

SECTION 2400 – SEEDING AND SODDING

CITY OF BELTON, MISSOURI

STANDARD SPECIFICATIONS

The City of Belton hereby adopts Section 2400 of the Kansas City Metropolitan Chapter of APWA Construction and Material Specifications, current edition. The following additions, deletions and/or revisions are adopted as a part of Section 2400 for use within the City of Belton.

SECTION 2401 SEEDING

2401.3.C Planting Seeds

Revise the Table in Section 1, Type “A” Seed as follows:

Kind of Seed	Minimum Pure Live Seed (%)	Rate of Pure Live Seed (lbs/acre)
Alta Fescue or Kentucky 31 Fescue (Festuca Elatior) Var. Arundinces	75	100
Rye Grass (Lolium Perenne or L. Multi-florum)	80	100
Kentucky Blue Grass (Pac. Pratensis)	75	100
Creeping Red Fescue (Festuca Rubra)	85	50
TOTAL		350

Revise the Table in Section 1, Type "B" Seed as follows:

Kind of Seed	Minimum Pure Live Seed (%)	Rate of Pure Live Seed (lbs/acre)
Alta Fescue or Kentucky 31 Fescue (Festuca Elatior) Var. Arundinaces	75	225
Rye Grass (Lolium Perenne or L. Multi-florum)	80	125
TOTAL		350

Add Section 2401.5 – Native Grasses

Prior to planting the topsoil in the disturbed area shall be tilled to 6 inches and compacted to approximately 80% density. Native grass seed shall be installed using a rangeland type grain drill seeder per the rates stated. Depths of seeding plants should be ½ inch. Spread and crimp 2,000 lbs. per acre of clean straw or hay within seven days of seeding. Contractor shall provide a minimum of one watering after planting to establish the cover crop. Cover crop shall provide 70% cover within 21 days of seeding. Contractor shall guarantee that seeded areas will have 80% cover within two full growing seasons. Contractor shall allow one application of selective herbicides in the spring to control weeds. Care must be taken to comply with manufacturers labels.

The seed mix will be as follows:

Short-grass Mix

Seeding Rate: 6.42 lb/Acre (40.3 Seeds/ft²)

GRASSES:

SCIENTIFIC NAME	COMMON NAME	% of Mix	Seeds/ft ²	Rate/Acre
Bouteloua curtipendula	Sideoats Grama	18.69%	2.6	1.200 PLS lb
Elymus canadensis	Canada Wild Rye	9.35%	1.1	0.600 PLS lb
Koeleria cristata	June Grass	1.56%	7.3	0.100 PLS lb
Schizachyrium scoparium	Little Bluestem	34.27%	12.1	2.200 PLS lb
Sporobolus aspera	Rough Dropseed	6.23%	4.4	0.400 PLS lb
Sporobolus cryptandrus	Sand Dropseed	0.31%	2.6	0.020 PLS lb
Sporobolus heterolepis	Prairie Dropseed	0.16%	0.1	0.010 PLS lb

WILDFLOWERS:

SCIENTIFIC NAME	COMMON NAME	% of Mix	Seeds/ft²	Rate/Acre	
Aster laevis	Smooth Blue Aster	0.31%	0.4	0.020	PLS lb
Astragalus canadensis	Canada Milk Vetch	1.56%	0.6	0.100	PLS lb
Chamaecrista fasciculata	Partridge Pea	6.23%	0.4	0.400	PLS lb
Dalea candidum	White Prairie Clover	0.93%	0.4	0.060	PLS lb
Dalea purpurea	Purple Prairie Clover	6.23%	2.6	0.400	PLS lb
Desmanthus illinoensis	Illinois Bundle Flower	7.79%	0.8	0.500	PLS lb
Desmodium canadense	Showy Tick Trefoil	0.93%	0.1	0.060	PLS lb
Lespedeza capitata	Round-headed Bush Clover	0.31%	0.1	0.020	PLS lb
Ratibida pinnata	Yellow Coneflower	3.12%	3.1	0.200	PLS lb
Rudbeckia hirta	Black-eyed Susan	2.02%	1.5	0.130	PLS lb

SECTION 2402 SODDING

Delete Section 2402 and replace with the following:

A. GENERAL

1. Area of Work

- a. All grassed areas disturbed during construction shall be sodded as designated below.
- b. Areas that are disturbed which lie outside the CONTRACTOR'S normal trenching operation areas shall be restored to a condition equal to or better than that existing prior to construction.

