



# GENERAL NOTES

**SPECIFICATIONS:** All references to the Specifications are to the current edition of the Kentucky Department of Highways Standard Specifications for Road and Bridge Construction with current Supplemental Specifications. All references to the AASHTO Specifications are to the current edition of the AASHTO LRFD Bridge Design Specs, with interims.

**DESIGN LOAD:** This bridge is designed for a KYHL-93 live load. The KYHL-93 live load is arrived at by increasing the standard HL-93 truck and lane loads as specified in the AASHTO Specifications by 25%.

**FUTURE WEARING SURFACE:** This structure is designed for a 15 PSF future wearing surface load.

**DESIGN STRESSES:**

Concrete Class "A"	~	f'c = 3500 psi
Concrete Class "AA"	~	f'c = 4000 psi
Steel Reinforcement	~	Fy = 60,000 psi
Structural Steel Yield Strength	~	Fy = 50,000 psi

**DESIGN METHOD:** All reinforced concrete members are designed by the load and resistance factor method as specified in the current AASHTO Specifications.

**REINFORCEMENT:** Dimensions shown from the face of concrete to bars are to center of bars unless otherwise shown. Spacing of bars is from center to center of bars. Clear distance to face of concrete is 2", unless otherwise noted. Any reinforcement bars designed be suffix (e) in the plans shall be epoxy coated in accordance with section 811.10 of the Standard Specifications. Any reinforcing bars designated by suffix (s) in a bill of reinforcement shall be considered a stirrup for purposes of bend diameters.

**BEVELED EDGES:** Bevel all exposed edges  $\frac{3}{4}$ " unless otherwise noted.

**COMPLETION OF THE STRUCTURE:** The Contractor is required to complete the structure in accordance with the plans and specifications. Material, labor or construction operations, not otherwise specified, are to be included in the bid item most appropriate to the work involved. This may include cofferdams, shoring, excavations, backfilling, removal of all or parts of existing structures, phase construction, incidental materials, labor or anything else required to complete the structure.

**SHOP DRAWINGS:** Submit shop drawings that are required by the plans and specifications directly to the Division of Structural Design. Is any changes in the design plans are proposed by a fabricator or supplier, submit those changes to the Department through the Contractor.

**DIMENSIONS:** Dimensions are for a normal temperature of 60 degrees Fahrenheit. Layout dimensions are horizontal dimensions.

**SUPERSTRUCTURE SLAB:** Ensure the entire superstructure slab is poured continuously, out to out, before allowing any concrete to set.

**MASONRY COATING:** Apply a masonry coating finish to the substructure in accordance with section 601.03.18.

**CONCRETE SEALER:** Seal deck in accordance with the Special Note for Concrete Sealing.

**ON-SITE INSPECTION:** Each contractor submitting a bid for this work shall make a thorough inspection of the project site prior to submitting a bid and shall be thoroughly familiarized with existing conditions so that work can be expeditiously performed after a contract is awarded. Submission of a bid will be considered evidence of this inspection having been made. Any claims resulting from site conditions will not be honored by the Department of Highways.

**BONDING CONCRETE TO PREVIOUSLY POURED CONCRETE:** Use an epoxy bond coat as described in section 511.03.02 of the Standard Specifications to bond the new concrete to the existing concrete at all construction joints noted in the plans. Include the cost of this work in unit price bid for Concrete Class "A".

**EXISTING PLANS:** For information regarding the existing structure see drawing number 20843.

**DAMAGE TO THE SUBSTRUCTURES:** The contractor is responsible for any and all damages to the existing substructures during reconstruction even to the replacement of the entire substructure, should they be damaged due to his actions.

**MAINTAIN AND CONTROL TRAFFIC:** The contractor is fully responsible for maintaining and controlling traffic on this project. Bridge shall be fully closed for construction. Contractor shall provide signs at each end of the road to let the public know of closure and shall also provide Type III barriers at each end of the bridge. Include all costs in the lump sum price bid for maintain and control traffic.

**REMOVE SUPERSTRUCTURE:** Include in the lump sum bid for "Remove Superstructure" all costs (materials, labor, equipment) associated with removing and disposing of the existing superstructure (including any wearing surface) and soil/backfill as necessary behind beams as detailed herein in accordance with Section 203 of the Specifications.

**FIELD MEASUREMENTS:** All dimensions and elevations given in these plans are based on field measurements. Prior to beginning work or ordering any materials, the contractor shall verify all dimensions and elevations. No claim will be honored by the Department of Highways regarding site conditions.

**BRIDGE OVERLAY APPROACH PAVEMENT:** The contractor shall provide a minimum of 8" DGA, 2~4" lifts of asphalt base, and 1½" Asphalt Surface where full depth pavement is required near ends of bridge. Backfilling behind beams is incidental to the price bid for Bridge Overlay Approach Pavement. Elsewhere, the contractor shall provide surface as necessary to provide a smooth transition from end of bridge to existing pavement. Rough pavement limits are shown in the plans or as Engineer directs. All costs incidental to the Bridge Overlay Approach Pavement bid item.

**ELEVATIONS:** The elevations given in these plans are relative elevations based on a point located north of abutment 2. The elevation at this location is assumed to be 100 foot and is not based on sea level elevations. Before starting any demolition, the contractor should make a reference benchmark off the bridge.

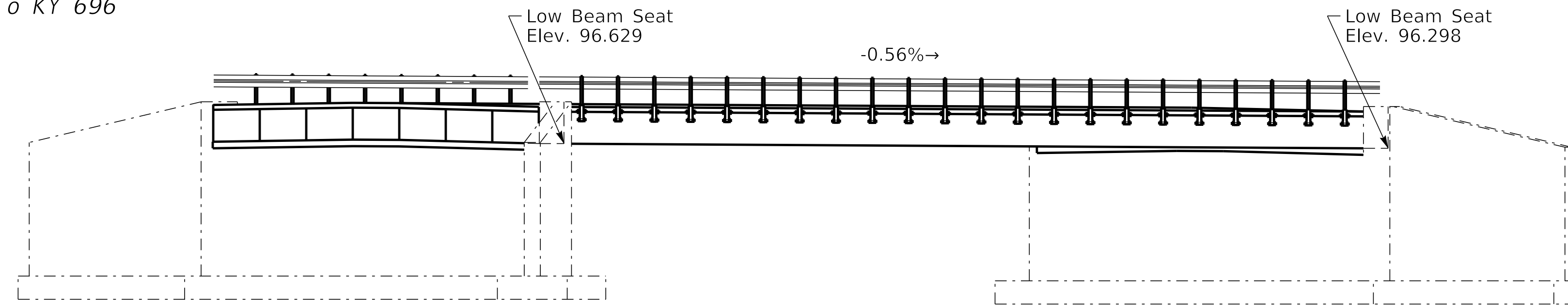


The following abbreviations may have been used in the preparation of these plans:

