

**DIVISION 2 SITEWORK  
SECTION 2900  
LANDSCAPE PLANTING**

**PART 1 - GENERAL**

**1.01 RELATED DOCUMENTS**

The general provisions of the contract, including General and Supplementary Conditions and Division 1, General Requirements, apply to the work specified in this Section.

**1.02 DESCRIPTION OF WORK**

- 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 planting and guarantee as shown on the drawings and as specified herein. The work shall include, but not be limited to the following:
1. Procurement of all applicable licenses, permits, and fees.
  2. Determination of utility locations prior to construction.
  3. Site inspection.
  4. Planting of trees, shrubs, perennials, and turf installation.
  5. Soil Preparation and Fine Grading.
  6. Staking and guying of trees.
  7. Mulching of all trees and shrubs.
  8. Cleanup, inspection, and approval.
  9. Guarantee of all plantings.
  10. Maintenance.
  11. All work of every description mentioned in the Drawings and Specifications and/or Addenda thereto.
- B. Related Work Specified Under Other Sections: Consult all other Sections, determine the extent and character of related work, and properly coordinate work specified herein with that specified elsewhere to produce a finished, workmanlike installation.

**1.03 PROTECTION OF EXISTING FEATURES**

- A. Protect all existing site development including, but not limited to, existing buildings, equipment, underground utilities, walls, walks, roads, materials, trees, etc. Any existing site development damaged by willful or negligent acts of the Contractor, Sub-Contractor or any of the employees shall be replaced or repaired at no cost to the Owner and in a manner satisfactory to the Owner's Representative before project acceptance is given.
- B. The above provision applies to on-site damage as well as to that which may occur to adjacent properties.
- C. Until the project has been accepted, erect and maintain shoring, barricades, guards, warning lights and lights as necessary or required for the protection of the public, the work and the workers.

**1.04 SUBMITTALS**

- A. Submit duplicate samples and manufacturer's guaranteed analysis of the following items and such other materials as may be required by the Owner's Representative and obtain written approval there of before

beginning fabrication or delivery of material to the project site. Finished work shall match approved samples.

- a. Soil amendments and mulch materials.
- b. Tree ties and guying materials.
- c. Fertilizers

### 1.05 ANALYTICAL TESTS

Submit 2 copies of an analytical test, performed by certified soil laboratory, demonstrating compliance with these specifications for the composted manure and peat moss.

### 1.06 INSPECTIONS

#### A. Pre-Planting Inspection:

1. All plant materials must be inspected at the place of growth and/or on the project site before planting commences. Plants shall be inspected for size, variety, condition, defects or injury. The Owner's Representative reserves the right to reject unsatisfactory plant material at any time during the work.
2. Notify the Owner's Representative of the source of material no later than 30 days after award of the contract.
3. All fertilizers, pre-mixed backfill mixes, mulches and soil amendments will be inspected at the site by the Owner's Representative before they are used in planting operations.

#### B. Planting Inspections:

1. Owner's Representative shall inspect the staked location of all trees prior to the planting of those trees.
2. Owner's Representative shall inspect container stock with said plants set on the ground at the proposed locations before digging commences.

#### C. Pre-Maintenance Inspection:

1. As soon as all planting is completed, the Owner's Representative upon request of the Contractor will hold a planting review and preliminary inspection to determine the condition of the plantings.
2. The Contractor shall have all planting areas free of weeds and neatly cultivated. Irrigation systems shall be fully operational with all heads properly adjusted. All debris and litter shall be cleaned up and walkways, curbs and roads shall be cleared of all soil and debris. The inspection shall not occur until these conditions are met.
3. If, after the inspection, the Owner's Representative is of the opinion that all work has been performed as per the contract documents, and that all plant materials are in satisfactory growing condition, he will give the Contractor written notice of acceptance.
4. Work requiring corrective action in the judgment of the Owner's Representative shall be performed within ten (10) days. 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.

