



Contaminated-land-strategies JISMAIL forum book of the month for June 2010

Soil and Rock Description in Engineering Practice

David Norbury

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Accurate, objective description of the ground is an essential prerequisite to formulating a ground model to inform the conceptual site model; to support characterisation and to ensure sensitive design. The title rightly reminds us that the main audience for this book is the engineering, and specifically the construction, world. However it makes for essential reading in our own domain too. Whether it is choosing the relevant generic assessment criterion or evaluating the feasibility of soil washing, risk based contaminated land management and its near neighbour of sustainable brownfield redevelopment depend upon the sound understanding of the ground conditions only expert soil and rock descriptions can provide.

This book comes from a thoroughbred stable. Its author has been at the forefront of the practice and guidance of soil and rock description for the past four decades. David Norbury is uniquely placed to write such a book and we should be grateful to him for doing so. From the recognition of the intellectual challenge and practical consequences of differentiating soil from rock to the colour coded 'Tip' boxes this book exudes evidence that its author has thought deeply about his subject, often while engaged in practicing it. 'Example description' boxes show how the principles work out in practice. 'Background' boxes provide vignettes on terms, such as gley, that the reader may not be instantly familiar with.

Only those of us who have struggled with differentiating soils in the field or who have been frustrated by poor or inconsistent descriptions in logs will appreciate the need for 304 pages on a subject the uninitiated may feel is akin to paint drying in its excitement. Perhaps if those responsible for the investigations of the failed Carsington Dam had read this book there would have been no need for a reconstruction.

The book reviews the history of codifying descriptions. It then presents the syntax of describing soil and rock. Separate chapters deal with the soil and rock material, relative density and strength, colour, secondary and tertiary fractions, the Geological formation, weathering, logging discontinuities and recording the fracture state. A chapter is devoted to each of low density soils and, closer to our own interests, made ground. It was the late John Knill who taught me to 'describe first, classify later' – and it is thus appropriate that the chapter on classification schemes comes late on in the book. The final two chapters deal with describing soils and rock from boreholes and in field exposures.

The chapter on made ground recognises that some man-made materials are not describable using the systematic approach developed for geotechnical purposes. Norbury provides pen pictures of manufacturing wastes such as blaes, the onomatopoeic galligoo (sic), burgy and chalk whittings. His pragmatic approach to descriptions is demonstrated by the choice of Highways Agency's H170 Test of recycled aggregates. Although a table of terms to describe odours is provided, I would caution against the practice of deliberately sniffing material encountered on potentially 'chemically challenged' sites.

Those of you interested in dissolved and non-aqueous phase contaminant migration through fissured rock will appreciate the significance of the details in the chapter on discontinuity logging.

All here would benefit from a deeper awareness of how to describe soil and rock better. For those wishing to put the book's message into practice, the author's website provides downloadable versions of the various pro forma field sheets included in the appendix. The website also provides summary tables of soil and rock descriptions in accordance with BS 5930:1999 Amendment 1 and BS EN ISO 14688. These should accompany staff into the field.

Soil and rock description is the core of the engineering geologist's professional specialism and this book will help both the practitioner and their colleagues and clients benefit from objective and consistent descriptions.

David Norbury's "*Soil and Rock Description in Engineering Practice*" is essential reading for anyone involved in the technical aspects of site characterisation – whether for risk assessment or remediation. The cover price is at the low to middle end of equivalent definitive texts, reports, manuals and standards. Click on "Soil and Rock Description" at <http://www.drnorbury.co.uk> for an order form and the free downloads mentioned above.

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