# SPL-XX: TREE & SHRUB PLANTING

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### Description

This work shall consist of preparing for, installing and maintaining trees and shrubs, which are balled-and-burlapped, container-grown and bare-rooted plants and furnishing equipment, materials and labor necessary to complete the work listed herein, directed by the Engineer, and detailed in the Contract Documents. All work covered in this special provision shall be supervised by a professional certified by the NC Landscape Contractors’ Registration Board or an individual with a B.S. in Biology or a closely related field with successful planting experience. The planting season will be considered to be November 15 thru March 15.

### Materials

The Engineer, or an approved agent, must approve plants before they are installed. Inspection shall be for quality, size and variety only, and shall not in any way impair the right of rejection for failure to meet other requirements during progress of the work. Supply plants as specified in the Contract Documents. Alternate species may be used upon approval by the Engineer. No work shall be performed until the Engineer approves this schedule. Provide the Engineer 48-hour notice of any plant material being delivered to the construction site that is coming from a new supplier, or from a different plant group from the same supplier, which has not been previously inspected. Written approval from the City is required for any substitutions or deviations from the Contract Documents.

The planting stock should be grown by professional plant nurseries located within the same physiographic province (Piedmont) or within 200 miles of the project site. The seed sources for the plant material should be obtained from the Piedmont. Plant stock may be obtained from nurseries beyond the 200-mile limit if local nursery stock is not available. Plant stock from beyond the 200-mile limit must be approved by the Engineer.

Plants shall be typical of their species and variety, have normal growth habits, have well-developed branches, be densely foliated, be vigorous and have fibrous root systems. Prior to planting, soils surrounding the root system shall be kept moist and plants should be kept out of direct sunlight and wind to prevent desiccation. No plants will be accepted unless they show healthy growth and are free of pests and stress symptoms. All woody plants shall conform to minimum standards for root ball size and container size and plant size and form specified in the American Standard for Nursery Stock (ASNS) (ANSI Z60.1 -2004).

All new trees of large-maturing species must have straight trunks with a single leader intact, unless multi-stem trees are specified. When multi-stem trees are designated in the Plan, they shall have between three and six leaders and evenly distributed. Multi-stems shall be specified by stem caliper and measured according to section 1.3.2.3 of the ASNS-2004. Bark shall be free of abrasions, and all cuts shall be completely callused. Trees will not be accepted which have had their branches shortened, leaders cut or which have leaders damaged so that cutting is necessary.

Coniferous evergreen tree species (Type 4, 5 & 6 – ASNS -2004) shall be specified by total height and may specify caliper. They shall be typical of their species and variety, shall have normal growth habits, shall be sheared to create a full plant if that is the nursery standard for the species.

Bare-root stock shall have a root system greater than or equal to one-third the total mass of the plant (root system is all plant mass below root collar). Plants shall be kept in a planting bag or otherwise protected from sun, wind and frost during installation. All bare roots trees of large-maturing species must have straight trunks with a single leader and be 18 to 36 inches tall. All other species of trees and shrubs shall be 14” to 30” tall. All bare-root trees and shrubs shall have a minimum stem caliper of ¼”. If a particular species is not available in bare root form, containerized vegetation (i.e.tubelings) may be substituted upon approval by the Engineer. Substituted containerized vegetation must be planted at the same proposed density as bare roots at the contract unit price for Bare Roots.

B&B plants shall be nursery grown and freshly dug. Burlap shall be untreated and biodegradable. All B&B trees shall have a minimum two-inch caliper stem. No plants showing evidence of “made” root balls will be accepted. There shall be no more than three inches of fill over the original root system. B&B plants must have firm, natural balls of earth, and be of sufficient depth to include the fibrous and feeding roots. Plants moved with a ball will not be accepted if the ball is dry, cracked or broken before or during plant operations. All plants of each particular variety shall be uniform in size and configuration, and shall be labeled with correct plant name and size.

Containerized plants shall have a root system sufficient enough in development to hold the soil intact when removed from the container. The root system shall not be root bound a condition where the root system is dense in mass, excessively intertwined and has established a circular growth pattern.

