

## SLOPE PROTECTION ON R1 NORTHERN BYPASS BANSKA BYSTRICA, BANSKA BYSTRICA, SLOVAKIA

### Slope Protection

#### Problem

The slopes beneath three bridge structures at the Rudlovska Interchange needed to be protected against erosion. Since the construction program for these works was during winter, the proposed solution of rocks set within concrete, was not possible. Furthermore, this rigid armour system could be susceptible to cracking due to differential settlement.

An alternative solution was required at bridges BB 211-00, BB 213-00 and BB 214-00 and structure BB 106-00.

#### Solution

Reno Mattresses were selected due to their flexibility, ease of construction and the competitive installed cost.

The mattresses were placed on the slopes under the bridge abutments and where there was a risk of erosion due to stormwater run-off. The Reno Mattresses were manufactured from double twisted hexagonal woven steel wire mesh.

Longevity is ensured as the wire mesh was heavily galvanised with GalMac® (Zn-Al 5%) alloy.

The 23cm thick mattresses were filled with stones at the project site to form flexible, permeable, monolithic structures for erosion control projects. Local stone was used to fill the mattresses.

In some locations and due to the fact that the mattresses were installed on a relatively steeply graded slopes, they were secured and prevented from moving by using ground anchors.

**Client:** GRANVIA a.s.

**Designer / Consultant:** DOPRAVOPROJECT a.s.

**Contractor:** GRANVIA CONSTRUCTION s.r.o.

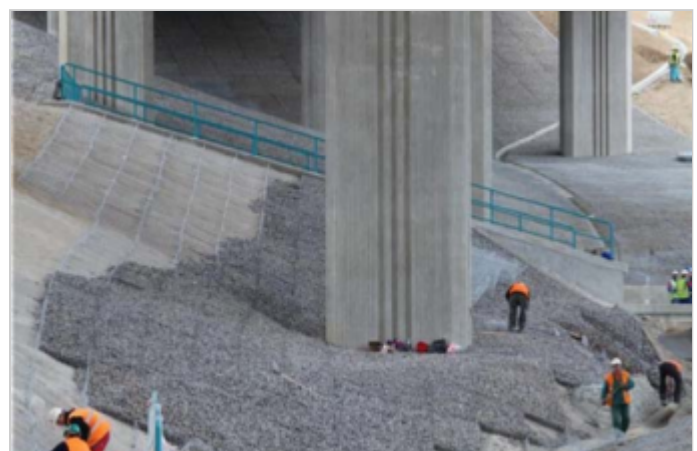
**Products used (Qty.)**

- Reno Mattress n / a

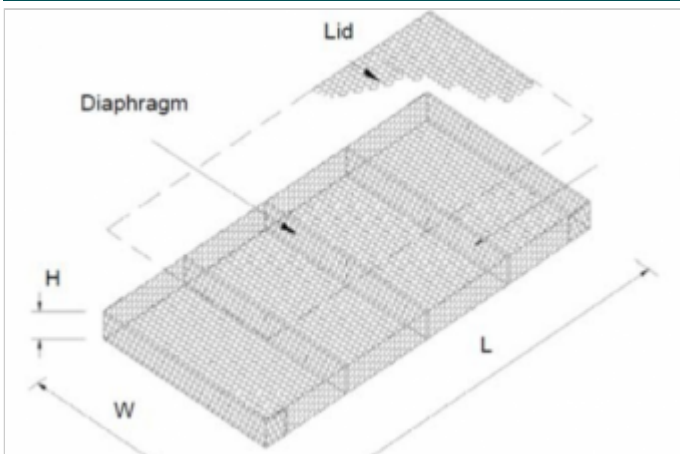
**Date of construction:** 09/2011 - 08/2013



Start of construction activities



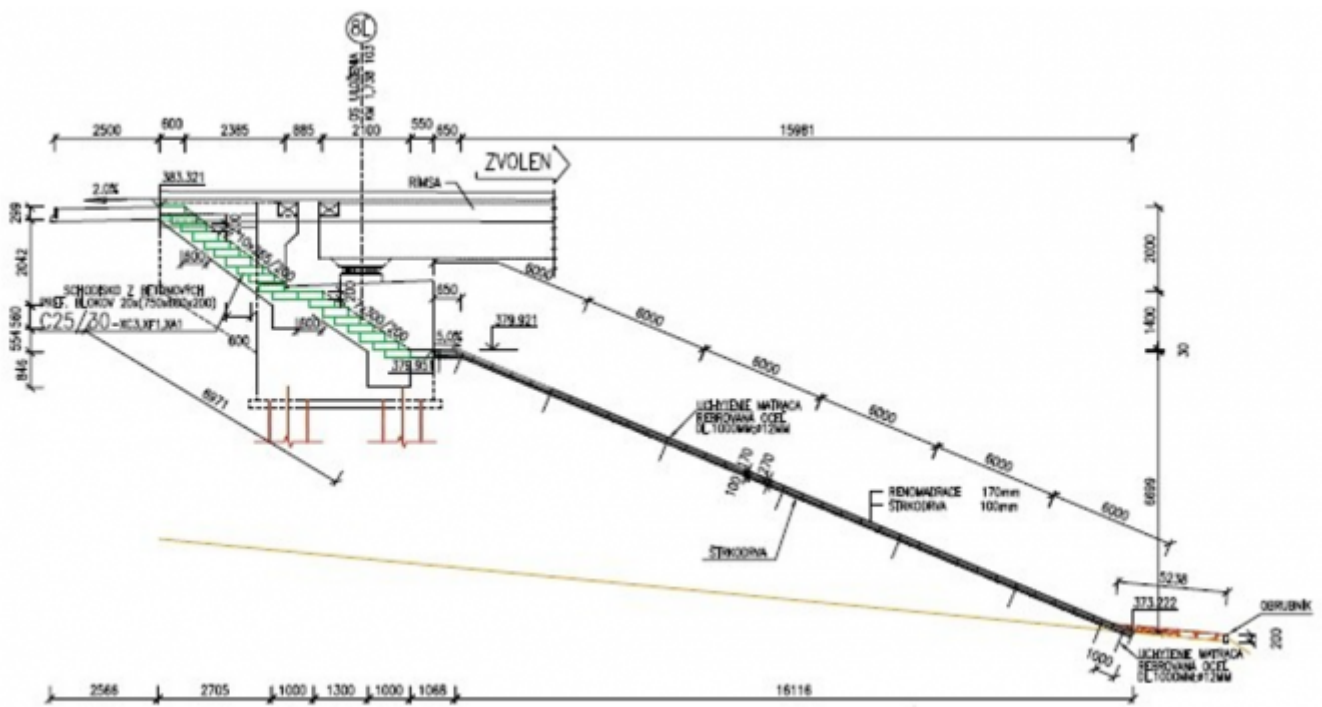
During construction activities



Reno Mattress



After construction



Typical cross section