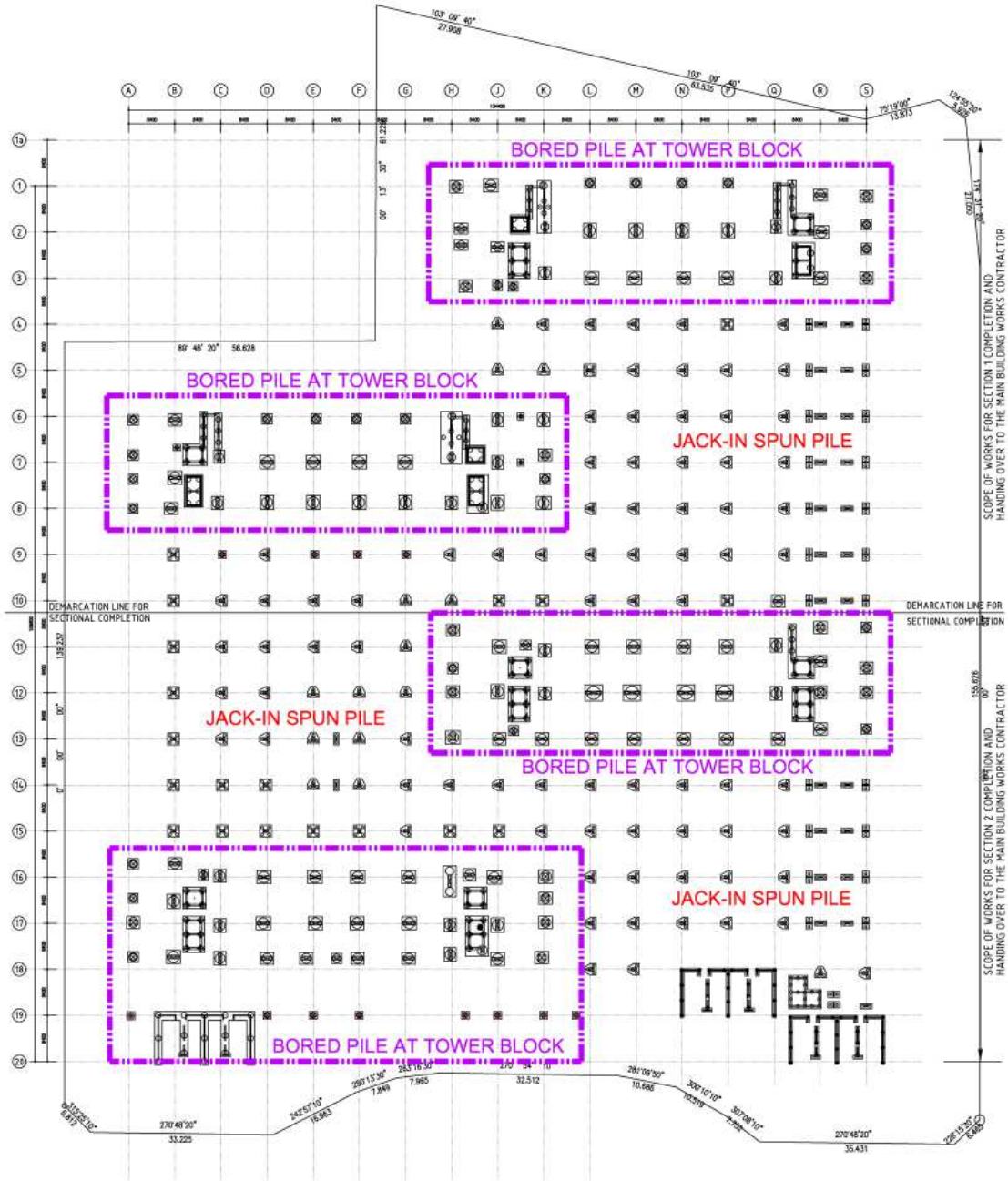
Prior to the commencement of physical works, additional 9 nos. of boreholes are carefully planned and sunk at this site in order to decipher the subsoil profile. These obtained parameters are of paramount importance for us to fine-tune & re-calibrate our alternative proposal with further optimisation. In short, the adopted bored pile sizes range 750mm to 2500mm dia. as foundation for heavy loading of 4 tower blocks while simpler jack-in spun pile (i.e. 500mm dia.) configuration is proposed at podium in view of lighter loading.

SI Result : Blow up

The table displays SI results for boreholes ABH9, ABH10, ABH11, ABH12, ABH13, ABH14, ABH15, ABH16, ABH17, ABH18, ABH19, ABH20, ABH21, ABH22, ABH23, ABH24, ABH25, ABH26, ABH27, ABH28, ABH29, ABH30, ABH31, ABH32, ABH33, ABH34, ABH35, ABH36, ABH37, ABH38, ABH39, ABH40, ABH41, ABH42, ABH43, ABH44, ABH45, ABH46, ABH47, ABH48, ABH49, ABH50. The table includes columns for depth, SPT values, and soil descriptions. A red line is drawn across the bottom of the table, labeled 'Granite Bedrock', indicating the depth of the bedrock formation.

SI Result

Based on soil investigation, this project job site has overlying of 10-15m subsoil with SPT "N" less than 15 and underlying granitic bedrock formation (RQD range 0% to 40%). All the proposed bored piles are socketed into the bedrock and the designs are validated with instrumented test pile. Whereas, the jack in pile are loaded with 2.2 times of working load which verified by maintain load test.



Overall Foundation Layout

There are few most challenging issues during the construction period arise as below:

1. Managing the 7 working boring rigs and preparing the working platform for jack-in machine concurrently;
2. Handling the complaints from neighbouring residents which restricts our working hours;

3. Tackling, cut & fill and trim the earthwork platform (i.e. approximately 30 + of different levels).
4. Compliance to the client's Safety & Health regular internal audits and also SIRIM audit.

Despite the difficulties, this project has been completed successfully with deepest appreciation to my lovely yet dedicated project team (i.e. Weng, Hoe, Azmil, Samad, Halimi, Nazri, 'iron lady' - Nadia and not forgotten our safety officer Riduan & Badrol as well). Bravo !!!