NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE STANDARD

STRUCTURE FOR WATER CONTROL

(no.)
CODE 587

DEFINITION

A structure in a water management system that conveys water, controls the direction or rate of flow, maintains a desired water surface elevation, or measures water.

PURPOSE

This practice may be applied as a management component of a water management system to control the stage, discharge, distribution, delivery, or direction of water flow.

CONDITIONS WHERE PRACTICE APPLIES

This practice applies wherever a permanent structure is needed as an integral part of a water-control system to serve one or more of the following functions:

Convey water from one elevation to a lower elevation within, to or from a water conveyance system such as a ditch, channel, canal or pipeline designed to operate under open channel conditions. Typical structures: drops, chutes, turnouts, surface water inlets, head gates, pump boxes, and stilling basins.

Control the elevation of water in drainage or irrigation ditches. Typical structures: checks, flashboard risers, and check dams.

Control the division or measurement of irrigation water. Typical structures: division boxes and water measurement devices.

Keep trash, debris, or weed seeds from entering pipelines. Typical structure: debris screen.

Control the direction of channel flow resulting from high water or back-flow from flooding. Typical structures: water management gates.

Control the water table level, remove surface or subsurface water from adjoining land, flood land for frost protection or manage water levels for wildlife or recreation. Typical structures: water level control structures, flashboard risers, pipe drop inlets, and box inlets.

Convey water over, under or along a ditch, canal, road, railroad or other barriers. Typical structures: bridges, culverts, flumes, inverted siphons, and long span pipes.

Modify water flow to provide habitat for fish, wildlife and other aquatic animals. Typical structures: chutes, cold water release structures, and flashboard risers.

Provide silt management in ditches or canals. Typical structure: sluice.

Supplement a resource management system on land where organic waste or commercial fertilizer is applied.

Create, restore, or enhance wetland hydrology.

CRITERIA

Laws and Regulations. This practice must conform to all federal, state, and local laws and regulations. Laws and regulations of particular concern include those involving drainage and water rights, zoning, land use, pollution control, property easements, wetlands, Waters of the United States, preservation of cultural resources, and endangered species.

General. Structures must be part of an approved overall engineering plan for irrigation, drainage, wildlife, recreation, channel improvement, agricultural waste management, or similar purposes.

Structures must be designed under the direct supervision of an engineer. Surveys must be

made (and documented) to clearly define the effects and needed size of the structure. Foundation investigations must be made and documented to describe the foundations and to assure sliding, piping, settlement and other soil mechanics concerns are addressed by the design.

The structure must be designed to be durable and stable under expected loads, hazards, and operating conditions. Structures must have capacity to carry design flows, control erosion, keep upstream water levels within planned limits, and to not be damaged by 10-year frequency, 24-hour duration storm events.

Vegetation complying with Critical Area Planting standard (342) shall be established on all disturbed earth surfaces that will support vegetation. Where soil, climate or site specific conditions preclude establishing permanent vegetation, other durable protective measures such as gravel, riprap, or concrete shall be used as appropriate.

The structure shall be fenced, if necessary, to protect the structure and/or vegetation.

Structures shall not be installed that have an adverse effect on septic filter fields.

The water level upstream of water control structures shall not be raised on adjacent landowners without their written permission.

CONSIDERATIONS

Consider the following:

Effects on the water budget, especially on volumes and rates of runoff, infiltration, evaporation, transpiration, deep percolation, and ground water recharge.

Effects on downstream flows or aquifers that would affect other water uses or users.

Effects on stream system channel morphology and stability as it relates to erosion and the movement of sediment, solutes, and sediment-attached substances carried by runoff.

Effects on the movement of dissolved substances in and below the root zone and to ground water.

Short-term and construction-related effects of this practice on the quality of downstream water and wildlife habitat.

Effects of water level control on the temperatures of downstream waters and the effects on aquatic and wildlife communities.

Effects on wetlands.

Effects on the downstream turbidity.

Effects on threatened or endangered species.

Existence of cultural resources in the project area and any project impacts on such resources.

Conservation and stabilization of archeological, historic, structural, and traditional cultural properties when appropriate.

Design alternatives presented to the client should address economics, ecological concerns, and acceptable level of risk for design criteria as it relates to hazards to life or property.

PLANS AND SPECIFICATIONS

Plans and specifications for installing this practice shall meet this standard and include requirements needed to achieve its purpose. Include locations, grades, quantities, dimensions, materials, and hydraulic and structural requirements.

OPERATION AND MAINTENANCE (O&M)

An O&M plan shall be provided to and reviewed with the owner/operator.

Include inspection and maintenance (including debris removal) annually and after major storm events.