

404 - FLOODWAY

Definition

A channel, usually bounded by dikes, used to carry flood flows.

Purpose

To carry floodwater from a side drainage across a flood plain into the channel of a main stream. Floodways are also used along the course of a main stream where, by means of dikes, a portion of the flood plain is used to carry floodwater and the rest is protected.

Conditions Where Practice Applies

Floodways are applicable to: (1) Overflow areas of streams or rivers where existing channels are inadequate to carry the floodwaters without flooding and damaging property, and the design storm discharge can be confined between dikes or a combination of channel and dikes without causing excessive erosion; and (2) To sites where the storm runoff from side tributaries which will be ponded outside the floodway will not cause damages in excess of the benefits less the cost of the project.

This practice does not include Floodwater Diversions (400) which divert water from lowlands. A floodwater diversion can empty into a floodway. This practice does not include channel improvement where the spoil is set back from the excavated areas and where no provision is made to confine the floodwater to the channel side of the spoil.

An outlet for the floodway must be available to provide for discharge of the quantity of water for which the floodway is to be designed without creating stage increases in the outlet that could result in damages above or below the point of discharge that might involve legal actions under state law.

Classification

Since a large percentage of floodways include dikes as a major feature of the floodway, the same classification used for dikes will be used for floodways. The classes are defined in the Standard for Dike (356).

CLASS I FLOODWAYS

Class I Floodways:

1. Include Class I Dikes as a feature of the floodway, or
2. Are constructed to protect areas where either of the following conditions apply:
 - a. There is a possibility of loss of life should failure occur.
 - b. High-value land or improvements are to be protected.

CLASS II FLOODWAYS

Class II Floodways:

1. Include Class II Dikes as a feature of the floodway,
2. Are constructed to protect agricultural lands of medium to high capability with improvements generally limited to farmsteads and allied farm facilities.

CLASS III FLOODWAYS

Class III Floodways:

1. Include Class III dikes as a feature of the floodway, or
2. Are constructed to protect agricultural lands of relatively low capability or improvements of relatively low value.

Design Criteria

The design and installation of the floodway and each of its features shall be based on engineering surveys and investigations which shall be made as provided in applicable sections of the SCS National Engineering Handbook and SCS Engineering Division Technical Release No. 25, "Planning and Design of Open Channels." Rates of flow resulting from runoff from the storm against which protection is to be provided and the design for stability of the channel included in the floodway shall be determined from and based on these investigations. Criteria for channel stability, velocity and coefficient of roughness contained in the Standard For Open Channel Code 582 shall be followed.

Proportioning of width and depth of flow in the floodway shall be based on consideration of the area to be occupied by the floodway with respect to the area to be protected, requirements for entrance of side drainage into the floodway, stage of water in the outlet for the design storm, velocities in the floodway at design flow and requirements for stability of the channel and dikes, and the effect on the water surface profile upstream from the floodway.

In designing floodways, the effect of future upstream floodway construction which will increase the peak rate of flow, should be considered. Provisions to allow future enlargement of the floodway to take care of this increase may be warranted.

In selecting the location and design of floodways, careful consideration shall be to the preservation of valuable fish and wildlife habitat and trees that are of significant value for wildlife food or shelter and to visual resource.

Where floodway construction will adversely affect a significant fish or wildlife habitat, mitigation measures, acceptable to sponsors and concerned federal and state agencies, shall be included in the project.

From an economic standpoint, the best design for the floodway, is that which results in a minimum cost of dikes and floodway, and the value of the unprotected land in the floodway. The value of the unprotected land for this analysis would be the difference in its value if it could be protected and its value for floodway purposes.

Class I Floodways

Class I Floodways shall be designed to provide maximum feasible protection. Where urban protection is one of the primary objectives of a project or segment thereof, the project will be planned to keep water out of the main part of the urban area if the largest flood of record were repeated. Such protection should rarely be less than the 100-year frequency level.

Dikes used or constructed as a part of Class I Floodways shall meet SCS criteria established for Class I Dikes.

Class II Floodways

If dikes are included as a feature of Class II Floodways they shall meet the SCS Standard for Class II Dikes and the design criteria established thereby shall also apply to the floodway.

If dikes are not included in Class II Floodways, the floodway shall have the capacity to carry the peak runoff from a 10-year frequency storm as a minimum.

Class III Floodways

If dikes are included as a feature of Class III Floodways, they shall meet the SCS Standard for Class III Dikes and the design criteria established thereby shall also apply to the floodway.

If dikes are not included in Class III Floodways, the floodway shall have the capacity to carry the design flow selected on the basis of a study of site conditions.

Maintenance Access

Travelways for maintenance generally shall be provided as part of all channel, floodway, or dike work. This requirement may be met by providing ready access points to sections of the floodway, if this will permit adequate maintenance in conformance with the operation and maintenance plan.

A travelway shall be provided on each side of large floodways and channels if necessary for use of maintenance equipment. Travelways must be adequate for movement and operation of equipment required for maintenance of the floodway. The travelway may be located adjacent to the channel on a Berm or on the Dike. In some places the floodway itself may be used as the travelway. The travelway, including access points, must blend into the topography and the landscape.

Maintenance

A maintenance program will be worked out with the landuser to ensure a useful life of the floodway. Emphasis shall be placed on control measures for vegetation, sediment, and erosion control measures for vegetation, sediment, and erosion control as well as practical and economical methods that will maintain the effectiveness of the floodway.

Vegetation

A protective cover of vegetation is required to minimize soil erosion, stream channel pollution, and maintenance and shall be established on all area as shown on the plans and/or specifications. Vegetative treatment shall be applied in accordance with Critical Area Planting Code 342.

Plans and Specifications

Plans and specifications for constructing floodways shall be in keeping with this standard and shall describe the requirements for properly installing the practice to achieve its intended purpose.

References: National Engineering Handbooks
Engineering Field Design Manual for Conservation Practices.

CONSTRUCTION SPECIFICATION

FOR

404 - FLOODWAY

Scope

This item shall include the clearing, excavation, spoil placement, embankment fill, other appurtenances and the disposal of cleared and excavated materials required in the construction of the floodway. Construction shall be carried out in such a manner that erosion, water, air, and noise pollution will be minimized and held within legal limits as established by local, state, or federal regulations.

Construction

Construction will be carried out in accordance with plans and specifications for the floodway to achieve its intended purpose. The areas to be excavated or occupied by dikes or spoil banks shall be cleared of trees, brush, other vegetation, and debris. Other areas within the floodway to be cleared as part of the required improvement shall be specified.

Clearing shall be done in a manner which destroys as little vegetation outside the limits of the floodway as feasible. Special efforts shall be made to save large trees in the floodway which have significant value for wildlife food or shelter or for visual resource of the site. Cleared debris shall be removed from the floodway and disposed of as specified.

Excavation shall be made as provided in the plans and specifications and as staked in the field. Spoil from excavation shall be disposed of as specified.

Dike construction shall be in accordance with the standards for the particular class of dike and as provided in the plans and specifications and as staked in the field.

Vegetation

Vegetation treatment shall be established as specified or as shown in the plans and specifications. Vegetation will be applied as critical area planting and will include seedbed preparation, seeding, liming, fertilizing, and mulching.