

B-2 TEMPORARY CHECK DAMS**PURPOSE & APPLICATIONS**

Temporary check dams are small temporary dams constructed across a swale or drainage ditch. Their purpose is 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. This practice is limited to use in small open channels that drain 10 acres or less. It should **not** be used in a stream, including perennially flowing streams or intermittent stream channels. Check dams can be constructed of either stone, contained berms of erosion control mix.

Some specific applications include:

- 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.
- Permanent ditches or swales which for some reason cannot receive a permanent non-erodible lining for an extended period of time.
- Either temporary or permanent ditches or swales, which need protection during the establishment of grass linings.

CONSIDERATIONS

- This practice should be used in areas of concentrated flow.
- Don't install these in a flowing stream or a dry streambed!
- Consider leaving the dam in place permanently to avoid unnecessary disturbance of the soil on removal.
- If it is necessary to remove a stone check dam from a grass-lined channel, which will be mowed, care should be taken to ensure that all stones are removed. This should include any stone which has washed downstream.
- Since hay bales 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 hay dams are used in permanent ditches or swales.

SPECIFICATIONS

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. 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.
- Check dams should be installed before runoff is directed to the swale or drainage ditch.

Stone Check Dams

Stone check dams should be constructed of 2 to 3 inch stone. Hand or mechanical placement will be necessary to achieve complete coverage of the ditch or swale and to ensure that the center of the dam is lower than the edges. See the detail drawing located at the back of this section for the proper installation of stone check dams.

Straw/Hay Bales

See the detail drawing located at the back of this section for the proper installation of straw/hay bale check dams.

- Bales shall be placed in a single row, across the swale, tightly abutting one another.

- All bales shall be either wire-bound or string-tied. Bales shall be installed so that bindings are oriented around the sides, parallel to the ground surface to prevent deterioration of the bindings.
- The barrier shall be entrenched and backfilled. A trench shall be excavated the width of a bale and the length of the proposed barrier to a minimum depth of 4 inches.
- After the bales are staked and chinked, the excavated soil shall be backfilled against the barrier.
- At least two stakes or rebars driven through the bale shall securely anchor each bale. The first stake in each bale shall be driven toward the previously laid bale to force the bales together. Stakes or re-bars shall be driven deep enough into the ground to securely anchor the bales.
- The gaps between bales shall be chinked (filled by wedging) with hay to prevent water from escaping between the bales.

Problems with Hay Bale Barriers

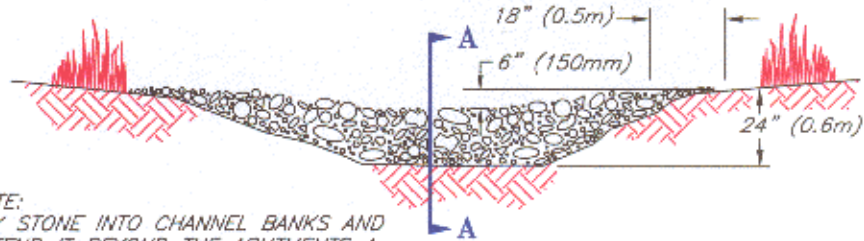
- When used in streams and drainage ways where high water velocities and volumes have destroyed or impaired their effectiveness.
- Improperly placed and installed bales, such as staking directly to the ground with no soil seal or entrenchment, allows undercutting and end flow.
- Inadequate maintenance.

MAINTENANCE

Regular inspections must be made to ensure that the center of the dam is lower than the edges. Erosion caused by high flows around the edges of the dam must be corrected immediately. If evidence of siltation in the water is apparent downstream from the check dam, the check dam must be inspected and adjusted immediately.

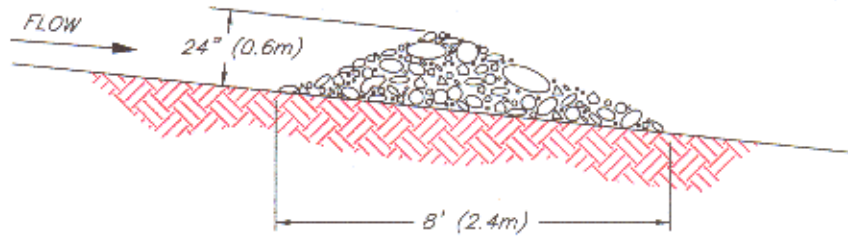
Check dams must be checked for sediment accumulation after each significant rainfall. Sediment must be removed when it reaches one half of the original height or before.

If it is possible, leave the dam in place permanently. Another option is to spread the material, i.e. stone or hay along the ditch invert to provide additional protection. In temporary ditches and swales, check dams must be removed and the ditch filled in when it is no longer needed. In permanent structures, check dams can be removed when a permanent lining has been established. If a check dam must be removed from a grass lined ditch, wait until the grass has matured to protect the ditch or swale. The area beneath the check dam must be seeded and mulched immediately after they are removed.



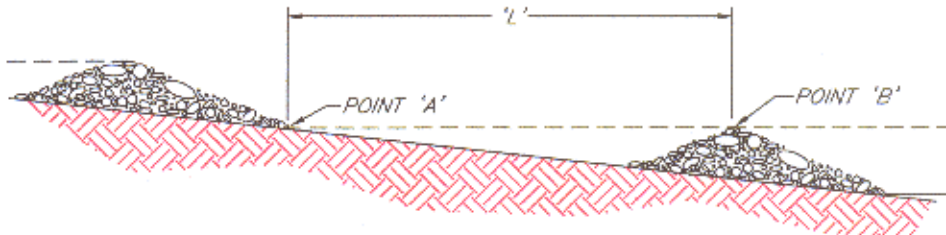
NOTE:
KEY STONE INTO CHANNEL BANKS AND
EXTEND IT BEYOND THE ABUTMENTS A
MINIMUM OF 18" (0.5m) TO PREVENT
FLOW AROUND DAM.

VIEW LOOKING UPSTREAM



SECTION A - A

'L' = THE DISTANCE SUCH THAT POINTS 'A' AND
'B' ARE OF EQUAL ELEVATION.



SPACING BETWEEN CHECK DAMS

NOT TO SCALE

**ROCK
CHECK DAM**

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