



State of West Virginia  
Department of Administration  
Purchasing Division  
2019 Washington Street East  
Post Office Box 50130  
Charleston, WV 25305-0130

# Request for Quotation

RFQ NUMBER

04120658

PAGE

1

ADDRESS CORRESPONDENCE TO ATTENTION OF

ALAN CUMMINGS  
304-558-2402

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\*709055926 304-464-4441  
CARR CONCRETE CORPORATION  
PO BOX 265  
WAVERLY WV 26184-0265

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DIVISION OF HIGHWAYS  
JOBSITE  
SEE SPECIFICATIONS

| DATE PRINTED | TERMS OF SALE | SHIP VIA | F.O.B. | FREIGHT TERMS |
|--------------|---------------|----------|--------|---------------|
| 03/26/2012   |               |          |        |               |

BID OPENING DATE:

04/11/2012

BID OPENING TIME

01:30PM

| LINE   | QUANTITY | UOP | CAT. NO. | ITEM NUMBER | UNIT PRICE | AMOUNT                  |
|--|----------|-----|----------|-------------|------------|-------------------------|
| 0001   | 1        | SF  |          | 210-16      |            | \$75,577. <sup>89</sup> |
| PRESTRESSED CONCRETE BOX BEAMS AND ACCESSORIES   |          |     |          |             |            |                         |
| THE WEST VIRGINIA STATE PURCHASING DIVISION FOR THE AGENCY, THE WEST VIRGINIA DIVISION OF HIGHWAYS, IS SOLICITING BIDS TO PROVIDE THE AGENCY WITH PRESTRESSED CONCRETE BEAMS WITH ACCESSORIES PER THE ATTACHED SPECIFICATIONS.   |          |     |          |             |            |                         |
| BANKRUPTCY: IN THE EVENT THE VENDOR/CONTRACTOR FILES FOR BANKRUPTCY PROTECTION, THE STATE MAY DEEM THE CONTRACT NULL AND VOID, AND TERMINATE SUCH CONTRACT WITHOUT FURTHER ORDER.  |          |     |          |             |            |                         |
| CANCELLATION: THE DIRECTOR OF PURCHASING RESERVES THE RIGHT TO CANCEL THIS CONTRACT IMMEDIATELY UPON WRITTEN NOTICE TO THE VENDOR IF THE COMMODITIES AND/OR SERVICES SUPPLIED ARE OF AN INFERIOR QUALITY OR DO NOT CONFORM TO THE SPECIFICATIONS OF THE BID AND CONTRACT HEREIN. |          |     |          |             |            |                         |
| PREFERENCE FOR USE OF DOMESTIC STEEL PRODUCTS  |          |     |          |             |            |                         |
| 1. EXCEPT WHEN AUTHORIZED BY THE DIRECTOR OF THE PURCHASING DIVISION PURSUANT TO SUBSECTION 2 BELOW, NO CONTRACTOR MAY USE OR SUPPLY STEEL PRODUCTS FOR A STATE CONTRACT PROJECT OTHER THAN THOSE STEEL PRODUCTS MADE IN THE UNITED STATES. AS USED IN THIS CONTRACT,            |          |     |          |             |            |                         |
| A. "STATE CONTRACT PROJECT" MEANS ANY ERECTION OR CONSTRUCTION OF, OR ANY ADDITION TO, ALTERATIO   |          |     |          |             |            |                         |

SEE REVERSE SIDE FOR TERMS AND CONDITIONS

|           |                       |           |              |                                   |        |
|-----------|-----------------------|-----------|--------------|-----------------------------------|--------|
| SIGNATURE | Robert "Burr" Stanley | TELEPHONE | 304-464-4441 | DATE                              | 4-9-12 |
| TITLE     | Project Manager       | FEIN      | 550685425    | ADDRESS CHANGES TO BE NOTED ABOVE |        |

WHEN RESPONDING TO RFQ, INSERT NAME AND ADDRESS IN SPACE ABOVE LABELED 'VENDOR'

RECEIVED

2012 APR 10 AM 11:45

WV PURCHASING  
DIVISION

## GENERAL TERMS & CONDITIONS REQUEST FOR QUOTATION (RFQ) AND REQUEST FOR PROPOSAL (RFP)

1. Awards will be made in the best interest of the State of West Virginia.
2. The State may accept or reject in part, or in whole, any bid.
3. Prior to any award, the apparent successful vendor must be properly registered with the Purchasing Division and have paid the required \$125 fee.
4. All services performed or goods delivered under State Purchase Order/Contracts are to be continued for the term of the Purchase Order/Contracts, contingent upon funds being appropriated by the Legislature or otherwise being made available. In the event funds are not appropriated or otherwise available for these services or goods this Purchase Order/Contract becomes void and of no effect after June 30.
5. Payment may only be made after the delivery and acceptance of goods or services.
6. Interest may be paid for late payment in accordance with the *West Virginia Code*.
7. Vendor preference will be granted upon written request in accordance with the *West Virginia Code*.
8. The State of West Virginia is exempt from federal and state taxes and will not pay or reimburse such taxes.
9. The Director of Purchasing may cancel any Purchase Order/Contract upon 30 days written notice to the seller.
10. The laws of the State of West Virginia and the *Legislative Rules* of the Purchasing Division shall govern the purchasing process.
11. Any reference to automatic renewal is hereby deleted. The Contract may be renewed only upon mutual written agreement of the parties.
12. **BANKRUPTCY:** In the event the vendor/contractor files for bankruptcy protection, the State may deem this contract null and void, and terminate such contract without further order.
13. **HIPAA BUSINESS ASSOCIATE ADDENDUM:** The West Virginia State Government HIPAA Business Associate Addendum (BAA), approved by the Attorney General, is available online at [www.state.wv.us/admin/purchase/vrc/hipaa.html](http://www.state.wv.us/admin/purchase/vrc/hipaa.html) and is hereby made part of the agreement provided that the Agency meets the definition of a Cover Entity (45 CFR §160.103) and will be disclosing Protected Health Information (45 CFR §160.103) to the vendor.
14. **CONFIDENTIALITY:** The vendor agrees that he or she 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/noticeConfidentiality.pdf>.
15. **LICENSING:** Vendors 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, and the West Virginia Insurance Commission. The vendor must provide all necessary releases to obtain information to enable the director or spending unit to verify that the vendor is licensed and in good standing with the above entities.
16. **ANTITRUST:** In submitting a bid to any agency for the State of West Virginia, the bidder offers and agrees that if the bid is accepted the bidder will 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 the bidder.

I certify that this bid is made without prior understanding, agreement, or connection with any corporation, firm, limited liability company, partnership, or person or entity submitting a bid for the same material, supplies, equipment or services and is in all respects fair and without collusion or Fraud. I further certify that I am authorized to sign the certification on behalf of the bidder or this bid.

### INSTRUCTIONS TO BIDDERS

1. Use the quotation forms provided by the Purchasing Division. Complete all sections of the quotation form.
2. Items offered must be in compliance with the specifications. Any deviation from the specifications must be clearly indicated by the bidder. Alternates offered by the bidder as **EQUAL** to the specifications must be clearly defined. A bidder offering an alternate should attach complete specifications and literature to the bid. The Purchasing Division may waive minor deviations to specifications.
3. Unit prices shall prevail in case of discrepancy. All quotations are considered F.O.B. destination unless alternate shipping terms are clearly identified in the quotation.
4. All quotations must be delivered by the bidder to the office listed below prior to the date and time of the bid opening. Failure of the bidder to deliver the quotations on time will result in bid disqualifications: Department of Administration, Purchasing Division, 2019 Washington Street East, P.O. Box 50130, Charleston, WV 25305-0130
5. Communication during the solicitation, bid, evaluation or award periods, except through the Purchasing Division, is strictly prohibited (W.Va. C.S.R. §148-1-6.6).



