

**SECTION 32 93 00  
PLANT MATERIALS AND INSTALLATION**

**PART 1 GENERAL**

**1.1 SUMMARY**

- A. Section includes:
  - 1. Perform all work required to complete the landscape installation including all labor, materials, taxes, insurance, overhead, profit, services, and equipment necessary as described herein and shown on the accompanying drawings. Provide coordination of landscape work with all other trades as required, including General Contractor and Irrigation installation.
  - 2. Work to include:
    - a. Trees, shrubs, vines and ground covers and seasonal flowers.
    - b. Topsoil backfill, soil amendments and planting soil preparation.
    - c. Guarantee
- B. Related documents:
  - 1. Section 32 92 23: Sodding

**1.2 DEFINITIONS AND ABBREVIATIONS**

The following terms will apply to these specifications:

- A. "B&B" indicates balled and burlap wrapped root system.
- B. "1 gal." indicates the standard one gallon nursery container.
- C. "2 gal." indicates the standard two gallon nursery container.
- D. "3 gal." indicates the standard three gallon nursery container.
- E. "5 gal." indicates the standard five gallon nursery container.
- F. "M.T." or "multi-trunk" indicates a tree with a specified number of trunks as called out on the plant list. Also see Part 2 Products, 2.01, A. #3, for more information.
- G. "cal." refers to the caliper of the trunk at six (6) inches above the ground level for trunks of four (4) inches in caliper size or less, and twelve (12) inches above the ground level for trunks of more than four (4) inches in caliper.
- H. "o.c." means "on center" and refers to the spacing used between the center of one plant and the center of another.

**1.3 QUALITY ASSURANCE**

- A. Plant names indicated comply with the latest addition of the American Standard for Nursery Stock published by the American Association of Nurserymen and the latest edition of Standardized Plant Names prepared by the American Joint Committee on Horticultural Nomenclature. Names of varieties not listed in these publications conform generally with names accepted by the nursery trade. Provide stock true to botanical name and legibly tagged.
- B. Comply with sizing and grading standards of the latest edition of American Standard for Nursery Stock. Any plant with irregular growth, weakness in structure of material, infestations or irregular coloration when planted will not be accepted. All plants shall be fully branched and in vigorous, healthy condition.

- C. All plants shall be grown under the supervision of standardized nursery conditions.
- D. Stock furnished shall be at least the minimum size indicated. The use of stock larger than specified is acceptable at no additional cost to the Owners. If the use of the larger stock is approved, the spread of roots or root ball of earth shall be increased in proportion to the size of and extend on all sides to the inside face of the container. The root structure shall provide evidence that the plant has been grown in the container size specified.
- E. All plants and other products and materials to be supplied by the Contractor shall be subject to inspection and approval by the Landscape Architect prior to their installation. Such inspections may be made at the site.
- F. Provide "specimen" plants with the specified height, shape or character of growth. Tag specimen trees or shrubs at the source of supply. The Landscape Architect will inspect specimen selections at the source of supply for suitability and adaptability to the selected location. When specimen plants cannot be purchased locally, provide sufficient photographs of the proposed specimen plants for approval.
- G. Material may be inspected and approved at the place of growth for compliance with specification requirements for quality, size, and variety. Such approval shall not alter the right of inspection and rejection upon delivery at the site or during the progress of the work.

#### **1.4 DELIVERY, STORAGE AND HANDLING**

- A. The Contractor shall coordinate all delivery and installation activities with the General Contractor and shall inform the General Contractor at least 24 hours prior to commencement of work at the project premises.
- B. Deliver fertilizer materials in original, unopened and undamaged containers showing weight, analysis and name of manufacturer. Store in such a manner as to prevent wetting and deterioration.
- C. Take all precautions customary in good trade practice in preparing plants for moving. Dig, pack, wrap, transport and handle plants with care to ensure protection against injury. Protect all plants from drying out. If plants cannot be planted immediately upon delivery, properly protect them with tarps, or in a manner acceptable to the Landscape Architect. No plant shall be bound with rope or wire in a manner that could damage or break the branches.
- D. Cover plants transported in open vehicles with a protective covering to prevent wind burn.
- E. Provide dry, loose topsoil for planting bed mixes. Muddy topsoil is not acceptable.

