

Secugrid® HS

Basal reinforced embankments

Project name

Reconstruction of Oder dyke in Uckermark county,
Polder 5/6, Part 15, Lot 67

Engineer

Ingenieurgemeinschaft WTU GmbH, Bad Liebenwerda

Installation contractor

Streicher Tief- und Ingenieurbau Jena GmbH & Co. KG,
Jena

Product

Secugrid® HS 1000/100 R6





Problem

In the summer of 1997, the largest known flood occurred along the German-Polish border river Oder. Due to the flood situation lasting several weeks, around 5,500 hectares of agricultural land and residential area with about 400 houses were flooded as a result of multiple dyke failures. Several thousand people had to be evacuated.

As a result of the flood in 1997 and subsequent smaller flood events, the dykes showed numerous breaches. These were caused by weak points in the dyke geometry as well as by problems in the foundation soil.

Solution

In order to withstand future flood events, an existing dyke was reconstructed over a length of 3km between the municipality of Friedrichsthal and the city of Gartz. Soil investigations below the old dyke revealed relatively deep soft layers of peat, organic silt and clay. In order to ensure sufficient stability of the new dyke, the geogrid Secugrid® HS was installed as basal reinforcement. The individual

geogrid panels were installed with their main stress direction perpendicular to the dyke axis by using a spreader bar. Adjacent panels were overlapped by 50cm transverse to the direction of installation. Over the entire length of the dyke between Friedrichsthal and Gartz, a total of approx. 63,000 m² of the high-strength geogrid was installed.

The reconstruction of the dyke was carried out by partial removal of the old dyke and a reconstruction as a so called “3-zone dyke”. On the slope, facing the water-side, a geosynthetic clay liner (GCL) was installed as sealing system.

Due to its high robustness and long-term tensile strength, Secugrid® HS contributes substantially to the flood control measures along the German-Polish border.



Fig. 1: Impression of Oder flood in 1997, Germany

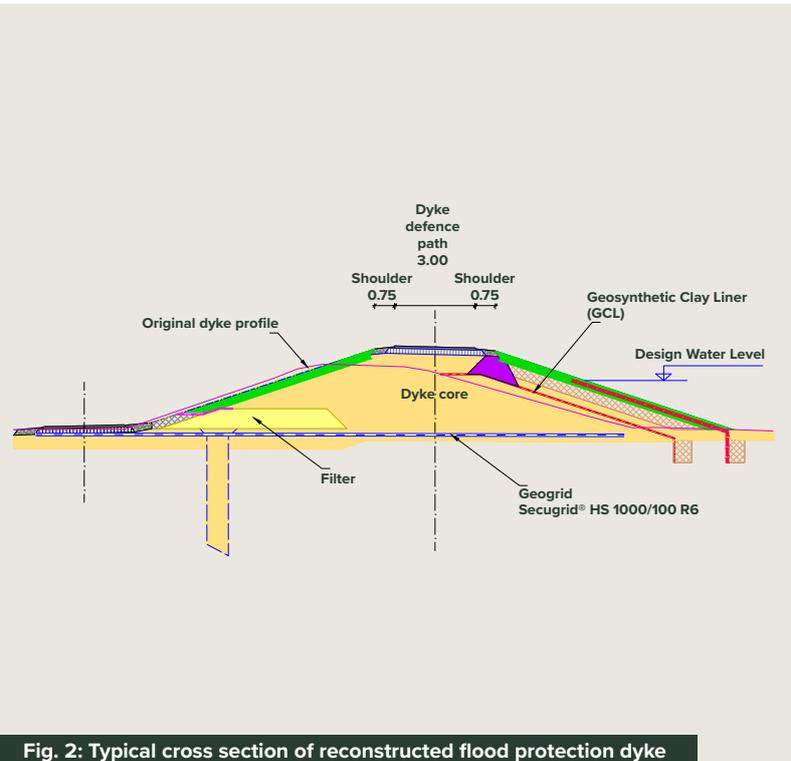


Fig. 2: Typical cross section of reconstructed flood protection dyke