

Expansion of the Frankfurt International Airport Soil filter for dewatering of Runway Northwest

Characteristics:

- Surface of the soil filter:
 $8 \times 2,500 \text{ m}^2 = 20,000 \text{ m}^2$
- Volume of the soil filter:
 $8 \times 2,250 \text{ m}^3 = 18,000 \text{ m}^3$



Soil filter

Scope of Work:

- Developing a drainage plan concept as part of the planning approval procedure of 2007
- Pre-planning
- Design of the soil filter
- Developing building plans on scales 1:200, 1:100
- Cost estimation / Cost calculation
- Detailed planning
- Preparation of and contribution to awarding of contract
- Construction site management
- On-site construction supervision

Description:

The development of the drainage plan for the expansion of the airport was carried out as part of the planning approval procedure, which provides the following drainage system for the runway Northwest: drainage of rainwater in slot channels, levelling of outflow via basins, mechanical-biological cleaning in vertical direction constructed wetlands followed by infiltration through drainage trenches. The entire filter surface of 20,000 m² is divided into 8 separate filters to ensure a flexible operation process, where each 4 filters form together a functional unit with the corresponding measurement and control shafts, a reservoir, a trench and a drain pumping station. The locally available, recycled sand will be used as filter material. The feeding of the soil filter will be done via two longitudinal grooves, which will be excavated against the gradients. To avoid open water area, the channels will receive a coverage. The filter slope runs via horizontal drainage pipes which are relocated in the sole.