Safety and efficiency in levee construction

Waterside seal

- **Project name**
  Oder levee reinforcement in the Oder-Spree district, Sub-object 17, Neuzeller Niederung, Construction lot 51, Germany
- **Product**
  Bentofix® B 4000 BRAD16

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A look back

The flood defences in the Neuzeller Niederung showed considerable stability problems during the Oder floods at the turn of the millennium. Only intensive levee defence measures were able to avert the danger of a levee breach and flooding of the hinterland. It became necessary to reinforce the levee for a design flood BHW 200 + 1m freeboard. A sufficient level of protection for the hinterland, the Neuzeller Niederung, was to be guaranteed.

Levee reinforcement: 2017/2020

Construction work on the 3km long section of levee began in 2017 and was completed in summer 2020. In this construction section, a new levee was built on former farmland for more than 10 million euros. The levee core was constructed using earthworks materials from the old levee and covered with a Bentofix® B 4000 BRAD16 geosynthetic clay liner on the waterside embankment, which was embedded 1.5 metres deep into the subsoil using a sealing spur. The geosynthetic clay liner fulfils all the requirements of the Brandenburg guideline for the use of geosynthetic clay liners in levee construction, 2016 edition (BRAD16). A 30cm sand-gravel mixture, a 30cm thick layer of old levee material and topsoil with a thickness of 30cm were installed as a top layer and planted with grass seed. The landside levee core with filter and relief layer was made of new material. A geotextile filter was used as a filter layer in the area of the filter prism.

Ecological and economic: a win-win situation

A total of approx. 42,000m^2 of geosynthetic clay liner was installed as a waterside levee seal. This measure proved to be more economically efficient than conventional mineral sealing materials.

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