

SECTION 02900

SEEDING AND MULCHING

PART ONE - GENERAL

1.1 DESCRIPTION

A. Work included:

1. Preparation of ground, seeding, protection and cleanup of Work areas designated for grading and seeding operations.
2. Disking and harrowing of ground for seeding purposes where grade is undisturbed by construction unless otherwise specified.
3. Proper protection of seeded, disturbed, or a combination of both, areas from erosion.

B. Areas responsible for:

1. All areas within the construction easement.
2. All areas disturbed by the Contractor and his personnel during construction of project under contract.

C. Related work described elsewhere:

1. Erosion and Sedimentation Control - Section 02270

1.2 QUALITY ASSURANCE

A. Selection of materials:

1. The selection of all materials required from Drawings and Specifications shall be subject to the Engineer's approval.
2. The Engineer shall have the right to reject any and all materials, which do not meet the Specification requirements or are not otherwise satisfactory at any stage of operations.
3. The Contractor shall remove all rejected materials immediately from the site at no additional cost to the Owner.

B. Execution of the Work:

1. The execution of all grading, seeding and other operations required under Drawings and Specifications shall be subject to Engineer's approval.
2. The Engineer shall have the right to reject any and all methods of operations found unacceptable for the Work required.

PART TWO - PRODUCTS

2.1 FERTILIZER

Grade 10-10-10 fertilizer, uniform in composition, free-flowing, and suitable for application with approved equipment, shall be provided. Deliver fertilizer to the site in bags or other convenient containers, each fully labeled, conforming to applicable commonwealth or state fertilizer laws, and bearing the name, trade name or trademark, and warranty of the producer.

2.2 LIMESTONE

Furnish agricultural-grade limestone ground to pass an 8-mesh sieve with 25% passing a 100-mesh sieve. In addition, calcareous limestone shall contain not less than 50% calcium oxide, and dolomitic limestone shall contain not less than 40% magnesium oxide. Coarser materials may be acceptable provided the specified rates of application are increased proportionately, on the basis of quantities passing the 8- and 100-mesh sieves, but no additional payment shall be made for increased quantity.

2.3 MULCH

Furnish threshed straw of cereal grain such as oats, wheat, barley, rye, rice, etc. or grass hay. Materials that contain objectionable weed seeds or other species that might be detrimental to planting being established or to adjacent farmland shall not be acceptable.

2.4 SEED

- A. Furnish seed labeled Virginia CERTIFIED or APPROVED, unless written exception is granted. Furnish seed in sealed, standard containers unless written exception is granted. Seed that is wet or moldy or that has been otherwise damaged in transit or stage shall not be acceptable.
- B. Mixtures: Furnish seed of the Kentucky 31 Tall Fescue type. Application rate shall be 220 lbs. per acre or 5 lbs. per 1,000 sq. ft.

2.5 SOIL FOR REPAIRS

For fills and topsoiling areas to be repaired, soil shall be of at least equal quality to existing in areas adjacent to the area to be repaired. Soil used shall be free from roots, stones, and other materials that hinder grading, planting, and maintenance operations and free from

objectionable weed seeds and toxic substances.

2.6 TOPSOIL

Topsoil stockpiled under other sections of these Specifications shall be utilized and shall contain no rocks or lumps 2" in greatest dimension. If stockpiled topsoil is unavailable, the Contractor shall import the soil, subject to Engineer's approval.

2.7 WATER

Water shall be free from oil, acid, alkali, salt, and other substances harmful to growth of grass, and shall be from a source approved prior to use by Engineer.

PART THREE - EXECUTION

3.1 GENERAL

- A. Area and requirements of Work: All disturbed ground areas within limits of construction shall be graded, topsoiled, tilled, fertilized, limed, seeded, and mulched. For cut and fill areas which consist of primarily rock or rough rock/soil, topsoiling, and tilling shall be waived.
- B. Equipment: Provide equipment in good condition for the proper ground preparation and for hauling and placing of materials. Equipment shall be approved before work is started.

