



Construction Specification

AR- 6—Seeding, Sprigging, and Mulching

1. Scope

The work consists of preparing the area for treatment; furnishing and placing seed, sprigs, mulch, fertilizer, inoculant, lime, and other soil amendments; and anchoring mulch in designated areas as specified.

2. Material

Seed — All seed shall conform to the current rules and regulations of the state where it is being used and shall be from the latest crop available. It shall meet or exceed the standard for purity and germination listed in section 7.

Seed shall be labeled in accordance with the state laws and the U.S. Department of Agriculture rules and regulations under the Federal Seed Act in effect on the date of invitations for bids. Bag tag figures are evidence of purity and germination. No seed will be accepted with a test date of more than 9 months before the delivery date to the site.

Seed that has become wet, moldy, or otherwise damaged in transit or storage will not be accepted. The percent of noxious weed seed allowable shall be as defined in the current State laws relating to agricultural seeds. Each type of seed shall be delivered in separate sealed containers and fully tagged unless prior approval is granted in writing by NRCS.

Fertilizer — Unless otherwise specified, the fertilizer shall be a commercial grade fertilizer. It shall meet the standard for grade and quality specified by State law. Where fertilizer is furnished from bulk storage, the contractor shall furnish a supplier's certification of analysis and weight.

Inoculants — The inoculant for treating legume seeds shall be a pure culture of nitrogen-fixing bacteria prepared specifically for the species and shall not be used later than the date indicated on the container or as otherwise specified. A mixing medium, as recommended by the manufacturer, shall be used to bond the inoculant to the seed. Two times the amount of the inoculant recommended by the manufacturer shall be used except four times the amount shall be used when seed is applied using a hydraulic seeder. Seed shall be sown within 24 hours of treatment and shall not remain in the hydraulic seeder longer than 4 hours.

Lime and other soil amendments — Lime shall consist of standard ground agriculture limestone, or approved equivalent. Standard ground agriculture limestone is defined as ground limestone meeting current requirements of the Arkansas State Plant Board or the State Department of Agriculture. Other soil amendments shall meet quality criteria and application requirements specified in section 7.

Mulch tackifiers — Asphalt emulsion tackifiers shall conform to the requirements of ASTM D 977, Specification for Emulsified Asphalt. The emulsified asphalt may be rapid setting, medium



setting, or slow setting. Non-asphaltic tackifiers required because of environmental considerations shall be as specified in section 7.

Straw mulch material — Straw mulch shall consist of wheat, barley, oat or rye straw, hay, grass cut from native grasses, or other plants as specified in section 7. The mulch material shall be air-dry, reasonably light in color, and shall not be musty, moldy, caked, or otherwise of low quality. The use of mulch that contains noxious weeds is not permitted. The contractor shall provide a method satisfactory to the contracting officer for determining weight of mulch furnished.

Other mulch materials — Mulching materials, such as wood cellulose fiber mulch, mulch tackifiers, synthetic fiber mulch, netting, and mesh, are other mulching materials that may be required for specialized locations and conditions. These materials, when specified, must be accompanied by the manufacturer's recommendations for methods of application.

3. Seeding Mixtures, Sod, Sprigs, and Dates of Planting

The application rate per acre for seed mixtures, sprigs, or sod and date of seeding or planting shall be as shown on the plans or as specified in section 7.

4. Seedbed Preparation and Treatment

Areas to be treated shall be dressed to a smooth, firm surface. On sites where equipment can operate on slopes safely, the seedbed shall be adequately loosened (4 to 6 inches deep) and smoothed. Depending on soil and moisture conditions, disking or cultipacking, or both, may be necessary to properly prepare a seedbed. Where equipment cannot operate safely, the seedbed shall be prepared by hand methods by scarifying to provide a roughened soil surface so that broadcast seed will remain in place.

If seeding is to be accomplished immediately following construction operations, seedbed preparation may not be required except on a compacted, polished, or freshly cut soil surface.

Rocks larger than 6 inches in diameter, trash, weeds, and other debris that will interfere with seeding or maintenance operations shall be removed or disposed of as specified in section 7.

Seedbed preparation shall be discontinued when soil moisture conditions are not suitable for the preparation of a satisfactory seedbed as determined by NRCS.

