

C-47: Some trials of blended aggregate bases cum surfacings

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In the past, road construction using the technique of base cum surfacing (BCS) construction has been traditionally carried out by compacting 37.5mm single sized aggregate (SSA), choking the surface interstices with 12.5mm SSA and applying coats of penetration grade bitumen binder surfacings. The use of penetration grade bitumen creates environmental pollution and requires dry surfaces. In order to overcome these difficulties and to improve the

productivity, due to ease of handling, bituminous emulsions were introduced instead of penetration grade bitumen.

When the binder was changed to bituminous emulsion with lower viscosity it tended to penetrate through the surface resulting in inadequate binder for surface binding, causing failure of the BCS. As a solution, in 1994, several trials were carried out successfully using more closely graded base materials by blending 37.5, 19 and 12.5mm SSA to certain proportions by volume called "blended aggregate" without choking of surface interstices and then applying coats of emulsion.

In December 1998, as there were large stocks of unused 25mm SSA and shortages of 37.5mm aggregate, several trials with and without choking of surface interstices were carried out at Waskaduwa on Waskaduwa – Bandaragama Road both at site and in the field laboratory.

Based on the more accurate laboratory trials, the following blended aggregate volume proportions for the bottom layer of thickness 75mm and the following blended aggregate volume proportions without the 12.5mm aggregate volume proportions choked with 12.5mm aggregate volume proportions for the top 75mm layer with first coat and second coat of 3–4 and 1 l/m² respectively are recommended for future construction for similar aggregate: (1). 5 parts of 37.5mm: 5.05 parts of 25mm: 1.10 parts of 12.5mm SSA (2). 4 parts of 37.5mm: 3.15 parts of 25mm: 2.15 parts of 19mm: 1.20 parts of 12.5mm SSA (3). 7 parts of 37.5mm: 2.10 parts of 19mm: 1.15 parts of 12.5mm SSA