

Engineering Properties of Major Soils Used in Cricket Pitches in Trinidad

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Abstract

The physical and engineering properties of major soils used in cricket pitches in Trinidad were measured in the laboratory. The study was undertaken to identify suitable soils for use in cricket pitches, as well as to provide advice on how to manage the pitches where these and similar soils are used. The properties assessed were soil texture, Atterberg limits, swelling characteristics, density-water relations, penetration resistance, shear strength and compressibility. Values obtained for the parameters were consistent with those expected for soils with high clay content (46%-80%). The soils exhibited liquid limits that were both high and quite variable, ranging from 58%-91%. Maximum bulk densities of the soils subjected to 5, 15 and 25 Proctor compaction blows ranged from 1.26-1.55 Mg m⁻³. Peak penetration resistance of the soils obtained after the three Proctor compaction efforts varied from 2.21-6.44 MPa. Shear strengths of most of the soils exceeded 130 kPa, particularly at high compaction levels. The compression index obtained from a standard confined compressibility test upon compaction varied from 0.60-0.77. Generally, soil properties that affect the performance and preparation of cricket pitches are consistent with the high clay content of the test soils. Results indicate that some of the soils are ideally suited for use in cricket pitches. However, further measurement or monitoring of these measured properties in actual or simulated cricket pitches are recommended.

Keywords: Soils, cricket, strength, stress.