#### **1.5 GUARANTEE**

- A. All plants provided and planted by Contractor shall be guaranteed for a period of one year from date of Final Acceptance. Final Acceptance will be certified after all plants are in place in accordance with Contract Documents. Guarantee period shall terminate only if plants have been in full leaf for a minimum of three (3) weeks. In the event the guarantee period of one year would expire prior to aforementioned requirement, period shall be extended to comply. Plants, including trees, which have partially died so that shape, size, or symmetry has been damaged, shall be considered subject to replacement. In all cases, the opinion of the Landscape Architect shall be final.
- B. Plants used for replacement shall be of the same variety as those originally specified and planted in the same condition. Replacement plants will be at least the same overall size of the adjacent plants at the time of replacement. All work, including materials, labor and equipment used in replacements, shall be at no cost to the Owners. Any damage, including ruts in lawn or bed areas, incurred in making replacements shall be immediately repaired by the Contractor.
- C. The above guarantee shall apply to any growing condition through which like materials that have been established could be expected to survive. This does not apply to occurrences beyond the control of the Contractor, such as neglect, theft, and injury from storms, fires, hail, malicious injury or natural disaster.

- D. Contractor shall check plant materials and conditions once each 3 months and follow up with a report to the Owner. Report shall provide in detail any deficiencies or maintenance problems.
- E. At end of 12 month guarantee period, inspection will be made by Owner's Representative. Any plant that is dead or not in a healthy, growing condition, as determined by the Owner's Representative, shall be removed from site. These and any plants missing due to the contractor's negligence shall be replaced as soon as conditions permit during the normal planting season, at no additional cost to the owner. All replacements shall be in compliance with construction documents. Once replacements are made, notify Owner's Representative for inspection and end of contractor's responsibility for warranty.

## **1.6 MAINTENANCE**

- A. During planting operations, the Contractor shall perform all maintenance required of the installed plantings. Maintenance to continue until completion and Final Acceptance, at which time the Owners shall assume responsibility.

## **1.7 WATERING**

- A. Water will be available on the site at no expense to the Contractor. Hose and other watering equipment required for the work shall be furnished by the Contractor installing the plant materials. Irrigation system should be operational prior to shrub bed plantings.

## **1.8 CLEAN-UP**

- A. During the work progression, the premises are to be kept neat and orderly at all times. Storage areas for plants and other materials shall be so organized that they, too, are neat and orderly. All trash, including debris resulting from removing weeds or rock from planting areas, preparing beds, or planting plants shall be removed from the site daily as the work progresses.
- B. All walks and drives shall be kept clean by sweeping and/or hosing.

## **1.9 INSPECTION FOR ACCEPTANCE**

- A. Inspection of the plantings to determine completion of the specified work will be made by the Landscape Architect/Owner's Representative upon written receipt of notice from Contractor, at least 5 days prior to requested inspection date. Inspection shall be requested only after all plant materials are in place in accordance with construction documents.
- B. After inspection, the contractor will be notified in writing by the Landscape Architect of any work that is not in accordance with plans and specifications. Re-inspections will be held as required until all work is satisfactory.

## **1.10 COMPLETION OF WORK**

- A. Work shall be considered complete and eligible for acceptance only after fulfillment of the contract requirements as per drawings and specifications.
- B. All materials shall be installed according to specifications. In all cases, the opinion of the Landscape Architect shall be final.

## **PART 2 PRODUCTS**

### **2.1 PLANT MATERIAL**

- A. Provide plants typical of their species or variety with normal, densely developed branches and vigorous fibrous root systems complying with the recommendations and requirements of ANSI Z60.1 "Standard Nursery Stock" as specified. Provide only sound, healthy, vigorous plants free from defects, disfiguring

knots, sun scald injuries, frost, cracks, and abrasions of the bark, plant diseases, insect eggs, borers, and all other forms of infestation. All plants shall have a fully developed form without voids and open spaces. Plants held in storage will be rejected if they do not show signs of growth during storage.

1. Balled and burlapped plants shall have firm, natural balls of earth of sufficient diameter and depth to encompass the fibrous and feeding root system necessary for full recovery of the plant. Provide ball sizes complying with the latest edition of American Standard for Nursery Stock.
2. If there is no specification listed, the following guide shall be used: Tree root balls shall be a minimum of 12" in diameter for each 1" of trunk diameter as measured 6" above ball.
3. Multi-trunk (M.T.) trees shall be calibrated according to the following: the smallest trunk caliper shall not be less than one caliper size smaller than the largest trunk with the number of trunks specified (refer to American Standard for Nursery Stock).
4. Container-grown stock should be grown in a container for a sufficient length of time for the root system to have developed to hold its soil together.
  - a. No plants shall be loose in the container.
  - b. Container stock shall not be pot bound.
5. Plants planted in rows shall be matched in form.
6. Plants larger than those specified in the plant list may be used if acceptable to the Landscape Architect at no additional cost to the Owner. If the use of larger plants is acceptable, increase the specified spread of roots or root ball in proportion to the size of the plant.
7. The height of all trees shall be measured from the crown of the roots to the top of the highest branch and shall not be less than the minimum size designated in the plant list.
8. Shrubs and small plants shall meet the requirements indicated on the plant list.

