

**SECTION 02710 - SEEDING**

**PART 1 - GENERAL**

1.1 DESCRIPTION

- A. The WORK under this Section includes providing all labor, materials, tools and equipment necessary for preparing the ground and furnishing and applying seed, fertilizer, lime and mulch as called for in the Contract Documents, all in reasonably close conformity with these Specifications and at locations shown on the Drawings or established by the ENGINEER.
- B. It is the intent of these Specifications that a living vegetative cover will be provided in the areas indicated on the Drawings.
- C. Seed mix to be used will be as specified in the Bid Schedule.

**PART 2 - PRODUCTS**

2.1 SEED

- A. Seed shall be furnished separately or in mixture in standard sealed containers clearly labeled with: Seed name; lot number; net weight; percentages of purity and of germination and hard seed; and, percentage of maximum weed seed content. The CONTRACTOR shall furnish the ENGINEER duplicate signed copies of a statement by the vendor certifying that each lot of seed has been tested by a recognized laboratory for seed testing within six months of date of delivery. This statement shall include: Name and address of laboratory; date of test; lot number for each kind of seed; and results of tests as to name, percentages of purity and germination, and percentage of weed content, for each kind of seed furnished, and, in the case of a mixture, the proportions of each kind of seed.
- B. Seed mixes shall conform to on of the following:

MIX PROPORTION				
TYPE	VARIETY	TYPE I	TYPE II	TYPE III*
Red Fescue	Pennlawn Boreal Dawson	1/3	1/3	1/3
Tall Fescue		1/3		
Perennial Rye	Manhattan Derby Regal	1/3	1/3	1/3
Blue Grass	Nugget Newport Park		1/3	1/3
Annual Rye	See note **			

\* Maximum weed seed content shall be one (1) %.

\*\* Provide additional Annual Rye seed, as required to provide rapid grass cover for protection of lawn areas during inclement fall weather.

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### 2.2 FERTILIZER

- A. Fertilizer shall be a standard commercial grade fertilizer, supplied separately or in mixtures. Fertilizer shall conform to all State and Federal regulations and shall be 10-20-20. The fertilizer shall contain slow release nitrogen in the form of inorganic chemicals amounting to at least 75% of the available nitrogen specified.
- B. Fertilizer shall be furnished in new, clean, sealed, moisture-proof, and properly labeled containers, clearly labeled with the name, weight, and guaranteed analysis of the contents.
- C. Fertilizer for use in a hydraulic sprayer shall be soluble or ground to a fineness that will permit complete suspension of all insoluble particles in the water or slurry.

### 2.3 LIME

- A. Lime shall be agricultural ground limestone containing not less than 85% dolomite, with 95% passing through a 100-mesh screen, delivered to the site in the original unopened containers labeled to show analysis.
- B. Limestone for use in a hydraulic sprayer shall be soluble or ground to a fineness that will permit complete suspension of all insoluble particles in the water or slurry.

### 2.4 MULCH

- A. Mulch shall be natural or cooked wood cellulose fiber which shall have the property of dispersing readily in water and shall have no toxic effect when combined with seed or other materials. The homogeneous slurry or mixture shall be capable of application with power spray equipment. A colored dye which is noninjurious to plant growth may be used when specified. Wood cellulose fiber shall be packaged in new, labeled containers, shall have an equilibrium air-dried moisture content of 12% plus or minus three percent at the time of manufacture, and shall have a pH range of 3.5 to 5.0.

## PART 3 - EXECUTION

### 3.1 SOIL PREPARATION

- A. After grading, and topsoiling if required, has been completed in conformity with the lines and grades shown on the Drawings or staked by the ENGINEER, and before start of seeding operations, the areas to be seeded shall be cultivated to provide a reasonably firm, but friable seedbed. Cultivation shall be carried to a depth of two-inches, except on slopes steeper than 3:1. Depth of cultivation may be reduced as directed by the ENGINEER. All cultivated areas shall be raked or cleared of stones one inch in diameter and larger. All weeds, plant growth, stick, stumps, and other debris or irregularities which might interfere with the seeding operation, growth of grass, or subsequent maintenance of the grass covered areas, shall be removed.

