Geosynthetics

Edited by

Jiro Kuwano
&
Junichi Koseki

Volume 3

Rotterdam Netherlands 2006
Volume 3

Transport

Road and airport

Strength evaluation of fiber reinforced hot mixed open graded asphalt concrete 801
S.S. Bhosale

Geotextile paving fabric for airport rehabilitation works: The Philippine field experience 805

Prevention of risk due to karstic cavities detected in a recent motorway in Tunisia using geotextiles 809
M. Jamei, P. Villard, K. Zaghouani & F. Cadilhac

Assessment of interface shear growth from measured geosynthetic strains in a reinforced pavement subject to repeated loads 813
S. Perkins & G. Svendsen

Comparison of designs based on standard tests with on site measurements of the reinforcement effect of geogrids in executed road projects 817
J. Retzlaff & W. Voskamp

Performance of road reinforced with polypropylene geotextile - a case study 821
A. Gupte, V. Satkalmi, S. Bhonsle & B.V.S. Viswanadham

The effect of geogrids under unbound sub base layers 825
J. Retzlaff, U. Turczynski & S. Schwerdt

Reinforced low-volume flexible pavement response to accelerated loading 831
I. Al-Qadi, S. Dessouky & E. Tutumluer

Research of geosynthetics and highway application in Ningxia loess area 835
J. Jin, Z. Zhang, Y. Si & L. Tao

A finite element study on optimum location of geogrid layer installation in asphalt overlay 839
F. Moghadasnejad & S. Toolabi

Effects of surface soil stabilization by a lattice-frame-reinforced sheet 843
T. Yoshida, Y. Kitamoto, Y. Shimada, I. Kuronuma, K. Shibata, K. Karasaki, J. Goto & I. Yagi

Railway, seismic stability

Application of polystyrene layer to railway subgrade as a countermeasure for frost heaving 849
K. Kojima, O. Maruyama, T. Matsumaru, H. Aoki & T. Yamazaki

Geosynthetics applications for heavy load railway mitigation 853
C. Kuo, S.S. Lin, W.F. Lee & Y.M. Huang

Set up of a warning system integrated inside a reinforced geotextile for the survey of railway 857
L. Briançon, A. Nancey, A. Robinet & M. Voet

Rapid restoration for a seriously damaged railway embankment during violent earthquakes 861
Y. Kitamoto, H. Abe, H. Shimomura, H. Morishima & Y. Taniguchi

Seismic design of geogrid reinforced soil embankment - Standard design of new Shinkansen railway 865
T. Yonezawa, H. Aoki, K. Horii, Y. Tokita & M. Tateyama
Reducing seismic displacement of gravity-type highway bridge abutments using soil reinforcement
C.C. Huang, F.C. Chen & H.J. Wu

The effects of large scale earthquakes on EPS structures
T. Masuo & K. Hara

Shake table tests for caisson-type quay walls retrofitted by geogrids
K. Ichii, Y. Suzuki, J. Hironaka, H. Terakawa, S. Shigehisa & M. Fukuda

Geosynthetics reinforcement for marine structure with soil stabilization

Embankment on soft soil

Design and construction of geotextile encased columns supporting geogrid reinforced landscape embankments; Bastions Vijfwal Houten in the Netherlands
D. Brokemper, J. Sobolewski, D. Alexiew & C. Brok

Newport Southern Distributor Road: Uses of geosynthetics
S.P. Corbet & E.J. Shaw-Smith

Geosynthetics - innovative tool in soil reinforcement
H. Klapperich & T. Aydogmus

Geosynthetic reinforced piled embankment – large-scale model tests and numerical modelling
S.H. Chew, H.L. Phoon, B. Le Hello & P. Villard

Railway embankment on “high speed piles” - design, installation and monitoring
A.E.C. van der Stoe, A.P. de Lange, F. Bussert & N. Meyer

The use of geogrids in the construction of piled embankments on the new lines of the Italian high speed train
G.F. Marchi, M. Schiavo, G. Kempton, P. Naughton & M. Scotto

The new federal highway (Autobahn) A26 in Germany with high geosynthetic reinforced embankments on soft soils
K. Blume, D. Alexiew & F. Glötzl

Behavior with time of reinforced embankments over soft soil
S. Campos, M. Abramento & G.R. Castro

Motorway embankment on soft soil – monitoring and analysis
R. Arab, Y.H. Faure, S.Y. Ung & B. Michaud

A case history used EPS to construct the expressway embankment on soft subsoil
X. LiXin, Y. ShaoHua, D. Bing & W. TieRu

