

APPLICATION

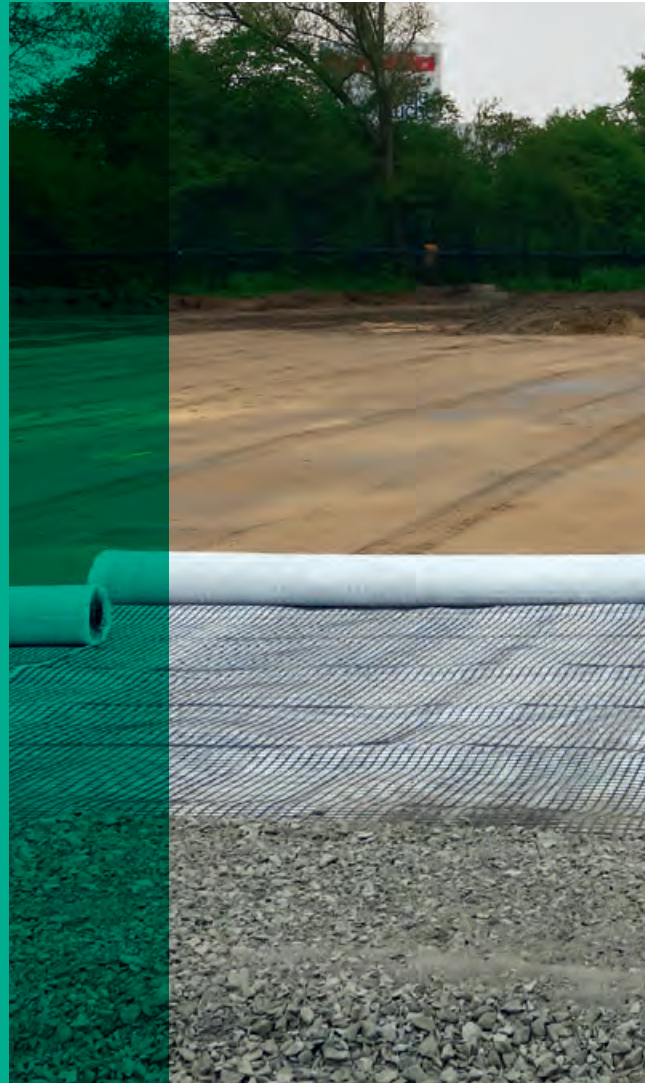
in practice

Extension of the Sürenheide (Gütersloh) A2 motorway rest area

Construction period:	May – September 2017
Location:	33415 Verl, A2 motorway in the Hanover direction
System:	BEGRID TGV 30/30 S Geogrid with non-woven geotextile
Quantity:	5,000 square metres
Comment:	The need for costly and extensive soil replacement was eliminated

By using BEGRID TGV Geogrids, it was possible to achieve an optimal overall structure that absorbs and evens out the effects of any subsequent settlement of the subsoil.

Top image: quick installation of the BEGRID TGV Geogrids; left: the inhomogeneous conditions of the subgrade soil; right: placing fill material on the geogrids





Extension of the Sürenheide (Gütersloh) A2 motorway rest area

Due to the increased traffic volume on the A2 motorway in North Rhine-Westphalia, additional parking spaces were required at the Sürenheide (Gütersloh) rest area. The extension of the motorway rest area was to increase the number of lorry parking spaces from 17 to 78 and the number of car parking bays by 28 in each case.

The advantages of BEGRID TGV:

- Evens out any settlement
- Increases the load-bearing capacity of the base layer
- Rapid progress of construction work
- Can be driven over immediately after covering with fill material
- High design reliability for the project participants
- Inexpensive and economical system solution
- No costly and extensive replacement of soil is necessary
- Very safe and proven construction method



The requirements

In May 2017, BECO BERMÜLLER's applications engineering department was called in by the project participants for advice, since the existing soil on parts of the site was found to be inhomogeneous fill material.

The load-bearing capacity of the subsoil was found to vary considerably – and in all cases fell below the required E_{v2} value of 45 MPa. Extensive soil replacement measures were neither desired by the project participants nor feasible within the time schedule.

In order to minimise the differences in settlement and to achieve the required load-bearing capacity, BECO BERMÜLLER worked out a proposed solution aimed at completing the works on time and reopening the area to traffic as planned.



The solution

After an expert assessment by the application engineers, a proposal based on base layer stabilisation with geosynthetics was presented to the project participants.

The solution involved the construction of an improved pavement structure incorporating the stretched, rigid-node BEGRID TGV Geogrid, which is a biaxial geogrid with an additional non-woven fabric of geotextile robustness class GRK 3. The grid acts in combination with the sub-base material, a crushed rock mixture 0/45, whereby the grains of the sub-base layer interlock with the grid structure. The combined action of the BEGRID TGV and the sub-base material results in a plate effect, which causes the loads to be distributed and transferred across an extended area.

In order to offer the customer the greatest possible assurance, the proposed solution was confirmed by an independent expert report. This gave the project managers maximum planning security with regard to the selected geosynthetic system.



Image on the left: delivery of the sub-base material; right: Sürenheide motorway rest area after completion

The result

By using BEGRID Geogrid, it was possible to achieve an optimal overall structure that absorbs and evens out the effects of any subsequent settlement of the subsoil. Furthermore, it was possible to achieve very good E_{v2} values of up to 176.5 MN/m² at the surface of the unbound sub-base layer, with a sub-base layer thickness of just 40 cm. Because BEGRID TGV is so easy to lay, construction work progressed rapidly and on schedule.

Due to the inherent rigidity of the geogrid, no frequent tensioning of the grid layers during installation is necessary. No folding of the BEGRID TGV at the edges is necessary either.