

SECTION 02931 - SODDING

PART 1 - GENERAL

1.01 SUMMARY

- A. This section covers the operations necessary to produce grass covered areas for restoration and erosion control. The Contractor shall provide all materials, labor and equipment to complete the sodding work in accordance with this section. All costs pertaining to supply, delivery, storage, site preparation, sodding, fertilization, watering, protection, sodding repair and maintenance during the establishment period shall be included in the lump sum bid.
- B. The Contractor shall sod all yards and green spaces unless the owner of the property gives written permission to seed instead of sod. Written permissions shall be made part of the project documentation included at the end of the project.

1.02 DESCRIPTION

- A. All areas disturbed by construction operations shall be sodded unless otherwise specified in the contract documents to be seeded. For areas requiring seed, see Section 02930 – Seeding. Sodded areas include, but are not limited to, areas of cut and fill, trenching, temporary roads, staging areas, storage areas and site specific green spaces. The sequence of work for sodding shall be cleaning the area, adding topsoil, application of fertilizer, tilling and removing rocks, sodding, covering, firming, watering and maintenance.

1.03 SPECIFICATION MODIFICATIONS

- A. It is understood that throughout this section, these Specifications may be modified by appropriate items in Section 01015 – Specific Project Requirements or as otherwise indicated on the Contract Drawings.

1.04 RELATED SECTIONS

- A. Section 01000 – General Project Requirements.
- B. Section 01015 – Specific Project Requirements.
- C. Section 01300 – Submittals.
- D. Section 02200 – Earthwork.
- E. Section 02575 – Surface Restoration.
- F. Section 02930 – Seeding.

1.05 QUALITY ASSURANCE

- A. The Contractor is responsible for the quality assurance and quality control of the Work. The sodding work shall be performed by a qualified contractor with a proven record of performance for similar restoration and erosion control work.

1.06 INFORMATION PROVIDED BY THE CITY

- A. As provided in the Contract Documents.

1.07 CONTRACTOR SUBMITTALS

- A. The Contractor shall submit to the City/Design Professional for review and approval, in accordance with Section 01300 – Submittals, all specifications and data covering the proposed materials to be used for sodding operations.
- B. Prior to commencing sodding operations, the Contractor shall submit the following to the City/Design Professional for review and approval:
 - 1. Invoices and Analysis Labels: A copy of the supplier's invoices for all sod and fertilizer which shows the quantity by weight purchased for the project and a representative label bearing the manufacturer's or vendor's guaranteed statement of analysis to assure compliance with specified requirements for quality and application rates.
 - 2. Sod: Certification of seed analysis, germination rate and inoculation:
 - a. Certify that each lot of seed used for sod has been tested by a testing laboratory certified in sod testing, within 6 months of date of delivery. Include with the certification:
 - 1. Name and address of laboratory.
 - 2. Date of test.
 - 3. Lot number for each seed specified.
 - 4. Test Results:
 - a. Name.
 - b. Percentages of purity and of germination.
 - c. Weed content for each kind of sod furnished.
 - b. Certification of sod: include source, harvest date of sod and type of sod.
 - c. Certification of sprig type and name.
 - d. Description of required maintenance activities and activity frequency.

1.08 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Delivery of materials shall be in manufacturer's original unopened and undamaged packages. Packaged items shall be clearly marked to identify brand name, contents and order number on each package. Packages showing indication of damage that may affect condition of contents are not acceptable. Sod shall be supplied in rolls of uniform thickness and kept covered and moist.
- B. Storage of material shall provide protective cover from damage and stored at temperatures and moisture conditions in accordance with manufacturer's and supplier recommendations. Materials shall be stacked or stored in accordance with manufacturer's and supplier recommendations.
- C. Harvesting Sod:
 - 1. Do not harvest if sod is excessively dry or wet.
 - 2. Harvest and deliver sod only after laying bed is prepared for sodding.
 - 3. Roll or stack to prevent yellowing.
 - 4. Deliver and lay all sod within 24 hours of harvesting.
 - 5. Keep moist and covered from time of harvesting until laid.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Top soil: The top soil shall be of a quality at least equal to that which exists in areas adjacent to the area to be repaired. Top soil shall be free from weed seeds, tree roots, clumps of clay, stones and other objectionable materials that hinder grading, planting and maintenance operations. See Section 02200 – Earthwork for additional requirements on topsoil.

