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Web-based Environmental Monitoring and Early Warning System as a Part of the Wendling-Ulm High-Speed Railway Project | Germany

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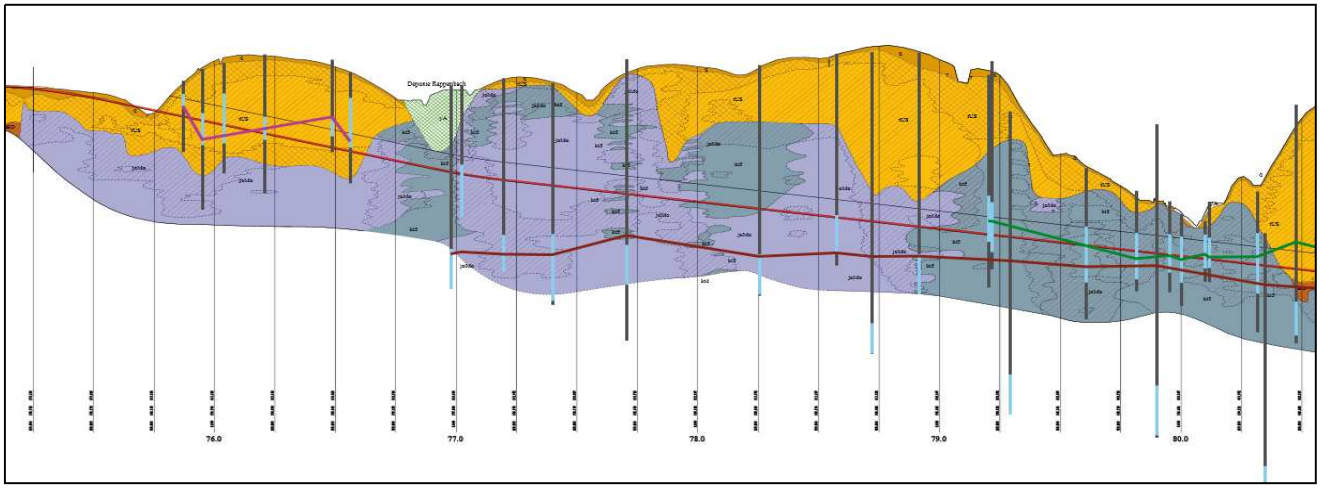

Geological cross section of the Albabstieg (alb descent) railway tunnel which is part of the Wendlingen-Ulm high-speed railway track. Displayed are the Tertiary and Jurassic Rocks of the Swabian Alb, the planned railway tunnel track and the automatic GPRS water level stations.

The Albabstieg railway tunnel is part of the Wendlingen Ulm high-speed railway. A section of the Stuttgart-Augsburg project which is an extensive railway and urban development project in Germany.

Due to the complex ground water situation in the Swabian Alb region, a spatially and temporally small-meshed water level monitoring during railway tunnel construction was required. To comply with these requirements ribeka was assigned to develop a webbased information, monitoring and early warning system.

In the beginning of 2012, automatic GPRS/GSM water level loggers were installed and set into service in all designated monitoring station along the alb descent railway tunnel track.

Since then, the logged water levels are automatically imported to ribekas water monitoring and management system GW-Base® as well as to a newly developed web application.

The web application is based on ribeka's web solution GW-Web® which was extended with necessary project specific functionalities.

Next to basic functionalities like map display and basic station information, GW-Web® offers time series diagrams of water levels, water analysis parameters and climate data, display of borelog and station construction data as well as a sophisticated document and user management.

Amongst the special functionalities are multible geological cross sections included. With real-time water level display, the display of the tunnel face advance and a comprehensive automatic warning system concerning water level and analysis parameter threshold.