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Wood Retention System at Ettisbühl, Malters

Client
Lucerne Canton
Transport and Infrastructure Department (vif)

Planning
IM Maggia Engineering AG

Construction supervision
IUB Engineering AG

Construction period
2010–2011

Construction costs
CHF 7 million

Scope of services
- Study of alternatives / physical modelling (VAW)
- Preliminary studies / preliminary design / implementation design
- Tender documents for construction works, hydraulic steelworks
- Implementation project, construction management & supervision, coordination

Description
The Ettisbühl wood retention system in Malters is part of the overall flood protection measures for the Kleine Emme river. Driftwood is discharged up river of the weir system of the Ettisbühl power plant with river widening on the right bank. Discharge into the wood retention system at the stilling basin is controlled using a top gate. Two rows of screen racks hold back 70-80% of driftwood. The racks consist of vertical trash rack bars (DE 350 mm steel tubes) with a centre distance of 2 metres. Construction work began in spring 2010. Earth and hydraulic engineering works made up a significant portion of the works. The area was deepened by 4-5 metres for the driftwood retention system. Following concrete works for the stilling basin, the top gate was installed in autumn 2010. Foundations for the two rows of screen racks were laid in autumn / winter 2010. Ettisbühl HPP which was constructed simultaneously was connected to the grid in May 2011. Works for the wood retention system were completed in July 2011.

Main technical data

- Retention area	65,000 m^3
- Screen rack 1: 49 bars	Length 99 m
- Screen rack 2: 24 bars	Length 50 m
- Stilling basin with top gate	W = 20 m
- Side discharge dam	L = 130 m