



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
10120024

PAGE
1

ADDRESS CORRESPONDENCE TO ATTENTION OF:
PAUL REYNOLDS 304-558-0468

VENDOR

\*709042451      304-425-8955  
 EASTERN VAULT COMPANY INC  
 PO BOX 1134  
 PRINCETON WV 24740

SHIP TO

DIVISION OF HIGHWAYS  
 JOBSITE  
 SEE SPECIFICATIONS

DATE PRINTED	TERMS OF SALE	SHIP VIA	F.O.B.	FREIGHT TERMS
08/04/2011	NET 30	OUR TRUCK	JOBSITE	INCLUDED

BID OPENING DATE: 08/31/2011      BID OPENING TIME 01:30PM

LINE	QUANTITY	UOP	CAT NO.	ITEM NUMBER	UNIT PRICE	AMOUNT
0001		LS		210-16		\$ 53,178.89
<p>17" PRESTRESSED CONCRETE BOX BEAMS</p> <p>REQUEST FOR QUOTATION (RFQ)</p> <p>THE WEST VIRGINIA STATE DIVISION OF PURCHASING FOR THE AGENCY, THE WEST VIRGINIA DIVISION OF HIGHWAYS IS SOLICITING BIDS TO FURNISH ALL LABOR, MATERIALS AND EQUIPMENT NECESSARY TO PROVIDE 17" PRESTRESSED CONCRETE BOX BEAMS, GUARDRAILS AND RELATED HARDWARE TO THE WEST VIRGINIA DIVISION OF HIGHWAYS JOBSITE LOCATED AT WYCO HOLLOW ARCH OVER ALLEN CREEK NEAR WYCO, WV.</p> <p>TECHNICAL QUESTIONS CONCERNING THIS SOLICITATION MUST BE SUBMITTED IN WRITING TO PAUL REYNOLDS IN THE WEST VIRGINIA STATE PURCHASING DIVISION VIA MAIL AT THE ADDRESS SHOWN IN THE BODY OF THIS RFQ, VIA FAX AT 304-558-2596, OR VIA EMAIL AT PAUL.REYNOLDS@WV.GOV. DEADLINE FOR ALL TECHNICAL QUESTIONS IS 08/26/2011, AT THE CLOSE OF BUSINESS. ANY TECHNICAL QUESTIONS RECEIVED WILL BE ANSWERED BY FORMAL ADDENDUM TO BE ISSUED BY THE PURCHASING DIVISION AFTER THE DEADLINE HAS LAPSED.</p> <p>PURCHASING CARD ACCEPTANCE: THE STATE OF WEST VIRGINIA CURRENTLY UTILIZES A VISA PURCHASING CARD PROGRAM WHICH IS ISSUED THROUGH A BANK. THE SUCCESSFUL VENDOR MUST ACCEPT THE STATE OF WEST VIRGINIA VISA PURCHASING CARD FOR PAYMENT OF ALL ORDERS PLACED BY ANY STATE</p>						



SEE REVERSE SIDE FOR TERMS AND CONDITIONS			
SIGNATURE	TELEPHONE	DATE	
<i>B.P. Struble</i> BRIAN P. STRUBLE	304-425-8955	8-25-2011	
TITLE	FEIN	ADDRESS CHANGES TO BE NOTED ABOVE	
GENERAL MANAGER	55-0520255		

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

**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.htm](http://www.state.wv.us/admin/purchase/vrc/hipaa.htm) 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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PAUL REYNOLDS 304-558-0468

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\*709042451                      304-425-8955  
EASTERN VAULT COMPANY INC  
PO BOX 1134  
  
PRINCETON WV 24740

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DIVISION OF HIGHWAYS  
JOBSITE  
SEE SPECIFICATIONS

DATE PRINTED 08/04/2011	TERMS OF SALE	SHIP VIA	F.O.B.	FREIGHT TERMS		
BID OPENING DATE: 08/31/2011		BID OPENING TIME 01:30PM				
LINE	QUANTITY	UOP	CAT. NO.	ITEM NUMBER	UNIT PRICE	AMOUNT
				<p>AGENCY AS A CONDITION OF AWARD.</p> <p style="text-align: center;">NOTICE</p> <p>A SIGNED BID MUST BE SUBMITTED TO:</p> <p style="padding-left: 40px;">DEPARTMENT OF ADMINISTRATION PURCHASING DIVISION BUILDING 15 2019 WASHINGTON STREET, EAST CHARLESTON, WV 25305-0130</p> <p>THE BID SHOULD CONTAIN THIS INFORMATION ON THE FACE OF THE ENVELOPE OR THE BID MAY NOT BE CONSIDERED:</p> <p>SEALED BID</p> <p>BUYER:    PAUL REYNOLDS    FILE 33</p> <p>RFQ. NO.:    10120024</p> <p>BID OPENING DATE:                                      08/31/2011</p> <p>BID OPENING TIME:                                      01:30 P.M.</p> <p>PLEASE PROVIDE A FAX NUMBER IN CASE IT IS NECESSARY TO CONTACT YOU REGARDING YOUR BID:</p> <p style="padding-left: 40px;">304-425-1171</p> <p>-----</p> <p>CONTACT PERSON (PLEASE PRINT CLEARLY):</p>		
SEE REVERSE SIDE FOR TERMS AND CONDITIONS						
SIGNATURE			TELEPHONE		DATE 8-25-11	
TITLE			FEIN		ADDRESS CHANGES TO BE NOTED ABOVE	

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BID OPENING DATE: **08/31/2011**      BID OPENING TIME **01:30PM**

LINE	QUANTITY	UOP	CAT. NO.	ITEM NUMBER	UNIT PRICE	AMOUNT
				<i>BRIAN P. STRUBLE</i>		
-----						
EXHIBIT 10						
REQUISITION NO.: .....						
ADDENDUM ACKNOWLEDGEMENT						
I HEREBY ACKNOWLEDGE RECEIPT OF THE FOLLOWING CHECKED ADDENDUM(S) AND HAVE MADE THE NECESSARY REVISIONS TO MY PROPOSAL, PLANS AND/OR SPECIFICATION, ETC.						
ADDENDUM NO.'S:						
NO. 1 ..✓.....						
NO. 2 ..✓.....						
NO. 3 ..✓.....						
NO. 4 ..✓.....						
NO. 5 ..✓.....						
I UNDERSTAND THAT FAILURE TO CONFIRM THE RECEIPT OF THE ADDENDUM(S) MAY BE CAUSE FOR REJECTION OF BIDS.						
VENDOR MUST CLEARLY 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.						

SEE REVERSE SIDE FOR TERMS AND CONDITIONS

SIGNATURE	TELEPHONE	DATE
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TITLE	FEIN	ADDRESS CHANGES TO BE NOTED ABOVE
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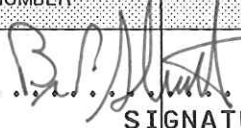
\*709042451      304-425-8955  
 EASTERN VAULT COMPANY INC  
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DATE PRINTED 08/04/2011	TERMS OF SALE	SHIP VIA	F.O.B.	FREIGHT TERMS
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BID OPENING DATE: 08/31/2011      BID OPENING TIME 01:30PM

LINE	QUANTITY	UOP	CAT NO	ITEM NUMBER	UNIT PRICE	AMOUNT
				 SIGNATURE EASTERN VAULT CO., INC. COMPANY 8-25-2011 DATE		
NOTE: THIS ADDENDUM ACKNOWLEDGEMENT SHOULD BE SUBMITTED WITH THE BID. REV. 09/21/2009						
***** THIS IS THE END OF RFQ 10120024 ***** TOTAL:						<u>\$ 53,178.89</u>

SIGNATURE 		SEE REVERSE SIDE FOR TERMS AND CONDITIONS		TELEPHONE	DATE 8-25-11
TITLE	FEIN	ADDRESS CHANGES TO BE NOTED ABOVE			

## Specifications

Purpose: To furnish all labor, materials and equipment necessary to provide 17" prestressed concrete box beams, guardrail and related hardware.

### 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 State.

### 2.0 SCOPE OF WORK

The successful Vendor shall provide all labor, materials and equipment necessary to provide 17" prestressed concrete box beams, guardrail and related hardware.

