

TRANSPORTATION CABINET DEPARTMENT OF HIGHWAYS

LYON COUNTY
KY 295

KY 295 OVER LIVINGSTON CREEK
STA. 1+89.30

ESTIMATE OF QUANTITIES

BID ITEM CODE	08100	08104	08151	08019	02231	23378EC	24463ED	08051	08033	03299	25028ED	08095	23813EC	08003	26233EC															
BID ITEM	Concrete Class "A"	Concrete Class "AA"	Steel Reinforcement, Epoxy Coated	Cyclopean Stone Rip Rap	Structure Granular Backfill	Concrete Sealing	PPC I-Beam HN 54 49	Piles - Steel HP 14 x 89	Test Piles	Armored Edge for Concrete	Rail System Single Slope 40 Inch	Pile Points 14 Inch	Deck Drains	Foundation Preparation	Mobilization for Concrete Surf Treatment															
UNIT	C.Y.	C.Y.	LBS.	Tons	C.Y.	S.F.	L.F.	L.F.	L.F.	L.F.	L.F.	Each	Each	L.S.	L.S.															
Substructure																														
Integral End Bent #1	37.6	24.0	4175	221	245.2	494		362	63			7																		
Integral End Bent #2	37.6	24.0	4175	213	245.2	494		441	76			7																		
Superstructure		113.4	25024			8476	546			48.0	276.0		12	1	1															
BRIDGE TOTALS	75.2	161.4	33374	434	490.4	9464	546	803	139	48.0	276.0	14	12	1	1															

INDEX OF SHEETS

Sheet No.	Description
S1	Title Sheet
S2	General Notes
S3	Layout
S4-S6	Subsurface Data
S7	Foundation Layout
S8-S10	Integral End Bent #1
S11-S13	Integral End Bent #2
S14	Framing Plan
S15	PPC I-Beam, HN 54-49 Details
S16	Superstructure
S17-S18	Construction Elevations
S19	Roadway Plan
S20	Roadway Profile
S21	Roadway Typical Sections

SPECIAL NOTES

Special Note for Concrete Sealing

SPECIAL PROVISIONS

69 Embankment at Bridge End Bent Structures

STANDARD DRAWINGS

BGX-006-10	Stencils for Structures
BGX-012-02	Geotechnical Legend
BGX-015-04	Bridge Drains
BJE-001-14	Armored Edges
BPS-011-04	HP14x89 Steel Pile
BGX-026	Air Vents
BSD-009	PPC I-Beam HN48 and HN54 Diaphragm Details
BHS-010	Railing System 40 Inch Single Slope

SPECIFICATIONS

2019 Standard Specifications for Road and Bridge Construction.

2020 AASHTO LRFD Bridge Design Specifications

LETTING DATE

CONSTRUCTION PROJECT NO.



REVISION	DATE

PREPARED BY
Division of Structural Design

DATE: October 2024	CHECKED BY: J. Van Zee
DESIGNED BY: K. Ee	DETAILED BY: M. BawiThawng
	K. Ee

TITLE
CROSSING
Livingston Creek

ROUTE	EXISTING BRIDGE ID	COUNTY OF
KY 295	072B00013N	LYON
	SHEET NO.	DRAWING NUMBER
	S1	28924

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
Steel Piling	~	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.

WIND LOAD: This bridge is designed for a wind load based on a wind velocity of 100 mph.

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 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.

FOUNDATION DATA: See Foundation Layout Sheet.

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.

PILE POINTS: Provide pile points for all point bearing piles. Ensure pile points are in accordance with Section 604 of the Specifications and of the type as shown on the Foundation Layout Sheet.



SLOPE PROTECTION: Slope protection will be required at the bridge meeting the requirements of Sections 703 & 805 of the Standard Specifications for Road and Bridge Construction, current edition. Place a Geotextile Fabric Class 1 (Slope Protection), in accordance with Sections 214 & 843 of the Standard Specifications for Road and Bridge Construction, current edition, between the embankment and the slope protection. Neglect any outdated references to fabric "Type" in Section 214 of the Standard Specifications.

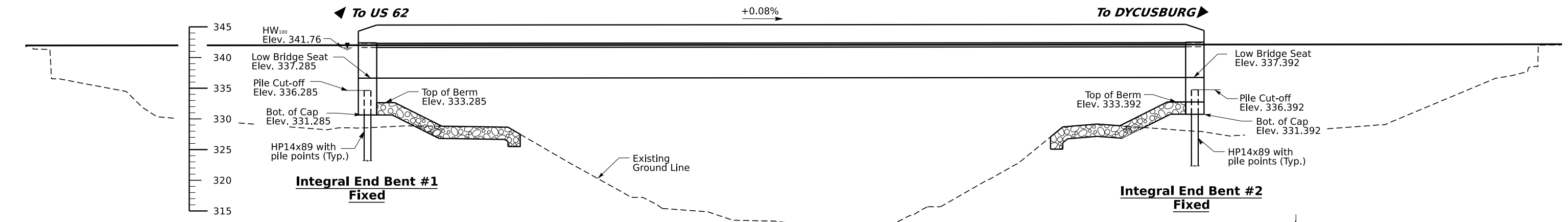
CONCRETE SEALER: All areas detailed in the specifications as requiring masonry coating shall be sealed in accordance with the special note for concrete sealing. The superstructure deck, barriers and overhangs shall also be sealed as shown herein these plans. Concrete surfaces (except the deck) shall receive the ordinary surface finish as described in section 601.03.18(A) prior to being sealed.

MASONRY COATING: Contrary to the Specifications, do not apply Masonry Coating. Apply Concrete Sealing in place of Masonry Coating as noted in CONCRETE SEALER note.

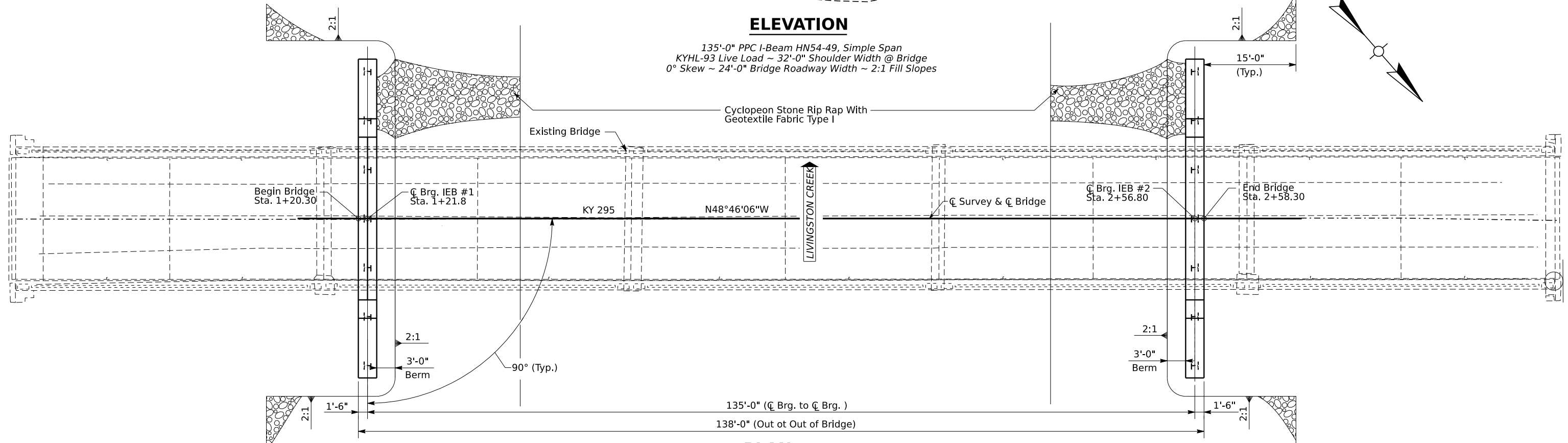
The following abbreviations may have been used in the preparation of these plans:

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
Cu.	Cubic
Dwg.	Drawing
e.f.	Each Face
El.	Elevation
eq.	Equal
Est.	Estimate
Ext.	Exterior
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

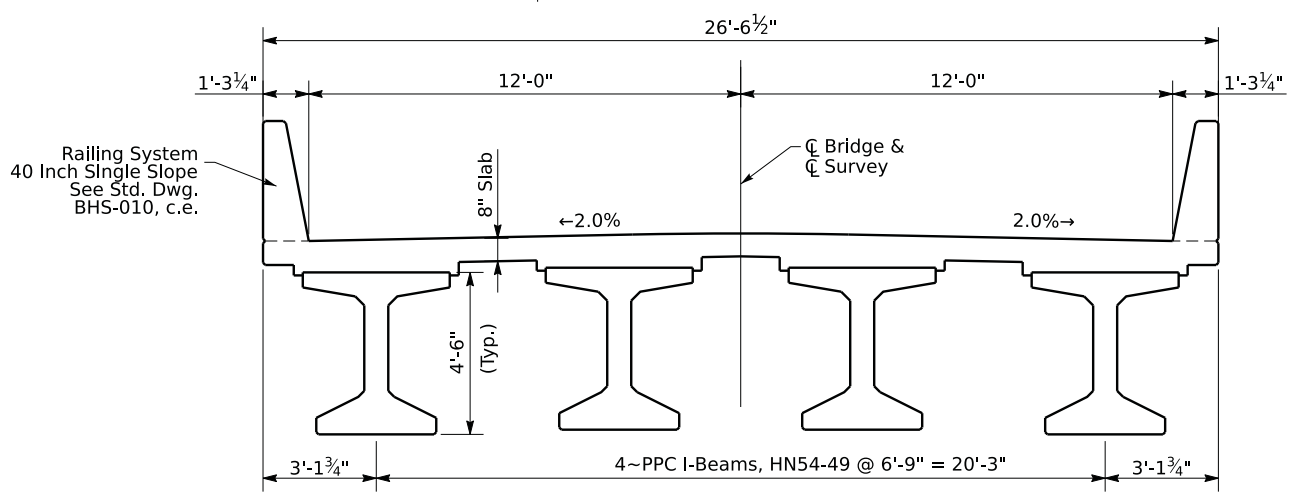
 COMMONWEALTH OF KENTUCKY DEPARTMENT OF HIGHWAYS	 TEAM KENTUCKY <small>TRANSPORTATION</small>	REVISION	DATE	PREPARED BY	DATE: October 2024	CHECKED BY	GENERAL NOTES CROSSING Livingston Creek	ROUTE	EXISTING BRIDGE ID	COUNTY OF
				Division of Structural Design	DESIGNED BY: K. Ee	J. Van Zee		KY 295	072B00013N	LYON
					DATE PLOTTED: 31-OCT-2024	DETAILED BY: M. BawiThawng	K. Ee		SHEET NO.	DRAWING NUMBER
					FILE NAME: C:\Users\kong.ee\Documents\OneDrive - Commonwealth of Kentucky\kong2024\28924-072B00013N-Kong Design\Details & Closeout\28924.dgn				S2	28924



ELEVATION
 135'-0" PPC I-Beam HN54-49, Simple Span
 KYHL-93 Live Load ~ 32'-0" Shoulder Width @ Bridge
 0° Skew ~ 24'-0" Bridge Roadway Width ~ 2:1 Fill Slopes



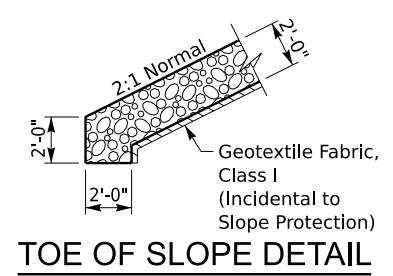
PLAN
 ~Superstructure not shown~



TYPICAL SECTION



PROFILE GRADE

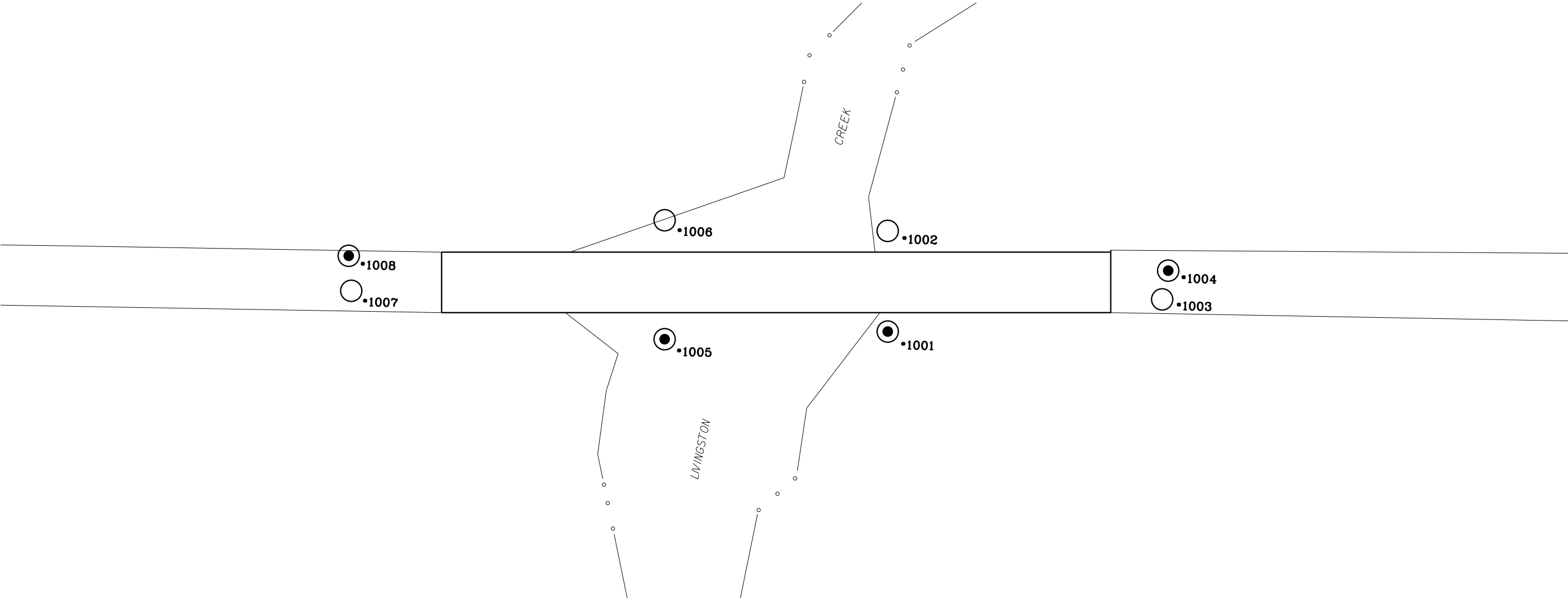
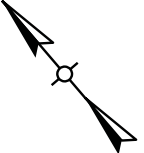


TOE OF SLOPE DETAIL

- Notes: 1.) Roadway guardrail is to attach to bridge barriers. See roadway plans.
 2.) For End bent backfill and method of construction See Special Provision 69.

SUBSURFACE DATA

Plan Scale 1" = 20'



S-019-2024



COMMONWEALTH OF KENTUCKY
DEPARTMENT OF HIGHWAYS



REVISION	DATE

PREPARED BY
**Division of
Structural Design**

DATE: MAY 2024	CHECKED BY
DESIGNED BY:	
DETAILED BY: E. BAILEY	R. McDonald

SUBSURFACE DATA
CROSSING
Livingston Creek

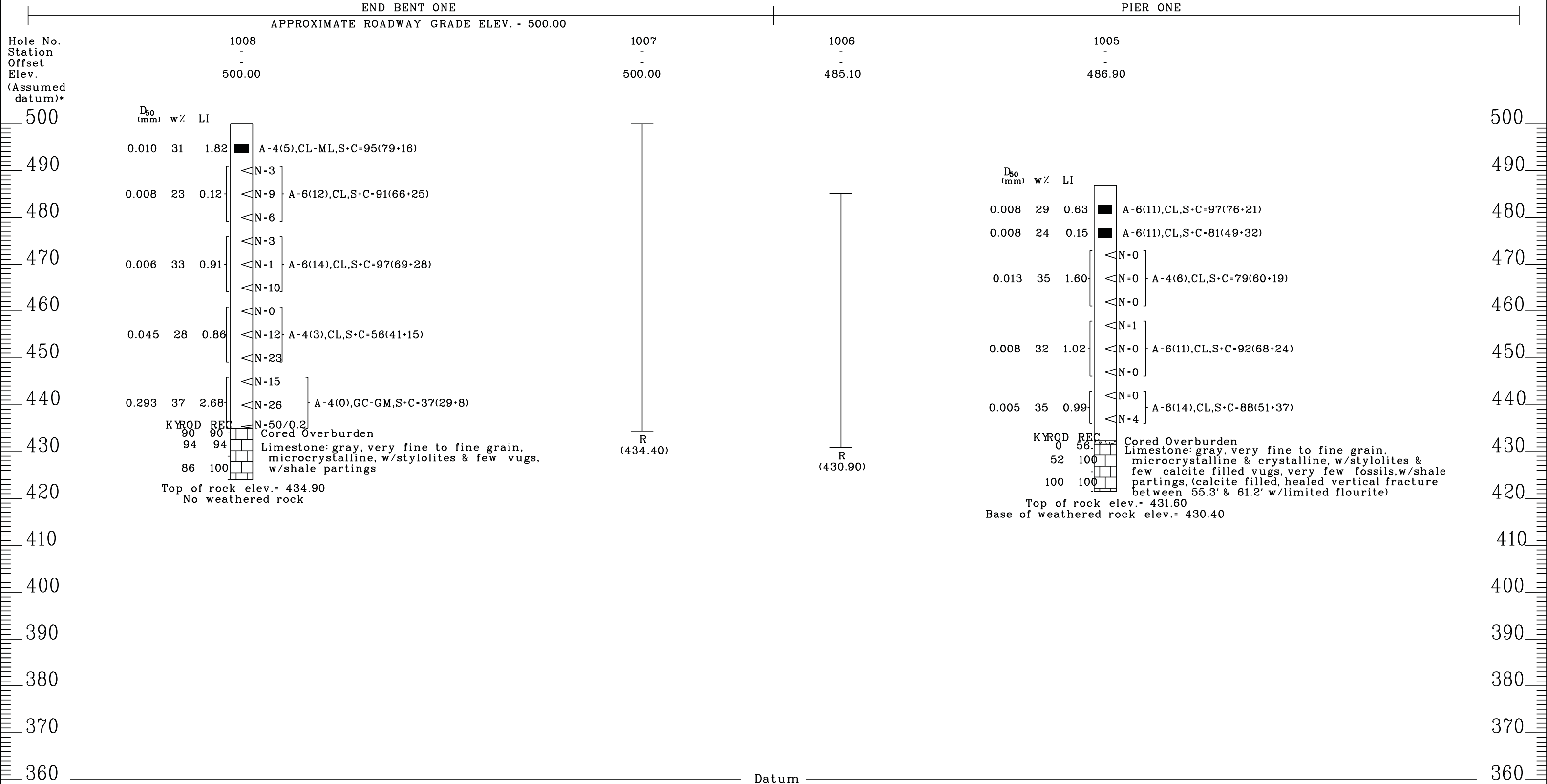
ROUTE
KY 295

EXISTING BRIDGE ID 072B00013N
SHEET NO. S4

COUNTY OF LYON
DRAWING NUMBER 28924

SUBSURFACE DATA

Profile Scale:
Vertical 1" = 10'
Horizontal not to scale



*Elevations adjusted from assumed elevation of 500 ft at the center of existing bridge on C

