TENCATE Mirafi®

Case Study

application	Airport Runway Restoration	job owner	Person County
location	Person County Airport, NC	engineer	Talbert & Bright Engineering
product	Mirafi ® MPV		

TenCateTM 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 Person County Airport located near Roxboro, NC averages 75 -100 planes a week on its runway. The airport opened in the 1980's and was designed for planes up to 13,600 kg (30,000 lbs). The runway is in need of an upgrade, and Person County would like to extend the runway to accommodate larger aircraft.

THE DESIGN

According to the airport engineer the subgrade underneath the runway is marshy due to some localized springs underneath the pavement. An underground drainage system needed to be installed to provide additional subgrade support for heavier traffic.

The existing pavement consists of 30.5 cm (12 in) of aggregate base and 5 cm (2 in) of hot mix asphalt surface coarse based on a subgrade CBR value of 4. The pavement needed to crack the pavement surface upon landing and take off.

The design included:

- Repair of existing pavement defects
- Paving fabric waterproofing interlayer
- Bituminous double chip surface treatment
- 2 in (5 cm) hot mix asphalt binder course
- 2 in (5 cm) hot mix asphalt wearing surface

THE CONSTRUCTION

Routine repairs were made to the runway before installing the paving fabric. The unstable areas were milled and repaired per Asphalt Institute recommendations. Excessive crack filling was removed from the existing pavement. Large cracks were filled with hot pour rubberized crack filler.

The runway was swept with a power broom to remove dirt and other foreign materials prior to placement of paving fabric. Asphalt binder AC 10 was applied uniformly at 0.23 gal/yd^2 (1.0 l/m^2) and between 290-325˚F (143-160˚C). Mirafi® MPV was installed fuzzy side down with overlapped 4-6 in (10-15 cm) longitudinally and 1-3 in (2.5-7.6 cm) at the end of the rolls and shingled in the direction of paving. The fabric was placed basically wrinkle free. After installation the fabric was not rolled, however construction traffic was allowed over the fabric.

Prior to surface treatment, Mirafi® MPV was inspected to verify that it is adhered to the pavement and that the overlaps are tightly bonded. Then the first application of CRS-2 emulsion was uniformly spayed on top of the fabric at 0.35 - 0.40 gal/yd^2 (1.6-1.8 l/m^2). Using a self propelled mechanical spreader, 30-35 lbs/sy (16.3-19 kg/ m^2 of aggregate, 100% passing 1 inch sieve, was uniformly spread. This rate of emulsion was needed to saturate the fabric and to bind the stone. Then the stone was rolled with a pneumatic roller. For the second application, an additional CRS-2 emulsion was applied at 0.35 - 0.40 gal/yd^2 (1.6-1.8 l/m^2) and 17-20 lbs/yd2 (9.2-10.9 kg/m2) aggregate was placed again using self propelled spreader. Trucks spreading aggregate were operated backward so that bituminous material is covered before the truck wheels pass over it. The aggregate was rolled with a pneumatic roller. After each application, aggregate were rolled until no

The Person County Airport extended the runway to accommodate larger aircraft. Mirafi® MPV provides a waterproof barrier that extends the pavement life of the overlay.

more aggregate material can be worked into the surface.

The bituminous surface treatments consisted of 2 layers of hot mix asphalt, each 5 cm (2 in) thick. These layers were installed as specified by FAA paving guidelines.

THE PERFORMANCE

In reviewing the Person County project in October of 2005, the new overlay looks very good and they are very satisfied with the performance of their new runways.

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