Contents

Preface: M. Eddleston, S. Walthall, J. C. Cripps & M. G. Culshaw  vii
Acknowledgements  viii

Section 1: Introduction

F. G. Bell, J. C. Cripps & M. G. Culshaw: The significance of engineering geology to construction  3

Section 2: Construction of foundations

P. W. Rowe: Examples of ground response to various types of structural foundation construction  33
M. J. Ball & B. E. F. Sims: Engineering geology of Snebra Ghyll bridge, A595(T) Hensington Bypass  59
M. E Barton: The Bargate Centre, Southampton: engineering geological and geohydrological aspects of the excavation for basement construction  67
G. B. Card & G. R. Carter: Case history of a piled embankment in London’s Docklands  79
R. D. Essler: Applications of jet grouting in civil engineering  85
A. Forster, M. G. Culshaw & F. G. Bell: Regional distribution of sulphate in rocks and soils of Britain  95
J. Morey & R. R. W. Harris: Jet grouting in construction  105
C. R. M Houston: Contractor-designed piles for the Toyota car plant in Derbyshire  115
T. Y. Irfan: Potential construction problems for bridge foundations in areas underlain by a complex marble formation in Hong Kong  127
P. J. Lloyd, J. C. Cripps & F. G. Bell: Estimation of grout take for small-scale developments in areas of shallow coal mining: some examples from the East Pennine coalfield  135
A. H. Marsh & N. R. Greenwood: Foundations in Gault Clay  143
J. A. Sutherland & J. C. M. Allen: Construction problems and building control  161

Section 3: Highway construction

G. D. Matheson: Aspects of highway rock engineering in the UK  169
J. Perry: Engineering geology of soils in highway construction: a general overview  189
A. J. Barry, Bambang Trigunarnsyah, T. Symes & J. S. Younger: Geogrid reinforced piled road over peat  205
A. L. Campton: Design and construction of an embankment incorporating polystyrene and geogrid reinforcement  211
T. P. Davies & T. J. Smith: Rock engineering for the Dundee Inner Ring Road  219
P. J. Fennin & S. Hasan: Pipeline route investigations using geophysical techniques  229
B. R. Thomas: Application of evaporative dewatering methods to allow the use of wet fills in the construction of earthworks  237
G. West: Petrographical examination of road construction materials  245

Section 4: Tunnels

J. P. Beveridge & W. J. Rankin: Role of engineering geology in NATM construction  255
A. P. Deaves & J. C. Cripps: Investigation and treatment of abandoned mine workings for underground excavations: an example from the Don Valley Intercepting Sewer scheme, Sheffield, England  269
C. T. Kettle & M. Gandai: A new tunnel roof support system with specific reference to the Brovello Tunnel  279
CONTENTS

R. J. MARGERISON, D. J. EASTAFF & K. W. NORBURY: Role of the contractor’s engineering geologist in the construction of the New Studley Tunnel 299
M. RICHARDSON, M. EDDLESTON, C. D. ARTHUR & V. M. NGUYEN: The Midge Hall Valley Sewer: a case history in tunnelling through Coal Measures rocks 309

Section 5: Excavations and slopes
R. COJEAN: Influence of geological structures in slope stability analyses for opencast mining and quarry excavations 321
D. M. McCANN & P. J. FENNING: Estimation of rippability and excavation conditions from seismic velocity measurements 335
J. A. GANNON: Masonry retaining wall reconstruction and rock face stabilization using soil nails, masonry and dowels 345
C. P. NATHANAIL: Assessments of ease of blasting in Troodos Sheeted Dyke Complex and Lower Pillow Lava Series 355
M. J. PEDLEY & R. S. PUGH: Soil nailing in the Hastings Beds 361
D. G. ROSS & G. M. REEVES: Study of the effect of excavation technique on rock slope stability and slope maintenance costs at two locations in Scotland 369
K. H. NICHOLLS: Slope works associated with site formation excavation at Tsing Lung Tan, Western New Territories, Hong Kong 377

Section 6: The professional engineering geologist
M. EDDLESTON, R. E. MURFIN & S. WALTHALL: The role of the engineering geologist in construction 389