

NATURAL RESOURCES CONSERVATION SERVICE  
CONSERVATION PRACTICE STANDARD

**SPRING DEVELOPMENT**

(No.)  
CODE 574

**DEFINITION**

Improving springs and seeps by excavating, cleaning, capping, or providing collection and storage facilities.

**Scope**

This standard applies to springs and seeps developed as a source of water. It does not apply to troughs or tanks (614) or to pipelines (516).

**PURPOSES**

Mainly to improve the distribution of water or to increase the quantity of water for livestock or wildlife. Also to obtain water for irrigation if water is available in a suitable quantity and quality.

**CONDITIONS WHERE PRACTICE APPLIES**

Developments shall be confined to springs or seepage areas that can furnish a dependable supply of suitable water during the planned period or periods of use.

The need for and feasibility of protection from flooding, sedimentation, and contamination shall be considered in determining the suitability of a site for development.

**CRITERIA**

**Fracture and tubular springs**

If water issues from rock fractures, the individual openings shall be cleaned and enlarged, as needed, to provide an increase in flow. The water from these individual openings shall be collected and conveyed to a central sump or spring box by means of tile or perforated pipeline or by a gravel filled ditch. The collection works shall be constructed an adequate distance below the elevation of the openings to permit free discharge.

If water issues from single opening, such as a solution channel in a soluble rock formation or a tunnel in lava, the opening shall be cleaned or enlarged as needed. A

collection system usually is not required, but a spring box or sump shall be installed at an elevation sufficiently low that water will not pond over the spring opening to a depth that will materially reduce the yield.

**Perched or contact springs**

Perched or contact springs occur where an impermeable layer outcrops beneath a water-bearing permeable layer. These springs shall be developed by intercepting and collecting the flow from the water bearing formation. Collection trenches shall be used for developing these types of springs.

**Artesian springs**

Artesian springs shall be developed by removing obstructions, cleaning or enlarging joints or fractures, or by lowering the outlet elevation. Sumps and spring boxes shall be located so as to hold ponding over the spring outlet to a minimum.

**Collection systems**

If a collecting trench along the outcrop of the water-bearing formation is to be used the trench shall be excavated so that it extends into the impervious layer.

An impervious cutoff wall of well-tamped clay, masonry, concrete, or other suitable materials shall be constructed along the downstream side of the trench if needed to insure that the flow enters the collection system.

The collection system shall consist of subsurface drainage tubing or perforated pipe not less than 3 inches in diameter or a wood box drain enclosed in a sand/gravel filter. A crushed rock or gravel backfill, not less than 12 inches deep may be used instead of these types of drains.

**Spring boxes**

Spring boxes, if needed, shall be of durable material and shall have a tight removable cover. The boxes

shall have a minimum cross sectional area of 1-1/2 ft<sup>2</sup>. The floor of the spring box shall be not less than 6 in. below the outlet of the collection system. Spring boxes for perched springs shall be floored with concrete unless the underlying material is solid rock or other stable impervious material.

### **Outlets**

The outlet pipe from the spring box shall be placed not less than 6 in above the floor of the box to provide a sediment trap. However, the outlet must not be so high as to cause a head on the spring that can reduce flow. The outlet pipe shall be installed so as to insure a watertight connection with the spring box. Measures required to protect the development from damage by freezing, flooding, sedimentation, contamination, and livestock shall be included in the design.

### **CONSIDERATIONS**

#### **Water Quantity**

Potential changes in surface water quantity, especially base flow. Factor is the removal of obstructions and vegetation in the spring area.

#### **Water Quality**

Potential temporary degradation of water quality caused by erosion and sedimentation from the area disturbed during construction.

#### **Endangered Species Considerations**

Determine if installation of this practice with any others proposed will have any 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 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 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.

### **PLANS AND SPECIFICATIONS**

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

### **OPERATION AND MAINTENANCE**

An operation and maintenance plan must be prepared by the Designer for use by the owner or other responsible for operating this practice. The plan should provide specific instructions for operating and maintaining the system to insure that it functions properly. It should also provide for periodic inspections and prompt repair or replacement of damage components.