

DISCUSSIONS

- Hydraulic Conductivity of Three Landfill Clay Liners.
Mark E. Gordon, Paul M. Huebner, and Thomas J. Miazga.
By John J. Bowders Jr. Closure by authors 156
- Construction and Performance of Two Large Rockfill
Embankments. Gordon M. Matheson and William F. Parent.
By E. Maranhã das Neves and A. Veiga Pinto.
Closure by authors 159
- Bearing Capacity of Expanded-Base Piles in Sand.
William J. Neely.
By Fernando H. Tinoco. 160
- Analysis of Compressibility of Sensitive Soils. T. S. Nagaraj,
B. R. S. Murthy, A. Vatsala, and R. C. Joshi.
By Serge Leroueil. By Kenneth L. McManis. 163
- SOA: Large Strain Consolidation Predictions. F. C. Townsend
and M. C. McVay.
By Vlasta Szavits-Nossan, Robert L. Schiffman, and
Robert E. Gibson.
By Vincenzo Pane, Robert L. Schiffman, and Robert E. Gibson.
..... 168
- Finite Element Simulation of Behavior of Laterally Loaded Piles
in Permafrost. A. Foriero and B. Ladanyi.
By Pierre Morin. Closure by authors 171
- Critical Reappraisal of Colloidal Activity of Clays. N. S. Pandian
and T. S. Nagaraj.
By Yakov M. Reznik. Closure by authors 185
- Failure Criteria Interpretation Based on Mohr-Coulomb Friction.
D. V. Griffiths.
By R. M. Haithornthwaite. By Alan K. Parkin. 188

General Information

Journal of Geotechnical Engineering covers the field of soil mechanics and foundations, with special emphasis on the relationship between the geologic environment and man-made works. Computer applications are also examined. Topics include dynamic response of foundations, earth-retaining structures, earth-supported structures, engineering properties of soils, and dam construction and slope stability, as well as soil failures and their solutions.

Journal of Geotechnical Engineering (ISSN 0733-9410) is published monthly by the American Society of Civil Engineers. Publications office is at 345 East 47th Street, New York, NY 10017-2398. All editorial correspondence should be directed to the Journals Department. Second-class postage is paid at New York, NY, and at additional mailing offices.

Postmaster: Send address changes to *Journal of Geotechnical Engineering*, ASCE, 345 East 47th Street, New York, NY 10017-2398.

Submission of papers. Submit five copies of papers and notes and three copies of discussions to the Journals Department. Maximum length for papers is 10,000 words; for notes, 3,500 words; for discussions, 1,250 words. Multiple submissions are not accepted for review. Indicate division and, if applicable, committee to which material is being submitted. The use of SI units is preferred; if other units are used, SI equivalents must also be given. Write or phone the Journals Department for *ASCE Authors' Guide to Journals, Books, and Reference Publications* for complete instructions for manuscript preparation.

Reprints for authors can be ordered prior to publication using reprint order forms provided by the Editorial Department.

Photocopies. Authorization to photocopy internal or personal use under circumstances not falling within the fair use provisions of the Copyright Act is granted by ASCE to libraries and other users registered with the Copyright Clearance Center, (CCC) Transactional Reporting Service, provided that the base fee of \$1.00 per article plus \$.15 per page is paid directly to CCC, 27 Congress Street, Salem, MA 01970. The identification for *Journal of Geotechnical Engineering* is 0733-9410/91 \$1.00 + \$.15. Requests for special permission or bulk copying should be addressed to the Journals Reprint Department, ASCE.

Subscriptions. 1992 rates are \$44.00 for members and \$176.00 for nonmembers. Postage outside the U.S.A. is \$24.00 additional. Single copies are \$18.00. Address all *member* subscription inquiries and correspondence to Member Records, ASCE. Address all *nonmember* inquiries and correspondence to Publications Fulfillment Department, ASCE. Subscriptions are filled for the calendar year and must be prepaid. Notify the appropriate ASCE department of an address change as soon as possible; allow six weeks for it to become effective.

This publication is abstracted in *ASCE Publications Information* (bi-monthly), *Transactions of the ASCE* (annually), and Civil Engineering Database (on-line), and indexed in *ASCE Annual Combined Index*. Address inquiries to Information Products, ASCE.

The Society is not responsible for any statement made or opinion expressed in its publications.

Copyright ©1992 by American Society of Civil Engineers.

This journal is printed on an acid-free paper, which meets the ANSI requirements for permanence. ♻️™

VOL. 118 NO. 1 JAN. 1992

ISSN 0733-9410
CODEN: JGENDZ

Journal of
**Geotechnical
Engineering**

AMERICAN SOCIETY OF CIVIL ENGINEERS

GEOTECHNICAL ENGINEERING DIVISION

Journal of Geotechnical Engineering

Volume 118 Number 1 January 1992

TECHNICAL PAPERS

- Ambient Temperature Effect in Concrete Dam Foundation
Seepage.
E. C. Kalkani 1
- Performance of Test Embankment Constructed to Failure on Soft
Marine Clay.
B. Indraratna, A. A. Balasubramaniam, and S. Balachandran .. 12
- Pile Capacity for Axial Cyclic Loading.
Robert G. Bea 34
- Static Instability and Liquefaction of Loose Fine Sandy Slopes.
Poul V. Lade 51
- Driving Characteristics of Open-Toe Piles in Dense Sand.
Richard D. Raines, Oscar G. Ugaz, and Michael W. O'Neill 72
- Nonlinear Soil-Pile Interaction Model for Dynamic Lateral
Motion.
**Toyoaki Nogami, Jun Otani, Kazuo Konagai, and
Hsiao-Lian Chen** 89
- Flow-Deformation Response of Dual-Porosity Media.
Derek Elsworth and Mao Bai 107
- Free Boundary, Fluid Flow, and Seepage Forces in Excavations.
Ronaldo I. Borja 125

TECHNICAL NOTE

- Equations for Compression Index Approximation.
A. W. N. Al-Khafaji and O. B. Andersland 148