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Department of Administration  
Purchasing Division  
2019 Washington Street East  
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SEE REVERSE SIDE FOR TERMS AND CONDITIONS

|           |           |                                   |
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| SIGNATURE | TELEPHONE | DATE                              |
| TITLE     | FEIN      | ADDRESS CHANGES TO BE NOTED ABOVE |

WHEN RESPONDING TO RFQ, INSERT NAME AND ADDRESS IN SPACE ABOVE LABELED 'VENDOR'



State of West Virginia  
Department of Administration  
Purchasing Division  
2019 Washington Street East  
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## Request for Quotation

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| PAGE |
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| 3.   |          |     |        |             |            |        |
| NOT PRODUCED IN THE UNITED STATES IN SUFFICIENT QUANTITY OR OTHERWISE ARE NOT REASONABLY AVAILABLE TO MEET CONTRACT REQUIREMENTS.        |          |     |        |             |            |        |
| A CONTRACTOR WHO USES STEEL PRODUCTS IN VIOLATION OF THIS SECTION MAY BE SUBJECT TO CIVIL PENALTIES PURSUANT TO WV CODE SECTION 5A-3-56. |          |     |        |             |            |        |
| REV. 10/01/01  |          |     |        |             |            |        |
| NOTICE   |          |     |        |             |            |        |
| A SIGNED BID MUST BE SUBMITTED TO:   |          |     |        |             |            |        |
| DEPARTMENT OF ADMINISTRATION<br>PURCHASING DIVISION<br>BUILDING 15<br>2019 WASHINGTON STREET, EAST<br>CHARLESTON, WV 25305-0130          |          |     |        |             |            |        |
| THE BID SHOULD CONTAIN THIS INFORMATION ON THE FACE OF THE ENVELOPE OR THE BID MAY NOT BE CONSIDERED:                                    |          |     |        |             |            |        |
| SEALED BID   |          |     |        |             |            |        |
| BUYER: ALAN CUMMINGS - FILE 33   |          |     |        |             |            |        |
| RFQ. NO.: 04120658   |          |     |        |             |            |        |
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| BID OPENING TIME: 1:30 P.M.   |          |     |        |             |            |                         |
| PLEASE PROVIDE A FAX NUMBER IN CASE IT IS NECESSARY TO CONTACT YOU REGARDING YOUR BID:<br>----- 304-464-4013 -----  |          |     |        |             |            |                         |
| CONTACT PERSON (PLEASE PRINT CLEARLY):<br>----- Robert Burr Stanley -----   |          |     |        |             |            |                         |
| ANY INDIVIDUAL SIGNING THIS BID IS CERTIFYING THAT:<br>(1) HE OR SHE IS AUTHORIZED BY THE BIDDER TO EXECUTE THE BID OR ANY DOCUMENTS RELATED THERETO ON BEHALF OF THE BIDDER, (2) THAT HE OR SHE IS AUTHORIZED TO BIND THE BIDDER IN A CONTRACTUAL RELATIONSHIP, AND (3) THAT THE BIDDER HAS PROPERLY REGISTERED WITH ANY STATE AGENCIES THAT MAY REQUIRE REGISTRATION. |          |     |        |             |            |                         |
| ***** THIS IS THE END OF RFQ 04120658 ***** TOTAL:  |          |     |        |             |            | \$75,577. <sup>64</sup> |

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**RFQ#: 04120658**

**Specifications  
One Time Purchase**

Purpose: To provide the West Virginia Divisions of Highways with prestressed concrete box beams and accessories for state project S346-5/5-1.66, Wickwire I-Beam Bridge.

**1.0 DEFINITIONS**

- A. The "Agency" shall be defined as the West Virginia Division of Highways
- B. The "Vendor" shall be defined as the successful bidder.
- C. The "Purchase Order" shall be defined as the binding agreement that is entered into between the State of West Virginia and the Vendor to provide the services as herein specified.
- D. "Mandatory Requirements: The terms "must", "will", "shall", "minimum", "maximum", or "is/are required" identify a mandatory item or factor. Decisions regarding compliance with any mandatory requirements shall be at the sole discretion of the Agency.

**2.0 SCOPE OF WORK**

The Vendor shall provide 36" wide by 21" deep Prestressed Concrete Box Beams with accessories.

**2.1 Technical Requirements**

All prestressed concrete box beams and accessories manufactured and delivered shall be in accordance with the West Virginia Division of Highways Standard Specifications Roads and Bridges adopted 2010 and the current Supplemental Specifications, and the attached control prints. If larger prints are required, contact District Four Bridge Department 304-842-

- 2.1.1 Cracks developing in a beam may be cause for rejection of the beam. Cracks that are not detrimental to the structural integrity of the beam, as determined by the Agency, may be accepted under the following conditions:

**RFQ#: 04120658**

**Specifications  
One Time Purchase**

Purpose: To provide the West Virginia Divisions of Highways with prestressed concrete box beams and accessories for state project S346-5/5-1.66, Wickwire I-Beam Bridge.

**1.0 DEFINITIONS**

- A. The "Agency" shall be defined as the West Virginia Division of Highways
- B. The "Vendor" shall be defined as the successful bidder.
- C. The "Purchase Order" shall be defined as the binding agreement that is entered into between the State of West Virginia and the Vendor to provide the services as herein specified.
- D. "Mandatory Requirements: The terms "must", "will", "shall", "minimum", "maximum", or "is/are required" identify a mandatory item or factor. Decisions regarding compliance with any mandatory requirements shall be at the sole discretion of the Agency.

**2.0 SCOPE OF WORK**

The Vendor shall provide 36" wide by 21" deep Prestressed Concrete Box Beams with accessories.

**2.1 Technical Requirements**

All prestressed concrete box beams and accessories manufactured and delivered shall be in accordance with the West Virginia Division of Highways Standard Specifications Roads and Bridges adopted 2010 and the current Supplemental Specifications, and the attached control prints. If larger prints are required, contact District Four Bridge Department 304-842-

- 2.1.1 Cracks developing in a beam may be cause for rejection of the beam. Cracks that are not detrimental to the structural integrity of the beam, as determined by the Agency, may be accepted under the following conditions:

A) Cracks of 0.004 inch or less shall be treated with a second coat of an Agency approved concrete sealer.

B) Cracks of greater than 0.004 inch shall be treated by an Agency approved epoxy injection method.

All concrete sealer and epoxy injection required for acceptance shall be performed at no additional cost to the Agency.

2.1.2 Upon receipt of a Purchase Order, the Vendor shall submit shop drawings to the District Bridge Engineer issuing the Purchase Order within twenty (20) calendar days. Shop drawings must be approved by the Agency prior to the manufacture of any items.

## 2.2 Freight

2.3.1 All shipments are to be FOB Destination

## 2.4 Delivery

2.4.1 All materials covered by this order shall be delivered to the project site on Taylor County Route 5/5 near Grafton, WV (See Attached Map).

2.4.2 Delivery is currently scheduled for a mid-morning time in August 2012. Vendor shall coordinate delivery with the District Bridge Engineer or his designated agent at 304-842-1512.

2.4.3 The Agency requires all materials to be delivered to the designated job site in a single calendar day.

2.4.4 Delivery is an integral part of this purchase order and failure to comply will be cause to initiate a WV-82, Vendor Performance Form. This form will officially notify the West Virginia Division of Purchasing and the vendor of unsatisfactory performance in the execution of this purchase order and the requirements herein.



### **3.0 INVOICING**

#### **3.1 Payment**

##### **3.1.1 The Vendor must send a proper invoice to:**

West Virginia Division of Highways  
District Four Headquarters  
P.O. Box 4220  
Clarksburg, WV 26302

#### **3.2 Partial Payment of Approved Beams**

3.1.3 Upon completion of manufacture and approval by the Agency of all Beams specified on the Purchase Order, the Vendor may invoice and the Agency will pay for the cost of manufacturing the Beams, not to exceed 65% of the total cost of the delivered Beams. The remaining may be invoiced when all beams are delivered. Partial payment for Beams shall be subject to the following conditions:

- a. The Vendor must request partial payment and furnish an official invoice for the manufactured and approved Beams.
- b. The partial payment invoice shall be accompanied by a surety bond equal to the invoiced amount guaranteeing delivery of all items specified on the Purchase Order.
- c. The Vendor shall furnish a statement of approved Beams condition and exact storage location.
- d. The Vendor shall furnish a legal right-of-entry onto the storage site to Agency employees and/or agents for the purpose of inspecting, sampling, testing and removing any or all Beams

### **4.0 AWARD**

- 4.1 A Purchase Order will be awarded complete and not split to the lowest acceptable bidder.

## COST SHEET

RFQ # 04120658

| Item Number | Quantity | Description  | Unit Price   | Amount             |
|-------------|----------|--|--------------|--------------------|
| 1           | 891      | SF - Interior Beams; 21"D X 36"W Prestressed Concrete Box Beams. 6 Beams @ 49'6" Long.                   | 40.25        | 35,862.75          |
| 2           | 297      | SF - Exterior Beams; 21"D X 36"W Prestressed Concrete Box Beams. 2 Beams @ 49'6" Long.                   | 40.25        | 11,954.75          |
| 3           | 16       | EA - Additional cost of Skewing one beam end 5° RFS  | 20.00        | 320.00             |
| 4           | 14       | EA - Elastomeric Laminated Bearing Pads<br>B1 Pad 1 13/16" T X 4 3/4" W x 2'4" L (60 Duro)               | 250.00       | 3,500.00           |
| 5           | 4        | EA - Elastomeric Laminated Bearing Pads<br>B2 Pad 1 13/16" T X 4 3/4" W x 1'3 1/2" L (60 Duro)           | 200.00       | 800.00             |
| 6           | 16       | EA - #8 Rebar Anchor Rods X 2'0" long Galvanized   | 10.00        | 160.00             |
| 7           | 61       | LF - 2" Thick Sponge Rubber Preformed Joint Filler 6" wide   | 20.00        | 1,220.00           |
| 8           | 50       | LF 1" Thick Sponge Rubber Preformed Joint Filler 21" wide  | 20.00        | 1,000.00           |
| 9           | 28       | EA - Sponge Rubber Washers<br>8" X 8" X 1" thick   | 20.00        | 560.00             |
| 10          | 16       | EA - Guardrail Attachment Assembly Type TL-2 Includes inserts, studs, nuts and washers. Galvanized       | 250.00       | 4,000.00           |
| 11          | 110      | LF - 8"x 4" x 3/16" tubing for TL-2 Guardrail System. Includes blocks for posts, and splices. Galvanized | 100.00       | 11,000.00          |
| 12          | 110      | LF - Galvanized W-Beam Guardrail with bolts and nuts.  | 20.00        | 2,200.00           |
| 13          | 110      | LF - 1" dia. Post-Tensioning Thread Bars with nuts. 4 @ 27'6"  | 20.00        | 2,200.00           |
| 14          | 8        | EA - Bearing Plates 9" X 9" x 1" Galvanized  | 100.00       | 800.00             |
|             |          |  | <b>TOTAL</b> | <b>\$75,577.00</b> |