B. Sod:

1. The sod to be used as source material shall be a thick stand of Kentucky Blue grass, Turf Type Tall Fescue, Bermuda grass, Zoysia grass or other grasses as shown on the plans. For established yards, the sod shall match the species removed.
2. The sod shall contain a growth of not more than 1 percent of other grasses and clovers shall be free from all prohibited and noxious weeds.
3. The Turf Type Tall Fescue sod shall be composed of an equal mix of three or four compatible species of 100 percent Turf Type Tall Fescue. The mixture shall not include any varieties of the slower growing Turf Type Tall Fescue “Dwarf”. The species shall be one of the following:

Apache	Arid	Austin
Bonanza	Carefree	Chieftan
Cimmaron	Cochise	Falcon
Guardian	Houndog	Jaguar II
Maverick II	Mustang	Olympic
Phoenix	Rebel II	Rebel 3D
Safari	Shenandoah	Thoroughbred
Titan	Tribute	Vegas

4. Kentucky Blue grass and Turf Type Tall Fescue sod shall be cut in strips of uniform thickness, the range of acceptable thickness shall be 1 1/2 to 2 inches; each strip containing at least one square yard. Sod shall be cut in strips not less than 12 inches wide.
5. Bermuda grass or Zoysia grass sods shall be cut into strips of uniform thickness, the range of acceptable thickness shall be 1 1/2 to 2 inches; each strip shall not be less than 12 inches wide and 24 inches long. Strips that crumble will not be acceptable.
6. Broken pads and torn or uneven ends will not be acceptable. Standard size sections shall be strong enough to support their own weight and should retain their size and shape when suspended vertically from a firm grasp on the upper 10 percent of the section. Sod shall not be harvested or transplanted with moisture content (excessively dry or wet) that will adversely affect its survival.
7. Sod shall be relatively free of thatch, up to 1/2 inch allowable (uncompressed). Sod shall be reasonably free of diseases, nematodes and soil-borne insects. State nursery and/or plant materials laws require that all sod entering inter-state commerce be inspected and approved for sale. The same applies to sod being shipped intra-state. The inspections and approval must be made by the state agricultural department, office of the state entomologist.

- C. 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 trade mark and warranty of the producer.

PART 3 - EXECUTION

3.1 SAFETY

- A. Perform all work in accordance with applicable Occupational Safety and Health Administration (OSHA) standards.

3.2 PREPARATION

- A. All sodding work shall be performed by a contractor having demonstrated experience in sodding on projects of similar size. The work shall be prepared by experienced personnel who are familiar with the required work and who are under the supervision of a qualified foreman at all times when the work is in progress.
- B. Preparation of areas to be sodded shall include filling, reshaping or eroded areas, cleaning ditches and refinishing slopes to the established grade section. The area shall be cleared of stumps, stones larger than 1 inch, roots, cable, wire, trash and other materials that might hinder the work or subsequent maintenance.
- C. Application of Fertilizer: 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.
- D. Preparation of Sod Bed:
 - 1. After fertilizer has been applied, the areas to be sodded shall be tilled to a depth of at least 2 inches by disking, plowing, harrowing, or other accepted methods until the soil is well pulverized and smoothed with a weighted spiketooth harrow, railroad chains, or bridge timber float drag. When a chisel plow is used, the chisels shall be set not more than 10 inches apart and the areas shall be cross or double-tilled. All areas shall be left smooth for ease of mowing. All operations shall be done in a direction parallel to the contour lines on the slope and not uphill or downhill.
 - 2. Grade areas to smooth, even surface with loose, uniformly fine texture.
 - a. Roll and rake, remove ridges, fill depressions to meet finish grades.
 - b. Limit such Work to areas to be planted within immediate future.
 - c. Remove debris, stones larger than 1 inch diameter and other objects that may interfere with planting and maintenance operations.

