Overflow system dry flood control reservoir

Amiblu Hobas PU Line pipes in the construction project of the Roztoki Bystrzyckie reservoir

Purpose:

- The need to ensure effective flood protection;
  Protection of nature and the surrounding residents.

Criteria:

- Endurance;
- Abrasion resistance;
- Quality;
- Large-diameter pipes.

Country | City	Poland | Roztoki Bystrzyckie
Year of implementation	2021
Application	Tank overflow system
Overall length of pipes	540 m
Nominal diameter	DN 3600mm
Nominal pressure	PN 1 bar
Nominal Stiffness	SN 16000 N/m²
Technology	Hobas
Installation Method	Open trench
Designer	Hydroprojekt Wrocław Sp. z o.o.

More than 20 years have passed since the so-called flood of the millennium, which hit southern and western Poland, the Czech Republic, eastern Germany and Austria, as well as north-western Slovakia. Much has been done in terms of protection since 1997 – but investment is still needed in solutions to reduce the peak of flood waves and to reduce the amount of flows causing hazards in river valleys. An example of such an investment program is the Odra-Vistula Flood Management Project.
The aim of the project is to create flood management infrastructure with related technical measures within the basins of the Middle and Lower Oder, Nysa Kłodzka and Upper Vistula.

Among other projects, the program includes the construction of retention reservoirs in Boboszów, Szalejów, Krosnowice and Roztoki Bystrzyckie.
In the latter location, a dry reservoir was created, which is to receive up to 2.75 million m^3 of water in the event of flooding. Its length is 750 m and its maximum height is 15.5 m. The dam with draining devices is located in the estuary section of the Goworówka, 150 m east of the outermost buildings of the village of Roztoki. The reservoir extends not only in the area of the Roztoki village, but also partly in the neighboring Michałowice. In total, it is to control a catchment area of 34.55 km^2 (98.7% of the total catchment area of Goworówka).

The effectiveness of a solution is most often due to how well it has been adapted to a given problem. The designer of the reservoir in Roztoki Bystrzyckie, Tomasz Wróblewski, knows this very well, which is why he decided on a non-standard overflow system in the form of two underground large-diameter pipelines. The diameter of the pipes is as much as 3600 mm, which will facilitate the rapid flow of water. Tomasz Wróblewski: "...*We designed the overflow devices in the form of 2 pipelines with a large diameter. We wanted these pipelines to be an alternative solution to the traditional solution, in which a cascade, i.e. an open overflow channel, is designed..."*

How will the system work?

Under normal conditions, the water that flows in the Nowinka and Goworówka streams will not be dammed but will only flow through the reservoir bowl. However, when the flow of the water passing through becomes higher than the permissible one, part of the flood wave will be stopped until the flow in the stream begins to decrease again. If, on the other hand, the water level rises very high, its excess will be directed down the stream by overflow devices. GRP pipes were used for the construction of overflow devices
with increased physical parameters, i.e. Hobas CC-GRP DN3600 PN01 pipes SN16000 with a special polyurethane inner lining. A specially designed liner increases the strength of the pipes and their resistance to abrasion – and this is extremely important, taking into account the fact that the water flowing into the tank will carry debris with it.

The construction of the reservoir was completed in June 2021. It is one of the elements of comprehensive protection of people, their belongings, as well as the surrounding nature.

A good design, matching solutions, as well as excellent quality materials make the residents feel safer now, because the final facility will stop any flood wave.

We invite you to watch the video of this project. The video is available on the Amiblu YouTube channel.

https://www.youtube.com/watch?v=Q4H91kHkdwI

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