

TRANSPORTATION CABINET DEPARTMENT OF HIGHWAYS

WOLFE-MORGAN COUNTIES RAMP D OVER RED RIVER STA. 58 + 96.50

FILE NAME: I:\LEX\PRJ\00008298\DESIGN\STRUCTURES\FINAL DESIGN\STAGE II FINAL SUBMITTAL - REV 10-11-16\S27082_001.DGN
 LETTING DATE
 CONSTRUCTION PROJECT NO.
 USER: breid
 DATE PLOTTED: October 11, 2016
 E-SHEET NAME:
 MicroStation v8.11.9.714

ESTIMATE OF QUANTITIES																			
BID ITEM CODE	08100	08104	08150	08151	08001	08019	02231	02998	08046	08033	08094	08634	03299	21532ED	21420ED	21421ED	20745ED	20746ED	23813EC
BID ITEM	Concrete Class "A"	Concrete Class "AA"	Steel Reinforcement	Steel Reinforcement, Epoxy Coated	Structure Excavation, Common	Cyclopean Stone Rip Rap	Structure Granular Backfill	Masonry Coating	Piles - Steel HP 12 x 53	Test Piles	Pile Points 12 Inch	Precast PC I-Beam Type 4	Armored Edge for Concrete	Railing System Type 3	Drilled Shaft 66" (Common)	Drilled Shaft 60" (Rock)	Rock Soundings	Rock Corings	Deck Drain
UNIT	C.Y.	C.Y.	LBS.	LBS.	C.Y.	Tons	C.Y.	S.Y.	L.F.	L.F.	EA.	L.F.	L.F.	L.F.	L.F.	L.F.	L.F.	L.F.	EA.
Integral End Bent #1	19.1	26.5		3792	74	683	74	30	154	41	6								
Pier #1	45.1	11.7	7077	72	38			54							38	16	38	46	
Pier #2	50.4	11.7	7827	72	40			54							37	16	37	46	
Integral End Bent #2	19.0	26.1		3769	62	755	72	30	139	48	6								
Substructure																			
Superstructure		121.3		40646				615				642.5	61	331					5
BRIDGE TOTALS	133.6	197.3	14904	48351	214	1438	146	783	293.0	89	12	642.5	61	331	75	32	75	92	5


INDEX OF SHEETS	
Sheet No.	Description
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SPECIAL NOTES	
11C	Drilled Shafts

SPECIAL PROVISIONS	
69	Embankment at Bridge End Bent Structures

STANDARD DRAWINGS	
BBP-002-04	Bearing Details
BCX-006-10	Stencils for Structures
BCX-012-02	Geotechnical Legend
BCX-015-03	Bridge Drains
RGX-100-06	Treatment of Embankment at End Bents
RGX-105-08	Treatment of Embankment at End Bents
BJE-001-13	Neoprene Expansion Dams and Armored Edges
BPS-003-09	HP12x53 Steel Pile

SPECIFICATIONS	
2012	Standard Specifications for Road and Bridge Construction.
2012	AASHTO LRFD Bridge Design Specifications, 6th Edition

Plans Prepared By: H. W. LOCHNER, INC.	
 Bryan C. Reid, P.E. KY. No. 27998	
COMMONWEALTH OF KENTUCKY DEPARTMENT OF HIGHWAYS COUNTY WOLFE-MORGAN	
ROUTE RAMP D	CROSSING RED RIVER
TITLE SHEET	
ITEM NUMBER 10-126.70	PREPARED BY LOCHNER H. W. LOCHNER, INC. LEXINGTON, KENTUCKY
	SHEET NO. S1 DRAWING NO. 27082

GENERAL NOTES

SPECIFICATIONS: References to the Specifications are to the current edition of the Kentucky Department of Highways Standard Specification for Road and Bridge Construction including any current Supplemental Specification. All references to the AASHTO Specifications are to the sixth edition of the AASHTO LRFD Bridge Design Specifications for Highway Bridges.

DESIGN LOAD AND METHOD: This bridge is designed for KY HL-93 live load. The KY HL-93 live load is arrived at by increasing the Standard KY HL-93 truck and lane loads as specified in the AASHTO Specifications by 25%. All reinforced concrete members are designed by the load and resistance factor method as specified in the current AASHTO Specification.