#### 2.1 Technical Requirements:

Bridge Beams are to be manufactured according to the attached plan sheets 1 thru 9 of 9 entitled WYCO HOLLOW ARCH OVER ALLEN CREEK and specifications listed there in.

##### 2.1.1 Delivery

The prestressed concrete box beams, guardrail and related hardware are to be delivered to the West Virginia Department of Transportation Bridge Number 55-12/1-1.10 which is near Wyco in Raleigh County

### **3.0 INVOICING**

#### 3.1 Payment

3.1 The Vendor must send an invoice to:  
WV Division of Highways  
270 Hardwood Lane  
Princeton, WV 24740

### **4.0 AWARD**

Purchase order will be awarded complete and not split.

STATE PROJECT NUMBER	COUNTY	SHEET NO.	TOTAL SHEETS
S355-12/1-1.10	WYOMING	1	9

POST-TENSIONING DADS:—  
 ALL POST-TENSIONING DADS SHALL BE ONE INCH DIAMETER, ISO K31 STEEL AND SHALL CONFORM TO ASTM A1029, TYPE II. STEEL THREAD DADS SHALL BE DESIGNED TO ALLOW THE USE OF HEAVY HEX NUTS AND CONEPLUGS THAT THREAD ONTO THE END OF THE DEFORMATIONS. HEAVY HEX NUTS AND CONEPLUGS 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 END OF STEEL THREAD DADS.

ALL POST-TENSIONING THREAD BARS, BEARING PLATES, CONEPLUGS, AND WELLS SHALL BE HOT-DIPPED GALVANIZED IN ACCORDANCE WITH ASTM A1029. THE GALVANIZING PLANT SHALL ADMINISTER ADEQUATE QUALITY CONTROL MEASURES TO SAFEGUARD AGAINST HYDROGEN BRITTLENESS. QUALITY CONTROL MEASURES SHALL COMPLY WITH ASTM A1029. CERTIFICATION FOR HOT-DIP GALVANIZING SHALL BE PROVIDED BY THE GALVANIZING PLANT.

ALL POST-TENSIONING BEARING PLATES SHALL CONFORM TO ASTM A1029, 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 4000 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 PRETEST 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 DURABLE 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 PRETEST RESULTS OBTAINED IN THE NOTE ABOVE. THE CONTRACTOR SHALL BE REQUIRED TO PERFORM A NEW PRETEST AND SUBMISSION FOR APPROVAL UNDER ANY OF THE FOLLOWING CONDITIONS:  
 • A PERIOD OF 18 MONTHS HAS ELAPSED SINCE LAST PRE-APPROVAL TESTING.  
 • THE CONTRACTOR ALTERS THE WATER/GROUT MIXTURE RATIO.  
 • THE CONTRACTOR CHANGES GROUT MANUFACTURER.

TEST PROCEDURE FOR DETERMINING THE COMPRESSIVE STRENGTH OF GROUT SHALL USE CURE SPECIMENS IN ACCORDANCE WITH ASTM C685, IS MODIFIED BY ASTM C685-01. TESTING IN ACCORDANCE WITH ASTM C685-01 (STANDARD CYLINDER TEST) IS NOT ACCEPTABLE.

**RESTRICTED SURFACE TREATMENT**

EACH PRESTRESSED CONCRETE BEAM SHALL BE TREATED BY THE MANUFACTURER AT THE FABRICATION PLANT WITH AN APPROVED CONCRETE SEALER/ISOLANT. 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 SPANS, AND TOP, BOTTOM AND EXTENSIVE 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 CLEW WHITE CONCRETE THE INTERIOR SIDES OF BEAMS FOR THE FULL LENGTH. CLEW WHITE CONCRETE SHALL MEAN REMOVAL OF ALL DIRT, GREASE, OIL, AND LOOSE CONCRETE LANTAGE AND PROVIDE A REFINISHED 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, D002 AND THE STANDARD SPECIFICATIONS. ADDITIONAL INFORMATION IS PROVIDED IN SECTION 7 OF THE BRIDGE DESIGN MANUAL. SHOP DRAWINGS SHALL INCLUDE THE FABRICATOR'S DETERMINING PLAN.

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION  
 DIVISION OF HIGHWAYS  
 ENGINEERING DIVISION

WYCO HOLLOW ARCH  
 OVER  
 ALLEN CREEK

PRESTRESSED CONCRETE BEAM  
 DESIGN & ASSEMBLY NOTES  
 10989

PROJECT NO.	10-20-07
DATE	10/20/07
DESIGNER	BR-8100
CHECKER	
APPROVED	
DATE	

**WATERWAYS & FABRICATION NOTES**

THE PRESTRESSED CONCRETE BEAMS SHALL CONFORM TO ALL APPLICABLE PROVISIONS OF SECTION 600 OF THE STANDARD SPECIFICATIONS.

**BUILD REINFORCEMENT**

ALL BUILD REINFORCING STEEL SHALL BE GRADE 60 DEFORMED BILLET STEEL AND SHALL MEET THE REQUIREMENTS OF ASTM A618, ALL UNGRADED REINFORCING SHALL MEET THE REQUIREMENTS OF ASTM A618, ALL EPOXY COATED REINFORCING SHALL MEET THE REQUIREMENTS OF ASTM A618, EXCEPT WHERE INDICATED BY SECTION 700 OF THE STANDARD SPECIFICATIONS.

ALL TOPBAR LAP SPICES SHALL BE A CLASS II CONTACT TYPE. MINIMUM LAP SPICE LENGTHS SHALL BE AS GIVEN IN THE "LAP SPICE TABLE" THIS SHEET. IF LAP SPICES OF 18, 16, AND 14 BAR DIAMETERS IS USED, TERMINATION OF THE SPICE SHALL BE NO CLOSER TO THE END OF THE BEAM THAN TWO OF THE SPAN LENGTH.

MINIMUM BAR BENDING DIAMETER SHALL BE 6 BAR DIAMETERS, EXCEPT THAT NO. 4 BAR DADS MAY HAVE A MINIMUM BEND DIAMETER OF 4 BAR DIAMETERS.

MINIMUM CONCRETE COVER SHALL BE AS SPECIFIED IN SECTION 602.6 OF THE STANDARD SPECIFICATIONS, EXCEPT WHERE NOTED ON THE PLANS.

**PRESTRESSING STRANDS**

MEETING THE REQUIREMENTS OF ASTM A421, SUPPLEMENT 31.

ALL BEAMS DESIGNED IN THESE STANDARDS UTILIZE STRANDS WITH A NOMINAL AREA OF 0.07 SQ. IN. STRANDS WITH A NOMINAL AREA OF 0.03 SQ. IN. IS PERMITTED FOR INDIVIDUAL OR ALTERNATE BEAMS. THE DESIGNER IS ENCOURAGED TO USE THE LARGER STRAND FOR UNIFORMITY REASONS. IN NO CASES WILL STRESS-RELEASED STRAND BE PERMITTED.

ALL STRANDS SHALL BE ENCLOSED INSIDE THE STRIP CASE FOR THE FULL LENGTH OF THE BEAM.

ALL EXPOSED PRESTRESSING STRAND AT EACH BEAM END SHALL BE SHIP COATED WITH A LIQUID COLD-APPLIED BUTADIENE ELASTOMERIC WATERPROOFING MEMBRANE. MATERIAL SHALL MEET ASTM A639-04.

ALL CONCRETE USED IN MANUFACTURING PRESTRESSED CONCRETE BEAMS SHALL MEET THE REQUIREMENTS OF SECTION 602.6 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 C CONCRETE, ELASTOMERIC BENDING CASES.

ALL BEARING PADS SHALL MEET THE APPLICABLE REQUIREMENTS AS SET FORTH IN SECTION 602 OF THE ASHTO LFD BRIDGE CONSTRUCTION SPECIFICATIONS, 1998 EDITION WITH CURRENT INTERIMS. ALL BEARINGS SHALL BE STEEL REINFORCED LAMINATED BEARINGS.

THE ELASTOMER MATERIAL SHALL BE 60 DIAMETERS WITH A MINIMUM LOW TEMPERATURE GRADE OF -3 (GRADE C).

ALL STEEL REINFORCING SHALL MEET THE REQUIREMENTS OF ASTM A618, GRADE 60.

