

Underwater Canal Lining at Water-Power Plant in Dychów

The pumped-storage power station in Dychów was constructed between 1933 and 1936. After 75 years of continuous operation the owner of the facility decided to carry out scheduled maintenance and upgrades. The project was started in 2011 with the renovation of two fissured concrete sections of the approach canal, 9.5 km long in total.



PROJECT DETAILS

Modernization of the approach flume at the hydro-electric power plant in Dychów

LOCATION

Dychów, western Poland

PRODUCTS USED

BENTOMAT, GEOCETEX non-woven & Terralys woven geotextiles

CHALLENGE:

The main challenge was to carry out all construction works during uninterrupted, continuous operation of the power plant. Very small lowering of canal water level was allowed. Therefore an underwater lining solution was sought that would facilitate quick and easy installation.

SOLUTION:

The walls of the canal were revetted and the trough was lined with custom-designed seepage control GCL geocomposite. For liner reinforcement and protection BENTOMAT GCL was needlepunched with additional highstrength woven geotextile. To avoid on site cutting and to minimize the length of overlapped joints, the GCL panels were manufactured to the required length. Barges on cranes were used to install BENTOMAT across the channel, under careful supervision of professional divers. Deployed panels were ballasted with gabion mattresses.

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For tidal sections of the canal a special drainage solution was developed. Gabion mattresses, 3 x 1 x 0,5 m in size, were used for slope revetment. The lower part of gabion mattress was filled with pea gravel wrapped up with geotextile filter. Crushed rock was used for the upper layers of gabion infill. Concrete slabs were constructed on slopes, above the water level.

RESULT:

The use of prefabricated BENTOMAT and other geosynthetics, designed and manufactured specifically for the project, allowed for efficient and safe construction process during uninterrupted, continuous operation of the power plant. This successful project was possible thanks to the close cooperation between the designer, the contractor and CETCO.

CETCO provided design consultancy, products and site supervision.

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