2. Quality Assurance

- a. All materials described and specified herein as delivered to the project site shall be subject to inspection and approval by the DESIGN PROFESSIONAL.
- b. Materials may be inspected by the DESIGN PROFESSIONAL at source of supply.
- c. This inspection does not waive the right to reject any material after it has been delivered to the site and/or installed.

3. Delivery, Handling and Storage

- a. Sod shall be harvested, delivered, and transplanted within a period of 24 hours unless a suitable preservation method is approved by the DESIGN PROFESSIONAL prior to delivery.
- b. Do not harvest or transport sod when moisture content may adversely affect sod survival.
- c. Protect sod from sun, wind, dehydration, and rain prior to installation that cannot be placed immediately on delivery.
- d. Sod showing visible signs of heating or dehydration will be rejected.
- e. Do not tear, stretch, or drop sod during handling and installation.
- f. Deliver fertilizer to site in original, unopened, and non-damaged containers, each bearing manufacturer's guaranteed analysis.
- g. Store packaged materials off ground and protect from moisture and deterioration.

4. Scheduling

- a. Notify DESIGN PROFESSIONAL at least 3 days prior to start of sodding operations.
- b. Perform sod installation after Planting and other work affecting ground surface has been completed, or as approved by DESIGN PROFESSIONAL.

5. Warranty

- a. The warranty is to guarantee completed sodding operations providing a uniformly dense, live, and healthy stand of grass, free of weeds and undesirable grasses, debris, and free of eroded areas, bare spots, diseases, and insects at the end of one-year following the minimum maintenance period.
- b. CONTRACTOR to replace as originally specified areas which have failed to survive, as often as required, to establish the sodded lawn area until accepted; at no additional compensation.
- c. Repair and replace to original condition all damages to property resultant from the sodding operation and all damages as a result from the remedying of these defects, without additional compensation.

B. PRODUCTS

1. Fescue Sod

- a. Sod will meet or exceed Campbell Sod Inc.'s Majestic Turf Fescue or equal. Number 1 Quality/Premium, including limitations on thatch, weeds, diseases, nematodes, and insects, complying with TPI's "Specifications for Turfgrass Sod Materials" in its "Guideline Specifications to Turfgrass Sodding." Furnish viable sod of uniform density, color, and texture, strongly rooted, and capable of vigorous growth and development when planted. Sod to be produced by a professional sod producer and grown on similar soils and climate to site location.
- b. Turfgrass Species: Sod of grass species as follows, with not less than 85 percent germination, not less than 98 percent pure seed, and not more than 0.5 percent weed seed.
- c. Sun and Partial Shade proportioned by weight as follows:
90 percent turf type tall fescue with a minimum of three varieties in the top 20 percent of the National Turfgrass Associations (NTEP) field trials. 10 percent improved Kentucky Bluegrass Suggested Variety: Brooklawn Kentucky Bluegrass (*Poa protensis*). Suggested varieties include: **Cochise III (preferred), Rembrandt, Picasso, Millennium, Endeavor, Dynasty, Fine Lawn Elite, Falcon IV, Justice, and Davinci Type Tall Fescues**. Gold Tag Quality seed will need to be used for sod production.
- d. A sample of the sod being bid may be requested and/or the Owners representative may visit the sod field prior to approvals. Sod submittals will include seed blends used to produce sod, location of sod and full name and contact information of the sod producer.
- e. Sod grown in peat bedded soil is not acceptable.
- f. Sod shall be free of objectionable grasses and broadleaf weeds; sod shall be considered free of such weeds if less than 2 such plants are found per 100 square feet of area. Sod shall be free from roots of trees or shrubs, stones, thatch, and other objectionable materials. Sod shall be free of nematodes and soil born insects and free of disease.
- g. Mow at height of 2 inches prior to cutting. Sod to be machine cut at uniform soil thickness of approximately 1 inch. Thickness measurement shall exclude top growth.
- h. Sod shall be cut with a sod machine in strips of uniform width and lengths with ends square standard to the industry.
- i. Sod shall be moist when placed.