**GUARDRAIL, GUARDRAIL POSTS, TURNING & INTERMS**

ALL WOOD GUARDRAIL AND ATTACHMENT HARDWARE SHALL BE IN ACCORDANCE WITH SECTION 704 OF THE STANDARD SPECIFICATIONS, GUARDRAIL POSTS, STRUCTURAL TUBING, POST ATTACHMENT INTERMS, AND HARDWARE SHALL MEET THE LISTED MATERIAL AND COATING SPECIFICATIONS.

**ITEM DESCRIPTION**

ITEM	DESCRIPTION	QUANTITY	UNIT
POST	WYCO	ASHTO M20, GR 36	ASHTO M20
PLATE	1/2" x 7"	ASHTO M20, GR 36	ASHTO M20
TUBING	TS BRACING	ASTM A500, GR B	ASHTO M20
CHANNEL	C7.8	ASHTO M20, GR 36	ASHTO M20
FERRULE	TYPE 2A	ASTM A500 (HSL STEEL)	ASHTO M20
WIRE	ANCHOR	1/4" x 2 1/2" MIN LEN.	ASHTO M20
STUDS	1/4" x 8" LONG	ASTM A500 (HSL C&I STEEL)	ASHTO M20
NUTS	1/4"	ASTM A500 (HSL C&I STEEL)	ASHTO M20
COUPLERS	TYPE 1A	ASTM A500 (HSL C&I STEEL)	ASHTO M20
BOLTS	1/4" x 5" LONG	ASTM A500 (HSL C&I STEEL)	ASHTO M20
BOLTS	1/4" x 2 1/2" LONG	ASTM A500 (HSL C&I STEEL)	ASHTO M20
NUTS	1/4" x 2 1/2" LONG	ASTM A500 (HSL C&I STEEL)	ASHTO M20
WASHERS	1/4"	ASTM A500 (HSL C&I STEEL)	ASHTO M20
WASHERS	1/4"	ASTM A500 (HSL C&I STEEL)	ASHTO M20

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 ASTM/AAS 155, 2002.

**GOVERNING SPECIFICATIONS**

THE WEST VIRGINIA DEPARTMENT OF TRANSPORTATION, DIVISION OF HIGHWAYS STANDARD SPECIFICATIONS FOR ROADS AND BRIDGES, ADOPTED 2000, AS AMENDED BY THE CURRENT SUPPLEMENTAL SPECIFICATIONS, THE CONTRACT PLANS AND ANY OTHER PROVISIONS ARE THE GOVERNING PROVISIONS APPLICABLE TO THIS PROJECT.

**DESIGN NOTES**

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

**DESIGN NOTES**

1. DESIGN LOAD:—  
 1400 LIVE LOAD IN ACCORDANCE WITH THE ASHTO LFD BRIDGE DESIGN SPECIFICATIONS.

FUTURE WEARING SURFACE OF 30 PSF OF FINISH.

TYPE F PARAPET WEIGHING 30 PLF.

DIAPHRAGM DEAD LOAD, NUMBER REQUIRED BASED ON 15'-0" MAX. SPACING.

2. TWO LANE BRIDGE WITH AN ORIGINAL WIDTH OF 24'-5" (INCL. 3" GAP AND ZERO SLOPE). A CORRESPONDING WIDTH OF 22'-4", TRANSCVERSE PRESTRESSING.

3. DESIGN STRENGTH AND LIMIT STRESSES:  
 MINIMUM CONCRETE STRENGTH & STRAND RELEASE --- 6000 PSI  
 MINIMUM CONCRETE STRENGTH @ 28 DAYS --- 6000 PSI  
 TEMPORARY STRESS LIMITS IN CONCRETE BEFORE LOSSES --- 3800 PSI  
 COMPRESSION STRESS LIMIT @ STRAND RELEASE --- 3200 PSI  
 CONCRETE STRESS LIMITS IN CONCRETE @ SERVICE 1 AFTER LOSSES --- 4000 PSI  
 @ FINAL 1 (PROBULL) --- 3000 PSI  
 @ FINAL 2 (PROBULL) --- 3000 PSI  
 TENSILE STRESS LIMIT IN CONCRETE @ SERVICE 1 AFTER LOSSES --- 320 PSI  
 @ FINAL 1 (PROBULL) --- 270 PSI  
 TENSION STRESS LIMIT PRIOR TO TRANSFER --- 3225 KSI  
 TENSION STRESS LIMIT AFTER ALL LOSSES --- 1844 KSI

4. DEFORMING OR SHELING OF STRANDS TO REDUCE TEMPORARY TENSILE STRESSES IS PERMITTED. HOWEVER DEFORMING IS LIMITED TO 40% PER ROW AND 25% TOTAL. IN NO INSTANCES SHALL OUTER STRANDS BE DEFORMED. DEFORMED STRANDS SHALL BE SEPARATED BY AT LEAST ONE FULLY BONDED STRAND AND SHALL BE SYMMETRICAL ABOUT THE C&G OF THE BEAM.

SHEDDING OF STRANDS SHALL BE ACCOMPLISHED BY TAPPING OR TRIP FITTING PLASTIC TUBES TAPPED AT EACH END.

5. THE ELASTOMERIC BEARING PADS PROVIDED IN THE STANDARD DESIGNS ARE BASED ON 2500 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, ASHTO LFD. BOICLED 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 MOMENT AFTER ALL LOSSES IS NOT PERMITTED.

9. EACH BEAM PROVIDED IN THESE STANDARD DESIGNS HAS BEEN LOAD RATED IN ACCORDANCE WITH SECTION 705 OF THE WEST VIRGINIA DIVISION OF HIGHWAYS BRIDGE DESIGN MANUAL, 2004. ADDITIONALLY, LOAD RATING PROCEDURES ARE IN ACCORDANCE WITH THE ASHTO MANUAL FOR CONDITION EVALUATION AND LOAD AND RESISTANCE FACTOR RATING OF HIGHWAY BRIDGES, 2002.

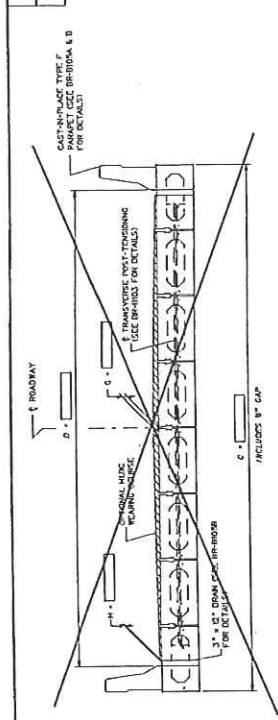
BAR SIZE	1/4"	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"
SPACING	24"	24"	24"	24"	24"	24"	24"

THIS SHEET SHALL BE USED IN CONJUNCTION WITH STANDARD SHEETS BRNDA & B THRU BRNDA & D, BRNDB, BRNDB2 & B, BRNDB3, BRNDB4, BRNDB5 & B AND BRNDB6 AS APPLICABLE.

