Geotechnical Aspects Of Landfill Design And Construction

Earth scientists and geotechnical engineers are increasingly challenged to solve environmental problems related to waste disposal facilities and cleanup of contaminated sites. The effort has given rise to a new discipline of specialists in the field of environmental geotechnology. To be effective, environmental geotechnologists must not only be armed with the traditional knowledge of fields such as geology a but also be knowledgeable of principles of hydrogeology, chemistry, and biological processes. In addition, the environmental geotechnologist must be completely up to date on the often complex cadre of local and national regulations, must comprehend the often complex legal issues and sometimes mind-boggling financial impli cations of a project, and must be able to communicate effectively with a host of specialists, regulatory officials, attorneys, local land owners, journalists, and others. The field of environmental geo technology will no doubt continue to offer unique challenges. The purpose of this book is to summarize the current state of practice in the field of environmental geotechnology. Part One covers broadly applicable principles such as hydrogeology, geochemistry, and con taminant transport in soi Two describes in detail the underlying principles for design and construction of new waste disposal facilities. Part Three covers techniques for site remediation. Finally, Part Four addresses the methodologies for monitoring. The topics of 'waste disposal' and 'site remediation' are extra ordinarily broad.

The two-volume Handbook of Environmental Health, Fourth Edition provides a comprehensive but concise discussion of important environmental health areas, including energy, ecology and people, environmental epidemiology, risk assessment and risk management, environmental law, air quality management, food protection, insect control, rodent control, pe

This volume is a compilation on issues related to sustainable practices in geo-environmental engineering, particularly as applying to developing nations such as India. While, the developed world has already developed some solutions such as landfills, developments in landfills, barriers and liners in the North America and waste-to-energy and waste incineration in Europe, developing countries like India are t ways which suit the present condition without compromising the future needs and comforts. This volume presents case studies on the various problems and solutions adopted for different sites. Although a common approach for all the problems is not feasible or recommend, this collection aims to provide a compendium on the current efforts underway and to help achieve common ground for the practitioners involved. The works included here give insight to the possible development of resilient and sustainable structures (like offshore wind turbines) and energy geotechnics. The book covers topics such as liners and barrier systems, use of recycled and waste materials, waste management and hazard assessment, sustainable infrastructure, and sustainability and the environment. The contents of this book will be and professionals working in geo-environmental engineering. The book will also be useful to policy makers interested in understanding geotechnical concerns related to sustainable development.

This book presents select proceedings of the National conference on Geo-Science and Geo-Structures (GSGS 2020). It provides sustainable solutions to various challenges encountered in the field of geotechnical engineering. The topics presented include advanced characterization to study the behavior of geomaterials, shallow and deep foundations including tunneling, use of geosynthetics and other soil in minimizing slope failures and landslides, dynamics of soils and foundations, and its connection with energy geotechnics, transportation geotechnics, and offshore geotechnics. The book further highlights various aspects of ground improvement techniques by incorporating the use of industrial by-products, forensic analyses of geo-structures, instrumentation and sensing techniques in geotechnical enginee associated with geo-environmental engineering. The book will be a valuable reference for budding researchers, academicians, practitioners and policymakers interested in sustainable practices associated with geotechnical engineering and related domains.

Meeting Society's Needs : Proceedings of the Fourteenth Southeast Asian Geotechnical Conference, Hong Kong, 10-14 December 2001

Linkages and Directions

Proceedings of the 7th International Conference on Physical Modelling in Geotechnics (ICPMG 2010), 28th June - 1st July, Zurich, Switzerland

Proceedings of the First Southern African Geotechnical Conference

Pollutant Interactions in Air, Water, and Soil

Geoenvironmental Practices and Sustainability

This book presents 09 keynote and invited lectures and 177 technical papers from the 4th International Conference on Geotechnics for Sustainable Infrastructure Development, held on 28-29 Nov 2019 in Hanoi, Vietnam. The papers come from 35 countries of the five different continents, and are grouped in six conference themes: 1) Deep Foundations; 2) Tunnelling and Underground Spaces; 3) Ground Improvement; 4) Landslide and Erosion; 5) Geotechnical Modelling and Monitoring; and 6) Coastal Foundation Engineering. The keynote lectures are devoted by Prof. Harry Poulos (Australia), Prof. Adam Bezuijen (Belgium), Prof. Delwyn Fredlund (Canada), Prof. Lidija Zdravkovic (UK), Prof. Masaki Kitazume (Japan), and Prof. Mark Randolph (Australia). Four invited lectures are given by Prof. Charles Ng, ISSMGE President, Prof.Eun Chul Shin, ISSMGE Vice-President for Asia, Prof. Norikazu Shimizu (Japan), and Dr.Kenji Mori (Japan).

