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EXECUTION OF VARIOUS GEOTECHNICAL WORKS FOR CHALLENGING PROJECTS IN SWEDEN

Summary:

The city of Gothenburg in western Sweden is currently experiencing the construction of one of the biggest infrastructure projects in the country - The West Link (Västlänken). The West Link is an eight km double track railway project, of which six km will run through underground tunnels.

The project is split into five different sections, which were awarded and being executed individually. The widely varied geological profile of the area consisting of weak to very weak clay (often referred as 'quick clay') and silty, sandy and gravelly moraine along with challenging local conditions like existing waterways, traffic routes and buildings require a range of soil improvements and shoring system solutions suiting the local conditions. Keller has been executing Dry deep soil mixing (DDSM) to stabilize the quick clay to facilitate excavation and jet grouting for water sealing and excavation support in addition to soil improvement purposes. Execution of uplift piles over a flowing river, drilled steel piles at the bottom of excavation pit as foundation support, drilled steel pile wall and sheet piling for excavation support are another examples of geotechnical solutions executed as customized to site requirements.

The knowledge gained from challenging international projects is further applied to key local projects, such as those in Slovenia, where the advantages of developed geotechnical technologies and procedures are leveraged in the most effective ways. Two significant projects have recently been executed using this approach. Firstly, ground improvement works were undertaken for the new Central Correctional Facilities Project in Ljubljana, involving the use of premixed vibro concrete columns (PVCC). This project was carried out on an abandoned quarry that had been filled with construction waste over the past few decades. The second project involves landslide prevention measures, specifically the reconstruction of an existing anchored wall on a highway near Maribor. To address this, longer and higher capacity geotechnical anchors were installed at heights of up to 8 meters..

Key words:

Dry deep soil mixing, jet grouting, drilled steel piles, premixed vibro concrete columns, geotechnical anchors, landslide protection, construction pit, Gothenburg, Ljubljana, Maribor.

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