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

FUTURE WEARING SURFACE: This bridge is designed for a 60 psf future wearing surface.

MATERIALS DESIGN SPECIFICATION:

FOR CLASS "A" REINFORCED CONCRETE	F'C = 3500 PSI
FOR CLASS "AA" REINFORCED CONCRETE	F'C = 4000 PSI
FOR STEEL REINFORCEMENT	FY = 60000 PSI
FOR STEEL PILING	FY = 50000 PSI

CONCRETE: Use Class "AA" concrete in the superstructure deck, parapet, and diaphragms. Class "A" Concrete is to be used in substructure. Prestressed girder concrete shall be in accordance with the plans and specifications.

REINFORCEMENT: Dimensions shown from the face of concrete to bars are to center of bars unless otherwise shown. Spacing is from center to center of bars. Clear distance to face of concrete is 2", unless otherwise noted. Epoxy coat bars designated by suffix (e) in accordance with Section 811.10 of the Standard Specifications. Use stirrup bend diameters for bars designated by suffix (s) in a Bill of Reinforcement.

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

SHOP DRAWINGS: Submit shop drawings that are required by the plans and specifications directly to the Bridge Consultant. If any changes in the design plans are proposed by a fabricator of supplier, submit those changes to the Bridge Consultant through the Contractor. The Bridge Consultant shall provide a copy of the final approved shop plans to the Division of Structural Design.

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

SLOPE PROTECTION: Use dry cyclopean stone in accordance with the plans and Specifications. Geotextile Fabric is to be incidental to this item.

MASONRY COATING: Apply masonry coating to the concrete surfaces as specified in Section 601.03.18 (B).

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 shown on the Foundation Layout Sheet.

PILING: Piling shall be driven to refusal. Test piles shall be driven where designated on the plans to determine the length of pile required. All test piles shall be accurately located so they may be used in the structure.

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.

SPIRAL COLUMN TIES: Splices for spirals where desired by the contractor shall be made with a minimum of one and one-half turns of spiral. No additional payment will be made for these splices, and the cost will be considered incidental to the cost of the developed-length of spiral shown on the plans. Spiral reinforcement shall meet the requirements of subsection 811.02.01 of the Specifications.

The length shown in the bill of reinforcement for spirals is the distance from top of footing to bottom layer of reinforcement in the pier cap. The number of turns shown is the length divided by the pitch, plus 3 turns (total number of closed coils) expressed to the nearest whole number. One and one-half closed coils shall be provided at the ends of each spiral unit. 4 channel, tee or angle spacers, weighing approximately 0.8 lbs. per linear foot of spacer, shall be provided for each spiral unit. They shall be equally spaced along the periphery of the coil. Weight of spiral reinforcement is included in the estimate of quantities for each pier.

POURING SEQUENCE: The pouring sequence of the slab may not be changed without the written approval of the Engineer.

EXISTING BRIDGE: Construction of the Ramp D Bridge may require removal of the existing piling at the abutments and pier locations.

