

## DIVISION 2

### SECTION 02912 – LANDSCAPE TREES, SHRUBS AND PERENNIALS

#### PART 1 - GENERAL

##### 1.01 Work Included

- A. Furnish all labor, materials, supplies, equipment, tools, and transportation, and perform all operations in connection with and reasonably incidental to complete installation of the plantings and guarantee as specified herein. Items of work specifically included are:
  - 1. Procurement of all applicable licenses, permits, and fees.
  - 2. Installation of trees, shrubs and perennials.
  - 3. Mulch.

##### 1.02 Related Work

- A. Tree Protection: Section 02122
- B. Irrigation Installation: Section 02810
- C. Seed Construction: Section 02940
- D. Sod Construction: Section 02950
- E. Planting Maintenance: Section 02970

##### 1.03 Submittals & Quality Assurance

- A. Submittals and test results shall be directed to the City Representative and shall be approved in writing before affected work commences. **ALL COSTS TO ENSURE QUALITY SHALL BE PAID BY THE CONTRACTOR.**
  - 1. Submit three copies of manufacturer's specifications and literature on all products.
  - 2. Submit three copies of complete materials list including quantities and descriptions of materials.
- B. Summary of submittals from this section:
  - 1. Soil amendment analysis.
  - 2. Mulch.
  - 3. Landscape Fabric
  - 4. Plant material.
- C. Provide at least one person who shall be present at all times during execution of this portion of the work and who shall be thoroughly familiar with the type of materials being installed and the best methods for their installation and who shall direct all work performed under this section.

##### 1.04 Inspections

- A. Site Inspection:
  - 1. Contractor will inspect existing site conditions and note irregularities affecting the work of this section. Verify that grading operations have been satisfactorily completed and that topsoil of adequate quantity and quality has been placed in all disturbed areas as specified. Verify that the areas to be revegetated are protected from concentrated runoff and sediment from adjacent

areas. Note any previous treatments to the areas such as temporary seeding or mulching and discuss with the City Representative how these treatments will affect permanent revegetation. Report all irregularities affecting work of this section to the City Representative before initiating work. When the Contractor begins work under this section, it implies acceptance of existing conditions.

2. Contractor shall notify City Representative prior to start of work. City Representative will be responsible to monitor the work.

B. Pre-planting Inspections:

1. All plant material shall be inspected by a City Forestry Representative before planting. Inspection of materials may be sequenced by major planting areas to accommodate efficient planting operations. Plants for inspection must be in a single location preferably on the project site. All rejected materials must be removed from the site, replaced and reinspected before planting. If the supplier is a local nursery, tagged plants may be inspected at the nursery. Photographs of the plant materials to be obtained from non-local sources may be submitted to the City Forestry Representative for preliminary inspection. This preliminary inspection is subject to final approval of plants at the job site. The Owner reserves the right to reject any plant material at any stage of construction or guarantee period.
2. All soil amendments, backfill mixes and mulches will be inspected at the site by the City Representative before they are used in planting operations.
3. City and Forestry Representatives will inspect staked locations of all trees before digging for those plants occurs. City Representatives will inspect the location of all shrubs in their containers at the proposed locations before digging commences. Contact City Representatives at least two days in advance.

C. Final Inspection:

1. As soon as all planting is completed, a review and preliminary inspection to determine the condition of the vegetation will be held by the City Representatives upon request by the Contractor.
2. The inspection will occur only after the following conditions have been met:
  - a. All areas will be free of weeds and neatly cultivated;
  - b. All plant basins shall be in good repair;
  - c. Irrigation systems shall be fully operational with all heads properly adjusted;
  - d. All debris and litter shall be cleaned up and all walkways and curbs shall be cleaned of soil and debris left from planting operations.
3. If, after the inspection, the City Representative is of the opinion that all work has been performed as per the Contract Documents, and that all vegetation is in satisfactory growing condition, he will give the Contractor Written Notice of Acceptance and the Guarantee Period shall begin.
4. Work requiring corrective action in the judgment of the City Representative shall be performed within the first ten (10) days of the guarantee period. Any work not performed within this time will necessitate an equivalent extension of the guarantee period. Corrective work and materials replacement shall be in accordance with the Contract Documents, and shall be made by the Contractor at no cost to the Owner.
5. Final approval and Substantial Completion notice will be given when all deficiencies are corrected.