5. Seeding, Sprigging, Fertilizing, Mulching, and Stabilizing

All seeding or sprigging operations shall be performed in such a manner that the seed or sprigs are applied in the specified quantities uniformly in the designated areas. The method and rate of seed application shall be as specified in section 7. Unless otherwise specified in plans, drawings, or section 7-a-3) adverse growing conditions; seeding or sprigging shall be accomplished within 2 days after final grading is completed and approved.

Fertilizer, lime, and other soil amendments shall be applied as specified in section 7. When specified, the fertilizer and soil amendments shall be thoroughly incorporated into the soil immediately following surface application.



The rate, amount, kind of mulching or mesh, and method of stabilization shall be as specified in plans, drawings, section 7 in this specification, and in accordance with Conservation Practice Standard 484 – Mulching. Mulches shall be applied uniformly to the designated areas. When specified they shall be applied to areas seeded not later than 2 working days after seeding has been performed. Straw mulch material shall be stabilized within 24 hours of application using a mulch crimper or equivalent anchoring tool or by a suitable tackifier. When a mulch crimper or equivalent anchoring tool is used, it shall have straight blades and be capable of firmly punching the mulch into the soil. Where the equipment can be safely operated, it shall be operated on the contour and perpendicular to the slope. Where this is not feasible, such as down waterways, route crimper in an alternating zig-zag pattern. Hand methods shall be used where equipment cannot safely operate to perform the work required.

Tackifiers shall be applied uniformly over the mulch material at the specified rate, or it shall be injected into the mulch material as it is being applied. Mesh or netting stabilizing materials shall be applied smoothly, but loosely on the designated areas. The edges of these materials shall be buried or securely anchored using spikes or staples as specified in section 7.

Maintain the mesh or netting areas until all work under the contract has been completed and accepted, and vegetation is adequately established as to prevent erosion. Maintenance shall consist of the repair of areas damaged by water erosion, wind, fire, or other causes. Such areas shall be repaired to reestablish the intended condition and to the design lines and grades required by the plans and drawings. The areas shall be re-fertilized, reseeded, and re-mulched before the new application of the mesh or netting.

6. Measurement and Payment

For items of work for which specific unit prices are established in the contract, each area treated is measured as specified in section 7 and the area calculated to the nearest 0.1 acre. Payment for treatment is made at the contract unit price for the designated treatment, which will constitute full compensation for completion of the work.

When specified as an item of work, mesh or netting is measured to the nearest square yard of surface area covered and accepted. Payment is made at the contract unit price for PS- 484 Mulching and will constitute full compensation for completion of the work.

Compensation for any item of work described in the contract, but not listed in the bid schedule is included in the payment for the item of work to which it is made subsidiary. Such items and the item(s) to which they are made subsidiary are identified in section 7.

7. Items of Work and Construction Details

Items of work to be performed in conformance with this specification and the construction details therefore are:

- Seeding and Sprigging

This item shall consist of furnishing and applying fertilizer and either seed or sprigs, as specified, to all areas disturbed during construction, except those covered with rock.



- 1) Fertilizer shall be uniformly applied at the rate(s) according to guidance in Table 1. It shall be applied prior to seeding or sprigging and shall be thoroughly mixed into the top layer of soil by disking or other approved methods. Disking and mixing deeper than approximately two inches will not be permitted.

Plant Group	lbs of Nitrogen (N) per acre	lbs of Phosphorus (P₂O₅) per acre	lbs of Potassium (K₂O) per acre	lbs of Lime per acre
Introduced Warm Season Grasses	50	90	90	4000
Introduced Cool Season Grasses	40	90	90	4000
Introduced Cool Season Grasses with Legumes	40	90	90	4000
Native Warm Season Grasses	0	50	80	4000

- 2) All seed shall be certified (Blue Tag).
- 3) Follow guidance in Table 2 for selecting plant species.

Temporary vegetation (i.e. annual cool season grasses) shall be used on areas that are subject to significant erosion and where the establishment of a permanent cover may be delayed due to the planting period or final site preparation. In adverse growing conditions of extremely low temperatures (December – February) and extremely hot and dry periods (June and August) mulch shall be used to provide protection, and will be used in combination with seeding or seeding mixtures. Mulch will be applied according to section 7-b of this specification, Mulching (484) Practice Standard and Practice Specification, and as shown on the plans and drawings.

