

(54) Title of the invention : SOIL STABLIZATION BY REUSING MICRO HYBRID GEOSYNTHETIC FIBERS

(51) International classification :B32B0005020000, G01N0003240000, A61K0036899000, G06F0030150000, A01G0022000000

(86) International Application No :PCT// /
 Filing Date :01/01/1900

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA
 Filing Date :NA

(62) Divisional to Application Number :NA
 Filing Date :NA

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(57) Abstract :

The IRC SP: 20-2002 pavement design catalogues were used to determine the pavement thickness. When compared to the liquid limit of the soil alone, the liquid limit of the soil with the addition of bamboo fibres was shown to be decreasing. The addition of fibres reduced the soil's plastic limit. With more fibres present, the soil's maximum rate of shrinkage rose. Adding bamboo fibres to soil increases MDD by weight of soil up to 0.75% before it starts to decline, which also lowers the equivalent OMC. A 36.5% liquid limit for the soil alone was discovered. The MDD of the soil with addition of 0.5%, 1.0%, and 1.0% bamboo fibres by weight of soil is found to be increased by 0.11%, 16.98%, and 33.75%, respectively, while the corresponding OMC is decreased by 15.62, 21.8, and 33.75%. With the addition of 0.25%, 0.5%, 0.75%, and 1% of bamboo fibres, the soil's shear strength was found to be reduced by 38.57%, 35.25%, 5.85%, and 38.57%, respectively. The CBR value of the soil with addition of 0.25%, 0.5%, 0.75% and 1.0%, bamboo fibers by weight of soil is found to be increased. From the limited laboratory study conducted we concluded that the 0.75% of bamboo fiber can substantially improve the properties of Black cotton soil. And thus 0.75% of bamboo fiber is the optimum fiber content for black cotton soil. The design thickness of flexible pavement before stabilization is obtained as 450mm and after stabilization is obtained as 250mm.

No. of Pages : 10 No. of Claims : 3