



LTA Circle Line Stages 4 & 5 Singapore Underpinning HarbourFront Interchange Station

Asia

Description of Work

The LTA Singapore 4th and 5th stages of the Circle Line (CCL) comprises 13 underground stations built underground to minimise environmental impact and to free up land for other use. The stations are generally located within developed town centres, commercial hubs and locations that allow for integration with other rail lines.

Part of the scheme involved the conversion of the existing North East Line Harbour Front Station into a new interchange station called HarbourFront Interchange Station, which required excavation and construction beneath the existing structure. GCG (Asia) was commissioned by Meinhardt (Singapore) to assist in the assessment of the feasibility of this scheme. GCG (Asia) Ltd. provided specialist advice in the following areas:

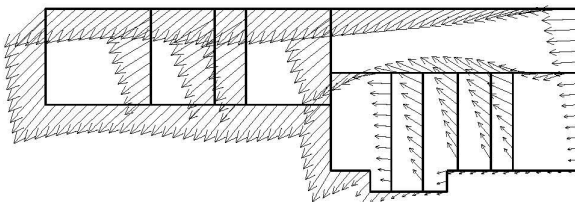
- Review of grouting,
- Examination of underpinning schemes,
- Finite difference modelling to review rock pillar scheme for station box,
- Settlement analyses using FLAC,
- Modelling of potential ground water response during construction.

Client: Meinhardt Singapore

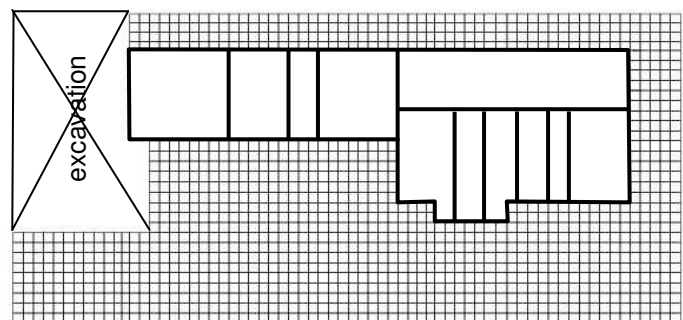
Date: 2002

Estimated Project Cost:

HK\$ 11.6 billion



FLAC prediction of existing structure movement due to adjacent excavation



FLAC modelling of the effect of excavation on existing structure