

SECTION 32 93 00

TREES, SHRUBS, PERENNIALS

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes

1. Furnish plants and planting soil required, bed preparation, plant pits, pruning, planting, supplements, backfill, wrapping, staking, protection, watering, mulching, fertilizing, and maintenance.

B. Related Sections

1. Section 02 41 13 – Selective Site Demolition.
2. Section 32 92 00 – Turf and Grasses.

1.02 PRICE AND PAYMENT PROCEDURES

A. Measurement and Payment

1. Trees of various species and sizes. Measurement will be by each tree species, variety, caliper and/or size range furnished and planted in accordance with the specifications. Maintenance during the maintenance period shall be considered incidental.
2. Shrubs of various species and sizes. Measurement will be by each shrub species, variety, caliper and/or size range furnished and planted in accordance with the specifications. Maintenance during the maintenance period shall be considered incidental.
3. Payment for trees shall include labor, materials, and equipment necessary for planting, staking, and maintaining trees during the required maintenance period.
4. All costs associated with clearing and grubbing shall be considered incidental to the project unless a separate bid item is included in the proposal form.

1.03 REFERENCES

- ###### A. Minnesota Department of Transportation "Standard Specifications for Construction" 2020 Edition (MnDOT Spec.)
1. 2571- Plant Installation

1.04 SUBMITTALS

A. Submit the following items consistent with Section 01 33 00:

1. Product Data: Provide all nursery stock submittal materials in accordance with MnDOT Spec. 2571.2A2.
2. Fertilizer Manufacturer's Certificate of Compliance: Written documentation verifying compliance with chemical analysis of fertilizer furnished. Submit to Engineer 5 days prior to bulk delivery.

PART 2 PRODUCTS

2.01 MATERIALS

- ###### A. The type of tree planted shall be from the attached tree list in the Appendix or as specified in the plans

- B. Topsoil
 1. Topsoil used for sodding and seeding areas shall be in accordance with Section 3877 of the Minnesota Department of Transportation Standard Specification.
- C. Mulch
 1. Conform to MnDOT Spec. 3882.
 2. Use double shredded hardwood bark mulch, undyed. Contractor must verify that mulch is from a non-termite infested source.

PART 3 EXECUTION

3.01 GENERAL

- A. The Contractor shall be responsible for the protection of all trees not scheduled for removal.
- B. Protection shall include fencing, wrapping, shoring, tunneling or other measures.
- C. Exposed and broken roots shall be neatly saw cut at the break and removed prior to backfill. Damage to trees above the ground surface shall be pruned, painted or otherwise repaired by the Contractor.
- D. In tight working conditions, the Contractor may be required to utilize smaller equipment, which will minimize damage to trees/shrubs.
- E. Trees that are to be planted shall conform to Mn/DOT Specification 3861.
- F. Trees shall be planted in accordance with Mn/DOT Specification 2571. The Contractor will be responsible for all necessary watering and protection measures, in accordance with Mn/DOT Specification 2571, for a 2-year establishment period.
- G. All clearing and grubbing shall be performed in accordance with and the basis of payment shall be made as per Section 2101 of the Minnesota Department of Transportation Standard Specifications.
 1. Clearing shall be under the direction of the Engineer in the field and care will be required to protect all trees not removed.
 2. All timber, stumps, roots and other debris or by-products resulting from the clearing and grubbing operation shall be disposed of off the site, at an approved disposal site.
- H. Tree Pruning
 1. Trimming of trees, where required, shall be coordinated with the City and the property owner or under their direction.
 2. Tree pruning for the entire project shall be completed by qualified personnel.
 3. The Contractor shall submit to the Engineer prior to the pre-construction meeting the proposed method of tree pruning and the qualifications of the person or persons who will be doing the tree pruning.
 4. A field inspection of the trees, which the Contractor wishes to be pruned, shall be made by the Contractor and the Engineer.
 5. No tree pruning shall be performed without the written consent of the Engineer.
 6. Tree Pruning will be considered incidental.

