Invitation To Bid

The R. J. Corman Railroad Company/Carolina Lines, LLC ("the railroad") and the County of Horry, South Carolina have entered into an agreement using American Rescue Plan Act funding for rehabilitation of county owned portion of the Carolina Line railroad between mileposts ACH 336.18 and ACH 347.55. Work consists of replacing 5,000 crossties, replacing 90 switch ties, 26,000 track-feet of surfacing, 16,000 track-feet of brush cutting, removing one private at grade crossing, replacing one at grade highway-rail crossings, and installing one #10 switch. The railroad invites all interested parties to submit bids for the labor, materials and equipment associated with this project. The Contract Documents will be available online at https://www.rjcorman.com/contact/bidding-opportunities on July 21, 2022. Any technical questions should be directed to Melanie.Heckman@RJCorman.com. Bids must be received no later than 3:00 p.m. local time August 12, 2022 at 1588 Leestown Road, STE 130-313, Lexington, KY 40511. All bids will be opened and read aloud 4:00 p.m. local time, August 12, 2022 at 133 Buchanan Street, Building 4, Lexington, KY 40508. Interested parties may attend the bid opening in person or virtually via Teams or via telephone at +1 332-249-0621 code 551318765#. Bids received after 3:00 p.m. local time, August 12, 2022 shall not be opened and shall not be considered for award. Contract award is anticipated to be August 26, 2022 with all work completed by year end.

Instructions To Bidders

Definitions*

Acceptance. The formal written acceptance by R. J. Corman that all the Work or a specified portion thereof has been satisfactorily completed pursuant to the Agreement.

Agreement. The written agreement executed by the Contractor and R. J. Corman covering the performance of the Work, including the furnishing of labor, superintendence, materials, tools and equipment as indicated in the Contract Documents.

Addenda. Written revisions including deletions and/or additions to the Contract Documents issued by R. J. Corman prior to opening of the bids.

Change Order. A written order issued by the Contracting Officer to the Contractor, covering changes in the Work or an adjustment in the contract sum or the contract time.

Contract Documents. Includes the Instructions to Bidders, Bid Forms, Security Forms, Agreement, General Conditions, Supplementary Conditions, Technical Specifications, Contract Drawings, Addenda and Change Orders.

Contracting Officer. The Chairman and/or the Executive Director of R. J. Corman or their duly designated representative.

Contractor. The individual, partnership, joint venture, firm or corporation, engaged in a direct contractual relationship with R. J. Corman, primarily liable for the acceptable performance of the Work contracted for and for the payment of all legal debts pertaining to the Work, who acts directly or through lawful agents or employees to complete the Work.

Days. Calendar days unless otherwise specified.

Final Acceptance. The formal written acceptance by R. J. Corman of the completed work.

Notice of Award. Written notice from R. J. Corman to the Contractor notifying the Contractor that it has been selected as the successful bidder.

Notice of Intent to Award. Written notice from R. J. Corman to the Contractor notifying the Contractor that it is likely to be selected as the successful bidder and instructing it to proceed with administrative Work such as procurement of insurance.

Notice to Proceed. Written notice from R. J. Corman to the Contractor to proceed with the Work.

Service Proven. Systems, components, processes, and protocols which offer a demonstrated history of satisfactory performance in North American freight railroad operations, railroad vehicle

manufacturing, or similar applications for which actual operating and reliability data and end user testimony can be reviewed.

Subcontractor. Any person, firm, corporation, other than the Contractor or the employees of the Contractor, who contracts to furnish labor and/or materials in connection with the project.

Work. All the construction, labor, materials, equipment and contractual requirements as specified or indicated in the Contract Documents, including all alterations, amendments or extensions thereto made by change orders.

* Additional definitions may be found throughout the Contract Documents.

Examination

Bidders should carefully examine the Contract Documents and have the right to examine the jobsite to obtain firsthand knowledge of existing conditions. Bidders will be expected to be aware of local labor availability, means of transportation, laws and codes bearing upon the construction Work, wage scales, licensing or permit requirements, availability of required insurance and other factors that could affect the Work. The Contractor will not be given extra moneys for conditions which are determinable by examining the Contract Documents or Worksite. Bidders are responsible for consulting standards referenced in the Contract Documents.

Explanations

Prospective bidders who wish explanations or clarifications of an item within the Contract Documents must submit their inquiries via email at the following address:

Melanie Heckman
Funded Projects Manager
R. J. Corman Railroad Group, LLC
Email: Melanie.Heckman@RJCorman.com.

Any response that R. J. Corman may choose to make will be by a written addendum to the Contract Documents. Prospective bidders are responsible for ensuring they have the most current Contract Documents by monitoring https://www.rjcorman.com/contact/bidding-opportunities for any changes. R. J. Corman will not be bound by any informal explanation, clarification or interpretation, oral or written, by whomsoever made, that is not incorporated into an addendum to the Contract Documents.

To be given consideration, a request for an explanation must be received prior to 4:30 p.m. July 29, 2022.

Itemized Proposal

The Itemized Proposal must be completed as follows:

Prices. Unit, lump sum and other prices must be entered in the appropriate spaces provided. Unit prices should be multiplied by the amount or estimated quantity and the product inserted in the "Amount Bid" column shown on the Itemized Proposal.

Bidders are requested to observe the following instructions in completing the Itemized Proposal. Failure to do so will not necessarily preclude consideration of a bid, but may result in irregularities serious enough that a bid cannot be considered:

1. The Itemized Proposal must be signed by the bidder.
2. The bidder should not delete, modify or supplement the printed matter on the Itemized Proposal, or make any substitutions.
3. The Itemized Proposal and the other forms accompanying it should be legibly completed in ink or typewritten.
4. Receipt of addenda should be acknowledged in the spaces provided on the Itemized Proposal, by entering the number and date of issue of each.
5. All identifying information, such as the bidder's name, address, principals and state of incorporation, for which spaces are provided, should be entered.
6. Any corrections should be initialed by the person who signs the Itemized Proposal.
7. If the bid is submitted by other than a person, or if the Itemized Proposal is signed for a person by another, evidence of the authority of the person signing the Itemized Proposal is required.

Bid Submission

Bids shall be submitted in an opaque sealed envelope addressed:

R. J. Corman Railroad Company/Carolina Lines
ATTN: Jessica Lewis
1588 Leestown Road
STE 130-313
Lexington, KY 40511

The lower left-hand corner shall be marked: BID NO. 22-111B RJCS 2022 ARPA Trackwork. Bids must be received no later than 3:00 p.m. local time, August 12, 2022. All bids will be opened and read aloud 4:00 p.m. local time, August 12, 2022 at 133 Buchanan Street, Building 4, Lexington, KY 40508. Interested parties may attend the bid opening in person or virtually via Teams or via telephone at +1 332-249-0621 code 551318765#. Bids received after 3:00 p.m. local time, August 12, 2022 shall not be opened and shall not be considered for award.

The bid submission must be complete. A complete bid submission will contain executed copies of the following documents:

1. Bid Forms
2. Acknowledgement of Addenda
3. Form W-9

Modification and Withdrawal

Bids may be modified after they have been submitted, but only before the bid due date and time. Modifications must be signed and must be received by R. J. Corman not later than the bid due date and time.

Envelopes containing modifications should be addressed as provided in Bid Submission, above, and should identify the bidder and should be identified in the lower left corner as follows:

MODIFICATION TO OUR BID FOR
BID NO. 22-111B RJCS 2022 ARPA Trackwork

Bids may be withdrawn after they have been submitted, but only before the bid due date and time; withdrawn bids may be resubmitted, but only in the way the bid was originally submitted. Withdrawals must be signed as stipulated above for modification. Bids may not be withdrawn after the bid due date and time except as may be agreed upon in writing by the bidder and R. J. Corman.

Envelopes containing withdrawals should be addressed as provided in the Invitation to Bid and should identify the withdrawer in the lower left corner as follows:

WITHDRAWAL OF OUR BID FOR
BID NO. 22-111B RJCS 2022 ARPA Trackwork

Alternative Bid(s)

The bidder may choose to submit more than one bid. Each bid must be submitted in a separate envelope in accordance with the instructions previously listed. If the bidder chooses to submit more than one bid in response to this invitation to bid, the envelope containing the alternative bid must be designated as follows:

ALTERNATIVE BID x TO OUR BID FOR
BID NO. 22-111B RJCS 2022 ARPA Trackwork

The letter x will be replaced with an index as to the number of alternatives (i.e. 1, 2, 3, and so on).

Evaluation and Award

Each bid timely received and in R. J. Corman's hands at the time and place set for the bid opening shall constitute an offer to perform the Work in strict accordance with the terms and conditions found in the Contract Documents. Bids will be evaluated based on determining the lowest total bid price of a bidder whose bid is responsive to the solicitation, and who is determined to be technically qualified and financially responsible to perform the Work satisfactorily and has submitted all necessary documents.

All extensions of the unit prices shown, and the subsequent addition of extended amounts will be verified by R. J. Corman. In the event of a discrepancy between the sum of the extended amounts and the total bid price, the sum of the extended amounts shall govern. In the event of a discrepancy between the unit price bid and the extension, the unit price bid will be deemed intended by the bidder and the extension will be adjusted. In the event of a discrepancy between the unit price written in words and the unit price written in numerals, the unit price written in words shall govern. R. J. Corman reserves the right, nevertheless, to accept a bid other than the lowest, if it determines that the public interest will best be served by doing so.

R. J. Corman reserves the right to reject any bid and waive any abnormalities.

Execution of Contracts/Bond/Insurance

The bidder shall furnish an acceptable Certificate of Insurance as set forth in the General Conditions within ten days after being given Notice of Intent to Award. The Certificate of Insurance shall list both R. J. Corman Railroad Company/Carolina Lines and Horry County, South Carolina as additionally insured.

The bidder shall execute the Agreement and forward same to R. J. Corman within three business days after receipt of the Agreement from R. J. Corman. The bidder shall furnish the Labor and Material Payment Bond to R. J. Corman within three business days after receipt of a fully executed contract from R. J. Corman. R. J. Corman may require appropriate evidence that the persons executing the Agreement and the Bond for both the bidder and its surety or sureties are duly empowered to do so. The bond must be in an amount at least equal to the total bid price. The bond shall be in the form as set forth herein. The Surety and Insurance Companies must be corporations acceptable to R. J. Corman and authorized to issue insurance policies in the state in which the work is being performed. The bond shall remain in effect until Final Acceptance. The Agreement shall not be binding upon R. J. Corman until it is executed by R. J. Corman.

The bond shall provide that alterations, extensions of the time of performance, extra and additional Work and other changes authorized by the Agreement may be made without notice from R. J. Corman or consent of the Surety.

Contractor's Participation

Except as otherwise provided, the Contractor shall perform at least 55% of the labor with its own forces. Where less than an entire item is subcontracted, the value of the Work subcontracted will be based on the estimated cost of such portion of the bid item, determined from information submitted by the Contractor, subject to approval by the R. J. Corman. If, during the progress of the Work hereunder, the Contractor requests a reduction in such participation percentage and the Engineer determines that it would be to R. J. Corman's advantage, the percentage of the Work required to be performed by the Contractor may be reduced provided written approval of such reduction is obtained by the Contractor from R. J. Corman.

Compliance with Laws and Exemption

The Contractor shall comply with all federal, state, county and municipal laws, codes and regulations in connection with the prosecution of the Work. The Contractor shall also secure and pay for all permits, fees and licenses necessary to comply with applicable federal and state laws. The Contractor shall also secure appropriate permission and permits before commencing sewer or water line connections.

The Contractor shall protect, indemnify and hold harmless R. J. Corman and all its commissioners, officers, agents and employees against any and all claims and liabilities arising from or based on the violation of any such requirement or law whether by the Contractor, its employees, agents or subcontractors

Mobilization

The Contractor shall furnish and mobilize all required plants and equipment necessary for the proper construction of the Work. Unless a pay item for mobilization is specifically included in the proposal, no separate payment will be made for furnishing and mobilizing said plants and equipment, but the cost thereof shall be deemed included in the various items of the Itemized Proposal.

Policies and Procedures

As the project work is to be done on R. J. Corman property, the Contractor must abide by all applicable policies and procedures.

Policies will be provided at the request of the contractor. This includes, but is not limited to:

1. RJC Operating Rules
2. RJC Standard Procedures
3. RJC Roadway Worker Program
4. RJC Continuous Welded Rail Policy

Qualifications

As the project work is to be done on railroad right-of-way and in the proximity of active tracks, the Contractor must abide by all applicable FRA regulations. This includes, but is not limited to 49 CFR:

Part 213 - Track Safety Standards

Part 214 - Railroad Workplace Safety

Part 219 - Control of Alcohol and Drug Use

Part 237 - Bridge Safety Standards

Part 243 – Training, Qualification, and Oversight for Safety-Related Railroad Employees

Contractor shall provide a copy of the FRA issued letter accepting the contractors random drug and alcohol testing plan. Contractor is responsible for its employees and subcontractors' compliance with 49 CFR Part 243, including oversight provisions. Contractor shall provide documentation proving compliance with the above listed qualifications upon request.

Work Windows

All work planned to have approximate 8-hour work windows on average. Extended work windows are anticipated. Track shall be safe for train movement use at the end of each work window.

Schedule

The contractor shall furnish an approximate construction schedule/availability as noted on the bid form. Upon award, the Contractor shall furnish R. J. Corman, upon request, with a construction schedule in Gantt Chart format, or CPM format, and list of equipment to be used on the project.

Scrap Removal

Removed material shall become the property of the Contractor. The scrap material shall be removed from the right-of-way and disposed of by the Contractor within 30 days of completion of the project. The Contractor shall certify that the materials were disposed of in accordance with all environmental regulations.

General Scope of Work

Scope.

The scope of work shall include all labor, equipment, materials, and contracts required to perform the work as described below. This project is for the replacement of 5,000 cross ties, replacement of 90 switch ties, 26,000 track-feet of surfacing, 16,000 track-feet of brush cutting, removal of one private crossing, replacement of one at grade highway-rail crossings, and installation of 1 switch.

All work will be in the region starting with MP ACH 341.95 and ending at MP ACH 347.

In addition, the scope shall include all costs incurred by the selected bidder to deliver the required materials, labor and equipment to and from the site.

All work shall comply with the requirements of the contract documents, including, but not limited to, the technical specifications and workmanship requirements.

Contractor shall provide daily production reports showing the dates and hours worked at each location by personnel, dates and hours of equipment used, and listing of materials installed that day and materials installed start to date.

Mobilization-Demobilization.

Under this work the Contractor shall provide necessary bonds, insurance, and financing and shall set up his necessary general plant, including shops, storage areas, offices and such sanitary and other facilities as are required by local or state law or regulation and removal of same after completion of work.

Cross Tie Replacement

The Contractor shall remove the defective cross ties as identified by the railroad and then both furnish and install new cross ties that will be complete with new track spikes. Installed ties shall be tamped up with ballast.

Switch Tie Replacement

The Contractor shall remove the defective switch ties as identified by the railroad and then both furnish and install new cross ties that will be complete with new track spikes. Installed ties shall be tamped up with ballast.

Install Ballast and Surface

The Contractor shall install new ballast and surface to the specified profile. Railroad will not provide ballast distribution equipment or participate beyond flagging. Equipment proposed to accomplish this item is subject to written approval of the Railroad. After surfacing, contractor shall inspect the work area

and check for any raised track spikes and/or loose track bolts and make necessary corrections if required.

Brush Cutting

The brush cutting equipment shall be capable of cutting all brush that is within 30 feet from the center of track measured horizontally and 30 feet from the top of track measured vertically.

The Contractor shall utilize brush cutting equipment that is capable of mounting and working from the track (hi-rail equipment). The equipment shall be capable of mounting and dismounting the existing track without causing any damage.

Railroad flaggers will be provided no cost to the Contractor.

Crossing Removal

The contractor shall remove the 36 ft private at grade railroad crossing at MP ACH 345.15, DOT No. 629064D. Removal shall include the existing crossing surface down to the ties and the existing approaches.

Crossing Replacement

The contractor shall replace the 58 ft. public at grade railroad crossing at MP ACH 341.95, DOT No. 629063W, Gardner Lacey St. Tasks shall include removal of the existing crossing surface; replacing rail, bolts, ties, spaces, plates, anchors, #4 ballast, and #57 ballast; install rail seal; replace crossbuck assemblies; replace asphalt; perform comp welds for joining the crossing rail to the mainline rail; and provide traffic control.

New Turnout Build

The contractor shall install a new switch in accordance with the table below and the attached drawings and specifications.

Switch Ordering Information	
Size	#10
Direction	Right Hand
Rail Section	115RE
Stock Rails	Samson[1] Undercut[2]
Switch Points	Samson[1] Undercut
Switch Plate	Uniform
Switch Stand	51A New Century[1]
Switch Handle	Bow Handle
Frog	Rail Bound Manganese
Check Rails	13 Ft
Comp/Joint Bars	115RE-115RE
Notes: 1. See page 39 re brand specific references. 2. Right hand stock rail to be pre-bent.	

Tie and Scrap Disposal

All defective crossties, switch ties, and other track material (OTM) shall be gathered, hauled off site and properly disposed of by the contractor.

Bid Forms

Identification

Proposal Of: _____
(Name of Bidder)

Address Line 1: _____

Address Line 2: _____

City: _____ State: _____ Zip Code: _____

Line Items

Item	Description	Qty	Units	Unit Price	Amount Bid
1	Mobilization-Demobilization	1	Lump Sum		
2	Cross Tie Replacement	5,000	Each		
3	Switch Tie Replacement	90	Each		
4	Install Ballast and Surface	26,000	Track Feet		
5	Brush Cutting	16,000	Track Feet		
6	Crossing Removal	1	Each		
7	Crossing Rehab	1	Each		
8	New Turnout Build	1	Each		
9	Tie and Scrap Disposal	1	Lump Sum		

Total Bid Amount: _____ $_____
(words) (numerals)

Planned Start Date: _____

Estimated Project Duration: _____ (work days)

Certification

INDIVIDUAL

An individual doing business under the firm name of: _____

Address: _____

Phone: _____ Fax: _____

Email: _____

Individual's Name:

_____
(signature)

_____
(printed)

Witnessed by: _____ Date: _____

PARTNERSHIP

Partners trading and doing business under the firm name of:

_____

Address: _____

Phone: _____ Fax: _____

Email: _____

Partner's Name:

_____ _____
(signature) (printed)

_____ _____
(signature) (printed)

Witnessed by: _____ Date: _____

CORPORATION, COMPANY or LIMITED LIABILITY COMPANY

Name: _____

Address: _____

Phone: _____ Fax: _____

Email: _____

A CORPORATION COMPANY LLC (circle one) organized under the laws of the State of

_____

Authorized Officer:

_____ _____
(signature) (printed)

Attest: _____ Date: _____

(corporate seal)

Non-Collusion Bidding Certification

By submission of this bid, each bidder and each person signing on behalf of any bidder certifies, and in the case of a joint bid each party thereto certifies as to its own organization, under penalty of perjury, that to the best of his/her knowledge and belief:

1. The prices in this bid have been arrived at independently, without collusion, consultation, communication or agreement, for the purpose of restricting competition, as to any matter relating to such prices with any other bidder or with any competitor.
2. Unless otherwise required by law, the prices which have been quoted in this bid have not been knowingly disclosed by the bidder and will not knowingly be disclosed by the bidder prior to opening, directly or indirectly, to any other bidder or to any competitor.
3. No attempt has been made or will be made by the bidder to induce any other person, partnership or corporation to submit or not to submit a bid for the purpose of restricting competition.

_____ _____
Signature Date

_____
Printed Name

_____
Title

END OF SECTION

Acknowledgement of Addenda

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Acknowledgement of Addenda

Proposer hereby acknowledges receipt of all Addenda through and including:

Addendum No. _____, dated _____.

Addendum No. _____, dated _____.

Addendum No. _____, dated _____.

Addendum No. _____, dated _____.

Company _____

Authorized Signature _____

Print Name _____

Security Forms

Labor and Material Payment Bond

Know all men by these presents, that

_____

(hereinafter called the "Principal") and

_____

(hereinafter called the "Surety"), are held and firmly bound unto R. J. Corman in the full and just

sum of _____Dollars ($_____) good and lawful money of the United States of America, for payment of which said sum of money, well and truly to be made and done, the said Principal binds itself, its heirs, executors and administrators, successors and assigns, and the said Surety binds itself, its successors and assigns jointly and severally, firmly by these presents.

Signed and dated this _____, 202__.

WHEREAS, said Principal has entered into a certain written contract, bearing the date of _____, 202__, with R. J. Corman.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH, that if the said Principal shall promptly pay all moneys due to all persons furnishing labor or materials to it or its subcontractors in the prosecution of the Work provided for in said contract, then this obligation shall be void, otherwise to remain in full force and effect;

Provided, however, all rights and remedies on this bond shall inure solely to such persons and shall be determined in accordance with the provisions, conditions and limitations of said section to the same extent as if they were copied at length herein; and

Further, provided, that the place of trial of any action on this bond shall be in the county in which the said contract was to be performed, or if said contract was to be performed in more than one county, then in any such county, and not elsewhere.

_____ Principal

_____ Surety

Labor and Material Payment Bond Surety Acknowledgment

STATE OF _____

COUNTY OF _____

On this ____ day of _____, 202__, before me personally came and appeared

_____, to me known, who, being duly sworn, did

depose and say that he/she resides at

_____

_____,

that he/she is the _____of

_____, the

corporation described in and which executed the foregoing document, that he/she knows the

seal of said corporation, that one of the impressions affixed to said instrument is an impression of such seal, that it was so affixed by order of the directors of said corporation, and that he/she signed his/her name thereto by like order.

_____ Notary Public

Form W-9

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Form **W-9**
(Rev. December 2000)
Department of the Treasury
Internal Revenue Service

Request for Taxpayer Identification Number and Certification

Give form to the requester. Do not send to the IRS.

Please print or type

Name (See **Specific Instructions** on page 2.)

Business name, if different from above. (See **Specific Instructions** on page 2.)

Check appropriate box: ☐ Individual/Sole proprietor ☐ Corporation ☐ Partnership ☐ Other ►

Address (number, street, and apt. or suite no.)

Requester's name and address (optional)

City, state, and ZIP code

Part I Taxpayer Identification Number (TIN)

Enter your TIN in the appropriate box. For individuals, this is your social security number (SSN). **However, for a resident alien, sole proprietor, or disregarded entity, see the Part I instructions on page 2.** For other entities, it is your employer identification number (EIN). If you do not have a number, see **How to get a TIN** on page 2.

Note: *If the account is in more than one name, see the chart on page 2 for guidelines on whose number to enter.*

Social security number

or

Employer identification number

List account number(s) here (optional)

Part II

For U.S. Payees Exempt From Backup Withholding (See the instructions on page 2.)

►

Part III Certification

Under penalties of perjury, I certify that:

1. The number shown on this form is my correct taxpayer identification number (or I am waiting for a number to be issued to me), **and**
2. I am not subject to backup withholding because: **(a)** I am exempt from backup withholding, or **(b)** I have not been notified by the Internal Revenue Service (IRS) that I am subject to backup withholding as a result of a failure to report all interest or dividends, or **(c)** the IRS has notified me that I am no longer subject to backup withholding, **and**
3. I am a U.S. person (including a U.S. resident alien).

Certification instructions. You must cross out item **2** above if you have been notified by the IRS that you are currently subject to backup withholding because you have failed to report all interest and dividends on your tax return. For real estate transactions, item **2** does not apply. For mortgage interest paid, acquisition or abandonment of secured property, cancellation of debt, contributions to an individual retirement arrangement (IRA), and generally, payments other than interest and dividends, you are not required to sign the Certification, but you must provide your correct TIN. (See the instructions on page 2.)

Sign Here **Signature of U.S. person ►** **Date ►**

Purpose of Form

A person who is required to file an information return with the IRS must get your correct taxpayer identification number (TIN) to report, for example, income paid to you, real estate transactions, mortgage interest you paid, acquisition or abandonment of secured property, cancellation of debt, or contributions you made to an IRA.

Use Form W-9 only if you are a U.S. person (including a resident alien), to give your correct TIN to the person requesting it (the requester) and, when applicable, to:

1. Certify the TIN you are giving is correct (or you are waiting for a number to be issued),

2. Certify you are not subject to backup withholding, or

3. Claim exemption from backup withholding if you are a U.S. exempt payee.

If you are a foreign person, use the appropriate Form W-8. See **Pub. 515,** Withholding of Tax on Nonresident Aliens and Foreign Corporations.

Note: *If a requester gives you a form other than Form W-9 to request your TIN, you must use the requester's form if it is substantially similar to this Form W-9.*

What is backup withholding? Persons making certain payments to you must withhold and pay to the IRS 31% of such payments under certain conditions. This is called "backup withholding." Payments that may be subject to backup withholding include interest, dividends, broker and barter exchange transactions, rents, royalties, nonemployee pay, and certain payments from fishing boat operators. Real estate transactions are not subject to backup withholding.

If you give the requester your correct TIN, make the proper certifications, and report all your taxable interest and dividends on your tax return, payments you receive will not be subject to backup withholding. **Payments you receive will be subject to backup withholding if:**

1. You do not furnish your TIN to the requester, or

2. You do not certify your TIN when required (see the Part III instructions on page 2 for details), or

3. The IRS tells the requester that you furnished an incorrect TIN, or

4. The IRS tells you that you are subject to backup withholding because you did not report all your interest and dividends on your tax return (for reportable interest and dividends only), or

5. You do not certify to the requester that you are not subject to backup withholding under 4 above (for reportable interest and dividend accounts opened after 1983 only).

Certain payees and payments are exempt from backup withholding. See the Part II instructions and the separate **Instructions for the Requester of Form W-9.**

Penalties

Failure to furnish TIN. If you fail to furnish your correct TIN to a requester, you are subject to a penalty of $50 for each such failure unless your failure is due to reasonable cause and not to willful neglect.

Civil penalty for false information with respect to withholding. If you make a false statement with no reasonable basis that results in no backup withholding, you are subject to a $500 penalty.

Criminal penalty for falsifying information. Willfully falsifying certifications or affirmations may subject you to criminal penalties including fines and/or imprisonment.

Misuse of TINs. If the requester discloses or uses TINs in violation of Federal law, the requester may be subject to civil and criminal penalties.

Specific Instructions

Name. If you are an individual, you must generally enter the name shown on your social security card. However, if you have changed your last name, for instance, due to marriage without informing the Social Security Administration of the name change, enter your first name, the last name shown on your social security card, and your new last name.

If the account is in joint names, list first and then circle the name of the person or entity whose number you enter in Part I of the form.

Sole proprietor. Enter your **individual** name as shown on your social security card on the "Name" line. You may enter your business, trade, or "doing business as (DBA)" name on the "Business name" line.

Limited liability company (LLC). If you are a single-member LLC (including a foreign LLC with a domestic owner) that is disregarded as an entity separate from its owner under Treasury regulations section 301.7701-3, **enter the owner's name on the "Name" line.** Enter the LLC's name on the "Business name" line.

Caution: *A disregarded domestic entity that has a foreign owner must use the appropriate Form W-8.*

Other entities. Enter your business name as shown on required Federal tax documents on the "Name" line. This name should match the name shown on the charter or other legal document creating the entity. You may enter any business, trade, or DBA name on the "Business name" line.

Part I—Taxpayer Identification Number (TIN)

Enter your TIN in the appropriate box.

If you are a **resident alien** and you do not have and are not eligible to get an SSN, your TIN is your IRS individual taxpayer identification number (ITIN). Enter it in the social security number box. If you do not have an ITIN, see **How to get a TIN** below.

If you are a **sole proprietor** and you have an EIN, you may enter either your SSN or EIN. However, the IRS prefers that you use your SSN.

If you are an **LLC** that is **disregarded as an entity** separate from its owner (see ***Limited liability company (LLC)*** above), and are owned by an individual, enter your SSN (or "pre-LLC" EIN, if desired). If the owner of a disregarded LLC is a corporation, partnership, etc., enter the owner's EIN.

Note: *See the chart on this page for further clarification of name and TIN combinations.*

How to get a TIN. If you do not have a TIN, apply for one immediately. To apply for an SSN, get **Form SS-5,** Application for a Social Security Card, from your local Social Security Administration office. Get **Form W-7,** Application for IRS Individual Taxpayer Identification Number, to apply for an ITIN or **Form SS-4,** Application for Employer Identification Number, to apply for an EIN. You can get Forms W-7 and SS-4 from the IRS by calling 1-800-TAX-FORM (1-800-829-3676) or from the IRS's Internet Web Site at **www.irs.gov**.

If you do not have a TIN, write "Applied For" in the space for the TIN, sign and date the form, and give it to the requester. For interest and dividend payments, and certain payments made with respect to readily tradable instruments, generally you will have 60 days to get a TIN and give it to the requester before you are subject to backup withholding on payments. The 60-day rule does not apply to other types of payments. You will be subject to backup withholding on all such payments until you provide your TIN to the requester.

Note: *Writing "Applied For" means that you have already applied for a TIN* ***or*** *that you intend to apply for one soon.*

Part II—For U.S. Payees Exempt From Backup Withholding

Individuals (including sole proprietors) are **not** exempt from backup withholding. Corporations are exempt from backup withholding for certain payments, such as interest and dividends. For more information on exempt payees, see the separate Instructions for the Requester of Form W-9.

If you are exempt from backup withholding, you should still complete this form to avoid possible erroneous backup withholding. Enter your correct TIN in Part I, write "Exempt" in Part II, and sign and date the form.

If you are a nonresident alien or a foreign entity not subject to backup withholding, give the requester the appropriate completed Form W-8.

Part III—Certification

To establish to the withholding agent that you are a U.S. person, or resident alien, sign Form W-9. You may be requested to sign by the withholding agent even if items 1, 3, and 5 below indicate otherwise.

For a joint account, only the person whose TIN is shown in Part I should sign (when required).

1. Interest, dividend, and barter exchange accounts opened before 1984 and broker accounts considered active during 1983. You must give your correct TIN, but you do not have to sign the certification.

2. Interest, dividend, broker, and barter exchange accounts opened after 1983 and broker accounts considered inactive during 1983. You must sign the certification or backup withholding will apply. If you are subject to backup withholding and you are merely providing your correct TIN to the requester, you must cross out item **2** in the certification before signing the form.

3. Real estate transactions. You must sign the certification. You may cross out item **2** of the certification.

4. Other payments. You must give your correct TIN, but you do not have to sign the certification unless you have been notified that you have previously given an incorrect TIN. "Other payments" include payments made in the course of the requester's trade or business for rents, royalties, goods (other than bills for merchandise), medical and health care services (including payments to corporations), payments to a nonemployee for services, payments to certain fishing boat crew members and fishermen, and gross proceeds paid to attorneys (including payments to corporations).

5. Mortgage interest paid by you, acquisition or abandonment of secured property, cancellation of debt, qualified state tuition program payments, IRA or MSA contributions or distributions, and pension distributions. You must give your correct TIN, but you do not have to sign the certification.

Privacy Act Notice

Section 6109 of the Internal Revenue Code requires you to give your correct TIN to persons who must file information returns with the IRS to report interest, dividends, and certain other income paid to you, mortgage interest you paid, the acquisition or abandonment of secured property, cancellation of debt, or contributions you made to an IRA or MSA. The IRS uses the numbers for identification purposes and to help verify the accuracy of your tax return. The IRS may also provide this information to the Department of Justice for civil and criminal litigation, and to cities, states, and the District of Columbia to carry out their tax laws.

You must provide your TIN whether or not you are required to file a tax return. Payers must generally withhold 31% of taxable interest, dividend, and certain other payments to a payee who does not give a TIN to a payer. Certain penalties may also apply.

What Name and Number To Give the Requester

For this type of account:	Give name and SSN of:
1. Individual	The individual
2. Two or more individuals (joint account)	The actual owner of the account or, if combined funds, the first individual on the account [1]
3. Custodian account of a minor (Uniform Gift to Minors Act)	The minor [2]
4. a. The usual revocable savings trust (grantor is also trustee)	The grantor-trustee [1]
b. So-called trust account that is not a legal or valid trust under state law	The actual owner [1]
5. Sole proprietorship	The owner [3]
For this type of account:	**Give name and EIN of:**
6. Sole proprietorship	The owner [3]
7. A valid trust, estate, or pension trust	Legal entity [4]
8. Corporate	The corporation
9. Association, club, religious, charitable, educational, or other tax-exempt organization	The organization
10. Partnership	The partnership
11. A broker or registered nominee	The broker or nominee
12. Account with the Department of Agriculture in the name of a public entity (such as a state or local government, school district, or prison) that receives agricultural program payments	The public entity

[1] List first and circle the name of the person whose number you furnish. If only one person on a joint account has an SSN, that person's number must be furnished.

[2] Circle the minor's name and furnish the minor's SSN.

[3] You must show your individual name, but you may also enter your business or "DBA" name. You may use either your SSN or EIN (if you have one).

[4] List first and circle the name of the legal trust, estate, or pension trust. (Do not furnish the TIN of the personal representative or trustee unless the legal entity itself is not designated in the account title.)

Note: *If no name is circled when more than one name is listed, the number will be considered to be that of the first name listed.*

Agreement Between Railroad and Contractor

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CONTRACT BETWEEN

R. J. CORMAN RAILROAD COMPANY

AND

_____

FOR :

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CONTRACTOR AGREEMENT

THIS CONTRACT (this "Agreement") dated and effective as _____, 2020 by and between R. J CORMAN RAILROAD COMPANY/_____, the address of which, for purposes of this Agreement, is 101 R J Corman Drive, P.O. Box 788, Nicholasville, Kentucky 40340 ("Railroad") and_____, the address of which, for purposes of this Agreement, is _____ ("Contractor").

In consideration of the mutual covenants and agreements set forth herein, the parties hereto agree as follows:

1. PROJECT DEFINED AND PERFORMANCE STANDARDS

1.1 Contractor will perform all work more particularly described in Addendum 1 attached hereto and made a part hereof (the "Project"), it being understood that the Project is fully described and set forth in the plans and specifications prepared for this Agreement. Should any work or material not directly or indirectly denoted in the plans and specifications be necessary for the proper carrying out of the obvious intentions thereof, Contractor shall furnish any such material and do any such work as fully as if it were particularly delineated or described in the plans and specifications. The plans and specifications shall control all discrepancies between plans and specifications and this Agreement.

1.2 Contractor shall perform work related to the Project in a professional manner, in accordance with American Railway Engineering and Maintenance-of-Way Association (AREMA) Standards and to the sole satisfaction and acceptance of Railroad and Railroad Standard Construction Specifications in Addendum 1.

