



The following documentation is an electronically-submitted vendor response to an advertised solicitation from the *West Virginia Purchasing Bulletin* within the Vendor Self-Service portal at [wvOASIS.gov](http://wvOASIS.gov). As part of the State of West Virginia's procurement process, and to maintain the transparency of the bid-opening process, this documentation submitted online is publicly posted by the West Virginia Purchasing Division at [WVPurchasing.gov](http://WVPurchasing.gov) with any other vendor responses to this solicitation submitted to the Purchasing Division in hard copy format.

## Header 1

[List View](#)

## General Information

Contact

Default Values

Discount

Document Information

Procurement Folder: 680462

Procurement Type: Central Purchase Order

Vendor ID: 000000201886

Legal Name: EASTERN VAULT COMPANY INC

Alias/DBA:

Total Bid: \$0.00

Response Date: 03/04/2020

Response Time: 14:27

SO Doc Code: CRFQ

SO Dept: 0803

SO Doc ID: DOT200000122

Published Date: 2/19/20

Close Date: 3/5/20

Close Time: 13:30

Status: Closed

Solicitation Description: CONCRETE BOX BEAMS  
(10200250)

Total of Header Attachments: 1

Total of All Attachments: 1



Purchasing Division  
 2019 Washington Street East  
 Post Office Box 50130  
 Charleston, WV 25305-0130

**State of West Virginia  
 Solicitation Response**

**Proc Folder :** 680462  
**Solicitation Description :** CONCRETE BOX BEAMS (10200250)  
**Proc Type :** Central Purchase Order

Date issued	Solicitation Closes	Solicitation Response	Version
	2020-03-05 13:30:00	SR 0803 ESR03042000000005075	1

<b>VENDOR</b>
000000201886 EASTERN VAULT COMPANY INC

**Solicitation Number:** CRFQ 0803 DOT2000000122

**Total Bid :** \$0.00                      **Response Date:** 2020-03-04                      **Response Time:** 14:27:59

**Comments:**

**FOR INFORMATION CONTACT THE BUYER**  
 Crystal G Hustead  
 (304) 558-2402  
 crystal.g.hustead@wv.gov

<b>Signature on File</b>	<b>FEIN #</b>	<b>DATE</b>
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All offers subject to all terms and conditions contained in this solicitation

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
1	PRE-STRESSED CONCRETE BOX BEAMS	0.00000	EA	\$0.000000	\$0.00

Comm Code	Manufacturer	Specification	Model #
30101717			

Extended Description : PRICING TO BE INCLUDED ON ATTACHED EXHIBIT A

**Comments:** Pricing Sheet Attached . Total Bid per attached pricing sheet is \$89,019.00



Purchasing Division  
 2019 Washington Street East  
 Post Office Box 50130  
 Charleston, WV 25305-0130

State of West Virginia  
 Request for Quotation  
 19 - Highways

Proc Folder: 680462

Doc Description: CONCRETE BOX BEAMS (10200250)

Proc Type: Central Purchase Order

Date Issued	Solicitation Closes	Solicitation No	Version
2020-02-19	2020-03-05 13:30:00	CRFQ 0803 DOT2000000122	1

**BID RECEIVING LOCATION**

BID CLERK  
 DEPARTMENT OF ADMINISTRATION  
 PURCHASING DIVISION  
 2019 WASHINGTON ST E  
 CHARLESTON WV 25305  
 US

**VENDOR**

Vendor Name, Address and Telephone Number:

EASTERN VAULT CO. INC.  
 PO Box 1134  
 PRINCETON WV 24740  
 304-425-8955

**FOR INFORMATION CONTACT THE BUYER**

Crystal G Hustead  
 (304) 558-2402  
 crystal.g.hustead@wv.gov

Signature X

FEIN #

55-0520255

DATE

3-3-2020

All offers subject to all terms and conditions contained in this solicitation

**ADDITIONAL INFORMATION:**

THE STATE OF WEST VIRGINIA PURCHASING DIVISION FOR THE AGENCY, WEST VIRGINIA DIVISION OF HIGHWAYS, IS SOLICITING BIDS TO ESTABLISH A CONTRACT FOR THE ONE-TIME PURCHASE OF 33" (INCH) PRE-STRESSED CONCRETE BOX BEAMS PER THE ATTACHED DOCUMENTS.

\*\*\*QUESTIONS REGARDING THE SOLICITATION MUST BE SUBMITTED IN WRITING TO CRYSTAL.G.HUSTEAD@WV.GOV PRIOR TO THE QUESTION PERIOD DEADLINE CONTAINED IN THE INSTRUCTIONS TO VENDORS SUBMITTING BIDS\*\*\*

INVOICE TO		SHIP TO	
DIVISION OF HIGHWAYS DISTRICT TEN 270 HARDWOOD LN PRINCETON WV24740 US		DIVISION OF HIGHWAYS DISTRICT TEN 270 HARDWOOD LN PRINCETON WV 24740 US	

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
1	PRE-STRESSED CONCRETE BOX BEAMS	0.00000	EA		

Comm Code	Manufacturer	Specification	Model #
30101717			

Extended Description :  
PRICING TO BE INCLUDED ON ATTACHED EXHIBIT A

**SCHEDULE OF EVENTS**

Line	Event	Event Date
1	VENDOR QUESTION DEADLINE	2020-02-26

## INSTRUCTIONS TO VENDORS SUBMITTING BIDS

**1. REVIEW DOCUMENTS THOROUGHLY:** The attached documents contain a solicitation for bids. Please read these instructions and all documents attached in their entirety. These instructions provide critical information about requirements that if overlooked could lead to disqualification of a Vendor's bid. All bids must be submitted in accordance with the provisions contained in these instructions and the Solicitation. Failure to do so may result in disqualification of Vendor's bid.

**2. MANDATORY TERMS:** The Solicitation may contain mandatory provisions identified by the use of the words "must," "will," and "shall." Failure to comply with a mandatory term in the Solicitation will result in bid disqualification.

**3. PREBID MEETING:** The item identified below shall apply to this Solicitation.

A pre-bid meeting will not be held prior to bid opening

A **MANDATORY PRE-BID** meeting will be held at the following place and time:

All Vendors submitting a bid must attend the mandatory pre-bid meeting. Failure to attend the mandatory pre-bid meeting shall result in disqualification of the Vendor's bid. No one individual is permitted to represent more than one vendor at the pre-bid meeting. Any individual that does attempt to represent two or more vendors will be required to select one vendor to which the individual's attendance will be attributed. The vendors not selected will be deemed to have not attended the pre-bid meeting unless another individual attended on their behalf.

An attendance sheet provided at the pre-bid meeting shall serve as the official document verifying attendance. Any person attending the pre-bid meeting on behalf of a Vendor must list on the attendance sheet his or her name and the name of the Vendor he or she is representing.

Additionally, the person attending the pre-bid meeting should include the Vendor's E-Mail address, phone number, and Fax number on the attendance sheet. It is the Vendor's responsibility to locate the attendance sheet and provide the required information. Failure to complete the attendance sheet as required may result in disqualification of Vendor's bid.

All Vendors should arrive prior to the starting time for the pre-bid. Vendors who arrive after the starting time but prior to the end of the pre-bid will be permitted to sign in but are charged with knowing all matters discussed at the pre-bid.

Questions submitted at least five business days prior to a scheduled pre-bid will be discussed at the pre-bid meeting if possible. Any discussions or answers to questions at the pre-bid meeting  
Revised 01/09/2020

are preliminary in nature and are non-binding. Official and binding answers to questions will be published in a written addendum to the Solicitation prior to bid opening.

**4. VENDOR QUESTION DEADLINE:** Vendors may submit questions relating to this Solicitation to the Purchasing Division. Questions must be submitted in writing. All questions must be submitted on or before the date listed below and to the address listed below in order to be considered. A written response will be published in a Solicitation addendum if a response is possible and appropriate. Non-written discussions, conversations, or questions and answers regarding this Solicitation are preliminary in nature and are nonbinding.

Submitted e-mails should have solicitation number in the subject line.

Question Submission Deadline: February 26, 2020 at 10:00 AM

Submit Questions to: Crystal Husted  
2019 Washington Street, East  
Charleston, WV 25305  
Fax: (304) 558-4115 (Vendors should not use this fax number for bid submission)  
Email: Crystal.G.Husted@wv.gov

**5. VERBAL COMMUNICATION:** Any verbal communication between the Vendor and any State personnel is not binding, including verbal communication at the mandatory pre-bid conference. Only information issued in writing and added to the Solicitation by an official written addendum by the Purchasing Division is binding.

**6. BID SUBMISSION:** All bids must be submitted electronically through wvOASIS or signed and delivered by the Vendor to the Purchasing Division at the address listed below on or before the date and time of the bid opening. Any bid received by the Purchasing Division staff is considered to be in the possession of the Purchasing Division and will not be returned for any reason. The Purchasing Division will not accept bids, modification of bids, or addendum acknowledgment forms via e-mail. Acceptable delivery methods include electronic submission via wvOASIS, hand delivery, delivery by courier, or facsimile.

The bid delivery address is:  
Department of Administration, Purchasing Division  
2019 Washington Street East  
Charleston, WV 25305-0130

A bid that is not submitted electronically through wvOASIS should contain the information listed below on the face of the envelope or the bid may be rejected by the Purchasing Division.:

SEALED BID:  
BUYER: Crystal Husted  
SOLICITATION NO.: CRFQ DOT2000000122  
BID OPENING DATE: March 5, 2020  
BID OPENING TIME: 1:30 PM  
FAX NUMBER: 304-558-3970

Revised 01/09/2020



The Purchasing Division may prohibit the submission of bids electronically through wvOASIS at its sole discretion. Such a prohibition will be contained and communicated in the wvOASIS system resulting in the Vendor's inability to submit bids through wvOASIS. Submission of a response to an Expression or Interest or Request for Proposal is not permitted in wvOASIS.

**For Request For Proposal ("RFP") Responses Only:** In the event that Vendor is responding to a request for proposal, the Vendor shall submit one original technical and one original cost proposal plus       n/a       convenience copies of each to the Purchasing Division at the address shown above. Additionally, the Vendor should identify the bid type as either a technical or cost proposal on the face of each bid envelope submitted in response to a request for proposal as follows:

BID TYPE: (This only applies to CRFP)

Technical

Cost

**7. BID OPENING:** Bids submitted in response to this Solicitation will be opened at the location identified below on the date and time listed below. Delivery of a bid after the bid opening date and time will result in bid disqualification. For purposes of this Solicitation, a bid is considered delivered when confirmation of delivery is provided by wvOASIS (in the case of electronic submission) or when the bid is time stamped by the official Purchasing Division time clock (in the case of hand delivery).

Bid Opening Date and Time: March 5, 2020 at 1:30 PM

Bid Opening Location: Department of Administration, Purchasing Division  
2019 Washington Street East  
Charleston, WV 25305-0130

**8. ADDENDUM ACKNOWLEDGEMENT:** Changes or revisions to this Solicitation will be made by an official written addendum issued by the Purchasing Division. Vendor should acknowledge receipt of all addenda issued with this Solicitation by completing an Addendum Acknowledgment Form, a copy of which is included herewith. Failure to acknowledge addenda may result in bid disqualification. The addendum acknowledgement should be submitted with the bid to expedite document processing.

**9. BID FORMATTING:** Vendor should type or electronically enter the information onto its bid to prevent errors in the evaluation. Failure to type or electronically enter the information may result in bid disqualification.

**10. ALTERNATE MODEL OR BRAND:** Unless the box below is checked, any model, brand, or specification listed in this Solicitation establishes the acceptable level of quality only and is not intended to reflect a preference for, or in any way favor, a particular brand or vendor. Vendors may bid alternates to a listed model or brand provided that the alternate is at least equal to the model or brand and complies with the required specifications. The equality of any alternate being bid shall be determined by the State at its sole discretion. Any Vendor bidding an alternate model or brand should clearly identify the alternate items in its bid and should include manufacturer's specifications, industry literature, and/or any other relevant documentation demonstrating the

equality of the alternate items. Failure to provide information for alternate items may be grounds for rejection of a Vendor's bid.

This Solicitation is based upon a standardized commodity established under W. Va. Code § 5A-3-61. Vendors are expected to bid the standardized commodity identified. Failure to bid the standardized commodity will result in your firm's bid being rejected.

**11. EXCEPTIONS AND CLARIFICATIONS:** The Solicitation contains the specifications that shall form the basis of a contractual agreement. Vendor shall clearly mark any exceptions, clarifications, or other proposed modifications in its bid. Exceptions to, clarifications of, or modifications of a requirement or term and condition of the Solicitation may result in bid disqualification.

**12. COMMUNICATION LIMITATIONS:** In accordance with West Virginia Code of State Rules §148-1-6.6, communication with the State of West Virginia or any of its employees regarding this Solicitation during the solicitation, bid, evaluation or award periods, except through the Purchasing Division, is strictly prohibited without prior Purchasing Division approval. Purchasing Division approval for such communication is implied for all agency delegated and exempt purchases.

**13. REGISTRATION:** Prior to Contract award, the apparent successful Vendor must be properly registered with the West Virginia Purchasing Division and must have paid the \$125 fee, if applicable.

**14. UNIT PRICE:** Unit prices shall prevail in cases of a discrepancy in the Vendor's bid.

**15. PREFERENCE:** Vendor Preference may be requested in purchases of motor vehicles or construction and maintenance equipment and machinery used in highway and other infrastructure projects. Any request for preference must be submitted in writing with the bid, must specifically identify the preference requested with reference to the applicable subsection of West Virginia Code § 5A-3-37, and must include with the bid any information necessary to evaluate and confirm the applicability of the requested preference. A request form to help facilitate the request can be found at:

<http://www.state.wv.us/admin/purchase/vrc/Venpref.pdf>.

**15A. RECIPROCAL PREFERENCE:** The State of West Virginia applies a reciprocal preference to all solicitations for commodities and printing in accordance with W. Va. Code § 5A-3-37(b). In effect, non-resident vendors receiving a preference in their home states, will see that same preference granted to West Virginia resident vendors bidding against them in West Virginia. Any request for reciprocal preference must include with the bid any information necessary to evaluate and confirm the applicability of the preference. A request form to help facilitate the request can be found at: <http://www.state.wv.us/admin/purchase/vrc/Venpref.pdf>.

**16. SMALL, WOMEN-OWNED, OR MINORITY-OWNED BUSINESSES:** For any solicitations publicly advertised for bid, in accordance with West Virginia Code §5A-3-37(a)(7) and W. Va. CSR § 148-22-9, any non-resident vendor certified as a small, women-owned, or minority-owned business under W. Va. CSR § 148-22-9 shall be provided the same preference made available to any resident vendor. Any non-resident small, women-owned, or

minority-owned business must identify itself as such in writing, must submit that writing to the Purchasing Division with its bid, and must be properly certified under W. Va. CSR § 148-22-9 prior to contract award to receive the preferences made available to resident vendors. Preference for a non-resident small, women-owned, or minority owned business shall be applied in accordance with W. Va. CSR § 148-22-9.

**17. WAIVER OF MINOR IRREGULARITIES:** The Director reserves the right to waive minor irregularities in bids or specifications in accordance with West Virginia Code of State Rules § 148-1-4.6.

**18. ELECTRONIC FILE ACCESS RESTRICTIONS:** Vendor must ensure that its submission in wvOASIS can be accessed and viewed by the Purchasing Division staff immediately upon bid opening. The Purchasing Division will consider any file that cannot be immediately accessed and viewed at the time of the bid opening (such as, encrypted files, password protected files, or incompatible files) to be blank or incomplete as context requires, and are therefore unacceptable. A vendor will not be permitted to unencrypt files, remove password protections, or resubmit documents after bid opening to make a file viewable if those documents are required with the bid. A Vendor may be required to provide document passwords or remove access restrictions to allow the Purchasing Division to print or electronically save documents provided that those documents are viewable by the Purchasing Division prior to obtaining the password or removing the access restriction.

**19. NON-RESPONSIBLE:** The Purchasing Division Director reserves the right to reject the bid of any vendor as Non-Responsible in accordance with W. Va. Code of State Rules § 148-1-5.3, when the Director determines that the vendor submitting the bid does not have the capability to fully perform, or lacks the integrity and reliability to assure good-faith performance.”

**20. ACCEPTANCE/REJECTION:** The State may accept or reject any bid in whole, or in part in accordance with W. Va. Code of State Rules § 148-1-4.5. and § 148-1-6.4.b.”

**21. YOUR SUBMISSION IS A PUBLIC DOCUMENT:** Vendor’s entire response to the Solicitation and the resulting Contract are public documents. As public documents, they will be disclosed to the public following the bid/proposal opening or award of the contract, as required by the competitive bidding laws of West Virginia Code §§ 5A-3-1 et seq., 5-22-1 et seq., and 5G-1-1 et seq. and the Freedom of Information Act West Virginia Code §§ 29B-1-1 et seq.

**DO NOT SUBMIT MATERIAL YOU CONSIDER TO BE CONFIDENTIAL, A TRADE SECRET, OR OTHERWISE NOT SUBJECT TO PUBLIC DISCLOSURE.**

Submission of any bid, proposal, or other document to the Purchasing Division constitutes your explicit consent to the subsequent public disclosure of the bid, proposal, or document. The Purchasing Division will disclose any document labeled “confidential,” “proprietary,” “trade secret,” “private,” or labeled with any other claim against public disclosure of the documents, to include any “trade secrets” as defined by West Virginia Code § 47-22-1 et seq. All submissions are subject to public disclosure without notice.

**22. INTERESTED PARTY DISCLOSURE:** West Virginia Code § 6D-1-2 requires that the vendor submit to the Purchasing Division a disclosure of interested parties to the contract for all contracts with an actual or estimated value of at least \$1 Million. That disclosure must occur on the form prescribed and approved by the WV Ethics Commission prior to contract award. A copy of that form is included with this solicitation or can be obtained from the WV Ethics Commission. This requirement does not apply to publicly traded companies listed on a national or international stock exchange. A more detailed definition of interested parties can be obtained from the form referenced above.

**23. WITH THE BID REQUIREMENTS:** In instances where these specifications require documentation or other information with the bid, and a vendor fails to provide it with the bid, the Director of the Purchasing Division reserves the right to request those items after bid opening and prior to contract award pursuant to the authority to waive minor irregularities in bids or specifications under W. Va. CSR § 148-1-4.6. This authority does not apply to instances where state law mandates receipt with the bid.

## **GENERAL TERMS AND CONDITIONS:**

**1. CONTRACTUAL AGREEMENT:** Issuance of a Award Document signed by the Purchasing Division Director, or his designee, and approved as to form by the Attorney General's office constitutes acceptance of this Contract made by and between the State of West Virginia and the Vendor. Vendor's signature on its bid signifies Vendor's agreement to be bound by and accept the terms and conditions contained in this Contract.

**2. DEFINITIONS:** As used in this Solicitation/Contract, the following terms shall have the meanings attributed to them below. Additional definitions may be found in the specifications included with this Solicitation/Contract.

**2.1. "Agency" or "Agencies"** means the agency, board, commission, or other entity of the State of West Virginia that is identified on the first page of the Solicitation or any other public entity seeking to procure goods or services under this Contract.

**2.2. "Bid" or "Proposal"** means the vendors submitted response to this solicitation.

**2.3. "Contract"** means the binding agreement that is entered into between the State and the Vendor to provide the goods or services requested in the Solicitation.

**2.4. "Director"** means the Director of the West Virginia Department of Administration, Purchasing Division.

**2.5. "Purchasing Division"** means the West Virginia Department of Administration, Purchasing Division.

**2.6. "Award Document"** means the document signed by the Agency and the Purchasing Division, and approved as to form by the Attorney General, that identifies the Vendor as the contract holder.

**2.7. "Solicitation"** means the official notice of an opportunity to supply the State with goods or services that is published by the Purchasing Division.

**2.8. "State"** means the State of West Virginia and/or any of its agencies, commissions, boards, etc. as context requires.

**2.9. "Vendor" or "Vendors"** means any entity submitting a bid in response to the Solicitation, the entity that has been selected as the lowest responsible bidder, or the entity that has been awarded the Contract as context requires.

**3. CONTRACT TERM; RENEWAL; EXTENSION:** The term of this Contract shall be determined in accordance with the category that has been identified as applicable to this Contract below:

**Term Contract**

**Initial Contract Term:** **Initial Contract Term:** This Contract becomes effective on \_\_\_\_\_ and extends for a period of \_\_\_\_\_ year(s).

**Renewal Term:** This Contract may be renewed upon the mutual written consent of the Agency, and the Vendor, with approval of the Purchasing Division and the Attorney General's office (Attorney General approval is as to form only). Any request for renewal should be delivered to the Agency and then submitted to the Purchasing Division thirty (30) days prior to the expiration date of the initial contract term or appropriate renewal term. A Contract renewal shall be in accordance with the terms and conditions of the original contract. Unless otherwise specified below, renewal of this Contract is limited to \_\_\_\_\_ successive one (1) year periods or multiple renewal periods of less than one year, provided that the multiple renewal periods do not exceed the total number of months available in all renewal years combined. Automatic renewal of this Contract is prohibited. Renewals must be approved by the Vendor, Agency, Purchasing Division and Attorney General's office (Attorney General approval is as to form only)

**Alternate Renewal Term** – This contract may be renewed for \_\_\_\_\_ successive \_\_\_\_\_ year periods or shorter periods provided that they do not exceed the total number of months contained in all available renewals. Automatic renewal of this Contract is prohibited. Renewals must be approved by the Vendor, Agency, Purchasing Division and Attorney General's office (Attorney General approval is as to form only)

**Delivery Order Limitations:** In the event that this contract permits delivery orders, a delivery order may only be issued during the time this Contract is in effect. Any delivery order issued within one year of the expiration of this Contract shall be effective for one year from the date the delivery order is issued. No delivery order may be extended beyond one year after this Contract has expired.

**Fixed Period Contract:** This Contract becomes effective upon Vendor's receipt of the notice to proceed and must be completed within \_\_\_\_\_ days.

**Fixed Period Contract with Renewals:** This Contract becomes effective upon Vendor's receipt of the notice to proceed and part of the Contract more fully described in the attached specifications must be completed within \_\_\_\_\_ days. Upon completion of the work covered by the preceding sentence, the vendor agrees that maintenance, monitoring, or warranty services will be provided for \_\_\_\_\_ year(s) thereafter.

**One Time Purchase:** The term of this Contract shall run from the issuance of the Award Document until all of the goods contracted for have been delivered, but in no event will this Contract extend for more than one fiscal year.

**Other:** See attached.

**4. NOTICE TO PROCEED:** Vendor shall begin performance of this Contract immediately upon receiving notice to proceed unless otherwise instructed by the Agency. Unless otherwise specified, the fully executed Award Document will be considered notice to proceed.

**5. QUANTITIES:** The quantities required under this Contract shall be determined in accordance with the category that has been identified as applicable to this Contract below.

**Open End Contract:** Quantities listed in this Solicitation are approximations only, based on estimates supplied by the Agency. It is understood and agreed that the Contract shall cover the quantities actually ordered for delivery during the term of the Contract, whether more or less than the quantities shown.

**Service:** The scope of the service to be provided will be more clearly defined in the specifications included herewith.

**Combined Service and Goods:** The scope of the service and deliverable goods to be provided will be more clearly defined in the specifications included herewith.

**One Time Purchase:** This Contract is for the purchase of a set quantity of goods that are identified in the specifications included herewith. Once those items have been delivered, no additional goods may be procured under this Contract without an appropriate change order approved by the Vendor, Agency, Purchasing Division, and Attorney General's office.

**6. EMERGENCY PURCHASES:** The Purchasing Division Director may authorize the Agency to purchase goods or services in the open market that Vendor would otherwise provide under this Contract if those goods or services are for immediate or expedited delivery in an emergency. Emergencies shall include, but are not limited to, delays in transportation or an unanticipated increase in the volume of work. An emergency purchase in the open market, approved by the Purchasing Division Director, shall not constitute of breach of this Contract and shall not entitle the Vendor to any form of compensation or damages. This provision does not excuse the State from fulfilling its obligations under a One Time Purchase contract.

**7. REQUIRED DOCUMENTS:** All of the items checked below must be provided to the Purchasing Division by the Vendor as specified below.

**BID BOND (Construction Only):** Pursuant to the requirements contained in W. Va. Code § 5-22-1(c), All Vendors submitting a bid on a construction project shall furnish a valid bid bond in the amount of five percent (5%) of the total amount of the bid protecting the State of West Virginia. The bid bond must be submitted with the bid.

**PERFORMANCE BOND:** The apparent successful Vendor shall provide a performance bond in the amount of 100% of the contract. The performance bond must be received by the Purchasing Division prior to Contract award.

**LABOR/MATERIAL PAYMENT BOND:** The apparent successful Vendor shall provide a labor/material payment bond in the amount of 100% of the Contract value. The labor/material payment bond must be delivered to the Purchasing Division prior to Contract award.

In lieu of the Bid Bond, Performance Bond, and Labor/Material Payment Bond, the Vendor may provide certified checks, cashier's checks, or irrevocable letters of credit. Any certified check, cashier's check, or irrevocable letter of credit provided in lieu of a bond must be of the same amount and delivered on the same schedule as the bond it replaces. A letter of credit submitted in lieu of a performance and labor/material payment bond will only be allowed for projects under \$100,000. Personal or business checks are not acceptable. Notwithstanding the foregoing, West Virginia Code § 5-22-1 (d) mandates that a vendor provide a performance and labor/material payment bond for construction projects. Accordingly, substitutions for the performance and labor/material payment bonds for construction projects is not permitted.

**MAINTENANCE BOND:** The apparent successful Vendor shall provide a two (2) year maintenance bond covering the roofing system. The maintenance bond must be issued and delivered to the Purchasing Division prior to Contract award.

**LICENSE(S) / CERTIFICATIONS / PERMITS:** In addition to anything required under the Section of the General Terms and Conditions entitled Licensing, the apparent successful Vendor shall furnish proof of the following licenses, certifications, and/or permits upon request and in a form acceptable to the State. The request may be prior to or after contract award at the State's sole discretion.

The apparent successful Vendor shall also furnish proof of any additional licenses or certifications contained in the specifications regardless of whether or not that requirement is listed above.



**8. INSURANCE:** The apparent successful Vendor shall furnish proof of the insurance identified by a checkmark below and must include the State as an additional insured on each policy prior to Contract award. The insurance coverages identified below must be maintained throughout the life of this contract. Thirty (30) days prior to the expiration of the insurance policies, Vendor shall provide the Agency with proof that the insurance mandated herein has been continued. Vendor must also provide Agency with immediate notice of any changes in its insurance policies, including but not limited to, policy cancelation, policy reduction, or change in insurers. The apparent successful Vendor shall also furnish proof of any additional insurance requirements contained in the specifications prior to Contract award regardless of whether or not that insurance requirement is listed in this section.

Vendor must maintain:

**Commercial General Liability Insurance** in at least an amount of: \$1,000,000-\*\*\*See Below per occurrence.

**Automobile Liability Insurance** in at least an amount of: 1,000,000.00 per occurrence.

**Professional/Malpractice/Errors and Omission Insurance** in at least an amount of: \_\_\_\_\_ per occurrence. Notwithstanding the forgoing, Vendor's are not required to list the State as an additional insured for this type of policy.

**Commercial Crime and Third Party Fidelity Insurance** in an amount of: \_\_\_\_\_ per occurrence.

**Cyber Liability Insurance** in an amount of: \_\_\_\_\_ per occurrence.

**Builders Risk Insurance** in an amount equal to 100% of the amount of the Contract.

**Pollution Insurance** in an amount of: \_\_\_\_\_ per occurrence.

**Aircraft Liability** in an amount of: \_\_\_\_\_ per occurrence.

**\*\*\*THE STATE OF WV MUST BE LISTED AS ADDITIONAL INSURED ON INSURANCE CERTIFICATE**

**\*\*\*CERTIFICATE HOLDER SHOULD READ AS FOLLOWS:**  
STATE OF WV  
1900 KANAWHA BLVD E, BLDG 5, CHARLESTON, WV 25305

Notwithstanding anything contained in this section to the contrary, the Director of the Purchasing Division reserves the right to waive the requirement that the State be named as an additional insured on one or more of the Vendor's insurance policies if the Director finds that doing so is in the State's best interest.

**9. WORKERS' COMPENSATION INSURANCE:** The apparent successful Vendor shall comply with laws relating to workers compensation, shall maintain workers' compensation insurance when required, and shall furnish proof of workers' compensation insurance upon request.

**10. [Reserved]**

**11. LIQUIDATED DAMAGES:** This clause shall in no way be considered exclusive and shall not limit the State or Agency's right to pursue any other available remedy. Vendor shall pay liquidated damages in the amount specified below or as described in the specifications:

\_\_\_\_\_ for \_\_\_\_\_

Liquidated Damages Contained in the Specifications

**12. ACCEPTANCE:** Vendor's signature on its bid, or on the certification and signature page, constitutes an offer to the State that cannot be unilaterally withdrawn, signifies that the product or service proposed by vendor meets the mandatory requirements contained in the Solicitation for that product or service, unless otherwise indicated, and signifies acceptance of the terms and conditions contained in the Solicitation unless otherwise indicated.

**13. PRICING:** The pricing set forth herein is firm for the life of the Contract, unless specified elsewhere within this Solicitation/Contract by the State. A Vendor's inclusion of price adjustment provisions in its bid, without an express authorization from the State in the Solicitation to do so, may result in bid disqualification. Notwithstanding the foregoing, Vendor must extend any publicly advertised sale price to the State and invoice at the lower of the contract price or the publicly advertised sale price.

**14. PAYMENT IN ARREARS:** Payment in advance is prohibited under this Contract. Payment may only be made after the delivery and acceptance of goods or services. The Vendor shall submit invoices, in arrears.

**15. PAYMENT METHODS:** Vendor must accept payment by electronic funds transfer and P-Card. (The State of West Virginia's Purchasing Card program, administered under contract by a banking institution, processes payment for goods and services through state designated credit cards.)

**16. TAXES:** The Vendor shall pay any applicable sales, use, personal property or any other taxes arising out of this Contract and the transactions contemplated thereby. The State of West Virginia is exempt from federal and state taxes and will not pay or reimburse such taxes.

**17. ADDITIONAL FEES:** Vendor is not permitted to charge additional fees or assess additional charges that were not either expressly provided for in the solicitation published by the State of West Virginia or included in the unit price or lump sum bid amount that Vendor is required by the solicitation to provide. Including such fees or charges as notes to the solicitation may result in rejection of vendor's bid. Requesting such fees or charges be paid after the contract has been awarded may result in cancellation of the contract.

