



Fact Sheet

US Army Corps of Engineers
U.S. Army Engineer Research and Development Center

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Chicago Lakefront

Purpose: To aid in design of a new stepped revetment for the lakefront at Chicago, IL. Overtopping rates measured in a physical model will aid in selection of cross-sectional configuration and design of drainage system.

Background: Much of the existing lakefront for the City of Chicago was created as a large landfill project in the 1920's and 1930's. The project was protected from waves by a stepped-stone revetment that has fallen into disrepair. In June, 1997, US Army Engineer District, Chicago (LRC), requested that the Coastal and Hydraulics Laboratory conduct a physical model study to measure overtopping rates for various cross-sectional configurations of a proposed stepped revetment for the Chicago lakefront. The new revetment is being planned as part of the Chicago Shoreline Storm Damage Reduction Project.



Facts: Physical model studies at a 1:38 (model:prototype) scale were conducted in a two-dimensional wave flume equipped with a computer-controlled wave generator. Design storm parameters were determined by LRC based on wave hindcasts and measured wave conditions. Proposed cross-sectional configurations of the stepped revetment were constructed of plywood and installed in the wave flume. Overtopping rates were measured for each revetment configuration when subjected to the design storm. A revetment design was selected that reduced the maximum overtopping rate to an acceptable level. The selected design was then subjected to a full hydrograph of the design storm to aid in design of drainage systems behind the revetment. After completion of the initial test series, LRC requested additional experiments to aid in design of the revetment at other areas of the lakefront with significantly different depths at structure toe or incident wave heights.

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