bet.	between
b.f.	Back Face
BOF	Bottom of Footing
BOS	Bottom of Slab
bot.	Bottom
Brg.	Bearing
C to C	Center to Center
c.e.	Current Edition
C.Y.	Cubic Yards
Chd.	Chord
CL	Center Line
Clr.	Clear
Conc.	Concrete
CubicCu.	CubicCu.
DrawingDwg.	DrawingDwg.
e.f.	Each Face
El.	Elevation
eq.	Equal
Est.	Estimate
ExteriorExt.	ExteriorExt.
F to F	Face to Face
f.f.	Front Face
f.s.	Far Side
fr.	Front
ft.	Feet
I.D.	Inside Diameter
in.	Inch
Int.	Interior
L	Left
LBS	Low Bridge Seat
LBS.	Pounds
M	Meter
MPH	Miles Per Hour
n.s.	Near Side
O.D.	Outside Diameter
Opp.	Opposite
PC	Point of Curvature
Perp.	Perpendicular
PI	Point of Intersection
PPC	Precast Prestressed Concrete
PPCDU	Precast Prestressed Deck Unit
PSI	Pounds per Square Inch
PT	Point of Tangency
R	Radius
R	Right
RCBC	Reinforced Concrete Box Culvert
RCDG	Reinforced Concrete Deck Girder
Req'd	Required
RR	Railroad
Shld.	Shoulder
spa.	Spaces
Sta.	Station
Std.	Standard
Str.	Straight
Tan	Tangent
Thru	Through
TOF	Top of Footing
TOS	Top of Slab
Tot.	Total
Typ.	Typical
Vert.	Vertical
W.P.	Working Point
Yd.	Yard

◀ To KY 696

To KY 350 ▶



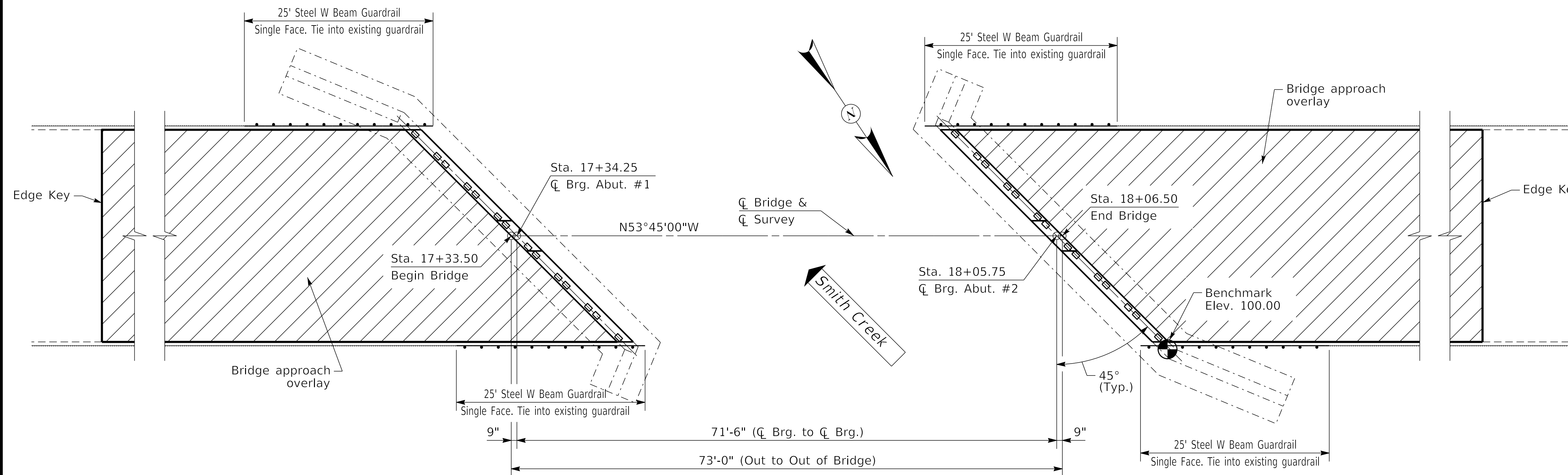
Abutment #1  
Expansion

Abutment #2  
Fixed

### ELEVATION

71'-6" PPC Box Beam, CB33, Simple Span  
 KYHL-93 Live Load ~ 35'-4" Shoulder Width @ Bridge  
 45° Skew Lt. ~ 27'-4" Bridge Roadway Width ~ 2:1 Fill Slopes

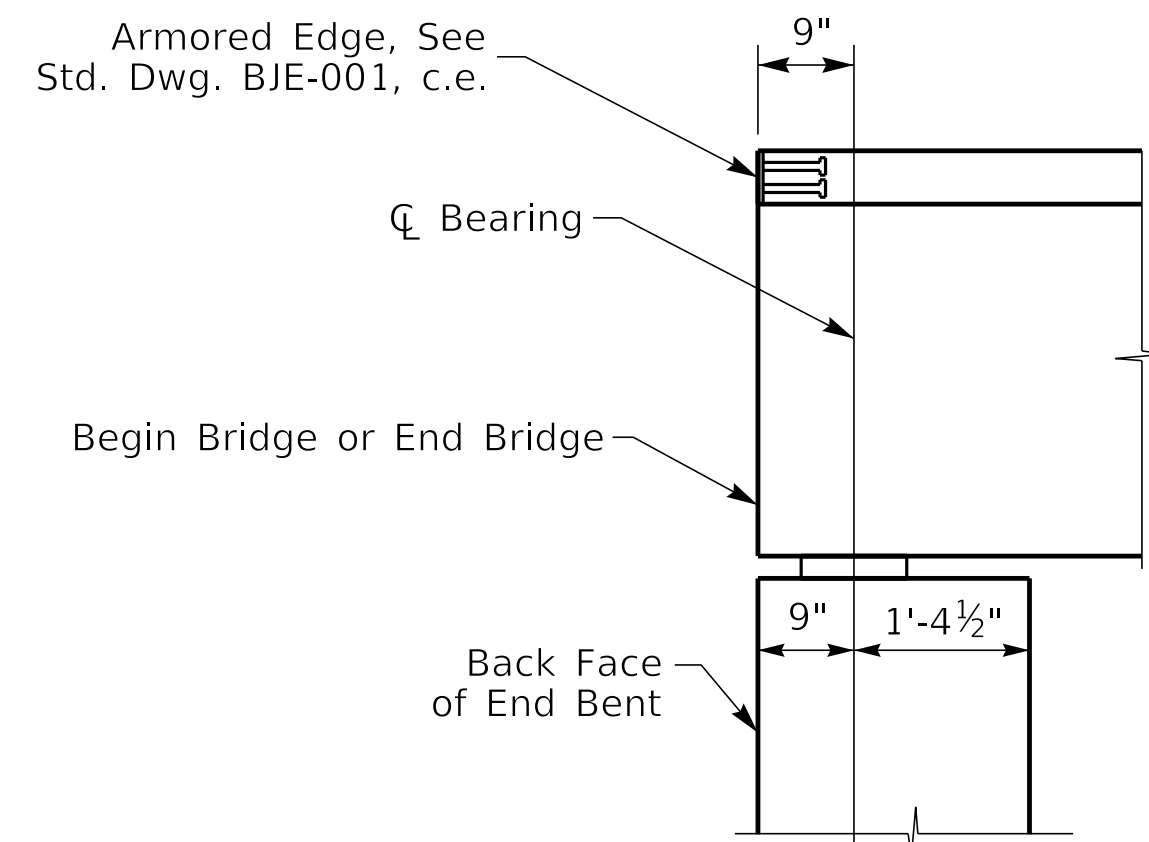
NOTE:  
 Roadway Guardrail is to attach to bridge guardrail  
 to form a continuous unit. See Std. Dwg. BHS-011, c.e.