**18. FUNDING:** This Contract shall continue for the term stated herein, contingent upon funds being appropriated by the Legislature or otherwise being made available. In the event funds are not appropriated or otherwise made available, this Contract becomes void and of no effect beginning on July 1 of the fiscal year for which funding has not been appropriated or otherwise made available.

**19. CANCELLATION:** The Purchasing Division Director reserves the right to cancel this Contract immediately upon written notice to the vendor if the materials or workmanship supplied do not conform to the specifications contained in the Contract. The Purchasing Division Director may also cancel any purchase or Contract upon 30 days written notice to the Vendor in accordance with West Virginia Code of State Rules § 148-1-5.2.b.

**20. TIME:** Time is of the essence with regard to all matters of time and performance in this Contract.

**21. APPLICABLE LAW:** This Contract is governed by and interpreted under West Virginia law without giving effect to its choice of law principles. Any information provided in specification manuals, or any other source, verbal or written, which contradicts or violates the West Virginia Constitution, West Virginia Code or West Virginia Code of State Rules is void and of no effect.

**22. COMPLIANCE WITH LAWS:** Vendor shall comply with all applicable federal, state, and local laws, regulations and ordinances. By submitting a bid, Vendor acknowledges that it has reviewed, understands, and will comply with all applicable laws, regulations, and ordinances.

**SUBCONTRACTOR COMPLIANCE:** Vendor shall notify all subcontractors providing commodities or services related to this Contract that as subcontractors, they too are required to comply with all applicable laws, regulations, and ordinances. Notification under this provision must occur prior to the performance of any work under the contract by the subcontractor.

**23. ARBITRATION:** Any references made to arbitration contained in this Contract, Vendor's bid, or in any American Institute of Architects documents pertaining to this Contract are hereby deleted, void, and of no effect.

**24. MODIFICATIONS:** This writing is the parties' final expression of intent. Notwithstanding anything contained in this Contract to the contrary no modification of this Contract shall be binding without mutual written consent of the Agency, and the Vendor, with approval of the Purchasing Division and the Attorney General's office (Attorney General approval is as to form only). Any change to existing contracts that adds work or changes contract cost, and were not included in the original contract, must be approved by the Purchasing Division and the Attorney General's Office (as to form) prior to the implementation of the change or commencement of work affected by the change.

**25. WAIVER:** The failure of either party to insist upon a strict performance of any of the terms or provision of this Contract, or to exercise any option, right, or remedy herein contained, shall not be construed as a waiver or a relinquishment for the future of such term, provision, option, right, or remedy, but the same shall continue in full force and effect. Any waiver must be expressly stated in writing and signed by the waiving party.

**26. SUBSEQUENT FORMS:** The terms and conditions contained in this Contract shall supersede any and all subsequent terms and conditions which may appear on any form documents submitted by Vendor to the Agency or Purchasing Division such as price lists, order forms, invoices, sales agreements, or maintenance agreements, and includes internet websites or other electronic documents. Acceptance or use of Vendor's forms does not constitute acceptance of the terms and conditions contained thereon.

**27. ASSIGNMENT:** Neither this Contract nor any monies due, or to become due hereunder, may be assigned by the Vendor without the express written consent of the Agency, the Purchasing Division, the Attorney General's office (as to form only), and any other government agency or office that may be required to approve such assignments.

**28. WARRANTY:** The Vendor expressly warrants that the goods and/or services covered by this Contract will: (a) conform to the specifications, drawings, samples, or other description furnished or specified by the Agency; (b) be merchantable and fit for the purpose intended; and (c) be free from defect in material and workmanship.

**29. STATE EMPLOYEES:** State employees are not permitted to utilize this Contract for personal use and the Vendor is prohibited from permitting or facilitating the same.

**30. PRIVACY, SECURITY, AND CONFIDENTIALITY:** The Vendor agrees that it will not disclose to anyone, directly or indirectly, any such personally identifiable information or other confidential information gained from the Agency, unless the individual who is the subject of the information consents to the disclosure in writing or the disclosure is made pursuant to the Agency's policies, procedures, and rules. Vendor further agrees to comply with the Confidentiality Policies and Information Security Accountability Requirements, set forth in <http://www.state.wv.us/admin/purchase/privacy/default.html>.

**31. YOUR SUBMISSION IS A PUBLIC DOCUMENT:** Vendor's entire response to the Solicitation and the resulting Contract are public documents. As public documents, they will be disclosed to the public following the bid/proposal opening or award of the contract, as required by the competitive bidding laws of West Virginia Code §§ 5A-3-1 et seq., 5-22-1 et seq., and 5G-1-1 et seq. and the Freedom of Information Act West Virginia Code §§ 29B-1-1 et seq.

**DO NOT SUBMIT MATERIAL YOU CONSIDER TO BE CONFIDENTIAL, A TRADE SECRET, OR OTHERWISE NOT SUBJECT TO PUBLIC DISCLOSURE.**

Submission of any bid, proposal, or other document to the Purchasing Division constitutes your explicit consent to the subsequent public disclosure of the bid, proposal, or document. The Purchasing Division will disclose any document labeled "confidential," "proprietary," "trade secret," "private," or labeled with any other claim against public disclosure of the documents, to include any "trade secrets" as defined by West Virginia Code § 47-22-1 et seq. All submissions are subject to public disclosure without notice.

**32. LICENSING:** In accordance with West Virginia Code of State Rules § 148-1-6.1.e, Vendor must be licensed and in good standing in accordance with any and all state and local laws and requirements by any state or local agency of West Virginia, including, but not limited to, the West Virginia Secretary of State's Office, the West Virginia Tax Department, West Virginia Insurance Commission, or any other state agency or political subdivision. Obligations related to political subdivisions may include, but are not limited to, business licensing, business and occupation taxes, inspection compliance, permitting, etc. Upon request, the Vendor must provide all necessary releases to obtain information to enable the Purchasing Division Director or the Agency to verify that the Vendor is licensed and in good standing with the above entities.

**SUBCONTRACTOR COMPLIANCE:** Vendor shall notify all subcontractors providing commodities or services related to this Contract that as subcontractors, they too are required to be licensed, in good standing, and up-to-date on all state and local obligations as described in this section. Obligations related to political subdivisions may include, but are not limited to, business licensing, business and occupation taxes, inspection compliance, permitting, etc. Notification under this provision must occur prior to the performance of any work under the contract by the subcontractor.

**33. ANTITRUST:** In submitting a bid to, signing a contract with, or accepting a Award Document from any agency of the State of West Virginia, the Vendor agrees to convey, sell, assign, or transfer to the State of West Virginia all rights, title, and interest in and to all causes of action it may now or hereafter acquire under the antitrust laws of the United States and the State of West Virginia for price fixing and/or unreasonable restraints of trade relating to the particular commodities or services purchased or acquired by the State of West Virginia. Such assignment shall be made and become effective at the time the purchasing agency tenders the initial payment to Vendor.

**34. VENDOR CERTIFICATIONS:** By signing its bid or entering into this Contract, Vendor certifies (1) that its bid or offer was made without prior understanding, agreement, or connection with any corporation, firm, limited liability company, partnership, person or entity submitting a bid or offer for the same material, supplies, equipment or services; (2) that its bid or offer is in all respects fair and without collusion or fraud; (3) that this Contract is accepted or entered into without any prior understanding, agreement, or connection to any other entity that could be considered a violation of law; and (4) that it has reviewed this Solicitation in its entirety; understands the requirements, terms and conditions, and other information contained herein.

Vendor's signature on its bid or offer also affirms that neither it nor its representatives have any interest, nor shall acquire any interest, direct or indirect, which would compromise the performance of its services hereunder. Any such interests shall be promptly presented in detail to the Agency. The individual signing this bid or offer on behalf of Vendor certifies that he or she is authorized by the Vendor to execute this bid or offer or any documents related thereto on Vendor's behalf; that he or she is authorized to bind the Vendor in a contractual relationship; and that, to the best of his or her knowledge, the Vendor has properly registered with any State agency that may require registration.

**35. VENDOR RELATIONSHIP:** The relationship of the Vendor to the State shall be that of an independent contractor and no principal-agent relationship or employer-employee relationship is contemplated or created by this Contract. The Vendor as an independent contractor is solely liable for the acts and omissions of its employees and agents. Vendor shall be responsible for selecting, supervising, and compensating any and all individuals employed pursuant to the terms of this Solicitation and resulting contract. Neither the Vendor, nor any employees or subcontractors of the Vendor, shall be deemed to be employees of the State for any purpose whatsoever. Vendor shall be exclusively responsible for payment of employees and contractors for all wages and salaries, taxes, withholding payments, penalties, fees, fringe benefits, professional liability insurance premiums, contributions to insurance and pension, or other deferred compensation plans, including but not limited to, Workers' Compensation and Social Security obligations, licensing fees, etc. and the filing of all necessary documents, forms, and returns pertinent to all of the foregoing.

Vendor shall hold harmless the State, and shall provide the State and Agency with a defense against any and all claims including, but not limited to, the foregoing payments, withholdings, contributions, taxes, Social Security taxes, and employer income tax returns.

**36. INDEMNIFICATION:** The Vendor agrees to indemnify, defend, and hold harmless the State and the Agency, their officers, and employees from and against: (1) Any claims or losses for services rendered by any subcontractor, person, or firm performing or supplying services, materials, or supplies in connection with the performance of the Contract; (2) Any claims or losses resulting to any person or entity injured or damaged by the Vendor, its officers, employees, or subcontractors by the publication, translation, reproduction, delivery, performance, use, or disposition of any data used under the Contract in a manner not authorized by the Contract, or by Federal or State statutes or regulations; and (3) Any failure of the Vendor, its officers, employees, or subcontractors to observe State and Federal laws including, but not limited to, labor and wage and hour laws.

**37. PURCHASING AFFIDAVIT:** In accordance with West Virginia Code §§ 5A-3-10a and 5-22-1(i), the State is prohibited from awarding a contract to any bidder that owes a debt to the State or a political subdivision of the State, Vendors are required to sign, notarize, and submit the Purchasing Affidavit to the Purchasing Division affirming under oath that it is not in default on any monetary obligation owed to the state or a political subdivision of the state.

**38. ADDITIONAL AGENCY AND LOCAL GOVERNMENT USE:** This Contract may be utilized by other agencies, spending units, and political subdivisions of the State of West Virginia; county, municipal, and other local government bodies; and school districts ("Other Government Entities"), provided that both the Other Government Entity and the Vendor agree. Any extension of this Contract to the aforementioned Other Government Entities must be on the same prices, terms, and conditions as those offered and agreed to in this Contract, provided that such extension is in compliance with the applicable laws, rules, and ordinances of the Other Government Entity. A refusal to extend this Contract to the Other Government Entities shall not impact or influence the award of this Contract in any manner.

**39. CONFLICT OF INTEREST:** Vendor, its officers or members or employees, shall not presently have or acquire an interest, direct or indirect, which would conflict with or compromise the performance of its obligations hereunder. Vendor shall periodically inquire of its officers, members and employees to ensure that a conflict of interest does not arise. Any conflict of interest discovered shall be promptly presented in detail to the Agency.

**40. REPORTS:** Vendor shall provide the Agency and/or the Purchasing Division with the following reports identified by a checked box below:

Such reports as the Agency and/or the Purchasing Division may request. Requested reports may include, but are not limited to, quantities purchased, agencies utilizing the contract, total contract expenditures by agency, etc.

Quarterly reports detailing the total quantity of purchases in units and dollars, along with a listing of purchases by agency. Quarterly reports should be delivered to the Purchasing Division via email at [purchasing.requisitions@wv.gov](mailto:purchasing.requisitions@wv.gov).

**41. BACKGROUND CHECK:** In accordance with W. Va. Code § 15-2D-3, the Director of the Division of Protective Services shall require any service provider whose employees are regularly employed on the grounds or in the buildings of the Capitol complex or who have access to sensitive or critical information to submit to a fingerprint-based state and federal background inquiry through the state repository. The service provider is responsible for any costs associated with the fingerprint-based state and federal background inquiry.

After the contract for such services has been approved, but before any such employees are permitted to be on the grounds or in the buildings of the Capitol complex or have access to sensitive or critical information, the service provider shall submit a list of all persons who will be physically present and working at the Capitol complex to the Director of the Division of Protective Services for purposes of verifying compliance with this provision. The State reserves the right to prohibit a service provider's employees from accessing sensitive or critical information or to be present at the Capitol complex based upon results addressed from a criminal background check.

Revised 01/09/2020

Service providers should contact the West Virginia Division of Protective Services by phone at (304) 558-9911 for more information.

**42. PREFERENCE FOR USE OF DOMESTIC STEEL PRODUCTS:** Except when authorized by the Director of the Purchasing Division pursuant to W. Va. Code § 5A-3-56, no contractor may use or supply steel products for a State Contract Project other than those steel products made in the United States. A contractor who uses steel products in violation of this section may be subject to civil penalties pursuant to W. Va. Code § 5A-3-56. As used in this section:

- a. "State Contract Project" means any erection or construction of, or any addition to, alteration of or other improvement to any building or structure, including, but not limited to, roads or highways, or the installation of any heating or cooling or ventilating plants or other equipment, or the supply of and materials for such projects, pursuant to a contract with the State of West Virginia for which bids were solicited on or after June 6, 2001.
- b. "Steel Products" means products rolled, formed, shaped, drawn, extruded, forged, cast, fabricated or otherwise similarly processed, or processed by a combination of two or more or such operations, from steel made by the open heath, basic oxygen, electric furnace, Bessemer or other steel making process. The Purchasing Division Director may, in writing, authorize the use of foreign steel products if:
- c. The cost for each contract item used does not exceed one tenth of one percent (.1%) of the total contract cost or two thousand five hundred dollars (\$2,500.00), whichever is greater. For the purposes of this section, the cost is the value of the steel product as delivered to the project; or
- d. The Director of the Purchasing Division determines that specified steel materials are not produced in the United States in sufficient quantity or otherwise are not reasonably available to meet contract requirements.

**43. PREFERENCE FOR USE OF DOMESTIC ALUMINUM, GLASS, AND STEEL:** In Accordance with W. Va. Code § 5-19-1 et seq., and W. Va. CSR § 148-10-1 et seq., for every contract or subcontract, subject to the limitations contained herein, for the construction, reconstruction, alteration, repair, improvement or maintenance of public works or for the purchase of any item of machinery or equipment to be used at sites of public works, only domestic aluminum, glass or steel products shall be supplied unless the spending officer determines, in writing, after the receipt of offers or bids, (1) that the cost of domestic aluminum, glass or steel products is unreasonable or inconsistent with the public interest of the State of West Virginia, (2) that domestic aluminum, glass or steel products are not produced in sufficient quantities to meet the contract requirements, or (3) the available domestic aluminum, glass, or steel do not meet the contract specifications. This provision only applies to public works contracts awarded in an amount more than fifty thousand dollars (\$50,000) or public works contracts that require more than ten thousand pounds of steel products.

The cost of domestic aluminum, glass, or steel products may be unreasonable if the cost is more than twenty percent (20%) of the bid or offered price for foreign made aluminum, glass, or steel products. If the domestic aluminum, glass or steel products to be supplied or produced in a



“substantial labor surplus area”, as defined by the United States Department of Labor, the cost of domestic aluminum, glass, or steel products may be unreasonable if the cost is more than thirty percent (30%) of the bid or offered price for foreign made aluminum, glass, or steel products. This preference shall be applied to an item of machinery or equipment, as indicated above, when the item is a single unit of equipment or machinery manufactured primarily of aluminum, glass or steel, is part of a public works contract and has the sole purpose or of being a permanent part of a single public works project. This provision does not apply to equipment or machinery purchased by a spending unit for use by that spending unit and not as part of a single public works project.

All bids and offers including domestic aluminum, glass or steel products that exceed bid or offer prices including foreign aluminum, glass or steel products after application of the preferences provided in this provision may be reduced to a price equal to or lower than the lowest bid or offer price for foreign aluminum, glass or steel products plus the applicable preference. If the reduced bid or offer prices are made in writing and supersede the prior bid or offer prices, all bids or offers, including the reduced bid or offer prices, will be reevaluated in accordance with this rule.

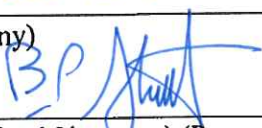
**44. INTERESTED PARTY SUPPLEMENTAL DISCLOSURE:** W. Va. Code § 6D-1-2 requires that for contracts with an actual or estimated value of at least \$1 million, the vendor must submit to the Agency a supplemental disclosure of interested parties reflecting any new or differing interested parties to the contract, which were not included in the original pre-award interested party disclosure, within 30 days following the completion or termination of the contract. A copy of that form is included with this solicitation or can be obtained from the WV Ethics Commission. This requirement does not apply to publicly traded companies listed on a national or international stock exchange. A more detailed definition of interested parties can be obtained from the form referenced above.

**45. PROHIBITION AGAINST USED OR REFURBISHED:** Unless expressly permitted in the solicitation published by the State, Vendor must provide new, unused commodities, and is prohibited from supplying used or refurbished commodities, in fulfilling its responsibilities under this Contract.

**DESIGNATED CONTACT:** Vendor appoints the individual identified in this Section as the Contract Administrator and the initial point of contact for matters relating to this Contract.

BRIAN P. STRUBLE  
(Name, Title)  
BRIAN P. STRUBLE  
(Printed Name and Title)  
PO Box 1134 PRINCETON WV 24740  
(Address)  
304-425-8955 / 304-425-1171  
(Phone Number) / (Fax Number)  
BSTRUBLE @ EASTERN VAULT. COM  
(email address)

**CERTIFICATION AND SIGNATURE:** By signing below, or submitting documentation through wvOASIS, I certify that I have reviewed this Solicitation in its entirety; that I understand the requirements, terms and conditions, and other information contained herein; that this bid, offer or proposal constitutes an offer to the State that cannot be unilaterally withdrawn; that the product or service proposed meets the mandatory requirements contained in the Solicitation for that product or service, unless otherwise stated herein; that the Vendor accepts the terms and conditions contained in the Solicitation, unless otherwise stated herein; that I am submitting this bid, offer or proposal for review and consideration; that I am authorized by the vendor to execute and submit this bid, offer, or proposal, or any documents related thereto on vendor's behalf; that I am authorized to bind the vendor in a contractual relationship; and that to the best of my knowledge, the vendor has properly registered with any State agency that may require registration.

EASTERN VAULT CO., INC.  
(Company)  
  
(Authorized Signature) (Representative Name, Title)  
BRIAN P. STRUBLE VP; GM  
(Printed Name and Title of Authorized Representative)  
3-03-2020  
(Date)  
304-425-8955 304-425-1171  
(Phone Number) (Fax Number)

ADDENDUM ACKNOWLEDGEMENT FORM  
SOLICITATION NO.: CRFQ DOT2000000122

Instructions: Please acknowledge receipt of all addenda issued with this solicitation by completing this addendum acknowledgment form. Check the box next to each addendum received and sign below. Failure to acknowledge addenda may result in bid disqualification.

Acknowledgment: I hereby acknowledge receipt of the following addenda and have made the necessary revisions to my proposal, plans and/or specification, etc.

Addendum Numbers Received:

(Check the box next to each addendum received)

- |   |  |
|---|--|
| <input type="checkbox"/> Addendum No. 1 | <input type="checkbox"/> Addendum No. 6  |
| <input type="checkbox"/> Addendum No. 2 | <input type="checkbox"/> Addendum No. 7  |
| <input type="checkbox"/> Addendum No. 3 | <input type="checkbox"/> Addendum No. 8  |
| <input type="checkbox"/> Addendum No. 4 | <input type="checkbox"/> Addendum No. 9  |
| <input type="checkbox"/> Addendum No. 5 | <input type="checkbox"/> Addendum No. 10 |

I understand that failure to confirm the receipt of addenda may be cause for rejection of this bid. I further understand that any verbal representation made or assumed to be made during any oral discussion held between Vendor's representatives and any state personnel is not binding. Only the information issued in writing and added to the specifications by an official addendum is binding.

EASTERN VAULT CO., INC.

Company



BRIAN P. STRUBLE VP:GM

Authorized Signature

3-3-2020

Date

NOTE: This addendum acknowledgment should be submitted with the bid to expedite document processing.

**REQUEST FOR QUOTATION  
CRFQ DOT2000000122  
Pre-Stressed Concrete Box Beams Steeles Bridge (10200250)**

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**SPECIFICATIONS**

1. **PURPOSE AND SCOPE:** The West Virginia Purchasing Division is soliciting bids on behalf of West Virginia Division of Highways to establish a contract for the one-time purchase of 33” (inch) Pre-Stressed Concrete Box Beams.
2. **DEFINITIONS:** The terms listed below shall have the meanings assigned to them below. Additional definitions can be found in section 2 of the General Terms and Conditions.
  - 2.1 **“Contract Item”** means 33” (inch) Pre-Stressed Concrete Box Beams as more fully described by these specifications.
  - 2.2 **“Pricing Page”** means the pages, contained in WVOASIS or attached as Exhibit A, upon which Vendor should list its proposed price for the Contract Items.
  - 2.3 **“Solicitation”** means the official notice of an opportunity to supply the State with goods or services that is published by the Purchasing Division.
3. **GENERAL REQUIREMENTS:**
  - 3.1 **Mandatory Contract Item Requirements:** Contract Item must meet or exceed the mandatory requirements listed below.
    - 3.1.1 **33” (inch) Pre-Stressed Concrete Box Beams for Steeles Bridge over Little Huff Creek.**
      - 3.1.1.1 Bridge Beams are to be manufactured according to the attached plan sheets 11 thru 19 entitled Steeles Bridge over Little Huff Creek, State Project Number (S355-8-1.90 00). See the attached plans Bridge Number (3829.1).
4. **CONTRACT AWARD:**
  - 4.1 **Contract Award:** The Contract is intended to provide Agencies with a purchase price for the Contract Items. The Contract shall be awarded to the Vendor that provides the Contract Items meeting the required specifications for the lowest overall total cost as shown on the Pricing Pages.



**REQUEST FOR QUOTATION**  
**CRFQ DOT2000000122**  
**Pre-Stressed Concrete Box Beams Steeles Bridge (10200250)**

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**4.2 Pricing Page:** Vendor should complete the Exhibit A Pricing Page by inputting the Unit Price for each Item Number and multiply by the Quantities to calculate the Total Cost for each. The Total Cost for each Item Number will be added together to calculate the Total Bid Amount. Vendor should complete the Pricing Page in full as failure to complete the Pricing Page in its entirety may result in Vendor's bid being disqualified.

Vendor should type or electronically enter the information into the Pricing Page to prevent errors in the evaluation.

**5. PAYMENT:**

**5.1 Payment:** Vendor shall accept payment in accordance with the payment procedures of the State of West Virginia.

**6. DELIVERY AND RETURN:**

**6.1 Shipment and Delivery:** Vendor shall ship the Contract Items immediately after being awarded this Contract and receiving a purchase order or notice to proceed. Vendor shall deliver the Contract Items within (40) working days after receiving a purchase order or notice to proceed. Contract Items must be delivered to Agency at State Project S55-8-1.90 00 Steeles Bridge located in Wyoming County, 1.90 miles in a south easterly direction, from the intersection of US 52 and Wyoming County Route 8. GPS: 37.535703, -81.771999

**6.2 Late Delivery:** The Agency placing the order under this Contract must be notified in writing if the shipment of the Contract Items will be delayed for any reason. Any delay in delivery that could cause harm to an Agency will be grounds for cancellation of the Contract, and/or obtaining the Contract Items from a third party.

Any Agency seeking to obtain the Contract Items from a third party under this provision must first obtain approval of the Purchasing Division.

**6.3 Delivery Payment/Risk of Loss:** Vendor shall deliver the Contract Items F.O.B. destination to the Agency's location.

**6.4 Return of Unacceptable Items:** If the Agency deems the Contract Items to be unacceptable, the Contract Items shall be returned to Vendor at Vendor's expense and with no restocking charge. Vendor shall either make arrangements for the return within five (5) days of being notified that items are unacceptable or permit the Agency to arrange for the return and reimburse Agency for delivery expenses. If the

**REQUEST FOR QUOTATION**  
**CRFQ DOT2000000122**  
**Pre-Stressed Concrete Box Beams Steeles Bridge (10200250)**

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original packaging cannot be utilized for the return, Vendor will supply the Agency with appropriate return packaging upon request. All returns of unacceptable items shall be F.O.B. the Agency's location. The returned product shall either be replaced, or the Agency shall receive a full credit or refund for the purchase price, at the Agency's discretion.

- 6.5 Return Due to Agency Error:** Items ordered in error by the Agency will be returned for credit within 30 days of receipt, F.O.B. Vendor's location. Vendor shall not charge a restocking fee if returned products are in a resalable condition. Items shall be deemed to be in a resalable condition if they are unused and in the original packaging. Any restocking fee for items not in a resalable condition shall be the lower of the Vendor's customary restocking fee or 5% of the total invoiced value of the returned items.

**7 VENDOR DEFAULT:**

**7.1** The following shall be considered a vendor default under this Contract.

- 7.1.1** Failure to provide Contract Items in accordance with the requirements contained herein.
- 7.1.2** Failure to comply with other specifications and requirements contained herein.
- 7.1.3** Failure to comply with any laws, rules, and ordinances applicable to the Contract Services provided under this Contract.
- 7.1.4** Failure to remedy deficient performance upon request.

**7.2** The following remedies shall be available to Agency upon default.

- 7.2.1** Immediate cancellation of the Contract.
- 7.2.2** Immediate cancellation of one or more release orders issued under this Contract.
- 7.2.3** Any other remedies available in law or equity.

STATE PROJECT NUMBER	FEDERAL PROJECT NUMBER	STATE DIST. NO.	COUNTY	SHEET NO.	TOTAL SHEETS
1222-9-1-RD-80	N/A	10	WYOMING	11	19

**GOVERNING SPECIFICATIONS**

THE WEST VIRGINIA DEPARTMENT OF TRANSPORTATION, DIVISION OF HIGHWAYS STANDARD SPECIFICATIONS FOR ROADS AND BRIDGES, ADOPTED 2017 AS AMENDED BY THE CURRENT SUPPLEMENTAL SPECIFICATIONS, THE CONTRACT PLANS AND CONTRACT SPECIAL PROVISIONS ARE THE GOVERNING PROVISIONS APPLICABLE TO THIS PROJECT.

ALL BEAMS ARE DESIGNED IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, DATED 1998 AS AMENDED BY THE 2003 INTERIM SPECIFICATIONS.

**DESIGN NOTES**

ALL STANDARD ADJACENT PRESTRESSED CONCRETE BRIDGE BEAMS ARE DESIGNED TO MEET THE FOLLOWING CRITERIA:

- DESIGN LOADS**  
 HL-93 LIVE LOAD IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.  
 FUTURE WEARING SURFACE OF 50 PSF OF ROADWAY.  
 TYPE F PARAPET WEIGHING 321 PLF.  
 DIAPHRAGM DEAD LOAD, NUMBER REQUIRED BASED ON 13'-0" MAX. SPACING.
- TWO LANE BRIDGE WITH AN OVERALL WIDTH OF 24'-5" (INCL. 3" GAP BETWEEN ADJ. BEAMS), A CURB-TO-CURB WIDTH OF 22'-1", TRANSVERSE POST-TENSIONING, AND ZERO SKEW.**
- DESIGN STRENGTH AND UNIT STRESSES:**  
 MINIMUM CONCRETE STRENGTH @ STRAND RELEASE ----- 6000 PSI  
 MINIMUM CONCRETE STRENGTH @ 28 DAYS ----- 8000 PSI  
 TEMPORARY STRESS LIMITS IN CONCRETE BEFORE LOSSES:  
 COMPRESSION STRESS LIMIT @ STRAND RELEASE ----- 3500 PSI  
 TENSION STRESS LIMIT @ STRAND RELEASE ----- 200 PSI  
 COMPRESSIVE STRESS LIMITS IN CONCRETE @ SERVICE I AFTER LOSSES:  
 @ FINAL 1 (PS-0L-1L) ----- 4800 PSI  
 @ FINAL 2 (PS-0L1) ----- 3500 PSI  
 @ FINAL 3 (DOKPS-0L1-L1) ----- 3200 PSI  
 TENSILE STRESS LIMIT IN CONCRETE @ SERVICE III AFTER LOSSES:  
 @ FINAL 1 (PS-0L-1L) ----- 270 PSI  
 TENSION STRESS LIMIT PRIOR TO TRANSFER ----- 202.5 KSI  
 TENSION STRESS LIMIT AFTER ALL LOSSES ----- 194.4 KSI
- DEBONDING OR SKEWING OF STRANDS TO REDUCE TEMPORARY TENSILE STRESSES IS PERMITTED, HOWEVER DEBONDING IS LIMITED TO 40% PER ROW AND 25% TOTAL. IN NO INSTANCES SHALL OUTER STRANDS BE DEBONDED. DEBONDED STRANDS SHALL BE SEPARATED BY AT LEAST ONE FULLY BONDED STRAND AND SHALL BE SYMMETRICAL ABOUT THE C OF THE BEAM. SKEWING OF STRANDS SHALL BE ACCOMPLISHED BY TAPING OR TIGHT FITTING PLASTIC TUBES TAPED AT EACH END.**
- THE ELASTOMERIC BEARING PADS PROVIDED IN THE STANDARD DESIGNS ARE BASED ON ZERO GRADE AND ARE LIMITED TO A MAXIMUM OF 3% GRADE. IN INSTANCES OF GRADES EXCEEDING THIS LIMIT, PADS SHALL BE SPECIFICALLY DESIGNED. INDIVIDUAL PAD DESIGNS SHALL BE IN ACCORDANCE WITH SECTION 14, AASHTO LRFD. BEVELLED SOLID PLATES ARE PERMITTED.**
- MAXIMUM BEAM SKEW SHALL BE 30 DEGREES.**
- WHEN ALTERNATE DESIGNS OR SITE SPECIFIC DESIGNS ARE PROVIDED, CRITERIA SET FORTH IN THESE STANDARDS SHALL APPLY.**
- NEGATIVE DESIGN CAMBER AFTER ALL LOSSES IS NOT PERMITTED.**
- EACH BEAM PROVIDED IN THESE STANDARD DESIGNS HAS BEEN LOAD RATED IN ACCORDANCE WITH SECTION 3.1.5 OF THE WEST VIRGINIA DIVISION OF HIGHWAYS BRIDGE DESIGN MANUAL, 2004. ADDITIONALLY, LOAD RATING PROCEDURES ARE IN ACCORDANCE WITH THE AASHTO MANUAL FOR CONDITION EVALUATION AND LOAD AND RESISTANCE FACTOR RATING OF HIGHWAY BRIDGES, 2003.**

**MATERIALS & FABRICATION NOTES**

\*THE PRESTRESSED CONCRETE BEAMS SHALL CONFORM TO ALL APPLICABLE PROVISIONS OF SECTION 603.8 OF THE STANDARD SPECIFICATIONS.

