

**NATURAL RESOURCES CONSERVATION SERVICE**  
**CONSERVATION PRACTICE STANDARD**  
**LAND SMOOTHING**

(Ac.)

**CODE 466**

**DEFINITION**

Land smoothing is removing irregularities on the land surface.

**PURPOSE**

Land smoothing improves surface drainage, provides for more uniform cultivation, and improves equipment operation and efficiency.

**CONDITIONS WHERE PRACTICE APPLIES**

This practice applies to land areas where depressions, mounds, old terraces, turn rows, and other surface irregularities interfere with the application of needed soil and water conservation and management practices.

Land smoothing is limited to land areas having adequate soil depth or where topsoil can be salvaged and replaced.

Land smoothing does not apply to the regular maintenance on irrigated land or on land that has been modified using [Conservation Practice Standard \(CPS\) 462, Precision Land Forming](#), or [CPS 464, Irrigation Land Leveling](#).

**CRITERIA**

The extent of rough grading required and tolerances of the finished smoothing job must be in keeping with the requirements of the planned cropping system.

Construction operations are to be carried out in such a manner that erosion and air and water pollution are minimized.

Smooth irregularities to the degree required for the planned use.

The land to be smoothed will be cleared of vegetative matter and trash.

**CONSIDERATIONS**

Items to consider include the following:

- The ground surface should be plowed or disked prior to smoothing.
- Effects on the water budget—especially on volumes and rates of runoff, infiltration, and evaporation.
- Effects on erosion and the movement of sediment and soluble substances attached to sediment carried by runoff should be minimized.
- Effects on downstream water quality.
- Potential for earth moving to uncover or redistribute toxic materials such as saline soils.
- Potential impacts to existing utilities. Locate and avoid all utilities.
- Effects on wetland hydrology and/or wetland wildlife habitat.
- Effects on soil loss due to increased wind erosion potential and subsequent deposition.
- Ensure that cultural resources, inventory, and assessment have been completed prior to the movement of soil.

**PLANS AND SPECIFICATIONS**

Plans and specifications for land smoothing must be in keeping with this standard and must describe the requirement for applying the practice to achieve its intended purpose. Plans and specifications must include construction

plans, drawings, job sheets, or other similar documents. These documents must specify the requirements for installing the practice.

### **OPERATION AND MAINTENANCE**

An operation and maintenance (O&M) plan must be prepared for and reviewed with the landowner or operator. Actions must be carried out to ensure that this practice functions as intended. Such action must include performing maintenance when needed to ensure that surface irregularities are maintained at the degree of smoothness required. The plan must specify that the treated areas and associated practices are inspected annually and after significant storm events to identify repair and maintenance needs.

The [O&M plan sheet](#) can be used. Add site-specific recommendations as needed.

### **REFERENCES**

U.S. Department of Agriculture, Natural Resources Conservation Service, 2009, National Engineering Handbook Part 650, *Engineering Field Handbook*, Chapter 1, Surveying. Washington, DC.

U.S. Department of Agriculture, Natural Resources Conservation Service, 1990, National Engineering Handbook Part 650, *Engineering Field Handbook*, Chapter 4, Elementary Soils Engineering. Washington, DC.

U.S. Department of Agriculture, Natural Resources Conservation Service, 1961, National Engineering Handbook Section 15, *Irrigation*, Chapter 12, Land Leveling. Washington, DC.