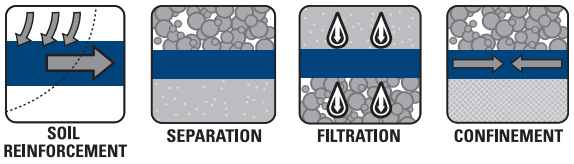
TENCATE Mirafi®



Case Study

application	Subgrade improvement	job owner	Marriott Hotels
location	Wichita, KS	engineer	Krazan & Associates
product	Mirafi® BXG11 & Mirafi® HP Series	contractor	Lusardi Construction Co.

TenCate™ develops and produces materials that function to increase performance, reduce costs and deliver measurable results by working with our customers to provide advanced solutions.

THE CHALLENGE

The City of Wichita with a population of approximately 350,000 has an annual budget of around $70 million for new construction and rehab work. In 2003 alone, 311 projects were bid. The City of Wichita has 6696 km (4161 miles) of roadways to maintain and all new construction and rehabs utilize geogrids for subgrade stabilization under the pavement.

THE DESIGN

The City of Wichita started using geogrids in 1992 for many reasons. They had tried cement and fly ash treated subgrades, but they became brittle, cracked, and subsequently caused cracking in the pavement above causing failures. Time savings was another asset for the City of Wichita. The old soil treatments required the use of pulverizers to blend the soil with the cement or ash and then had to cure for 5-7 days before it could be worked on. In contrast, the geogrids roll out nicely onto the subgrade where base rock is placed on top and it is ready for paving. The city also no longer has to worry about incorrect types of treatments. The soil types in Wichita have such variability, that a uniformed chemical treatment of the entire project was not always the best solution. The City also has reduced the amount and time of testing needed to assure themselves of a solid subgrade. The environmental aspect in Wichita is also an important factor for using geogrids. The wind blows in Kansas almost everyday and residential neighborhoods get covered in the fine dust of chemical stabilization treatments. But above all, the the geogrid option has created substantial cost savings for the City of Wichita from their previous methods of subgrade stabilization.

Mirafi® HP is used to seperate soft subgrades from the base course, while providing the same high strength at low strains as geogrids.

Mirafi® BXG11 geogrid is rolled onto the subgrade, then crushed concrete is placed on top.

THE CONSTRUCTION

The geogrids are rolled out onto the subgrade and then the base course is placed directly over the geogrid. The City of Wichita uses crushed concrete for their base course. Wichita is limited in rock and the use of crushed concrete is an efficient way to recycle their concrete instead of sending it to a landfill. This allows the City to get the same properties of natural crushed stone from a quarry while reducing costs.

THE PERFORMANCE

The City has an approved list of geogrids, which includes Mirafi® BXG11. According to Randy Roths of the City of Wichita, "The Mirafi® BXG11 has met and exceeded our requirements for geogrids in the City of Wichita. We have been extremely pleased with the performance that we have experienced with the Mirafi® BXG geogrid". In addition to the geogrids, the City of Wichita is evaluating Mirafi® HP geotextiles for subgrade improvement. The benefit of the Mirafi® HP fabrics for subgrade stabilization is that they separate the soft subgrades from the base course while providing the same high-strength at low strains that the geogrid provides. The Mirafi® HP geotextiles will prevent any pumping of the subgrade/base course, which will enable the subgrade and base course to stay in tact and thus keeping its strength. Randy Roths stated that "we have experimented with the Mirafi® HP fabrics in some of our severely soft spots and have experience a huge success in getting the stabilization and at the same time preventing any pumping".

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