

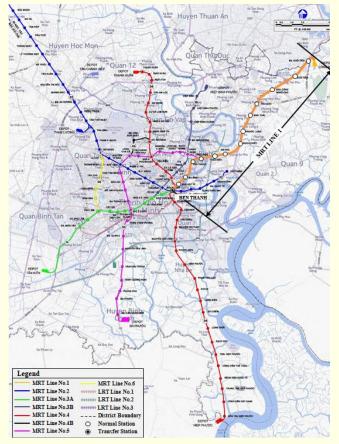
Monitoring scheme for TBM tunnel projects A call for an overarching guidance from ACEEC

The Asian Civil Engineering Coordinating Council (ACECC)
The 46th Executive Committee Meeting,
Feb 29 – Mar 2, 2024, Manila

Dr Binh Le - Senior Lecturer.
Email: binh.le@aru.ac.uk
Course director BEng (Hons) Civil Engineering
School of Built Environment and Engineering,
Anglia Ruskin University, United Kingdom.



Metro lines in Ho Chi Minh city, Vietnam



2020 Urban Transport Masterplan for Ho Chi Minh City (Decision No.568/QD-TTg 2013)

Total: 8 Lines

Total length: 169.34km.

Underground works: 78.34km (46.26% total length).

Completed lines:

Line 1 Ben Thanh – Suoi Tien. Length: 19.7km.

Under tendering/preparation:

Line 2: Ben Thanh – Tham Luong. Length: 11.3km

Line 5: Bay Hien – Sai Gon bridge. Length: 8.89

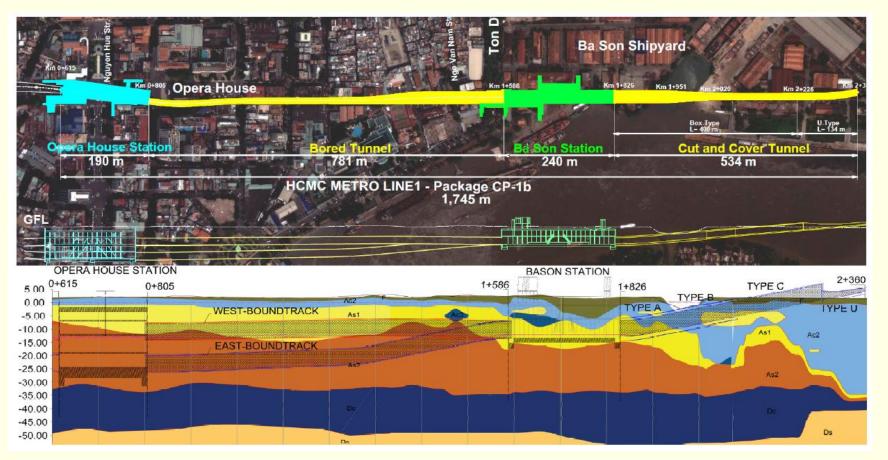
Bay Hien – New Coach Station in Can Giuoc. Length:

14.5km

Other lines: plans approved. Fund preparation.

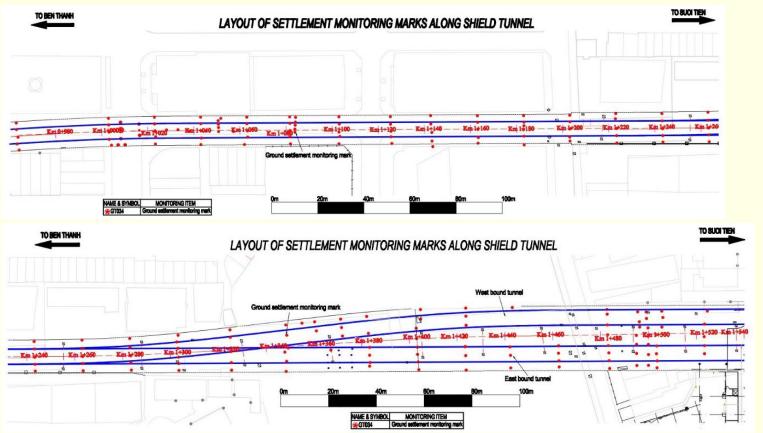


Line 1 Ben Thanh – Suoi Tien Overview



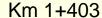


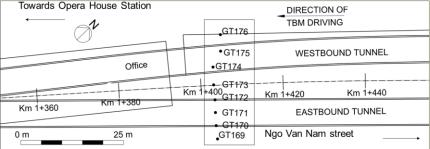
Line 1 Ben Thanh – Suoi Tien Monitoring scheme



