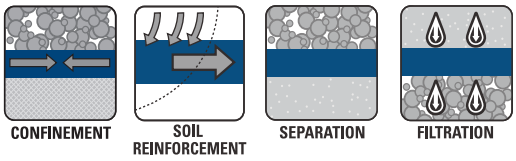
TENCATE Mirafi®



Case Study

application	Subgrade Stabilization	job owner	NC A&T University
location	Bluford Street and Obermeyer Road, NC	engineer	ECS, LLC
product	Mirafi® RS580*i* (2,000sy)	contractor	Larco Construction
		date of installation	June-July, 2011

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

NC A&T University needed to replace two sections of roads running through the campus. The road replacements were part of a larger renovation project. When locating existing utilities, several including fiber optics, gas lines and water lines were located within 2 feet of the road surface.

The existing subgrade material was a poor silty/sandy soil. While the area was dry during construction, the subgrade still exhibited pumping throughout the area (there may have been a wet layer of soil slightly below the surface). In addition, certain areas saw rutting of up to 5" with the truck traffic in the area.

THE DESIGN

ECS, LLC was brought in to make recommendations on the pavement design. Their standard recommendation for stabilizing soft subgrade is to undercut 18" below the pavement section, install Mirafi® HP270 and place 18" of aggregate base course (ABC) material over it.

This recommendation was not an option in these areas due to the location of the utilities. TenCate was called in to assist them with a recommendation requiring less cut and fill. Looking at the higher performance Mirafi® RS580i* and using MiraSpec Flexible Pavement Design Software, we were able to reduce the undercut to 9" keeping the excavation clear of utility disruption. This recommendation was based upon the structural number requirement of the pavement and the subgrade having a soaked CBR no lower than 1.5.

Mirafi® RS580i is placed on the subgrade 9" below the required base course elevation. Rutting of the subgrade material due to the construction traffic can be seen at the right side of the photo.

Recycled concrete being placed on Mirafi® RS580i.

THE CONSTRUCTION

The installation of Mirafi® RS580i went well. In lieu of standard ABC material, the decision was made to use recycled concrete with the same gradation as ABC. The material reacted well when placed on the geosynthetic and proof rolled with no problems.

THE PERFORMANCE

The use of Mirafi® RS580i allowed the road to be constructed without having to relocate existing utilities. In addition, the actual construction cost of using the higher performance Mirafi® RS580i versus Mirafi® HP270 was less in this case since 9 inches less undercut and aggregate was needed.

*Patent pending

Final aggregate lifts being placed over the material.

Base course finished elevation before the final compaction was completed prior to asphalt being placed.

Roadway shown with asphalt base material installed prior to the final asphalt wear surface being placed.

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