

Contents

Foreword: D. N. HOLT	iii
Preface: M. G. CULSHAW, F. G. BELL, J. C. CRIPPS & M. O'HARA	v
Organizing Committee.....	vii
Acknowledgements	vii
INTRODUCTION	
F. G. BELL, J. C. CRIPPS, M. G. CULSHAW, & M. O'HARA: Aspects of geology in planning.....	1
D. H. WORTH: Planning for Engineering Geologists	39
SESSION 1: PLANNING AND ENGINEERING GEOLOGY	
G. F. McDONIC: Planning and geology	49
R. F. LEGGET: The value of geology in planning	53
SESSION 2: OPPORTUNITIES FOR DEVELOPMENT AND CONSTRAINTS ON DEVELOPMENT	
P. B. ATTEWELL, J. C. CRIPPS & J. P. WOODMAN: Economic design of ground investigations for planning	61
S. S. HAKE: A review of engineering geological and geotechnical aspects of town and country planning with particular reference to minerals and the extractive processes	69
D. N. HOLT & B. R. MARKER: Benefits of engineering geology for land use planning in areas of past metalliferous mining	75
A. R. MCKIRDY: Protective works and geological conservation	81
A. A. WILSON: Geological factors in land-use planning at Aldridge–Brownhills, West Midlands	87
Discussion	95
SESSION 3: DATA ACQUISITION	
A. C. MEIGH: Data acquisition	99
T. H. AL-DABBAGH & J. C. CRIPPS: Data sources for planning: geomorphological mapping of landslides in north-east Derbyshire	101
J. H. CHARMAN & C. G. COOPER: The Frindsbury area, Rochester: a review of historical data and their implication on subsidence in an urban area	115
C. N. EDMONDS, T. J. M. KENNIE & M. S. ROSENBAUM: The applications of airborne remote sensing to the detection of solution features in limestone	125
J. R. A. GILES: Identification of former shallow coal mining from aerial photographs: an example from West Yorkshire	133
P. A. HART: Application of lithic and structural geological data to the assessment of ground stability above shallow abandoned coal mines	137
S. M. HERBERT, D. P. ROCHE & G. B. CARD: The value of engineering geological desk study appraisals in scheme planning	151
P. G. KALAUGHER, P. GRAINGER & R. L. P. HODGSON: Cliff stability evaluation using geomorphological maps based on oblique aerial photographs	155
T. J. M. KENNIE & W. M. MCKAY: Monitoring of geotechnical processes by close range photogrammetry	163
M. G. CULSHAW, P. D. JACKSON & D. M. McCANN: Geophysical mapping techniques in environmental planning	171
R. W. MCCRAE & A. F. AL-AMMOURI: Engineering geology input to the Greater Amman Master Plan	179
J. M. REYNOLDS: The role of surface geophysics in the assessment of regional groundwater potential in northern Nigeria	185
Discussion	191

SESSION 4: LAND EVALUATION AND SITE ASSESSMENT (MAPPING)

W. R. DEARMAN: Land evaluation and site assessment: mapping for planning purposes	195
J. S. BIBBY: The use of land capability and land suitability classifications for planning purposes in Scotland	203
D. BROOK & B. R. MARKER: Thematic geological mapping as an essential tool in land-use planning	211
J. C. DOORNKAMP, D. BRUNSDEN, R. U. COOKE, D. K. C. JONES & J. S. GRIFFITHS: Environmental geology mapping: an international review	215
A. FORSTER, P. R. N. HOBBS, R. J. WYATT & D. C. ENTWISLE: Environmental geology maps for Bath and the surrounding area for engineers and planners	221
A. A. McMILLAN & M. A. E. BROWNE: The use or abuse of thematic mining information maps	237
H. J. SIDDLER, H. R. PAYNE & M. J. FLYNN: Planning and development control in an area susceptible to landslides	247
I. STATHAM, C. GOLIGHTLY & G. TREHARNE: Thematic mapping of the abandoned mining hazard: a pilot study for the South Wales Coalfield	255

Discussion	269
------------------	-----

SESSION 5: LAND EVALUATION AND SITE ASSESSMENT (HAZARD AND RISK)

P. G. FOKES: Land evaluation and site assessment (hazard and risk)	273
C. N. EDMONDS, C. P. GREEN & I. E. HIGGINBOTTOM: Subsidence hazard prediction for limestone terrains, as applied to the English Cretaceous Chalk	283
A. R. G. FULTON: The supply and use of engineering geology information relating to slope instability hazards for planning purposes	295
G. J. HEARN & A. FULTON: Landslide hazard assessment techniques for planning purposes: a review	303
M. O'HARA: Physical hazard and risk assessment in Jamaica, West Indies	311
D. P. ROCHE: Planning for development in metalliferous mining areas in South West England	323
I. S. VENTER & B. J. GREGORY: Risk assessment in dolomitic terrain: a case history	329