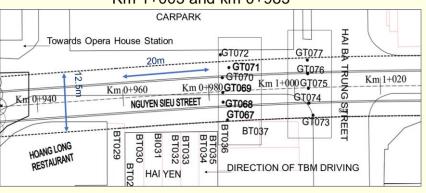


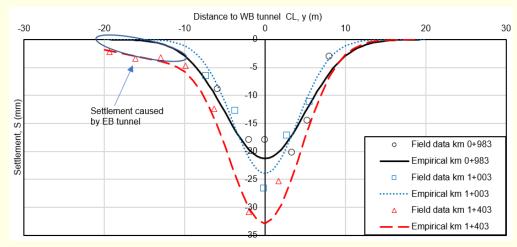
Line 1 Ben Thanh – Suoi Tien **a.r.u.** Traverse ground surface settlement





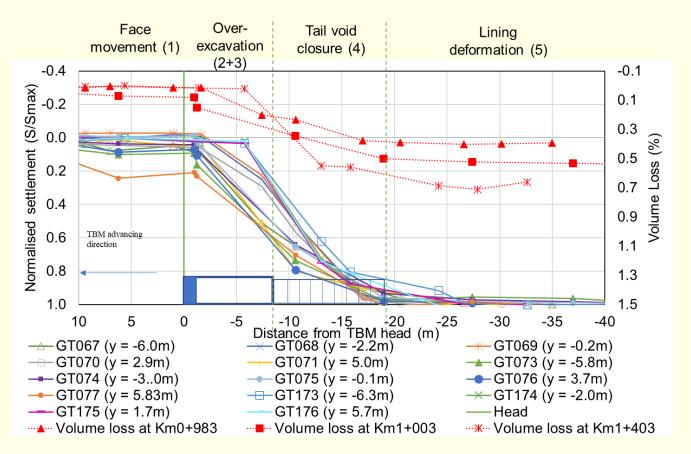
Km 1+003 and km 0+983





Le et al 2020

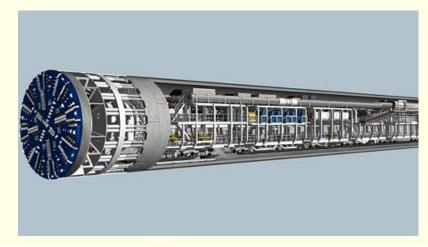
Line 1 Ben Thanh – Suoi Tien **a.r.u**. Longitudinal ground surface settlement

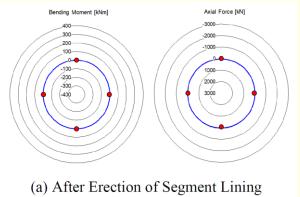


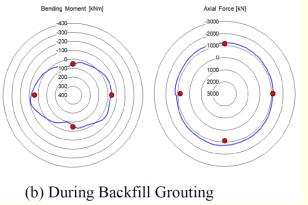


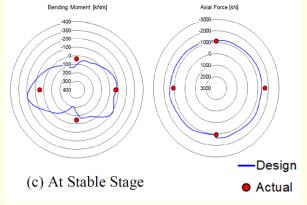
Line 1 Ben Thanh – Suoi Tien Tunnel lining data













A few thoughts

- Monitoring can be very expensive but does not always provide the best value for the money
- The need to avoid reinventing the wheel, help catalyse the projects, avoid potential caveats
- an overarching guidance is needed to share the best practices, case studies, guidance to ensure the quality, reliability of monitoring, reduce the cost, better on financial aspects
- ACECC lead?



Identification of monitoring system objectives and stakeholders

Definitions of monitoring system scope and output requirements

Draft of specification

Design and renationalisation (review, assess and revise)

Procure and commission monitoring system

Discussions

Background monitoring and reporting (pre-construction)

Monitoring and reporting (during construction)

Monitoring and reporting (post construction)

Decommissioning of monitoring system and archiving of results

Monitoring Underground Construction – A best practice guide – British Tunnelling Society (2011)



Discussions best practice for monitoring in Asia?

Overarching guidance – from TC28?

Country specific requirements

Stakeholders' requirements

Project
specific
requirements
for
monitoring