LEMBAR
HASIL PENILAIAN SEJAWAT SEBIDANG ATAU *PEER REVIEW*
KARYA ILMIAH : JURNAL ILMIAH

Judul Jurnal Ilmiah (Artikel)	:	Full scale static load test on the spider net system		
Jumlah Penulis	:	3 orang (Helmy Darjantoa, Masyhur Irsyamb, **Sri Prabandiyani Retno**)		
Status Pengusul	:	penulis ke-3		
Identitas Jurnal Ilmiah	:	a. Nama Jurnal	:	Jurnal Teknologi
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Reviewer 2

Prof. Dr. Ir. Suripin, M.Eng.
NIP. 196004271987031001
Unit kerja : Departemen Teknik Sipil FT UNDIP

Reviewer 1

Prof. Dr. Ir. Syafrudin, CES, MT
NIP. 195811071988031001
Unit Kerja : Departemen Teknik Lingkungan FT UNDIP

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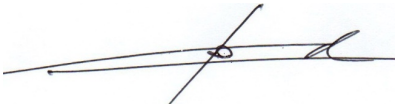
Reviewer 1



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Prof. Dr. Ir. Suripin, M.Eng.
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Document details

Jurnal Teknologi Open Access
Volume 77, Issue 11, 2015, Pages 73-82

Full scale static load test on the spider net system (Article) (Open Access)

Darjantoa, H.[a], Irsyam, M.[b], Retno, S.P.[a]

[a]Civil Engineering Department, Diponegoro University, Semarang, Indonesia
[b]Civil Engineering Department, Institute of Technology Bandung, Bandung, Indonesia

Abstract

View references (11)

The Spider Net System Footing (SNSF) is a raft foundation system that commonly used in Indonesia. It contains a plate, downward ribs system for reinforcement, and the compacted filled soil. The ribs are in longitudinal and transversal, called as settlement rib and in diagonal direction, named as construction rib. This paper explores the load transfer mechanism along the plate, the ribs, filled soil and the base soil under the footing system . The mechanism is investigated by conducting full scale static load test on SNSF. Strain gauges were installed to monitor the strain increment of each footing elements during loading. 3D numerical analysis was also conducted to verify the experimental results. To analyze the results, Load -Ultimate Ratio Factor (L-URF) was proposed. L-URF was a ratio between ultimate soil bearing capacity of the SNSF and the applied loading at specific element. Higher the L-URF value means higher loading applied at its associate element. Both experimental and numerical results show that at the first stage the loading was fully carried out by the tip of the ribs and transferred to the soil stratum under the footing system . Increasing the loading, the ribs, plate, and filled soil altogether sustain the loading and then transferred to the soil stratum below the footing system . The results also affirm that SNSF generate higher bearing capacity compare with simple shallow footing.

SciVal Topic Prominence

Topic: Neural networks | Soils | Cone penetration

Prominence percentile: 88.115

Author keywords

Load transfer mechanism | Load -ultimate ratio factor | Rib | SNSF

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Darjantoa, H.; Civil Engineering Department, Diponegoro University, Semarang, Indonesia;
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Geotechnical and Earthquake Engineering

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Science and Engineering

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Full Paper

INSTRUMENTED PILE LOAD TESTING WITH DISTRIBUTED OPTICAL FIBRE STRAIN SENSOR

Hisham Mohamad*, Bun Pin Tee

UTM Construction Research Centre, Faculty of Civil Engineering, Universiti Teknologi Malaysia, 81310 UTM Johor Bahru, Johor, Malaysia

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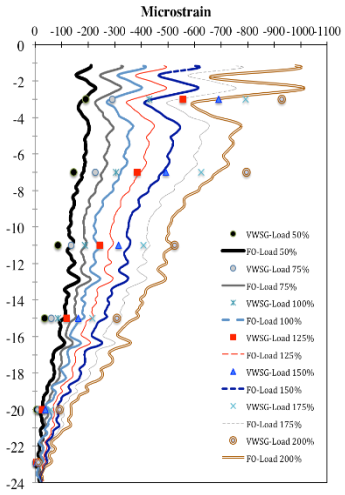
Graphical abstract



Abstract

An instrumented pile load test was conducted for a 1.2m diameter bored pile at Putrajaya to verify pile performance towards geotechnical design. This test pile was instrumented with new monitoring technique using distributed strain sensing known as Brillouin Optical Time Domain Analysis (BOTDA) and compared with conventional sensors, i.e. vibrating wire strain gauge, LVDT (linear variable differential transformer) and dial gauge. This manuscript includes the description of subsurface conditions consisting of weathered granitic residual soils, test pile installation and instrumentation setup of Maintain Load Test (MLT). Field measurement results such as the load transfer response and average unit shaft resistance using the distributed fibre optic strain sensor were well matched with the results using the conventional sensors. However, the distributed fibre optic strain sensor has the added advantage of detecting the localized defect such as pile necking, bending, and overall behaviour of bored pile effectively.