**MILD REINFORCEMENT:**

- \*ALL MILD REINFORCING STEEL SHALL BE GRADE 60, DEFORMED BILET STEEL AND SHALL BE EPOXY COATED EXCEPT WHERE NOTED. ALL UNCOATED REINFORCING SHALL MEET THE REQUIREMENTS OF AASHTO M31. ALL EPOXY COATED REINFORCING SHALL MEET THE REQUIREMENTS OF AASHTO M284, EXCEPT WHERE AMENDED BY SECTION 700.1 OF THE STANDARD SPECIFICATIONS.
- \*ALL TENSION LAP SPLICES SHALL BE A CLASS B, CONTACT TYPE, WINDUP LAP SPLICE LENGTHS SHALL BE AS GIVEN IN THE "LAP SPLICE TABLE", THIS SHEET. ADDITIONALLY, IF LAP SPlicing OF E1, LR, AND D1 BARS IS USED, TERMINATION OF THE SPLICE SHALL BE NO CLOSER TO THE END OF THE BEAM THAN 1/10 OF THE SPAN LENGTH.
- \*MINIMUM BAR BENDING DIAMETER SHALL BE 8 BAR DIAMETERS, EXCEPT THAT NO. 4 BAR BARS MAY HAVE A MINIMUM BEND DIAMETER OF 4 BAR DIAMETERS.
- \*MINIMUM CONCRETE COVER SHALL BE AS SPECIFIED IN SECTION 603.5 OF THE STANDARD SPECIFICATIONS, EXCEPT WHERE NOTED ON THE PLANS.

**PRESTRESSING STRAND:**

- \*ALL PRESTRESSING STEEL SHALL BE 1/2" - 4, GRADE 270, 7 WIRE UNCOATED, LOW-RELAXATION STRAND MEETING THE REQUIREMENTS OF AASHTO M403, SUPPLEMENT 51.
- \*ALL BEAMS DESIGNED IN THESE STANDARDS UTILIZE STRANDS WITH A NOMINAL AREA OF 0.167 SQ. IN. STRANDS WITH A NOMINAL AREA OF 0.153 SQ. IN. IS PERMITTED FOR INDIVIDUAL OR ALTERNATE DESIGNS, HOWEVER THE DESIGNER IS ENCOURAGED TO USE THE LARGER STRAND FOR LOGICITY REASONS. IN NO CASES WILL STRESS-RELIEVED STRAND BE PERMITTED.
- \*ALL STRANDS SHALL BE ENCLOSED INSIDE THE STIRRUP CAGE FOR THE FULL LENGTH OF THE BEAM.
- \*ALL EXPOSED PRESTRESSING STRAND AT EACH BEAM END SHALL BE SHOP COATED WITH A LIQUID COLD-APPLIED BITUMINOUS ELASTOMERIC WATERPROOFING MEMBRANE. MATERIAL SHALL MEET ASTM D236-84.

**CONCRETE:**

- \*ALL CONCRETE USED IN MANUFACTURING PRESTRESSED CONCRETE BEAMS SHALL MEET THE REQUIREMENTS OF SECTION 603.8 OF THE STANDARD SPECIFICATIONS. DESIGN STRENGTHS SHALL MEET OR EXCEED THE MINIMUM VALUES SET FORTH IN THESE PLANS.
- \*ALL CONCRETE USED IN PARAPETS AND CURBS SHALL BE CLASS K CONCRETE.

**ELASTOMERIC BEARING PADS:**

- \*ALL BEARING PADS SHALL MEET THE APPLICABLE REQUIREMENTS AS SET FORTH IN SECTION 18.2 OF THE AASHTO LRFD BRIDGE CONSTRUCTION SPECIFICATIONS, 1998 EDITION WITH CURRENT INTERIMS. ALL BEARINGS SHALL BE STEEL REINFORCED LAMINATED BEARINGS.
- \*THE ELASTOMER MATERIAL SHALL BE 60 DUROMETERS WITH A MINIMUM LOW TEMPERATURE GRADE OF 3 (20N C).
- \*ALL STEEL REINFORCING SHALL MEET THE REQUIREMENTS OF AASHTO M270, GRADE 36.

**GUARDRAIL, GUARDRAIL POSTS, TUBING & INSERTS:**

- \*ALL W-BEAM GUARDRAIL AND ATTACHMENT HARDWARE SHALL BE IN ACCORDANCE WITH SECTION 712.4 OF THE STANDARD SPECIFICATIONS. GUARDRAIL POSTS, STRUCTURAL TUBING, POST ATTACHMENT INSERTS, AND HARDWARE SHALL MEET THE LISTED MATERIAL AND COATING SPECIFICATIONS:

ITEM	DESCRIPTION	MATERIAL SPEC.	COATING SPEC.
POST	W6x25	AASHTO M270, GR 36	AASHTO M11
PLATE	1/2" x 7'	AASHTO M270, GR 36	AASHTO M11
TUBING	13 8x4x3/16	ASTM A500, GR B	AASHTO M11
CHANNEL	C7x9.8	AASHTO M270, GR 36	AASHTO M11
FERROULE	TYPE 2A 1 1/2" x 7/8" x 2 1/2" W/16 LEM.	ASTM A308 (M17 STEEL)	AASHTO M232
WIRE	ANCHOR 3/8" x 6"	ASTM A500 (1018 STEEL)	AASHTO M232
STUCCO	1 1/2" x 8" LONG	ASTM A308 (1018 C.D. STEEL)	AASHTO M232
NUTS	1 1/2" x 8"	AASHTO M291, CLASS C	AASHTO M232
COUPLERS	TYPE 1A 1 1/2" x 5" LONG	ASTM A308 (1018 STEEL)	AASHTO M232
BOLTS	ANCHOR 1 1/2" x 12" LONG	AASHTO M164 (TYPE 1, 140)	AASHTO M232
BOLTS	3/4" x 8" ALL LEN.	AASHTO M164 (TYPE 1, 140)	AASHTO M232
NUTS	3/4" x 8"	AASHTO M291, CLASS C	AASHTO M232
WASHERS	ALL	AASHTO M293	AASHTO M232

**WELDING:**

- \*TACK WELDING OF REINFORCEMENT IS NOT PERMITTED. REINFORCING CAGES AND LONGITUDINAL STEEL SHALL BE ADEQUATELY TIED WITH APPROVED MEANS TO PREVENT RACKING AND MISALIGNMENT.
- \*ALL WELDING OF FABRICATED ITEMS, AS SHOWN IN THESE PLANS SHALL BE IN ACCORDANCE WITH ALL APPLICABLE PROVISIONS OF AASHTO/AWS D1.5, 2002.

**POST-TENSIONING BARS:**

- \*POST - TENSIONING THREAD BARS SHALL BE ONE INCH DIAMETER, 150 KSI STEEL, AND SHALL CONFORM TO AASHTO M275, TYPE II. STEEL THREAD BARS SHALL BE DESIGNED TO ALLOW THE USE OF HEAVY HEX NUTS AND COUPLERS THAT THREAD ONTO THE END OF THE DEFORMATIONS. HEAVY HEX NUTS AND COUPLERS SHALL BE OF A DESIGN AND MATERIAL RECOMMENDED BY THE BAR MANUFACTURER TO DEVELOP THE FULL TENSILE STRENGTH OF THE BAR. PROPERLY DOCUMENTED CERTIFIED WILL TEST REPORTS SHALL BE PROVIDED FOR EACH HEAT OF STEEL THREAD BARS.
- \*ALL POST-TENSIONING THREAD BARS, NUTS, BEARING PLATES, COUPLERS, AND ANCILLARY HARDWARE SHALL BE HOT-DIPPED GALVANIZED IN ACCORDANCE WITH AASHTO M111. THE GALVANIZING PLANT SHALL ADMINISTER ADEQUATE QUALITY CONTROL MEASURES TO SAFEGUARD AGAINST HYDROGEN EMBRITTLEMENT. QUALITY CONTROL MEASURES SHALL COMPLY WITH ASTM A-143. CERTIFICATION FOR HOT-DIP GALVANIZING SHALL BE PROVIDED BY THE GALVANIZING PLANT.
- \*ALL POST-TENSIONING BEARING PLATES SHALL CONFORM TO AASHTO M270, GRADE 36.

**SHEAR KEY GROUT:**

- \*SHEAR KEY GROUT SHALL BE A GROUT THAT IS RECOMMENDED BY THE MANUFACTURER FOR A POURABLE GROUT APPLICATION AND THAT BASED ON THE MANUFACTURER'S TEST DATA WILL ATTAIN A MINIMUM OF 4500 PSI COMPRESSIVE STRENGTH IN 3 DAYS UNDER CONDITIONS REPRESENTATIVE OF THE CONDITIONS TO BE EXPERIENCED AT THE SITE. THE GROUT MUST BE LISTED ON THE APPROVED LIST OF GROUTS PUBLISHED BY THE WEST VIRGINIA DIVISION OF HIGHWAYS, MATERIALS CONTROL, SOIL AND TESTING DIVISION. THE CONTRACTOR SHALL PRE-TEST THE PROPOSED GROUT FOR COMPRESSIVE STRENGTH AT 3 AND 7 DAYS AND SUBMIT THE RESULTS TO THE BRIDGE PROJECT MANAGER FOR APPROVAL PRIOR TO INSTALLATION OF THE GROUT IN THE STRUCTURE. THE TESTS WILL BE BASED ON A POURABLE CONSISTENCY WITH THE SAME WATER/GROUT MIXTURE RATIO TO BE USED IN THE STRUCTURE.
- \*THE CONTRACTOR SHALL BE REQUIRED TO SUBMIT FOR EACH PROJECT, THE GROUT PRE-TEST RESULTS OBTAINED IN THE NOTE ABOVE. THE CONTRACTOR SHALL BE REQUIRED TO PREFORM A NEW PRE-TEST AND SUBMISSION FOR APPROVAL UNDER ANY OF THE FOLLOWING CONDITIONS:
  - \* A PERIOD OF 18 MONTHS HAS ELAPSED SINCE LAST PRE-APPROVAL TESTING.
  - \* GROUT MANUFACTURER HAS REVISED OR CHANGED THE GROUT SPECIFICATIONS.
  - \* THE CONTRACTOR ALTERS THE WATER/GROUT MIXTURE RATIO.
  - \* THE CONTRACTOR CHANGES GROUT MANUFACTURER.
- \* THE CONTRACTOR IS REQUIRED TO COMPLETE THE GROUT STRENGTH TABLE ON BR-8103.
- \* TEST PROCEDURE FOR DETERMINING THE COMPRESSIVE STRENGTH OF GROUT SHALL USE CUBE SPECIMENS IN ACCORDANCE WITH ASTM C109, AS MODIFIED BY ASTM C1097. GROUT TESTING IN ACCORDANCE WITH AASHTO T23 (STANDARD CYLINDER TEST) IS NOT ACCEPTABLE.

**PROTECTIVE SURFACE TREATMENT:**

- \* EACH PRESTRESSED CONCRETE BEAM SHALL BE TREATED BY THE MANUFACTURER AT THE FABRICATION PLANT WITH AN APPROVED CONCRETE SEALER (SILANE). AN APPROVED LIST OF CONCRETE SEALERS ARE ON FILE AT THE WEST VIRGINIA DIVISION OF HIGHWAYS, MATERIALS CONTROL, SOIL AND TESTING DIVISION. COVERAGE SHALL INCLUDE TOP AND BOTTOM OF INTERIOR BEAMS, AND TOP, BOTTOM AND EXTERIOR SIDE OF EXTERIOR BEAM. APPLICATION RATE SHALL BE PER TREATMENT MANUFACTURER'S RECOMMENDATION.
- \* AFTER COMPLETION OF THE SILANE TREATMENT BY FABRICATOR AND A MAXIMUM OF FIVE WORKING DAYS PRIOR TO SHIPMENT OF THE BEAMS, THE FABRICATOR SHALL BE RESPONSIBLE FOR ABRASIVE BLAST CLEANING TO CLEAN WHITE CONCRETE THE INTERIOR SIDES OF BEAMS FOR THE FULL LENGTH. CLEAN WHITE CONCRETE SHALL MEAN REMOVAL OF ALL DIRT, GREASE, OIL, AND LOOSE CONCRET LANTAGE AND PROVIDE A ROUGHENED CONCRETE SURFACE. BLASTING MEDIA SHALL BE APPROVED BY THE DIVISION OF HIGHWAYS.

**SHOP DRAWINGS:**

THE FABRICATOR SHALL BE RESPONSIBLE FOR THE PREPARATION OF SHOP DRAWINGS IN ACCORDANCE WITH THE WEST VIRGINIA DIVISION OF HIGHWAYS DOCUMENTS, CODES AND THE STANDARD SPECIFICATIONS. ADDITIONAL INFORMATION IS PROVIDED IN SECTION 7 OF THE BRIDGE DESIGN MANUAL. SHOP DRAWINGS SHALL INCLUDE THE FABRICATOR'S DETAILING PLAN.

BAR SIZE	NO. 3	NO. 4	NO. 5	NO. 6
SPLICE LEN.	21"	25"	34"	41"

THIS SHEET SHALL BE USED IN CONJUNCTION WITH STANDARD SHEETS BR-07A & B THRU BR-07E & B, BR-07C & B, BR-07D & B, BR-07E & B AND BR-07G AS APPLICABLE.

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
ENGINEERING DIVISION

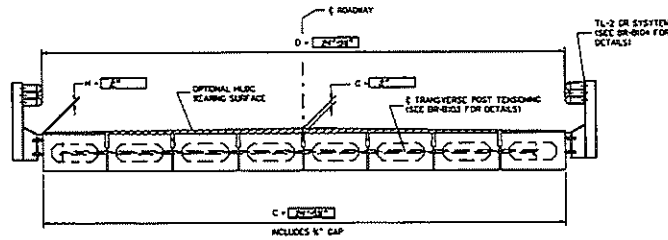
**STEELES BRIDGE  
OVER  
LITTLE HUFF CREEK**

PRESTRESSED CONCRETE BEAM  
DESIGN & ASSEMBLY NOTES

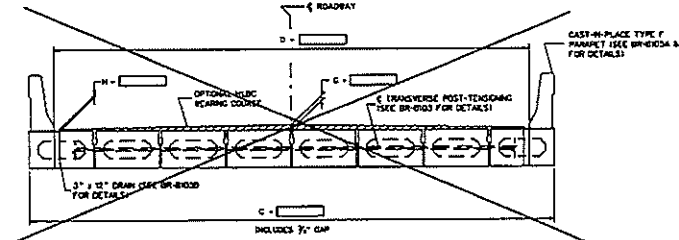
3829.1

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS ENGINEERING DIVISION PRESTRESSED CONCRETE BEAM DESIGN & ASSEMBLY NOTES STANDARD SHEET BR-8100	DESIGNED BY: _____ CHECKED BY: _____ REVIEWED BY: _____ DATE: _____ SCALE: _____ SHEET NO. OF 19 BRIDGE NUMBER: _____
--	---

STATE PROJECT NUMBER	FEDERAL PROJECT NUMBER	STATE DIST. NO.	COUNTY	SHEET NO.	TOTAL SHEETS
3333-B-1, 90 DD	N/A	10	SPRING	17	18

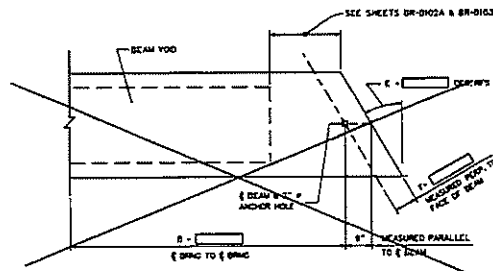


TYPICAL CROSS-SECTION WITH GUARDRAIL



TYPICAL CROSS-SECTION WITH PARAPET OR CURB

CONTROL DIMENSIONS		
DESCRIPTION	CODE	VALUE
OVERALL BEAM LENGTH	A	53'-0"
SPAN LENGTH, $\phi$ BEARING TO $\phi$ BEARING	B	52'-0"
SUPERSTRUCTURE WIDTH - OUT TO OUT	C	24'-0 1/4"
ROADWAY WIDTH - FACE DR/PARAPET TO FACE DR/PARAPET	D	24'-0 1/4"
NUMBER OF BEAMS REQUIRED	---	8
BEAM SIZE (DEPTH x WIDTH)	---	33" x 36"
SKEW ANGLE (NORMAL, DEG. HFS OR DEG. LFS)	E	30° LFS
PERPENDICULAR DISTANCE FROM FACE OF BEAM TO $\phi$ BEARING	F	79 1/2"
WELDED BEARING COURSE REQUIRED (YES/NO)	---	YES
THICKNESS OF BEARING COURSE @ $\phi$ OF DECK OR ROADWAY	G	2"
THICKNESS OF BEARING COURSE @ EDGE OF DECK OR PARAPET	H	2"
TL-2 BRIDGE GUARDRAIL SYSTEM REQUIRED (YES/NO)	---	YES
FACTORIZER TO SUPPLY TL-2 BRIDGE GUARDRAIL (YES/NO)	---	YES
FACTORIZER TO INSTALL BRIDGE GUARDRAIL, PRIOR TO CURBMENT (YES/NO) (IF NO, FACTORIZER TO SHIP LOADS)	---	YES
NUMBER OF GUARDRAIL POST INSERTS REQUIRED PER SIDE	---	9
TYPE F PARAPET REQUIRED (YES/NO)	---	NO
DRUMS REQUIRED (YES/NO)	---	NO
NUMBER OF DRUMS REQUIRED PER SIDE	---	---
10" CURB REQUIRED (YES/NO)	---	NO



BEAM PLAN VIEW - SKEWED ENDS

ESTIMATE OF QUANTITIES

ITEM NO.	DESCRIPTION	UNITS	QUANTITY
80004-100	33x36 IN. PRESTRESSED CONCRETE BOX BEAM	LF	478

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
ENGINEERING DIVISION

STEELES BRIDGE  
OVER  
LITTLE HUFF CREEK

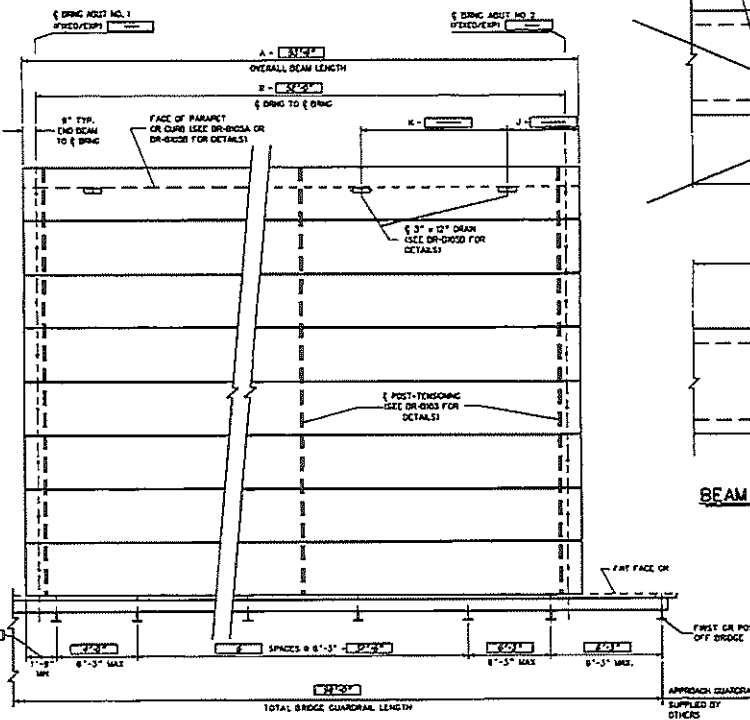
PRESTRESSED CONCRETE BEAM  
DESIGN & ASSEMBLY NOTES

DESIGNED BY/WHY	
DRAWN BY/WHY	
CHECKED BY/WHY	
REVIEWED BY/WHY	
DATE	
SCALE	
SHEET NO. 17 OF 18	
BRIDGE NUMBER	3829.1

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
ENGINEERING DIVISION  
PRESTRESSED CONCRETE BEAM  
DESIGN AND ASSEMBLY NOTES  
STANDARD SHEET BR-8101

DATE: 07-02-07

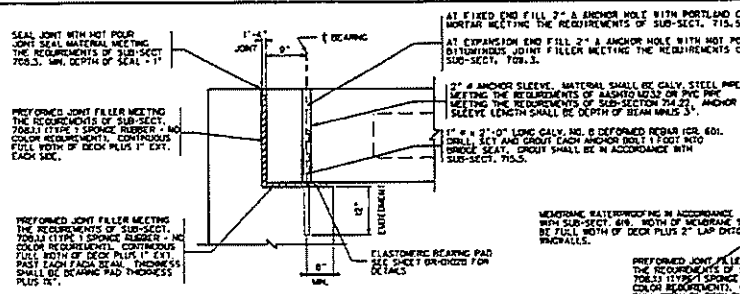
- NOTES:**
- WHEN BRIDGE GUARDRAIL IS TO BE SUPPLIED BY THE BEAM FABRICATOR, COST OF ALL BRIDGE GUARDRAIL ITEMS TO INCLUDE POSTS, RAIL ELEMENTS, ATTACHMENT HARDWARE, AND MISCELLANEOUS ITEMS NEEDED TO COMPLETELY INSTALL BRIDGE GUARDRAIL, SHALL BE INCLUDED IN ITEM 800316 "PRESTRESSED CONCRETE BOX BEAM".
  - THIS SHEET SHALL BE USED IN CONJUNCTION WITH STANDARD SHEETS BR-8102A & B, BR-8102A & B, BR-8102C, BR-8102A & B, BR-8103, BR-8104, BR-8102A & B AND BR-8104.



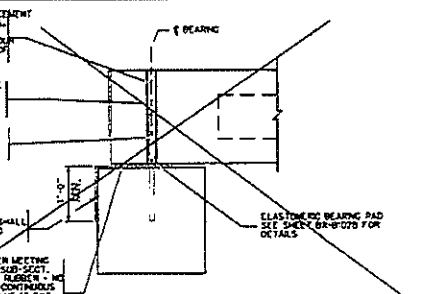
DECK PLAN VIEW



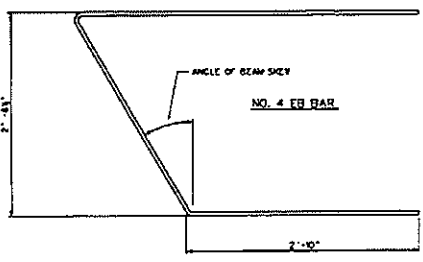
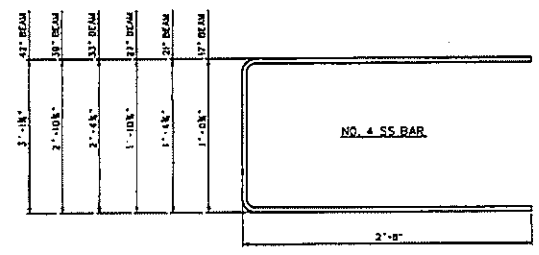
STATE PROJECT NUMBER	FEDERAL PROJECT NUMBER	SHEET NO.	COUNTY	SHEET NO.	TOTAL SHEETS
WVA-8-1, NO. 00	N/A	10	RYAN	13	13



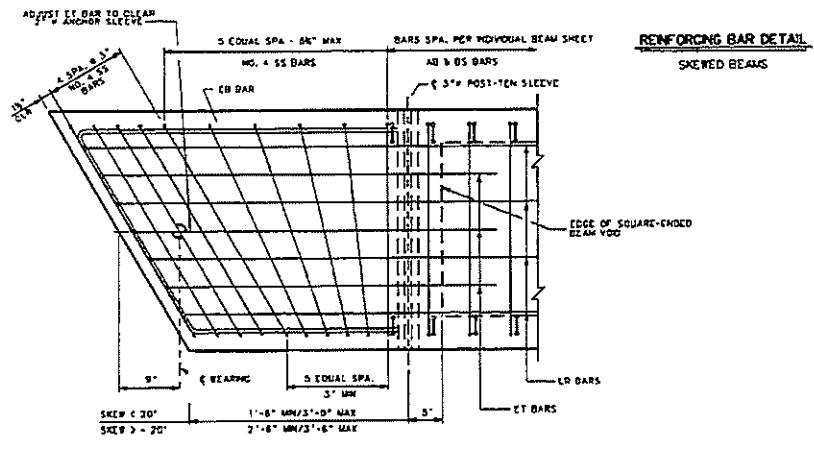
**END BEARING DETAIL WITH BACKWALL**



**END BEARING DETAIL WITHOUT BACKWALL**

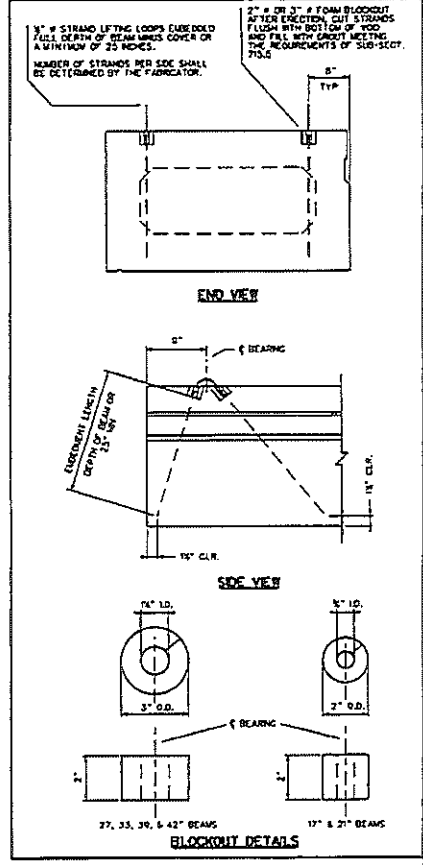


**SHEAR KEY DETAIL**



**END BLOCK DETAIL - SKEWED BEAMS**  
RD/POST-TEN. ACCESS POCKET

THIS SHEET SHALL BE USED IN CONJUNCTION WITH STANDARD SHEETS BR-802A & B, BR-803A & B, BR-804A & B, BR-805, BR-806, BR-807, BR-808, BR-809, BR-810, BR-811, BR-812, BR-813, BR-814, BR-815, BR-816, BR-817, BR-818, BR-819, BR-820, BR-821, BR-822, BR-823, BR-824, BR-825, BR-826, BR-827, BR-828, BR-829, BR-830, BR-831, BR-832, BR-833, BR-834, BR-835, BR-836, BR-837, BR-838, BR-839, BR-840, BR-841, BR-842, BR-843, BR-844, BR-845, BR-846, BR-847, BR-848, BR-849, BR-850, BR-851, BR-852, BR-853, BR-854, BR-855, BR-856, BR-857, BR-858, BR-859, BR-860, BR-861, BR-862, BR-863, BR-864, BR-865, BR-866, BR-867, BR-868, BR-869, BR-870, BR-871, BR-872, BR-873, BR-874, BR-875, BR-876, BR-877, BR-878, BR-879, BR-880, BR-881, BR-882, BR-883, BR-884, BR-885, BR-886, BR-887, BR-888, BR-889, BR-890, BR-891, BR-892, BR-893, BR-894, BR-895, BR-896, BR-897, BR-898, BR-899, BR-900, BR-901, BR-902, BR-903, BR-904, BR-905, BR-906, BR-907, BR-908, BR-909, BR-910, BR-911, BR-912, BR-913, BR-914, BR-915, BR-916, BR-917, BR-918, BR-919, BR-920, BR-921, BR-922, BR-923, BR-924, BR-925, BR-926, BR-927, BR-928, BR-929, BR-930, BR-931, BR-932, BR-933, BR-934, BR-935, BR-936, BR-937, BR-938, BR-939, BR-940, BR-941, BR-942, BR-943, BR-944, BR-945, BR-946, BR-947, BR-948, BR-949, BR-950, BR-951, BR-952, BR-953, BR-954, BR-955, BR-956, BR-957, BR-958, BR-959, BR-960, BR-961, BR-962, BR-963, BR-964, BR-965, BR-966, BR-967, BR-968, BR-969, BR-970, BR-971, BR-972, BR-973, BR-974, BR-975, BR-976, BR-977, BR-978, BR-979, BR-980, BR-981, BR-982, BR-983, BR-984, BR-985, BR-986, BR-987, BR-988, BR-989, BR-990, BR-991, BR-992, BR-993, BR-994, BR-995, BR-996, BR-997, BR-998, BR-999, BR-1000.



