PREFACE

The North Dakota Hydrology Manual has been prepared to assist those who are planning and designing measures for soil and water conservation practices and flood prevention measures in North Dakota. The manual includes the necessary basic data for determining hydrologic factors and developing a design discharge for a given site and intended purpose. The procedures in the manual are based on Soil Conservation Service standard hydrologic procedures which have been specifically adapted for use in North Dakota. The methods in the manual are for developing hydrology for on-farm conservation practices, watershed projects, Resource Conservation and Development project measures, and River Basin Studies. This manual is based on the latest technical procedures available in the Soil Conservation Service.

Every effort has been made to make this Hydrology Manual as useful as possible. National Engineering Handbook, Section 4, gives a complete explanation of the Soil Conservation Service hydrology procedures. Other Soil Conservation Service hydrology references are:

1. Engineering Field Manual.

2. Technical Release No. 55, "Urban Hydrology for Small Watersheds."

3. SCS-TP-149, "A Method for Estimating Volume and Rate of Runoff in Small Watersheds."

The North Dakota Hydrology Manual was developed under the guidance of Allen Fisk, State Conservationist and A. Richard Moum, State Conservation Engineer, and was compiled and prepared by Jerry Spaeth, Hydrologist, Soil Conservation Service, U.S.D.A., Bismarck, North Dakota. Each of the following contributed to the development of the manual.

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INTRODUCTION

The SCS Hydrology Manual is intended primarily for Soil Conservation Service (SCS) engineers and technicians in carrying out SCS responsibilities in soil and water conservation and flood prevention.

The Soil Conservation Service basic hydrology concepts, such as the rainfall-runoff relationship, are used in this manual. This manual provides methods and techniques of estimating the parameters that affect peak discharges for watersheds.

This manual contains some new technqiues that were developed by SCS personnel to meet specific needs of SCS. Well-known techniques from other sources are included, where necessary, to illustrate special applications to watershed-project planning, evaluation, and design. Hydrologic theory is held to the minimum necessary to show the development of methods not readily available elsewhere. References to hydrologic literature that provide additional theory, data, discussion, or details of a method are included.

Many of the hydrologic problems in N.D. have been evaluated with alternative solutions. Descriptive material is kept to a minimum.

HYDROLOGY MANUAL

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