

## **SECTION 7200 - SEEDING AND SODDING**

**7201 SCOPE.** This section covers the furnishings of all labor, equipment, tools and materials necessary for installation of seeding and sodding operations as required by the project plans and specifications.

**7202 GENERAL.** The seeding work shall consist of furnishing and sowing seed by an experienced seeding contractor utilizing equipment manufactured expressly for the purpose, such as a seed drill, mulch chopper and blower for each phase of the seeding operation. Contractor may also use a hydroseeder as an alternative seeding method, if approved by the City Engineer.

For public improvement projects, sodding shall be required for all areas within the right-of-way disturbed by construction operations. Seeding and mulching shall be required at all locations shown on the plans and for all grass covered areas that are disturbed by construction operations, which are not designated to be replaced with sod.

Disturbed areas within established lawns shall be sodded by an experienced Contractor.

**7203 MATERIAL.** The sod shall be Fescue or densely-rooted Kentucky Bluegrass. The sod shall contain a growth of not more than 10 percent (10%) of **other** grasses and clovers, shall be free from all prohibited and noxious weeds, and shall be three-fourths (3/4") to one and one-fourth inch (1-1/4"); each strip containing at least one (1) square yard. Sod shall be cut in strips not less than twelve inches (12") wide.

Commercial fertilizer for seeded or sodded areas shall be as shown on the Approved Materials List. It shall be uniform in composition, free flowing, and delivered to the site in standard size bags, showing weight, chemical composition and name of manufacturer. All fertilizer stored on site shall be kept dry until the time of application.

Seed mixes for cover crops shall be as specified herein unless otherwise specified or approved by the City Engineer. Seed mixes shall be free of prohibited weed seeds and shall not have more than one (1) percent noxious weed seeds. Seed mixes shall be delivered to the site in labeled containers bearing the name of the producer. A certificate showing the percentage of the purity and germination of each kind of seed specified shall be submitted to the City Engineer for approval.

The following formula shall be used to determine the amount of commercial seed required:

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

Where seeding is required on shoulders, slopes and any other areas which will be regularly maintained, the pounds of live seed per acre are outlined in Table 7203-1.

**Table 7203-1 – Pounds of Live Seed Per Acre In Regularly Maintained Areas**

	MINIMUM PURE	RATE OF PURE LIVE SEED
KIND OF SEED	LIVE SEED (%)	POUNDS/ACRE
Perennial Rye (Derby or equivalent)	80%	65
Turf-type Tall Fescue	80%	175
Annual Rye	85%	10
		Total 250 lbs/Acre

Where seeding is required in areas that are not regularly maintained, the seed mixture will be as defined in Table 7203-2.

**Table 7203-2 – Pounds of Live Seed Per Acre in Minimally Maintained Areas**

	MINIMUM PURE	RATE OF PURE LIVE SEED
KIND OF SEED	LIVE SEED (%)	POUNDS/ACRE
Annual Rye	85%	110
		Total 200 lbs/Acre

Where seeding is required in areas off street right-of-way that are not maintained periodically, the seed mixture will be defined in Table 7203-3.

**Table 7203-3 – Pounds of Live Seed Per Acre in Street Right-of-Way**

	MINIMUM PURE	RATE OF PURE LIVE SEED
KIND OF SEED	LIVE SEED (%)	POUNDS/ACRE
Alta Fescue or Kentucky 31 Fescue (Festuca Elatior) Var. Arundinacea)	75%	90 lbs.
Rye Grass (Lolium Perenne or L. Multiflorum)	80	50
		Total 140 lbs./Acre

Preferred mulch materials for application to seedbed areas are smooth brome grass hay, Sudan grass hay or prairie hay. Prairie hay shall consist chiefly of bluestem grasses, switchgrass, Indian grass and other desirable native perennial grasses. Mulch shall be free of prohibited and noxious weed seeds. Other mulching materials may be used with the approval of the City Engineer.