**LIFTING DETAILS**

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
ENGINEERING DIVISION

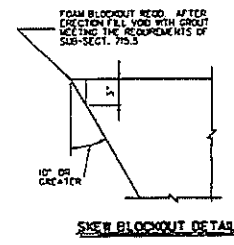
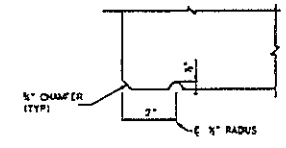
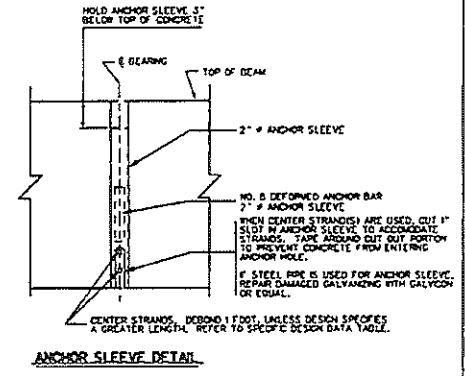
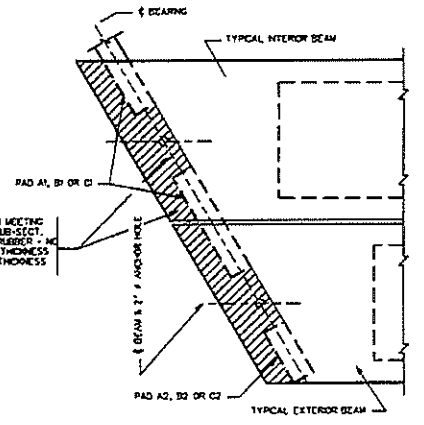
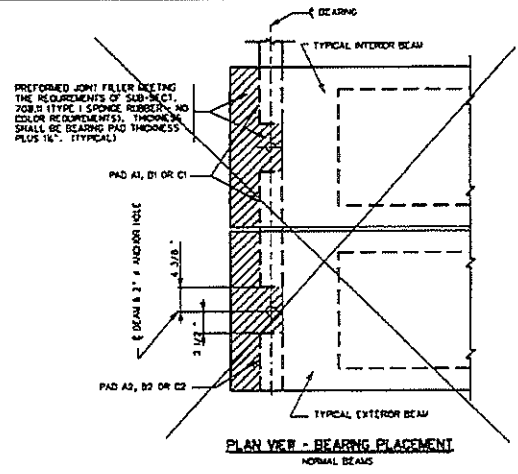
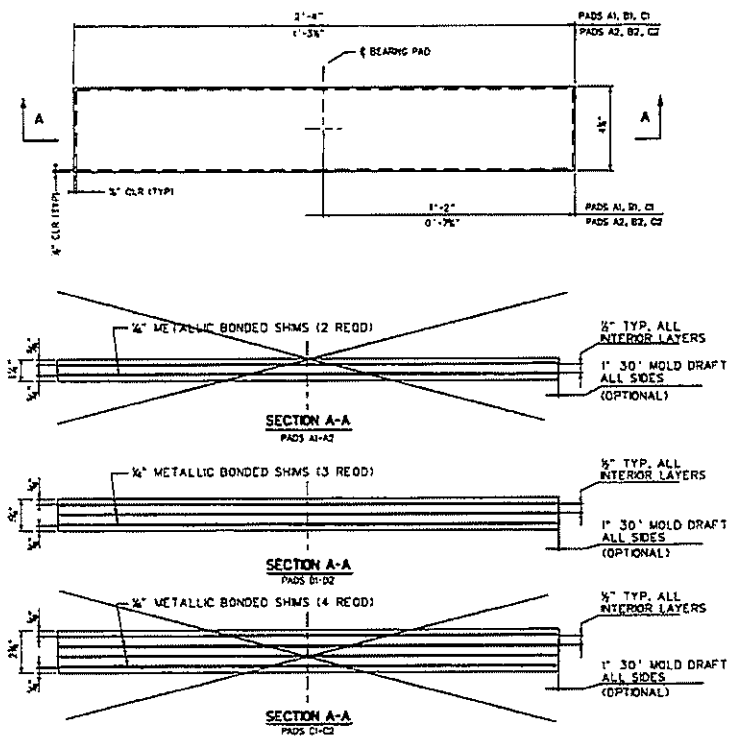
DESIGNED BY: THW  
DRAWN BY: THW  
CHECKED BY: THW  
REVIEWED BY: THW  
DATE:  
SCALE:  
SHEET 10 OF 10  
BRIDGE NO. 3829.1

STEELES BRIDGE  
OVER  
LITTLE HUFF CREEK

PRESTRESSED CONCRETE BEAM  
SKEWED END REINFORCING  
MISC. DESIGN AND ASSEMBLY DETAILS

APPROVED: [Signature] DATE: 07-07-07  
WEST VIRGINIA DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
ENGINEERING DIVISION  
PREPARED BY: [Signature]  
MISC. DESIGN AND ASSEMBLY DETAILS  
STANDARD SHEET BR-8102A

STATE PROJECT NUMBER	FEDERAL PROJECT NUMBER	DATE	COUNTY	SHEET NO.	TOTAL SHEETS
0253-B-1, BS 80	W-3	18	SPRING	14	15



**NOTES:**

- ELASTOMERIC BEARING PADS ARE DESIGNED IN ACCORDANCE WITH DESIGN METHOD B CONTAINED IN SECTION 14 OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS. FABRICATION SHALL BE IN ACCORDANCE WITH SECTION 13 OF THE AASHTO LRFD BRIDGE CONSTRUCTION SPECIFICATIONS.
- ALL BEARINGS ARE DESIGNED FOR A LOW TEMPERATURE ZONE C AND SHALL HAVE A DIAMETER HARDNESS OF 60. METALLIC REINFORCEMENT SHALL HAVE A MINIMUM YIELD STRENGTH OF 36 KSI.
- BEARING PADS ARE DESIGNED FOR ZERO BRIDGE GRADE. FOR BRIDGE GRADES GREATER THAN 2%, PADS SHALL BE SPECIFICALLY DESIGNED FOR THE GRADE. AS AN ALTERNATE, CAST-IN-PLACE BEVELED SOLE PLATES MAY BE USED.
- DESIGNER, FABRICATOR AND ERECTOR SHALL BE AWARE THAT STEEP END BEAMS MAY TEST OR RIP, CAUSING DOWN BEAM SEATING AT THE BEARINGS. THE CONTRACTOR IS REQUIRED TO CORRECT AT THE TIME OF ERECTION BEFORE THE BEAMS ARE SECURED IN PLACE. METHOD OF CORRECTION SHALL PROVIDE AN EVEN TOTAL BEARING AND A LEVEL TOP BEAM SURFACE. TOLERANCE AFTER CORRECTION SHALL BE 1/8 INCH. THE FABRICATOR SHALL NOTIFY THE CONTRACTOR AND DESIGNER IF CORRECTIONS ARE REQUIRED PRIOR TO SHIPMENT.
- FOR BEAMS WITH STEPPED ENDS USE PADS A2, B2, OR C2 ON BOTH SIDES OF EACH BEAM.
- ELASTOMERIC BEARING PADS SHALL BE INCLUDED IN THE PRICE OF THE BEAMS.
- THE SHEET SHALL BE USED IN CONJUNCTION WITH STANDARD SHEETS BR-817A & B THRU BR-822A & B, BR-810D, BR-810L, BR-8102A, BR-8103, BR-8104, BR-8105A & B AND BR-106 AS APPROPRIATE.

PAD	LENGTH	WIDTH	HEIGHT	NO. SHIMS	SHIM SIZE	SPAN RANGES	MAXIMUM REACTION	MAXIMUM MOVEMENT ONE DIRECTION
B1	48"	28"	7 1/2"	3	1/2" x 1 1/2"	40' - 78'	75 KIPS	0.80"
B2	48"	19 1/2"	7 1/2"	3	1/2" x 1 1/2"	40' - 78'	38 KIPS	0.80"

**PLAN VIEW - BEARING PLACEMENT**

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
ENGINEERING DIVISION

PRESTRESSED CONCRETE BEAM  
ELASTOMERIC BEARING PAD DETAILS  
MISC. DESIGN AND ASSEMBLY DETAILS

STANDARD SHEET BR-8102B

DATE: 07-02-07

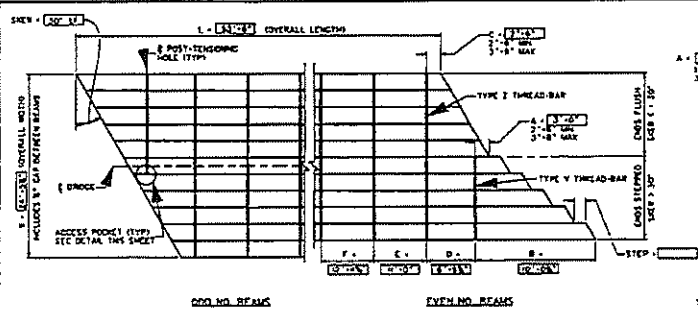
WEST VIRGINIA DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
ENGINEERING DIVISION

DESIGNED BY: THP  
CHECKED BY: THP  
REVIEWED BY: THP  
DATE:  
SCALE:  
SHEET 14 OF 19  
ORIG. NO. 3829.1

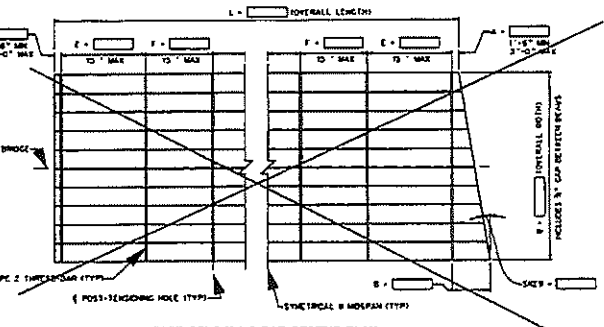
STEELES BRIDGE  
OVER  
LITTLE HUFF CREEK

PRESTRESSED CONCRETE BEAM  
ELASTOMERIC BEARING PAD DETAILS  
MISC. DESIGN AND ASSEMBLY DETAILS

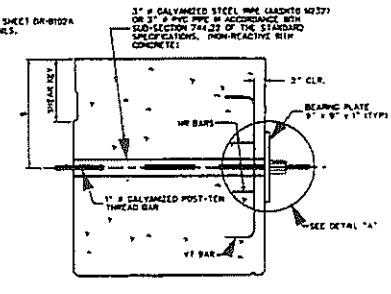
STATE PROJECT NUMBER	FEDERAL PROJECT NUMBER	STATE DISTRICT	COUNTY	SHEET NO.	TOTAL SHEETS
SD-8-1, NO. 25	NA	15	WOLFE	15	15



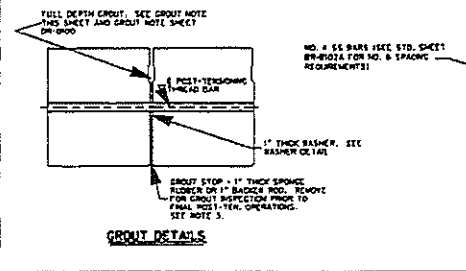
POST-TENSIONING BAR SPACING PLAN  
SHEET 3 - 20



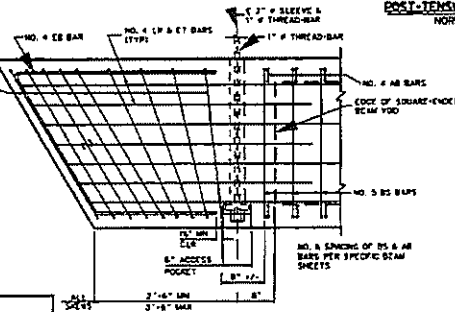
POST-TENSIONING BAR SPACING PLAN  
NORMAL OR SHEET < 20



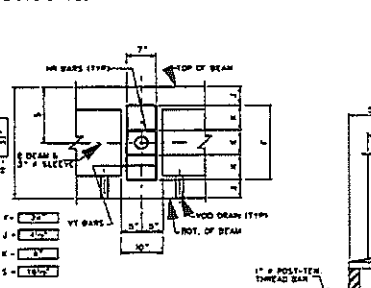
POST-TENSIONING BAR DETAILS



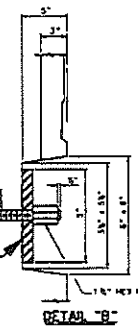
GROUT DETAILS



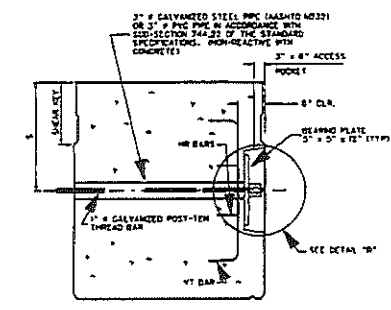
SHEAR REINFORCEMENT DETAIL  
BEAMS WITH ACCESS POCKETS



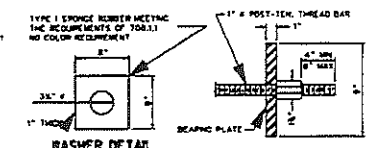
REINFORCING DETAILS @ DIAPHRAGM  
EXTERIOR BEAM & POCKETS ONLY



DETAIL "B"



ACCESS POCKET, END POST-TENSIONING BAR



WASHER DETAIL

DETAIL "A"

- PROCEDURE NOTES**
- INSTALL ONE MON THICK WASHER AND GROUT STOP BY CLING TO ONE SIDE, FOR THE ENTIRE LENGTH OF EACH BEAM PRIOR TO SETTING BEAMS. GLUE SHALL BE AN APPROVED CONSTRUCTION TYPE GLUE OR EPOXY ADHESIVE. GROUT STOP MAY BE INSTALLED AFTER BEAMS ARE SET.
  - GLUE A 1" x 2" x 3" PIECE OF PRESSURE TREATED PLYWOOD AT EACH THREAD-BAR LOCATION TO INSURE THAT A 1/2" GAP IS OBTAINED. PLYWOOD SPACERS TO BE OFFSET APPROXIMATELY 2 FEET FROM THE THREAD-BAR HOLE AND CENTERED ON THE HOLE DEPTH. PLYWOOD SPACERS ARE REQUIRED ON ONLY ONE BEAM END FACE OF ADJACENT BEAMS. AFTER THE BEAMS ARE SET AND THE THREAD-BARS INSTALLED, PULL THE ENTIRE SUPERSTRUCTURE TOGETHER BY APPLYING A POST-TENSIONING FORCE OF APPROXIMATELY 3000 POUNDS. AT THIS STAGE THE GAP BETWEEN BEAMS SHALL BE A UNIFORM 1/2" WITH ALL SPACER REMOVED. RECORD THE ACTUAL FORCE APPLIED.
  - FILL THE GAP BETWEEN BEAMS AND SHEAR KEY FULL DEPTH WITH THE PRE-APPROVED, PRE-TESTED GROUT MIXTURE. FROM EACH BATCH, PREPARE AND CONTROL GROUT CURBS FOR THREE AND SEVEN DAY TESTS. THESE JOB CONTROL SAMPLES WILL BE USED TO DETERMINE WHEN THE GROUT HAS ATTAINED A MINIMUM COMPRESSIVE STRENGTH OF 4500 PSI. A MINIMUM OF THREE SPECIMENS PER TEST SHALL BE OBTAINED, AND THE AVERAGE OF THE TEST RESULTS USED. ACCEPTANCE SAMPLING AND TESTING OF THE GROUT IS THE RESPONSIBILITY OF THE CONTRACTOR HOWEVER, THE REPRESENTATIVE OF THE BUYER SHALL WITNESS ALL OF THE ACCEPTANCE SAMPLING AND TESTING.
- TEST PROCEDURE SHALL BE ASTM G09 AS MODIFIED BY ASTM C907. IN NO INSTANCE SHALL THE CONTRACTOR PROCEED WITH POST-TENSIONING OR OTHER BEAM ERECTION PROCEDURES UNTIL THE REQUIRED MINIMUM GROUT STRENGTH IS OBTAINED AND VERIFIED BY THE ENGINEER. IN THE EVENT THAT THE MINIMUM GROUT STRENGTH IS NOT OBTAINED, THE ENGINEER SHALL BE NOTIFIED AND CORRECTIVE ACTION TAKEN AT THE DIRECTION OF THE ENGINEER. SEE SHEAR KEY GROUT NOTE, SHEET BR-800A FOR ADDITIONAL REQUIREMENTS.
- AFTER THE GROUT HAS REACHED AN INITIAL SET CONDITION AND PRIOR TO ANY FINAL POST-TENSIONING PROCEDURES, THE CONTRACTOR SHALL REMOVE THE GROUT STOP AND REMOVE THE GROUT FOR HOLES ON OTHER IRREGULARITIES. ANY HOLES DEEPER THAN 2" FROM THE BOTTOM SHALL BE REGRouted IN A MANNER ACCEPTABLE TO THE ENGINEER.
- AFTER GROUT HAS BEEN PLACED AND REACHED IT'S MINIMUM COMPRESSIVE STRENGTH OF 4500 PSI AND HAS CURED A MINIMUM OF 3 DAYS, APPLY ONE SIDE OF THE FINAL POST-TENSIONING FORCE TO ALL THREAD-BARS, WORKING BEAM ENDS TO MIDSPAN. AFTER ALL THREAD-BARS HAVE BEEN TENSIONED TO 80% APPLY THE REMAINING TENSIONING FORCE, WORKING IN THE SAME SEQUENCE AS THE FIRST STAGE OF FINAL TENSIONING.
  - MEASURE AND RECORD IN THE ELONGATION TABLE, THIS SHEET, THE ACTUAL TOTAL ELONGATION OF EACH THREAD-BAR. COMPARE THE MEASURED ELONGATION TO THE CALCULATED ELONGATION. A SIGNIFICANT DIFFERENCE BETWEEN CALCULATED ELONGATION AND MEASURED ELONGATION INDICATES IMPROPER JACKING TECHNIQUES, FAULTY MATERIALS, FAULTY JACKS, OR IMPROPERLY CALIBRATED JACKS. IF THE DIFFERENCE IS GREATER THAN ONE (1) PERCENT, THE JACK SHALL BE RE-CALIBRATED AND THE JACKING TECHNIQUES EVALUATED. IF, AFTER THE ABOVE STEPS ARE TAKEN, THE PERCENTAGE DIFFERENCE IS GREATER THAN ONE (1) PERCENT, THE ENGINEER SHALL BE NOTIFIED AND CORRECTIVE ACTION TAKEN AT THE DIRECTION OF THE ENGINEER. ALL COSTS INVOLVED IN CORRECTION SHALL BE AT THE CONTRACTOR'S EXPENSE.
  - USING BAR TIES EXCEEDS THREAD-BAR LEAVING 4" TO 6" PAST THE NUT. DO NOT TIE THREAD-BARS BY TOUCH CUTTING. TOUCH-UP TREADED ENDS WITH SAE/EN OR EQUAL.
  - INSTALL ANCHOR COUPLERS AS DETAIL ON STANDARD SHEETS BR-800A AND BR-802A.

FINAL POST-TENSIONING FORCE

TYPE Z BARS = 80 KIPS
TYPE V BARS = 40 KIPS

POST-TENSIONING BAR LAYOUT SCHEDULE

SPAN	32'-0"
SHEW	30' LF
L	33'-6"
W	24'-8 1/2"
H	3'-0"
B	10'-5 1/2"
D	2'-1 1/2"
C	6'-1 1/2"
E	17'-0"
F	12'-0"
STEP	----

DIMENSIONS

BEAM SIZE	BEAMS/SPACING	BAR SIZE	SPACING	DISET
12"	12"	12"	12"	12"
14"	14"	14"	14"	14"
16"	16"	16"	16"	16"
18"	18"	18"	18"	18"
20"	20"	20"	20"	20"
22"	22"	22"	22"	22"
24"	24"	24"	24"	24"
26"	26"	26"	26"	26"
28"	28"	28"	28"	28"
30"	30"	30"	30"	30"
32"	32"	32"	32"	32"

GROUT STRENGTH TABLE

PRE-TEST STRENGTH	3 DAY	7 DAY
LOW COMPRESSIVE STRENGTH	0 PSI	0 PSI
GROUT TYPE & MANUFACTURER		

POST-TENSIONING BAR LENGTH

BAR	FORMULA	LENGTH
Z	2L + 12"	27'-0"
V	2L + 12"	27'-0"
Y	2L + 12"	27'-0"

ELONGATION (INCHES)

BAR	CODE	CALC.	MEASURED											
			NO. 1	NO. 2	NO. 3	NO. 4	NO. 5	NO. 6	NO. 7	NO. 8	NO. 9			
Z	①	CL240												
V	①	CL240												

CALCULATED BY: [Signature] DATE: 07/12/82  
 CHECKED BY: [Signature] DATE: 07/12/82  
 50% DIS. BEING CALCULATED BY: [Signature] DATE: 07/12/82

- ADDITIONAL NOTES**
- DO NOT STAND IN LINE WITH THE POST-TENSIONING BAR DURING TENSIONING PROCEDURES.
  - NOTE: COUPLERS AND EXTENSION RODS USED IN THE POST-TENSIONING WORK SHALL BE THE MATERIAL APPROVED BY THE MANUFACTURER OF THE HIGH STRENGTH POST-TENSIONING RODS. IN NO CASE SHALL THE CONTRACTOR USE NON-APPROVED MATERIAL OR MATERIAL FROM TWO DIFFERENT SOURCES.

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
ENGINEERING DIVISION

STEELES BRIDGE  
OVER  
LITTLE HUFF CREEK

PRESTRESSED CONCRETE BEAM  
TRANSVERSE POST-TENSIONING DETAILS

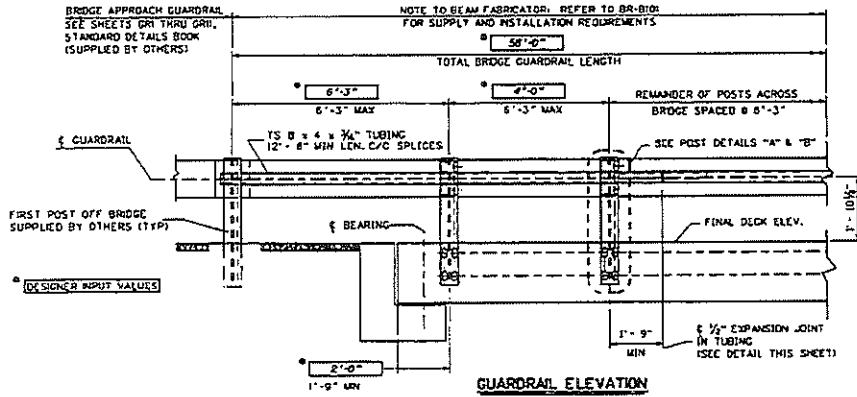
3829. 1

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
ENGINEERING DIVISION

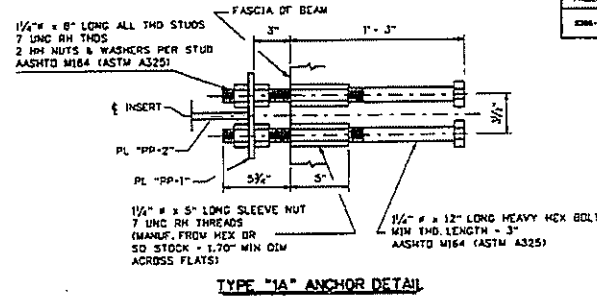
PRESTRESSED CONCRETE BEAM  
TRANSVERSE POST-TENSIONING DETAILS  
STANDARD SHEET BR-B103

BRIDGE APPROACH GUARDRAIL  
SEE SHEETS BR THRU BR-101  
STANDARD DETAILS BOOK  
(SUPPLIED BY OTHERS)

NOTE TO BEAM FABRICATOR: REFER TO BR-101  
FOR SUPPLY AND INSTALLATION REQUIREMENTS

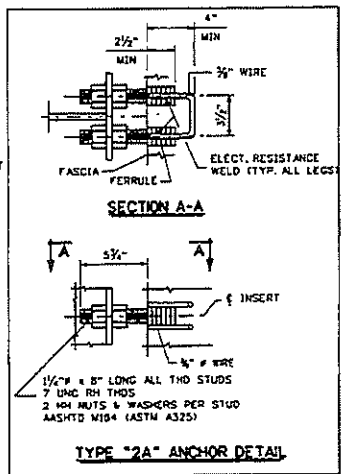


GUARDRAIL ELEVATION

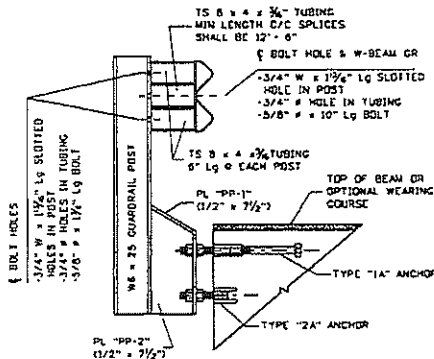


TYPE "1A" ANCHOR DETAIL

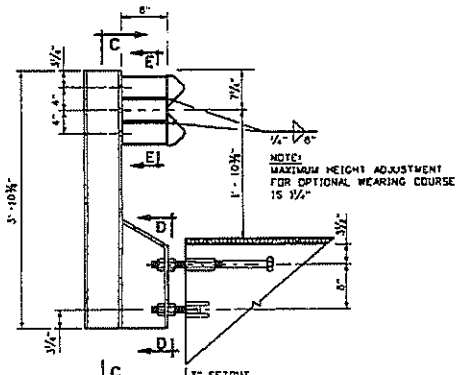
STATE PROJECT NUMBER	FEDERAL PROJECT NUMBER	STATE DISTRICT	COUNTY	SHEET NO.	TOTAL SHEETS
2208-B-1.00-03	WV	10	SPENCER	14	18



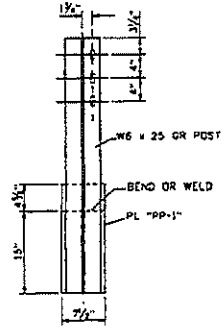
TYPE "2A" ANCHOR DETAIL



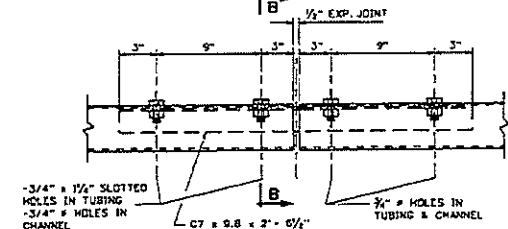
GUARDRAIL POST DETAIL "A"



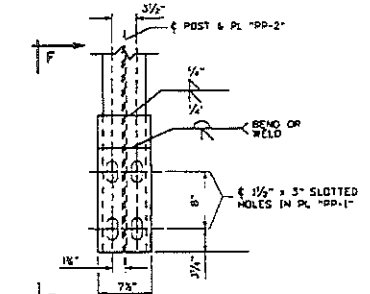
GUARDRAIL POST DETAIL "B"



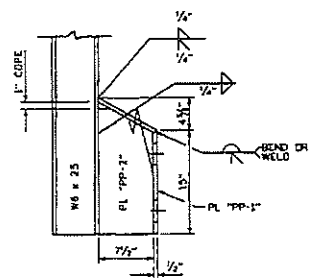
SECTION C-C



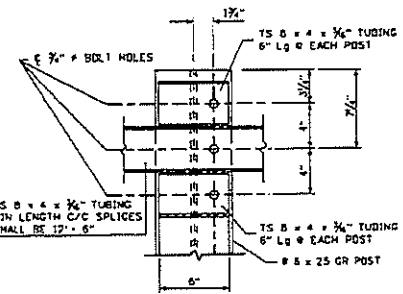
TURNING SPLICE/EXPANSION JOINT DETAIL



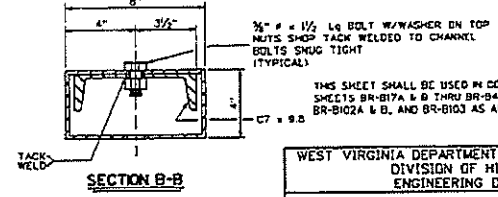
SECTION D-D



SECTION F-F



SECTION E-E



SECTION B-B

THIS SHEET SHALL BE USED IN CONJUNCTION WITH STANDARD SHEETS BR-817A & B THRU BR-942A & B, BR-910D, BR-910I, BR-910A & B, AND BR-910J AS APPLICABLE.

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS ENGINEERING DIVISION	DESIGNED BY: [ ] CHECKED BY: [ ] REVIEWED BY: [ ] DATE: [ ] SCALE: [ ] SHEET NO. OF 18 PROJECT NUMBER
--	---

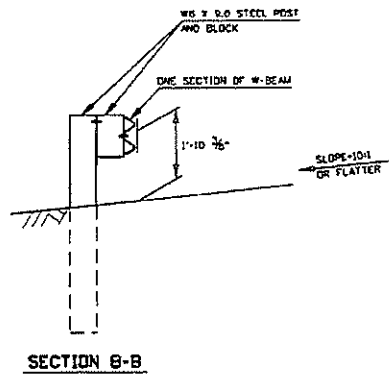
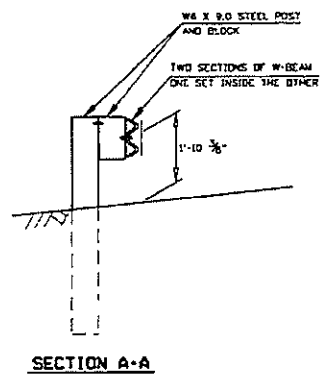
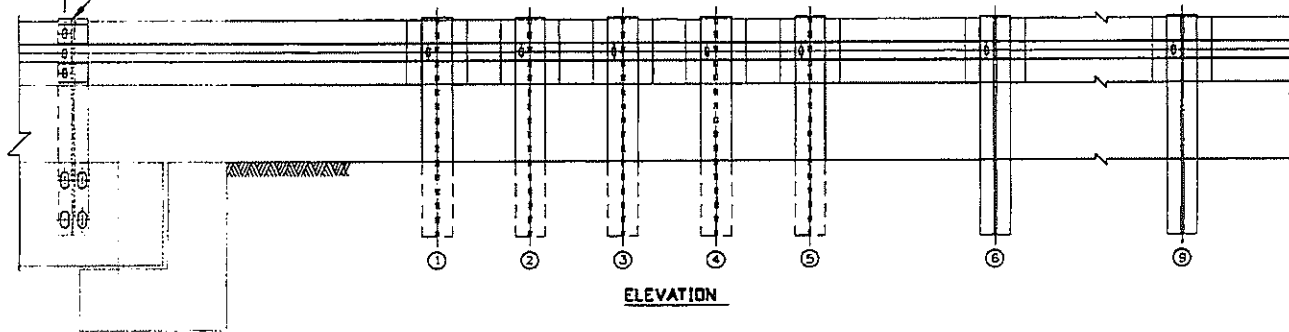
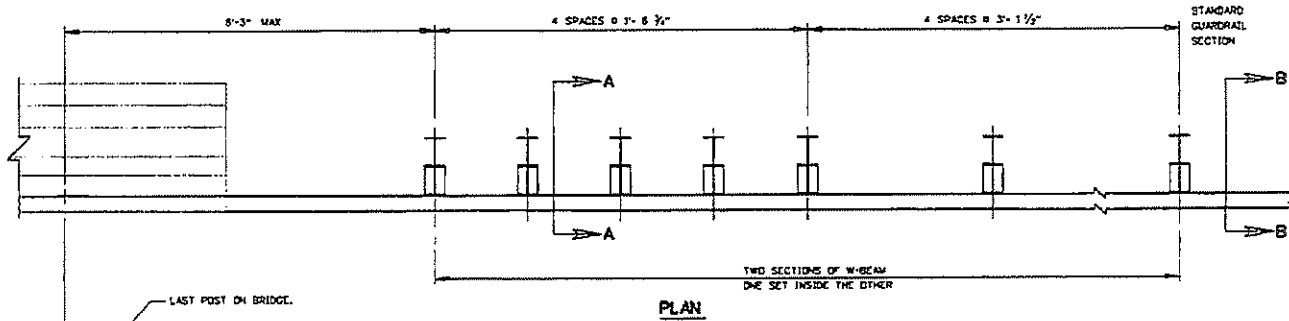
WEST VIRGINIA DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
ENGINEERING DIVISION

STEELES BRIDGE  
OVER  
LITTLE HUFF CREEK

PRESTRESSED CONCRETE BEAM  
TYPE TL-2 GUARDRAIL SYSTEM  
DESIGN & ASSEMBLY DETAILS

3829.1

PROJECT NUMBERS		DISTRICT	COUNTY	SHEET NO.	TOTAL
STATE	FEDERAL				
3225-9-1, 98 00	N/A	10	WYOMING	17	19



**NOTES**

1. THIS GUARDRAIL TRANSITION IS APPROPRIATE FOR CONNECTION TO GUARDRAIL ON BRIDGE.
2. W-BEAM IS NOT BOLTED TO POSTS AT POSTS 2 THROUGH 4 AND POST 6.
3. SEE STANDARD SHEET BR-B104 FOR ANCHOR DETAILS.
4. THERE IS NO SEPARATE PAY ITEM FOR THIS CONNECTION AND ALL COMPONENTS AS DETAILED HEREIN SHALL BE INCLUDED IN THE CONTRACT PRICE FOR GUARDRAIL.