Items for Project S346-5/5-1.66, Wickwire I-Beam

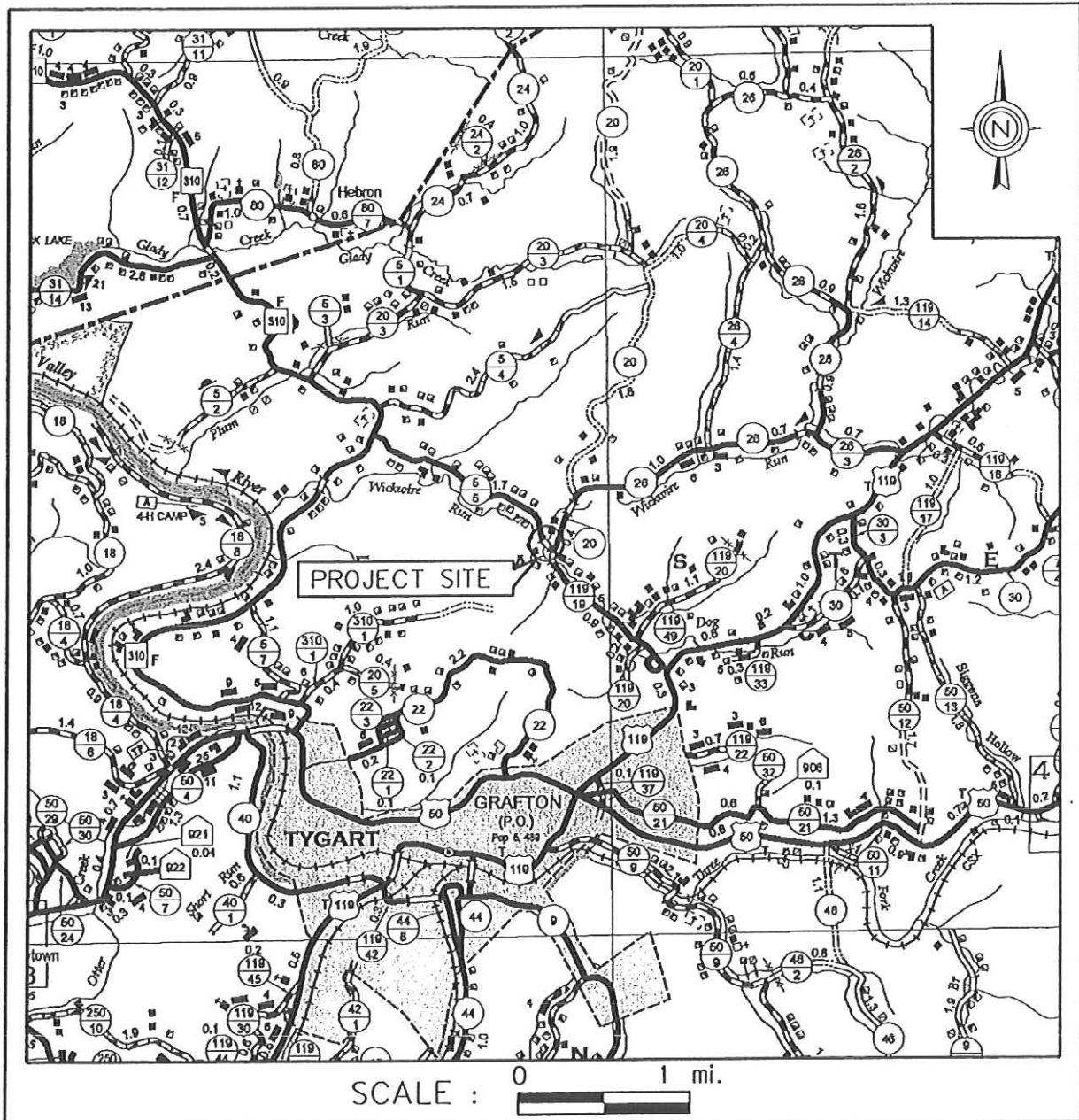
# LOCATION MAP

## WICKWIRE I-BEAM BRIDGE

### STATE PROJECT NO. S346-5/5-1.66

### FEDERAL PROJECT NO. N/A

### TAYLOR COUNTY



WEST VIRGINIA DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
DISTRICT FOUR BRIDGE DEPARTMENT



|                |                |       |     |        |     |       |       |
|----------------|----------------|-------|-----|--------|-----|-------|-------|
| STATE          | FEDERAL        | STATE | NO. | COUNTY | NO. | SHEET | TOTAL |
| PROJECT NUMBER | PROJECT NUMBER | NO.   | NO. | COUNTY | NO. | SHEET | TOTAL |
| 1348-B-9-186   | N/A            | 4     | 4   | TAYLOR | 7   | 10    | 10    |

|   |  |
|---|--|
| SECTION B-B   |  |
| WHEN A POST-TENSION ACCESS POINT IS USED AS DETAILED ON SHEET BR-103<br>THROUGH 8 ROWS 3 AND 4 SHALL BE ELIMINATED. THE BEAM SHALL BE<br>CONSIDERED AS NECESSARY. |  |
| WEST VIRGINIA DEPARTMENT OF TRANSPORTATION<br>DIVISION OF HIGHWAYS<br>ENGINEERING DIVISION  |  |
| WICKWIRE I-BEAM BRIDGE  |  |
| 21" PRESTRESSED BOX BEAM<br>DETAIL AND ASSEMBLY DETAILS   |  |
| CHECKED BY: /<br>DATE: 11/17/13<br>CHECKED BY: /<br>DATE: 11/17/13<br>SCALE: 1/2" = 1'-0"<br>SHEET 2 OF 13<br>BRIDGE NO. 10008                                    |  |

FIG. 1 is a plan view of a beam prestressing system. The diagram shows a rectangular layout with a central octagonal void. Dimensions include 2.7' for the overall width, 9' for the height, and 6' for the width of the central void. Labels include "TYPICAL B EAM END 6' WSPAN", "BEAM PRESTRESSING", "ROW 1" through "ROW 4", and "2.7' TO 5' STRAINS AND SPACING". A detail view on the left shows a cross-section of the beam with dimensions 1.5', 5', and 6'.

|  |  |
|--|--|
| STANDARD SHEET BR-912A                     | STANDARD SHEET BR-912A                     |
| DESIGN AND ASSEMBLY DETAILS                | DESIGN AND ASSEMBLY DETAILS                |
| 21" PRESTRESSED CONCRETE                   | 21" PRESTRESSED CONCRETE                   |
| BOX BEAMS                                  | BOX BEAMS                                  |
| CONCRETE DIVISION                          | CONCRETE DIVISION                          |
| DIVISION OF HIGHWAYS                       | DIVISION OF HIGHWAYS                       |
| WEST VIRGINIA DEPARTMENT OF TRANSPORTATION | WEST VIRGINIA DEPARTMENT OF TRANSPORTATION |
| DATE: 07-03-07                             | DATE: 07-03-07                             |
| BY: [Signature]                            | BY: [Signature]                            |
| CHECKED: [Signature]                       | CHECKED: [Signature]                       |
| APPROVED: [Signature]                      | APPROVED: [Signature]                      |

NOTES:

