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TITLE OF PROJECT:

Numerical investigation of the stability of a Bimslope formation under varying matrix and block properties.

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ABSTRACT (150-300 words):

Bimrocks or Soil-Rock-Mixture are complex geomaterials made up of geotechnically important 'blocks' enclosed in a finer-textured 'matrix.' These geomaterials possess heterogeneous properties owing to changes in block and matrix properties that can arise from natural weathering process or anthropogenic activities. Bimrock when present in slopes are known as Bimslope. The present study focuses on the stability analysis of a Bimslope under varying block properties (orientation and volumetric block proportion), matrix type (sandy loam, sand, and silty clay) and matrix water content. The study indicates that the failure of a Bimslope is not governed by only block properties rather by a critical combination of block properties, matrix type and matrix water content. When the water content ($<25\%$ saturation) and block content ($<25\%$) is less, the failure is governed by matrix only. With increase in block content, the failure is governed by block however under fully saturated condition, the failure is solely governed by matrix type irrespective of block properties.

KEYWORDS: Bimslope; Matrix; Block; Numerical investigation; Factor of safety

CATEGORY: Geotechnical Engineering