



Vegetative Stabilization – Seeding (SS-1)



Use: Establish perennial, vegetative cover in areas of bare soil for stabilization.

Design criteria:

- For all sites, except those located in arid or semi-arid areas, provide established uniform vegetation (evenly distributed without large bare areas), which provides 70 percent or more of the density of coverage that was provided by vegetation prior to commencing construction. For final stabilization, vegetative cover must be perennial.
- For sites located in arid, semi-arid, or drought stricken areas, the area of exposed soil must be seeded so that within 3 years, 70 percent or more of the density of coverage that was provided by vegetation prior to commencing earth-disturbing activities is established.

Installation:

- Soil should be capable of supporting permanent vegetation.
- Where compacted soils occur, they should be broken up sufficiently to create a favorable rooting depth of 6-8 inches. Organic compost can serve as a viable soil amendment. If compost is used, make sure to use well decomposed, stable, weed free organic matter source. Avoid the use of invasive species in seed stock.
- Rake soil surface smooth prior to seeding, sprigging, sodding, or hydroseeding.
- Install any erosion control practices, such as diversions or berms, to protect the seeded area.
- Spread lime and fertilizer as needed and appropriate for the soil type. To minimize discharges of nutrients in stormwater, apply fertilizers at a rate and in amounts consistent with manufacturer's specifications and at the appropriate time of year for your location.
- Immediately after seeding the area, to the extent necessary to prevent erosion of the seeded area, install non-vegetative stabilization measures to protect the area during growth of the vegetation. Follow the appropriate installation requirements and other specifications for such measures at *SS-3, Non-Vegetative Stabilization - Erosion Control Blankets or Turf Reinforcement mats* and *SS-4, Non-Vegetative Stabilization - Mulching*. For arid, semi-arid, and drought-stricken areas, the non-vegetative cover must be designed to last 3 years without active maintenance.
- Water as necessary to ensure proper seed germination. Avoid excessive watering, which can result in washing seeds away or in seed clumping.

Maintenance:

Inspect all seeded areas for failures and make necessary repairs, replacements, reseeding, and remulching within the planting season. If vegetation is inadequate to meet the 70 percent cover criteria, reseed, fertilize, and remulch. Water as necessary.



Vegetative Stabilization – Sod (SS-2)



Photo of sod being installed at a residential site.
Photo credit: Barry Tanning, Tetra Tech



Sod installation failure. Sod needed staples.
Photo credit: Barry Tanning, Tetra Tech

Use: Provide immediate perennial, vegetative cover on areas of bare soil for stabilization.

Design criteria:

- For all sites, except those located in arid or semi-arid areas, provide an established uniform vegetation (evenly distributed without large bare areas), which provides 70 percent or more of the density of coverage that was provided by vegetation prior to commencing construction.
- For final stabilization, vegetative cover must be perennial.

Installation:

- Ensure soil is capable of supporting permanent vegetation.
- Where compacted soils occur, they should be broken up sufficiently to create a favorable rooting depth of 6-8 inches. See *ES-6, Protect Areas Reserved for Vegetation and Infiltration* for soil conditioning specifications. Organic compost can serve as a viable soil amendment. If compost is used, it shall be of a well decomposed, stable, weed free organic matter source.
- Use sod appropriate for the climate, topography, and soil type. Do not apply sod during very hot or wet weather.
- Lay strips of sod beginning at the lowest area to be sodded and perpendicular to the direction of water flow. Wedge strips securely into place. Square the ends of each strip to provide for a close, tight fit.
- Roll or compact immediately after installation to ensure firm contact with the underlying topsoil. Install staples where sod might move because of water flow.
- When sodding is carried out in alternating strips or other patterns, seed the areas between the sod immediately after sodding.
- Water as necessary. Sod must be established as cover prior to terminating permit coverage.

Maintenance:

- Inspect sod frequently after it is first installed, especially after large storms, for failures and make necessary repairs until it is established as cover. If it is impossible to establish a healthy groundcover due to frequent saturation, instability, or some other cause, remove the sod, seed the area with an appropriate seed mix, and protect area with a net or blanket.
- Remove and replace dead sections of sod.



Non-Vegetative Stabilization – Erosion Control Blankets or Turf Reinforcement Mats (SS-3)



Illustration of slope stabilization using erosion control blankets.

Use:

Establish temporary stabilization for areas of bare soil. Typically used in combination with seeded or planted vegetation to stabilize or provide reinforcement for disturbed areas where plants are slow to develop and to provide temporary cover where work will continue at a later date.

