

## **SECTION 32 91 00 - PLANT MATERIALS AND PLANTING**

### **PART 1 GENERAL**

#### **1.01 DESCRIPTION**

The specified work includes the furnishing of all materials, equipment, and labor necessary for the planting of trees and shrubs; protection and maintenance; and all related items required to complete the work shown on the drawings and as herein specified.

#### **1.02 RELATED WORK**

- A. Section 32 84 00 Irrigation System (design build by owner)
- B. Section 32 91 13 Soil Preparation – Topsoil
- C. Section 32 93 23 Sodding

#### **1.03 QUALITY ASSURANCE**

- A. Nomenclature. The names of the plants required under this contract conforms with Standardized Plant Names as adopted by the latest edition of the American Joint Committee of Horticultural Nomenclature. Names of varieties not included therein conform generally with names accepted in the nursery trade.
- B. Comply with sizing and grading standards of the latest edition of "American Standard for Nursery Stock" by the American Association of Nurserymen.

#### **1.04 SUBMITTALS**

- A. Submit the following test reports to the Owner:
  - 1. Soil Analysis of topsoil for planting mix including:
    - a. pH factor.
    - b. Mechanical analysis (composition).
    - c. Percentage of organic content.
    - d. Recommendations on type and quantity of additives required to establish satisfactory pH and bring supply of nutrients to satisfactory level for planting.

#### **1.05 PROJECT CONDITION**

- A. The Contractor shall be notified in writing by the owner or his authorized representative when to commence work of planting. Thereafter, planting operations shall be conducted under favorable weather conditions which are normal for such work as determined by accepted practice in the locality of the project. At the option of, and on the full responsibility of the Contractor.
- B. The Contractor shall be familiar with the alignment of existing or new utility lines, ducts and buried cables. The Contractor shall field check the location of utilities before any installation of material or plants. The Contractor shall be responsible for all damage resulting from neglect or failure to comply with this requirement. If discrepancies occur, consult the Owner. Changes shall be made in the location of

- plant materials only upon written notification by the Owner.
- C. Protect existing utilities, paving, and other facilities from damage caused by landscaping operations.
  - D. A complete list of plants, including a schedule of sizes, quantities, and other requirements is shown on the drawings under 'PLANT LIST'. In the event that quantity discrepancies or material omissions occur in the plant materials list, the planting plans shall govern.
  - E. All work shall be accomplished under the direction of a competent, experienced foreman.

## 1.6 PLANT GUARANTEE AND REPLACEMENT

- A. Guarantee. The Landscape Contractor shall guarantee the trees, shrubs, and ground cover for one year from date of acceptance by the owner or his authorized representative, and they shall be alive and in satisfactory growth at the end of the guarantee period.
  - B. Replacement. At the conclusion of the guarantee period, inspection will be made by the Owner or his authorized representative, written notice requesting such inspection submitted by the Contractor at least ten days before the termination date as stated under 1.04 A. Any plant required under this contract that is dead, in an unhealthy, unsightly, or badly impaired condition, as determined by the owner or his authorized representative, shall be removed from the site; these plants shall be replaced as soon as it is reasonably possible, at no extra cost to the owner. No replacement shall be made in any season definitely unfavorable for planting. Provide one year guarantee on replacement plants.
- C. Materials and Operations. All replacements shall be plants of the same kind and size as specified in the Plant List. They shall be furnished and planted as specified under New Planting.
- D. At the conclusion of the guarantee period, the Contractor shall remove all stakes, wire, rubber hose, and wrapping from trees and remove them from the site, and shall remove the earth saucer from around each plant, level with adjacent finish grade, and seed this area.

## 2.01 MATERIALS

- A. Plants
  - 1. Quality and Size. Plants shall be nursery grown, have a habit of growth that is normal for the species, and shall be sound, healthy, vigorous, and free from insect pests, plant diseases, and injuries. All plants shall equal or exceed the measurements specified in the Plant List, which are minimum acceptable sizes. They shall be measured before pruning, with branches in normal position. Any necessary pruning shall be done at time of planting and will be consistent with the natural growth habit of each species. Requirements for the measurements, branching, grading, quality, balling and burlapping of plants in the Plant List shall exceed the Code of Standards currently recommended by the American Association of Nurserymen, Inc., in the American Standard for Nursery Stock.

In addition to the minimum standards as listed above, the Landscape Architect is looking for plants which possess specimen quality and include

the following criteria:

Full, symmetrical growth and full symmetrical tree crowns.  
No bark scarring or damage.  
No sucker growth or prior plant damage.  
Straight 'non-crooked' tree trunks for single stem trees and 'non-intertwined' or 'twisted' trunks for multi-stem trees.  
Matched growth for multiple plants.  
Plants which possess healthy growth.