### PLAN

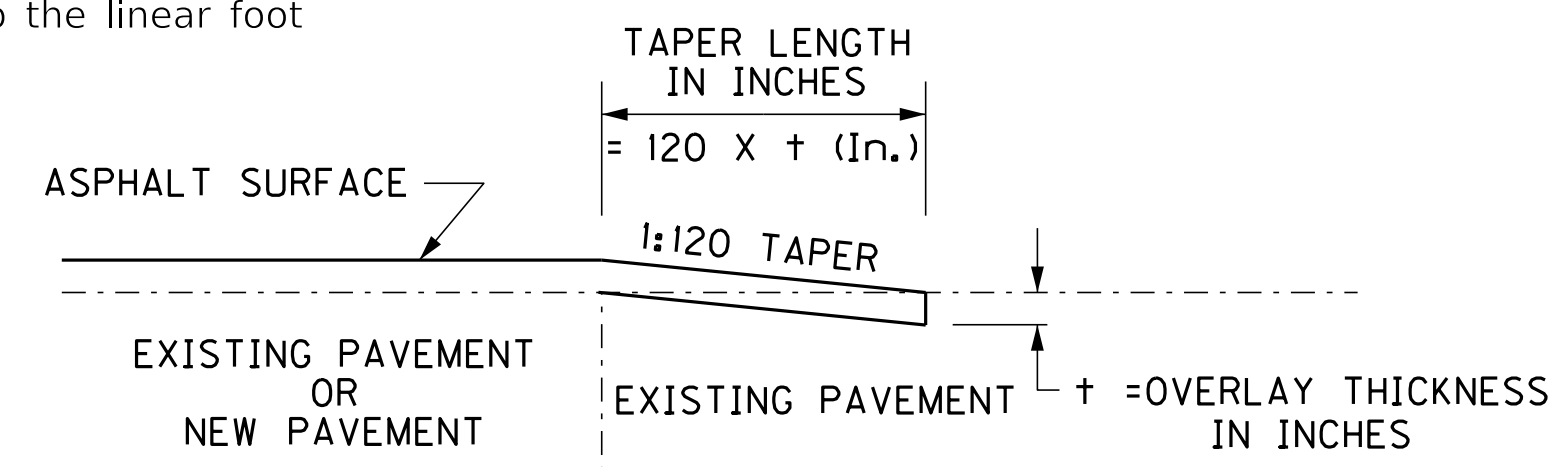
~Superstructure not shown~

Note: Remove and reset guardrail for 25' at each corner of the bridge to transition to new bridge width. Any additional rail pieces or posts required will be incidental to the linear foot price bid for Remove and Reset Guardrail.

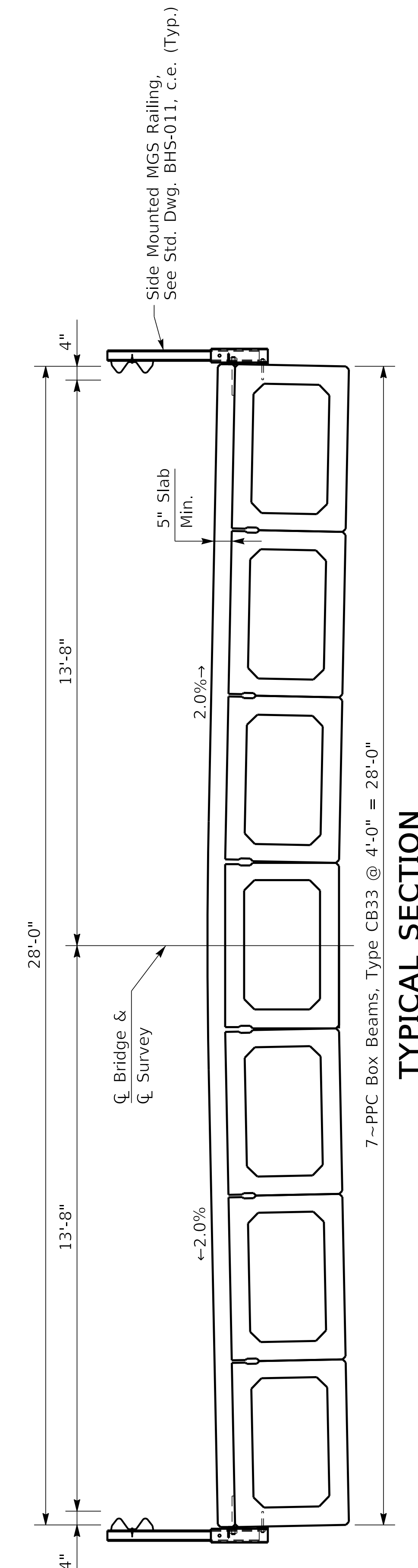


### END OF BEAM DETAIL

(Measured Along  $\bar{C}$  Beam)



