

Chapter amendments approved:	OMPC	Owensboro	Daviess Co.	Whitesville
Re-adoption of Public Improvement Specifications	24-Mar-77	01-Apr-77	20-Apr-77	?
Revised Public Improvement Specifications	18-Apr-81	22-May-81	26-May-81	06-Jul-81
2002 Revised Public Improvement Specifications	08-Aug-02	No action required by legislative bodies		

10.0 PURPOSE. The purpose of this chapter is to outline the requirements for proper seeding, sodding, and landscaping in areas of construction.

10.1 GENERAL. The Contractor or Developer shall be responsible for restoring vegetation to all embankments, waterways and over the entire excavated site. The restoration shall only be required where erosion and sediment may runoff onto adjacent property or into ditches and streams. Where the on site erosion and sediment is contained and is the responsibility of the Developer or Contractor for removal and maintenance it shall be at the Developer or Contractor discretion as to when and type of vegetation restoration. The Developer or Contractor shall commence restoration, as soon as all drainage facilities, excavation and final grading are complete.

10.2 PROCEDURES AND PRODUCTS.

10.2.1 Permanent Seed Mixtures.

- a. **Turf Quality Tall Fescue** – Use blend of three or four of the top ten performing varieties listed in the most current edition of the Kentucky Turfgrass Research (published by the University of Kentucky College of Agriculture), mixed in equal proportions. Seed at a pure live seed rate of eight (8) lbs./1,000 sq. feet.
- b. **Kentucky Bluegrass** – Use mixture of 85% Bluegrass with 15% Perennial Ryegrass. The Bluegrass blend should consist of two or three of the top ten performing varieties listed in the most current edition of the Kentucky Turfgrass Research (published by the University of Kentucky College of Agriculture), mixed in equal proportions. Seed at a pure live seed rate of two (2) lbs./1,000 sq. feet.
- c. **Kentucky 31 Tall Fescue** – For use in channels subjected to sustained, high velocity flows and in general rough turf areas. Use mixture of 70% of Kentucky 31 Fescue, 15% Creeping Red Fescue,

10% Redtop, and 5% Dutch Clover. Seed at a pure live seed rate of three (3) lbs./1,000 sq. feet.

10.2.2 Temporary Seed. Seed used for temporary seeding may be accepted on the basis of purity and germination values shown on the seed bag. The work of temporary seeding of erosive earth areas shall be done promptly at the locations and times directed. Rye grain, annual rye or winter wheat seed shall not be used in areas to be planted with native vegetation.

10.3 PERMANENT SEEDING.

10.3.1 Preparing the Seed Bed for Turf and Natural Areas. Each area to be seeded shall be scarified, disked, harrowed, raked, or otherwise worked until it has been loosened and pulverized to a depth of not less than three inches. Stones and other foreign materials shall be removed. This operation shall be performed only when the soil is in a tillable and workable condition. Grade 10-10-10 fertilizer, at the rate of not less than 25 pounds per 1,000 square feet, and agricultural limestone, at the rate of not less than 100 pounds per 1,000 square feet, shall be distributed evenly over the seedbed, unless other requirements are shown on the Plans. The limestone and fertilizer shall be lightly harrowed, raked, or otherwise incorporated in the soil for a depth of approximately one half inch. Fertilizer need not be incorporated in the soil as specified above when mixed with seed in water and applied with hydraulic equipment. The Contractor shall apply the seed, fertilizer and mulch within 24 hours of preparing the seedbed. The lime/fertilizer rates shall not relieve the Contractor of his responsibility to provide the proper amounts of these materials. The Contractor is encouraged to have soil analyses performed (at the Contractor's expense) to establish proper line/fertilizer rates so that satisfactory turf growth is promoted.

10.3.2 Seeding for Turf. Permanent seed shall be sown as soon as preparation of the seedbed has been completed and thoroughly watered after seeding. Care shall be exercised not to wash seeding by overwatering. Seed shall be sown uniformly by means of a rotary seeder, tub seeders,

hydraulic equipment, or other satisfactory means, and unless otherwise shown on the Plans. Permanent seeding shall be performed only when the soil is in a tillable and workable condition.