Design criteria:

Note: Erosion control blankets and turf reinforcement mats must not be used for permanent stabilization, unless being combined with seeded or planted vegetation.

- If being used to stabilize disturbed areas during the establishment of seeded or planted vegetation, apply cover to all areas of exposed soil and seeding where vegetation will grow.
- If being used as a temporary stabilization measure prior to continuing construction, evenly distribute the geotextile, mat, or blanket so that it covers all areas of exposed soil.

Installation:

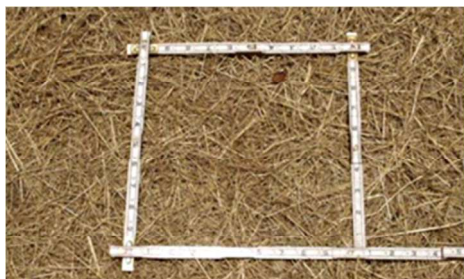
- Select materials for the mat or blanket that are appropriate for site conditions (e.g., use degradable straw blanket with cotton thread if area will be mowed short; use permanent turf mats on steeper slopes where vegetation will be taller).
- Grade and shape the area of installation.
- Remove all rocks, clods, vegetation, or other obstructions so that the installed cover will have complete, direct contact with the soil. Note: If good ground contact is not achieved, runoff can concentrate under the product, resulting in significant erosion.
- Install in accordance with manufacturer's specifications.
- If the mat or blanket is being used to protect an area being seeded or planted, seed or plant and apply any lime and fertilizer to the area before installation of the mat or blanket, as appropriate.
- Starting at the highest point, roll blanket sections downwards in the direction of water flow. Anchor the mat or blanket after it is set in place. Use anchors that are long enough and have sufficient ground penetration to resist pullout, such as U-shaped wire staples, metal stake pins, or triangular wooden stakes. Blanket sections must overlap by at least 6 inches.

Maintenance:

- Maintain good contact with the ground. Periodically check to ensure that erosion does not occur beneath the net or blanket.
- Repair and staple any areas of the mat or blanket that are damaged or not in close contact with the ground. Fix and protect eroded areas if erosion occurs due to poorly controlled drainage.



Non-Vegetative Stabilization – Mulching (SS-4)



Example of adequate mulch coverage on 1sq.ft area. Photo credit: Maine DOT.



Slope stabilization using mulch and mulch nets. Photo credit: Barry Tanning, Tetra Tech

Use: Provide temporary stabilization of soil, increase infiltration, prevent soil compaction and decrease surface runoff. Used in conjunction with vegetative stabilization controls such as seeding, mulching can foster vegetative growth.

Design criteria:

- Apply mulch to any part of the site where soil has been disturbed and protective vegetation has been removed.
- On steeper slopes where the mulch is susceptible to movement by wind or water, mulch material should be hydraulically applied or the straw mulch should be appropriately anchored.
- Mulch should not be applied more than 2 inches deep on seeded sites, unless it is incorporated into the soil by tracking, disking, or other 'punching in' techniques.
- Mulch is not to be used in areas of concentrated flow.

Installation:

- Evenly distribute mulch on the soil surface, by machine or by hand to the desired depth.
- For applying straw to seeded sites, apply 1.5-2 tons/acre, 1-2 inches deep, covering 80% of the soil surface. For applying straw to unseeded sites, apply 2-3 tons/acre, 2-4 inches deep, covering at least 90% of the soil surface. For bark mulch, apply at a rate of approximately 6 tons/acre, at a depth of 2-3 inches. For hydraulic mulch mix, apply at rate of 1.5 tons/ac, mixed with seed and fertilizer, at recommended rates, in order to achieve uniform, effective coverage.
- Anchor mulch as necessary to minimize loss by wind or water. Common anchoring techniques for hay or straw include crimping, tracking, disking, or punching into the soil, and spraying with asphaltic or organic tackifier.

Maintenance:

If properly applied and anchored, little additional maintenance is required in the first 2-3 months. After high winds or significant rainstorms, mulched areas should be checked for adequate cover and re-mulched if necessary.

Other tips:

Hay mulch has potential for introducing weed seed (unwanted plant material). Straw tends to contain very few seeds and thus is less likely to contaminate the site. On small sites (e.g., under one acre), where straw has been distributed by hand, it can be anchored by hand by punching it into the soil every 1-2 feet with a dull, round-nosed shovel.