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### **CASE HISTORY**

A 35 m high reinforced slope in Taichung City, Taiwan

PRODUCT TENAX TT 601 SAMP

mono-oriented geogrids

LOCATION Chung-Hsin Village Taichung City
OWNER A private investment group
PROJECT Plato Engineering, Nelson Chou
CONTRACTOR Johnson Contraction Co., Ltd

Reinforced slope two months after construction

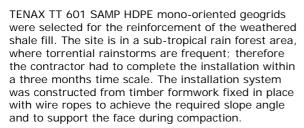
# **PROBLEM**

In the central part of Taiwan, a housing real estate scheme required to extend its construction on top of a mountainous area. The property owner planned to maximize the usable land space to fit in luxury villas and townhouses. In order to create more space for new housing, the engineers had to consider building a 35 m high wall, about 60° steep, with 250,000 m³ of excavated backfill soils on a V-shaped valley. The fill soil was excavated from a nearby hill. Considered design inputs were the environmental impact, the aesthetics, the maximization of usable space and the full utilization of available on-site weathered shale for backfill soil.

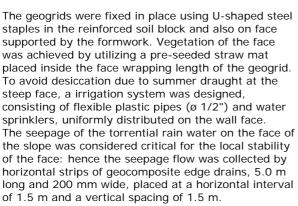


## **SOLUTION**

Several design and construction options were considered and a cost effective decision resulted in the construction of a 35 m high geogrid reinforced slope. The 35 m high wall consists of a stepped slope with 5 m high partial slopes at 2:1 (V:H) and 2.5 m wide berms. The main design considerations included seismic factors, existing backfill, adequate sub-surface and backfill drainage, vegetation of slope face and increase of development space.









# CONCLUSIONS

The successful completion of the 35 m high geogrid reinforced soil wall achieved the following objectives:

- low cost, fast construction and easiness to shape the slopes;
- fast and excellent vegetation of the face;
- excellent stability: after five years of monitoring, only minimal base and face movements were recorded;
- positive drainage: low pore pressure was noted in the reinforced block while the culvert discharges a continuous high flow. Hence this project shows that good geosynthetics engineering can provide a solution even to extremely difficult geotechnical problems.