#### D. Final Inspection:

1. At the completion of the two growing season maintenance period, the final inspection shall be performed.
2. If, after the inspection, the Owner's Representative is of the opinion that all work has been performed as per the contract documents, and that all plant materials are in satisfactory growing condition, he will give the Contractor written notice of acceptance and completion of the formal maintenance period.
3. Final approval will not be given until all deficiencies are corrected.

**1.07 GUARANTEE**

- A. Guarantee trees, shrubs, ground covers and other plant material to root, thrive and be free from defects from any cause for two years of acceptance from the final acceptance by the owner.
- B. Any trees or other plant materials that die back and lose the form and size originally specified shall be replaced, even though they have taken root and are growing after the dieback.
- C. Within 15 days of written notification by the Owner, remove and replace all guaranteed plant materials which, for any reason, fail to meet requirement of guarantee. Replacement planting for trees shall be done in the spring planting season only, except as approved otherwise. Replacements shall be made to same specifications required for original materials and shall carry the same guaranty from the time they are replaced.
- D. Plants shall be planted only when weather and soil conditions permit and in accordance with locally accepted practices, and as approved by the owner's representative.
- E. Trees shall be planted in same growing season as they were dug.

**END OF SECTION**

## PART 2 - PRODUCTS

### 2.01 TREES, SHRUBS, AND GROUND COVERS

- A. Quantities: Plant material shall be furnished in quantities required to complete work as indicated on the Drawings and shall be of species, kinds, sizes, etc., specified.
- B. Nomenclatures: Plant names listed on Drawings conform to standardized plant names established by the American Joint Committee on Horticulture Nomenclature, except that for names not covered therein, the established custom of the nursery trade is followed.
- C. Quality: Plants shall be symmetrical and typical for species and variety. Plants shall be sound, healthy, vigorous, free from disease and insect pests or their eggs. All plant material shall conform to the requirements of the Colorado Nursery Act of 1965, Title 35, Article 26, CRS1973.
- D. 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.
- E. 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. Ponderosa Pine may be field collected with root ball sizes in conformance with the Colorado Nursery Act as cited above.
- F. 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.
- G. Options as to method: If all other requirements are met, a balled and burlapped plant may be substituted for a container grown plant.
- H. Plant protection: Plants shall be handled so that roots are adequately protected at all times from drying out and from other injury. Protect balls of balled plants, which cannot be planted within 24 hours from delivery, with soil or other suitable material. Where possible, store plants in the shade. Keep all plant roots moist before, during, and after planting.
- I. Pruning: Trees shall not be pruned, except by City Forestry staff. Dead and broken shoots should be pruned out of woody shrub material.
- J. Substitutions: Will be allowed only when specified material is proved unavailable and only with approval of the Owner's Representative. Proposals will be considered for use of nearest equivalent size and variety with the equitable adjustment to the Contract price.
- K. Trees dug and held over from a previous growing season will not be accepted for use.

### 2.02 SOIL AMENDMENTS/FERTILIZERS/MULCHES

- A. Topsoil: imported and on site topsoil (located in stockpile on site) for use in backfill mix. Topsoil to be a mix of 60% topsoil and 40% organic material mixed well prior to being placed in median. Topsoil shall be free of all foreign material and screened and ground to eliminate clumps larger than 1" in diameter. Submit sample for approval to the City of Fort Collins Forestry Representative.
- B. Composted Manure: Composted dairy cow or sheep manure: Free from lumps, stones, or other foreign matter. Free from mineral matter or chemical composition harmful to plant life. Manure that has received treatment with a bacterial enzyme culture raising the manure temperature to 145 degrees minimum for 3 weeks minimum, aged at least 18 months, yielding a soil amendment with the following properties:

Organic Matter: 35 - 40% (oven-dry basis)  
Total Nitrogen: 1.6 - 2.0%  
Conductivity: 50.0 EC's (max)  
pH: 7.5 to 8.5