2. Fertilizer

- a. The grade of fertilizer will be identified according to the percent nitrogen (N), percent of available phosphoric acid (P2O5), and percent water soluble potassium (K2O), in that order, and approval will be based on that identification.
- b. All fertilizer shall be furnished from an established fertilizer dealer and guaranteed percentage analysis shall be provided by the fertilizer supplier on each container with the proper scale weight records.
- c. Fertilizer shall be of a type that can be uniformly distributed by the application equipment. Fertilizer may be furnished in a dry (granular) or liquid form.
- d. When applied dry, the fertilizer shall be a granular, non-burning chemically combined product composed of not less than 50% organic slow acting,

guaranteed analysis professional fertilizer. Granular or pellet form shall be uniform in composition, dry, and free flowing without caking or other damage not suitable for use.

- e. When applied in a liquid form, fertilizer may be chemically combined or may be furnished as separate ingredients.
- f. Upon request of the Contracting Authority, the CONTRACTOR shall provide a test of the fertilizer for conformance with the required analysis at no additional compensation; a tolerance of 1.0 percentage point plus or minus will be considered substantial compliance.

3. Water

- a. Water shall be free of substance harmful to sod growth.
- b. CONTRACTOR to provide water, equipment, methods of transportation, water tanker, hoses, sprinklers, and the application of water.

C. EXECUTION

1. Preparation of Sod Bed

- a. Limit preparation to areas that will be immediately sodded.
- b. Where weed growth has developed, remove all weeds and weed debris. Weed growth removal process to be approved by Jurisdictional DESIGN PROFESSIONAL, without additional compensation.
- c. CONTRACTOR shall shape and fine grade to remove washes or gullies, water pockets, and irregularities to a smooth, firm, and even surface true to grade and cross-section.
- d. Rototill and cultivate sod bed to a minimum 3-inch depth to a fine and mellow condition. Clear the top 4 inches of soil lumps, stones over 3/4 inch, and foreign material using hand labor as required.
- e. Provide acceptable topsoil layer to 4" minimum depth.

2. Fertilizing – First Application

- a. Provide a guaranteed analysis of 12-12-12 or 13-13-13 grade commercial fertilizer or the equivalent units of nitrogen (N), phosphate (P), and potash (K) by weight at the rate of 200 pounds per acre.
- b. Incorporate fertilizer into soil to a depth of 1 1/2 inch prior to sodding.

3. Sod Installation

- a. Sod shall not be installed between the dates of May 15 to September 1, unless authorized by OWNER.
- b. Lay no sod on frozen soil or with eminent freezing conditions within 24 hours.
- c. Do not lay dormant nor frozen sod.
- d. Dampen dry soil prior to sodding.
- e. Sod shall be carefully placed in rows or strips evenly and with longest joint parallel to the finished contours and at right angles to the centerline of ditches and channels. On slopes, sodding shall begin at the bottom and progress upward.
- f. Minimize traffic on newly laid sod during installation. Provide plank or wood sheets as may be required to protect sod already laid, without extra compensation during sodding operations.
- g. Lay each strip with tightly fitted joints against each other without voids. Do not overlap edges. Joints at the ends of sod strips shall be staggered with adjacent strips of sod.

- h. Finish sod edges at walks, curbs, planting, mulch edges, and other vertical Surface by cutting neatly and fitting tightly to edge and line.
- i. Sod mat to be approximately one inch below finished height of walks, pavement, curbs, etc. Any sod not conforming to this requirement will be removed, the subgrade adjusted, and the sod re-laid.
- j. Where new sod joins existing lawns, cut straight and neatly into existing lawn and level subgrade to allow height to match.
- k. Stake sod on grades exceeding 4:1 and in drainage channels. Stake each roll at minimum two-foot intervals to prevent movement under rainfall conditions.
- l. Soil shall be firmed or healed in along the edges of the sodded areas.
- m. Roll sod that has been lightly watered with small mechanical or hand roller to sufficiently set or heal sod into soil and remove lumps. Roll as required to firm and level the sodded areas.

