



Technical Visit to Technical Visit to MRT 2 Site – Sentul West Station, Kuala Lumpur by Mr. Loh Wooi Chuan

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A technical visit to MRT 2 Site – Sentul West Station, Kuala Lumpur construction site was organized by the Geotechnical Engineering Technical Division on 20th July 2017. A group of 23 participants attended the site visit. The Sentul West MRT station is one of the eleven underground station in second MRT Line - the Sungai Buloh-Serdang-Putrajaya (SSP) Line. Klang Valley Mass Rapid Transit (KVMRT) Project is a rail-based public transport network, envisaged to radically improve and transform Kuala Lumpur's public transportation coverage and to propel the Greater Kuala Lumpur into one of the top most liveable cities in the world.

The second MRT Line, the Sungai Buloh-Serdang-Putrajaya (SSP) Line will serve a corridor with a population of around 3 million people stretching from Sungai Buloh to Putrajaya and will include Sri Damansara, Kepong, Batu, Jalan Sultan Azlan Shah, Jalan Tun Razak, KLCC, Tun Razak Exchange, Kuchai Lama, Seri Kembangan and Cyberjaya. The 52.2km alignment, including 13.5 km is underground will have a total of 36 stations, 11 of which will be built underground. At commencement of full service in the second quarter of 2022, the SSP Line is expected to have a ridership of 529,000 passengers per day. This is expected to further improve the chronic traffic congestion currently faced by Kuala Lumpur.

The participants departed from IEM Building by coach and reached MMC-Gamuda (main contractor) site office at Sentul. Upon arrival, we were greeted warmly on site by MMC-Gamuda project team and Bachy Soletanche project (diaphragm wall specialist contractor). The technical visit started with a welcoming speech by Ir Sin Peng Tean (Deputy Charman of GETD) followed by detailed briefing of the project and current progress of the works by MMC Gamuda representative Mr Ngan. The key milestone and project challenges was briefed in detailed by Mr Ngan. Some of the key challenges are the utilities diversion, road diversion, complexity of the geological profile and etc. The proposed underground station was located at the center of the existing road, major utilities and road diversion need to be carried out prior to the major works.

After the project briefing, a group of 23 participants were leaded by MMC-Gamuda project team to witness the construction sequence of diaphragm wall using hydrofraise machine. The site construction process was briefed by Bachy Soletanche Project Manager, Mr Tay Soon Wee. The diaphragm wall at Sentul west underground station was 1.2m thick, maximum 48m depth and total 650m perimeter length. This underground station was designed with top down construction sequence to minimize the impact of excavation to the surrounding houses and road users. The site geology was complex, the top soil layer was loose sandy soil layer followed by hard Kenny hill formation overlaying undulating Granitic profile with different weathering conditions. Hydrofraise technology was chosen for the diaphragm wall excavation due to the complex geological profile of the site and also to speed up the diaphragm wall excavation process. One of the advanced technology been used for this project site was the usage of 100% polymer as slurry for diaphragm wall excavation. Detailed explanation on the QA/QC process on the slurry control was given by the construction manager from Bachy Soletanche – Mr Remi Guesdon.

Slurry is one of the mostly important element in diaphragm wall excavation to prevent collapse of the temporary trench of diaphragm wall from excavation stage until concreting. The temporary diaphragm wall trench must be stable to allowed for installation of steel cage and concreting. Traditionally, bentonite was used as slurry but the bentonite will form filter cake on diaphragm wall surface and has impacts on performance of diaphragm wall. Polymer slurry can offer many operational and environmental benefits including: smaller site footprint, ease of mixing, lower fluid disposal cost and less impact on the environment. All the participants very impressed with the safety standard at site and gained some new knowledge on advancement of the diaphragm wall construction.

During the last session, IEM GETD presented some tokens of appreciation to the project team including MMC-Gamuda and Bachy Soletanche. The technical visit was concluded at 1.30pm



Work in progress



Briefing