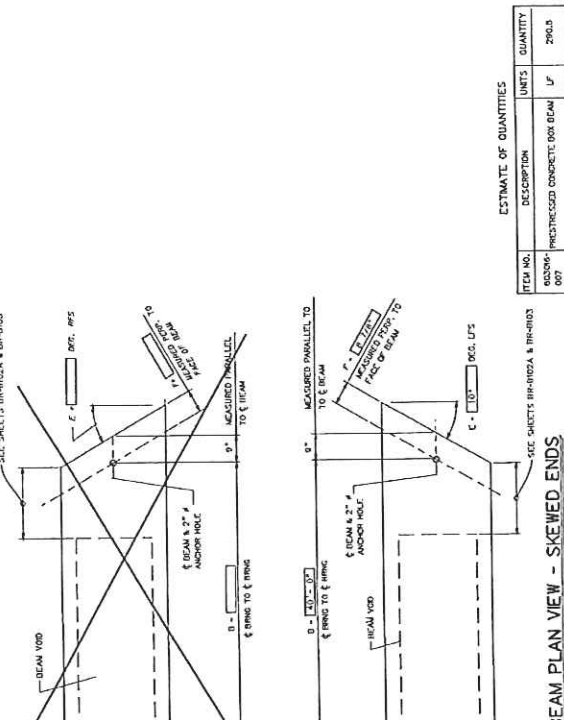


STATE PROJECT NUMBER: **WYOMING**  
 STATE DISTRICT: **10**  
 SHEET NO.: **2** OF **9**

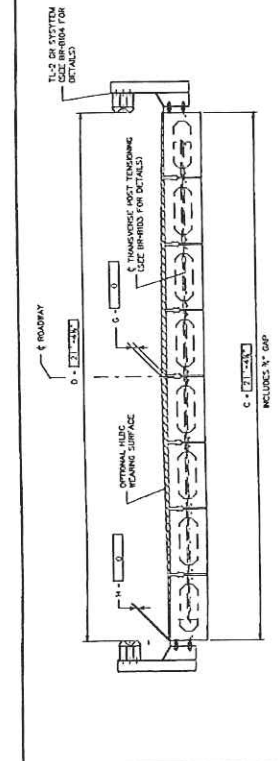
DESCRIPTION	CODE	VALUE
OVERALL BEAM LENGTH	A	41'-4"
SPAN LENGTH, $\xi$ BEARING TO $\xi$ BEARING	B	40'-0"
SUPERSTRUCTURE WIDTH - OUT TO OUT	C	21'-4 1/2"
ROADWAY WIDTH - FACE OF PARAPET TO FACE OF PARAPET	D	21'-4 1/2"
NUMBER OF BEAMS REQUIRED	E	7
BEAM SIZE (DEPTH $\times$ WIDTH)	F	30" $\times$ 17"
SKEW ANGLE NORMAL, DEC. RP'S OR DEC. LFS	G	10°-17'2"
PERPENDICULAR BEARING FROM FACE OF BEAM TO $\xi$ BEARING	H	R 77°8"
MIN. WEARING COURSE REQUIRED (YES/NO)	I	NO
THICKNESS OF WEARING COURSE $\xi$ $\xi$ OF DECK OR ROADWAY	J	----
THICKNESS OF WEARING COURSE $\xi$ EDGE OF DECK OR PARAPET	K	----
T.L.S. BRIDGE GUARDRAIL SYSTEM REQUIRED (YES/NO)	L	YES
PROVISION TO INSTALL T.L.S. BRIDGE GUARDRAIL (YES/NO)	M	YES
FABRICATOR TO INSTALL BRIDGE GUARDRAIL PRIOR TO SHIPMENT (YES/NO) OR NO. FABRICATOR TO SHIP (LOADS)	N	NO
NUMBER OF GUARDRAIL POST REPORTS REQUIRED PER SIDE (YES/NO)	O	7
TYPE $\xi$ PARAPET REQUIRED (YES/NO)	P	NO
DRAINS REQUIRED (YES/NO)	Q	NO
NUMBER OF DRAININGS REQUIRED FOR DEC. (YES/NO)	R	----
10" CURB REQUIRED (YES/NO)	S	NO



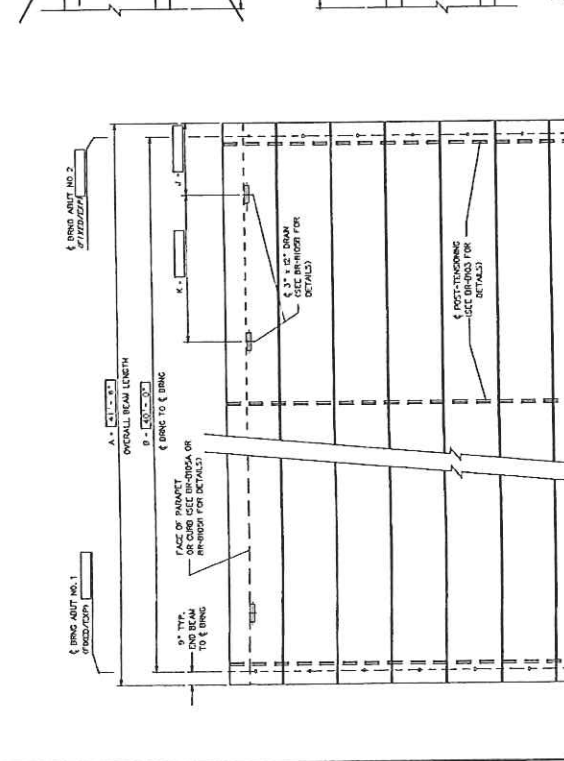
TYPICAL CROSS-SECTION WITH GUARDRAIL  
 INCLUDES 3" GAP



TYPICAL CROSS-SECTION WITH PARAPET OR CURB  
 INCLUDES 3" GAP



DECK PLAN VIEW  
 TOTAL BRIDGE GUARDRAIL LENGTH



BEAM PLAN VIEW - SKEWED ENDS  
 INCLUDES 3" GAP

ESTIMATE OF QUANTITIES

ITEM NO.	DESCRIPTION	UNITS	QUANTITY
60209-007	PRESTRESSED CONCRETE BOX BEAM	LF	296.5

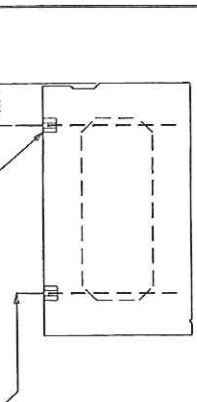
WEST VIRGINIA DEPARTMENT OF TRANSPORTATION  
 DIVISION OF HIGHWAYS  
 ENGINEERING DIVISION  
 PROJECT NO. 2 OF 9  
 SHEET NO. 2 OF 9  
 DESIGN & ASSEMBLY NOTES

NOTES:  
 1. WITH BRIDGE GUARDRAIL IS TO BE SUPPLIED BY THE BEAM FABRICATOR, INCLUDING ALL NECESSARY POSTS, RAILS, ELEMENTS, ATTACHMENT HARDWARE, AND ACCESSORIES. ITEMS NEEDED TO COMPLETELY INSTALL BRIDGE GUARDRAIL SHALL BE INCLUDED IN THE PRICE.  
 2. BRISTLA 4 IS TO BE USED IN CONJUNCTION WITH STANDARD SHEETS BR-102A & B, BR-102C & D, BR-103, BR-104, BR-105A & B AND BR-106.

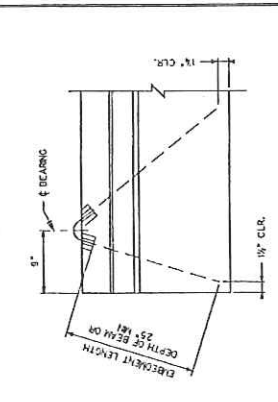
WEST VIRGINIA DEPARTMENT OF TRANSPORTATION  
 DIVISION OF HIGHWAYS  
 ENGINEERING DIVISION  
 PROJECT NO. 2 OF 9  
 SHEET NO. 2 OF 9  
 DESIGN & ASSEMBLY NOTES

STATE	FED. PROJ. NO.	CONTRACT	SHEET NO.	TOTAL SHEETS
VA	3355-12/1-1, 10	WYOM HC	3	9

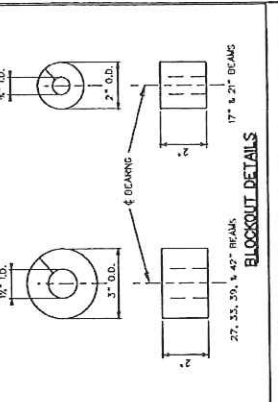
1/4" 4 STRAND LIFTING LOOPS EMBEDDED FULL DEPTH OF BEAM PLUS CONCRETE OR FILL WITH LIMIT LIFTING A MINIMUM OF 25 FEET. THE BEARING SHALL BE REINFORCED BY THE INDICATED.



