



Problematic Soils in Australia and New Zealand

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Australia and New Zealand contain many unusual and/or problematic soils. Failure to understand the properties and behavior of these materials will lead to major cost overruns and substantial difficulties in projects involving these materials. Conversely, designing the projects to take into account the unusual properties can lead to significant cost savings. A number of case histories from both countries will be presented to illustrate the unique properties and how these properties can either lead to an economical design or to problems. In New Zealand, there are two groups of soils that lead to fairly unusual problems. The first is the pumiceous materials of the Central Volcanic Zone and their allophane rich weathered materials, and the second are the residual soils of Auckland and Northland. All of these materials have high void ratios, but contrary to expectation, they are often quite strong and stiff. Once a critical yield stress (or strain) is reached however, their behavior changes quite radically. The reasons and consequences will be discussed.