

PAVEMENT STRENGTHENING AT AIRFORCE STATION, KALAIKUNDA KHARAGPUR, WEST BENGAL, INDIA

Asphalt Pavement Reinforcement

Problem

The Airforce station entry road at Kalaikunda was subjected to severe problem of series of interconnected cracks. Due to the increased traffic, the existing pavement section was not able to survive for its initial intended design life. It was observed at site that the existing pavement had cracks developed on the surface which had deteriorated further into large potholes.

Considering the existing pavement condition and heavy traffic loading it was decided by the client to go for pavement rehabilitation solution that is durable.

Solution

Damaged pavement was required to be repaired by placing an asphalt layer to increase the load carrying capacity of the pavement section so that it can take the design traffic and provide required serviceability. Overlays are still the most common option for extending the life of distressed pavements. While special asphalt mixes can be specified and thicker overlays improve performance, a geosynthetic interlayer can be placed over the distressed pavement prior to the overlay to create an economical, long-lasting overlay system.

The rehabilitation of cracked roads by simple overlaying is rarely a durable solution. The cracks under the overlay rapidly propagate through to the new surface. This phenomenon is called reflective cracking. The geosynthetic interlayer contributes to the life of the overlay by providing stress relief and/or reinforcement.

For reinforcing the pavement, MacGrid® AR 10A.7 was suggested to be provided at the interface of the built up spray grout (BUSG) and bituminous macadam (BM) layer. For ensuring proper adhesion of the MacGrid® to the surface, tack coat is applied over the BUSG layer before laying the MacGrid®.

MacGrid® AR 10A.7 is a reinforcing geogrid material specially developed for pavements. It consists of glass fiber strands arranged in a grid structure with a pressure sensitive adhesive.

Benefits of using MacGrid® AR:

- Reduced reflective cracking.
- Control of differential settlement cracking.
- Reduced surface rutting.
- Longer operational life.

Client: MES Kharagpur

Designer / Consultant: Maccaferri Environmental Solutions Pvt Ltd

Contractor: M/S Ghosh Constructions

Products used (Qty.)

- MacGrid AR 28,050 sqm

Date of construction: 09/2016 - 03/2017



Photo 1: Photograph showing the entry gate of Airforce station, Kalaikunda



Photo 2: MacGrid® AR installation



Photo 3: MacGrid® AR installation completed



Photo 4: Photograph showing the tack coat application prior to overlay



Photo 5: Construction of overlay



Photo 6: Finished pavement structure