

## SECTION 32 90 00 - PLANTING

### PART 1 - GENERAL

#### 1.1 SUMMARY

##### A. Section Includes:

1. Landscaping materials per the landscaping plans, details, and as specified, including:
  - a. Sodding.
  - b. Trees and Plants.

#### 1.2 ADMINISTRATIVE REQUIREMENTS

##### A. Preinstallation Conference: Conduct a preinstallation conference at Project site or via phone.

1. Attendees: Landscaping installer, Landscape Designer, and Contractor.
  - a. Include the irrigation designer installer if an irrigation system is required for the project.
  - b. Notify Owner at least one week in advance of the scheduled preinstallation conference for their elective participation.
2. Minutes: Landscape Architect will record and distribute meeting minutes via email to all attendees and Owner.

#### 1.3 SUBMITTALS

- A. Certification of seed mixture for turfgrass sod.
- B. Soil Analysis: Furnish soil analysis and a written report by a qualified soil-testing laboratory confirming the properties of the on-site material, imported material, and if required, the admixtures to amend the onsite material to meet the required topsoil/planting soil mix.
- C. Samples: For each type of mulch for verification of size and color.
- D. As-Built Drawings: Indicate species, size, and location. Prior to final acceptance, Drawings must be certified by the Landscape Architect, who created the landscape drawings.

#### 1.4 QUALITY ASSURANCE

- A. American Standard for Nursery Stock (ANSI Z60.1-2004 or latest version) shall govern the quality of plant materials.

- B. Turf and plants are subject to the approval of the Owner. Approval of plants at the nursery does not alter the right of rejection at the project site.

## 1.5 WARRANTY

- A. Special Warranty: Installer agrees to repair or replace plantings and accessories that fail in materials, workmanship, or growth within specified warranty period.
  - 1. Failures include, but are not limited to, the following:
    - a. Death and unsatisfactory growth, except for defects resulting from abuse, lack of adequate maintenance, or neglect by Owner, or incidents that are beyond Contractor's control.
    - b. Structural failures including plantings falling or blowing over.
  - 2. Warranty Period: 12 months from Date of Store Opening or Final Project Acceptance, whichever is longer.

## 1.6 MAINTENANCE SERVICE

- A. Provide full maintenance by skilled employees of landscape Installer. Maintain as required in Part 3. Begin maintenance immediately after turf and plants are installed and continue until plantings are acceptably healthy and well established but for not less than the warranty period. Maintenance cost to be included in the overall base bid pricing with a breakout amount provided. Include breakout amount in Contractor's Schedule of Values.

## PART 2 - PRODUCTS

### 2.1 SEED

- A. Grass Seed: Fresh, clean, dry, new-crop seed complying with AOSA's "Journal of Seed Technology; Rules for Testing Seeds" for purity and germination tolerances.
- B. Seed Species/Mix: As indicated on Drawings and state-certified where applicable.

### 2.2 TURFGRASS SOD

- A. Turfgrass Sod: Certified or approved, with uniform density, color, and texture, strongly rooted, and capable of vigorous growth and development when planted. Sod type per the drawings shall be free of weeds, insects, and disease. Sod shall be machine cut with uniform size and thickness, 0.60 inches (15 mm) to 1 inch (25 mm). Torn or irregular edges will not be accepted.

### 2.3 PLANT MATERIAL

- A. General: Furnish plants as indicated on Drawings, nursery-grown, true to genus, species, variety, cultivar, stem form, shearing, and other features complying with ANSI Z60.1 (including

a dominant central leader for all shade trees); and with healthy root systems developed by transplanting or root pruning. Provide well-shaped, fully branched, healthy, vigorous stock, densely foliated when in leaf and free of disease, pests, eggs, larvae, and defects such as knots, sun scald, injuries, abrasions, and disfigurement.

- B. Root-Ball Depth: Furnish trees and shrubs with root balls measured from top of root ball, which shall begin at root flare according to ANSI Z60.1. Root flare shall be visible before planting.