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### 3.2 SEEDING SEASONS

- A. All seeding shall be completed after May 1<sup>st</sup> and prior to August 15<sup>th</sup>, or the contract deadline, whichever is sooner. Seeding other than the specified dates will be allowed only with prior written permission of the ENGINEER and will be at the CONTRACTOR's own risk. If the seeding fails to produce a uniform and fecund growth, the seeding will be repeated until the required growth is achieved.
- B. Seeding shall not be done during windy conditions, or when climactic conditions or ground conditions would hinder placement or proper growth.

### 3.3 APPLICATION METHODS

- A. Seed, fertilizer, ground limestone and mulch material shall be placed by one of the following methods.

- 1. Hydraulic Method

- a. Seeding by hydraulic methods shall consist of furnishing a slurry made of seed, fertilizer, ground limestone, wood cellulose fiber mulch, and water, and applying the slurry under pressure to the designated area.
- b. A slurry unit shall consist of a mixture of the following proportionate quantities of water, mulch fiber, seed, fertilizer and ground limestone:

Water	1,000 gallons
Mulch Fiber	200 pounds
Seed	35 pounds
Fertilizer	120 pounds
Ground Limestone	500 pounds

- c. An adequate scale shall be provided by the CONTRACTOR to weigh the mix proportions.
- d. The mixing and application shall be as follows:
  - 1) Fill the tank with water to one-third full and agitate at half speed. Add fertilizer, ground limestone and one-half the required mulch fiber.
  - 2) Fill the tank to two-thirds full and agitate at full speed. Add the remaining mulch fiber.
  - 3) Agitate at full speed and add water until the tank is full, then add the seed. Begin slurry distribution after five minutes of agitation.
- e. After fertilizer and seed are placed in the hydraulic seeder, the mixture shall be completely applied within one hour. Seed remaining in contact with fertilizer for more than one hour shall be rejected and additional seed at the specified rate shall be added at no additional cost.
- f. The slurry mixture shall be spread uniformly at the application rate, as directed by the ENGINEER, upon the areas designated. Application rates

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shall be one slurry unit per 5,000 to 10,000 square feet, as directed by the ENGINEER

- g. Hydraulic seeding equipment shall be capable of maintaining a continuous agitation so that a homogeneous mixture can be applied through a spray nozzle. The pump shall be capable of producing sufficient pressure to maintain a continuous, non-fluctuating spray capable of reaching the extremities of the seeding area with the pump unit located on the roadbed. Sufficient hose shall be provided to reach areas not practical to seed from the nozzle unit situated on the roadbed.

### 2. Dry Method

- a. Mechanical spreaders, seed drills, landscape seeders, cultipacker seeders, fertilizer spreaders, or other mechanical spreading equipment approved by the ENGINEER may be used when seed and fertilizer are to be applied in dry form.
- b. Fertilizer, and ground limestone if required, shall be spread separately at the specified rates and then incorporated in one operation to a minimum depth of two (2) inches. Weather and soil conditions permitting, seeded areas shall be compacted, within 24 hours from the time the seeding is completed, by cultipacker, roller, or other equipment approved by the ENGINEER.
- c. Compacting equipment shall be operated at right angles to the slope. Compaction shall not be performed when the soil is in such condition that it will be picked up by the compacting equipment, nor shall heavy soils be compacted at all if so directed by the ENGINEER.
- d. Hand-operated seeding devices may be substituted provided that the rate of application for both seed and nutrient is twice that of dry mechanical methods, and that the end result required is attained. Hand-operated seeding devices may be used only upon prior written approval of the ENGINEER.

### 3.4 MAINTENANCE OF SEEDED AREAS

- A. The CONTRACTOR shall protect seeded area against traffic by warning signs or barricades, as approved by the ENGINEER. Surfaces gullied or otherwise damaged following seeding shall be repaired by re-grading, re-seeding, and re-mulching, as directed by the ENGINEER, and the CONTRACTOR shall otherwise maintain seeded areas in a satisfactory condition until final inspection and acceptance of the WORK.
- B. The seeded areas shall be watered by the CONTRACTOR as required for proper germination and growth. Equipment used in watering shall be capable of reaching all seeded areas from the traveled way.

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### **3.5 INSPECTION AND ACCEPTANCE**

- A. Acceptance of seeded areas shall be based on a uniform stand of vegetation at the time of final inspection. Areas failing to show a uniform stand after germination shall be scarified and reseeded as herein specified..

**END OF SECTION**