



**SPECIAL PROVISIONS
FOR
SODDING AND LANDSCAPING**

**Woodbury County
STP-U-7057(701)--70-97
BHM-7057 (692)--8K-97**

**Effective Date
November 20, 2018**

THE STANDARD SPECIFICATIONS, SERIES 2015, ARE AMENDED BY THE FOLLOWING MODIFICATIONS AND ADDITIONS. THESE ARE SPECIAL PROVISIONS AND THEY SHALL PREVAIL OVER THOSE PUBLISHED IN THE STANDARD SPECIFICATIONS.

153009.01 DESCRIPTION.

This work shall consist of installing turf-type grass sod, native grass and perennial plugs, and deciduous trees to provide color and texture to the corridor as well as to help soften the overall hardscape aesthetic of the reconstructed section of Military Road. Also included with the plantings are the preparation and installation of amended topsoil and mulch. The plantings shall be installed in accordance with these specifications and in conformance with the lines, grades, design and dimensions shown on the plans or otherwise established.

A. Submittals.

1. Product Data:
 - a. Acknowledgement that products submitted meet requirements of standards referenced.
 - b. Manufacturer's installation instructions.
 - c. Type of herbicide to be used during first growing season to contain annual weeds and application rate.
 - d. Source and location of sod, plants, and plant material, as per Paragraph 3.3A.
2. Project Information:
 - a. Certificates for sod stating botanical and common names and percentages of each species percentage of purity.
 - b. Sod labeled in accordance with ASPA 01 and equaling or exceeding specification requirements.

B. Delivery, Storage, and Handling.

1. Handle plants at all times so that roots or balls are adequately protected from breakage of balls, from sun, and drying winds.
2. Plants with dried out tops or roots will be rejected.
3. Protect sod from drying out.

C. Job Conditions.

1. Protect existing improvements and trees. Repair or replace damaged items.
2. Protect completed work.
3. Verify location and existence of underground utilities.
 - a. Protect existing utilities from damage due to construction activity.
 - b. Repair damage to utility items.
4. If plant locations conflict with existing improvements or rock slopes, Engineer will select other locations.
 - a. Make changes at no extra cost.
 - b. Do not change location of plants without permission of Engineer.
5. Furnish fertilizer uniform in composition, free flowing and suitable for application with approved equipment, delivered to site in bags or other containers, each fully labeled and bearing the name, and warranty of the producer.

D. Sequencing and Scheduling.

1. Installation Schedule:
 - a. Provide schedule showing when grasses, groundcovers and other plant materials are anticipated to be planted.
 - b. Show schedule of when lawn type and other grass areas are anticipated to be planted.
 - c. Indicate planting schedules in relation to schedule for irrigation system installation, finish grading and topsoiling.
 - d. Indicate anticipated dates Engineer will be required to review installation for initial acceptance and final acceptance.
2. Pre-installation Meeting:

Meet with Engineer and other parties as necessary to discuss schedule and methods, unless otherwise indicated by Engineer.

E. Warranty.

1. Remove and replace new plants supplied, which are impaired, dead or dying during 1 year from initial acceptance.
2. Remove and replace dead or dying sod during one year from Substantial Completion.
3. Replacement materials and methods identical to original.
4. Plants replaced under warranty will not have a second warranty, except as stated in paragraph E below.
5. If fall planted material is dead or dying in the spring, replace material during that spring season. If said plants fail again during growing season, replace again in the fall. Every plant must leaf out and be in healthy condition at beginning of growing season.

F. Quality Assurance.

The following standards shall be referenced through planting installation.

1. American Nursery and Landscape Association/American National Standards Institute (ANLA/ANSI): Z60.1, American Standard for Nursery Stock.
2. AOAC International (AOAC).
3. American Sod Producers Association (ASPA):
4. 01, Guideline Specifications for Sodding, current edition.
5. ASTM International (ASTM):
 - a. C33, Standard Specification for Concrete Aggregates.
 - b. D2028, Standard Specification for Cutback Asphalt (Rapid-Curing Type).
 - c. D5276, Standard Test Method for Drop Test of Loaded Containers by Free Fall.

