

SECTION 329200.19 – SEEDING AND MULCHING

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Placing topsoil.
- B. Permanent seeding, hydro seeding, mulching and fertilizing.

1.2 RELATED SECTIONS

- A. Section 312316.13 – Trenching: Rough grading over cut.
- B. Section 313500 – Slope Protection and Erosion Control: Erosion control. Temporary seeding and mulching.

1.3 REFERENCES

- A. FS O-F-241 – Fertilizers, Mixed, Commercial.

- B. Lawn Mixture

- | | |
|--|-----------------------------|
| 1. Kentucky Bluegrass (<i>Poa pratensis</i>) | 3 lb./ 1000 ft ² |
| 2. Creeping Red Fescue (<i>Festuca rubra</i>) | 3 lb./ 1000 ft ² |
| 3. Annual Ryegrass (<i>Lolium multiflorum</i>) | 2 lb / 1000 ft ² |
| 4. Perennial Ryegrass, turf type (<i>Lolium perenne</i>) | 2 lb / 1000 ft ² |

- C. General Notes and any other related specifications.

1.4 DEFINITIONS

- A. Weeds: Include Dandelion, Jimsonweed, Quack grass, Horsetail, Morning Glory, Rush Grass, Mustard, Lambs quarter, Chickweed, Cress, Crabgrass, Canadian Thistle, Nut grass, Poison Oak, Blackberry, Tansy Ragwort, Bermuda Grass, Johnson Grass, Poison Ivy, Nut Sedge, Nimble Will, Bindweed, Bent Grass, Wild Garlic, Perennial Sorrel, and Brome Grass.

1.5 SUBMITTALS AT PROJECT CLOSEOUT

- A. Section 017839 – Closeout Submittals: Procedures for submittals.
- B. Maintenance Data: Include maintenance instructions, cutting method and maximum grass height; types, application frequency, and recommended coverage of fertilizer.

1.6 QUALITY ASSURANCE

- A. Provide seed mixture in containers showing percentage of seed mix, year of production, net weight, date of packaging, and location of packaging.

1.7 REGULATORY REQUIREMENTS

- A. Comply with regulatory agencies for fertilizer and herbicide composition.
- B. Provide certificate of compliance from authority having jurisdiction indicating approval of seed mixture.

1.8 DELIVERY, STORAGE, AND PROTECTION

- A. Section 410100 – Operation and Maintenance Processing and Handling Equipment: Transport, handle, store, and protect products.
- B. Deliver grass seed mixture in sealed containers. Seed in damaged packaging is not acceptable.
- C. Deliver fertilizer in waterproof bags showing weight, chemical analysis, and name of manufacturer.

1.9 MAINTENANCE SERVICE

- A. Maintain seeded areas immediately after placement until grass is well established and exhibits a vigorous growing condition for two cuttings.

PART 2 - PRODUCTS

2.1 SEED MIXTURE

- A. Seed Mixture: ODOT; Item 659.09; Lawn Mixture

2.2 SOIL MATERIALS

- A. Topsoil: Fertile, agricultural soil, typical for locality, capable of sustaining vigorous plant growth, taken from drained site; free of subsoil, clay or impurities, plants, weeds and roots; pH value of minimum 5.4 and maximum 7.0.

2.3 ACCESSORIES

- A. Mulching Material:
 - 1. Oat or wheat straw, free from weeds, foreign matter detrimental to plant life, and dry. Hay or chopped cornstalks are not acceptable.

2. Hemlock species wood cellulose fiber, dust or chip form, free of growth or germination inhibiting ingredients.
- B. Fertilizer: FS O-F-241, Type I, Grade A; recommended for grass, with fifty percent of the elements derived from organic sources; of proportion necessary to eliminate any deficiencies of topsoil, as indicated in analysis.
- C. Water: Clean, fresh and free of substances or matter, which could inhibit vigorous growth of grass.
- D. Erosion Fabric: Jute matting, open weave.
- E. Stakes: Softwood lumber, chisel pointed.
- F. String: Inorganic fiber.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify that prepared soil base is ready to receive the work of this section.
- B. Soils must include enough fine-grained material to hold at least a moderate amount of available moisture.
- C. The soil must be free from material that is toxic or otherwise harmful to plant growth.
- D. Soils which do not meet the above minimum conditions shall receive topsoil to a depth of 4 inches.

3.2 SITE PREPARATION

- A. Subsoiler, plow, or other implement shall be used to reduce soil compaction and allow maximum infiltration. (Maximizing infiltration will help control both runoff rate and water quality.) Subsoiling should be done when the soil moisture is low enough to allow the soil to crack or fracture. Subsoiling shall not be done on slip-prone areas where soil preparation should be limited to what is necessary for establishing vegetation.
- B. The site shall be graded as needed to permit the use of conventional equipment for seedbed preparation and seeding.
- C. Topsoil shall be applied where needed to establish vegetation.

3.3 PLACING TOPSOIL

- A. Prior to applying topsoil, the topsoil should be pulverized.
- B. To ensure bonding, grade the subsoil and roughen the top 3-4 in. by disking.

- C. Do not apply when site is wet, muddy, or frozen, because it makes spreading difficult, causes compaction problems, and inhibits bonding with subsoil.
- D. Apply topsoil evenly to a depth of at least 4 inches and compact slightly to improve contact with subsoil.
- E. After spreading, grade and stabilize with seeding or appropriate vegetation.

