

Joint Defra / EA Flood and Coastal Erosion Risk Management R&D Programme

SCHO0806BLKE-E-P

The Rock Manual. The use of rock in hydraulic engineering (2nd edition) Science Summary SC030221/SS

The Environment Agency have today published an updated version of the Rock Manual, a comprehensive reference guide covering rock works in rivers and canals, estuary and river closure works and coastal rock works, plus information on works with large concrete armour units. The content has been significantly updated from the previous versions and collates research data and technical information together with practical experience gained by practitioners.

The Rock Manual was originally published in 1991 by CIRIA (Construction Industry Research and Information Association) and CUR (the Netherlands Centre for Civil Engineering Research and Codes) and described the use of rock in coastal and shoreline engineering. It was updated in 1995 by CUR to include the use of rock in dams and fluvial engineering. A French reference book, *Les Enrochements*, was produced by Laboratoire central des ponts et chaussées (LCPC) and the Centre d'études techniques maritimes et fluviales (CETMEF) in 1989, which identified the need for reference material for this subject. Since then, significant research in the area has been carried out to develop our understanding of how rock behaves and to determine improved practices for hydraulic engineering.

This new manual is more than a revision of existing documents. It is based on four years of work by a team of over 100 international experts. It contains a summary of best practice on the use of rock in engineering works for rivers, coasts and seas and incorporates all the significant advances in knowledge that have occurred over the past 10-15 years. This ensures the updated edition will retain its place as the number one reference guide worldwide for the use of rock in hydraulic engineering.

The manual will be of use to coastal, river and estuarine managers and engineers, consultants, civil engineers, hydraulic engineers, geotechnical engineers, engineering geologist, environmental regulators, geomorphologists, modellers, planning and other consenting authorities, environmental advisers, contractors, quarry companies, laboratories and academics. It will be used to assist with design, construction, management, specification, quality control, environmental impact assessment, maintenance and material selection.

The application of the guidance in this manual will help to achieve a long-term improvement in the use of armourstone and will promote conservation of natural systems in balance with the proper protection of human life and property.

The Rock Manual was funded by the following consortium: Department for Trade and Industry, Defra/ Environment Agency flood and coastal defence programme, Stema shipping, RMC Aggregates Ltd, Van Oord ACZ, Network Rail, SCOPAC (Standing Conference on Problems Associated with the Coastline), Boskalis Westminster. The research contractor was HR Wallingford (sub-contractors Halcrow and Imperial College).

This summary relates to information from Science Project [SC030221], reported in detail in the following output:-

Science Report: SC030221/SR

Title: The Rock Manual. The use of rock in hydraulic engineering (2nd edition)

ISBN: 0-86016-683-5 / 978-0-86017-683-1

November 2006

Report Product Code: CIRIA report number C638

Internal Status: Released to all regions

External Status: Publicly available

Project manager: Nick Bean, CIRIA

This project was funded by the Environment Agency's Science Group, which provides scientific knowledge, tools and techniques to enable us to protect and manage the environment as effectively as possible.

Further copies of this summary and related report(s) are available from our [publications catalogue](#) on or our National Customer Contact Centre T: 08708 506506 or E: enquiries@environment-agency.gov.uk.

© Environment Agency