PREFACE

Considerable research in urban drainage is being conducted at Universities and research establishments throughout the world. The subject matter varies from rainfall analysis to design of stormwater inlet gratings. A lot of the results of the research have been published, but not necessarily in a form suitable for the design engineer. The book attempts to condense some of the data and conclusions, to present it in a unified form suitable for an overall appreciation by engineers and students, and to guide the engineer in methods of computation. Thus while there are many design aids, there is also a sound hydraulic background sufficient for a postgraduate student course as well as enough ideas for research and development.

The approach is that of the designer as opposed to the analyst. This may be a result of the author's background, which was in practice with a water authority and subsequently as a consulting engineer. Methods of hydrological analysis and computer modelling are essential tools of the designer, but the description of these methods is restrained as they are probably more academic. In fact there are a number of excellent books on the simulation approach.

The layout of the book is essentially in the order in which a drainage engineer would perform his calculations. Thus the sections on hydrology preceed those on hydraulic design. Whereas a number of common design methods eg. the rational method, are summarized in an early chapter, the author has paid a disproportionate attention to the kinematic method. This method illustrates some of the shortcomings in isochronal methods, but chapter 5 in particular may be skipped if desired.

Runoff is followed through the chapters on roof drainage, road drainage, design of drain pipes and channels and culverts and bridges. Many basic principles of hydraulics are revisited in order to provide a complete reference, but there are also many design aids which it is hoped will be of use to the engineer. Generalized graphs and equations supplement the description wherever possible.

Urban pollution and runoff quality are becoming increasingly important. Quality of surface runoff is discussed briefly but no attempt is made to consider wastewater sewerage or the treatment of polluted water.