## 2.4 TOPSOIL/PLANTING SOILS

- A. Topsoil/Planting Soil: Consisting of on-site surface soil, imported topsoil, or amended in-place soil meeting the characteristics specified below. Refer to required soil analysis/report to determine any admixtures.
- B. Unless otherwise noted on the Drawings or in this Section, install planting soil at the following minimum depths:
  - 1. Lawn Areas: 4 inches (102 mm).
  - 2. Planting Beds: 8 inches (203 mm).
  - 3. Parking Lot Islands 12 inches (305 mm).
- C. Provide topsoil/planting soil clean and free of roots, plants, sod, stones, clods, clay lumps, pockets of coarse sand, concrete slurry, concrete chunks, cement, plaster, building debris, or any other extraneous materials harmful to plant growth and comply with the following requirements:
  - 1. Particle Size Distribution by USDA Textures: Classified as sandy loam according to USDA textures.
  - 2. Sand Content Range: 15 to 60.
  - 3. Silt Content Range: 10 to 60.
  - 4. Clay Content Range: 5 to 30.
  - 5. Deleterious Materials (including rock, gravel, coarse sand, sticks, large plant material, clods, etc. not exceeding 1-1/2 inches in any dimension): 5 percent maximum percent by dry weight.
  - 6. Percentage of Organic Matter Range: 2 to 20 percent by volume.
  - 7. Soil Reaction (pH Range): 5.5 to 7.

## 2.5 INORGANIC SOIL AMENDMENTS

- A. Lime: ASTM C 602, agricultural liming material containing a minimum of 80 percent calcium carbonate equivalent.
- B. Sulfur: Granular, biodegradable, and containing a minimum of 90 percent elemental sulfur, with a minimum of 99 percent passing through a No. 6 (3.35-mm) sieve and a maximum of 10 percent passing through a No. 40 (0.425-mm) sieve.
- C. Agricultural Gypsum: Minimum 90 percent calcium sulfate, finely ground with 90 percent passing through a No. 50 (0.30-mm) sieve.

- D. Sand: Clean, washed, natural or manufactured, free of toxic materials, and according to ASTM C 33/C 33M.

## 2.6 ORGANIC SOIL AMENDMENTS

- A. Compost: Well-composted, stable, and weed-free organic matter produced by composting feedstock, and bearing USCC's "Seal of Testing Assurance,"
- B. Sphagnum Peat: Partially decomposed sphagnum peat moss, finely divided or of granular texture, a pH of 3.4 to 4.8, and a soluble-salt content measured by electrical conductivity of maximum 5 dS/m.
- C. Muck Peat: Partially decomposed moss peat, native peat, or reed-sedge peat, finely divided or of granular texture, a pH of 6 to 7.5, a soluble-salt content measured by electrical conductivity of maximum 5 dS/m, having a water-absorbing capacity of 1100 to 2000 percent, and containing no sand.
- D. Wood Derivatives: Shredded and composted, nitrogen-treated sawdust, ground bark, or wood waste; of uniform texture and free of chips, stones, sticks, soil, or toxic materials.
- E. Manure: Well-rotted, unleached, stable or cattle manure containing not more than 25 percent by volume of straw, sawdust, or other bedding materials; free of toxic substances, stones, sticks, soil, weed seed, debris, and material harmful to plant growth.

## 2.7 FERTILIZERS

- A. Commercial Fertilizer: Commercial-grade complete fertilizer of neutral character, consisting of fast- and slow-release nitrogen, 50 percent derived from natural organic sources of urea formaldehyde, phosphorous, and potassium in the following composition:
  - 1. Composition: 1 lb/1000 sq. ft. (0.45 kg/92.9 sq. m) of actual nitrogen, 4 percent phosphorous, and 2 percent potassium, by weight.
- B. Slow-Release Fertilizer: Granular or pelleted fertilizer consisting of 50 percent water-insoluble nitrogen, phosphorus, and potassium in the following composition:
  - 1. Composition: 20 percent nitrogen, 10 percent phosphorous, and 10 percent potassium, by weight.
- C. Planting Tablets: Tightly compressed chip-type, long-lasting, slow-release, commercial-grade planting fertilizer in tablet form. Tablets shall break down with soil bacteria, converting nutrients into a form that can be absorbed by plant roots.
  - 1. Size: 5-gram tablets.
  - 2. Nutrient Composition: 20 percent nitrogen, 10 percent phosphorous, and 5 percent potassium, by weight plus micronutrients.

## 2.8 MULCHES

- A. Organic Mulch: Shredded hardwood.
- B. Mineral Mulch: Rounded riverbed gravel or smooth-faced stone.
  - 1. Size Range: 1-1/2 inches (38 mm) maximum, 3/4 inch (19 mm) minimum.
  - 2. Color: Uniform tan-beige color range acceptable to Architect

## 2.9 TREE-STABILIZATION MATERIALS

- A. Stakes: Round, rough-sawn, sound, new hardwood or pressure-preservative-treated softwood, free of knots, holes, cross grain, and other defects, 2 inch (50 mm) O.D. by length indicated, pointed at one end.
- B. Guying: 12 gauge galvanized, multistring, twisted wire.
- C. Markers: PVC, 24 inch by 3/4 inch (610 mm by 19 mm).
- D. Standard surveyor's plastic flagging tape, white, 6 inches (150 mm) long.
- E. Trunk Protector: 3/4 inch (19 mm) diameter rubber hose, black in color, length sufficient to extend past the trunk at least 6 inches (150 mm).