3.3 INSTALLATION

- A. Time and Conditions. The sodding work shall not be started until all earthwork has been substantially completed. Backfills and fills shall be allowed to settle and the topsoil spread and finish-grading completed before the work is started. Failure to account for settlement prior to placement of topsoil and sod may result in rework of the area.
- B. Application of Sod: Kentucky Blue grass and Turf Type Fescue sod shall not be placed during a drought or during the period from June 1 to September 1, unless authorized by the

- City/Design Professional and shall not be placed on frozen ground. Bermuda and Zoysia sods shall only be placed during the period from May 1 to October 15. The City/Design Professional reserves the right to delay the sodding of all types of sod or to vary the permissible sodding seasons, due to weather, soil conditions, or for other causes.
- C. Sod Placement: 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. If necessary to walk excessively on newly laid sod, walking boards should be laid for this purpose. The sod shall be firm 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 linear foot of roller or other approved method.
 - D. Anchoring Sod: On slopes 2:1 or steeper, the sod shall be anchored using garden staples.
 - E. Watering: Promptly after sodding, wet the sod thoroughly. Watering shall continue so as to keep all areas moist until acceptance by the City/Design Professional.
 - F. Water Usage:
 - 1. All watering equipment required for the work shall be furnished by the Contractor.
 - 2. All water obtained from fire hydrants shall be metered. See Section 01000 – General Project Requirements.
 - G. Cleanup Operations within forty-eight (48) hours after completion of the construction operations:
 - 1. The entire area shall be cleared of excess soil and waste material, including, but not limited to, stones, stumps, roots, brush, wire, grade stakes, trash and all objects that might be a hindrance to maintenance operations or affect the visual appearance of the site.
 - 2. All roads, over which hauling operations have been conducted, regardless of the type of surfacing, shall be clean and all debris left on the surface shall be removed.
 - 3. The wheels of vehicles shall be cleaned to avoid leaving soil upon roads, walks and other surfaced areas.

3.4 MAINTENANCE, PROTECTION AND REPAIR

- A. Maintenance of Area. The Contractor shall be responsible for maintaining all sodded areas until acceptance by the City/Design Professional. Maintenance of the sodded areas shall include the following:
 - 1. All newly sodded grassed areas shall be kept in a healthy growing condition by watering, weeding, mowing, trimming, edging, etc., until completion and acceptance by the City/Design Professional. The sodded areas shall be mowed with approved mowing equipment to a height of 3 inches whenever the average height of vegetation becomes 6 inches.
 - 2. Turf grass of one-square foot or more that does not show definite growth and establishment shall be re-sodded by the Contractor at no additional cost to the Owner. The Contractor shall continue the care and maintenance of all sodded areas as specified above until all work of this project has been satisfactorily completed and all deficiencies have been corrected at which time final inspection shall be made.
- B. Protection and Repair:
 - 1. The sodded area shall be kept free of traffic until accepted.

2. If at any time before acceptance of the completed contract, any portion of the seeded surface becomes gullied, damaged - intentionally or otherwise, 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.

3.5 WARRANTY

- A. Sodding shall have taken root and have established satisfactory coverage before acceptance by the City/Design Professional. The Contractor shall maintain as described in paragraph 3.4 and shall guarantee sodding for one (1) year after acceptance. The Contractor shall scarify, re-sod, fertilize and water any dead or barren area greater than 1 square foot. See Section 02575 – Surface Restoration for requirements on early acceptance.

END OF SECTION