END VIEW



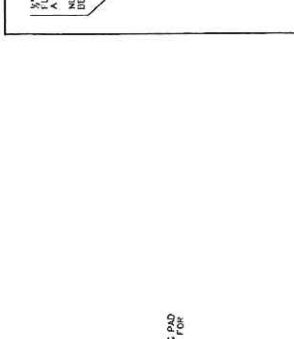
SIDE VIEW



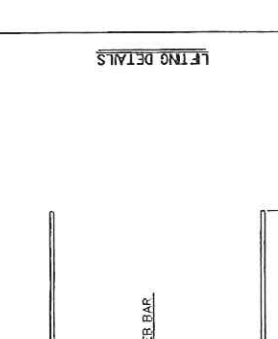
BLOCKOUT DETAILS

LIFTING DETAILS

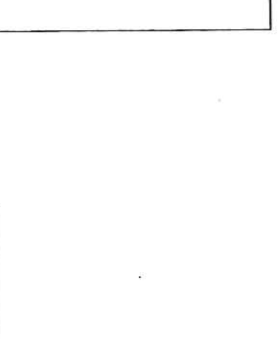
AT FIXED END FILL 2" ANCHOR SLEEVE WITH PORTLAND CEMENT MORTAR MEETING THE REQUIREMENTS OF SUB-SECT. 7.10.5. OR WITH ANCHOR SLEEVE WITH PORTLAND CEMENT MORTAR MEETING THE REQUIREMENTS OF SUB-SECT. 7.10.5.



END BEARING DETAIL WITHOUT BACKWALL

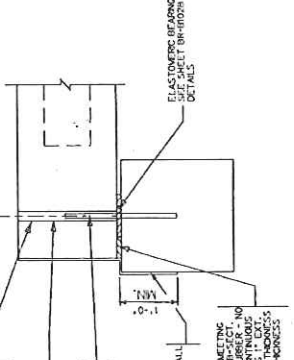


END BEARING DETAIL WITH BACKWALL

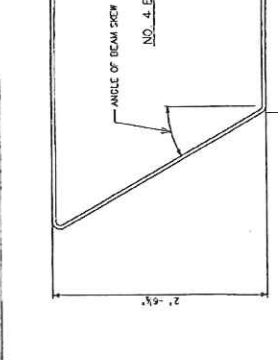


REINFORCING BAR DETAIL SKEWED BEAMS

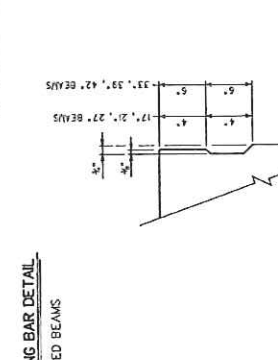
SEAL JOINT WITH HOT POUR NON-SOLUBLE MATERIAL MEETING THE REQUIREMENTS OF SUB-SECT. 7.10.5. MIN. DEPTH OF SEAL 1" EXT.



END BEARING DETAIL WITH BACKWALL



END BEARING DETAIL WITH BACKWALL

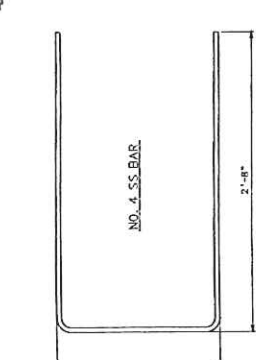


END BEARING DETAIL WITH BACKWALL

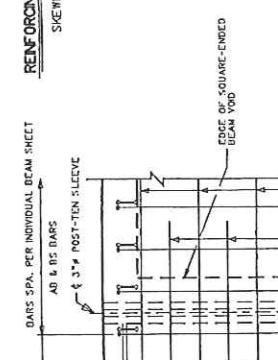
PERFORMED JOINT FILLER MEETING THE REQUIREMENTS OF SUB-SECT. 7.10.5. MIN. DEPTH OF FILLER SHALL BE 1" EXT. CONTINUOUS COLOR REQUIREMENT TO CONTINUE PAST EACH FACE OF BEAM THICKNESS PLUS 1/2".



END BEARING DETAIL WITH BACKWALL

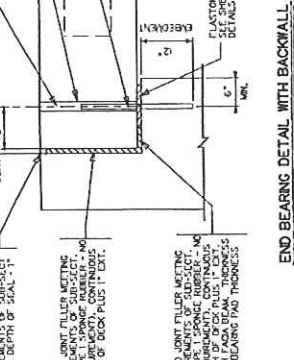


END BEARING DETAIL WITH BACKWALL

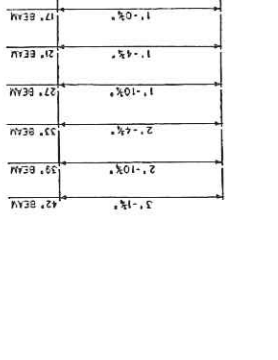


END BEARING DETAIL WITH BACKWALL

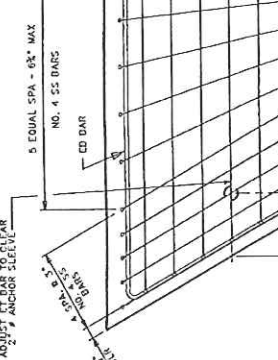
MEASURE WATERPROOFING IN ACCORDANCE WITH DETAIL BR-1022 FOR DETAILS.



END BEARING DETAIL WITH BACKWALL



END BEARING DETAIL WITH BACKWALL

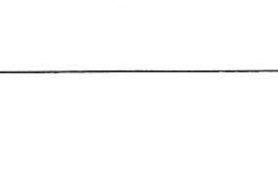


END BEARING DETAIL WITH BACKWALL

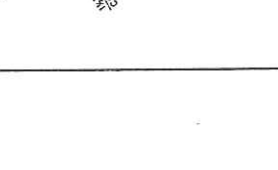
PERFORMED JOINT FILLER MEETING THE REQUIREMENTS OF SUB-SECT. 7.10.5. MIN. DEPTH OF FILLER SHALL BE 1" EXT. CONTINUOUS COLOR REQUIREMENT TO CONTINUE PAST EACH FACE OF BEAM THICKNESS PLUS 1/2".



END BEARING DETAIL WITH BACKWALL



END BEARING DETAIL WITH BACKWALL



END BEARING DETAIL WITH BACKWALL

DESIGNED BY: TNY	SCALE: 3/8" = 1'-0"
CHECKED BY: TNY	DATE: 10/25/07
APPROVED BY: TNY	DATE: 10/25/07
DATE:	
WEST VIRGINIA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS CONCRETE DIVISION	
WYCO HOLLOW ARCH OVER ALLEN CREEK	
PRESTRESSED CONCRETE BEAM SKEWED END REINFORCING MISC. DESIGN AND ASSEMBLY DETAILS	
STANDARD SHEET BR-B102A	

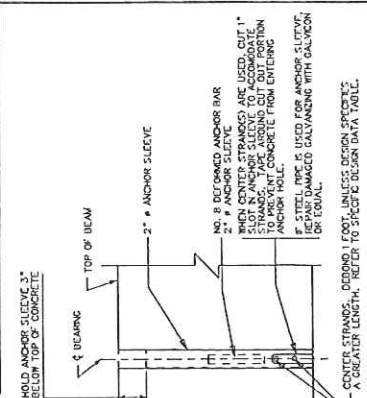
THIS SHEET SHALL BE USED IN CONJUNCTION WITH STANDARD SHEETS BR-B101A & B, BR-B102A & B, BR-B103, BR-B104, BR-B105A & B AND BR-B106 AS APPROPRIATE.

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
CONCRETE DIVISION

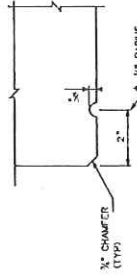
WEST VIRGINIA DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
CONCRETE DIVISION

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
CONCRETE DIVISION

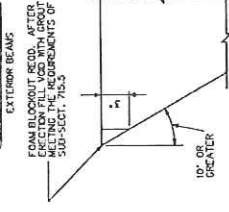
STATE	PROJECT NUMBER	SHEET NO.	CONTRACT	TOTAL SHEETS
WYOMING	5355-12/1-1.10	10	WYOMING	4