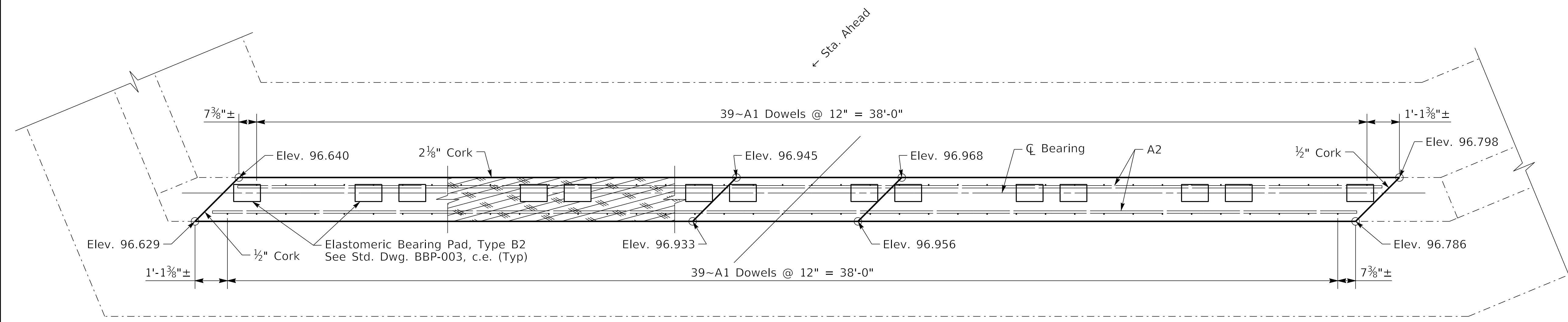
### EDGE KEY DETAIL



### TYPICAL SECTION

	REVISION	DATE	PREPARED BY	DATE: August 2023	CHECKED BY	<b>LAYOUT</b> CROSSING Smith Creek	ROUTE	ITEM NO.	COUNTY OF
			<b>Division of Structural Design</b>	DESIGNED BY: N. Cordtz DETAILED BY: E. Downey	E. Kilgore N. Cordtz		KY 415	S3	CLINTON DRAWING NUMBER 28815

BILL OF REINFORCEMENT					
MARK	TYPE	NO.	SIZE	LENGTH	LOCATION
A1	Str.	78	5	2- 0	Abutment 1 Dowels
A2	Str.	2	8	39- 2	Top of Abutment 1
B1	Str.	78	5	2- 2	Abutment 2 Dowels
B2	Str.	2	8	39- 2	Top of Abutment 2



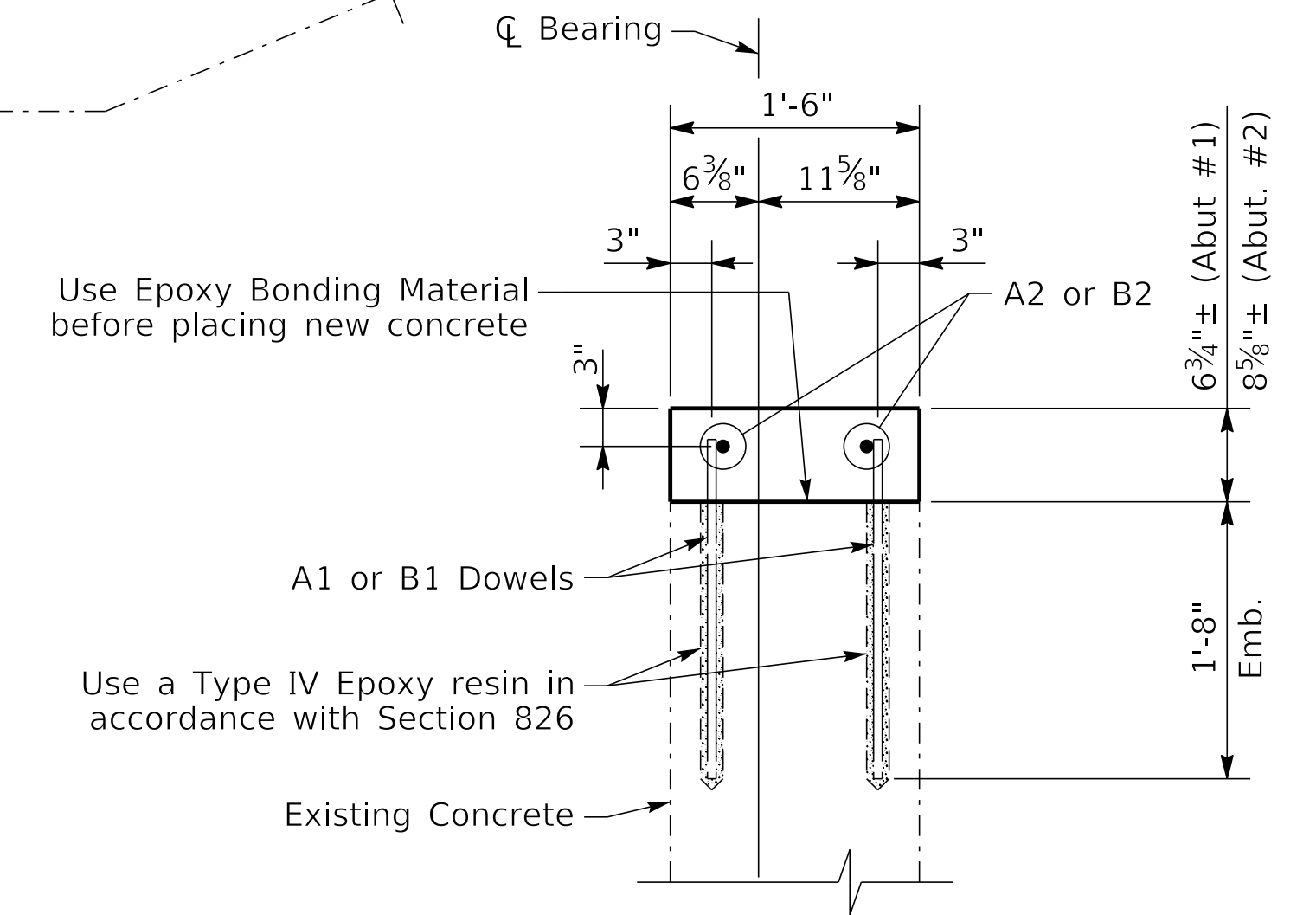
**ABUTMENT #1 PLAN**

NOTE: Epoxy Inject Cracks as Engineer Directs. Do not begin injection work until Engineer agrees with all proposed locations.

NOTE: Place elastomeric bearing pads as shown on this sheet.

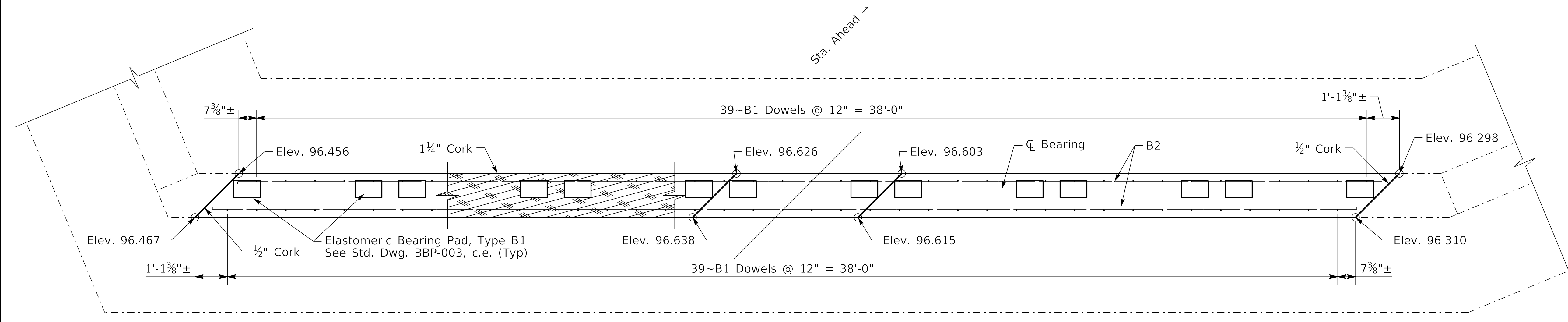
NOTE: Beam elevations are given at the top of concrete.