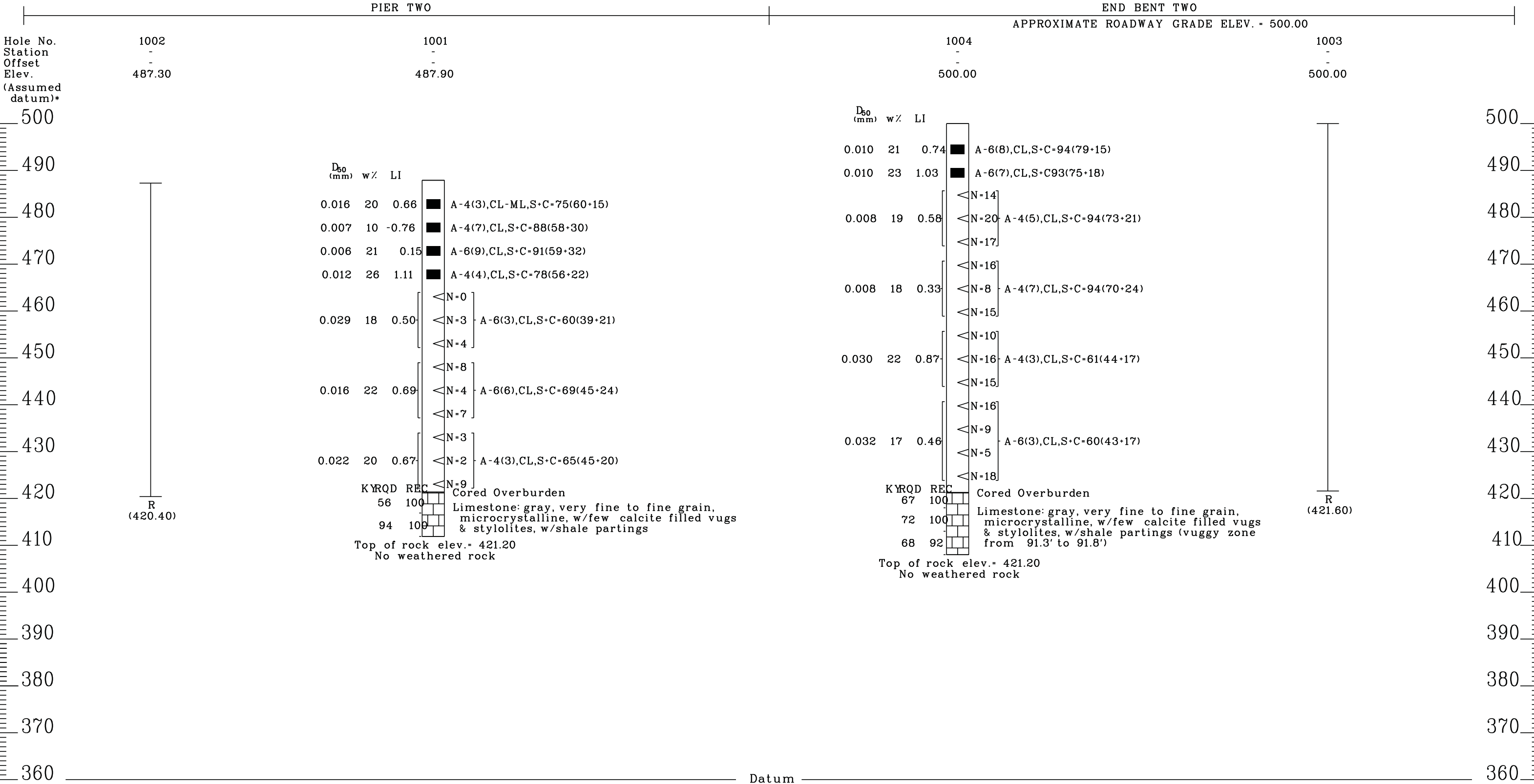
COMMONWEALTH OF KENTUCKY DEPARTMENT OF HIGHWAYS	REVISION	DATE	PREPARED BY Division of Structural Design	DATE: MAY 2024	CHECKED BY	SUBSURFACE DATA CROSSING Livingston Creek	ROUTE	EXISTING BRIDGE ID	COUNTY OF
					DESIGNED BY: E. BAILEY		R. McDonald	KY 295	072B00013N
				DATE PLOTTED: 31-OCT-2024				SHEET NO. S5	DRAWING NUMBER 28924

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S-019-2024

SUBSURFACE DATA

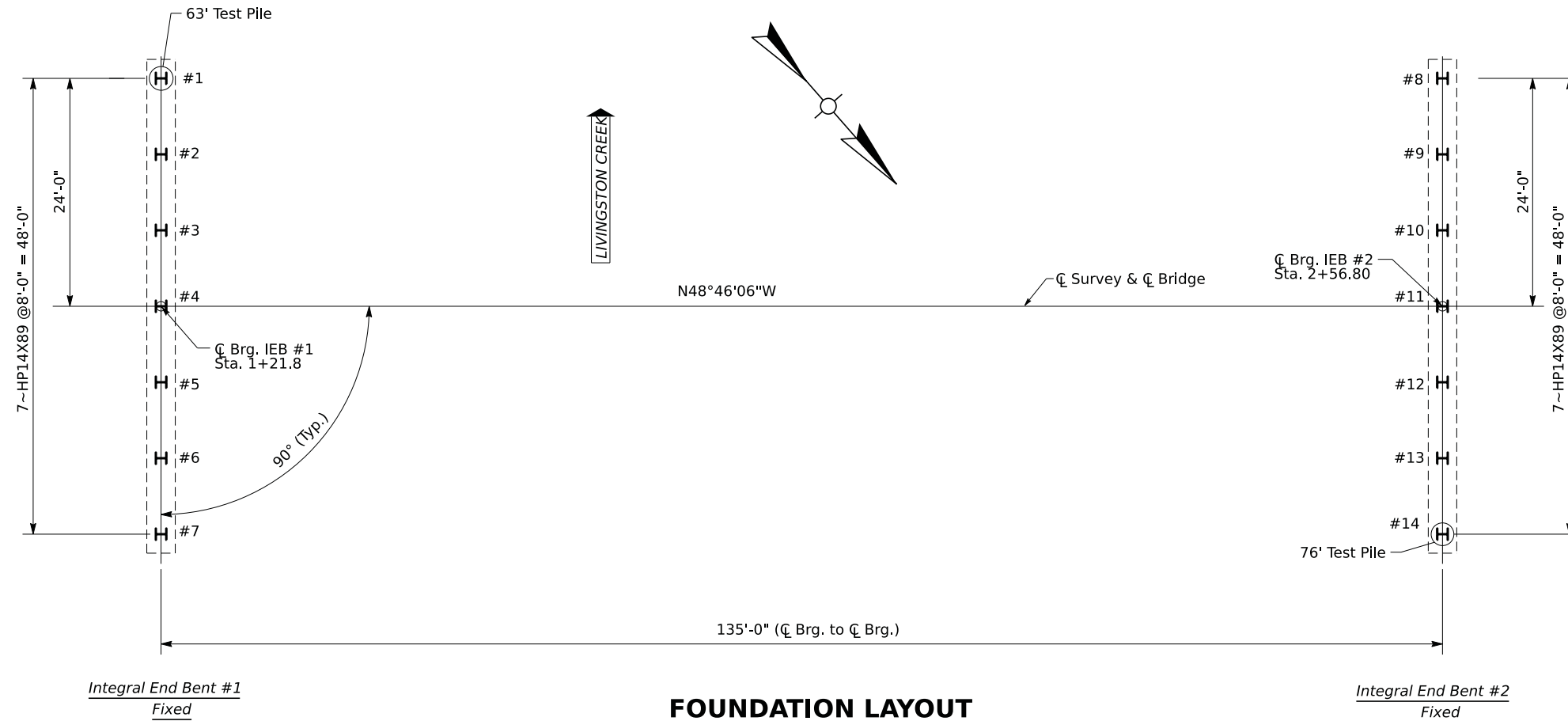
Profile Scale:
Vertical 1" = 10'
Horizontal not to scale



*Elevations adjusted from assumed elevation of 500 ft at the center of existing bridge on C

PILE RECORD FOR POINT BEARING PILES				
Pile No.	Pile Cut-off Elevation	Pile Length In Place	Point of Pile Elevation As Driven	Design Axial Load
	FEET	FEET	FEET	TONS
Integral End Bent #1				
1	336.285			118
2	336.285			118
3	336.285			118
4	336.285			118
5	336.285			118
6	336.285			118
7	336.285			118

PILE RECORD FOR POINT BEARING PILES				
Pile No.	Pile Cut-off Elevation	Pile Length In Place	Point of Pile Elevation As Driven	Design Axial Load
	FEET	FEET	FEET	TONS
Integral End Bent #2				
8	336.392			118
9	336.392			118
10	336.392			118
11	336.392			118
12	336.392			118
13	336.392			118
14	336.392			118



FOUNDATION LAYOUT

Note: Sheeting, Shoring, Cofferdam and/or a dewatering methods may be necessary for construction of the substructures.

Definitions of Terms

- PILE CUT-OFF ELEVATION:** Elevation of the top of pile in the finished structure.
- PILE LENGTH IN PLACE:** Actual pile length below the Pile Cut-Off Elevation in the finished structure.
- PILE TIP ELEVATION AS DRIVEN:** Actual point of pile elevation in the finished structure.
- DESIGN AXIAL LOAD:** Load carried by each pile as estimated from structural design calculations for Factored LRFD Loadings.
- CALCULATED FIELD BEARING:** Contrary to Section 604.03.07 of the Standard Specifications, in place bearing values are not required for piles bearing on rock when driven to practical refusal.

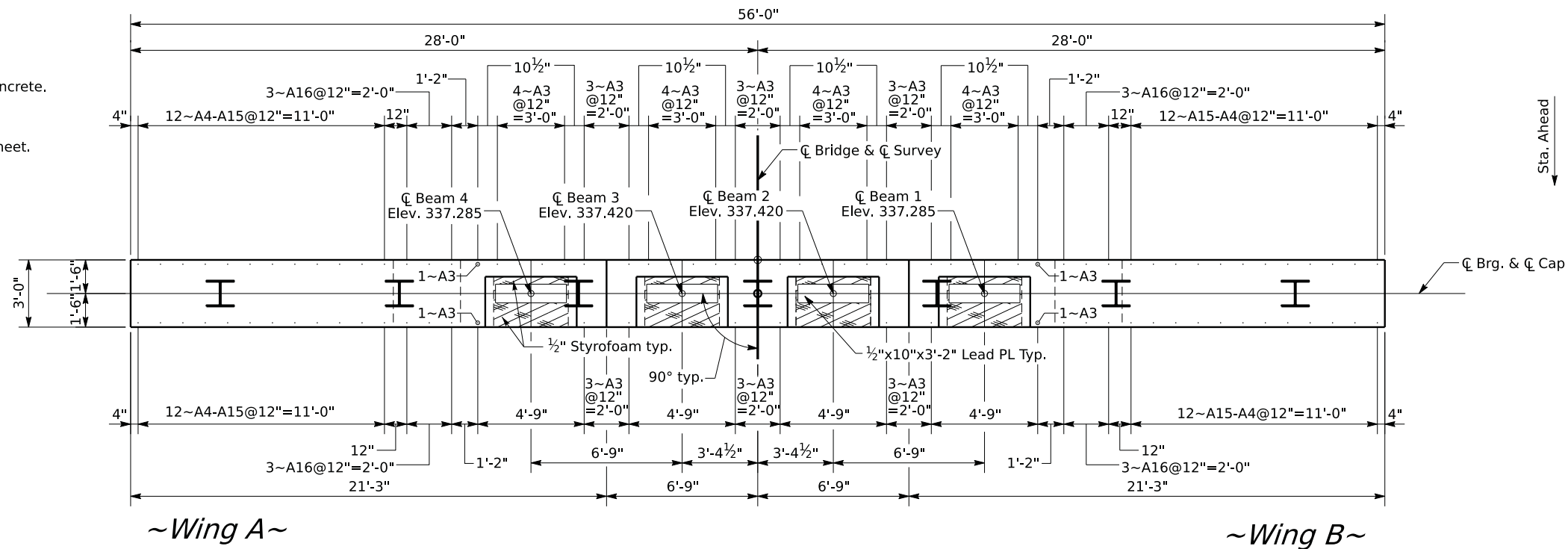
Driving Criteria

- DRIVING CRITERIA:** Drive point bearing piles to practical refusal.
- PRACTICAL REFUSAL (Case 1):** Drive point bearing piles to practical refusal. For this project minimum blow requirements are reached after total penetration becomes 1/4" or less for 5 consecutive blows, practical refusal is obtained after the pile is struck an additional 5 blows with total penetration of 1/4 inch or less. Advance the production piling to the driving resistances specified above and to the depths determined by test pile(s) and subsurface data sheet(s). Immediately cease driving operations if the pile visibly yields or becomes damaged during driving. If hard driving is encountered because of dense strata or an obstruction, such as a boulder before the pile is advanced to the depth anticipated, the Engineer will determine if more blows than the average driving resistance specified for practical refusal is required to further advance the pile. Drive additional production and test piles if directed by the Engineer.
- HAMMER CRITERIA:** A hammer with a rated energy between 45 and 70 kip-ft will be required to drive the H-piles to practical refusal without encountering excessive blow counts or damaging the piles. The contractor shall submit the proposed pile driving system to the Department for approval prior to the installation of the first pile. Approval of the pile driving system by the Engineer will be subject to satisfactory field performance of the pile driving procedures.

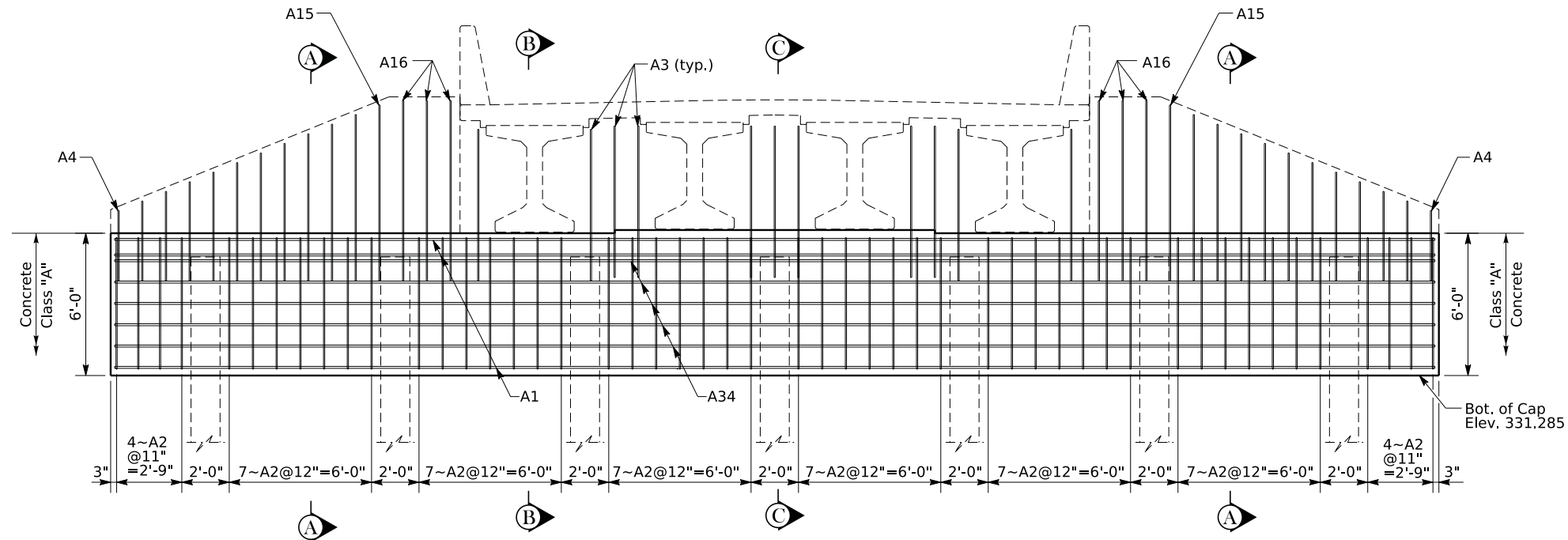
Field Data

- For each pile, the Project Engineer shall record the following on this sheet: Pile Length in Place and Point of Pile Elevations as Driven.
- Submit this record to:
Kentucky Transportation Cabinet
Division of Structural Design
3rd. Floor East
200 Mero Street
Frankfort, KY 40622
- This pile record does not replace other pile records the Project Engineer is required to keep and submit.
- Use HP 14x89 in accordance with BPS-011, c.e.

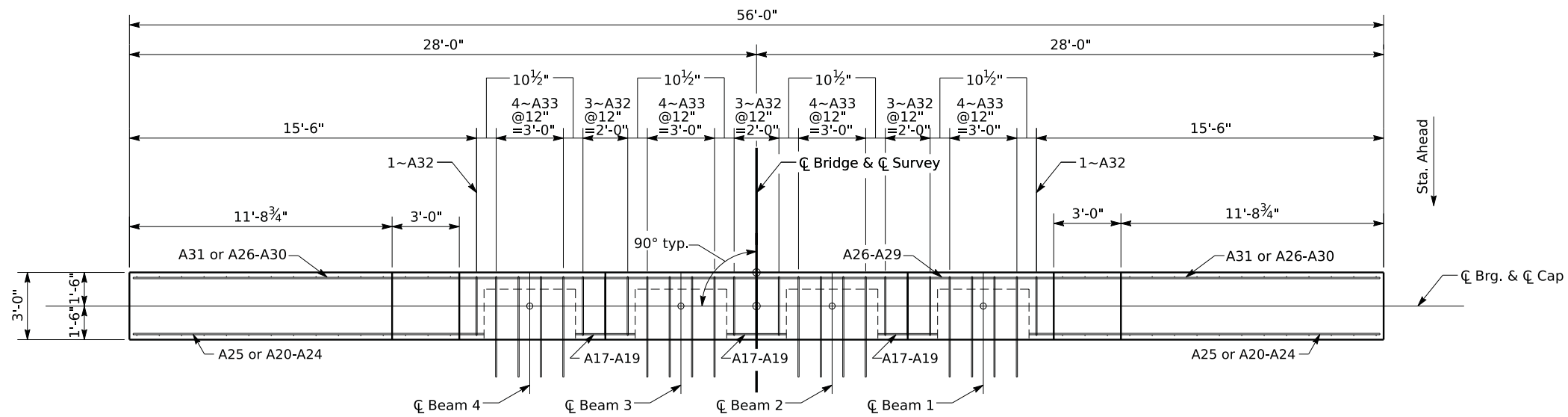
NOTES:
 Beam elevations are given at the top of concrete.
 Place beams before backfilling.
 For pile locations see Foundation Layout Sheet.