THIS SHEET SHALL BE USED IN CONJUNCTION WITH STANDARD SHEETS BR-B17A & B THRU BR-B42A & B, BR-B100, BR-B101, BR-B102A & B, BR-B103 AND BR-B104 AS APPLICABLE.

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
ENGINEERING DIVISION

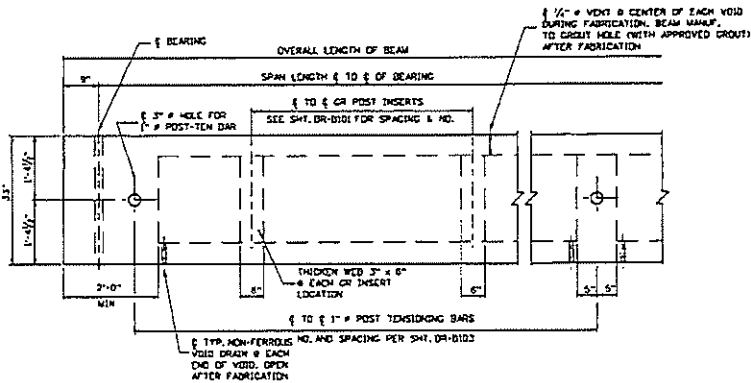
STEELES BRIDGE  
OVER  
LITTLE HUFF CREEK

TYPE TL-2 GUARDRAIL TRANSITION

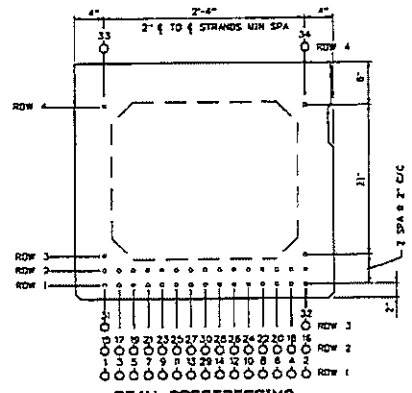
APPROVED	<i>[Signature]</i>	DATE	07-02-07
WEST VIRGINIA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS ENGINEERING DIVISION		PROJECT NO. 07-02-07	
PRESTRESSED CONCRETE BEAM TYPE TL-2 GUARDRAIL SYSTEMS DESIGN & ASSEMBLY DETAILS			
STANDARD SHEET BR-B100			

DESIGNED BY/TW
CHECKED BY/TW
REVIEWED BY/TW
DATE:
SCALE:
SHEET 17 OF 19
BRIDGE NO. 3829. 7

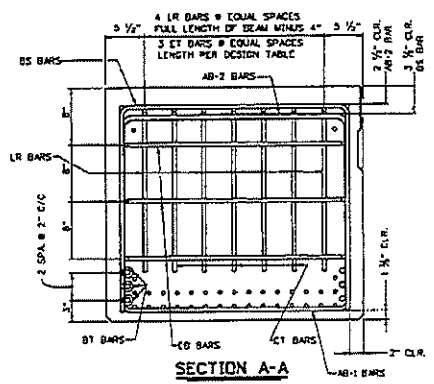
PROJECT NUMBERS		DISTRICT	COUNTY	SHEET NO.	TOTAL
STATE	FEDERAL	10	Wyoming	18	19
WY	NA				



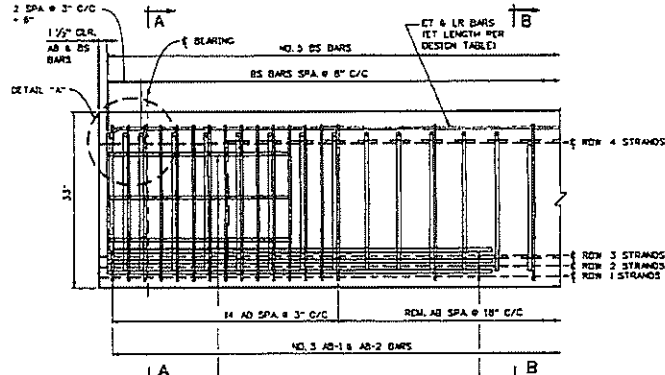
**GENERAL ELEVATION VIEW**



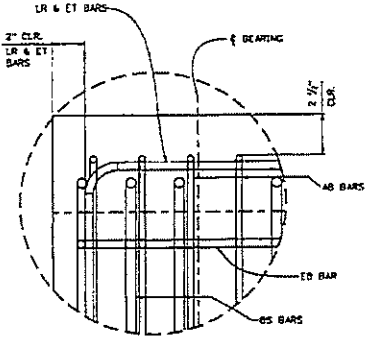
**BEAM PRESTRESSING**  
TYPICAL @ BEAM END & MIDSPAN



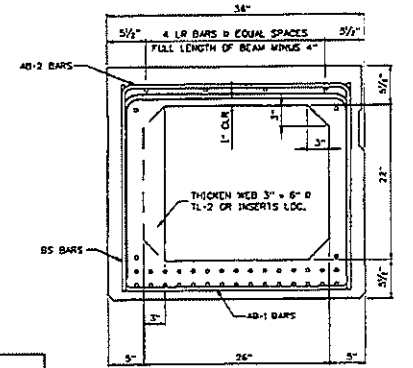
**SECTION A-A**



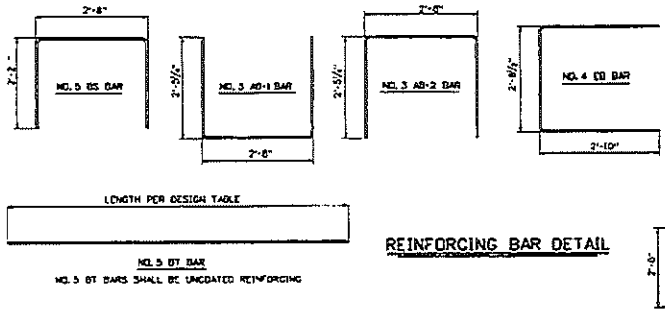
**REINFORCING STEEL ELEVATION**



**DETAIL "A"**



**SECTION B-B**



**REINFORCING BAR DETAIL**

- NOTES:**
- REFER TO SHEET BR-B102A FOR SHEAR KEY DETAILS.
  - DESIGNER SHALL USE THE FOLLOWING KEY TO INDICATE STRAND AND DECORATING PATTERN ON "BEAM PRESTRESSING VIEW", THIS SHEET.
    - ACTIVE STRAND
    - ▽—BOND STRAND LENGTH FROM END OF BEAM
    - △—BOND STRAND LENGTH FROM END OF BEAM
    - BOND STRAND LENGTH FROM END OF BEAM
  - THIS SHEET SHALL BE USED IN CONJUNCTION WITH STANDARD SHEETS BR-B330, BR-B100, BR-B101, BR-B102A & B, BR-B103, BR-B104, BR-B105A & B AND BR-B106 AS APPLICABLE.

WHEN A POST-TENSION ACCESS HOLES IS USED AS DETAILED ON SHEET BR-103 STRANDS IN ROWS 3 AND 4 SHALL BE ELIMINATED. THE BEAM SHALL BE REDESIGNED AS NECESSARY.

DESIGNED BY: J. W. ...  
 DRAWN BY: ...  
 CHECKED BY: ...  
 DATE: ...  
 SCALE: ...  
 SHEET 18 OF 19  
 BRIDGE NO. 3829.1

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION  
 DIVISION OF HIGHWAYS  
 ENGINEERING DIVISION

33" PRESTRESSED CONCRETE  
 BOX BEAMS  
 DESIGN AND ASSEMBLY DETAILS  
 STANDARD SHEET BR-B33A

PREPARED: 07-02-07

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION  
 DIVISION OF HIGHWAYS  
 ENGINEERING DIVISION

STEELES BRIDGE  
 OVER  
 LITTLE HUFF CREEK

33" PRESTRESSED CONCRETE  
 DESIGN AND ASSEMBLY DETAILS

STATE PROJECT NUMBER	FEDERAL PROJECT NUMBER	SHEET NO.	COUNTY	SHEET NO.	TOTAL SHEETS
WV	NA	10	Wyoming	19	19

DESIGN DATA FOR 33" DEPTH ADJACENT BOX BEAM

SPAN LENGTH & TO & BEARING		50'-0"	52'-0"	54'-0"	56'-0"	58'-0"	60'-0"	62'-0"	64'-0"	66'-0"	68'-0"	70'-0"
OVERALL LENGTH OF BEAM		51'-0"	53'-6"	55'-0"	57'-6"	59'-0"	61'-6"	63'-0"	65'-6"	67'-0"	69'-6"	71'-0"
NO. OF 270 KSI, 1/2" # 4 LOW-RELAXATION STRANDS, AREA/STRAND = 0.167 SQ. IN.		12	12	12	14	14	14	15	16	16	18	18
STRAND POSITION NUMBER	ROW 1	1,2,7,8,13,14	1,2,7,8,13,14	1,2,7,8,13,14	1,2,7,8,13,14	1,2,7,8,13,14	1,2,7,8,13,14	1,2,5,6,9,10,13,14	1,2,5,6,9,10,13,14	1,2,5,6,9,10,13,14	1,2,5,6,9,10,13,14	1,2,5,6,9,10,13,14
	ROW 2	15,16,17,28	15,16,17,28	15,16,17,28	16,16,21,24,27,28	15,16,21,22,27,28	15,16,21,22,27,28	15,16,21,22,27,28	15,16,21,22,27,28	15,16,19,26,23,24,27,28	15,16,19,20,23,24,27,28	15,16,19,20,23,24,27,28
	ROW 3											
	ROW 4	33,34	33,34	33,34	33,34	33,34	33,34	33,34	33,34	33,34	33,34	33,34
PRESTRESSING FORCE IMMEDIATELY AFTER STRAND RELEASE, P <sub>si</sub> , (KIPS/BEAM)		394	394	394	451	458	458	521	521	585	584	585
EFFECTIVE PRESTRESSING FORCE AFTER ALL LOSSES, P <sub>se</sub> , (KIPS/BEAM)		359	380	381	414	416	417	468	470	521	522	524
REQUIRED FACTORED MOMENT @ STRENGTH I, M <sub>u</sub> (FT-KIPS/BEAM)		868	818	976	1042	1167	1172	1244	1362	1383	1434	1527
FACTORED FLEXURAL RESISTANCE, M <sub>r</sub> (FT-KIPS/BEAM)		1094	1092	1092	1280	1280	1280	1478	1478	1656	1656	1656
TOTAL NO. DEBONDED STRANDS												
DEBONDED STRAND POSITION NUMBER & SHIELDING LENGTH FROM EACH END	ROW 1											
	ROW 2											
NUMBER & LENGTH #4 ET TOP TENSION BARS @ EACH END		3 - #4 x 8'-0"	3 - #4 x 8'-6"	3 - #4 x 7'-0"	3 - #4 x 7'-0"	3 - #4 x 7'-0"	3 - #4 x 7'-0"	3 - #4 x 8'-0"	3 - #4 x 8'-0"	3 - #4 x 8'-0"	3 - #4 x 8'-0"	3 - #4 x 8'-0"
NUMBER & LENGTH #5 BT BOTTOM TENSION BARS @ EACH END		6 - #5 x 7'-0"	6 - #5 x 8'-0"	6 - #5 x 7'-0"	6 - #5 x 8'-0"	6 - #5 x 8'-0"	6 - #5 x 8'-0"	6 - #5 x 8'-0"	6 - #5 x 8'-0"	4 - #5 x 8'-0"	4 - #5 x 8'-0"	6 - #5 x 9'-0"
DESIGN CAMBER # = POSITIVE (UPS) (INCHES)	@ RELEASE	0.19	0.18	0.19	0.23	0.22	0.27	0.26	0.30	0.38	0.50	0.52
	@ ERECTION	0.25	0.22	0.19	0.23	0.22	0.27	0.26	0.30	0.38	0.50	0.52
	@ FINAL	0.17	0.10	0.03	0.21	0.12	0.05	0.27	0.24	0.30	0.23	0.05
NO. OF INSERTS REQ'D.												
NUMBER & SPACING OF TL-2 GUARDRAIL INSERTS	END OF BEAM TO 0 OF FIRST INSERT EA. END											
	0 OF 1st INSERT TO 0 OF 2nd INSERT EA. END											
SEE NOTE E												
WEIGHT OF TYPICAL BEAM INCLUDING DIAPHRAGM (KIPS)		19.9	20.8	21.3	22.0	22.7	23.4	24.4	25.1	25.8	26.8	27.7

MIN. CONCRETE STRENGTH @ RELEASE - 5500 PSI  
 MIN. CONCRETE STRENGTH @ 28 DAYS - 8000 PSI  
 INITIAL PULL/STRAND - 33,820 LBS  
 CROSS-SECTION AREA/STRAND - 0.167 SQ. IN.

NOTES

1. BEAM WEIGHTS LISTED IN THE DESIGN TABLE ARE BASED ON ZERO SKEW, 2 FT. LONG ENDBLOCK AND DIAPHRAGMS SPACED @ 15 FT C/C. WEIGHTS FOR SKEWED BEAMS, LONGER ENDBLOCKS AND ADDITIONAL DIAPHRAGMS SHOULD BE ADJUSTED ACCORDINGLY. FOR ADDITIONAL DIAPHRAGMS, ADD 497 LBS/DIAPHRAGM. FOR SKEW ADD 33 LBS/DEGREE OF SKEW/END. FOR LONGER ENDBLOCK, ADD 586 LBS/F/END.
2. DESIGNERS SHOULD NOTE THAT DATA IN STANDARD TABLE IS BASED ON EVEN SPAN LENGTHS, A TWO LANE STRUCTURE 8 BEAMS WIDE AND ZERO SKEW. SUPERIMPOSED DEAD LOADS INCLUDE TYPE F PARAPET (321 PL7) AND A FINIS OF 50 PSF. FOR NON-STANDARD BRIDGES DATA SHOULD BE VERIFIED AND IF REQUIRED NEW DESIGN DATA ENTERED INTO BLANK COLUMNS. IN NO CASE SHALL THE STANDARD DESIGN TABLE BE ALTERED.
3. PREDICTED DESIGN CAMBER VALUES LISTED IN THE TABLE ARE BASED ON EMPIRICAL FORMULAS AND AS SUCH ARE APPROXIMATE. FOR MOMENTS WITH SPAN-TO-DEPTH RATIOS AT OR EXCEEDING 25, THE TOLERANCE VALUES LISTED IN APPENDIX D OF PCI MANUAL FOR QUALITY CONTROL, 1996-116, MAY NOT APPLY. MEASUREMENT OF CAMBER FOR COMPARISON TO PREDICTED DESIGN VALUES SHOULD BE COMPLETED WITHIN 72 HOURS OF RELEASE. ADDITIONALLY, CAMBER SHOULD BE EVALUATED UNDER CONDITIONS THAT MINIMIZE THE EFFECT OF TEMPERATURE VARIATION.

4. DESIGNER, FABRICATOR, AND ERECTOR SHALL BE AWARE THAT SKEWED END BEAMS MAY TWIST OR WARP, CAUSING UNEVEN BEAM SEATING AT THE BEARINGS. THE CONTRACTOR IS REQUIRED TO CORRECT AT THE TIME OF ERECTION, BEFORE THE BEAMS ARE SECURED IN PLACE. METHOD OF CORRECTION SHALL PROVIDE AN EVEN TOTAL BEARING AND A LEVEL TOP BEAM SURFACE. TOLERANCE AFTER CORRECTION SHALL BE (+/-) 1/8" INCH. THE FABRICATOR SHALL NOTIFY THE CONTRACTOR AND DESIGNER IF CORRECTIONS ARE REQUIRED PRIOR TO SHIPMENT.
5. MAXIMUM BEAM SKEW SHALL BE 30 DEGREES.
6. DESIGNER INPUT VALUES OF NUMBER OF INSERTS, DISTANCE FROM END OF BEAM TO 0 OF FIRST INSERT AND 0 OF SECOND INSERT, ABOVE VALUES SHALL BE BASED ON THE REQUIRED 8'-3" GUARDRAIL POST SPACING ACROSS THE BRIDGE.
7. THIS SHEET SHALL BE USED IN CONJUNCTION WITH STANDARD SHEETS BR-B33A, BR-B100, BR-B101, BR-B102A & B, BR-B103, BR-B104, BR-B105A & B AND BR-B106 AS APPLICABLE.


DESIGN TABLE FOR 33" PRESTRESSED BOX BEAM  
 STANDARD SHEET BR-B33B

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION  
 DIVISION OF HIGHWAYS  
 ENGINEERING DIVISION

STEELES BRIDGE  
 OVER  
 LITTLE HUFF CREEK

DESIGN TABLE FOR 33" PRESTRESSED BOX BEAM

3829.1

CRFQ DOT2000000122					
Item Number	Quantity	Unit of Measure	Description	Unit Price	Total Cost
1	963	Square Feet	33 Inch Box Beams (Interior) 6 pieces - 3 Feet x 53 Feet-6 Inches		
2	321	Square Feet	33 Inch Box Beams (Exterior) 2 pieces - 3 Feet x 53 Feet-6 Inches		
3	16	Each	Skewed End 33 Inch Box Beam		
4	4	Each	Elastomeric laminated bearing pads (B-2) 1 13/16 Inch x 4 3/4 Inch x 15 1/2 Inch		
5	14	Each	Elastomeric laminated bearing pads (B-1) 1 13/16 Inch x 4 3/4 Inch x 28 Inch		
6	16	Each	Swedged anchor bolt or #8 deformed rebar 1 Inch x 1 Foot-6 Inch		
7	27.2	Square Feet	2 1/16 Inch thick sponge rubber preformed joint filler 5 7/16 Inch x 60 Feet		
8	4	Each	2 1/16 Inch thick sponge rubber preformed joint filler 11 1/8 Inch x 4 3/4 Inch		
9	14	Each	2 1/16 Inch thick sponge rubber preformed joint filler 14 7/16 Inch x 4 3/4 Inch		
10	165	Square Feet	1 Inch thick sponge rubber preformed joint filler 2 Foot-9 Inch x 60 Foot		
11	34	Each	Sponge rubber washer with 3 1/2 Inch hole 8 Inch x 8 Inch x 1 Inch thick		
12	2	Each	Post tension bearing plate (access pockets) 5 Inch x 5 Inch x 1 1/4 Inch thick		
13	10	Each	Post tension bearing plate 9 Inch x 9 Inch x 1 Inch thick		
14	110	Linear Feet	1 Inch Diameter post tension bar with nuts 4 each at 27'-6"		
15	30.5	Linear Feet	1 Inch Diameter post tension bar with nuts 2 each at 15'-3"		
<b>Total Bid Amount</b>					



## West Virginia Ethics Commission



### Disclosure of Interested Parties to Contracts

Pursuant to *W. Va. Code* § 6D-1-2, a state agency may not enter into a contract, or a series of related contracts, that has/have an actual or estimated value of \$1 million or more until the business entity submits to the contracting state agency a Disclosure of Interested Parties to the applicable contract. In addition, the business entity awarded a contract is obligated to submit a supplemental Disclosure of Interested Parties reflecting any new or differing interested parties to the contract within 30 days following the completion or termination of the applicable contract.

For purposes of complying with these requirements, the following definitions apply:

*"Business entity"* means any entity recognized by law through which business is conducted, including a sole proprietorship, partnership or corporation, but does not include publicly traded companies listed on a national or international stock exchange.

*"Interested party"* or *"Interested parties"* means:

- (1) A business entity performing work or service pursuant to, or in furtherance of, the applicable contract, including specifically sub-contractors;
- (2) the person(s) who have an ownership interest equal to or greater than 25% in the business entity performing work or service pursuant to, or in furtherance of, the applicable contract. (This subdivision does not apply to a publicly traded company); and
- (3) the person or business entity, if any, that served as a compensated broker or intermediary to actively facilitate the applicable contract or negotiated the terms of the applicable contract with the state agency. (This subdivision does not apply to persons or business entities performing legal services related to the negotiation or drafting of the applicable contract.)

*"State agency"* means a board, commission, office, department or other agency in the executive, judicial or legislative branch of state government, including publicly funded institutions of higher education: Provided, that for purposes of *W. Va. Code* § 6D-1-2, the West Virginia Investment Management Board shall not be deemed a state agency nor subject to the requirements of that provision.

The contracting business entity must complete this form and submit it to the contracting state agency prior to contract award and to complete another form within 30 days of contract completion or termination.

*This form was created by the State of West Virginia Ethics Commission, 210 Brooks Street, Suite 300, Charleston, WV 25301-1804. Telephone: (304)558-0664; fax: (304)558-2169; e-mail: [ethics@wv.gov](mailto:ethics@wv.gov); website: [www.ethics.wv.gov](http://www.ethics.wv.gov).*

West Virginia Ethics Commission  
Disclosure of Interested Parties to Contracts

(Required by W. Va. Code § 6D-1-2)

Name of Contracting Business Entity: EASTERN VAULT CO., INC. Address: PO Box 1134

PRINCETON WV 24740

Name of Authorized Agent: BRIAN P. STRUBLE Address: - SAME -

Contract Number: DOT 200000122 Contract Description: PRESTRESSED BEAMS

Governmental agency awarding contract: WV DOH

Check here if this is a Supplemental Disclosure

List the Names of Interested Parties to the contract which are known or reasonably anticipated by the contracting business entity for each category below (attach additional pages if necessary):

1. Subcontractors or other entities performing work or service under the Contract

Check here if none, otherwise list entity/individual names below.

2. Any person or entity who owns 25% or more of contracting entity (not applicable to publicly traded entities)

Check here if none, otherwise list entity/individual names below.

3. Any person or entity that facilitated, or negotiated the terms of, the applicable contract (excluding legal services related to the negotiation or drafting of the applicable contract)

Check here if none, otherwise list entity/individual names below.

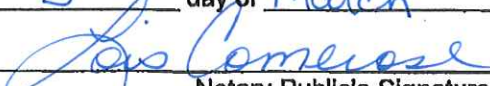
Signature:  BRIAN STRUBLE Date Signed: 3-2-20

**Notary Verification**

State of WEST VA., County of MERCER:

I, BRIAN P. STRUBLE, the authorized agent of the contracting business entity listed above, being duly sworn, acknowledge that the Disclosure herein is being made under oath and under the penalty of perjury.

Taken, sworn to and subscribed before me this 3 day of March, 2020

  
Notary Public's Signature

**To be completed by State Agency:**  
Date Received by State Agency: \_\_\_\_\_  
Date submitted to Ethics Commission: \_\_\_\_\_  
Governmental agency submitting Disclosure: \_\_\_\_\_





STATE OF WEST VIRGINIA  
Purchasing Division

# PURCHASING AFFIDAVIT

**CONSTRUCTION CONTRACTS:** Under W. Va. Code § 5-22-1(i), the contracting public entity shall not award a construction contract to any bidder that is known to be in default on any monetary obligation owed to the state or a political subdivision of the state, including, but not limited to, obligations related to payroll taxes, property taxes, sales and use taxes, fire service fees, or other fines or fees.

**ALL CONTRACTS:** Under W. Va. Code §5A-3-10a, no contract or renewal of any contract may be awarded by the state or any of its political subdivisions to any vendor or prospective vendor when the vendor or prospective vendor or a related party to the vendor or prospective vendor is a debtor and: (1) the debt owed is an amount greater than one thousand dollars in the aggregate; or (2) the debtor is in employer default.

**EXCEPTION:** The prohibition listed above does not apply where a vendor has contested any tax administered pursuant to chapter eleven of the W. Va. Code, workers' compensation premium, permit fee or environmental fee or assessment and the matter has not become final or where the vendor has entered into a payment plan or agreement and the vendor is not in default of any of the provisions of such plan or agreement.

**DEFINITIONS:**

"Debt" means any assessment, premium, penalty, fine, tax or other amount of money owed to the state or any of its political subdivisions because of a judgment, fine, permit violation, license assessment, defaulted workers' compensation premium, penalty or other assessment presently delinquent or due and required to be paid to the state or any of its political subdivisions, including any interest or additional penalties accrued thereon.

"Employer default" means having an outstanding balance or liability to the old fund or to the uninsured employers' fund or being in policy default, as defined in W. Va. Code § 23-2c-2, failure to maintain mandatory workers' compensation coverage, or failure to fully meet its obligations as a workers' compensation self-insured employer. An employer is not in employer default if it has entered into a repayment agreement with the Insurance Commissioner and remains in compliance with the obligations under the repayment agreement.

"Related party" means a party, whether an individual, corporation, partnership, association, limited liability company or any other form or business association or other entity whatsoever, related to any vendor by blood, marriage, ownership or contract through which the party has a relationship of ownership or other interest with the vendor so that the party will actually or by effect receive or control a portion of the benefit, profit or other consideration from performance of a vendor contract with the party receiving an amount that meets or exceeds five percent of the total contract amount.

**AFFIRMATION:** By signing this form, the vendor's authorized signer affirms and acknowledges under penalty of law for false swearing (W. Va. Code §61-5-3) that: (1) for construction contracts, the vendor is not in default on any monetary obligation owed to the state or a political subdivision of the state, and (2) for all other contracts, that neither vendor nor any related party owe a debt as defined above and that neither vendor nor any related party are in employer default as defined above, unless the debt or employer default is permitted under the exception above.

**WITNESS THE FOLLOWING SIGNATURE:**

Vendor's Name: EASTERN VAULT Co., INC.

Authorized Signature: [Signature] Date: 3-3-2020

State of West Virginia

County of Mercer, to-wit:

Taken, subscribed, and sworn to before me this 3 day of March, 2020

My Commission expires March 26, 2023

AFFIX SEAL HERE



NOTARY PUBLIC [Signature]

STATE PROJECT NUMBER	FEDERAL PROJECT NUMBER	STATE DIST. NO.	COUNTY	SHEET NO.	TOTAL SHEETS
1555-R-1-00-00	N/A	10	SPRING	11	10

**GOVERNING SPECIFICATIONS**

THE WEST VIRGINIA DEPARTMENT OF TRANSPORTATION, DIVISION OF HIGHWAYS STANDARD SPECIFICATIONS FOR ROADS AND BRIDGES, ADOPTED 2017 AS AMENDED BY THE CURRENT SUPPLEMENTAL SPECIFICATIONS, THE CONTRACT PLANS AND CONTRACT SPECIAL PROVISIONS ARE THE GOVERNING PROVISIONS APPLICABLE TO THIS PROJECT.

ALL BEAMS ARE DESIGNED IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, DATED 1998 AS AMENDED BY THE 2003 INTERIM SPECIFICATIONS.

**DESIGN NOTES**

ALL STANDARD ADJACENT PRESTRESSED CONCRETE BRIDGE BEAMS ARE DESIGNED TO MEET THE FOLLOWING CRITERIA:

- DESIGN LOADS:
  - HL-93 LIVE LOAD IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.
  - FUTURE WEARING SURFACE OF 50 PSF OF ROADWAY.
  - TYPE F PARAPET WEIGHING 321 PLF.
  - DIAPHRAGM DEAD LOAD, NUMBER REQUIRED BASED ON 15'-0" MAX. SPACING.
- TWO LANE BRIDGE WITH AN OVERALL WIDTH OF 24'-8" (INCL. 3/4" GAP BETWEEN ADJ. BEAMS); A CURB-TO-CURB WIDTH OF 22'-11"; TRANSVERSE POST-TENSIONING, AND ZERO SKEW.
- DESIGN STRENGTH AND UNIT STRESSES:
 

MINIMUM CONCRETE STRENGTH @ STRAND RELEASE	6000 PSI
MINIMUM CONCRETE STRENGTH @ 28 DAYS	8000 PSI
TEMPORARY STRESS LIMITS IN CONCRETE BEFORE LOSSES	
COMPRESSION STRESS LIMIT @ STRAND RELEASE	3600 PSI
TENSION STRESS LIMIT @ STRAND RELEASE	-200 PSI
COMPRESSION STRESS LIMITS IN CONCRETE @ SERVICE I AFTER LOSSES:	
@ FINAL I (PS-DL-LL)	4800 PSI
@ FINAL 2 (PS-DL)	3600 PSI
@ FINAL 3 (SOX(PS-DL)-LL)	3200 PSI
TENSILE STRESS LIMIT IN CONCRETE @ SERVICE III AFTER LOSSES:	
@ FINAL 1 (PS-DL-LL)	-270 PSI
TENSION STRESS LIMIT PRIOR TO TRANSFER	202.5 KSI
TENSION STRESS LIMIT AFTER ALL LOSSES	194.4 KSI
- DEBONDING OR SHIELDING OF STRANDS TO REDUCE TEMPORARY TENSILE STRESSES IS PERMITTED, HOWEVER DEBONDING IS LIMITED TO 40% PER ROW AND 25% TOTAL. IN NO INSTANCES SHALL OUTER STRANDS BE DEBONDED. DEBONDED STRANDS SHALL BE SEPARATED BY AT LEAST ONE FULLY BONDED STRAND AND SHALL BE SYMMETRICAL ABOUT THE C OF THE BEAM. SHIELDING OF STRANDS SHALL BE ACCOMPLISHED BY TAPING OR TIGHT FITTING PLASTIC TUBES TAPED AT EACH END.
- THE ELASTOMERIC BEARING PADS PROVIDED IN THE STANDARD DESIGNS ARE BASED ON ZERO GRADE AND ARE LIMITED TO A MAXIMUM OF 5% GRADE. IN INSTANCES OF GRADES EXCEEDING THIS LIMIT, PADS SHALL BE SPECIFICALLY DESIGNED. INDIVIDUAL PAD DESIGNS SHALL BE IN ACCORDANCE WITH SECTION 14, AASHTO LRFD. BEVELED SOLE PLATES ARE PERMITTED.
- MAXIMUM BEAM SKEW SHALL BE 30 DEGREES.
- WHEN ALTERNATE DESIGNS OR SITE SPECIFIC DESIGNS ARE PROVIDED, CRITERIA SET FORTH IN THESE STANDARDS SHALL APPLY.
- NEGATIVE DESIGN CAMBER AFTER ALL LOSSES IS NOT PERMITTED.
- EACH BEAM PROVIDED IN THESE STANDARD DESIGNS HAS BEEN LOAD RATED IN ACCORDANCE WITH SECTION 8.15 OF THE WEST VIRGINIA DIVISION OF HIGHWAYS BRIDGE DESIGN MANUAL, 2004. ADDITIONALLY, LOAD RATING PROCEDURES ARE IN ACCORDANCE WITH THE AASHTO MANUAL FOR CONDITION EVALUATION AND LOAD AND RESISTANCE FACTOR RATING OF HIGHWAY BRIDGES, 2005.

