

CASE HISTORY

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REPAIR AND REHABILITATION OF PROVINCIAL ROAD P/9, R103 ALBERTON - PIETERMARITZBERG VIA HEIDELBERG & HARRISMITH, SOUTH AFRICA SOUTH AFRICA



Pavement Stabilization

Client:	Products used:
DEPARTMENT OF TRANSPORTATION (DOT)	TECHGLASS AIC (50KN/M)
Main contractor:	Quantity supplied:
M/S. SHISALANGA CONSTRUCTION	
Manufacturer & Supplier:	Year of construction:
TECHFAB (INDIA) INDUSTRIES LTD.	

Project brief:

The National Highway N3 heads through south-western tip of Mpumalanga in the direction of Heidelberg. Wherever N3 has been realigned, the old route has been designated R103. The R103, also known as regional roads connects Alberton with Pietermaritzberg via Heidelberg and Harrismith. The road faces considerable traffic with reckless driving by passenger cars as it is considered as shorter bypass. The rehabilitation of the flexible pavement was carried out near Colenso which is located on the southern bank of the Tugela River.

Condition of road:

The road significantly undertakes moderate to heavy moving traffic loads with reckless driving and is considered as one of the worst roads having single carriageways with short passing zones. The weather remains very changeable with moderate to heavy rainfall and the condition of the road deteriorates very fast. The road was not designed to take such varying EASL's and usually deteriorates very fast with pot holes /patch works are evident in stretches.



Initial Condition of Road

The Solution:

To strengthen the flexible pavement it was proposed to use a Geo-composite which could provide infiltration drainage coupled with tensile strength.

Under existing circumstances, TechGlass AIC (Geo-composite) was proposed as an Asphalt Interlayer below the resurfacing of 50 mm of Bituminous Concrete. TechGlass AIC range is a geo-composite is made from high performance glass fiber roving to form a reticular structural material with a unique combination of fiber glass and polyester Non-woven ,Needle-punched Geotextile with glass fiber tensile ability and the polyester fibre flexibility.



TechGlass AIC 50 over Tack Coat 80/100

The Product:

TechGlass AIC (50 KN/m) was found suitable and selected for the operation.

M/s Shislanga Construction undertook the job of minor repairs. Pot Holes were cleaned and repaired by using hot mix asphalt concrete while cracks that existed on the road > 3 mm were sealed by using bitumen.

Tack of 80/100 Grade sprayed uniformed @ 1.1 kg / Sqm using dispenser. TechGlass AIC was saturated with bitumen by placing with and manual unwinding machine.

Asphalt was laid over TechGlass AIC 50 and compacted with PTR Roller and Vibro Rollers as per the specifications.



Asphalt Overlay over TechGlass AIC 50



Asphalt Compaction with Roller

Technical Properties of TechGlass AIC 50

Properties	Test Method	Unit	TechGlass AIC Type 50
Mechanical Properties			
Tensile Strength M D	ASTM D 4595	KN/m	50
Tensile Strength CMD			50
Elongation at break MD		%	Maximum 3 %
Elongation at break CMD			Maximum 3%
Strength @ 2% strain		KN/m	35 x 35
Glass Filament Pitch	-	mm	15 x 15
TechGeo Polyester Geotextile			
Melting point	ASTM D 276	°C	> 250
Bitumen Retention	ASTM D 6140	Kg/Sqm	1 - 1.1 kg/sqm
Form Of Supply			
Width (m)	2.5/ 5.0 m		
Length (m)	100 m		

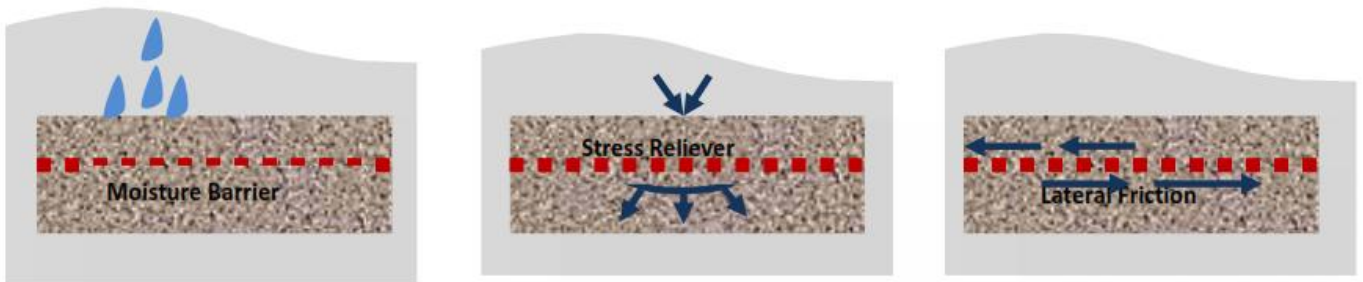


Cross Section of Treated Surface

Benefits of TechGlass:

TechGlass AIC reduces the development of cracks in the surface layer caused by the movement, bending and shearing of the concrete slab or cement bound substrate. The Stress Absorbing Member Interlayer caused by Non-woven Geotextile effect reduces strain in the overlay by promoting Tension Membrane Effect. This property of the TechGlass AIC also reduces the traffic induced tensile strain in the bottom of the asphalt layer that leads to cracking.

Functions of TechGlass:



Road Condition – After 4 Months

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