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Development of the slurrybound Macadam construction technique

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ABSTRACT

The roads sector within the South African civil engineering construction industry has been identified as the sector where significant improvement in job creation can be achieved. As a result, several road construction techniques have been developed over the past decade to satisfy the need for increased labour-intensity.

The Macadam technology has been identified as one of the most appropriate technologies for increased job creation and empowerment of Small Medium and Micro Enterprise (SMME) contractors. Although this is a technology which dates back to the 1700's, it has always been used as a base-layer technology and never used as a surface technology.

Recent application and research work of the Macadam technology has been limited to the layer works of pavement structures. The purpose of this study is to develop the Slurrybound Macadam (SM) technology to such an extent that it can be applied as a surfacing. The research work focuses on:

- the improvement of the construction techniques and equipment used to achieve finishes to tolerances set for conventional machine laid asphalt surfaces and
- the refinement of laboratory test methods to such an extent that Slurrybound Macadams can be designed, specified and tested to the same standard as hot mix asphalt mixes laid by mechanical pavers.

Under the auspices of the author, over 400km of roadway was constructed using the Macadam technology over a period of 10 years. The technology was developed as a labour intensive product suitable for use on low-volume low-speed roads but evolved to a product suitable for high-speed, high traffic volume roads.

The design, specification and laboratory test methods of the Slurrybound Macadam technology have also been reviewed and developed to the norms and standards of a surfacing technology equivalent to hot-mix asphalt layers.