Field behavior of an instrumented geotextile reinforced piled embankment for an expressway in Singapore
H.L. Phoon, S.H. Chew, G.P. Karunaratne, C.C. Ng & G. Kevin

Reinforced wall

Reinforced earth structures on soft alluvial deposits improved with prefabricated vertical drains and stabilizing berms
S. Biswas & A. Adhikari

Lessons from construction of geosynthetic-reinforced soil retaining walls having full-height rigid facing for the last 10 years
Y. Tamura

Application of strain gauges to measure nonwoven geotextile deformation in reinforced soil wall
M-S. Won & Y-S. Kim
Highway three-tier surface geogrid reinforced wall
P. Turcek, L. Turinic & R. Baslik
Design and performance of an 11-m high block-faced geogrid wall
T.M. Allen & R.J. Bathurst
Vegetated retaining walls using concrete units and geogrids along the A8 motorway in Austria
P. Fuchs
Enhancing internal stability of reinforced soil slopes with anchors
S.Q. Gui, A. Aydin, W. Liu & Z.J. Dai
Application of soil nailing and reinforcement with geogrid in expansion and repair of mountain roads
N. Phienwej, D.T. Bergado & H.M. Abuel-Naga
A complex segmental concrete block retaining wall structure for the reconstruction of a historical bridge
E. Manni & P. Rimoldi
Road ramps reinforced with geosynthetics in substitution of a traditional design solution
F. Colleselli, S. Trevisan & L.E. Russo
Geosynthetic-related products and applications for reinforced soil walls and steep slopes in Japan

Reinforcement

Basal reinforcement

Visualization of load transfer mechanisms of reinforced soil on pile element using X-ray CT method
J. Hironaka, S. Gu, J. Otani & T. Hirai
Sisal fibre geotextiles for soil strengthening
R. Sarsby, A. Mwasha, D. Searle & R.S. Karri
Investigation of geogrid base reinforcement mechanisms considering residual stress and confinement effects
J. Kwon, E. Tutumluer, H. Konietzky & M-A. Keip
Experimental analyses of geosynthetic reinforced foundations on layered soil deposit
R. Berardi & G.P. Pinzani
Soft ground improvement by vertical rigid piles and basal geosynthetic reinforcement – physical modelling
O. Jenck, D. Dias & R. Kastner
Hybrid-sandwiched foundations reinforced with geosynthetics
K. Yasuhara, S. Murakami, H. Komine & T. Sakakibara
Field test of embankment constructed by column-net method
Properties of composite foundation of deep mixing cement piles and geotextile-reinforced cushion at Wenzhou Grain Depot
X. Xie, K. Liu & X. Zhu
A new countermeasure for soft ground using surface stabilization and geosynthetics
H. Masuda, M. Yokomine & Y. Okochi
Seismic stability analysis of base-reinforced embankments on soft soils
G. Biondi, A. Brighina & M. Maugeri
Deformations of geosynthetic-reinforced column-supported embankments
J. Huang, J. Han & J.G. Collin

Sliding resistance mechanism and whole stability analysis for reinforced soft foundation of embankment with geofabric
H. Tang & H. Wang

Reinforced slopes and walls - case studies 1

Mechanical properties of geotextile reinforcement, 30 years after installation
M.D. Harney & R.D. Holtz

A road embankment with slopes reinforced with geosynthetics – A Portuguese case study
A. Mendonça & M. Lopes

Investigation of the behaviour of geosynthetic/soil systems in reinforced-soil structures
F. Aschauer, W. Wu & K. Oberreiter

Three case histories of different specific uncommon geogrid-reinforced slopes
D. Alexiew, I. Amigot & H. Hangen

Reinforced soil structure trench with geogrid and head wall using interlocked concrete blocks
R.O.M. Gomes, L.S. Ribeiro & D. Vidal

The construction of an embankment in Iran designed to fail by rotation to lift 4 m of crystalline salt from the river bed, out of the water
P. Rankilor & A. Holgate

Performance of a 37m high geogrid reinforced soil structure constructed over a disused sewage treatment pond
E.C. Lee, C.A. Neoh, Y.E. Tu & L.Y.K. Har

Survey of a bridge abutment reinforced by geosynthetics, with optic sensors integrated in geotextile strips
A. Nancey, D. Rossi & B. Boons

Behaviour of geosynthetic-reinforced soil retaining wall subjected to forced cyclic horizontal displacement at wall face

Field performance and pullout tests of geosynthetics reinforced soil slope using residual soil in Singapore