NOTE: Ensure to not drill into existing rebar, adjust location if necessary



**SECTION THROUGH BREASTWALL**

NOTE: The cost of drilling holes, grouting, and epoxy bonding material shall be incidental to the cost of Class "A" Concrete.



**ABUTMENT #2 PLAN**

# PRECAST PRESTRESSED BOX BEAMS

## General Notes

**SPECIFICATIONS:** All references to the standard Specifications are to the current edition of the Kentucky Department of Highways Standard Specifications for Road and Bridge Construction, with current supplemental specifications. All references to the AASHTO Specifications are to the current edition of the AASHTO LRFD Bridge Design Specifications, with interims.

**DESIGN LOADS:** Beam sections are designed for 1.25\*HL93 (KYHL93) Live Load.

**DESIGN LOAD DISTRIBUTION:** Contrary to AASHTO LRFD Bridge Design Specifications, the design moment and shear distribution for all beams is 0.5 lanes.

**FUTURE WEARING SURFACE:** These beams are designed for a 15 PSF future wearing surface load.

**SUBSTRUCTURE DESIGN LOADS:** Unfactored design reaction forces per beam end.  
 DC (kips): Beam, Slab (if applicable), and Type II railing dead loads.  
 DW (kips): Future wearing surface.  
 LL (kips): Beam Live Load reaction per lane x Design load distribution.  
 LL+I (kips): LL with Dynamic load allowance.

**DESIGN DEFLECTIONS:**  
 $\Delta_d$  (in.): Sum of the downwards deflections caused by the design 5" deck, railing, and future wearing surface. (Positive Downwards)  
 $\Delta_c$  (in.): Upwards midspan camber of the beam caused by prestressing minus the downward deflection of the beam due to self weight. (Positive Upwards)

**MATERIAL DESIGN SPECIFICATIONS:**

for Steel Reinforcement	FY = 60000 PSI
for Prestressed Girder Concrete (Typ. U.N.O.)	F'C = 7000 PSI
	F'CI = 5500 PSI
for Class "AA" Concrete	F'C = 4000 PSI
for Prestressing Steel	F'S = 270000 PSI

**DESIGN LENGTH:** Beam lengths shown in the Standards represent total beam length. Use the next greater designed section for non-Standard lengths.

**CONSTRUCTION METHOD:** Transferring bond stress to the concrete will not be allowed, nor releasing of end anchors until the concrete has attained a minimum compressive strength of F'CI as shown by standard cylinders made and cured identically with the girders; attain F'C at or prior to 28 days. Apply an initial prestress force of 33817 lbs. per low relaxation strand. Beams with honeycomb of such extent as to affect the strength of resistance to deterioration will not be accepted. The allowance of .0005L (length) is made for shortening of beams due to shrinkage and elastic change. Furnish shop plans showing a detensioning plan by numbering, in sequence, the strand pattern.

**PRESTRESSING STRANDS:** Ensure prestressing strands to be 1/2" oversize (0.167 sq. in.) uncoated seven-wire stress relieved, low-relaxation strands conforming to AASHTO M 203, Grade 270. If an alternate strand arrangement or strand type is preferred by the Contractor, the designer that developed the original plans will provide the design and also revise the original plans to reflect the changes. These design and plan modifications will be done at the Contractor's expense.

**CORROSION INHIBITOR:** Provide a corrosion inhibitor for B-type (non-composite) beams from the list of approved materials.

**BEVELED EDGES:** Bevel all exposed edges 3/4".

**BEAM SEALER:** For composite box beams (CB Beams), seal the full length of the exterior face of all exterior beams with the extent from the top of the beam to 1'-0" underneath the beam. For non-composite box beams (B beams), seal all faces of all beams, except take care to ensure the grout pockets are not sealed. Use an approved silane sealer as specified by the Division of Structural Design.

**REINFORCEMENT:** Dimensions shown from the face of concrete to reinforcement are clear distances. Spacing of reinforcement is from center to center of reinforcement. All steel reinforcement is to be epoxy coated in accordance with Section 811.10 of the Specifications. Consider bars marked "C" to be a stirrup for purposes of bend diameters. Non-epoxy reinforcement may be used for fabrication purposes, only, provided that the steel is not used in the top 5 1/2" of the beam and the location of the steel is indicated on the shop drawings.

**FABRICATION:** Beams shall not be fabricated more than 120 days before the deck is to be poured.

**GROUT:** Provide non-shrink grout for anchor dowels, shear keys, and tensioning rod block-outs conforming with Section 601.03.03 of the Specifications. When side by side superstructure is utilized, grouting will be completed after lateral tension rods have been fully tightened and before leveling devices have been removed. Include the cost of furnishing and placing grout in the price of beam.

~~RAILING SYSTEM TYPE II: Furnish this material per these specifications.~~

ITEM	DESCRIPTION	MATERIAL SPECIFICATION	COATING SPECIFICATION
Post	W6x25	ASTM A36 or A572	A123
Channel	C7x9.8	ASTM A36 or A572	A123
Plate	1/2" x 7"	ASTM A36 or A572	A123
Tubing	8x4x0.1875	ASTM A500 or A501	A123
Bolts	5/8"	ASTM A307	A153
Nuts	for 5/8"	ASTM A563, Grade A or better	A153
Washers	for 5/8"	ASTM A563, Grade A or better	A153
Stud	1 1/4"	ASTM A108 (1045 C.D. Bar)	B633, Type II, Class 25
Ferrule	2 1/2" x 5"	ASTM A108 (11L17 Steel)	B633, Type II, Class 25
Wire	3/8"	ASTM A510 (1018 Steel)	B633, Type II, Class 25
Nut	for 1 1/4" Bolt	ASTM A108 (12L14 Steel)	B633, Type II, Class 25
Nut	for 1 1/4" Stud	ASTM A325M	B633, Type II, Class 25
Washers	for 1 1/4" Stud	ASTM A325M	B633, Type II, Class 25

