NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE STANDARD

MOLE DRAIN

(feet)
CODE 482

DEFINITION

An underground conduit constructed by pulling a bullet-shaped cylinder through the soil.

PURPOSE

To establish a system of subsurface earthen channels for removal of trapped surface and subsurface water.

CONDITIONS WHERE PRACTICE APPLIES

This practice applies where the use of buried drains is physically or economically impractical to complete the drainage required. Mole drains may be used in fields with highly cohesive or fibrous soils that are free of stones, gravel, or sand lenses if the area served is small and if an outlet is available or can be constructed to provide continuously free outfall from the drains. They may also be used as a supplement to other drains.

CRITERIA

Planned work shall comply with all federal, state and local laws and regulations.

Size. The minimum diameter of a mole drain shall be 4 inches. A 6-inch mole will usually create a hole approximately 4½ inches in diameter.

Location, grade, and length. The location, grade, length of line, depth, spacing and size of drains, and the outlet protection for such drains shall meet requirements of NRCS National Engineering Handbook, Section 16, Drainage, or as modified by approved local drainage guide.

Outlet. Outlets must have sufficient depth and capacity to provide continuous free outfall.

CONSIDERATIONS

When planning this practice, consider the following:

Cultural Resources Considerations

NRCS's objective is to avoid any effect to cultural resources and protect them in their original location. Determine if installation of this practice will have any effect on any cultural resources.

Document any specific considerations for cultural resources in the design docket and the Practice Requirements worksheet.

GM 420, Part 401, the California Environmental Handbook and the California Environmental Assessment Worksheet provide guidance on how the NRCS must account for cultural resources. The Field Office Technical Guide, Section II contains general information, with Web sites for additional information.

Endangered Species Considerations

Determine if installation of this practice, along with any others proposed, will have an effect on any federal or state listed Rare, Threatened or Endangered species or their habitat. NRCS's objective is to benefit these species and others of concern, or at least not have any adverse effect on a listed species. If the Environmental Evaluation indicates that the action may adversely affect a listed species or result in adverse modification of habitat of listed species which has been determined to be critical habitat, NRCS will advise the land user of the requirements of the Endangered Species Act and recommend alternative conservation treatments that avoid the adverse effects. Further assistance will be provided only if the landowner selects one of the alternative conservation treatments for installation; or at the request of the landowners, NRCS may initiate consultation with the U.S. Fish and Wildlife Service, National Marine Fisheries Service and/or California Department of Fish and Game. If the Environmental Evaluation indicates the action will not affect a listed species or result in adverse modification of critical

habitat, consultation generally will not apply and usually would not be initiated. Document any special considerations for endangered species in the Practice Requirements Worksheet.

Water Quantity

1. Effects on runoff, infiltration, deep percolation, and potential ground water recharge.
2. Effects of increased drainage waters on downstream base flow.
3. Effects on existing wetland hydrology.

Water Quality

1. Effects of increase in dissolved substances that may be discharged to streams.
2. Effects on aquifer recharge water quality.
3. Reduction in the yields of sediment or sediment-attached substances, and effects on downstream water quality and water use.
4. Downstream water quality, water use, and water temperature.
5. Effects on the visual quality of downstream waters.

PLANS AND SPECIFICATIONS

Plans and specifications for installing mole drains shall be in keeping with this standard and shall describe the requirements for proper installation of the practice to achieve its intended purpose.

Mole drains shall be installed according to an approved plan, or as modified by an authorized technician at the site.

OPERATION AND MAINTENANCE

Operation and maintenance shall consist of periodic checks to determine that the outlet is open and free flowing.

The mole drains shall be reworked as needed to maintain adequate drainage.