## 2.2 SOIL PREPARATION MATERIALS

- A. Topsoil to be used shall have the following characteristics: fertile, friable, natural topsoil of loamy character, without admixture of subsoil material, obtained from a well-drained arable site, reasonably free from clay, lumps, coarse sands, stones, plants, grass, weeds, roots, sticks, and other foreign materials.
  1. Provide topsoil free of substances harmful to the plants which will be grown in the soil.
  2. Identify source and location of topsoil proposed for use on the project.
- B. Organic Soil Amendments:
  1. "Back to Nature" organic soil conditioner delivered to the site in original unopened containers.
  2. Sterilized cow manure shall be aged and thoroughly decomposed.
- C. Tree Planting Fertilizer:
  1. Agriform fertilizer tablets, 20-10-5 (21 gram) as manufactured by Sierra, or approved equal.
- D. Shrub Planting Fertilizer:
  1. Slow release (three to four month) granular fertilizer with a NPK analysis of 17-6-12 plus minors as manufactured by Sierra, or approved equal.
- E. Herbicides:
  1. Roundup, as manufactured by Monsanto, or approved equal.
  2. Treflan 5G, as manufactured by ElanCo Products in Indianapolis, Indiana, or approved equal.

## 2.3 STAKING & GUYING

- A. Staking material shall be per details on plans.
- B. Guying material shall be "Sturdy Tree Ties" material by Gardener's, or approved equal.

## 2.4 MULCH

- A. Mulch shall be shredded cedar mulch (min. 3”) for all planting beds and tree pits. Do not use free mulch originating from tree and limb removal and shredding operations.

## 2.5 STEEL EDGING

- A. NOT IN USE

## 2.6 WEED BARRIER FABRIC

- A. NOT IN USE

## PART 3 EXECUTION

### 3.1 EXISTING CONDITIONS

- A. Examine proposed planting areas and conditions of installation prior to construction. Do not start planting work until unsatisfactory conditions are corrected.
- B. Verify the location of all utilities lines and easements prior to all landscape operations.**
- C. The Landscape Contractor shall provide a uniform surface free from irregular surface changes, to meet specified finished grades.
- D. Do not install planting bed materials (shrubs and groundcovers) until site irrigation system is operational, unless otherwise approved by Owner's Representative.

### 3.2 EXCAVATION

- A. The Contractor shall adhere to the following during excavation:
  - 1. **Protect existing building, utilities, walks, planters, plants and other facilities from damage caused by landscaping operations.**
  - 2. Backfill groundcover, shrub, and tree planting areas with approved planting mixture.
  - 3. Refer to Drawings for Bed Preparation at building foundation.
- B. The Contractor shall be familiar with the location and alignment of all existing or new utility lines, ducts, and buried cables. The Contractor shall field check the location of utilities before installation of materials or plants. The Contractor shall be responsible for repair of any damage to utilities resulting from neglect or failure to comply with this requirement. Hand excavate if required due to utilities.

### 3.3 PREPARATION

- A. Planting shall be performed only by experienced workmen familiar with planting procedures under the supervision of a qualified supervisor.
- B. Planting times and procedures shall be according to accepted practices. Planting shall be suspended when temperature is below 32 degrees F., the wind velocity over 30 miles per hour, the natural ground is frozen or too wet, or the continuation of prevailing weather would cause unsatisfactory results.
- C. Locate plants as indicated. If obstructions are encountered that are not shown on the drawings, do not proceed with planting operations until obstructions are corrected or alternate plant locations have been selected by the Owners or the Landscape Architect.
- D. Grade planting areas for positive drainage in all areas, to prevent water from standing in the planting beds. Provide topsoil to provide positive drainage away from building.

