

REMOVAL AND REPLACEMENT OF CROSS TIES

**\*\*From Swanton STP 2038(16)**

xx. DESCRIPTION. This work shall consist of removing existing cross ties, properly disposing of all removed existing cross ties, and installing new timber cross ties, including tie plates and tie attachment hardware, as detailed in the Plans and as directed by the Engineer.

xx. MATERIALS. Unless otherwise specified, all materials shall conform to the requirements of the AREMA Manual. References to the "Railroad" in the AREMA Manual shall mean the Vermont Agency of Transportation.

A Type A Certification shall be furnished in accordance with Subsection 700.02 for the cross ties.

A Type D Certification shall be furnished in accordance with Subsection 700.02 for the preservative treatment.

xx. CROSS TIES. Dimensions of timber ties shall be as shown on the Plans and as defined by Figure 30-3-1 of the AREMA Specifications. All cross ties must be sawn, no hewn ties will be accepted. All species of oak, hard maple, birch, cherry, and beech may be used.

Standard length for timber cross ties shall be 8'-6", unless otherwise specified.

All cross ties shall have nail plate anti-splitting devices applied at the end of each tie. Anti-splitting devices shall be manufactured from a single heavy gauge galvanized steel plate punched in such a manner as to produce nail like projections which will serve to hold the plate to the end of the tie and prevent splitting when applied. The plates shall be manufactured from a minimum 18 gauge galvanized steel conforming to ASTM A525. The plate shall be at least six (6) inches by seven (7) inches for use with seven (7) by nine (9) inch ties. Anti-splitting devices shall comply with the requirements of the AREMA Manual, Chapter 30.

Ties shall be handled and seasoned in accordance with the requirements of the AREMA Manual, Chapter 30, Part 5.

Ties shall be preservative treated in accordance with the AREMA Manual, Chapter 30, Part 6 and Part 7, using a coal tar creosote mixture.

Preservative treatment shall be by pressure process, in accordance with the requirements specified in the AREMA Manual, Chapter 30, Section 7, as applicable to the grades of wood being treated.

The Contractor shall inspect the ties after treatment and shall indicate, by stamp in one end of each tie, that it has been

inspected and determined to comply with the requirements of this Section.

- xx. TIE PLATES FOR TIMBER TIES. Tie plates shall be installed on all new ties. The standard rail fastening for timber ties shall be double shoulder tie plates with cut track spikes. Tie plates shall conform to the requirements of the AREMA Manual, Chapter 5, Specifications for Steel Tie Plates. Tie Plates shall utilize the appropriate design for tie plates as given in the AREMA Manual, Chapter 5, Section 1, Design of Tie Plates for use with AREMA Rail Sections. Tie plates for use with 115 lb. rail shall be per AREMA Plan No. 8, Punching A. Tie plates for use with 136 lb. rail shall be per AREMA Plan No. 12, Punching A. Tie plates shall be new unless otherwise shown on the Plans or specified in the Special Provisions. Relay tie plates must be designed to fit the rail with which used, and meet the design requirements for new tie plates. Corrosion, substantial losses of material (particularly at the spike holes), substantial wear of the rail seat, and shoulders and lack of flatness will not be permitted.

- xx. OTHER TRACK MATERIALS. Cut track spikes shall be used to secure rail and tie plates. For new track construction, two spikes per plate shall be installed in each tie plate for tangent track and curves less than 1°30'. For curves greater than 1°30' but less than 6°, three spikes per plate shall be installed. For curves greater than 6°, four spikes per plate shall be installed. The spiking pattern shall be as directed by the Railroad. Individual ties installed in existing track shall have the same number of spikes installed in accordance with the existing spiking pattern.

Cut track spikes shall conform to the requirements of the AREMA Manual, Chapter 5, Specifications for High-Carbon Steel Track Spikes, 6 in. length, 5/8 in. reinforced throat design.

Rail anchors will be new spring type, such as Wooding, Verona, Unit, or approved equal. Anchors shall conform to the requirements of the AREMA Manual, Chapter 5, Specifications for Rail Anchors and be applied as specified.

New rail anchors must firmly grip the bottom of the rail to which they are applied, to provide longitudinal rail restraint. Rail anchors shall not be installed at ties which support rail joints, where they will interfere with bond wire, boot legs, insulated joints, and other signal or track appliances or within 2 inches from the edge of any weld to prevent nicks or gouges within the heat affected zones of the welds. Rail anchors shall be capable of application and removal without requiring special tools, requiring only a sledge. Rail anchors shall be applied in the pattern as shown in AREMA Chapter 5, Section 5.4. Each tie within 200 feet of the edge of a bridge, turnout, and highway grade crossing; and ties within the area of a highway grade crossing shall be box anchored.

Provide new, treated soft wood tie plugs in accordance with current AREMA Chapter 7, Article 7-1-29 specification for tie plugs. Treat tie plugs with a 60/40 creosote petroleum solution.

- xx. METHOD OF MEASUREMENT. The quantity of Special Provision (Removal and Replacement of Cross Ties) to be measured for payment will be the number of existing cross ties removed and replaced in the complete and accepted work.

**\*\*For projects with railroad bridge:**

Measurement will be made only for those existing cross ties removed and replaced outside the limits of work for the new bridge. Existing cross ties that are removed and replaced inside the limits of work for the new bridge, as designated in the Plans, will be measured separately under Contract item 900.620 Special Provision (Removal and Replacement of Bridge Ties).

**\*\*For projects with at-grade crossing:**

Measurement will be made only for those existing cross ties removed and replaced outside the limits of work for the new crossing. Existing cross ties that are removed and replaced inside the limits of work for the new crossing will not be measured separately, but will be considered incidental to Contract item 900.645 Special Provision (Reconstruct Rail-Highway Crossing).

- xx. BASIS OF PAYMENT. The accepted quantity of Special Provision (Removal and Replacement of Cross Ties) will be paid for at the Contract unit price per each. Payment will be full compensation for furnishing, transporting, handling, and placing the material specified, including excavation, removal, and disposal of old ties, furnishing and installing tie plates where required, furnishing new spikes and tie plugs as required, and for furnishing all labor, tools, equipment, and incidentals necessary to complete the work.

**\*\*For projects with railroad bridge:**

Existing cross ties that are removed and replaced inside the limits of work for the new bridge, as designated in the Plans, will be paid for separately under Contract item 900.620 Special Provision (Removal and Replacement of Bridge Ties).

**\*\*For projects with at-grade crossing:**

Existing cross ties that are removed and replaced inside the limits of work for the new crossing will not be paid for separately, but will be considered incidental to Contract item 900.645 Special Provision (Reconstruct Rail-Highway Crossing).

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
900.620 Special Provision (Removal and Replacement of Cross Ties)	Each