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COVER LETTER

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[*16 November 2025*]

Dear,
I/We wish to submit an original research article entitled "***Stress-Strain Behavior and Residual Strength of Petobo Sand with Variable Fines Content after the 2018 Palu Liquefaction***" for consideration by SINERGI.

We confirm that this work is original and has not been published elsewhere, nor is it currently under consideration for publication elsewhere. We promise not to withdraw this article after it has been processed by the Editorial Team. If there is a withdrawal, we are willing to pay a penalty of USD 150 (IDR 2000K) to the SINERGI Editorial Team.

In this paper, I/we report on / show that:

Field	:	Civil Engineering – Geotechnics
Topic	:	Stress-Strain Behavior and Residual Strength of Petobo Sand with Variable Fines Content after the 2018 Palu Liquefaction
Brief Background	:	Liquefaction during the 2018 Palu earthquake caused extensive flow failures, particularly in the Petobo area where loose silty sand with variable fines content underwent large-scale deformation. The post-liquefaction behavior of these soils, especially their residual strength within the Critical State Soil Mechanics (CSSM) framework, remains insufficiently documented despite its importance for understanding flow-failure mechanisms and improving hazard assessment.
Research Problem	:	There is limited laboratory-based data on the post-liquefaction stress-strain response, pore-pressure generation, effective stress paths, and normalized residual strength of loose silty sands from Petobo. The key question is whether fines content significantly influences the residual strength ratio (q_{res}/p'_0) and critical-state behavior under very loose density

		conditions representative of the 2018 flowslide.
Overview of Method	:	Monotonic Consolidated Undrained (CU) triaxial tests were performed on six reconstituted specimens with two fines-content levels (9% and 26.4%). Each specimen was saturated (B ≥ 0.95), isotropically consolidated under initial mean effective stresses of 100, 150, and 200 kPa, and sheared under strain-controlled conditions until reaching the critical state. Stress–strain curves, Δu - ε responses, effective stress paths, and residual strength ratios were analyzed within the CSSM framework.
Significant finding	:	All specimens exhibited strongly contractive behavior, rapid pore-pressure buildup, and effective stress paths converging toward the critical state. Although fines content affected early contractive response and pore-pressure generation rate, it had negligible influence on final residual strength. The normalized residual strength ratios remained within a narrow range (0.79-0.94), showing that post-liquefaction resistance is governed mainly by very loose fabric and effective stress level rather than fines content. This study provides the first laboratory-based residual strength data for Petobo sand within the CSSM framework and clarifies mechanisms relevant to the 2018 Petobo flowslide.

We have no conflicts of interest to disclose.

Thank you for your consideration of this manuscript.

Sincerely,

Desiana Vidayanti

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AUTHORSHIP STATEMENT

I/We wish to submit an original research article entitled "[***Stress-Strain Behavior and Residual Strength of Petobo Sand with Variable Fines Content after the 2018 Palu Liquefaction***]" for consideration by SINERGI.

All persons who meet authorship criteria are listed as authors, and all authors certify that they have participated sufficiently in work to take public responsibility for the content, including participation in the concept, design, analysis, writing, or revision of the manuscript.

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POTENTIAL REVIEWERS

Please send 3 (three) prospective reviewers (who are not yet registered in SINERGI) to speed up the review process who are competent for the topic and have a good reputation in the field. Please ensure that ***they are willing to review*** this paper.

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