1. REFER TO SHEET BR-910A FOR SKEW KEY DETAILS.
2. DESIGNER SHALL USE THE FOLLOWING PATTERN ON "BEAM PRESTRESSING VIEW", THIS SHEET:
  - - ACTIVE STRAND
  - - DEADEND STRAND, LENGTH FROM END OF BEAM
  - - DEADEND STRAND, LENGTH FROM END OF BEAM
3. THIS SHEET SHALL BE IN CONJUNCTION WITH STANDARD SHEETS BR-910, BR-910A, BR-910B, BR-910C, BR-910D, BR-910E, BR-910F, BR-910G, BR-910H, BR-910I, BR-910J, BR-910K, BR-910L, BR-910M, BR-910N, BR-910O, BR-910P, BR-910Q, BR-910R, BR-910S, BR-910T, BR-910U, BR-910V, BR-910W, BR-910X, BR-910Y, BR-910Z, BR-910AA, BR-910AB, BR-910AC, BR-910AD, BR-910AE, BR-910AF, BR-910AG, BR-910AH, BR-910AI, BR-910AJ, BR-910AK, BR-910AL, BR-910AM, BR-910AN, BR-910AO, BR-910AP, BR-910AQ, BR-910AR, BR-910AS, BR-910AT, BR-910AU, BR-910AV, BR-910AW, BR-910AX, BR-910AY, BR-910AZ, BR-910BA, BR-910BB, BR-910BC, BR-910BD, BR-910BE, BR-910BF, BR-910BG, BR-910BH, BR-910BI, BR-910BJ, BR-910BK, BR-910BL, BR-910BM, BR-910BN, BR-910BO, BR-910BP, BR-910BQ, BR-910BR, BR-910BS, BR-910BT, BR-910BU, BR-910BV, BR-910BW, BR-910BX, BR-910BY, BR-910BZ, BR-910CA, BR-910CB, BR-910CC, BR-910CD, BR-910CE, BR-910CF, BR-910CG, BR-910CH, BR-910CI, BR-910CJ, BR-910CK, BR-910CL, BR-910CM, BR-910CN, BR-910CO, BR-910CP, BR-910CQ, BR-910CR, BR-910CS, BR-910CT, BR-910CU, BR-910CV, BR-910CW, BR-910CX, BR-910CY, BR-910CZ, BR-910DA, BR-910DB, BR-910DC, BR-910DD, BR-910DE, BR-910DF, BR-910DG, BR-910DH, BR-910DI, BR-910DJ, BR-910DK, BR-910DL, BR-910DM, BR-910DN, BR-910DO, BR-910DP, BR-910DQ, BR-910DR, BR-910DS, BR-910DT, BR-910DU, BR-910DV, BR-910DW, BR-910DX, BR-910DY, BR-910DZ, BR-910EA, BR-910EB, BR-910EC, BR-910ED, BR-910EE, BR-910EF, BR-910EG, BR-910EH, BR-910EI, BR-910EJ, BR-910EK, BR-910EL, BR-910EM, BR-910EN, BR-910EO, BR-910EP, BR-910EQ, BR-910ER, BR-910ES, BR-910ET, BR-910EU, BR-910EV, BR-910EW, BR-910EX, BR-910EY, BR-910EZ, BR-910FA, BR-910FB, BR-910FC, BR-910FD, BR-910FE, BR-910FF, BR-910FG, BR-910FH, BR-910FI, BR-910FJ, BR-910FK, BR-910FL, BR-910FM, BR-910FN, BR-910FO, BR-910FP, BR-910FQ, BR-910FR, BR-910FS, BR-910FT, BR-910FU, BR-910FV, BR-910FW, BR-910FX, BR-910FY, BR-910FZ, BR-910GA, BR-910GB, BR-910GC, BR-910GD, BR-910GE, BR-910GF, BR-910GG, BR-910GH, BR-910GI, BR-910GJ, BR-910GK, BR-910GL, BR-910GM, BR-910GN, BR-910GO, BR-910GP, BR-910GQ, BR-910GR, BR-910GS, BR-910GT, BR-910GU, BR-910GV, BR-910GW, BR-910GX, BR-910GY, BR-910GZ, BR-910HA, BR-910HB, BR-910HC, BR-910HD, BR-910HE, BR-910HF, BR-910HG, BR-910HH, BR-910HI, BR-910HJ, BR-910HK, BR-910HL, BR-910HM, BR-910HN, BR-910HO, BR-910HP, BR-910HQ, BR-910HR, BR-910HS, BR-910HT, BR-910HU, BR-910HV, BR-910HW, BR-910HX, BR-910HY, BR-910HZ, BR-910IA, BR-910IB, BR-910IC, BR-910ID, BR-910IE, BR-910IF, BR-910IG, BR-910IH, BR-910II, BR-910IJ, BR-910IK, BR-910IL, BR-910IM, BR-910IN, BR-910IO, BR-910IP, BR-910IQ, BR-910IR, BR-910IS, BR-910IT, BR-910IU, BR-910IV, BR-910IW, BR-910IX, BR-910IY, BR-910IZ, BR-910JA, BR-910JB, BR-910JC, BR-910JD, BR-910JE, BR-910JF, BR-910JG, BR-910JH, BR-910JI, BR-910JJ, BR-910JK, BR-910JL, BR-910JM, BR-910JN, BR-910JO, BR-910JP, BR-910JQ, BR-910JR, BR-910JS, BR-910JT, BR-910JU, BR-910JV, BR-910JW, BR-910JX, BR-910JY, BR-910JZ, BR-910KA, BR-910KB, BR-910KC, BR-910KD, BR-910KE, BR-910KF, BR-910KG, BR-910KH, BR-910KI, BR-910KJ, BR-910KK, BR-910KL, BR-910KM, BR-910KN, BR-910KO, BR-910KP, BR-910KQ, BR-910KR, BR-910KS, BR-910KT, BR-910KU, BR-910KV, BR-910KW, BR-910KX, BR-910KY, BR-910KZ, BR-910LA, BR-910LB, BR-910LC, BR-910LD, BR-910LE, BR-910LF, BR-910LG, BR-910LH, BR-910LI, BR-910LJ, BR-910LK, BR-910LL, BR-910LM, BR-910LN, BR-910LO, BR-910LP, BR-910LQ, BR-910LR, BR-910LS, BR-910LT, BR-910LU, BR-910LV, BR-910LW, BR-910LX, BR-910LY, BR-910LZ, BR-910MA, BR-910MB, BR-910MC, BR-910MD, BR-910ME, BR-910MF, BR-910MG, BR-910MH, BR-910MI, BR-910MJ, BR-910MK, BR-910ML, BR-910MM, BR-910MN, BR-910MO, BR-910MP, BR-910MQ, BR-910MR, BR-910MS, BR-910MT, BR-910MU, BR-910MV, BR-910MW, BR-910MX, BR-910MY, BR-910MZ, BR-910NA, BR-910NB, BR-910NC, BR-910ND, BR-910NE, BR-910NF, BR-910NG, BR-910NH, BR-910NI, BR-910NJ, BR-910NK, BR-910NL, BR-910NM, BR-910NN, BR-910NO, BR-910NP, BR-910NQ, BR-910NR, BR-910NS, BR-910NT, BR-910NU, BR-910NV, BR-910NW, BR-910NX, BR-910NY, BR-910NZ, BR-910OA, BR-910OB, BR-910OC, BR-910OD, BR-910OE, BR-910OF, BR-910OG, BR-910OH, BR-910OI, BR-910OJ, BR-910OK, BR-910OL, BR-910OM, BR-910ON, BR-910OO, BR-910OP, BR-910OQ, BR-910OR, BR-910OS, BR-910OT, BR-910OU, BR-910OV, BR-910OW, BR-910OX, BR-910OY, BR-910OZ, BR-910PA, BR-910PB, BR-910PC, BR-910PD, BR-910PE, BR-910PF, BR-910PG, BR-910PH, BR-910PI, BR-910PJ, BR-910PK, BR-910PL, BR-910PM, BR-910PN, BR-910PO, BR-910PP, BR-910PQ, BR-910PR, BR-910PS, BR-910PT, BR-910PU, BR-910PV, BR-910PW, BR-910PX, BR-910PY, BR-910PZ, BR-910QA, BR-910QB, BR-910QC, BR-910QD, BR-910QE, BR-910QF, BR-910QG, BR-910QH, BR-910QI, BR-910QJ, BR-910QK, BR-910QL, BR-910QM, BR-910QN, BR-910QO, BR-910QP, BR-910QQ, BR-910QR, BR-910QS, BR-910QT, BR-910QU, BR-910QV, BR-910QW, BR-910QX, BR-910QY, BR-910QZ, BR-910RA, BR-910RB, BR-910RC, BR-910RD, BR-910RE, BR-910RF, BR-910RG, BR-910RH, BR-910RI, BR-910RJ, BR-910RK, BR-910RL, BR-910RM, BR-910RN, BR-910RO, BR-910RP, BR-910RQ, BR-910RR, BR-910RS, BR-910RT, BR-910RU, BR-910RV, BR-910RW, BR-910RX, BR-910RY, BR-910RZ, BR-910SA, BR-910SB, BR-910SC, BR-910SD, BR-91

ELEVATION VIEW

The diagram shows a cross-section of a reinforced concrete beam. The top reinforcement consists of three bars labeled "TOP 3 BARS". The bottom reinforcement consists of three bars labeled "BOT 3 BARS". The beam is supported by two vertical columns. The distance between the centers of the columns is labeled "CLEAR. PER DESIGN". The total width of the beam is labeled "TOTAL WIDTH". The height of the beam is labeled "TOTAL HEIGHT". The beam is shown in a perspective view, with the front face and side faces visible.

Figure 1: Reinforcing Steel Detail. This diagram shows the cross-section and plan view of a reinforced concrete beam. The cross-section (top) shows a rectangular beam with a width of 12 inches and a height of 24 inches. The top reinforcement consists of two #5 bars, and the bottom reinforcement consists of two #5 bars. The plan view (bottom) shows the beam's length and the placement of the reinforcement bars. The top reinforcement bars are labeled "NO. 5 TOP BARS" and the bottom reinforcement bars are labeled "NO. 5 BOT BARS". The plan view also shows the beam's width of 12 inches and the height of the reinforcement cage, which is 24 inches. The reinforcement cage is shown with a 3-inch offset from the beam's edge. The plan view also shows the beam's length, which is 2'-0".



| STATE<br>PROJECT NUMBER | FEDERAL<br>PROJECT NUMBER | STATE<br>DIST.<br>NO. | COUNTY | SHEET<br>NO. | TOTAL<br>SHEETS |
|-------------------------|---------------------------|-----------------------|--------|--------------|-----------------|
| 5344-S/3-LB             | N/A                       | 4                     | TAYLOR | 8            | 15              |

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.

