

ITEM 164

SEEDING AND EROSION CONTROL BLANKET

164.1 Description. This Item shall govern for preparing the ground, sowing of seeds, applying a fertilizer, and stabilizing with a mulch, mat, or mesh consisting of straw, hay, wood, coir, paper, or other biodegradable fibers along and across such areas as are designated on the plans and in accordance with these Standard Specifications.

164.2 Material. Seed shall comply with the Texas Seed and Plant Certification Act and Standards, Sections 21.0, 31.10, 21.11 and the U. S. Department of Agriculture Rules and Regulations – Federal Seed Act. Seed bags shall have tags affixed for inspection in the field. Bags without tags will be rejected. Seed shall be tested and certified by a commercial or state laboratory not more than nine (9) months prior to the date of planting. Tags on seed bags shall show the name of the seed, locality and year of harvest, percentage purity, germination and dormant seed, Johnson grass content and noxious weed content. Seed shall be provided in clean, unopened and undamaged bags. Seed shall be provided with no objectionable material, such as sticks, stems and unthreshed seed heads, which will hinder proper distribution. Seed that is wet, moldy, starting to germinate or otherwise damaged, will not be accepted by Harris County.

Standard seed plan, planting dates, plant species and seeding rates shall be as indicated in Table 1:

TABLE 1

<u>Seed Plan</u>	<u>Planting Dates</u>	<u>Species</u>	<u>Planting Rate Per Acre</u>
<u>1</u>	<u>Oct. 1- March 31 When soil temperatures fall below 75°F, or as directed.</u>	<u>Unhulled Bermuda Grass Tall Fescue and Durana Clover Crimson Clover</u>	<u>50 lbs. 25 lbs. 5 lbs. 5 lbs.</u>
<u>2</u>	<u>April 1-Sept. 30 When soil temperatures rise above 65°F, or as directed</u>	<u>Certified Bermuda Grass* Or Common Bermuda Grass, minimum purity/germination of 95/85 Millet</u>	<u>50 lbs. or 50 lbs. PLS 10 lbs.</u>
<u>3</u>	<u>As directed</u>	<u>Certified Bermuda Grass Or Hulled Bermuda Grass minimum purity/germination 95/85 and Pensacola Bahia Grass Brown Top or Fox Tail Millet</u>	<u>50 lbs. or 50 lbs. PLS and 20 lbs. 20 lbs.</u>
<u>5</u>	<u>As directed</u>	<u>Annual Ryegrass and Fescue Or Millet</u>	<u>25 lbs. each 25 lbs.</u>
<u>6</u>	<u>As directed</u>	<u>Improved Bermuda Grass Cultivars</u>	<u>50 lbs.</u>
<u>7</u>	<u>As directed</u>	<u>Legume or Grain</u>	<u>20 lbs.</u>

Seeding shall be applied in accordance with the following:

- Planting dates are approximate, Harris County will determine which seed to use prior to start of seeding.
- Seeding rate for "Pure Live Seed". Is used to determine the actual application rate of bulk material to obtain.
- PLS= (%germination X %purity) .95x.85= .807 (80.7%) PLS
- Rate/PLS= LBS of seed needed for application
1/.807= 1.24 lbs of seed needed/1000 SF
- Certified Bermuda must have a Blue Tag and tested by an accredited seed testing lab

164.3 Fertilizer. Commercial fertilizer as outlined in the Item 166 "Fertilizer", shall be applied to the entire seeded area at the prescribed rates. The fertilizer shall be delivered to the site in bags or other convenient containers, each fully labeled, conforming to the applicable State Fertilizer Laws and bearing the name and warranty of the producer.

164.4 Straw Mulch. Straw mulch shall be oat, wheat, or rice straw. Hay mulch shall be prairie grass, Bermuda grass, oat, wheat or rice stems or other hay as approved by the Engineer. Do not use straw containing Johnson grass or other noxious weeds and foreign materials. The mulch shall be kept in a dry condition and shall not be molded or rotted.

164.5 Fiber Mat. Fiber mat shall consist of machine produced woven mat of wood, coir, straw, or a combination of various biodegradable fibers as approved by the Engineer, with consistent thickness throughout the blanket. The fiber mat shall have a mesh or netting for support. The mesh or netting shall be biodegradable or photo-degradable and have a high wet strength. The mat shall not contain any weed seeds. Use blanket with a weight from 0.7 pounds per square yard to 1.0 pound per square yard. The mat shall be free of defects, rips, holes, flaws, deterioration, mold, rot, or damage.

Material type, size, shape, and spacing of wire staples, or fasteners, shall be in accordance with the recommendations of the manufacturer of the fiber mat erosion control blanket.

164.6 Paper Mesh. Use paper mesh consisting of knitted construction of yarn with uniform openings interwoven with strips of biodegradable paper, furnished in rolls which have suitable protection for outdoor storage. Use paper mesh of weight from 0.2 pounds per square yard to approximately 0.5 pounds per square yard. The mesh shall be free of defects, rips, holes, flaws, deterioration, mold, rot, or damage.

Material type, size, shape, and spacing of wire staples, or fasteners, shall be in accordance with the recommendations of the manufacturer of the paper mesh erosion control blanket.

