Book Reviews

Underground Services Directory 1992. D. M. Sanders (ed.) Thomas Telford, London, 1992. £30 paperback; 208 pp. ISBN 0-7277-1827-4.

This publication is one of a series of directories and yearbooks by the same publisher. The format is in the same style as the Ground Engineering Yearbook (the 1990 edition was reviewed in QJEG, vol. 24). The five main Parts are divided into 44 Sections, while the final Part comprises four indexes. The main topic areas are: consulting services and design aids; testing, monitoring and inspection; pipes, manholes and ancillaries supplies; sewer and pipeline installation; and sewer and pipeline repair. Unlike the Ground Engineering Yearbook, there is no introduction or preface.

Underground services as a subject is not so far removed from ground engineering and I can’t help thinking the book verges on milking a good idea. Its appeal is bound to be far more limited, being more specialized, and there is inevitably some overlap.

In an otherwise good publication, the lack of editorial control over what goes into each section is frustrating. One particular consulting engineering firm appears in a number of categories which I think are inappropriate, for example ‘Manufacturers and suppliers of valves and penstocks’. The company is clearly not a manufacturer nor a supplier and this is irritating when one is looking for the real thing. It defeats the whole object of dividing a directory into sections if the system is abused and people try to get into any section, however tenuous the link with their commercial operation. This is particularly unfortunate as one of the great strengths of the Directory is its cross-referencing and multiple indexes. I only hope the editor will exercise his prerogative to a greater degree in subsequent editions.

Apart from my minor grumbles, the book is well laid out and should prove a useful addition to the reference library of organizations who have some dealing with underground services.

K. D. Privett

Recycling Derelict Land. George Fleming (ed.) Thomas Telford, London, 1991. £35.00 hardback; 218 pp. ISBN 0-7277-1318-3.

There have been very few publications in recent years, other than conference proceedings, that have dealt with the investigation, assessment and redevelopment of marginal and derelict land. This book provides a general overview of the now well known problems but unfortunately it lacks specific engineering guidance on sound and cost effective remedial measures. This may not necessarily be due to the particular skills and experiences of the individual authors, but more to the slow development of government legislation and guidelines as published by the Interdepartmental Committee on the Redevelopment of Contaminated Land (ICRCL), the British Standards Institution and the Research Associations. Inadequate definitive guidance leads practising engineers to become diplomats in assessing the ‘clean up’ requirements of contaminated land. Final solutions are no more than the ‘best’ compromise between developers, local authority officers and engineers. The book, however, clearly recognizing this, paves the way for additional work and particularly the publication of further case histories. More sponsored research of numerous problematic sites is required in order to provide all concerned with sufficient experiences of remediation and rehabilitation of marginal, derelict and contaminated land. The long-term performance, stability and quantitative evaluation of environmental health hazards will be continuously evolving year after year.

The book consists of seven individual chapters each written by well known experts in their particular fields, notably Cairney, Barry and Smith. It is the latter two authors who, for the reviewer, provide the most useful text for quick and easy reference.

The contents page does not give a clear indication of the components and topics of each individual section and further thought could have been given to the layout and numbering of each section. Within the main text, it is difficult to identify particular sub-topics; these are shown only by italics and occasional bold typeface.

Chapter 1 by George Fleming highlights the history of the problem of derelict land and provides definitions and causes of dereliction and contamination. Risks vs hazards are discussed, the scale of the problem is dismissed, but the role of the civil engineer is emphasized.

In Chapter 2, Jackson and Cairney look at derelict land in relation to central and local government controls and procedures in England, Wales and Scotland and at ways of overcoming the problems to a level acceptable to the local authority. The chapter highlights the need for close co-operation between planner, developer and engineer at an early stage of a project.

Chapter 3 by David Barry provides an excellent appreciation of the hazards or dangers from a given process. Sources and forms of hazards are identified with specific data profiles on the main hazards including gases, metals, inorganic and organic compounds.

Chapter 4 on site investigation provides general guidance on methods and techniques for exploration work on filled sites. The chapter does not go into sufficient detail and guidance on boring and sampling protocols
for heavily contaminated sites where cross contamination can be a major risk in the site assessment work.