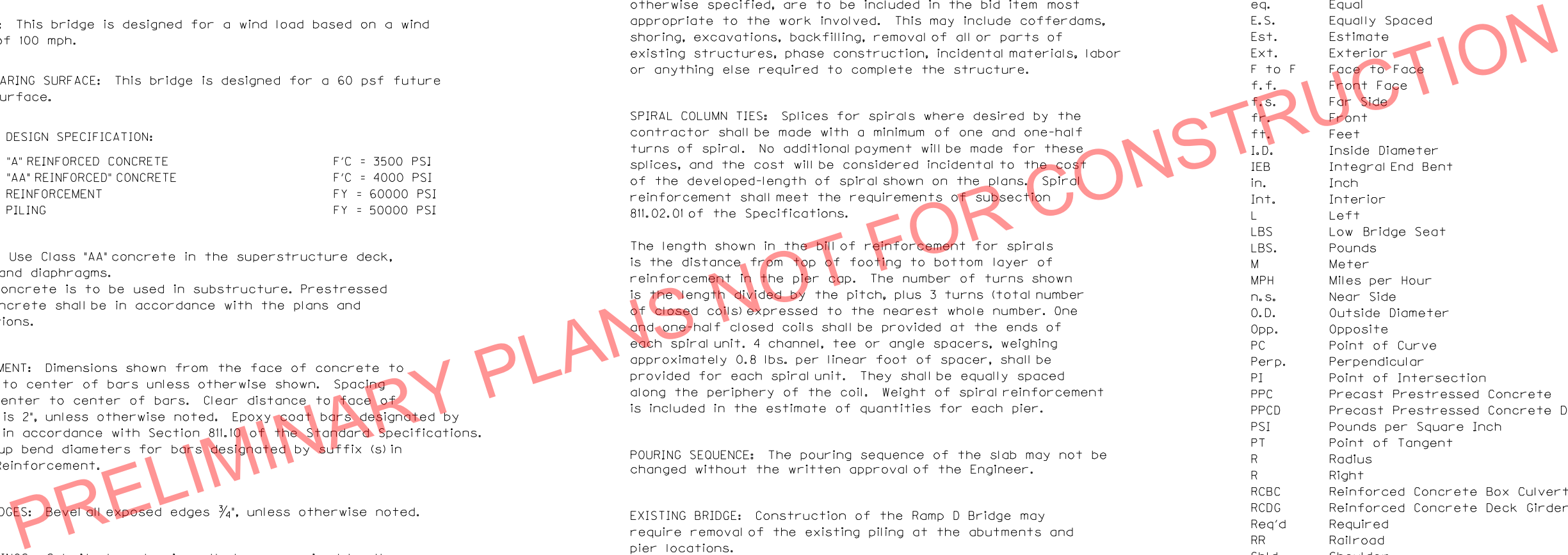
END BENT CONSTRUCTION: Geotextile fabric and perforated pipe installed in accordance to Special Provision 69 shall be considered incidental to unit price bid for Structure Granular Backfill.

GEOTECHNICAL INFORMATION: Additional information can be found in geotechnical report S-018-2014.

CONSTRUCTION IDENTIFICATION: The names of the prime contractor and any sub-contractors shall be imprinted in the concrete with Standard Drawing BGX-006 c.e. at a location designated by the Engineer. The contractor shall furnish all plans, equipment, and labor necessary to do the work for which no direct payment will be made.

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

bet.	Between
b.f.	Back Face
B0F	Bottom of Footing
bot.	Bottom
Brg.	Bearing
C to C	Center to Center
c.e.	Current Edition
C.Y.	Cubic Yard
Chd.	Chord
CL	Center Line
Cl.	Clear
Conc.	Concrete
Cu.	Cubic
Dwg.	Drawing
e.f.	Each Face
El.	Elevation
eq.	Equal
E.S.	Equally Spaced
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
IEB	Integral End Bent
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 Curve
Perp.	Perpendicular
PI	Point of Intersection
PPC	Precast Prestressed Concrete
PPCD	Precast Prestressed Concrete Deck Unit
PSI	Pounds per Square Inch
PT	Point of Tangent
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
Tot.	Total
Typ.	Typical
Vert.	Vertical
W.P.	Working Point
Yd.	Yard



