

Visit to Express Rail Link (XRL) in Hong Kong



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THE Project Management Technical Division (PMTD) of IEM went on a four-day visit to the Hong Kong side of the Express Rail Link (XRL) which will link Guangzhou, Shenzhen and Hong Kong in year 2015. The visit on 23-26 March 2013, attracted 15 participants from various disciplines of the engineering fraternity from IEM.

The 26km Hong Kong section of the HK\$66.90 billion Guangzhou-Shenzhen-Hong Kong XRL is from the huge landscaped underground terminus in West Kowloon to the border of Hong Kong and Shenzhen. It then links up with the 16,000km China National High-speed Railway Network. The rail link will shorten travel time from Hong Kong to Guangzhou from the present 100 minutes to just 48 minutes. When completed, the link will enhance Hong Kong's reputation as the southern gateway to Mainland China. The project is being run as Hong Kong's Government Owned and Funded Assets. This means the government funds construction works and MTR Corporation acts as delivery partner, project managing construction and earns a fee for operating the completed infrastructure.

The XRL construction, started in 2007, involves the construction of a delicate railway tunnel, beginning from the common border. About 10 km towards the Hong Kong side, it involves mixed ground earth pressure balance or slurry shield tunnel boring machines (TBMs), followed by the next 2.56km on drill and blast method through two main mountains in New Territories and approximate 2km of cut and cover method section through downtown Kowloon.

We visited the Shek Kong site where the emergency rescue siding of 30m below ground and an at-grade stabling siding are under construction with open-cut method and are near completion. The emergency rescue station is the interchange station where the TBM-bored mixed ground tunnel section gives way to a 2.56km drill and blast tunnel. In the briefing by the Construction Manager of XRL Tunnels SSS, Ir. Charles Lau Kam Keung, at the Shek Kong site, we learned how such a huge scale project was broken down into manageable packages with a general manager assigned to each contract for day-to-day responsibilities and the major issues of dealing with interfaces between contracts. To comply with Hong Kong's stringent environmental laws, the bentonite slurry plant was constructed at a cost of HK\$30 million to minimise the permissible noise level in the vicinity.



Group photo for the technical trip



Site briefing by MTR Project Team Leader



Temporary works for cut and cover tunnel at Austin Station



Thrust block in front of launching shaft at MTR tunnel

At the northern end of the XRL (border with mainland China), the Project Manager of XRL Tunnels (South), Mr. Bill Cloves, briefed us on the challenges of mixed earth pressure balance machines and slurry shield TBMs that have to be driven through faulted ground under protected wetlands where vertical access shaft is not allowed as this is part of a UNESCO heritage site. The China side of the EXL is a single bore tunnel which will merge with the Hong Kong side twin bore tunnel, so the difficulties of merging a single bore to twin bore and cross borders legislative issues were highlighted.

At the Kowloon Austin MTR Station Visitor Center, the Project Director talked about the challenges of having the tunnels running through reclaimed land areas that had buried jetties, piers, sea walls and drainage culverts, beside the mounting challenges of TBMs squeezing beneath MTR subway tunnels with just 2.8m clearance, passing through either side of pairs of

2.5m diameter bored pile supporting existing road interchange and treading 2m above a water transfer tunnel as well as through piled foundations of high rise estates as the TBMs approach the cut and cover section running into the Kowloon terminus. On top of the challenges underground, having to keep open existing major roads that crossed the West Kowloon Terminus, was a major issue and a challenge for MTR.

We were also briefed about the complexities in dealing with the community as MTR Corporation places great importance on community relations to ensure success of the project. Beside newsletters, regular interactions were held with the community during important occasions such as the Mid-Autumn Festival to establish a close rapport with the community. The visit ended with a site walk around the West Kowloon Terminus construction site.

The visit enriched our knowledge of the various elements of project management such as contract administration, planning control, cost control, quality control, material management, office management inter-phase management and reporting mechanisms, short term rolling programmes, monitoring of implementation schedules against the master programme and recovery measures to accelerate construction progress towards milestones and targets. ■

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