

NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE STANDARD

SEDIMENT BASIN

(No.)

CODE 350

DEFINITION

A basin constructed to collect and store debris or sediment.

SCOPE

This standard applies to the installation of all basins where the primary purpose is to trap and store waterborne sediment and debris.

PURPOSE

To preserve the capacity of reservoirs, ditches, canals, diversions, waterways, and streams; to prevent undesirable deposition on bottom lands and developed areas; to trap sediment originating from construction sites; and to reduce or abate pollution by providing basins for deposition and storage of silts, sand, gravel, stone, agricultural wastes, and other detritus.

CONDITIONS WHERE PRACTICE APPLIES

This practice applies where physical conditions or land ownership preclude treatment of a sediment source by the installation of erosion-control measures to keep soil and other material in place or where a sediment basin offers the most practical solution to the problem.

DESIGN CRITERIA

Volume of Sediment

The capacity of the sediment basin shall equal the volume of sediment expected to be trapped at the site during the planned useful life of the basin or the improvements it is designed to protect. If it is determined the periodic removal of sediment will be practicable, the capacity may be proportionately reduced.

The total annual volume of sediment delivered to the site will be calculated using the universal soil loss equation for sheet and rill erosion, plus adding an additional volume for erosion from gullies that exist in the watershed. For drainage areas up to 200 acres (81 hect.) Table 1 may be used for estimating delivery ratios in lieu of a detailed on-site study. Trap efficiency for structures will be determined by considering (1) the particle size of eroded material, (2) size and shape of detention pool, (3) the existence or non-existence of a permanent pool, and (4) flow characteristics of the principal spillway.

Table 1

Drainage Area-Acres (Hect.)	Delivery Ratio-Percent
0-25 (0-10)	85
25-50 (10-20)	80
50-75 (20-30)	75
75-100 (30-41)	71
100-150 (41-61)	67
150-200 (61-81)	64

Structure Design

The design of dams, spillways, and drainage facilities shall be according to NRCS standards for ponds (378) and grade stabilization structures (410) or according to the requirements in TR-60, as appropriate for the class and kind of structure being considered.

Safety

Provisions shall be made for draining sediment pools if necessary for safety and vector control. Fencing and other safety measures shall be installed as necessary to protect the public from floodwater and soft sediment. Due consideration shall be given to good visual resource management.

Operation and Maintenance

An operation and maintenance plan will be developed with the landowner. This plan will include operation and maintenance activities normally associated with ponds, plus a method for evaluating the rate of sediment accumulation in the structure. If the structure is designed for periodic removal of sediment, the plan will address the type of equipment needed for excavating and hauling the sediment to a disposal site, the expected volume of sediment to be excavated, and any characteristics of the site that will increase the difficulty or cost of emptying the basin.

PLANS AND SPECIFICATIONS

Plans and specifications for installing sediment basins shall be in keeping with this standard and shall describe the requirements for applying the practice to achieve its intended purpose.

NATURAL RESOURCES CONSERVATION SERVICE
CONSTRUCTION SPECIFICATION

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Construction of sediment basins within the scope of the standard for ponds (378) shall have, as a minimum, specifications commensurate with those for ponds (378). Those within the scope of TR-60 shall be in accord with the guide specifications contained in the National Engineering Handbook, Section 20.