D. End of Guarantee Period Inspection:

1. At the end of the second full growing season City Representatives will inspect all trees for satisfactory condition. The inspection shall take place in September and the City shall contact the Contractor concerning replacements. Replacements may take place the following spring if deemed proper or necessary.
2. The Contractor is responsible for removal of all tree stakes, wire and webbing at the end of the guarantee period.

**1.05 Guarantee**

- A. Guarantee landscape construction materials against defects due to any cause for a period of two years.
- B. Guarantee plant material used in this section against defects due to any cause for a period of two full growing seasons from the date of acceptance of all work. This guarantee includes insect infestation or infection by disease organisms.
- C. This guarantee will not be enforced should woody vegetation die due to vandalism; improper maintenance procedures carried out by the Owner involving over or under watering, lawn mower damage, over-fertilization, fire, flood, or hail or other similar circumstances beyond the control of the Contractor.
- D. Replace woody vegetation when it is no longer in a satisfactory condition as determined by the City Representative for the duration of the Guarantee Period. Make replacements within fourteen days of notification from the City Representative. Replacement planting for trees shall be done in the spring planting season, except as approved otherwise. Remove dead plants within seven days of notification. If a tree is in marginal condition at the end of the guarantee period it may be agreeable to both parties to wait until the end of the growing season before deciding whether to replace that tree.
- E. All replacements shall be of the same kind and size as originally specified and shall be installed as described in the contract documents unless changes are approved by City Representatives. Repairs and replacements shall be made at no expense to the Owner.
- F. Guarantee shall apply to originally specified and installed plants and other landscape materials, and any replacements made during the guarantee/warranty period.

**PART 2 - MATERIALS**

**2.01 Plant Material**

- A. A complete list of plants including a schedule of quantities, sizes and other requirements is shown on the Landscape Plan. If discrepancies occur between quantities of plants indicated in the plant list and as indicated on the plan, the plan quantities shall govern.
- B. No substitutions shall be accepted without approval from the Owner's Representative.
- C. Plant material shall be a first-class representative of its species; healthy, vigorous, well-branched and well proportioned with respect to height and width relationships. Inspect to assure that all plants are free from disease, injury, insects and weed roots; and conform to the requirements of the American Standard for Nursery Stock, ANSI 260.1. All plants are subject to inspection see 1.04 B.
- D. Plant material that is grown in a zone more mild than USDA zone 5 shall be acclimated to Colorado conditions prior to planting.
- E. Digging, Wrapping, and Handling: Plants shall be dug and prepared for shipment in a manner that will not cause damage to branches, shape, and future development after planting:

1. Balled and burlapped plants shall be nursery grown stock adequately balled with firm, natural balls of soil in sizes and ratios conforming to the Colorado Nursery Act as cited above. Balls shall be firmly wrapped with non-treated burlap, secured with wire or jute, Broken balls will not be accepted.
  2. Container grown plants shall have been nursery grown in containers and shall have sufficient roots to hold the entire soil mass together after container removal without being root-bound.
  3. Options as to method: If all other requirements are met, a container grown plant may be substituted for a balled and burlapped or field collected plant. Trees transplanted by mechanical tree spade may be substituted for balled and burlapped trees as long as minimum ball sizes are equal to or larger than AAN Standards.
- F. Plant Protection: Plants shall be handled so roots are adequately protected at all times from drying out and from other injury. Protect balls of balled plants which cannot be planted within twelve hours of delivery with mulch or other suitable material. Where possible, store plants in the shade. Keep all plant roots moist before, during, and after planting.

## **2.02 Soil Amendment**

- A. Use compost or two year cured manure free from lumps, stones or other foreign matter. Do not use Colorado mountain peat, sphagnum peat is acceptable. Soil amendment must be free of mineral matter or chemical composition harmful to plant life and have the following properties:

Organic Matter:	35-40%
pH:	7.4 to 8.5
Salt:	< 7 mmhos/cm

Submit test results prior to application.

## **2.03 Staking Materials**

- A. Tree Stakes: 6-foot long metal "T" posts, safety caps.
- B. Guying and Staking Wire: Galvanized iron or steel 12-gauge wire.
- C. Webbing: 2-inch nylon webbing.

## **2.04 Landscape Fabric**

- A. Weed barrier by Dewitt, Mirifi, Typar, Pro 5 or equal.

