

NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE STANDARD

PRECISION LAND FORMING

(Acre)
Code 462



DEFINITION

Reshaping the surface of land to planned grades.

PURPOSES

To improve surface drainage and control erosion.

CONDITIONS WHERE PRACTICE APPLIES

On all land that is suitable for the purpose required and where precision land forming is practical. Soils shall be of sufficient depth and of suitable textures so that after precision land forming is completed an adequate root zone remains to permit the planned use of the land and application of proper conservation measures, soil amendments, and fertilizer.

This standard does not apply in areas needing Florida NRCS conservation practice standard Land Smoothing, Code 466 or Land Leveling, Code 464.

CRITERIA

Plan all work to comply with all Federal, state, and local laws and regulations.

Impact to cultural resources, wetlands and Federal and state protected species shall be evaluated and avoided or minimized to the extent practicable during planning, design and implementation of this conservation practice in accordance with established National and Florida policy, General Manual (GM) Title 420-Part 401; Title 450-Part 401, Title 190-Parts 410.22 and 410.26, National Planning Procedures Handbook (NPPH) Florida Supplements to Parts 600.1 and 600.6, National Cultural Resources Procedures Handbook (NCRPH), National Food Security Act Manual (NFSAM), and the National Environmental Compliance Handbook (NECH).

Plan all precision land forming as an integral part of an overall system to facilitate the conservative use of soil and water resources.

Design and installation shall be based on adequate engineering surveys and investigations. If the land is to be formed for more than one purpose, it must be formed to meet the requirements of the most restrictive purpose and crop.

Design all forming work within the slope limits required for the proposed use and provide for the removal of excess surface water. If other conservation practices such as grassed waterways, drainage field ditches, and filter strips are needed to accomplish the stated purpose, include them in the plans for improvement.

Slope requirements. Slope may be uniform in the direction of flow or may increase or decrease.

Conservation practice standards are reviewed periodically, and updated if needed. To obtain the current version of this standard, contact the Natural Resources Conservation Service.

Reverse grades in the direction of planned water flow shall not be permitted. Short level sections are permissible to meet field conditions. Depending on cultural practices, cross slopes shall be such that water can be contained within the furrows to prevent "breakthroughs" from rainfall runoff.

Slope to control erosion caused by runoff from rainfall. Design field grades shall be such that erosion caused by runoff from rainfall can be controlled within the limits permissible for conservation farming. When benching between land-formed plots exceeds 1 foot, a permanent grassed area or border ridge must be left between the plots to reduce the possibility of gully erosion.

Surface drainage. All precision land-forming systems shall include plans for removing or otherwise providing for control of excess water.

Designs must provide field elevations and field grades that will permit proper functioning of the planned drainage facilities.

Borrow computations. Excavation and fill material required for or obtained from such structures as ditches, ditch pads, and roadways shall be considered part of the precision land-forming design, and the appropriate yardage shall be included when balancing cuts and fills and determining borrow requirements.

CONSIDERATIONS

Effects on the water budget, especially on volumes and rates of runoff, infiltration, deep percolation, and evaporation.

Short-term and construction effects of installation on downstream water resources.

Potential for earth moving to uncover or redistribute toxic materials, such as saline soils, and make them available to water or plants.

Effects on downstream temperature changes.

Effects on the visual quality of downstream water resources.

Effects on wetland hydrology and/or wetland wildlife habitat.

Effects on soil loss due to increased wind erosion potential and subsequent deposition.

PLANS AND SPECIFICATIONS

Plans and specifications for precision land forming shall be in keeping with this standard and shall describe the requirements for applying the practice to achieve its intended purpose. The plans shall include as a minimum:

- Location of the area to be reshaped.
- The limits of the area to be reshaped.
- Slope limits and grades of the area to be reshaped.
- Location of any required borrow areas including excavation limits.
- Location and design of facilitating conservation practices.
- Location of underground utilities.
- Plans for removing or otherwise providing for control of excess water
- Type and location of outlet structure(s) or other conservation practices.

OPERATION AND MAINTENANCE

An operation and maintenance plan shall be provided to and reviewed with the landowner. As a minimum, the operation and maintenance plan shall include:

- Periodic checks of drainage structures (field ditches, grassed waterways, etc.) to ensure that erosion and/or siltation is not occurring.
- Performing minor maintenance to maintain the required field slopes and repair any damage.

REFERENCES

Florida NRCS Conservation Practice Standard,
Critical Area Planting, Code 342
Land Leveling, Code 464
Land Smoothing, Code 466
General Manual
Title 420-Part 401
Title 450-Part 401
Title 190-Parts 410.22 and 410.26
National Cultural Resources Handbook
National Environmental Compliance Handbook
National Food Security Act Manual
National Planning Procedures Handbook
Florida Supplements to Parts 600.1 and
600.6