164.7 Construction Methods.

A. General

Fertilizing & Seeding. After areas to receive fertilizing and seeding have been completed to the lines, grades and sections shown on the plans, apply fertilizer at the prescribed rates as outlined in the Item 166 "Fertilizer". Thoroughly mix upper 3 inches of top soil with fertilizer until a uniform mixture of fertilizer and top soil is obtained. Sprinkle areas to be seeded with water, using fine spray to avoid washing or erosion of soil. Broadcast seed with sowing equipment at the rate specified above, using care to obtain uniform distribution. After broadcasting, lightly rake seeds into soil to a depth not to exceed 1/2 inch. Complete seeding by rolling with roller developing 15 to 25 pounds per inch of tread.

After applying seed and fertilizer, apply straw mulch, fiber mat, or paper mesh as described in the following sections. Keep seeded areas moist for a period of 10 days immediately following placement and as necessary to meet Contractor's maintenance and guarantee period. When watering seeded areas, use fine spray to prevent erosion of seeds or soil. Reseed any areas damaged by erosion and as necessary to obtain a satisfactory growth as determined by the Engineer.

If rain is imminent, then seeding and fertilization shall be postponed until weather conditions exist such that the potential for the runoff of fertilizer from the site is minimized. If high wind conditions exist then the subsequent application of the straw mulch, fiber mat, or paper mesh erosion control blanket shall be postponed until weather conditions exist such that the blanket can be installed properly.

B. Straw Mulch Erosion Control Blanket

1. Fertilizing & Seeding: After ditch or slope has been completed to lines, grades and cross-sections shown on the plans, apply fertilizer and seed in accordance with the above. When seed and fertilizer are to be distributed as water slurry, mixture is to be applied within 30 minutes after all components are placed in the equipment.
2. Mulch Application: Immediately upon completion of planting of seed and fertilizing, spray straw mulch uniformly over the area at the rate of 1-1/2 to 2 tons of hay or 2-1/2 tons of straw per acre. Mulching machine shall inject tacking agent into straw uniformly as it leaves the equipment at the rate of 0.05 to 0.10 gallons of tacking agent per square yard of mulched area. When watering seeded areas, use fine spray to prevent erosion of seeds or soil. Reseed any areas damaged by erosion for any reason. The mulching

operation shall immediately follow seeding and fertilizing as a continuous operation.

C. Fiber Mat or Paper Mesh Erosion Control Blanket

1. Fertilizing and seeding shall be in accordance with the above.
2. Fiber Mat or Paper Mesh Installation: Place fiber mat or paper mesh within 24 hours after seeding operations have been completed. Prior to placing, clear the area to be covered of all rocks or clods over 1-1/2 inches in diameter and all sticks or other foreign material which will prevent close contact of the blanket with the soil. Area shall be smooth and free of ruts or other depressions.

If as a result of a rain, prepared seed bed becomes crusted or eroded, or if eroded places, ruts or depressions exist for any reason, rework soil until smooth and reseed such areas. After area has been properly prepared, lay fiber mat or paper mesh flat, smooth and loosely without stretching or crimping material. Lay mat according to manufacturer's recommendations, generally with the mesh or netting on the top side.

Apply materials with lengths running parallel to the flow of water, or as shown on the plans or as directed by the Engineer. When more than one width is required, butt or overlap edges as required by the manufacturer. In general, for overlaps, the top edge shall overlap the bottom edge to match the direction of the flow of water, not against it.

Hold the material in place by means of a wire staple driven into the soil at an angle to the surface. Staple material along each edge and in a grid pattern with a minimum of 3 feet on center each way. In ditches and on slopes, provide additional stapling as recommended by the manufacturer.

The placement of the fiber mat or paper mesh erosion control blanket shall immediately follow the preparation of the ground.

164.8

Contractor Maintenance & Guarantee Period. It shall be the responsibility of the Contractor to maintain all seeded and erosion control blanket areas until satisfactory growth has occurred as determined by the Engineer, and for a period of 60 days after the successful completion of all punch list items. Maintenance shall consist of watering and weeding, repair of all erosion and any reseeding as necessary to establish a uniform stand of the specified grasses. A minimum of 95 percent of the area seeded shall be covered with the specified grass with no bare or dead spots greater than 10 square feet.

The Contractor shall be responsible for 1 mowing per month between the months of April to October. The Contractor shall also be responsible for 1 mowing every 6 weeks between the months of November to March. In addition, the Contractor shall water all grassed areas as often as necessary to establish satisfactory growth and to maintain its growth throughout the duration of the project.

The Contractor shall make as many repeat seedings as necessary to achieve a minimum of 95 percent of the area planted covered with the specified grass with no bare or dead spots greater than 10 square feet. Such replanting is to be performed within 14 calendar days of notification by the Engineer.

164.9 Submittal Required. The Contractor shall submit copy of seed tag(s) and letter from the supplier attesting that the seed meets the requirements as stated herein. Certification shall include common name; botanical name, percent by weight of each plant species; year of harvest; percent purity, germination and dormant seed; percent noxious weed content; and date of certification.

164.10 Measurement & Payment:

Measurement shall be by the acre or square yard of prepared area underlying the erosion control blanket. Payment for work under this Item to be made at the contract price for "Seeding and Erosion Control Blanket", with price to be full compensation for the materials, tools, equipment, and labor necessary for preparing the area (including fine grading and rolling), seeding, fertilizing, placing and securing the fiber mat, and watering. Additional payment shall not be made for those areas that are repaired or reseeded.

There are line code(s), description(s), and unit(s) for this Item.

NOTE: This Item requires other Standard Specifications.

Item 166 "Fertilizer"

Item 725 "General Source Controls"

END OF ITEM 164