



Background

Levees are manmade structures, usually earthen embankments, designed and constructed in accordance with sound engineering practices to contain, control, or divert the flow of water so as to provide protection from temporary flooding. Levees are usually built by piling earth on a cleared, level surface. Broad at the base, they taper to a level top where temporary embankments or sandbags can be placed. Because flood discharge intensity increases in levees on both banks, and because silt deposits raise the level of riverbeds, planning, as well as auxiliary measures are vital.

Evaluation Criteria

In order for a levee or floodwall to be shown on a FIRM as protecting an area from the 1-percent-annual-chance flood, its ability to protect an area from flooding must first be evaluated. FEMA evaluates the ability of levee systems to provide protection from the 1-percent-annual-chance flood using criteria outlined in Section 65.10 of the National Flood Insurance Program (NFIP) regulations. During the preparation of a Flood Insurance Rate Map (FIRM), FEMA requires an evaluation of the levee freeboard and maintenance plan associated with each levee and only proceeds with further analyses if these requirements are met.

FEMA will not consider privately owned, operated, or maintained levee systems as providing 1-percent-annual-chance flood protection unless local ordinances or State statutes mandate operation and maintenance. Levee systems for which a community, State, or Federal agency has responsibility for operation and maintenance will be considered by FEMA if they meet, and continue to meet, minimum design, operation, and maintenance standards. These standards must be consistent with the level of protection sought through the comprehensive floodplain management criteria established in Section 60.3 of the NFIP regulations.

The levee system is reviewed to ensure it meets all minimum design requirements (i.e., freeboard, closures, embankment protection, embankment and foundation stability, settlement, interior drainage, and other design criteria required by FEMA). For a levee to be credited on the FIRM as providing 1-percent-annual-chance flood protection, the operation plans must comply with FEMA regulations as outlined in Paragraph 65.10(c) of the NFIP regulations. In addition to the responsibilities detailed above, FEMA ensures that all levees in or adjacent to identified floodplains are documented and inventoried in its Levee Inventory System.

Once these criteria are met, FEMA incorporates the effects of levees on flooding when it prepares a community's FIRM. To incorporate the effects of the levee, FEMA may have to recompute the 1-percent-annual chance flood water surface elevations. The procedures for incorporating changes to FIRMs and Flood Insurance Study flood profiles are outlined in Section H.5 of *Guidelines and Specifications for Flood Hazard Mapping Partners, April 2003*.

FEMA has not published guidelines for the evaluation of floodwalls, concrete dikes, seawalls, and other structures, however, FEMA evaluates these structures on a case by case basis.

If you have further questions regarding FEMA's levee evaluation criteria, call the FEMA Map Assistance Center toll-free at 1-877-336-2627 (1-877-FEMA-MAP).