## **2.05 Mulch**

- A. Shredded wood: Mulch shall be shredded branches, chipped or shredded pallets is not acceptable. Mulch shall be free from noxious weed seed and all foreign material harmful to plant life. Submit samples.

## **2.06 Herbicide:**

- A. Round-Up

## **2.07 Watering:**

- A. No water will be available on site until installation of the irrigation system is complete. It is the intent that all plant material be watered using the irrigation system after installation.

## PART 3 - EXECUTION

### 3.01 Planting Woody Vegetation

- A. Location: stake tree locations and place container shrubs as shown on the plans. Coordinate review of locations with City Representative.
- B. The following table identifies the minimum distances from trees to utilities etc.

<u>Item</u>	<u>Minimum Distance (feet)</u>
Curbs	5
Sidewalks	5
Electric buried cable	4
Water lines	6
Sewer lines	10
Gas lines	4
Street lights – Shade trees	40
Street lights – Ornamental trees	15
Street signs	7
Intersections	30
Vaults and pits	5-10
Irrigation rotor heads	12-20
<u>In turf areas:</u>	
Tree to tree – Shade trees	25
Tree to tree – Evergreen trees	15
Tree to tree – Ornamental trees	15

- C. Planting Pits:
  - 1. Dig planting pits two times the width of the root ball, see planting detail.
  - 2. Roughen sides of the pit to remove any compacting or glazing. Mix loosened soil with specified backfill.
- D. Backfill Material: Tree and shrub planting pits shall be backfilled with the following mix:
  - 1. 2/3 existing pit soil by volume.
  - 2. 1/3 soil amendment by volume.

Thoroughly mix backfill material in accordance with industry accepted technique in order to obtain a uniform, evenly blended consistency, free from pockets of unblended material and clods or stones greater than two inches in diameter. Coordinate review of backfill mix with City Representative.

- E. Planting:
  - 1. Place each tree and shrub in the planting pit so that it will be two inches above finish grade for trees and one inch above finish grade for shrubs.
  - 2. Untie and remove burlap from top third of root ball on balled and burlapped material. Remove all burlap that is treated (green in color). Complete removal of wire baskets is preferred, at a minimum remove wire baskets from top and sides of root ball.

3. Backfill planting pit with backfill material and tamp to compact. Water in thoroughly. Be sure no soil is placed on top of the root ball.
4. Stake all trees in a true vertical position per the appropriate construction detail.
5. Place safety caps on tree stakes within 15 feet of the playground curb.
6. Coordinate woody vegetation operations with other construction activities so that the irrigation system can be used to water the vegetation immediately after planting.

### **3.02 Placing Fabric and Mulch**

- A. Place weed barrier in all shrub beds and perennial beds. Lay out weed barrier around shrubs using staples to secure edges and seams.
- B. Place a layer of wood mulch in all tree rings to the depth of 3-4 inches as shown on the construction detail. Do not install weed barrier in tree rings. Deciduous tree rings shall be 4 feet in diameter, coniferous tree rings shall extend 1 foot beyond the drip line.
- C. Place mulch in all planting beds, if shrub or perennial beds are planned. Place mulch to a 3-4 inch depth. Gently brush mulch off of perennials once installed. Take care in placement not to damage newly planted vegetation.

### **3.03 Maintenance**

- A. Continuously maintain all plantings included in the Contract from the beginning of Contract work and during the progress of work, see Section 02970 Planting Maintenance.
- B. The Owner will assume the responsibility of maintenance including watering, fertilizing, weeding, etc. upon written acceptance of Substantial Completion from the Owner. The Contractor shall periodically inspect the project during the two year guarantee period and immediately notify the Owner's Representative of any irregularities or deficiencies which will affect the guarantee.
- C. Round-Up herbicide may be used in mulched tree rings if grass seed has sprouted from seeding operations.
- D. The Contractor shall be responsible for resetting of any plants to an upright position or to proper grade and for the removal and replacement of any dead plant material.

### **3.04 Project Record (As-Built Drawing)**

- A. Maintain one complete set of contract documents on site. Keep documents current. Record any changes in location, quantity and species of plant material. Submit corrected drawings to the Owner's Representative prior to final inspection.

### **3.05 Tree Stakes**

- A. Remove all metal T-posts, wire and webbing one year after installation or at the end of the two year warranty period.

**END OF SECTION**