PLAN - Showing Cap and Dowel Reinforcement



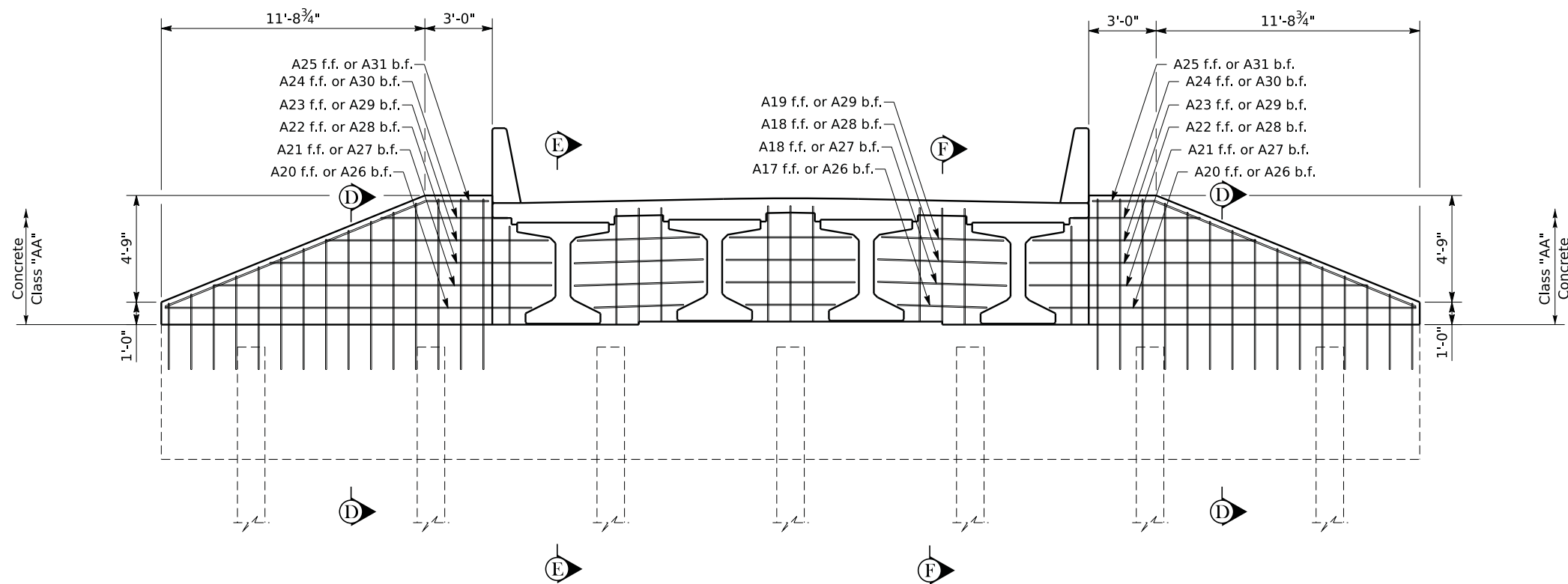
ELEVATION - Showing Cap and Dowel Reinforcement



~Wing A~

PLAN - Showing Diaphragm and Wing Reinforcement

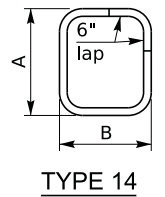
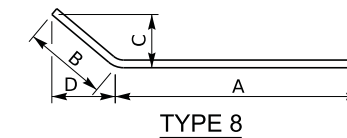
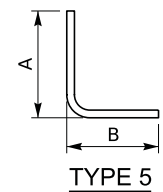
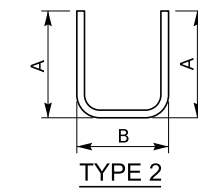
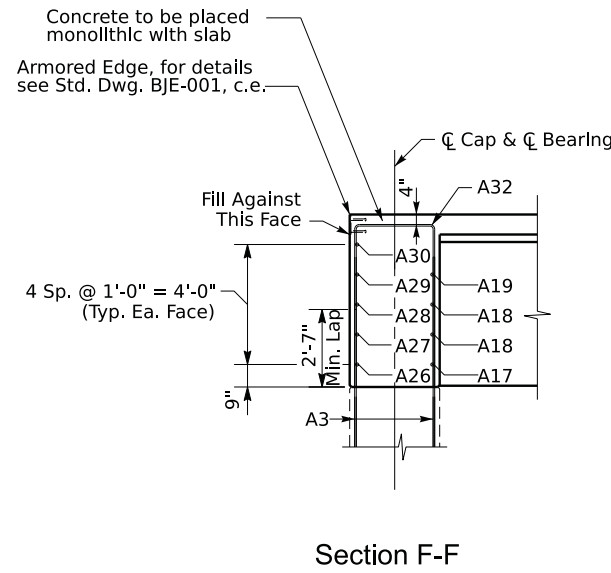
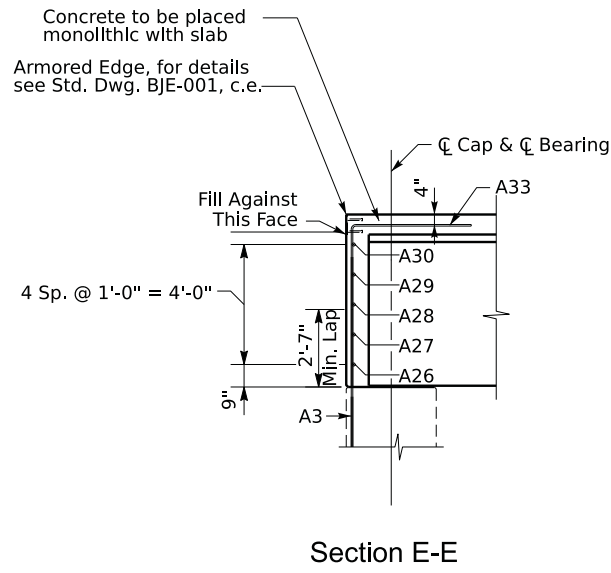
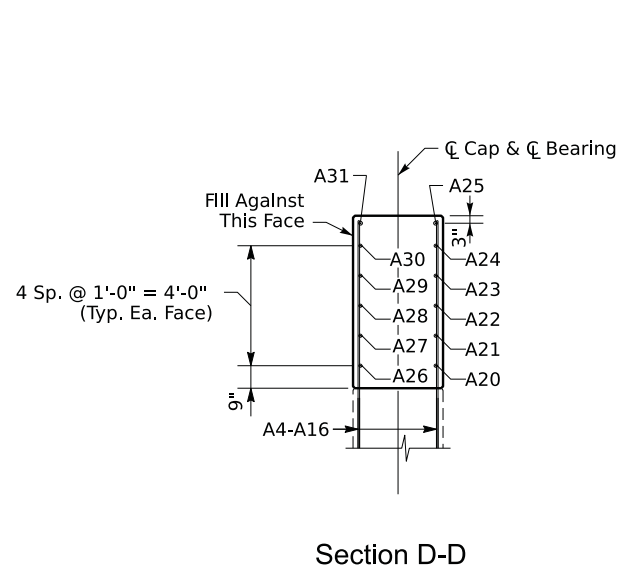
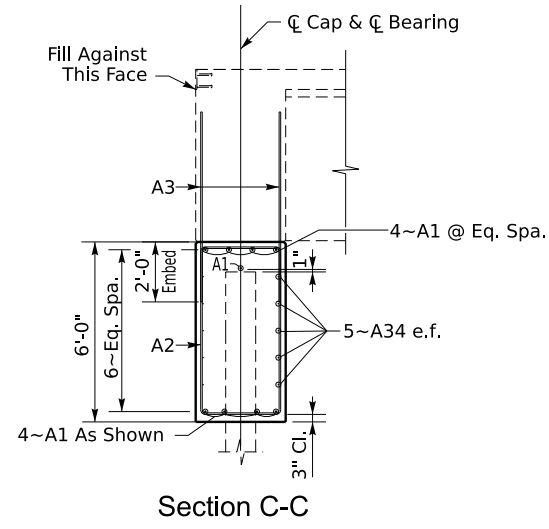
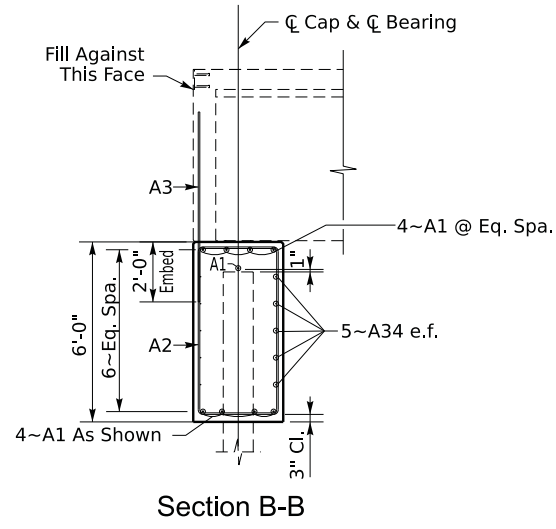
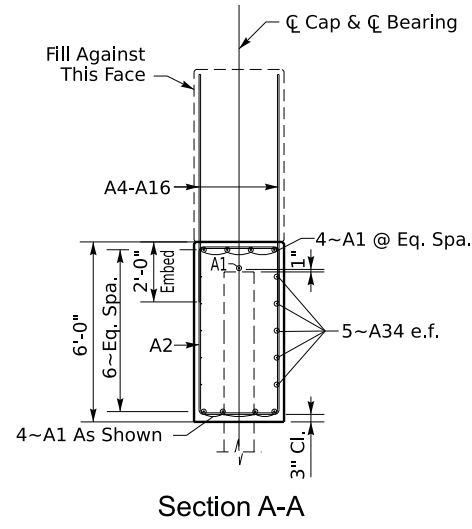
~Wing B~

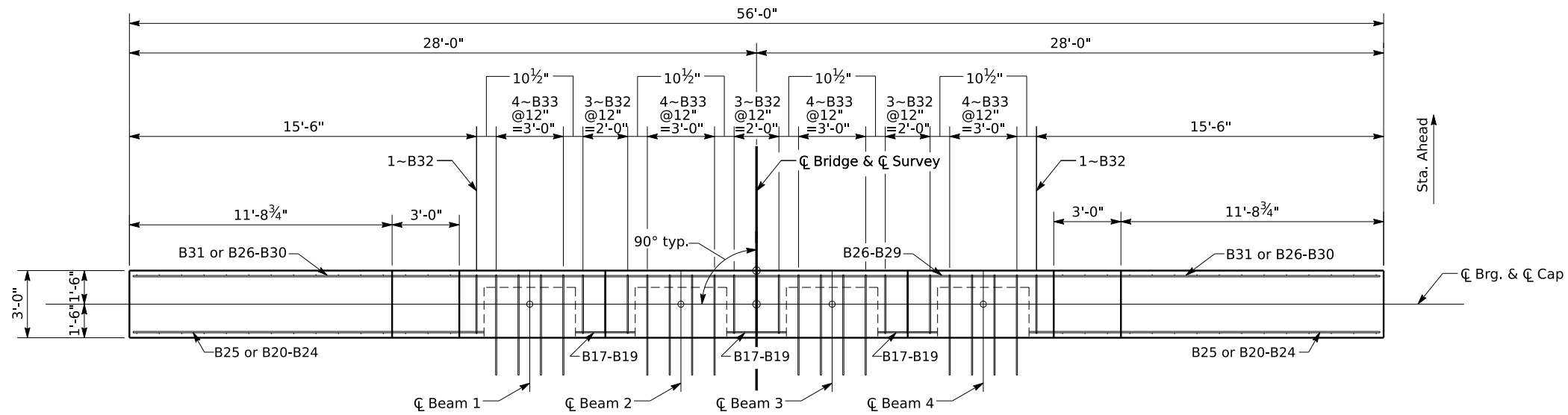


ELEVATION - Showing Diaphragm and Wing Reinforcement

BILL OF REINFORCEMENT

MARK	TYPE	NO.	SIZE	LENGTH	LOCATION	A	B	C	D
A1e	Str.	9	8	55-8	Cap				
A2e	14s	50	5	17-0	Cap Stirrups	5-7	2-8		
A3e	Str.	38	5	4-7	Cap Dowels				
A4e	Str.	4	5	3-0	Wings A & B Vertical				
A5e	Str.	4	5	3-4	Wings A & B Vertical				
A6e	Str.	4	5	3-9	Wings A & B Vertical				
A7e	Str.	4	5	4-2	Wings A & B Vertical				
A8e	Str.	4	5	4-7	Wings A & B Vertical				
A9e	Str.	4	5	5-0	Wings A & B Vertical				
A10e	Str.	4	5	5-5	Wings A & B Vertical				
A11e	Str.	4	5	5-10	Wings A & B Vertical				
A12e	Str.	4	5	6-2	Wings A & B Vertical				
A13e	Str.	4	5	6-7	Wings A & B Vertical				
A14e	Str.	4	5	7-0	Wings A & B Vertical				
A15e	Str.	4	5	7-5	Wings A & B Vertical				
A16e	Str.	12	5	7-7	Wings A & B Vertical				
A17e	Str.	3	5	4-0	Diaphragm				
A18e	Str.	6	5	5-9	Diaphragm				
A19e	Str.	3	5	5-5	Diaphragm				
A20e	Str.	2	5	16-4	FF Wings A & B Horizontal				
A21e	Str.	2	5	15-0	FF Wings A & B Horizontal				
A22e	Str.	2	5	12-6	FF Wings A & B Horizontal				
A23e	Str.	2	5	9-11	FF Wings A & B Horizontal				
A24e	Str.	2	5	5-8	FF Wings A & B Horizontal				
A25e	8	2	6	15-4	FF Wings A & B Top	12-6¼	2-9½	1-0⅝	2-7⅝
A26e	Str.	1	5	55-8	Long Diaphragm Bar				
A27e	Str.	1	5	51-3	Long Diaphragm Bar				
A28e	Str.	1	5	46-4	Long Diaphragm Bar				
A29e	Str.	1	5	41-5	Long Diaphragm Bar				
A30e	Str.	1	5	36-5	Long Diaphragm Bar				
A31e	8	2	6	15-4	BF Wings A & B Top	12-6¼	2-9½	1-0⅝	2-7⅝
A32e	2s	11	5	12-9	Diaphragm	5-2	2-8		
A33e	5s	16	5	9-7	Diaphragm Over Beams	5-2	4-6		
A34e	Str.	10	5	55-8	Cap Side				

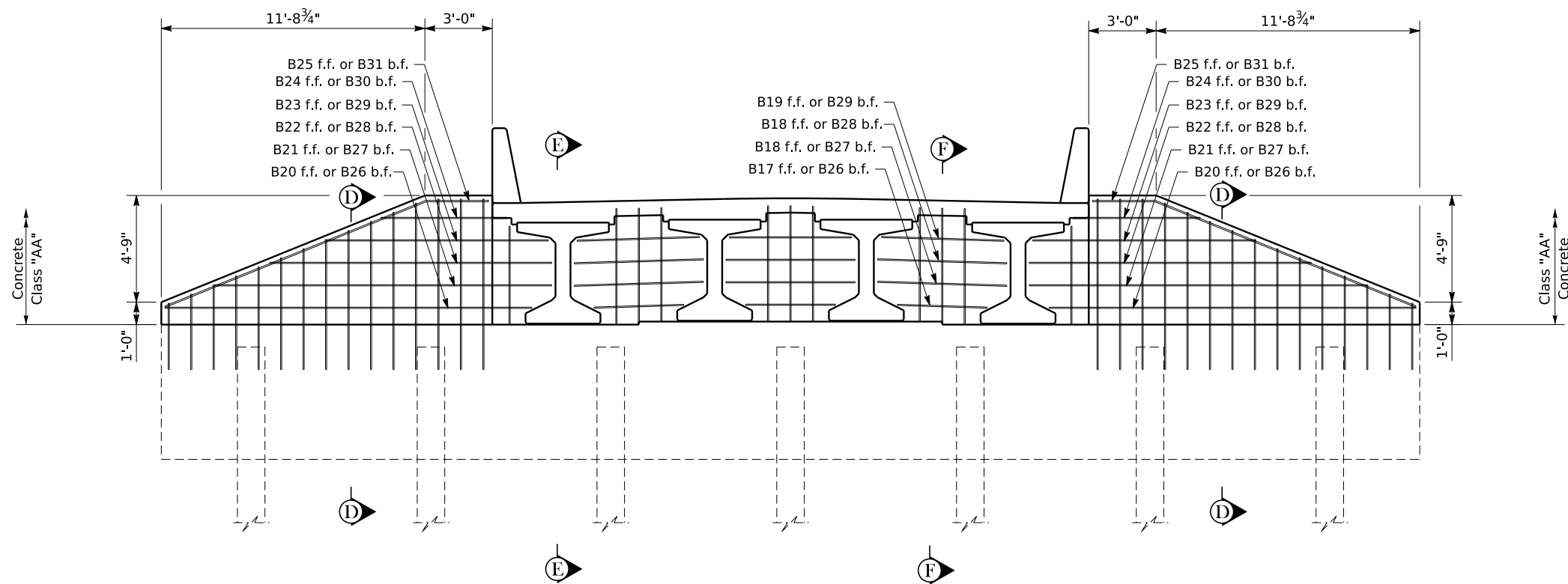




~Wing A~

PLAN - Showing Diaphragm and Wing Reinforcement

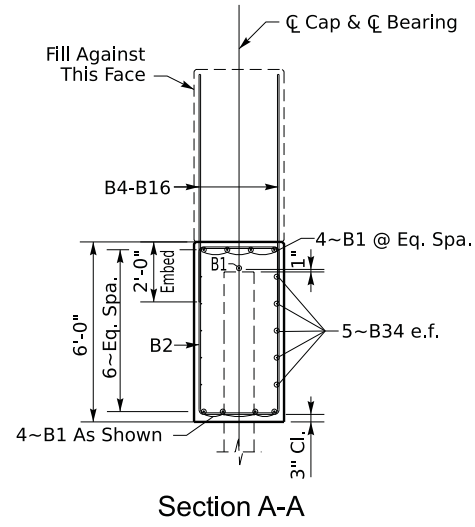
~Wing B~



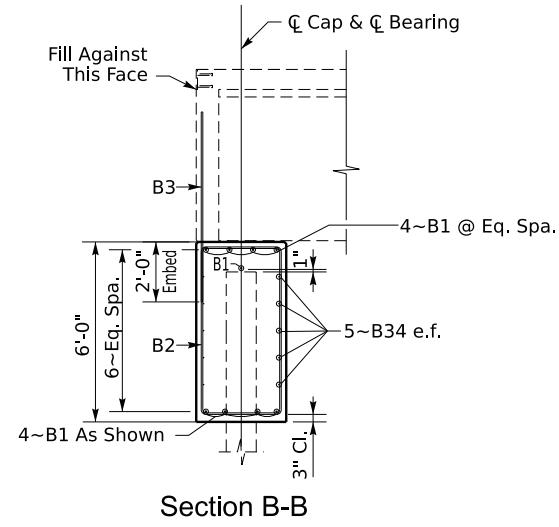
ELEVATION - Showing Diaphragm and Wing Reinforcement