FILE NAME: I:\LEX\PRJ\000008298\DESIGN\STRUCTURES\FINAL DESIGN\STAGE II\FINAL SUBMITTAL\27082\002.DGN

USER: dsmithson
DATE PLOTTED: October 11, 2016

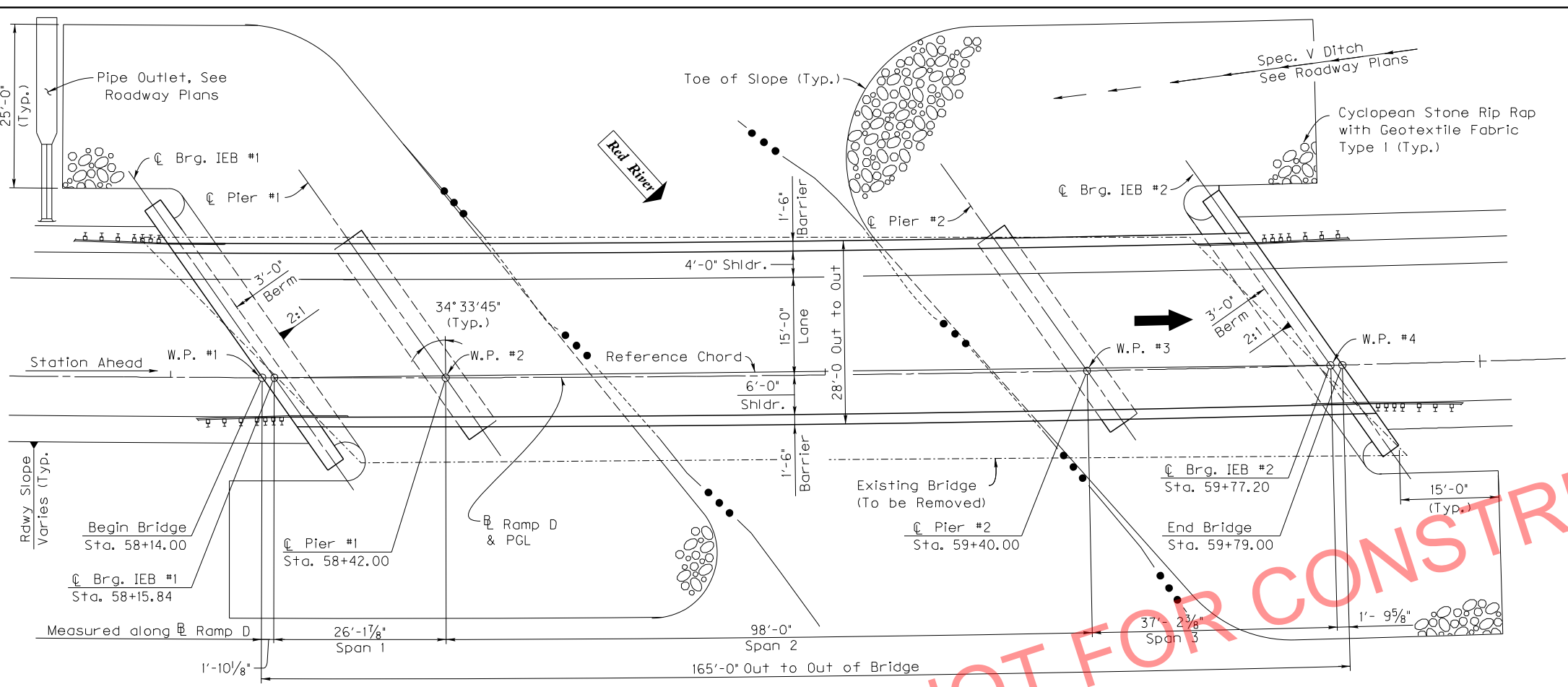
E-SHEET NAME:

MicroStation v8.11.9.459

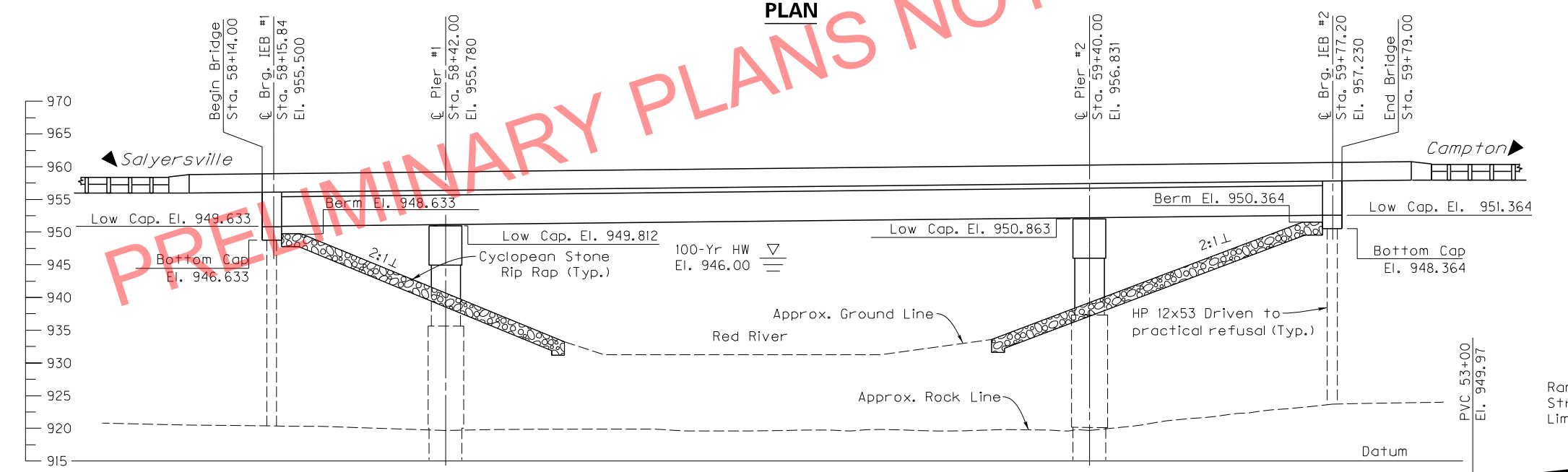
REVISION	
DATE	
DATE: June, 2016	CHECKED BY
DESIGNED BY: B.C. REID	W.D. BURTON
DETAILED BY: W.R. ABBOTT	W.D. BURTON
Commonwealth of Kentucky DEPARTMENT OF HIGHWAYS	
WOLFE-MORGAN	
ROUTE RAMP D	CROSSING RED RIVER
GENERAL NOTES	
PREPARED BY LOCHNER	
H. W. LOCHNER, INC. LEXINGTON, KENTUCKY	
SHEET NO. S2	DRAWING NO. 27082

