



SUSTAINABLE AGGREGATES

SOUTH AUSTRALIA

PORT RIVER EXPRESSWAY

Cement stabilised recycled pavement material

Products

Stages 1 and 2 of the dual carriageway Port River Expressway and ancillary pavements comprised a heavy duty urban arterial pavement constructed by AbiGroup for DPTI. The pavement configuration comprised a 330mm thick fully bound cement stabilised crushed rock base (CTB) to support thick (190mm) hot mix asphalt layers. The CTB was manufactured at the adjacent Resourceco pug mill by adding 4.5% GB cement (by mass) to PM2/20RG pavement material.

Application

In excess of 200,000 tonnes of product was manufactured on a continuous basis to the project and laid with an aggregate paver. The CTB was laid in a single layer to avoid delamination associated with multiple layer construction and compacted to 97% modified compaction.

Strict manufacturing quality control processes were put in place to monitor the compliance of the PM2/20RG material in addition to the cement content in accordance with the DPTI specification. Material manufactured for stabilisation was placed in 1000 tonne holding stockpile pending compliance prior to being received at the pug mill for cement and water addition.

Benefits

In addition to the environmental benefits of using recycled pavement materials, the close proximity of the Resourceco Wingfield facility for manufacture meant short transit of material to site and the capacity to complete compaction of the thick CTB layers within the specified two hours.

Performance

Although this heavy duty pavement has 190mm of overlying asphalt layers, the strength of the stabilised layer is the critical layer in the design of this pavement. The cement stabilised layer is designed to resist tensile fatigue and protect the subgrade from vertical deformation induced from traffic.

Subjected to high traffic volumes, the pavement is performing satisfactorily and no different to an identical pavement with alternate sourced cement stabilise material.



Figure 1. Aggregate paver laying CTB manufactured from recycled pavement material

CONTACT INFORMATION

For information on this project or any application of recycled materials as granular or bound pavement layers please contact:

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