BILL OF REINFORCEMENT

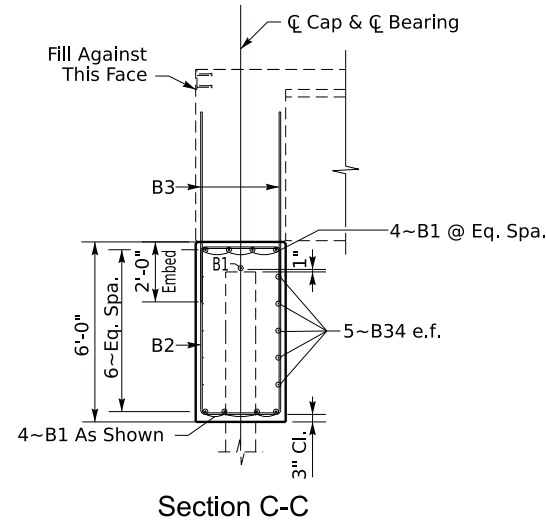
MARK	TYPE	NO.	SIZE	LENGTH	LOCATION	A	B	C	D
B1e	Str.	9	8	55-8	Cap				
B2e	14s	50	5	17-0	Cap Stirrups	5-7	2-8		
B3e	Str.	38	5	4-7	Cap Dowels				
B4e	Str.	4	5	3-0	Wings A & B Vertical				
B5e	Str.	4	5	3-4	Wings A & B Vertical				
B6e	Str.	4	5	3-9	Wings A & B Vertical				
B7e	Str.	4	5	4-2	Wings A & B Vertical				
B8e	Str.	4	5	4-7	Wings A & B Vertical				
B9e	Str.	4	5	5-0	Wings A & B Vertical				
B10e	Str.	4	5	5-5	Wings A & B Vertical				
B11e	Str.	4	5	5-10	Wings A & B Vertical				
B12e	Str.	4	5	6-2	Wings A & B Vertical				
B13e	Str.	4	5	6-7	Wings A & B Vertical				
B14e	Str.	4	5	7-0	Wings A & B Vertical				
B15e	Str.	4	5	7-5	Wings A & B Vertical				
B16e	Str.	12	5	7-7	Wings A & B Vertical				
B17e	Str.	3	5	4-0	Diaphragm				
B18e	Str.	6	5	5-9	Diaphragm				
B19e	Str.	3	5	5-5	Diaphragm				
B20e	Str.	2	5	16-4	FF Wings A & B Horizontal				
B21e	Str.	2	5	15-0	FF Wings A & B Horizontal				
B22e	Str.	2	5	12-6	FF Wings A & B Horizontal				
B23e	Str.	2	5	9-11	FF Wings A & B Horizontal				
B24e	Str.	2	5	5-8	FF Wings A & B Horizontal				
B25e	8	2	6	15-4	FF Wings A & B Top	12-6¼	2-9½	1-0⅝	2-7⅝
B26e	Str.	1	5	55-8	Long Diaphragm Bar				
B27e	Str.	1	5	51-3	Long Diaphragm Bar				
B28e	Str.	1	5	46-4	Long Diaphragm Bar				
B29e	Str.	1	5	41-5	Long Diaphragm Bar				
B30e	Str.	1	5	36-5	Long Diaphragm Bar				
B31e	8	2	6	15-4	BF Wings A & B Top	12-6¼	2-9½	1-0⅝	2-7⅝
B32e	2s	11	5	12-9	Diaphragm	5-2	2-8		
B33e	5s	16	5	9-7	Diaphragm Over Beams	5-2	4-6		
B34e	Str.	10	5	55-8	Cap Side				



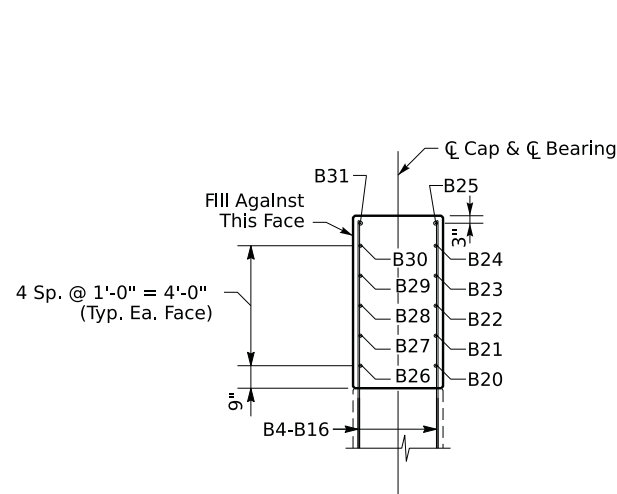
Section A-A



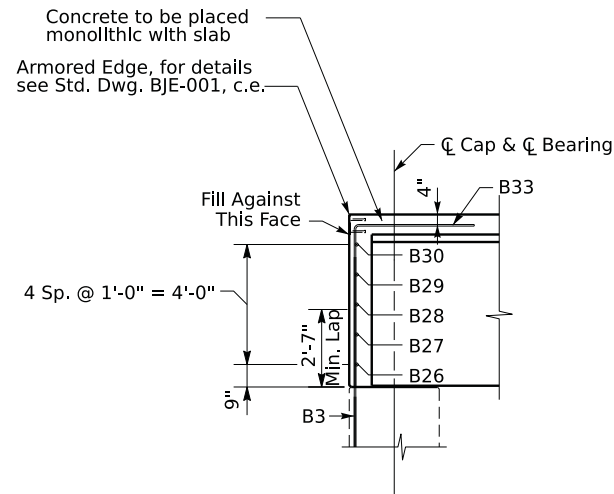
Section B-B



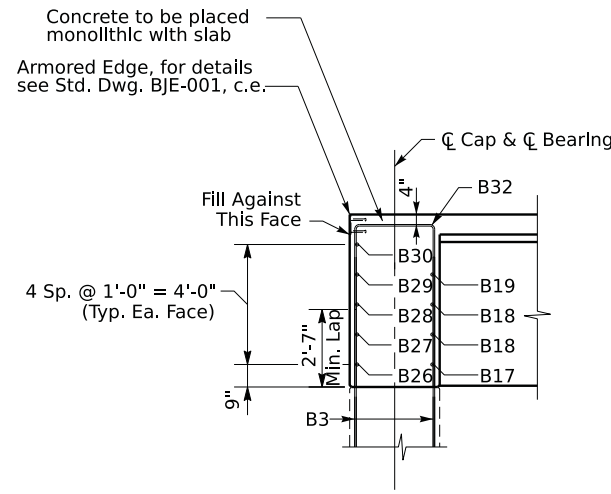
Section C-C



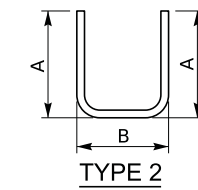
Section D-D



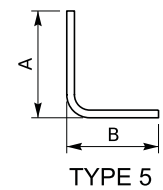
Section E-E



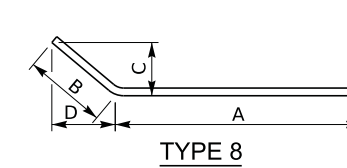
Section F-F



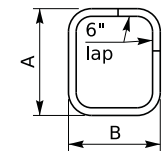
TYPE 2



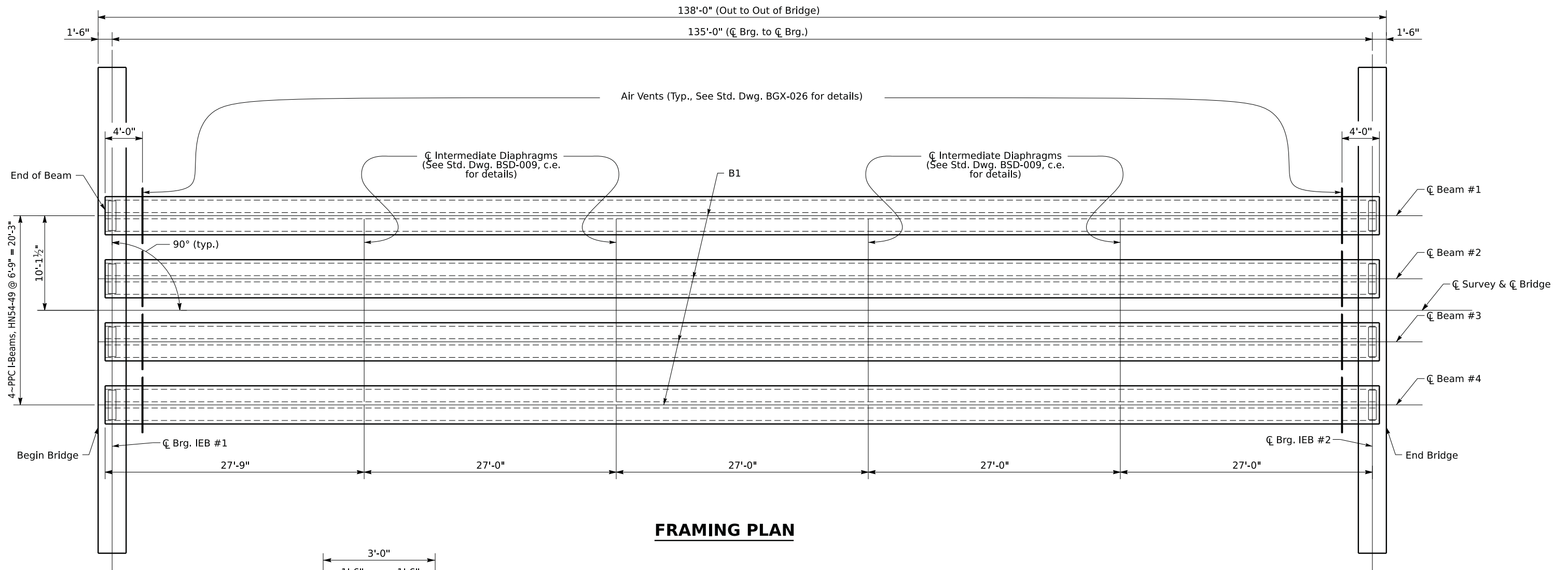
TYPE 5



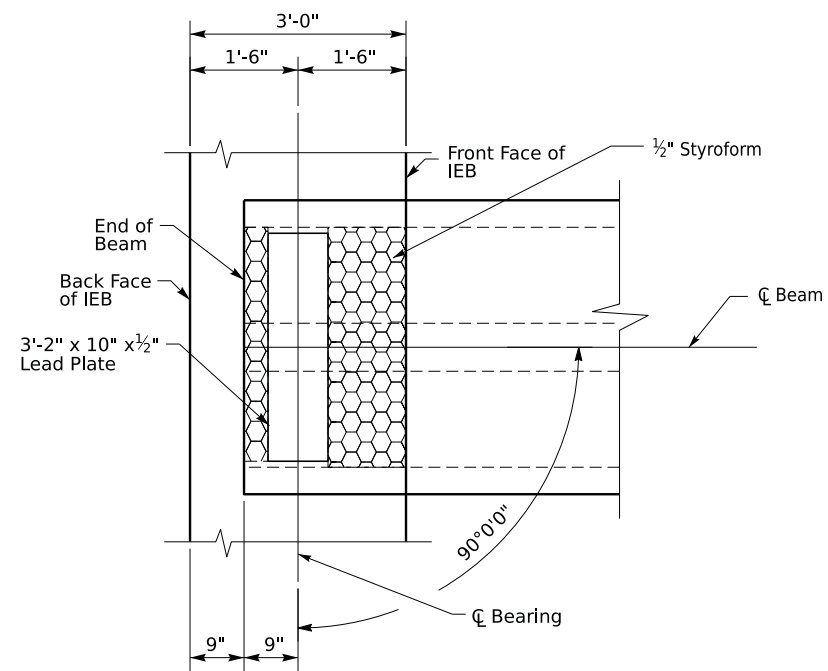
TYPE 8



TYPE 14



FRAMING PLAN



END OF BEAM DETAIL @ INTEGRAL END BENTS

	REVISION	DATE	PREPARED BY	DATE: October 2024	CHECKED BY	FRAMING PLAN CROSSING Livingston Creek	ROUTE	EXISTING BRIDGE ID	COUNTY OF
			Division of Structural Design	DESIGNED BY: K. Ee	J. Van Zee		KY 295	072B00013N	LYON
OpenRoads Designer v10.12.02.4				DATE PLOTTED: 31-OCT-2024	FILE NAME: C:\Users\kong.ee\Documents\OneDrive - Commonwealth of Kentucky\kong2024\28924-072B00013N-Kong\Kong Design\Details & Closeout\28924.dgn			SHEET NO. S14	DRAWING NUMBER 28924

Strand Data with number indicated in rows																	Concrete Stress (psi)	No. of S Bars	Hold-Down Capacity lbs.	Beam Data (measured along centerline)											Maximum Allowable Camber														
Mark	Midspan (SECTION B-B)								End (SECTION A-A)											Total No.	Dimensions											Appr. Wt. (lbs)													
	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	f'ci	f'c	S1	S2	lbs.	Total No.	A	B	C	D	E	F	G	H	I	Z	M			
B1	14	19	15	11					14	16	12	8											3	3	3	8500	9500	157	16	24700	4	136'-6"	63'-3"	10'-0"	52	8"	15"	53	15"	13.5"	2"			145360	4"

General Notes

CONCRETE: Ensure prestressed girder concrete is in accordance with these plans and the specifications.

MATERIALS DESIGN SPECIFICATIONS: For prestressed beams:
 FY = 60,000 psi F'S = 270,000 psi

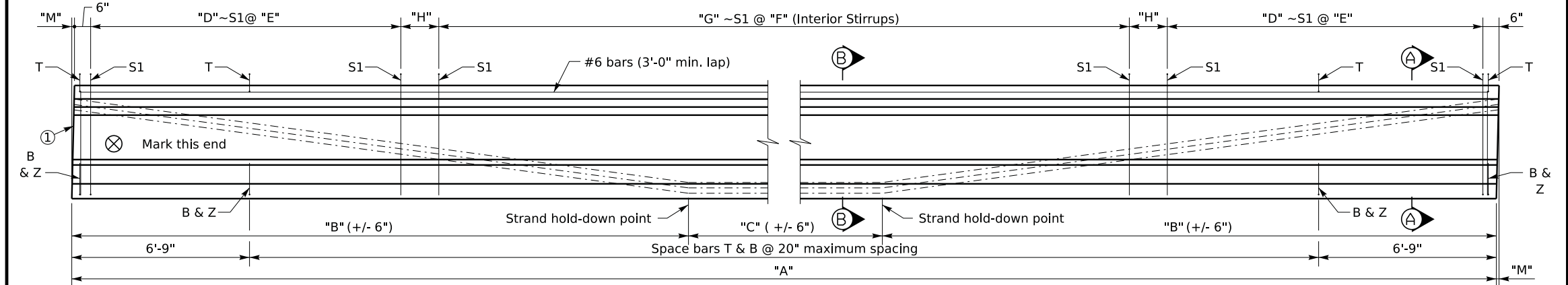
PRESTRESSING REINFORCEMENT: Ensure that strands are 0.6" (nominal diameter, 0.217 sq. in.), uncoated seven-wire low-relaxation conforming to AASHTO M 203, Grade 270. Billing of the cost for redesign of beam and subsequent plan modifications will be made for any request of alternate strand type or arrangement. The designer of the original plans is responsible for the billing and work.

CONSTRUCTION METHOD: Pretension all beams. Ensure concrete has attained f'ci (shown in the table) in standard test cylinders that are made and cured identically with the beams without bond stresses being transferred to the concrete or releasing the end anchors. Attain f'c (shown in the table) at or prior to 28 days. Apply an initial force of 43,942 lbs. per low-relaxation strand to develop a stress of 202,500 psi. No beam will be accepted that is honeycombed to the extent that strength of the beam or resistance to deterioration has been affected. An allowance of 0.0005L is made for shortening of beams due to shrinkage and elastic change. Show a detensioning plan by sequential numbering of the strand pattern on the shop plans.

LIFTING DEVICES: Detail lifting devices on the shop plans. Loads are to be distributed equally to each device.

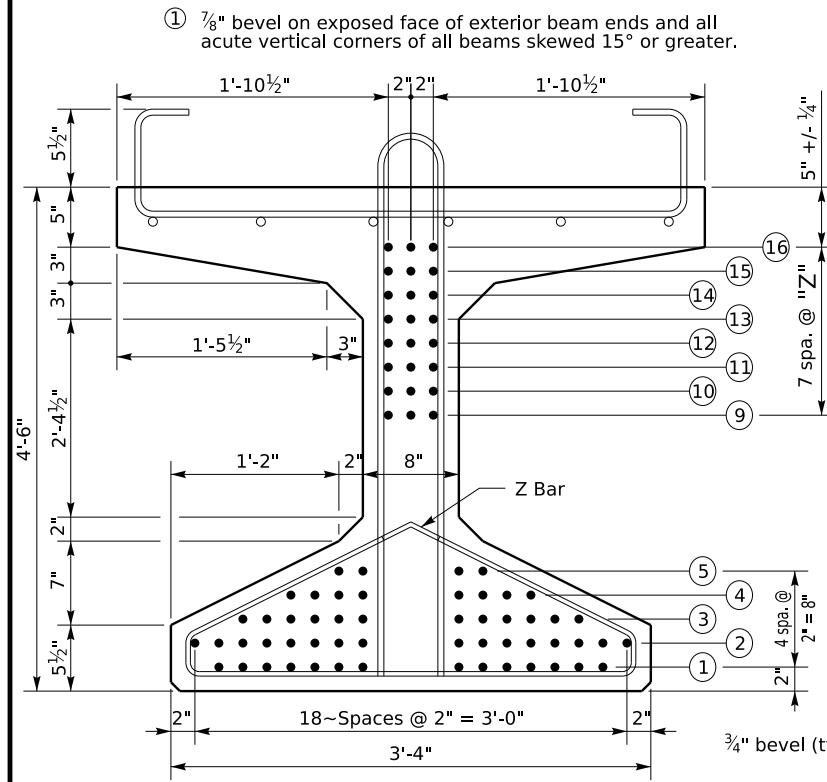
BEARING DEVICES: Include the price for lead plates, bearing pads, and/or styroform in the bid for precast beams.

FABRICATION: The "Maximum Allowable Camber" shown on the beam sheet is the amount of camber in inches, measured prior to casting the deck, above which the beam will begin to encroach into the slab. If the measured camber is greater than the "Maximum Allowable Camber" the contractor will be responsible for any necessary adjustments to assure a minimum slab thickness of eight (8) inches as shown in the plans. This work will be considered incidental to the completion of the structure and require the approval of the Engineer.