Keywords: Bored pile, Fibre-Optic sensing, BOTDA, maintain load test

Abstrak

Satu ujian beban cerucuk telah dijalankan di Putrajaya pada sebatang cerucuk terjara berukuran 1.2m diameter untuk mengesahkan prestasi cerucuk terhadap rekabentuk geotekniknya. Cerucuk yang diuji ini dipasang dengan jenis instrumen yang menggunakan teknik pemantauan baharu yang boleh mengesan terikan secara tersebar. Teknik ini dinamakan *Brillouin Optical Time Domain Analysis (BOTDA)* dan keputusannya dibandingkan dengan sensor konvensional seperti tolok terikan dawai bergetar, LVDT dan tolok dial. Kandungan manuskrip ini termasuk perihal geoteknik terdiri daripada tanah granit terluluhawa, kaedah pemasangan gentian optik dan persediaan instrumentasi untuk Ujian Cerucuk Statik. Keputusan ujian tapak seperti tindak balas pemindahan beban dan unit rintangan aci purata menggunakan kaedah terikan tersebar gentian optik adalah memadani keputusan yang menggunakan sensor konvensional. Walau bagaimanapun, sensor terikan tersebar gentian optik mempunyai kelebihan tambahan yang mana ia boleh mengesan kecacatan setempat seperti perleheran, lenturan dan pergerakan keseluruhan cerucuk terjara secara berkesan.

Kata kunci: Cerucuk terjara,sensor gentian optic, BOTDA, ujian beban statik

1.0 INTRODUCTION

Recent advancement in photonics and optoelectronic devices has led to new applications of fibre-optic sensors in the field of civil engineering. The advantages of fibre-optic sensors include geometrical adaptability, dual task of sensor and path for transmission of the signal, precision and

Jurnal Teknologi

Full Paper

EVALUATION OF $V_{S,30}$ ESTIMATING MODELS FOR INDONESIA

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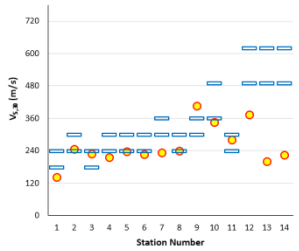
Graphical abstract



Abstract

Series of strong-motion instruments are being installed as part of the seismic hazard reduction program. One of the required information for an instrument station is the geotechnical characteristics, particularly the 30 m deep weighted average of shear wave velocity, $V_{S,30}$. The $V_{S,30}$ values of 25 strong-motion instrument stations in western part of Java Island and western-southern part of Sumatra Island were used to evaluate the topographical information and the geomorphological information based $V_{S,30}$ estimation models. The ratio of the measured $V_{S,30}$ to the estimated $V_{S,30}$ is evaluated, and the simple statistical parameters could not suggest the better model. No apparent geographical and/or geological factors could be identified as the affecting factor as well. Furthermore, the ratio is found to decrease with increasing the estimated values. Based on these observations, several recommendations are proposed, including to develop a new $V_{S,30}$ estimation model, specifically for Indonesia.

Keywords: Seismic hazard, shear wave velocity, Indonesia

Abstrak

Sesiri instrumen gerakan-kuat sedang dipasang sebagai sebahagian daripada program pengurangan bahaya seismik. Salah satu maklumat yang diperlukan untuk stesen instrument adalah ciri-ciri geoteknik, terutamanya halaju wajaran gelombang ricih pada 30 m kedalaman, $V_{S,30}$. Nilai-nilai $V_{S,30}$ dari 25 stesen instrument gerakan-kuat di bahagian barat Pulau Jawa dan bahagian barat daya Pulau Sumatera telah digunakan untuk menilai maklumat topografi dan maklumat geomorfologi berasaskan model anggaran $V_{S,30}$. Nisbah $V_{S,30}$ terukur kepada $V_{S,30}$ anggaran telah dinilai, dan parameter statistik yang mudah tidak boleh mencadangkan model yang lebih baik. Tiada faktor-faktor geografi dan/atau geologi yang jelas dapat dikenal pasti sebagai faktor yang mempengaruhi juga. Tambahan pula, nisbah itu didapati berkurangan dengan peningkatan nilai-nilai yang dianggarkan. Berdasarkan pemerhatian ini, beberapa cadangan telah diberi termasuk untuk membangunkan model anggaran $V_{S,30}$ yang baru, khususnya untuk Indonesia.

Kata kunci: Bahaya seismic, halaju gelombang ricih, Indonesia

1.0 INTRODUCTION

Indonesia is a vast country with land area of approximately 1.8 million km^2, and one of the seismic disaster management challenges is to provide hazard estimates for the entire country. To meet this challenge, the Government of Indonesia has installed up to about 200 seismic strong-motion instruments and is to install

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