

**NATURAL RESOURCES CONSERVATION SERVICE  
VIRGINIA 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 Virginia NRCS Conservation Practice Standards (CPS) *Precision Land Forming (Code 462)* or *Irrigation Land Leveling (Code 464)*.

**CRITERIA**

Design and construction activities must comply with all federal, state and local laws, rules and regulations.

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.

Address potential impacts to existing utilities by locating and avoiding all utilities.

Establish vegetation in disturbed areas upon completion of activities unless the areas will be cropped. If smoothing is completed at a time that is not conducive to the establishment of desired species, implement temporary erosion control measures conforming to NRCS standards immediately.

**CONSIDERATIONS**

Where possible, the ground surface should be plowed or disked prior to smoothing.

Consider the effects on the water budget, especially on volumes and rates of runoff, infiltration, and evaporation.

Effect of erosion and the movement of sediment and soluble substances attached to sediment carried by runoff should be minimized.

Potential for earth moving to uncover or redistribute toxic materials, such as saline soils should be addressed.

Consider the effects on wetland hydrology and/or wetland wildlife habitat.

**PLANS AND SPECIFICATIONS**

Plans and specifications for land smoothing must describe the requirements for applying

the practice to achieve its intended purpose.

Record all required information in an engineer field book, on a plan sheet or design computation sheet, or in another appropriate location.

#### DESIGN DATA

1. Completed Environmental Evaluation and subsequent requirements.
2. Soils investigation.
3. Survey and plot data: profile, cross-sections, topography, as needed.
4. Design computations, including purpose of practice and references used.
5. Plan view of site with existing and planned features, including dimensions, distances, etc.
6. Standard Cover Sheet (VA-SO-100A).
7. Materials and quantities needed. Identify borrow material and/or spoil area, as needed.
8. Vegetation and/or ground cover requirements.
9. Identification of needed Erosion & Sediment Control measures.
10. Supplemental practices required.
11. Virginia Conservation Practice Specifications (700 Series).
12. Operation and Maintenance Plan.

#### CHECK DATA

1. As-built survey.
2. As-built plans including dimensions, types and quantities of materials installed, and variations from design. Include justification for variations.
3. Locations of appurtenant practices.
4. Adequacy of vegetation and/or ground cover.
5. Complete as-built section of Cover Sheet.

#### 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.

#### REFERENCES

U.S. Department of Agriculture, Natural Resources Conservation Service, 2009. Engineering Field Handbook, Chapter 1. Surveying. National Engineering Handbook, Part 650.01, Washington, DC.

U.S. Department of Agriculture, Natural Resources Conservation Service, 1990. Engineering Field Handbook, Chapter 4. Elementary Soils Engineering. National Engineering Handbook, Part 650.04, Washington, DC.

U.S. Department of Agriculture, Natural Resources Conservation Service, 1961. Irrigation Land Leveling. Section 15, Chapter 12. National Engineering Handbook, Part 623.12. Washington, DC.

USDA-Natural Resources Conservation Service. Virginia Electronic Field Office Technical Guide (eFOTG), Section IV. [On-line]. Available at <http://efotg.sc.egov.usda.gov/>

USDA-Natural Resources Conservation Service. Virginia 700 Series Construction Specifications. [On-line]. Available at <http://efotg.sc.egov.usda.gov/>

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