Submit analysis as required by 1.04

- C. Peat Moss for annuals and perennials: Free from lumps, stones or other foreign matter. Free from mineral matter or chemical composition harmful to plant life. Acid reaction of 3 to 5 pH. Shall contain no less than 60% organic matter by weight on an oven-dry basis. Submit analysis as required by 1.04.
- D. Fertilizers:
  - 1. Tablets for tree and shrub planting - "The Pill" by Agriform with 20-10-5 analysis, 21 gram size, Osmocote Sierrablend, 9 month slow release or industry equivalent.
  - 2. Fertilizers for grass, shrub and tree planting shall be commercial type of uniform composition, free flowing, and conforming to the applicable State and Federal laws. Submit manufacturers guaranteed analysis as required in 1.03. Guaranteed analysis shall be designed to conform with amendment requirements given in Part 3, "Execution."
- E. Mulch:
  - 1. Bark Mulch: Cedar mulch must be approved by City Parks Division prior to installation.

**2.03 SOD**

- A. Sod: American Sod Producers Association (ASPA) Certified Field Grown grade; Cultivated grass sod; not less than three improved Kentucky Bluegrass varieties; with strong fibrous root system, free of stones, burned or bare spots; containing no more than 5 weeds per 1000 square feet. Minimum age of 12 months, with root development that will support its own weight without tearing, when suspended vertically by holding the upper two corners.
- B. Sod Producer: Company specializing in sod production and harvesting with minimum five years experience, and certified by the State of Colorado.
- C. Certification: Submit sod certification for grass species and location of sod source.

**2.04 MATERIALS FOR STAKING AND GUYING**

- A. Stakes: Metal T-posts painted dark green or black.
- B. Ties: Fabric: Nylon canvas or rubberized cloth straps, 2" x length required.

**END OF SECTION**

## PART 3 - EXECUTION

### 3.01 GENERAL

- A. Inspection: Examine the substrate in which the work is to be performed. Do not proceed until unsatisfactory conditions have been corrected.
- B. Dimensions: All scaled dimensions are approximate. Before proceeding with any work, carefully check and verify all dimensions and quantities and immediately inform the Owner's Representative of any discrepancy between the drawings and/or specifications and actual conditions.
- C. Coordination: Coordinate work with other trades to insure proper sequencing of construction.

### 3.02 SOIL PREPARATION

- A. Grades have been established under work of another Section to within 1", plus or minus, of required finished grades. Verify that grades are within 1" plus or minus, of required finished grades. Notify the Owner's Representative prior to commencing soil preparation work if existing grades are not satisfactory, or assume responsibility for conditions as they exist.
- B. Weed and debris removal: All ground areas to be planted shall be cleaned of all weeds and debris prior to any soil preparation or grading work. Weeds and debris shall be disposed of off the site.
- C. Contaminated soil: Do not perform any soil preparation work in areas where soil is contaminated with cement, plaster, paint or other construction debris. Bring such areas to the attention of the Owner's Representative and do not proceed until the contaminated soil is removed and replaced. Soil contaminated by chemical herbicides in any planting areas shall be removed to a depth of 12" and replaced with clean herbicide-free topsoil.
- D. Moisture Content: Soil shall not be worked when moisture content is so great that excessive compaction will occur, nor when it is so dry that excessive dust will form in the air or that clods will not break readily. Water shall be applied, if necessary, to bring soil to an optimum moisture content for tilling and planting.

### 3.03 SOIL CONDITIONING

Median areas shall be excavated below the base of the splash block 18" and then filled with the specified mix. The subgrade will be scarified to a 6" depth parallel to the way the median runs, to allow for drainage and root movement. The specified topsoil and compost mix shall be thoroughly mixed prior to placement and filled to within 1 1/2" of the top edge of the splash block. The soil in the medians shall be graded to a level surface.

### 3.04 FINE GRADING

When weeding, soil preparation, and soil conditioning have been completed and soil has been thoroughly water settled, all planting areas should be smooth-graded, ready for placement of plant materials.