1.3 All work shall be performed in a safe manner and in accordance with material safety data sheets (MSDS) and all Federal, state and local laws and regulations, including those established by administrative agencies, so as not to create a safety hazard to Railroad, Contractor, their respective agents, employees or subcontractors, or to property, or to third parties and their property or interfere with the normal use and operation of Railroad property and business.

1.4 Whenever the term "Engineer" is used in this Agreement it means the Chief Engineer of the Railroad or his designee.

2. EQUIPMENT/RAILROAD OPERATIONS

2.1 Contractor at its sole cost and expense shall furnish all labor, tools, equipment and machinery necessary and appropriate to complete the Project in a substantial and workmanlike manner to the sole satisfaction and acceptance of the Railroad.

2.2 Contractor shall provide all equipment necessary to perform the work properly and complete the Project by the required completion date. Equipment shall be in good operating condition and shall conform to the applicable standards prescribed by the Association of American Railroads and the Federal Railroad Administration ("FRA") for such type of equipment (if any). Contractor must comply with all rules and regulations as set forth by the FRA including the sections concerning Roadway Maintenance Machines. Contractor at its sole cost and expense shall be responsible for the maintenance and repair of any and all equipment used by Contractor during the Project.

2.3 Contractor shall furnish, bear and pay, and shall save Railroad free of, any and all

labor and expense of, and incident to, compliance with the aforementioned rules, regulations and requirements.

2.4 Whenever the work included in this Project is by the side of or contiguous to railroad tracks used and operated by Railroad, Contractor shall use the utmost vigilance in every stage of the execution of the work related to the Project in order to protect effectively against all accidents and/or damages on said railroad by reason of the Project. Contractor shall at all times during the progress of the Project so manage and execute the same in a manner that minimizes the impact on and possible interference with the operation, management and/or maintenance of said railroad or with the business or traffic of the same.

2.5 The Project shall be managed so as not to interfere with the progress of any contiguous work. Contractor is responsible for scheduling the activities of its forces, its subcontractors and vendors as well as other contractors that may be working on or near Railroad's property or in Railroad's facilities. The Engineer may direct changes in the management of the Project to ensure compliance with this Section 2.

2.6 CONTRACTOR SHALL FAMILIARIZE ITSELF WITH ALL APPLICABLE RAILROAD SAFETY RULES, (THE "SAFETY RULES"), WHICH ARE BY REFERENCE MADE A PART OF THIS AGREEMENT. CONTRACTOR SHALL COMPLY WITH THE SAFETY RULES, TOGETHER WITH ALL STATUTES, REGULATIONS AND ORDINANCES OF ANY FEDERAL, STATE OR LOCAL GOVERNMENTAL AUTHORITY AND SHALL REQUIRE ITS EMPLOYEES AND SUBCONTRACTORS TO COMPLY THEREWITH, AND SHALL RELEASE, PROTECT, DEFEND, INDEMNIFY AND SAVE AND HOLD HARMLESS RAILROAD AND ITS PARENTS, SUBSIDIARIES AND AFFILIATES, AND EACH OF THEIR OFFICERS, DIRECTORS, AGENTS AND EMPLOYEES FROM AND AGAINST ANY AND ALL LOSS, DAMAGE, COST AND EXPENSE AND ALL CLAIMS, ACTIONS AND DEMANDS ARISING OUT OF VIOLATION OF ANY OF SAID SAFETY RULES OR REQUIREMENTS THEREUNDER.

2.7 Whenever work related to the Project in any manner affects the use or operation of lines of Railroad or other entities affiliated with Railroad, Contractor shall, at its own cost and expense, comply with all the conditions that may be imposed by Railroad.

3. PERIOD OF PERFORMANCE AND UNIT PRICES

Work related to the Project shall be commenced on the first date specified in Addendum 1 and shall be completed to Railroad's specification on or before the second date specified on Addendum 1 (the "Completion Date") which Completion Date may only be delayed by Railroad in writing pursuant to the terms hereof. The parties hereto agree that time is of the essence of this Agreement and all provisions hereof. Contractor shall submit to Railroad a detailed schedule for performance of the Project in a form acceptable to Railroad, which schedule shall comply with all scheduling requirements of this Agreement. Railroad, at its sole discretion, may direct Contractor to make modifications and revisions in said schedules to ensure compliance with this Agreement and non-interference with other work. Contractor agrees to commence work under this Agreement upon the date of "notice to proceed" by the Engineer. Contractor shall submit a work schedule to Engineer, with ample time for Engineer to review and make any needed modifications to the same. prior to work start-up. Should Contractor fail to achieve project completion by the Completion Date, as initially set or as delayed in writing by Railroad, Contractor shall pay to Railroad, in addition to and not in lieu of any and all other remedies available under the circumstances, and as liquidated damages for losses and costs not

reasonably susceptible of accurate calculation, and not as a penalty, the sum of five hundred ($500.00) dollars per day (seven days per week) and Contractor shall reimburse Railroad all costs incurred as a result of that delay. By way of example, and not of limitation, these costs may include: wages and expenses for Railroad inspectors, delays in train operations, interest and penalties to Railroad vendors and other contractors, administrative and legal costs.

3.1 In the event Railroad deems Contractor to not be proceeding according to the Project schedule or becomes aware of the occurrence of any breach of this Agreement or any event that, with notice or lapse of time or both, would constitute a breach of this Agreement ("Breach of Contract"), Railroad may order that the Project be prosecuted in such order, at such points and with such force as shall be adequate to insure its completion by the Completion Date. If required, Contractor, at its own expense, shall work nights, weekends and/or holidays to ensure that the Project is completed on time and no extra compensation shall be demanded by Contractor for such work.

3.2 If at any time Contractor shall refuse or neglect to execute the Project with a force sufficient, in the opinion of the Engineer, to insure its completion within the time specified in the Agreement, or to furnish sufficient materials as needed for that purpose, a Breach of Contract shall exist and Railroad may direct the employment of such additional laborers and foremen, and the purchase of sufficient materials, as it may deem necessary to perform the Project, regardless of the cost of such wages and such prices, and Contractor shall pay all persons so employed for their services and for materials furnished. Any such amount which shall be paid by Railroad may be claimed by Railroad required by this Agreement, without prejudice, however, to any remedy which Railroad may have or may be entitled to have against Contractor for Breach of Contract. The foregoing is not intended and shall not be deemed to limit or modify Contractor's status as an independent contractor.

3.3 Contractor agrees to perform the work as indicated in this Agreement for the unit prices specified in Addendum 2 attached hereto.

4. TERMINATION

4.1 This Agreement may be terminated by either Contractor or the Railroad with ten (10) days' written notice of termination in the event of either Contractor's or the RAILROAD's bankruptcy, insolvency or assignment of this Agreement for the benefit of creditors or with thirty (30) days' written notice in the event of RAILROAD or Contractor's default of the terms of this Agreement or at any time and for any reason by the RAILROAD with a sixty (60) days' written notice. Projects in process will be completed to the satisfaction of the RAILROAD before final payment and the provisions of Sections 11 survive termination.

4.2 If the Contractor insurance required in Section 14 hereof lapses or is cancelled, Railroad may terminate this Agreement effective the next business day upon notice to Contractor.

4.3 Unless otherwise directed by Railroad, upon receipt of any notice of termination from Railroad, Contractor shall stop the terminated work, direct its subcontractors to stop the terminated work, cancel all existing orders for supplies relating to the terminated work, and otherwise take reasonable actions necessary to mitigate costs.

4.4 Within thirty (30) days after termination, Contractor may submit to Railroad its actual costs incurred to the effective date of termination. In no event shall Railroad be liable to Contractor for any costs that exceed the unpaid balance of the Agreement, or for consequential, special, incidental, punitive or indirect damages, including lost or anticipatory profits or

unabsorbed overhead, even if Railroad has been advised of the possibility of such damages.

4.5 Neither termination nor revocation of this Agreement shall affect any claims and liabilities which have arisen or accrued hereunder, and which, at the time of termination or revocation, have not been satisfied; neither party, however, waiving any third-party defenses or actions.

5. PERFORMANCE AND PAYMENT BONDS

(As determined in the invitation to bid documents)

6. CONTRACTUAL STATUS/RELATIONSHIP OF PARTIES

6.1 In performing services under this Agreement, Contractor shall operate as and have the status of an independent contractor. Contractor shall employ, pay from its own funds, and discharge all persons engaged in the performance of the Project and such persons shall be under Contractor's supervision, direction and control. Contractor shall be subject to the general oversight and guidance of the Engineer or whomever he may appoint in order to ensure safety and compliance with this Agreement. Under no circumstances shall this Agreement be interpreted as creating an employer/employee relationship between Contractor and Railroad. Contractor shall not be treated as an employee of Railroad for tax or any other purposes and Contractor shall be responsible for the payment of its own estimated and self-employment tax, if any, for Federal Income Tax purposes. Contractor shall also be responsible for all tax withholdings of its employees.

6.2 Contractor hereby accepts full and exclusive liability for the payment of any and all contributions or taxes for unemployment insurance, medical and old age retirement benefits, pensions or annuities now or hereinafter imposed under any state or Federal laws which are measured by the wages, salaries or other remuneration paid to persons employed by it on the Project. Contractor shall also indemnify and save harmless Railroad from any such contributions or taxes or liability therefor and further shall obey all lawful rules and regulations and meet all lawful requirements which now or hereafter may be issued or promulgated under said respective laws by duly authorized local, state or Federal officials.

6.3 Contractor shall at all times be represented on the Project by a competent superintendent who shall be satisfactory to the Engineer.

6.4 Contractor shall assign personnel with demonstrated competence and experience in the type of work specified in this Agreement. The credentials of such personnel shall be submitted to Railroad for review should Railroad so request. The foregoing is not intended, and shall not be deemed, to limit or modify Contractor's status as an independent contractor, as provided herein.

6.5 This Agreement is placed subject to all the provisions of the Clayton Anti-Trust Act, and if Railroad is advised by its counsel that this Agreement violates or is contrary to the provisions of Section 10 of said Act of Congress, then Railroad shall inform Contractor and thereupon this Agreement shall be terminated.

7. CHANGES: MODIFICATIONS

7.1 All modifications of this Agreement must be approved by authorized

representatives of Railroad's Engineer and shall be by written agreement of the parties signed by their duly authorized representatives.

8. CLAIMS

8.1 If at any time during the period of performance of this Agreement, Contractor shall deem itself to have become entitled to make any claim or demand against Railroad other than, or additional to, the compensation expressly stipulated in this Agreement, Contractor shall give notice in writing to Railroad, specifying such claim or demand, the ground thereof, and the amount thereof.

9. TRANSPORTATION

9.1 Contractor shall provide, pay for, and be liable for all transportation for men, equipment, tools and materials.

10. COMPLIANCE WITH LAWS/PERMITS

10.1 Whenever doing any work embraced within the Project it may be necessary to occupy temporarily, use or obstruct any street, highway, or public place or to do anything whatever in connection with public property, or whenever it shall be necessary in order to comply with building laws or orders of courts or governmental agencies, Contractor shall, at its own cost and expense, procure all necessary approvals, licenses and permits therefore, and in performing the Project Contractor shall comply with all applicable Federal, state and local laws, regulations, ordinances, and agency or court orders, including, without limitation, laws and regulations: (i) pertaining to building and construction; and (ii) pertaining to environmental protection, air and water pollution, and disposal of debris and refuge;and (iii) prohibiting discrimination on grounds of race, color, national origin or sex. Contractor shall pay for all charges of any kind related to the performance of the Project.

10.2 CONTRACTOR SHALL BE RESPONSIBLE FOR AND SHALL PROTECT, INDEMNIFY, DEFEND AND HOLD RAILROAD AND ITS PARENTS, SUBSIDIARIES, AND AFFILIATES AND THE OFFICERS, DIRECTORS, AGENTS AND EMPLOYEES OF RAILROAD AND ITS PARENTS, SUBSIDIARIES AND AFFILIATES HARMLESS FROM ANY AND ALL COSTS AND EXPENSES, INCLUDING, WITHOUT LIMITATION, JUDGMENTS, FINES, PENALTIES, COSTS AND LOSS OF EVERY KIND WHATSOEVER, WHICH MAY ARISE OR RESULT FROM, OR BY REASON OF THE VIOLATION OF ANY APPLICABLE CITY, BOROUGH, VILLAGE OR OTHER LOCAL GOVERNMENTAL ORDINANCE, OR OF A LAW OF ANY STATE, OR THE DISTRICT OF COLUMBIA, OR OF THE UNITED STATES, OR OF ANY ORDER OF ANY AGENCY OR COURT, DURING CONTRACTOR'S PERFORMANCE HEREUNDER.

10.3 Contractor warrants that its performance of this Agreement, as of the date of its execution, is not prohibited by or in violation of any law.

11. TRANSFERS/ASSIGNS

11.1 This Agreement shall inure to the benefit of and be binding upon the successors and assigns of the parties hereto; provided, however, that Contractor shall not sell, subcontract, assign, delegate or otherwise transfer this Agreement or any of its rights or obligations hereunder without the prior written consent of Railroad.

11.2 No approved assignment, letting, transfer or subcontract, whether for labor or material or both, shall under any circumstances relieve Contractor of its obligations or liabilities

under this Agreement or have any bearing on the granting or refusing of any extension of the Completion Date, should the subcontractor fail to perform the work undertaken by it. Contractor shall give personal attention and superintendence to the Project.

11.3 Any subcontract or further letting of any right or obligation of Contractor hereunder shall include provisions binding the subcontractor or other third party to all obligations and requirements of Contractor hereunder and shall require such subcontractor or third party to waive any right to assert any claim directly against Railroad and any right to assert any lien against any property of Railroad.

12. INSPECTION

12.1 All materials of every description used under this Agreement and all workmanship pursuant hereto shall be of the grade specified, and where quality is not specified shall be of the best for the purpose that can be obtained. Material and work shall at all times be open to the inspection, acceptance, or rejection by the Engineer and of such person or persons as they may designate to represent them, as hereinbefore provided. No omission or failure on the part of the Engineer to disapprove or reject any work of the Project at the time of a monthly or other estimate, or during the inspection of the Project shall be construed to be an acceptance of any defective work or part of the Project. Contractor shall be required to correct any imperfect work whenever discovered. If any work be condemned by the Engineer as defective or improperly done, such defective or improper work shall be taken down and rebuilt, or the defects otherwise remedied by Contractor, at its sole expense, as the Engineer in charge of the Project may direct; and in default thereof the same may be done by Railroad at Contractor's expense. The provisions of this section shall apply to work done by subcontractors as well as to work done by direct employees of Contractor.

13. WARRANTY

13.1 Contractor warrants that the Project shall be performed in a safe and effective manner and shall be free from latent and patent defects in quality and workmanship and shall be in full conformity with the plans and specifications set forth in Addendum 1. Contractor also warrants that the Project as complete shall be fit for Railroad's purpose as indicted herein and in documents attached hereto or made a part hereof by reference or if otherwise known to Contractor.

13.2 Contractor, without cost to Railroad, shall remedy any defects that are due to workmanship or to Contractor's failure to fulfill any of its obligations under this Agreement which appears within a period of one (1) year from the date when the Project is fully accepted and certified complete. This obligation is without prejudice to any other rights or remedies afforded by law to Railroad in the event of Breach of Contract by Contractor.

13.3 CONTRACTOR SHALL BE RESPONSIBLE FOR AND SHALL PROTECT, INDEMNIFY, DEFEND AND HOLD RAILROAD AND ITS PARENTS, SUBSIDIARIES AND AFFILIATES, AND THE OFFICERS, DIRECTORS, AGENTS AND EMPLOYEES OF RAILROAD AND ITS SUBSIDIARIES AND AFFILIATES, THEIR CUSTOMERS, AND ANY THIRD PARTY HARMLESS FROM INJURY, DEATH, LOSS, DAMAGE OR EXPENSE WHATSOEVER, AS SET FORTH IN SECTION 14 HEREOF, HOWSOEVER ARISING, WHICH MAY BE SUFFERED AS A RESULT OF OR IN CONNECTION WITH A BREACH OF ANY OF THE FOREGOING WARRANTIES, OR AS A RESULT OF ANY ACCIDENTS OR INCIDENT.

14. INSURANCE

14.1 The Contractor shall, at its own cost and expense, prior to entry onto the property of Railroad or the commencement of any of the work related to the Project pursuant to the Agreement, procure and thereafter maintain for the duration of the Agreement the following types and minimum amounts of insurance:

a. Public Liability or Commercial General Liability Insurance ("CGL"), including Contractual Liability Coverage and CG 24 17 "Contractual Liability – Railroads" endorsement, covering all liabilities assumed by the Contractor under this Agreement, without exception or restriction of any kind, with a combined single limit of not less than Two Million Dollars ($2,000,000) for Bodily Injury and/or Property Damage Liability per occurrence, and an aggregate limit of not less than Six Million Dollars ($6,000,000) per annual policy period. Such insurance policy shall be endorsed to provide a Waiver of Subrogation in favor of the Railroad and all parents and affiliated companies and shall name the Railroad and all parents and affiliated companies as Additional Insured. An Umbrella policy may be utilized to satisfy the required limits of liability under this section.

b. Commercial Automobile Insurance for all owned, non-owned or hired vehicles with a combined single limit of not less than One Million Dollars ($1,000,000) for Bodily Injury and Property Damage Liability. Such policy shall be endorsed to provide a Waiver of Subrogation in favor of the Railroad and all parents and affiliated companies and shall name the Railroad and all parents and affiliated companies as Additional Insured. If hauling hazardous materials, such Policy is to be endorsed with the MCS – 90 endorsement as well as CA 9948 Pollution Liability – Broadened Pollution for Covered Autos.

c. Statutory Workers' Compensation and Employers' Liability Insurance for its employees (if any) with minimum limits of not less than One Million Dollars ($1,000,000) for Bodily Injury by Accident, Each Accident; One Million Dollars ($1,000,000) for Bodily Injury by Disease, Policy Limit; One Million Dollars ($1,000,000) for Bodily Injury by Disease, Each Employee. Such policy shall be endorsed to provide a Waiver of Subrogation in favor of the Railroad and all parents and affiliated companies.

d. Railroad Protective Liability Insurance written in favor of Railroad with limits of Two Million Dollars ($2,000,000) each occurrence and Six Million Dollars ($6,000,000) aggregate limit covering all operations within 50 feet of railroad track.

e. If subcontractors are utilized by the Contractor, Contractor shall furnish evidence that, with respect to the operations performed by subcontractors, such subcontractors are in compliance with all requirements of this Section 14.

f. All railroad exclusions shall be removed by policy endorsements.

g. Punitive damages exclusion, if any, must be deleted (and the deletion indicated on the certificate of insurance), unless (1) insurance coverage may not lawfully be obtained for any punitive damages that may arise under this Agreement; or (2) all punitive damages are prohibited by all states in which this Agreement will be performed.

14.2 The insurance specified in this Agreement must be effected under form policies underwritten by insurers licensed in the state where the work is to be performed, and carry a minimum Best's rating of "A-" and size "Class VII" or better. The Railroad reserves the right to reject any insurance coverage provided by an insurer that is rated less than the rating specified in this Section 14.

14.3 All coverages shall be primary and non-contributory to any insurance coverage's maintained by the Railroad.

14.4 All insurance policies shall be endorsed to provide the Railroad with thirty (30) days prior written notice of cancellation, non-renewal or material changes.

14.5 Contractor shall furnish, to Railroad, certificates of insurance evidencing the insurance coverages, terms and conditions required and specified in this Agreement, at least ten days prior to commencement of any activities on or about the property. Said certificates should reference this Agreement by date and shall be furnished to the Railroad at the following address, or such other address as the Railroad may hereafter specify:

R. J. Corman Railroad Company/_____
101 RJ Corman Drive
P.O. Box 788
Nicholasville, Kentucky 40340
Attn: Melanie Heckman
Melanie.Heckman@RJCorman.com

14.6 If any policies providing the required coverage are written on a claims-made basis, the following shall apply:

a. The retroactive date shall be prior to the commencement of the work,

b. The Contractor shall maintain such policies on a continuous basis, and

c. If there is a change in insurer or policies are cancelled or not renewed, the Contractor shall purchase an extended reporting period of not less than three (3) years after the Completion Date.

14.7 Contractor shall arrange for adequate time for reporting of any loss under this Agreement.

14.8 Furnishing of insurance by the Contractor shall not limit Contractor's liability under this Agreement, but shall be additional security therefore.

14.9 The above indicated insurance coverages shall be enforceable by any legitimate claimant after the termination or cancellation of this Agreement, or any amendment hereto, whether by expiration of time, by operation of law or otherwise, so long as the basis of the claim against the insurance company occurred during the period of time when the Agreement was in effect and the insurance was in force.

14.10 Failure to provide the required insurance coverage or endorsement (including contractual liability endorsement) or adequate reporting time shall be at the Contractor's sole risk and Railroad, in its sole discretion, may terminate this Agreement for such failure.

15. INDEMNITY

15.1 AS BETWEEN RAILROAD AND CONTRACTOR, CONTRACTOR SHALL ASSUME ALL RESPONSIBILITY FOR ANY AND ALL LOSS OR DAMAGE ARISING OUT OF OR IN CONNECTION WITH ANY NEGLIGENT ACT OR OMISSION ON THE PART OF CONTRACTOR OR ANY PERSON OR AGENT EMPLOYED BY IT AND ANY ACT OR OMISSION NOT AUTHORIZED BY THIS AGREEMENT ON THE PART OF CONTRACTOR OR ANY PERSON OR AGENT EMPLOYED BY IT.

15.2 CONTRACTOR AGREES TO INDEMNIFY, DEFEND AND HOLD HARMLESS RAILROAD, ITS PARENT, AFFILIATES, SUBSIDIARIES, AND EACH OF THEIR OFFICERS, DIRECTORS, EMPLOYEES, AGENTS, SERVANTS, SUCCESSORS, AND ASSIGNS ("INDEMNITEES") FROM AND AGAINST ANY AND ALL LOSSES AND LIABILITIES, PENALTIES, FINES, FORFEITURES, DEMANDS, CLAIMS, CAUSES OF ACTION, SUITS, COSTS AND EXPENSES INCIDENTAL THERETO (INCLUDING COSTS OF DEFENSE AND ATTORNEYS' FEES), WHICH ANY OR ALL OF THEM MAY HEREAFTER INCUR, BE RESPONSIBLE FOR OR PAY AS A RESULT OF: (A) INJURY OR DEATH OF ANY PERSON, OR DAMAGE TO OR LOSS OF (INCLUDING LOSS OF USE) ANY PROPERTY, INCLUDING PROPERTY OF THE PARTIES HERETO, TO THE EXTENT ARISING OUT OF OR IN ANY DEGREE DIRECTLY OR INDIRECTLY CAUSED BY THE NEGLIGENCE OF CONTRACTOR, CONTRACTOR'S OFFICERS, EMPLOYEES, AGENTS, SUBCONTRACTORS OR REPRESENTATIVES, OR (B) CONTRACTOR'S NEGLIGENT PERFORMANCE OF THE WORK RELATED TO THE PROJECT, OR FAILURE TO PERFORM ITS OBLIGATIONS IN COMPLIANCE WITH THIS AGREEMENT. THERE ARE EXCEPTED FROM THIS OBLIGATION ONLY CLAIMS, DAMAGES OR OTHER LOSSES TO THE EXTENT THAT THE SAME ARE CAUSED BY THE GROSS NEGLIGENCE OR INTENTIONAL WRONGFUL ACT OR OMISSION ONE OR MORE INDEMNITEES.

15.3 CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DAMAGES AND EXPENSES ON ACCOUNT OF INJURIES, (INCLUDING DEATH) TO, AND PROPERTY DAMAGE OF, ANY OF ITS EMPLOYEES, AGENTS, SUBCONTRACTORS OR REPRESENTATIVES WHILE ON THE PREMISES OF RAILROAD, ITS AFFILIATES OR SUBSIDIARIES AND SHALL INDEMNIFY, DEFEND AND HOLD INDEMNITEES HARMLESS FROM ALL CLAIMS OF DAMAGE OR SUITS WHICH MAY ARISE, EXCEPT AND ONLY TO THE EXTENT THAT SUCH CLAIMS, LOSSES, DAMAGES OR EXPENSES ARE CAUSED BY THE GROSS NEGLIGENCE OF THE INDEMNITEES. CONTRACTOR SHALL ALSO REPAIR OR REPLACE ANY PROPERTY OF INDEMNITEES, WHICH IS DAMAGED BY CONTRACTOR'S EMPLOYEES, AGENTS OR SUBCONTRACTORS WHILE PERFORMING THE WORK HEREUNDER.

15.4 Contractor agrees to indemnify and hold harmless Indemnitees irrespective of any fault or negligence on their part, from and against all losses and liabilities, fines, penalties, forfeitures, demands, claims, causes of action, suits, costs and expenses incidental thereto (including reasonable costs of defense and attorneys' fees) which may arise from the existence, discharge, release, and/or disposal of any materials, including any wastes, brought on to the property of Railroad by Contractor, its employees, agents, subcontractor or representatives in connection with performance of work related to the Project pursuant to the Agreement.

15.5 IN NO EVENT SHALL RAILROAD OR ITS PARENTS, AFFILIATES, OR SUBSIDIARIES BE LIABLE TO CONTRACTOR FOR ANY PUNITIVE, INCIDENTAL, INDIRECT, OR CONSEQUENTIAL DAMAGES.

16. REMOVAL OF WASTE AND SURPLUS MATERIAL

16.1 Contractor shall be responsible for the removal and proper discarding of all equipment, materials, supplies, explosives, chemicals and debris. All surplus materials that may accumulate on or about the Project and premises occupied by Contractor during the term of this Agreement including specific Railroad owned salvaged materials of which the Railroad does not desire to retain ownership shall be removed.

16.2 Contractor shall comply with all applicable Federal, state and local laws, ordinances, rules, regulations and all lawful orders of any constituted authority including, without limitation, the Resource, Conservation and Recovery Act (42 U.S.C. S6901 et seq.) and the Toxic Substance Control Act (15 U.S.C. S2601 et seq.) and all other laws pertaining to the generation, transportation, treatment, storage and disposal of solid, hazardous and municipal wastes.

16.3 Railroad's property shall be left in a clean and safe condition as determined by the Engineer and the condition of said premises shall be subject to the approval of Railroad at all times during the course of the Project.

17. AUDIT

17.1 Contractor shall keep and maintain good and accurate records of all matters in any manner pertaining to this Agreement, the performance of the same, payments made to Contractor pursuant hereto, and payments made by Contractor pursuant hereto, including but not limited to payroll and tax liabilities and payments beginning with the effective date of this Agreement and continuing for a period ending three (3) years from the date of final acceptance of all work by Railroad, and shall make those records available for audit and inspection by Railroad or its agents during normal business hours upon seven (7) days notice and request for same.

18. NOTICES

18.1 Notices required or permitted hereunder shall be deemed effective when delivered by commercial overnight courier or electronically:

If to Railroad at:

R. J. Corman Railroad Company
101 RJ Corman Drive
P.O. Box 788
Nicholasville, Kentucky 40340
Attn: Melanie Heckman
Melanie.Heckman@RJCorman.com

Copy to: Deborah.Hawley@rjcorman.com

If to Contractor at:

_____
_____
_____
_____
_____.____@_____.com

19. DISPUTE RESOLUTION

19.1 Dispute resolution shall be by arbitration under the Construction Contract Rules of the American Arbitration Association at a neutral location to be chose by a single arbitrator; provided, however that the existence of a dispute shall not entitle Contractor to suspend performance under this Agreement pending the resolution of the dispute and further provided that each party shall be entitled to seek temporary equitable relief from any court otherwise having jurisdiction over such dispute.

20. WAIVER

20.1 No omission or delay by Railroad in enforcing any right or remedy or in requiring performance of any of the term of this Agreement shall constitute or be deemed to constitute a waiver of any such right or remedy, nor shall it in any way affect the right of Railroad to enforce such provisions thereafter unless such right or remedy is specifically waived by Railroad in writing. No single or partial exercise by or of any right or remedy hereunder shall preclude any other or further exercise thereof or the exercise of any other right or remedy.

21. APPLICABLE LAW

21.1 This Agreement shall be governed by and construed in accordance with the laws of the state where the project work is located.

22. SEVERABILITY

22.1 If any provisions of this Agreement shall be held to be invalid, illegal or unenforceable, the validity of all other provisions hereof shall in no way be affected thereby.

23. NON-EXCLUSIVITY

23.1 Contractor acknowledges that nothing in this Agreement shall be construed to give Contractor exclusive rights to perform the type of work or project identified in this Agreement, or any other service, for Railroad. Railroad specifically reserves the right to enter into agreements with other contractors to perform similar, supplemental, additional or other services as deemed appropriate in the opinion of Railroad.

24. HEADINGS

24.1 Section headings are for convenience only and shall not be construed as part of this Agreement.

25. SURVIVAL

25.1 The indemnities and assumptions of liability and responsibility provided in this Agreement, shall continue in full force and effect notwithstanding the termination or cancellation of this Agreement or any attachment hereto whether by expiration of time, by operation of law or otherwise.

26. ENTIRE AGREEMENT

26.1 This Agreement together with all appendices, schedules and exhibits attached hereto constitutes the entire agreement between the parties and supersedes all previous understandings related to the Project.

27. UNDERSTANDING OF REQUIREMENTS

27.1 The parties hereby distinctly and expressly declare and acknowledge that, before the signing of this Agreement, they have carefully read the same, and the whole thereof, together with and in connection with said specifications, and that they have made such examination of this Agreement and specifications, the location where said work is to be done, the nature of the work required to be done, and the material required to be furnished, as to enable them to understand thoroughly the intention of the same, and the requirements, covenants, agreements, stipulations and restrictions contained herein and in said specifications. Contractor shall not

hereafter make any claim or demand upon Railroad based upon or arising out of any alleged misunderstanding or misconception on its part of the said requirements, covenants, stipulations, and restrictions; and that any information (other than through a Supplemental Agreement), given to Contractor by the Engineer or others as to the quantities in the Project prior to, or during the progress of the Project, shall have no bearing or effect whatsoever upon the total amount to be paid for in the final settlement.

28. THIRD-PARTY BENEFICIARIES

28.1 Other than the referenced state where work is performed, there are no third-party beneficiaries to this Agreement. This Agreement shall not confer any rights or remedies upon any person other than the parties, and to the extent expressly set forth herein, their affiliates, and their respective successors and permitted assigns.

The parties hereto have caused this Agreement to be duly executed by their duly authorized officials as of the date first stated above.

R. J. CORMAN RAILROAD COMPANY/ *(CONTRACTOR)*
(Railroad Line)

BY: _____ BY: _____

TITLE: _____ TITLE: _____

General Conditions

Joint and Several Liability

If the Contractor is composed of more than one legal entity, each such entity shall be jointly and severally liable hereunder.

Subcontractors and Suppliers

The Contractor shall clearly and specifically set forth in all subcontracts the terms and conditions of the subcontract.

No subcontractor shall be permitted to perform Work at the site until the Contractor has furnished the Engineer with the subcontractor's evidence of insurance as required by the Article entitled Insurance and the subcontractor has been approved by the Engineer.

Prior to entering any subcontract for Work to be performed at the site, the Contractor shall secure the approval of R. J. Corman regarding the prospective subcontractor's qualifications, employment data and affirmative action program. R. J. Corman will review the submittal from each subcontractor and will furnish written notification to the Contractor concerning approval of the award of the subcontract. If R. J. Corman objects to the proposed award, the Contractor may furnish written notice of another subcontractor for R. J. Corman's consideration.

Subcontractors shall be nominated and approved a minimum of fourteen (14) Working days prior to the anticipated time they intend to commence Work on the project.

Within seven calendar days of the receipt of any payment from R. J. Corman, the Contractor shall pay each of its subcontractors the proceeds from the payment representing the value of the Work performed and/or materials furnished by the subcontractor and reflecting the percentage of the subcontractor's Work completed or the material supplied in the requisition approved by R. J. Corman and based upon the actual value of the subcontract or purchase order less an amount necessary to satisfy any claims, liens or judgments against the subcontractor which have not been suitably discharged and less any retained amount as hereafter described.

Failure by the Contractor to pay any subcontractor within seven calendar days of the receipt of any payment from R. J. Corman shall result in the commencement and accrual of interest on amounts due to such subcontractor for the period beginning on the day immediately following the expiration of such seven-calendar day period and ending on the date on which payment is made by the Contractor to such subcontractor. Such interest payment shall be the sole responsibility of the Contractor and shall be paid at the rate of interest in effect on the date payment is made by the Contractor. Notwithstanding any other provision of law to the contrary, interest shall be computed at the rate equal to the overpayment rate set by the commissioner of taxation and finance pursuant to subsection (e) of section one thousand ninety-six of the tax law.

The Contractor shall retain not more than five percent of each payment to the subcontractor except that the Contractor may retain in excess of five percent but not more than ten percent of each payment to

the subcontractor. Within seven calendar days of the receipt of payment from the Contractor, the subcontractor shall pay each of its subcontractors in the same manner as the Contractor has paid the subcontractor, including interest as herein provided above. After the initial progress payment and before any further payments, the Contractor shall provide acknowledgments from all subcontractors included in the previous payment application that they have been paid. Further, payment shall be conditioned on the certification by the Contractor that the subcontractors have satisfactorily progressed the Work and met other contractual and payment obligations. Monthly progress payments may be withheld if the Contractor fails to supply R. J. Corman with all required certified payroll records.

The Contractor shall not, without the consent of the Engineer, either replace any subcontractor previously approved by R. J. Corman or permit any such subcontract to be assigned or transferred or allow the portion of the Work to be performed by anyone other than the approved subcontractor, except it may perform the Work itself upon written notice to R. J. Corman with qualified personnel in accordance with applicable law.

Nothing provided in this Article shall be construed as: creating privity of contract between R. J. Corman and any subcontractor; limiting or diminishing any rights or remedies which R. J. Corman may have against the Contractor arising out of this Agreement; or relieving the Contractor of any responsibility for performance of this contract because of any action taken by R. J. Corman or the failure to act by R. J. Corman. Nothing provided herein shall create any obligation on the part of R. J. Corman to pay or to see to the payment of any moneys to any subcontractor from any contractor nor shall anything provided herein serve to create any relationship in contract or otherwise, implied or expressed, between the subcontractor and R. J. Corman.

