

EM-1110-2-1601 Hydraulic Design of Flood Control Channels

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This manual presents procedures for the design analysis and criteria of design for improved channels that carry rapid and/or tranquil flows.

Procedures are presented without details of the theory of the hydraulics involved since these details can be found in any of various hydraulic textbooks and publications available to the design engineer. Theories and procedures in design, such as flow in curved channels, flow at bridge piers, flow at confluences, and side drainage inlet structures, that are not covered fully in textbooks are discussed in detail with the aid of Hydraulic Design Criteria (HDC) charts published by the US Army Engineer Waterways Experiment Station (USAEWES).

The charts and other illustrations are included in Appendix B to aid the designer. References to HDC are by HDC chart number. The use of models to develop and verify design details is discussed briefly. Typical calculations are presented to illustrate the principles of design for channels under various

conditions of flow. Electronic computer programming techniques are not treated in this manual. However, most of the basic hydraulics presented herein can be adapted for computer use as illustrated in Appendix D.