



**SPECIAL PROVISIONS
FOR
PROTECTION OF TREES**

**Linn County
TAP-U-1187(799)--8I-57**

**Effective Date
September 21, 2021**

THE STANDARD SPECIFICATIONS, SERIES 2015, ARE AMENDED BY THE FOLLOWING MODIFICATIONS AND ADDITIONS. THESE ARE SPECIAL PROVISIONS AND THEY SHALL PREVAIL OVER THOSE PUBLISHED IN THE STANDARD SPECIFICATIONS.

157187.01 GENERAL.

A. Specification Includes.

- Tree Protection Plan.
- Installation of Tree Protection Measures.
- Damage to Protected Trees.
- Inspection and Documentation.

B. Description.

1. Requirements for protection of trees within construction zones.
2. Preparation and application of a Tree Protection Plan.
3. Costs associated with non-complying protection and damage to trees.
4. Definition of Terms and Abbreviations.
 - a. **Work Zone Protected Tree.**
A tree of any size that is located within the project's work zone and is to remain in place at the completion of the project.
 - b. **Border Protected Tree.**
A tree of any size that is located outside the project's work zone, but has branches extending over the work area, or whose trunk is located within 10 feet of the edge of the work zone.
 - c. **Tree Protection Limit.**
The area around a tree, as defined in the Tree Protection Plan, in which no construction activity is allowed. If the tree protection limit is not defined in the Tree Protection Plan, it shall be considered to be equal to the Critical Root Radius.

d. Diameter at Breast Height (DBH).

The diameter of a tree's trunk in inches measured at a height of 4.5 feet above the natural ground level.

e. Critical Root Radius (CRR).

Expressed in feet equal to the DBH in inches. (The CRR of a tree with a 12 inch DBH is 12 feet). This is the desired distance from the tree trunk at which fencing is installed and construction activity is allowed. The minimum Critical Root Radius is 10 feet.

C. Submittals.

Tree Protection Plan per Article 157187.03, A of this special provision.

D. Scheduling and Conflicts.

Tree protection measures shall be installed before commencement of any construction activities.

E. Special Requirements.

Do not damage any trees or shrubs which are not part of the removal plan, regardless of whether installation of tree protection measures is required or not. The contract documents may designate individual trees and/or areas of the project which require installation of tree protection measures as defined in this specification. If the limits for tree protection are not designated in the contract documents, the Engineer will determine the limits prior to the start of construction. The Engineer may add, delete, or revise the areas that require tree protection at any time prior to or during the project construction period.

157187.02 MATERIALS.

A. Fence Fabric.

- Orange plastic mesh containing ultraviolet stabilizers to prevent degradation.
- Flexible to 0°F.
- Minimum tensile strength of 250 pounds per foot longitudinally and 150 pounds per foot vertically.
- Maximum aperture opening of nominal 4.5 square inches.
- Maximum porosity of 55%.

B. Fence Posts.

- T-section steel posts, 8 feet long.
- Minimum weight: 1.3 pounds per foot (exclusive of anchor plate).
- Steel anchor plate for each post, firmly attached.
- Lugs on posts for fabric anchorage.

157187.03 CONSTRUCTION.

A. Tree Protection Plan.

1. General.

A Tree Protection Plan is to be submitted to the Engineer prior to commencement of work. The plan shall include the following:

- a. Work zone limits.
- b. Location, type, and size of trees to be removed.
- c. Location, type, and size (DBH) of Work Zone Protected Trees.
- d. Location, type, and size (DBH) of Border Protected
- e. Phasing of tree protection installation, including phasing for utility work if necessary.
- f. Location, type, and size (DBH) of trees with existing damage not designated to be removed. Include description of damage.
- g. Location, type, and size (DBH) of dead trees not designated to be removed.

- h. Location and description of proposed tree trimming to be completed to facilitate construction.

2. Alternatives to Tree Protection Measures.

Alternatives to the installation of tree protective fencing may be submitted for consideration, such as the installation of silt fence along border trees, if acceptable tree protection is provided. The Engineer has sole authority for acceptance or rejection of alternatives. Alternate plans may also consider preliminary brush removal.

B. Installation and Maintenance of Tree Protection Measures.

1. Install tree protection after approval of the Tree Protection Plan by the Engineer and prior to commencement of construction activities per the approved plan.
2. Install fence posts at maximum 8 foot spacing or closer as necessary to prevent sagging of fence fabric.
3. Install fence supports as necessary as not to create a safety hazard.
4. Designate with visible paint trees to be removed in accordance with the plan.
5. Obtain approval of the Engineer of tree protective measures after installation prior to commencement of construction activities.
6. Phasing of installation of tree protective measures is allowed only as approved on the Tree Protection Plan.
7. Minimize jointing or splicing of fence fabric within each location.
8. Repair or replace any tree protection fence that becomes damaged, not in vertical position or no longer provides the intended protection during the course of construction.

C. Damages to Trees.

Damage to a Work Zone Protected Tree, Border Protected Tree, or other tree not designated for removal shall be determined by the Engineer and shall include but not be limited to:

- Scratched or gouged bark.
- Broken branches.
- Compaction of soil within the specified tree protection limits.
- Storage of materials within a tree's critical root radius.
- Operation of equipment within the specified tree protection limits.
- Parking of vehicles or equipment within a tree's critical root radius.
- Spilling of harmful substances around or within a tree's critical root radius.

D. Inspection and Documentation.

1. Periodically inspect the tree protection fencing, repair, and deficiencies and update the Tree Protection Plan. Submit all updates to the Engineer for approval. Maintain a copy of the current Tree Protection Plan on the construction site.
2. Notify Engineer within 48 hours of damage to any tree not designated for removal.

E. Damaged Trees.

Trees damaged by the Contractor will be reviewed and evaluated by the Engineer. The Contractor shall be required to repair damage to the tree as directed by the Engineer. This includes but is not limited to trimming and pruning of the branches and roots in accordance with the current edition of

the American National Standards Institute (ANSI) A 300 Standard for Tree Care Operations, Part 1, Pruning. In addition to repairing the damage, a \$1,000.00 per tree penalty shall be assessed for each tree damaged.

F. Damaged Tree Removal.

If the Engineer determines the damaged tree to be removed, removal includes the tree, stump, and restoration of disturbed ground by sodding. No payment will be made. For any damaged tree that is removed, compensation will be made to the City for the mitigation cost as noted in the contract documents.

G. Non-complying Installation.

A penalty will be assessed per occurrence for non-complying installation and/or maintenance of tree protective fencing in the following amounts: first occurrence - \$400.00; second occurrence - \$800.00; third and subsequent occurrences - \$1200.00. Penalties will be assessed daily until proper fence repair has been performed.

157187.04 METHOD OF MEASUREMENT.

A. Tree Protection.

Lump sum item: no measurement will be made.

B. Tree Protection Fence.

Measurement will be in linear feet of fence installed as measured along the bottom of the fence fabric.

157187.05 BASIS OF PAYMENT.

A. Tree Protection.

Payment will be at the lump sum price for tree protection. Payments may be made based upon estimates of project completion. Lump sum price includes, but is not limited to: inventory, tree protection plan, documentation, inspection, and signing of work zone protected trees and border protected trees for the duration of the construction activity.

B. Tree Protection Fence.

Payment will be at the unit price per linear foot of fence installed. All materials, equipment and labor for installation, maintenance, removal, and off-site disposal of fencing. If other types of fence, such as silt fence is installed and functions as tree protection fence, measurement and payment will not be made for this fence as tree protection fence.