EFFECTS OF RECLAIMED ASPHALT SHINGLES ON ENGINEERING PROPERTIES OF SOILS

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ABSTRACT: Over 7.3-million tons of waste asphalt roofing shingles are generated each year in the US, and beneficial uses are needed to avoid costly disposal in landfills. Construction firms and state DOTs have investigated blending ground shingles with soils for use in pavement structures. These studies indicated that the addition of shingles had beneficial effects on some soils, however only qualitative observations were made. The objective of this study was to obtain some baseline quantitative data on the physical and mechanical effects that shingles have on soils. We added shingles to a crushed stone gravel, a silty sand, clean sand, and a clay. This work showed that for weak materials like clays, 25.4 mm (1-inch) minus shingles can potentially improve their strength. For inherently strong granular materials like gravels and sands, shingles can potentially diminish their strength from initially high values. However, the results indicate that these materials mixed with shingles can still provide adequate subgrade support for pavements and light structures.

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