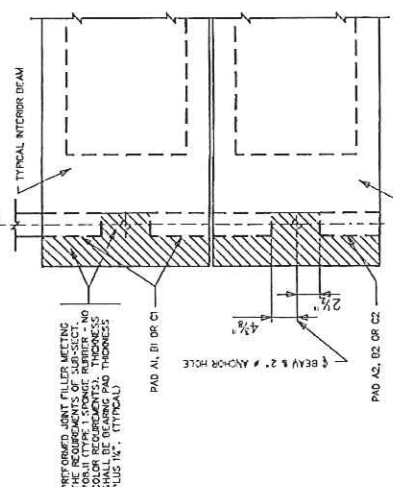
ANCHOR SLEEVE DETAIL



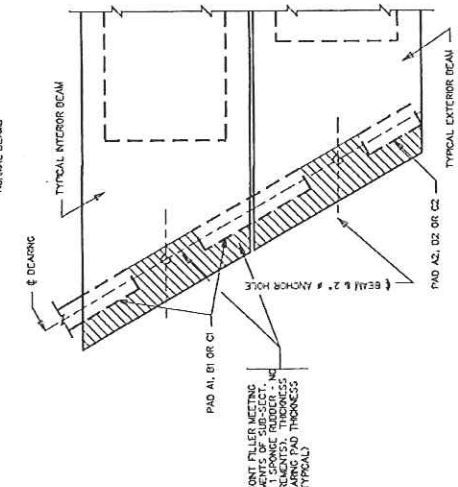
DRIP GROOVE DETAIL



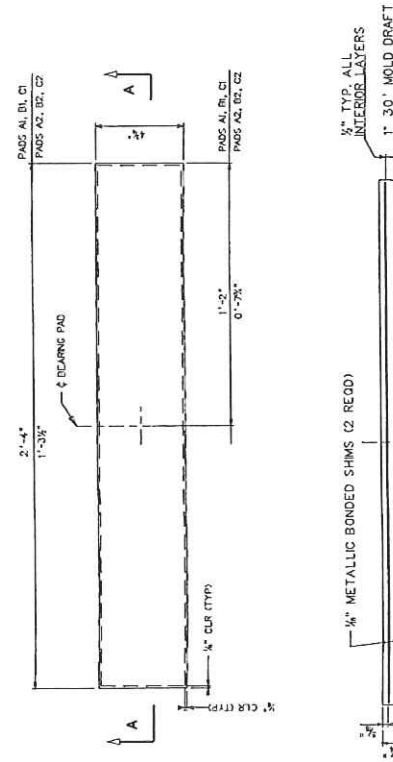
SKIEW BLOCKOUT DETAIL



PLAN VIEW - BEARING PLACEMENT



PLAN VIEW - BEARING PLACEMENT



SECTION A-A

SECTION A-A

SECTION A-A

NOTES:

- ELASTOMERIC BEARING PADS ARE DESIGNED IN ACCORDANCE WITH DESIGN METHOD B CONTAINED IN SECTION 10 OF THE AASHTO LRFD BRIDGE CONSTRUCTION SPECIFICATIONS.
- ALL BEARINGS ARE DESIGNED FOR A LOW TEMPERATURE ZONE C AND SHALL HAVE A DIAPHRAGM HARDNESS OF 80. METALLIC REINFORCEMENT SHALL HAVE A MINIMUM YIELD STRENGTH OF 30 KSI. BEVELED SOLE PLATES MAY BE USED.
- DESIGNER, FABRICATOR AND ERECTOR SHALL BE AWARE THAT SPORED END BEAMS MAY TWIST OR WARP, CAUSING UNEVEN BEAM SETBACK AT THE BEAMS AS SECURED IN PLACE. METHOD OF CORRECTION SHALL PROVIDE AN EVEN, TOTAL BEARING AND A LEVEL TOP BEAM SURFACE. TOLERANCE AFTER CORRECTION SHALL BE AS FOLLOWS: 1/8" MAXIMUM PER BEAM. CONTRACTOR SHALL NOTIFY THE CONTRACTOR AND DESIGNER OF CORRECTIONS ARE REQUIRED PRIOR TO STARTUP.
- FOR BEAMS WITH STEPPED ENDS USE PADS A2, D2, 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-D7A & B, THRU BR-842A & B, 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.

BOX BEAM BEARING PAD CONTROL DIMENSIONS

PAD	LENGTH	WIDTH	HEIGHT	NO. SHIMS	SHIM SIZE	SPAN RANGES	MAXIMUM REACTION	MAXIMUM DEFLECTION
A1	48"	28"	1 1/2"	2	1/2" x 4 1/2" x 2-3/8"	20' - 39'	55 KIPS	0.30"
D1	48"	28"	1 1/2"	3	1/2" x 4 1/2" x 2-3/8"	40' - 78'	75 KIPS	0.80"
C1	48"	28"	2 1/2"	4	1/2" x 4 1/2" x 2-3/8"	80' - 100'	89 KIPS	1.02"
A2	48"	16 1/2"	1 1/2"	2	1/2" x 4 1/2" x 1-3/8"	20' - 38'	78 KIPS	0.39"
D2	48"	16 1/2"	1 1/2"	3	1/2" x 4 1/2" x 1-3/8"	40' - 78'	30 KIPS	0.80"
C2	48"	16 1/2"	2 1/2"	4	1/2" x 4 1/2" x 1-3/8"	80' - 100'	45 KIPS	1.07"

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
ENGINEERING DIVISION

WYCO HOLLOW ARCH  
OVER  
ALLEN CREEK

DESIGNED BY: TMD  
DRAWN BY: TMD  
CHECKED BY: TMD  
REVIEWED BY: TMD  
DATE:

SCALE: 1/4" = 1'-0"