3.02 DELIVERY AND STORAGE

- A. Delivery

1. Notify the Owner of the delivery schedule in advance so the plant material may be inspected upon arrival at the Site. Remove unacceptable plant material from the Site immediately.
2. Protect plants during delivery to prevent damage to root balls or desiccation of leaves. Protect trees during transport by tying in the branches and covering all exposed branches.
3. The use of equipment, such as "tree spades," is permitted provided the plant balls are sized in accordance with ANSI Z60.1 and tops are protected from damage.
4. Deliver fertilizer and lime to the Site in the original, unopened containers bearing the manufacturer's guaranteed chemical analysis, name, trade name or trademark, and in conformance to state and federal law. In lieu of containers, fertilizer and lime may be furnished in bulk and a certificate indicating the above information shall accompany each delivery.

B. Storage

1. Keep seed, lime, and fertilizer in dry storage away from contaminants.
2. Store plants not installed on the day of arrival at the Site as follows:
 - a. Shade and protect plants from the wind when stored outside.
 - b. Heel in bare root plants.
 - c. Protect plants stored on the Project from drying out at all times by covering the balls or roots with moist sawdust, wood chips, shredded bark, peat moss, or other similar mulching material.
 - d. Keep plants, including those in containers, in a moist condition until planted, by watering with fine mist spray.

3.03 PLANT INSTALLATION

A. Layout

1. Layout individual tree and shrub locations and areas for multiple plantings.
2. Stake locations and outline areas. Center holes at staked locations.
3. Verify the location of any underground utilities and adjust locations as necessary
4. Do not start planting work until layout is approved by the Engineer.
5. Make minor adjustments as required.

B. Preparing Plant Holes

1. Do not begin Work on plant holes until after finish grading has been completed.
2. Dig plant pits so that they have vertical sides and flat bottoms. When pits are dug with an auger and the sides of the pits become glazed, scarify the glazed surface. Size the plant pits as shown on Drawings, otherwise, the minimum allowable dimensions of plant pits shall be as follows:
 - a. Pit depths shall be no deeper than the root ball, and should only be deep enough to apply no more than 1" of topsoil over the highest lateral root.
 - b. Pit diameters shall be twice the ball or root spread; for ball or root spread from 600 to 1,200 mm (2 to 4 feet), pit diameters shall be 600 mm (2 feet) greater.
 - c. For ball or root spread over 1,200 mm (4 feet), pit diameters shall be 1-1/2 times the ball or root spread.
3. Where existing soil is to be used in place, till new ground cover and plant beds to a depth of 100 mm (4 inches). Spread compost or other soil amendments uniformly over the bed to depth of 50 mm (2 inches) and thoroughly incorporate it into the existing soil to a depth of 100 mm (4 inches) using a roto-tiller or similar type of equipment to obtain a uniform and well pulverized soil mix. During tillage operations, remove all sticks, stones, roots, and other objectionable materials. Bring plant beds to a smooth and even surface conforming to established grades.
4. In areas of new grading where existing soil is being replaced for the construction of new ground cover and plant beds, remove 100 mm (4 inches) of existing soil and replace with

- topsoil. Plant beds shall be brought to a smooth and even surface conforming to established grades. Till 50 mm (2 inches) of peat into the topsoil as specified.
5. Using topsoil form earth saucers or water basins for watering around plants.
 6. Treat plant saucers, shrub, and ground cover bed areas, prior to mulching, with an approved pre-emergent herbicide. Plant ground cover in areas to receive erosion control material through the material after material is in place.
 7. Remove foreign materials and undesirable plants and their roots. Do not bury foreign material beneath areas to be landscaped or restored. Remove contaminated subsoil.
 8. Rototill or aerate any planting soil compacted by operations.
- C. Pruning: Prune immediately prior to planting to remove stock damaged during transport and movement.
- D. Setting Plants
1. Field Grown and Container Grown Stock
 - a. Handle balled and bur lapped, and container-grown plants only by the ball or container. Remove container-grown plants in such a way to prevent damage to plants or root system.
 - b. Set plants plumb and hold in position until sufficient soil has been firmly placed around the roots or ball. Set plants in relation to surrounding grade so that the highest lateral root is no more than 1" below the finished grade.
 - c. Plant perennial and ground cover plants after the mulch is in place. Avoid contaminating the mulch with the planting soil.
 - d. For balled and bur lapped plants, carefully remove excess burlap and tying materials and fold back. Where plastic wrap or treated burlap is used in lieu of burlap, completely remove these materials before backfilling.
 - e. The root flare shall not be lower than the finish grade.
 - f. Backfill plants with planting soil mixture as specified to approximately half the depth of the ball and then tamp and water. Tamp and water remainder of backfill Planting Soil Mixture; then form earth saucers or water basins around isolated plants with topsoil.
 2. Bare-Root Stock
 - a. Soak roots overnight before planting. Protect roots from drying during installation.
 - b. Set plants plumb arranging the roots in a natural position without tangling or turning up to surface.
 - c. Remove damaged roots with a clean cut. Paint cuts larger than 13 mm (1/2 inch) in diameter with tree wound dressing.
 - d. Carefully work Planting Soil Mixture in among the roots. Tamp and water the remainder of Planting Soil Mixture; then form earth saucers or water basins around isolated plants with topsoil.
- E. Remove surplus subsoil and topsoil from Site.

