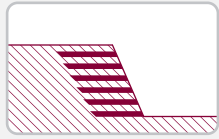




KORDÁRNA

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REINFORCED EARTH STRUCTURES



Velká Vranča – Hrdinka

access road in Javorníky mountain range

country: Czech Republic

realization: July 2001 – October 2003

material: ARMATEX® G 80/30 , 110/30

..... 100.000 m²



ARMATEX® G

woven geogrid from high-strength PET with PVC adjustment for soil reinforcement

purpose of usage:
soil reinforcement for maximal slope of embankments



The construction is a substitute for the road leading from Lysa pod Makytou from the Slovak Republic to the Javorníky Mountains. Thus the mountain chalets Javorka, Kohútka, Portáš, Spartak and private cottages had been accessible for motor vehicles only from the Slovak side so far.

The route starts under the car park at the end of the Velka Vranča valley and winds its way upwards along the Vranča brook through a mountainous region in difficult terrain conditions, through the wood and along pastureland where, after several turns, the road joins the way to Slovakia in a mountain saddle.

In order to minimise re-allocation of land and subsequent adverse impacts on landscape, all earth constructions were designed as reinforced. Embankments were reinforced with woven polyester geogrids **Armatex® G 110/30** and **80/30**, in places with steel reinforcing netting in the slope face.

After evaluation of expenses and demands for realization of embankments' reinforcement (where wire netting was used too) the project was changed. There was only used the system of reinforcement by **Armatex® G** geogrid for the other embankments with height up to 18 metres.



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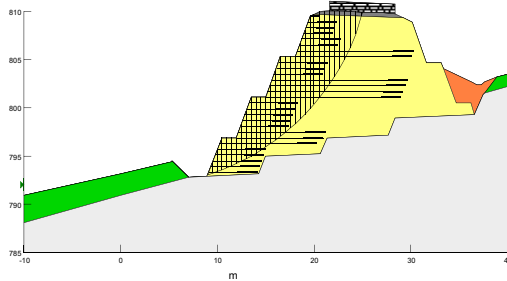


Factory Production Control
Certificate 0799-CPD-19



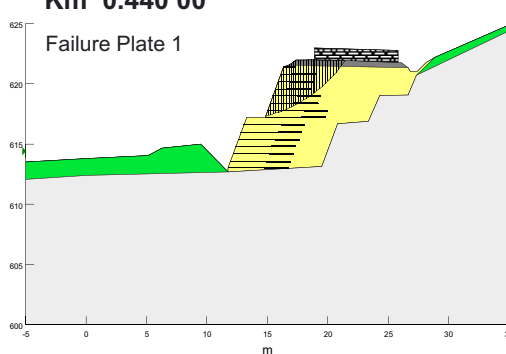
Velká Vranča - Hrdinka Javorníky mountain Km 2.170 00

Failure Plate 4



Velká Vranča - Hrdinka Javorníky mountain Km 0.440 00

Failure Plate 1



The construction proceeded in the following stages:

- The boarding, which helped to keep the shape and inclination of embankment, was installed on pre-prepared terrain
- After that there were placed stripes of geogrid **Armatex® G** gradually layer after layer
- Laid stretched manually and anchored provisionally by steel clasps (curved irons 6mm)
- On the edges of embankment there were always used narrow stripes of nonwoven geotextile, which prevented falling of soil through the meshes of geogrid
- Reinforcement elements were buried by 15 cm layer of compacted gravel sand (the sand drainage course overall thickness in the footing bottom is 30 cm, elsewhere in the embankment it's only 15 cm)
- The first layer of clayey fill was spread and compacted on the sand layer
- Sandy soil and anti-erosive geotextile overgrown with grass were used in face
- After the proper compaction of the first layer had been checked, the second layer of clayey soil was spread and compacted

- On flatten joint there were again placed reinforcing geogrids **Armatex® G**. Geogrids were stretched and anchored provisionally by steel clasps. Reinforcement was buried with a sand layer (sandy gravel, coarsed gravel), thickness 15 cm, which was subsequently compacted by 4 passes of vibratory roller.

Further process was in this accordance up to the prescribed level of ground surface.

The construction is located in the Protected Landscape Area Beskydy, so it was designed to minimize its negative impact on the surrounding environment. This is why the road won't be accessible for all vehicles, it is only a one-lane road (width 3 m with widened areas in switchbacks) with passing points and the road will be subject to a special traffic regulations controlled by signal lights. The road overcomes the altitude difference of 290 m (590-880 above sea level.) in a distance 2.8 km.

This road was given to use in autumn 2003.

investor:
village Nový Hrozenkov

designers:
DOPRAVOPROJEKT, a.s., Brno
VANER, s.r.o., Liberec
SKANSKA DS, a.s., Olomouc

geological survey:
GEOSTAR, s.r.o., Brno

analysis of earth embankment:
SG-GEOTECHNIKA Praha, a.s.

realization:
July 2001 – October 2003

