SECTION 8200 SEEDING AND SODDING

8201 SEEDING.

A. Scope. This section governs the furnishing of all labor, equipment, tools, materials and performance of all work for seeding and sodding.

All areas shall be restored by seeding unless directed otherwise by the City Engineer.

B. Materials, Definitions and Equipment.

1. Seeds. Seeds for cover crops shall comply with the requirements of the applicable state seed laws and shall be the mixture of seeds specified in the Special Provisions. Seeds shall be free of prohibited weed seeds and shall not have more than 1 percent (1%) noxious weed seeds. Seeds shall be delivered to the site in convenient containers, each fully labeled, bearing the name, trade name, or trade mark, and a warranty of the producer and a certificate of the percentage of the purity and germination of each kind of seed specified.

2. Pure Live Seed. The following formula shall be used to determine the amount of commercial seed required to provide each kind of seed for the specified quantities of pure live seeds:

$$\text{Pounds of Commercial Seed Required} = \frac{10{,}000 \times \text{Pure Live Seed (lbs per acre)}}{\text{Purity (percent)} \times \text{Germination (percent)}}$$

3. Fertilizer. Fertilized shall be inorganic 12-12-12 or 13-13-13 grade, uniform in composition free flowing and suitable for application with approved equipment, deliver to the site in convenient containers, each fully labeled, conforming to the applicable state fertilizer laws, bearing the name, trade mark, or trade name, and a warranty of the producer.

4. Mulch. Mulch shall be either the vegetative type or wood cellulose fiber type, whichever is specified in the Special Provisions, or as approved by the Engineer.

a. Vegetative Type. The vegetative type shall be the cereal straw from stalks of oaks, rye, wheat or barley and shall be free of prohibited and noxious weed seeds.

b. Wood Cellulose Fiber Mulch. Wood cellulose fiber shall contain no germination or growth inhibiting ingredients, and shall be dyed an appropriate color to aid in visual metering in its application. It shall be easily and evenly dispersed and suspended when agitated in water, and when sprayed uniformly on the soil surface, shall form a blotter like cover, which readily absorbs the water and allows infiltration to the underlying soil. The mulch material shall be supplied in packages of not more than 100 pounds gross weight, and

shall be marked by the manufacturer to show the air dry weight content. (Air dry weight shall contain not more than 10 per cent moisture).

5. Equipment. The seeding operation shall be accomplished with equipment suitable for preparing the seed bed, sowing the seed, fertilizing, spreading the vegetative type mulch, or spreading the wood cellulose fiber mulch in accordance with the applicable requirements of the following sub-section entitled "Construction Details".

C. Construction Details. All equipment used in the project and all workmanship shall meet the approval of the engineer.

1. Application of Fertilizer. Before tilling the soil the fertilizer shall be distributed uniformly at the rate of 600 pounds per acre and incorporated into the soil to a depth of at least 2 inches by discing or harrowing methods. Fertilizing rate is equivalent to 7 pounds per 500 square feet.

2. Tilling the Seed Bed. Areas shown on the plans or specified to be seeded shall be cleared and graded as required preparatory to tilling the surface for seeding. The surface shall be tilled to a depth of at least 2 inches by discing or other approved methods until the soil is suitable for seeding. Areas tilled shall be maintained until seeding and mulching is complete to insure a smooth area with no gullies or depressions.

3. Planting Seeds. The kinds of seeds and the rate of sowing pure live seed shall be as specified on the Plans or in the Special Provisions, but shall be one of the following mixtures:

a. Type "A" Seed. This seeding mixture will normally be used where seeding is required in areas of established yards, shoulders and slopes in street right of way, and any other areas where a high-type seeding is deemed necessary. The seed mixture will be as follows:

	Minimum Pure Live Seed %	Rate of Application Per 1,000 Sq. Ft.
Rye Grass (Lolium Perenne or L. Multiflorum)	85%	3 pound
Rebel II Tall Fescue	95%	7 pounds

All seeding work shall be done between the dates of February 1 and April 15 for spring planting or August 15 and October 15 for fall planting. Sowing shall be accomplished by use of an approved mechanical seeder or drill (hand spreader can be used in small areas), making sure that successive seed strips overlap to provide uniform coverage. Seed should be drilled to a depth of 1/2 inch.

4. Compaction. Immediately following the completion of seeding operation, the entire area shall be compacted by means of a roller weighing at least 60 but not more than 90 pounds per linear foot of roller.

5. Mulching. Mulching shall be done within 24 hours following the seeding operation except in the case of wood cellulose fiber type mulch.

   a. Vegetative Type Mulch. After compacting the surface, mulch shall be uniformly spread at the rate of 1-1/2 tons per acre by means of a mechanical spreader or other approved means.

      As soon as the mulch is spread it shall be anchored to the soil a minimum depth of 3 inches by use of a heavy disc harrow, set nearly straight, or similar approved tool. Discs of the anchoring tool shall be set approximately 9 inches.

      Anchoring shall be accomplished by not more than two passes of the tool.

   b. Wood Cellulose Fiber Type. Wood cellulose fiber mulch shall be added to the hydraulic seeder after the proportionate amounts of seed, fertilizer and water, and other approved materials are added. These ingredients shall be mixed to form a slurry which shall be applied at the rate of 1,000 pounds per acre. The mulch shall make a uniform coverage of the soil surface that will be satisfactory to the Engineer.