Changes in Quantities

R. J. Corman reserves and shall have the right to make such changes as may be necessary or desirable to complete the Work originally intended in an acceptable manner. The Engineer is authorized to direct such alterations in the Work as may increase or decrease the originally estimated contract quantities.

For bid items paid for on a unit price basis, payment for increases or decreases in quantities will be determined by comparing the actual quantity of the bid item with the estimated quantities in the Itemized Proposal.

If a bid item has a total cost of less than five percent of the contract sum, payment will be made at the contract unit price regardless of the amount of increased or decreased quantities.

If a bid item has a total cost of five percent or greater of the contract sum, payment will be made at the contract unit price if the amount of increased or decreased quantities varies by twenty-five percent or less from the estimated quantities on the Itemized Proposal.

If a bid item has a total cost of five percent or greater of the contract sum, and the amount of increased or decreased quantities varies by more than twenty-five percent from the estimated quantities on the Itemized Proposal, an adjustment will be made to the contract sum in accordance with the Article entitled Payment for Agreed Prices and a Change Order will be issued. A Change Order for altered Work may also include an extension of the Contract Time pursuant to the Article entitled Delays. If R. J. Corman and the Contractor are unable to agree on an adjustment to the contract sum for any bid item, R. J. Corman reserves the right to delete the bid item, in whole or in part, and make other arrangements

for its completion. Alternatively, R. J. Corman may direct the Contractor to complete the Work subject to the Contractor's rights pursuant to the Article entitled Disputes.

Extra Work

Should acceptable completion of the Agreement require the Contractor to perform an item of Work for which no basis of payment has been provided in the original Agreement or previously issued Change Orders or supplemental agreements, the same shall be called Extra Work. Extra Work that is within the general scope of the Agreement shall be covered by written Change Order. Extra Work that is necessary for acceptable completion of the project but is not within the general scope of the Work covered by the original Agreement, shall be covered by supplemental agreement.

Change orders or supplemental agreements for such Extra Work shall contain the prices for performing the Extra Work in accordance with the requirements specified in the Change Order or supplemental agreement and shall contain any adjustment to the contract time that, in the Engineer's opinion, is necessary for completion of such Extra Work.

Extra Work performed in accordance with this Article will be paid for at the contract prices, agreed prices or force account prices as specified in the Change Order or supplemental agreement authorizing such Extra Work. No Extra Work shall be paid for which is performed prior to written authorization by the Engineer or submission of a notice of claim pursuant to the Article entitled Notice of Potential Claim.

Any claim for payment of Extra Work that is not covered by written Change Order or supplemental agreement shall be rejected by R. J. Corman.

Differing Site Conditions

The Contractor shall promptly and before such conditions are disturbed, notify the Engineer in writing of: (1) subsurface or latent physical conditions at the site differing materially from those indicated in the Contract Documents, or (2) unknown physical conditions at the site of an unusual nature differing materially from those ordinarily encountered and generally recognized as inherent in Work of the character provided for in the Contract Documents. The Engineer will promptly investigate the conditions and if it finds that such conditions do materially differ and cause an increase or decrease in the Contractor's cost of, or the time required for performance of any part of the Work under the Agreement, whether or not changed as a result of such conditions, an equitable adjustment shall be made, and the Agreement modified in writing accordingly. No claim of the Contractor under this Article shall be allowed unless the Contractor has given the notice of potential claim. No claim by the Contractor for an equitable adjustment hereunder shall be allowed if asserted after final payment under this Agreement. If the Engineer is not given written notice prior to the conditions being disturbed, the Contractor will be deemed to have waived its right to assert a claim for additional time and compensation arising out of such changed conditions.

Payment for Agreed Prices

When the Change Order or supplemental agreement authorizing the Extra Work specifies that agreed upon prices is to be the method of payment, the following is required:

All Extra Work proposals will be supported by a complete price analysis.

For Work performed by the Contractor, a ten percent factor for overhead will be applied on the labor and materials and equipment and a ten percent factor for profit will be applied to the base cost of labor, materials and equipment.

When an approved subcontractor is involved, the subcontractor may apply a fifteen percent factor for overhead and profit on base cost of labor, material and equipment. The Contractor may take a five percent combined overhead and profit on the subcontracted Work without the subcontractor's mark up. The total percent factor for overhead and profit for the Contractor and all the subcontractors' Work shall not exceed twenty-five percent.

When an approved subcontractor is involved, the subcontractor's price analysis shall be submitted on its company letterhead.

Extra Work - Auditing and Accounting

When extra Work is ordered through the issuance of a change order or supplemental agreement, reimbursement for all cost items will be subject to the provisions found in the Federal Acquisition Regulations.

Time is of the Essence

Time is of the essence in this Agreement. All of the Work under the Agreement shall be completed within the time as set forth herein from the effective date of the Notice to Proceed, unless such period of time shall be extended by the Engineer. The Work shall be deemed completed when the entire project, at the completion of all Work, including the completion of all punch list items, has been finally accepted by R. J. Corman.

Use and Possession Prior to Completion

R. J. Corman shall have the right to take possession of or use any completed or partially completed part of the Work. Such possession or use shall not be deemed an acceptance of any Work not completed in accordance with the Agreement. While R. J. Corman is in such possession, the Contractor shall be relieved of the responsibility for loss or damage to the Work other than that resulting from the Contractor's fault or negligence. If such prior possession or use by R. J. Corman delays the progress of the Work or causes additional expense to the Contractor, an equitable adjustment in the contract price at the time of completion will be made and the Agreement shall be modified in writing accordingly.

Rights in Shop Drawings and Working Drawings

Shop drawings, working drawings and submittals are submitted to the Engineer by the Contractor, pursuant to the Contract Documents, showing in detail the method, fabrication, installation, control, clearance, etc., for all equipment and materials as required by the technical specifications and necessary for proper review and approval. R. J. Corman may duplicate, use and disclose in any manner and for any purpose shop drawings and Working drawings delivered under this Agreement.

Protection of Existing Vegetation, Facilities and Utilities

The Contractor will preserve and protect all existing vegetation such as trees, shrubs and grass on or adjacent to the Worksite, which are not indicated to be removed and which do not unreasonably interfere with the construction Work.

The Contractor will protect from damage all existing facilities at or near the site of the Work and will repair or restore any damage to such facilities at the Contractor's expense resulting from failure to comply with the requirements of this Agreement or the failure to exercise reasonable care in the performance of the Work.

Emergencies

In an emergency affecting the safety of life, the Work, or adjacent property, the Contractor shall make reasonable efforts under the circumstances to notify R. J. Corman as early as possible that an emergency exists, then, without special instruction or authorization from R. J. Corman as to the manner of dealing with the emergency, shall act at its own discretion to prevent such threatened loss or injury. As emergency Work proceeds, R. J. Corman may issue instructions which the Contractor shall follow.

Suspension of Work

The Engineer may order the Contractor in writing to suspend, delay or interrupt all or any part of the Work ("stop Work order") for such period of time as the Engineer may determine to be appropriate for the convenience of R. J. Corman.

No equitable adjustment shall be made for any suspension, delay or interruption to the extent (1) that performance would have been suspended, delayed or interrupted by any other cause including the fault or negligence of the Contractor or (2) for which an equitable adjustment is provided or excluded under any other provision of this contract. Adjustments shall be determined in the manner provided in the Articles entitled Payment for Agreed Prices and Payment for Force Account Work.

No claim under this Article shall be allowed unless a Notice of Potential Claim is submitted as provided in this Agreement.

Upon receipt thereof, the Contractor shall comply immediately with the written order of R. J. Corman to suspend the Work. Work shall be resumed when the Contractor is so advised in writing by R. J. Corman.

The Contractor shall insert in all subcontracts a provision that subcontractors shall comply immediately with a written order of R. J. Corman to the Contractor to suspend the Work and that they shall further insert the same provisions in all subcontracts.

Accident Prevention

The Contractor is responsible for the provision of safety controls for protection to the life and health of employees and other persons; for prevention of damage to property, materials, supplies and equipment and for avoidance of Work interruptions in the performance of this Agreement. The Contractor shall comply with all local, state and federal safety standards. Nothing contained herein shall relieve the Contractor of any liability imposed by such standards.

Barricades, Warning Signs and Hazard Markings

The Contractor shall furnish, erect and maintain all barricades, warning signs and markings for hazards necessary to protect the public and the Work. When used during periods of darkness, such barricades, warning signs and hazard markings shall be suitably illuminated.

For vehicular and pedestrian traffic, the Contractor shall furnish, erect and maintain barricades, warning signs, lights and other traffic control devices in reasonable conformity with the Manual of Uniform Traffic Control Devices for Streets and Highways.

The Contractor shall furnish and erect all barricades, warning signs and markings for hazards prior to commencing Work which requires such erection and shall maintain the barricades, warning signs and markings for hazards until they are dismantled.

Progress Payments

Progress payments will be made to the Contractor based upon the payment schedule in the Agreement or the Engineer's estimate of the value of the Work executed and actually complete. The conditions under which such partial payments will be made are as follows:

Each contractor and subcontractor shall submit a certified copy of each weekly payroll within seven days after the regular payroll date. Failure to do so shall be grounds for withholding of progress payments. The certified payroll shall only include persons and hours for Work performed pursuant to this Agreement.

After the initial progress payment, and before any further progress payments are made, the Contractor is required to obtain an acknowledgment from all subcontractors and suppliers included in the previous payment application that they have been paid. The Contractor shall certify that it has satisfactorily progressed the Work and met other contractual and payment obligations.

Final Payment

Final Payment will be made for actual quantities of Work performed and materials in place as determined by the measurements of the Engineer, and the resulting quantities involved in this Agreement shall be accepted as final, conclusive and binding upon the Contractor.

When this final certificate is approved, the money due the Contractor for the performance of the project as determined by said final certificate after deduction of previous payments on account and any amounts of liquidated damages and/or engineering charges assessed against the Contractor, will be paid the Contractor, provided however, that before final payment is made the following requirements shall be satisfied:

1. Final inspection shall have been accomplished.
2. There shall be no outstanding claims against the Contractor filed with R. J. Corman.
3. The Contractor shall have paid all due obligations and shall have furnished when directed by the Engineer receipted bills or other satisfactory evidence that all obligation incurred by the Contractor and its subcontractors in carrying out the project have been satisfied.
4. The Contractor shall execute and deliver a release substantially in the following form:

"In consideration of the above payment, we hereby release the R. J. Corman and its members, officers, agents and employees from all claims, demands and liability of

whatsoever nature for anything done or furnished or in any manner arising from the performance of the project."

The acceptance by the Contractor of payment of the final certificate shall operate as and shall be a release to R. J. Corman and its agents from all claims or liability to the Contractor for anything done or furnished or omitted to be done or furnished for or relating to the project, or any act of neglect of R. J. Corman or any person, relating thereto.

Upon final determination of all of the Contractor's claims, R. J. Corman, in exchange for an executed release, will pay the entire sum found due upon the approval of the Chief Financial Officer, based upon final audit.

Prompt Payment Rules and Regulations

The following prompt payment rules and regulations set forth provisions which are intended to improve relationships between R. J. Corman and its contractors, vendors and all those providing services or supplies through contractual relationship with R. J. Corman.

Definitions. As used in these rules and regulations, the following terms shall have the following meanings unless the context shall indicate another or different meaning or intent:

1. "R. J. CORMAN" means the R. J. Corman Railroad Company/Carolina Lines.
2. "Contract" means an enforceable agreement entered into between R. J. Corman and a contractor.
3. "Contractor" means any person, partnership, private corporation or association: (i) selling materials, equipment or supplies, or leasing property or equipment to R. J. Corman; (ii) track constructing, reconstructing, rehabilitating or repairing buildings, highways or other improvements for or on behalf of R. J. Corman; or (iii) rendering or providing services to R. J. Corman pursuant to a contract.
4. "Designated payment office" means the office designated by R. J. Corman to which a proper invoice is to be submitted by a contractor.
5. "Prompt payment" means payment of an acceptable proper invoice within 30 days.
6. "Proper invoice" means a written request for a contract payment that is submitted by a contractor setting forth the description, price and quantity of goods, property, or services delivered or rendered, in such form and supported by such other substantiating documentation as R. J. Corman may reasonably require.
7. "Receipt of an invoice" means (i) the date on which a proper invoice is actually received in the designated payment office, or (ii) the date on which R. J. Corman receives the purchased goods, property or services covered by the proper invoice, whichever is later.
8. "Set-off" means the reduction by R. J. Corman of a payment due to a contractor by an amount equal to the amount of an unpaid legally enforceable debt owed by the contractor to R. J. Corman. Set-off rights include all rights at common law, in equity and statutory rights of set-off without any limitation with respect to set-off of any amounts due to the Contractor under the underlying agreement and any other contract with R. J. Corman, regardless of the term thereof.
9. "Statement" means these rules and regulations.

Payment Request Procedure. Each month the contractor shall submit a proper invoice for percentage, lump sum or units of items completed. Invoices should include detailed information and must be signed.

Sources of Funds. All interest due and payable to contractors under these regulations will be paid from available revenue sources including R. J. Corman general funds.

Extensions. The facts and conditions which will reasonably justify extension of the date by which contract payment must be made for R. J. Corman not to become liable for interest payments are as follows:

1. In accordance with specific statutory or contractual provisions, if payment must be preceded by an inspection period and/or an audit to determine the resources applied or used by the contractor in fulfilling the terms of the contract.
2. If the necessary state government appropriation required to authorize payment has not been enacted, or when statutory, contractual or grant agreement provisions provide for prior federal review before the use of federal funds for payment.
3. If payments must be processed through the State Department of Audit and Control, the State Department of Taxation and Finance, or some other entity not under R. J. Corman's control.
4. If the date by which contract payment must be made is modified in accordance with section 6 herein.
5. if the contract provides that the contractor will be paid at predetermined intervals.

Defects or Improprieties. R. J. Corman shall have fifteen calendar days after receipt of an invoice by R. J. Corman at its designated payment office to notify the contractor of:

1. defects in the delivered goods, property or services;
2. defects in the invoice, or
3. suspected improprieties of any kind.

The existence of such defects or improprieties shall prevent the commencement of the time period specified in Interest Eligibility and Computation, above. When R. J. Corman fails to notify a contractor of such defects or suspected improprieties within fifteen calendar days of receiving the invoice, the number of days allowed for payment of the corrected proper invoice will be reduced by the number of days between the fifteenth day and the day than notification was transmitted to the contractor. If R. J. Corman, in such situations, fails to provide reasonable grounds for its contention that a defect or impropriety exists, the date by which contract payment must be made in order for R. J. Corman not to become liable for interest payments shall be calculated from the date of receipt of an invoice.

Brand Specific References or Equal

When in the Plans and Specifications, a particular brand, name of manufacturer, make of material, device or equipment is shown or specified, such material, device or equipment is to be regarded merely as a standard of comparison. Any other make or brand, which, in the opinion of the Engineer, is equal to that specified in quality or workmanship and will perform its intended purpose as that specified, will be accepted.

Where the phrase "or equal" or "or equal as approved by the Engineer" occurs in the Contract Documents, do not assume that the materials, equipment, or methods will be approved as equal unless

the item has been specifically so approved in writing for this Work by the Engineer. The decision of the Engineer shall be final.

Substitutions

Substitutions for Cause. Submit requests for substitution immediately on discovery of need for change, but not later than fifteen days prior to time required for preparation and review of related submittals.

Substitutions for Convenience. Substitutions for convenience shall not be allowed.

Clauses Required To Be Flowed Down

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X. PERSONNEL, PARTICIPANT, and SUB-SUBRECIPIENT CONDITIONS

A. EEOC and other Federal, State and Local Laws - General Compliance

To the extent set forth in the respective statues, the Subrecipient shall comply with the provisions of:

a. Titles VI, Title VII, and Title VIII of the Civil Rights Act of 1964, as amended;
b. The Americans with Disabilities Act of 1990, as amended;
c. Age Discrimination in Employment Act of 1975;
d. Equal Pay Act of 1963, as amended;
e. Fair Labor Standards Act of 1938, as amended;
f. Immigration Reform and Control Act of 1986, as amended;
g. South Carolina Wages Act, S.C. Code § 37-10-10, *et seq*., as amended;
h. South Carolina Illegal Immigration Reform Act, including without limitation Chapters 14 & 29, Title 8, and Chapter 8, Title 41, S.C. Code of Laws, as amended; and
i. Part 681, Title 16 of the Code of Federal Regulations, Sections 114 and 315 of the Fair and Accurate Credit Transactions Act (FACTA) of 2003; the South Carolina Act of 2008; Financial and Identity Theft Protection Act; and the Horry County Privacy / Identity Theft Policy.

By entering into this Agreement the Subrecipient affirmatively warrants that the Subrecipient is currently in compliance with such laws, and further warrants that during the term of this Agreement, the Subrecipient shall remain in compliance therewith.

B. Civil Rights

1. Compliance

Subrecipients of Federal financial assistance from the Treasury are required to meet legal requirements relating to nondiscrimination and nondiscriminatory use of Federal funds. Those requirements include ensuring that entities receiving Federal financial assistance from the Treasury do not deny benefits or services, or otherwise discriminate on the basis of race, color, national origin (including limited English proficiency), disability, age, or sex (including sexual orientation and gender identity), in accordance with the following authorities: Title VI of the Civil Rights Act of 1964 (Title VI) Public Law 88-352, 42 U.S.C. 2000d-1 et seq., and the Department's implementing regulations, 31 CFR part 22; Section 504 of the Rehabilitation Act of 1973 (Section 504), Public Law 93-112, as amended by Public Law 93-516, 29 U.S.C. 794; Title IX of the Education Amendments of 1972 (Title IX), 20 U.S.C. 1681 et seq., and the Department's implementing regulations, 31 CFR part 28; Age Discrimination Act of 1975, Public Law 94-135, 42 U.S.C. 6101 et seq., and the Department implementing regulations at 31 CFR part 23.

C. Affirmative Action

1. Approved Plan

The Subrecipient agrees that it shall be committed to carry out pursuant to the Grantee's specifications an Affirmative Action Program in keeping with the principles as provided in President's Executive Order 11246 of September 24, 1966. The Grantee shall provide Affirmative Action guidelines to the Subrecipient to assist in the formulation of such program. The Subrecipient shall submit a plan for an Affirmative Action Program for approval prior to the award of funds.

2. Access to Records

The Subrecipient shall furnish and cause each of its own Subrecipients or subcontractors to furnish all information and reports required hereunder and will permit access to its books, records and accounts by the Grantee, Treasury, or its agent, or other authorized Federal officials for purposes of investigation to ascertain compliance with the rules, regulations, and provisions stated herein.

3. Notifications

The Subrecipient will send to each labor union or representative of workers with which it has a collective bargaining agreement or other contract of understanding, a notice, to be provided by the agency contracting officer, advising the labor union or worker's representative of the Subrecipient's commitments hereunder, and shall post copies of the notice in conspicuous places available to employee and applicants for employment.

3. Equal Employment Opportunity and Affirmative Action (EEO/AA) Statement

The Subrecipient will, in all solicitations or advertisements for employees placed by or on behalf of the Subrecipient state that it is an Equal Opportunity or Affirmative Action Employer.

Technical Specifications

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1. MOBILIZATION-DEMOBILIZATION

1.1 Description. Under this work the Contractor shall provide necessary bonds, insurance, and financing and shall set up his necessary general plant, including shops, storage areas, office and such sanitary and other facilities as are required by local or state law or regulation and removal of same after completion of work.

1.2 Materials. Such materials as required for mobilization and that are not to be part of the completed contract shall be as determined by the Contractor, except that they shall conform to any pertinent local or State Law, regulation, or code.

1.3 Construction Details. The work required to provide the above facilities and service for mobilization shall be done in a safe and workmanlike manner and shall conform with any pertinent local or State Law, regulation, or code. Good housekeeping consistent with safety shall be maintained.

1.4 Basis of Payment.

1.4.1 Units. Payment for mobilization will be made on a lump sum basis. (lump sum)

1.4.2 Included Costs. The amount bid shall include the furnishing and maintaining of services and facilities noted under above, to the extent and at the time the Contractor deems them necessary for his operations, consistent with the requirements of this work and the respective contract. The amount bid shall be payable to the Contractor with the first contract payment made for other contract work.

END OF SECTION

2 INSTALL BALLAST AND SURFACE

2.1 Description. The work shall consist of raising, aligning and surfacing track and turn-outs at the locations indicated in the Contract Documents, or as ordered by the Engineer.

2.2 Materials. Ballast used for this work shall be furnished by the Contractor, conform to A.R.E.M.A. Portfolio of Plans and Specifications, meet requirement stated in this section, and be approved by the Engineer prior to use. Any material rejected by the Railroad as not complying with these specifications shall be replaced by the contractor at no expense to the Railroad. Any material distributed by the Contractor which is lost, stolen or damaged will be replace by the Contractor at its cost and expense.

2.2.1 Ownership of Material - Materials furnished by the Railroad will remain the property of the Railroad.

2.2.2 Storage Areas - Certain areas within Railroad owned right-of-way may be made available to the Contractor. These areas, if available, will be defined and located at the pre-bid conference. Security of the storage areas shall be the Contractor's responsibility. Material storage locations and method of storage must in no way interfere with traffic and must be designated or approved. The Railroad shall have the right to move or have the Contractor move material from storage locations. The Railroad shall bear the actual cost of such moving from storage locations which were specifically designated by the Engineer. Moving stored materials from other locations shall be at Contractor's expense.

2.2.3 Record Keeping. The Contractor shall provide to the Railroad, or their representative, a record of all materials that are installed for this project. A weekly inventory shall be kept by the Contractor showing materials on hand, material that has been installed, material that has been salvaged, and material that has been stored for the Railroad. This inventory will be made available to the Railroad at any time they request this information.

2.2.4 Certification. Contractor shall provide written certification that the ballast being provided meet the requirements of this specification.

2.2.5 Ballast Sizing. Ballast shall be clean crushed stone free of screenings, dirt, and foreign matter. Ballast size gradation shall conform to the table below. The company shall receive certification from the supplier that the ballast meets the requirements of this specification.

Ballast Size	Nominal Size, Square Opening	Percent Passing, Sieve Opening										
		2-1/2"	2"	1-1/2"	1"	3/4"	1/2"	3/8"	1/4"	1/8"	No.4	No.8
4*	1 ½"	100	100	90-100	20-55	0-15		0-5				0
57	1"-NO.4	100	100	100	95-100		25-60				0-10	0-5

2.3 Construction Details.

2.3.1 Track Alignment. The track section, when completed shall be in conformance with the track alignment and elevation as indicated in the Contract Documents, and the limits specified herein, or as ordered by the Engineer. Track alignment shall be in conformance with FRA Track Safety Standards Subpart C-Track Geometry-Subsection 213.55, Alignment plus the requirements in this specification. The class of track for surfacing shall be FRA Class III or better. The requirements of subsection 213.57, Curves; Elevations and Speed Limitations, and 213.59, Elevations of Curved track; Runoff, of FRA Track Safety Standards shall apply unless otherwise specified by the Engineer. Visible long distance alignment errors, e.g., "line swings, hooks, etc.", shall be corrected to the satisfaction of the Engineer. This includes the use of external alignment references, such as a laser, as necessary to correct those defects. Equipment proposed for this item shall be equipped to use an external reference, such as a laser, in addition to machine borne reference systems.

2.3.2 Track Surface. Track surface shall be in conformance with FRA Track Safety Standards Subpart C-Track Geometry-Subsection 213.63, Track Surface plus the requirements in this specification. The class of track for surfacing shall be FRA Class 1.

2.3.3 Cross Level Deviation. The deviation from zero cross level at any point on tangent or from designated elevation on curves between spirals shall not be more than 1/4". The difference in cross level between any two points less than 39 ft. apart on tangents and curves between spirals shall not be more than 1/4".

2.3.4 Super Elevation and Grade. Track Elevation shall conform to Contract Documents.

2.3.5 Equipment. The equipment to be used in the alignment and surfacing operation shall be a Tamper Model Mark IV or an approved equal and MUST be approved by the Engineer prior to use. An external alignment reference such as a laser shall be used upon request of the Engineer.

2.3.6 Maintain Work. Work shall be performed so that track will maintain the alignment, surface, and elevation after tamping.

2.3.7 Bearing Surface. The track section, when completed, shall have the tie plate bear fully on the ties and the rail base bear fully on the tie plate. No portion of the tie plate shoulder, or stone or any foreign material, shall be permitted under the base of the rail.

2.3.8 Tamper Insertions. All ties shall receive not less than two (2) separate insertions of the squeeze type vibratory tamper.

2.3.9 Damaged Spikes. All track spikes damaged and not functioning as intended during the raising, aligning, and surfacing operation shall be repaired. The bent spikes shall be removed, and the resulting hole shall be plugged with a treated tie plug of a size sufficient to completely and tightly fill the hole, then a new spike shall be driven. Spikes that are raised shall be re-driven unless they are loose in their hole. If they are loose, the hole shall be plugged with a tie plug and the spike re-driven.

2.3.10 Ballast. Existing ballast shall be re-used. New ballast shall be used as required. All cribs shall be full of ballast and track will be broomed with a ballast regulator so that ballast is level with the top of the tie. No ballast shall remain on the top of the tie. Shoulders shall conform to the Railroad standard cross-section.

2.3.10.1 Placement. The ballast required for raising and surfacing track shall be distributed from hopper bottom or special ballast railroad cars, or alternate method of distribution approved by the Engineer, in the quantities as shown in the Contract Documents or ordered by the Engineer as necessary for the raise. Immediately after distributing the ballast, the track shall be dressed as necessary to permit continued operation of normal train service including proper operation of switches, frogs, guard rails, and flange areas.

2.10.2 Transport Equipment. The rail cars or other equipment used to transport the ballast shall be in good condition, so that leakage of ballast does not occur, and so that the spreading operation can be controlled. The rail cars or other equipment shall be free of any debris or foreign material that might contaminate the ballast.

2.3.11 Track Circuit. Care shall be taken to insure that track circuit or relay wires are not damaged (if applicable). If the Contractor damages the circuit wires or bonds, they will be responsible to reimburse the Railroad for their repair.

2.3.12 Rise. The amount of standard raise shall not exceed three (3) inches. Track receiving less than the minimum specified raise shall not be considered acceptable. Exceptions may be made for surfacing into fixed points such as crossings, switches, bridges, and areas of restricted clearance with prior approval of Engineer.

2.3.13 Lifting Tangent Track. When lifting tangent track both rails shall be raised at the same time to the same level.

2.3.14 Simultaneous Tamping. Both ends of the ties shall be tamped simultaneously and tamping inside and outside of the rail shall be done at the same time.

2.3.15 Proper Tooling. Worn or broken tamping tools shall be replaced at the request of the Railroad. Track tamped with broken or worn tamping tools shall not be considered acceptable until tamped with proper tooling in a manner acceptable to the Railroad. Worn regulator or broom elements shall be replaced or repaired at the request of the Railroad. Should surfacing machinery or its operators be discovered to be

building errors into the surfaced and aligned track, contractor shall correct the error(s) to the satisfaction of the engineer at no expense to the project. Equipment producing such errors shall be repaired to the satisfaction of the Engineer prior to re-use.

2.3.16 Equipment Selection Approval. Equipment proposed to accomplish this item is subject to written approval of the Railroad.

2.3.17 Cribs and Shoulders. Cribs and shoulders shall be regulated and dressed to the specified section and profile. Cribs containing throw rods and switch mechanisms shall be left in a manner that they drain freely and are readily able to be inspected and maintained by Railroad personnel.

2.3.18 Approaches. All newly installed turnout approaches should be surfaced in accordance with this section no less than 100 track feet, unless approved by the Engineer.

2.3.19 Defects. Sufficient passes shall be used to correct defects in alignment and surface such that ballast may be properly tamped beneath the ties to the satisfaction of the engineer. Amount of raise per pass may not exceed the maximum correction or raise per pass.

2.3.20 Walkways. All head block ties and adjacent ties should maintain a sufficient quantity of ballast to ensure that they are fully tamped beneath rails and that the switch stand is not left hanging. The ballast section to the outside and ends of the headblock ties must conform to existing standards for the type of track involved, i.e. welded rail or jointed rail. The ballast level in the cribs of the headblock ties and the adjacent ties must not interfere with the safe operation of the switch connecting roads, signal rods, and other parts which operate in the crib space. Sufficient additional walkway stone must be placed to ensure the walkway area around the switch stand is in a safe condition for anyone that must operate the switch.

2.4 Basis of Payment.

2.4.1 Units. Payment for this item shall be per track foot. (TF)

2.4.2 Included Costs. The unit price bid to install ballast and surface shall include the cost of all the labor, equipment, and tools necessary to distribute ballast, raise, line, and surface track section specified in contract documents.

END OF SECTION

3 CROSS TIE REPLACEMENT

3.1 Description. The work shall consist of the removal of the existing crossties, installation of new cross ties including, handling, staging, installation, tamping, and related work at all locations designated in the contract documents or as directed by the Engineer. Removed ties shall become the property of the Contractor. The timber/ties shall be removed from the right-of-way and disposed of by the Contractor within 30 days of completion of the project. The Contractor shall certify that the timbers were disposed of in accordance with all environmental regulations.

3.2 Material. All material used for this work shall be furnished by the Contractor, conform to A.R.E.M.A. Portfolio of Plans and Specifications, meet requirement stated in this section, and be approved by the Engineer prior to use. Any material rejected by the Railroad as not complying with these specifications shall be replaced by the contractor at no expense to the Railroad. Any material distributed by the Contractor which is lost, stolen or damaged will be replace by the Contractor at its cost and expense.

3.2.1 Ownership of Material - Materials furnished by the Railroad will remain the property of the Railroad. The Contractor shall dispose of specific Railroad-owned salvaged materials of which the Railroad does not desire to retain ownership. The Railroad reserves the right to specify such materials at any time during the contract period. Disposal of these materials shall be as approved by the Engineer. Non-specified material shall become the property of the Contractor and shall be removed from the right-of-way and disposed of by the Contractor within 30 days of completion of the project, as specified in Section 5 TIE DISPOSAL.

3.2.2 Storage Areas - Certain areas within Railroad owned right-of-way may be made available to the Contractor. These areas, if available, will be defined and located at the pre-bid conference. Security of the storage areas shall be the Contractor's responsibility. Material storage locations and method of storage must in no way interfere with traffic and must be designated or approved. The Railroad shall have the right to move or have the Contractor move material from storage locations. The Railroad shall bear the actual cost of such moving from storage locations which were specifically designated by the Engineer. Moving stored materials from other locations shall be at Contractor’s expense.

3.2.3 Record Keeping. The Contractor shall provide to the Railroad, or their representative, a record of all materials that are installed for this project. A weekly inventory shall be kept by the Contractor showing materials on hand, material that has been installed, material that has been salvaged, and material that has been stored for the Railroad. This inventory will be made available to the Railroad at any time they request this information.

3.2.4 Certification. Contractor shall provide written certification that the timbers being provided meet the requirements of this specification.

3.2.5 Species. The following kinds of wood suitable for ties will be accepted.

Ash	Beech	Birch	Black Gum
Catalpa	Cherry	Elm	Hackberry
Locust	Maple	Mulberry	Oak
Sassafras	Sycamore	Walnut	

3.2.6 Manufacture. All timber shall be NEW, well sawed on top, bottom and sides. Timber shall be straight, cut square at the ends, have bottom and top parallel, and have all bark entirely removed. A timber shall be considered straight only if it meets both of the following requirements: (a) a straight line drawn along the top of the tie from the middle of one end to the middle of the other end of the timber falls entirely within the width of the timber and (b) a straight line drawn along a side of the tie from the middle of one end to the middle of the other end of the timber is everywhere more than two inches from the top and two inches from the bottom of the timber. The top and bottom of a timber will be considered parallel if any difference in the thickness at the sides or ends does not exceed 1/2 inch.

3.2.7 Dimensions. Timbers and ties shall conform to the dimensions shown in the table below.

TYPE	**DIMENSIONS**
Track Tie	7”x 9” X 8’ – 6”
Switch Timber	Timber dimensions shall be in accordance with current edition of the A.R.E.M.A Portfolio of Track Work Plans for the turn out number identified.
Bridge Timber	As specified in associated bridge drawing.

3.2.8 Defects. The occurrence of any of the following defects in an individual timber shall be the cause for rejection.

3.2.8.1 Shakes. A separation along the grain, occurring between the annual growth rings is a shake. A shake length more than one-third the nominal width of the tie shall not be allowed.

3.2.8.2 Slant or Slope of Grain. Except in the case of wood with interlocking grain, a slant or slope of grain in excess of 1 in 15 shall not be allowed.

3.2.8.3 Holes. Large holes shall not be allowed. A large hole is more than ½ inch in diameter and 3 inches deep within the rail bearing areas, or more than one – forth the width of the surface on which it appears and 3 inches deep outside the rail bearing area. Numerous holes shall not be allowed. Numerous holes are any number of smaller holes equaling a large hole in size.

3.2.8.4 Knots. Large knots shall not be allowed. A large knot is one whose average diameter exceeds one-fourth the width of the face on which it appears. Numerous knots shall not be allowed. Numerous knots are any number of smaller knots equaling a large knot in size.

3.2.8.5 Checks. A separation along the grain of the wood occurring across the annual rings is a check. Fully seasoned and treated ties with check depths greater than one-fourth the thickness and longer than one-half the length of the tie shall not be allowed.

3.2.8.6 Decay. Ties shall contain no decay. Although blue stain is not considered decay and is not a defect, ties shall be inspected with extra care for presence of decay in heavily stained areas.

3.2.8.7 Wane. The lack of wood on the edge or corner of the tie due to the natural curvature of the log from which the tie is cut is a wane. Wanes which reduces the face dimension greater than 3 inches outside the rail bearing area shall not be allowed. In the rail bearing area, 3/4 inch maximum wane will be allowed.

3.2.8.8 Splits. A split is a separation of the wood extending from one surface to an opposite or adjacent surface. A split in either end of the tie greater than 1/4 inch wide or longer than 10 inches is not acceptable without an anti-splitting device. The split shall be compressed prior to seating of the end plate. A split tie which has had an anti-splitting device applied but which re-opens after treatment to exceed 1/2 inch in width is not acceptable.

3.2.8.9 Twist. The deviation from a flat plane of all four faces by a spiraling or torsional action is a twist. A rotation of more than 3.5 degree from end face to end face shall not be allowed.

3.2.8.10 Anti-splitting Devices. Anti-Splitting devices shall be nail plates and are to be installed prior to preservative treatment. Anti-Splitting devices, if installed, shall meet or exceed AREMA standards.