### DESIGN DATA FOR 21" DEPTH ADJACENT BOX BEAM

|  |  |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
|--|--|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| SPAN LENGTH @ TO & BEARING   | 30'-0"   | 35'-0"          | 40'-0"          | 45'-0"          | 50'-0"          | 55'-0"          | 60'-0"          | 65'-0"          | 70'-0"          | 75'-0"          | 80'-0"          | 85'-0"          | 90'-0"          | 95'-0"          | 100'-0"         |
| OVERALL LENGTH OF BEAM   | 31'-6"   | 36'-6"          | 41'-6"          | 46'-6"          | 51'-6"          | 56'-6"          | 61'-6"          | 66'-6"          | 71'-6"          | 76'-6"          | 81'-6"          | 86'-6"          | 91'-6"          | 96'-6"          | 101'-6"         |
| NO. OF 270 KSI, 3" # LOW-RELAXATION STRANDS, AREA/STRAND = 0.167 SQ. IN. | 10   | 10              | 10              | 10              | 10              | 10              | 10              | 10              | 10              | 10              | 10              | 10              | 10              | 10              | 10              |
| STRAND POSITION NUMBER   | ROW 1  | 1,10,11,12      | 1,10,12         | 1,2,10,11       | 1,2,7,8,10,11   | 1,2,7,8,10,11   | 1,2,7,8,10,11   | 1,2,7,8,10,11   | 1,2,7,8,10,11   | 1,2,7,8,10,11   | 1,2,7,8,10,11   | 1,2,7,8,10,11   | 1,2,7,8,10,11   | 1,2,7,8,10,11   | 1,2,7,8,10,11   |
|  | ROW 2  | 15,16,21,22     | 15,16,21,22     | 15,16,21,22     | 15,16,21,22     | 15,16,21,22     | 15,16,21,22     | 15,16,21,22     | 15,16,21,22     | 15,16,21,22     | 15,16,21,22     | 15,16,21,22     | 15,16,21,22     | 15,16,21,22     | 15,16,21,22     |
|  | 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           |
| PRESTRESSING FORCE IMMEDIATELY AFTER STRAND RELEASE, Ppl, KIPS/BEAM      | 324  | 344             | 358             | 381             | 391             | 403             | 424             | 434             | 454             | 464             | 484             | 494             | 514             | 524             | 544             |
| EFFECTIVE PRESTRESSING FORCE AFTER ALL LOSSES, Pm, KIPS/BEAM             | 287  | 298             | 308             | 320             | 322             | 333             | 354             | 364             | 384             | 394             | 414             | 424             | 444             | 454             | 474             |
| REQUIRED FACTORED MOMENT @ STRENGTH I, Mu, FT-KIPS/BEAM                  | 328  | 383             | 427             | 482             | 504             | 548             | 580             | 624             | 678             | 682             | 746             | 766             | 830             | 850             | 914             |
| FACTORED FLEXURAL RESISTANCE, Mu, FT-KIPS/BEAM                           | 501  | 502             | 527             | 544             | 544             | 563             | 583             | 583             | 583             | 583             | 623             | 623             | 653             | 653             | 683             |
| TOTAL NO. DEBONDED STRANDS   |  |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| DEBONDED STRAND POSITION NUMBER & SCHEDULING LENGTH FROM EACH END        | ROW 1  |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
|  | ROW 2  |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| NUMBER & LENGTH #4 CT TOP TENSION BARS @ EACH END                        | 3 - 4'<br>8'-0"                                | 3 - 4'<br>8'-0" | 3 - 4'<br>8'-0" | 3 - 4'<br>8'-0" | 3 - 4'<br>8'-0" | 3 - 4'<br>8'-0" | 3 - 4'<br>8'-0" | 3 - 4'<br>8'-0" | 3 - 4'<br>8'-0" | 3 - 4'<br>8'-0" | 3 - 4'<br>8'-0" | 3 - 4'<br>8'-0" | 3 - 4'<br>8'-0" | 3 - 4'<br>8'-0" | 3 - 4'<br>8'-0" |
| NUMBER & LENGTH #5 BT BOTTOM TENSION BARS @ EACH END                     | 3 - 5'<br>8'-0"                                | 3 - 5'<br>8'-0" | 3 - 5'<br>8'-0" | 3 - 5'<br>8'-0" | 3 - 5'<br>8'-0" | 3 - 5'<br>8'-0" | 3 - 5'<br>8'-0" | 3 - 5'<br>8'-0" | 3 - 5'<br>8'-0" | 3 - 5'<br>8'-0" | 3 - 5'<br>8'-0" | 3 - 5'<br>8'-0" | 3 - 5'<br>8'-0" | 3 - 5'<br>8'-0" | 3 - 5'<br>8'-0" |
| DESIGN CAMBER<br>+ = POSITIVE (UP)<br>(INCHES)                           | @ RELEASE                                      | 0.05            | 0.05            | 0.05            | 0.05            | 0.05            | 0.05            | 0.05            | 0.05            | 0.05            | 0.05            | 0.05            | 0.05            | 0.05            | 0.05            |
|  | @ ERECTION                                     | 0.55            | 0.55            | 0.55            | 0.55            | 0.55            | 0.55            | 0.55            | 0.55            | 0.55            | 0.55            | 0.55            | 0.55            | 0.55            | 0.55            |
|  | @ FINAL  | 0.54            | 0.54            | 0.54            | 0.54            | 0.54            | 0.54            | 0.54            | 0.54            | 0.54            | 0.54            | 0.54            | 0.54            | 0.54            | 0.54            |
| NUMBER & SPACING OF TL-2 GUARDRAIL INSERTS<br>SEE NOTE 6                 | NO OF INSERTS REQD.                            |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
|  | END OF BEAM TO<br>@ OF FIRST INSERT<br>EA. END |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
|  | @ OF 1st INSERT<br>TO @ 2nd INSERT<br>EA. END  |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| WEIGHT OF TYPICAL BEAM INCLUDING DIAPHRAGM (TONS)                        | 4.4  | 4.4             | 4.4             | 4.4             | 4.4             | 4.4             | 4.4             | 4.4             | 4.4             | 4.4             | 4.4             | 4.4             | 4.4             | 4.4             | 4.4             |

#### NOTES

- 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 226 LBS/DIAPHRAGM. FOR SKEW ADD 21 LBS/DEGREE OF SKEW/END. FOR LONGER ENDBLOCK, ADD 271 LBS/LF/END.
- 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 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.
- IF BEAM DOES NOT MEET ALL TOLERANCES REFER TO MP 603.10.40 FOR GUIDANCE. 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.

- 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.

- MAXIMUM BEAM SKEW SHALL BE 30 DEGREES.
- 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.
- THIS SHEET SHALL BE USED IN CONJUNCTION WITH STANDARD SHEETS BR-021A, BR-0100, BR-0101, BR-0102A & B, BR-0103, BR-0104, BR-0105A & B AND BR-0106 AS APPLICABLE.

DESIGNED BY: *James B. Bick* DATE: 10-23-07  
 CHECKED BY: *James B. Bick* DATE: 10-23-07  
 WEST VIRGINIA DEPARTMENT OF TRANSPORTATION  
 DIVISION OF HIGHWAYS  
 ENGINEERING DIVISION  
 DESIGN TABLE FOR 21"  
 PRESTRESSED BOX BEAM  
 STANDARD SHEET BR-021B

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION  
 DIVISION OF HIGHWAYS  
 ENGINEERING DIVISION  
 WICKWIRE I-BEAM BRIDGE  
 DESIGN TABLE FOR 21"  
 PRESTRESSED BOX BEAM  
 DESIGNED BY: *James B. Bick* DATE: 10-23-07  
 CHECKED BY: *James B. Bick* DATE: 10-23-07  
 REVIEWED BY: *James B. Bick* DATE: 10-23-07  
 SCALE: 1" = 10'-0"  
 SHEET NO. 8 OF 15  
 BRIDGE NUMBER: 10006

| STATE<br>PROJECT NUMBER | FEDERAL<br>PROJECT NUMBER | STATE<br>DIST.<br>NO. | COUNTY | SHEET<br>NO. | TOTAL<br>SHEETS |
|-------------------------|---------------------------|-----------------------|--------|--------------|-----------------|
| 5248-SF-B-LR            | N/A                       | 4                     | TAYLOR | 8            | 15              |

## GOVERNING SPECIFICATIONS

THE WEST VIRGINIA DEPARTMENT OF TRANSPORTATION, DIVISION OF HIGHWAYS  
STANDARD SPECIFICATIONS FOR ROADS AND BRIDGES, ADOPTED 1994 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:

### 1. 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.

### 2. TWO LANE BRIDGE WITH AN OVERALL WIDTH OF 24'-5" (INCL. 1/2" GAP BETWEEN ADJ. BEAMS), A CURB-TO-CURB WIDTH OF 22'-4", TRANSVERSE POST-TENSIONING, AND ZERO SKEW.