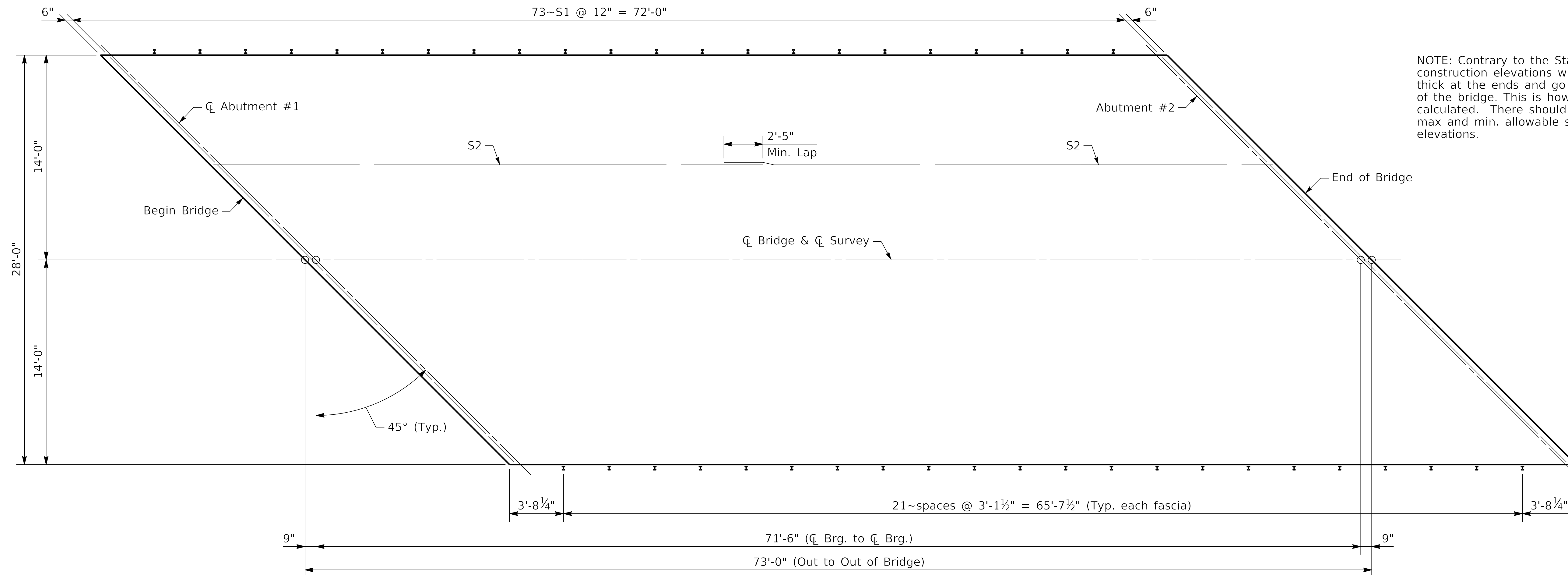
Railing System Side Mounted MGS: Is to be used on this structure, see Std. Dwg. BHS-011, c.e.

Use the current edition of the references listed below with these standards.
<b>STANDARD DRAWINGS</b>
BBP-003 Elastomeric Bearing Pads
<del>BHS-007 Railing System Type II</del>
BJE-001 Armored Edge
RBR-001 Steel Beam Guardrail
RBR-005 Guardrail Components
<b>SPECIAL NOTES</b>
for Corrosion Inhibitors

# BILL OF REINFORCEMENT

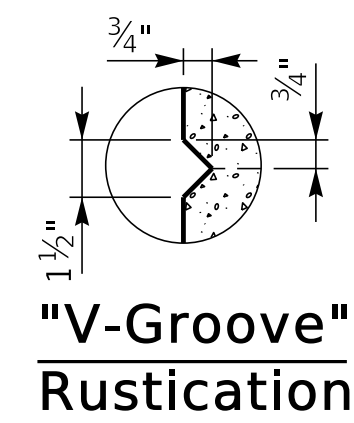
MARK	TYPE	NO.	SIZE	LENGTH	LOCATION
S1e	Str.	73	5	39'-1"	Slab
S2e	Str.	56	5	37'-8"	Slab

NOTE: Contrary to the Standard Drawings (5" slab thickness), the construction elevations will cause the slab to be approximately 5.8" thick at the ends and go to approximately 5.0" thick at the center of the bridge. This is how the quantities for Class AA Concrete were calculated. There should not be any additional concrete due to the max and min. allowable slab depths shown on the construction elevations.