G. Quality Control.

1. Work performed by a qualified nurseryman or landscape contractor.
2. Qualifications of pruners: Experienced plantsmen.

153009.02 MATERIALS.

A. Turf-type Sodding.

1. Sod Suppliers:
 - a. Water Saver® RTF® Sod by Todd Valley Farms, Mead, NE.
 - b. Fescue Variety by J&R Sod, Inc., Sergeant Bluff, IA.
 - c. Fescue Variety by Dakotaland Sod, Sioux Falls, SD.
2. Thickness of Cut: Turfgrass sod shall be machine cut at uniform soil thickness of 0.60 inches, plus or minus 0.25 inches, at the time of cutting. Measurement for thickness shall exclude top growth and thatch.
3. Pad Size: Individual pieces of Turfgrass sod shall be cut to the supplier's standard width and length. Maximum allowable deviation from standard widths and lengths shall be +/- 0.5 inches on width and +/- 5% on length. Broken pads and torn or uneven ends will not be acceptable.
4. Strength of Turf Sod Sections: Standard size sections of Turfgrass sod shall be strong enough that it can be picked up and handled without damage.
5. Moisture Content: Turfgrass sod shall not be harvested or transplanted when its moisture content (excessively dry or wet) may adversely affect its survival.
6. Mowing Height: Before harvesting, the Turfgrass shall be mowed uniformly at a height of 1 inch to 2.5 inches.
7. Time Limitations: Turfgrass sod shall be harvested, delivered and installed/transplanted within a period of 24 hours, unless a suitable preservation method is approved prior to delivery. Turfgrass sod not transplanted within this period shall be inspected and approved by the inspecting officer or his representative prior to its installation.
8. Thatch: Turfgrass sod shall be relatively free of thatch, up to 0.5 inch allowable (uncompressed).
9. Diseases, Nematodes and Insects: Turfgrass sod shall be reasonably free of diseases, nematodes and soil-borne insects. Specific nursery and/or plant materials laws may require that all sod entering inter-state commerce be inspected and approved for sale. The inspections and approval must be made by the appropriate government representative of the agriculture department or office of entomologist.

B. Fertilizer.

1. Full analysis fertilizer containing higher nitrogen, phosphate and potassium (such as 28-13-13) meeting applicable requirements of State and Federal Law.
2. Do not use cyanamic compounds or hydrated lime.

C. Water for Planting Purposes.

1. Supplied by Contracting Authority.
2. Provide equipment necessary to transport water from source to required locations.
3. Do not waste water.
4. Water free from substances harmful to grass or sod growth.
5. Provide water from source approved prior to use.

D. Plants:

1. See plant list in plans.
2. Sound, healthy, vigorous, with normal top and root systems, free from disease, insect pests or their eggs, grown in same or colder climatic zone as project.
 - a. Nursery grown stock, freshly dug. No heeled-in, cold storage or collected stock.
 - b. Species and size as indicated on plans.
3. Native Grass and Perennial Plugs:
 - a. Suppliers:
 - i. Plugs by Bluebird Nursery, Clarkson, NE.
 - ii. Plugs by Miller Nursery, Johnston, IA.
 - iii. Plugs by Swift Greenhouses, Gilman, IA.
 - b. Varieties (*Botanical name*, Common Name):
 - i. *Calamagrostis x acutiflora* 'Karl Foerster', Karl Foerster Feather Reed Grass
 - ii. *Bouteloua gracilis*, Blue Grama Grass
 - iii. *Allium senescens* 'Mongolian Gem', Mongolian Gem Allium
 - iv. *Oenothera macrocarpa*, Missouri Primrose
4. Trees:
 - a. Single leader, straight trunk (unless otherwise indicated on plant list).
 - b. Symmetrical growth.
5. Balled and burlapped plants (B&B): Firm, natural balls of soil wrapped with burlap or strong cloth and tied.

E. Amended Topsoil.

See Special Provisions for Topsoiling and Finished Grading.

F. Organic Mulch for Tree Pits and Planting Beds.

Double shredded hardwood chips of approved commercial grade.

G. Peat Moss.

Finely shredded sphagnum or fibrous peat moss of an approved commercial grade; free from woody substances.