- A. Grades: Finish grades shall conform to site grading plans and produce a smooth even surface without abrupt changes. Minor adjustments of finish grades shall be made at the direction of the Owner's Representative, if required.
- B. Drainage: All grades shall provide for natural runoff of water without low spots or pockets. Flow-line grades shall be accurately set and shall not be less than 2% gradient wherever possible.
- C. Shrub Areas: Finished grades shall be 1-1/2" below top of adjacent pavement, edging, curbs, or wall, unless otherwise indicated on the Drawings.
- D. Slopes: Tops and toes of all slopes shall be rounded to produce a gradual and natural-appearing transition between relatively level areas and slopes.

### 3.05 GROUND COVER, ANNUAL AND PERENNIAL BEDS

Excavate areas to be planted with material smaller than 1-gallon size to a depth of six (6") inches and backfill with the following mix.

1. 80% on-site topsoil by volume (from Owner's stockpile).
2. 20% peat moss by volume.
3. Five (5) pounds bone meal per cubic yard of backfill.

The specified backfill materials shall be pre-mixed, then turned several times with a front end loader to a uniform, evenly blended consistency, free of all pockets of unblended material and any clods or stones greater than one (1") inch in diameter. Backfill mix has occurred. Pre-mixed back-fill mix shall be inspected per 1.06A, "Pre-Planting Inspections."

### 3.06 SHRUB AND TREE PLANTING

#### A. Planting Pits:

1. Locate planting holes per planting plans bringing any conflict with underground utility lines to the attention of the Owner's Representative. Locations for holes shall be according to 1.06B, "Planting Inspections."
2. Excavate holes to be the same depth as the root ball and two times the diameter of the root ball wide.
3. The sides of the holes shall be roughened to remove any compacting or "glazing" caused by the digging operation. The bottom of the hole shall be loosened to a minimum depth of six (6") inches. Mix loosened soil with specified backfill to blend soil types.
4. Fill the entire hole with water and allow to drain completely. Contractor should notify Landscape Architect if a pit does not drain in a satisfactory time, then contractor should correct drainage problem by using a PVC drain or a gravel sump shall be installed.
5. Dispose of excavated soil off the site at no cost to the Owner.

#### B. Backfilling - Tree and shrub planting pits shall be backfilled with the following mix:

1. 100% on-site topsoil by volume (from Owner's stockpile). For topsoil see 2.02A.

#### C. Planting

1. General - Do not install plant materials until all construction work has been completed and sprinkler systems have been installed and tested. Planting areas shall have been graded and prepared as herein specified and shall have been approved by the Landscape Architect.
2. Carefully remove stock from containers to avoid breaking the root ball. Do not lift or handle container plants by tops, stems, or trunks at any time.
3. Fertilize trees and shrubs by placing 21 gram fertilizer tablets three (3") inches laterally and three (3") inches top of root ball as follows: 1 for 1-gallon containers, 3 for 5-gallon containers and 5 for balled and burlapped material.
4. Remove wire baskets from root balls. Untie and lay back burlap from root ball on balled and burlapped material.
5. Backfill entire hole with backfill mixture to grade and water thoroughly to eliminate all air pockets without packing the soil. Allow soil to settle from watering. Add backfill mixture as required.
6. All plants shall be planted immediately after the containers are cut, and containers shall be regularly removed from the site so as not to present a hazard to persons using the area.
7. Flatgrown plant material - Install plants at spacing indicated on the drawings. Plant in staggered rows, evenly spaced. Dig holes large enough to allow for spreading of roots. Place plants to root system

lies free without doubling. Firm soil around roots to eliminate air pockets. Broadcast controlled release fertilizer over the entire planting area at the rate of 20 pounds per 1000 square feet of area.

### 3.07 MULCHING

- A. All planting beds shall be mulched with a four (4") inch layer of cedar mulch.

### 3.08 TREE STAKING AND GUYING

- A. Double stake all trees up to and including 2-1/2" caliper. Set stakes plumb and at right angles to the prevailing wind. Securely nail or bolt rubber straps to stakes: leave straps loose enough to allow a minimum of 3" lateral movement.