### 3.4 INSTALLATION

- A. If weeds or grass are apparent in planting areas, spray area with Roundup at rate of 3 oz. per 100 square feet. The air temperature shall be above 50 degrees F. with no rain in forecast. Repeat procedure every 10 days until all foreign grass has been eliminated.
- B. If weeds and grass are dormant, excavate top 3 inches of existing soil and remove from site. Backfill with suitable topsoil. In areas that are currently planted with Bermuda, remove entire below ground root system.
- C. **Do not install plant materials until all grass and weeds have been eliminated from the planting beds.**
- D. All planting beds (areas shown for planting other than turf) shall receive a 10" deep planting soil mixture that is comprised of: 7" layer of imported high-quality topsoil, as defined in this specification and 3" layer of "Back to Nature" soil conditioner. Excavate all materials in planting beds to a depth of 10", and place topsoil and "Back to Nature". Mix Sierra 17-6-12 plus minors fertilizer into the soil mixture at a rate of five, even mixture. Do not work beds when in frozen or muddy condition.
- E. Excavate for plant materials. Tree pits shall be as shown on detail. Topsoil from excavation may be retained for backfill. Remove all excavated clay, subsoil, rock and debris from site.
- F. Each tree shall receive 3 cubic feet of "Back to Nature" conditioner and 1 cubic foot of cow manure mixed evenly with the existing soil. All inorganic materials and debris shall be removed. Apply four (4) agriform tablets (20-10-5 plus minors, 21 gram) to each tree smaller than two inches in caliper. Apply six (6) agriform tablets (20-10-5 plus minors, 21 gram) to each tree having a trunk two inches in caliper or larger. Evergreen trees shall receive six (6) tablets per tree. Equally space tablets six (6) inches outside of the burlap and four (4) inches below finished grade.
- G. Prior to installation of shrubs and groundcover in planting beds, Contractor shall receive approval from Owner's Representative for alignment of steel edging, soil preparation/ amendments and finish grading. Notify Owner's Representative when planting beds are ready for inspection.
- H. Set plant material in the planting pit to proper grade and alignment. Set plants upright, plumb, and faced to give the best appearance or relationship to each other or adjacent structure. No filling will be permitted around trunks or stems. Backfill the pit with the planting mixture. Do not use wet, muddy mixtures for backfilling.
- I. After balled and burlapped plants are set, mix planting soil around the bases of the root balls and fill all voids.
- J. Set trees 3" above surrounding grade, to allow for settlement. Form watering ring for all trees per tree planting detail. Set shrubs and 1 gallon plants 2" above finished grade.
- K. All shrubs and groundcover shall be spaced as shown on drawings, and in accordance with indicated dimensions. Adjust spacing as necessary to evenly fill planting bed with indicated number of plants.

### 3.5 MULCHING

- A. Mulch groundcover and shrub beds with the required mulching material to a three-inch depth immediately after planting. Tree pits to have 3" mulch layer. Thoroughly water mulched areas. After watering, rake mulch to provide a uniform finish surface.

### 3.6 STAKING AND GUYING

- A. All shade and evergreen trees shall be staked within 24 hours of planting.
- B. Drive stakes vertically into the ground to a depth of 2 1/2 to 3 feet. **AVOID DAMAGING ROOT BALL.**
- C. Arbor tie shall be placed around the trunk to prevent damage to the plant. Refer to manufacturers instructions for more information.

### 3.7 PRUNING

- A. Pruning shall be limited to the minimum necessary to remove injured twigs and branches, and to compensate for the loss of roots during transplanting, but shall not exceed one-fifth (1/5) of the branching structure. All pruning shall be done only after the plants have been transplanted at the site.

### 3.8 MAINTENANCE

- A. Maintain plantings from initial planting through Substantial Completion and Final Acceptance of the project.
- B. Maintenance shall include pruning, weeding, and the application of appropriate insecticides and fungicides necessary to maintain plants free of insects and disease.
  - 1. Reset settled plants to proper grade and position. Restore planting saucer and remove dead material.
  - 2. Tighten and repair guy wires and stakes as required.
  - 3. Correct defective work as soon as possible after deficiencies become apparent and weather permits.
  - 4. Water trees, plants, and groundcover beds within the first 24 hours of initial planting, and not less than twice per week until final acceptance. Water rate to be adjusted as required to optimize health of plant material using irrigation controller.
  - 5. Remove weeds and grass in planting areas at least once a week. A contact herbicide may be used provided lawn and plants are not damaged. Re-apply mulch as necessary to maintain a two (2") inch layer in tree, shrub and groundcover beds.

**END OF SECTION**