H. Sand.

Clean and free of toxic materials, ASTM C33.

I. Herbicide.

Pre-emergent/Post-emergent: Commercial grade conforming to State and Federal regulations.

J. Metal edging.

1. 1/8 inch by 4 inches.
2. 12 inch to 18 inch tapered steel stakes.
3. Material options:
 - a. Galvanized steel.
 - b. Aluminum: Powder coated silver or gray finish.

K. Planting Accessories.

1. Tree Stakes: 2 inch by 4 inch by 30 inch wood stakes.
2. Staking straps:
 - a. Straps are to be wide, belt like straps to prevent rubbing.
 - b. Do not use wire or rubber hose.
3. Tree water watering bags shall be by Treegator or approved equal.
4. Provide for trees installed between June 1 and September 15.
5. Provide 5% attic stock.

L. Water for Planting Purposes.

1. Supplied by Contracting Authority.
2. Provide equipment necessary to transport water from source to required locations.
3. Do not waste water.

M. Erosion Control Material.

Heavy duty mesh netting anchored with wire staples in accordance with manufacturer's recommendation.

N. Polyethylene: 0.004 inches thick; clear in color.

O. Flagging: White surveyor's tape.

153009.03 CONSTRUCTION.

A. Execution.

1. Soil preparation:
 - a. General:
 - i. Limit preparation to areas which will be planted soon after.
 - ii. Provide facilities to protect and safeguard all persons on or about premises.
 - iii. Protect existing trees designated to remain.
 - iv. Verify location and existence of all underground utilities.
 - v. Take necessary precaution to protect existing utilities from damage due to construction activity.
 - vi. Repair all damages to utility items at sole expense.
 - vii. Provide facilities such as protective fences and/or watchmen to protect work from vandalism.
 - viii. Contractor to be responsible for vandalism until acceptance of work in whole or in part.

- b. Preparation Sodding and Plugging:
 - i. Loosen surface to minimum depth of 4 inches.
 - ii. Remove stones over 1 inch in any dimension and sticks, roots, rubbish, and other extraneous matter.
 - iii. Recess grade at walks and curbs 1 inch.
 - iv. Correct surface irregularities to prevent pocket or low areas which will allow water to stand.
 - v. Prior to applying fertilizer, loosen areas to be seeded with a double disc or other suitable device if the soil has become hard or compacted.
 - vi. Distribute fertilizer uniformly over areas to be seeded or sodded:
 - a. For turf-type grass sodding: 8.3 pounds per 1000 square feet.
 - b. For plug and tree areas: No fertilizer should be applied.
 - vii. Incorporate fertilizer into soil to a depth of at least 2 inches by disking, harrowing, or other approved methods.
 - viii. Remove stones or other substances from surface which will interfere with turf development or subsequent mowing operations.
 - ix. Grade lawn areas to a smooth, even surface with a loose, uniformly fine texture.
 - x. Roll and rake, remove ridges and fill depressions, as required to meet finish grades.
 - xi. Limit fine grading to areas which can be planted soon after preparation.
 - xii. Restore lawn areas to specified condition if eroded or otherwise disturbed after fine grading and before planting.
2. Turf-type Grass Sodding:
 - a. Lay to form solid mass with tightly fitted joints.
 - i. Butt ends and edges; do not overlap.
 - ii. Stagger joints.
 - iii. Lay across slope, at right angles to slope.
 - iv. Lay beginning at base of slope, working up slope.
 - v. Blend sod into existing lawn.
 - b. Tamp or roll lightly to ensure full contact with subgrade.
 - c. Work sifted soil into minor cracks, avoid smothering adjacent grass.
 - d. Peg sod on slopes to prevent slippage.
 - i. Use sharpened 1 inch by 1 inch by 6 inch wooden pegs.
 - ii. Drive pegs flush with surface of sod.
 - iii. Space pegs 24 inches on center maximum.
 - e. Watering:

Thoroughly water sod as soon as it is installed. To ensure that the sod has been watered enough, lift the sod to see that water has soaked through and saturated the soil beneath the sod.
3. Native Grass Plugs:
 - a. Planting Season: Plant native grass and perennial plugs between March 15 to June 1.
 - b. Add soil amendments as specified and mix or rototill with existing topsoil to a depth of 12 inches.
 - c. Start next to a sidewalk, back-of-curb, etc. Drill a 1 1/4 inch diameter hole about 1 1/2 inches deep. Place a plug into the hole, being sure the plug is to the bottom of the hole. Failure to place plug firmly to the bottom of hole will create an air pocket under the plug, which will reduce the chance for survival. The top of the plug soil shall be slightly below ground surface. Measure for the next plug, using the specified spacing. Repeat

installation procedure. Continue in a straight line to the end of the planting area. Move the specified spacing for the second row and continue planting.

- d. Specific layout of general plug types (see following note) to be included in a plan provided prior to installation.
 - e. General layout of plugs as follows:
 - i. Blue Grama Grass plugs spread out evenly across individual beds.
 - ii. Randomly mix Mongolian Gem Allium and Missouri Primrose plugs between grass plugs to fill in any gaps within the planter.
4. Trees:
- a. Notify Engineer of source of plants and plant materials at least 30 days prior to planting to permit Engineer's inspection of source qualifications.
 - b. Preparation:
 - i. Handle plants so that roots or balls are adequately protected from breakage of balls, from sun or drying winds. Ensure tops or roots of plants are not permitted to dry out.
 - ii. During transportation, protect materials from wind and sun to prevent tops and roots from drying out.
 - iii. Protect tops of plants from damage. Plants with damaged tops will be rejected.
 - iv. For purpose of inspection and planting identification, attach durable, legible labels to bundle or container of plant material delivered at the planting site. State correct plant name and size of each plant in weather-resistant ink on labels.
 - v. Do not prune trees and shrubs at nursery.
 - c. Planting Season:
Plant deciduous shade trees any time the ground is suitable between October 15 and June 1.
 - d. Planting Procedure:
 - i. Indicate locations of plants for approval by Engineer before excavating plant locations.
 - ii. In event underground construction, utilities, obstructions, or rock are encountered in excavation of plantings, secure alternate locations from Engineer.
 - a) Make said changes without additional compensation.
 - b) Where tree locations fall under existing overhead wires, or crowd existing trees, adjust locations as directed by Engineer.
 - iii. Excavate pits and beds as necessary and in accordance with ANLA/ANSI Z60.1.
 - a) Loosen bottom of pits prior to planting.
 - b) Excavation is unclassified, excavate all materials without additional cost.
 - iv. Tree and shrub pits to be circular in shape and 2 to 3 times greater than diameter of the root ball or container. Pit to be of sufficient depth to provide 6 inches of planting soil under ball when set to natural grade.
 - v. Shrub and ground cover beds:
 - a) Plant shrubs used in mass plantings in individual holes of required size.
 - b) Strip all sod from among mass planting.
 - c) For ground cover beds, remove sod from within limits of bed.
 - d) Add soil amendments as specified and mix or rototill with existing topsoil to a depth of 6 inches.
 - vi. Set plants straight or plumb, in locations when indicated and at such level that after settlement they bear same relationship to finished grade as they did in their former setting.
 - a) Carefully tamp planting soil under and around base of balls to prevent voids.
 - b) Remove burlap, rope and wires from top of balls.
 - c) Do not remove burlap from sides and bottom of balls.

- vii. Backfill plants with amended topsoil.
 - a) Required minimum quantities (depth from proper grade) per plant type:
 - Trees (2x root ball width): 30 inches.
 - b) Tamp to 1/2 depth of pit and thoroughly water and puddle before bringing backfill to proper grade.
 - c) After planting has been completed, flood pit again so that backfill is thoroughly saturated and settled.
- viii. After planting is complete, form a level saucer 3 inches high around each tree extending to limit of plant pit for watering purposes.
- ix. Mulch plant pit after saucer has been shaped.
 - a) Mulch to limits of pit and uniformly over ground cover beds to a depth of 3 inches.
 - b) In mass plantings of shrubs, mulch entire area uniformly among shrubs to a depth of 3 inches.
 - c) If mulching is delayed and soil has dried out, water plants thoroughly before spreading mulch.
- x. Staking: Stake trees immediately after planting as detailed on plans or in accordance with Nursery Standards.
- xi. Remove dead or damaged branches.
 - a) Thin deciduous material to about two-thirds of initial branching.
 - b) Remove only dead or damaged branches from evergreens.
- xii. Water plants during planting operations.
 - a) Water each plant a minimum of once each week until final acceptance.
 - b) Apply sufficient water to moisten backfill about each plant so that moisture will extend into the surrounding soil.

