



Road Rehabilitation Sinkhole Repair N14/P158-1, Centurion, Gauteng

Case Study

Project:	Road Rehabilitation, National Route N14/P158-1		
Client:	GauTrans	Date:	August 2006
Consultant:	Vela VKE	Product:	RockGrid™ PC 100/100
Contractor:	South Sound Civils	Quantity:	3 250 m ²

The existing road surface in this section exhibited a large deformation due to subsidence. After the problem area was identified and the traffic temporarily deviated on this national route, construction commenced. The road formation was removed to a depth of 300 mm, and the deformed area was filled to form a level working platform on which to place the geogrid. **RockGrid™ PC 100/100**, a composite polyester reinforcing geotextile with high biaxial strength at low strain (> 45 kN/m at 5 % strain) was selected for the remedial work. The **bidim®** fleece component protects the polyester yarn from mechanical damage and reduces pore water pressure along the plain of the geotextile, thereby improving the shear resistance of the soil/geotextile interface.

Sinkholes are a huge problem in the Centurion area. These are a consequence of the lowering of the water table in the dolomite, creating cavities that ultimately lead to subsidence. High-strength, low-strain, creep-resistant reinforcing geogrids are the ideal geosynthetic solution in these areas to counter catastrophic failure of roads and structures. The consultants, Vela VKE, sought design assistance from specialist geotechnical engineers, ARQ.

An overlap of 500 mm between adjacent roll widths of 5.0 m was an installation requirement. Sand was placed between the overlap to create friction between the layers.

Nails 15 cm long with washers were used to peg the **RockGrid™ PC 100/100** down to hold the fabric in place during placement of the fill layers.

Back-tipping followed to prevent machinery from driving on top of the **PC 100/100**, thereby incurring damage to the reinforcing elements.

Once completed the road was resurfaced and re-opened to traffic.

