

SECTION 11 - SEEDING

11.1 General.

11.1.1 Related requirements specified in other Sections of the Specifications.

- A. Section 8 - General Construction Standards
- B. Section 10 - Trenching & Backfilling

11.1.2 Reference Specifications are referred to by abbreviation as follows:

- A. American Society for Testing and Materials..... ASTM

11.1.3 Submit two copies of following:

- A. Seed Test Report
- B. Fertilizer Analysis

11.1.4 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.

11.1.5 Seed only when wind velocity is less than 15 miles per hour.

11.2 Products.

11.2.1 Topsoil shall be the top 6 inches 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 percent, by weight, of finely divided, decomposed vegetable matter. Topsoil shall be free of subsoil, clay lumps, brush, weeds, roots larger than 1/2 inch diameter, stones larger than 1/2 inch diameter and other material toxic or harmful to growth.

11.2.2 Fertilizer shall meet requirements of Federal Specification O-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 the following:
 - (1.) 5 lbs. of actual nitrogen
 - (2.) 10 lbs of actual phosphate
 - (3.) 5 lbs. of actual potash

11.2.3 Grass seed, tested within 6 months of sowing, shall have the following characteristics.

A. Permanent Seeding shall be in accordance with Table 3.32 D from the Virginia Erosion and Sediment Control Handbook:

	<u>Total Lbs. Per Acre</u>
<u>Minimum Care Lawn</u>	
- Commercial or Residential	175-200 lbs.
- Kentucky 31 or Turf-Type Tall Fescue	95-100%
- Improved Perennial Ryegrass	0-5%
- Kentucky Bluegrass	0-5%
<u>High-Maintenance Lawn</u>	
- Kentucky 31 or Turf-Type Tall Fescue	200-250 lbs. 100%
<u>General Slope (3:1 or less)</u>	
- Kentucky 31 Fescue	128 lbs.
- Red Top Grass	2 lbs.
- Seasonal Nurse Crop *	<u>20 lbs.</u> 150 lbs.
<u>Low-Maintenance Slope (Steeper than 3:1)</u>	
- Kentucky 31 Fescue	108 lbs.
- Red Top Grass	2 lbs.
- Seasonal Nurse Crop *	20 lbs.
- Crown vetch **	<u>20 lbs.</u> 150 lbs.

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

February 16th through April	Annual Rye
May 1st through August 15th	Foxtail Millet
August 16th through October	Annual Rye
November through February 15th	Winter Rye

** Substitute *Sericea lespedeza* for Crownvetch east of Farmville, Va. (May through September use hulled *Sericea*, all other periods, use unhulled *Sericea*). If Flatpea is used in lieu of Crownvetch, increase rate of 30 lbs./acre. All legume seed must be properly inoculated. 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

Seeding Date	Species	Percentages (Min.)			Rate Lb./Acre
		Weight	Purity	Germ.	
(1.) Feb 15 - Apr 30	Oats	100	98	85	96
(2.) May 1 - Aug 31	Millet	100	98	80	40
(3.) Sept 1 - Nov 15	Rye	100	96	85	140

C. For seeding of wetlands or other specific applications, the Engineer shall submit a site specific seeding schedule.

11.2.4 Lime shall be ground agricultural grade limestone containing not less than 85 pct. calcium and magnesium carbonates. Fineness shall be such that 100 pct. will pass a No. 20 sieve, not less than 50 pct. will pass a No. 100 sieve. Burnt lime or hydrated lime may be substituted in equivalent carbonates, if requested.

11.2.5 Type I mulch shall be an approved manufactured erosion control fabric. The fabric shall be manufactured of materials which degrade in 6 to 8 months under outdoor exposure.

11.2.6 Type II mulch composed a threshed straw of cereal grain, pine needles or wood fiber shall be free of objectionable weed seeds or other harmful material.

11.2.7 Asphalt adhesive for use with Type II mulch shall be emulsified asphalt meeting requirements of ASTM D977, Grade SS-1.