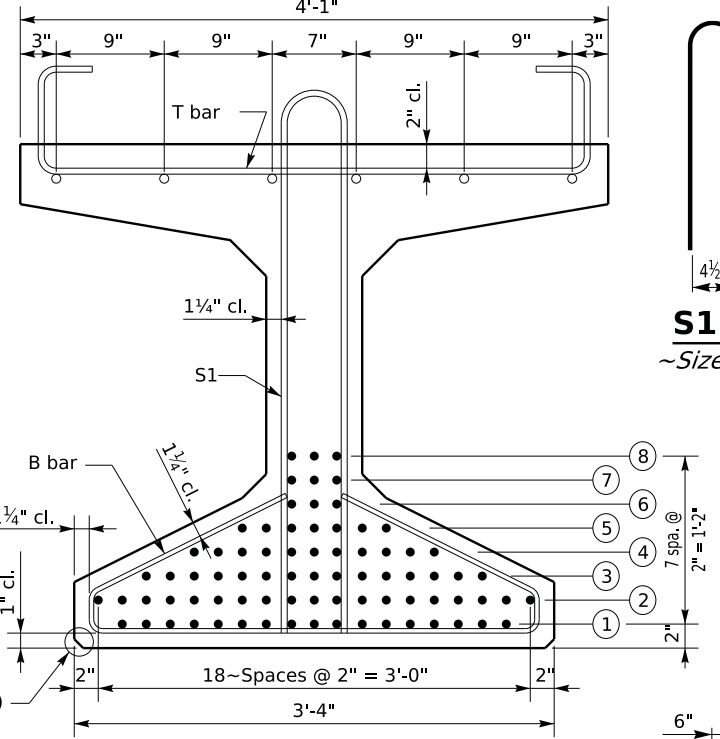


ELEVATION OF BEAM

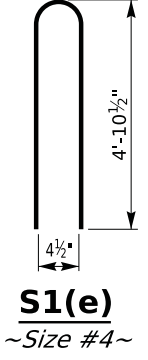
Note: All bent bars use stirrup bend diameters except S1(e)



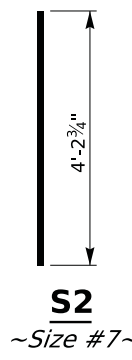
SECTION A-A



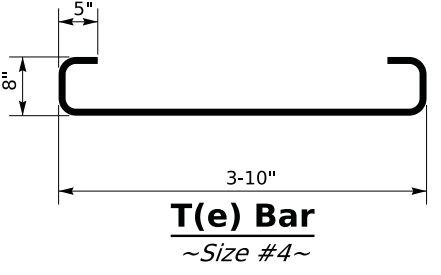
SECTION B-B



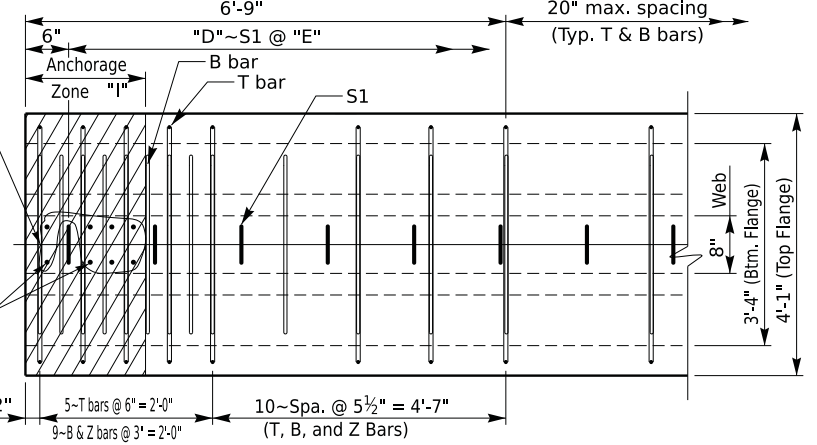
S1(e)
~Size #4~



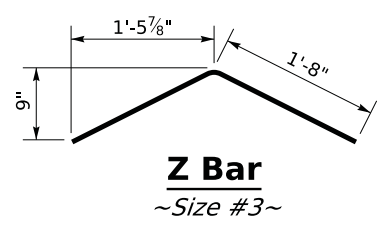
S2
~Size #7~



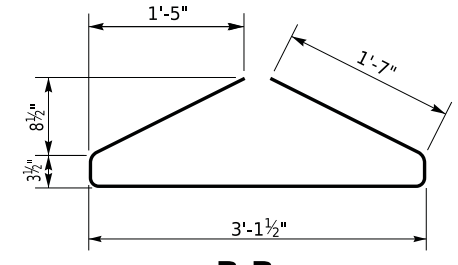
T(e) Bar
~Size #4~



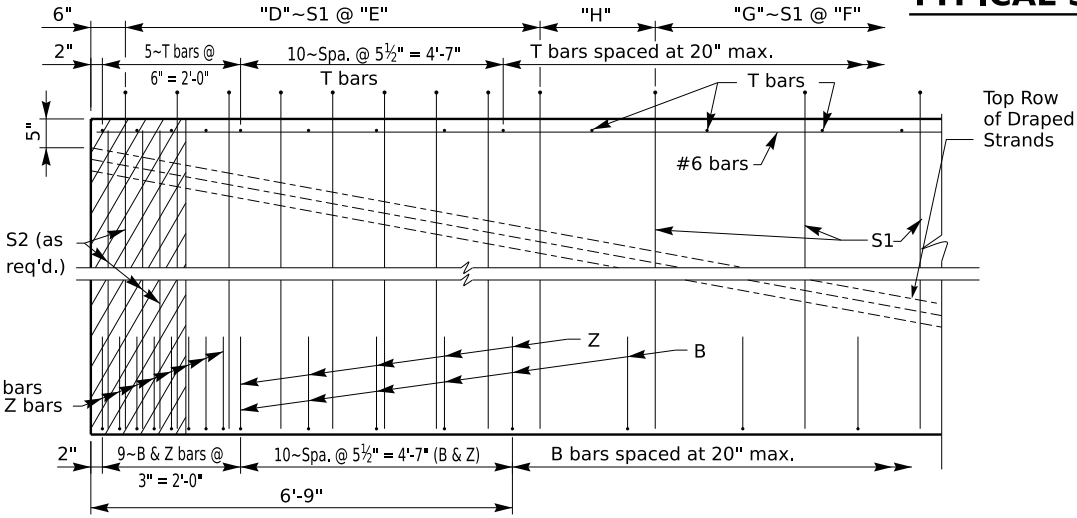
TYPICAL SQUARED END TREATMENT



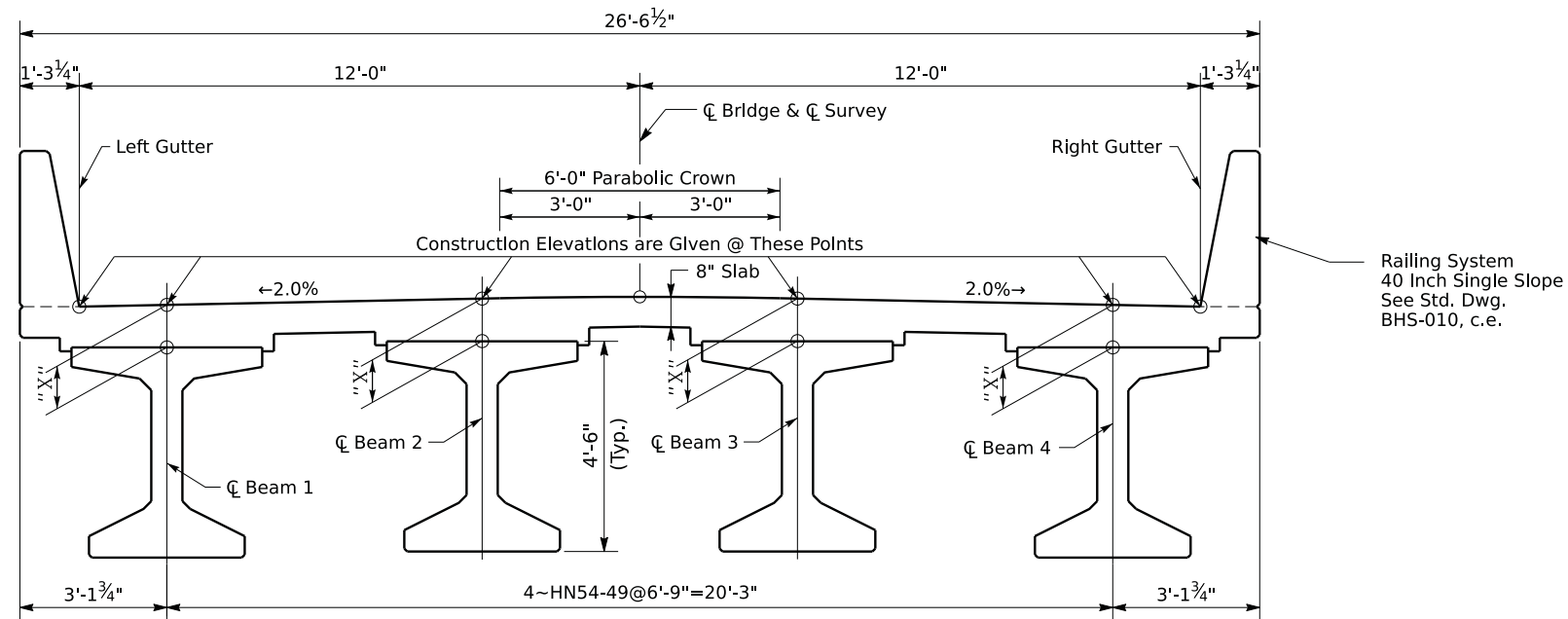
Z Bar
~Size #3~



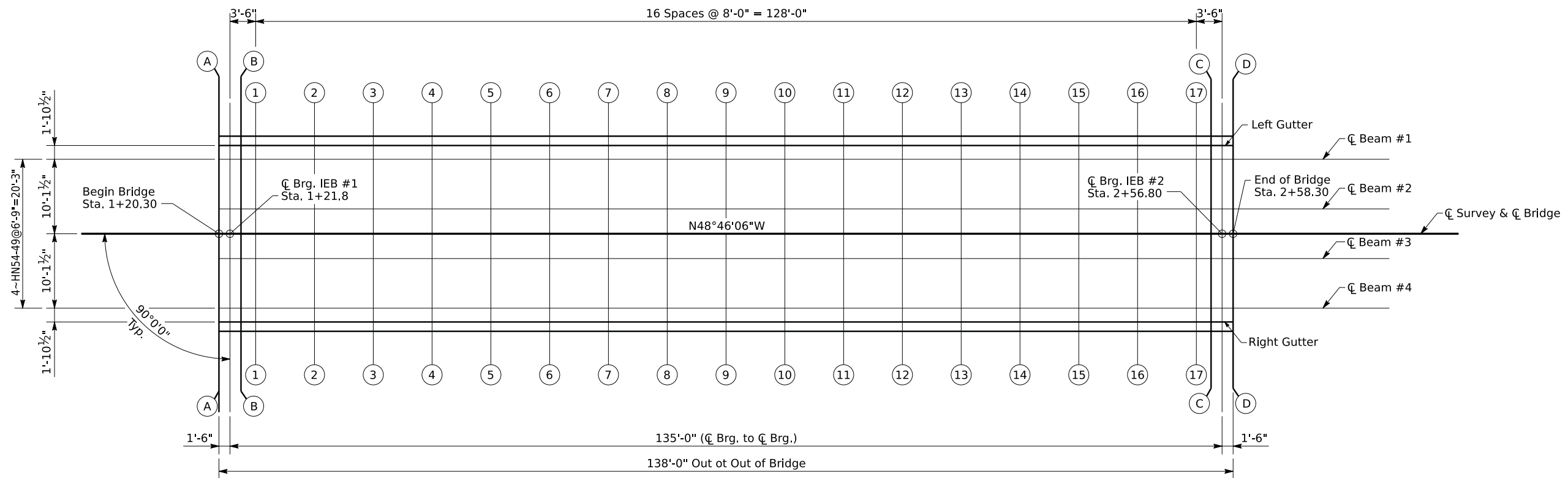
B Bar
~Size #3~



PARTIAL SECTION ON CENTERLINE



TYPICAL SECTION



GRID LAYOUT

CONSTRUCTION ELEVATIONS

LOCATION	LEFT GUTTER	BEAM 1			BEAM 2			C BRIDGE	BEAM 3			BEAM 4			RIGHT GUTTER
		CONSTR. ELEV.	TOP OF BEAM	DIM. "X"	CONSTR. ELEV.	TOP OF BEAM	DIM. "X"		CONSTR. ELEV.	TOP OF BEAM	DIM. "X"	CONSTR. ELEV.	TOP OF BEAM	DIM. "X"	
SKEW LN AA	342.705	342.742			342.877			342.915	342.877			342.742			342.705
SKEW LN BB	342.706	342.743			342.878			342.916	342.878			342.743			342.706
SKEW LN CC	342.813	342.851			342.986			343.023	342.986			342.851			342.813
SKEW LN DD	342.814	342.852			342.987			343.024	342.987			342.852			342.814
GRID LN 01	342.730	342.767			342.902			342.940	342.902			342.767			342.730
GRID LN 02	342.784	342.821			342.956			342.994	342.956			342.821			342.784
GRID LN 03	342.835	342.873			343.008			343.045	343.008			342.873			342.835
GRID LN 04	342.883	342.920			343.055			343.093	343.055			342.920			342.883
GRID LN 05	342.924	342.962			343.097			343.134	343.097			342.962			342.924
GRID LN 06	342.959	342.997			343.132			343.169	343.132			342.997			342.959
GRID LN 07	342.986	343.024			343.159			343.196	343.159			343.024			342.986
GRID LN 08	343.006	343.043			343.178			343.216	343.178			343.043			343.006
GRID LN 09	343.016	343.054			343.189			343.226	343.189			343.054			343.016
GRID LN 10	343.018	343.056			343.191			343.228	343.191			343.056			343.018
GRID LN 11	343.012	343.049			343.184			343.222	343.184			343.049			343.012
GRID LN 12	342.997	343.035			343.170			343.207	343.170			343.035			342.997
GRID LN 13	342.975	343.013			343.148			343.185	343.148			343.013			342.975
GRID LN 14	342.946	342.984			343.119			343.156	343.119			342.984			342.946
GRID LN 15	342.912	342.949			343.084			343.122	343.084			342.949			342.912
GRID LN 16	342.873	342.911			343.046			343.083	343.046			342.911			342.873
GRID LN 17	342.832	342.869			343.004			343.042	343.004			342.869			342.832

NOTES FOR ELEVATIONS TAKEN ON PRESTRESSED CONCRETE BEAMS

Take elevations on top of beam at points indicated by the grid layout. The beam elevations are to be read to three decimals, 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.

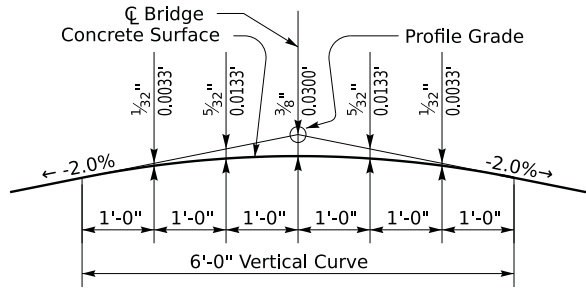
For setting templates, measure dimension "X" above top of beams for top of template. Do not set template by elevations.

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

Construct barrier to roadway grade. Do not add camber to the barrier.

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. If the measured camber is greater than the "Maximum Allowable Camber" the contractor will be responsible for any necessary adjustments to assure a minimum slab thickness of eight (8) inches as shown in the plans. This work will be considered incidental to the completion of the structure and have the approval of the Engineer.

The minimum allowable X-Dimension on a beam results in the design deck thickness (8") at the edge of the beam flange. This is calculated as the deck thickness + (half the top flange width * the cross slope of the bridge). This is $8" + 24\frac{1}{2}" * 0.02 = 8.49" = 0.708'$. Any necessary modifications to some or all of the X-dimensions must meet the approval of the Engineer.



PARABOLIC CROWN

GENERAL SUMMARY				
ITEM	DESCRIPTION	UNIT	MAINLINE	TOTAL PROJECT
2230	EMBANKMENT IN PLACE	CU YD	2,913	2,913
2231	STRUCTURE GRANULAR BACKFILL	CU YD	183	183
2351	GUARDRAIL-STEEL W BEAM-S FACE	LF	350	350
2367	GUARDRAIL END TREATMENT TYPE 1	EACH	4	4
2399	EXTRA LENGTH GUARDRAIL POST	EACH	12	12
2545	CLEARING & GRUBBING	LS	1	1
2568	MOBILIZATION	LS	1	1
2569	DEMOBILIZATION	LS	1	1
2585	EDGE KEY	LF	44	44
2701	TEMP SILT FENCE (1)	LF	637	637
2704	SILT TRAP TYPE B (1)	EACH	5	5
2707	CLEAN SILT TRAP TYPE B (1)	EACH	5	5
2726	STAKING	LS	1	1
2731	REMOVE STRUCTURE	LS	1	1
5963	INITIAL FERTILIZER (1)	TON	0.07	0.07
5964	MAINTENANCE FERTILIZER (1)	TON	0.04	0.04
5985	SEEDING AND PROTECTION (1)	SQ YD	2000	2000
6541	PAVE STRIPING-THERMO-4 IN Y	LF	768	768
20191ED	OBJECT MARKER TY 3	EACH	4	4
21134ND	REMOVE-STORE AND REINSTALL SIGN	EACH	2	2
25078ED	THRIE BEAM GUARDRAIL TRANSITION TL-3	EACH	4	4

EARTHWORK TOTALS	
EMBANKMENT IN PLACE	2,501.00
EMBANKMENT FOUNDATION BENCH	412.00
TOTAL EMBANKMENT REQUIRED	2,913.00
STRUCTURE GRANULAR EMBANKMENT	183.16

ESTIMATE FOR EARTHWORK CALCULATIONS FOR DESIGN ONLY. THE CONTRACTOR IS ADVISED THE EARTHWORK CALCULATIONS SHOWN ARE FOR INFORMATION ONLY.

(1) ITEMS REQUIRED FOR EROSION CONTROL WHILE ALL OF THE ITEMS MIGHT NOT BE USED ON EACH PROJECT, IT IS THE INTENT OF THE DESIGN ENGINEER TO PROVIDE THE RESIDENT ENGINEER AND THE CONTRACTOR FLEXIBILITY IN CHOOSING EROSION DEVICES AND/OR METHODS TO CREATE THE BMP.

KY 295 ALIGNMENT				
NAME	Station	Northing (Y)	Easting (X)	BEARING
POB	0+00.00	3584634.646	4218007.818	N48D46'06"W
POE	3+83.27	3584887.265	4217719.576	

CONTROL POINTS						
CP NUMBER	TYPE	NORTHING (Y)	EASTING (X)	ELEVATION (Z)	STATION	OFFSET
CP #1	5/8" REBAR & CAP	3584332.98	4218374.65	341.070	-4+74.70	14.91' RT.
CP #2	5/8" REBAR & CAP	3584653.37	4217965.58	341.960	0+44.11	13.75' LT.
CP #3	5/8" REBAR & CAP	3584850.82	4217743.22	342.670	3+41.47	11.82' LT.
CP #4	5/8" REBAR & CAP	3585106.43	4217493.89	356.050	6+97.45	16.06' RT.

PROJECT COORDINATES
Coordinates for horizontal control were obtained by redundant GPS observations using Trimble R12i GNSS receivers on the NAD83 Kentucky State Plane Coordinate System, KY Single Zone, US Survey Feet utilizing the KYCORS RTN GPS Network on April 8, 2024. Coordinates shown are State Plane Coordinates, US Survey Feet. Relative positional accuracy is 0.045" + 50 ppm at the 95% confidence level. No project datum factor was calculated or used for this project.

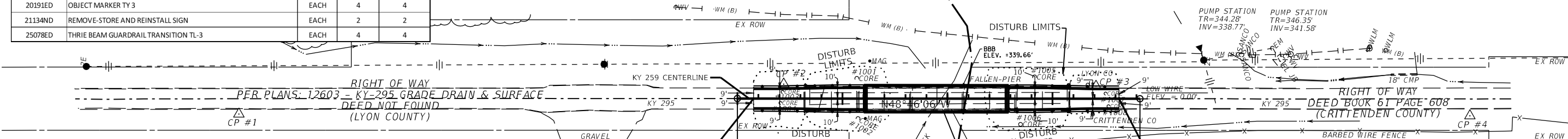
BASIS OF ELEVATIONS
Elevations were established by redundant GPS observations using Trimble R12i GNSS receivers on the NAVD88 vertical datum, GEOID18 utilizing the KYCORS RTN Network and differential leveling on April 8, 2024 and were adjusted by a correctly weighted least squares adjustment.

NOTES:
BRIDGE APPROACH PAVEMENT: See Sheet S21 for Typical Sections. Elsewhere, the contractor shall provide surface as necessary to provide a smooth transition from end of bridge to existing pavement. Pavement limits are shown in the plans however, pavement work and limits are at the direction of the engineer.

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 being made. Any claims resulting from site conditions will not be honored by the Department of Highways.

UTILITIES: The contractor shall be responsible for calling 811 (bud) and/or all local utility companies as required for utility locating services prior to beginning work. The state shall not be liable for any utilities damaged during work.

