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**THE STRESS-STRAIN BEHAVIOUR OF ARTIFICIALLY WEAKLY BONDED SOILS IN UNDRAINED CONDITIONS**

Zulfahmi<sup>1</sup> A.R., Toll<sup>2</sup>, D.G. & Gallipoli<sup>3</sup>, D.

<sup>1</sup> Faculty of Sciences and Technology, National University of Malaysia.

<sup>2</sup> School of Engineering, Durham University South Road Durham DH1 3LE England UK

<sup>3</sup> Department of Civil Engineering, University of Glasgow, Glasgow G12 8LT Scotland UK

**ABSTRACT**

Many natural soils are in a structured or bonded state. This structured/bonded state normally refers to the combination of fabric and bonding. In particular, residual soils are one of the structured soils which developed through prolonged weathering physically and/or chemically from their parent rock. Residual soils can exist in saturated or partially saturated states. The effect of bonding is important on the shear strength of the soil. Therefore, the effect of bond has been examined for an artificial weakly-bonded specimen in order to simulate some characteristics of residual soils (void ratio and bond strength). A series of consolidated isotropically undrained tests (CIU) has been performed using conventional triaxial test. The artificial specimens were prepared in the laboratory using a mixture of sand and kaolin which then fired at 500°C for 5 hours in the furnace. Firing the kaolin at this temperature creates a weak permanent bond between sand particles. All the artificial soil samples were produced in a relatively similar void ratio of 0.6 (dense). The stress-strain, pore water pressure-strain and stress path have been examined to identify the influence of bond on sandy soils. The results of the tests from the bonded specimens are also compared to the tests on destructured specimens which were prepared in the same manner. Apparently, the results show the contribution of bonding on shear strength of the residual soils.