

**NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE STANDARD
RHODE ISLAND**

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

The 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 tides and high water or back-flow from flooding. Typical structures: tide and 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 or to restore or enhance wetland hydrology. 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.

CRITERIA

General Criteria Applicable to All Purposes

Laws and Regulations. All Federal, state, and local laws, rules, and regulations, including local inland wetland agency regulations, governing the construction and use of this practice shall be followed. Planned work shall comply with all federal, state, and local laws and permit conditions and requirements. **The landowner shall obtain all necessary permits prior to construction**

or any land clearing activities.

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 property.

Vegetation complying with Rhode Island NRCS Standard 342, Critical Area Planting shall be established on all disturbed earth surfaces. Where soil, climate or site specific conditions preclude establishing permanent vegetation, other protective means such as mulches or gravels, shall be used.

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

Safety.

Warning signs, fences, ladders, ropes, bars, rails, and other devices shall be provided, as appropriate, to ensure the safety of humans and livestock.

CONSIDERATIONS

When planning, designing, and installing this practice, the following items should be considered:

- Effects on the water budget, especially on volumes and rates of runoff, infiltration, evaporation, transpiration, deep percolation, and ground water recharge.
- Potential for a change in the rate of plant growth and transpiration because of changes in the volume of soil water.
- Effects on downstream flows or aquifers that would affect other water uses or users.
- Effects on the field water table to ensure that it will provide a suitable rooting depth for the anticipated crop.
- Potential use for irrigation management to conserve water.
- Effect of construction on aquatic life.
- 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 below the root zone and to ground water.
- Effects of field water table on salt content in the root zone.
- Short term and construction-related effects of this practice on the quality of downstream water.
- Effects of water level control on the temperatures of downstream waters and their effects on aquatic and wildlife communities.
- Effects on wetlands or water-related wildlife habitats.
- Effects on the turbidity of downstream water resources.
- 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 shall be in keeping with this standard and shall describe the requirements for applying the practice to achieve its intended purpose. Plans and specifications shall include construction plans, drawings, job sheets or other similar documents. These documents shall as a minimum, specify the requirements for installing the practice and include the kind, quantity and quality of materials to be used.

To the extent practical, specifications shall conform to NRCS National Engineering Handbook Parts 642 and 643 (Section 20).

The plan shall specify the location, grades, quantities, dimensions, materials, and hydraulic and structural requirements for the individual structure. Provisions must be made for necessary maintenance. Care must be used to protect the surrounding visual

resources. If watercourse fisheries are important, special precautions or design features may be needed to facilitate continuation of fish migrations.

AS BUILT DRAWINGS

As built drawings shall be prepared showing all pertinent element and elevations as actually installed, and a copy shall be provided to the owner / operator upon construction completion.

OPERATION AND MAINTENANCE

An Operation and Maintenance (O&M) plan shall be prepared for, reviewed and signed by the landowner or operator. The plan shall specify that the treated areas and associated practices are inspected annually and after significant storm events to identify repair and maintenance needs.

The O&M plan shall detail the level of repairs needed to maintain the effectiveness and useful life of the practice. The plan shall be site specific and include but not be limited to the following: Structures will be checked and necessary maintenance, including removal of debris, shall be performed after major storms and at least semi-annually. Water level management and timing shall be adequately described wherever applicable.