

Secugrid®

Geogrid-Reinforced Steep Slope

Project Name
Feyzin Fortress, Rhône-Alpes region, France

Client
Community of Feyzin

Design (geogrid-reinforced steep slope)
BBG Bauberatung Geokunststoffe GmbH & Co. KG,
Espelkamp, Germany

Planner
Vivalp S.A., Villeurbanne, France

Products
Secugrid® 80/20 R6





Fig. 1: Naue m³ Steel P (wrap-around method)

Geogrid-reinforced soil structures offer designers several options and thus provide a high degree of flexibility and freedom in the design of facing systems. At the Fortress of Feyzin, 10km south of Lyons in the Rhône-Alpes region, this allowed a disused military base to be converted into an attractive recreation area.

The Fortress of Feyzin was built in the 1870s as part of a chain of defence works in the greater Lyons area. Over 120 years, it was a regimental site.

Challenge

The community of Feyzin took over the building and a development project was launched. It aimed at restoring the fortress and turning it into a tourism and leisure centre. The architecture of the fortress and its grounds, characterised by significant free space, proved ideal for the construction of equestrian facilities: the roofed horse-riding area and an open riding area both lend themselves to additional outdoor activities.

Of course, the new facility planning had to carefully account for the existing building, which is considered a heritage site. It had to fit into the existing historical structures, such as walls, gates and balustrades. Also challenging, the redevelopment needed to be visually appealing (e.g., green with vegetation) as soon as possible.

Solution

The designers opted for reinforced steep slopes using the Naue m³ Steel P system. The Naue Steel P system combines Secugrid® geogrid reinforcement with long-term (galvanised) steel mesh facings to create reinforced soil structures adaptable to various slope inclinations.

Advantages of the system at a glance:

- Long-term stability even with slope inclinations up to 90°
- Ecological benefits due to the use of local soils (savings in transport costs and conservation of natural resources)
- High economic efficiency
- Quick and easy construction
- Green solution

The slope has an inclination of 68° and a height of up to about 9.5m. A Secugrid® geogrid was placed in layers, each of which was covered with a 70cm thick layer of compacted fill and then folded upwards. Locally available soil was used as the fill.

The Secugrid® geogrid, which is made of stretched, monolithic flat bars with welded junctions, is robust, and easy to handle and unroll on site. It is therefore more economical compared to conventional construction methods in case that steep slopes have to be reinforced.

Galvanised steel-mesh elements form the facing of the geogrid-reinforced soil structure. A nonwoven geotextile separator placed inside the mesh prevents fines from being washed out.

The steel-mesh elements were prebent to an angle of 90°, and each subsequent layer was placed with a small offset to the one below. This resulted in small berms on which vegetation was established. More than 5.000m² of Secugrid® were installed.



Fig. 2: Facing system Naue m³ Steel P

Secugrid® is a registered trademark of Naue GmbH & Co. KG in various countries.

The information contained herein is, to the best of our knowledge, true and accurate. There is no implied or expressed warranty.

© 2021 Naue GmbH & Co. KG, Espelkamp, Germany · All rights reserved · No. 00169 · Status 17.11.2021

naue.com