Solid Waste Landfilling: Concepts, Processes, Technology provides information on technologies that promote stabilization and minimize environmental impacts in landfills. As the main challenges in waste management are the reduction and proper treatment of waste and the appropriate use of waste streams, the book satisfies the needs of a modern landfill, covering waste pre-treatment, in situ treatment, long-term behavior, closure, aftercare, environmental impact and sustainability. It is written for practitioners who need specific information on landfill construction and operation, but is also ideal for those concerned about the possible return of these sites to landscapes and their subsequent uses for future generations. Includes input by international contributors from a vast number of disciplines Provides worldwide approaches and technologies Showcases the interdisciplinary nature of the topic Focuses on sustainability, covering the lifecycle of landfills under the concept of minimizing environmental impact Presents knowledge of the legal framework and economic aspects of landfilling

This text comprises of 57 papers on: roads, railways and embankments; reinforced slopes and retaining walls; hydraulic applications; environmental applications; geosynthetic testing; and IGS chapter reports.

This publication contains the papers presented at the 15th European Conference on Soil Mechanics and Geotechnical Engineering (ECSMGE), held in Athens, Greece. Considerable progress has been made in recent decades in understanding the engineering behavior of those hard soils and weak rocks that clearly fall into either the field of soil or of rock mechanics, and there have been important developments in design and construction methods to cope with them. Progress would be even more desirable, however, for those materials which fall into the 'grey' area between soils and rocks. They present particular challenges due to their diversity, the difficulties and problems arising in their identification and classification, their sampling and testing and in the establishment of suitable models to adequately describe their behavior. The publication aims to provide an updated overview of the existing worldwide knowledge of the geological features, engineering properties and behavior of such hard soils and weak rocks, with particular reference to the design and construction methods and problems associated with these materials. Part 4 was published post-conference and includes Conference Reports.

Engineering Geology and the Environment

Geotechnical Hazards

Solid Waste Landfilling

Handbook of Environmental Health, Volume II

Geotechnical Considerations in Landfill Design

Sustainable Practices for Landfill Design and Operation

Solid waste management is a global concern, and landfilling remains the predominant management method in most areas of the world. This book provides a comprehensive view of state-of-the-art methods to manage landfills more sustainably, drawing upon more than two decades of research, design, and operational experiences at operating sites across the world. Sustainable landfills implement one or multiple technologies to control and enhance the degradation of waste materials to realize a multitude of potential benefits during or shortly after the landfill's operating phase. This book presents detailed approaches in the development, design, operation, and monitoring of sustainable landfills. Case studies showcasing the benefits and challenges of sustainable landfill technologies are also provided to give the reader additional context. The intent of the book is to serve as a reference guide for regulatory personnel, a practical tool for designers and engineers to build on for site-specific applications of sustainable landfill technologies, and a comprehensive resource for researchers who are continuing to explore new and better ways to more sustainably manage waste materials.

This volume presents selected papers from IACMAG Symposium,The major themes covered in this conference are Earthquake Engineering, Ground Improvement and Constitutive Modelling. This volume will be of interest to researchers and practitioners in geotechnical and geomechanical engineering.