### 3.09 TWO GROWING SEASON MAINTENANCE PERIOD

- A. Continuously maintain all plantings in areas included in the Contract from the beginning of Contract work, during the progress of work, and for two (2) full growing seasons after completion of all work until final acceptance of all Contract work by the Owner.
- B. Scope:
  1. New plantings.
  2. Existing plantings within the construction area.
  3. Continuous operations of watering, weeding, cultivating, mowing, trimming, edging, rolling, fertilizing, spraying, insect, pest, fungus, and rodent control, and any other operations to assure good normal health.
    - a. Weed Control:
      - i) Apply appropriate herbicide(s) in accordance with manufacturer's suggested retail rate(s) to control weeds. Herbicide application must comply with all requirements herbicide/pesticide applicators license, including suitable warning/signing following application. Herbicide applications and chemicals to be used will be approved by the City Forester. Extreme caution must be used when applying herbicides near any tree, shrub or groundcover.
    - b. Disease and Insect Control: Apply fungicides and insecticides as required to control diseases and insects. A licensed applicator must perform this work in accordance with state law requirements.
    - c. Watering: Contractor shall be responsible for watering of landscape areas to insure performance under this Section. Apply the amount of water necessary to maintain plants in a healthy condition until the end of the one year warranty period.
    - d. Protection:
      - i) Provide sufficient barriers and signage notifying the public to keep off newly planted areas.
      - ii) Work under this Section shall include complete responsibility for maintaining adequate protection for all areas. Any damaged areas shall be repaired at no additional expense to the Owner.
  4. Mow grass in sodded areas to maintain 2-to 3-inch height until final acceptance of project and turnover to City.
  5. Apply custom blend of fertilizer in split applications in early fall and late spring. Two-thirds of the nitrogen should be applied in the fall and one-third in the spring.
  6. Planting Bed and Mulch Surface Maintenance Requirements
    - a. Mulch all tree plantings four inches deep with cedar mulch, unless otherwise indicated on the Drawings
    - b. Remove all weed growth on a monthly basis, including those growing in cracks and curbs.
  6. Maintenance for Trees and Shrubs



- a. Water all trees and shrubs to insure optimal growth and establishment during the two growing season maintenance period as required by this Section. New trees should receive two inches per week of irrigation during the first growing season applied over the root system. Normal turf irrigation is generally adequate (one inch per week) for the second growing season. Irrigation rates should be adequate for new trees' establishment even when that is greater than water demand for turf. It is the contractor's duty to determine and supply the water needs of trees and shrubs.
  - b. Inspect new plantings on a regular basis.
  - c. Remove tree wrap the next spring season after planting.
  - d. Re-mulch trees on an annual basis to maintain a four-inch deep mulch cover. Maintain tree rings in turf zones as weed free.
  - e. Insect and disease levels shall be monitored and control measured implemented when necessary following IPM practices. Check with Assistant City Forester prior to implementing any control measures.
  - f. Remove all tree stakes and guy wires from trees one year after conditional acceptance.
  - g. Fertilizing: In addition to fertilizing of trees, shrubs, ground covers, and lawns herein specified, furnish and apply any additional fertilizers necessary to maintain plantings in a healthy, green, vigorous growing condition during the maintenance period. Do not over apply fertilizer.
7. Inspection:
- a. The Contractor shall notify the Owner's Representative prior to fertilizing, and spraying operations.
  - b. The Owner's Representative shall perform periodic inspections during the growing season of the site with the Contractor to determine that maintenance is sufficient to insure a healthy condition of the landscape work. A final inspection will be held at the end of the two growing season maintenance period.
  - c. The Landscape Contractor shall be available to meet on site with the Owner's Representative at any time within 24 hours notice during the construction, establishment, or maintenance period.
  - d. Replacements: Immediately replace any plant materials that die or are damaged. Lawns that do not grow shall be resodded. Replacements shall be made to the Specifications as required for original plantings.

### **3.10 CLEAN UP**

- A. Remove all cans, surplus materials, and other debris from site. Neatly dress and finish all planting areas. Flush walks, paved areas, and the like, clean to the satisfaction of the Owner's Representative.
- B. Rinse foliage of all plant materials within the construction area as often as necessary to keep the foliage free from dust generated by the work of this contract.

**END OF SECTION**