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GEOTECHNICAL SOLUTIONS

Reinforcement of Asphalt Structure – Apedwa Bunso Road

Case Study



- Entrepreneur: Ghana Highway Authority
- Planning and supervision: Comptran Engineering and Planning Associates
- Contractor: Sonitra Construction Ghana



Challenge:

- The Apedwa Bunso road is approximately 22 km long, constructed through a rolling forest terrain.
- The Ghana Government initiated this project with the intention of strengthening and improving the engineering and physical traits of the asphalt, to relieve the traffic in this area.
- It was decided to reinforcement the asphalt pavement by the laying of **HaTelit®** geogrids in order to prevent future asphalt cracking.

Solution:

Deploying of the **HaTelit®** geogrids between the layers of the asphalt delays the reflecting of cracks between the lower asphalt layers (the older one) and the upper layers (the new) by increasing the tensile strength of the asphalt.

Asphalt is characterized by high strength to compression but low tensile resistance. The reinforcement mats impart tensile strength and thus enhance the asphalt's properties.

The HaTelit® geogrids traits set them as the best solution for reinforcing asphalt structures:

- High temperature stability.
- Low strain.
- Long-term dynamic load-carrying capability.
- Coating the lattice with bitumen ensures good bonding with the asphalt.

Execution:

- The preparation of the working surface included spraying of scarified layer with bitumen emulsion to guarantee total adhesion.
- Deployment of HaTelit® geogrids, including the anchoring to prevent folding.
- Stratification with an additional layer of asphalt of a minimum thickness of 5 cm after tamping.
- Compression of asphalt by pneumatic steam roller.

Solution Advantages:

The installation of HaTelit® geogrids between the asphalt layers during the renovation works brought about the prevention of the appearance of new cracks in the pavement and an improvement in its quality.

The deployment of grids decreased maintenance costs as a result of the increase in intervals between stratification and has a very high cost benefit ratio.

Since the end of the project (2007) until the current time, there has been no need to perform any additional treatment to the asphalt.



Construction Steps:

1. Lorem ipsum dolor sit amet



2. Lorem ipsum dolor sit amet



3. Lorem ipsum dolor sit amet



Final result





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