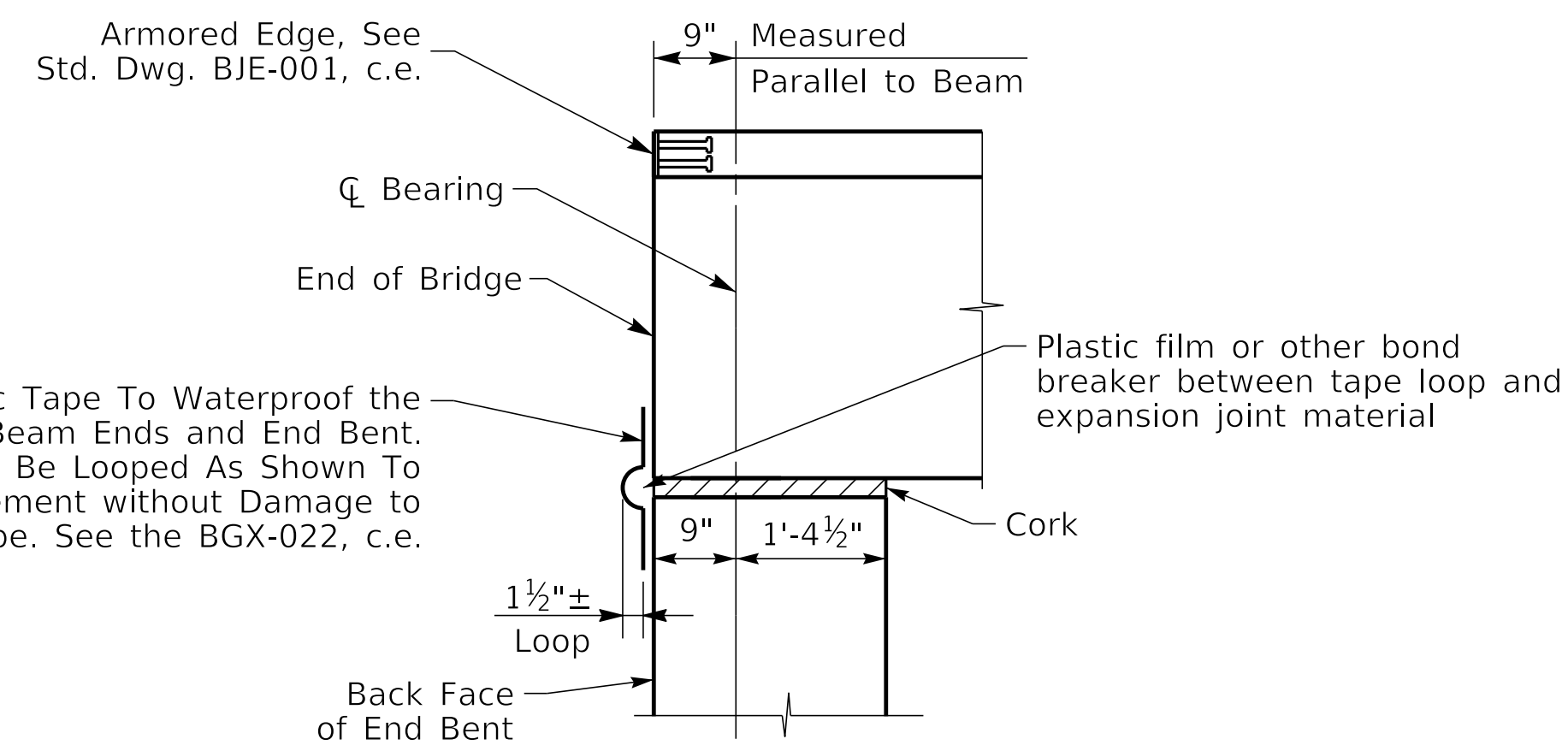


**PLAN OF SLAB**

NOTE: Use strand pattern for 74'-0" CB33 Box Beam.

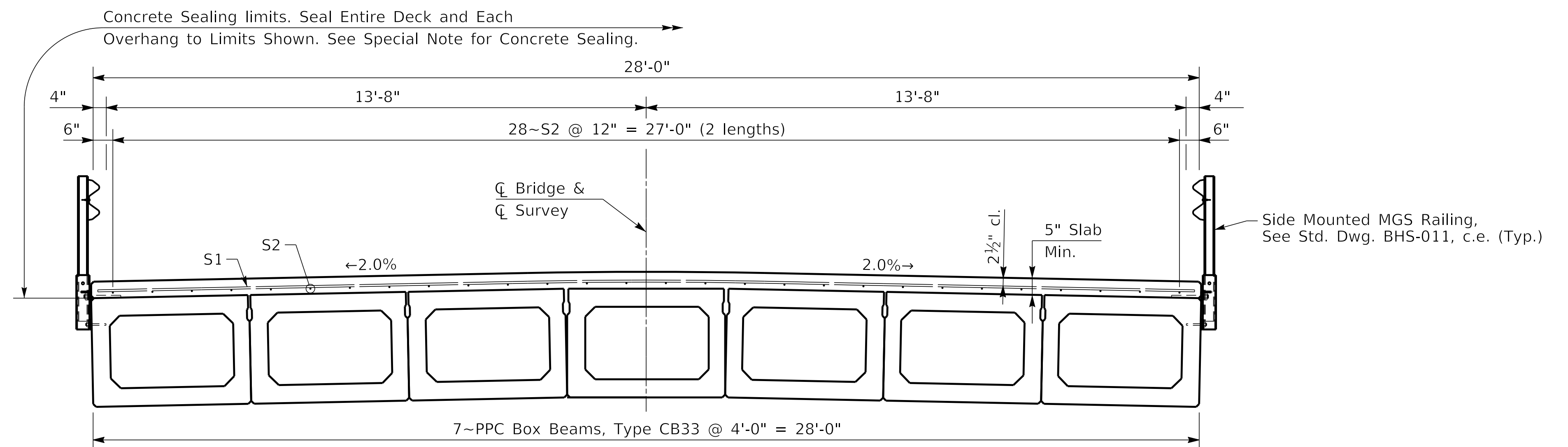


**"V-Groove" Rustication**



**JOINT WATERPROOFING DETAIL**

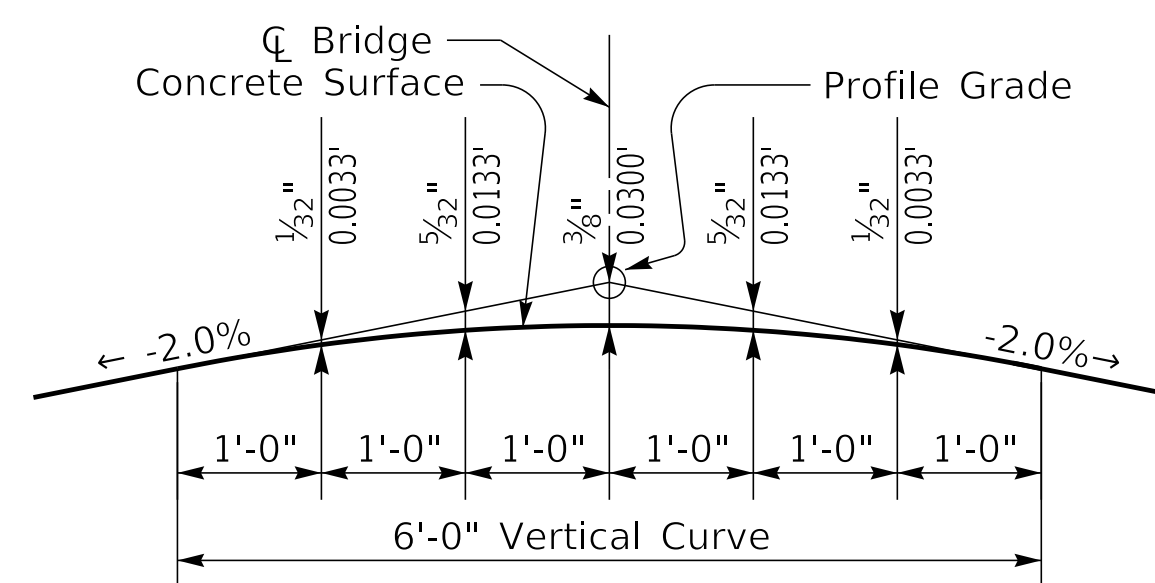
NOTE: Guardrail inserts in beam will need to be varied vertically to maintain proper clearance to top of slab.



**TYPICAL SECTION**

# CONSTRUCTION ELEVATIONS

LOCATION	LEFT FASCIA			CL BRIDGE			RIGHT FASCIA		
	CONSTR. ELEV.	TOP OF BEAM	DIM. *X*	CONSTR. ELEV.	TOP OF BEAM	DIM. *X*	CONSTR. ELEV.	TOP OF BEAM	DIM. *X*
SKEW LN AA	100.206			100.377			100.049		
SKEW LN BB	100.202			100.373			100.045		
SKEW LN CC	99.801			99.973			99.644		
SKEW LN DD	99.797			99.969			99.640		
GRID LN 01	100.178								
GRID LN 02	100.144								
GRID LN 03	100.107			100.341					
GRID LN 04	100.067			100.306			100.038		
GRID LN 05	100.023			100.269			100.004		
GRID LN 06	99.976			100.228			99.969		
GRID LN 07	99.924			100.183			99.931		
GRID LN 08	99.870			100.135			99.889		
GRID LN 09	99.814			100.082			99.843		
GRID LN 10				100.028			99.794		
GRID LN 11							99.741		
GRID LN 12							99.685		



**PARABOLIC CROWN**

**NOTES FOR ELEVATIONS TAKEN ON PRESTRESSED CONCRETE BOX BEAMS**

Take elevations on top of beam at points indicated after the beams have been laterally tensioned and grouted. The beam elevations are to be read to three decimal places and entered in tables under "Top of Beam" elevations.

