



# SIKA AT WORK

## BESKYD TUNNEL WATERPROOFING (OPORETS, UKRAINE)

SIKA TECHNOLOGIES: SIKAPLAN® WP-1100 20HL, SIKA® WATERBAR, SIKASWELL®

SIKAPLAN® WATERPROOFING SYSTEM WITH INJECTION BACK-UP

**BUILDING TRUST**



# BESKYD TUNNEL WATERPROOFING



## PROJECT DESCRIPTION

The first railway tunnel at the block Beskyd-Skotarske, on the border between Lviv and Zakarpattia oblast was built in 1889. After of more than 100 years of operation the number of water ingress points were leading to problems with electric equipment, growing of ice blocks in winter and damaging the track. The old single-track tunnel could no longer satisfy the need of growing railway traffic with Western regions of Ukraine and Europe so the new construction was an obvious solution.

The construction of new two-track tunnel began in 2014. The 1882m tunnel, 8,5m width and 10,5m height was built by drill and blast method in 2017 becoming the first infrastructural project of such size and importance since Ukraine`s independence.



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БУДЕМО ДОВІРУ 



#### REQUIREMENTS FOR PROJECT

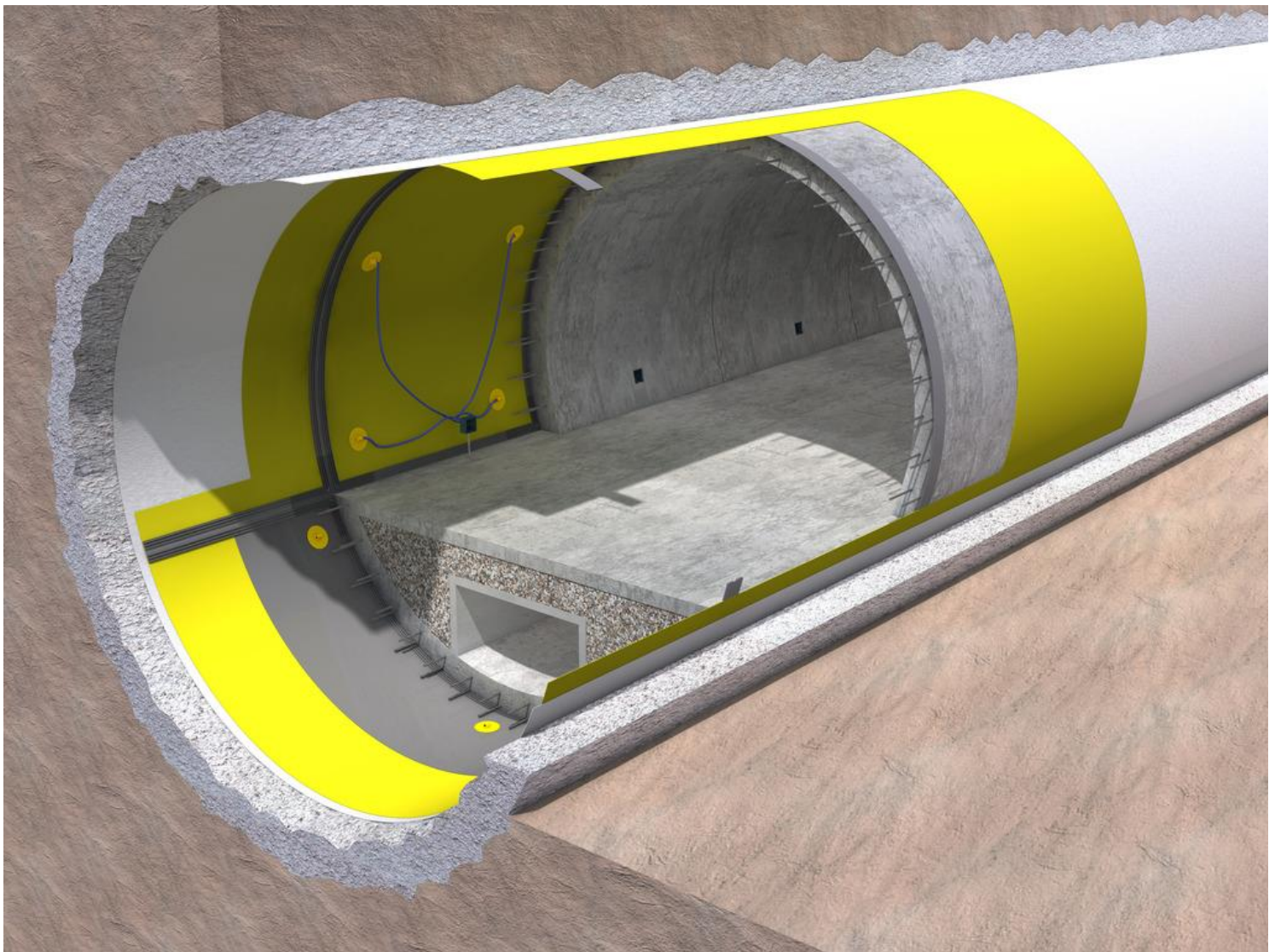
The tunnel had to provide the new level of safety and traffic speed. Especially strict requirements were set to the waterproofing – no water ingress allowed, proven durability and minimum downtime for repair works. The waterproofing system also had to be installed in a short period going along with other construction processes.

#### SIKA SOLUTIONS

The pressurized full circle membrane waterproofing is the most effective waterproofing solution. The **Sikaplan WP® 1100-20HL** PVC membrane was chosen for its proven durability and cost effectiveness. Every welded seam was checked by air pressure to prove its integrity.

By installing the **Sika® Waterbars** the tunnel waterproofing system was divided into more than 300 separate segments with no possibility of water migration between them in case of membrane damage. The **Sika® injection flanges and tubes** were installed in each section to provide injection back up. This solution allows to easily localize the damaged area and restore its waterproofing properties by injecting acrylic compound providing the minimum possible down time and repair costs.

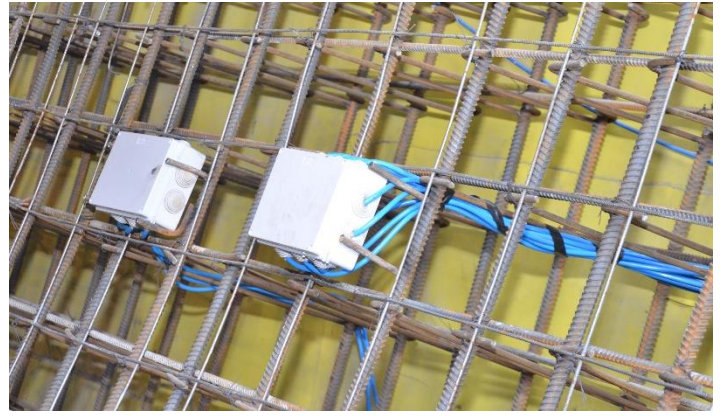
To provide even higher safety all working joints were additionally waterproofed by **SikaSwell® P** hydrophilic profiles.



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#### PROJECT PARTICIPANTS

**Owner:** Ukrzaliznytsia

**Main contractor:** Interbudtunel

**Supervisor:** PORR

**Designer:** Ukrspetstunelproekt

**Consultant:** D2

**Waterproofing contractor:** Giskon

**Sika Ukraine:** Konstantyn Sholudko, Artem Zakharov



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