

Presentation

Soil Type and Compaction Factors Influence on Erosion Resistance

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Erodibility, important for characterizing and modeling embankment erosion, is impacted by soil texture and material placement.

At their 100-acre research facility in Oklahoma, Gregory Hanson and other researchers use formulas and equations to build computer-model simulations. These simulations can show in advance how embankments will perform when water flows over them.



One of these, WINDAM (WINDows Dam Analysis Modules), displays the effects of overtopping — which researchers think is the No. 1 cause of dam failure — on small dams.

They take their testing outside, too. For instance, to see surface detachment, impinging jet scour, widening, and headcut migration erosion processes take place, researchers release water from a reservoir and document the erosion that takes place.

These photographs taken at their facility within a 54-minute time frame display headcut formation followed by headcut advance through the dam crest, and headcut advance into the reservoir, thus leading to breach widening.

Gregory Hanson, a supervisory research hydraulic engineer, presented “Erodibility Characteristics of Embankment Materials” at the 2010 Association of State Dam Safety Officials conference.