BAR SIZE	NO. 3	NO. 4	NO. 5	NO. 6
SPlice LEN.	21"	28"	34"	41"

THIS SHEET SHALL BE USED IN CONJUNCTION WITH STANDARD SHEETS BR-B1A & B THRU BR-B2A & B, BR-B301, BR-B302A & B, BR-B303, BR-B304, BR-B305A & B AND BR-B306 AS APPLICABLE.

**MATERIALS & FABRICATION NOTES**

\*THE PRESTRESSED CONCRETE BEAMS SHALL CONFORM TO ALL APPLICABLE PROVISIONS OF SECTION 603 OF THE STANDARD SPECIFICATIONS.

**WILD REINFORCEMENT:**

- \*ALL WILD REINFORCING STEEL SHALL BE GRADE 60, DEFORMED BILLET STEEL AND SHALL BE EPOXY COATED EXCEPT WHERE NOTED. ALL UNCOATED REINFORCING SHALL MEET THE REQUIREMENTS OF AASHTO M31. ALL EPOXY COATED REINFORCING SHALL MEET THE REQUIREMENTS OF AASHTO M284, EXCEPT WHERE AMENDED BY SECTION 709.1 OF THE STANDARD SPECIFICATIONS.
- \*ALL TENSION LAP SPICES SHALL BE A CLASS B, CONTACT TYPE, MINIMUM LAP SPICE LENGTHS SHALL BE AS GIVEN IN THE "LAP SPICE TABLE", THIS SHEET. ADDITIONALLY, IF LAP SPICING OF E.T. LR, AND BY BARS IS USED, TERMINATION OF THE SPICE SHALL BE NO CLOSER TO THE END OF THE BEAM THAN 1/10 OF THE SPAN LENGTH.
- \*MINIMUM BAR BENDING DIAMETER SHALL BE 6 BAR DIAMETERS, EXCEPT THAT NO. 4 AB BARS MAY HAVE A MINIMUM BEND DIAMETER OF 4 BAR DIAMETERS.
- \*MINIMUM CONCRETE COVER SHALL BE AS SPECIFIED IN SECTION 603.5 OF THE STANDARD SPECIFICATIONS, EXCEPT WHERE NOTED ON THE PLANS.

**PRESTRESSING STRANDS:**

- \*ALL PRESTRESSING STEEL SHALL BE 1/2" 4, GRADE 270, 7 WIRE UNCOATED, LOW-RELAXATION STRAND MEETING THE REQUIREMENTS OF AASHTO M283, SUPPLEMENT S1.
- \*ALL BEAMS DESIGNED IN THESE STANDARDS UTILIZE STRANDS WITH A NOMINAL AREA OF 0.167 SQ. IN. STRANDS WITH A NOMINAL AREA OF 0.153 SQ. IN. IS PERMITTED FOR INDIVIDUAL, OR ALTERNATE DESIGNS, HOWEVER THE DESIGNER IS ENCOURAGED TO USE THE LARGER STRAND FOR UNIFORMITY REASONS. IN NO CASES WILL STRESS-RELIEVED STRAND BE PERMITTED.
- \*ALL STRANDS SHALL BE ENCLOSED INSIDE THE STIRRUP CAGE FOR THE FULL LENGTH OF THE BEAM.
- \*ALL EXPOSED PRESTRESSING STRAND AT EACH BEAM END SHALL BE SHOP COATED WITH A LIQUID COLD-APPLIED BITUMINOUS ELASTOMERIC WATERPROOFING MEMBRANE. MATERIAL SHALL MEET ASTM C836-04.

**CONCRETE:**

- \*ALL CONCRETE USED IN MANUFACTURING PRESTRESSED CONCRETE BEAMS SHALL MEET THE REQUIREMENTS OF SECTION 603.6 OF THE STANDARD SPECIFICATIONS. DESIGN STRENGTHS SHALL MEET OR EXCEED THE MINIMUM VALUES SET FORTH IN THESE PLANS.
- \*ALL CONCRETE USED IN PARAPETS AND CURBS SHALL BE CLASS K CONCRETE.

**ELASTOMERIC BEARING PADS:**

- \*ALL BEARING PADS SHALL MEET THE APPLICABLE REQUIREMENTS AS SET FORTH IN SECTION 18.2 OF THE AASHTO LRFD BRIDGE CONSTRUCTION SPECIFICATIONS, 1998 EDITION WITH CURRENT INTERIMS. ALL BEARINGS SHALL BE STEEL REINFORCED LAMINATED BEARINGS.
- \*THE ELASTOMER MATERIAL SHALL BE 60 DURETOMETERS WITH A MINIMUM LOW TEMPERATURE GRADE OF 3 (ZONE C).
- \*ALL STEEL REINFORCING SHALL MEET THE REQUIREMENTS OF AASHTO M270, GRADE 36.

**GUARDRAIL GUARDRAIL POSTS, TUBING & INSERTS:**

- \*ALL W-BEAM GUARDRAIL AND ATTACHMENT HARDWARE SHALL BE IN ACCORDANCE WITH SECTION 712.4 OF THE STANDARD SPECIFICATIONS. GUARDRAIL POSTS, STRUCTURAL TUBING, POST ATTACHMENT INSERTS, AND HARDWARE SHALL MEET THE LISTED MATERIAL AND COATING SPECIFICATIONS:

ITEM	DESCRIPTION	MATERIAL SPEC.	COATING SPEC.
POST	W6x25	AASHTO M270, GR 36	AASHTO M11
PLATE	1/2" x 7"	AASHTO M270, GR 36	AASHTO M11
TUBING	75 8x4x3/16	ASTM A500, GR B	AASHTO M11
CHANNEL	C7x9.8	AASHTO M270, GR 36	AASHTO M11
FERRULE	TYPE 2A 1 1/4" # x 2 1/2" MIN LEN.	ASTM A108 (1117 STEEL)	AASHTO M232
WIRE	ANCHOR 3/8" #	ASTM A510 (1018 STEEL)	AASHTO M232
STUJOS	1 1/4" # x 8" LONG	ASTM A108 (1045 C.D. STEEL)	AASHTO M232
NUTS	1 1/4" #	AASHTO M281, CLASS C	AASHTO M232
COUPLERS	TYPE 1A 1 1/4" # x 5" LONG	ASTM A108 (112.14 STEEL)	AASHTO M232
BOLTS	ANCHOR 1 1/2" # x 12" LONG	AASHTO M164 (TYPE 1, HH)	AASHTO M232
BOLTS	3/8" # x ALL LEN.	AASHTO M164 (TYPE 1, HH)	AASHTO M232
NUTS	3/8" #	AASHTO M281, CLASS C	AASHTO M232
WASHERS	ALL	AASHTO M293	AASHTO M232

**WELDING:**

- \*TACK WELDING OF REINFORCEMENT IS NOT PERMITTED. REINFORCING CAGES AND LONGITUDINAL STEEL SHALL BE ADEQUATELY TIED WITH APPROVED MEANS TO PREVENT RACKING AND MISALIGNMENT.
- \*ALL WELDING OF FABRICATED ITEMS, AS SHOWN IN THESE PLANS SHALL BE IN ACCORDANCE WITH ALL APPLICABLE PROVISIONS OF AASHTO/AWS D1.5, 2002.

**POST-TENSIONING BARS:**

- \*POST-TENSIONING THREAD BARS SHALL BE ONE INCH DIAMETER, 150 KSI STEEL, AND SHALL CONFORM TO AASHTO M275, TYPE II. STEEL THREAD BARS SHALL BE DESIGNED TO ALLOW THE USE OF HEAVY HEX NUTS AND COUPLERS THAT THREAD ONTO THE END OF THE DEFORMATIONS. HEAVY HEX NUTS AND COUPLERS SHALL BE OF A DESIGN AND MATERIAL RECOMMENDED BY THE BAR MANUFACTURER TO DEVELOP THE FULL TENSILE STRENGTH OF THE BAR. PROPERLY DOCUMENTED CERTIFIED MILL TEST REPORTS SHALL BE PROVIDED FOR EACH HEAT OF STEEL THREAD BARS.
- \*ALL POST-TENSIONING THREAD BARS, NUTS, BEARING PLATES, COUPLERS, AND ANCILLARY HARDWARE SHALL BE HOT-DIPPED GALVANIZED IN ACCORDANCE WITH AASHTO M11. THE GALVANIZING PLANT SHALL ADMINISTER ADEQUATE QUALITY CONTROL MEASURES TO SAFEGUARD AGAINST HYDROGEN EMBRITTLEMENT. QUALITY CONTROL MEASURES SHALL COMPLY WITH ASTM A-143. CERTIFICATION FOR HOT-DIP GALVANIZING SHALL BE PROVIDED BY THE GALVANIZING PLANT.
- \*ALL POST-TENSIONING BEARING PLATES SHALL CONFORM TO AASHTO M270, GRADE 36.

**SHEAR KEY GROUT:**

- \*SHEAR KEY GROUT SHALL BE A GROUT THAT IS RECOMMENDED BY THE MANUFACTURER FOR A DURABLE GROUT APPLICATION AND THAT BASED ON THE MANUFACTURER'S TEST DATA WILL ATTAIN A MINIMUM OF 4500 PSI COMPRESSIVE STRENGTH IN 3 DAYS UNDER CONDITIONS REPRESENTATIVE OF THE CONDITIONS TO BE EXPERIENCED AT THE SITE. THE GROUT MUST BE LISTED ON THE APPROVED LIST OF GROUTS PUBLISHED BY THE WEST VIRGINIA DIVISION OF HIGHWAYS, MATERIALS CONTROL, SOIL AND TESTING DIVISION. THE CONTRACTOR SHALL PRE-TEST THE PROPOSED GROUT FOR COMPRESSIVE STRENGTH AT 3 AND 7 DAYS AND SUBMIT THE RESULTS TO THE BRIDGE PROJECT MANAGER FOR APPROVAL PRIOR TO INSTALLATION OF THE GROUT IN THE STRUCTURE. THE TESTS WILL BE BASED ON A POURABLE CONSISTENCY WITH THE SAME WATER/GROUT MIXTURE RATIO TO BE USED IN THE STRUCTURE.
- \*THE CONTRACTOR SHALL BE REQUIRED TO SUBMIT FOR EACH PROJECT, THE GROUT PRE-TEST RESULTS OBTAINED IN THE NOTE ABOVE. THE CONTRACTOR SHALL BE REQUIRED TO PERFORM A NEW PRE-TEST AND SUBMISSION FOR APPROVAL UNDER ANY OF THE FOLLOWING CONDITIONS:
  - \* A PERIOD OF 18 MONTHS HAS ELAPSED SINCE LAST PRE-APPROVAL TESTING.
  - \* GROUT MANUFACTURER HAS REVISED OR CHANGED THE GROUT SPECIFICATIONS.
  - \* THE CONTRACTOR ALTERS THE WATER/GROUT MIXTURE RATIO.
  - \* THE CONTRACTOR CHANGES GROUT MANUFACTURER.
- \*THE CONTRACTOR IS REQUIRED TO COMPLETE THE GROUT STRENGTH TABLE ON BR-B103.
- \*TEST PROCEDURE FOR DETERMINING THE COMPRESSIVE STRENGTH OF GROUT SHALL USE CUBE SPECIMENS IN ACCORDANCE WITH ASTM C109, AS MODIFIED BY ASTM C1097. GROUT TESTING IN ACCORDANCE WITH AASHTO T33 (STANDARD CYLINDER TEST) IS NOT ACCEPTABLE.

**PROTECTIVE SURFACE TREATMENT:**

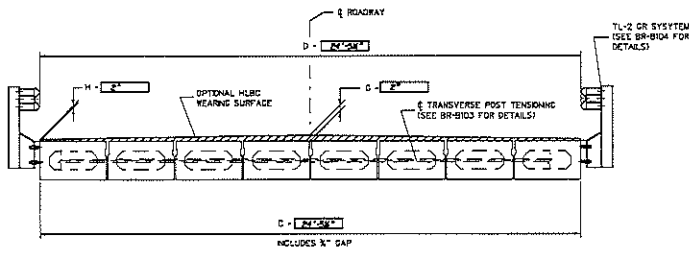
- \*EACH PRESTRESSED CONCRETE BEAM SHALL BE TREATED BY THE MANUFACTURER AT THE FABRICATION PLANT WITH AN APPROVED CONCRETE SEALER (SILANE). AN APPROVED LIST OF CONCRETE SEALERS ARE ON FILE AT THE WEST VIRGINIA DIVISION OF HIGHWAYS, MATERIALS CONTROL, SOIL AND TESTING DIVISION. COVERAGE SHALL INCLUDE TOP AND BOTTOM OF INTERIOR BEAMS, AND TOP, BOTTOM AND EXTERIOR SIDE OF EXTERIOR BEAM. APPLICATION RATE SHALL BE PER TREATMENT MANUFACTURER'S RECOMMENDATION.
- \*AFTER COMPLETION OF THE SILANE TREATMENT BY FABRICATOR AND A MAXIMUM OF FIVE WORKING DAYS PRIOR TO SHIPMENT OF THE BEAMS, THE FABRICATOR SHALL BE RESPONSIBLE FOR ABRASIVE BLAST CLEANING TO CLEAN WHITE CONCRETE THE INTERIOR SIDES OF BEAMS FOR THE FULL LENGTH. CLEAN WHITE CONCRETE SHALL MEAN REMOVAL OF ALL DIRT, GREASE, OIL, AND LOOSE CONCRETE LAFTANCE AND PROVIDE A ROUGHENED CONCRETE SURFACE. BLASTING MEDIUM SHALL BE APPROVED BY THE DIVISION OF HIGHWAYS.

**SHOP DRAWINGS:**

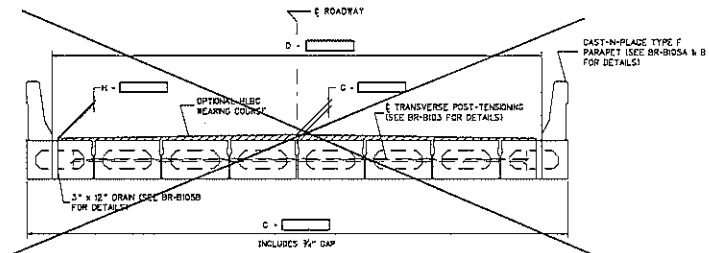
THE FABRICATOR SHALL BE RESPONSIBLE FOR THE PREPARATION OF SHOP DRAWINGS IN ACCORDANCE WITH THE WEST VIRGINIA DIVISION OF HIGHWAYS DOCUMENTS, DD-102 AND THE STANDARD SPECIFICATIONS. ADDITIONAL INFORMATION IS PROVIDED IN SECTION 7 OF THE BRIDGE DESIGN MANUAL. SHOP DRAWINGS SHALL INCLUDE THE FABRICATOR'S DETENTIONING PLAN.

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS ENGINEERING DIVISION		DESIGNED BY: /	
		DRAWN BY: /	
STEELES BRIDGE OVER LITTLE HUFF CREEK		CHECKED BY: /	
		REVIEWED BY: /	
PRESTRESSED CONCRETE BEAM DESIGN & ASSEMBLY NOTES		DATE: / /	
		SCALE: /	
WEST VIRGINIA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS ENGINEERING DIVISION PREPARED: 07-02-07 PROJECT NO. 1555-R-1-00-00 SHEET NO. 11 OF 10 DESIGN & ASSEMBLY NOTES STANDARD SHEET BR-B100		SHEET NUMBER 3829.1	

STATE PROJECT NUMBER	FEDERAL PROJECT NUMBER	STATE DIST. NO.	COUNTY	SHEET NO.	TOTAL SHEETS
5330-B-1.90 00	N/A	10	WYOMING	12	19

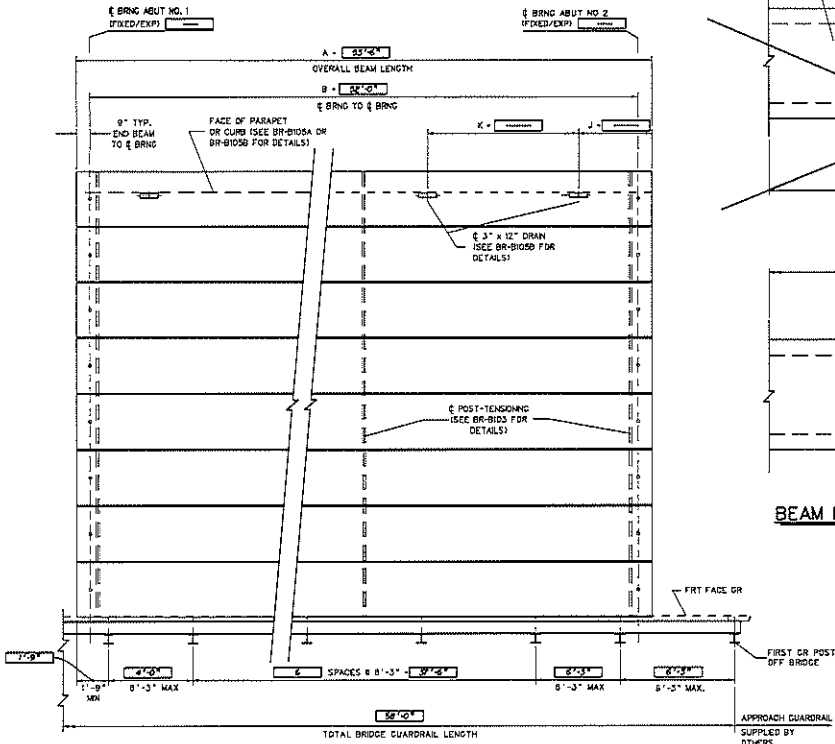


TYPICAL CROSS-SECTION WITH GUARDRAIL

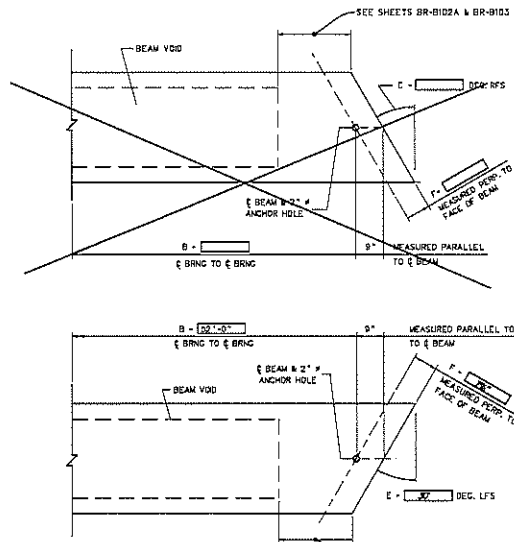


TYPICAL CROSS-SECTION WITH PARAPET OR CURB

CONTROL DIMENSIONS		
DESCRIPTION	CODE	VALUE
OVERALL BEAM LENGTH	A	53'-0"
SPAN LENGTH, $\bar{c}$ BEARING TO $\bar{c}$ BEARING	B	52'-0"
SUPERSTRUCTURE WIDTH - OUT TO OUT	C	24'-5 1/2"
ROADWAY WIDTH - FACE CR/PARAPET TO FACE CR/PARAPET	D	24'-5 1/2"
NUMBER OF BEAMS REQUIRED	—	8
BEAM SIZE (DEPTH x WIDTH)	—	33" x 30"
SKEW ANGLE (NORMAL, DEG. RFS OR DEG. LFS)	E	30° LFS
PERPENDICULAR DISTANCE FROM FACE OF BEAM TO $\bar{c}$ BEARING	F	7 1/2"
HLBC WEARING COURSE REQUIRED (YES/NO)	—	YES
THICKNESS OF WEARING COURSE @ $\bar{c}$ OF DECK OR ROADWAY	G	2"
THICKNESS OF WEARING COURSE @ EDGE OF DECK OR PARAPET	H	2"
TL-2 BRIDGE GUARDRAIL SYSTEM REQUIRED (YES/NO)	—	YES
FABRICATOR TO SUPPLY TL-2 BRIDGE GUARDRAIL (YES/NO)	—	YES
FABRICATOR TO INSTALL BRIDGE GUARDRAIL PRIOR TO SHIPMENT (YES/NO) (IF NO, FABRICATOR TO SHIP LOOSE)	—	YES
NUMBER OF GUARDRAIL POST INSERTS REQUIRED PER SIDE	—	9
TYPE F PARAPET REQUIRED (YES/NO)	—	NO
DRANS REQUIRED (YES/NO)	—	NO
NUMBER OF DRANS REQUIRED PER SIDE	—	—
10" CURB REQUIRED (YES/NO)	—	NO



DECK PLAN VIEW



BEAM PLAN VIEW - SKEWED ENDS

ESTIMATE OF QUANTITIES			
ITEM NO.	DESCRIPTION	UNITS	QUANTITY
60309-024	33x36 inch PRESTRESSED CONCRETE BOX BEAM	LF	428

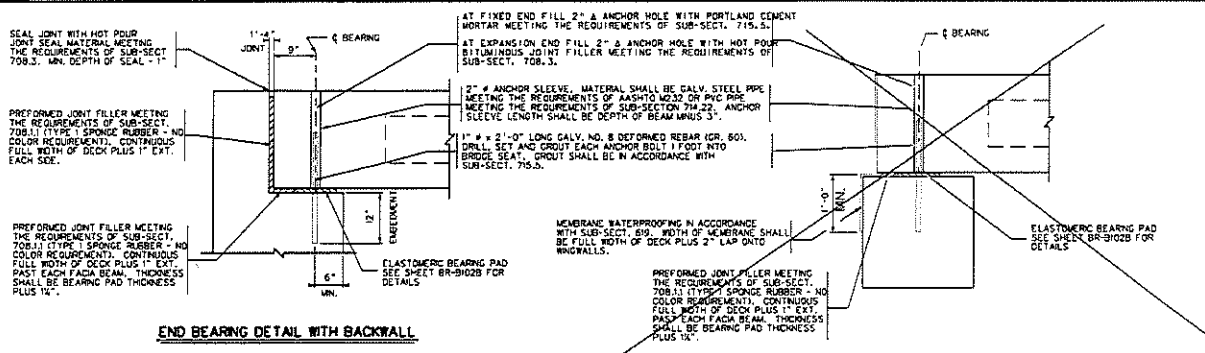
NOTES:

- WHEN BRIDGE GUARDRAIL IS TO BE SUPPLIED BY THE BEAM FABRICATOR, COST OF ALL BRIDGE GUARDRAIL ITEMS TO INCLUDE POSTS, RAIL ELEMENTS, ATTACHMENT HARDWARE, AND MISCELLANEOUS ITEMS NEEDED TO COMPLETELY INSTALL BRIDGE GUARDRAIL SHALL BE INCLUDED IN ITEM 60309-024 PRESTRESSED CONCRETE BOX BEAM.
- THIS SHEET SHALL BE USED IN CONJUNCTION WITH STANDARD SHEETS BR-817A & B THRU BR-842A & B, BR-810, BR-810A & B, BR-8103, BR-8104, BR-8105A & B AND BR-8105.

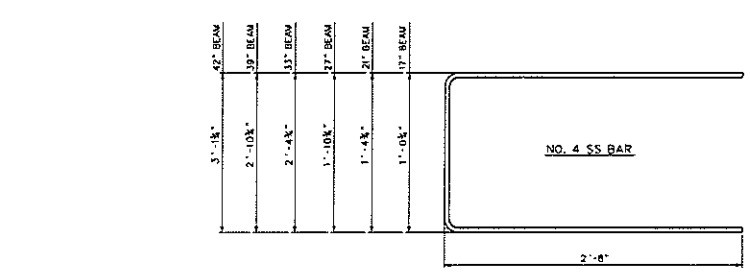
APPROVED: [Signature] DATE: 07-02-07  
 WEST VIRGINIA DEPARTMENT OF TRANSPORTATION  
 DIVISION OF HIGHWAYS  
 ENGINEERING DIVISION  
 PRESTRESSED CONCRETE BEAM  
 DESIGN AND ASSEMBLY NOTES  
 STANDARD SHEET BR-8101

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION  
 DIVISION OF HIGHWAYS  
 ENGINEERING DIVISION  
 DESIGNED BY: [Name]  
 DRAWN BY: [Name]  
 CHECKED BY: [Name]  
 REVIEWED BY: [Name]  
 DATE:  
 SCALE:  
 SHEET NO. 12 OF 19  
 BRIDGE NUMBER  
 3829.1  
 STEELES BRIDGE  
 OVER  
 LITTLE HUFF CREEK  
 PRESTRESSED CONCRETE BEAM  
 DESIGN & ASSEMBLY NOTES

STATE PROJECT NUMBER	FEDERAL PROJECT NUMBER	STATE SHEET NO.	COUNTY	SHEET NO.	TOTAL SHEETS
3355-B-1, 95-00	N/A	12	WYOMING	13	19

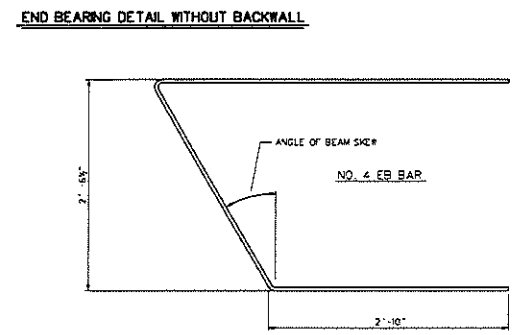


**END BEARING DETAIL WITH BACKWALL**

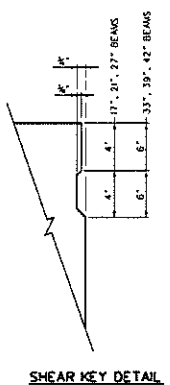


**REINFORCING BAR DETAIL**

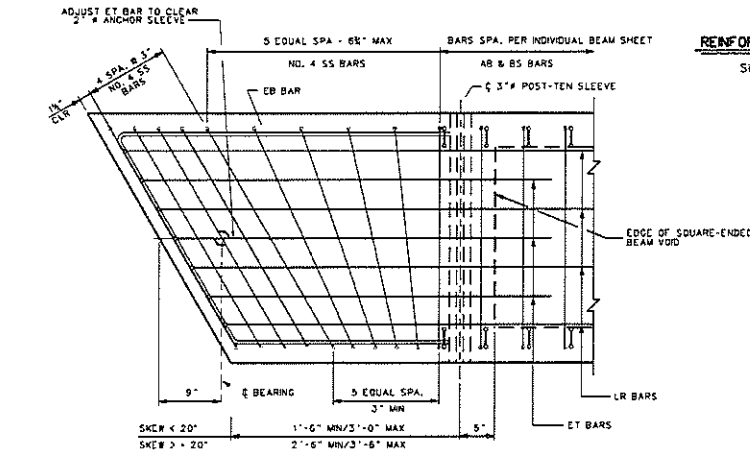
SKWEVED BEAMS



**END BEARING DETAIL WITHOUT BACKWALL**

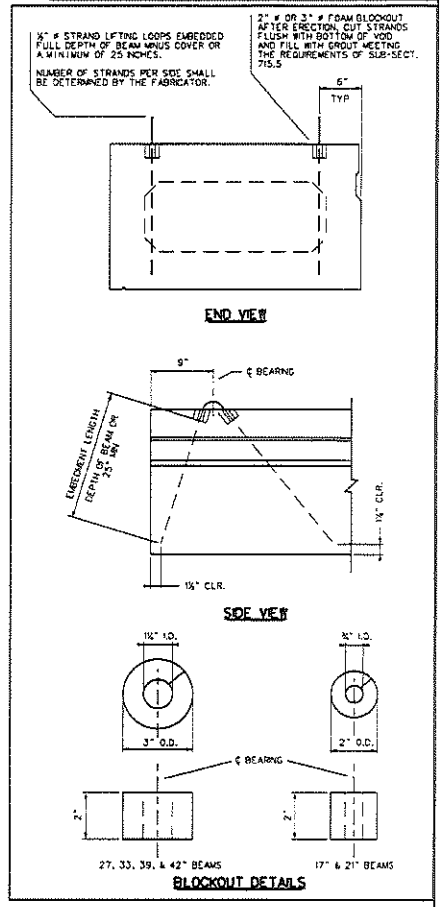


**SHEAR KEY DETAIL**



**END BLOCK DETAIL - SKWEVED BEAMS**  
W/O POST-TEN. ACCESS POCKET

THIS SHEET SHALL BE USED IN CONJUNCTION WITH STANDARD SHEETS BR-810A & B THRU BR-810A & B, BR-810C, BR-810D, BR-810E, BR-810F, BR-810G, BR-810H & B AND BR-810I AS APPROPRIATE.