At the discretion of the Owner, plants may be rejected based on any of the above listed criteria.

2. Substitutions will not be accepted unless specifically approved in writing by the owner or his authorized representative. Proposed substitutes shall be of the nearest equivalent size or variety as the plant actually specified, having the same essential characteristics. Proposed substitutes of lesser cost shall have an equitable adjustment of contract price. Plants of greater value may be provided without additional cost to the owner.
3. Balled and Burlapped Plants. Plants designated "B&B" in the Plant List shall be balled and burlapped. They shall be dug with 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. Balls shall be firmly wrapped with burlap or similar material and bound with twine or cord. Where necessary to prevent breaking or cracking of the ball.
4. Protection after Delivery. The balls of "B&B" plants which cannot be planted immediately on delivery shall be covered with moist soil or mulch, or other protection from drying winds and sun. All plants shall be watered as necessary.
5. Container plants shall be healthy, vigorous, well branched, well rooted and well established in the container in which they are provided.

## 2.02 ACCESSORIES

- A. Topsoil shall be furnished by the Landscape Contractor at his expense. Topsoil shall be 'Lite Top' topsoil by American Hydrotech and to be installed as per manufacturers recommendations.
- B. Commercial Fertilizer shall be 18-16-12 'Eight to Nine month slow release formula' as manufactured by 'Sierra Chemical, Lebanon Chemical Company and shall conform to the applicable state fertilizer laws. It shall be uniform in composition, dry, and free flowing, and shall be delivered to the site in the original, unopened containers, each bearing the manufacturer's guaranteed analysis and trademark. Any fertilizer which becomes caked or otherwise damaged, making it unsuitable for use, will not be accepted. Do not mix fertilizer in prepared soil mixture for azaleas. Use 'cottonseed meal' for fertilizing azaleas.
- C. Perlite shall be delivered to site in unopened original containers and free of any foreign materials.

D. Materials for Staking and Wrapping.

1. Stakes for supporting trees shall be straight, sound, rough-sawn two-by-twos. Stain stakes dark black with oil base stain. 2 inch x 2 inch oak or other approved wood typical.
2. Wire for fastening trees to stakes shall be No. 12 gauge pliable solid strand galvanized steel. Secure with double strands of wire.
2. Hose to encase wires used for fastening trees to stakes shall be new two-ply reinforced rubber garden hose. All hose used shall be black.
3. Wrapping material for tree trunks shall be two thicknesses of heavy crinkle paper cemented together with bituminous material. Wrapping material shall be in strips 6 to 10 inches wide. Twine for tying shall be lightly tarred medium to course sisal yarn.

- E. Liquid seaweed shall be applied to plants as per manufacturer's recommended rate. Apply manufacturer's recommended quantity of mixed solution at twice the manufacturer's recommended rate. Liquid seaweed shall be 'Thorvin TM' as supplied by 'Necessary Trading Company'. Liquid seaweed shall be 100% natural product free of salt and commercially mined and sold by an approved manufacturer.

### **PART 3 EXECUTION**

#### **3.1 EXECUTION**

- A. Layout. The Contractor is responsible for verifying all site conditions in the field. New planting shall be located where shown on the plans except where obstructions below ground or overhead are encountered or where changes have been made in the construction.
- B. Obstructions Below Ground or Overhead. It is not contemplated that planting shall be done where the depth of soil over underground construction, obstructions or debris is insufficient to accommodate the roots or where pockets of debris or impervious soil will require drainage. Where such conditions are encountered in excavation of planting areas, and where the debris, concrete, or other obstruction cannot be broken and removed by hand methods in the course of digging plant pits of the usual size, and where trees to be planted are found to be under overhead wires.
- C. Drainage of Pits and Beds. Where planting pits are dug in wet areas, or where adverse subsoil drainage problems are encountered, set plants 6 inches higher than normal, using an extra depth of crushed stone and sand, up to 12 inches total depth to keep root ball from settling. The immediate area outside the saucer shall be blended with suitable soil to meet existing grade within five feet (5'-0") of edge of pit. Drainage may also be provided by drilling holes through non-porous subsoil at the bottom of planting excavations to a depth to assure percolation, or by any other method approved by the Landscape Architect.
- D. Herbicide. Where shrub or ground cover beds are to be established, the area shall be treated with "Surflan" pre-emergent by Elanco as per manufacturer's recommendations. Where cover of grass or weeds exist, bed areas shall be treated with "Round-Up" by Monsanto as per manufacturer's recommendations. Appearance of weeds within the first month of planting guarantee shall be treated with "Round-up".