ITEM NUMBER
10-126.70

FILE NAME: I:\LEX\PRJ\00008298\DESIGN\STRUCTURES\FINAL DESIGN\STAGE II FINAL SUBMITTAL\27082\27082.003.DGN
 USER: breid
 DATE PLOTTED: October 11, 2016
 E-SHEET NAME: 18.11.9.714
 MicroStation v8.11.9.714



PLAN



ELEVATION

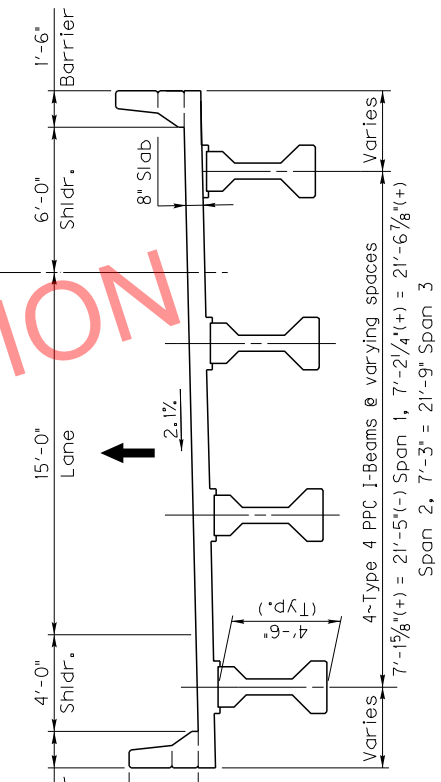
26'-1 7/8" ~ 98'-0" ~ 37'-2 3/8"
 Type 4 PPC Beam I-Beam
 KY HL-93 Live Load ~ Continuous for Live Load
 33'-0" Shoulder Width @ Bridge
 25'-0" Roadway Width @ Bridge
 Skew Varies ~ 2:1 Fill Slopes

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. All geotextile fabric, if required, shall be incidental to structure granular backfill.

RAMP D CURVE DATA

PI STA 60+80.75
 $\Delta = 10^\circ 17' 49''$ LT
 T = 513.12'
 L = 1023.47'
 R = 5695.00'
 E = 23.07'
 e = 2.10%
 Runoff = 63.00'
 Runout = 60.00'



TYPICAL SECTION
(Station Ahead)