In Chapter 5, Mike Smith provides clear and concise guidance on analytical strategy, contamination and tentative trigger concentrations (ICRCL) and comparison with the Dutch level A, B and C values, in relation to proposed end uses of the site. Gas, combustibility, aggressive attack on building materials, radioactivity and biological contamination techniques are also considered. The section on geotechnical techniques is misplaced and deserves a chapter to itself. It receives only a cursory review and is primarily concerned with the phenomena of settlement.

Chapter 6 discusses available options for secure development. Various forms of treatment are considered, but what were new techniques are already becoming quite common in the UK, even in a short space of time. There is a lack of background information on the techniques and methodology of European and North American processes such as bioremediation, soil washing, air stripping etc. The section deals more with containment and excavation rather than perhaps more cost effective methods of in situ treatment. It is these new techniques that are going to receive more attention in the coming years.

The section on gas migration is already dated and the approach perhaps too simplistic. The use of HDPE membranes is not emphasized and certainly the use of even thick gauge, polythene membranes in sealing floor structures in buildings is now frowned upon. Gas alarms in buildings are also not considered as a necessary precautionary measure.

Chapter 7 deals with general planning criteria and land use requirements that have to be considered in selecting a solution for land renewal works.

The book is of value to students of many disciplines e.g. civil engineering, applied and environmental geology, geotechnics, environment science, planning and architecture, and also to practising engineers. It should be included on most book shelves as a good reference source of useful background information.

Engineering geologists dealing with environmental geotechnics and the need for an optimum solution will find the book does not give specific recommendations. Perhaps this is just as well, as each site requires its own unique assessment based on a thorough understanding of the history, geology and environmental constraints. It would be quite impossible for a book of this type to cover all topics to a comprehensive level. The end result, however, is a well balanced book covering practical aspects of recycling derelict land but looking back at 1980s know-how rather than ahead with 1990s technology.

A. Dolecki

**Engineering Properties of Soils and Rocks (3rd edn).**

*F. G. Bell.* Butterworth-Heinemann, Oxford, 1992. £45 hardback; 345 pp. ISBN 0-7506-0376-3.

In the preface to this latest edition of this well established book, the author explains that he has revised the text fully with the result that this edition is now twice as long as the previous one. This is certainly true, with most of the sections in the previous edition having been extended as well as new topics addressed.

The general format and layout of the book remain similar with the topics approached in the same order. The first six chapters concentrate on soils. Additional sections are included on soil consistency, shear strength, consolidation, the properties of loess and the importance of fissuring in clays. Most of the other sections have been rewritten, in particular the one on the engineering properties of clays. The chapter on ‘Soils formed in extreme climates’ in the previous edition has been rewritten as two chapters: ‘Tills and other deposits associated with cold climates’ and ‘Tropical soils’ with additional topics covered such as periglacial phenomena and dispersive soils. The final chapter in the soils part of the book is dedicated to organic soils and includes updated classifications of peat.

The second half of the book concentrates on rocks. This has been comprehensively revamped and now covers five chapters. Most of the sections have been rewritten with detailed explanations of the deformation and failure of rocks and the strength of jointed rock masses. The discussion of discontinuities now warrants its own chapter, with further discussion on their descriptions and origin. The weathering of rocks and rock masses is also given its own chapter with a new section on slaking of mudrocks. Finally, the chapter on the properties of rocks has been written with additional information throughout. However, the section on sea earths and coal seams has been deleted.

The last chapter, as in previous editions, discusses groundwater with additional sections on groundwater flow and groundwater abstraction.

Overall, the book has been comprehensively rewritten with more recently published information and theories included. The references at the end of each chapter are now in alphabetical order by author and, as previously, the tables and figures are clear and well cross referenced. However, on the minus side, the previous editions of this book have been purchased by many a young geotechnical engineer, but at £45 a copy for this hardback book, I cannot see many buying it in the future. Hopefully a paperback version at a more competitive price will be published. That apart, the book has been comprehensively brought up to date and remains an extremely useful text for general use.

J. P. Hucker