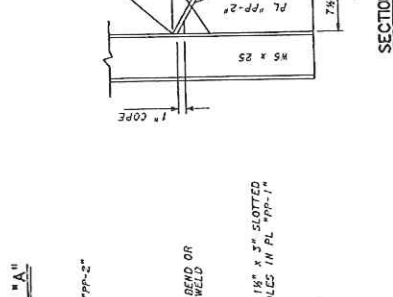
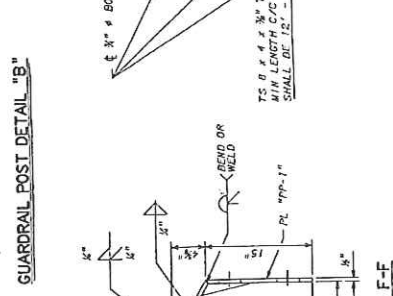
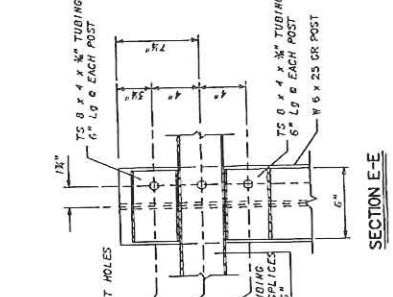
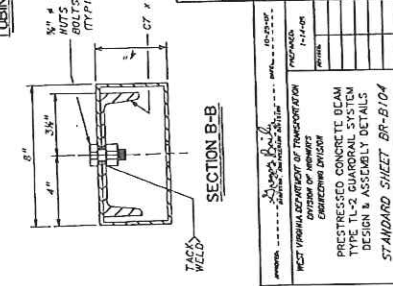
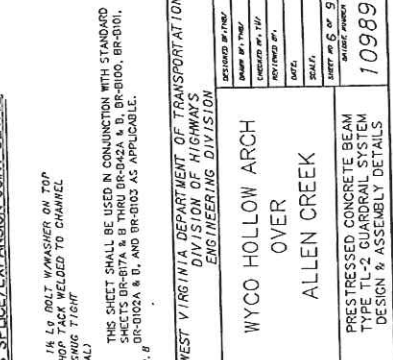
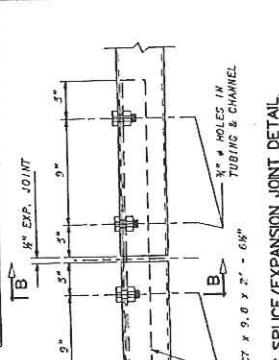
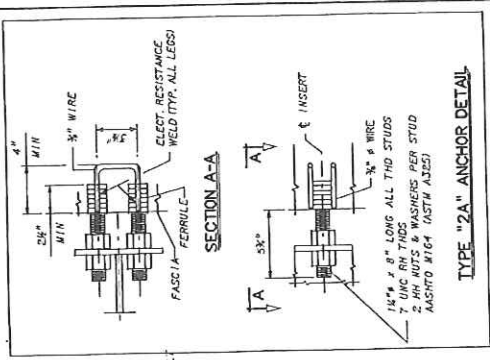
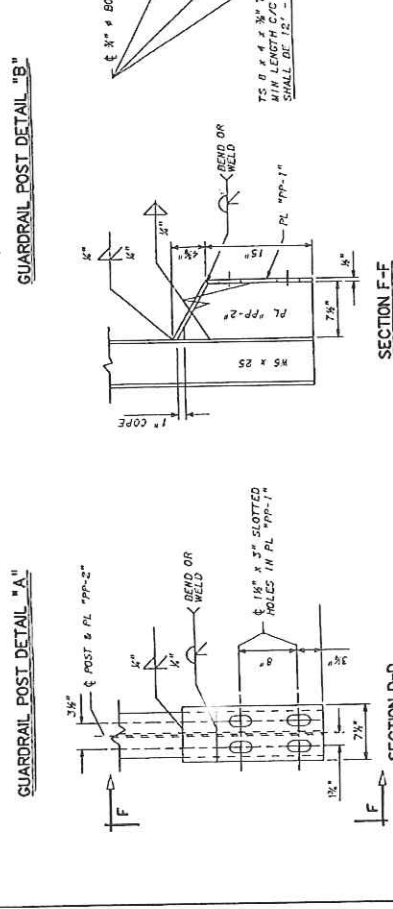
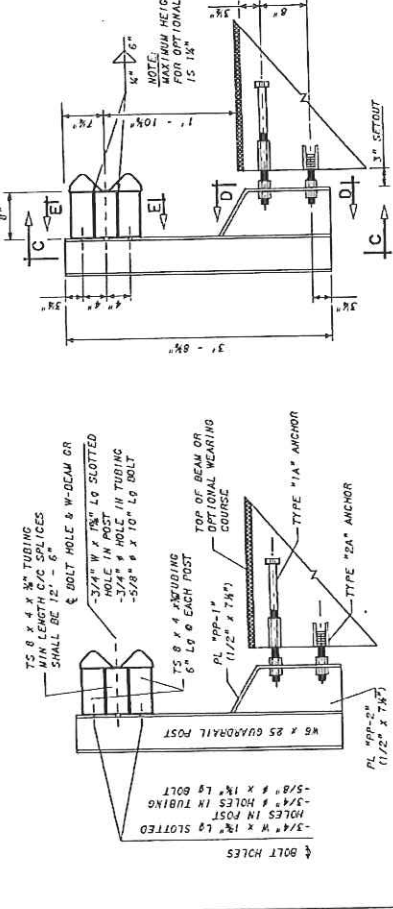
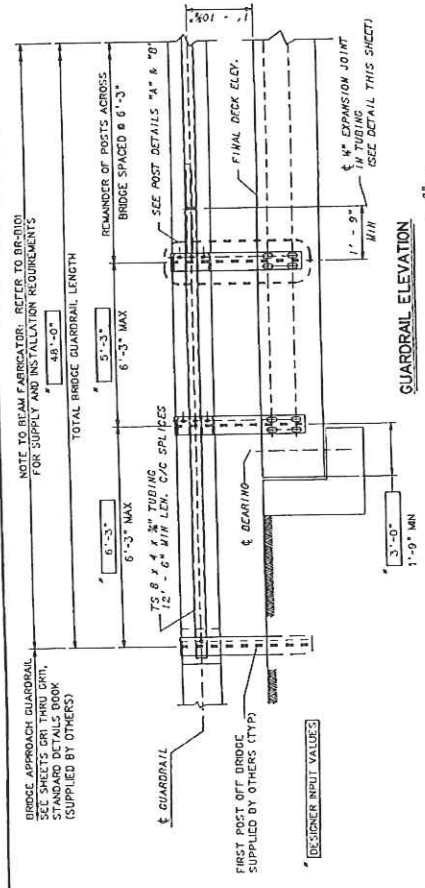
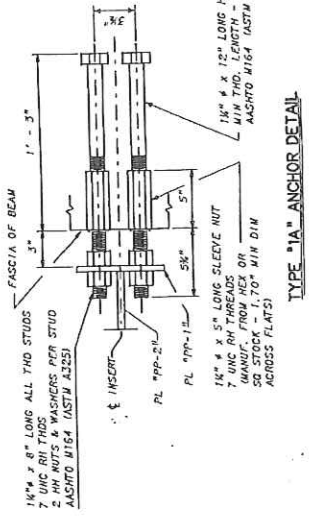
SHEET 4 OF 9  
PROJECT NO. 70989

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

STANDARD SHEET BR-B102B



PROJECT NUMBER	STATE	COUNTY	SHEET NO.	TOTAL SHEETS
S355-12/1-1.10	10	WYOMING	6	9



WEST VIRGINIA DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
ENGINEERING DIVISION

WYCO HOLLOW ARCH  
OVER  
ALLEN CREEK

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

STANDARD SHEET BR-B104

10989

DESIGNED BY/CHKD BY  
DATE  
CHECKED BY/CHKD BY  
DATE  
REVISED BY/CHKD BY  
DATE  
APPROVED BY/CHKD BY  
DATE

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

STANDARD SHEET BR-B104

DESIGNED BY/CHKD BY  
DATE  
CHECKED BY/CHKD BY  
DATE  
REVISED BY/CHKD BY  
DATE  
APPROVED BY/CHKD BY  
DATE

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

STANDARD SHEET BR-B104

DESIGNED BY/CHKD BY  
DATE  
CHECKED BY/CHKD BY  
DATE  
REVISED BY/CHKD BY  
DATE  
APPROVED BY/CHKD BY  
DATE

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

STANDARD SHEET BR-B104

DESIGNED BY/CHKD BY  
DATE  
CHECKED BY/CHKD BY  
DATE  
REVISED BY/CHKD BY  
DATE  
APPROVED BY/CHKD BY  
DATE

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

STANDARD SHEET BR-B104



STATE PROJECT NUMBER	STATE SHEET NO.	COUNTY	TOTAL SHEETS
S355-12/1-1. 10	10	WYOMING	9

MIN. CONCRETE STRENGTH @ RELEASE = 5500 PSI  
 MIN. CONCRETE STRENGTH @ 28 DAYS = 8000 PSI  
 INITIAL PULL/STRAIND = 33320 LBS  
 CROSS-SECTION AREA/STRAIND = 0.67 SQ. IN.

**DESIGN DATA FOR 17" DEPTH ADJACENT BOX BEAM**

SPAN LENGTH & TO & BEARING	20'-0"	24'-0"	28'-0"	32'-0"	36'-0"	40'-0"	44'-0"	48'-0"	52'-0"	56'-0"	60'-0"	64'-0"	68'-0"	72'-0"	76'-0"	80'-0"	84'-0"	88'-0"	92'-0"	96'-0"	100'-0"
OVERALL LENGTH OF BEAM	20'-0"	24'-0"	28'-0"	32'-0"	36'-0"	40'-0"	44'-0"	48'-0"	52'-0"	56'-0"	60'-0"	64'-0"	68'-0"	72'-0"	76'-0"	80'-0"	84'-0"	88'-0"	92'-0"	96'-0"	100'-0"
NO. OF 20# 45L 3/8" & LOWER ANCHOR STRANDS AREA/STRAIND - 0.67 SQ. IN.	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
STRAIND POSITION NUMBER	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
PRESTRESSING FORCE IMMEDIATELY AFTER STRAIND RELEASE PER AISC/ACI	33320	33320	33320	33320	33320	33320	33320	33320	33320	33320	33320	33320	33320	33320	33320	33320	33320	33320	33320	33320	33320
EFFECTIVE PRESTRESSING FORCE AFTER ALL LOSSES PER AISC/ACI	28000	28000	28000	28000	28000	28000	28000	28000	28000	28000	28000	28000	28000	28000	28000	28000	28000	28000	28000	28000	28000
REQUIRED FACTORED MOMENT & STRENGTH IN (FT-KIPS/BEAM)	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200
FACTORED FL EXTERNAL RESISTANCE IN (FT-KIPS/BEAM)	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400
TOTAL NO. DESIGNED STRANDS	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
DESIGNED STRAIND POSITION INCLUDING LENGTH FROM EACH END	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
NUMBER & LENGTH OF TOP TENSION BARS @ EACH END	2-14"	2-14"	2-14"	2-14"	2-14"	2-14"	2-14"	2-14"	2-14"	2-14"	2-14"	2-14"	2-14"	2-14"	2-14"	2-14"	2-14"	2-14"	2-14"	2-14"	2-14"
NUMBER & LENGTH OF BOTTOM TENSION BARS @ EACH END	2-14"	2-14"	2-14"	2-14"	2-14"	2-14"	2-14"	2-14"	2-14"	2-14"	2-14"	2-14"	2-14"	2-14"	2-14"	2-14"	2-14"	2-14"	2-14"	2-14"	2-14"
DESIGN CAMBER	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12
TYPE (UP)	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
INCHES	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27
NO. OF INSERTS NEEDED	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
END OF BEAM TO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
& OF FIRST INSERT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EX. END	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SEE NOTE 6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WEIGHT OF TYPICAL BEAM INCLUDING DAMPPACK (TONS)	5.0	6.1	6.6	7.1	7.4	7.8	8.2	8.6	9.0	9.4	9.8	10.2	10.6	11.0	11.4	11.8	12.2	12.6	13.0	13.4	13.8

