

**MECHANICAL PROPERTIES AND SLOPE STABILITY OF  
DEWATERED DIGESTED SEWAGE SLUDGE**

*by*

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## **Abstract**

The necessity for economically feasible landfill operations for the safe disposal / use of municipal sludges has become of paramount importance as a result of increasing environmental requirements augmenting quantities of concentrated sludges being produced. Effective landfill designs necessitate a thorough understanding of treated sludge behaviour which is presently fragmented and limited.

This project sets out to determine drying characteristics, pertinent engineering properties and courses of action for the safe storage and landfilling of stabilised sludge. Geotechnical properties are presented which when applied to the design of landfill areas will increase deposit stability, decrease volume, control leachate and maximise the life of the landfill site.

The results indicated that sludge dried slowly being inhibited by low permeability. Processed material was generally difficult to compact and highly compressible, consolidating over a long period of time with substantial secondary compression. Strength was time dependent with fibre decomposition and undrained creep reducing strength with elapsed time causing long - term instability in sludge landfills. A short - term stability analysis indicated minimum strengths for handling and trafficability requirements were governing factors controlling sludge moisture content for landfill operations.