## PART 3 - EXECUTION

### 3.1 PREPARATION

- A. Provide suitable planting soil free of debris and over compaction to promote healthy root growth and water infiltration. Verify that subgrade in landscape areas is compacted to no more than 85 percent relative density.
- B. Loosen subgrade to a minimum depth of 12 inches (305 mm) below bottom elevation of topsoil/planting soil. Remove stones larger than 1-1/2 inches (38 mm) in any dimension and sticks, roots, rubbish, and other extraneous matter and legally dispose of them off Owner's property.
  - 1. Spread topsoil/planting soil to specified depth but not less than required to meet finish grades after light rolling and natural settlement. Do not spread if planting soil or subgrade is frozen, muddy, or excessively wet.
- C. Former Pavement or Building Areas:
  - 1. Ensure that existing pavement, stone, or compacted subgrade is removed to a minimum depth of 24 inches (610 mm).
- D. Finish Grading: Grade planting areas to a smooth, uniform surface plane with loose, uniformly fine texture. Grade to within plus or minus 1/2 inch (13 mm) of finish elevation. Roll and rake,

remove ridges, and fill depressions to meet finish grades. Limit finish grading to areas that can be planted in the immediate future.

- E. Moisten prepared area before planting if soil is dry. Water thoroughly and allow surface to dry before planting. Do not create muddy soil.
- F. Before planting, obtain Owner's acceptance of finish grading; restore planting areas if eroded or otherwise disturbed after finish grading.

### 3.2 HYDROSEEDING

- A. Hydroseeding: Mix specified seed, fertilizer, and fiber mulch in water, using equipment specifically designed for hydroseed application. Continue mixing until uniformly blended into homogeneous slurry suitable for hydraulic application.
  - 1. Apply slurry uniformly to all areas to be seeded in a one-step process. Apply slurry at a rate so that mulch component is deposited at not less than 1500-lb/acre (15.6-kg/92.9 sq. m) dry weight, and seed component is deposited at not less than the specified seed-sowing rate.
  - 2. Multiple applications of hydroseeding to facilitate growth of grass until establishment may be required.

### 3.3 SODDING

- A. Lay sod within 48 hours of harvesting. Do not lay sod if dormant or if ground is frozen or muddy.
- B. Lay sod to form a solid mass with tightly fitted joints. Butt ends and sides of sod; do not stretch or overlap. Stagger sod strips or pads to offset joints in adjacent courses. Avoid damage to subgrade or sod during installation. Tamp and roll lightly to ensure contact with subgrade, eliminate air pockets, and form a smooth surface. Work sifted soil or fine sand into minor cracks between pieces of sod; remove excess to avoid smothering sod and adjacent grass.
  - 1. Lay sod across angle of slopes exceeding 1:3.
- C. Saturate sod with fine water spray within two hours of planting. During first week after planting, water daily or more frequently as necessary to maintain moist soil to a minimum depth of 1-1/2 inches (38 mm) below sod.

### 3.4 TREE AND SHRUB PLANTING

- A. Planting Pits and Trenches: Excavate circular planting pits with sides sloping inward at a 45-degree angle. Excavations with vertical sides are not acceptable. Trim perimeter of bottom leaving center area of bottom raised slightly to support root ball and assist in drainage away from center. Do not further disturb base. Ensure that root ball will sit on undisturbed base soil to prevent settling. Scarify sides of planting pit smeared or smoothed during excavation.

