



## GEO-INSTITUTE 7th ANNUAL LIVE STREAMING WEB CONFERENCE

The Geo-Institute Embankments, Dams, and Slopes Technical Committee will live-stream the session “Extreme Events on Geotechnical Infrastructure” on Friday, December 9, at 2 PM EST. The topics include:

“Torsional Ring Shear v. Direct Shear Testing,” **Peter Jacke**, PE., M. ASCE

This presentation will discuss the advantages and disadvantages of torsional ring shear testing to measure the peak, fully softened, and residual strengths of fine-grained soils. Peter will also discuss the problems and limitations of direct shear testing as compared to ring shear testing.

“Highway 1 Rat Creek Embankment Failure: 2021 Reconnaissance and Analysis,”

**Dimitrios Zekkos**, Ph.D., M. ASCE

This presentation will discuss the Highway 1 embankment failure in Big Sur, California, and the investigation performed by a team mobilized by the Embankments, Dams, and Slopes Technical Committee. Dimitrios will discuss in detail the following topics: (1) Overview of Big Sur Highway 1, including the history, geological context, and description of the embankment failure, (2) data collection activities, such as terrestrial LiDAR and Unmanned Aerial Vehicle (UAV) data acquisition, exposure mapping and sampling, radiocarbon dating of soil samples, precipitation and geospatial analyses and satellite-based assessments, (3) repair of the roadway, and (4) Recommendations to avoid embankment erosion that may potentially cause similar highway failures.

“Underwater Slope Failure: Observations and Analyses,” **Alex Cordogan, Abedalqader Idries**, S.M. ASCE and **Timothy D. Stark**, Ph.D., PE., M. ASCE

This presentation will discuss the investigation and analysis for an underwater slope failure during construction of a port facility. The analysis simulates the retrogressive failure and bathymetry data is used to confirm the failure mechanism. The analysis is used to assess the impact of causeway construction and underwater dredging on the failure in submarine glaciolacustrine clays.

“Future of Tailings Management”, **Priscilla Nelson**, Ph.D., Hon.D.GE

The global mining industry currently anticipates annual production rates of billions of tons of mine tailings and waste rock, with increases expected due to increasing utilization of lower-grade ores. There is an increasing concern worldwide for the potential consequences from tailings dam seepage and failure. One way that the mining industry can address and mitigate these risks is by considering the continuity of materials flow and the integrated value chain which includes the ore body itself (characterization and modification of ore and gangue), excavation, transport, mineral processing, and tailings management. The industry has the opportunity to extend the value chain to engage the circular economy through downstream production of value-added products that minimize the need for tailings disposal. This presentation reviews the variety of opportunities for tailings management such that the long-term impacts and liability are reduced, and for revenue generation through re-mining/reprocessing when extraction technology improves.