Chapter 4 - BEST MANAGEMENT PRACTICE STANDARDS

CHECK DAM

(Temporary Practice)

Definition

Small temporary dams constructed across a swale or drainage ditch. A swale is a low-lying or depressed and often wet stretch of land.

Purpose

To reduce the velocity of concentrated stormwater flows, thereby reducing erosion of the swale or ditch. This practice also traps small amounts of sediment generated in the ditch itself. However, this is not a sediment trapping practice and should not be used as such.

Conditions Where Practice Applies

This practice is limited to use in small open channels which drain 10 acres or less. It should not be used in a live stream. They are especially applicable to sloping sides where the gradient of waterways is close to the maximum for a grass lining. Some specific applications include:

1. Temporary ditches or swales which, because of their short length of service cannot receive a non-erodible lining but still need some protection to reduce erosion.

2. Permanent ditches or swales which for some reason cannot receive a permanent non-erodible lining for an extended period of time.

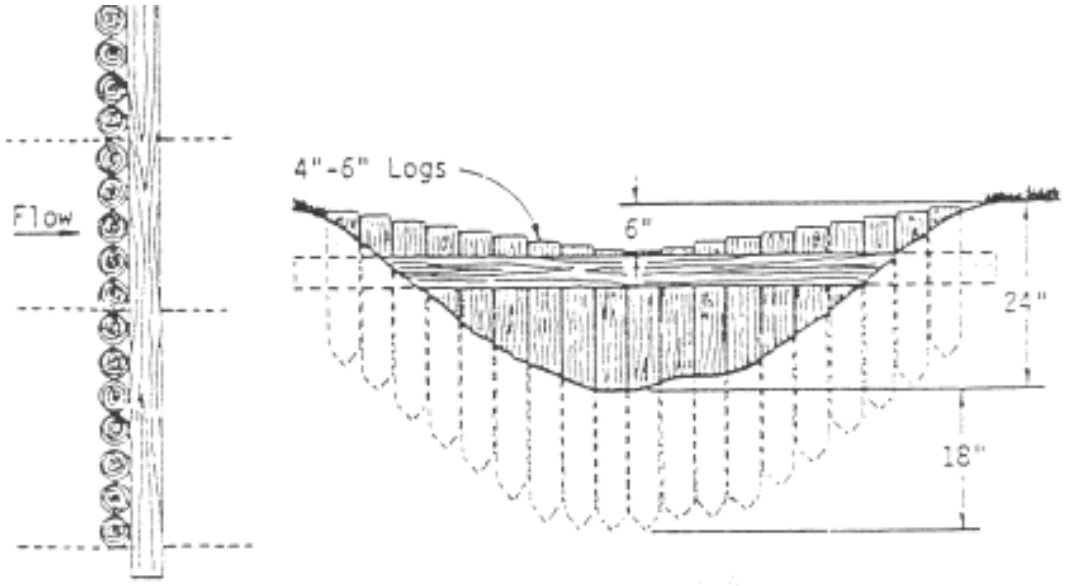
Planning Considerations

Check dams can be constructed of either stone, straw bales, or logs. Log check dams are more economical from the standpoint of material costs, since logs can usually be salvaged from clearing operations. However, log check dams require more time and hand labor to install. Stone for check dams, on the other hand, must generally be purchased. However, this cost is offset somewhat by the ease of installation. Straw bale check dams may offer low material costs as well as ease of installation. The construction of check dams are detailed in this standard using stones and logs although straw bales can be easily substituted. If stone check dams are used in grass-lined channels which will be mowed, care should be taken to remove all the stone from the dam when the dam is removed. This should include any stone which has washed downstream. Since log check dams are embedded in the soil, their removal will result in more disturbance of the soil than will removal of stone check dams. Consequently, extra care should be taken to stabilize the area when log dams are used in permanent ditches or swales.

