

Case Study

application | Base Reinforcement
location | West Covina, CA
product | Mirafi® HP270

job owner | Northgate Market
engineer | Southwest Soils
contractor | Pave West

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

Giving the Northgate Market shopping center in Southern California a facelift with new store fronts and added businesses was not enough to add curb appeal. The existing asphalt parking lot was completely destroyed with severe alligator cracking, block cracking, potholes and uneven sections of pavement. The only solution was complete removal to subgrade with a new pavement section.

THE DESIGN

With tight budget constraints common today on parking lot repair, the engineer needed to provide a pavement design with minimum sub-base thickness and asphalt overlay. The use of biaxial geogrid common in this application was considered but proved too expensive in

the pavement design. The result was the use of Mirafi® HP270 high performance geotextile. Using Mirafi® HP270, the amount of aggregate was reduced by 4", thus eliminating additional excavation of the subgrade and meeting the tight budget set by the owner. As an added benefit, the reduction of the base course produced a total aggregate savings of 44,550 ft³ and a CO² reduction of 44,840 lbs of emissions.

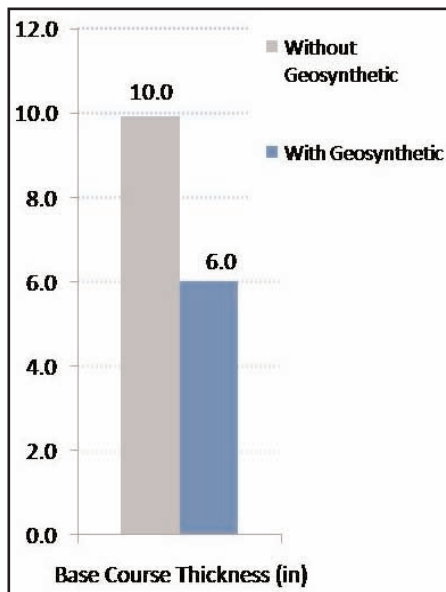


Existing parking lot condition.

Carbon Foot Print Reduction:

Aggregate Thickness Reduction	4 inches
Aggregate Savings	44,550 cubic feet
Fuel Savings	2,360 gallons
CO2 Emission Reduction per Lane Mile	44,840 pounds

Environmental Benefits of Base Reinforcement



Mirafi® HP270 placed over the subgrade.

Mirafi® HP270 offers high tensile strength at low strain in excess of biaxial geogrid along with the more important design benefits of soil separation and water filtration not available from a biaxial geogrid. The lower cost of Mirafi® HP270 compared to a biaxial geogrid saved the project budget.

THE CONSTRUCTION

The distressed parking lot pavement and old subbase were removed to a depth of 8 inches and recycled. Mirafi® HP270 was placed over the prepared subbase using a one foot overlap on roll edges and roll ends. Caltrans Class 2 CMB (crushed miscellaneous base) recycled concrete with stone was placed directly on the Mirafi® HP270 using dump trucks and spread with loaders. The CMB was compacted in a six inch lift using a vibratory roller. A 2-inch thick asphalt pavement was installed over the compacted CMB.



Crushed miscellaneous base placed over Mirafi® HP270.

THE PERFORMANCE

The finished parking lot is at the corner of South Sunset Avenue and Francisquito Avenue in West Covina, CA. The new pavement and fresh white striping completes the Northgate Shopping Center facelift with new store fronts and added businesses. The new design with Mirafi® HP270 provided significant savings in material costs versus the biaxial geogrid and additional savings with a reduction of the base course. The benefits of Mirafi® HP270, high strength, separation and filtration will extend the pavement life keeping up the shopping center appeal for years to come.



Completed parking lot.

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