**LIFTING DETAILS**

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
ENGINEERING DIVISION

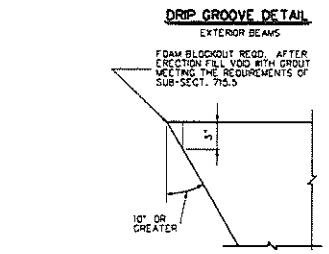
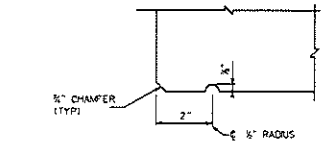
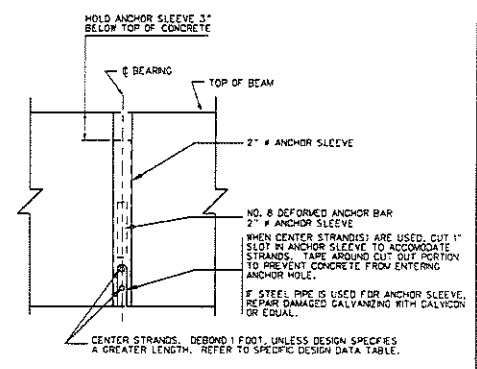
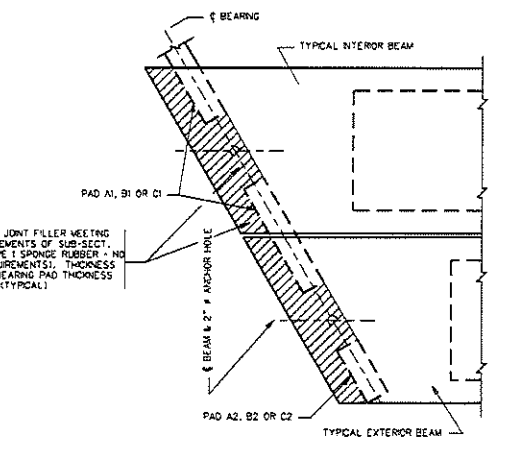
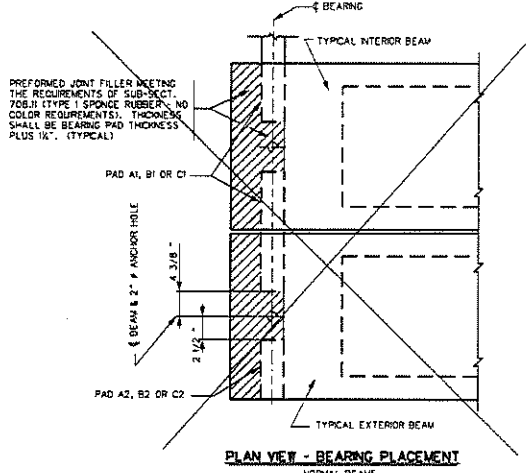
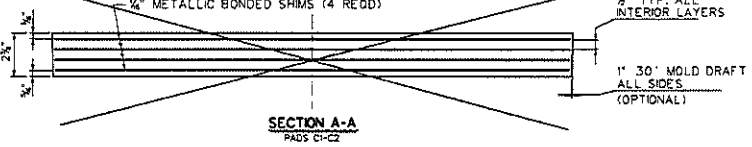
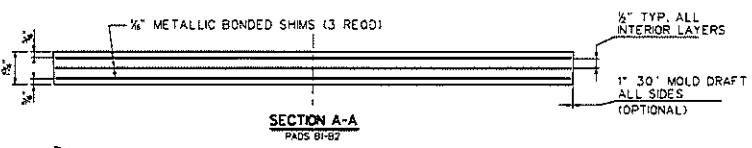
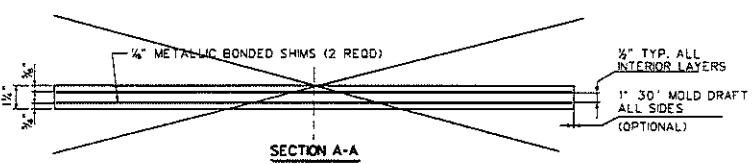
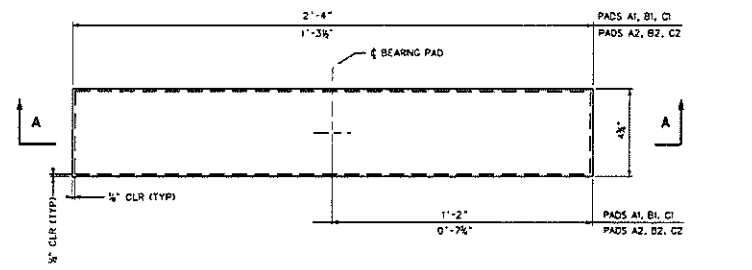
APPROVED: <i>[Signature]</i>	DATE: 10-25-07
SUPPECTOR ENGINEERING DIVISION	
WEST VIRGINIA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS ENGINEERING DIVISION	PREPARED: 07-02-07
PRESTRESSED CONCRETE BEAM SKWEVED END REINFORCING MSC.DESIGN AND ASSEMBLY DETAILS	WORKED: [ ]
STANDARD SHEET BR-810A	

STEELES BRIDGE  
OVER  
LITTLE HUFF CREEK

PRESTRESSED CONCRETE BEAM  
SKWEVED END REINFORCING  
MSC.DESIGN AND ASSEMBLY DETAILS

DESIGNED BY: THW
DRAWN BY: THW
CHECKED BY: TW
REVIEWED BY: TW
DATE:
SCALE:
SHEET: 13 of 19
BRIDGE NO. 3029.1

STATE PROJECT NUMBER	FEDERAL PROJECT NUMBER	STATE DIST. NO.	COUNTY	SHEET NO.	TOTAL SHEETS
5355-B-1-90-00	674	10	MONROE	14	18



**NOTES:**

- ELASTOMERIC BEARING PADS ARE DESIGNED IN ACCORDANCE WITH DESIGN METHOD B CONTAINED IN SECTION 14 OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS. FABRICATION SHALL BE IN ACCORDANCE WITH SECTION 18 OF THE AASHTO LRFD BRIDGE CONSTRUCTION SPECIFICATIONS.
- ALL BEARINGS ARE DESIGNED FOR A LOW TEMPERATURE ZONE C AND SHALL HAVE A DUROMETER HARDNESS OF 60. METALLIC REINFORCEMENT SHALL HAVE A MINIMUM YIELD STRENGTH OF 36 KSI.
- BEARING PADS ARE DESIGNED FOR ZERO BRIDGE GRADE. FOR BRIDGE GRADES GREATER THAN 3 %, PADS SHALL BE SPECIFICALLY DESIGNED FOR THE GRADE. AS AN ALTERNATE, CAST-IN-PLACE BEVELED SOLE PLATES MAY BE USED.
- DESIGNER, FABRICATOR AND ERECTOR SHALL BE AWARE THAT SKEWED END BEAMS MAY TWIST OR WARP, CAUSING UNEVEN BEAM SEATING AT THE BEARINGS. THE CONTRACTOR IS REQUIRED TO CORRECT AT THE TIME OF ERECTION BEFORE THE BEAMS ARE SECURED IN PLACE. METHOD OF CORRECTION SHALL PROVIDE AN EVEN, TOTAL BEARING AND A LEVEL TOP BEAM SURFACE. TOLERANCE AFTER CORRECTION SHALL BE ± 1/8 INCH. THE FABRICATOR SHALL NOTIFY THE CONTRACTOR AND DESIGNER IF CORRECTIONS ARE REQUIRED PRIOR TO SHIPMENT.
- FOR BEAMS WITH STEPPED ENDS USE PADS A2, B2, OR C2 ON BOTH SIDES OF EACH BEAM.
- ELASTOMERIC BEARING PADS SHALL BE INCLUDED IN THE PRICE OF THE BEAMS.
- THIS SHEET SHALL BE USED IN CONJUNCTION WITH STANDARD SHEETS BR-9174 & B THRU BR-8424 & B, BR-9100, BR-9101, BR-9102A, BR-9103, BR-9104, BR-9105A & B AND BR-106 AS APPROPRIATE.

BOX BEAM BEARING PAD CONTROL DIMENSIONS								
PAD	LENGTH	WIDTH	HEIGHT	NO. SHIMS	SHIM SIZE	SPAN RANGES	MAXIMUM REACTION	MAXIMUM MOVEMENT ONE DIRECTION
B1	48"	28"	7 1/2"	3	1/4" x 4 1/2" x 2" - 3/16"	40' - 78'	75 KIPS	0.80"
B2	48"	15 1/2"	7 1/2"	3	1/4" x 4 1/2" x 1" - 3/16"	40' - 78'	38 KIPS	0.80"

**PLAN VIEW - BEARING PLACEMENT**

APPROVED: *Donna Dealy*  
DIRECTOR, ENGINEERING DIVISION DATE: 10-25-07

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
ENGINEERING DIVISION

PREPARED: 07-02-07

REVISIONS:

PRESTRESSED CONCRETE BEAM  
ELASTOMERIC BEARING PAD DETAILS  
MISC. DESIGN AND ASSEMBLY DETAILS

STANDARD SHEET BR-9102B

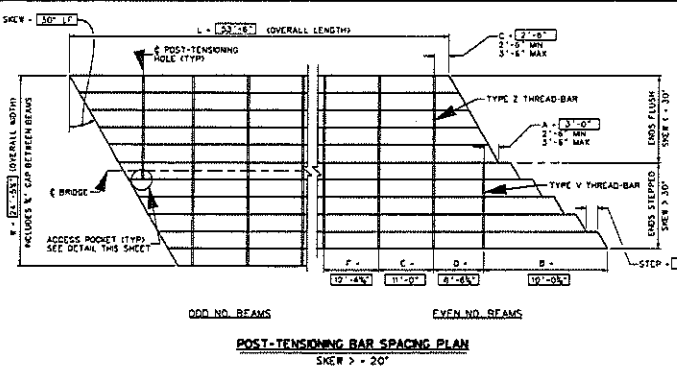
WEST VIRGINIA DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
ENGINEERING DIVISION

DESIGNED BY: THB  
DRAWN BY: THB  
CHECKED BY: THB  
REVIEWED BY: THB  
DATE:  
SCALE:  
SHEET 14 OF 19  
BRIDGE NO. 3829.1

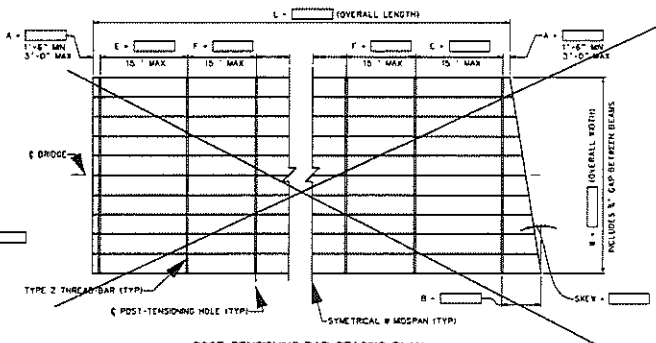
STEELES BRIDGE  
OVER  
LITTLE HUFF CREEK

PRESTRESSED CONCRETE BEAM  
ELASTOMERIC BEARING PAD DETAILS  
MISC. DESIGN AND ASSEMBLY DETAILS

STATE PROJECT NUMBER	FEDERAL PROJECT NUMBER	STATE DIST. NO.	COUNTY	SHEET NO.	TOTAL SHEETS
5553-B-1-90-00	N/A	10	WYOMING	15	10

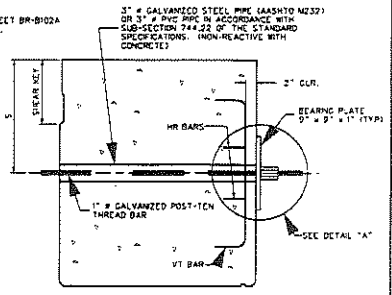


**POST-TENSIONING BAR SPACING PLAN**  
SKEW > 20°

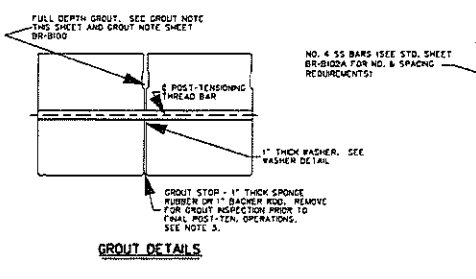


**POST-TENSIONING BAR SPACING PLAN**  
NORMAL OR SKEW < 20°

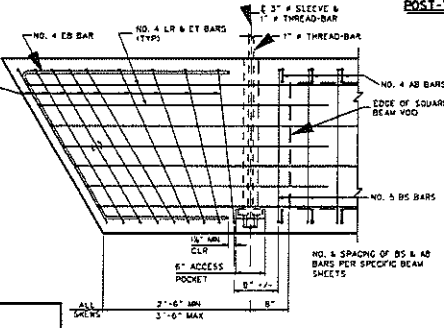
REFER TO STANDARD SHEET BR-B102A FOR SHEAR KEY DETAILS.



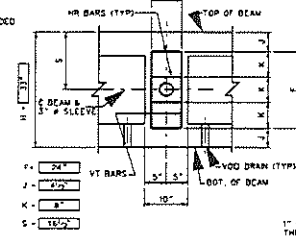
**POST-TENSIONING BAR DETAILS**



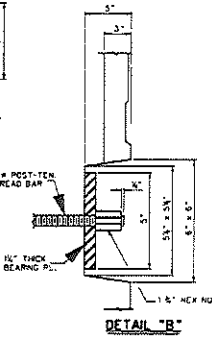
**GROUT DETAILS**



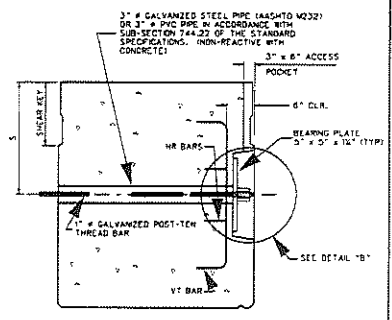
**SHEAR REINFORCEMENT DETAIL**  
BEAMS WITH ACCESS POCKETS



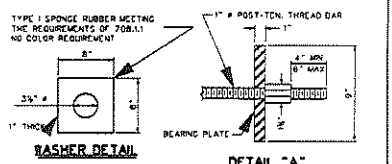
**REINFORCING DETAILS @ DIAPHRAGM**  
EXTERIOR BEAM & POCKETS ONLY



**DETAIL "B"**



**ACCESS POCKET - END POST-TENSION BAR**



**WASHER DETAIL**

**DETAIL "A"**

**PROCEDURE NOTES**

- INSTALL ONE HIGH THICK WASHER AND GROUT STOP BY GLUING TO ONE SIDE. FOR THE ENTIRE LENGTH OF EACH BEAM PRIOR TO SETTING THE BEAMS. GLUE SHALL BE AN APPROVED CONSTRUCTION TYPE GLUE OR EPOXY ADHESIVE. GROUT STOP MAY BE INSTALLED AFTER BEAMS ARE SET.
- GLUE A 4" x 2" x 2" PIECE OF PRESSURE TREATED PLYWOOD AT EACH THREAD-BAR LOCATION TO INSURE THAT A 6" GAP IS OBTAINED. PLYWOOD SPACERS TO BE OFFSET APPROXIMATELY 2 FEET FROM THE THREAD-BAR HOLE AND CENTERED ON THE HOLE DEPTH. PLYWOOD SPACERS ARE REQUIRED ON ONLY ONE BEAM EDGE FACE OF ADJUTING BEAMS. AFTER THE BEAMS ARE SET AND THE THREAD-BARS INSTALLED, PULL THE ENTIRE SUBSTRUCTURE TOGETHER BY APPLYING A POST-TENSIONING FORCE OF APPROXIMATELY 3000 POUNDS. AT THIS STAGE THE GAP BETWEEN BEAMS SHALL BE A UNIFORM 6" WITH ALL SKEW REMOVED. RECORD THE ACTUAL FORCE APPLIED.
- FILL THE GAP BETWEEN BEAMS AND SHEAR KEY FULL DEPTH WITH THE PRE-APPROVED, PRE-TESTED GROUT MIXTURE. FROM EACH BATCH, PREPARE JOB CONTROL GROUT CUBES FOR THREE AND SEVEN DAY TESTS. THESE JOB CONTROL SAMPLES WILL BE USED TO DETERMINE WHEN THE GROUT HAS ATTAINED A MINIMUM COMPRESSIVE STRENGTH OF 4500 PSI. A MINIMUM OF THREE SPECIMENS PER TEST SHALL BE OBTAINED, AND THE AVERAGE OF THE TEST RESULTS USED. ACCEPTANCE SAMPLING AND TESTING OF THE GROUT IS THE RESPONSIBILITY OF THE CONTRACTOR; HOWEVER, A REPRESENTATIVE OF THE BYDOW SHALL WITNESS ALL OF THE ACCEPTANCE SAMPLING AND TESTING.  
  
TEST PROCEDURE SHALL BE ASTM D109 AS MODIFIED BY ASTM D107. IN NO INSTANCE SHALL THE CONTRACTOR PROCEED WITH POST-TENSIONING OR OTHER BEAM ERECTION PROCEDURES UNTIL THE REQUIRED MINIMUM GROUT STRENGTH IS ATTAINED AND VERIFIED BY THE ENGINEER. IN THE EVENT THAT THE MINIMUM GROUT STRENGTH IS NOT ATTAINED, THE ENGINEER SHALL BE NOTIFIED AND CORRECTIVE ACTION TAKEN AT THE DIRECTION OF THE ENGINEER. SEE SHEAR KEY GROUT NOTE, SHEET BR-B100 FOR ADDITIONAL REQUIREMENTS.  
  
AFTER THE GROUT HAS REACHED AN INITIAL SET CONDITION AND PRIOR TO ANY FINAL POST-TENSIONING PROCEDURES, THE CONTRACTOR SHALL REMOVE THE GROUT STOP AND INSPECT THE GROUT FOR VOIDS OR OTHER IRREGULARITIES. ANY VOIDS DEEPER THAN 2" FROM THE BOTTOM SHALL BE REGRouted IN A MANNER ACCEPTABLE TO THE ENGINEER.
- AFTER GROUT AS BEEN PLACED AND REACHED IT'S MINIMUM COMPRESSIVE STRENGTH OF 4500 PSI AND HAS CURED A MINIMUM OF 3 DAYS, APPLY BOX OF THE FINAL POST-TENSIONING FORCE TO ALL THREAD-BARS WORKING BEAM ENDS TO MCSPAN. AFTER ALL THREAD-BARS HAVE BEEN TENSIONED TO 50%, APPLY THE REMAINING PERCENTAGE OF FINAL POST-TENSIONING FORCE, WORKING IN THE SAME SEQUENCE AS THE FIRST STAGE OF FINAL TENSIONING.
- MEASURE AND RECORD IN THE ELONGATION TABLE, THIS SHEET, THE ACTUAL TOTAL ELONGATION OF EACH THREAD-BAR. COMPARE THE MEASURED ELONGATION TO THE CALCULATED ELONGATION. A SIGNIFICANT DIFFERENCE BETWEEN MEASURED AND CALCULATED ELONGATIONS COULD INDICATE IMPROPER JAWING TECHNIQUES, FAULTY MATERIALS, FAULTY JACKS, OR IMPROPERLY CALIBRATED JACKS. IF THE DIFFERENCE IS GREATER THAN 10%, THEN THE JACK SHALL BE RE-CALIBRATED AND THE JAWING TECHNIQUES EVALUATED. IF, AFTER THE ABOVE STEPS ARE TAKEN, THE PERCENTAGE DIFFERENCE IS GREATER THAN 10%, THEN THE ENGINEER SHALL BE NOTIFIED AND CORRECTIVE ACTION TAKEN AT THE DIRECTION OF THE ENGINEER. ALL COSTS INVOLVED IN CORRECTION SHALL BE AT THE CONTRACTORS EXPENSE.
- USING SAW, TRIM EXCESS THREAD-BAR LEAVING 4" TO 6" PAST THE NUT. DO NOT TRIM THREAD-BARS BY TORN CUTTING. TOUCH-UP TRIMMED ENDS WITH CALVICON OR EQUAL.
- INSTALL ANCHOR DOWNELS AS DETAILED ON STANDARD SHEETS BR-B101 AND BR-B102A.

**FINAL POST-TENSIONING FORCE**

TYPE Z BARS = 80 KIPS
TYPE V BARS = 40 KIPS

**POST-TENSIONING BAR LAYOUT SCHEDULE**

SPAN	52'-0"
SKEW	30' LF
L	23'-6"
W	24'-5 1/2"
A	3'-0"
B	10'-00"
C	2'-6"
D	6'-16 1/2"
E	11'-0"
F	12'-14 1/2"
STEP	-----

**DIMENSIONS**

BEAM SIZE	REINFORCEMENT BAR	DTM SPACING (DIST)		
H	T	J	K	S
IN.	IN.	IN.	IN.	IN.
17	12	2 1/2	4	8 1/2
21	12	4 1/2	4	10 1/2
27	18	4 1/2	6	13 1/2
33	24	4 1/2	8	16 1/2
39	30	4 1/2	10	19 1/2
42	33	4 1/2	11	21

**GROUT STRENGTH TABLE**

	3 DAY (PSI)	7 DAY (PSI)
PRE-TEST STRENGTH		
JOB CONTROL STRENGTH		
GROUT TYPE & MANUFACTURER		

**POST-TENSIONING BAR LENGTH**

BAR	FORMULA	LENGTH
V(EVEN)	3-3	35'-2 1/2"
Z	3-3	27'-5 1/2"
V(ODD)	3-4-6	-----

**ELONGATION (INCHES)**

BAR	CODE	CALC.	MEASURED										
			NO. 1	NO. 2	NO. 3	NO. 4	NO. 5	NO. 6	NO. 7	NO. 8	NO. 9		
Z	①	0.805											
V	②	0.248											
CALCULATED			ODD NO. BEAMS										
CALCULATED			CALCULATED										

- SPECIAL WARNING NOTES**
- DO NOT STAND IN LINE WITH THE POST-TENSIONING BAR DURING TENSIONING PROCEDURES.
  - NUTS, COUPLERS AND EXTENSION RODS USED IN THE POST-TENSIONING WORK SHALL BE THE MATERIAL APPROVED BY THE MANUFACTURER OF THE HIGH STRENGTH POST-TENSIONING BODY. IN NO CASE SHALL THE CONTRACTOR USE NON-APPROVED MATERIAL OR MATERIAL FROM TWO DIFFERENT SOURCES.

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
ENGINEERING DIVISION  
PRESTRESSED CONCRETE BEAM  
TRANSVERSE POST-TENSIONING DETAILS  
STANDARD SHEET BR-B103

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
ENGINEERING DIVISION

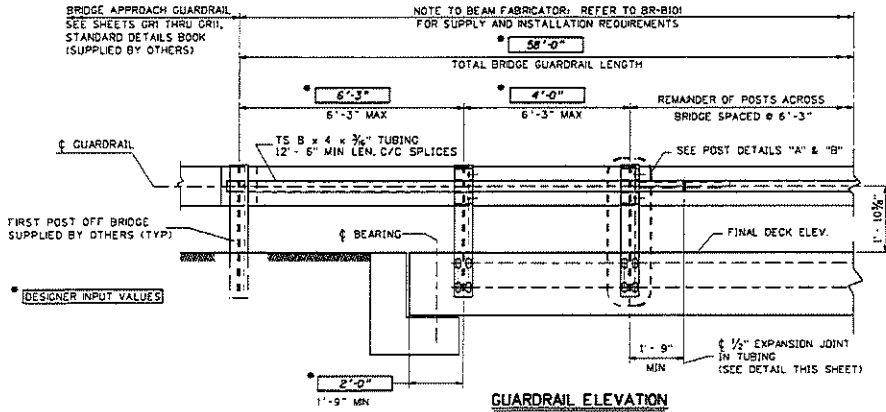
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CHECKED BY THE/  
REVIEWED BY THE/  
DATE:  
SCALE:  
SHEET NO. IS OF 19  
PROJECT NUMBER  
3829.1

STEELES BRIDGE  
OVER  
LITTLE HUFF CREEK  
  
PRESTRESSED CONCRETE BEAM  
TRANSVERSE POST-TENSIONING DETAILS

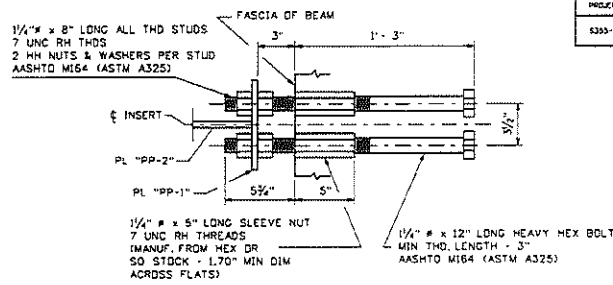


BRIDGE APPROACH GUARDRAIL  
SEE SHEETS GR1 THRU GR11,  
STANDARD DETAILS BOOK  
(SUPPLIED BY OTHERS)

NOTE TO BEAM FABRICATOR - REFER TO BR-B101  
FOR SUPPLY AND INSTALLATION REQUIREMENTS

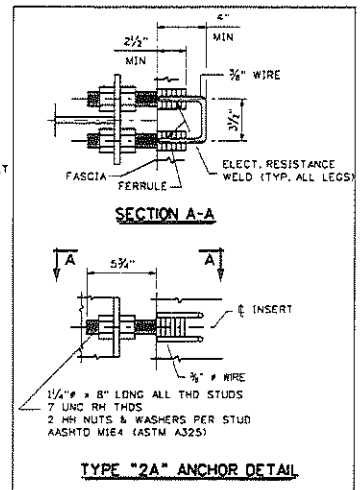


**GUARDRAIL ELEVATION**



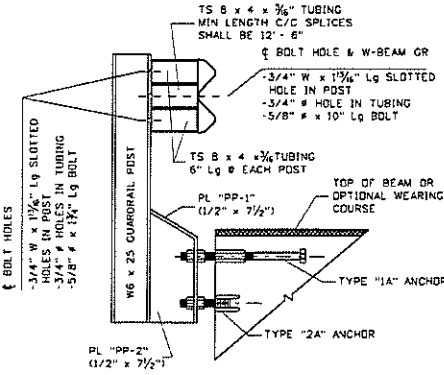
**TYPE "1A" ANCHOR DETAIL**

STATE PROJECT NUMBER	FEDERAL PROJECT NUMBER	STATE DIST. NO.	COUNTY	SHEET NO.	TOTAL SHEETS
5355-B-1-90 00	N/A	10	WV/MING	16	19

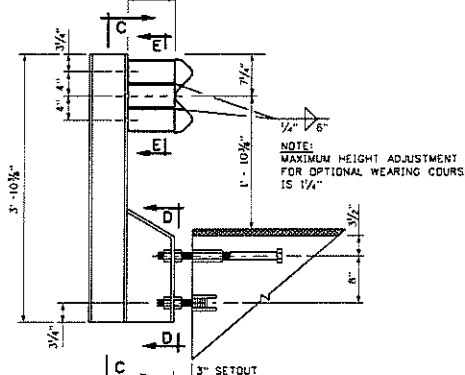


**SECTION A-A**

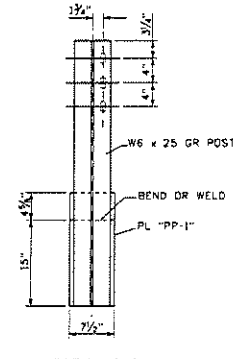
**TYPE "2A" ANCHOR DETAIL**



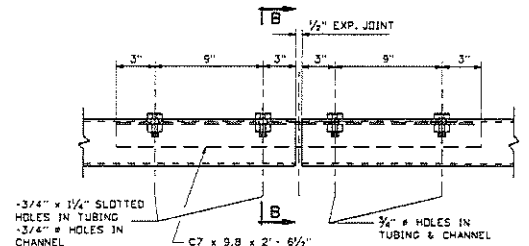
**GUARDRAIL POST DETAIL "A"**



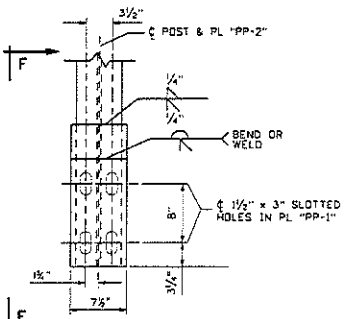
**GUARDRAIL POST DETAIL "B"**



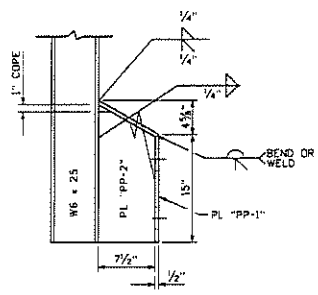
**SECTION C-C**



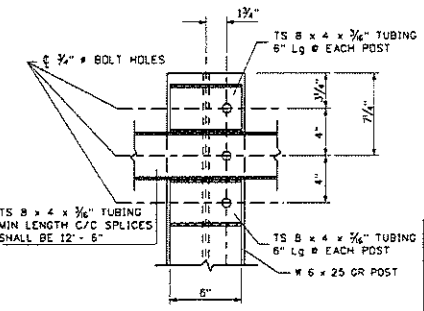
**TUBING SPLICE/EXPANSION JOINT DETAIL**



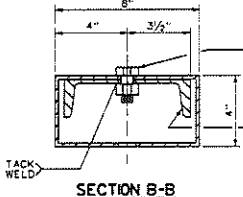
**SECTION D-D**



**SECTION F-F**



**SECTION E-E**



**SECTION B-B**

THIS SHEET SHALL BE USED IN CONJUNCTION WITH STANDARD SHEETS BR-B17A & B THRU BR-B42A & B, BR-B100, BR-B101, BR-B102A & B, AND BR-B103 AS APPLICABLE.