The First Southern African Geotechnical Conference was organised by the Geotechnical Division of the South African Institution of Civil Engineering (SAICE) under the auspices of the International Society of Soil Mechanics and Geotechnical Engineering (ISSMGE) and took place at Sun City, South Africa on 5 and 6 May 2016. More than 60 papers were rec

Geotechnical Investigation and Improvement of Ground Conditions covers practical information on ground improvement and site investigation, considering rock properties and engineering geology and its relation to construction. The book covers geotechnical investigation for construction projects, including classic case studies with geotechnical significance. Additional sections cover soil compaction, soil stabilization, drainage and dewatering, grouting methods, the stone column method, geotextiles, fabrics and earth reinforcement, miscellaneous methods and tools for ground improvement, geotechnical investigation for construction projects, and forensic geotechnical engineering. Final sections present a series of site-specific case studies. Dedicated to ground improvement techniques and geotechnical site investigation Provides practical guidance on site-specific geotechnical investigation and the subsequent interpretation of data Presents site-specific case studies with geotechnical significance Includes site investigation of soils and rocks Gives field-oriented information and guidance

Geotechnical Engineering of Landfills

Advances in Geo-Science and Geo-Structures

Geotechnical Aspects of Landfill Design

Analytical Methods in Petroleum Upstream Applications

Towards a Sustainable Geoenvironment

Proceedings of the 4th International Symposium on Geotechnics Related to the Environment - GREEN 4, Wolverhampton, UK, 28 June-1 July 2004

Landfills will remain a vital component of waste management strategy. Geotechnical consideration in landfill design is related to the effectiveness of waste containment while minimising potential migration of waste materials. Generally, geotechnical aspects are related to factors such as permeability, settlement and slope stability and structural strength of landfilll component such as impermeable base and side, leachate collection system, engineered soil barrier, proper underlying geology, and proper impermeable cover. However, the effectiveness of landfill is controlled by the geotechnical properties of these components particularly its permeability.

Geotechnical Engineering Calculations Manual offers geotechnical, civil and structural engineers a concise, easy-to-understand approach the formulas and calculation methods used in of soil and geotechnical engineering. A one stop guide to the foundation design, pile foundation design, earth retaining structures, soil stabilization techniques and computer software, this book places calculations for almost all aspects of geotechnical engineering at your finger tips. In this book, theories is explained in a nutshell and then the calculation is presented and solved in an illustrated, step-by-step fashion. All calculations are provided in both fps and SI units. The manual includes topics such as shallow foundations, deep foundations, earth retaining structures, rock mechanics and tunnelling. In this book, the author's done all the heavy number-crunching for you, so you get instant, ready-to-apply data on activities such as: hard ground tunnelling, soft ground tunnelling, reinforced earth retaining walls, geotechnical aspects of wetland mitigation and geotechnical aspects of landfill design. • Easy-to-understand approach the formulas and calculations • Covers calculations for foundation,earthworks and/or pavement subgrades • Provides common codes for working with computer software • All calculations are provided in both US and SI units

This book results from the 7th ICPMG meeting in Zurich 2010 and covers a broad range of aspects of physical modelling in geotechnics, linking across to other modelling techniques to consider the entire spectrum required in providing innovative geotechnical engineering solutions. Topics presented at the conference: Soil – Structure – Interaction; Natural Hazards; Earthquake Engineering: Soft Soil Engineering; New Geotechnical Physical; Modelling Facilities; Advanced Experimental Techniques; Comparisons between Physical and Numerical Modelling Specific Topics: Offshore Engineering; Ground Improvement and Foundations; Tunnelling, Excavations and Retaining Structures; Dams and slopes; Process Modeling; Goenvironmental Modelling; Education

- Mechanical properties of landfill waste - Compression of waste and implications for practice - Stress states in, and stiffness of, landfill waste Issues related to mineral liners - Properties and testing of clay liners - Issues related to the use and specification of colliery spoil liners - The design and control of bentonite enriched soils Geosynthesis in landfill design - The stability of geosynthetic landfill lining systems - Performance testing of protection materials for geomembranes - Engineering properties and use of geosynthetic clay liners

Appropriate Technologies for Environmental Protection in the Developing World

Geotechnical and Environmental Aspects of Waste Disposal Sites

Geotechnical Aspects of Landfill Construction and Design

Introductory Geotechnical Engineering

Selected Papers from ERTEP 2007, July 17-19 2007, Ghana, Africa

Geotechnical Characterisation and Geoenvironmental Engineering

Integrating and blending traditional theory with particle-energy-field theory, this book provides a framework for the analysis of soil behaviour under varied environmental conditions. This book explains the why and how of geotechnical engineering in an environmental context. Using both SI and Imperial units, the authors cover: rock mechanics soil mechanics and hydrogeology soil properties and classifications and issues relating to contaminated land. Students of civil, geotechnical and environmental engineering and practitioners unfamiliar with the particle-energy-field concept, will find that this book's novel approach helps to clarify the complex theory behind geotechnics.

