## Contents

1 **Keywords**  
2 **Vision behind preparation of this guide**  
3 **Introduction and scope of issues**  
   3.1 Meeting owner’s business or service objectives  
   3.2 Phases in the life of an asset and their relative cost  
   3.3 Wider societal considerations and requirements  
4 **The owners’ requirements and obligations**  
   4.1 Performance requirements  
      4.1.1 Reliability and functionality  
   4.2 Responsibilities and liabilities  
      4.2.1 Economic and financial — 4.2.2 Societal and cultural aspects —  
      4.2.3 Environmental — 4.2.4 Risk management  
   4.3 Value judgements, decision criteria and probabilistic concepts  
   4.4 Meeting the owner’s requirements  
5 **Implications of deterioration of concrete structures**  
   5.1 General  
   5.2 Mechanisms of deterioration  
   5.3 Implications of deterioration  
6 **Case histories – dealing with deterioration and extension of asset life**  
   6.1 Introduction  
   6.2 Ashby Building, Belfast  
   6.3 Krk Bridge, Croatia  
      6.3.1 Krk Bridge - Cost analysis for the selective use of stainless steel  
7 **Engineering aspects of structure management**  
   7.1 Philosophy for structure management  
   7.2 Management systems for populations of structures  
   7.3 Planning and implementing through-life care of a structure  
      7.3.1 Introduction — 7.3.2 Design and assessment considerations —  
      7.3.3 Maintenance class — 7.3.4 Types of through-life inspection and investigations)  
   7.4 Assessment of existing structures  
   7.5 Overview of repair and remediation methods  
   7.6 Selection of protection and repair options  
   7.7 Performance indicators  
8 **Process management**  
   8.1 Establishing the professional team  
   8.2 Scenario selection  
   8.3 Scenario implementation / execution of works
Appendix F: Benefits of pre-construction planning

F.1 Introduction 169
F.2 Some potential problems in producing durable concrete structures 171
F.3 Segment 1: Investigation of potential concrete supply problems 174
F.4 Segment 2: Research into verification of durability 174
F.5 Segment 3: Trial concrete mixes 175
F.6 Segment 4: Investigation of potential placement problems 176
F.7 Segment 5: Finalise construction requirements in project specification 177
F.8 Segment 6: Provision of adequate resources for quality management 177

Appendix G: Project specifications — An owner’s tool

G.1 General 179
G.2 The benefits of “thinking construction” 180
G.3 Standards for concrete structures and quality management 181
G.4 Improving the certainty of achieving durable concrete structures 185
G.5 Execution management and the requirement for supporting plans 187
G.6 The Execution Standard and the Inspection Plan 187
G.7 The Execution Standard and the Concreting Plan 188
(G.7.1 Introduction — G.7.2 Developing a specification clause for the execution specification — G.7.3 Linkage between the Concreting Plan and the Inspection Plan — G.7.4 The Inspection Plan — G.7.5 Procurement, production and delivery of concrete — G.7.6 The Reinforcement Plan — G.7.7 The Falsework Plan — G.7.8 The Post-tensioning Plan)
G.8 Products and systems used for repair of concrete structures 195
(G.8.1 Introduction — G.8.2 QC but no QA in EN 1504: Part 10 — G.8.3 Example of method 3.2 (recasting in concrete) in EN 1504: Part 10)
G.9 Supplementary documents to support the project execution specification 197
G.10 Summary 199
G.11 Concluding remarks 200