10.3.3 Protection for Turf. Placing of materials for protection shall follow seeding as soon as possible, and no later than 48 hours after seeding. In no instance shall the mulch be placed on crusted seeded areas, and any eroded areas shall be repaired and reseeded before protection is applied. The materials shall be placed uniformly, all clumps loosened and scattered, and care shall be taken to avoid thicker applications than those specified. After the seeding has been satisfactorily completed, the following methods of protection shall be used:

- a. **Straw Mulch Crimping.** Straw mulch may be crimped or punched into the soil to a depth of two (2) inches to four (4) inches using a mulch tool or a dull, serrated farm disk that is set straight. Crimping shall not cut the mulch. This method shall be used in flat areas and on slopes no steeper than 3H:1V and only where equipment can be operated safely. Machinery shall be operated on the contour. Straw mulch material shall be applied at a rate of 90 lbs. per 1,000 square feet.
- b. **Straw Mulch and Netting.** This method shall be used on slopes 3H:1V or steeper. Installation of the netting shall be in accordance with KTC Standard Drawing No. PRE-002-03. Straw mulch material used under netting shall be plain straw and shall be applied at the rate of 90 lbs. per 1,000 square feet.
- c. **Tackifier.** When approved by the Engineer, synthetic/chemical binders and tackifiers may be used in lieu of the above methods for protecting seeded areas. No asphalt emulsions shall be allowed.
- d. **Hydromulch.** When approved by the Engineer, hydromulch may be used in lieu of the above methods for protecting seeded areas. Wood cellulose fiber mulch shall be applied at the rate of 40 pounds per 1,000 square feet.
- e. **Erosion Control Blankets.** Manufactured erosion control blankets (straw, coconut fiber, wood fiber, etc.) shall be utilized when shown on the Plans, as directed by the Engineer, or at the Contractor's option in lieu of straw mulch or hydromulch. The areas to be covered shall be

seeded in accordance with these Specifications before the blanket is placed. The blankets shall be installed according to the manufacturer's specifications. In general, however, the blankets shall be unrolled in the direction of surface water flow. When using two blankets side by side in a ditch, the seam shall not be in the center of the ditch, but offset by six (6) to 12 inches. Individual blanket rolls shall be butted snugly at their ends and sides, and properly secured. The blankets shall be secured using staples driven vertically in the ground. Staple patterns should be in accordance with the manufacturer's specifications. Loose blanket edges shall be staples and buried in trenches according to the manufacturer's specifications.

Use only the specified erosion control blankets or blankets that meet or exceed their specifications when they are specified on the Plans or in the Contract. When the Contractor elects or is directed to use erosion control blankets to achieve improved protection over conventional mulching and netting or hydromulch, the following guidelines shall be used to select the appropriate blanket type:

- (1) **Straw/Netting Matrix** - generally provides effective protection for 2H:1V to 4H:1V slopes, or low flow swales. Usually degrades in 30 to 90 days, depending on product.
- (2) **Straw/Coconut/Netting Matrix** - generally provides effective protection for 2H:1V to 1H:1V slopes of medium flow channels. Can provide protection for six (6) months to more than one growing season, depending on the product.
- (3) **Coconut/Netting Matrix** - generally provides long-lasting protection (up to 2 years) for slopes of 1H:1V or steeper, or for high discharge channels, depending on the product.
- (4) **Wood Fiber/Netting Matrix** - light to heavy-duty wood fiber blankets are available with short to long-term protection capabilities, similar to coconut/straw blankets.

10.3.9 Seed-Incorporated Erosion Control Blankets.

Seed incorporated erosion control blankets (straw, coconut fiber, wood fiber, etc.) shall be utilized when shown on the Plans, as directed by the Engineer. The areas to be covered shall be properly prepared and fertilized in accordance with these Specifications before the blanket is placed. The blankets shall be installed according to the manufacturer's specifications.

10.3.10 Stage II Topdressing. A second application of slow release fertilizer (Grade 20-10-10) shall be applied to seeded areas no sooner than 6 weeks after seeding, but not until a satisfactory stand of vegetation exists. For spring seeding, the fertilizer shall not be applied after May 1, and for fall seeding, the fertilizer shall not be applied after December 1. For spring seeding performed during the period of March 15 to May 15, the Stage II fertilizer shall not be applied until after September 1. The fertilizer shall be distributed evenly over the new grass area at a rate of 12 pounds per 1,000 square feet.