APPROVED: \_\_\_\_\_  
WEST VIRGINIA DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
ENGINEERING DIVISION  
PRESTRESSED CONCRETE BEAM  
TYPE TL-2 GUARDRAIL SYSTEM  
DESIGN & ASSEMBLY DETAILS  
SHEET BR-B104

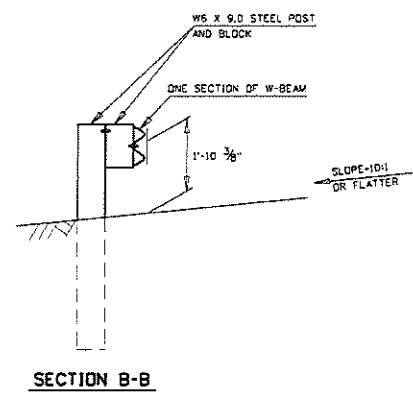
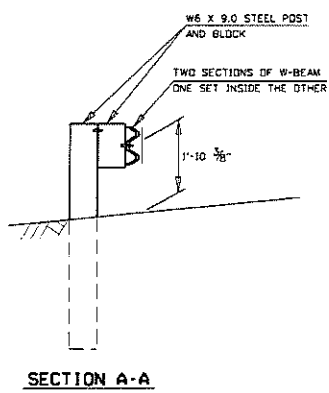
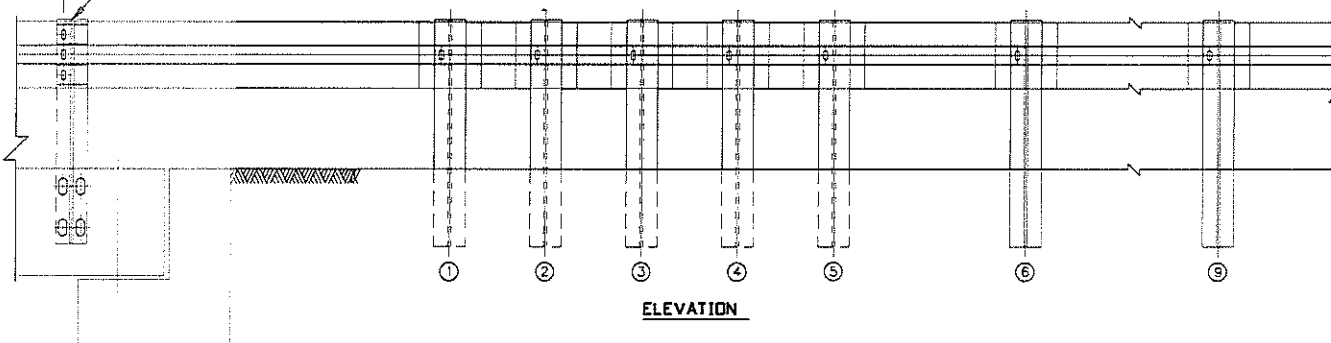
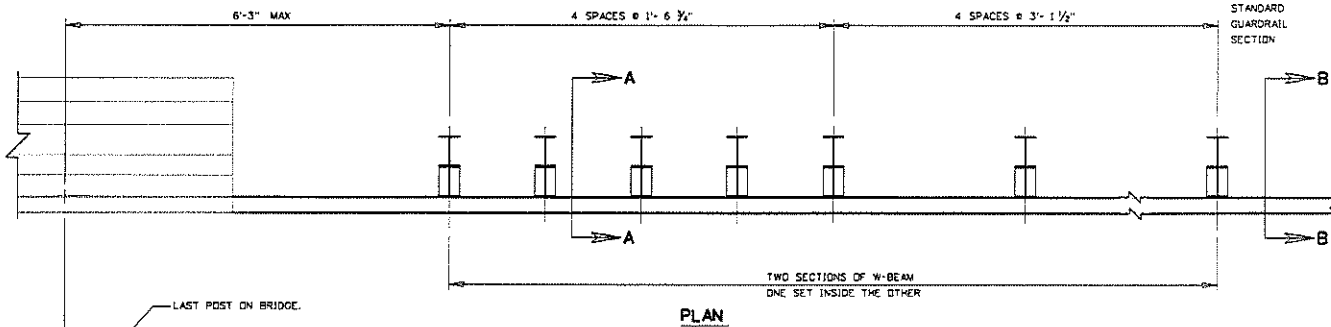
WEST VIRGINIA DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
ENGINEERING DIVISION

DESIGNED BY: THY/  
DRAWN BY: THY/  
CHECKED BY: THY/  
REVIEWED BY: \_\_\_\_\_  
DATE: \_\_\_\_\_  
SCALE: \_\_\_\_\_  
SHEET NO. 16 OF 18  
BRIDGE NUMBER  
3829.1

STEELES BRIDGE  
OVER  
LITTLE HUFF CREEK

PRESTRESSED CONCRETE BEAM  
TYPE TL-2 GUARDRAIL SYSTEM  
DESIGN & ASSEMBLY DETAILS

PROJECT NUMBERS		DISTRICT	COUNTY	SHEET NO.	TOTAL
STATE	FEDERAL				
3555-B-1, 80 00	N/A	10	WVOMHC	17	19



**NOTES**

1. THIS GUARDRAIL TRANSITION IS APPROPRIATE FOR CONNECTION TO GUARDRAIL ON BRIDGE.
2. W-BEAM IS NOT BOLTED TO POSTS AT POSTS 2 THROUGH 4 AND POST 6.
3. SEE STANDARD SHEET BR-B104 FOR ANCHOR DETAILS.
4. THERE IS NO SEPARATE PAY ITEM FOR THIS CONNECTION AND ALL COMPONENTS AS DETAILED HEREIN SHALL BE INCLUDED IN THE CONTRACT PRICE FOR GUARDRAIL.

THIS SHEET SHALL BE USED IN CONJUNCTION WITH STANDARD SHEETS BR-B17A & B THRU BR-B42A & B, BR-B100, BR-B101, BR-B102A & B, BR-B103 AND BR-B104 AS APPLICABLE.

APPROVED: *Largo's* DATE: 07-02-07

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
ENGINEERING DIVISION

PREPARED: 07-02-07

DESIGNED BY: TWI  
DRAWN BY: BHJ  
CHECKED BY: TWI  
REVIEWED BY: THB  
DATE:  
SCALE:  
SHEET 17 OF 19  
BRIDGE NO. 3829.1

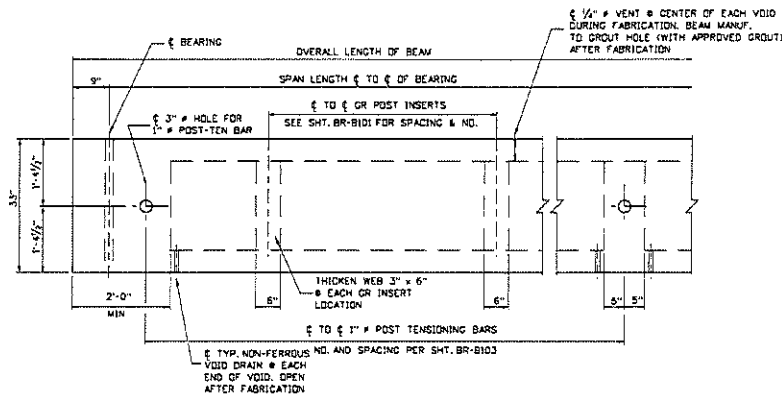
STANDARD SHEET BR-B105

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
ENGINEERING DIVISION

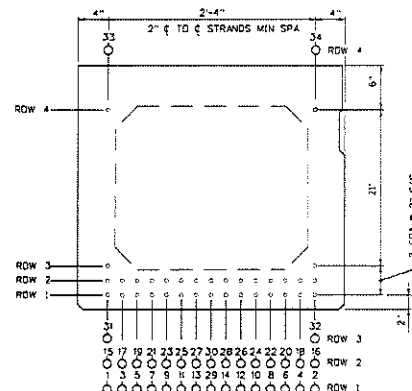
STEELES BRIDGE  
OVER  
LITTLE HUFF CREEK

TYPE TL-2 GUARDRAIL TRANSITION

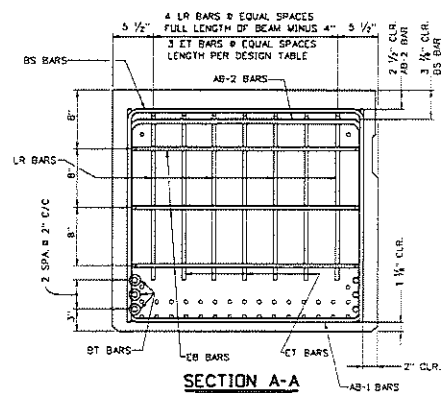
PROJECT NUMBERS		DISTRICT	COUNTY	SHEET NO.	TOTAL
STATE	FEDERAL				
WV	NA	10	Wyoming	18	19



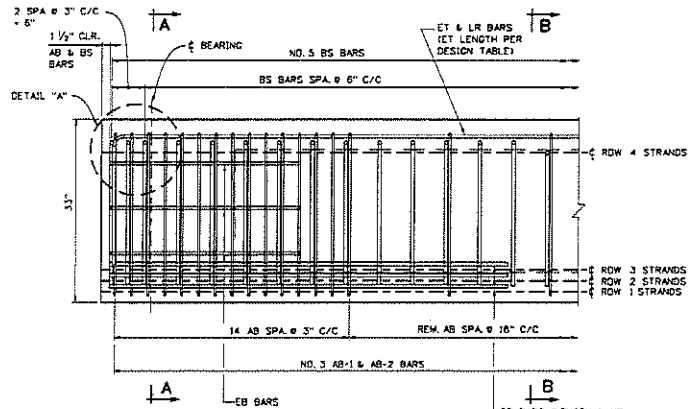
**GENERAL ELEVATION VIEW**



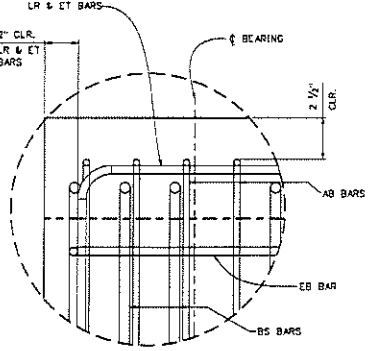
**BEAM PRESTRESSING**  
TYPICAL @ BEAM END & MIDSPAN



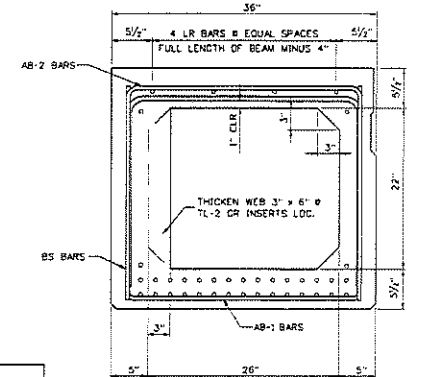
**SECTION A-A**



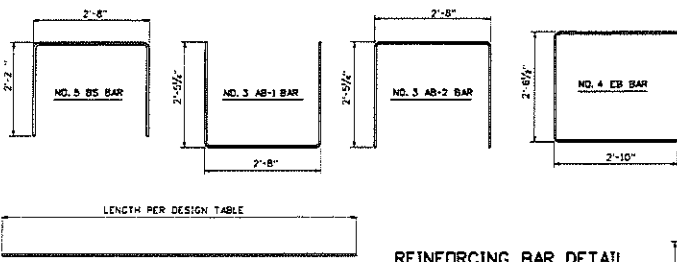
**REINFORCING STEEL ELEVATION**



**DETAIL "A"**



**SECTION B-B**



**REINFORCING BAR DETAIL**

**NOTES:**

- REFER TO SHEET BR-B102A FOR SHEAR KEY DETAILS.
- DESIGNER SHALL USE THE FOLLOWING KEY TO INDICATE STRAND AND DEBONDING PATTERN ON "BEAM PRESTRESSING VIEW", THIS SHEET.
  - ACTIVE STRAND
  - ▽ DEBOND STRAND: LENGTH FROM END OF BEAM
  - △ DEBOND STRAND: LENGTH FROM END OF BEAM
  - DEBOND STRAND: LENGTH FROM END OF BEAM
- THIS SHEET SHALL BE USED IN CONJUNCTION WITH STANDARD SHEETS BR-B33B, BR-B100, BR-B101, BR-B102A & B, BR-B103, BR-B104, BR-B105A & B AND BR-B106 AS APPLICABLE.

WHEN A POST-TENSION ACCESS POCKET IS USED AS DETAILED ON SHEET BR-103 STRANDS IN ROWS 3 AND 4 SHALL BE ELIMINATED. THE BEAM SHALL BE REDESIGNED AS NECESSARY.

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
ENGINEERING DIVISION

APPROVED: \_\_\_\_\_ DATE: 07-02-07  
DIRECTOR, ENGINEERING DIVISION

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
ENGINEERING DIVISION

33" PRESTRESSED CONCRETE  
BOX BEAMS  
DESIGN AND ASSEMBLY DETAILS  
STANDARD SHEET BR-B33A

DESIGNED BY: TWJ  
DRAWN BY: BHJ  
CHECKED BY: TWJ  
REVIEWED BY: THB/  
DATE: \_\_\_\_\_  
SCALE: \_\_\_\_\_  
SHEET 18 OF 19  
BRIDGE NO. 3829.1

STEELES BRIDGE  
OVER  
LITTLE HUFF CREEK

33" PRESTRESSED BOX BEAM  
DESIGN AND ASSEMBLY DETAILS

STATE PROJECT NUMBER	FEDERAL PROJECT NUMBER	STATE DIST. NO.	COUNTY	SHEET NO.	TOTAL SHEETS
WV	NA	10	Wyoming	19	19

DESIGN DATA FOR 33" DEPTH ADJACENT BOX BEAM

SPAN LENGTH @ TO @ BEARING	20'-0"	32'-0"	44'-0"	56'-0"	68'-0"	80'-0"	92'-0"	104'-0"	116'-0"	128'-0"	140'-0"	152'-0"	164'-0"	176'-0"	188'-0"	200'-0"
OVERALL LENGTH OF BEAM	51'-6"	53'-6"	55'-6"	57'-6"	59'-6"	61'-6"	63'-6"	65'-6"	67'-6"	69'-6"	71'-6"	73'-6"	75'-6"	77'-6"	79'-6"	81'-6"
NO. OF 270 KSI, 1/2" # L/DW-RELAXATION STRANDS, AREA/STRAND = 0.167 SQ. IN.	12	12	12	14	14	14	16	16	16	18	18	18	18	18	18	18
STRAND POSITION NUMBER	ROW 1	1,2,7,8,13,14	1,2,7,8,13,14	1,2,7,8,13,14	1,2,7,8,13,14	1,2,7,8,13,14	2,5,6,9,10,13,14	1,2,5,6,9,10,13,14	1,2,5,6,9,10,13,14	1,2,5,6,9,10,13,14	1,2,5,6,9,10,13,14	1,2,5,6,9,10,13,14	1,2,5,6,9,10,13,14	1,2,5,6,9,10,13,14	1,2,5,6,9,10,13,14	1,2,5,6,9,10,13,14
	ROW 2	15,16,27,28	15,16,27,28	15,16,27,28	15,16,27,28	15,16,27,28	15,16,27,28	15,16,27,28	15,16,27,28	15,16,27,28	15,16,27,28	15,16,27,28	15,16,27,28	15,16,27,28	15,16,27,28	15,16,27,28
	ROW 3															
	ROW 4	33,34	33,34	33,34	33,34	33,34	33,34	33,34	33,34	33,34	33,34	33,34	33,34	33,34	33,34	33,34
PRESTRESSING FORCE IMMEDIATELY AFTER STRAND RELEASE, Ppl (KIPS/BEAM)	394	394	394	457	458	458	521	521	521	584	584	584	584	584	584	584
EFFECTIVE PRESTRESSING FORCE AFTER ALL LOSSES, Ppr (KIPS/BEAM)	359	360	361	414	415	417	468	470	471	522	522	522	522	522	522	522
REQUIRED FACTORED MOMENT @ STRENGTH I, Mu (FT-KIPS/BEAM)	808	918	979	1042	1107	1173	1244	1312	1383	1454	1527	1597	1656	1656	1656	1656
FACTORED FLEXURAL RESISTANCE, Mf (FT-KIPS/BEAM)	1094	1092	1092	1260	1280	1280	1478	1478	1656	1656	1656	1656	1656	1656	1656	1656
TOTAL NO. DEBONDED STRANDS																
DEBONDED STRAND POSITION NUMBER & SHIELDING LENGTH FROM EACH END	ROW 1															
	ROW 2															
NUMBER & LENGTH #4 ET TOP TENSION BARS @ EACH END	3 - #4 x 6'-0"	3 - #4 x 6'-6"	3 - #4 x 7'-0"	3 - #4 x 7'-0"	3 - #4 x 7'-0"	3 - #4 x 7'-6"	3 - #4 x 7'-6"	3 - #4 x 8'-0"	3 - #4 x 8'-0"	3 - #4 x 8'-0"	3 - #4 x 8'-6"	3 - #4 x 8'-6"	3 - #4 x 9'-0"	3 - #4 x 9'-0"	3 - #4 x 9'-0"	3 - #4 x 9'-0"
NUMBER & LENGTH #5 BT BOTTOM TENSION BARS @ EACH END	6 - #5 x 7'-0"	6 - #5 x 6'-0"	6 - #5 x 7'-0"	6 - #5 x 7'-0"	6 - #5 x 7'-0"	6 - #5 x 7'-6"	6 - #5 x 7'-6"	6 - #5 x 8'-0"	6 - #5 x 8'-0"	6 - #5 x 8'-0"	6 - #5 x 8'-6"	6 - #5 x 8'-6"	6 - #5 x 9'-0"	6 - #5 x 9'-0"	6 - #5 x 9'-0"	6 - #5 x 9'-0"
DESIGN CAMBER + # POSITIVE (UP) (INCHES)	@ RELEASE	0.19	0.18	0.17	0.27	0.25	0.25	0.39	0.38	0.51	0.50	0.68	0.66	0.66	0.66	0.66
	@ ERECTION	0.25	0.22	0.19	0.35	0.32	0.27	0.49	0.44	0.66	0.58	0.52	0.52	0.52	0.52	0.52
	@ FINAL	0.17	0.10	0.03	0.21	0.12	0.01	0.27	0.14	0.38	0.23	0.06	0.06	0.06	0.06	0.06
NUMBER & SPACING OF TL-2 GUARDRAIL INSERTS																
SEE NOTE 6																
WEIGHT OF TYPICAL BEAM INCLUDING DIAPHRAGM (TONS)	19.9	20.6	21.3	22.0	22.7	23.4	24.4	25.1	25.8	26.5	27.2	27.2	27.2	27.2	27.2	27.2

MIN. CONCRETE STRENGTH @ RELEASE = 5500 PSI  
 MIN. CONCRETE STRENGTH @ 28 DAYS = 8000 PSI  
 INITIAL PULL/STRAND = 33,820 LBS  
 CROSS-SECTION AREA/STRAND = 0.167 SQ. IN.

NOTES  
 1. BEAM WEIGHTS LISTED IN THE DESIGN TABLE ARE BASED ON ZERO SKEW, 2 FT. LONG ENDBLOCK AND DIAPHRAGM SPACED @ 15 FT C/C. WEIGHTS FOR SKEWED BEAMS, LONGER ENDBLOCKS AND ADDITIONAL DIAPHRAGMS SHOULD BE ADJUSTED ACCORDINGLY.  
 FOR ADDITIONAL DIAPHRAGMS, ADD 497 LBS/DIAPHRAGM.  
 FOR SKEW ADD 33 LBS/DEGREE OF SKEW/END.  
 FOR LONGER ENDBLOCK, ADD 598 LBS/LF/END.  
 2. DESIGNERS SHOULD NOTE THAT DATA IN STANDARD TABLE IS BASED ON EVEN SPAN LENGTHS, A TWO LANE STRUCTURE @ BEAMS WIDE AND ZERO SKEW. SUPERIMPOSED DEAD LOADS INCLUDE TYPE F PARAPET (32) PLF) AND A FWS OF 50 PSF. FOR NON-STANDARD BRIDGES DATA SHOULD BE VERIFIED AND IF REQUIRED NEW DESIGN DATA ENTERED INTO BLANK COLUMNS. IN NO CASE SHALL THE STANDARD DESIGN TABLE BE ALTERED.  
 3. PREDICTED DESIGN CAMBER VALUES LISTED IN THE TABLE ARE BASED ON EMPIRICAL FORMULAS AND AS SUCH ARE APPROXIMATE. FOR MEMBERS WITH SPAN-TO-DEPTH RATIOS AT OR EXCEEDING 25, THE TOLERANCE VALUES LISTED IN APPENDIX B OF PCI MANUAL, FOR QUALITY CONTROL, ENCL-116, MAY NOT APPLY. MEASUREMENT OF CAMBER FOR COMPARISON TO PREDICTED DESIGN VALUES SHOULD BE COMPLETED WITHIN 72 HOURS OF RELEASE. ADDITIONALLY, CAMBER SHOULD BE EVALUATED UNDER CONDITIONS THAT MINIMIZE THE EFFECT OF TEMPERATURE VARIATION.

4. DESIGNER, FABRICATOR, AND ERECTOR SHALL BE AWARE THAT SKEWED END BEAMS MAY TWIST OR WARP, CAUSING UNEVEN BEAM SEATING AT THE BEARINGS. THE CONTRACTOR IS REQUIRED TO CORRECT AT THE TIME OF ERECTION, BEFORE THE BEAMS ARE SECURED IN PLACE. METHOD OF CORRECTION SHALL PROVIDE AN EVEN, TOTAL BEARING AND A LEVEL TOP BEAM SURFACE. TOLERANCE, AFTER CORRECTION, SHALL BE (1/4) 1/8 INCH. THE FABRICATOR SHALL NOTIFY THE CONTRACTOR AND DESIGNER IF CORRECTIONS ARE REQUIRED PRIOR TO SHIPMENT.  
 5. MAXIMUM BEAM SKEW SHALL BE 30 DEGREES.  
 6. DESIGNER INPUT VALUES OF NUMBER OF INSERTS, DISTANCE FROM END OF BEAM TO @ FIRST INSERT, AND @ FIRST INSERT TO @ SECOND INSERT. ABOVE VALUES SHALL BE BASED ON THE REQUIRED 6'-3" GUARDRAIL POST SPACING ACROSS THE BRIDGE.  
 7. THIS SHEET SHALL BE USED IN CONJUNCTION WITH STANDARD SHEETS BR-B33A, BR-B100, BR-B101, BR-B102A & B, BR-B103, BR-B104, BR-B105A & B AND BR-B106 AS APPLICABLE.

APPROVED: *James Beck* DATE: 07-02-07  
 WEST VIRGINIA DEPARTMENT OF TRANSPORTATION  
 DIVISION OF HIGHWAYS  
 ENGINEERING DIVISION  
 DESIGN TABLE FOR 33"  
 PRESTRESSED BOX BEAM  
 STANDARD SHEET BR-B33B


WEST VIRGINIA DEPARTMENT OF TRANSPORTATION  
 DIVISION OF HIGHWAYS  
 ENGINEERING DIVISION


DESIGNED BY: /  
 DRAWN BY: /  
 CHECKED BY: /  
 REVIEWED BY: /  
 DATE: / /  
 SCALE: /  
 SHEET NO. OF /  
 BRIDGE NUMBER /

STEELES BRIDGE  
 OVER  
 LITTLE HUFF CREEK

DESIGN TABLE FOR 33"  
 PRESTRESSED BOX BEAM

3829.1

<b>CRFQ DOT2000000122</b>					
<b>Item Number</b>	<b>Quantity</b>	<b>Unit of Measure</b>	<b>Description</b>	<b>Unit Price</b>	<b>Total Cost</b>
1	963	Square Feet	33 Inch Box Beams (Interior) 6 pieces - 3 Feet x 53 Feet-6 Inches		\$ -
2	321	Square Feet	33 Inch Box Beams (Exterior) 2 pieces - 3 Feet x 53 Feet-6 Inches		\$ -
3	16	Each	Skewed End 33 Inch Box Beam		\$ -
4	4	Each	Elastomeric laminated bearing pads (B-2) 1 13/16 Inch x 4 3/4 Inch x 15 1/2 Inch		\$ -
5	14	Each	Elastomeric laminated bearing pads (B-1) 1 13/16 Inch x 4 3/4 Inch x 28 Inch		\$ -
6	16	Each	Swedged anchor bolt or #8 deformed rebar 1 Inch x 1 Foot-6 Inch		\$ -
7	27.2	Square Feet	2 1/16 Inch thick sponge rubber preformed joint filler 5 7/16 Inch x 60 Feet		\$ -
8	4	Each	2 1/16 Inch thick sponge rubber preformed joint filler 11 1/8 Inch x 4 3/4 Inch		\$ -
9	14	Each	2 1/16 Inch thick sponge rubber preformed joint filler 14 7/16 Inch x 4 3/4 Inch		\$ -
10	165	Square Feet	1 Inch thick sponge rubber preformed joint filler 2 Foot-9 Inch x 60 Foot		\$ -
11	34	Each	Sponge rubber washer with 3 1/2 Inch hole 8 Inch x 8 Inch x 1 Inch thick		\$ -
12	2	Each	Post tension bearing plate (access pockets) 5 Inch x 5 Inch x 1 1/4 Inch thick		\$ -
13	10	Each	Post tension bearing plate 9 Inch x 9 Inch x 1 Inch thick		\$ -
14	110	Linear Feet	1 Inch Diameter post tension bar with nuts 4 each at 27'-6"		\$ -
15	30.5	Linear Feet	1 Inch Diameter post tension bar with nuts 2 each at 15'-3"		\$ -
<b>Total Bid Amount</b> 					\$ -

<b>CRFQ DOT2000000122</b>					
<b>Item Number</b>	<b>Quantity</b>	<b>Unit of Measure</b>	<b>Description</b>	<b>Unit Price</b>	<b>Total Cost</b>
1	963	Square Feet	33 Inch Box Beams (Interior) 6 pieces - 3 Feet x 53 Feet-6 Inches	\$ 55.00	\$ 52,965.00
2	321	Square Feet	33 Inch Box Beams (Exterior) 2 pieces - 3 Feet x 53 Feet-6 Inches	\$ 70.00	\$ 22,470.00
3	16	Each	Skewed End 33 Inch Box Beam	\$ 115.00	\$ 1,840.00
4	4	Each	Elastomeric laminated bearing pads (B-2) 1 13/16 Inch x 4 3/4 Inch x 15 1/2 Inch	\$ 170.00	\$ 680.00
5	14	Each	Elastomeric laminated bearing pads (B-1) 1 13/16 Inch x 4 3/4 Inch x 28 Inch	\$ 175.00	\$ 2,450.00
6	16	Each	Swedged anchor bolt or #8 deformed rebar 1 Inch x 1 Foot-6 Inch	\$ 20.00	\$ 320.00
7	27.2	Square Feet	2 1/16 Inch thick sponge rubber preformed joint filler 5 7/16 Inch x 60 Feet	\$ 20.00	\$ 544.00
8	4	Each	2 1/16 Inch thick sponge rubber preformed joint filler 11 1/8 Inch x 4 3/4 Inch	\$ 20.00	\$ 80.00
9	14	Each	2 1/16 Inch thick sponge rubber preformed joint filler 14 7/16 Inch x 4 3/4 Inch	\$ 20.00	\$ 280.00
10	165	Square Feet	1 Inch thick sponge rubber preformed joint filler 2 Foot-9 Inch x 60 Foot	\$ 20.00	\$ 3,300.00
11	34	Each	Sponge rubber washer with 3 1/2 Inch hole 8 Inch x 8 Inch x 1 Inch thick	\$ 20.00	\$ 680.00
12	2	Each	Post tension bearing plate (access pockets) 5 Inch x 5 Inch x 1 1/4 Inch thick	\$ 50.00	\$ 100.00
13	10	Each	Post tension bearing plate 9 Inch x 9 Inch x 1 Inch thick	\$ 50.00	\$ 500.00
14	110	Linear Feet	1 Inch Diameter post tension bar with nuts 4 each at 27'-6"	\$ 20.00	\$ 2,200.00
15	30.5	Linear Feet	1 Inch Diameter post tension bar with nuts 2 each at 15'-3"	\$ 20.00	\$ 610.00
<b>Total Bid Amount</b> 					\$ 89,019.00



# State of West Virginia

## VENDOR PREFERENCE CERTIFICATE

Certification and application is hereby made for Preference in accordance with *West Virginia Code*, §5A-3-37. (Does not apply to construction contracts). *West Virginia Code*, §5A-3-37, provides an opportunity for qualifying vendors to request (at the time of bid) preference for their residency status. Such preference is an evaluation method only and will be applied only to the cost bid in accordance with the *West Virginia Code*. This certificate for application is to be used to request such preference. The Purchasing Division will make the determination of the Vendor Preference, if applicable.

- 1. Application is made for 2.5% vendor preference for the reason checked:**  
Bidder is an individual resident vendor and has resided continuously in West Virginia, or bidder is a partnership, association or corporation resident vendor and has maintained its headquarters or principal place of business continuously in West Virginia, for four (4) years immediately preceding the date of this certification; **or**;
- Bidder is a resident vendor partnership, association, or corporation with at least eighty percent of ownership interest of bidder held by another entity that meets the applicable four year residency requirement; **or**;
- Bidder is a nonresident vendor which has an affiliate or subsidiary which employs a minimum of one hundred state residents and which has maintained its headquarters or principal place of business within West Virginia continuously for the four (4) years immediately preceding the date of this certification; **or**;
- 2. Application is made for 2.5% vendor preference for the reason checked:**  
Bidder is a resident vendor who certifies that, during the life of the contract, on average at least 75% of the employees working on the project being bid are residents of West Virginia who have resided in the state continuously for the two years immediately preceding submission of this bid; **or**;
- 3. Application is made for 2.5% vendor preference for the reason checked:**  
Bidder is a nonresident vendor that employs a minimum of one hundred state residents, or a nonresident vendor which has an affiliate or subsidiary which maintains its headquarters or principal place of business within West Virginia and employs a minimum of one hundred state residents, and for purposes of producing or distributing the commodities or completing the project which is the subject of the bidder's bid and continuously over the entire term of the project, on average at least seventy-five percent of the bidder's employees or the bidder's affiliate's or subsidiary's employees are residents of West Virginia who have resided in the state continuously for the two immediately preceding years and the vendor's bid; **or**;
- 4. Application is made for 5% vendor preference for the reason checked:**  
Bidder meets either the requirement of both subdivisions (1) and (2) or subdivision (1) and (3) as stated above; **or**;
- 5. Application is made for 3.5% vendor preference who is a veteran for the reason checked:**  
Bidder is an individual resident vendor who is a veteran of the United States armed forces, the reserves or the National Guard and has resided in West Virginia continuously for the four years immediately preceding the date on which the bid is submitted; **or**;
- 6. Application is made for 3.5% vendor preference who is a veteran for the reason checked:**  
Bidder is a resident vendor who is a veteran of the United States armed forces, the reserves or the National Guard, if, for purposes of producing or distributing the commodities or completing the project which is the subject of the vendor's bid and continuously over the entire term of the project, on average at least seventy-five percent of the vendor's employees are residents of West Virginia who have resided in the state continuously for the two immediately preceding years.
- 7. Application is made for preference as a non-resident small, women- and minority-owned business, in accordance with *West Virginia Code* §5A-3-59 and *West Virginia Code of State Rules*.**  
Bidder has been or expects to be approved prior to contract award by the Purchasing Division as a certified small, women- and minority-owned business.

Bidder understands if the Secretary of Revenue determines that a Bidder receiving preference has failed to continue to meet the requirements for such preference, the Secretary may order the Director of Purchasing to: (a) rescind the contract or purchase order; or (b) assess a penalty against such Bidder in an amount not to exceed 5% of the bid amount and that such penalty will be paid to the contracting agency or deducted from any unpaid balance on the contract or purchase order.

By submission of this certificate, Bidder agrees to disclose any reasonably requested information to the Purchasing Division and authorizes the Department of Revenue to disclose to the Director of Purchasing appropriate information verifying that Bidder has paid the required business taxes, provided that such information does not contain the amounts of taxes paid nor any other information deemed by the Tax Commissioner to be confidential.

Bidder hereby certifies that this certificate is true and accurate in all respects; and that if a contract is issued to Bidder and if anything contained within this certificate changes during the term of the contract, Bidder will notify the Purchasing Division in writing immediately.

Bidder: EASTERN VAULT CO., INC. Signed: Brian P. Struble  
Date: 3-3-2020 Title: VP & GM