4. Watering

- a. A minimum of six waterings are required.
- b. Not more than 1 hour shall elapse between the laying and initial watering of the sod. The second, third and fourth waterings shall be at 4 day intervals. The fifth and sixth waterings shall be at weekly intervals.
- c. Initial watering shall provide a thoroughly wet sod and sod bed.
- d. Water all sodded areas during maintenance period as necessary to maintain sod and soil moisture, supplement rainfall, to promote growth, proper rooting to insure sod survival, and to prevent dormancy.
- e. All waterings shall be sufficient to saturate thoroughly the sod, sodbed and adjacent disturbed areas to a depth of approximately 4 inches. Each watering may require a maximum of 100 gallons of water per square yard, subject to local weather conditions, at the discretion of the DESIGN PROFESSIONAL.
- f. Apply water uniformly and consistently on all sodded areas to prevent damage to sod and existing or recently planted trees and shrubs. Each watering to provide necessary saturation without runoff.
- g. No private contracts between CONTRACTOR and property owner will be recognized by the CITY.

5. Fertilizing – Second Application

- a. Apply second application of fertilizer with a guaranteed analysis of 12-12-12 or 13-13-13 grade commercial fertilizer or the equivalent units of nitrogen (N), phosphate (P), and potash (K) at the rate of 300 pounds per acre two weeks after laying sod and prior to final acceptance.

6. Maintenance

- a. Immediately prior to sod placement, the CONTRACTOR shall provide written notification to all affected property owners advising them of the impending sodding work and explaining the CONTRACTOR's maintenance responsibilities. Ten (10) days prior to the expiration of the CONTRACTOR's 60-day maintenance period, he shall provide written notification to the affected homeowners concerning the transfer of maintenance responsibility. Sample wording of the homeowner notifications shall be furnished to the DESIGN PROFESSIONAL for review and approval prior to distribution.
- b. Begin maintenance immediately following installation of sod and continue for a period until sodded areas are established with sod knitted in place. Maintenance period shall be a minimum of 60 days.

- c. Maintenance of sodded areas shall include watering, weeding, mowing to a 2 1/2 inch height after growth has exceeded 3 inches and prior to a 4 inch growth and replacement and installation of sod as originally specified for sodded areas failing to survive. Clippings from mowing which mat on the grass are to be removed.
7. **Clean-up**
- a. Perform cleaning during installation of work and upon completion.
 - b. Remove from site all excess materials, debris, and equipment.
 - c. Hose down and/or broom clean all paved surfaces.
 - d. Repair any damage resulting from sodding operations.
8. **Acceptance**
- a. All requirements for the completed installation and maintenance must have been provided.
 - b. Sodded areas are healthy, even colored viable lawn is established, free of weeds, undesirable grass species, disease, and insects.
 - c. Sod is "knit down" to the soil so that it cannot be pulled up.
 - d. Sodded areas are without scattered bare spots, dead or dormant sod.
 - e. Clean-up operations are completed.
 - f. Replacement sod work shall be reinspected in accordance with criteria detailed above before acceptance.

SECTION 2403 MEASUREMENTS AND PAYMENTS

2403.4 Methods of Measurement

Delete section 2403.4 and replace with the following:

The quantities of accepted work shall be measured or determined as follows:

A. Seeding

- 1. Seeding will be measured complete, in-place, to the nearest acre. No measurement will be made in areas that are not grassed, such as street paving, driveways, parking areas, gardens, and sidewalks. Areas that are disturbed which lie outside the contractor's seeding limits, as defined by the Contract Drawings, will not be measured for payment, but shall be restored to a condition equal to or better than that existing prior to construction.

B. Sodding

- 1. Sodding will be measured complete, in-place, to the nearest foot and converted for basis of payment to the nearest one-tenth of a square yard. No measurement will be made in areas that are not grassed, such as street paving, driveways, parking areas, gardens, and sidewalks. Areas that are disturbed which lie outside the contractor's sodding limits, as defined by the Contract Drawings, will not be measured for payment and shall be restored with sod.

2403.5 Basis of Payment:

Delete section 2403.5 and replace with the following:

Payment for seeding and sodding will be paid for at the Contract Unit Prices as listed in the Unit Prices Bid Form. Such payment and price shall constitute full compensation for all labor, materials, tools and equipment necessary to complete the item.

The following items are considered subsidiary to the “Seeding” and “Sodding” pay items and no additional payment will be provided:

- Soil Preparation
- Scalping of existing vegetation
- Fertilizer
- Mulch
- Watering
- Seed
- Compaction
- Maintenance

END OF SECTION