### 3. DESIGN STRENGTH AND LIMIT STRESSES:

|   |           |
|---|-----------|
| MINIMUM CONCRETE STRENGTH @ STRAND RELEASE                      | 5500 PSI  |
| MINIMUM CONCRETE STRENGTH @ 28 DAYS                             | 8000 PSI  |
| TEMPORARY STRESS LIMITS IN CONCRETE BEFORE LOSSES:              |           |
| COMPRESSION STRESS LIMIT @ STRAND RELEASE                       | 3300 PSI  |
| TENSION STRESS LIMIT @ STRAND RELEASE                           | -200 PSI  |
| COMPRESSION STRESS LIMITS IN CONCRETE @ SERVICE @ AFTER LOSSES: |           |
| @ FINAL 1 (PS-DL-LI)  | 4800 PSI  |
| @ FINAL 2 (PS-DL)   | 3600 PSI  |
| @ FINAL 3 (50%PS-DL-LI)   | 3200 PSI  |
| TENSILE STRESS LIMIT IN CONCRETE @ SERVICE @ AFTER LOSSES:      |           |
| @ FINAL 1 (PS-DL-LI)  | -540 PSI  |
| TENSION STRESS LIMIT PRIOR TO TRANSFER:                         | 202.5 KSI |
| TENSION STRESS LIMIT AFTER ALL LOSSES:                          | 194.4 KSI |

### 4. DEBONDING OR SHELTING 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. SHELTING OF STRANDS SHALL BE ACCOMPLISHED BY TAPING OR TIGHT FITTING PLASTIC TUBES TAPED AT EACH END.

### 5. 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. NONVULCAN PAD DESIGNS SHALL BE IN ACCORDANCE WITH SECTION 14, AASHTO LRFD. BEVELED SOLE PLATES ARE PERMITTED.

### 6. MAXIMUM BEAM SKEW SHALL BE 30 DEGREES.

### 7. WHEN ALTERNATE DESIGNS OR SITE SPECIFIC DESIGNS ARE PROVIDED, CRITERIA SET FORTH IN THESE STANDARDS SHALL APPLY.

### 8. NEGATIVE DESIGN CAMBER AFTER ALL LOSSES IS NOT PERMITTED.

### 9. EACH BEAM PROVIDED IN THESE STANDARD DESIGNS HAS BEEN LOAD RATED IN ACCORDANCE WITH SECTION 3.15 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, 2003.

| LAP SPLICING TABLE |       |       |       |       |
|--------------------|-------|-------|-------|-------|
| BAR SIZE           | NO. 3 | NO. 4 | NO. 5 | NO. 6 |
| SPLICING LENGTH    | 21"   | 28"   | 34"   | 41"   |

THIS SHEET SHALL BE USED IN CONJUNCTION WITH STANDARD SHEETS BR-D17A & B THRU  
BR-D42A & B, BR-D101, BR-D102A & B, BR-D103, BR-D104, BR-D105A & B AND BR-D106 AS APPLICABLE.

## MATERIALS & FABRICATION NOTES

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

### MILD REINFORCEMENT

- ALL MILD 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 SPLICES SHALL BE A CLASS B, CONTACT TYPE. MINIMUM LAP  
SPLICING LENGTHS SHALL BE AS GIVEN IN THE "LAP SPLICING TABLE". THIS SHEET. ADDITIONALLY,  
IF LAP SPLICING OF LT, LR, AND BT 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 6 BAR DIAMETERS, EXCEPT THAT  
NO. 3 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 STRANDS

- ALL PRESTRESSING STEEL SHALL BE 1/2" #, GRADE 270, 7 WIRE UNCOATED, LOW-RELAXATION STRAND  
MEETING THE REQUIREMENTS OF AASHTO M203, 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 STRUTTING 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 C826-04.

### 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 15.2 OF THE AASHTO LRFD BRIDGE CONSTRUCTION SPECIFICATIONS, 2010  
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 (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    | 3/4" x 7"         | AASHTO M270, GR 36          | AASHTO M11    |
| TUBING   | TS 8x4x3/16       | ASTM A200, GR B             | AASHTO M11    |
| CHANNEL  | C7x9.8            | AASHTO M270, GR 36          | AASHTO M11    |
| FERRULE  | TYPE 2A           | ASTM A108 (1117 STEEL)      | AASHTO M232   |
| WIRE     | ANCHOR            | ASTM A510 (1108 STEEL)      | AASHTO M232   |
| STUDS    | 1/2" # x 8" LONG  | ASTM A108 (1045 C.D. STEEL) | AASHTO M232   |
| NUTS     | 1/2" #            | AASHTO M291, CLASS C        | AASHTO M232   |
| COUPLERS | TYPE 1A           | ASTM A108 (11214 STEEL)     | AASHTO M232   |
| BOLTS    | ANCHOR            | AASHTO M54 (TYPE 1, MH)     | AASHTO M232   |
| BOLTS    | 1/2" # x 12" LONG | AASHTO M54 (TYPE 1, MH)     | AASHTO M232   |
| NUTS     | 1/2" #            | 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 D15, 2002.

### POST-TENSIONING BARS

- POST-TENSIONING THREAD BARS SHALL BE ONE INCH DIAMETER, 150 KSI STEEL, AND  
SHALL CONFORM TO AASHTO M275, TYPE 1. 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 ANCHILLARY  
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.

### GRAOUT 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 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-D103.
- TEST PROCEDURE FOR DETERMINING THE COMPRESSIVE STRENGTH OF GROUT SHALL USE CUBE  
SPECIMENS IN ACCORDANCE WITH ASTM C109, AS MODIFIED BY ASTM C107. 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 CONCRETE  
LANTANCE 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, D-102 AND THE STANDARD  
SPECIFICATIONS. ADDITIONAL INFORMATION IS PROVIDED IN SECTION 7 OF THE BRIDGE DESIGN MANUAL.  
SHOP DRAWINGS SHALL INCLUDE THE FABRICATOR'S DETENSIONING PLAN.

APPROVED: *[Signature]* DATE: 10-25-07  
BY: *[Signature]*

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
ENGINEERING DIVISION

PRESTRESSED CONCRETE BEAM  
DESIGN & ASSEMBLY NOTES  
STANDARD SHEET BR-D100

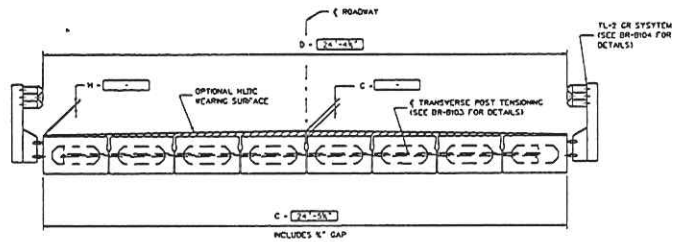
DESIGNED BY: *[Signature]*  
CHECKED BY: *[Signature]*  
REVIEWED BY: *[Signature]*  
DATE: *[Signature]*  
SCALE: *[Signature]*  
SHEET NO. 8 OF 15  
PROJECT NO. 07-02-07  
DATE: 10-25-07

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
ENGINEERING DIVISION

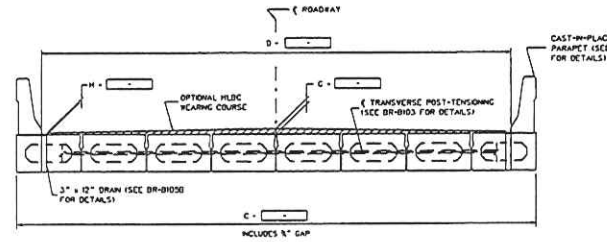
WICKWIRE I-BEAM BRIDGE

PRESTRESSED CONCRETE BEAM  
DESIGN & ASSEMBLY NOTES

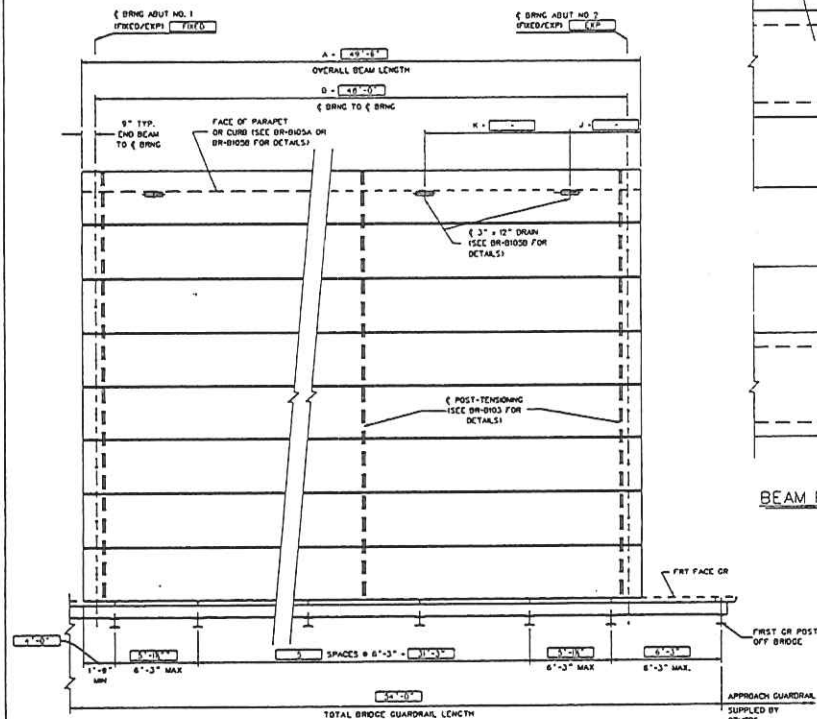
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PROJECT NO. 07-02-07  
DATE: 10-25-07