**7204 TIME OF SEEDING OR SODDING.** Seeding and fertilizing shall be performed between August 15 and October 15 for fall planting and between February 15 and April 30 for spring planting. Sod may be placed outside of the listed dates at the discretion of the City Engineer. Seeding and fertilizing shall not be done during periods of such severe drought, high winds, or excessive moisture, as determined by the City Engineer, that satisfactory results are not likely to be obtained.

Sod may be placed between March 1 and June 1 and between September 15 and November 15. Sod shall not be placed on frozen ground.

Any seeding or sodding during periods other than those previously designated will require a written request from the Contractor to extend the permissible period for performing such work. The Contractor shall explain the reason for the variance and shall include a guarantee of satisfactory results at the end of the fourth week of the subsequent growing season, as defined above. The Contractor shall perform any necessary re-seeding or re-sodding at that time.

**7205 APPLICATION OF FERTILIZER.** Commercial fertilizers shall be applied by drilling into the previously prepared soil with fertilizer attachment on the seed drill. A commercial grade broadcast spreader may be used to spread the fertilizer in areas where it is not practical to use a seed drill. The fertilizer shall be spread uniformly after the soil has been prepared and prior to the seeding and sodding. The rate of application for the fertilizer shall be one (1) pound of actual nitrogen per one thousand (1,000) square feet of planting area.

**7206 PREPARATION OF SOD BED.** The sod bed shall have a uniform surface free from washes and depressions and shall conform to the finished grade profile or 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 two (2) inches. 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. **The contractor must have the prepared sod-bed inspected and approved by the city prior to any sod being placed. Any sod placed prior to the sod-bed being inspected and approved by the city is subject to being removed, the deficiencies corrected, and the sod replaced at the contractors expense.**

Sod placed next to existing grassy areas, curbs, sidewalks or like boundaries shall be cut-in to match like grades.

**7207 PLACEMENT OF SOD.** Sod shall be transplanted within twenty-four (24) hours from the time it is harvested. All sod in stacks shall be kept moist and protected from exposure to the sun and from freezing.

The sod beds shall be in a lightly compacted condition with relatively fine texture at the time of sodding. Sod shall be moist when it is placed. The use of dry sod will not be permitted. Sod strips shall be placed parallel to the contour lines, commencing at the lowest point of the area and working uphill. The transverse joints of sod strips shall be staggered and the sod carefully placed to produce tight joints. The sod shall be rolled immediately after it is placed with a roller weighing not less than sixty (60) nor more than ninety (90) pounds per linear foot of roller. On steep slopes, the sod may be compacted with hand tools. The compacting process shall pack the sod roots firmly into the prepared soil. The Contractor shall discontinue rolling sod that contains excess moisture, and is required to wait until the moisture has been reduced before resuming rolling operations. Sod displaced by the rolling operation will not be accepted.

The contractor shall water installed sod immediately after installation and shall water all sod twice daily for a minimum of twenty-one (21) days from initial laying, except on those days where a minimum of 1/4 inch (1/4") of rain falls in a twenty-four (24) hour period.

**7208 PREPARATION OF THE SEED BED.** The area to be seeded shall be thoroughly tilled to a depth of at least three inches (3") by discing, harrowing or other approved methods until the soil is well pulverized. After completion of the tilling operation, the surface shall be cleared of all stones, stumps, or other objects larger than 1-1/2 inches (1-1/2") in thickness or diameter, and of roots, wire, grade stakes, and other objects that might be a hindrance to maintenance operations. Areas tilled shall then be brought to the desired line and grade and maintained until seeding and mulching is complete to ensure a smooth area with no gullies or depressions.

Any objectionable undulations or irregularities in the surface resulting from tillage or other operations shall be removed before planting operations are begun. Seedbed preparation shall be

performed only during periods when satisfactory results are likely to be obtained. When results are not satisfactory because of drought, excessive moisture or other causes, the work shall be stopped until such conditions have been corrected to the satisfaction of the engineer.

