

CASE STUDY

Concrete Re-structuring

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‘failing concrete road
rubblised to provide
foundation below
regenerated road structure’

Scheme: The Boot & Dam Bank Drove
Authority: Cambridgeshire County Council
Client: Skanska for Cambridge County Council
Date: March 2016
In-Situ Process: 150mm Regeneration over Concrete Carriageway
Surface: Double Surface Dressing with PMB



This rural road was constructed decades ago using concrete due to the peat and clay sub-grade below. The concrete had been overlaid historically with layers of asphalt which was worn and reflects deeper cracking and movement within the structure, rendering the road unsuitable for some vehicles. Level changes between slabs at joints and cracks were, in places, up to 100mm.



Following previous trialling of the process, Antigo were deployed with their specialist multi headed breaker to seat and rubblise the existing materials:



Over the rubblised material a permeable geotextile separation layer was installed, which in turn was overlaid with a Tensar Triax Re-inforcement Grid.

Imported planings were placed over the grid to a depth of 200mm – the depth would allow 50mm immediately over the grid to remain untouched in the mixing process that follows.

The imported material was consolidated and graded in preparation for mixing.



A blended cement based powder (CEM 2) was spread over the graded material placed in 2 x 1.5m widths at a rate of 6.3kg per m² (or 2%) as per the proposed design.



Mixing of the CEM 2 and imported planings was carried out using a Wirtgen 2000 recycling machine, adding water to achieve optimum moisture – typically 6%. Again this mixed Hydraulically Bound Material was graded and compacted to required falls.



K140 Bitumen emulsion with a layer of temporary protective grit.



K140 Bitumen emulsion was applied to the compacted HBM so as to retain the moisture within the layer and ensure consistent curing as well as preventing the surface drying out too quickly. A protective grit was then applied to allow for trafficking prior to surfacing works. Line marking denotes the extent of the original structure of 3m width.



Shortly after the construction layers were complete and following a sweep of the protective grit, the HBM was Surface Dressed using a 12 and 6mm double dressing of stone and a polymer modified bitumen.



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