

**908 - TREES, SHRUBS AND OTHER PLANTS**

**SECTION 908**

**TREES, SHRUBS AND OTHER PLANTS**

**908.1 DESCRIPTION**

Provide and plant (or transplant) the designated plants as shown in the Contract Documents.

**BID ITEMS**

Furnishing and Planting Plant Materials  
Transplanting Existing Plants

**UNITS**

Lump Sum  
Lump Sum

**908.2 MATERIALS**

Provide topsoil, plants, fertilizers, peat moss, mulches, weed control fabrics and plant bed edging that complies with **DIVISION 2100**.

**908.3 CONSTRUCTION REQUIREMENTS**

**a. Time of Planting.** Follow **TABLE 908-1**.

<b>TABLE 908-1: PLANT PLANTING SEASONS</b>	
<b>Plant Type</b>	<b>Planting Date Range</b>
Deciduous Plants	November 15 thru April 15
Evergreen Plants	October 1 thru April 15

**b. Packing and Shipping Plants.** Pack all plants to protect against drying, freezing, breaking or other injury.

Do not dig bare-root plants until after they have been subject to a killing frost.

Pack bare-root plants in wet packing material. If it is necessary to transport bare-root plants more than 25 miles, treat the roots with anti-transpirant gel or acrylates before packing them for shipment.

Do not ship the plants to the project site unless the temperature at the project site is above freezing, and the soil is frost-free and in satisfactory workable condition.

Cover all plants with a tarpaulin while in transit.

Notify the Engineer at least 24 hours in advance of the delivery of the plants.

Do not plant or heel-in the plants until inspected by the Engineer.

**c. Storage and Protection at the Project Site.** After the Engineer has inspected and approved the plants delivered to the project, either plant immediately, or protect them by covering with canvas or heeling-in. Provide a temporary storage ground or a heel-in nursery located near the planting area.

Do not leave plants out of the ground overnight or otherwise unprotected during storage. The Engineer will reject plants damaged in any way by the lack of proper storage.

Do not cover bare-root plants with canvas for more than 10 hours. Heel-in bare-root plants that are not planted within 10 hours of delivery to the project. Treat the roots of bare-root plants with anti-transpirant gel or acrylates as soon as the plants reach the planting site or heel-in nursery.

**d. Layout.** Stake the locations of all plants, and verify the planting sites with the Engineer. Notify Kansas One Call and have sites investigated for underground utilities. If overhead or underground utility lines compromise the planting sites, the Engineer will relocate the sites.

**e. Preparation of the Planting Sites.** Remove all rocks and undesirable material encountered from the planting site.

Do not leave excavated plant pits open overnight.

(1) Trees. Clear a 10 foot radius area at each planting site. Remove all weeds, brush and other undesirable material.

**908 - TREES, SHRUBS AND OTHER PLANTS**

Excavate the plant pit diameter 2 feet larger than the diameter of the root ball, and deep enough to allow the top 6 inches of the root ball to extend above the finished grade.

Mix the excavated soil with peat moss and pulverize the mixture before it is used for the backfill of the plant. Apply the peat moss at the rates in **TABLE 908-2**.

<b>TABLE 908-2: PEAT MOSS APPLICATION FOR TREES</b>		
<b>Root Ball (inch)</b>	<b>Container #</b>	<b>Pounds Peat/Plant Pit</b>
12	5	40
16	10	80
20	25	120

(2) Shrub Beds. Extend the perimeters of the shrub beds 30 inches from the center of the outside row of shrubs. Cultivate the existing soil in the shrub bed to a depth of 10 inches, and remove the loose vegetation. Remove all rocks and deleterious material greater than 6 inches in any dimension.

Excavate the individual plant pits deep enough to allow the top 6 inches of the root ball to extend above the finished grade.

Mix the excavated and cultivated soil with peat moss, and pulverize the mixture. Apply the peat moss at the rates in **TABLE 908-3**.

<b>TABLE 908-3: PEAT MOSS APPLICATION FOR SHRUBS</b>		
<b>Root Ball (inch)</b>	<b>Container #</b>	<b>Pounds Peat/Plant Pit</b>
8	1	20
10	3	30
12	5	40

(3) Groundcover and Perennial Plant Beds. Extend the perimeters of the plant beds 12 inches from the center of the outside row of plants. Cultivate the existing soil in the plant bed to a depth of 10 inches, and remove the loose vegetation. Remove all rocks, gravel and deleterious material greater than 6 inches in any dimension.