3.2.8.11 Air Seasoning. New timber shall be certified as having been air dried or otherwise seasoned in accordance with the American Wood Preserver's Association (AWPA) Standard C6.

3.2.8.12 Preservative Treatment. Plants used for the treatment of wood shall conform to AWPA Standard, Standard Quality Control Procedures for Wood Preserving Plants. All timber shall be treated with creosote-coal tar solution conforming to AWPA Standard P2. Standard for Creosote and Creosote Solutions, Grace C, Grades A or B may be substituted for Grade C. Preservative treatment shall be carried out in accordance with AWPA Standard C1, All Timber Products - Preservative Treatment by Pressure Processing or C6, Cross Ties and Switch Ties - Preservative Treatment by Pressure Processes. The method used shall be the empty cell process by use of initial air to control retention. Retention of preservative shall be 8 pounds of preservative per cubic foot of

wood. Retention shall be determined by gauge in accordance with paragraph 3.1 of AWPA Standard C1. When specified, pentacholorphenol in heavy AWPA Standard P9A solvent may be used as a preservative. Minimum retention shall be 0.4 pounds preservative per cubic foot of wood.

3.2.9 Spikes & OTM. Track Spikes shall be NEW and of the size and type indicated in the Contract Documents, they shall meet the material requirements of the Specification entitled: Soft-Steel Track Spikes, A.R.E.M.A. Manual- Current Edition.

3.3 Construction Details.

3.3.1 Staging. Ties shall be stockpiled at staging locations shown in the Plans. The Contractor shall submit locations of additional proposed track side stockpile/distribution points to the Engineer for review and approval prior to stockpiling. Restoration of stockpile, loading or staging areas shall be included in Tie Replacement items. This Work shall include restoring the ground surface back to the original condition and seeding, fertilizing and mulching of dirt or grassed areas.

3.3.2 Timber and Debris Removal. All timber and debris removed from the site shall become the property of the Contractor. It shall be removed from Railroad property within thirty days from the completion of the work. All material shall be disposed of in a lawful manner as required and as specified in Section 5.

3.3.3 Train Traffic. The Contractor shall perform all work in manner that will allow train traffic as required by the Railroad.

3.3.4 Drawings and Specifications. All work shall be installed in accordance with the contract drawings and specifications.

3.3.5 Marking. Ties to be replaced will be indicated by a paint marking on the defective tie in the quantity and general location shown in the project documents.

3.3.6 Tie Handling. All ties shall be handled, transported, and stored in accordance with current AREMA standards. New ties shall be handled and placed with either mechanical tie insertion device or tie tongs. Only approved lifting devices that do not damage the tie should be used; the use of picks will not be permitted. Tie removal, handling, and placement equipment is subject to the approval of the Engineer prior to use. Ties that are damaged by mishandling will be replaced by the Contractor at his expense.

3.3.7 Tie Placement. Ties will be placed in the track, square to the centerline of the track with the wider heartwood face down. To the extent practicable, the end of the ties shall be a uniform line.

3.3.8 Tie Spacing. Ties should be spaced uniformly, replaced at existing locations. Existing spacing is approximately 20”.

3.3.9 Gage. During the tie installation process, the track shall be regaged to 4' 8 1/2" when the track gage exceeds (-1/2" or +1/2"). Changes in gage shall be made in uniform increments of not more than 1/4" in 20 feet. All timber that has had a spike removed shall receive a treated tie plug or tie plugging compound.

3.3.10 Spike Pattern. The Contractor shall match existing spiking pattern. Tangent – Two (2) rail holding spikes per plate. Curves Two (2) rail holding and One (1) field side plate holding. All spikes that are removed shall be gathered and stock piled at a location designated by the Railroad.

3.3.11 Spike Depth. All ties shall have rail holding spikes installed before prior to train movement. Rail holding spikes shall be driven so as to allow a one-eighth inch (1/8”) space between the underside of the spike head and the top of the base of the rail. The spikes shall not be over driven. Spikes shall not be bent against the rail.

3.3.12 Bent Spikes. Any bent spikes shall be removed. If a spike is removed, the resulting hole shall be plugged with a treated tie plug of a size sufficient to completely and tightly fill the hole.

3.3.13 Additional Spikes. Additional spikes may be used when required by local conditions or as ordered by the Engineer.

3.3.14 Tie Plates. The tie plates from the existing tie shall be re-used unless they are broken or nonfunctional (As specified in paragraph 3.3.15). Tie plates shall be used on all ties and shall be free of any dirt or foreign matter when being installed. They shall be installed centered about the width of the tie, with full bearing on the crosstie and the rail in full contact with the rail seat of the tie plate. Under no circumstances shall a shoulder be under the rail base. With a double shoulder canted plate, the cant (slope) of the plate shall be downward to the gage (inside) of the rail.

3.3.15 Defective Tie Plates. The tie plates from the existing tie shall be re-used unless they are broken or nonfunctional. The railroad will provide extra tie plates only if the plate was defective prior to this project. Tie plates will be judged defective due to any of the following reasons:

1. Rounded or worn shoulders.
2. Rounded or otherwise excessively worn spike holes.
3. A crack, bend, or other flaw in the plate.
4. Excessive deterioration from the rust, scale or brine.

3.3.16 Rail anchors. Rail anchors removed during the tie installation process shall be replaced with full contact with the new tie. Rail anchors shall be applied from the gage side of the rail whenever possible. Rail anchors must be installed so that they bear firmly against the tie. The Driving of anchors longitudinally along rails to obtain contact will not be permitted. No rail anchor shall be applied so as to be within 6” of the end of a joint bar.

3.3.17 Ballast. Ballast disturbed during the removal of the defective tie and placement of the new tie shall be restored to the track structure. Existing ballast shall be re-used. New ballast shall be used as required. All cribs shall be full of ballast and track will be broomed with a ballast regulator so that ballast is level with the top of the tie. No ballast shall remain on the top of the tie. Shoulders shall conform to the Railroad standard cross section. Ballast Shall be placed and transported as specified in 2.3.10.

3.3.18 Surfacing. Ties shall be replaced prior to tamping. If during the passes with the tamper there are ties that do not come up with the rail, the Contractor shall raise them by other means so that the rail has full bearing on the plate. Contractor will surface the track to exceed FRA Class III Safety Standards unless rail condition does not allow it. The crosstie shall be tamped to provide a full bearing of the rail, tie plate, and tie within the track structure. Equipment and procedures shall comply with those stated in Section 2, INSTALL BALLAST AND SURFACE.

3.4.19 CWR territory. If in CWR territory, the railroad's CWR plan shall be complied with fully.

3.3.20 Transition Plan. Contractor shall submit to the Railroad, for approval, the plan to transition the new work into the existing track as to allow train movements.

3.3.21 Workmanship. All work is subject to the lifecycle requirements of the funding instruments. Ties installed shall be fully tamped and spiked to the satisfaction of the engineer prior to be considered as acceptable. Disturbance to surface and alignment resulting from tie installation shall be corrected by the contractor at no cost to the contract prior to acceptance of the ties installed.

3.4 Basis of Payment.

3.4.1 Units. Payment for remove and install crossties shall be per tie installed. (EACH)

3.4.2 Included Cost. The unit price bid to remove and install crossties shall include the cost of all the labor, equipment, and tools necessary to remove and install crossties. The cost shall include distribution of ties. The cost of dumping of ballast and surfacing of the tie rehabilitation limits will be paid for under a separate item. The cost for installation of switch ties and disposing of all timbers, will be paid for under a separate item.

END OF SECTION

4 SWITCH TIE REPLACEMENT

4.1 Description. The work shall consist of the removal of the existing switch ties, installation of new switch ties including, handling, staging, installation, tamping, and related work at all locations designated in the contract documents or as directed by the Engineer. Removed ties shall become the property of the Contractor. The timber/ties shall be removed from the right-of-way and disposed of by the Contractor within 30 days of completion of the project. The Contractor shall certify that the timbers were disposed of in accordance with all environmental regulations.

4.2 Material. All material used for this work shall be furnished by the Contractor, conform to A.R.E.M.A. Portfolio of Plans and Specifications, meet requirement stated in this section, and be approved by the Engineer prior to use. Any material rejected by the Railroad as not complying with these specifications shall be replaced by the contractor at no expense to the Railroad. Any material distributed by the Contractor which is lost, stolen or damaged will be replace by the Contractor at its cost and expense.

4.2.1 Ownership of Material - Materials furnished by the Railroad will remain the property of the Railroad. The Contractor shall dispose of specific Railroad-owned salvaged materials of which the Railroad does not desire to retain ownership. The Railroad reserves the right to specify such materials at any time during the contract period. Disposal of these materials shall be as approved by the Engineer. Non-specified material shall become the property of the Contractor and shall be removed from the right-of-way and disposed of by the Contractor within 30 days of completion of the project, as specified in Section 5 TIE DISPOSAL.

4.2.2 Storage Areas - Certain areas within Railroad owned right-of-way may be made available to the Contractor. These areas, if available, will be defined and located at the pre-bid conference. Security of the storage areas shall be the Contractor's responsibility. Material storage locations and method of storage must in no way interfere with traffic and must be designated or approved. The Railroad shall have the right to move or have the Contractor move material from storage locations. The Railroad shall bear the actual cost of such moving from storage locations which were specifically designated by the Engineer. Moving stored materials from other locations shall be at Contractor’s expense.

4.2.3 Record Keeping. The Contractor shall provide to the Railroad, or their representative, a record of all materials that are installed for this project. A weekly inventory shall be kept by the Contractor showing materials on hand, material that has been installed, material that has been salvaged, and material that has been stored for the Railroad. This inventory will be made available to the Railroad at any time they request this information.

4.2.4 Certification. Contractor shall provide written certification that the timbers being provided meet the requirements of this specification.

4.2.5 Species. The following kinds of wood suitable for ties will be accepted.

Ash	Beech	Birch	Black Gum
Catalpa	Cherry	Elm	Hackberry
Locust	Maple	Mulberry	Oak
Sassafras	Sycamore	Walnut	

4.2.6 Manufacture. All timber shall be NEW, well sawed on top, bottom and sides. Timber shall be straight, cut square at the ends, have bottom and top parallel, and have all bark entirely removed. A timber shall be considered straight only if it meets both of the following requirements: (a) a straight line drawn along the top of the tie from the middle of one end to the middle of the other end of the timber falls entirely within the width of the timber and (b) a straight line drawn along a side of the tie from the middle of one end to the middle of the other end of the timber is everywhere more than two inches from the top and two inches from the bottom of the timber. The top and bottom of a timber will be considered parallel if any difference in the thickness at the sides or ends does not exceed 1/2 inch.

4.2.7 Dimensions. Timbers and ties shall conform to the dimensions shown in the table below.

TYPE	**DIMENSIONS**
Track Tie	7”x 9” X 8’ – 6”
Switch Timber	Timber dimensions shall be in accordance with current edition of the A.R.E.M.A Portfolio of Track Work Plans for the turn out number identified.
Bridge Timber	As specified in associated bridge drawing.

4.3.8 Defects. The occurrence of any of the defects stated in section 3.2.8 DEFECTS in an individual timber shall be the cause for rejection.

4.3 Construction Details.

4.3.1 Staging. Ties shall be stockpiled at staging locations shown in the Plans. The Contractor shall submit locations of additional proposed track side stockpile/distribution points to the Engineer for review and approval prior to stockpiling. Restoration of stockpile, loading or staging areas shall be included in Tie Replacement items. This Work shall include restoring the ground surface back to the original condition and seeding, fertilizing and mulching of dirt or grassed areas.

4.3.2 Timber and Debris Removal. All timber and debris removed from the site shall become the property of the Contractor. It shall be removed from Railroad property within thirty days from the completion of the work. All material shall be disposed of in a lawful manner as required. As specified in Section 5.

4.3.3 Train Traffic. The Contractor shall perform all work in manner that will allow train traffic as required by the Railroad.

4.3.4 Drawings and Specifications. All work shall be installed in accordance with the contract drawings and specifications.

4.3.5 Marking. Ties to be replaced will be indicated by a paint marking on the defective tie in the quantity and general location shown in the project documents.

4.3.6 Tie Handling. All ties shall be handled, transported, and stored in accordance with current AREMA standards. New ties shall be handled and placed with either mechanical tie insertion device or tie tongs. Only approved lifting devices that do not damage the tie should be used; the use of picks will not be permitted. Tie removal, handling, and placement equipment is subject to the approval of the Engineer prior to use. Ties that are damaged by mishandling will be replaced by the Contractor at his expense.

4.3.7 Tie Placement. Ties will be placed in the track, square to the centerline of the track with the wider heartwood face down. To the extent practicable, the end of the ties shall be a uniform line.

4.3.8 Tie Spacing. Ties should be spaced uniformly, replaced at existing locations. Existing spacing is approximately 20”.

4.3.9 Gage. During the tie installation process, the track shall be regaged to 4' 8 1/2" when the track gage exceeds (-1/2" or +1/2"). Changes in gage shall be made in uniform increments of not more than 1/4" in 20 feet. All timber that has had a spike removed shall receive a treated tie plug or tie plugging compound.

4.3.10 Spike Pattern. The Contractor shall match existing spiking pattern. Tangent – Two (2) rail holding spikes per plate. Curves Two (2) rail holding and One (1) field side plate holding. All spikes that are removed shall be gathered and stock piled at a location designated by the Railroad. No spikes shall be driven against the ends of joint bars.

4.3.11 Spike Depth. All ties shall have rail holding spikes installed before prior to train movement. Rail holding spikes shall be driven so as to allow a one-eighth inch (1/8”) space between the underside of the spike head and the top of the base of the rail. The spikes shall not be over driven. Spikes shall not be bent against the rail.

4.3.12 Bent Spikes. Any bent spikes shall be removed. If a spike is removed, the resulting hole shall be plugged with a treated tie plug of a size sufficient to completely and tightly fill the hole.

4.3.13 Additional Spikes. Additional spikes may be used when required by local conditions or as ordered by the Engineer.

4.3.14 Tie Plates. The tie plates from the existing tie shall be re-used unless they are broken or nonfunctional (As specified in paragraph 4.3.15). Tie plates shall be used on all ties and shall be free of any dirt or foreign matter when being installed. They shall be installed centered about the width of the tie, with full bearing on the crosstie and the rail in full contact with the rail seat of the tie plate. Under no circumstances shall a shoulder be under the rail base. With a double shoulder canted plate, the cant (slope) of the plate shall be downward to the gage (inside) of the rail.

4.3.15 Defective Tie Plates. The tie plates from the existing tie shall be re-used unless they are broken or nonfunctional. The railroad will provide extra tie plates only if the plate was defective prior to this project. Tie plates will be judged defective due to any of the following reasons:

1. Rounded or worn shoulders.
2. Rounded or otherwise excessively worn spike holes.
3. A crack, bend, or other flaw in the plate.
4. Excessive deterioration from the rust, scale or brine.

4.3.16 Rail anchors. Rail anchors removed during the tie installation process shall be replaced with full contact with the new tie. Rail anchors shall be applied from the gage side of the rail whenever possible. Rail anchors must be installed so that they bear firmly against the tie. The Driving of anchors longitudinally along rails to obtain contact will not be permitted. No rail anchor shall be applied so as to be within 6" of the end of a joint bar.

4.3.17 Ballast. Ballast disturbed during the removal of the defective tie and placement of the new tie shall be restored to the track structure. Existing ballast shall be re-used. New ballast shall be used as required. All cribs shall be full of ballast and track will be broomed with a ballast regulator so that ballast is level with the top of the tie. No ballast shall remain on the top of the tie. Shoulders shall conform to the Railroad standard cross section. Ballast Shall be placed and transported as specified in 2.3.10.

4.3.18 Surfacing. Ties shall be replaced prior to tamping. If during the passes with the tamper there are ties that do not come up with the rail, the Contractor shall raise them by other means so that the rail has full bearing on the plate. Contractor will surface the track to exceed FRA Class III Safety Standards unless rail condition does not allow it. The crosstie shall be tamped to provide a full bearing of the rail, tie plate, and tie within the track structure. Ballast and stone accumulations shall be cleaned from rail base and from in between stock rails, guard rails, points, and from in between stock rails and closure rails to the satisfaction of the Railroad. Equipment and procedures shall comply with those stated in Section 2, INSTALL BALLAST AND SURFACE.

4.4.19 Walkways. All head block ties and adjacent ties should maintain a sufficient quantity of ballast to ensure that they are fully tamped beneath rails and that the switch stand is not left swinging. The ballast section to the outside and ends of the headblock ties must conform to existing standards for the type of track involved, i.e. welded rail or

jointed rail. The ballast level in the cribs of the headblock ties and the adjacent ties must not interfere with the safe operation of the switch connecting rods, signal rods and other parts which operate in the crib space. Sufficient additional walkway stone must be placed to ensure the walkway area around the switch stand is in a safe condition for anyone that must operate the switch.

4.4.20 CWR territory. If in CWR territory, the railroad's CWR plan shall be complied with fully.

4.3.21 Transition Plan. Contractor shall submit to the Railroad, for approval, the plan to transition the new work into the existing track as to allow train movements.

4.4 Basis of Payment.

4.4.1 Units. Payment for remove and install crossties shall be per tie installed. (EACH)

4.4.2 Included Cost. The unit price bid to remove and install switch ties shall include the cost of all the labor, equipment, and tools necessary to remove and install crossties. The cost shall include distribution of ties. The cost of dumping of ballast and surfacing of the tie rehabilitation limits will be paid for under a separate item. The cost for installation of crossties and disposing of all timbers, will be paid for under a separate item.

5 TIE DISPOSAL

5.1 Description. The work shall consist of the removal and disposal of all cross ties replaced. Removed ties shall become the property of the Contractor. The timber/ties shall be removed from the right-of-way and disposed of by the Contractor within 30 days of completion of the project. The Contractor shall certify that the timbers were disposed of in accordance with all environmental regulations.

5.2 Materials. Such materials as required for tie disposal and that are not to be part of the completed contract shall be as determined by the Contractor, except that they shall conform to any pertinent local or State Law, regulation, or code.

5.3 Construction Details. The work required to provide the above facilities and service for tie disposal shall be done in a safe and workmanlike manner and shall conform with any pertinent local or State Law, regulation, or code.

5.3.1 Housekeeping. Good housekeeping consistent with safety shall be maintained. Old ties shall be removed and stacked neatly along the ROW in groups of 10 or more. All old OTM is to be cleaned up and hauled off site by the Contractor.

5.3.2 Proper Disposal. All arrangements for proper disposal of removed ties shall be the responsibility of the selected Contractor. The Contractor shall provide documentation of proper disposal upon request.

5.3.3 Documentation. Weigh ticket and/or disposal ticket documentation must be provided as validation to invoices.

5.4 Basis of Payment.

5.4.1 Unit. Payment for tie disposal shall be lump sum.

5.4.2 Included Cost. The unit price bid of tie disposal shall include the cost of all the labor, equipment, and tools necessary to dispose of ties, including, haul and landfill rate.

END OF SECTION

6 CROSSING REPLACEMENT – Rubber Rail Seal

6.1 Description.

This Work consists of removal of existing grade crossing, pavement approaches, and track; grading and preparing crossing support surface; excavation of the grade crossing roadbed, crosstie installation, track installation, installing concrete / timber panels in accordance with the Plans and these Specifications. Removed crossing material shall become the property of the Contractor. The removed cross ties shall be removed from the right-of-way and disposed of by the Contractor within 30 days of completion of the project. As specified in section 5 TIE DISPOSAL.

6.2 Materials. All material used for this work shall be furnished by contractor, be new, conform to A.R.E.M.A. Portfolio of Plans and Specifications, and be approved by the Engineer prior to use. Any material rejected by the Railroad as not complying with these specifications shall be replaced by the contractor at no expense to the Railroad Any material distributed by the Contractor, which is lost, stolen or damaged will be replace by the Contractor at its cost and expense.

6.2.1 Ownership of Material - Materials furnished by the Railroad will remain the property of the Railroad. Removed Turnout Steel and OTM shall remain property of the railroad and neatly stockpiled. The Railroad reserves the right to specify such materials at any time during the contract period. Disposal of these materials shall be as approved by the Engineer. Non-specified material shall become the property of the Contractor and shall be removed from the right-of-way and disposed of by the Contractor within 30 days of completion of the project.

6.2.2 Storage Areas - Certain areas within Railroad owned right-of-way may be made available to the Contractor. These areas, if available, will be defined and located at the pre-bid conference. Security of the storage areas shall be the Contractor's responsibility. Material storage locations and method of storage must in no way interfere with traffic and must be designated or approved. The Railroad shall have the right to move or have the Contractor move material from storage locations. The Railroad shall bear the actual cost of such moving from storage locations which were specifically designated by the Engineer. Moving stored materials from other locations shall be at Contractor’s expense. Stored Materials shall be neatly arranged and blocked up off the ground and protected from mud and flood.

6.2.3 Record Keeping. The Contractor shall provide to the Railroad, or their representative, a record of all materials that are installed for this project. A weekly inventory shall be kept by the Contractor showing materials on hand, material that has been installed, material that has been salvaged, and material that has been stored for the Railroad. This inventory will be made available to the Railroad at any time they request this information.

6.2.4 Certification. Contractor shall provide written certification that materials being provided meet the requirements of this specification and is defect free.

6.2.5 Timbers. Timber materials shall meet all requirements as stated herein document including 4.3 MATERIALS

6.2.6 Rail. Rail shall meet all requirement as stated herein, and be head-harden control cooled.

6.2.7 Steel. Steel shall meet all requirements as stated herein

6.3 Construction Details.

6.3.1 Removal Preparation. Before the crossing planks / panels are removed, the contractor shall saw cut the roadway surface a minimum of 5 feet from the nearest rail and the full depth of the current road surface. The joint cut is to be transverse to the ties at a minimum set back distance shown in the Plans or that allowing the contractor to complete all Work within the limits of the crossing. The width shall accommodate the Contractors compaction equipment width. Asphalt shall be removed down to the aggregate base and all roadway aggregate or roadway subgrade that lies between the sawn joint and the crossing surface shall be removed to a minimum depth of 6 inches below bottom of ties or a depth necessary to complete the work.

6.3.2 Rail Cuts. Use only approved rail saw and abrasive cutting wheel for cutting rail. Cuts shall be square and clean. Rail shall be cut with Nominal Rail stagger of no less than 3 feet. Rail shall be cut so the minimum distance between cuts on the same rail is no less than 19 ½ feet. When given the option of cutting existing rail or cutting the rail being installed, cut the existing rail. Do not use cutting torches on rail; rail cut with torches will be rejected.

6.3.3 Removal of Existing Track Structure. The Contractor shall remove and disassemble the existing crossing surface, rails, plates and other track materials including track spikes, anchors, joint bars, and hardware as shown in the Plans. The removed track material and asphalt shall become property of the Contractor.

6.3.4 Layout of Grade Crossing. The Contractor shall be responsible to provide all survey and measurements required to layout the grade crossing and associated work in accordance with these specifications and the crossing manufacturer's requirements. Railroad panel may be built outside of installation location and placed whole or built within the area of excavation.

6.3.5 Trackbed Preparation. Existing ballast and other base material shall be excavated as shown in the Plans. All existing drainage ditches and channels adjacent to the grade crossing shall be cleaned and sloped to provide drainage away from the grade crossing.

6.3.6 Tie Handling. All ties shall be handled, transported, and stored in accordance with current AREMA standards. New ties shall be handled and placed with either mechanical tie insertion device or tie tongs. Only approved lifting devices that do not damage the tie should be used; the use of picks will not be permitted. Tie removal,

handling, and placement equipment is subject to the approval of the Engineer prior to use. Ties that are damaged by mishandling will be replaced by the Contractor at his expense. Ties with minor scrapes shall be treated with field preservative in accordance with the manufacturer's recommendations.

6.3.7 Tie Placement. Ties will be placed in the track, square to the centerline of the track with the wider heartwood face down. To the extent practicable, the end of the ties shall be a uniform line.

6.3.8 Tie Spacing. Ties should be spaced uniformly, replaced at existing locations. Existing spacing is approximately 20".

6.3.9 Rail Placement. Nominal rail stagger shall be a minimum of 3 feet. On curves, stagger will be re-established when stagger exceeds 1.5 feet from nominal. Minimum rail stagger at "tie- ins" for track shall be 12 feet. Rails shall be placed base down, parallel with track, avoiding excessive bending or damage, using suitable mechanical equipment. Care shall be taken to avoid placing rails on signal equipment, manhole covers, electrical connections, or near any other Installation that could be susceptible to damage.

6.3.10 Plates. New properly sized plates (switch, hook, flat, ridged and tie) shall be used on all timbers, and shall be free of any dirt or foreign matter when being installed, plates shall be centered about the width of the timber. The plate shoulder, ridges or hooks shall be properly set so as to bear firmly against the rail, frog or other turnout assemblies as required.

6.3.11 Spiking. All rail holding spikes shall be started with the head pointed toward the rail and driven vertically and square with the rail and so driven as to allow 1/8" to 3/16" in the space between the under side of the head of the spike and the top of the base of the rail. In no case shall the spikes be over-driven. Rail holding spiking arrangement shall be in accordance with the Contract Documents. Plate holding spikes shall be started with the head pointed toward the rail and driven vertically so head has full bearing against the tie plate. Plate holding spiking arrangement shall be in accordance with the Contract Documents. No spikes shall be driven against the ends of joint bars. Care shall be taken not to strike rail or fastenings when driving spikes. Spikes which are bent while being installed, and do not meet proper alignment, or designated head contact, will be removed. The hole shall be plugged properly with a treated tie plug, and a new spike installed. Timber spiking for standard tie plates shall conform to the following criteria:

Degree of Curve	Spike Pattern
0-00 to 3-00	2 rail holding
3-01' to 8-00'	2 rail holding and 1 plate holding – field side

8-01' to 12-30'	2 rail holding and 2 plate holding – 1 field side and 1 gauge side
12-31' to 16-00'	3 rail holding and 2 plate holding – 1 field side and 1 gauge side
16-01' to 18-00'	3 rail holding and 3 plate holding – 2 field side and 1 gauge side
18-01' to 20-00'	4 rail holding and 4 plate holding – 2 field side and 2 gauge side
Note: Timber spiking for hook plates and twin tie plates (hook, flat or ridged) shall require only one spike at the ends of plate so as not to spike kill timber.	

6.3.12 Gauging. Track gage shall be set at the time of spiking for the entire work limits for this item. The gage shall be set at 56-½ inches, with an allowable tolerance of plus or minus 1/8 inch

6.3.13 Anchoring. Anchors shall be installed for all ties, if panel is built outside of final installation location to prevent ties from skewing. All anchors shall be removed prior to surfacing. Outside of asphalt surface ties shall be installed using the box anchor method on the same side of the tie on both rails and in the accordance to the existing anchor pattern. Rail anchors shall be applied from the gauge side of the rail whenever possible. Rail anchors must be installed so that they bear firmly against the tie race. The driving of anchors longitudinally along rails to obtain this contact will not be permitted. No rail anchor shall be applied so as to be within 6" of the end of a joint bar.

6.3.14 Rail Joints. Rail joints shall be spaced as required for rail, size and if insulated or non-insulated, as indicated in the Contract Documents or A.R.E.M.A. Manual- Current Edition for the rail furnished. Contractor shall determine the proper rail dimensions for the crossing prior to work commencement.

6.3.15 Bolt Holes. If not immediately welding, New rail bolt holes shall be drilled only with a rail drill. No other method is permissible. Rail shall be drilled before joint bars are applied. Drilling shall be performed by either, center punching hole location and drilling or by using a proper template. Holes are to be of the size prescribed for rail section and joint bar type. If crossing joints are intended to be welded, then a whole must note be drilled within 4.5 inches of the rail end.

6.3.16 Joint Bars. Joint Bars must be properly applied to meet FRA class of track standards with full number and correct size of bolts, nuts and spring washers. Joint bolts must be properly tightened before spiking rail. Bolts shall be placed with the nuts alternatively on the inside and outside of the rail. Bolts will be torqued to AREMA Volume 1, Section 5.5, starting from the center working out. Fishing surfaces of rails at joint bars shall be swabbed with grease. Use outer four bolt holes only when installing bolted joints that will be eliminated by field welding. Do not drill inside holes at future field weld locations. All joints that will remain bolted shall use all bolts. Before bolted joints are considered final, they will be retightened, to specified torque, with a power

wrench after final surfacing and regulating. The non-defective joint bars shall become the property of railroad and stockpiled at the designated location.

6.3.17 Comp Bars. When joining rails of differing sizes with a compromise joint, it shall be fitted so that the top of the rail surface and the gauge face of the rails to be connected are held in alignment. Bars must be installed, as markings indicate, GAUGE SIDE/FIELD SIDE. When joining rails with a difference of 25 lbs or greater, a step down rail between 16.5 to 19.5 feet in length, with the appropriate OTM, shall be installed between welds or compromise joint bars.

6.3.18 Surfacing. Following jointing of crossing panel to track, ballast shall be added in sufficient amount to allow mechanical tamper to lift and align panel. Ballast shall be mechanically tamped and dressed. Ballast regulating equipment shall be configured to avoid damage to track components. Excavator or other machinery may be used in case of excessive negative profile. A minimum of 2 passes by the tamper, plus a minimum of 1 pass by the tamper placing stone under center of tie. Final surface should place top of rail 1" above road surface along center line of road. Ballast in the crib area shall not reside above the top of the adjacent ties. Debris or stones shall be removed from the top of the ties. Excess ballast shall be removed and be placed as directed by the Engineer. Ballast damaged by overwork and/or excessive tamping or fouled by dirt or other deleterious material shall be removed and replaced at the Contractor's expense.

6.3.19 Rail Seal Application. Rail Seal and rail seal clamps to be installed per manufacturer's specifications. Rail seal must extend a minimum of 4 feet beyond the roadway travelled way. The rail seal must bear firmly against the rail and be free of any dirt or foreign matter when installed. Rail Seal clamps must be installed within in each crib and at the ends of the rubber rail seal to ensure the rubber rail seal is secured to the rail. Heavy Tape (such as duct or Gorilla) should be placed on the seam between top of rail and rail seal to cover existing gap prior to paving.

6.3.20 Asphalt. All old road material shall be removed. Area between surface cut and rail shall be leveled and free of all foreign material (mud, dirt, trash, etc.). Existing road surface should be milled to eliminate poor existing conditions. Asphalt base material should be placed in at least 2 equal lifts and compacted. Asphalt surface material may be placed in 1 lift and compacted to height of top of rail. A key edge shall be made and tack applied to existing road surface. A minimum of 20' runoff should be included for all traffic directions. Final roadway surface shall not allow standing water, seams must be thoroughly rolled, and edges compacted tight. Asphalt to extend and wrap around outer edges of rail seal. All excessive or extra asphalt must be properly disposed of by contractor.

6.3.21 Roadway Signage. Crossbucks and other signage to be installed to manufacturers specification and in accordance with FRA and MUTCD guidelines. Required signage, if applicable, will be defined at the pre-bid conference.

6.3.22 CWR territory. If in CWR territory, the railroad's CWR plan shall be complied with fully.

6.4 Basis of Payment.

6.4.1. Units. Payment for crossing replacement shall be per track foot installed. (TF)

6.4.2. Included Cost. The unit price bid to replace crossing shall include the cost of all the labor, equipment, and tools necessary to remove existing crossing and roadway surfaces, build and install a complete crossing panel including completion of necessary welds / tie ins. Cost shall include traffic control, road closure, and asphalt installation. The cost of removing, disposal, and paving road surface will be paid for under this item. The cost of timber disposal will be paid for under a separate item.

END OF SECTION

7 RAIL REPLACEMENT

7.1 Description.

The work shall consist of the removal of the existing rail, installation of new rail including, handling, staging, installation, tamping, and related work at all locations designated in the contract documents or as directed by the Engineer. Removed rail and OTM shall become the property of the Contractor. The scrap rail and OTM shall be removed from the right-of-way and disposed of by the Contractor within 30 days of completion of the project. As specified in section 10 SCRAP REMOVAL

7.2 Materials. All material used for this work shall be furnished by contractor, be new, conform to A.R.E.M.A. Portfolio of Plans and Specifications, and be approved by the Engineer prior to use. Any material rejected by the Railroad as not complying with these specifications shall be replaced by the contractor at no expense to the Railroad Any material distributed by the Contractor, which is lost, stolen or damaged will be replace by the Contractor at its cost and expense.

7.2.1 Ownership of Material - Materials furnished by the Railroad will remain the property of the Railroad. Removed Turnout Steel and OTM shall remain property of the railroad and neatly stockpiled. The Railroad reserves the right to specify such materials at any time during the contract period. Disposal of these materials shall be as approved by the Engineer. Non-specified material shall become the property of the Contractor and shall be removed from the right-of-way and disposed of by the Contractor within 30 days of completion of the project.

7.2.2 Storage Areas - Certain areas within Railroad owned right-of-way may be made available to the Contractor. These areas, if available, will be defined and located at the pre-bid conference. Security of the storage areas shall be the Contractor's responsibility. Material storage locations and method of storage must in no way interfere with traffic and must be designated or approved. The Railroad shall have the right to move or have the Contractor move material from storage locations. The Railroad shall bear the actual cost of such moving from storage locations which were specifically designated by the Engineer. Moving stored materials from other locations shall be at Contractor’s expense. Stored Materials shall be neatly arranged and blocked up off the ground and protected from mud and flood.

7.2.3 Record Keeping. The Contractor shall provide to the Railroad, or their representative, a record of all materials that are installed for this project. A weekly inventory shall be kept by the Contractor showing materials on hand, material that has been installed, material that has been salvaged, and material that has been stored for the Railroad. This inventory will be made available to the Railroad at any time they request this information.

7.2.4 Certification. Contractor shall provide written certification that materials being provided meet the requirements of this specification and is defect free.

7.2.5 Rail. Rail shall be NEW. Rail pieces furnished must meet the size and profile requirements as specified in the general statement of work. Rail shall meet all requirement as stated herein, and be head-harden control cooled. Condition 1 relay may be considered with Engineers approval

7.2.6 Joint Bars. Joint bars shall be NEW and be of proper design for the rail section furnished. Joint bar shall meet the material requirements stated herein and A.R.E.M.A. Manual- Current Edition.

7.2.7 Track Bolts. Bolt sets shall be NEW and of the proper design and size for the rail section and joint bars furnished. Bolts shall meet the material requirements of Specification entitled: Heat Treated Carbon Steel Track Bolts, A.R.E.M.A. Manual-Current Edition. Nuts shall meet the material requirements of the Specification entitled: Carbon Steel Nuts, A.R.E.M.A. Manual-Current Edition. Spring Washers shall meet the material requirements of the Specification entitled: Spring Washers, A.R.E.M.A. Manual-Current Edition.

