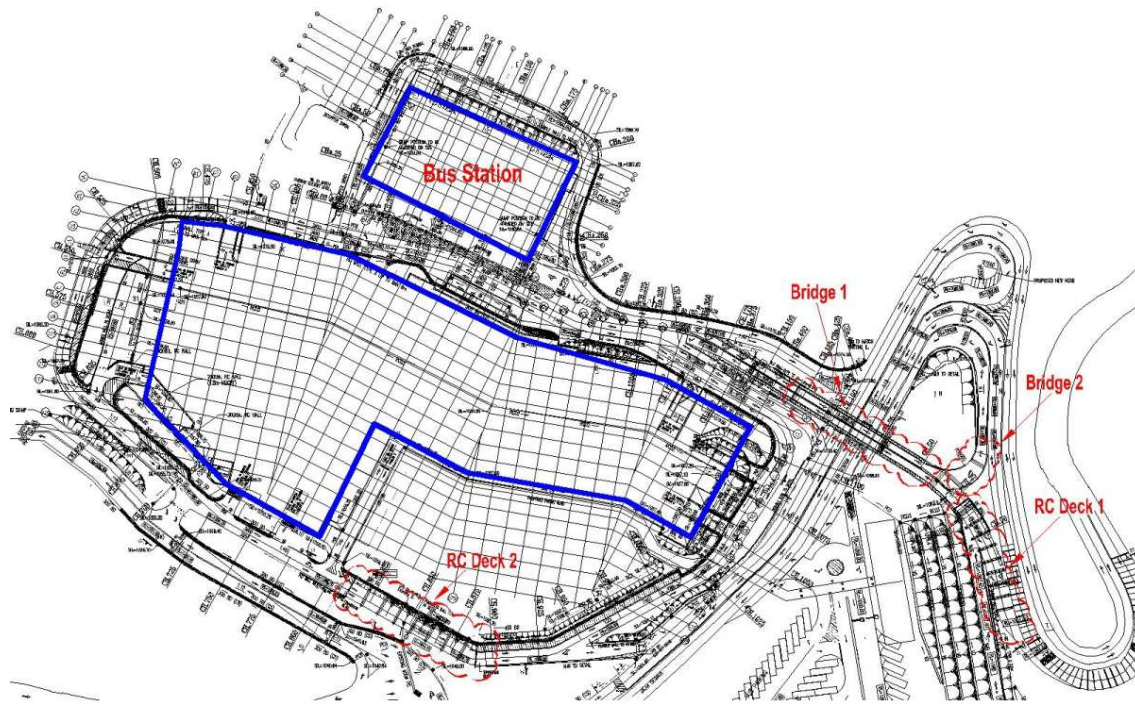


## GPO Bridge @Genting

### The Key Challenges and Solutions on GPO Bridge Construction

(By Mr. Patrick Lim, Project Engineer) (2016 Jul-Sep)



Project Site Road and Drainage Plan

### Project Introduction

The work scope of this project consists of flyover bridge (piling works, pilecap works, 2 nos. abutments, 3 nos. piers, 20 nos. post tensioned T-Beam, RC slab and parapet wall), RC Retaining walls, earthwork cut & fill, road & drainage work for ring road and slope protection works. At later stage, soil nail tied-back soldier pile wall was introduced at Bus Terminal to replace the original RC retaining wall(H<4m), supported by micropile foundation and another second soil nail tied-back soldier pile wall was constructed at abutment A to facilitate the backfilling work. Throughout the project, 3 RC decks have been constructed in 2 different types of foundation system, which are i) RC deck with micropile foundation type constructed at Bridge 2 and ring road from CH800-900, and ii) RC deck with RC pile foundation system constructed at CH00.



Project Team



Project Team

### Key Challenges

1. To work in limited space and area. Due to the on-going construction of Building and Bus Terminal Station, the construction of Road & Drainage (R&D) has to go concurrently with the main builders. Therefore, the availability of working areas for R&D works were very much restricted and work progress was easily affected. Working proactively and closely with the main builders is a must in order to not jeopardize work progress.
2. One of the factors that was not under our control, of course, is the weather. During rainy season, all temporary drainage system has to be well planned especially for earthwork cutting & filling works, to avoid having soggy sub-grade.

3. To construct 320m RC drain on a high bedrock level. It took us 4 months to complete. The RC drain due to head room limitation and massive rock hacking works by manual hacking. All concrete and disposal were also carried out and transported by manual.



High Bedrock Level along RC Drain Alignment



Massive Manual Rock Hacking

4. Another key challenge was to construct the RC deck on valley (Deck 2) and a sloping terrain (Bridge 2). Due to the nature of the terrain, the platform for scaffolding erection was of varies level and hence platform level adjustment was required. Extra precaution and efforts have been put in to ensure stability of the base of the scaffold.



RC Deck 2 Construction on Valley



RC Deck 2 Construction on Valley



Bridge 2 Construction on Slope Terrain

5. The construction of bridge across existing public road called for tightest supervision and safety control. A lot of attention was put in on the study of the bridge super elevation, gradient and details to ensure full engineering compliance. Since T-beam launching took place on the main road, therefore road diversion and launching sequence needed to be planned ahead since road closure was definitely not an option. The bridge was completed within 5 months period.



T-Beam Launching from Abut A to Pier 1



T-Beam Launching Progress Photo