This is the third volume of the proceedings of the 8th International Congress on Environmental Geotechnics (ICEG 2018), held on October 28 - November 1, 2018 in Hangzhou, China. The theme of the congress is "Towards a Sustainable Geoenvironment", which means meeting the needs of the present generation without compromising the ability of future generations to meet their own needs. Under this theme, the congress covers a broad range of topics and provides an excellent opportunity for academics, engineers, scientists, government officials, regulators, and planners to present, discuss and exchange notes on the latest advances and developments in the research and application of environmental geotechnics.

Despite the importance of preserving the environment in our developing world, activity involving the extraction of natural resources and the disposal of waste continues to increase. Such operations need to be conducted in a carefully-controlled manner, protecting both the natural environment and the communities who live in the vicinity. Every four years the GREEN (Geotechnics Related to the Environment) symposia are held, recognizing the major contribution that geotechnical engineering makes towards achieving the afore-mentioned goals. The meeting provides an international forum for the exchange of ideas, experiences and innovations. The GREEN 4 meeting discussed engineered disposal of waste in landfills; land contaminated by waste disposal and fluid flows; industrial waste dumps from mineral mining and extraction; and environmental management. The book contains expertise from nineteen countries around the world, and provides an integrated view of the latest research and practice in waste disposal. New and evolving ideas, ongoing concerns and developments throughout the world are discussed.

Each number is the catalogue of a specific school or college of the University.

La Géotechnique Des Sols Indurés - Roches Tendres, [Athina 2011].. Pt. 4

Advances in Environmental Geotechnics

Physical Modelling in Geotechnics, Two Volume Set

The Proceedings of Green 3 : the 3rd International Symposium on Geotechnics Related to the European Environment Held in Berlin, June 2000

Geotechnical Investigations and Improvement of Ground Conditions

The Exploitation of Natural Resources and the Consequences

Increasing environmental awareness has emphasized the many engineering situations in which there are potential environmental impacts. This text provides a guide for engineers who are likely to be involved in such situations.

"Advances in Environmental Geotechnics" presents the latest developments in this interdisciplinary field. The topics covered include basic and advanced theories for modeling of geoenvironmental phenomena, testing and monitoring for geoenvironmental engineering, municipal solid wastes and landfill engineering, sludge and dredged soils, geotechnical reuse of industrial wastes, contaminated land and remediation technology, applications of geosynthetics in geoenvironmental engineering, geoenvironmental risk assessment, management and sustainability, ecological techniques and case histories. This proceedings includes papers authored by core members of ISSMGE TC5 (International Society of Soil Mechanics and Geotechnical Engineering---Environmental Geotechnics) and geoenvironmental researchers from more than 20 countries and regions. It is a valuable reference for geoenvironmental and geotechnical engineers as well as civil engineers. Yunmin Chen, Xiaowu Tang, and Liangtong Zhan are Professors at the Department of Civil Engineering of Zhejiang University, China.

This book is the first edited compilation of selected, refereed papers submitted to ERTEP 2007. The selected papers either dealt with technologies or scientific work and policy findings that address specific environmental problems affecting humanity in general, but more specifically, people and ecosystems in developing countries. It was not necessary for the work to have been done in a developing country, but the findings and results must be appropriate or applicable to a developing country setting. It is acknowledged that environmental research, technology applications and policy implementation have been demonstrated to improve environmental sustainability and protection in several developed economies. The main argument of the book is that similar gains can be achieved in developing economies and economies in transition. The book is organized into six chapters along some of the key themes discussed at the conference: Environmental Health Management, Sustainable Energy and Fuel, Water Treatment, Purification and Protection, Mining and Environment, Soil Stabilization, and Environmental Monitoring. It is hoped that the contents of the book will provide an insight into some of the environmental and health mana- ment challenges confronting the developing world and the steps being taken to address them.

As the pressure to conserve agricultural land and green-field sites has grown it has become increasingly important to reclaim land that has been damaged by past industrial usage, e.g. areas of mining subsidence, tailings dams and lagoons. Furthermore the need to conserve primary aggregates is providing an impetus for re-use of waste materials in engineered construction.This book is the proceedings of the GREEN3, the third in a four-yearly series of international symposia that discuss aspects of geotechnical engineering intimately related to the environment.

