
Greenville County Technical Specification for:
EC-01: SURFACE ROUGHENING

1.0 Surface Roughening

1.1 Description

Surface roughening is the creation of horizontal grooves, depressions, or steps that run parallel to the contour of the land. The following surface roughening measures are approved for use:

Tracking (driving a crawler tractor up and down a slope, leaving the cleat imprints parallel to the slope contour),

Stair-step grading; and,

Grooving (using disks, spring harrows, or teeth on the bucket of a front-end loader).

1.2 Tracking

Tracking is defined as driving tracked machinery up and down slopes, leaving the cleat imprints parallel to the slope contour.

1.2.1 When and Where to Use It

To slow erosion, surface roughening by tracking should be done as soon as possible after the vegetation has been removed from the slope.

Tracking can be used with seeding, planting and temporary mulching to stabilize an area.

Tracking should be performed immediately after grading activities have ceased (temporarily or permanently) in an area.

1.2.2 Installation

It is important to avoid excessive compacting of the soil surface when tracking because soil compaction inhibits vegetation growth and causes higher runoff rates. As few passes as possible should be made with the machinery in order to minimize compaction

Surface roughened areas by the means of tracking should be seeded and mulched within 14 days.

1.2.3 Inspection and Maintenance

Inspections should be made every seven calendar days and inspections are recommended within 24-hours after each rainfall event that produces ½-inches or more of precipitation.

If rills (small watercourses that have steep sides and are usually only a few inches deep) appear, they should be re-graded and re-seeded immediately.

1.3 Stair-Step Grading

Stair-step grading is defined as cutting stair-steps into slopes with each step having a maximum horizontal distance of 4-feet and a maximum vertical distance of 4-feet.

1.3.1 When and Where to Use It

To slow erosion, stair step grading should be done within 7 days after the vegetation has been removed from the slope. Cut slopes with a gradient steeper than 3H:1V but less than 2H:1V may be stair-stepped.

Stair-step grading works well with soils containing large amounts of small rock. Stairs should be wide enough to work with standard earth moving equipment.

Stair-step grading can be used with seeding, and planting to stabilize an area.

1.3.2 Installation

Stair-step grading may be carried out on any material soft enough to be moved with a bulldozer. The ratio of vertical cut distance to horizontal distance should not be steeper than 1:1 and the horizontal portion of the “step” should slope towards the vertical wall.

Areas that are graded in this manner should be seeded within 14 days.

1.3.3 Inspection and Maintenance

Inspections should be made every seven calendar days and inspections are recommended within 24-hours after each rainfall event that produces ½-inches or more of precipitation.

If rills (small watercourses that have steep sides and are usually only a few inches deep) appear, they should be re-graded and re-seeded immediately.

1.4 Grooving

Slope Grooving is defined by using machinery to create a series of ridges and depressions that run perpendicular to the slope on the contour.

1.4.1 When and Where to Use It

To slow erosion, slope grooving should be done within 7 days after the vegetation has been removed from the slope.

Cut slopes with a gradient steeper than 3H:1V but less than 2H:1V may be groove cut. Grooving can be done by any implement that can be safely operated on the slope, including those described above. Grooves should not be less than three inches deep nor more than 15 inches apart.

Fill slopes with a gradient steeper than 3H:1V but less than 2H:1V should be compacted every nine inches of depth. The face of the slope should consist of loose, uncompacted fill 4 to 6 inches deep that can be left rough or can be grooved as described above, if necessary.

Any cut or filled slope that will be maintained should have a gradient less than 3H:1V and in no case greater than 2H:1V. Such a slope can be roughened with shallow grooves parallel to the slope contour by using normal tilling. Grooves should be close together (less than ten inches) and not less than 1-inch deep.

Slope Grooving can be used with seeding and planting to stabilize an area.

1.4.2 Installation

Slope Grooving may be installed with any appropriate implement that can be safely operated on the slope and will not cause undue compaction. Suggested implements include discs, chisel plows and the teeth on a

front-end loader bucket. Such grooves should be a minimum of three inches deep and no further than 15 inches apart.

Areas that are graded in this manner should be seeded within 14 days.

1.4.3 Inspection and Maintenance

Inspections should be made every 7 calendar days and inspections are recommended within 24-hours after each rainfall event that produces ½-inches or more of precipitation until final stabilization is achieved.

If rills (small watercourses that have steep sides and are usually only a few inches deep) appear, they should be re-graded and re-seeded immediately.