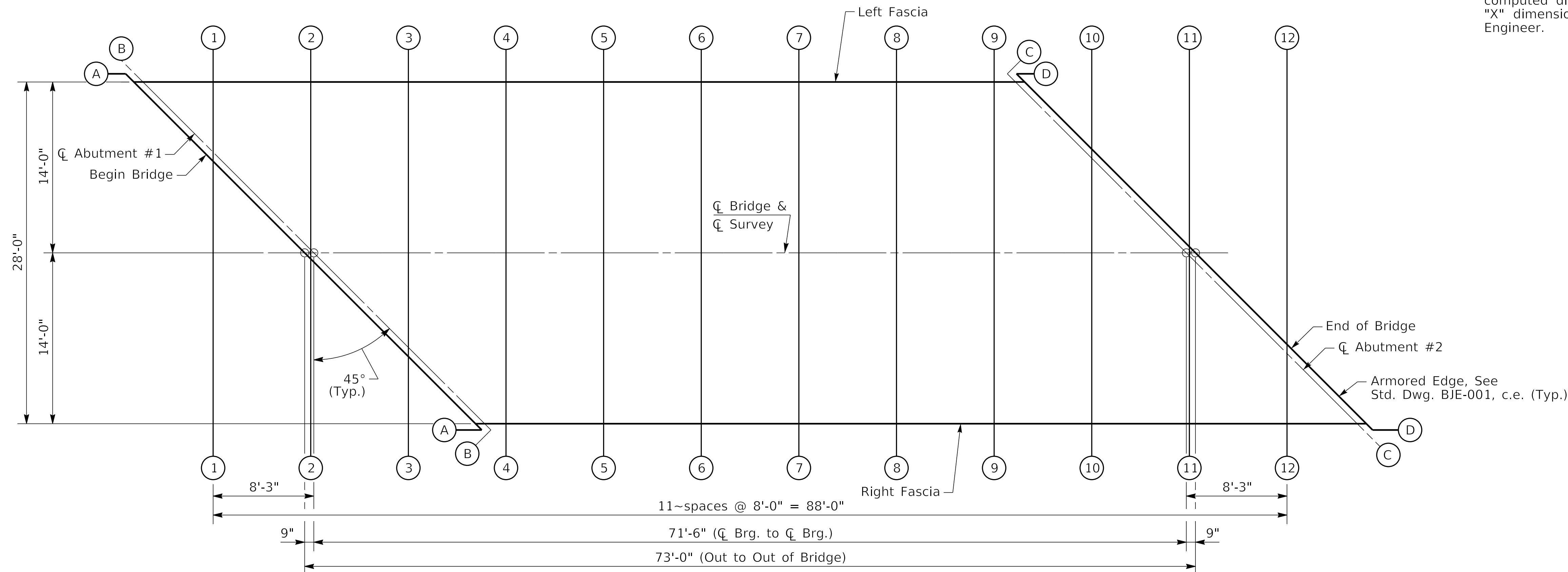
Compute dimension "X" as follows: "Construction Elevation" minus "Top of Beam" elevation equals dimension "X". Construction Elevations include camber due to weight of the concrete slab and barrier. Measuring of dimension "X" gives the final check on beam tolerances for camber, beam damage, and errors in erection that produce reverse cambers, sags, and unsightly fascia beams.

For setting templates, measure dimension "X" above top of beams for top of template. Do not set template by elevations.

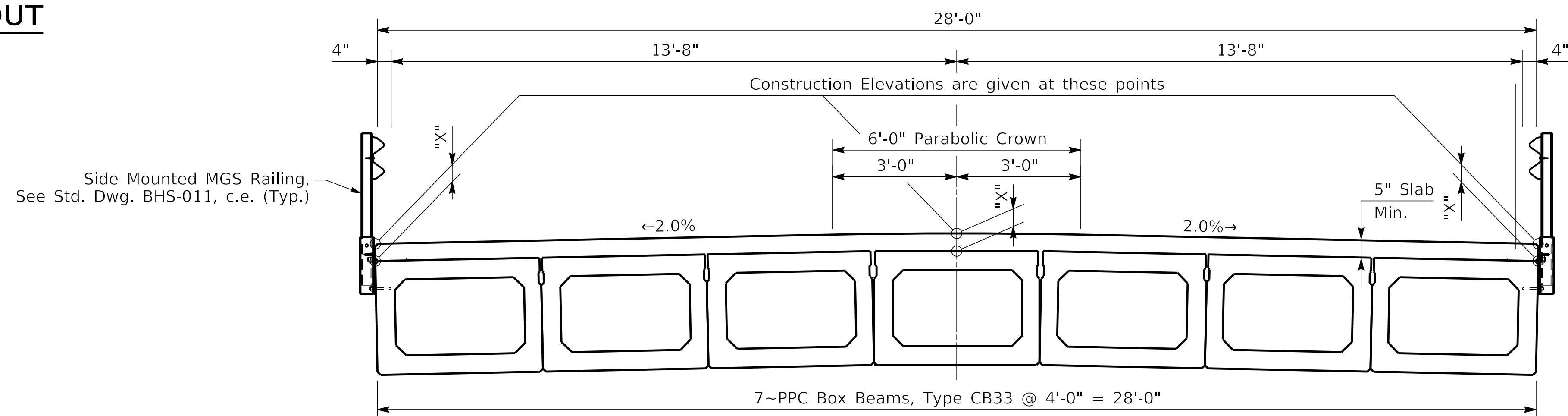
Temporary supports or shoring will not be permitted under the girders when pouring the concrete floor slab or when taking "Top of Beam" elevations.

Note to Resident: The "Maximum Allowable Camber" shown on the beam sheet is the amount of camber, measured prior to casting the deck, above which the beam will begin to encroach into the slab.

The minimum allowable dimension "X" or slab thickness is 4 3/4" (0.395'). If any computed dimension "X" is less than that, adjustments will need to be made to the "X" dimensions on some or all grid lines. Adjustments must meet approval of the Engineer.



**GRID LAYOUT**



**TYPICAL SECTION**

	REVISION	DATE	PREPARED BY	DATE: August 2023	CHECKED BY	<b>CONSTRUCTION ELEVATIONS</b>	ROUTE	ITEM NO.	COUNTY OF
				<b>Division of Structural Design</b>	DESIGNED BY: N. Cordtz	E. Kilgore	CROSSING Smith Creek	KY 415	SHEET NO. 57