7.2.8 Tie Plates. Tie plates shall be NEW and of the size and type as indicated in the Contract Documents. Tie plate holes must be punched to fit the base of the rail on which they will be used. Each plate shall have at least 6 holes punched for use of 5/8" track spikes, 4 of the holes shall be such that they allow 2 rail holding spikes on each side of the rail, there shall also be at least 2 holes for plate holding spikes. (8 hole plates shall be furnished for curves greater than 16 degrees.) Tie plates shall meet the material requirements of the Specification entitled: Low-Carbon Steel Tie Plates, A.R.E.M.A. Manual-Current Edition.

7.2.9 Track Spikes. Track spikes shall be NEW and of the size and shall meet the material requirements of the Specification entitled: Soft-Steel Track Spikes, A.R.E.M.A. Manual-Current Edition.

7.2.10 Rail Anchors. Rail anchors shall be NEW and shall function properly for the rail on which they will be used. Rail anchors shall meet the material requirements on the Specification entitled: Rail Anchors, A.R.E.M.A. Manual-Current Edition.

7.2.11 Miscellaneous Hardware. Bolts, nuts, washers and cotter pins shall be of the proper size, and shall fit tight, and shall be NEW

7.3 Construction Details.

7.3.1 CWR territory. If in CWR territory, the railroad's CWR plan shall be complied with fully. The rail should be in a non-stress free state when laid in the bed. The designated rail laying temperature for geographical region per the CWR policy shall be utilized. Rail heaters or rail expanders (if necessary) shall be used to adjust the rail to

the correct length when the rail temperature is less than the designated rail laying temperature. If the rail temperature exceeds the designated rail installation safe range, then installation must be stopped until the rail temperature returns within range. Rail shall be heated evenly and uniformly so that the rail expansion occurs evenly. The rail laying temperature, location, and dated must be recorded on the railroad approve form. The railroad's CWR plan will be made available upon request.

7.3.2 Rail Cuts. Use only approved rail saw and abrasive cutting wheel for cutting rail. Cuts shall be square and clean. Rail shall be cut with Nominal Rail stagger of no less than 3 feet. Rail shall be cut so the minimum distance between cuts on the same rail is no less than 19 ½ feet. When given the option of cutting existing rail or cutting the rail being installed, cut the existing rail. Do not use cutting torches on rail; rail cut with torches will be rejected.

7.3.3 Removal of Existing Track Structure. The Contractor shall remove and disassemble the existing crossing surface, rails, plates and other track materials including track spikes, anchors, joint bars, and hardware as shown in the Plans. The removed track material and asphalt shall become property of the Contractor.

7.3.4 Tie Plugs. Tie plugs shall be New and shall meet the material requirements of the Specification entitled: Tie Plugs, A.R.E.M.A. Manual-Current Edition.

7.3.5 Rail Placement. Nominal rail stagger shall be a minimum of 3 feet. On curves, stagger will be re-established when stagger exceeds 1.5 feet from nominal. Minimum rail stagger at "tie- ins" for track shall be 12 feet. Rails shall be placed base down, parallel with track, avoiding excessive bending or damage, using suitable mechanical equipment.

7.3.6 Plates. New properly sized plates (switch, hook, flat, ridged and tie) shall be used on all timbers, and shall be free of any dirt or foreign matter when being installed, plates shall be centered about the width of the timber. The plate shoulder, ridges or hooks shall be properly set so as to bear firmly against the rail, frog or other turnout assemblies as required.

7.3.7 Spiking. All rail holding spikes shall be started with the head pointed toward the rail and driven vertically and square with the rail and so driven as to allow 1/8" to 3/16" in the space between the under side of the head of the spike and the top of the base of the rail. In no case shall the spikes be over-driven. Rail holding spiking arrangement shall be in accordance with the Contract Documents. Plate holding spikes shall be started with the head pointed toward the rail and driven vertically so head has full bearing against the tie plate. Plate holding spiking arrangement shall be in accordance with the Contract Documents. No spikes shall be driven against the ends of joint bars. Care shall be taken not to strike rail or fastenings when driving spikes. Spikes which are bent while being installed, and do not meet proper alignment, or designated head contact, will be removed. The hole shall be plugged properly with a treated tie plug, and a new spike installed. Timber spiking for standard tie plates shall conform to the following criteria:

Degree of Curve	Spike Pattern
0-00 to 3-00	2 rail holding
3-01' to 8-00'	2 rail holding and 1 plate holding – field side
8-01' to 12-30'	2 rail holding and 2 plate holding – 1 field side and 1 gauge side
12-31' to 16-00'	3 rail holding and 2 plate holding – 1 field side and 1 gauge side
16-01' to 18-00'	3 rail holding and 3 plate holding – 2 field side and 1 gauge side
18-01' to 20-00'	4 rail holding and 4 plate holding – 2 field side and 2 gauge side
Note: Timber spiking for hook plates and twin tie plates (hook, flat or ridged) shall require only one spike at the ends of plate so as not to spike kill timber.	

7.3.8 Gauging. Track gage shall be set at the time of spiking for the entire work limits for this item. The gage shall be set at 56-½ inches, with an allowable tolerance of plus or minus 1/8 inch

7.3.9 Anchoring. Anchors shall be installed for all ties, if panel is built outside of final installation location to prevent ties from skewing. All anchors shall be removed prior to surfacing. Outside of asphalt surface ties shall be installed using the box anchor method on the same side of the tie on both rails and in the accordance to the existing anchor pattern. Rail anchors shall be applied from the gauge side of the rail whenever possible. Rail anchors must be installed so that they bear firmly against the tie race. The driving of anchors longitudinally along rails to obtain this contact will not be permitted. No rail anchor shall be applied so as to be within 6" of the end of a joint bar.

7.3.10 Rail Joints. Rail joints shall be spaced as required for rail, size and if insulated or non-insulated, as indicated in the Contract Documents or A.R.E.M.A. Manual- Current Edition for the rail furnished. Contractor shall determine the proper rail dimensions for the crossing prior to work commencement.

7.3.11 Bolt Holes. If not immediately welding, New rail bolt holes shall be drilled only with a rail drill. No other method is permissible. Rail shall be drilled before joint bars are applied. Drilling shall be performed by either, center punching hole location and drilling or by using a proper template. Holes are to be of the size prescribed for rail section and

joint bar type. If crossing joints are intended to be welded, then a whole must note be drilled within 4.5 inches of the rail end.

7.3.12 Joint Bars. Joint Bars must be properly applied to meet FRA class of track standards with full number and correct size of bolts, nuts and spring washers. Joint bolts must be properly tightened before spiking rail. Bolts shall be placed with the nuts alternatively on the inside and outside of the rail. Bolts will be torqued to AREMA Volume 1, Section 5.5, starting from the center working out. Fishing surfaces of rails at joint bars shall be swabbed with grease. Use outer four bolt holes only when installing bolted joints that will be eliminated by field welding. Do not drill inside holes at future field weld locations. All joints that will remain bolted shall use all bolts. Before bolted joints are considered final, they will be retightened, to specified torque, with a power wrench after final surfacing and regulating. The non-defective joint bars shall become the property of railroad and stockpiled at the designated location.

7.3.13 Comp Bars. When joining rails of differing sizes with a compromise joint, it shall be fitted so that the top of the rail surface and the gauge face of the rails to be connected are held in alignment. Bars must be installed, as markings indicate, GAUGE SIDE/FIELD SIDE. When joining rails with a difference of 25 lbs or greater, a step down rail between 16.5 to 19.5 feet in length, with the appropriate OTM, shall be installed between welds or compromise joint bars.

7.3.14 Welding. All rail shall be flash butt welded, with the exception of tie in locations or where it is not practical or possible to use flash butt welds. At such locations, Thermite welds will be acceptable. Field welds shall be minimized and thermal stress must be managed per the specifications throughout the project. Flash Butt welding shall be in accordance with the AREMA Specification for, “Fabrication of Continuous Welded Rail.” Mismatched or jagged rail ends shall be either sawed or cut with an abrasive rail cutter. Mating rail ends by flashing shall not be accepted. Grinding shall be accomplished immediately following welding at an elevated temperature. When grinding must be done at ambient temperature, care shall be taken to avoid grinding burns and metallurgical damage. Defective welds shall be replaced at the contractor’s expense. Re-welds shall be cut out beyond the heat-affected zone of the previous weld.

7.3.15 Surfacing. Following jointing of track, ballast shall be added in sufficient amount to allow mechanical tamper to lift and align panel. Ballast shall be mechanically tamped and dressed. Ballast regulating equipment shall be configured to avoid damage to track components. Ballast Shall be placed and transported as specified in 2.3.10.

7.4 Basis of Payment.

7.4.1. Units. Payment for crossing replacement shall be per track foot installed. (TF)

7.4.2. Included Cost. The unit price bid to replace rail shall include the cost of all the labor, equipment, and tools necessary to remove and install rail including completion of necessary welds / tie ins. The cost of scrap will be paid for under a separate item.

END OF SECTION

8 NEW TRACK BUILD

8.1 Description.

The work shall consist of furnishing and installing all material necessary to build rail, wooden tie railroad track, including preparation of the subgrade including all clearing, excavating, filling, and grading necessary for placement of railroad track as indicated in the Contract Documents or as ordered by the Engineer.

8.2 Materials. All material used for this work shall be furnished by contractor, be new, conform to A.R.E.M.A. Portfolio of Plans and Specifications, and be approved by the Engineer prior to use. Any material rejected by the Railroad as not complying with these specifications shall be replaced by the contractor at no expense to the Railroad. Any material distributed by the Contractor, which is lost, stolen or damaged will be replace by the Contractor at its cost and expense.

8.2.1 Ownership of Material - Materials furnished by the Railroad will remain the property of the Railroad. Removed Turnout Steel and OTM shall remain the property of the railroad and shall be neatly stockpiled at locations designated by the Engineer. The Railroad reserves the right to specify such materials at any time during the contract period. Disposal of these materials shall be as approved by the Engineer. Non-specified material shall become the property of the Contractor and shall be removed from the right-of-way and disposed of by the Contractor within 30 days of completion of the project.

8.2.2 Storage Areas - Certain areas within Railroad owned right-of-way may be made available to the Contractor. These areas, if available, will be defined and located at the pre-bid conference. Security of the storage areas shall be the Contractor's responsibility. Material storage locations and method of storage must in no way interfere with traffic and must be designated or approved. The Railroad shall have the right to move or have the Contractor move material from storage locations. The Railroad shall bear the actual cost of such moving from storage locations which were specifically designated by the Engineer. Moving stored materials from other locations shall be at Contractor’s expense. Stored Materials shall be neatly arranged and blocked up off the ground and protected from mud and flood.

8.2.3 Record Keeping. The Contractor shall provide to the Railroad, or their representative, a record of all materials that are installed for this project. A weekly inventory shall be kept by the Contractor showing materials on hand, material that has been installed, material that has been salvaged, and material that has been stored for the Railroad. This inventory will be made available to the Railroad at any time they request this information.

8.2.4 Certification. Contractor shall provide written certification that materials being provided meet the requirements of this specification and is defect free.

8.2.5 Timbers. Timber materials shall meet all requirements as stated herein document including 4.3 CONSTRUCTION DETAILS.

8.2.6 Rail. Rail shall be NEW. Rail pieces furnished must meet the size and profile requirements as specified in the general statement of work. Rail shall meet all requirement as stated herein, and be head-harden control cooled. Condition 1 relay may be considered with Engineers approval

8.2.7 Joint Bars. Joint bars shall be NEW and be of proper design for the rail section furnished. Joint bar shall meet the material requirements stated herein and A.R.E.M.A. Manual- Current Edition.

8.2.8 Track Bolts. Bolt sets shall be NEW and of the proper design and size for the rail section and joint bars furnished. Bolts shall meet the material requirements of Specification entitled: Heat Treated Carbon Steel Track Bolts, A.R.E.M.A. Manual-Current Edition. Nuts shall meet the material requirements of the Specification entitled: Carbon Steel Nuts, A.R.E.M.A. Manual-Current Edition. Spring Washers shall meet the material requirements of the Specification entitled: Spring Washers, A.R.E.M.A. Manual-Current Edition.

8.2.9 Tie Plates. Tie plates shall be NEW and of the size and type as indicated in the Contract Documents. Tie plate holes must be punched to fit the base of the rail on which they will be used. Each plate shall have at least 6 holes punched for use of 5/8" track spikes, 4 of the holes shall be such that they allow 2 rail holding spikes on each side of the rail, there shall also be at least 2 holes for plate holding spikes. (8 hole plates shall be furnished for curves greater than 16 degrees.) Tie plates shall meet the material requirements of the Specification entitled: Low-Carbon Steel Tie Plates, A.R.E.M.A. Manual-Current Edition.

8.2.10 Track Spikes. Track spikes shall be NEW and of the size and shall meet the material requirements of the Specification entitled: Soft-Steel Track Spikes, A.R.E.M.A. Manual-Current Edition.

8.2.11 Rail Anchors. Rail anchors shall be NEW and shall function properly for the rail on which they will be used. Rail anchors shall meet the material requirements on the Specification entitled: Rail Anchors, A.R.E.M.A. Manual-Current Edition.

8.2.12 Miscellaneous Hardware. Bolts, nuts, washers and cotter pins shall be of the proper size, and shall fit tight, and shall be NEW

8.2.13 On-Site Fill Material. The contractor is encouraged to re-use on-site, inorganic fill material. Examples of such material are existing ballast and stone from preview works and material graded away from high spots. On-site organic material (e.g. trees and vegetation removed by grubbing) shall not be used as fill.

8.2.14 New Fill Material. Additional fill material shall conform with the requirements stated in the contract documents, meet AREMA standards, and conform with Section 2 INSTALL BALLAST & SURFACE

8.3 Construction Details.

8.3.1 Clearing and grubbing. The term “clearing and grubbing” includes the removal of all trees, brush, logs and other perishable or undesirable materials from places where new construction is to occur.

8.3.2 Location and Area. The contractor shall be responsible for the clearing and grubbing of that portion of the railroad’s right-of-way, affected by the new construction as shown in contract drawings.

8.3.3 Overhead vegetation. Trees and vegetation not rooted in the construction area but overhanging the area shall be trimmed back to provide a vertical clearance of 28 ft throughout the construction area.

8.3.4 Material Removal. All material removed from the railroad’s right-of-way, shall be disposed of by the contractor within 30 days of completion of the project. The Contractor shall certify that the material was disposed of in accordance with all environmental regulations.

8.3.5 Utilities. The Contractor shall be responsible for the identification and protection of overhead and underground utility easements, including fiber optic cable easements, within the railroad’s right-of-way.

8.3.6 Grading. The Contractor shall construct or cause to be constructed all grading necessary for the installation of the track.

8.3.7 Compaction. Upon completion of grading, the area shall be compacted with rollers or vibratory compactors as specified below.

Roller Compactor. Compaction by rolling shall be done by either an approved self-propelled 3 wheel, 2-axle roller of such weight that will provide compression under the wheels of not less than 350 pounds per lineal inch of tread, or an approved 2 or 3 wheel tandem roller having a weight per inch of drive roll of not less than 350 pounds.

Vibration Compactor. Vibration compactors shall be either the roller or pad type. Dynamic force for either type shall not be less than 20,000 pounds and the frequency range shall be from 1100 to 1500 VPM. Each machine shall be equipped with a governor which can be set and locked to control the rate of impulse as required by the Engineer. The Contractor shall provide a tachometer, or other suitable device, for accurately checking the frequency of vibration during the compacting operation.

Compaction Completion. Compacting shall continue until any fill is firmly interlocked and the surface is true and unyielding and shall be done so that every part of the surface received compaction from the drive wheels, roller, or pad.

8.3.8 Environmental Protection. The Contractor shall be responsible for adhering to all Local, State, and/or Federal permits such as erosion control, grading, storm water runoff/drainage, etc.

8.3.9 Placement and Installation. The Contractor shall make all the necessary measurements to ensure correct placement and proper installation of the track to conform to the Contract Documents and A.R.E.M.A. Manual-Current Edition. The Contractor shall be responsible to provide all survey and measurements required to layout the grade crossing and associated work in accordance with these specifications and the crossing manufacturer's requirements.

8.3.10 Ballast Base Course. Self-spreading vehicles of the type approved by the Engineer may be used. When stone is initially spread by self-spreading vehicles, a power grader of a type approved by the Engineer may be used to assist the spreading operation. If results of spreading with the power grader are found to be unsatisfactory, permission for use of a grader may be withdrawn. Alternate methods of spreading may be approved by the Engineer for limited areas such as grade crossings. The stone ballast shall be shaped to a true section conforming to the ballast section shown on the plans and thoroughly compacted until the surface is true and unyielding.

8.3.11 Compacting Ballast Base Course. Compaction may be done with rollers or with vibratory compactors subject to the following requirements as stated in 8.3.7

8.3.12 Tie Handling. All ties shall be handled, transported, and stored in accordance with current AREMA standards. New ties shall be handled and placed with either mechanical tie insertion device or tie tongs. Only approved lifting devices that do not damage the tie should be used; the use of picks will not be permitted. Tie removal, handling, and placement equipment is subject to the approval of the Engineer prior to use. Ties that are damaged by mishandling will be replaced by the Contractor at his expense. Ties with minor scrapes shall be treated with field preservative in accordance with the manufacturer's recommendations.

8.3.13 Tie Placement. Ties will be placed in the track, square to the centerline of the track with the wider heartwood face down. To the extent practicable, the end of the ties shall be a uniform line.

8.3.14 Tie Spacing. Ties should be spaced uniformly, replaced at existing locations. Existing spacing is approximately 20".

8.3.15 Rail Placement. Nominal rail stagger shall be a minimum of 3 feet. On curves, stagger will be re-established when stagger exceeds 1.5 feet from nominal. Minimum rail stagger at "tie- ins" for track shall be 12 feet. Rails shall be placed base down, parallel with track, avoiding excessive bending or damage, using suitable mechanical equipment. Care shall be taken to avoid placing rails on signal equipment, manhole covers, electrical connections, or near any other Installation that could be susceptible to damage.

8.3.16 Plates. New properly sized plates (switch, hook, flat, ridged and tie) shall be used on all timbers, and shall be free of any dirt or foreign matter when being installed, plates shall be centered about the width of the timber. The plate shoulder, ridges or

hooks shall be properly set so as to bear firmly against the rail, frog or other turnout assemblies as required.

8.3.17 Spiking. All rail holding spikes shall be started with the head pointed toward the rail and driven vertically and square with the rail and so driven as to allow 1/8" to 3/16" in the space between the under side of the head of the spike and the top of the base of the rail. In no case shall the spikes be over-driven. Rail holding spiking arrangement shall be in accordance with the Contract Documents. Plate holding spikes shall be started with the head pointed toward the rail and driven vertically so head has full bearing against the tie plate. Plate holding spiking arrangement shall be in accordance with the Contract Documents. No spikes shall be driven against the ends of joint bars. Care shall be taken not to strike rail or fastenings when driving spikes. Spikes which are bent while being installed, and do not meet proper alignment, or designated head contact, will be removed. The hole shall be plugged properly with a treated tie plug, and a new spike installed. Timber spiking for standard tie plates shall conform to the following criteria:

Degree of Curve	Spike Pattern
0-00 to 3-00	2 rail holding
3-01' to 8-00'	2 rail holding and 1 plate holding – field side
8-01' to 12-30'	2 rail holding and 2 plate holding – 1 field side and 1 gauge side
12-31' to 16-00'	3 rail holding and 2 plate holding – 1 field side and 1 gauge side
16-01' to 18-00'	3 rail holding and 3 plate holding – 2 field side and 1 gauge side
18-01' to 20-00'	4 rail holding and 4 plate holding – 2 field side and 2 gauge side
Note: Timber spiking for hook plates and twin tie plates (hook, flat or ridged) shall require only one spike at the ends of plate so as not to spike kill timber.	

8.3.18 Gauging. Track gage shall be set at the time of spiking for the entire work limits for this item. The gage shall be set at 56-½ inches, with an allowable tolerance of plus or minus 1/8 inch

8.3.19 Anchoring. Anchors shall be installed for all ties, if panel is built outside of final installation location to prevent ties from skewing. All anchors shall be removed prior to surfacing. Outside of asphalt surface ties shall be installed using the box anchor method on the same side of the tie on both rails and in the accordance to the existing anchor pattern. Rail anchors shall be applied from the gauge side of the rail whenever possible. Rail anchors must be installed so that they bear firmly against the tie race. The driving of anchors longitudinally along rails to obtain this contact will not be permitted. No rail anchor shall be applied so as to be within 6" of the end of a joint bar.

8.3.20 Rail Joints. Rail joints shall be spaced as required for rail, size and if insulated or non-insulated, as indicated in the Contract Documents or A.R.E.M.A. Manual- Current Edition for the rail furnished. Contractor shall determine the proper rail dimensions for the crossing prior to work commencement.

8.3.21 Bolt Holes. If not immediately welding, New rail bolt holes shall be drilled only with a rail drill. No other method is permissible. Rail shall be drilled before joint bars are applied. Drilling shall be performed by either, center punching hole location and drilling or by using a proper template. Holes are to be of the size prescribed for rail section and joint bar type. If crossing joints are intended to be welded, then a whole must note be drilled within 4.5 inches of the rail end.

8.3.22 Joint Bars. Joint Bars must be properly applied to meet FRA class of track standards with full number and correct size of bolts, nuts and spring washers. Joint bolts must be properly tightened before spiking rail. Bolts shall be placed with the nuts alternatively on the inside and outside of the rail. Bolts will be torqued to AREMA Volume 1, Section 5.5, starting from the center working out. Fishing surfaces of rails at joint bars shall be swabbed with grease. Use outer four bolt holes only when installing bolted joints that will be eliminated by field welding. Do not drill inside holes at future field weld locations. All joints that will remain bolted shall use all bolts. Before bolted joints are considered final, they will be retightened, to specified torque, with a power wrench after final surfacing and regulating. The non-defective joint bars shall become the property of railroad and stockpiled at the designated location.

8.3.23 Comp Bars. When joining rails of differing sizes with a compromise joint, it shall be fitted so that the top of the rail surface and the gauge face of the rails to be connected are held in alignment. Bars must be installed, as markings indicate, GAUGE SIDE/FIELD SIDE. When joining rails with a difference of 25 lbs or greater, a step down rail between 16.5 to 19.5 feet in length, with the appropriate OTM, shall be installed between welds or compromise joint bars.

8.3.24 Surfacing. Ballast shall be added in sufficient amount to allow mechanical tamper to lift and align panel. Ballast shall be mechanically tamped and dressed. Ballast regulating equipment shall be configured to avoid damage to track components. Excavator or other machinery may be used in case of excessive negative profile. A minimum of 2 passes by the tamper, plus a minimum of 1 pass by the tamper placing stone under center of tie. Ballast in the crib area shall not reside above the top of the adjacent ties. Debris or stones shall be removed from the top of the ties. Excess ballast shall be removed and be placed as directed by the Engineer. Ballast damaged by overwork and/or excessive tamping or fouled by dirt or other deleterious material shall be removed and replaced at the Contractor’s expense.

8.3.25 CWR territory. If in CWR territory, the railroad's CWR plan shall be complied with fully.

8.4 Basis of Payment.

8.4.1. Units. Payment for new track build shall be per track foot installed. (TF)

8.4.2. Included Cost. The unit price bid for new track build shall include the cost of all the labor, equipment, and tools necessary to excavate roadbed, build and install new track siding including completion of necessary welds / tie ins. Cost shall include preparation of the subgrade including all clearing, excavating, filling, and grading necessary for placement of railroad track. The cost building and installing turnouts will be paid for under a separate item.

END OF SECTION

9 SCRAP REMOVAL

9.1 Description. The work shall consist of the removal and disposal of all rail and other track materials (e.g. tie plates, spikes, anchors, bolts, etc.) replaced. Removed material shall become the property of the Contractor. The scrap metal material shall be removed from the right-of-way and disposed of by the Contractor within 30 days of completion of the project. The Contractor shall certify that the materials were disposed of in accordance with all environmental regulations.

9.2 Materials. Such materials as required for scrap removal and that are not to be part of the completed contract shall be as determined by the Contractor, except that they shall conform to any pertinent local or State Law, regulation, or code.

9.3 Construction Details. The work required to provide the above facilities and service for scrap removal shall be done in a safe and workmanlike manner and shall conform with any pertinent local or State Law, regulation, or code.

9.3.1 Housekeeping. Good housekeeping consistent with safety shall be maintained. Removed material shall be neatly stacked along the ROW pending removal from the work site.

9.3.2 Disposal. All arrangements for proper disposal shall be the responsibility of the selected Contractor. Documentation of proper disposal shall be provided upon request.

9.3.3 Documentation. Weigh ticket and/or disposal ticket documentation must be provided as validation to invoices.

9.4 Basis of Payment.

9.4.1 Unit. Scrap removal shall lump sum.

9.4.2 Included Cost. The unit price credit of scrap removal shall include the cost of all the labor, equipment, and tools necessary to dispose of the material, including, haul and landfill rates and any income derived from delivering the material to a scrap dealer. The net cost/income per ton salvaged shall be listed on the bid form. In the event the income exceeds the cost, resulting in a positive net, the resulting net income shall be shown as a negative cost on the bid form and shall be subtracted from the total bid cost.

END OF SECTION

10 NEW TURN OUT BUILD

10.1 Description. The work shall consist of furnishing and installing all material necessary to build complete turnouts at locations as indicated in the Contract Documents or as ordered by the Engineer.

10.2 Materials. All material used for this work shall meet the requirements of this section and be approved by the Railroad prior to use. Any material rejected by the Railroad as not complying with these specifications shall be replaced by the contractor at no expense to the Railroad. Any material distributed by the Contractor which is lost, stolen or damaged will be replace by the Contractor at its sole cost and expense.

10.2.1 Turnout Materials. Turnout materials shall be NEW and conform to the A.R.E.M.A. Portfolio of Plans and Specifications.

10.2.3 Turnout Components. Turnout and switch component materials required for turnout include the following: frogs, frog guard rail, frog hook plates, new switch points with new stock rails and heal blocks, switch point clips- bolts/nuts/washers/cotter pins, protectors, switch rods- bolts/nuts/washers/cotter pins, switch plates with adjustable braces, twin tie plates (flat, ridged and hook), switch stand and spindle, switch stand/ Bow handle connecting rod- bolts/nuts/washers/cotter pins, switch target, and lag screws.

10.2.4 Frogs. Frogs shall be NEW rail bound magnesium. Frog number shall be as indicated in the technical drawings. Frogs shall meet the material requirements of the Specification entitled: Rail Bound Magnesium, A.R.E.M.A. Manual-Current Edition.

10.2.5 Frog Guards. Frog guards shall be NEW and meet the material requirements of the Specification entitled: Rail Bound Magnesium, Frog guards, A.R.E.M.A. Manual-Current Edition.

10.2.6 Frog Hardware. Bolts and self locking nuts, which are part of the frog, shall be NEW, of the proper type, fit the frog casting, and be tight.

10.2.7 Frog Plates. Hook plates and twin tie plates (hook, flat or ridged) shall be NEW and shall be of the proper size and type necessary for the turnout furnished. Plate holes must be punched to fit the base of rail on which they will be used. Plates shall meet the material requirements of the Specification entitled: Low Carbon Steel Tie Plates, A.R.E.M.A. Manual-Current Edition.

10.2.8 Switch Points. Switch Points shall be NEW and shall meet the material requirements of the Specification entitled: Switch Points, AREA Manual-Current Edition.

10.2.9 Switch Point Hardware. Switch point clips, bolts, nuts, washers, and cotter pins shall be NEW and shall meet the material requirements of the Specification entitled: Switch Point Clips, A.R.E.M.A. Manual-Current Edition.

10.2.10 Stock Rails. Stock rails shall be NEW.

10.2.11 Miscellaneous Hardware. Bolts, nuts, washers and cotter pins shall be of the proper size, and shall fit tight, and shall be NEW.

10.2.12 Switch Rods. Switch rods and associated bolts, nuts, washers, cotter pins shall be NEW and shall meet the material requirements of the Specification entitled: Switch Rods, A.R.E.M.A. Manual-Current Edition. Bolts, nuts, washers cotter pins shall be of the proper size.

10.2.13 Switch Plates and Braces. Switch plates and adjustable braces shall be NEW per A.R.E.M.A. plan no. 224-55 and shall meet the material requirements of the Specification entitled: Switch Plates and Braces, A.R.E.M. A. Manual-Current Edition. Braces shall be adjustable.

10.2.14 Switch Stand. Switch stand shall be NEW, New Century 51A with Back Saver Bow handle 898750X or approved equal. Switch stands shall meet the material requirements of the Specification entitled: Switch Stands, A.R.E.M.A. Manual-Current Edition.

10.2.15 Switch Stand Target. Switch stand targets shall be NEW and shall be 10” diameter RACOR, New Century or equivalent RED/GREEN colors.

10.2.16 Switch Stand Connecting Rod. Switch stand connecting rod and associated bolts, nuts, washers and cotter pins shall be NEW and shall be of the proper size to fit the switch and switch stand. Switch stand connecting rod shall be adjustable.

10.2.17 Full gauge plate. One (1) full gauge plate shall be provided per turnout.

10.2.18 Heel Block Assemblies. NEW heel block assemblies shall be provided.

10.2.19 Rail. Rail shall be NEW. Rail section furnished must be compatible with the frog and switch points used. Rail shall meet the material requirements of the Specification entitled: Specifications for Steel Rails, A.R.E.M.A. Manual-Current Edition.

10.2.20 Joint Bars. Joint bars shall be NEW and be of proper design for the rail section furnished. Joint bar shall meet the material requirements of the Specification entitled: High Carbon Steel Joint Bars, A.R.E.M.A. Manual-Current Edition.

10.2.21 Joint Bar Lubrication. Joint bar lubricant shall have a petroleum base and contain a rust inhibitor.

10.2.22 Bolt Sets. Bolt sets shall be NEW and of the proper design and size for the rail section and joint bars furnished. Bolts shall meet the material requirements of Specification entitled: Heat Treated Carbon Steel Track Bolts, A.R.E.M.A. Manual-Current Edition. Nuts shall meet the material requirements of the Specification entitled: Carbon Steel Nuts, A.R.E.M.A. Manual-Current Edition. Spring Washers shall meet the material requirements of the Specification entitled: Spring Washers, A.R.E.M.A. Manual-Current Edition.

10.2.23 Tie Plates. Tie plates shall be NEW and of the size and type as indicated in the Contract Documents. Tie plate holes must be punched to fit the base of the rail on which they will be used. Each plate shall have at least 6 holes punched for use of 5/8"

track spikes, 4 of the holes shall be such that they allow 2 rail holding spikes on each side of the rail, there shall also be at least 2 holes for plate holding spikes. (8 hole plates shall be furnished for curves greater than 16 degrees.) Tie plates shall meet the material requirements of the Specification entitled: Low-Carbon Steel Tie Plates, A.R.E.M.A. Manual-Current Edition.

10.2.24 Track Spikes. Track spikes shall be NEW and of the size and shall meet the material requirements of the Specification entitled: Soft-Steel Track Spikes, A.R.E.M.A. Manual-Current Edition.

10.2.25 Rail Anchors. Rail anchors shall be NEW and shall function properly for the rail on which they will be used. Rail anchors shall meet the material requirements on the Specification entitled: Rail Anchors, A.R.E.M.A. Manual-Current Edition.

10.2.26 Tie Plugs. Tie plugs shall be New and shall meet the material requirements of the Specification entitled: Tie Plugs, A.R.E.M.A. Manual-Current Edition.

10.2.27 Timbers. Timbers shall comply with the requirements of paragraph 4 – Switch Tie Replacement.

10.2.28 New Fill Material. Additional fill material shall conform with the requirements stated in the contract documents, AREMA standards, and Section 2 – INSTALL BALLAST AND SURFACE.

10.3 Construction Details. The Contractor shall make all the necessary measurements to insure correct placement and proper installation of the turnout to conform to the Contract Documents and A.R.E.M.A. Manual-Current Edition.

10.3.1 Ballast Base Course. Self-spreading vehicles of the type approved by the Engineer may be used. When stone is initially spread by self-spreading vehicles, a power grader of a type approved by the Engineer may be used to assist the spreading operation. If results of spreading with the power grader are found to be unsatisfactory, permission for use of a grader may be withdrawn. Alternate methods of spreading may be approved by the Engineer for limited areas such as grade crossings. The stone ballast shall be shaped to a true section conforming to the ballast section shown on the plans and thoroughly compacted until the surface is true and unyielding.

10.3.2 Compacting Ballast Base Course. Compaction may be done with rollers or with vibratory compactors subject to the following requirements.

10.3.4 Lifts. The Contractor shall place stone in maximum 4 inch lifts on the graded and compacted sub-base, unless otherwise noted by the Contract Documents, or ordered by the Engineer, allowing a minimum of a 2 inch lift to the tie grade (elevation at base of cross ties). After the ballast has been distributed and rolled, no trucks or other vehicles shall be driven over the ballast.

10.3.5 Roller Compactors. Compaction by rolling shall be done by either an approved self-propelled 3 wheel, 2-axle roller of such weight that will provide compression under

the wheels of not less than 350 pounds per lineal inch of tread, or an approved 2 or 3 wheel tandem roller having a weight per inch of drive roll of not less than 350 pounds.

10.3.6 Vibration Compactors. Compacted by vibration shall be either the roller or pad type. Dynamic force for either type shall not be less than 20,000 pounds and the frequency range shall be from 1100 to 1500 VPM. Each machine shall be equipped with a governor which can be set and locked to control the rate of impulse as required by the Engineer. The Contractor shall provide a tachometer, or other suitable device, for accurately checking the frequency of vibration during the compacting operation. Compacting shall be continued until the stones are firmly interlocked and the surface is true and unyielding.

10.3.7 Compaction Completion. The compaction shall continue until the stones are firmly interlocked and the surface is true and unyielding and shall be done so that every part of the surface received compaction from the drive wheels, roller, or pad.

10.3.8 Plates. Plates (switch, hook, flat, ridged and tie) shall be used on all timbers, and shall be free of any dirt or foreign matter when being installed, plates shall be centered about the width of the timber. The plate shoulder, ridges or hooks shall be properly set so as to bear firmly against the rail, frog or other turnout assemblies as required.