Donna R. Gilley & Doyle R. Martin
DEED BOOK 153 PAGE 496 (AFFIDAVIT OF DESCENT)
DEED BOOK 111 PAGE 767



Utility Owners
UTILITY NOTE
Kentucky 811 called April 23, 2024.
Ticket #241140617, #241140618

Utilities Notified:
AT&T DISTRIBUTION
TDS TELECOM SALEM
LYON COUNTY WATER DISTRICT
CRITTENDEN-LIVINGSTON CO H2O

(1) Donna R. Gilley & Doyle R. Martin
DEED BOOK 153 PAGE 496 (AFFIDAVIT OF DESCENT)
DEED BOOK 111 PAGE 767

PAVING SUMMARY				
ITEM CODE	ITEM	UNIT	MAINLINE	TOTAL PROJECT
3	CRUSHED STONE BASE (1)	TON	173	173
78	CRUSHED STONE AGGREGATE SIZE NO. 2	TON	346	346
100	ASPHALT SEAL AGGREGATE (3)	TON	3.7	3.7
103	ASPHALT SEAL COAT (2)	TON	0.4	0.4
221	CL2 ASPH BASE 0.75D PG64-22	TON	14.4	14.4
301	CL2 ASPH SURF 0.38D PG64-22	TON	40.4	40.4
2602	FABRIC GEOTEXTILE CLASS 1 (AT TOP)	SQYD	502.0	502.0
2604	FABRIC-GEOTEXTILE CLASS 1A	SQYD	502.0	502.0
20071EC	JOINT ADHESIVE	LF	210.0	210.0
24970EC	ASPHALT MATERIAL FOR TACK NON-TRACKING (4)	TON	0.6	0.6

NOTES:
ALL ASPHALT MIXTURES SHALL BE ESTIMATED AT 110 LBS. PER SQ. YD. PER INCH OF DEPTH, UNLESS NOTED OTHERWISE.
(1) ESTIMATED AT 115 LBS. PER SQ. YD. INCH OF DEPTH
(2) ESTIMATED AT 2.4 LBS. PER SQ. YD. (TWO APPLICATIONS)
(3) ESTIMATED AT 20 LBS. PER SQ. YD. (TWO APPLICATIONS)
(4) ESTIMATED AT 0.84 LBS. PER SQ. YD.

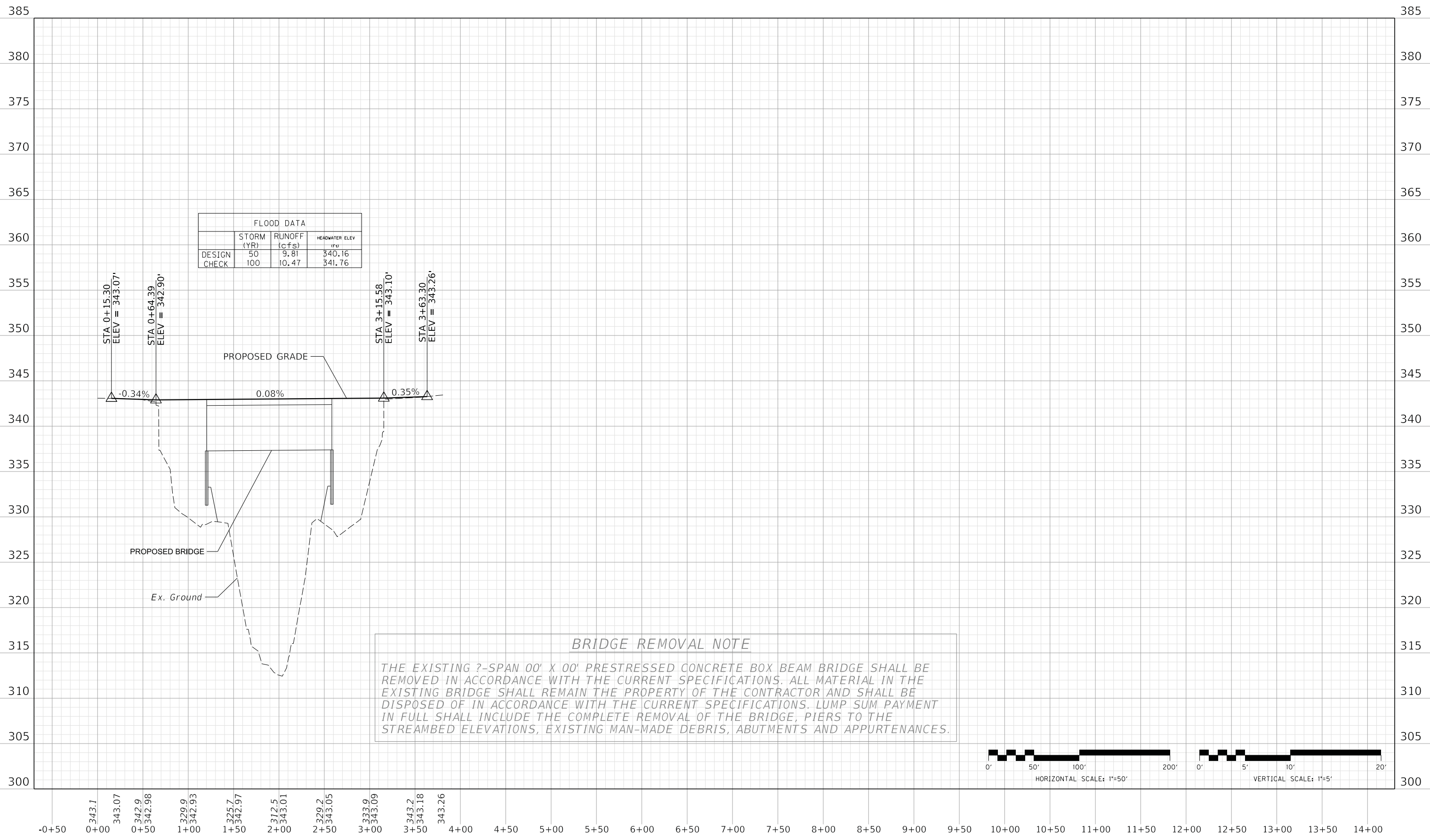
BEFORE YOU DIG
The contractor is instructed to call 1-800-752-6007 to reach KY 811, the one-call system for information on the location of existing underground utilities. The call is to be placed a minimum of two (2) and no more than ten (10) business days prior to excavation. The contractor should be aware that owners of underground facilities are not required to be members of the KY 811 one-call Before-U-Dig (BUD) service. The contractor must coordinate excavation with the utility owners, including those who do not subscribe to KY 811. It may be necessary for the contractor to contact the County Court Clerk to determine what utility companies have facilities in the area.

PAVEMENT TAPERS			
TYPE	BEGIN STATION	END STATION	TAPER LENGTH
55:1	0+40.30 LT.	0+95.30 LT.	55'
55:1	0+40.30 RT.	0+95.30 RT.	55'
55:1	2+83.30 LT.	3+38.30 LT.	55'
55:1	2+83.30 RT.	3+38.30 RT.	55'

GUARDRAIL NOTES						
TYPE	BEGIN STATION	END STATION	LF	THRIE-BEAM GUARDRAIL TRANSITION (TL-3)	TIE INTO EXISTING? (Y/N)	END TREATMENT
LT. - GURADRAIL"W" BEAM	0+14.05	1+20.30	87.5	1	N	TYPE 1
RT. - GURADRAIL"W" BEAM	0+14.05	1+20.30	87.5	1	N	TYPE 1
LT. - GURADRAIL"W" BEAM	2+58.30	3+64.55	87.5	1	N	TYPE 1
RT. - GURADRAIL"W" BEAM	2+58.30	3+64.55	87.5	1	N	TYPE 1

NOTES: * INCLUDES THE RADIUS RAIL FACTOR **7FT GUARDRAIL POSTS





TYPICAL SECTIONS

PAVEMENT DESIGN

ROADBED PREPARATION

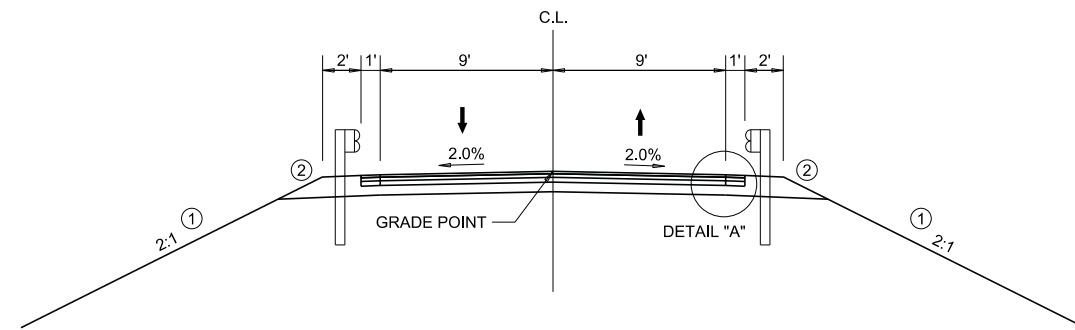
12" CRUSHED STONE AGGREGATE SIZE NO. 2
 FABRIC GEOTEXTILE CLASS 1A
 FABRIC GEOTEXTILE CLASS 1 (TOP)

TRAFFIC LANES

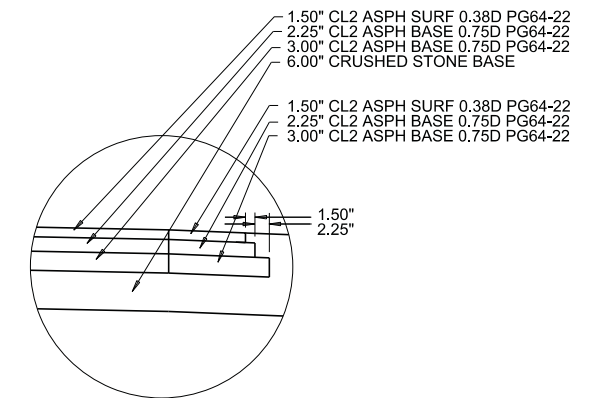
1.50" CL2 ASPH SURF 0.38D PG64-22
 2.25" CL2 ASPH BASE 0.75D PG64-22
 3.00" CL2 ASPH BASE 0.75D PG64-22
 6.00" CRUSHED STONE BASE

SHOULDER

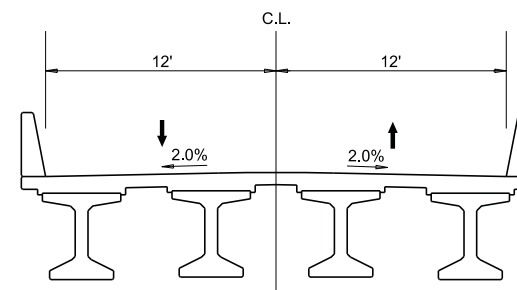
1.50" CL2 ASPH SURF 0.38D PG64-22
 2.25" CL2 ASPH BASE 0.75D PG64-22
 3.00" CL2 ASPH BASE 0.75D PG64-22
 6.00" CRUSHED STONE BASE



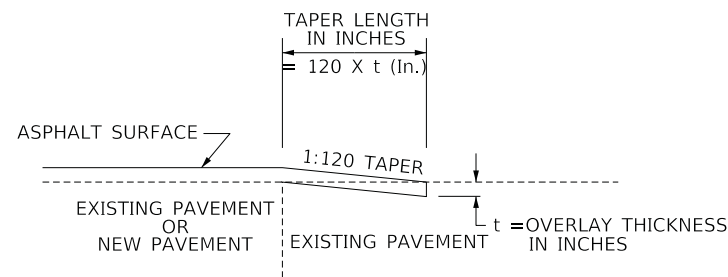
NORMAL 2 LANE SECTION



DETAIL "A"



2 LANE BRIDGE SECTION



EDGE KEY DETAIL

- ① SEE CROSS SECTIONS FOR SLOPES OUTSIDE THE LIMITS OF THE SHOULDERS
- ② ASPHALT SEAL REQUIRED FROM EDGE OF PAVED SHOULDER TO A POINT 2' DOWN THE DITCH OR FILL SLOPE. TWO APPLICATIONS OF THE FOLLOWING:
 ASPHALT SEAL COAT 2.4 LB/SQ. YD.
 ASPHALT SEAL AGGREGATE 20 LB/SQ. YD. SIZE NO. 8 OR 9



COMMONWEALTH OF KENTUCKY
 DEPARTMENT OF HIGHWAYS



REVISION	DATE

PREPARED BY
**Division of
 Structural Design**

DATE: October 2024

DESIGNED BY: A Zimmerman

DETAILED BY: J Ciccarelli

CHECKED BY

A Zimmerman

J Ciccarelli

TYPICAL SECTION SHEET

CROSSING
 Livingston Creek

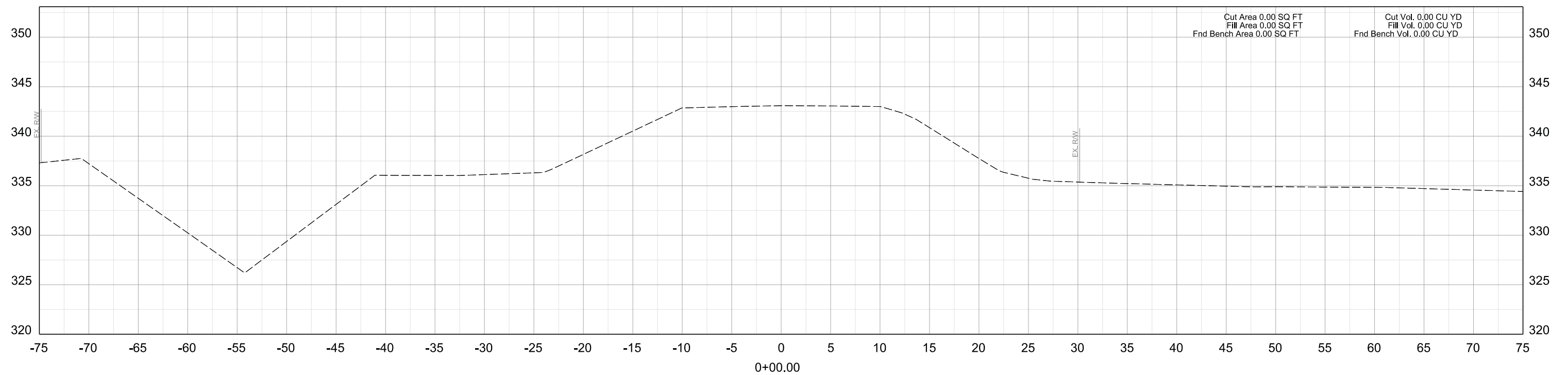
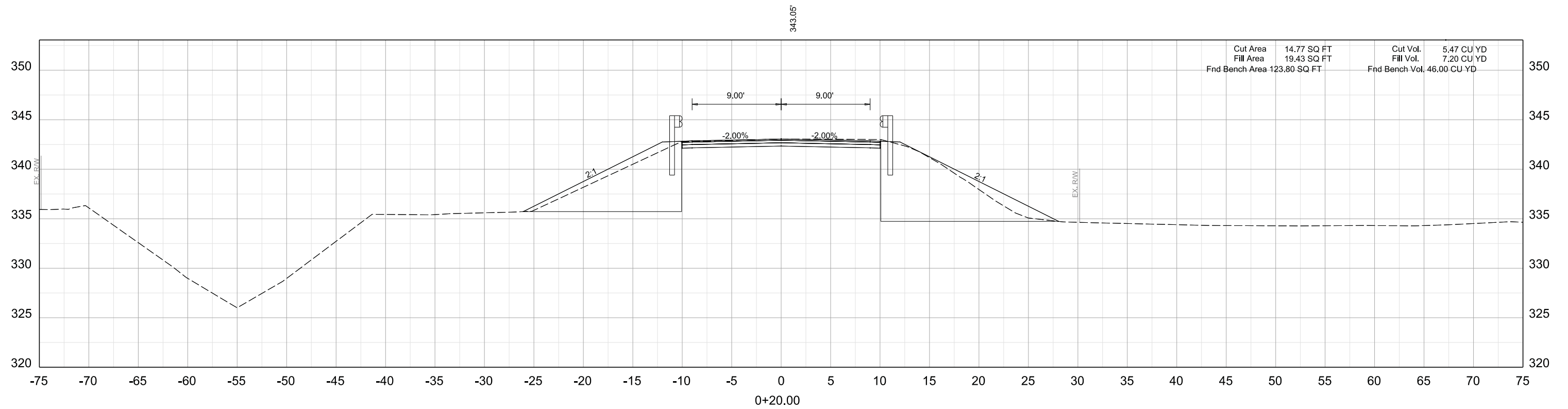
ROUTE
 KY 295

EXISTING BRIDGE ID
 072B00013N

SHEET NO.
 S21

COUNTY OF
 LYON

DRAWING NUMBER
 28924

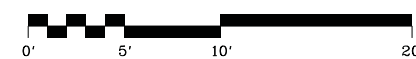


COMMONWEALTH OF KENTUCKY
DEPARTMENT OF HIGHWAYS



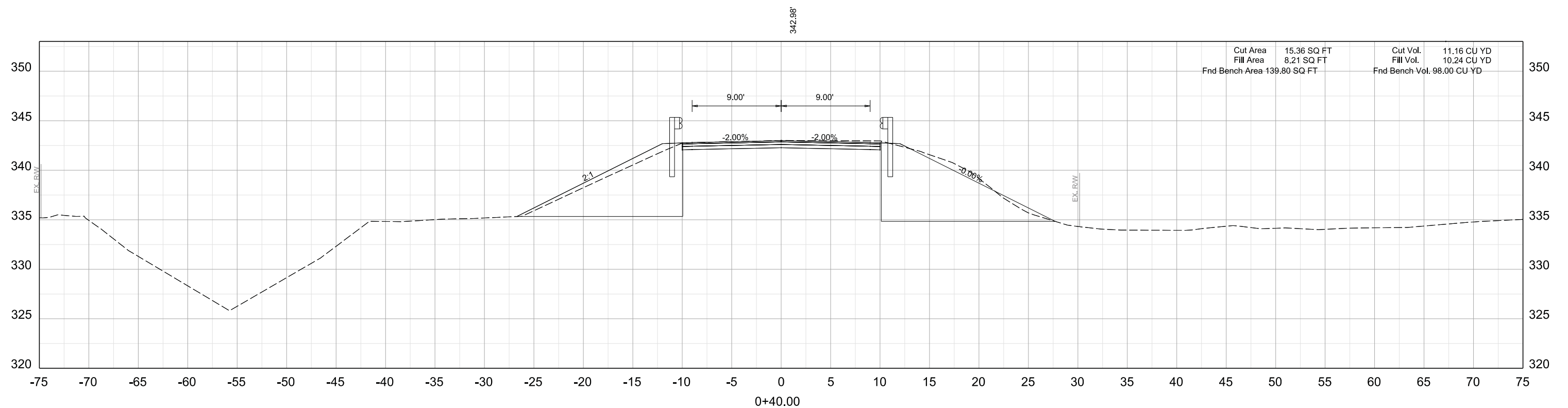
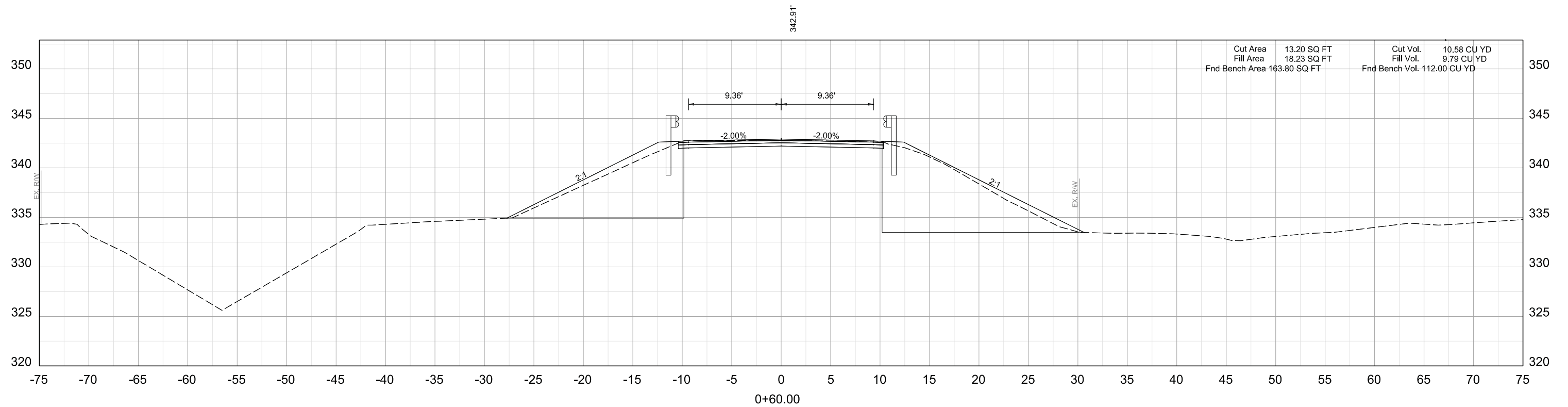
DRAWING TITLE: KY 295 OVER LIVINGSTON CREEK