D. Protection and Repair. The seeded area shall be kept free of traffic until accepted. If at any time before acceptance of the completed contract, any portion of seeded surface becomes gullied or otherwise damaged, or the seeding has been damaged or destroyed, the affected portion shall be repaired to re-establish the specified condition prior to the acceptance of the work.

8202 SODDING.

A. Scope. This section governs the furnishing of all labor, equipment, tools and materials, and the performance of all work for sodding.

B. Materials and Definitions.

1. Sod. The sod shall be densely rooted nursery grown Kentucky Blue Grass or other as approved by City Engineer. The sod shall contain a growth of not more than 10 percent of other grasses and clovers, shall be free from all prohibited and noxious weeds, and shall be cut in strips of uniform

thickness, the range of acceptable thickness shall be 3/4 to 1-1/4 inch; each strip containing at least one (1) square yard. Sod shall be cut in strips not less than 12 inches wide.

2. Fertilizer. Fertilizer shall be inorganic 12-12-12 or 13-13-13 grade, uniform in composition, free flowing and suitable for application with approved equipment, delivered to the site in convenient containers, each fully labeled, conforming to applicable state fertilizer laws, bearing the name, trade name, or trademark and warranty of the producer.

C. Construction Details.

1. Fertilizing. Before tilling operations, fertilizer shall be spread uniformly at the rate of 300 pounds per acre. Fertilizing rate is equivalent to 3.5 pounds per 500 square feet.

2. Tilling the Sod Bed. The sod bed shall have a uniform surface free from washes and depressions; and shall conform to the finished grade profile and cross-section shown on the plans. The soil except where fresh top soil has just been applied and compacted, shall be thoroughly tilled to a depth of 2". Freshly graded areas, which have set long enough to become dry and crusted over shall be tilled as specified above, preparatory to placing the sod.

3. Placing Sod. Sod shall not be placed during a drought nor during the period from June 1 to September 1, unless authorized by the Engineer, and shall not be placed on frozen ground. Sod shall be moist when it is placed. Sod strips shall be laid along contour lines, commencing at the lowest point of the area and working upward. The transverse joints of sod strips shall be staggered and the sod carefully placed to produce tight joints. The sod shall be firmed and watered immediately after it is placed. The "firming" shall be accomplished by application of a roller weighing not less than 60 nor more than 90 pounds per lineal foot of roller.

4. Anchoring Sod. On 2:1 slopes, or steeper, the sod shall be anchored with 1/2 inch square by 8 inch long wooden pegs driven into the grounds, 3 pegs to the square yard or other approved methods. Pegging shall be done immediately after sod in firmed. The area shall then be cleared of loose sod, excess or broken anchors, excessive soil, or other foreign materials.

5. Maintenance. The sodded area shall be thoroughly watered daily for a period of fifteen days after placing except when thoroughly wetted by rain. Any portion of the sod that is not in good growing condition following the first full growing season (Spring to Fall) shall be replaced with fresh live sod.

8203 TEMPORARY SEEDING.

A. Scope: Establishment of fast-growing annual vegetation to provide economical erosion control for up to 12 months and reduce the amount of sediment moving off the site.

C. Materials: Furnished and installed per Section 8201.B. Annual plants which sprout rapidly and survive for only one growing season are suitable for establishing temporary vegetative cover.

B. Construction Details: Temporary seeding is required in disturbed areas where no activity has taken place within 14 days. To ensure emergence, vigorous growth of seedlings, and continued plant growth, prepare seedbed, add lime and fertilizer according to soil tests, mulch all but the most ideal sites, and follow seeding dates.

8204 HYDROSEEDING.

A. Scope: Seed and fertilizer, mixed in proportions previously specified, may be broadcast in a hydromulch with water which forms an emulsion and covers the prepared designated areas in a uniform manner.

B. Materials: Areas to be hydroseeded shall be fertilized at rates specified in Section 8201. The seed-bed shall be free of any irregularities in the surface, and shall be corrected to prevent formation of water pockets.

Hydromulch used shall be a wood fiber mulch with tackifier, such as Conwit 2000, or approved equivalent. Hydromulch shall be applied at the rate of 1500 lbs. per acre.

C. Construction Details: Hydroseeder filling tank should be ½ full of water before adding seed, fertilizer and hydromulch components. Begin agitation while adding remaining water so that a uniform mixture is obtained. Seed, fertilizer and hydromulch components shall not be added to water more than four (4) hours prior to application.

Discharge hydromulch slurry mix on prepared soil for uniform distribution.

Keep all areas seeded moist throughout germination period. Protect all turf areas by erecting temporary fences, barriers, signs, etc. as necessary to prevent trampling and disturbance.

The seeded areas will be inspected for acceptable grass coverage and will be acceptable when grasses designated are growing and are in good condition and no area more than ½ of one percent of the total areas shall be bare, of which no single area shall be more than one foot square in area. Any bare area larger than this will not be acceptable and shall be reseeded.

8205 GUARANTEE. The contractor shall guarantee all work and materials for a period of one full growing season (Spring to Fall) after the date of final acceptance of the project. During the guarantee period, all turf which dies or exhibits weed growth shall be replaced with like material at the expense of the contractor.