If a seed mixture is planted, the total mixture percentage should equal 100%.

- 4) All seed mixtures shall be seeded with a broadcast seeder, grassland drill, or other method that will obtain a uniform distribution of seed. Seedbed will be left firm by using a drag or roller.



5) Seeding rates will be according to Table 2.

Table 2: Seeding Rates for Construction Sites					
Functional Plant Group	Plant Species	Planting Dates	Standard Seeding Rate (lbs/ac) ¹		Seeding Depth (inches)
			Broadcast	Drilled	
Introduced Cool Season Annual Grass	Rye	09/01 – 12/01	90-160	60-120	1 to 2
	Oats	09/01 – 12/01, 02/01 – 04/04	110-140	80-110	1 to 2
	Wheat	10/01 – 11/15	75-150	60-120	1 to 2
	Annual Ryegrass	03/01 – 04/15, 09/01 – 11-01	20-30	15-20	0 to 1/2
Introduced Cool Season Perennial Grass	Tall Fescue	03/01 – 04/01, 09/01 – 11/01	20-25	15-20	1/4 to 1/2
Introduced Cool Season Annual Legumes ²	Arrowleaf Clover	09/15-10/15	8-10	5-7	0 to 1/2
	Crimson Clover	09/01-10/15	20-30	15-20	1/4
Introduced Warm Season Perennial Grass	Bermudagrass	04/01-06/01	15-18	12-15	1/4
	Weeping Lovegrass	03/01-05/01	3-5	2-3	1/4
	Bahiagrass	11/01-06/01	15-18	12-15	1/4
Native Warm Season Perennial Grass	Switchgrass	12/15-05/01	8	5	1/4
¹ Seeding rates shall be doubled for erosion sensitive sites. ² Must not be used alone. Note: Pounds of Bulk Seed = $\frac{\text{Pounds of Pure Live Seed}}{(\% \text{ Purity}) \times (\% \text{ Germination})}$ Where Percent is "as decimals" (ex. 95% = 0.95)					

6) All legume seed shall be inoculated with the appropriate commercial culture.

7) Seeding or sprigging operations shall be on the contour or cross slope.

- Mulching

This item shall consist of furnishing and applying mulching materials, as indicated in the plans, drawings, this specification, or as otherwise specified, to all areas disturbed during construction, except those covered with rock.

- 1) Straw mulch shall be applied at a rate of 2 tons per acre to achieve a minimum cover of 70% for establishment of vegetation and erosion control unless otherwise specified in this specification, or the (484) Mulching Practice Standard or Practice Specification. If straw mulch is to be used solely for erosion and/or moisture control during adverse growing conditions as mentioned in section 7-a.-3) minimum may need to be greater. Use guidance in Mulching (484) Practice Standard and Practice Specification.
- 2) If mulch is to be applied it shall be stabilized by the use of one (1) pass of mulch crimper, by a suitable tackifier, or by netting or mesh as shown in the plans, drawings, standards or specifications.



If stabilization is not required due to mild/flat slopes, the mulching material used, or if another method not mentioned in this specification is needed then it shall be specified below.

- 3) When a crimper is used, it shall have straight blades and be capable of firmly attaching the mulch to the soil and shall be operated on the contour. Crimping shall be performed within 24 hours of mulch application.
- 4) When an asphalt emulsion is used as a tackifier, the rate shall be ninety (90) gallons per ton of mulch. Asphalt emulsion shall conform to ASTM-0-977, Emulsified Asphalt. Emulsion asphalt may be rapid setting, medium setting, or low setting.
- 5) As a minimum, manufactured mulches and netting shall be applied according to the manufacturer's specifications. However, the installation shall be in accordance with the more stringent requirements indicated in the plans, drawings, or manufacturer specification, NRCS practice or construction specification, or NRCS Practice Standard.
- 6) The mulch material shall be evenly applied and, if necessary, anchored to the soil. Tackifiers, emulsions, pinning, netting, crimping or other acceptable methods of anchoring will be used if needed to hold the mulch in place for specified periods.