Bowling Green, Kentucky
Stormwater Best Management Practices (BMPs)
Site Planning and Design Practices (SPDs)

SPD-03.3

Activity: Disturbed Area Stabilization (Permanent Seeding)

PLANNING CONSIDERATIONS:

Design Life:
1 yr

Acreage Needed:
Minimal

Estimated Unit Cost:
Low

Monthly Maintenance:
60% of Installation

Target Pollutants

Significant ♦	Partial ◈	Low or Unknown ♢

Sediment ♦ Heavy Metals ♢ Nutrients ♢ Oxygen Demanding Substances ♢ Toxic Materials ♢
Oil& Grease ♢ Bacteria & Viruses ♢ Floatable Materials ♢ Construction Waste ♢

Description

Final stabilization occurs when perennial vegetation is introduced to construction areas. This stabilization occurs as a result of planting trees, shrubs, vines, grasses or legumes on exposed areas. The result of this aesthetic overture reduces stormwater runoff velocity, maintains sheet flow, protects soil surface from erosion, promotes infiltration of runoff into the soil and improves wildlife habitat. Permanent stabilization also acts as a protective cover for cuts, fills, and other denuded areas that will not be regarded.

Suitable Applications

- Areas where topsoil was never stripped.
- Topsoil has been returned and incorporated into the soil surface.
- See EPP-06, Permanent Seeding for more information.

Installation Procedures

- Grade and shape slope unless hydraulic seeding has taken place.
- Divert erosion causing concentrations of water to safe outlets.
- Plants should be selected based on characteristics specific to soil conditions, site, planned and maintenance of the area, method of planting, etc.
- Topsoil should be friable and loamy, free of debris with a uniform application of 5 inches recommended.
- Seedbed preparations: When conventional seeding is to be used, topsoil should be applied to any are where the disturbance results in subsoil being the final grade surface.

Broadcast Planting

1. Seedbed preparation may not be required where hydraulic seeding equipment is to be used.
2. Tillage, at a minimum, shall adequately loosen the soil to a depth of 4 to 6 in.; alleviate compaction; incorporate topsoil, lime, and fertilizer; smooth and firm the soil; allow for the proper placement of seed, sprigs, or plants; and allow for the anchoring of plants; and allow for the anchoring of straw or hay mulch if a crimper is to be used.
3. Tillage may be done with any suitable equipment
4. Tillage should be done parallel to the contour where feasible
5. On slopes too steep for the safe operation of tillage equipment, the soil surface shall be pitted or trenched across the slope with appropriate hand tools to provide consecutive beds, 6 to 8 in. apart, in which seed may lodge and germinate. Hydraulic seeding may also be used.

Individual Plants

1. Where individual plants are to be set, the soil shall be prepared by excavating holes, opening furrows, or dibble planting.
2. For nursery stock plants, holes shall be large enough to accommodate roots without crowding.
3. Where pine seedlings are to be planted, use a subsoiler under the row to a depth of 36 in. on the contour four to six months prior to planting. Subsoiling should be done when the soil is dry, preferably in August or September.
4. Trees should not be planted in power line right-a-ways or under power lines.

Inoculants

1. All legume seeds shall be inoculated with appropriate nitrogen fixing bacteria. The inoculants shall be pure culture prepared specifically for the seed species and used within the dates on the container.
2. A mixing medium recommended by the manufacturer shall be used to bind the inoculants to the seed. For conventional seeding, twice the amount of inoculants recommended by the manufacturer. For hydraulic seeding, four times the amount of inoculant recommended by the manufacturer shall be used.
3. All inoculant seed shall be protected from the sun and high temperatures and shall be planted the same day inoculated. No inoculated seed shall remain in the hydroseeder longer than one hour.

