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DESIGN MANUAL

SOIL MECHANICS, FOUNDATIONS, AND EARTH STRUCTURES

NAVFAC DM-7
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PREFACE

This manual on soil mechanics, foundations, and earth structures covers the engineering application of soil mechanics to the design of all foundations and earth structures for naval shore facilities. These criteria, together with the definitive designs and guideline specifications of the Naval Facilities Engineering Command, constitute the Command's design guidance. These standards are based on functional requirements, engineering judgment, knowledge of materials and equipment, and the experience gained by the Naval Facilities Engineering Command and other commands and bureaus of the Navy in the design, construction, operation, and maintenance of naval shore facilities.

The design manual series presents criteria that shall be used in the design of facilities under the cognizance of the Naval Facilities Engineering Command. The direction and standards for procedures, methods, dimensions, materials, loads, and stresses will be included. Design manuals are not textbooks, but are for the use of experienced architects and engineers. Many criteria and standards appearing in technical texts issued by Government agencies, professional architectural and engineering groups, and trade and industry groups are suitable for, and have been made integral parts of, this series. The latest edition of each publication source shall be used.

Bibliographies of publications containing background information and additional reading on the various subjects are included in the manuals; this material however is not a part of the criteria, nor is a reading of these sources necessary for the use of the criteria presented in the manuals.

To avoid publication and to facilitate future revisions, criteria are presented only once in this series as far as possible. Criteria having general applications appear in the basic manuals numbered DM-1 through DM-10 (numbers DM-11 through DM-20 were unassigned in the original issues). Manuals numbered DM-21 and above contain criteria that usually are applicable only to the specific facility class covered by each manual. When criteria for one facility also have an application in another facility class, the basic rule has been to present such criteria in the basic, or lowest numbered, manual and cite it by reference where required in later manuals.

The specific design manuals (DM-21 and above), with but three exceptions, list design criteria for specific facilities in the order of the category codes. The exceptions are:

- (1) *Drydocking Facilities*, NAVFAC DM-29, which includes both category codes 213 and 223.
- (2) Criteria for facility class 800, *Utilities and Ground Improvements*, which have been included in the basic manuals on mechanical, electrical, and civil engineering.
- (3) *Weight Handling Equipment and Service Craft*, NAVDOCKS DM-38, which includes the design criteria for these facilities under the cognizance of the Naval Facilities Engineering Command that are not classified as real property. These include weight and line handling equipment, dredges, yard craft, and pile-driving equipment.

For the effective use of these criteria, the designer must have access to:

- (1) The basic and specific design manuals applicable to the project. See list on page 7-viii.
- (2) Published criteria sources.
- (3) Applicable definitive designs, *Definitive Designs for Naval Shore Facilities*, NAVDOCKS P-272.
- (4) Command guideline specifications.

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