10.3.9 Rail Joints. Rail joints shall be spaced as required for the turnout type, size and if insulated or non-insulated, as indicated in the Contract Documents or A.R.E.M.A. Manual-Current Edition for the turnout furnished. Contractor shall determine the proper rail dimensions for the turnout prior to work commencement.

10.3.10 Joint Shims. Jointed rail shall be laid, with space allowance for expansion. Shims are to be provided between rail ends in accordance with the following table:

33' RAIL		39' to 160' RAIL	
Rail Temperature (°F)	Rail End Space (inches)	Rail Temperature (°F)	Rail End Space (inches)
< -10	5/16	< -6	5/16
-10 to 14	1/4	-6 to 25	1/4
15 to 35	3/16	26 to 45	3/16
35 to 59	1/8	46 to 65	1/8
60 to 85	1/16	66 to85	1/16
>85	none	>85	none
Note: A rail thermometer shall be used to ascertain the temperature of the rail. Temperature shall be measured at the rail base, close to the web, on the side away from the sun. Rail temperature shall be taken periodically during the day and shim size adjusted accordingly.			

10.3.11 Minimum Rail Length. No rail less than 14 feet may be used, these rails are to be used only as closure rails.

10.3.12 Rail Cuts. Rail cuts shall be made only by rail saws or rail abrasive cutting wheels. Cuts made by torch or track chisels shall not be permitted.

10.3.13 Bolt Holes. New rail bolt holes shall be drilled only with a rail drill. No other method is permissible. Rail shall be drilled before joint bars are applied. Drilling shall be performed by either, center punching hole location and drilling or by using a proper template. Holes are to be of the size prescribed for rail section and joint bar type.

10.3.14 Rail Joints. Rail joints shall be applied before the track is spiked, the joint bars to be lined up with rail in vertical position and the bolts tightened by starting in the middle of the joint and working towards the ends. Each joint bar shall be lubricated by spraying lubricating compound behind the joint bar as part of the installation procedure. Standard joint bars shall be fully bolted, with bolts, spring washers and nuts installed, the bolts shall be inserted alternately from gauge to field side. Bolts shall be tightened by a mechanical rail bolt tightening machine, bolt tension to be a minimum of 22,000 pounds and a maximum of 25,000 pounds. Manual tightening will only be permitted if authorized by the Engineer.

10.3.15 Heel Assembly. Heel assembly joints (switch point and closure rail) shall be installed as required by type and shall be fully bolted.

10.3.16 Spiking. All rail holding spikes shall be started with the head pointed toward the rail and driven vertically and square with the rail and so driven as to allow 1/8" to 3/16" in the space between the under side of the head of the spike and the top of the base of the rail. In no case shall the spikes be over-driven. Rail holding spiking arrangement shall be in accordance with the Contract Documents. Plate holding spikes shall be started with the head pointed toward the rail and driven vertically so head has full bearing against the tie plate. Plate holding spiking arrangement shall be in accordance with the Contract Documents. No spikes shall be driven against the ends of joint bars. Spikes which are bent while being installed, and do not meet proper alignment, or designated head contact, will be removed. The hole shall be plugged properly with a treated tie plug, and a new spike installed. Timber spiking for standard tie plates shall conform to the following criteria:

Degree of Curve	Spike Pattern
0-00 to 3-00	2 rail holding
3-01' to 8-00'	2 rail holding and 1 plate holding – field side
8-01' to 12-30'	2 rail holding and 2 plate holding – 1 field side and 1 gauge side
12-31' to 16-00'	3 rail holding and 2 plate holding – 1 field side and 1 gauge side
16-01' to 18-00'	3 rail holding and 3 plate holding – 2 field side and 1 gauge side
18-01' to 20-00'	4 rail holding and 4 plate holding – 2 field side and 2 gauge side

Note: Timber spiking for hook plates and twin tie plates (hook, flat or ridged) shall require only one spike at the ends of plate so as not to spike kill timber.

10.3.17 Gauging. Necessary gauging shall be done at the time the rail is laid, and shall be 4ft.- 8 ½ inches.

10.3.18 Anchoring. Rail anchors shall be applied from the gauge side of the rail whenever possible. Rail anchors must be installed so that they bear firmly against the tie race. The driving of anchors longitudinally along rails to obtain this contact will not be permitted. No rail anchor shall be applied so as to be within 6" of the end of a joint bar. Rail anchors shall be installed in the box anchor method, 8 anchors per timber. Anchors shall be applied every other tie throughout the turnout.

10.3.19 Surfacing. Ballast shall be added in sufficient amounts to allow a mechanical tamper to lift and align the turnout. Ballast shall be mechanically tamped and dressed. Ballast regulating equipment shall be configured to avoid damage to track components. An excavator or other machinery may be used in case of excessive negative profile. Ballast in the crib area shall not reside above the top of the adjacent ties. Debris or stones shall be removed from the top of ties. Excess ballast shall be removed and placed as directed by the Engineer. Ballast damaged by overwork and/or excessive tamping or fouled by dirt or other deleterious material shall be removed and replaced at the Contractor's expense. Surfacing shall be performed in accordance with Section 2 – INSTALL BALLAST AND SURFACE.

10.4 Basis Of Payment.

10.4.1 Units. Payment for new turnout shall be per each completed turnout.

10.4.2 Included Cost. The unit price bid for new turnout build shall include the cost of all the labor, equipment, materials and tools necessary to remove existing track (if applicable), excavate roadbed, build and install new turnout including completion of necessary welds / tie ins. Cost shall include preparation of the subgrade including all clearing, excavating, filling, and grading necessary for placement of railroad track. Cost shall include surfacing of the new turnout.

END OF SECTION

1. MOBILIZATION-DEMOBILIZATION

1.1 Description. Under this work the Contractor shall provide necessary bonds, insurance, and financing and shall set up his necessary general plant, including shops, storage areas, office and such sanitary and other facilities as are required by local or state law or regulation and removal of same after completion of work.

1.2 Materials. Such materials as required for mobilization and that are not to be part of the completed contract shall be as determined by the Contractor, except that they shall conform to any pertinent local or State Law, regulation, or code.

1.3 Construction Details. The work required to provide the above facilities and service for mobilization shall be done in a safe and workmanlike manner and shall conform with any pertinent local or State Law, regulation, or code. Good housekeeping consistent with safety shall be maintained.

1.4 Basis of Payment.

1.4.1 Units. Payment for mobilization will be made on a lump sum basis. (lump sum)

1.4.2 Included Costs. The amount bid shall include the furnishing and maintaining of services and facilities noted under above, to the extent and at the time the Contractor deems them necessary for his operations, consistent with the requirements of this work and the respective contract. The amount bid shall be payable to the Contractor with the first contract payment made for other contract work.

END OF SECTION

2 INSTALL BALLAST AND SURFACE

2.1 Description. The work shall consist of raising, aligning and surfacing track and turn-outs at the locations indicated in the Contract Documents, or as ordered by the Engineer.

2.2 Materials. Ballast used for this work shall be furnished by the Contractor, conform to A.R.E.M.A. Portfolio of Plans and Specifications, meet requirement stated in this section, and be approved by the Engineer prior to use. Any material rejected by the Railroad as not complying with these specifications shall be replaced by the contractor at no expense to the Railroad. Any material distributed by the Contractor which is lost, stolen or damaged will be replace by the Contractor at its cost and expense.

2.2.1 Ownership of Material - Materials furnished by the Railroad will remain the property of the Railroad.

2.2.2 Storage Areas - Certain areas within Railroad owned right-of-way may be made available to the Contractor. These areas, if available, will be defined and located at the pre-bid conference. Security of the storage areas shall be the Contractor's responsibility. Material storage locations and method of storage must in no way interfere with traffic and must be designated or approved. The Railroad shall have the right to move or have the Contractor move material from storage locations. The Railroad shall bear the actual cost of such moving from storage locations which were specifically designated by the Engineer. Moving stored materials from other locations shall be at Contractor's expense.

2.2.3 Record Keeping. The Contractor shall provide to the Railroad, or their representative, a record of all materials that are installed for this project. A weekly inventory shall be kept by the Contractor showing materials on hand, material that has been installed, material that has been salvaged, and material that has been stored for the Railroad. This inventory will be made available to the Railroad at any time they request this information.

2.2.4 Certification. Contractor shall provide written certification that the ballast being provided meet the requirements of this specification.

2.2.5 Ballast Sizing. Ballast shall be clean crushed stone free of screenings, dirt, and foreign matter. Ballast size gradation shall conform to the table below. The company shall receive certification from the supplier that the ballast meets the requirements of this specification.

Ballast Size	Nominal Size, Square Opening	Percent Passing, Sieve Opening										
		2-1/2"	2"	1-1/2"	1"	3/4"	1/2"	3/8"	1/4"	1/8"	No.4	No.8
4*	1 ½"	100	100	90-100	20-55	0-15		0-5				0
57	1"-NO.4	100	100	100	95-100		25-60				0-10	0-5

2.3 Construction Details.

2.3.1 Track Alignment. The track section, when completed shall be in conformance with the track alignment and elevation as indicated in the Contract Documents, and the limits specified herein, or as ordered by the Engineer. Track alignment shall be in conformance with FRA Track Safety Standards Subpart C-Track Geometry-Subsection 213.55, Alignment plus the requirements in this specification. The class of track for surfacing shall be FRA Class III or better. The requirements of subsection 213.57, Curves; Elevations and Speed Limitations, and 213.59, Elevations of Curved track; Runoff, of FRA Track Safety Standards shall apply unless otherwise specified by the Engineer. Visible long distance alignment errors, e.g., "line swings, hooks, etc.", shall be corrected to the satisfaction of the Engineer. This includes the use of external alignment references, such as a laser, as necessary to correct those defects. Equipment proposed for this item shall be equipped to use an external reference, such as a laser, in addition to machine borne reference systems.

2.3.2 Track Surface. Track surface shall be in conformance with FRA Track Safety Standards Subpart C-Track Geometry-Subsection 213.63, Track Surface plus the requirements in this specification. The class of track for surfacing shall be FRA Class 1.

2.3.3 Cross Level Deviation. The deviation from zero cross level at any point on tangent or from designated elevation on curves between spirals shall not be more than 1/4". The difference in cross level between any two points less than 39 ft. apart on tangents and curves between spirals shall not be more than 1/4".

2.3.4 Super Elevation and Grade. Track Elevation shall conform to Contract Documents.

2.3.5 Equipment. The equipment to be used in the alignment and surfacing operation shall be a Tamper Model Mark IV or an approved equal and MUST be approved by the Engineer prior to use. An external alignment reference such as a laser shall be used upon request of the Engineer.

2.3.6 Maintain Work. Work shall be performed so that track will maintain the alignment, surface, and elevation after tamping.

2.3.7 Bearing Surface. The track section, when completed, shall have the tie plate bear fully on the ties and the rail base bear fully on the tie plate. No portion of the tie plate shoulder, or stone or any foreign material, shall be permitted under the base of the rail.

2.3.8 Tamper Insertions. All ties shall receive not less than two (2) separate insertions of the squeeze type vibratory tamper.

2.3.9 Damaged Spikes. All track spikes damaged and not functioning as intended during the raising, aligning, and surfacing operation shall be repaired. The bent spikes shall be removed, and the resulting hole shall be plugged with a treated tie plug of a size sufficient to completely and tightly fill the hole, then a new spike shall be driven. Spikes that are raised shall be re-driven unless they are loose in their hole. If they are loose, the hole shall be plugged with a tie plug and the spike re-driven.

2.3.10 Ballast. Existing ballast shall be re-used. New ballast shall be used as required. All cribs shall be full of ballast and track will be broomed with a ballast regulator so that ballast is level with the top of the tie. No ballast shall remain on the top of the tie. Shoulders shall conform to the Railroad standard cross-section.

2.3.10.1 Placement. The ballast required for raising and surfacing track shall be distributed from hopper bottom or special ballast railroad cars, or alternate method of distribution approved by the Engineer, in the quantities as shown in the Contract Documents or ordered by the Engineer as necessary for the raise. Immediately after distributing the ballast, the track shall be dressed as necessary to permit continued operation of normal train service including proper operation of switches, frogs, guard rails, and flange areas.

2.10.2 Transport Equipment. The rail cars or other equipment used to transport the ballast shall be in good condition, so that leakage of ballast does not occur, and so that the spreading operation can be controlled. The rail cars or other equipment shall be free of any debris or foreign material that might contaminate the ballast.

2.3.11 Track Circuit. Care shall be taken to insure that track circuit or relay wires are not damaged (if applicable). If the Contractor damages the circuit wires or bonds, they will be responsible to reimburse the Railroad for their repair.

2.3.12 Rise. The amount of standard raise shall not exceed three (3) inches. Track receiving less than the minimum specified raise shall not be considered acceptable. Exceptions may be made for surfacing into fixed points such as crossings, switches, bridges, and areas of restricted clearance with prior approval of Engineer.

2.3.13 Lifting Tangent Track. When lifting tangent track both rails shall be raised at the same time to the same level.

2.3.14 Simultaneous Tamping. Both ends of the ties shall be tamped simultaneously and tamping inside and outside of the rail shall be done at the same time.

2.3.15 Proper Tooling. Worn or broken tamping tools shall be replaced at the request of the Railroad. Track tamped with broken or worn tamping tools shall not be considered acceptable until tamped with proper tooling in a manner acceptable to the Railroad. Worn regulator or broom elements shall be replaced or repaired at the request of the Railroad. Should surfacing machinery or its operators be discovered to be

building errors into the surfaced and aligned track, contractor shall correct the error(s) to the satisfaction of the engineer at no expense to the project. Equipment producing such errors shall be repaired to the satisfaction of the Engineer prior to re-use.

2.3.16 Equipment Selection Approval. Equipment proposed to accomplish this item is subject to written approval of the Railroad.

2.3.17 Cribs and Shoulders. Cribs and shoulders shall be regulated and dressed to the specified section and profile. Cribs containing throw rods and switch mechanisms shall be left in a manner that they drain freely and are readily able to be inspected and maintained by Railroad personnel.

2.3.18 Approaches. All newly installed turnout approaches should be surfaced in accordance with this section no less than 100 track feet, unless approved by the Engineer.

2.3.19 Defects. Sufficient passes shall be used to correct defects in alignment and surface such that ballast may be properly tamped beneath the ties to the satisfaction of the engineer. Amount of raise per pass may not exceed the maximum correction or raise per pass.

2.3.20 Walkways. All head block ties and adjacent ties should maintain a sufficient quantity of ballast to ensure that they are fully tamped beneath rails and that the switch stand is not left hanging. The ballast section to the outside and ends of the headblock ties must conform to existing standards for the type of track involved, i.e. welded rail or jointed rail. The ballast level in the cribs of the headblock ties and the adjacent ties must not interfere with the safe operation of the switch connecting roads, signal rods, and other parts which operate in the crib space. Sufficient additional walkway stone must be placed to ensure the walkway area around the switch stand is in a safe condition for anyone that must operate the switch.

2.4 Basis of Payment.

2.4.1 Units. Payment for this item shall be per track foot. (TF)

2.4.2 Included Costs. The unit price bid to install ballast and surface shall include the cost of all the labor, equipment, and tools necessary to distribute ballast, raise, line, and surface track section specified in contract documents.

END OF SECTION

3 CROSS TIE REPLACEMENT

3.1 Description. The work shall consist of the removal of the existing crossties, installation of new cross ties including, handling, staging, installation, tamping, and related work at all locations designated in the contract documents or as directed by the Engineer. Removed ties shall become the property of the Contractor. The timber/ties shall be removed from the right-of-way and disposed of by the Contractor within 30 days of completion of the project. The Contractor shall certify that the timbers were disposed of in accordance with all environmental regulations.

3.2 Material. All material used for this work shall be furnished by the Contractor, conform to A.R.E.M.A. Portfolio of Plans and Specifications, meet requirement stated in this section, and be approved by the Engineer prior to use. Any material rejected by the Railroad as not complying with these specifications shall be replaced by the contractor at no expense to the Railroad. Any material distributed by the Contractor which is lost, stolen or damaged will be replace by the Contractor at its cost and expense.

3.2.1 Ownership of Material - Materials furnished by the Railroad will remain the property of the Railroad. The Contractor shall dispose of specific Railroad-owned salvaged materials of which the Railroad does not desire to retain ownership. The Railroad reserves the right to specify such materials at any time during the contract period. Disposal of these materials shall be as approved by the Engineer. Non-specified material shall become the property of the Contractor and shall be removed from the right-of-way and disposed of by the Contractor within 30 days of completion of the project, as specified in Section 5 TIE DISPOSAL.

3.2.2 Storage Areas - Certain areas within Railroad owned right-of-way may be made available to the Contractor. These areas, if available, will be defined and located at the pre-bid conference. Security of the storage areas shall be the Contractor's responsibility. Material storage locations and method of storage must in no way interfere with traffic and must be designated or approved. The Railroad shall have the right to move or have the Contractor move material from storage locations. The Railroad shall bear the actual cost of such moving from storage locations which were specifically designated by the Engineer. Moving stored materials from other locations shall be at Contractor’s expense.

3.2.3 Record Keeping. The Contractor shall provide to the Railroad, or their representative, a record of all materials that are installed for this project. A weekly inventory shall be kept by the Contractor showing materials on hand, material that has been installed, material that has been salvaged, and material that has been stored for the Railroad. This inventory will be made available to the Railroad at any time they request this information.

3.2.4 Certification. Contractor shall provide written certification that the timbers being provided meet the requirements of this specification.

3.2.5 Species. The following kinds of wood suitable for ties will be accepted.

Ash	Beech	Birch	Black Gum
Catalpa	Cherry	Elm	Hackberry
Locust	Maple	Mulberry	Oak
Sassafras	Sycamore	Walnut	

3.2.6 Manufacture. All timber shall be NEW, well sawed on top, bottom and sides. Timber shall be straight, cut square at the ends, have bottom and top parallel, and have all bark entirely removed. A timber shall be considered straight only if it meets both of the following requirements: (a) a straight line drawn along the top of the tie from the middle of one end to the middle of the other end of the timber falls entirely within the width of the timber and (b) a straight line drawn along a side of the tie from the middle of one end to the middle of the other end of the timber is everywhere more than two inches from the top and two inches from the bottom of the timber. The top and bottom of a timber will be considered parallel if any difference in the thickness at the sides or ends does not exceed 1/2 inch.

3.2.7 Dimensions. Timbers and ties shall conform to the dimensions shown in the table below.

TYPE	**DIMENSIONS**
Track Tie	7”x 9” X 8’ – 6”
Switch Timber	Timber dimensions shall be in accordance with current edition of the A.R.E.M.A Portfolio of Track Work Plans for the turn out number identified.
Bridge Timber	As specified in associated bridge drawing.

3.2.8 Defects. The occurrence of any of the following defects in an individual timber shall be the cause for rejection.

3.2.8.1 Shakes. A separation along the grain, occurring between the annual growth rings is a shake. A shake length more than one-third the nominal width of the tie shall not be allowed.

3.2.8.2 Slant or Slope of Grain. Except in the case of wood with interlocking grain, a slant or slope of grain in excess of 1 in 15 shall not be allowed.

3.2.8.3 Holes. Large holes shall not be allowed. A large hole is more than ½ inch in diameter and 3 inches deep within the rail bearing areas, or more than one – forth the width of the surface on which it appears and 3 inches deep outside the rail bearing area. Numerous holes shall not be allowed. Numerous holes are any number of smaller holes equaling a large hole in size.

3.2.8.4 Knots. Large knots shall not be allowed. A large knot is one whose average diameter exceeds one-fourth the width of the face on which it appears. Numerous knots shall not be allowed. Numerous knots are any number of smaller knots equaling a large knot in size.

3.2.8.5 Checks. A separation along the grain of the wood occurring across the annual rings is a check. Fully seasoned and treated ties with check depths greater than one-fourth the thickness and longer than one-half the length of the tie shall not be allowed.

3.2.8.6 Decay. Ties shall contain no decay. Although blue stain is not considered decay and is not a defect, ties shall be inspected with extra care for presence of decay in heavily stained areas.

3.2.8.7 Wane. The lack of wood on the edge or corner of the tie due to the natural curvature of the log from which the tie is cut is a wane. Wanes which reduces the face dimension greater than 3 inches outside the rail bearing area shall not be allowed. In the rail bearing area, 3/4 inch maximum wane will be allowed.

3.2.8.8 Splits. A split is a separation of the wood extending from one surface to an opposite or adjacent surface. A split in either end of the tie greater than 1/4 inch wide or longer than 10 inches is not acceptable without an anti-splitting device. The split shall be compressed prior to seating of the end plate. A split tie which has had an anti-splitting device applied but which re-opens after treatment to exceed 1/2 inch in width is not acceptable.

3.2.8.9 Twist. The deviation from a flat plane of all four faces by a spiraling or torsional action is a twist. A rotation of more than 3.5 degree from end face to end face shall not be allowed.

3.2.8.10 Anti-splitting Devices. Anti-Splitting devices shall be nail plates and are to be installed prior to preservative treatment. Anti-Splitting devices, if installed, shall meet or exceed AREMA standards.

3.2.8.11 Air Seasoning. New timber shall be certified as having been air dried or otherwise seasoned in accordance with the American Wood Preserver's Association (AWPA) Standard C6.

3.2.8.12 Preservative Treatment. Plants used for the treatment of wood shall conform to AWPA Standard, Standard Quality Control Procedures for Wood Preserving Plants. All timber shall be treated with creosote-coal tar solution conforming to AWPA Standard P2. Standard for Creosote and Creosote Solutions, Grace C, Grades A or B may be substituted for Grade C. Preservative treatment shall be carried out in accordance with AWPA Standard C1, All Timber Products - Preservative Treatment by Pressure Processing or C6, Cross Ties and Switch Ties - Preservative Treatment by Pressure Processes. The method used shall be the empty cell process by use of initial air to control retention. Retention of preservative shall be 8 pounds of preservative per cubic foot of

wood. Retention shall be determined by gauge in accordance with paragraph 3.1 of AWPA Standard C1. When specified, pentacholorphenol in heavy AWPA Standard P9A solvent may be used as a preservative. Minimum retention shall be 0.4 pounds preservative per cubic foot of wood.

3.2.9 Spikes & OTM. Track Spikes shall be NEW and of the size and type indicated in the Contract Documents, they shall meet the material requirements of the Specification entitled: Soft-Steel Track Spikes, A.R.E.M.A. Manual- Current Edition.

3.3 Construction Details.

3.3.1 Staging. Ties shall be stockpiled at staging locations shown in the Plans. The Contractor shall submit locations of additional proposed track side stockpile/distribution points to the Engineer for review and approval prior to stockpiling. Restoration of stockpile, loading or staging areas shall be included in Tie Replacement items. This Work shall include restoring the ground surface back to the original condition and seeding, fertilizing and mulching of dirt or grassed areas.

3.3.2 Timber and Debris Removal. All timber and debris removed from the site shall become the property of the Contractor. It shall be removed from Railroad property within thirty days from the completion of the work. All material shall be disposed of in a lawful manner as required and as specified in Section 5.

3.3.3 Train Traffic. The Contractor shall perform all work in manner that will allow train traffic as required by the Railroad.

3.3.4 Drawings and Specifications. All work shall be installed in accordance with the contract drawings and specifications.

3.3.5 Marking. Ties to be replaced will be indicated by a paint marking on the defective tie in the quantity and general location shown in the project documents.

3.3.6 Tie Handling. All ties shall be handled, transported, and stored in accordance with current AREMA standards. New ties shall be handled and placed with either mechanical tie insertion device or tie tongs. Only approved lifting devices that do not damage the tie should be used; the use of picks will not be permitted. Tie removal, handling, and placement equipment is subject to the approval of the Engineer prior to use. Ties that are damaged by mishandling will be replaced by the Contractor at his expense.

3.3.7 Tie Placement. Ties will be placed in the track, square to the centerline of the track with the wider heartwood face down. To the extent practicable, the end of the ties shall be a uniform line.

3.3.8 Tie Spacing. Ties should be spaced uniformly, replaced at existing locations. Existing spacing is approximately 20”.

3.3.9 Gage. During the tie installation process, the track shall be regaged to 4' 8 1/2" when the track gage exceeds (-1/2" or +1/2"). Changes in gage shall be made in uniform increments of not more than 1/4" in 20 feet. All timber that has had a spike removed shall receive a treated tie plug or tie plugging compound.

3.3.10 Spike Pattern. The Contractor shall match existing spiking pattern. Tangent – Two (2) rail holding spikes per plate. Curves Two (2) rail holding and One (1) field side plate holding. All spikes that are removed shall be gathered and stock piled at a location designated by the Railroad.

3.3.11 Spike Depth. All ties shall have rail holding spikes installed before prior to train movement. Rail holding spikes shall be driven so as to allow a one-eighth inch (1/8”) space between the underside of the spike head and the top of the base of the rail. The spikes shall not be over driven. Spikes shall not be bent against the rail.

3.3.12 Bent Spikes. Any bent spikes shall be removed. If a spike is removed, the resulting hole shall be plugged with a treated tie plug of a size sufficient to completely and tightly fill the hole.

3.3.13 Additional Spikes. Additional spikes may be used when required by local conditions or as ordered by the Engineer.

3.3.14 Tie Plates. The tie plates from the existing tie shall be re-used unless they are broken or nonfunctional (As specified in paragraph 3.3.15). Tie plates shall be used on all ties and shall be free of any dirt or foreign matter when being installed. They shall be installed centered about the width of the tie, with full bearing on the crosstie and the rail in full contact with the rail seat of the tie plate. Under no circumstances shall a shoulder be under the rail base. With a double shoulder canted plate, the cant (slope) of the plate shall be downward to the gage (inside) of the rail.

3.3.15 Defective Tie Plates. The tie plates from the existing tie shall be re-used unless they are broken or nonfunctional. The railroad will provide extra tie plates only if the plate was defective prior to this project. Tie plates will be judged defective due to any of the following reasons:

1. Rounded or worn shoulders.
2. Rounded or otherwise excessively worn spike holes.
3. A crack, bend, or other flaw in the plate.
4. Excessive deterioration from the rust, scale or brine.

3.3.16 Rail anchors. Rail anchors removed during the tie installation process shall be replaced with full contact with the new tie. Rail anchors shall be applied from the gage side of the rail whenever possible. Rail anchors must be installed so that they bear firmly against the tie. The Driving of anchors longitudinally along rails to obtain contact will not be permitted. No rail anchor shall be applied so as to be within 6” of the end of a joint bar.

3.3.17 Ballast. Ballast disturbed during the removal of the defective tie and placement of the new tie shall be restored to the track structure. Existing ballast shall be re-used. New ballast shall be used as required. All cribs shall be full of ballast and track will be broomed with a ballast regulator so that ballast is level with the top of the tie. No ballast shall remain on the top of the tie. Shoulders shall conform to the Railroad standard cross section. Ballast Shall be placed and transported as specified in 2.3.10.

3.3.18 Surfacing. Ties shall be replaced prior to tamping. If during the passes with the tamper there are ties that do not come up with the rail, the Contractor shall raise them by other means so that the rail has full bearing on the plate. Contractor will surface the track to exceed FRA Class III Safety Standards unless rail condition does not allow it. The crosstie shall be tamped to provide a full bearing of the rail, tie plate, and tie within the track structure. Equipment and procedures shall comply with those stated in Section 2, INSTALL BALLAST AND SURFACE.

3.4.19 CWR territory. If in CWR territory, the railroad's CWR plan shall be complied with fully.

3.3.20 Transition Plan. Contractor shall submit to the Railroad, for approval, the plan to transition the new work into the existing track as to allow train movements.

3.3.21 Workmanship. All work is subject to the lifecycle requirements of the funding instruments. Ties installed shall be fully tamped and spiked to the satisfaction of the engineer prior to be considered as acceptable. Disturbance to surface and alignment resulting from tie installation shall be corrected by the contractor at no cost to the contract prior to acceptance of the ties installed.

3.4 Basis of Payment.

3.4.1 Units. Payment for remove and install crossties shall be per tie installed. (EACH)

3.4.2 Included Cost. The unit price bid to remove and install crossties shall include the cost of all the labor, equipment, and tools necessary to remove and install crossties. The cost shall include distribution of ties. The cost of dumping of ballast and surfacing of the tie rehabilitation limits will be paid for under a separate item. The cost for installation of switch ties and disposing of all timbers, will be paid for under a separate item.

END OF SECTION

4 SWITCH TIE REPLACEMENT

4.1 Description. The work shall consist of the removal of the existing switch ties, installation of new switch ties including, handling, staging, installation, tamping, and related work at all locations designated in the contract documents or as directed by the Engineer. Removed ties shall become the property of the Contractor. The timber/ties shall be removed from the right-of-way and disposed of by the Contractor within 30 days of completion of the project. The Contractor shall certify that the timbers were disposed of in accordance with all environmental regulations.

4.2 Material. All material used for this work shall be furnished by the Contractor, conform to A.R.E.M.A. Portfolio of Plans and Specifications, meet requirement stated in this section, and be approved by the Engineer prior to use. Any material rejected by the Railroad as not complying with these specifications shall be replaced by the contractor at no expense to the Railroad. Any material distributed by the Contractor which is lost, stolen or damaged will be replace by the Contractor at its cost and expense.

4.2.1 Ownership of Material - Materials furnished by the Railroad will remain the property of the Railroad. The Contractor shall dispose of specific Railroad-owned salvaged materials of which the Railroad does not desire to retain ownership. The Railroad reserves the right to specify such materials at any time during the contract period. Disposal of these materials shall be as approved by the Engineer. Non-specified material shall become the property of the Contractor and shall be removed from the right-of-way and disposed of by the Contractor within 30 days of completion of the project, as specified in Section 5 TIE DISPOSAL.

4.2.2 Storage Areas - Certain areas within Railroad owned right-of-way may be made available to the Contractor. These areas, if available, will be defined and located at the pre-bid conference. Security of the storage areas shall be the Contractor's responsibility. Material storage locations and method of storage must in no way interfere with traffic and must be designated or approved. The Railroad shall have the right to move or have the Contractor move material from storage locations. The Railroad shall bear the actual cost of such moving from storage locations which were specifically designated by the Engineer. Moving stored materials from other locations shall be at Contractor’s expense.

4.2.3 Record Keeping. The Contractor shall provide to the Railroad, or their representative, a record of all materials that are installed for this project. A weekly inventory shall be kept by the Contractor showing materials on hand, material that has been installed, material that has been salvaged, and material that has been stored for the Railroad. This inventory will be made available to the Railroad at any time they request this information.

4.2.4 Certification. Contractor shall provide written certification that the timbers being provided meet the requirements of this specification.

4.2.5 Species. The following kinds of wood suitable for ties will be accepted.

Ash	Beech	Birch	Black Gum
Catalpa	Cherry	Elm	Hackberry
Locust	Maple	Mulberry	Oak
Sassafras	Sycamore	Walnut	

4.2.6 Manufacture. All timber shall be NEW, well sawed on top, bottom and sides. Timber shall be straight, cut square at the ends, have bottom and top parallel, and have all bark entirely removed. A timber shall be considered straight only if it meets both of the following requirements: (a) a straight line drawn along the top of the tie from the middle of one end to the middle of the other end of the timber falls entirely within the width of the timber and (b) a straight line drawn along a side of the tie from the middle of one end to the middle of the other end of the timber is everywhere more than two inches from the top and two inches from the bottom of the timber. The top and bottom of a timber will be considered parallel if any difference in the thickness at the sides or ends does not exceed 1/2 inch.

4.2.7 Dimensions. Timbers and ties shall conform to the dimensions shown in the table below.

TYPE	**DIMENSIONS**
Track Tie	7”x 9” X 8’ – 6”
Switch Timber	Timber dimensions shall be in accordance with current edition of the A.R.E.M.A Portfolio of Track Work Plans for the turn out number identified.
Bridge Timber	As specified in associated bridge drawing.

4.3.8 Defects. The occurrence of any of the defects stated in section 3.2.8 DEFECTS in an individual timber shall be the cause for rejection.

4.3 Construction Details.

4.3.1 Staging. Ties shall be stockpiled at staging locations shown in the Plans. The Contractor shall submit locations of additional proposed track side stockpile/distribution points to the Engineer for review and approval prior to stockpiling. Restoration of stockpile, loading or staging areas shall be included in Tie Replacement items. This Work shall include restoring the ground surface back to the original condition and seeding, fertilizing and mulching of dirt or grassed areas.

4.3.2 Timber and Debris Removal. All timber and debris removed from the site shall become the property of the Contractor. It shall be removed from Railroad property within thirty days from the completion of the work. All material shall be disposed of in a lawful manner as required. As specified in Section 5.

4.3.3 Train Traffic. The Contractor shall perform all work in manner that will allow train traffic as required by the Railroad.

4.3.4 Drawings and Specifications. All work shall be installed in accordance with the contract drawings and specifications.

4.3.5 Marking. Ties to be replaced will be indicated by a paint marking on the defective tie in the quantity and general location shown in the project documents.

4.3.6 Tie Handling. All ties shall be handled, transported, and stored in accordance with current AREMA standards. New ties shall be handled and placed with either mechanical tie insertion device or tie tongs. Only approved lifting devices that do not damage the tie should be used; the use of picks will not be permitted. Tie removal, handling, and placement equipment is subject to the approval of the Engineer prior to use. Ties that are damaged by mishandling will be replaced by the Contractor at his expense.

4.3.7 Tie Placement. Ties will be placed in the track, square to the centerline of the track with the wider heartwood face down. To the extent practicable, the end of the ties shall be a uniform line.

4.3.8 Tie Spacing. Ties should be spaced uniformly, replaced at existing locations. Existing spacing is approximately 20”.

4.3.9 Gage. During the tie installation process, the track shall be regaged to 4' 8 1/2" when the track gage exceeds (-1/2" or +1/2"). Changes in gage shall be made in uniform increments of not more than 1/4" in 20 feet. All timber that has had a spike removed shall receive a treated tie plug or tie plugging compound.

4.3.10 Spike Pattern. The Contractor shall match existing spiking pattern. Tangent – Two (2) rail holding spikes per plate. Curves Two (2) rail holding and One (1) field side plate holding. All spikes that are removed shall be gathered and stock piled at a location designated by the Railroad. No spikes shall be driven against the ends of joint bars.

4.3.11 Spike Depth. All ties shall have rail holding spikes installed before prior to train movement. Rail holding spikes shall be driven so as to allow a one-eighth inch (1/8”) space between the underside of the spike head and the top of the base of the rail. The spikes shall not be over driven. Spikes shall not be bent against the rail.