- E. Amended Soil Mixture. Prepared soil mixture, for use where specified for backfilling plant pits and beds, shall be mixed on the project site. Topsoil, composted cow manure and or organic compost and sand shall be thoroughly mixed in the following proportions by volume: 6 parts of topsoil, 2 parts composted cow manure or composted leaf matter and 1 part coarse sand. Mixing shall be done in a thorough manner to ensure uniform distribution of materials throughout the mixture. Osmocote fertilizer shall be applied to all ground covers, perennials and shrubs as per manufacturer's recommended rate. Apply adjacent to entire root ball including base of ball at junction of prepared soil mixture. Fertilizer tree spikes are not acceptable. Ground cover and perennial beds shall have 9 inches minimum depth amended soil mixture. Shrub beds shall have minimum depths of amended soil mixture as indicated on plans.
- F. Excess Excavated Soil shall be disposed of where and as directed by authorized representative.

### 3.02 INSTALLATION

- A. Planting Pits. Reasonable care shall be exercised to have pits dug and soil prepared prior to moving plants to their respective locations. The minimum allowable dimensions of plant pits shall be: 6 inches deeper than the depth of ball or the depth of base roots; for ball or root spreads up to 2 feet, pit diameters shall be twice the root spread, with a minimum diameter of 18 inches; for ball or root spreads from 2 to 4 feet, pit diameters shall be 2 feet greater; for ball or root spreads over 4 feet, pit diameters shall be 1 1/2 times the ball or root spread. Beds for ground cover shall be 3 inches deeper than that original container, or a minimum of 9 inches or prepared soil mixture.
- B. Setting Plants. Unless otherwise specified, all plants shall be planted in pits, centered, and set on well compacted prepared soil mixture - a minimum depth of 6 inches for trees and large shrubs and minimum depth of 4 inches for shrubs. The finished grade level of the plant, after settlement, will be the same as that at which the plant was grown. They shall be planted upright and faced to give the best appearance or relationship to adjacent structures. No burlap shall be pulled out from under balls. Platform and surplus binding from top and sides of the balls shall be removed. Container grown plants shall have the root ball scarified (butterflied) starting the cut at the center of the base and cutting upward 1/2 the depth of the ball. Prepared topsoil shall be placed and compacted carefully to avoid injury to roots and to fill all voids. When the hole is nearly filled, add water as necessary and allow it to soak away. Fill the hole to finished grade, and form a shallow saucer around each plant by placing a ridge of topsoil around the edge of each pit. After the ground settles, additional soil shall be filled into the level of the finished grade.
- C. Staking and Wrapping.
1. Staking. Stakes shall be equally spaced about each tree and shall be driven vertically into the ground to a depth of three feet in such a manner as not to injure ball or roots. Trees shall be fastened to each stake at a height of about five feet by means of two strands of wire. Stakes shall be uniform in height and placed as designated on the accompanying drawing, and painted as specified.
  2. Wrapping. Promptly after planting, the trunks of all trees designated to be wrapped shall be wrapped spirally from the ground line to the height of the second branches. All wrapping shall be neat and snug and the material shall be held in place by a suitable cord. There shall be an overlap of wrapping material, a minimum of 50 percent.

- D. Mulching. All plants shall be mulched with a 3 inch layer of shredded hardwood bark within two (2) days after planting. This mulch shall entirely cover the planting bed.

### **3.03 MAINTENANCE**

- A. Maintenance shall begin immediately following the last operation of installation for each plant and shall continue in accordance with the following requirements.
1. New Planting shall be protected and maintained by the Contractor until installation of planting is complete and has been accepted. Maintenance shall include watering, weeding, cultivating, mulching, tightening and repairing of wires, removal of dead material, resetting of plants to proper grades or upright position and restoration of the planting saucer, and other necessary operations. If planting is done after lawn preparation, proper protection to lawn areas shall be provided, and any damage resulting from planting operations repaired promptly at no extra cost to the owner.

### **3.04 INSPECTION FOR ACCEPTANCE**

- A. Inspection of the planting to determine completion of contract work, exclusive of the possible replacement of plants, will be made by the owner or his authorized representative upon written notice requesting such inspection submitted by the Contractor at least ten (10) days prior to the anticipated date.
- B. Acceptance. After inspection, the Contractor will be notified in writing by the owner or his authorized representative of acceptance of all work, exclusive of the possible replacement of plants subject to guarantee or, if there are any deficiencies, of the requirements for completion of the work. Work remaining to be done shall be subject to reinspection before acceptance. The owner will, after acceptance, accept the responsibility for maintenance.

### **3.05 CLEAN UP**

- A. Clean Up of Site. At the end of each day's work, the Landscape Contractor shall remove all trash and other debris resulting from his planting operations. Also, the Landscape Contractor shall police the entire site and remove all forms of existing rubbish, including wire, cans, and piles of dead grass, all of which shall be removed from the site.

**END OF SECTION**