Reinforced slopes and walls - case studies 2

Use of geotextiles to overcome challenging conditions at the seawall project in Port of Brisbane
J. Ameratunga, P.J. Boyle, K.H. Loke, W. Hornsey & M. Strevens

A debris flow induced by the collapse of a reinforced earth wall
R.H. Chen & K.S. Chen

A construction case of geotextile-reinforced soil retaining walls at the waste landfill site construction of the open-air theater in Moerenuma Park
T. Nonaka, K. Tei & N. Tachibana

Case history: PVA geogrid reinforced wall for a residue deposit facility
G. Paes Jr., L.M. Costa Filho, E. Pacheco & A.E.F. Silva

Modern solutions based on geosyntetics applied for the execution of a retaining wall on the road section DN13 Brașov - Sighișoara, km 37+049 - km 37+129
E. Hanganu, A.R. Barariu, M. Rădulescu, C. Gruianu, V. Feodorov, V. Fodor & L. Voicu

XX ©2006 Millpress, Rotterdam, ISBN 90 5966 044 7
Case studies of geosynthetic reinforced earth structure failures
J.Y. Wu & A.H. Tang

A case study of reinforced slope in Thailand: Lumpang - Lamphun highway
D. Montri

Prediction and performance of reinforced soil structures
V. Herle

Structures reinforced with geosynthetics – some illustrated causes of failure
P.L. Davies

Reinforced slopes and walls - case studies 3

Measurement of panel deformations of a polymer reinforced soil bridge abutment
H. Özçetlik

Field monitoring and numerical prediction of the response of a nonwoven geotextile-reinforced wall
E.M. Pedroso, B.S. Bueno, C.V.S. Benjamim & J.G. Zornberg

Field observation of reinforced soil retaining wall of “double wall structure”
K. Yoshida, Y. Yokota, N. Tatta, S. Tsuji & K. Arai

Field monitoring of two geogrid-reinforced steep soil walls in a 2-tiered configuration

Case study on the global slope failure with geogrid reinforced soil wall
J.G. Han, J.S. Kim, K.K. Hong, S.D. Cho, K.W. Lee & S.-S. Jeong

A case study of hybrid reinforced geo-structure using reinforced concrete block and slope

Field performance of instrumented geosynthetics reinforced soil walls under large scale blast loading

Effect of geometry & geosynthetics type on the effectiveness of reinforced soil (RS) walls as protection against blast loads

Design and construction of a high embankment with siltstone excavated materials reinforced by geogrids
A. Kollios

A protective structure for mud flows in Northern Italy
P. Recalcati & G. Negrini

Three infrastructure projects using geosynthetics in Thailand
T.W. Yee, N. Kovittayanun, C. Mattanapojanard, C.W. Hong & S.C. Cheah

Backanalysis of an instrumented reinforced abutment on soft soil
G.L. Araujo & E.M. Palmeira

Research on the mode of operation of geosynthetic reinforced load-bearing systems over soft layers in railway lines
U. Weisemann, K. Lieberenz & W. Vogel

Reinforced slopes and walls - case studies 4

In situ construction of a geogrid reinforced soil wall combined with soil cement
H. Ito, T. Saito, J. Izawa & J. Kuwano

Use of geocells for lining a steep drainage channel in mining area
M. Abramento, F. Wickert, P. Franca, D. Franco, D. Durães & D. Senf
Landslide stabilization using geofoam
G. Mann & T.D. Stark

Landslide area stabilization by geogrids at low deformation
G. Massone & G.P. Pinzani

Reinforced steep vegetated slope 60 m height for landslide stabilization in Lona-Lases (Trento-Italy)
A. Dalla Torre, C. Benigni, G. Cesarini Sforza & P. Fantini

Design and performance of a new type of reinforced earth slope

Long term monitoring of alkalinity at the geogrid-block interface at a full scale masonry block retaining wall
G.R. Koerner, R.M. Koerner & Y.G. Hsuan

Use of tropical soils as backfill of reinforced soil structures in Brazil
B.S. Bueno, O.M. Vilar & J.G. Zornberg

Soil cantilever reinforced by geosynthetics and pre-stressed steel bars
A. Iizuka, M. Hirata, H. Ohta & Y. Yokota

Living noise barrier by geosynthetics reinforced soil wall
W. Wu, F. Aschauer, K. Oberreiter, J. Gruber & H. Schön

Innovative design for repairing Gondo mudslide by 20 m high geogrid wall
F.P. Jaecklin