Mix the excavated and cultivated soil with peat moss, and pulverize the mixture before it is used for the backfill of the plant. Apply the peat moss at the rate of 4 pounds per square yard.

**f. Planting and Mulching.** Exercise care in handling all plants. Do not drop or roll plant balls. Do not lift or transport balled and burlapped (B&B) plants by the top or the trunk of the plant; lift the root ball. Replace plants damaged due to improper handling. The Engineer must approve the replacement plants.

Remove all pots and containers, regardless of the pot or container composition, from plants before planting. Do not remove wire cages before placing the plant in the planting pit. When the plant is set in the planting pit, cut and remove all twine, rope or binding material from around the stem or trunk of the plant, and from around the ball. After the plant is set in the planting pit, cut and remove the top loops and the top ring of wire cages.

Plant all plants plumb. Place trees and shrubs so that the top 6 inches of their root balls are above the finished grade. Place groundcover and perennial plants with the tops of their root balls even with or 1 inch below the finished grade.

Use the mixture of excavated material and peat moss to backfill the plants. Carefully firm the backfill material about the roots of the plant (lower 1/3 of the root ball on B&B plants). Place and firm the backfill in 3 to 4-inch layers. Firm the backfill by trampling, or by the use of a tamping tool.

After trees are planted, cultivate an area 8 feet in diameter and 10 inches deep around each tree. Construct a watering basin around each tree as shown in the Contract Documents.

Place weed control fabric over the cultivated area of all shrub beds. Cut slits in the fabric to allow it to fit around the stems of each plant.

Unless shown otherwise in the Contract Documents, place composted, shredded or chipped wood mulch on the cultivated areas around all plants:

- 6 inches thick around all trees;
- 4 inches thick around all shrub beds; and
- 2 inches thick around all groundcover and perennial plants.

**908 - TREES, SHRUBS AND OTHER PLANTS**

Place the mulching within 24 hours of the planting. Water all plants immediately after planting. Water and rake the mulched areas to provide a uniform surface. Continue to water all plants as required during the establishment period.

Install plant bed edging, when shown in the Contract Documents.

**g. Pruning.** Do not prune plants except to remove dead or injured branches. Do not cut central leaders. Prune broken or damaged roots. Prune with clean, sharp tools. Remove cuttings from the planting site, or cut into small pieces and place with the mulch.

Remove and replace excessively pruned and misformed stock resulting from improper pruning.

**h. Staking or Guying.** Unless otherwise shown in the Contract Documents, stake or guy trees according to **TABLE 908-4.**

<b>TABLE 908-4: GUIDELINES FOR STAKING AND GUYING TREES</b>			
<b>Type</b>	<b>Size</b>	<b>Number</b>	<b>Minimum Depth of Stake in Ground (feet)</b>
Deciduous	Less than 1 ¼ inches in caliper	1 Stake	2
Deciduous	1 ¼ to 2 inches in caliper	3 Stakes	2
Deciduous	Greater than 2 inches in caliper	3 Guys	2
Evergreens	Greater than 6 feet tall	3 Guys	2

For staking trees, use wooden stakes 2 inches by 2 inches by 8 feet. For guying trees, use wooden stakes 2 inches by 2 inches by 3 feet. Place the stakes and guys at the same time the tree is planted. Do not damage the tree roots when placing the stakes.

Use pliable steel wire (No. 12 gauge, minimum) to tie trees to the stakes. Protect the tree trunk from the wire by encasing the wire in a section of flexible, rubber hose. Do not restrict the growth of the tree when attaching the wire ties to the trunk of the tree.

Commercial tree ties may be used if approved by the Engineer.

**i. Wrapping Tree Trunks.** Wrap the trunks of all maple, honeylocust, crabapple and ash trees. Begin wrapping at the base of the trunk, and extend the wrap upward to a point above the lowest tree tie.