Installation Procedures (cont'd)

Planting

1. Hydraulic Seeding: Mix the seed (inoculant if needed), fertilizer, and wood cellulose or wood pulp fiber mulch with water and apply in a slurry uniformly over the area to be treated. Apply within one hour after the mixture is made.
2. Conventional Seeding: Seeding will be done on a freshly prepared seedbed. For broadcast planting, use a cultipacker seeder, drill, rotary seeder, other mechanical seeder, or hand seeding to distribute the seed uniformly over the area to be treated. Cover the seed lightly with 1/8 to ¼ in. of soil for small seed and ½ to 1 in. for large seed when using a cultipacker or other suitable equipment.
3. No-Till Seeding: No-till seeding is permissible into annual cover crops when planting is done following maturity of the cover crop or if the temporary cover stand is sparse enough to allow adequate growth of the permanent (perennial) species. No-till seeding shall be done with appropriate no-till seeding equipment. The seed must be uniformly distributed and planted at the proper depth.
4. Individual Planting: Shrubs, vines and sprigs may be planted with appropriate planters or hand tools. Pine trees shall be planted manually in the subsoil furrow. Each plant shall be sent in a manner that will avoid crowding the root.

Nursery stock plants shall be planted at the same depth or slightly deeper than they grew at the nursery. The tips of the vines and sprigs must be at slightly above the ground surface.

Where individual holes are dug, an appropriate amount of fertilizer shall be placed in the bottom of the hole, two in. of soil shall be added, and the plant shall be set in the hole and the hole filled.

Applying Mulching

Mulch is required for all permanent vegetation applications. Mulch applied to seeded areas shall achieve 75% soil cover. Select the mulching material from the following and apply as indicated.

1. When using temporary erosion control blankets or block sod, mulch is not required.
2. Dry straw or dry hay of good quality and free of weed seeds can be used. Dry straw shall be applied at the rate of 2 tons per acre. Dry hay shall be applied at a rate of 2 ½ tons per acre. *Sericea lespedeza* hay containing mature seed shall be applied at a rate of three tins per acre.
3. Straw or hay mulch will be spread uniformly within 24 hours after seeding and/or planting. The mulch may be spread by blower type spreading equipment, other spreading equipment, or by hand.
4. Wood cellulose mulch or wood pulp fiber shall be used with hydraulic seeding. It shall be applied at the rate of 500 pounds per acre. Dry straw or dry hay shall be applied (at the rate indicated above) after hydraulic seeding.
5. One thousand pounds per acre of wood pulp fiber, which includes a tackifier, shall be used with hydraulic seeding on slopes ¾:1 or steeper.
6. Wood cellulose and wood pulp fibers shall not contain germination or growth inhibiting factors. They shall be evenly dispersed when agitated in water. The fibers shall contain a dye to aid in uniform application during seeding.

Installation Procedures (cont'd)

Anchoring Mulch

1. Emulsified asphalt can be (a) sprayed uniformly onto the mulch as it is ejected from the blower machine or (b) sprayed on the mulch immediately following mulch application when straw or hay is spread by methods other than special blower equipment. The combination of asphalt emulsion and water shall consist if a homogeneous mixture satisfactory for spraying. The mixture shall consist of 100 gallons of water per ton of mulch. Care shall be taken at all times to protect state waters, the public, adjacent property, pavements, curbs, sidewalks, and all other structures from asphalt discoloration.
2. Hay and straw mulch may be pressed into the soil immediately after the mulch is spread. A special "crimper" or disk harrow with the disks set straight may be used. Serrated disks are preferred, and should be 20 in. or more in diameter and 8 to 12 in. apart. The edges f the disks shall be dull enough to press the mulch into the ground without cutting it, leaving much of it in an erect position. Mulch shall not be plowed into the soil.
3. Synthetic tackifiers or binders may be applied in conjunction with or immediately after the mulch is spread. Synthetic tackifiers should be mixed and applied according to manufacturer's specifications.

Irrigation

Irrigation will be applied at a rate that will not cause runoff.

Maintenance

- Inspect seeding and mulch regularly.
- Any washout areas should be repaired immediately.
- Maintenance needs that have been identified should be repaired before the next storm event or within seven days of identification.

Inspection Checklist

- ❑ Inspect all applications and make appropriate repairs.