4.3.12 Bent Spikes. Any bent spikes shall be removed. If a spike is removed, the resulting hole shall be plugged with a treated tie plug of a size sufficient to completely and tightly fill the hole.

4.3.13 Additional Spikes. Additional spikes may be used when required by local conditions or as ordered by the Engineer.

4.3.14 Tie Plates. The tie plates from the existing tie shall be re-used unless they are broken or nonfunctional (As specified in paragraph 4.3.15). Tie plates shall be used on all ties and shall be free of any dirt or foreign matter when being installed. They shall be installed centered about the width of the tie, with full bearing on the crosstie and the rail in full contact with the rail seat of the tie plate. Under no circumstances shall a shoulder be under the rail base. With a double shoulder canted plate, the cant (slope) of the plate shall be downward to the gage (inside) of the rail.

4.3.15 Defective Tie Plates. The tie plates from the existing tie shall be re-used unless they are broken or nonfunctional. The railroad will provide extra tie plates only if the plate was defective prior to this project. Tie plates will be judged defective due to any of the following reasons:

1. Rounded or worn shoulders.
2. Rounded or otherwise excessively worn spike holes.
3. A crack, bend, or other flaw in the plate.
4. Excessive deterioration from the rust, scale or brine.

4.3.16 Rail anchors. Rail anchors removed during the tie installation process shall be replaced with full contact with the new tie. Rail anchors shall be applied from the gage side of the rail whenever possible. Rail anchors must be installed so that they bear firmly against the tie. The Driving of anchors longitudinally along rails to obtain contact will not be permitted. No rail anchor shall be applied so as to be within 6" of the end of a joint bar.

4.3.17 Ballast. Ballast disturbed during the removal of the defective tie and placement of the new tie shall be restored to the track structure. Existing ballast shall be re-used. New ballast shall be used as required. All cribs shall be full of ballast and track will be broomed with a ballast regulator so that ballast is level with the top of the tie. No ballast shall remain on the top of the tie. Shoulders shall conform to the Railroad standard cross section. Ballast Shall be placed and transported as specified in 2.3.10.

4.3.18 Surfacing. Ties shall be replaced prior to tamping. If during the passes with the tamper there are ties that do not come up with the rail, the Contractor shall raise them by other means so that the rail has full bearing on the plate. Contractor will surface the track to exceed FRA Class III Safety Standards unless rail condition does not allow it. The crosstie shall be tamped to provide a full bearing of the rail, tie plate, and tie within the track structure. Ballast and stone accumulations shall be cleaned from rail base and from in between stock rails, guard rails, points, and from in between stock rails and closure rails to the satisfaction of the Railroad. Equipment and procedures shall comply with those stated in Section 2, INSTALL BALLAST AND SURFACE.

4.4.19 Walkways. All head block ties and adjacent ties should maintain a sufficient quantity of ballast to ensure that they are fully tamped beneath rails and that the switch stand is not left swinging. The ballast section to the outside and ends of the headblock ties must conform to existing standards for the type of track involved, i.e. welded rail or

jointed rail. The ballast level in the cribs of the headblock ties and the adjacent ties must not interfere with the safe operation of the switch connecting rods, signal rods and other parts which operate in the crib space. Sufficient additional walkway stone must be placed to ensure the walkway area around the switch stand is in a safe condition for anyone that must operate the switch.

4.4.20 CWR territory. If in CWR territory, the railroad's CWR plan shall be complied with fully.

4.3.21 Transition Plan. Contractor shall submit to the Railroad, for approval, the plan to transition the new work into the existing track as to allow train movements.

4.4 Basis of Payment.

4.4.1 Units. Payment for remove and install crossties shall be per tie installed. (EACH)

4.4.2 Included Cost. The unit price bid to remove and install switch ties shall include the cost of all the labor, equipment, and tools necessary to remove and install crossties. The cost shall include distribution of ties. The cost of dumping of ballast and surfacing of the tie rehabilitation limits will be paid for under a separate item. The cost for installation of crossties and disposing of all timbers, will be paid for under a separate item.

5 TIE DISPOSAL

5.1 Description. The work shall consist of the removal and disposal of all cross ties replaced. Removed ties shall become the property of the Contractor. The timber/ties shall be removed from the right-of-way and disposed of by the Contractor within 30 days of completion of the project. The Contractor shall certify that the timbers were disposed of in accordance with all environmental regulations.

5.2 Materials. Such materials as required for tie disposal and that are not to be part of the completed contract shall be as determined by the Contractor, except that they shall conform to any pertinent local or State Law, regulation, or code.

5.3 Construction Details. The work required to provide the above facilities and service for tie disposal shall be done in a safe and workmanlike manner and shall conform with any pertinent local or State Law, regulation, or code.

5.3.1 Housekeeping. Good housekeeping consistent with safety shall be maintained. Old ties shall be removed and stacked neatly along the ROW in groups of 10 or more. All old OTM is to be cleaned up and hauled off site by the Contractor.

5.3.2 Proper Disposal. All arrangements for proper disposal of removed ties shall be the responsibility of the selected Contractor. The Contractor shall provide documentation of proper disposal upon request.

5.3.3 Documentation. Weigh ticket and/or disposal ticket documentation must be provided as validation to invoices.

5.4 Basis of Payment.

5.4.1 Unit. Payment for tie disposal shall be lump sum.

5.4.2 Included Cost. The unit price bid of tie disposal shall include the cost of all the labor, equipment, and tools necessary to dispose of ties, including, haul and landfill rate.

END OF SECTION

6 CROSSING REPLACEMENT – Rubber Rail Seal

6.1 Description.

This Work consists of removal of existing grade crossing, pavement approaches, and track; grading and preparing crossing support surface; excavation of the grade crossing roadbed, crosstie installation, track installation, installing concrete / timber panels in accordance with the Plans and these Specifications. Removed crossing material shall become the property of the Contractor. The removed cross ties shall be removed from the right-of-way and disposed of by the Contractor within 30 days of completion of the project. As specified in section 5 TIE DISPOSAL.

6.2 Materials. All material used for this work shall be furnished by contractor, be new, conform to A.R.E.M.A. Portfolio of Plans and Specifications, and be approved by the Engineer prior to use. Any material rejected by the Railroad as not complying with these specifications shall be replaced by the contractor at no expense to the Railroad Any material distributed by the Contractor, which is lost, stolen or damaged will be replace by the Contractor at its cost and expense.

6.2.1 Ownership of Material - Materials furnished by the Railroad will remain the property of the Railroad. Removed Turnout Steel and OTM shall remain property of the railroad and neatly stockpiled. The Railroad reserves the right to specify such materials at any time during the contract period. Disposal of these materials shall be as approved by the Engineer. Non-specified material shall become the property of the Contractor and shall be removed from the right-of-way and disposed of by the Contractor within 30 days of completion of the project.

6.2.2 Storage Areas - Certain areas within Railroad owned right-of-way may be made available to the Contractor. These areas, if available, will be defined and located at the pre-bid conference. Security of the storage areas shall be the Contractor's responsibility. Material storage locations and method of storage must in no way interfere with traffic and must be designated or approved. The Railroad shall have the right to move or have the Contractor move material from storage locations. The Railroad shall bear the actual cost of such moving from storage locations which were specifically designated by the Engineer. Moving stored materials from other locations shall be at Contractor’s expense. Stored Materials shall be neatly arranged and blocked up off the ground and protected from mud and flood.

6.2.3 Record Keeping. The Contractor shall provide to the Railroad, or their representative, a record of all materials that are installed for this project. A weekly inventory shall be kept by the Contractor showing materials on hand, material that has been installed, material that has been salvaged, and material that has been stored for the Railroad. This inventory will be made available to the Railroad at any time they request this information.

6.2.4 Certification. Contractor shall provide written certification that materials being provided meet the requirements of this specification and is defect free.

6.2.5 Timbers. Timber materials shall meet all requirements as stated herein document including 4.3 MATERIALS

6.2.6 Rail. Rail shall meet all requirement as stated herein, and be head-harden control cooled.

6.2.7 Steel. Steel shall meet all requirements as stated herein

6.3 Construction Details.

6.3.1 Removal Preparation. Before the crossing planks / panels are removed, the contractor shall saw cut the roadway surface a minimum of 5 feet from the nearest rail and the full depth of the current road surface. The joint cut is to be transverse to the ties at a minimum set back distance shown in the Plans or that allowing the contractor to complete all Work within the limits of the crossing. The width shall accommodate the Contractors compaction equipment width. Asphalt shall be removed down to the aggregate base and all roadway aggregate or roadway subgrade that lies between the sawn joint and the crossing surface shall be removed to a minimum depth of 6 inches below bottom of ties or a depth necessary to complete the work.

6.3.2 Rail Cuts. Use only approved rail saw and abrasive cutting wheel for cutting rail. Cuts shall be square and clean. Rail shall be cut with Nominal Rail stagger of no less than 3 feet. Rail shall be cut so the minimum distance between cuts on the same rail is no less than 19 ½ feet. When given the option of cutting existing rail or cutting the rail being installed, cut the existing rail. Do not use cutting torches on rail; rail cut with torches will be rejected.

6.3.3 Removal of Existing Track Structure. The Contractor shall remove and disassemble the existing crossing surface, rails, plates and other track materials including track spikes, anchors, joint bars, and hardware as shown in the Plans. The removed track material and asphalt shall become property of the Contractor.

6.3.4 Layout of Grade Crossing. The Contractor shall be responsible to provide all survey and measurements required to layout the grade crossing and associated work in accordance with these specifications and the crossing manufacturer's requirements. Railroad panel may be built outside of installation location and placed whole or built within the area of excavation.

6.3.5 Trackbed Preparation. Existing ballast and other base material shall be excavated as shown in the Plans. All existing drainage ditches and channels adjacent to the grade crossing shall be cleaned and sloped to provide drainage away from the grade crossing.

6.3.6 Tie Handling. All ties shall be handled, transported, and stored in accordance with current AREMA standards. New ties shall be handled and placed with either mechanical tie insertion device or tie tongs. Only approved lifting devices that do not damage the tie should be used; the use of picks will not be permitted. Tie removal,

handling, and placement equipment is subject to the approval of the Engineer prior to use. Ties that are damaged by mishandling will be replaced by the Contractor at his expense. Ties with minor scrapes shall be treated with field preservative in accordance with the manufacturer's recommendations.

6.3.7 Tie Placement. Ties will be placed in the track, square to the centerline of the track with the wider heartwood face down. To the extent practicable, the end of the ties shall be a uniform line.

6.3.8 Tie Spacing. Ties should be spaced uniformly, replaced at existing locations. Existing spacing is approximately 20".

6.3.9 Rail Placement. Nominal rail stagger shall be a minimum of 3 feet. On curves, stagger will be re-established when stagger exceeds 1.5 feet from nominal. Minimum rail stagger at "tie- ins" for track shall be 12 feet. Rails shall be placed base down, parallel with track, avoiding excessive bending or damage, using suitable mechanical equipment. Care shall be taken to avoid placing rails on signal equipment, manhole covers, electrical connections, or near any other Installation that could be susceptible to damage.

6.3.10 Plates. New properly sized plates (switch, hook, flat, ridged and tie) shall be used on all timbers, and shall be free of any dirt or foreign matter when being installed, plates shall be centered about the width of the timber. The plate shoulder, ridges or hooks shall be properly set so as to bear firmly against the rail, frog or other turnout assemblies as required.

6.3.11 Spiking. All rail holding spikes shall be started with the head pointed toward the rail and driven vertically and square with the rail and so driven as to allow 1/8" to 3/16" in the space between the under side of the head of the spike and the top of the base of the rail. In no case shall the spikes be over-driven. Rail holding spiking arrangement shall be in accordance with the Contract Documents. Plate holding spikes shall be started with the head pointed toward the rail and driven vertically so head has full bearing against the tie plate. Plate holding spiking arrangement shall be in accordance with the Contract Documents. No spikes shall be driven against the ends of joint bars. Care shall be taken not to strike rail or fastenings when driving spikes. Spikes which are bent while being installed, and do not meet proper alignment, or designated head contact, will be removed. The hole shall be plugged properly with a treated tie plug, and a new spike installed. Timber spiking for standard tie plates shall conform to the following criteria:

Degree of Curve	Spike Pattern
0-00 to 3-00	2 rail holding
3-01' to 8-00'	2 rail holding and 1 plate holding – field side

8-01' to 12-30'	2 rail holding and 2 plate holding – 1 field side and 1 gauge side
12-31' to 16-00'	3 rail holding and 2 plate holding – 1 field side and 1 gauge side
16-01' to 18-00'	3 rail holding and 3 plate holding – 2 field side and 1 gauge side
18-01' to 20-00'	4 rail holding and 4 plate holding – 2 field side and 2 gauge side
Note: Timber spiking for hook plates and twin tie plates (hook, flat or ridged) shall require only one spike at the ends of plate so as not to spike kill timber.	

6.3.12 Gauging. Track gage shall be set at the time of spiking for the entire work limits for this item. The gage shall be set at 56-½ inches, with an allowable tolerance of plus or minus 1/8 inch

6.3.13 Anchoring. Anchors shall be installed for all ties, if panel is built outside of final installation location to prevent ties from skewing. All anchors shall be removed prior to surfacing. Outside of asphalt surface ties shall be installed using the box anchor method on the same side of the tie on both rails and in the accordance to the existing anchor pattern. Rail anchors shall be applied from the gauge side of the rail whenever possible. Rail anchors must be installed so that they bear firmly against the tie race. The driving of anchors longitudinally along rails to obtain this contact will not be permitted. No rail anchor shall be applied so as to be within 6" of the end of a joint bar.

6.3.14 Rail Joints. Rail joints shall be spaced as required for rail, size and if insulated or non-insulated, as indicated in the Contract Documents or A.R.E.M.A. Manual- Current Edition for the rail furnished. Contractor shall determine the proper rail dimensions for the crossing prior to work commencement.

6.3.15 Bolt Holes. If not immediately welding, New rail bolt holes shall be drilled only with a rail drill. No other method is permissible. Rail shall be drilled before joint bars are applied. Drilling shall be performed by either, center punching hole location and drilling or by using a proper template. Holes are to be of the size prescribed for rail section and joint bar type. If crossing joints are intended to be welded, then a whole must note be drilled within 4.5 inches of the rail end.

6.3.16 Joint Bars. Joint Bars must be properly applied to meet FRA class of track standards with full number and correct size of bolts, nuts and spring washers. Joint bolts must be properly tightened before spiking rail. Bolts shall be placed with the nuts alternatively on the inside and outside of the rail. Bolts will be torqued to AREMA Volume 1, Section 5.5, starting from the center working out. Fishing surfaces of rails at joint bars shall be swabbed with grease. Use outer four bolt holes only when installing bolted joints that will be eliminated by field welding. Do not drill inside holes at future field weld locations. All joints that will remain bolted shall use all bolts. Before bolted joints are considered final, they will be retightened, to specified torque, with a power

wrench after final surfacing and regulating. The non-defective joint bars shall become the property of railroad and stockpiled at the designated location.

6.3.17 Comp Bars. When joining rails of differing sizes with a compromise joint, it shall be fitted so that the top of the rail surface and the gauge face of the rails to be connected are held in alignment. Bars must be installed, as markings indicate, GAUGE SIDE/FIELD SIDE. When joining rails with a difference of 25 lbs or greater, a step down rail between 16.5 to 19.5 feet in length, with the appropriate OTM, shall be installed between welds or compromise joint bars.

6.3.18 Surfacing. Following jointing of crossing panel to track, ballast shall be added in sufficient amount to allow mechanical tamper to lift and align panel. Ballast shall be mechanically tamped and dressed. Ballast regulating equipment shall be configured to avoid damage to track components. Excavator or other machinery may be used in case of excessive negative profile. A minimum of 2 passes by the tamper, plus a minimum of 1 pass by the tamper placing stone under center of tie. Final surface should place top of rail 1" above road surface along center line of road. Ballast in the crib area shall not reside above the top of the adjacent ties. Debris or stones shall be removed from the top of the ties. Excess ballast shall be removed and be placed as directed by the Engineer. Ballast damaged by overwork and/or excessive tamping or fouled by dirt or other deleterious material shall be removed and replaced at the Contractor's expense.

6.3.19 Rail Seal Application. Rail Seal and rail seal clamps to be installed per manufacturer's specifications. Rail seal must extend a minimum of 4 feet beyond the roadway travelled way. The rail seal must bear firmly against the rail and be free of any dirt or foreign matter when installed. Rail Seal clamps must be installed within in each crib and at the ends of the rubber rail seal to ensure the rubber rail seal is secured to the rail. Heavy Tape (such as duct or Gorilla) should be placed on the seam between top of rail and rail seal to cover existing gap prior to paving.

6.3.20 Asphalt. All old road material shall be removed. Area between surface cut and rail shall be leveled and free of all foreign material (mud, dirt, trash, etc.). Existing road surface should be milled to eliminate poor existing conditions. Asphalt base material should be placed in at least 2 equal lifts and compacted. Asphalt surface material may be placed in 1 lift and compacted to height of top of rail. A key edge shall be made and tack applied to existing road surface. A minimum of 20' runoff should be included for all traffic directions. Final roadway surface shall not allow standing water, seams must be thoroughly rolled, and edges compacted tight. Asphalt to extend and wrap around outer edges of rail seal. All excessive or extra asphalt must be properly disposed of by contractor.

6.3.21 Roadway Signage. Crossbucks and other signage to be installed to manufacturers specification and in accordance with FRA and MUTCD guidelines. Required signage, if applicable, will be defined at the pre-bid conference.

6.3.22 CWR territory. If in CWR territory, the railroad's CWR plan shall be complied with fully.

6.4 Basis of Payment.

6.4.1. Units. Payment for crossing replacement shall be per track foot installed. (TF)

6.4.2. Included Cost. The unit price bid to replace crossing shall include the cost of all the labor, equipment, and tools necessary to remove existing crossing and roadway surfaces, build and install a complete crossing panel including completion of necessary welds / tie ins. Cost shall include traffic control, road closure, and asphalt installation. The cost of removing, disposal, and paving road surface will be paid for under this item. The cost of timber disposal will be paid for under a separate item.

END OF SECTION

7 RAIL REPLACEMENT

7.1 Description.

The work shall consist of the removal of the existing rail, installation of new rail including, handling, staging, installation, tamping, and related work at all locations designated in the contract documents or as directed by the Engineer. Removed rail and OTM shall become the property of the Contractor. The scrap rail and OTM shall be removed from the right-of-way and disposed of by the Contractor within 30 days of completion of the project. As specified in section 10 SCRAP REMOVAL

7.2 Materials. All material used for this work shall be furnished by contractor, be new, conform to A.R.E.M.A. Portfolio of Plans and Specifications, and be approved by the Engineer prior to use. Any material rejected by the Railroad as not complying with these specifications shall be replaced by the contractor at no expense to the Railroad Any material distributed by the Contractor, which is lost, stolen or damaged will be replace by the Contractor at its cost and expense.

7.2.1 Ownership of Material - Materials furnished by the Railroad will remain the property of the Railroad. Removed Turnout Steel and OTM shall remain property of the railroad and neatly stockpiled. The Railroad reserves the right to specify such materials at any time during the contract period. Disposal of these materials shall be as approved by the Engineer. Non-specified material shall become the property of the Contractor and shall be removed from the right-of-way and disposed of by the Contractor within 30 days of completion of the project.

7.2.2 Storage Areas - Certain areas within Railroad owned right-of-way may be made available to the Contractor. These areas, if available, will be defined and located at the pre-bid conference. Security of the storage areas shall be the Contractor's responsibility. Material storage locations and method of storage must in no way interfere with traffic and must be designated or approved. The Railroad shall have the right to move or have the Contractor move material from storage locations. The Railroad shall bear the actual cost of such moving from storage locations which were specifically designated by the Engineer. Moving stored materials from other locations shall be at Contractor’s expense. Stored Materials shall be neatly arranged and blocked up off the ground and protected from mud and flood.

7.2.3 Record Keeping. The Contractor shall provide to the Railroad, or their representative, a record of all materials that are installed for this project. A weekly inventory shall be kept by the Contractor showing materials on hand, material that has been installed, material that has been salvaged, and material that has been stored for the Railroad. This inventory will be made available to the Railroad at any time they request this information.

7.2.4 Certification. Contractor shall provide written certification that materials being provided meet the requirements of this specification and is defect free.

7.2.5 Rail. Rail shall be NEW. Rail pieces furnished must meet the size and profile requirements as specified in the general statement of work. Rail shall meet all requirement as stated herein, and be head-harden control cooled. Condition 1 relay may be considered with Engineers approval

7.2.6 Joint Bars. Joint bars shall be NEW and be of proper design for the rail section furnished. Joint bar shall meet the material requirements stated herein and A.R.E.M.A. Manual- Current Edition.

7.2.7 Track Bolts. Bolt sets shall be NEW and of the proper design and size for the rail section and joint bars furnished. Bolts shall meet the material requirements of Specification entitled: Heat Treated Carbon Steel Track Bolts, A.R.E.M.A. Manual-Current Edition. Nuts shall meet the material requirements of the Specification entitled: Carbon Steel Nuts, A.R.E.M.A. Manual-Current Edition. Spring Washers shall meet the material requirements of the Specification entitled: Spring Washers, A.R.E.M.A. Manual-Current Edition.

7.2.8 Tie Plates. Tie plates shall be NEW and of the size and type as indicated in the Contract Documents. Tie plate holes must be punched to fit the base of the rail on which they will be used. Each plate shall have at least 6 holes punched for use of 5/8" track spikes, 4 of the holes shall be such that they allow 2 rail holding spikes on each side of the rail, there shall also be at least 2 holes for plate holding spikes. (8 hole plates shall be furnished for curves greater than 16 degrees.) Tie plates shall meet the material requirements of the Specification entitled: Low-Carbon Steel Tie Plates, A.R.E.M.A. Manual-Current Edition.

7.2.9 Track Spikes. Track spikes shall be NEW and of the size and shall meet the material requirements of the Specification entitled: Soft-Steel Track Spikes, A.R.E.M.A. Manual-Current Edition.

7.2.10 Rail Anchors. Rail anchors shall be NEW and shall function properly for the rail on which they will be used. Rail anchors shall meet the material requirements on the Specification entitled: Rail Anchors, A.R.E.M.A. Manual-Current Edition.

7.2.11 Miscellaneous Hardware. Bolts, nuts, washers and cotter pins shall be of the proper size, and shall fit tight, and shall be NEW

7.3 Construction Details.

7.3.1 CWR territory. If in CWR territory, the railroad's CWR plan shall be complied with fully. The rail should be in a non-stress free state when laid in the bed. The designated rail laying temperature for geographical region per the CWR policy shall be utilized. Rail heaters or rail expanders (if necessary) shall be used to adjust the rail to

the correct length when the rail temperature is less than the designated rail laying temperature. If the rail temperature exceeds the designated rail installation safe range, then installation must be stopped until the rail temperature returns within range. Rail shall be heated evenly and uniformly so that the rail expansion occurs evenly. The rail laying temperature, location, and dated must be recorded on the railroad approve form. The railroad's CWR plan will be made available upon request.

7.3.2 Rail Cuts. Use only approved rail saw and abrasive cutting wheel for cutting rail. Cuts shall be square and clean. Rail shall be cut with Nominal Rail stagger of no less than 3 feet. Rail shall be cut so the minimum distance between cuts on the same rail is no less than 19 ½ feet. When given the option of cutting existing rail or cutting the rail being installed, cut the existing rail. Do not use cutting torches on rail; rail cut with torches will be rejected.

7.3.3 Removal of Existing Track Structure. The Contractor shall remove and disassemble the existing crossing surface, rails, plates and other track materials including track spikes, anchors, joint bars, and hardware as shown in the Plans. The removed track material and asphalt shall become property of the Contractor.

7.3.4 Tie Plugs. Tie plugs shall be New and shall meet the material requirements of the Specification entitled: Tie Plugs, A.R.E.M.A. Manual-Current Edition.

7.3.5 Rail Placement. Nominal rail stagger shall be a minimum of 3 feet. On curves, stagger will be re-established when stagger exceeds 1.5 feet from nominal. Minimum rail stagger at "tie- ins" for track shall be 12 feet. Rails shall be placed base down, parallel with track, avoiding excessive bending or damage, using suitable mechanical equipment.

7.3.6 Plates. New properly sized plates (switch, hook, flat, ridged and tie) shall be used on all timbers, and shall be free of any dirt or foreign matter when being installed, plates shall be centered about the width of the timber. The plate shoulder, ridges or hooks shall be properly set so as to bear firmly against the rail, frog or other turnout assemblies as required.

7.3.7 Spiking. All rail holding spikes shall be started with the head pointed toward the rail and driven vertically and square with the rail and so driven as to allow 1/8" to 3/16" in the space between the under side of the head of the spike and the top of the base of the rail. In no case shall the spikes be over-driven. Rail holding spiking arrangement shall be in accordance with the Contract Documents. Plate holding spikes shall be started with the head pointed toward the rail and driven vertically so head has full bearing against the tie plate. Plate holding spiking arrangement shall be in accordance with the Contract Documents. No spikes shall be driven against the ends of joint bars. Care shall be taken not to strike rail or fastenings when driving spikes. Spikes which are bent while being installed, and do not meet proper alignment, or designated head contact, will be removed. The hole shall be plugged properly with a treated tie plug, and a new spike installed. Timber spiking for standard tie plates shall conform to the following criteria:

Degree of Curve	Spike Pattern
0-00 to 3-00	2 rail holding
3-01' to 8-00'	2 rail holding and 1 plate holding – field side
8-01' to 12-30'	2 rail holding and 2 plate holding – 1 field side and 1 gauge side
12-31' to 16-00'	3 rail holding and 2 plate holding – 1 field side and 1 gauge side
16-01' to 18-00'	3 rail holding and 3 plate holding – 2 field side and 1 gauge side
18-01' to 20-00'	4 rail holding and 4 plate holding – 2 field side and 2 gauge side
Note: Timber spiking for hook plates and twin tie plates (hook, flat or ridged) shall require only one spike at the ends of plate so as not to spike kill timber.	

7.3.8 Gauging. Track gage shall be set at the time of spiking for the entire work limits for this item. The gage shall be set at 56-½ inches, with an allowable tolerance of plus or minus 1/8 inch

7.3.9 Anchoring. Anchors shall be installed for all ties, if panel is built outside of final installation location to prevent ties from skewing. All anchors shall be removed prior to surfacing. Outside of asphalt surface ties shall be installed using the box anchor method on the same side of the tie on both rails and in the accordance to the existing anchor pattern. Rail anchors shall be applied from the gauge side of the rail whenever possible. Rail anchors must be installed so that they bear firmly against the tie race. The driving of anchors longitudinally along rails to obtain this contact will not be permitted. No rail anchor shall be applied so as to be within 6" of the end of a joint bar.

7.3.10 Rail Joints. Rail joints shall be spaced as required for rail, size and if insulated or non-insulated, as indicated in the Contract Documents or A.R.E.M.A. Manual- Current Edition for the rail furnished. Contractor shall determine the proper rail dimensions for the crossing prior to work commencement.

7.3.11 Bolt Holes. If not immediately welding, New rail bolt holes shall be drilled only with a rail drill. No other method is permissible. Rail shall be drilled before joint bars are applied. Drilling shall be performed by either, center punching hole location and drilling or by using a proper template. Holes are to be of the size prescribed for rail section and

joint bar type. If crossing joints are intended to be welded, then a whole must note be drilled within 4.5 inches of the rail end.

7.3.12 Joint Bars. Joint Bars must be properly applied to meet FRA class of track standards with full number and correct size of bolts, nuts and spring washers. Joint bolts must be properly tightened before spiking rail. Bolts shall be placed with the nuts alternatively on the inside and outside of the rail. Bolts will be torqued to AREMA Volume 1, Section 5.5, starting from the center working out. Fishing surfaces of rails at joint bars shall be swabbed with grease. Use outer four bolt holes only when installing bolted joints that will be eliminated by field welding. Do not drill inside holes at future field weld locations. All joints that will remain bolted shall use all bolts. Before bolted joints are considered final, they will be retightened, to specified torque, with a power wrench after final surfacing and regulating. The non-defective joint bars shall become the property of railroad and stockpiled at the designated location.

7.3.13 Comp Bars. When joining rails of differing sizes with a compromise joint, it shall be fitted so that the top of the rail surface and the gauge face of the rails to be connected are held in alignment. Bars must be installed, as markings indicate, GAUGE SIDE/FIELD SIDE. When joining rails with a difference of 25 lbs or greater, a step down rail between 16.5 to 19.5 feet in length, with the appropriate OTM, shall be installed between welds or compromise joint bars.

7.3.14 Welding. All rail shall be flash butt welded, with the exception of tie in locations or where it is not practical or possible to use flash butt welds. At such locations, Thermite welds will be acceptable. Field welds shall be minimized and thermal stress must be managed per the specifications throughout the project. Flash Butt welding shall be in accordance with the AREMA Specification for, “Fabrication of Continuous Welded Rail.” Mismatched or jagged rail ends shall be either sawed or cut with an abrasive rail cutter. Mating rail ends by flashing shall not be accepted. Grinding shall be accomplished immediately following welding at an elevated temperature. When grinding must be done at ambient temperature, care shall be taken to avoid grinding burns and metallurgical damage. Defective welds shall be replaced at the contractor’s expense. Re-welds shall be cut out beyond the heat-affected zone of the previous weld.

7.3.15 Surfacing. Following jointing of track, ballast shall be added in sufficient amount to allow mechanical tamper to lift and align panel. Ballast shall be mechanically tamped and dressed. Ballast regulating equipment shall be configured to avoid damage to track components. Ballast Shall be placed and transported as specified in 2.3.10.

7.4 Basis of Payment.

7.4.1. Units. Payment for crossing replacement shall be per track foot installed. (TF)

7.4.2. Included Cost. The unit price bid to replace rail shall include the cost of all the labor, equipment, and tools necessary to remove and install rail including completion of necessary welds / tie ins. The cost of scrap will be paid for under a separate item.

END OF SECTION

8 NEW TRACK BUILD

8.1 Description.

The work shall consist of furnishing and installing all material necessary to build rail, wooden tie railroad track, including preparation of the subgrade including all clearing, excavating, filling, and grading necessary for placement of railroad track as indicated in the Contract Documents or as ordered by the Engineer.

8.2 Materials. All material used for this work shall be furnished by contractor, be new, conform to A.R.E.M.A. Portfolio of Plans and Specifications, and be approved by the Engineer prior to use. Any material rejected by the Railroad as not complying with these specifications shall be replaced by the contractor at no expense to the Railroad. Any material distributed by the Contractor, which is lost, stolen or damaged will be replace by the Contractor at its cost and expense.

8.2.1 Ownership of Material - Materials furnished by the Railroad will remain the property of the Railroad. Removed Turnout Steel and OTM shall remain the property of the railroad and shall be neatly stockpiled at locations designated by the Engineer. The Railroad reserves the right to specify such materials at any time during the contract period. Disposal of these materials shall be as approved by the Engineer. Non-specified material shall become the property of the Contractor and shall be removed from the right-of-way and disposed of by the Contractor within 30 days of completion of the project.

8.2.2 Storage Areas - Certain areas within Railroad owned right-of-way may be made available to the Contractor. These areas, if available, will be defined and located at the pre-bid conference. Security of the storage areas shall be the Contractor's responsibility. Material storage locations and method of storage must in no way interfere with traffic and must be designated or approved. The Railroad shall have the right to move or have the Contractor move material from storage locations. The Railroad shall bear the actual cost of such moving from storage locations which were specifically designated by the Engineer. Moving stored materials from other locations shall be at Contractor’s expense. Stored Materials shall be neatly arranged and blocked up off the ground and protected from mud and flood.

8.2.3 Record Keeping. The Contractor shall provide to the Railroad, or their representative, a record of all materials that are installed for this project. A weekly inventory shall be kept by the Contractor showing materials on hand, material that has been installed, material that has been salvaged, and material that has been stored for the Railroad. This inventory will be made available to the Railroad at any time they request this information.

8.2.4 Certification. Contractor shall provide written certification that materials being provided meet the requirements of this specification and is defect free.

8.2.5 Timbers. Timber materials shall meet all requirements as stated herein document including 4.3 CONSTRUCTION DETAILS.

8.2.6 Rail. Rail shall be NEW. Rail pieces furnished must meet the size and profile requirements as specified in the general statement of work. Rail shall meet all requirement as stated herein, and be head-harden control cooled. Condition 1 relay may be considered with Engineers approval

8.2.7 Joint Bars. Joint bars shall be NEW and be of proper design for the rail section furnished. Joint bar shall meet the material requirements stated herein and A.R.E.M.A. Manual- Current Edition.

8.2.8 Track Bolts. Bolt sets shall be NEW and of the proper design and size for the rail section and joint bars furnished. Bolts shall meet the material requirements of Specification entitled: Heat Treated Carbon Steel Track Bolts, A.R.E.M.A. Manual-Current Edition. Nuts shall meet the material requirements of the Specification entitled: Carbon Steel Nuts, A.R.E.M.A. Manual-Current Edition. Spring Washers shall meet the material requirements of the Specification entitled: Spring Washers, A.R.E.M.A. Manual-Current Edition.

8.2.9 Tie Plates. Tie plates shall be NEW and of the size and type as indicated in the Contract Documents. Tie plate holes must be punched to fit the base of the rail on which they will be used. Each plate shall have at least 6 holes punched for use of 5/8" track spikes, 4 of the holes shall be such that they allow 2 rail holding spikes on each side of the rail, there shall also be at least 2 holes for plate holding spikes. (8 hole plates shall be furnished for curves greater than 16 degrees.) Tie plates shall meet the material requirements of the Specification entitled: Low-Carbon Steel Tie Plates, A.R.E.M.A. Manual-Current Edition.

8.2.10 Track Spikes. Track spikes shall be NEW and of the size and shall meet the material requirements of the Specification entitled: Soft-Steel Track Spikes, A.R.E.M.A. Manual-Current Edition.

8.2.11 Rail Anchors. Rail anchors shall be NEW and shall function properly for the rail on which they will be used. Rail anchors shall meet the material requirements on the Specification entitled: Rail Anchors, A.R.E.M.A. Manual-Current Edition.

8.2.12 Miscellaneous Hardware. Bolts, nuts, washers and cotter pins shall be of the proper size, and shall fit tight, and shall be NEW

8.2.13 On-Site Fill Material. The contractor is encouraged to re-use on-site, inorganic fill material. Examples of such material are existing ballast and stone from preview works and material graded away from high spots. On-site organic material (e.g. trees and vegetation removed by grubbing) shall not be used as fill.

