

Secutex® - Common Utility Tunnel, Hongkong

Base Protection & Separation

- **Project name**
Tung Chung New Town Extension, Hongkong
- **Client**
CMSA Co Ltd.
- **Consultant**
AECOM
- **Contractor**
Build King Civil Engineering Limited
- **Product**
Secutex® R 1001





Tung Chung East New Town Extension: Urban and environmental harmony

Located in Hong Kong, this extension project on reclaimed land aimed to accommodate population growth while ensuring a harmonious coexistence with the environment. The project integrates cutting-edge infrastructure, such as 1.7km of Common Utility Tunnel (CUT), that will be constructed under the contract (contract no.: NL/2020/03). CUT is an underground tunnel passage of reinforced concrete construction, housing various utilities, to reduce excavation for future maintenance and energy saving with the District Cooling System.

Conquering challenges with advanced engineering solutions

At the final excavation level, backfill with min. 500mm grade 200 rockfill, followed by 75mm blinding layer, serves as the firm flat platform for the underground tunnel slab casting. However, the risk of fill material being polluted during the placement of granular rockfill over the existing poor / fine-grained soils is likely to occur. The contamination would adversely influence the engineering properties of the rockfill and thus reduce its load-bearing capacity.

Innovative geotechnical strategies: Securing long-term structural integrity

Therefore, the project consultant specified a layer of high-strength filter geotextile before the placement of rock fill to separate and filter out the existing poor subgrade. The filter geotextiles act as a barrier against the migration of fine particles from the subgrade into the granular fill and allow water to pass through while effectively preventing the mixing of different soil types. This approach contributes to the long-term stability and performance of constructed structures.

Secutex®: Synonymous with strength and efficiency in geotextile solutions

Naue Secutex® needle-punched (mechanically bonded) nonwovens are robust geotextiles capable of withstanding harsh installation conditions and challenging construction loads. The exceptional high puncture resistance and elongation capacity of Secutex® R 1001 ensures excellent resistance against damage under the intense loading of the overlaying structure and angular backfill as required by the project consultant effectively. In addition, the wider roll length Secutex® R 1001 (5.8m wide) reduces the nos. of overlapping joints required and indirectly reduces the construction cost & time.

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