11.2.8 Approved synthetic mulch binder may be used with Type II mulch.

11.2.9 Sod shall be composed of at least 70 pct. of Kentucky 31 tall fescue and be cut to provide a minimum thickness of 2 inches. Vegetation more than 5 inches in height shall be cut to 3 inches or less before sod is lifted.

11.3 Execution.

11.3.1 Temporary Seeding

A. Use in areas when final grading has not been completed or when permanent seeding cannot be done due to the specified permanent seeding dates. Also use in easements where no permanent seeding is required as shown on Drawings.

B. Apply fertilizer at a rate of 15 lbs. of 10-20-10 per 1000 sq. ft. (600 lbs. per acre) or equivalent.

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 only between February 15 and November 15. Use mulching or sodding between November 15 and February 15.
- E. For lawn areas, the permanent seed mix shall be used for temporary seeding during the specified planting periods. Any areas receiving temporary seeding shall be reseeded with permanent seed in accordance with these specifications.

11.3.2 Prepare soil for permanent seeding by tillage of topsoil in place to loosen thoroughly and break up all clods to a depth of 6 inches. Remove all stumps and roots, coarse vegetation, stones larger than 1½ inches and all construction debris. Soil shall be worked by suitable agricultural equipment to a depth of not less than 4 inches. Rake to a uniform, smooth and drainable surface.

- A. Apply lime and fertilizer uniformly and mix well into top 4 inches of seed bed. Apply lime at the minimum rate of 100 lbs. per 1000 sq. ft. to achieve a pH of 6.0 to 7.5. Apply fertilizer at the rate of 50 lbs. of 5-10-5 per 1000 sq. ft. or 25 lbs. of 10-20-10 per 1000 sq. ft. Rates should be adjusted for other grades of fertilizer.

11.3.3 Sow permanent grass seed between dates of March 1 and April 15 or September 1 and October 15.

11.3.4 Sow permanent seed by mechanical seeder as follows:

- A. Mix seed thoroughly with clean dry sawdust and broadcast at rate of 6 lbs. of seed per 1000 sq. ft. in cross directions to ensure uniform distribution. Rake surface lightly and roll with appropriate type of lawn roller weighing maximum of 150 lbs. per foot of width.
- B. Apply either Type I or Type II mulch uniformly leaving not more than 10% of the soil surface exposed.
 - (1.) Type I mulch. Apply in accordance with manufacturer's instructions.
 - (2.) Type II mulch.
 - a. Apply uniformly to depth of approximately 1-1/4 inches leaving not more than 10% of the soil surface exposed.
- C. Anchor mulch by the following methods.
 - (1.) Apply light tack coat of asphalt emulsion.
 - (2.) In residential areas, apply synthetic mulch binder at rate recommended by manufacturer.
 - (3.) On slopes steeper than 4 horizontal to 1 vertical, fasten heavy jute mesh to wooden stakes.

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

11.3.6 Establishment and Acceptance of Seeding

- A. The Contractor shall maintain all seeded areas until final acceptance of the project and shall restore or replace any portion of the seeding work that is found defective or which becomes damaged prior to final acceptance. Restoration or

replacement work shall include the reestablishment of the grade or profile of the area, replacement of topsoil, refertilization, reseeding and remulching as directed by the Engineer. When the damage consists only of the displacement of mulch, the mulch shall be replaced within 7 days.

- B. Water as required to keep soil moist during the germination period.
- C. If mowing is required to properly maintain all seeded areas until final acceptance, the following criteria shall apply:
 - (1.) When grass reaches height of 3½ to 4 inches, mow to height of 2½ inches.
 - (2.) Maintain grass height between 2½ and 4 inches.
 - (3.) Do not remove more than 33 percent of total height of grass in one mowing.
- D. Reseed and mulch spots larger than one square foot without uniform stand of grass.
- F. Final project inspection shall not be scheduled until the vegetation is acceptable to the Engineer.
- G. Correct or repair all undue settling as evidenced by complaints received within one year after final inspection.