10.3.11 Maintenance and Repair. For turf areas, all seeded areas shall be cared for and maintained properly to the Engineer's satisfaction until final acceptance of the work and for the duration of the guarantee period. Such care shall include, but not be limited to, watering as necessary, repairing of mulch materials as required, and mowing the seeded areas when required by the Engineer. When mowing is required, mower blades shall be set at three (3) inches for sufficient height to protect the vitality of the growth.

10.4 SODDING.

10.4.1 Cutting Sod. Prior to cutting sod, the grass shall be mowed to height of no more than three (3) inches and the mowed area shall be raked to eliminate all clippings, cuts and trash. The sod shall be cut in rectangular sections as required. Sections may vary in length not exceeding 8 feet, but shall be of uniform width of 10 inches or more, and shall be cut to a depth of at least one (1) inch and no more than two (2) inches. The sod shall be cut to such thickness that practically all of the dense root system will be retained but exposed in the sod strip, and to such width and length so that it can be handled without undue tearing and breaking. When cut in strips, the sod shall be rolled without damage with the grass folded inside.

The sod shall be cut by means of an approved mechanical sod cutter. During dry weather, the sod shall be watered before cutting to prevent loss of soil while handling. The sod shall not be cut when in a sufficiently wet condition that could interfere with proper handling. All sod must be

delivered to the Project and placed within 18 hours after being cut.

10.4.2 Preparation of Sod Bed. The sod bed shall be loosened to a minimum depth of one inch and shaped to a smooth uniform surface and shall be graded to such elevation so the sod, when in place, shall be flush with any adjacent seeded or turfed area, pavement, curb, or other structures, except when otherwise directed.

Prior to placing the sod, the fertilizer (Grade 10-10-10) and limestone shall be harrowed, raked or otherwise incorporated into the soil. The sod beds, when dry, shall be moistened to the loosened depth.

10.4.3 Placing Sod. Sod shall be placed within 18 hours of being cut and it shall not be placed when the atmospheric temperature is below 32 degrees F, or when the sod or sod bed is frozen, or during other weather or soil conditions detrimental to the work.

When placed on slopes 2H:1V or steeper and 6 feet or more in height, and in all sodded ditches, each strip or section of sod shall be staked securely with at least two (2) wood stakes or wire staples no more than two (2) feet apart and driven with the surface. Wire staples shall not be used in residential areas.

The sod, after it is placed, shall be wetted thoroughly and tamped or rolled sufficiently to incorporate the roots into the sod bed and to ensure tight joints between the sections or strips.

10.4.4 Maintenance and Repair. The sod shall be watered as frequently as necessary to maintain and assure it in a moist and living state. After a period of two weeks, or as otherwise directed by the Engineer, but not during June, July or August, 20-10-10 fertilizer shall be applied at the rate of six (6) pounds per 1,000 square feet, and the sod given an additional watering to enhance growth. The Contractor shall not allow any equipment or material to be placed on any sodded area and shall erect suitable barricades and guards to prevent his equipment, labor, or the public from traveling on or over any area planted with sod. Care shall include periodic watering, fertilizing and mowing as necessary to maintain the vitality and appearance of the sod. When mowing is required, mower blades shall be set at three (3) inches for sufficient height to protect the vitality of the growth. Sodded areas that become eroded, damaged or failed to successfully establish a stand of grass, shall be repaired and/or replaced.

10.5 CLEAN-UP.

10.5.1 Daily Clean-Up. During the progress of the work, the Contractor shall daily maintain all areas within the limits of his operations from, accumulations of waste materials, rubbish and other debris resulting from the work.

10.5.2 Final Clean-Up. Before final acceptance of the work, all right-of-way, easements, and access roads used by the Contractor, all streams in and over which he has worked, and all ground occupied by the Contractor in connection with the work shall be cleaned of all debris, construction plant, and materials. Right-of-way and easement areas not designated for alteration by the Contract shall be restored to their original condition in accordance with the Plans and Specifications. Areas which have been sodded or seeded and mulched in accordance with this Section, but which have been eroded, damaged or failed to successfully establish a stand of grass, shall be repaired. Waste and debris shall be disposed of in areas approved by the Engineer and provided by the Contractor outside of the right-of-way and easements.