Labels shall be attached securely to all plants, bundles and containers of plant materials delivered. Plant labels shall be durable and legible, stating the correct plant name and size in weather-resistant ink or embossed process lettering. Plants shall conform to measurements specified in the plant lists, except that plants larger than specified may be used if approved by the Engineer. Use of such plants shall not increase the contract price if larger plants are approved. The root ball shall be increased in proportion to the size of the plant in accordance with the American Standards of Nursery Stock.

Protect trees and shrubs at all times from sun, drying winds, and frost. Trees and shrubs that cannot be planted immediately on delivery shall be kept in the shade, well protected from winds and frost and shall be kept well watered.

Topsoil and/or Planting Mix used in areas of plantings shall meet provisions specified in the Charlotte Landscape Construction Standards, Section 02100 SOILS.

### Methods

In areas where construction activities has compacted the soil, the soil within a four foot radius of the planting site shall be loosened to a depth of at least eight inches.

All balled-and-burlapped and containerized tree and shrub planting shall be done in accordance with City Landscape Construction Standards (CLCS) and according to planting details in Plans if they differ or as otherwise approved by the Engineer.

Upon delivery, the plantings shall be inspected for the presence of non-native and noxious weed species. Any non-native or noxious weed species found growing in stock containers or soil balls shall be removed prior to planting.

In digging, loading, transporting, unloading, planting or otherwise handling plants, exercise utmost care and use adequate precautions to prevent injury to or drying out of the roots, trunk, or branches. Prevent freezing of the plant roots.

All plants with bare roots, if not promptly planted, shall be heeled-in in constantly moist soil or sawdust in an acceptable manner corresponding to generally accept horticultural practices. While plants with bare roots are being transported to and from heeling-in beds, or are being distributed in planting beds, or are awaiting planting after distribution, protect the plants from drying out by means of wet canvas, burlap, straw or by other means acceptable to the Engineer and appropriate to weather conditions and the length of time the roots will remain out of the ground.

Bare root plants may be planted in holes made by a mattock, dibble, planting bar or other means that meet the approval of the Engineer. The planting hole shall be deep enough and wide enough to accommodate the root system without J-rooting. Bare root stock shall be planted in a vertical position with the root collar approximately 0.5 inches below the soil surface. The planting hole shall be tamped around the shrub or tree firmly to eliminate air pockets.

Thoroughly water all plants immediately after planting. This shall mean full and thorough saturation of all backfill in the pits and beds during the same day of planting. Apply water only by watering can or open-end hose at a very low pressure and close to the finished grade elevation (i.e. less than one-foot of fall) to avoid air pockets and damage to the roots. When planted, watered and fully settled, the plants shall be vertical and the top of the root ball shall not be below the existing grade. Fill basin with water, being careful not to break down berm with hose stream, or to gouge out holes in the backfill. If sufficient rain is not received to support survivability, water all plantings as often as necessary to keep the plants alive and growing.

Newly planted trees and shrubs shall not be pruned except to remove broken branches, street/sidewalk obstructions and to correct irregularities, including removal of sucker growth. This pruning shall be done only at the direction of the Engineer. Any pruning shall be carried out by proper arboricultural standards and in accordance with ANSI A300 for Tree Care Operations –Tree, Shrub, and Other Woody Plant Maintenance – Standard Practices (Pruning).

There is to be no wrapping of tree trunks. Any wrapping from the nursery to protect the trees in transit shall be left on the trunk until it is planted, and then all tree wrapping must be removed.

Within two days after planting, all individual tree and shrub pits located within landscapes shall be mulched using hardwood mulch in accordance with the Landscape Construction Standards Manual. Plantings within native, natural and riparian areas shall not require mulching, however, herbaceous weed competition shall be controlled for the warranty period. Weed competition may be eliminated by hand-pulling or hand-cultivation or by the careful and selective use of post-emergence non-selective foliar herbicide sprays.

Do not remove name tags attached to installed plants until final inspection.