1. BEAM WEIGHTS LISTED IN THE DESIGN TABLE ARE BASED ON ZERO SKEW, 2 FT. LONG ENDOCK AND DAMPPACK SPACED @ 5 FT C.C. WEIGHTS FOR SKEWED BEAMS, LONGER ENDOCKS AND ADDITIONAL DAMPPACKS SHOULD BE ADJUSTED ACCORDINGLY. FOR ADDITIONAL DAMPPACKS, ADD 135 LBS/20' MINIMUM.
2. DESIGNER, FABRICATOR AND DIRECTOR SHALL BE AWARE THAT SKEWED END BEAMS MAY TWIST OR WARP, CAUSING UNIFORM BEAM SPACING AT THE BEARINGS. THE CONTRACTOR IS ADVISED TO CHECK FOR THIS AND MAKE CORRECTIONS AS NECESSARY. THE CONTRACTOR SHALL PROVIDE AN EVEN TOTAL INCHING AND A LEVEL TOP BEAM SURFACE. TOLERANCE AFTER CORRECTION SHALL BE 1/4" INCH. THE FABRICATOR SHALL NOTIFY THE CONTRACTOR AND DESIGNER IF CORRECTIONS ARE REQUIRED PRIOR TO SHIPMENT.
3. PRESTRESSING DESIGN VALUES LISTED IN THE TABLE ARE BASED ON EMPERICAL FORMULAS AND AS SUCH ARE APPROXIMATIONS FOR MEMBERS WITH SPAN-TO-DEPTH RATIOS AT OR EXCEEDING 15. THE TOLERANCE VALUES LISTED IN APPENDIX B OF PCI MANUAL FOR QUALITY CONTROL, INL-96, MAY NOT APPLY.
4. DESIGNER, FABRICATOR AND DIRECTOR SHALL BE AWARE THAT SKEWED END BEAMS MAY TWIST OR WARP, CAUSING UNIFORM BEAM SPACING AT THE BEARINGS. THE CONTRACTOR IS ADVISED TO CHECK FOR THIS AND MAKE CORRECTIONS AS NECESSARY. THE CONTRACTOR SHALL PROVIDE AN EVEN TOTAL INCHING AND A LEVEL TOP BEAM SURFACE. TOLERANCE AFTER CORRECTION SHALL BE 1/4" 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, FABRICATOR AND DIRECTOR SHALL BE AWARE THAT SKEWED END BEAMS MAY TWIST OR WARP, CAUSING UNIFORM BEAM SPACING AT THE BEARINGS. THE CONTRACTOR IS ADVISED TO CHECK FOR THIS AND MAKE CORRECTIONS AS NECESSARY. THE CONTRACTOR SHALL PROVIDE AN EVEN TOTAL INCHING AND A LEVEL TOP BEAM SURFACE. TOLERANCE AFTER CORRECTION SHALL BE 1/4" INCH. THE FABRICATOR SHALL NOTIFY THE CONTRACTOR AND DESIGNER IF CORRECTIONS ARE REQUIRED PRIOR TO SHIPMENT.
7. SPECIAL STRAIND NOTE FOR 17" BOX SECTION ONLY: WHEN T1-2 GUARDRAIL INSERTS ARE REQUIRED THE BOTTOM INSERT TYPE 2A ANCHOR CONFLICTS WITH STRAIND NO. 15. STRANDS 15 AND 16 HAVE BEEN MOVED TO POSITIONS 17 AND 18. FOR UNIFORMITY PURPOSES, ALL BEAMS OF THE SAME DESIGN SHALL USE SAME STRAIND PATTERN.
8. THIS SHEET SHALL BE USED IN CONJUNCTION WITH STANDARD SHEETS BR-87A, BR-88A, BR-89A, BR-90A, BR-91A & D, BR-92A, BR-93A, BR-94A & D AND BR-95A & D AS APPLICABLE.

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION  
 DIVISION OF HIGHWAYS  
 ENGINEERING DIVISION

WYCO HOLLOW ARCH  
 OVER  
 ALLEN CREEK

DESIGN TABLE FOR 17"  
 PRESTRESSED BOX BEAM

STANDARD SHEET BR-87B

DESIGNED BY	10-25-07
CHECKED BY	
APPROVED BY	
DATE	
PROJECT NO.	
SHEET NO. OF 9	10989

**Cost Sheet**  
**RFQ #: 10120024**

Item Number	Quantity	Description	Unit Price	Amount
1	622.5 S.F.	17" PRESTRESSED CONCRETE BOX BEAM	29.60	18426.00
2	249 S.F.	17" PRESTRESSED CONCRETE BOX BEAM	29.61	7372.89
3	14 EA	SKEWED END 17" BOX BEAM	100.00	1400.00
4	16 EA	ELASTOMERIC BEARING PADS	200.00	3200.00
5	14 EA	SWEDGED ANCHOR BOLT OR #8 GALVANIZED DEFORMED REBAR	10.00	140.00
6	14 EA	GUARDRAIL ATTACHMENT ASSEMBLY FOR BOX BEAMS	200.00	2800.00
7	98 LF	1" DIAMETER POST TENSIONING BAR WITH NUTS AND WASHERS	30.00	2940.00
8	8 EA	9" X 9" X 1" PLATES	50.00	400.00
9	14 EA	TYPE TL-2 BRIDGE GUARDRAIL POSTS, INSTALLED	400.00	5600.00
10	96 LF	TYPE TL-2 BRIDGE GUARDRAIL INSTALLED	100.00	9600.00
11	28 SF	2" THICK SPONGE RUBBER PREFORMED JOINT FILLER 22 LF @ 6-5/8" WIDE = 12.1 SF/END, 25 SF TOTAL 3.5 LF @ 4-3/4" WIDE = 1.4 SF/END, 3 SF TOTAL	20.00	560.00
12	74 SF	1" THICK SPONGE RUBBER PREFORMED JOINT FILLER 50' X 17-3/4" WIDE	10.00	740.00

TOTAL AMOUNT

\$ 53,178.89

# 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.

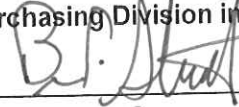
1. **Application is made for 2.5% resident vendor preference for the reason checked:**  
 Bidder is an individual resident vendor and has resided continuously in West Virginia for four (4) years immediately preceding the date of this certification; **or**,  
 Bidder is a partnership, association or corporation 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: EASTERN VAULT CO., INC.

Signed: 

Date: 8-25-2011

Title: GENERAL MANAGER

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

RFQ No. \_\_\_\_\_

STATE 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 owned 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 exceed 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: EASTERN VAULT CO., INC.

Authorized Signature: Brian P. Struble **BRIAN P. STRUBLE** Date: 8-25-11

State of West Virginia

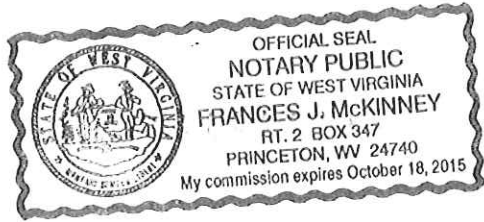
County of Mason, to-wit:

Taken, subscribed, and sworn to before me this 25<sup>th</sup> day of August 20 11

My Commission expires Oct. 18, 20 15

AFFIX SEAL HERE

NOTARY PUBLIC Frances J. McKinney



Doe

8-31-11

10/21/11

2011-2012  
10/21/11