

HR-385 Stream Stabilization in Western Iowa: Structure Evaluation and Design Manual

Key Words: Flooding, Erosion, Bank Stability, Stream Stabilization, Loess

Abstract

Stream degradation is the action of deepening the streambed and widening the banks due to the increasing velocity of water flow. Degradation is pervasive in channeled streams found within the deep to moderately deep loess regions of the central United States. Of all the -streams, however, the most severe and widespread entrenchment occurs in western Iowa streams that are tributaries to the Missouri River (Lohnes, 1997).

In September 1995 the Iowa Department of Transportation awarded a grant to Golden Hills Resource Conservation and Development, Inc. The purpose of the grant, HR 385 "Stream Stabilization in Western Iowa: Structure Evaluation and Design Manual," was to provide an assessment of the effectiveness and costs of various stabilization structures in controlling erosion on channeled streams. A review of literature, a survey of professionals, field observations and an analysis of the data recorded on fifty-two selected structures led to the conclusions presented in the project's publication, *Design Manual, Streambed Degradation and Streambank Widening in Western Iowa*. Technical standards and specifications for the design and construction of stream channel stabilization structures are included in the manual. Additional information on nonstructural measures, monitoring and evaluation of structures, various permit requirements and further resources are also included.

Findings of the research project and use and applications of the *Design Manual* were presented at two workshops in the Loess Hills region. Participants in these workshops included county engineers, private contractors, state and federal agency personnel, elected officials and others. The *Design Manual* continues to be available through Golden Hills Resource Conservation and Development.