



Case Study

application | Pavement Rehabilitation
location | Hannegan Road, WA
product | Mirafi® PGM-G⁴ Composite Paving Grid

job owner
engineer
contractor
interlayer installer

Whatcom Co., WA
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Granite Construction
Penhall

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

There was cracking of a thin overlay and excessive traffic for the design of Hannegan Road's approximately twenty year old pavement. There were areas of thick peat bogs that continued to move. The Engineer wanted a way to extend the life of the road, reduce maintenance cost and preserve the pavement condition index with an improved ride quality for a longer time frame and improve the roadways ability to support increased traffic. The objective was to maximize the pavement's performance by doing the following:

1. Reduce the negative impact of moisture intrusion into the base on the structural value and the load bearing capacity of the base.
2. Maximize the ability to reduce severity and delay of reflective cracks to slow pavement deterioration and preserve structural integrity of the pavement.
3. Maximize the ability to spread point load lessening the impact of increased traffic.
4. Maximize performance of HMA pavement section without the expense of digging out and adding structural value to the existing base.
5. Ease of construction and efficient installation to minimize road closure during construction.



Installation of Mirafi® PGM-G⁴ composite paving grid.



Installation of Mirafi® PGM-G⁴ composite paving grid.

THE PLAN

The solution was to install TenCate Mirafi® PGM-G⁴ high strength, multi-axial composite paving grid into a .19 Gals/SY PG 64-22 hot asphalt binder to provide the following:

1. A moisture barrier: Mirafi® PGM-G⁴ fully saturated with the hot PG binder becomes a moisture barrier to protect the base from top down moisture intrusion, preserving the load bearing capacity.
2. Efficient low elongating, tensile reinforcement: The multi-axial Mirafi® PGM-G⁴, is more efficient at dispersing the forces that cause cracking, maximizing delay and reducing severity of reflective cracks, slowing the start of more rapid roadway deterioration after cracks develop and preserving pavement integrity longer.
3. Increase pavement flexural strength: Mirafi® PGM-G⁴ is more efficient at spreading the point loading, improving the flexural strength, adding ability for the roadway to handle the increased traffic.
4. Cost efficient mitigations: Mirafi® PGM-G⁴ provides maximum capability of the pavement section to perform when the expense of removing and improving the structural value of

the base is not possible or too costly. While it will not “correct” a deficient base structural value, it will mitigate the negative impact that top down moisture has on the base load bearing capacity and structure of the existing base.

5. Wide width efficient installation: Mirafi® PGM-G⁴ is available in 12.5’ widths, reducing longitudinal laps by over 50%, is strong but flexible, adding to the ease and speed of installation.

THE PROCESS

The construction process consisted of three steps:

1. Mill and install a leveling course over existing old HMA.
2. Install Mirafi® PGM-G⁴ high strength, multi-axial composite paving grid into a .19 Gals/SY hot PG asphalt binder.
3. Overlay with a 2” lift of well compacted HMA.

Whatcom Co, Hannegan Rd - Grind & Overlay Project	
Existing Cross Section	New Cross Section
Existing old 6" HMA	Final 2" PG 64-22 HMA, Pavement Section
	Multi-Axial PGM G4 installed in .19 Gal/SY Hot PG-64-22 Asphalt
	Final 1" PG 64-22 HMA, Leveling course
	Milled surface 3" of old HMA
Existing AB Base	Existing AB Base

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