



Case Study

application	Base Reinforcement
location	Nellie Gale Ranch, Laguna Hills, CA
product	Mirafi® HP570

job owner	William Lyon Homes
engineer	Goffman, McCormick & Urban, Inc.
contractor	All-American Asphalt

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

A new development within Nellie Gale Ranch was being built and there were concerns regarding the long term performance of the city standard pavement design. The consulting engineer knew there would be continual irrigation of the lawns and planted areas which would be harmful to the long term performance of these roads, given the minimal amount of base material used in the structural section. The contractor rarely encountered a wet subgrade, the primary concern was giving additional strength to the pavement section.

THE DESIGN

The required pavement section for streets with-

in this development was 10cm (4in) AC over 15cm (6in) AB. It should be noted that this is the city minimum and approved section. The private consulting engineer recommended that the subgrade soils be moisture conditioned to at least 2% over their optimum content and compacted to a minimum of 90% relative compaction. It was then recommended that the contractor place Mirafi® HP570 directly on the subgrade.

The 15cm (6in) of AB was moisture conditioned as necessary and compacted to at least 95% relative compaction.

The Mirafi® HP570 was selected as the preferred geotextile because of its high modulus at low strain and its high tensile capabilities. These strength characteristics are important in adding to the long term performance of any street section.

THE CONSTRUCTION

The placement of the geosynthetic by All-American Asphalt commenced after the utilities were installed and the compaction of the subgrade was completed. The 15cm (6in) base material was bottom dumped and leveled over Mirafi® HP570. The ability to bottom dump the base course directly on the Mirafi® HP570 does not add cost to the installation of the base material.

THE PERFORMANCE

This is another example where potential long term pavement performance problems were addressed by using geotextiles. The potential problems of an unknown moisture content of the subgrade long-term and the minimal structural design of the pavement section were handled economically by the use of Mirafi® HP570.



Due to heavy lawn irrigation, the long term performance of these roads were in jeopardy. The engineer recommended using Mirafi® HP570 to prolong the life of the road.



After the Mirafi® HP570 was placed, 15cm (6in) of base material was leveled over the textile.

The use of Mirafi[®] HP570 allowed for the construction of the roads where overexcavating was not possible due to the utility depths. All involved in the project are very satisfied with the results.

Goffman, McCormick & Urban, Inc. has utilized Mirafi's high strength geotextiles for use in road and highway applications in other projects in the area after viewing the successful Nellie Gale project.



Mirafi[®] HP570 was selected for this project because of its high modulus at low strain and high tensile characteristics.



Mirafi[®] HP570 will give added strength to these paved roads, increasing the long term performance.

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