ANALISIS HUBUNGAN STRESS CONCENTRATION RATIO (SCR) DENGAN VARIASI DIAMETER DAN JARAK PEMASANGAN
STONE COLUMN (STUDI KASUS PROYEK JALAN TOL YOGYAKARTA â€“ BAWEN SEKSI 1 STA 73+176)
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DAFTAR PUSTAKA

Al-Taie, E., Al-Ansari, N., & Knutsson, S. (2016). Evaluation of foundation settlement under various added loads in different locations of iraq using finite element. *Scientific Research Publishing*, 257-268.

Abhishek, S., & Madhav, M. (2013). Embankments on soft ground: an overview. *Foundation and Soft Ground Engineering Conference Thu Dau Mot University ICTDMU-1, Binh Duong*.

Agustian, Y. (2021). Likuefaksi. *Jurnal Ilmiah Teknologi Informasi Terapan (JITTER)*, 209-215.

Azizi, F. (2000). *Applied analyses in geotechnics.* New York: E & FN Spon.

Badan Standarisasi Nasional. (2017). *SNI 8460:2017 - Persyaratan perancangan geoteknik.* Jakarta: Badan Standarisasi Nasional.

Bakr, A., Hassan, A., Fattah, M., & Mohamed, A. (2019). Numerical analysis of liquefaction phenomenon by using UBC3D-PLM constitutive model. *Journal of Advanced Engineering Trends (JAET)*, 81.

Beaty, M., & Bryne, P. (2011). UBCSAND constitutive model version 904ar. *Documentation Report: UBCSAND Constitutive Model on Itasca UDM Web Site*.

Beena, K. S. (2010). Ground improvement using stone column. *International Conferences on Recent Advances in Geotechnical Earthquake Engineering and Soil Dynamics*, 1-6.

Brinkgreve, R. J. (2024). PLAXIS 2D 2024.2: General Information Manual. *Bentley: Advancing Infrastructure*, 1-26.

Brinkgreve, R., Engin, E., & Engin, H. (2000). Validation of empirical formulas to derive model parameters for sands. In R. Brinkgreve, E. Engin, & H. Engin, *Numerical Methods in Geotechnical Engineering* (p. 6). London: CRC Press.

Castro, J. (2017). Review: Modeling stone columns. *Materials*, 1-23.

Dani, H. J. (2025). Kajian perilaku penurunan bangunan tinggi: Studi kasus dan analisis. *Jurnal Teknik Sipil: Vol. 21, No. 1*, 189-202.

Das, B. M., & Ramana, G. V. (2011). *Principles of Soil Dynamics 2nd Edition.* USA: Cengage Learning.

Deb, K., & Mohapatra, S. (2013). Analysis of stone column-supported geosynthetic reinforced embankments. *Applied Mathematical Modelling*.

FHWA. (1983). Design and construction of stone columns vol. 1. *U.S. Departement of Transportation: Federal Highway Administration*, 1-194.

FHWA. (2017). Geotechnical engineering circular no. 13 ground modification methods reference manual - volume II. *U.S. Departement of Transportation: Federal Highway Administration*.

Fondania, R., Iskandarsyah, T. Y., & Alam, B. T. (2022). Pemanfaatan citra sentinel-1 dan sistem informasi geografis (gis) dalam analisis penyebab penurunan konsolidasi (consolidation settlement) di kota Yogyakarta tahun 2015 – 2016. *Padjajaran Geoscience Journal: Vol. 6, No. 1*, 705-718.

Gaber, M., Kasa, A., Rahman, N. A., & Alsharef, J. M. (2018). Comparison between unit cell and plane strain models of stone. *International Journal of Engineering & Technology*, 264-269.

Idriss, I., & Boulanger, R. (2004). Semi-empirical procedures for evaluating liquefaction potential during earthquakes. *Proceedings of the 11th ICSDEE & 3rd ICEGE*, 32-56.

