TENCATE Mirafi®

SEPARATION DRAINAGE

# Case Study

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| application | Subsurface Drainage |
| location | I-20, Birmingham, AL |
| product | Mirafi® 160N |
| job owner | Alabama DOT |
| engineer | Volkert & Associates |
| contractor | Goodhope Construction & Material Services |

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

Alabama Dept. of Transportation (ALDOT) needed to extend 32.19km (20mi) of Interstate 20 between Birmingham, Alabama and Pell City, Alabama. The project was to widen the 4 lane interstate to a 6 lane interstate with a median and shoulder. The most obvious challenge was the logistics involved with safety, material delivery and working in this high traffic area.

## THE DESIGN

The original installation of the interstate subgrade included a grassed median with drainage outfalls. The original design included catch basins and 91.4cm (36in) pipe connecting each catch basin and a 61cm (24in) outfall pipe to discharge the stormwater runoff in the median areas. The ALDOT felt it was acceptable to keep the exisiting piping underground and to include median drains and some edge drains where necessary. The ALDOT has schematic drawings of median and edge drains included in the design depending on the drainage plane of the pavement. There was also an E-layer of a permeable type asphaltic material that was supposed to aid in the drainage of the subgrade to the median drains. The asphalt layer was going to be between 45.7cm (18in) and 61cm (24in) when completed.

## THE CONSTRUCTION

Median drains trenches were 30.5cm (12in) wide wrapped with Mirafi® 160N that was 2.3m (7.5ft) wide. The trench was fitted with a 15.3cm (6in) HDPE pipe and backfilled with #57 stone. The fabric was pinned to the subgrade using nails and the fabric was overlapped 61cm (24in) onto the base. The 15.3cm (6in) HDPE pipe was attached to the catch basin via an 20.32cm (8in) hole in the basin. There were no compaction requirements on this project for the drainage trench. The elevation was set by Goodhope Construction (the primary contractor) who was responsible for the grading and subsequently made the installation of the trenches much easier.

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## THE PERFORMANCE

The performance of the Mirafi®160N has proven in the past to be exceptional. Many times, project do not call for a filter fabric application in trenches, which can create a breakdown in the trench due to infiltration of fines, clogging of the drainage system or settlement of the system due to the lack of separation between the subgrade and the aggregate base. There were 32.19km (20mi) of trenches installed and about 139,633 $m^2$ (167,000 $yd^2$) of Mirafi® 160N installed on this project in 2004. The project has an estimated finish of July 2005 and will hopefully alleviate the traffic congestion between Birmingham and Pell City, Alabama.

Filter fabrics used in trench applications prevent clogging and decreases aggregate settlement.

Median drains were used ffor stormwater runoff.



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