3.2 PREPARATION OF GROUND SURFACE

- A. Clearing: Prior to grading and tilling, vegetation that may interfere with operations shall be moved and grubbed; remove collected material from site, or when suitable, used material for mulch as approved by Engineer. Clear surface of stumps, roots, cable, wire, rocks or lumps greater than 2", and other materials that might hinder Work or subsequent maintenance.
- B. Grading: Maintain previously established grades on the areas to be treated in a true and even condition; make necessary repairs to previously graded areas. Where grades have not been established, grade areas as shown on Drawings, and leave all surfaces in an even and properly compacted condition to prevent formation of depressions. Finished grade shall be such that after subsequent treatments, i.e. tillage, topsoiling, and planting, planted grade shall join 1 inch below adjoining surfaced grade of walks and drives.
- C. Tillage: After areas required to be treated have been brought to grades shown, till

soil to a depth of at least 3 inches by plowing, disking, harrowing, or other approved operations until condition of soil is acceptable. Perform Work only during periods when, in Contractor's or Engineer's opinion, beneficial results are likely to be obtained. When drought, excessive moisture, or other unsatisfactory conditions prevail, Work shall be stopped when directed. Level undulations or irregularities in surface before next specified operation.

D. Topsoiling:

1. Distribute topsoil uniformly and spread evenly to a settled thickness of 4 inches. Spread topsoil so that planting can proceed with little additional soil preparation or tillage.
2. Level surface irregularities resulting from topsoiling or other operations to prevent depressions. Adjust grade to assure that planted grade will be 1 inch below adjoining grade of any surfaced area in accordance with requirements of Paragraph 3.2, B.
3. Topsoil shall not be placed when subgrade is frozen, excessively wet, extremely dry, excessively compacted, or in a condition detrimental to proposed planting or grading.
4. Pulverize soil compacted by construction equipment or soil on compacted cut slopes or grades to a minimum depth of 2 inches by disking or plowing before applying topsoil.

E. Fertilizing:

1. Distribute fertilizer uniformly at a rate of 25 pounds per 1,000 square feet over areas to be seeded, and incorporate it into soil to a depth of at least 3 inches by disking, harrowing, or other acceptable methods. Incorporation of fertilizer may be part of operation specified in Paragraph 3.2, C.
2. If liquid fertilizer is used, apply it in amounts sufficient to provide the same value of nutrients per unit of surface area specified for dry fertilizer. If a liquid fertilizer is used in a hydroseeder, apply material on a poundage basis mixed with same volume of water used with dry fertilizer.
3. Use of approved hydraulic equipment or seed drill equipped to sow seed and distribute fertilizer at the same time shall be acceptable.

- F. Liming: Immediately following or simultaneously with incorporation of fertilizer, distribute limestone uniformly at a rate of 80 pounds per 1,000 square feet, and incorporate it into soil to a depth at least 3 inches by disking, harrowing, or other acceptable methods. Incorporation of limestone along with fertilizer may be part of the operation specified in paragraph 3.2. C.

- G. Leveling: Level surface irregularities resulting from tillage, fertilizing, liming, or other operations before seeding.

3.3 PLANTING SEED

- A. General: Sow seed between dates of April 15 and May 30 or August 15 and October 1, unless otherwise directed in writing.
1. Employ a satisfactory method of sowing, using approved mechanical power-drawn drills or seeders, mechanical hand-seeders, hydraulic seeders, or other approved methods. When drills are used, provide markers or other means to ensure that successive seeded strips will overlap or be separated by a space no greater than equipment row spacings.
 2. When delays in operations extend Work beyond the most favorable planting season for species designated or when conditions are such by reason of drought, high winds, excessive moisture, or other factors that satisfactory results are not likely to be obtained, halt Work as directed and resume only when conditions are favorable or when approved alternate or corrective measures and procedures have been effected.
 3. If inspection during seeding operations or after there is show of green indicates that strips wider than space between rows planted have been left unplanted, or other areas skipped, sow additional seed at no additional cost to Owner.
- B. Broadcast seeding: Broadcast seed either by hand or with approved hydraulic seeding equipment, as specified hereinbefore, in combination with fertilizer, or with other approved sowing equipment at the rate shown under Paragraph 2.4, B.
1. Distribute seed uniformly over designated areas.
 2. Sow half of seed with sower moving on one direction.
 3. Seed shall be covered to an average depth of 1/4" by brush harrow, spike-tooth harrow, chain harrow, cultipacker, hand rake, or other approved device.
 4. Seed shall not be broadcast during windy weather.