Install plants in locations specified in the Contract Documents. All newly installed trees and shrubs, including bare-roots, containerized and ball-and-burlap trees and shrubs shall be marked after installation by securing with a square knot one piece of colored plastic flagging, which shall be approximately two feet in length and two inches in width, loosely around the central leader approximately one half way up the height of the plant. This shall remain in place until all plants are inspected and accepted at the one year warranty. At that time it shall be the responsibility of the Contractor to remove the flagging.

No excavation or planting shall be done in soil that, in the opinion of the Engineer, is too wet, too dry or not properly conditioned as provided in these specifications.

Open pits shall not be left unattended, or shall be fenced with high visibility fencing, if in the Contractor determines it necessary to take these actions to prevent accidental injury.

Mechanical support for trees shall be required when the tree is tall, slow to recover, heavily foliaged, or planted in a sandy site and for all trees 2” caliper or larger. It shall be the decision of the Contractor to determine if conditions require staking of trees and shrubs smaller than 2” caliper. Any unsupported small tree that does not maintain its vertical position, will be replanted by the Contractor into a vertical position and then staked. Staking shall be in accordance with the Landscape Construction Standards Manual unless an alternate staking method is shown in Plans. Any support provided to a tree shall be removed by the Contractor at their expense at the end of the one-year warranty period or earlier if the tree becomes established before one-year.

### Warranty

All trees and shrubs installed by the Contractor shall be assessed by the Engineer, or representative thereof, at the end of the same planting season they were installed. One hundred percent of the trees and shrubs must be installed correctly and still be alive at the time this assessment is completed. If dead plant material is found, the Contractor is responsible for replacing that material before the completion of that planting season. At the completion of the first full growing season following planting, trees and shrubs planted by the Contractor will be assessed by the Engineer or representative thereof again. If 85% of installed plants do not survive, with acceptable survival being defined by two-thirds of the canopy remaining alive, then the Contractor shall remove the dead plant material and plant new shrubs and trees at the Contractor’s expense. If any of the trees specified to be 2 inches or larger in diameter do not survive (i.e. 100% warranted), then the Contractor shall remove the dead plant material and plant new tree(s) at the Contractor’s expense. The newly planted shrubs and trees will begin a new warranty period to be assessed at the conclusion of the next full growing season. Survival of the replacement plant material is required so that final plant count meets or exceeds the original required 85% and 100% survival levels. Warranty replacement plant material shall be marked with new color plastic flagging as was the first planting.

The Contractor shall be responsible for furnishing equipment, materials, labor, incidentals and water to maintain plant survival in accordance with these specifications during the construction contract and during the warranty period.

The Contractor shall be responsible for traffic control through the life of the project and warranty period.

### Measurement

The quantity of tree and shrub planting to be paid for will be the actual number of trees and/or shrubs installed by the Contractor and accepted by the City.

### Payment

The quantity of tree and shrub planting, measured as provided above, will be paid for on a contract unit per each based on specified sizes of trees and shrubs installed and accepted by the City. Such payment shall be full compensation for installing and maintaining materials, including furnishing all materials, labor, equipment, tools, and incidentals necessary to complete the work as specified in the Contract Documents and this Special Provision, or as directed by the Engineer.

Payment will be made under:

TREE AND SHRUBS- BARE ROOT EA

#SP2 CONTAINERIZED TREE/SHRUB EA

#SP4 CONTAINERIZED TREE/SHRUB EA

#1 CONTAINERIZED TREE/SHRUB EA

#3 CONTAINERIZED TREE/SHRUB EA

TREE 1-INCH CALIPER, #15 CONTAINER (minimum) EA

TREE 2-INCH CALIPER EA

TREE 3-INCH CALIPER EA

CONIFEROUS EVERGREEN TREE, 6 TO 7 FT HT EA

CONIFEROUS EVERGREEN TREE, 8 TO 9 FT HT EA

CONIFEROUS EVERGREEN TREE 10 TO 12 FT HT, 3-INCH CALIPER EA