3.4 SEEDBED PREPARATION

- A. Lime—Agricultural ground limestone shall be applied to acid soil as recommended by a soil test. In lieu of a soil test, lime shall be applied at the rate of 100 pounds per 1,000-sq. ft. or 2 tons per acre.
- B. Fertilizer—Fertilizer shall be applied as recommended by a soil test. In place of a soil test, fertilizer shall be applied at a rate of 25 pounds per 1,000-sq. ft. or 1000 pounds per acre of a 10-10-10 or 12-12-12 analyses.
- C. The lime and fertilizer shall be worked into the soil with a disk harrow, spring-tooth harrow, or other suitable field implement to a depth of 3 inches. On sloping land, the soil shall be worked on the contour.

3.5 SEEDING DATES AND SOIL CONDITIONS

- A. Seeding should be done March 1 to May 31 or August 1 to September 30. If seeding occurs outside of the above-specified dates, additional mulch and irrigation may be required to ensure a minimum of 80% germination. Tillage for seedbed preparation should be done when the soil is dry enough to crumble and not form ribbons when compressed by hand. For winter seeding, refer to dormant seeding.

3.6 SEEDING

- A. Apply seed at a rate of 3 lbs per 1000 sq ft evenly in two intersecting directions. Rake in lightly.
- B. Do not seed areas in excess of that which can be mulched on same day.
- C. Planting Season: April to September.
- D. Do not sow immediately following rain, when ground is too dry, or during windy periods.
- E. Immediately following seeding, apply mulch as required herein. Maintain clear of shrubs and trees
- F. Apply water with a fine spray immediately after each area has been mulched. Saturate to 4 inches.

3.7 SEED PROTECTION

- A. Identify seeded areas with stakes and string around area periphery.
- B. Cover seeded slopes where grade is 1:3 or greater with erosion fabric. Roll fabric onto slopes without stretching or pulling.
- C. Lay fabric smoothly on surface, bury top end of each section in 6-inch (150 mm) deep excavated topsoil trench. Provide 12-inch (300 mm) overlap of adjacent rolls. Backfill trench and rake smooth, level with adjacent soil.
- D. Secure outside edges and overlaps at 36-inch (900 mm) intervals with stakes.
- E. Lightly dress slopes with topsoil to ensure close contact between fabric and soil.
- F. At sides of ditches, lay fabric laps in direction of water flow. Lap ends and edges minimum 6 inches (150 mm).

3.8 DORMANT SEEDINGS

- A. Seedings should not be made from October 1 through November 20. During this period, the seeds are likely to germinate but probably will not be able to survive the winter.
 - B. The following methods may be used for “Dormant Seeding”:
1. From October 1 through November 20, prepare the seedbed, add the required amounts of lime and fertilizer, then mulch and anchor. After November 20, and before March 15, broadcast the selected seed mixture. Increase the seeding rates by 50% for this type of seeding.
 2. From November 20 through March 15, when soil conditions permit, prepare the seedbed, lime and fertilize, apply the selected seed mixture, mulch and anchor. Increase the seeding rates by 50% for this type of seeding.
 3. Apply seed uniformly with a cyclone seeder, drill, cultipacker seeder, or hydro-seeder (slurry may include seed and fertilizer) on a firm, moist seedbed.
 4. Where feasible, except when a cultipacker type seeder is used, the seedbed should be firmed following seeding operations with a cultipacker, roller, or light drag. On sloping land, seeding operations should be on the contour where feasible.

3.9 MULCHING

- A. Mulch material shall be applied immediately after seeding. Dormant seeding shall also be mulched. 100% of the ground surface shall be covered with an approved material.
- B. Application rates:
 1. Straw—If straw is used it shall be unrotted small-grain straw applied at the rate of 2 tons per acre or 90 pounds (two to three bales) per 1,000-sq. ft. The mulch shall be spread uniformly by hand or mechanically applied so the soil surface is covered. For uniform distribution of hand-spread mulch, divide area into approximately 1,000-sq.-ft. sections and spread two 45-lb. bales of straw in each section.

2. Hydroseeders—If wood cellulose fiber is used, it shall be applied at 2,000 lb./ac. or 46 lb./1,000 sq. ft.
3. Other—Other acceptable mulches include rolled erosion control mattings or blankets applied according to manufacturer's recommendations or wood chips applied at 6 tons per acre.

3.10 MAINTENANCE

- A. Expect emergence within 4 to 28 days after seeding, with legumes typically following grasses. Check permanent seedlings within 4 to 6 weeks after planting. Growth should indicate:
 1. Vigorous seedlings;
 2. Uniform ground surface coverage with at least 30% growth density;
 3. Uniformity with legumes and grasses well intermixed;
 4. Green, not yellow, leaves. Perennials should remain green throughout the summer, at least at the plant bases.
- B. Permanent seeding shall not be considered established for at least one full year from the time of planting. Inspect the seeding for soil erosion or plant loss during this first year. Repair bare and sparse areas. Fill gullies. Re-fertilize, re-seed, and re-mulch if required. Consider no-till planting. A minimum of 70% growth density, based on a visual inspection, must exist for an adequate permanent vegetative planting.
- C. If stand is inadequate or plant cover is patchy, identify the cause of failure and take corrective action: choice of plant materials, lime and fertilizer quantities, poor seedbed preparation, or weather. If vegetation fails to grow, have the soil tested to determine whether pH is in the correct range or nutrient deficiency is a problem.
- D. Depending on stand conditions, repair with complete seedbed preparation, then over-seed or re-seed.
- E. If it is the wrong time of year to plant desired species, over-seed with small grain cover crop to thicken the stand until timing is right to plant perennials or use temporary seeding.
- F. Satisfactory establishment may require re-fertilizing the stand in the second growing season.
- G. Consider mowing after plants reach a height of 6 to 8 inches. Mow grasses tall, at least 3 inches in height and minimizes compaction during the mowing process. Vegetation on structural practices such as embankments and grass-lined channels need to be mowed only to prevent woody plants from invading the stand.

END OF SECTION 329200.19