

## SECTION 02935 - SEEDING

### 1.0 GENERAL

#### 1.1 Description

- A. Furnish and install all items of seeding as specified herein and shown on the Contract Drawings.

#### 1.2 Reference Specifications are referred to by abbreviation as follows:

- A. American Society for Testing and Materials..... ASTM
- B. Federal Specifications ..... FS

#### 1.3 Submit three copies of following:

- A. Seed Test Report
- B. Fertilizer Analysis

#### 1.4 Materials shall be delivered in unbroken containers, clearly marked by the manufacturer as to contents. Seed, limestone, and fertilizer shall be labeled as to proportions, analysis and quality. Store all materials in a manner affording protection from damage by weather or vandalism.

#### 1.5 All seeding shall be in compliance with the latest edition of the Virginia Erosion and Sediment Control Handbook.

### 2.0 PRODUCTS

#### 2.1 Topsoil shall be the top 6" of original soil from the site, unless otherwise noted on the Drawings. Topsoil obtained off-site shall be fertile, friable loam, containing not less than 2 pct., by weight, of finely divided, decomposed vegetable matter. Topsoil shall be free of subsoil, clay lumps, brush, weeds, roots larger than ½" diameter, stones larger than ½" diameter and other material toxic or harmful to growth.

#### 2.2 Fertilizer shall meet requirements of Federal Specification 0-F-241. Provide fertilizer that is complete, inorganic, uniform in composition and suitable for application with approved equipment.

- A. Proportions of fertilizer nutrients shall be as follows:

Mixed grasses and legumes: 1000 lbs./acre 10-20-10 or equivalent nutrients (23 lbs./1000 ft<sup>2</sup>).

Legume stands only: 1000 lbs./acre 5-20-10 (23 lbs./1000 ft<sup>2</sup>. is preferred; however, 1000 lbs./acre of 10-20-10 or equivalent may be used.

Grass stands only: 1000 lbs./acre 10-20-10 or equivalent nutrients, (23 lbs./1000 ft<sup>2</sup>).

Other fertilizer formulations, including slow-release sources of nitrogen (preferred from a water quality standpoint), may be used provided they can supply the same amounts and proportions of plant nutrients.

**2.3** Certified seed will be used for all permanent seeding. The seed must meet published state standards and bear an official "Certified Seed" label. (See Virginia Erosion and Sediment Control Handbook Section 3.32 for "Certified Seed" example). Grass seed, tested within 6 months of sowing, shall have the following characteristics:

A. Permanent Seeding

1.	General Slope (3:1 or less)	Total Lbs. <u>Per Acres</u>
	Kentucky 31 fescue	128 lbs.
	Red Top Grass	2 lbs.
	Seasonal Nurse Crop*	<u>20 lbs.</u>
		150 lbs.
2.	Low-Maintenance Slope (Steeper than 3:1)	
	Kentucky 31 Fescue	93 – 108 lbs
	Common Bermudagrass	0 – 15 lbs.
	Red Top Grass	2 lbs.
	Seasonal Nurse Crop*	20 lbs.
	Sericea Lespedeza**	<u>20 lbs.</u>
		150 lbs.

\* Use seasonal nurse crop in accordance with seeding dates as stated below:

Feb.16-April..... Annual Rye  
May 1-Aug.15 ..... Foxtail Millet  
Aug.16-Oct..... Annual Rye  
Nov.-Feb.15 ..... Winter Rye

\*\* May through October, use hulled seed. All other seeding periods, use unhulled seed.

Weeping Lovegrass may be added to any slope or low-maintenance mix during warmer seeding periods; add 10-20 lbs./acre in mixes.

**B. Temporary Seeding**

Planting Dates	Species	Rate (lbs./acre)
Sept.1-Feb.15	50/50 Mix of Annual Ryegrass (Lolium multi-florum) & Cereal (Winter) Rye (Secale cereale)	50 - 100
Feb.16-Apr.30	Annual Ryegrass (Lolium multi-florum)	60 - 100
May 1-Aug.31	German Millet (Setaria Italica)	50

- 2.4** Lime shall be ground agricultural grade limestone containing not less than 85% calcium and magnesium carbonates. Fineness shall be such that 100% will pass a No. 20 sieve, not less than 50% will pass a No. 100 sieve. Burnt lime or hydrated lime may be substituted in equivalent carbonates, if requested.
- 2.5** Type I mulch shall be "Hold/Gro" erosion control fabric manufactured by Gulf States Paper Corporation, P. O. Box 3199, Tuscaloosa, Alabama 35401 or equivalent. The fabric shall be manufactured of materials which degrade in 6 to 8 months under outdoor exposure. Type I mulch shall be used on slopes greater than or equal to 3:1.
- 2.6** Type II mulch composed of straw or hay, fiber mulch or corn stalks shall be free of objectionable weed seeds or other harmful materials. Type II mulch may be used on slopes less than 3 to 1.
- 2.7** Type II mulch shall be anchored by means of a mulch anchoring tool, fiber mulch application or a synthetic mulch binder which is organically formulated.
- 2.8** Fiber mulch shall not be used during the dry summer months or used for a late fall mulch cover. Straw, hay or corn stalk mulch shall be used.
- 2.9** Asphalt, petroleum based or chemical binders shall not be used.
- 2.10** Sod shall be composed of at least 70% of Kentucky 31 tall fescue and be cut to provide a minimum thickness of 2". Vegetation more than 5" in height shall be cut to 3" or less before

sod is lifted.

