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**VERIFICATION OF POST FAILURE BEHAVIOUR OF ROCK USING  
CLOSED-CIRCUIT SERVO-CONTROLLED TESTING MACHINE.**

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**ABSTRACT**

The analysis of stress-strain curve is a fundamental aspect in the field of rock mechanics. Since the most rocks exhibit not the intact rock, but rocks with discontinuities. So, it is important to study the stress-strain curve beyond the peak failure as to study the stage of rock with a non-intact rock. However, several difficulties arise in obtaining the complete stress-strain curve. Since most rocks exhibit brittle behaviour, they fail violently and uncontrollably when tested on conventional compression machines. In this study, two series of uniaxial compression test were performed on sandstone samples. The first test was conducted using 2000 kN MaTest conventional compression testing machine and then the results were compared with 3000 kN Tinius Olsen servo-controlled testing machine. Based on the results obtained, it is observed that for similar rock type (sandstone), the post-peak failure can be achieved by using the servo-controlled testing machine. The post-failure behaviour of a rock is particularly important in designing an excavation, where the rock materials surrounding the excavation may be fractured or displayed a certain degree of failure. Comparison between the modes of failure observed from the tests on both types of machines clearly shown that violent fracture is not the intrinsic characteristic of rock but due to the rapid release strain energy from the loading machine.