Use a tree wrap consisting of double thickness waterproof paper with an asphalt center. Begin the wrap with 2 level loops, then wind upward with ⅓ to ½ width overlaps; end the wrap with 2 level loops. Secure the wrapping with loose-twist cotton twine (6-ply, maximum). Tie the twine around the wrap at the top; then wrap the twine spirally down the tree trunk in the opposite direction to the paper wrap, tying the twine again at the bottom. Place 2 additional ties between the top and bottom. Tie the twine loose enough to accommodate a season’s growth.

Stretchable or biodegradable tape or other materials may be used to secure the wrapping, when approved by the Engineer.

**j. Clean-Up.** After the planting operations are completed, remove all debris from the planting areas. Remove all labels from the plants. Remove all flags used for marking underground utilities.

Restore all disturbed areas to the finish grade.

**k. Plant Establishment Period.** The plant establishment period begins when the plants are planted (the current planting season), and ends on the following October 1.

During the plant establishment period, water, cultivate, weed, prune, spray, and repair and adjust the guys and stakes, as necessary. If dead plants are discovered before the end of the current planting season, remove and replace the dead plants before the current planting season expires.

Within 10 days of the end of the plant establishment period, the Engineer will inspect all plants (planted the previous planting season). The Engineer will designate any dead or unacceptable plants. Remove and replace the designated plants before the current planting season expires.

The plant establishment period for replacement plants begins when the plants are replanted (the current planting season) and ends 30 days following the end of the current planting season.

## 908 - TREES, SHRUBS AND OTHER PLANTS

During the plant establishment period (for the replacement plants), water, cultivate, weed, prune, spray, and repair and adjust the guys and stakes, as necessary. If dead plants are discovered before the end of the current planting season, remove and replace the dead plants before the current planting season expires.

Within 10 days of the end of the plant establishment period for replacement plants, the Engineer will evaluate the replacement plants. If the Engineer determines any replacement plants are unacceptable, the Engineer will deduct such plants from the quantities measured for pay.

Remove unacceptable replacement plants and restore the planting pits to their original condition.

The Engineer will not assess working days for maintaining and replacing plants during the establishment periods.

### **I. Bare Root Tree Seedlings/Shrubs.**

(1) Planting. When planting in excavated holes, carefully spread the roots in a natural position and work in the backfill material around the roots to eliminate air pockets. Use the excavated material to backfill the plants.

When planting in a slot made with a tree planting machine or a planting bar (a special planting spade manufactured for planting seedlings), construct the slot of adequate depth to allow the roots to be fully extended vertically when the seedling is placed in the slot at the proper depth. Take care when planting to prevent the end of the roots from being turned upward. Pruning of large massive root systems into balance with top growth will help in ease of planting and possibly prevent "J" roots from occurring. After placing the seedling in the slot at the proper depth, completely close the slot to eliminate all air pockets.

Install all plants in the plumb position.

Set the plants to a depth where the collar (where the root system turns to the trunk) is at the level of the surrounding soil or a maximum of ½ inch below the level of the surrounding soil.

(2) Mulch Cover. Within 24 hours after planting, place a mulch cover around all plants to control the growth of competing vegetation.

Use wood compost for mulch, applied 4 to 6 inches thick. Start application 1 inch from the tree/shrub trunk.

Install a weed free fabric such as a geo-membrane when specified in the Contract Documents.

Mulch an area extending a minimum of 2 feet from any plants spaced greater than 6 feet apart. Where plants are on less than 6 foot spacing, mulch the entire bed or area, plus a minimum of 3 feet beyond the peripherals of the plants.

Cover the mulch with hold down material when specified in Contract Documents.

(3) Watering. Water the plants when specified in the Contract Documents.

(4) Bracing. Bracing is not required for trees/shrubs seedlings under 4 feet tall measured from ground level.

(5) Rabbit Protective Tubes. Install rabbit protective tubes, when specified in the Contract Documents.

### **908.4 MEASUREMENT AND PAYMENT**

The Engineer will measure furnishing and planting plant materials and transplanting existing plants by the lump sum.

The contract includes the required contract provision, Furnishing and Planting Plant Materials, which is a listing of the unit cost for the individual items, submitted by the Contractor with the proposal. The unit prices shown in the listing will be used to adjust the lump sum amount for overruns, underruns and deducting for unacceptable plants.

Payment for the "Furnishing and Planting Plant Materials" and for "Transplanting Existing Plants", at the contract unit prices is full compensation for the specified work.