1. Excavate approximately two times as wide as ball diameter and at least 12 inches (300 mm) wider than root spread and deep enough to accommodate vertical roots for bare-root stock.
- B. Before planting, verify that root flare is visible at top of root ball according to ANSI Z60.1.
- C. Set stock plumb and in center of planting pit or trench with root flare 1 inch (25 mm) above adjacent finish grades.
  1. Use planting soil for backfill.
  2. Balled and Burlapped: After placing some backfill around root ball to stabilize plant, carefully cut and remove burlap, rope, and wire baskets from tops of root balls and from sides, but do not remove from under root balls. Remove pallets, if any, before setting. Do not use planting stock if root ball is cracked or broken before or during planting operation.
  3. Balled and Potted or Container-Grown: Carefully remove root ball from container without damaging root ball or plant.
  4. Fabric Bag-Grown Stock: Carefully remove root ball from fabric bag without damaging root ball or plant. Do not use planting stock if root ball is cracked or broken before or during planting operation.
  5. Backfill around root ball in layers, tamping to settle soil and eliminate voids and air pockets. When planting pit is approximately one-half filled, water thoroughly before placing remainder of backfill. Repeat watering until no more water is absorbed.
  6. Place planting tablets in each planting pit when pit is approximately one-half filled; in amounts recommended in soil reports from soil-testing laboratory. Place tablets beside the root ball about 1 inch (25 mm) from root tips; do not place tablets in bottom of the hole.
  7. Continue backfilling process. Water again after placing and tamping final layer of soil.
- D. Bare-Root Stock: Set and support bare-root stock in center of planting pit or trench with root flare 1 inch (25 mm) above adjacent finish grade.
  1. Use planting soil for backfill.
  2. Spread roots without tangling or turning toward surface, and carefully work backfill around roots by hand. Puddle with water until backfill layers are completely saturated. Plumb before backfilling, and maintain plumb while working backfill around roots and placing layers above roots.
  3. Place planting tablets in each planting pit when pit is approximately one-half filled; in amounts recommended in soil reports from soil-testing laboratory. Place tablets beside soil-covered roots about 1 inch (25 mm) from root tips; do not place tablets in bottom of the hole or touching the roots.
  4. Continue backfilling process. Water again after placing and tamping final layer of soil.

### 3.5 TREE STABILIZATION

- A. Place stakes as low as possible, but no higher than 2/3 the height of the tree. Do not pierce the root ball of the tree.
- B. Place markers over wires between the stake and trees.

- C. Provide stakes, anchors, and wires of sufficient strength to maintain the tree in an upright position that overcomes the particular circumstances that initiated the need for staking or guying.
- D. Provide trunk protector where guy wires are attached around the tree of sufficient length to extend past the trunk by at least 6 inches (150 mm).
- E. Remove staking material after roots have established as early as a few months, but no longer than one growing season.
- F. Never attach materials used for permanent tree protection to the tree. Do not use T-stakes for deciduous trees.

### 3.6 PLANTING AREA MULCHING

- A. Prior to mulching, clean area of weed growth and debris and treat planting areas with pre-emergent weed killer, applied according to the manufacturer's directions.
- B. Apply 3-inch (75-mm) minimum thickness of mulch over whole surface of planting area, and finish level with adjacent finish grades unless otherwise indicated on Drawings
- C. Install a 36 inch (915 mm) diameter circular mulch bed around trees in lawn areas unless otherwise indicated on Drawings.

### 3.7 FIELD QUALITY CONTROL

- A. Observation: Allow Landscape Architect or Owner to inspect the ongoing work at any time for proper materials and workmanship. Correct deficient Work within five days of written notice.
- B. Final Completion: Coordinate a walkthrough/inspection of the complete Project to allow the Landscape Architect to certify the work meets all contract requirements.
  - 1. The Landscape Architect will provide written documentation of the final walk through and acceptance via email to the Owner, Contractor, and installer.
  - 2. The Installer will be held responsible for all costs associated with reinspecting work that is not substantially complete at the time of the final walk through.

### 3.8 MAINTENANCE

- A. Maintain and establish turf and plants by watering, fertilizing, weeding, mowing, trimming, replanting, and performing other operations as required to establish healthy, viable turf and plants.
  - 1. Roll, regrade, and replant bare or eroded areas and remulch to produce a uniformly smooth turf. Provide materials and installation the same as those used in the original installation.
  - 2. Spray or treat as required to keep trees and shrubs free of insects and disease.



- B. Mow turf as soon as top growth is tall enough to cut. Repeat mowing to maintain height appropriate for species without cutting more than 1/3 of grass height. Remove no more than 1/3 of grass-leaf growth in initial or subsequent mowings.

### 3.9 SATISFACTORY TURF

- A. Satisfactory Sodded Turf: At end of maintenance period, a healthy, well-rooted, even-colored, viable turf has been established, free of weeds, open joints, bare areas, and surface irregularities.
- B. Use specified materials to reestablish turf that does not comply with requirements and continue maintenance until turf is satisfactory.

END OF SECTION 32 90 00