Geotechnical Engineering Calculations and Rules of Thumb

IGC 2016 Volume 1

Geotechnical Practice for Waste Disposal

Environmental Geotechnics

Select Proceedings of GSGS 2020

Structures engineering and geotechnical infrastructure development

The Handbook of Environmental Health-Pollutant Interactions in Air, Water, and Soil includes Nine Chapters on a variety of topics basically following a standard chapter outline where applicable with the exception of Chapters 8 and 9. The outline is as follows:1. Background and status2. Scientific, technological and general information3. Statement o

The development of the use of polymeric materials in the form of geosynthetics has brought about major changes in the civil engineering industry. Geosynthetics are available in a wide range of compositions appropriate to different applications and environments. Over the past three to four decades, civil engineers have grown increasingly interested

The book comprises selected proceedings of the 2016 annual conference of the Indian Geotechnical Society. The technical papers presented on the theme "Geotechnical Characterisation and Geoenvironmental Engineering" highlight the modified geotechnical properties of soil admixed industrial waste and also the characteristics of soil with different pore fluid under varying test conditions. The major topics covered are (i) characterisation of soils, rocks and synthesised materials and (ii) geoenvironmental engineering and behaviour of unsaturated soil. This book will prove a valuable reference for researchers and practicing engineers alike.

By combining integrated solid waste management with the traditional coverage of landfills, this new edition offers the first comprehensive guide to managing the entire solid waste cycle, from collection, to recycling, to eventual disposal. * Includes new material on source reduction, recycling, composting, contamination soil remediation, incineration, and medical waste management. * Presents up-to-date chapters on bioreactor landfills, wetland mitigation, and landfill remediation. * Offers comprehensive coverage of the role of geotechnical engineering in a wide variety of environmental issues.

Concepts, Processes, Technology

Geotechnical Engineering

Handbook of Environmental Health, Two Volume Set

Comptes Rendus Du 15ème Congrès Européen de Mécanique Des Sols & de Géotechnique

Proceedings of the International Symposium on Geoenvironmental Engineering in Hangzhou, China, September 8-10, 2009

The impact of food waste content on the municipal solid waste friction angle was studied. Using reconstituted fresh MSW specimens with different food waste content (0, 40, 58, and 80%), 48 small-scale (100-mm-diameter) direct shear tests and 12 large-scale (430 mm\U+00d7\430 mm) direct shear tests were performed. A stress-controlled large-scale direct shear test device allowing approximately 170-mm sample horizontal displacement was designed and used. At both testing scales, the mobilized internal friction angle of MSW decreased considerably as food waste content increased. As food waste content increased from 0 to 40% and from 40 to 80%, the mobilized internal friction angles (estimated using the mobilized peak (ultimate) shear strengths of the small-scale direct shear tests) decreased from 39 to 31 ° and from 31 to 7 °, respectively, while those of large-scale tests decreased from 36 to 26 ° and from 26 to 15 °, respectively. Most friction angle measurements produced in this study fell within the range of those previously reported for MSW.

This edited volume deals with the attempts made by the scientists and practitioners to address contemporary issues in geoenvironmental engineering such as characterization of dredged sediments, geomaterials and waste, valorization of waste, sustainability in waste management and some other geoenvironmental issues that are becoming quite relevant in today's world especially in view of the high urbanization rates, advancement in technologies, and changes in consumption behavior of people. In this regard, wastes generated through the daily activities of individuals and organizations pose many challenges in their management. The volume is based on the best contributions to the 2nd GeoMEast International Congress and Exhibition on Sustainable Civil Infrastructures, Egypt 2018 – The official international congress of the Soil-Structure Interaction Group in Egypt (SSIGE).