Discussion	335
------------------	-----

SESSION 6: DEVELOPMENT OF RESOURCES

R. K. TAYLOR: Development of resources	341
K. AMBROSE, B. CANNELL & B. S. P. MOORLOCK: The mapping and assessment of aggregate resources in the south Midlands and Welsh Borderland	347
K. J. BATE & S. S. HAKE: Engineering geological considerations of the transitional authorization procedures for opencast coal mining in the United Kingdom ...	355
F. G. BELL: The influence of subsidence due to present day coal mining on surface development	359
H. H. CHOY, Q. G. EARLE, T. Y. IRFAN & A. D. BURNETT: Studies for the extension of a major urban quarry in Hong Kong	369
A. R. CLARK, A. J. MOREY, S. T. GILBERT & R. E. BACCIARELLI: Planning constraints and their influence on quarrying of the Magnesian Limestone	379
A. R. JONES: Environmental planning and mineral development: the case of Hemerdon Mine	389
G. WALTON & D. BROOK: Guidelines for designing and inspecting excavated quarry slopes	397

Discussion	405
------------------	-----

SESSION 7: THE INFRASTRUCTURE, ITS DEVELOPMENT AND REDEVELOPMENT

M. E. BARTON: The sunken lanes of southern England: engineering geological considerations	411
J. R. COOK & J. S. YOUNGER: The engineering geology of road projects in North Borneo	419

CONTENTS

xi

J. S. GAHIR, A. R. CLARK, A. F. HOWLAND & P. L. MARTIN: Planning and geotechnical considerations for redevelopment of derelict industrial land in London docklands	429
A. B. HAWKINS & D. TOMLINSON: Planning and construction of an industrial site on the Bristol Coalfield	439
P. D. JACKSON, D. M. MCCANN & D. L. RUSSELL: Geophysical mapping during the planning of new roads: an aid to the detection of mineworkings	447
E. M. LEE & J. S. GRIFFITHS: The importance of pedological soil survey in land use planning, resource assessment and site investigation	453
J. H. REDDING: Route selection for natural gas pipelines in Ireland	467
C. D. WARREN & D. BLAKEWAY: Geological investigations and proposed development of the Colonia Soto district, Tegucigalpa, Honduras	475
Discussion	485
 SESSION 8: WASTE DISPOSAL AND POLLUTION CONTROL	
N. A. CHAPMAN & G. M. WILLIAMS: Hazardous and radioactive waste management: a case of dual standards?	489
G. M. WILLIAMS, P. COULTER & A. STUART: Planning and engineering in relation to waste disposal: a case study of the Alkerton landfill	495
R. C. HARRIS & A. C. SKINNER: The statutory controls over waste disposal and the role of the engineering geologist	503
T. J. MCEWEN & C. BALCH: Geological and environmental constraints on the disposal of low-level radioactive wastes in the UK	507
G. E. POWELL & T. Y. IRFAN: Geotechnical design for a controlled tip in Hong Kong	517
Discussion	525
 SESSION 9: WORKSHOP	
<i>(No papers were given in this session)</i>	
 SESSION 10: CONSERVATION, RESTORATION AND PROTECTION OF LAND	
M. A. COARD, P. C. SIMMS & J. L. TERNAN: Coastal erosion and slope instability at Dowederry, south-east Cornwall: an outline of the problem and its implications for planning	529
S. P. CORBET & A. R. TOMS: Reclamation at Bathside Bay, Harwich: planning and evaluation for roads and port	533
A. J. MOFFAT: The geological input to the reclamation process in forestry	541
R. J. NICHOLLS & B. WEBBER: Coastal erosion in the eastern half of Christchurch Bay	549
J. G. RAYBOULD, A. F. POTTER, J. CROWTHER & E. MATAN: Waste disposal and engineering geology in the creation of the Liverpool International Garden Festival site	555
M. J. REEVE: The selection and handling of soil materials for restoration of land to agriculture in the UK	561
A. G. WILLIAMS, S. P. CORKER & C. TOMALIN: Land quality and site restoration: a case study from north Essex	569
Discussion	577
 SESSION 11: ENVIRONMENTAL IMPACT AND STRATEGIC PLANNING	
J. J. HENRY: The geological input into land use planning in Lothian Region, Scotland	583
N. P. KOIRALA, A. HEE & A. D. BURNETT: Geotechnical input to land use planning in Hong Kong	589
J. G. RAYBOULD & D. J. ANDERSON: The use of geological information in the strategic planning of waste disposal in Merseyside	599
S. E. WILTSHIRE, J. COWLEY & J. C. DOORNKAMP: Environmental impact assessment: the background and the potential for the geologist	607
Discussion	611

SESSION 12: PLANNING AND ENGINEERING GEOLOGY, OPPORTUNITIES AND RESPONSIBILITIES

	H. R. PAYNE: Opportunities and responsibilities	617
Discussion		623

SESSION 13: ENGINEERING GEOLOGY AND THE LEGAL ASPECTS OF PLANNING

	J. L. KNILL: The engineering geologist as an expert witness	629
Subject index		633
Index of authors and contributors to discussions		640