### **3.0 EXECUTION**

**3.1** Seed all areas within "Limits of Construction" and all areas disturbed during construction.

**3.2** Apply seeding products only when wind velocity is less than 15 miles per hours.

#### **3.3 Temporary Seeding**

- A. Use to reduce erosion and sedimentation in disturbed areas that will not be brought to final grade for a period of more than 30 days. Use to reduce damage from sediment and runoff to downstream or off-site areas, and to provide protection to bare soils exposed during construction until permanent vegetation or other erosion control measures are established.
- B. Apply fertilizer at a rate of 600 lbs./acre of 10-20-10 (14 lbs./1,000 sq.ft.) or equivalent nutrients.
- C. For loose soil, work lime and fertilizer into soil and then seed. For packed or hard soil, loosen top layer while working lime and fertilizer into soil and then seed at the rate required for the temporary seeding species.
- D. Seed shall be evenly applied with a broadcast seeder, drill, culti-packer seeder or hydroseeder. Small grains shall be planted no more than 1" deep. Grasses and legumes shall be planted with no less than 1/4" soil cover.
- E. Seeding made in the fall for winter cover and during hot and dry summer months shall be mulched with straw. Fiber mulch will not be considered adequate during these periods.
- F. Areas which fail to establish vegetation cover, adequate to prevent rill erosion, shall be reseeded as soon as such areas are identified.

#### **3.4 Permanent Seeding**

- A. Prepare soil for permanent seeding by tillage of topsoil in place to loosen thoroughly and break up all clods to a depth of 6". Remove all stumps and roots, coarse vegetation, stones larger than 1½" and all construction debris. Soil shall be worked by suitable agricultural equipment to a depth of not less than 4". Rake to a uniform, smooth and drainable surface.
- B. Apply lime and fertilizer uniformly and mix well into top 4" of seed bed. Apply lime at the rate of 90 lbs. per 1,000 sq. ft. Rates should be adjusted for other grades of fertilizer.

- C. Apply fertilizer at the rate of 1000 lbs. of 10-20-10 per acre or 23 lbs. of 10-20-10 per 1,000 sq. ft. Rates should be adjusted for other grades of fertilizer.
- D. Seeding in Lawn Areas: After final grading, a finely pulverized seed bed shall be prepared using a minimum of 3" of topsoil over the entire area to be seeded. Topsoil, previously placed, may be used to the extent available. Cost of any additional topsoil shall be included in the cost of seeding. Mulch shall be Type II. Type I may be required depending on the slope of area to be seeded.
- E. Seeding in Easements: After final grading and site preparation, grass seed shall be applied at the rate of 150 lbs. per acre and followed immediately by mulching and protection as provided. Mulch shall be Type II.

**3.5** Use seasonal nurse crop in accordance with dates as specified in this Section part 2.3.

**3.6** Sow permanent seed by mechanical seeder as follows:

- A. Apply seed uniformly with a broadcast seeder, drill, culti-packer seeder, or hydroseeder on a firm, friable seedbed. Seeding depth should be ¼ to ½". Apply in cross directions to ensure uniform distribution.
- B. Mulch shall be applied as follows:
  - (1) Straw or hay mulch shall be applied at the rate of 1.5-2 tons per acre or 70-90 lbs. per 1,000 sq. ft. with a mulch blower or by hand. It shall be anchored after application.
  - (2) Fiber mulch shall be applied at the rate of a minimum of 1,500 lbs. per acre or 35 lbs. per 1,000 sq. ft. It shall be applied as a slurry.
  - (3) When fiber mulch is the only available mulch during periods when straw should be used, apply at a minimum rate of 2,000 lbs. per acre or 45 lbs. per 1,000 sq. ft.
  - (4) Corn stalk mulch shall be applied at the rate of 4-6 tone per acre or 185-275 lbs. per 1,000 sq. ft. It shall be applied with a mulch blower or by hand. Stalks shall be cut or shredded in 4-6" lengths and air dried. It shall not be used in fine turf areas.
- C. Anchor mulch to the following standards:
  - (1) Straw mulch shall be anchored immediately after spreading to prevent displacement.

- (2) Use of a mulch anchoring tool (i.e. Krimper Tool) shall be limited to grades less than 3 to 1. Machinery shall be operated on the contour.
- (3) Use a fiber mulch, shall be applied by means of a hydroseeder at a rate of 500-750 lbs. per acre over top of straw mulch or hay.
- (4) If a synthetic mulch binder is used, apply at the rate recommended by manufacturer.
- (5) On slopes steeper than 3 to 1 fasten Type I mulch as recommended by the manufacture.

**3.7** Remove all soiling or staining of finished walks, drives and parking areas resulting from seeding work. Maintain paved areas in clean condition.

**3.8** Turfgrass Maintenance

- A. Water as required to keep soil moist during germination period.
- B. Mowing
  - (1) When grass reaches height of 3½" to 4", mow to height of 2½".
  - (2) Maintain grass height between 2½" and 4".
  - (3) Do not remove more than 33% of total height of grass in one mowing.
- C. Reseed and mulch spots larger than 1 sq. ft. without uniform stand of grass.
- D. Mow and maintain all seeded areas until uniform stand of grass is acceptable to the Department.
- E. In the event that growth is not established by final project inspection, continue the specified attention until stand is accepted by the Department.
- F. Correct or repair all undue settling as evidenced by complaints received within one year after final inspection.

END OF SECTION