B. Maintenance and Replacement.

- 1. General:
 - a. Begin maintenance of planted areas immediately after each portion is planted and continue until final acceptance or for a specific time period as stated below, whichever is the longer.
 - b. Provide and maintain temporary piping, hoses, and watering equipment as required to convey water from water sources and to keep planted areas uniformly moist as required for proper growth.
 - c. Protection of new materials:
 - i. Provide barricades, coverings or other types of protection necessary to prevent damage to existing improvements indicated to remain.
 - ii. Repair and pay for all damaged items.
 - d. Replace unacceptable materials with materials and methods identical to the original specifications unless otherwise approved by the Landscape Architect or representative.
- 2. Sodded Areas:
 - a. Maintain seeded lawns: 90 days, minimum, after installation and review of entire project area to be planted.
 - b. Maintenance period begins at completion of planting or installation of entire area to be sodded.
 - c. Landscape Architect or representative will review seeded or sodded lawn area after installation for initial acceptance.
 - d. Maintain sodded areas by watering, fertilizing, weeding, trimming, and other operations such as rolling, regrading, and replanting as required to establish a smooth, uniform lawn, free of weeds and eroded or bare areas.
 - e. Lay out temporary watering system and arrange watering schedule to avoid walking over

muddy and newly seeded areas. Use equipment and water to prevent puddling and water erosion and displacement of seed or mulch.

- f. Do not mow sod areas upon installation.
 - g. Remulch with new mulch in areas where mulch has been disturbed by wind or maintenance operations sufficiently to nullify its purpose. Anchor as required to prevent displacement.
 - h. Unacceptable plantings are those areas that do not meet the quality of the specified material, produce the specified results, or were not installed to the specified methods.
 - i. Replant bare areas using same materials specified.
 - j. Engineer will review final acceptability of installed areas at end of maintenance period.
 - k. Maintain repaired areas until remainder of maintenance period or approved by Engineer, whichever is the longer period.
3. Special Maintenance - Native Grass Plugs:
- Maintain area(s) by keeping moist for 21 days. After this period, slowly reduce watering frequency. During the grow in period, the plugs require adequate moisture to allow the stolens to root into the ground. If stolens do not attach to the ground, water 1/2 inch to 1 inch every 10 to 14 days. If stolens still do not attach to the ground, water lighter amounts with increased frequency. Once complete coverage is achieved, water to prevent stress. Watering frequency and amounts will vary with soil type, clay soils requiring less water and sandy soils requiring more frequent watering.
4. Trees:
- a. Maintain new and transplanted materials for 1 year from initial acceptance.
 - b. Water when necessary. If planted during hot summer months, water three times a week.
 - c. Remove dead or dying branches, and sprouts.
 - d. Maintain mulch depth.
 - e. Weed plant beds.

153009.04 METHOD OF MEASUREMENT.

- A. The quantity for the item Turf Saver RTF Sod shall be measured by the square and thus equated to a sod roll count based upon ratio of sod manufacturer.
- B. The quantity of Native Grass Plugs shall be measured on per each plant quantity. Price shall be determined based on recommendation of plant size as noted on the construction drawings.
- C. The quantity of balled & burlapped Trees shall be measured on per each plant quantity. Price shall be determined based on recommendation of tree caliper size as noted on the construction drawings.
- D. The quantity for the item Hardwood Mulch (for plant beds) shall be measured by the cubic yard.
- E. The quantity for the item Metal Edging shall be measured by the linear feet.

153009.05 BASIS OF PAYMENT.

Payment is full compensation for all work prescribed in this specification.