3.04 WATERING

- A. Watering of the plants shall be the responsibility of the Contractor. The watering of seed shall conform to Mn/DOT Specification 2575.3. Water can be purchased from the City of Northfield Water Salesman located at the City of Northfield Maintenance Facility.

3.05 MULCHING

- A. Place mulch material as described on details within 48 hours of the second watering, unless otherwise approved by Engineer. Dish top of backfill to allow for mulching.

- B. Mulch: For trees, provide 4 inch thickness of mulch and work into top of backfill and finish to maintain dish or level with adjacent finish grades as shown in the Drawings. For other plants, provide mulch depth as indicated on details.
- C. Do not place mulch directly against any stems or bark.

3.06 PROTECTION

- A. General
 - 1. Protect landscape work and materials from damage due to landscape operations, operation by other contractors, trades, and trespassers.
 - 2. Maintain protection during installation and maintenance periods.
- B. Trees
 - 1. Guy and stake trees immediately after planting if needed due to potential wind damage. Conform to MnDOT Spec. 2571.3I.1. Follow Drawing Details assuring that wires have slack to allow tree to move and develop strong trunk.
 - 2. Inspect tree trunks for injury, improper pruning, and insect infestation/disease and take corrective measures before wrapping.
 - 3. Wrap trees at end of growing season and remove prior to following growing season. Wrap all trees from the ground to the first major branch.

3.07 CLEANUP AND RESTORATION

- A. During landscape work keep pavements clean and work area in an orderly condition.
- B. Treat, restore, or replace in kind turf, sod, plantings, or other facilities damaged by Contractor's operations.
- C. Remove all excess excavated soils from plant holes from the Site.
- D. Collect and dispose of all excess materials, packaging, and containers.

3.08 MAINTENANCE

- A. During the Plant Establishment Period the Contractor shall
 - 1. Water all plants to maintain an adequate supply of moisture within the root zone. An adequate supply of moisture is the equivalent of 25 mm (1 inch) of absorbed water per week either through natural rainfall or augmented by periodic watering. Apply water at a moderate rate so as not to displace the mulch or flood the plants.
 - 2. Water plants for 45 days.
 - 3. Prune plants and replace mulch as required.
 - 4. Replace and restore stakes, guy wires, and eroded plant saucers as required.
 - 5. In plant beds and saucers, remove grass, weeds, and other undesired vegetation, including the root growth, before they reach a height of 75 mm (3 inches).
 - 6. Spray with approved insecticides and fungicides to control pests and ensure plant survival in a healthy growing condition, as directed by the Engineer.
 - 7. Remove plants that die during this period and replace each plant with one of the same size and species.
 - 8. The Contractor is not responsible for theft or damage to plants by non-contractor vehicles or vandalism once plants are installed and approved.

3.09 INSPECTION, ACCEPTANCE, AND WARRANTY

- A. Landscape work will be inspected for acceptance upon completion of all Work.
- B. Engineer shall inspect work, and provide written acceptance of work. The establishment period and warranty will begin upon written acceptance.
- C. All plants, including trees, will have a 2-year establishment and warranty period.
- D. At the conclusion of the establishment and warranty period, a final inspection of planting will be made to determine the conditions of Work. When Work does not comply with Specifications, Contractor shall replace rejected work. Replacement plants will include a second establishment period. Remove rejected plants and materials from the Site.

END OF SECTION

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