

## CASE HISTORY

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### GROUND IMPROVEMENT SOLUTION USING TGC REINFORCEMENT GEOTEXTILE FOR CONSTRUCTION OF RETAINING WALL AT INDONESIA INDONESIA



#### Ground Improvement application

Client:	Products used:
	TGC 110/15
Main contractor:	Quantity supplied:
	7500 SQM
Manufacturer & Supplier:	Year of construction:
TECHFAB (INDIA) INDUSTRIES LTD.	

#### Project description:

It was decided to construct a road at Kalimantan, Indonesia for better accessibility within the city limits. By having this road at place it will decongest the city main roads.

TechFab India Industries Ltd, India has supplied the product required for Ground Improvement in the said project.

#### Project Challenges:

In order to construct the road and maintain the level, it was decided to construct the RCC retaining wall on one side of the road with crash barrier at place. But due to geological conditions of Indonesia it was difficult to obtain good frictional soil required for backfilling or else it would have become very expensive project as a whole due to amount of frictional soil requirement.

Due to poor soil gradation (more clay content/ fine particles) it was sure that there will be uneven settlement or deformations at road top, hence Ground Improvement was required in order to dissipate the pore water pressure followed by Base Reinforcement.



Site preparation



During heavy rains

#### Solution:

The design of the walls was carried out using BS-8006 / FHWA-NHI-00-043 guidelines and comprised checks for external, internal and global stability under static and seismic conditions. But due to poor soil conditions it was suggested to use Composite product which performs multiple functions like Separation, Filtration, Drainage & Reinforcement. By having Separation layer an amount of frictional soil can be reduced drastically, by having Drainage function, pore water pressure can be dissipated immediately and by having Reinforcement Function any uneven settlement or deformations on road top can be avoided.

Hence it was decided to supply TGC 110/ 15 Reinforcing Geotextile for Ground Improvement.

## Salient Features of the Project :

Geotextile Quantity: 7,500 Sqm

Site Soil Condition: Finely Grained soil with less than 50% clay content.

## Execution:

RCC wall is constructed on one side to match the road level on both the sides. Existing soil was compacted then TGC 110/15 was laid over prepared surface without any wrinkles. Frictional soil was placed over the Geotextile, which was further compacted to get 95% MDD.

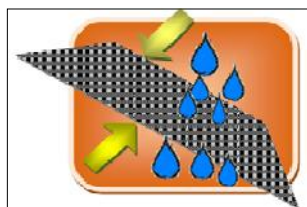
TechFab India Industries Ltd., India have successfully supplied 7,500 Sqm, matching 100% project requirement within given time period.

## Product Introduction:

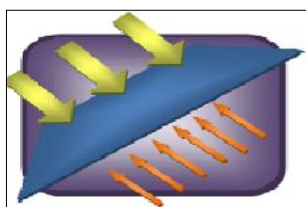
TechFab TGC Series Reinforcement Geotextile is highly versatile multi-functional Geosynthetic with a wide range of applications in diverse areas of civil engineering. The product consists of a polypropylene needle-punched non-woven Geotextile reinforced with high tenacity polyester filament yarns in the machine and cross-machine directions. The reinforcing yarns are strongly bonded to the non-woven base by a highly advanced weft insertion warp knitting process ensuring fully composite action.



The mechanical and hydraulic properties of TGC allow it to perform the functions of separation, filtration, reinforcement and drainage. The nonwoven component of TGC performs the functions of separation, filtration and drainage and the polyester filament yarns perform the function of reinforcement.



**Filtration**



**Separation**



**Reinforcement**



**Drainage**

TGC is manufactured by Techfab (India) Industries Ltd., the largest manufacturer of Geosynthetics in India, satisfying stringent quality standards. The specifications of the product are backed by extensive in-house testing and also third party testing at internationally renowned independent accredited laboratories like BTTG UK, tBU Germany, BICS Laboratories Ltd. UK etc. The TGC products are CE certified.

German Railway recommends the use of TGC in sites where the bearing capacity of the existing soil is low. The tensile stresses developed due to the loads are taken by the TGC and thus the load carrying capacity of the ground increases.

TGC products are backed by excellent technical support and pre and after sales service from Techfab India's highly qualified and experienced team of engineers.

**Advantages of TechFab TGC Reinforcement Geotextile:**

- 1) Combined Separation, Filtration, Drainage and Reinforcement functions.
- 2) High Permeability.
- 3) High Tensile strength up to 400 kN/m in Unidirectional and 100/100 kN/m in case of Bi-directional applications.
- 4) Easy to lay and seam.
- 5) Low construction cost as it is possible to reduce the thickness of Granular fill by use of this material.
- 6) Low construction time.
- 7) Low surface deformation.



**Installation of TGC Geotextile**

**Conclusion:**

The Project was successfully completed.

**For further details kindly contact :**

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