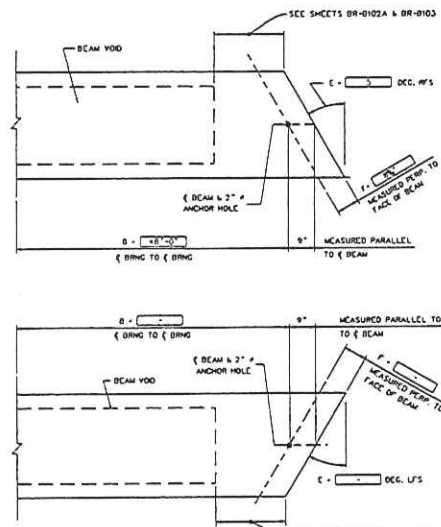
TYPICAL CROSS-SECTION WITH GUARDRAIL



TYPICAL CROSS-SECTION WITH PARAPET OR CURB



DECK PLAN VIEW



BEAM PLAN VIEW - SKEWED ENDS

ESTIMATE OF QUANTITIES

| ITEM NO. | DESCRIPTION                   | UNITS | QUANTITY |
|----------|-------------------------------|-------|----------|
| 8030B-01 | PRESTRESSED CONCRETE BOX BEAM | LF    | 598'-10" |
|          |                               |       |          |
|          |                               |       |          |
|          |                               |       |          |
|          |                               |       |          |
|          |                               |       |          |
|          |                               |       |          |
|          |                               |       |          |
|          |                               |       |          |
|          |                               |       |          |

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 8030B-01 "PRESTRESSED CONCRETE BOX BEAM."
- THIS SHEET SHALL BE USED IN CONJUNCTION WITH STANDARD SHEETS BR-B107A & B THRU BR-B107A & B, BR-B109, BR-B102A & B, BR-B103, BR-B104, BR-B105A & B AND BR-B106.

DESIGNED BY: *James B. Lee* DATE: 10-28-07  
 WEST VIRGINIA DEPARTMENT OF TRANSPORTATION  
 DIVISION OF HIGHWAYS  
 ENGINEERING DIVISION  
 PRESTRESSED CONCRETE BEAM  
 DESIGN AND ASSEMBLY NOTES  
 STANDARD SHEET BR-B101

| STATE PROJECT NUMBER | FEDERAL PROJECT NUMBER | STATE DIST. NO. | COUNTY | SHEET NO. | TOTAL SHEETS |
|----------------------|------------------------|-----------------|--------|-----------|--------------|
| 5248-B-34-88         | N/A                    | 4               | TAYLOR | 10        | 13           |

| CONTROL DIMENSIONS   |      |         |
|--|------|---------|
| DESCRIPTION  | CODE | VALUE   |
| OVERALL BEAM LENGTH  | A    | 49'-10" |
| SPAN LENGTH, $\epsilon$ BEARING TO $\epsilon$ BEARING  | D    | 48'-10" |
| SUPERSTRUCTURE WIDTH - OUT TO OUT  | C    | 24'-35" |
| ROADWAY WIDTH - FACE GR/PARAPET TO FACE GR/PARAPET   | D    | 24'-10" |
| NUMBER OF BEAMS REQUIRED   | —    | 8       |
| BEAM SIZE (WIDTH x DEPTH)  | —    | 36"x21" |
| SKEW ANGLE (NORMAL, DEC. H/S OR DEC. L/S)  | E    | 3° H/S  |
| PERPENDICULAR DISTANCE FROM FACE OF BEAM TO $\epsilon$ BEARING                                     | F    | 10'     |
| HLRC BEARING COURSE REQUIRED (YES/NO)  | —    | NO      |
| THICKNESS OF BEARING COURSE $\epsilon$ FACE OF DECK OR ROADWAY                                     | G    | N/A     |
| THICKNESS OF BEARING COURSE $\epsilon$ EDGE OF DECK OR PARAPET                                     | H    | N/A     |
| 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 LOSSES | —    | YES     |
| NUMBER OF GUARDRAIL POST INSERTS REQUIRED PER SOC  | —    | 8       |
| TYPE F PARAPET REQUIRED (YES/NO)   | —    | NO      |
| DRUMS REQUIRED (YES/NO)  | —    | NO      |
| NUMBER OF DRUMS REQUIRED PER SOC   | —    | N/A     |
| 10" CURB REQUIRED (YES/NO)   | —    | NO      |

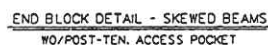
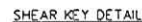
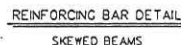
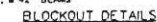
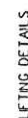
WEST VIRGINIA DEPARTMENT OF TRANSPORTATION  
 DIVISION OF HIGHWAYS  
 ENGINEERING DIVISION

WICKWIRE I-BEAM BRIDGE

PRESTRESSED CONCRETE BEAM

DESIGN & ASSEMBLY NOTES

|                        |       |
|------------------------|-------|
| DESIGNED BY: <i>JB</i> | ALL   |
| DRAWN BY: <i>JB</i>    | ALL   |
| CHECKED BY: <i>JB</i>  | ALL   |
| REVIEWED BY: <i>JB</i> | ALL   |
| DATE:                  |       |
| SCALE:                 |       |
| SHEET NO. 10 OF 15     |       |
| BRIDGE NUMBER          | 11008 |



THIS SHEET SHALL BE USED IN CONJUNCTION WITH STANDARD SHEETS BR-B17A & B THRU BR-B42A & B, BR-B100, BR-B101, BR-B102B, BR-B103, BR-B104, BR-B105A & B AND BR-B106 AS APPROPRIATE.

|  |                |
|--|----------------|
| APPROVED: <i>James Bailey</i>              | DATE: 10-25-07 |
| DIRECTOR, DIVISION OF HIGHWAYS             |                |
| WEST VIRGINIA DEPARTMENT OF TRANSPORTATION |                |
| DIVISION OF HIGHWAYS                       |                |
| ENGINEERING DIVISION                       |                |
| PRESTRESSED CONCRETE BEAM                  |                |
| SKEWED END REINFORCING                     |                |
| MSC.DESIGN AND ASSEMBLY DETAILS            |                |
| STANDARD SHEET BR-8102A                    |                |

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
ENGINEERING DIVISION

WICKWIRE I-BEAM BRIDGE

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

|                  |          |
|------------------|----------|
| DESIGNED BY: TM/ | ALS      |
| DRAWN BY: TM/    | ALS      |
| CHECKED BY: TM/  | CMB      |
| REVIEWED BY: TW/ | ALS      |
| DATE:            |          |
| SCALE:           |          |
| SHEET            | 11 OF 15 |
| BRIDGE NO.       |          |
| 11008            |          |





The diagram shows a floor plan with a grid of rooms. The rooms are labeled as follows:

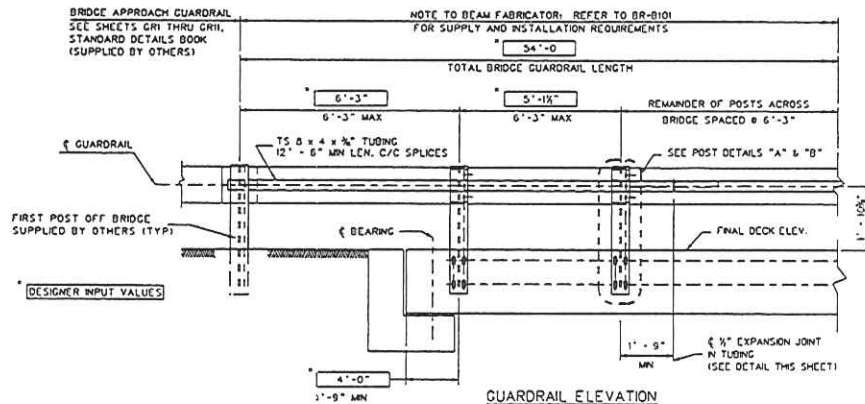
- STAIR**: Located at the top left, with a dimension of 10' x 10'.
- HALL**: Located at the top center, with a dimension of 10' x 10'.
- OFFICE**: Located at the top right, with a dimension of 10' x 10'.
- BATH**: Located at the bottom right, with a dimension of 10' x 10'.

The diagram also includes dimensions for the overall layout and individual rooms. The overall dimensions are 10' x 10' (width) and 10' x 10' (depth). The individual room dimensions are 10' x 10' (width) and 10' x 10' (depth).

