NATURAL RESOURCES CONSERVATION SERVICE

DOCUMENTATION REQUIREMENTS FOR

PRECISION LAND FORMING

CODE 462

Design Criteria

Design in accordance with the criteria listed in Chapter 3 of National Engineering Handbook Section 16 (NEH 16), *Drainage of Agricultural Land*; Chapter 14 of National Engineering Handbook Part 650 (NEH 650), *Engineering Field Handbook*; and Conservation Practice Standard 462, Precision Land Forming.

Surveys

The amount of survey information necessary to do the land-forming operation will depend on the purpose of the finished job. In most cases, it will require a grid survey or a detailed topographic map.

A grid survey should be run as follows:

- Usually the grid spacing will be on 100-foot by 100-foot spacing except in special cases.
- Record survey data electronically or on Form NRCS-ENG-28 and Form NRCS-ENG-29, Loose Leaf Field Sheet, or Forms KS-ENG-37 and KS-ENG-37a, Field Notes (or equivalent).
- Set at least 1 permanent bench mark. Set reference hubs as needed.
- Take shots at significant points on any fringe areas and record horizontal dimensions referenced to a known grid point.
- Take shots on any significant highs or lows in the field that occur between the grid stakes. Record the location of these by referencing to a known grid point.

Design

Develop the design in accordance with the "Design Criteria" section above.

If the design is done manually, a precision land-forming map will be prepared from the surveys as follows:

- List the original ground elevations at each grid point—show cut or fill (- or +) in feet. Cuts and fills may be color-coded with red or blue pencil. Show design elevations as needed.
- Delineate fringe areas and show elevations at significant points.
- Show bench mark data, hubs, and map scale.
- Show direction of drainage pattern, location of collection or field ditches, main ditches, water control structures, and any other practices used in conjunction with the land-forming operation. Draw in and label any field benches.
- Prepare a table with headings for field number or letter, area in acres, cut yardage, fill yardage, ratio of cut to fill percentage, and cubic yards of cut per acre for each field. The bottom line of the table should show totals for the entire area. Yardage can be computed using the 4-point method or AutoCAD. A computer program can be used to compute the yardage and complete the design information (if available).
- Locate and show any buried or overhead utility lines which may affect the design and the land-forming operation. Safety procedures listed in National Engineering Manual (NEM) Part 503 and NEM Part KS503 should be strictly followed.

Layout

Mark the cuts and fills on the grid stakes using the grid map as a reference. This may be done by anyone adequately trained by Natural Resources Conservation Service (NRCS) personnel.

NRCS, KS
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Checkout

Checkout tolerance shall not exceed plus or minus 0.2 foot from the design elevation with no reverse grade in the planned land slope direction.

The person doing the checkout should sign and date the land-forming map, which certifies that the completed job conforms to the original design and is within allowable tolerances.