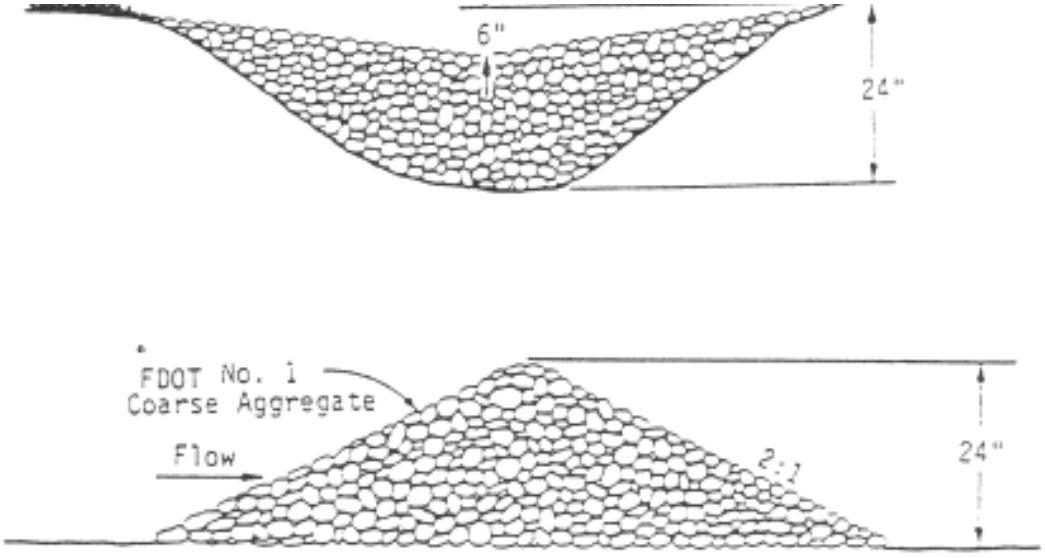
Specifications

No formal design is required for a check dam; however, the following criteria should be adhered to when specifying check dams.

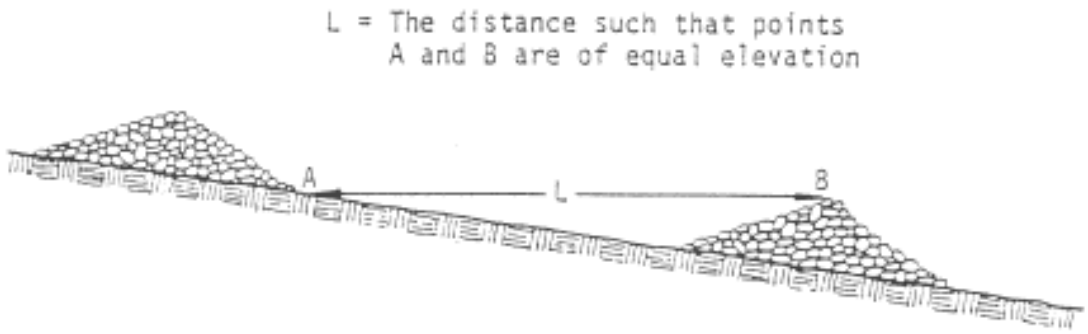
The drainage area of the ditch or swale being protected should not exceed 10 acres. The maximum height of the check dam should be 2 feet. The center of the check dam must be at least 6 inches lower than the outer edges.



LOG CHECK DAM



The maximum spacing between the dams should be such that the toe of the upstream dam is at the same elevation as the top of the downstream dam.



SPACING BETWEEN CHECK DAMS

Stone check dams should be constructed of FDOT Aggregate No. 1 (2- to 3-inch stone). The stone should be placed according to the configuration shown above. Hand or mechanical placement will be necessary to achieve complete coverage of the ditch or swale and to insure that the center of the dam is lower than the edges.

Log check dams should be constructed of 4- to 6-inch logs salvaged from clearing operation site, if possible. The logs should be embedded into the soil at least 18 inches. The 6-inch lower height required at the center can be achieved either by careful placement of the logs or by cutting the logs after they are in place.

Logs and/or brush should be placed on the downstream side of the dam to prevent scour during high flows.

Sediment Removal

While this practice is not intended to be used primarily for sediment trapping, some sediment will accumulate behind the check dams. Sediment should be removed from behind the check dams when it has accumulated to one half of the original height of the dam.

Removal

Check dams must be removed when their useful life has been completed. In temporary ditches and swales, check dams should be removed and the ditch filled in when it is no longer needed. In permanent structures, check dams should be removed when a permanent lining can be installed. In the case of grass-lined ditches, check dams should be removed when the grass has matured sufficiently to protect the ditch or swale. The area beneath the check dams should be seeded and mulched or sodded (depending upon velocity) immediately after they are removed.

Maintenance

Check dams should be checked for sediment accumulation after each significant rainfall. Sediment should be removed when it reaches one-half of the original height or before.
Regular inspections should be made to insure that the center of the dam is lower than the edges. Erosion caused by high flows around the edges of the dam should be corrected immediately.