Iwasaki, T., Tokida, K., & Tatsuoka, F. (1981). Soil liquefaction potential evaluation with use of the simplified procedure. *International Conferences on Recent Advances in Geotechnical Earthquake Engineering and Soil Dynamics*, 209-214.

Jannati, W. N. (2025). Evaluasi potensi likuefaksi dan metode pelaksanaan stone column pada pembangunan jalan tol Yogyakarta–Bawen STA 73+025. *Tugas Akhir, Universitas Gadjah Mada*.

Labuz, J. F., & Zang, A. (2012). Mohr–Coulomb failure criterion. *Rock Mech Rock Eng (45)*, 975-979.

Lee, D.-H., Ku, C.-S., & Yuan, H. (2004). A study of the liquefaction risk potential at Yuanlin, Taiwan. *Engineering Geology, 71(1-2)*, 97-117.

Maulana, R. (2024). *Analisis Perilaku Tegangan-Regangan Timbunan Di Atas Tanah Lunak dengan Perkuatan Stone Column Berdasarkan Simulasi Numeris 2D dan 3D (Studi Kasus: STA 50+600 Pembangunan Jalan Tol Yogyakarta - Bawen).* Yogyakarta: Universitas Gadjah Mada.

Minaka, U. S., & Amalia, G. (2022). Analisis parameter dinamik tanah pada tanah pasir yang berpotensi likuifaksi. *Jurnal Ilmiah Tekno Global Volume No. 02 Desember 2022*, 36-44.

Mitchell, J. (2008). Mitigation of liquefaction potential of silty sands. *Proceedings. GeoCongress 2008: From Research to Practice in Geotechnical Engineering*.

Mohanty, P., & Samanta, M. (2015). Experimental and Numerical Studies on Response of the Stone Column in Layered Soil. *Int. J. of Geosynth. and Ground Eng. 1:27*, 1-14.

Mokhtari, M., & Kalantari, B. (2012). Soft soil stabilization using stone column-a review. *EJGE*, 1659-1666.

Muntohar, A. S. (2012). Studi parametrik potensi likuifaksi dan penurunan permukaan tanah berdasarkan uji sondir. *Proceedings: 16th Annual Scientific Meeting*, 139-144.

National Academies of Sciences, Engineering, and Medicine. (2021). *State of the Art and Practice in the Assessment of Earthquake-Induced Soil Liquefaction and Its Consequences.* Washington, DC: The National Academies Press.

Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

Ng, K. S., & Tan, S. A. (2015). Stress transfer mechanism in 2D and 3D unit cell models for stone column improved ground. *Int. J. of Geosynth. and Ground Eng. 1:3*, 1-9.

Ng, K., & Tan, S. (2015). Simplified homogenization method in stone column designs. *Soils and Foundations. Volume 55. Issue 1*, 154-165.

Obrzud, R. (2010). On the use of the Hardening Soil Small Strain model in geotechnical practice. *Numerics In Geotechnics And Structures*.

Petalas, A. V., Galavi, V., & Brinkgreve, R. B. (2012). Validation and verification of a practical constitutive model for predicting liquefaction in sands. *Proceedings of the 22nd European young geotechnical engineers conference, Gothenburg, Sweden*, 167-172.

Puebla, H., Bryne, P., & Philips, R. (1997). Analysis of CANLEX liquefaction embankments: prototype and centrifuge models. *Can. Geotech. J. Vol. 34.*, 641-657.

Putri, A. S. (2025). *Analisis Stabilitas Mse Wall Pada Timbunan Jalan Tol Terhadap Potensi Likuefaksi (Studi Kasus: Proyek Jalan Tol Yogyakarta – Bawen Elevated 1 Seksi 1 STA 73+150).* Yogyakarta: Universitas Gadjah Mada.

Rahardjo, W., Sukandarrumidi, & Rosidi, H. (1995). *Peta Geologi Lembar Yogyakarta, Jawa.* Pusat Penelitian dan Pengembangan Geologi.