HORIZONTAL SCALE
SCALE: 1" = 5'



STA. 0+00.00 TO STA. 0+20.00

ITEM NO.	COUNTY OF LYON
SHEET NO.	X01

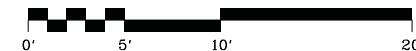


COMMONWEALTH OF KENTUCKY
DEPARTMENT OF HIGHWAYS



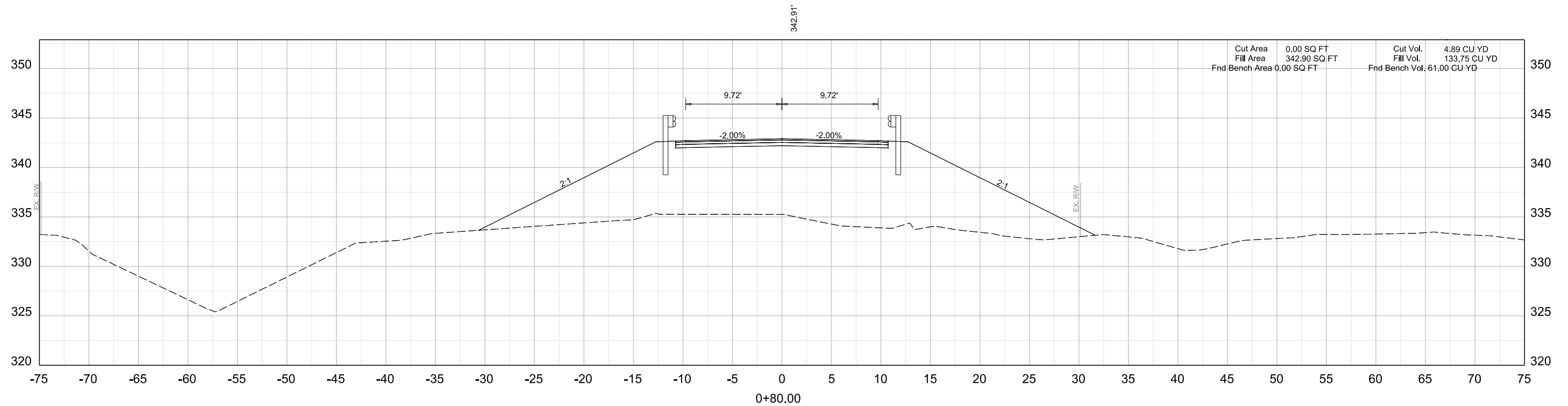
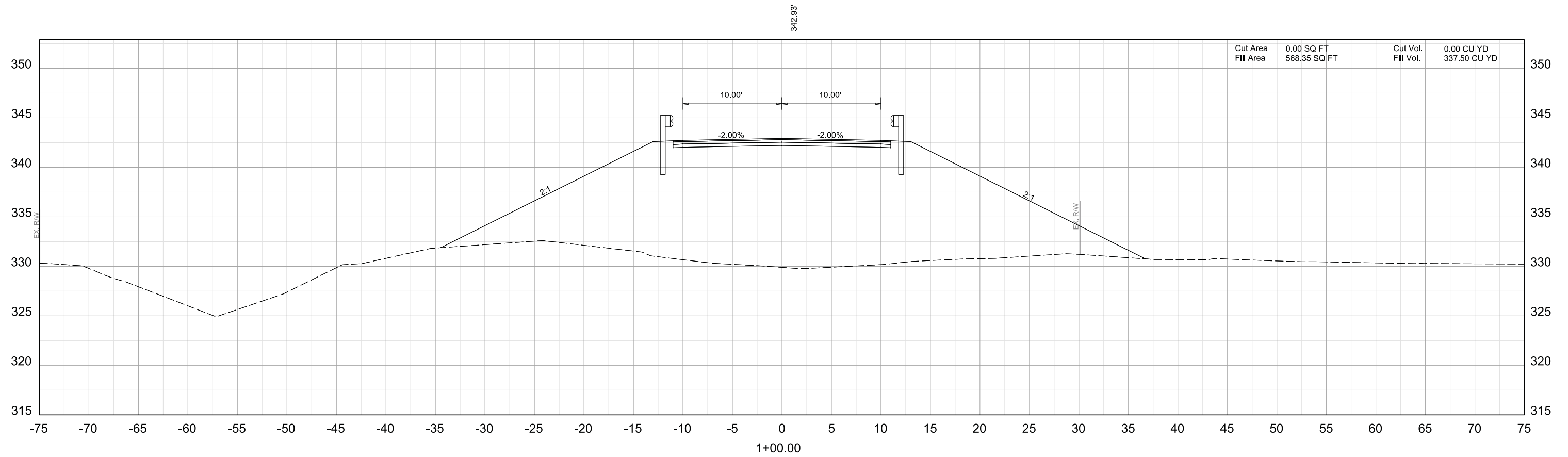
DRAWING TITLE: KY 295 OVER LIVINGSTON CREEK

HORIZONTAL SCALE
SCALE: 1" = 5'



STA. 0+40.00 TO STA. 0+60.00

ITEM NO.	COUNTY OF LYON
SHEET NO.	X02

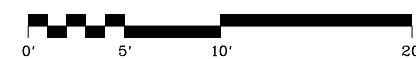


COMMONWEALTH OF KENTUCKY
DEPARTMENT OF HIGHWAYS



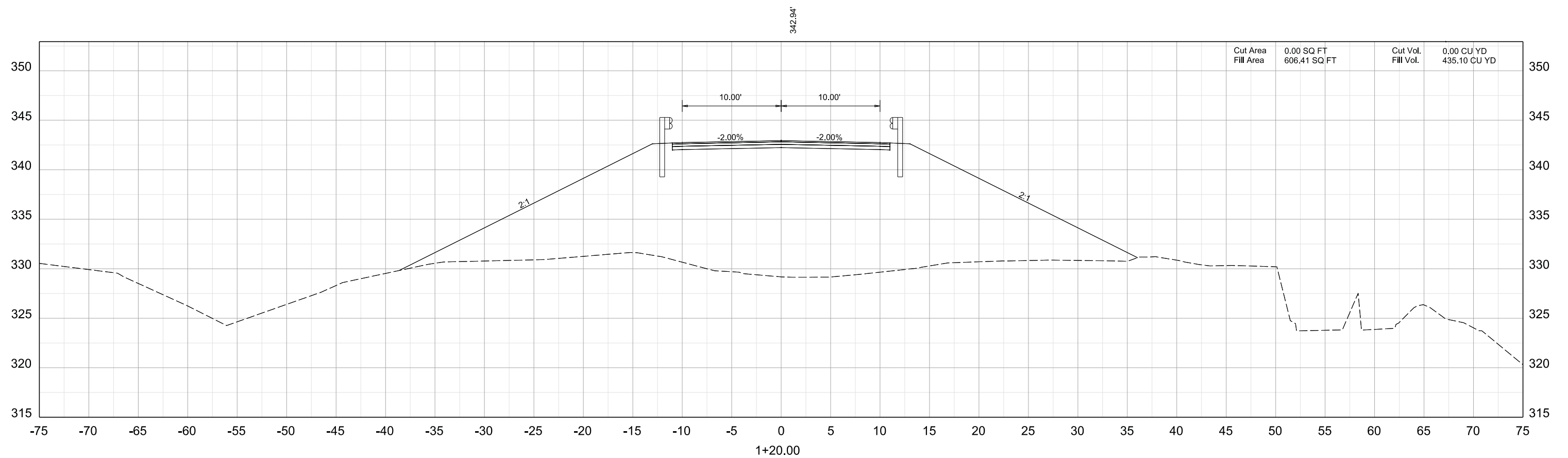
DRAWING TITLE: KY 295 OVER LIVINGSTON CREEK

HORIZONTAL SCALE
SCALE: 1" = 5'



STA. 0+80.00 TO STA. 1+00.00

ITEM NO.	COUNTY OF LYON
SHEET NO.	X03

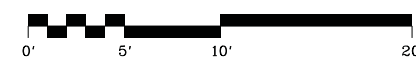


COMMONWEALTH OF KENTUCKY
DEPARTMENT OF HIGHWAYS



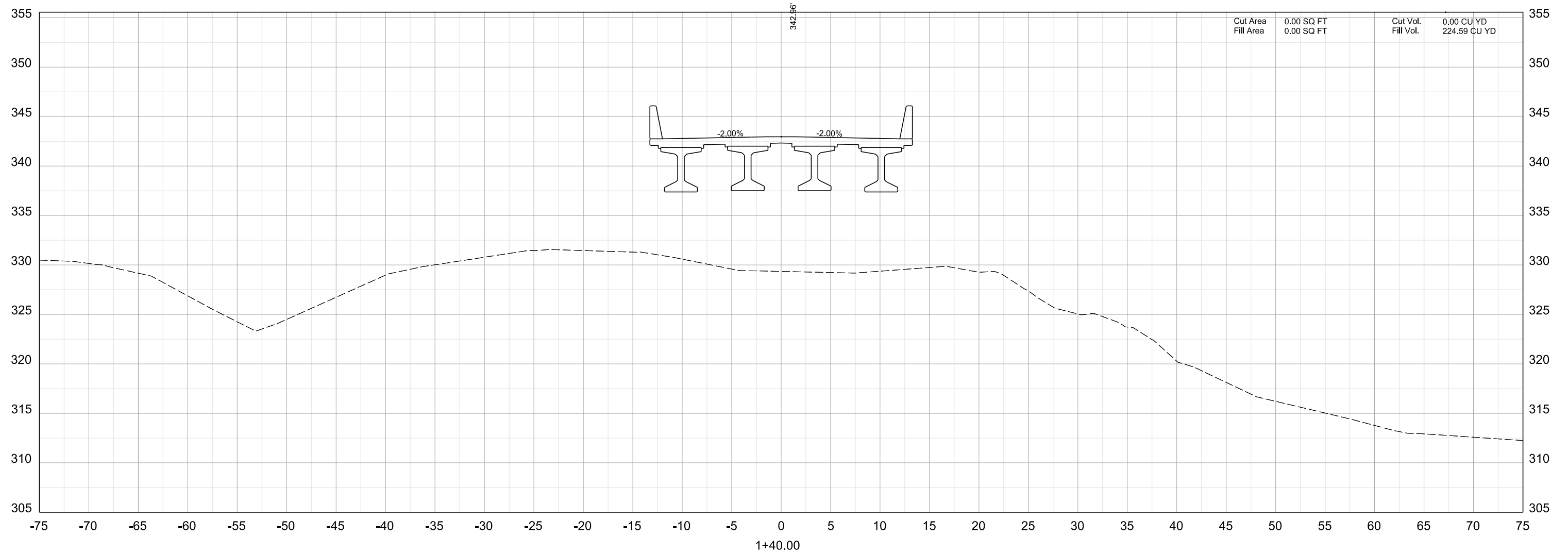
DRAWING TITLE: KY 295 OVER LIVINGSTON CREEK

HORIZONTAL SCALE
SCALE: 1" = 5'



STA. 1+20.00 TO STA. 1+20.00

ITEM NO.	COUNTY OF LYON
SHEET NO. X04	

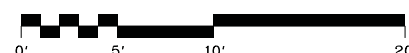


COMMONWEALTH OF KENTUCKY
DEPARTMENT OF HIGHWAYS



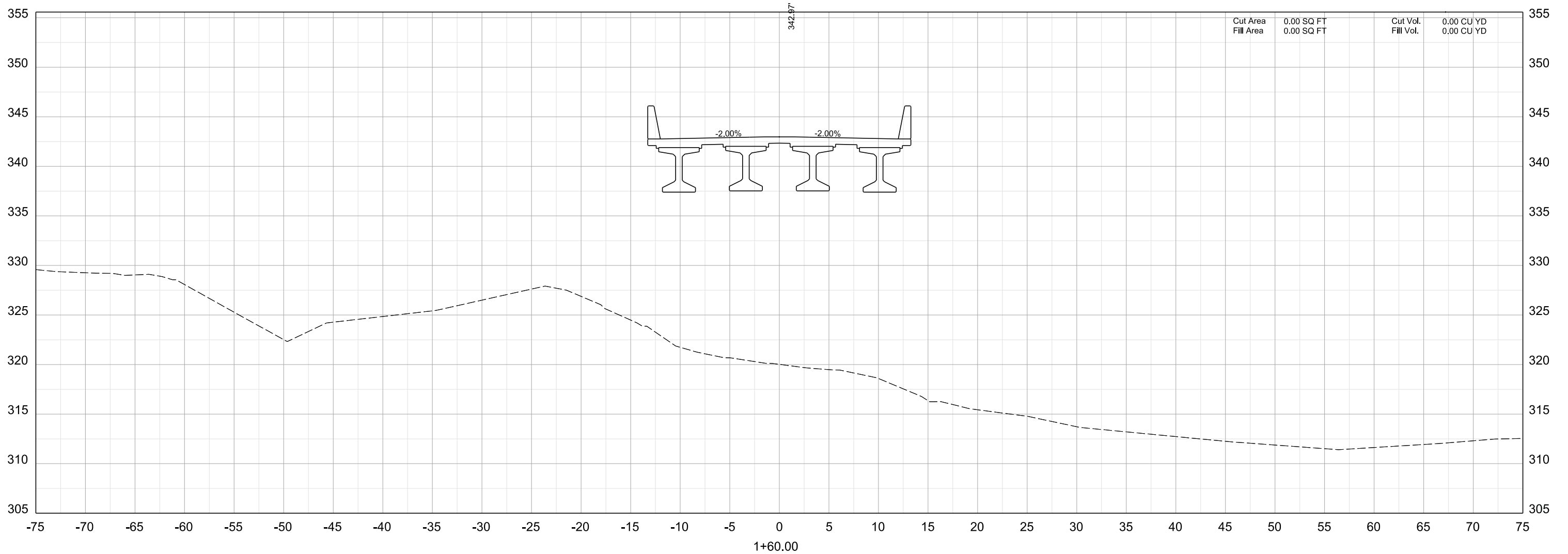
DRAWING TITLE: KY 295 OVER LIVINGSTON CREEK

HORIZONTAL SCALE
SCALE: 1" = 5'



STA. 1+40.00 TO STA. 1+40.00

ITEM NO.	COUNTY OF LYON
SHEET NO. X05	

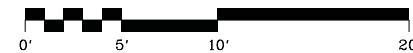


COMMONWEALTH OF KENTUCKY
DEPARTMENT OF HIGHWAYS



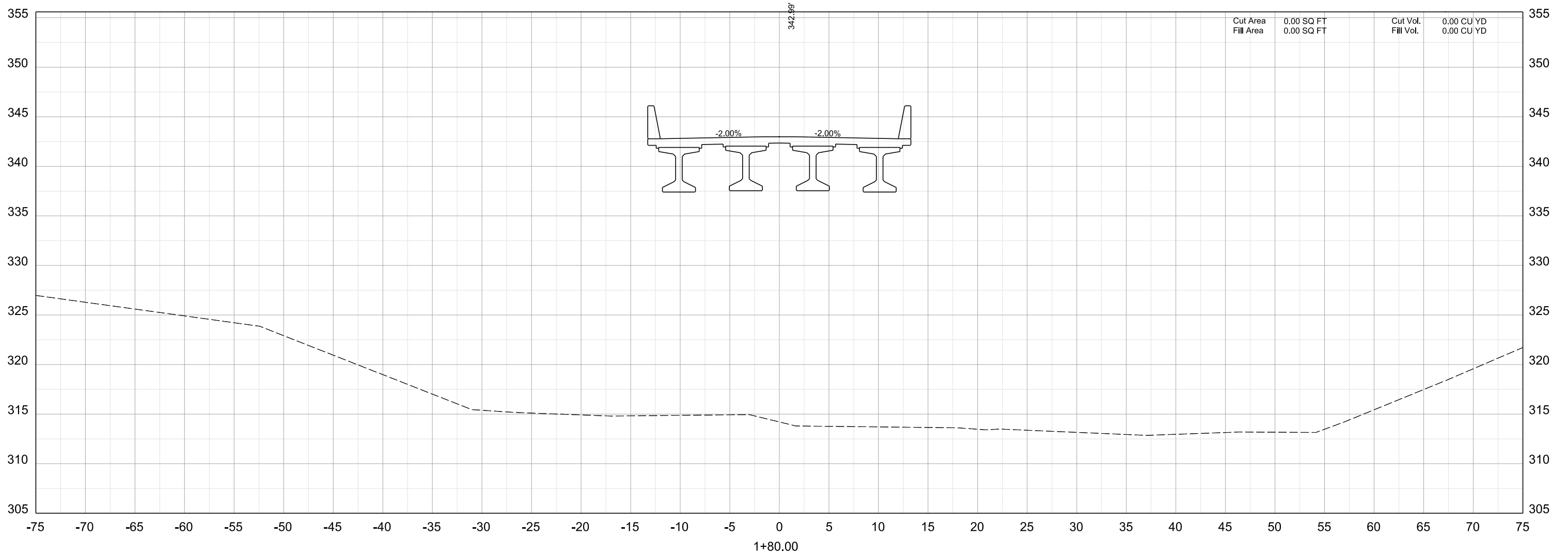
DRAWING TITLE: KY 295 OVER LIVINGSTON CREEK

HORIZONTAL SCALE
SCALE: 1" = 5'



