

## Case Study

|             |                        |
|-------------|------------------------|
| application | Subgrade Stabilization |
| location    | Tolleson, AZ           |
| product     | Mirafi® RS380i         |

job owner  
engineer  
contractor  
date of installation

City of Tolleson  
RAMM Engineering – Tempe, AZ  
Hunter Contracting  
March - April, 2014

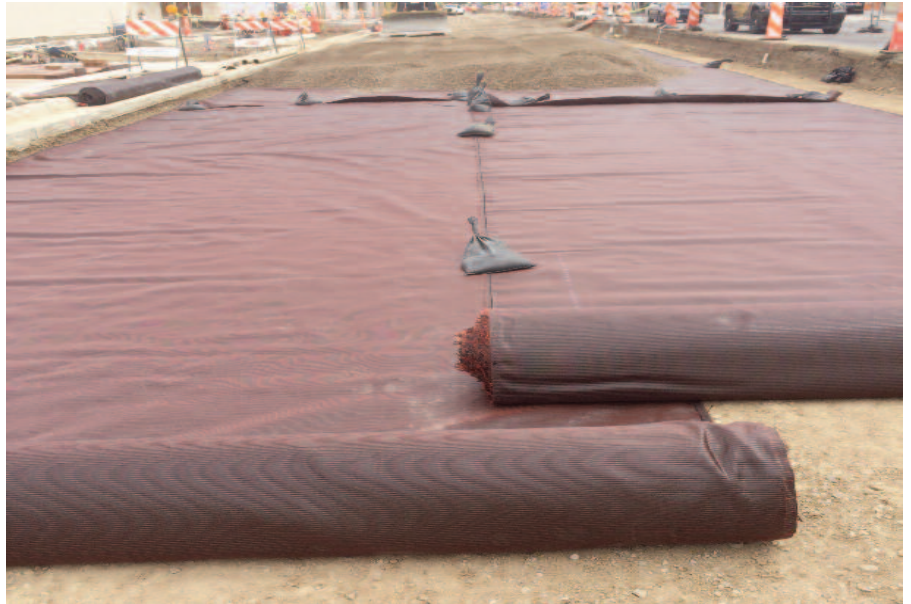
TenCate develops and produces materials that function to increase performance, reduce costs and deliver measurable results by working with our customers to provide advanced solutions.

### THE CHALLENGE

The City of Tolleson, Arizona is located just west of Phoenix. As part of a downtown redevelopment project, Van Buren Street was reconstructed to reduce the number of travel lanes to just one in each direction. This decrease in lanes reduced the traffic volumes and greatly restricted truck volumes and truck types. The street class changed from a major arterial to a local collector. The city desired a cost effective engineered roadway design to incorporate this change.

### THE DESIGN

The Geotechnical Engineer, RAMM Engineering of Tempe, Arizona recommended 3 inches of asphalt over 15 inches of aggregate base based on subgrade soil strengths and proposed traffic loading. The engineer also provided an option for a 3.5 inch reduction in aggregate base for every 1 inch increase in asphalt. RAMM Engineering contacted TenCate Geosynthetics for pavement design alternatives. TenCate engineers used TenCate's MiraSpec pavement design software which incorporates Mirafi® RS-Series high strength roadway reinforcement geosynthetics. TenCate Mirafi® RS380i was selected to provide superior tensile reinforcement, as well as separation for the base course gravel from the subgrade soils. A reduced pavement section of 3 inches of asphalt over 9 inches of aggregate base was realized by including Mirafi® RS380i.



Placing Mirafi® RS380i over the subgrade soils.



Placing base course gravel on Mirafi® RS380i roadway reinforcement geotextile.

Protective & Outdoor Fabrics  
Aerospace Composites  
Armour Composites

Geosynthetics  
Industrial Fabrics  
Synthetic Grass

### THE CONSTRUCTION

The city hired Hunter Contracting to construct the roadway. The roadway was kept open to traffic by staging construction of the east and west bound lanes separately. The original road section was excavated 12 inches to the natural subgrade. The contractor placed Mirafi® RS380i geosynthetic directly on the subgrade followed by 9" of compacted aggregate base. Three inches of compacted hote mix asphalt was then placed on top of the compacted aggregate base. By using TenCate Mirafi® RS380i roadway reinforcement geosynthetic, a stable roadway section was achieved and the project was built on time and within the budget.

### THE PERFORMANCE

With the use of Mirafi® RS380i geosynthetic, RAMM Engineering was able to design the road section allowing for superior subgrade enhancement. Mirafi® RS380i performed as intended and now the roadway that supports the downtown traffic for the City of Tolleson will be supporting that traffic for years to come.

TenCate Mirafi® RS380i provides:

- Superior tensile strength for subgrade support
- Separation of the natural subgrade soils from the Class 2 base
- Lateral confinement of the base section
- Filtration of water from the pumping soils



Undercut to native subgrade soils.



Completed west bound lanes.

TenCate Geosynthetics Americas assumes no liability for the accuracy or completeness of this information or for the ultimate use by the purchaser. TenCate Geosynthetics Americas disclaims any and all express, implied, or statutory standards, warranties or guarantees, including without limitation any implied warranty as to merchantability or fitness for a particular purpose or arising from a course of dealing or usage of trade as to any equipment, materials, or information furnished herewith. This document should not be construed as engineering advice.

Mirafi® is a registered trademark of Nicolon Corporation..

© 2015 TenCate Geosynthetics Americas

0615

365 South Holland Drive Tel 800 685 9990 Fax 706 693 4400  
Pendergrass, GA 30567 Tel 706 693 2226 www.mirafi.com



ISO 9001 FM 61026

**TENCATE**  
materials that make a difference™