Risyanti, & Hakam, A. (2022). Potensi likuifaksi pasir seragam berdasarkan tegangan air pori dan ukuran butiran (laboratory model). *Civil Engineering Collaboration*, 45-51.

Schanz, T., Vermeer, P., & Bonnier, P. (1999). The hardening soil model: Formulation and verification. *Beyond 2000 in Computational Geotechnics – 10 Years of PLAXIS*, 1-16.

Seed, H. B., & Idriss, I. M. (1970). A simplfied procedure for evaluating soil liquefaction potential. *Earthquake Engineering Research Center*, 1-23.

Shen, S. (2021, July 4). *Mohr-Coulomb model for soil – when not to use it.* Retrieved from The Si-Eng: Si's civil engineering blog: https://www.si-eng.org/post/mohr-coulomb-model-for-soil-when-not-to-use-it

Soebowo, E., Tohari, A., & Sarah, D. (2009). Potensi likuifaksi akibat gempabumi berdasarkan data cpt dan n-spt di daerah Patalan Bantul, Yogyakarta. *Jurnal Riset Geologi dan Pertambangan Jilid 19 No. 2*, 85-97.

Somantri, A. K., Febriansya, A., R., D. P., & A., N. F. (2021). Perbaikan tanah dasar yang berpotensi terjadi likuefaksi dengan metode stone column pada Junction Tebing Tinggi. *POTENSI: Vol. 23, No. 1*, 67-76.

Stress transfer mechanism in 2D and 3D unit cell models for stone column improved ground. (2015). *International Journal of Geosynthetic and Ground Engineering. (1)3*.

Surachmat, D., Wijaya, H., & Kawanda, A. (2019). Analisis penurunan tanah dengan menggunakan geotekstil pada timbunan. *Jurnal Mitra Teknik Sipil: Vol. 2, No. 4*, 197-202.

Tan, S. A., Tjahyono, S., & Oo, K. K. (2008). Simplified plane-strain modeling of stone-column reinforced ground. *Journal Of Geotechnical And Geoenvironmental Engineering © ASCE*, 185-194.

Terzaghi, K. (1943). *Theoritical Soil Mechanics.* Ney York: London: John Wiley and Sons, Inc.

Ti, K. S., Huat, B. B., Noorzaei, J., Jaafar, M. S., & Sew, G. S. (2009). A review of basic soil constitutive models for geotechnical application. *EGJE*, 1-18.

Verghese, S. J., Nguyen, C. T., & Bui, H. H. (2013). Evaluation of plasticity-based soil constitutive models in simulation of braced excavation. *Int. J. of Geomate. Vol. 5, No. 2 (Sl. No. 1*, 672-677.

Wibawa, M. R., & Prawira, Y. (2025). Studi literatur mengenai berbagai teknik stabilisasi tanah sebagai solusi permasalahan geoteknik. *SILITEK: Jurnal Teknik Vol. 05 No. 03*, 1677-1686.

Xiang, X., & Zi-Hang, D. (2017). Numerical implementation of a modified Mohr–Coulomb model and its application in slope stability analysis. *J. Mod. Transport. 25(1)*, 40-51.

Youd, T. L., & Idriss, I. M. (2001). Liquefaction resistance of soils: summary report from the 1996 NCEER and 1998 NCEER/NSF workshops on evaluation of liquefaction resistance of soils. *Journal Of Geotechnical And Geoenvironmental Engineering*, 297-313.

Yuwono, B. D., Abidin, H. Z., & Hilmi, M. (2013). Analisa geospasial penyebab penurunan muka tanah di Kota Semarang. *Prosiding SNST ke-4 Tahun 2013*, 1-8.

Zhang, Z., Han, J., & Ye, G. (2014). Numerical investigation on factors for deep-seated slope stability of stone column-supported embankments over soft clay. *Engineering Geology. Volume 168*, 104-113.

Zukri, A., & Nazir, R. (2018). Sustainable materials used as stone column filler: A short review. *IOP Conference Series: Materials Science and Engineering*, 1-12.