3.4 COMPACTING

- A. Equipment: Immediately after the seeding operation has been completed, the surface shall be compacted by a cultipacker, roller, or other approved equipment weighing 100 to 160 pounds per linear foot of roller.
1. When planting by machine, the roller shall be operated immediately behind

the planter unless otherwise directed. Under certain soil conditions, the Engineer may direct that rolling be delayed for 15 to 30 minutes following planting to avoid balling the soil on the roller or squeezing water out of furrows.

2. If the soil is of such type that a smooth or corrugated roller cannot be operated satisfactorily, a pneumatic-tired roller, not wobble-wheel, shall be used. A roller having tires of sufficient size shall be used, or sufficient passes of the roller shall be made, to cover the soil surface completely.

3.5 MULCHING

- A. Conditions: Straw or hay mulch shall be spread uniformly in a continuous blanket, using 100 pounds per 1,000 square feet.
- B. Equipment: Mulch shall be spread by hand or by a manure spreader, a blower-type mulch spreader, or other suitable equipment.
- C. Method:
 1. Mulching shall be started at the windward side of relatively flat areas, or at the upper part of a steep slope, and continued uniformly until the area is covered. The mulch shall not be bunched.
 2. Immediately following spreading, the mulch shall be anchored to the soil by a V-type wheel land packer, a scalloped-disk land packer designed to force mulch into the soil surface, or other suitable equipment.
 3. The number of passes needed, not to exceed three, shall be determined by the Engineer.

3.6 WATERING

- A. Water shall be delivered in a manner that will ensure that the upper 6" of the soil surface is moistened. Distribution shall be at an even rate and in a manner to prevent erosion.
- B. Watering equipment of a type that prevents damage to finished surface shall be used.

3.7 ESTABLISHMENT AND MAINTENANCE

- A. General: Protection shall be provided against traffic or other use by erecting barricades immediately after treatment is completed, and by placing warning signs, as directed, on various areas. Contractor shall assume responsibility for proper care of seeded areas while grass is becoming established for three months after completion of treatment on the entire project, unless desired cover is established in a shorter period of time and the Engineer shortens the responsibility period. When any

portion of the surface becomes gullied or otherwise damaged or treatment is destroyed, the affected portion shall be repaired to re-establish condition and grade of soil and treatment prior to injury, as directed. Repair work required because of faulty operations or negligence on the part of the Contractor shall be performed without additional cost.

- B. Postplanting fertilization: From 40 to 60 days after seeding or planting, Grade 10-10-10 fertilizer shall be applied uniformly at a rate of 15 pounds per 1,000 square feet over areas seeded or planted. Fertilizer conforming to physical condition, packaging, and marking as specified shall be provided. Fertilizer shall be applied when grass blades are dry to minimize burning. When water is available, the planted area shall be irrigated to thoroughly moisten the upper 6" of the soil surface after the fertilizer is applied. Engineer shall designate areas needing further refertilization at least 15 days before application is required.
- C. Reseeding: The Engineer shall designate areas requiring reseeding at least 15 days before the period specified for reseeding. Seed specified shall be drilled at 4 pounds per 1,000 square feet, in a manner that will cause minimum disturbance to existing stand of grass, and at an angle of not less than 15 degrees from direction of previously seeded rows.
- D. Mulching: Mulched areas shall be maintained until all work or designated portions thereof have been completed and accepted. Any damage shall be repaired, and mulch material that has been removed by wind or other causes shall be replaced and secured.

END OF SECTION