8.2.14 New Fill Material. Additional fill material shall conform with the requirements stated in the contract documents, meet AREMA standards, and conform with Section 2 INSTALL BALLAST & SURFACE

8.3 Construction Details.

8.3.1 Clearing and grubbing. The term “clearing and grubbing” includes the removal of all trees, brush, logs and other perishable or undesirable materials from places where new construction is to occur.

8.3.2 Location and Area. The contractor shall be responsible for the clearing and grubbing of that portion of the railroad’s right-of-way, affected by the new construction as shown in contract drawings.

8.3.3 Overhead vegetation. Trees and vegetation not rooted in the construction area but overhanging the area shall be trimmed back to provide a vertical clearance of 28 ft throughout the construction area.

8.3.4 Material Removal. All material removed from the railroad’s right-of-way, shall be disposed of by the contractor within 30 days of completion of the project. The Contractor shall certify that the material was disposed of in accordance with all environmental regulations.

8.3.5 Utilities. The Contractor shall be responsible for the identification and protection of overhead and underground utility easements, including fiber optic cable easements, within the railroad’s right-of-way.

8.3.6 Grading. The Contractor shall construct or cause to be constructed all grading necessary for the installation of the track.

8.3.7 Compaction. Upon completion of grading, the area shall be compacted with rollers or vibratory compactors as specified below.

Roller Compactor. Compaction by rolling shall be done by either an approved self-propelled 3 wheel, 2-axle roller of such weight that will provide compression under the wheels of not less than 350 pounds per lineal inch of tread, or an approved 2 or 3 wheel tandem roller having a weight per inch of drive roll of not less than 350 pounds.

Vibration Compactor. Vibration compactors shall be either the roller or pad type. Dynamic force for either type shall not be less than 20,000 pounds and the frequency range shall be from 1100 to 1500 VPM. Each machine shall be equipped with a governor which can be set and locked to control the rate of impulse as required by the Engineer. The Contractor shall provide a tachometer, or other suitable device, for accurately checking the frequency of vibration during the compacting operation.

Compaction Completion. Compacting shall continue until any fill is firmly interlocked and the surface is true and unyielding and shall be done so that every part of the surface received compaction from the drive wheels, roller, or pad.

8.3.8 Environmental Protection. The Contractor shall be responsible for adhering to all Local, State, and/or Federal permits such as erosion control, grading, storm water runoff/drainage, etc.

8.3.9 Placement and Installation. The Contractor shall make all the necessary measurements to ensure correct placement and proper installation of the track to conform to the Contract Documents and A.R.E.M.A. Manual-Current Edition. The Contractor shall be responsible to provide all survey and measurements required to layout the grade crossing and associated work in accordance with these specifications and the crossing manufacturer's requirements.

8.3.10 Ballast Base Course. Self-spreading vehicles of the type approved by the Engineer may be used. When stone is initially spread by self-spreading vehicles, a power grader of a type approved by the Engineer may be used to assist the spreading operation. If results of spreading with the power grader are found to be unsatisfactory, permission for use of a grader may be withdrawn. Alternate methods of spreading may be approved by the Engineer for limited areas such as grade crossings. The stone ballast shall be shaped to a true section conforming to the ballast section shown on the plans and thoroughly compacted until the surface is true and unyielding.

8.3.11 Compacting Ballast Base Course. Compaction may be done with rollers or with vibratory compactors subject to the following requirements as stated in 8.3.7

8.3.12 Tie Handling. All ties shall be handled, transported, and stored in accordance with current AREMA standards. New ties shall be handled and placed with either mechanical tie insertion device or tie tongs. Only approved lifting devices that do not damage the tie should be used; the use of picks will not be permitted. Tie removal, handling, and placement equipment is subject to the approval of the Engineer prior to use. Ties that are damaged by mishandling will be replaced by the Contractor at his expense. Ties with minor scrapes shall be treated with field preservative in accordance with the manufacturer's recommendations.

8.3.13 Tie Placement. Ties will be placed in the track, square to the centerline of the track with the wider heartwood face down. To the extent practicable, the end of the ties shall be a uniform line.

8.3.14 Tie Spacing. Ties should be spaced uniformly, replaced at existing locations. Existing spacing is approximately 20".

8.3.15 Rail Placement. Nominal rail stagger shall be a minimum of 3 feet. On curves, stagger will be re-established when stagger exceeds 1.5 feet from nominal. Minimum rail stagger at "tie- ins" for track shall be 12 feet. Rails shall be placed base down, parallel with track, avoiding excessive bending or damage, using suitable mechanical equipment. Care shall be taken to avoid placing rails on signal equipment, manhole covers, electrical connections, or near any other Installation that could be susceptible to damage.

8.3.16 Plates. New properly sized plates (switch, hook, flat, ridged and tie) shall be used on all timbers, and shall be free of any dirt or foreign matter when being installed, plates shall be centered about the width of the timber. The plate shoulder, ridges or

hooks shall be properly set so as to bear firmly against the rail, frog or other turnout assemblies as required.

8.3.17 Spiking. All rail holding spikes shall be started with the head pointed toward the rail and driven vertically and square with the rail and so driven as to allow 1/8" to 3/16" in the space between the under side of the head of the spike and the top of the base of the rail. In no case shall the spikes be over-driven. Rail holding spiking arrangement shall be in accordance with the Contract Documents. Plate holding spikes shall be started with the head pointed toward the rail and driven vertically so head has full bearing against the tie plate. Plate holding spiking arrangement shall be in accordance with the Contract Documents. No spikes shall be driven against the ends of joint bars. Care shall be taken not to strike rail or fastenings when driving spikes. Spikes which are bent while being installed, and do not meet proper alignment, or designated head contact, will be removed. The hole shall be plugged properly with a treated tie plug, and a new spike installed. Timber spiking for standard tie plates shall conform to the following criteria:

Degree of Curve	Spike Pattern
0-00 to 3-00	2 rail holding
3-01' to 8-00'	2 rail holding and 1 plate holding – field side
8-01' to 12-30'	2 rail holding and 2 plate holding – 1 field side and 1 gauge side
12-31' to 16-00'	3 rail holding and 2 plate holding – 1 field side and 1 gauge side
16-01' to 18-00'	3 rail holding and 3 plate holding – 2 field side and 1 gauge side
18-01' to 20-00'	4 rail holding and 4 plate holding – 2 field side and 2 gauge side
Note: Timber spiking for hook plates and twin tie plates (hook, flat or ridged) shall require only one spike at the ends of plate so as not to spike kill timber.	

8.3.18 Gauging. Track gage shall be set at the time of spiking for the entire work limits for this item. The gage shall be set at 56-½ inches, with an allowable tolerance of plus or minus 1/8 inch

8.3.19 Anchoring. Anchors shall be installed for all ties, if panel is built outside of final installation location to prevent ties from skewing. All anchors shall be removed prior to surfacing. Outside of asphalt surface ties shall be installed using the box anchor method on the same side of the tie on both rails and in the accordance to the existing anchor pattern. Rail anchors shall be applied from the gauge side of the rail whenever possible. Rail anchors must be installed so that they bear firmly against the tie race. The driving of anchors longitudinally along rails to obtain this contact will not be permitted. No rail anchor shall be applied so as to be within 6" of the end of a joint bar.

8.3.20 Rail Joints. Rail joints shall be spaced as required for rail, size and if insulated or non-insulated, as indicated in the Contract Documents or A.R.E.M.A. Manual- Current Edition for the rail furnished. Contractor shall determine the proper rail dimensions for the crossing prior to work commencement.

8.3.21 Bolt Holes. If not immediately welding, New rail bolt holes shall be drilled only with a rail drill. No other method is permissible. Rail shall be drilled before joint bars are applied. Drilling shall be performed by either, center punching hole location and drilling or by using a proper template. Holes are to be of the size prescribed for rail section and joint bar type. If crossing joints are intended to be welded, then a whole must note be drilled within 4.5 inches of the rail end.

8.3.22 Joint Bars. Joint Bars must be properly applied to meet FRA class of track standards with full number and correct size of bolts, nuts and spring washers. Joint bolts must be properly tightened before spiking rail. Bolts shall be placed with the nuts alternatively on the inside and outside of the rail. Bolts will be torqued to AREMA Volume 1, Section 5.5, starting from the center working out. Fishing surfaces of rails at joint bars shall be swabbed with grease. Use outer four bolt holes only when installing bolted joints that will be eliminated by field welding. Do not drill inside holes at future field weld locations. All joints that will remain bolted shall use all bolts. Before bolted joints are considered final, they will be retightened, to specified torque, with a power wrench after final surfacing and regulating. The non-defective joint bars shall become the property of railroad and stockpiled at the designated location.

8.3.23 Comp Bars. When joining rails of differing sizes with a compromise joint, it shall be fitted so that the top of the rail surface and the gauge face of the rails to be connected are held in alignment. Bars must be installed, as markings indicate, GAUGE SIDE/FIELD SIDE. When joining rails with a difference of 25 lbs or greater, a step down rail between 16.5 to 19.5 feet in length, with the appropriate OTM, shall be installed between welds or compromise joint bars.

8.3.24 Surfacing. Ballast shall be added in sufficient amount to allow mechanical tamper to lift and align panel. Ballast shall be mechanically tamped and dressed. Ballast regulating equipment shall be configured to avoid damage to track components. Excavator or other machinery may be used in case of excessive negative profile. A minimum of 2 passes by the tamper, plus a minimum of 1 pass by the tamper placing stone under center of tie. Ballast in the crib area shall not reside above the top of the adjacent ties. Debris or stones shall be removed from the top of the ties. Excess ballast shall be removed and be placed as directed by the Engineer. Ballast damaged by overwork and/or excessive tamping or fouled by dirt or other deleterious material shall be removed and replaced at the Contractor’s expense.

8.3.25 CWR territory. If in CWR territory, the railroad's CWR plan shall be complied with fully.

8.4 Basis of Payment.

8.4.1. Units. Payment for new track build shall be per track foot installed. (TF)

8.4.2. Included Cost. The unit price bid for new track build shall include the cost of all the labor, equipment, and tools necessary to excavate roadbed, build and install new track siding including completion of necessary welds / tie ins. Cost shall include preparation of the subgrade including all clearing, excavating, filling, and grading necessary for placement of railroad track. The cost building and installing turnouts will be paid for under a separate item.

END OF SECTION

9 SCRAP REMOVAL

9.1 Description. The work shall consist of the removal and disposal of all rail and other track materials (e.g. tie plates, spikes, anchors, bolts, etc.) replaced. Removed material shall become the property of the Contractor. The scrap metal material shall be removed from the right-of-way and disposed of by the Contractor within 30 days of completion of the project. The Contractor shall certify that the materials were disposed of in accordance with all environmental regulations.

9.2 Materials. Such materials as required for scrap removal and that are not to be part of the completed contract shall be as determined by the Contractor, except that they shall conform to any pertinent local or State Law, regulation, or code.

9.3 Construction Details. The work required to provide the above facilities and service for scrap removal shall be done in a safe and workmanlike manner and shall conform with any pertinent local or State Law, regulation, or code.

9.3.1 Housekeeping. Good housekeeping consistent with safety shall be maintained. Removed material shall be neatly stacked along the ROW pending removal from the work site.

9.3.2 Disposal. All arrangements for proper disposal shall be the responsibility of the selected Contractor. Documentation of proper disposal shall be provided upon request.

9.3.3 Documentation. Weigh ticket and/or disposal ticket documentation must be provided as validation to invoices.

9.4 Basis of Payment.

9.4.1 Unit. Scrap removal basis of payment shall be lump sum.

9.4.2 Included Cost. The unit price credit of scrap removal shall include the cost of all the labor, equipment, and tools necessary to dispose of the material, including, haul and landfill rates and any income derived from delivering the material to a scrap dealer. The net cost/income per ton salvaged shall be listed on the bid form. In the event the income exceeds the cost, resulting in a positive net, the resulting net income shall be shown as a negative cost on the bid form and shall be subtracted from the total bid cost.

END OF SECTION

10 NEW TURN OUT BUILD

10.1 Description. The work shall consist of furnishing and installing all material necessary to build complete turnouts at locations as indicated in the Contract Documents or as ordered by the Engineer.

10.2 Materials. All material used for this work shall meet the requirements of this section and be approved by the Railroad prior to use. Any material rejected by the Railroad as not complying with these specifications shall be replaced by the contractor at no expense to the Railroad. Any material distributed by the Contractor which is lost, stolen or damaged will be replace by the Contractor at its sole cost and expense.

10.2.1 Turnout Materials. Turnout materials shall be NEW and conform to the A.R.E.M.A. Portfolio of Plans and Specifications.

10.2.3 Turnout Components. Turnout and switch component materials required for turnout include the following: frogs, frog guard rail, frog hook plates, new switch points with new stock rails and heal blocks, switch point clips- bolts/nuts/washers/cotter pins, protectors, switch rods- bolts/nuts/washers/cotter pins, switch plates with adjustable braces, twin tie plates (flat, ridged and hook), switch stand and spindle, switch stand/ Bow handle connecting rod- bolts/nuts/washers/cotter pins, switch target, and lag screws.

10.2.4 Frogs. Frogs shall be NEW rail bound magnesium. Frog number shall be as indicated in the technical drawings. Frogs shall meet the material requirements of the Specification entitled: Rail Bound Magnesium, A.R.E.M.A. Manual-Current Edition.

10.2.5 Frog Guards. Frog guards shall be NEW and meet the material requirements of the Specification entitled: Rail Bound Magnesium, Frog guards, A.R.E.M.A. Manual-Current Edition.

10.2.6 Frog Hardware. Bolts and self locking nuts, which are part of the frog, shall be NEW, of the proper type, fit the frog casting, and be tight.

10.2.7 Frog Plates. Hook plates and twin tie plates (hook, flat or ridged) shall be NEW and shall be of the proper size and type necessary for the turnout furnished. Plate holes must be punched to fit the base of rail on which they will be used. Plates shall meet the material requirements of the Specification entitled: Low Carbon Steel Tie Plates, A.R.E.M.A. Manual-Current Edition.

10.2.8 Switch Points. Switch Points shall be NEW and shall meet the material requirements of the Specification entitled: Switch Points, AREA Manual-Current Edition.

10.2.9 Switch Point Hardware. Switch point clips, bolts, nuts, washers, and cotter pins shall be NEW and shall meet the material requirements of the Specification entitled: Switch Point Clips, A.R.E.M.A. Manual-Current Edition.

10.2.10 Stock Rails. Stock rails shall be NEW.

10.2.11 Miscellaneous Hardware. Bolts, nuts, washers and cotter pins shall be of the proper size, and shall fit tight, and shall be NEW.

10.2.12 Switch Rods. Switch rods and associated bolts, nuts, washers, cotter pins shall be NEW and shall meet the material requirements of the Specification entitled: Switch Rods, A.R.E.M.A. Manual-Current Edition. Bolts, nuts, washers cotter pins shall be of the proper size.

10.2.13 Switch Plates and Braces. Switch plates and adjustable braces shall be NEW per A.R.E.M.A. plan no. 224-55 and shall meet the material requirements of the Specification entitled: Switch Plates and Braces, A.R.E.M. A. Manual-Current Edition. Braces shall be adjustable.

10.2.14 Switch Stand. Switch stand shall be NEW, New Century 51A with Back Saver Bow handle 898750X or approved equal. Switch stands shall meet the material requirements of the Specification entitled: Switch Stands, A.R.E.M.A. Manual-Current Edition.

10.2.15 Switch Stand Target. Switch stand targets shall be NEW and shall be 10” diameter RACOR, New Century or equivalent RED/GREEN colors.

10.2.16 Switch Stand Connecting Rod. Switch stand connecting rod and associated bolts, nuts, washers and cotter pins shall be NEW and shall be of the proper size to fit the switch and switch stand. Switch stand connecting rod shall be adjustable.

10.2.17 Full gauge plate. One (1) full gauge plate shall be provided per turnout.

10.2.18 Heel Block Assemblies. NEW heel block assemblies shall be provided.

10.2.19 Rail. Rail shall be NEW. Rail section furnished must be compatible with the frog and switch points used. Rail shall meet the material requirements of the Specification entitled: Specifications for Steel Rails, A.R.E.M.A. Manual-Current Edition.

10.2.20 Joint Bars. Joint bars shall be NEW and be of proper design for the rail section furnished. Joint bar shall meet the material requirements of the Specification entitled: High Carbon Steel Joint Bars, A.R.E.M.A. Manual-Current Edition.

10.2.21 Joint Bar Lubrication. Joint bar lubricant shall have a petroleum base and contain a rust inhibitor.

10.2.22 Bolt Sets. Bolt sets shall be NEW and of the proper design and size for the rail section and joint bars furnished. Bolts shall meet the material requirements of Specification entitled: Heat Treated Carbon Steel Track Bolts, A.R.E.M.A. Manual-Current Edition. Nuts shall meet the material requirements of the Specification entitled: Carbon Steel Nuts, A.R.E.M.A. Manual-Current Edition. Spring Washers shall meet the material requirements of the Specification entitled: Spring Washers, A.R.E.M.A. Manual-Current Edition.

10.2.23 Tie Plates. Tie plates shall be NEW and of the size and type as indicated in the Contract Documents. Tie plate holes must be punched to fit the base of the rail on which they will be used. Each plate shall have at least 6 holes punched for use of 5/8"

track spikes, 4 of the holes shall be such that they allow 2 rail holding spikes on each side of the rail, there shall also be at least 2 holes for plate holding spikes. (8 hole plates shall be furnished for curves greater than 16 degrees.) Tie plates shall meet the material requirements of the Specification entitled: Low-Carbon Steel Tie Plates, A.R.E.M.A. Manual-Current Edition.

10.2.24 Track Spikes. Track spikes shall be NEW and of the size and shall meet the material requirements of the Specification entitled: Soft-Steel Track Spikes, A.R.E.M.A. Manual-Current Edition.

10.2.25 Rail Anchors. Rail anchors shall be NEW and shall function properly for the rail on which they will be used. Rail anchors shall meet the material requirements on the Specification entitled: Rail Anchors, A.R.E.M.A. Manual-Current Edition.

10.2.26 Tie Plugs. Tie plugs shall be New and shall meet the material requirements of the Specification entitled: Tie Plugs, A.R.E.M.A. Manual-Current Edition.

10.2.27 Timbers. Timbers shall comply with the requirements of paragraph 4 – Switch Tie Replacement.

10.2.28 New Fill Material. Additional fill material shall conform with the requirements stated in the contract documents, AREMA standards, and Section 2 – INSTALL BALLAST AND SURFACE.

10.3 Construction Details. The Contractor shall make all the necessary measurements to insure correct placement and proper installation of the turnout to conform to the Contract Documents and A.R.E.M.A. Manual-Current Edition.

10.3.1 Ballast Base Course. Self-spreading vehicles of the type approved by the Engineer may be used. When stone is initially spread by self-spreading vehicles, a power grader of a type approved by the Engineer may be used to assist the spreading operation. If results of spreading with the power grader are found to be unsatisfactory, permission for use of a grader may be withdrawn. Alternate methods of spreading may be approved by the Engineer for limited areas such as grade crossings. The stone ballast shall be shaped to a true section conforming to the ballast section shown on the plans and thoroughly compacted until the surface is true and unyielding.

10.3.2 Compacting Ballast Base Course. Compaction may be done with rollers or with vibratory compactors subject to the following requirements.

10.3.4 Lifts. The Contractor shall place stone in maximum 4 inch lifts on the graded and compacted sub-base, unless otherwise noted by the Contract Documents, or ordered by the Engineer, allowing a minimum of a 2 inch lift to the tie grade (elevation at base of cross ties). After the ballast has been distributed and rolled, no trucks or other vehicles shall be driven over the ballast.

10.3.5 Roller Compactors. Compaction by rolling shall be done by either an approved self-propelled 3 wheel, 2-axle roller of such weight that will provide compression under

the wheels of not less than 350 pounds per lineal inch of tread, or an approved 2 or 3 wheel tandem roller having a weight per inch of drive roll of not less than 350 pounds.

10.3.6 Vibration Compactors. Compacted by vibration shall be either the roller or pad type. Dynamic force for either type shall not be less than 20,000 pounds and the frequency range shall be from 1100 to 1500 VPM. Each machine shall be equipped with a governor which can be set and locked to control the rate of impulse as required by the Engineer. The Contractor shall provide a tachometer, or other suitable device, for accurately checking the frequency of vibration during the compacting operation. Compacting shall be continued until the stones are firmly interlocked and the surface is true and unyielding.

10.3.7 Compaction Completion. The compaction shall continue until the stones are firmly interlocked and the surface is true and unyielding and shall be done so that every part of the surface received compaction from the drive wheels, roller, or pad.

10.3.8 Plates. Plates (switch, hook, flat, ridged and tie) shall be used on all timbers, and shall be free of any dirt or foreign matter when being installed, plates shall be centered about the width of the timber. The plate shoulder, ridges or hooks shall be properly set so as to bear firmly against the rail, frog or other turnout assemblies as required.

10.3.9 Rail Joints. Rail joints shall be spaced as required for the turnout type, size and if insulated or non-insulated, as indicated in the Contract Documents or A.R.E.M.A. Manual-Current Edition for the turnout furnished. Contractor shall determine the proper rail dimensions for the turnout prior to work commencement.

10.3.10 Joint Shims. Jointed rail shall be laid, with space allowance for expansion. Shims are to be provided between rail ends in accordance with the following table:

33' RAIL		39' to 160' RAIL	
Rail Temperature (°F)	Rail End Space (inches)	Rail Temperature (°F)	Rail End Space (inches)
< -10	5/16	< -6	5/16
-10 to 14	1/4	-6 to 25	1/4
15 to 35	3/16	26 to 45	3/16
35 to 59	1/8	46 to 65	1/8
60 to 85	1/16	66 to85	1/16
>85	none	>85	none
Note: A rail thermometer shall be used to ascertain the temperature of the rail. Temperature shall be measured at the rail base, close to the web, on the side away from the sun. Rail temperature shall be taken periodically during the day and shim size adjusted accordingly.			

10.3.11 Minimum Rail Length. No rail less than 14 feet may be used, these rails are to be used only as closure rails.

10.3.12 Rail Cuts. Rail cuts shall be made only by rail saws or rail abrasive cutting wheels. Cuts made by torch or track chisels shall not be permitted.

10.3.13 Bolt Holes. New rail bolt holes shall be drilled only with a rail drill. No other method is permissible. Rail shall be drilled before joint bars are applied. Drilling shall be performed by either, center punching hole location and drilling or by using a proper template. Holes are to be of the size prescribed for rail section and joint bar type.

10.3.14 Rail Joints. Rail joints shall be applied before the track is spiked, the joint bars to be lined up with rail in vertical position and the bolts tightened by starting in the middle of the joint and working towards the ends. Each joint bar shall be lubricated by spraying lubricating compound behind the joint bar as part of the installation procedure. Standard joint bars shall be fully bolted, with bolts, spring washers and nuts installed, the bolts shall be inserted alternately from gauge to field side. Bolts shall be tightened by a mechanical rail bolt tightening machine, bolt tension to be a minimum of 22,000 pounds and a maximum of 25,000 pounds. Manual tightening will only be permitted if authorized by the Engineer.

10.3.15 Heel Assembly. Heel assembly joints (switch point and closure rail) shall be installed as required by type and shall be fully bolted.

10.3.16 Spiking. All rail holding spikes shall be started with the head pointed toward the rail and driven vertically and square with the rail and so driven as to allow 1/8" to 3/16" in the space between the under side of the head of the spike and the top of the base of the rail. In no case shall the spikes be over-driven. Rail holding spiking arrangement shall be in accordance with the Contract Documents. Plate holding spikes shall be started with the head pointed toward the rail and driven vertically so head has full bearing against the tie plate. Plate holding spiking arrangement shall be in accordance with the Contract Documents. No spikes shall be driven against the ends of joint bars. Spikes which are bent while being installed, and do not meet proper alignment, or designated head contact, will be removed. The hole shall be plugged properly with a treated tie plug, and a new spike installed. Timber spiking for standard tie plates shall conform to the following criteria:

Degree of Curve	Spike Pattern
0-00 to 3-00	2 rail holding
3-01' to 8-00'	2 rail holding and 1 plate holding – field side
8-01' to 12-30'	2 rail holding and 2 plate holding – 1 field side and 1 gauge side
12-31' to 16-00'	3 rail holding and 2 plate holding – 1 field side and 1 gauge side
16-01' to 18-00'	3 rail holding and 3 plate holding – 2 field side and 1 gauge side
18-01' to 20-00'	4 rail holding and 4 plate holding – 2 field side and 2 gauge side

Note: Timber spiking for hook plates and twin tie plates (hook, flat or ridged) shall require only one spike at the ends of plate so as not to spike kill timber.

10.3.17 Gauging. Necessary gauging shall be done at the time the rail is laid, and shall be 4ft.- 8 ½ inches.

10.3.18 Anchoring. Rail anchors shall be applied from the gauge side of the rail whenever possible. Rail anchors must be installed so that they bear firmly against the tie race. The driving of anchors longitudinally along rails to obtain this contact will not be permitted. No rail anchor shall be applied so as to be within 6" of the end of a joint bar. Rail anchors shall be installed in the box anchor method, 8 anchors per timber. Anchors shall be applied every other tie throughout the turnout.

10.3.19 Surfacing. Ballast shall be added in sufficient amounts to allow a mechanical tamper to lift and align the turnout. Ballast shall be mechanically tamped and dressed. Ballast regulating equipment shall be configured to avoid damage to track components. An excavator or other machinery may be used in case of excessive negative profile. Ballast in the crib area shall not reside above the top of the adjacent ties. Debris or stones shall be removed from the top of ties. Excess ballast shall be removed and placed as directed by the Engineer. Ballast damaged by overwork and/or excessive tamping or fouled by dirt or other deleterious material shall be removed and replaced at the Contractor's expense. Surfacing shall be performed in accordance with Section 2 – INSTALL BALLAST AND SURFACE.

10.4 Basis Of Payment.

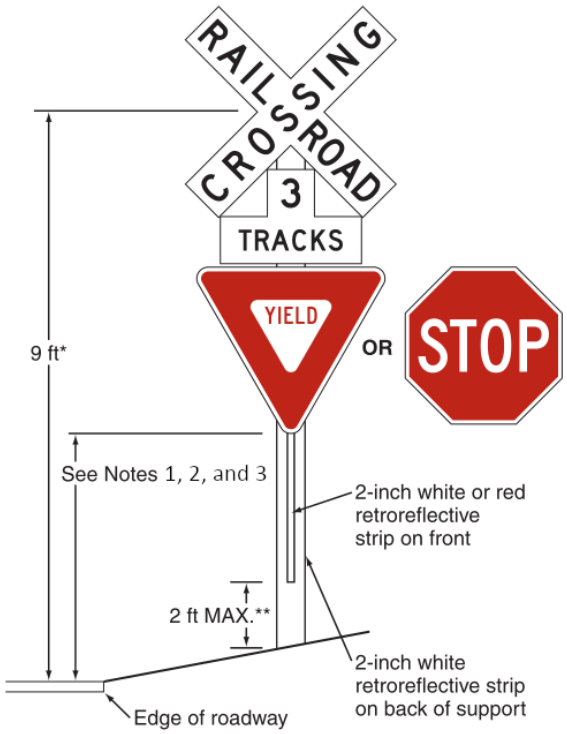
10.4.1 Units. Payment for new turnout shall be per each completed turnout.

10.4.2 Included Cost. The unit price bid for new turnout build shall include the cost of all the labor, equipment, materials and tools necessary to remove existing track (if applicable), excavate roadbed, build and install new turnout including completion of necessary welds / tie ins. Cost shall include preparation of the subgrade including all clearing, excavating, filling, and grading necessary for placement of railroad track. Cost shall include surfacing of the new turnout.

END OF SECTION

Drawings

Cross Buck Assembly



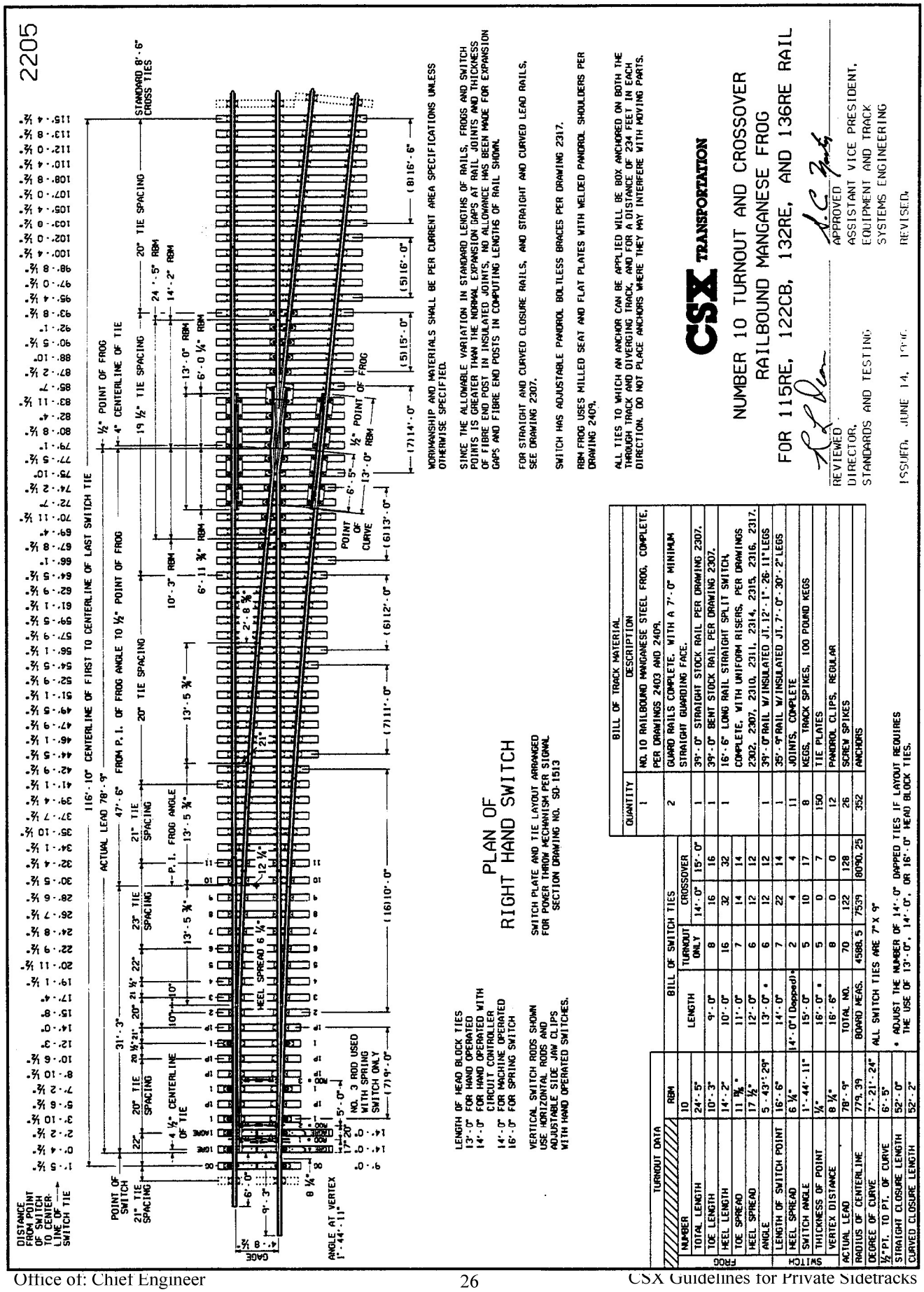
*Height may be varied as required by local conditions and may be increased to accommodate signs mounted below the Crossbuck sign

**Measured to the ground level at the base of the support

Notes:

1. YIELD or STOP signs are used only at passive crossings. A STOP sign is used only if an engineering study determines that it is appropriate for that particular approach.
2. Mounting height shall be at least 4 feet for installations of YIELD or STOP signs on existing Crossbuck sign supports.
3. Mounting height shall be at least 7 feet for new installations in areas with pedestrian movements or parking.

Diagram: Number 10 Turnout and Crossover (2205)



Estimated Bill of Material

Notes

1. For reference purpose only. This bill of material represents R. J. Corman's estimate of the quantities of material required to complete the project. Contractor is ultimately responsible for providing quantities necessary to properly complete the project to the scope and standards specified.
2. Unless otherwise listed, all material is NEW.

Index	Item	Size	Units	Quantity
1	Ties, I.G.	7" x 9" x 8'-6"	Each	5,200
2	Spikes	5/8"	Each	30,000
3	Ballast	AREMA #4	Ton	1,600
4	Track Bolts (50# Keg)	1"	Keg	6
5	Washers	1"	Each	150
6	Comp Bars	115RE/100RE	Pair	16
7	Comp Bars	100RE/85ASCE	Pair	16
8	Straight Bars	115RE	Pair	8
9	Straight Weld	115RE	Pair	2
10	Drive On Anchors	5-1/2" 115RE	Each	400
11	Drive On Anchors	5" 85ASCE	Each	2,000
12	Drive On Anchors	5-3/8" 100RE	Each	100
13	Plates (Relay)	5" Base, 85ASCE	Each	2,000
14	Plates (Relay)	5-3/8" 100RE	Each	200
15	Plates, Double Shoulder	5-1/2" 115RE	Each	320
16	Rail (Relay)	110RE	Linear Feet	546
17	Rail	115RE	Linear Feet	560
18	Switch Tie	7"x9"x9'-0"	Each	23
19	Switch Tie	7"x9"x10'-0"	Each	28
20	Switch Tie	7"x9"x11'-0"	Each	23
21	Switch Tie	7"x9"x12'-0"	Each	15
22	Switch Tie	7"x9"x13'-0"	Each	22
23	Switch Tie	7"x9"x14'-0"	Each	14
24	Switch Tie	7"x9"x15'-0"	Each	14
25	Switch Tie	7"x9"x16'-0"	Each	14
26	Switch Tie	7"x9"x16'-6"	Each	8
27	Asphalt	Base	Ton	60
28	Asphalt	Surface	Ton	30
29	Rubber Rail Seal	115RE	Track Feet	96
30	Rail Seal Clips	115RE	Each	112
31	Cross Buck Assembly	See drawing	Each	10
32	Derail, 2 way with stand	115RE	Each	1
33	Switch Stand	WCH 51A Bow Handle	Each	3
34	Switch Package, Right Hand	RBM Frog, #10, 115RE, See drawing	Each	1