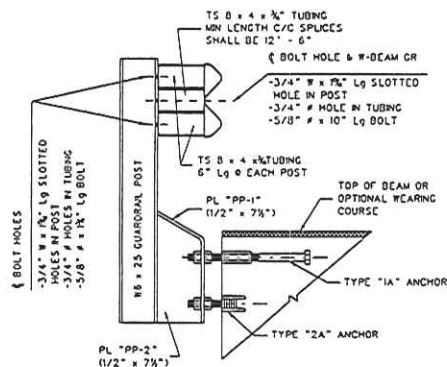
[illegible]

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

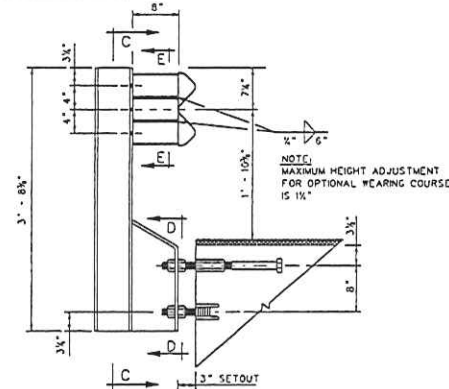
NOTE TO BEAM FABRICATOR: REFER TO BR-B101  
FOR SUPPLY AND INSTALLATION REQUIREMENTS



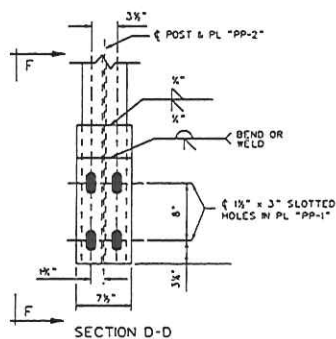
GUARDRAIL ELEVATION



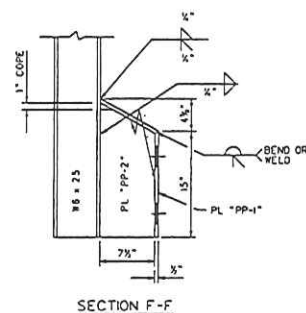
GUARDRAIL POST DETAIL "A"



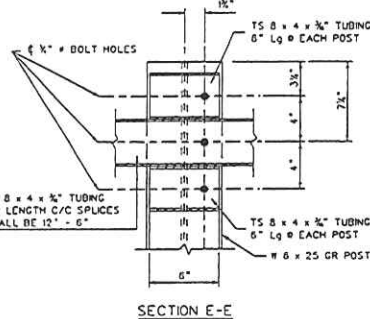
GUARDRAIL POST DETAIL "B"



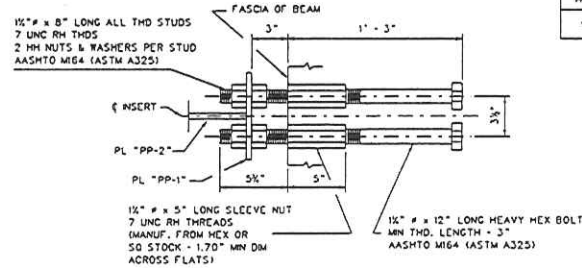
SECTION D-D



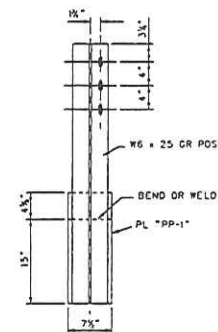
SECTION F-F



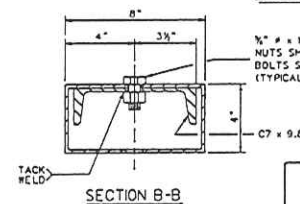
SECTION E-E



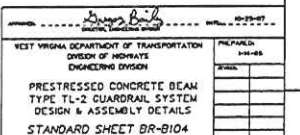
TYPE 1A ANCHOR DETAIL



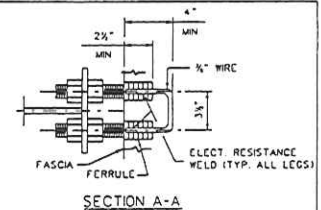
SECTION C-C



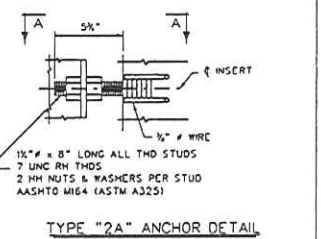
SECTION B-B



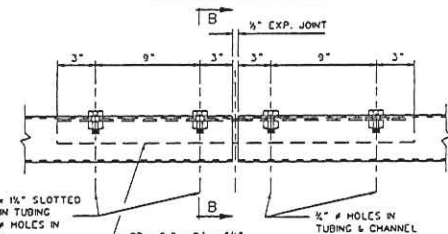
TUBING SPLICE/EXPANSION JOINT DETAIL



SECTION A-A



TYPE 2A ANCHOR DETAIL



SECTION G-G

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
ENGINEERING DIVISION

WICKWIRE I-BEAM BRIDGE

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

|                    |              |
|--------------------|--------------|
| DESIGNED BY: THALL | 10-25-07     |
| DRAWN BY: THALL    | 10-25-07     |
| CHECKED BY: THALL  | 10-25-07     |
| REVISED BY: ALL    | 10-25-07     |
| DATE:              | 10-25-07     |
| SCALE:             | 1/4" = 1'-0" |
| SHEET NO. 14 OF 15 |              |
| DRAWING NUMBER     | 1008         |

## NOTES

- THIS SHEET SHALL BE USED IN CONJUNCTION WITH  
STANDARD SHEETS BR-017A & B THRU BR-042A &  
B, BR-0100, BR-0101, BR-0102A & B, BR-0103 AND  
BR-0104 AS APPLICABLE.

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
ENGINEERING DIVISION

WICKWIRE I-BEAM BRIDGE

TYPE TL-2 GUARDRAIL TRANSITION

|                     |       |
|---------------------|-------|
| DESIGNED BY:TW/     | ALL   |
| DRAWN BY:BM/        | ALL   |
| CHECKED BY:TW/      | CR    |
| REVIEWED BY:THO/    | ALL   |
| DATE:               |       |
| SCALE:              |       |
| SHEET               |       |
| 15                  | OF 15 |
| BRIDGE NO.<br>11008 |       |



# 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 Resident Vendor Preference, if applicable.

**1. Application is made for 2.5% resident vendor preference for the reason checked:**

- \_\_\_\_ Bidder is an individual resident vendor and has resided continuously in West Virginia for four (4) years immediately preceding the date of this certification; **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 80% of the ownership interest of Bidder is held by another individual, partnership, association or corporation resident vendor who 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 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% resident 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% resident vendor preference for the reason checked:**

- \_\_\_\_ Bidder is a nonresident vendor employing a minimum of one hundred state residents or is a nonresident vendor with an affiliate or subsidiary which maintains its headquarters or principal place of business within West Virginia employing a minimum of one hundred state residents who certifies that, during the life of the contract, on average at least 75% of the employees or Bidder's affiliate's or subsidiary's employees are residents of West Virginia who have resided in the state continuously for the two years immediately preceding submission of this bid; **or**,

**4. Application is made for 5% resident 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% resident 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% resident 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.

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) reject the bid; 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.

Under penalty of law for false swearing (West Virginia Code, §61-5-3), 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: Carr Concrete Corp.

Signed: Robert "Bun" Stanley

Date: 9-9-12

Title: Project Manager

\*Check any combination of preference consideration(s) indicated above, which you are entitled to receive.



RFQ No. CPA 120658STATE OF WEST VIRGINIA  
Purchasing Division**PURCHASING AFFIDAVIT**

**West Virginia Code §5A-3-10a states:** 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 the debt owed is an amount greater than one thousand dollars in the aggregate.

**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.

"Debtor" means any individual, corporation, partnership, association, limited liability company or any other form or business association owing a debt to the state or any of its political subdivisions. "Political subdivision" means any county commission; municipality; county board of education; any instrumentality established by a county or municipality; any separate corporation or instrumentality established by one or more counties or municipalities, as permitted by law; or any public body charged by law with the performance of a government function or whose jurisdiction is coextensive with one or more counties or municipalities. "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.

**EXCEPTION:** The prohibition of this section does not apply where a vendor has contested any tax administered pursuant to chapter eleven of this 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.

Under penalty of law for false swearing (*West Virginia Code §61-5-3*), it is hereby certified that the vendor affirms and acknowledges the information in this affidavit and is in compliance with the requirements as stated.

**WITNESS THE FOLLOWING SIGNATURE**Vendor's Name: Carr Concrete Corp.Authorized Signature: Robert "Burr" Stanley Date: 4-9-12State of WVCounty of Wood, to-wit:Taken, subscribed, and sworn to before me this 9 day of April, 2012My Commission expires 2/8, 2020.**AFFIX SEAL HERE**NOTARY PUBLIC. Wendi Kapraun

**Please use this document for technical questions, posing in a question format**

**Please refer to the section your question is in reference to.**

Technical questions for RFQ# \_\_\_\_\_

Vendor Name: \_\_\_\_\_

Questions:

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