**7209 PLACEMENT OF SEED.** Seeding may be accomplished by means of approved mechanical power-drawn drills followed by packer wheels, or by broadcast-type seeders or hydraulic type seeders in small areas not accessible to machine methods, or as approved by the city engineer. Mechanical power-drawn drills shall have depth bands set to maintain a planting depth of at least one-quarter inch (1/4") but not to exceed one-half inch (1/2"). All seed sown by broadcast-type seeders shall be "raked in" or otherwise covered with soil to a depth of at least one-quarter inch and rolled to obtain a firm seed bed. Water shall be applied when necessary.

Hydraulic seeding equipment shall include a pump capable of being operated at 100 gallons per minute and at 100 pounds per square inch pressure, unless otherwise directed. The equipment shall have an acceptable gauge and a nozzle adaptable to hydraulic seeding requirements. Storage tanks shall have a means of agitation and a means of estimation of the volume used, or remaining in the tank.

Seed shall not be drilled or sown during windy weather or when the ground is frozen or otherwise untillable. When a seed drill is used, it shall be set to space the rows not more than 4 inches (4") apart.

**7210 MULCHING.** Straw or hay mulch shall be applied uniformly to seeded areas at the rate of not less than two (2) tons per acre. Baled straw or hay shall be broken up and loosened sufficiently before being fed into the blower hopper to avoid the placing of matted or unbroken clumps. The use of wet straw or hay is prohibited.

Mulching shall be performed within twenty-four (24) hours after seeding, but not be done during windy or rainy weather or when such weather is imminent. Mulching shall be started at the windward side of relatively flat areas, or at the upper part of steep slopes and shall continue uniformly until the entire area is covered.

The mulching material shall be disced or punched into the soil so that it is partially covered. Several passes may be required, if a straight disc is used, in order to mix the mulching material with the topsoil sufficiently to ensure protection from erosion by either wind or water. The mulch tilling operation shall be performed parallel to the ground contours.

**7211 MAINTENANCE.** All seeded areas shall be protected against damage by vehicle and pedestrian traffic by the use of barriers and appropriate warning signs. If at any time before completion and acceptance of the seeding work any portion of the seeded area becomes gullied or otherwise damaged, such damaged areas shall be repaired by filling with soil to original grade, re-seeding and re-mulching. All costs of repair work shall be borne by the contractor.

Contractor shall be responsible for watering areas seeded for a period of five (5) weeks after the time of seeding, except when thoroughly wetted by rain. Sprinkling of the seeded areas shall be carefully done in such manner as to avoid standing water, surface wash, scour or other erosion.

All sodded areas shall be thoroughly watered twice daily for a period of twenty-one (21) days after placing, except when thoroughly wetted by rain of 1/4-inch (1/4") or more in a 24-hour period.

**7212 GUARANTEE.** The Contractor shall guarantee all sod for twenty-one (21) days from the date of installation. At the end of the twenty-one (21) day period, the City Engineer will inspect all sod. Any sod that is dead at the end of the twenty-one (21) day period shall be replaced by the Contractor at his expense and is subject to an additional twenty-one (21) day warranty period. All healthy sod at the end of the twenty-one (21) day period will be accepted by the City Engineer and turned over to the property owner for maintenance. The Contractor is not required to guarantee any healthy sod accepted by the City Engineer after the twenty-one (21) day period. Sod placed outside of the approved dates must be healthy in the spring.

The Contractor shall guarantee all seeded areas for a minimum of five (5) weeks or until there is a minimum of seventy (70) percent coverage of healthy grass, whichever is greater.

**7213 RECORD KEEPING.** The Contractor shall maintain a log of his watering operations and rain events to demonstrate compliance with the watering requirements of the Technical Specifications. The Contractor shall submit the records to the City Engineer at the end of the required maintenance period. The seeded and/or sodded areas shall not be accepted until the submittal has been approved by the City Engineer.