

LABORATORY INVESTIGATION OF STABILIZED GRAVEL FOR ROAD SUB BASE

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Abstract

Stabilized gravel is a common material used in road construction as a sub-base layer. The Purpose of this laboratory investigation was to assess the mechanical qualities of stabilized gravel using a combination of cement, lime, and fly ash as stabilizers. The study involved conducting a series of laboratory tests, including tests for compaction, California bearing ratio (CBR) and unconfined compressive strength (UCS), in addition, to determine optimal mix design and to evaluate the stabilised gravel's strength and durability.

The findings revealed that the use of cement, lime, and fly ash as stabilizers significantly gravel's mechanical qualities were upgraded. The optimal mix design consisted of 6% cement, 4% lime, and 10% fly ash by the dry-soil weight. CBR value of the stabilized gravel was found to be 110%, which is well above the recommended value of 80% for sub-base layers. The stabilised UCS value gravel was also proven to be significantly higher than that of the unstabilized gravel.

The laboratory investigation demonstrated that the use of stabilized gravel can improve the strength and durability of road sub-base layers. The results suggest that stabilized gravel can be an expense effective and sustainable substitute for conventional material for road construction. Further research is needed to assess stabilised gravel's long-term performance in various environmental settings.

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