Effective measurement of the composition and properties of petroleum is essential for its exploration, production, and refining; however, new technologies and methodologies are not adequately documented in much of the current literature. Analytical Methods in Petroleum Upstream Applications explores advances in the analytical methods and instrumentation that allow more accurate determination of the components, classes of compounds, properties, and features of petroleum and its fractions. Recognized experts explore a host of topics, including: A petroleum molecular composition continuity model as a context for other analytical measurements A modern modular sampling system for use in the lab or the process area to collect and control samples for subsequent analysis The importance of oil-in-water measurements and monitoring The chemical and physical properties of heavy oils, their fractions, and products from their upgrading Analytical measurements using gas chromatography and nuclear magnetic resonance (NMR) applications Asphaltene and heavy ends analysis Chemometrics and modeling approaches for understanding petroleum composition and properties to improve upstream, midstream, and downstream operations Due to the renaissance of gas and oil production in North America, interest has grown in analytical methods for a wide range of applications. The understanding provided in this text is designed to help chemists, geologists, and chemical and petroleum engineers make more accurate estimates of the crude value to specific refinery configurations, providing insight into optimum development and extraction schemes.

Following the structure of previous editions, Volume 2 of this Sixth Edition proceeds through four individual chapters on geomembranes, geosynthetic clay liners, geofoam and geocomposites. The two volumes must accompany one another. Volume 1 contains geosynthetics, geotextiles, geogrids and geonets. The two volumes must accompany one another. All are polymeric materials used for myriad applications in geotechnical, geoenvironmental, transportation, hydraulic and private development applications. The technology has become a worldwide enterprise with approximate $5B material sales in the 35-years since first being introduced. In addition to describing and illustrating the various materials; the most important test methods and design examples are included as pertains to specific application areas. This latest edition differs from previous ones in that sustainability is addressed throughout, new material variations are presented, new applications are included and references are updated accordingly. Each chapter includes problems for which a solutions manual is available.

Investigation of Geotechnical and Hydraulic Aspects of Landfill Design and Operation

Design of Landfills and Integrated Solid Waste Management

Geotechnical Aspects of Landfill Design and Construction

Proceedings of the 8th International Congress on Environmental Geotechnics Volume 2

Select papers

An Environmental Perspective

Introducing the Quality of Protection Modeling Language (QoP-ML), this book provides for the abstraction of security systems while maintaining emphasis on the details of quality protection . It delineates the steps used in cryptographic protocol and introduces a multilevel protocol analysis that expands current understanding. Every operation defined by QoP-ML is described within parameters of security metrics, therefore evaluating the impact of the operation on the entire system's security.

The contributions to this volume examine: geotechnical hazard acknowledging the deversity of local ground conditions and environmental factors which play a decisive role in designing engineering structures in Danubian countries.

Focuses on actual, state-of-the-art design/construction procedures as opposed to a discussion of solid waste management issues and to general descriptions and/or conceptual designs. Provides an integrated package of analytical tools, design equations, and step-by-step construction procedures for all elements of a landfill, giving the reader a better sense of the necessary site investigation, planning, analysis, and organization that go into a landfill design and construction project.The characteristics of landfill containment envelopes and their design/construction are treated in detail. Physico-chemical and engineering properties of solid waste that are relevant and important to landfill design and construction are tabulated and described. Includes explanation of how to evaluate and assess potential problems that affect landfill performance such as sideslope stability, settlement, containment effectiveness, and erosion control. Discusses vertical landfill expansion; how leachate moves across a liner or barrier under both advection and diffusion; compares the containment effectiveness of different liner systems to the combined advective-diffusive transport of dissolved leachate solutes. Includes a detailed explanation with numerical examples and calculations of how to design a gas collection and piping system in a landfill—including the collection and handling of condensate in the gas. Detailed installation and inspection guidelines are provided for both earthen and geosynthetic liner/cover systems—comparing the relative advantages and limitations of each. For professional training courses in Geotechnical and Geoenvironmental Engineering.

Geotechnical Aspects of Landfill Design and Construction

Proceedings of the 2nd GeoMEast International Congress and Exhibition on Sustainable Civil Infrastructures, Egypt 2018 – The Official International Congress of the Soil-Structure Interaction Group in Egypt (SSIGE)

Proceedings of the Symposium Held at the Nottingham Trent University Department of Civil and Structural Engineering on 24 September 1998

Geosynthetics Asia 1997

Geotechnics for Sustainable Infrastructure Development

Multilevel Modeling of Secure Systems in QoP-ML

Sustainability Issues in Environmental Geotechnics