STA. 1+60.00 TO STA. 1+60.00

ITEM NO.	COUNTY OF LYON
SHEET NO. X06	

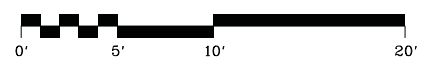


COMMONWEALTH OF KENTUCKY
DEPARTMENT OF HIGHWAYS



DRAWING TITLE: KY 295 OVER LIVINGSTON CREEK

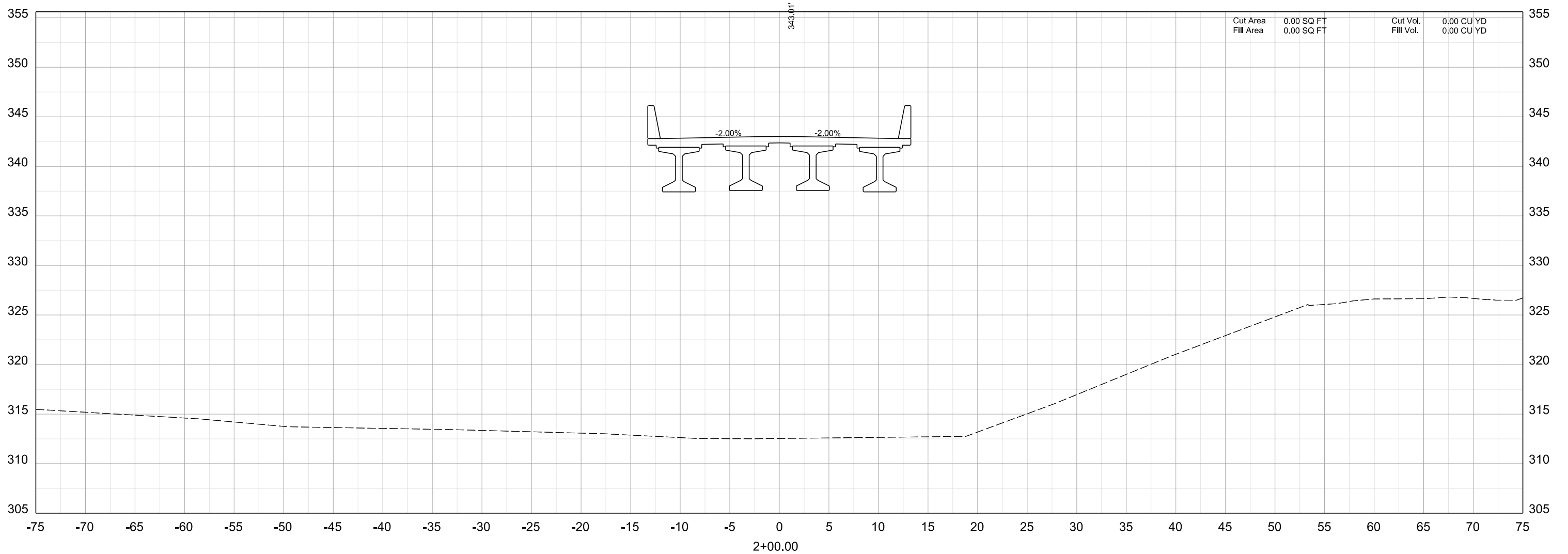
HORIZONTAL SCALE
SCALE: 1" = 5'



STA. 1+80.00 TO STA. 1+80.00

ITEM NO. COUNTY OF LYON

SHEET NO. X07

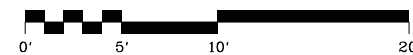


COMMONWEALTH OF KENTUCKY
DEPARTMENT OF HIGHWAYS



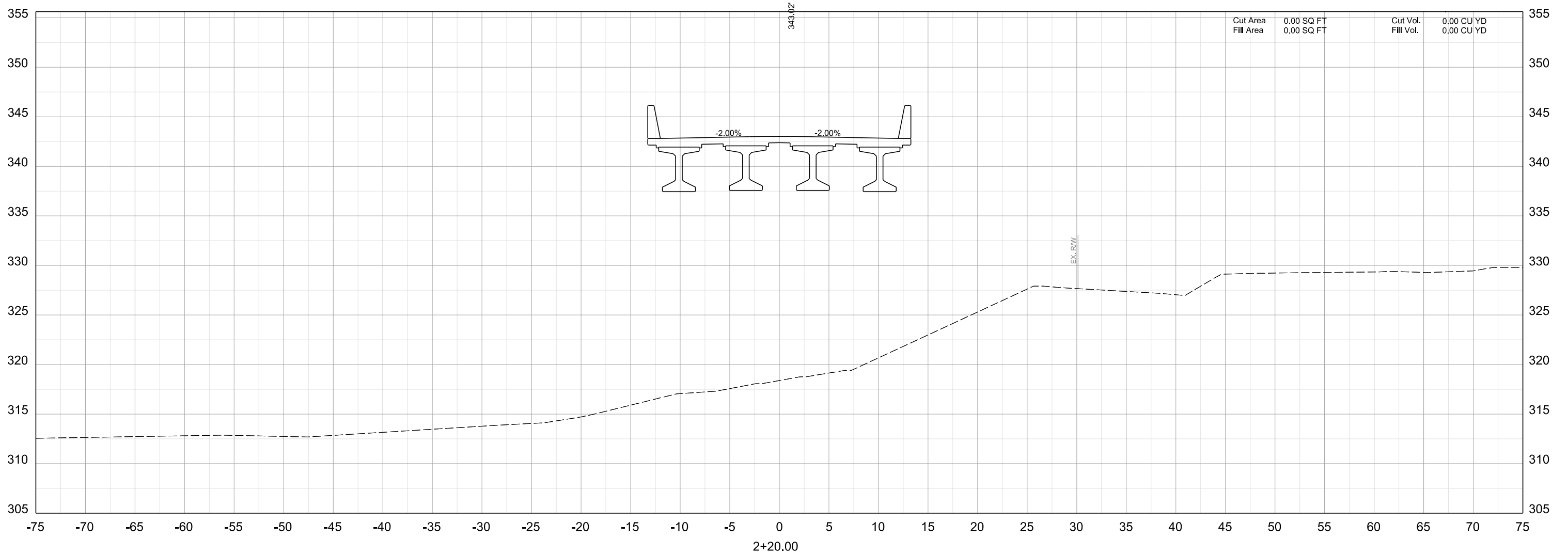
DRAWING TITLE: KY 295 OVER LIVINGSTON CREEK

HORIZONTAL SCALE
SCALE: 1" = 5'



STA. 2+00.00 TO STA. 2+00.00

ITEM NO.	COUNTY OF LYON
SHEET NO. X08	

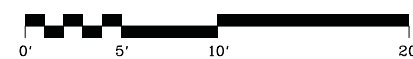


COMMONWEALTH OF KENTUCKY
DEPARTMENT OF HIGHWAYS



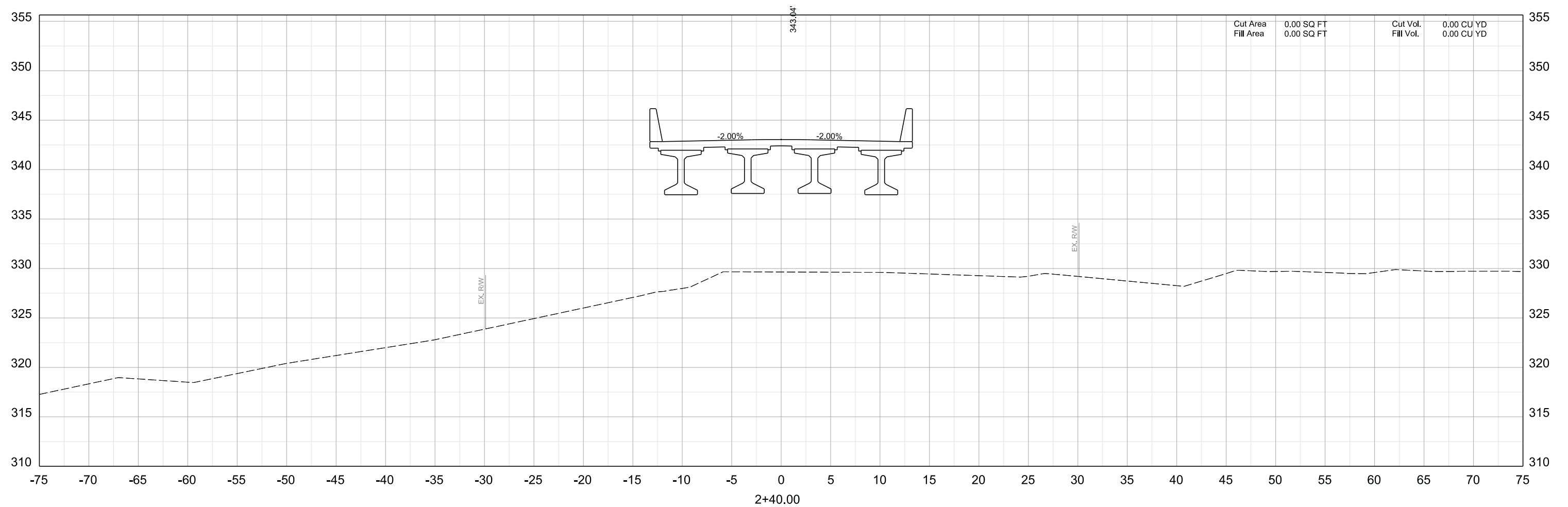
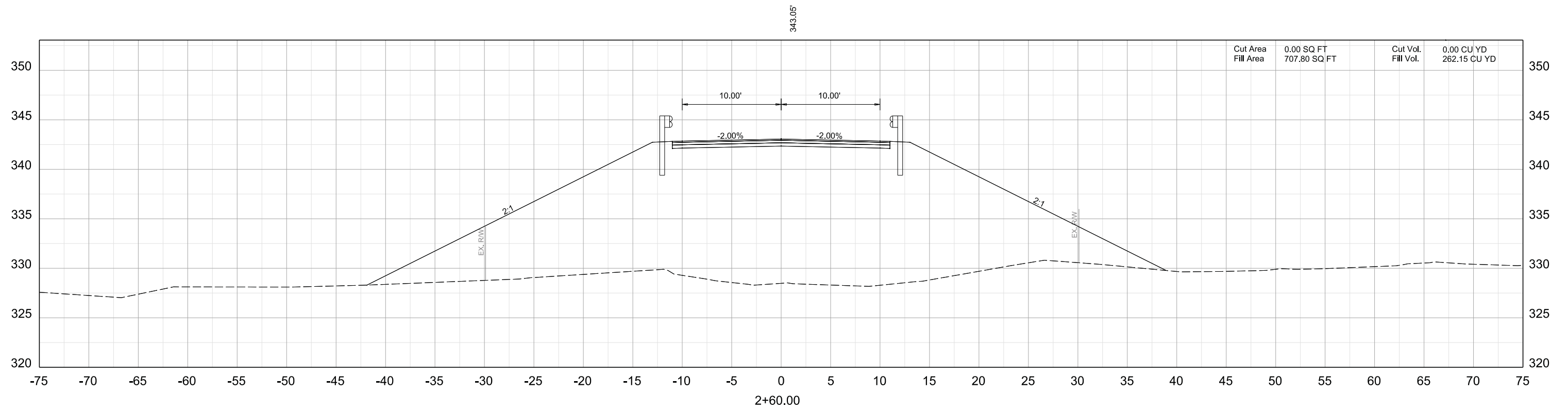
DRAWING TITLE: KY 295 OVER LIVINGSTON CREEK

HORIZONTAL SCALE
SCALE: 1" = 5'



STA. 2+20.00 TO STA. 2+20.00

ITEM NO.	COUNTY OF LYON
SHEET NO. X09	

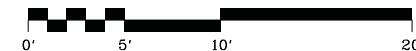


COMMONWEALTH OF KENTUCKY
DEPARTMENT OF HIGHWAYS



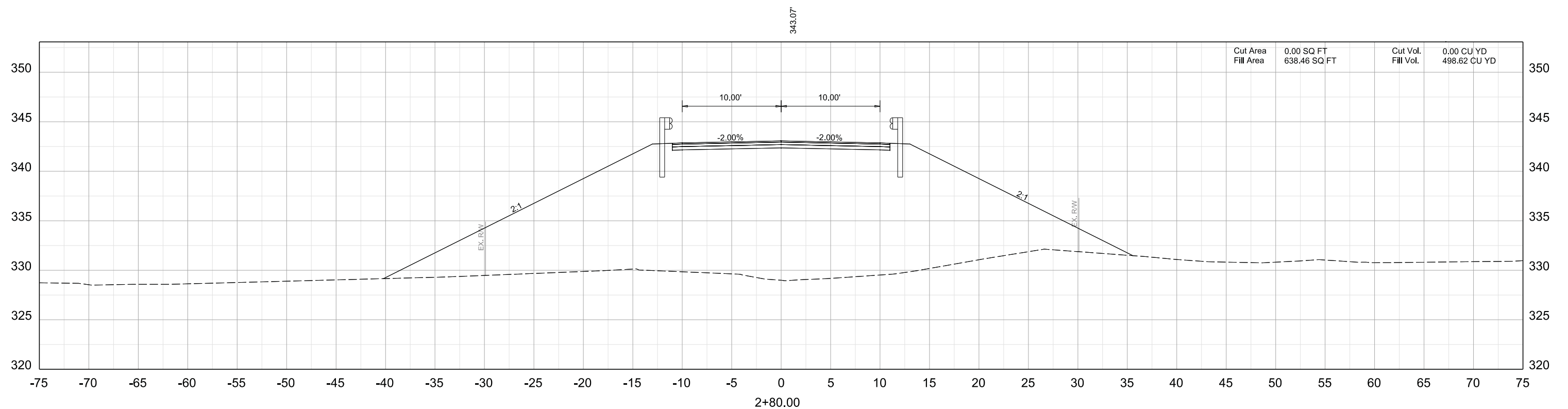
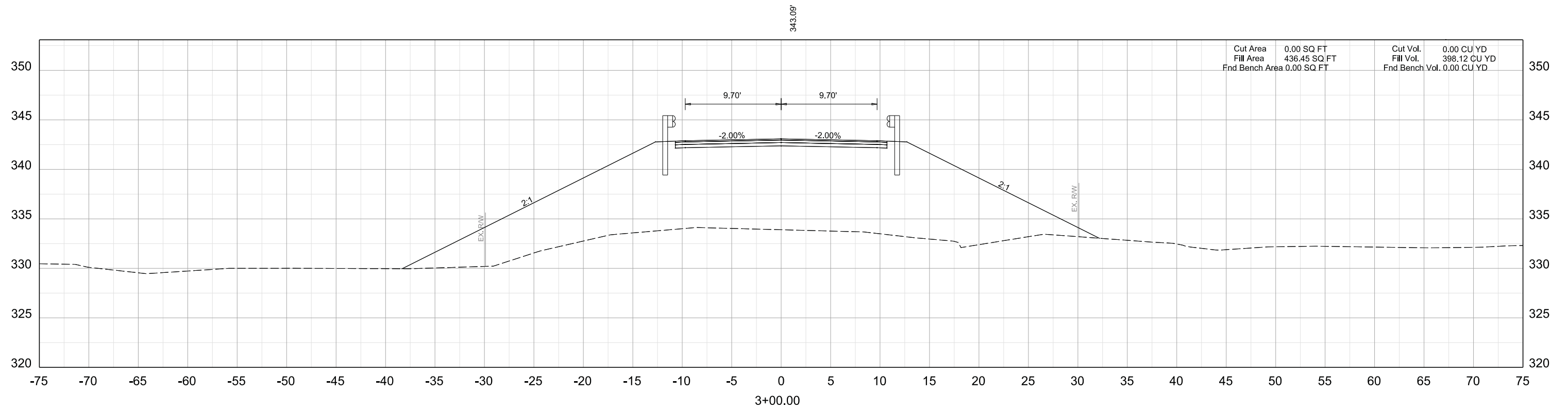
DRAWING TITLE: KY 295 OVER LIVINGSTON CREEK

HORIZONTAL SCALE
SCALE: 1" = 5'



STA. 2+40.00 TO STA. 2+60.00

ITEM NO.	COUNTY OF LYON
SHEET NO.	X10

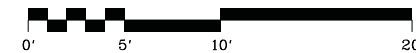


COMMONWEALTH OF KENTUCKY
DEPARTMENT OF HIGHWAYS



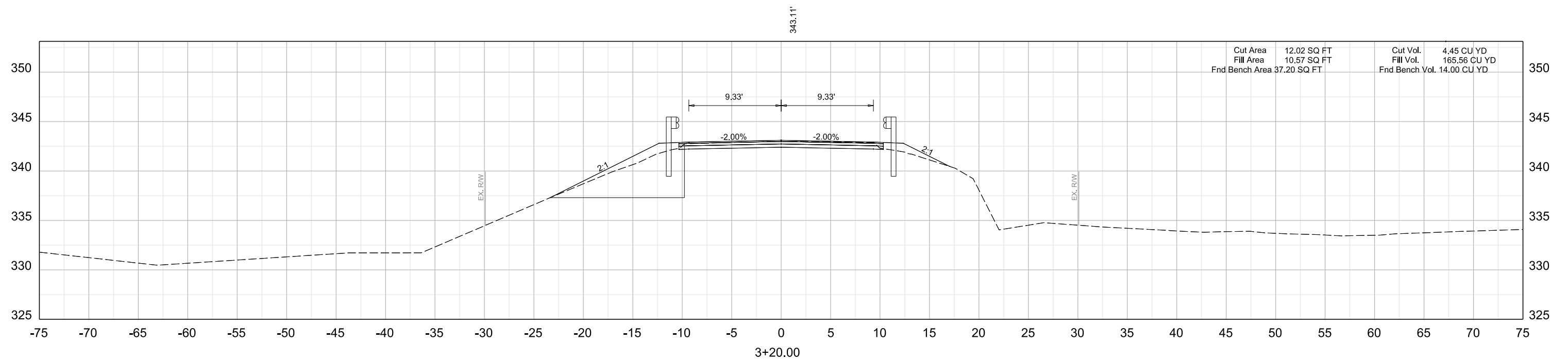
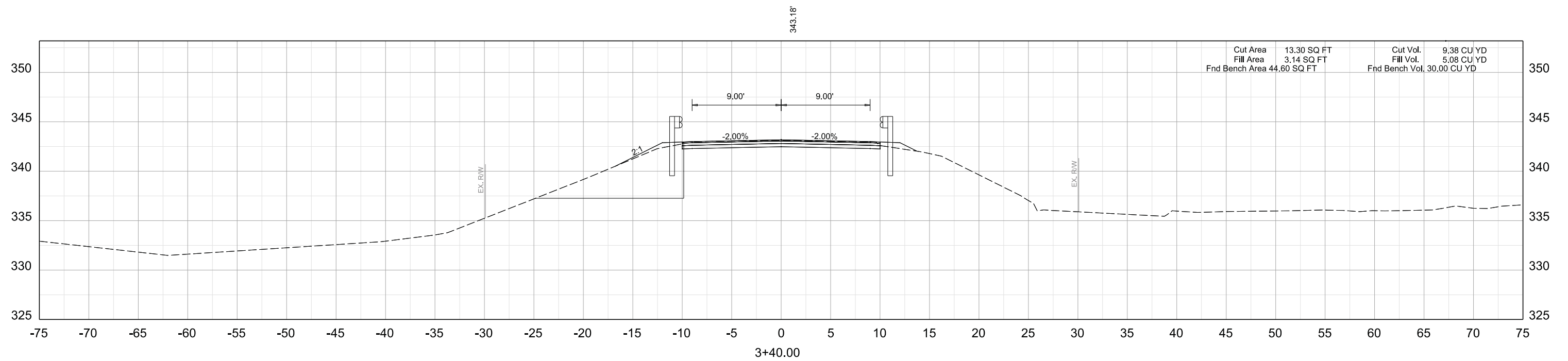
DRAWING TITLE: KY 295 OVER LIVINGSTON CREEK

HORIZONTAL SCALE
SCALE: 1" = 5'



STA. 2+80.00 TO STA. 3+00.00

ITEM NO.	COUNTY OF LYON
SHEET NO.	X11

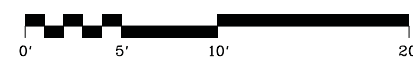


COMMONWEALTH OF KENTUCKY
DEPARTMENT OF HIGHWAYS



DRAWING TITLE: KY 295 OVER LIVINGSTON CREEK

HORIZONTAL SCALE
SCALE: 1" = 5'



STA. 3+20.00 TO STA. 3+40.00

ITEM NO.	COUNTY OF LYON
SHEET NO.	X12

