

C-48: Low cost pavement construction of approach roads to Halwathura Bridge

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During the period from February 1992 to February 1994 the Road Development Authority (RDA) of Sri Lanka was entrusted the task of constructing a road with medium volume traffic (500-1000 vehicles per day) namely Ingiriya - Bulathsinhala road. This road of total length 3kn forms the approaches to Halwathura Bridge and its projected traffic in early 1994 after construction was taken to be about 600 vehicles par day.

The original design of this road pavement (modified version based on TRRL, U.K.) required the construction of 150mm thick sub-base and 150mm thick sub-base and 150mm thick Dense Graded Aggregate Base (DGAB) with surface applications of a prime coat and a double surface dressing (locally known as Double Bituminous Surface Treatment (DBST)). Due to the non-availability of large quantities of crushed stone for the production of base material and availability of large quantities of gravelly soils with 4 day soaked California Bearing Ratio (CBR) values ranging from 15-54%, it was decided to replace the aggregate base with gravelly soil base of thickness 150mm followed by surface applications of a prime coat, Single Bituminous Surface Treatment (SBST) in place of DBST and sand seal, for pavement structure of this road.

The purpose of this method of construction was mainly to study the feasibility of the replacement of the aggregate base with a gravelly soil base, for roads with low and medium volume traffic.

This paper describes the construction of road pavement structures including the various trials carried out for the construction of the SBST with 19mm single sized crushed stone and Cationic Rapid Setting bituminous emulsion (CRS-2). The aggregate used for SBST had an aggregate impact value of 23.

The method described in this paper has proved successful to date, but requires routine maintenance of surfacing by patching with aggregate cold mixes and resealing with sand seal every 2 to 3 years.