TOE OF SLOPE DETAIL

REVISION	DATE

DATE: June, 2016
 DESIGNED BY: B.C. REID
 CHECKED BY: W.D. BURTON
 DETAILED BY: D.M. SMITHSON
 B.C. REID

Commonwealth of Kentucky
 DEPARTMENT OF HIGHWAYS

COUNTY
WOLFE-MORGAN

ROUTE	CROSSING
RAMP D	RED RIVER

LAYOUT

PREPARED BY
LOCHNER
 H.W. LOCHNER, INC.
 LEXINGTON, KENTUCKY

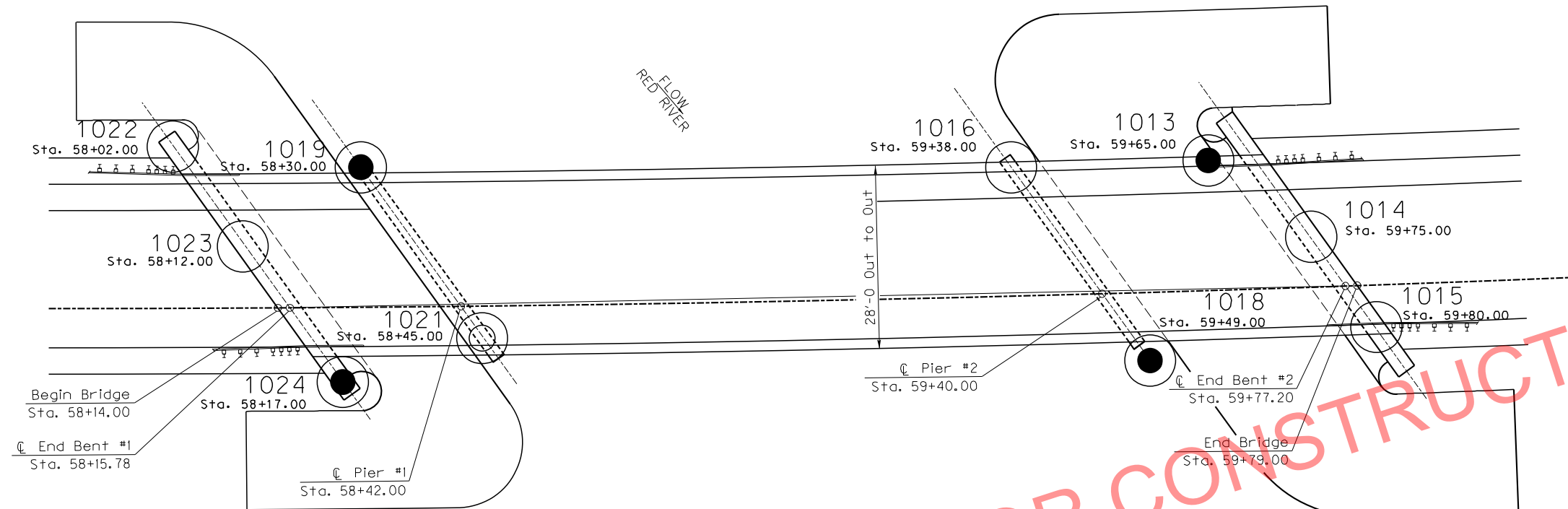
SHEET NO.
S3
 DRAWING NO.
27082

**RAMP D
 VERTICAL CURVE DATA**

ITEM NUMBER
10-126.70

SUBSURFACE DATA

Plan Scale 1" = 10'



● CORE BORING ○ SOUNDING ⊙ SAMPLING

PRELIMINARY PLANS NOT FOR CONSTRUCTION

Hole No. Station Offset Elev. (NAVD 88 datum)

1015	59+83.00	8.0' Rt.	954.03
1014	59+75.00	9.0' Lt.	953.28

END BENT #2
APPROXIMATE ROADWAY GRADE ELEV. = 957.23

1013	59+81.00	21.0' Lt.	952.67
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PIER #2
APPROXIMATE ROADWAY GRADE ELEV. = 956.83

1018	59+49.00	29.0' Rt.	939.78
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Profile Scale:
Vertical 1" = 10'
Horizontal not to scale

USER: dsmithson
DATE PLOTTED: October 11, 2016
E-SHEET NAME:
MicroStation v8.11.9.459

W%	LI	D50	D95	SDI (JS)
12		2.978	16.531	N=5, A-1-B(0), SM
15		0.091	5.420	N=13, A-4(0), SM, S+C=46(26+20)
13		0.079	0.362	N=11, A-4(0), SM, S+C=49(33+16)
25		0.148	0.408	N=5, A-2-4(0), SM, S+C=20(14+6)
16	-0.735	0.012	1.679	N=12, A-4(7), CL, S+C=80(58+22)
10				N=R/0.20' [Cored OB]
60	95			(923.47 - 922.67) Weathered shale, fine grained, mica, medium gray
90	100			(922.67 - 918.47) Shale, trace coal, mica, planar partings, medium gray
90	100			(918.47 - 913.47) Shale, siltstone intervals, fine grained, mica, planar partings, light to medium gray

Top of rock elev. = 923.50
Base of weathered rock elev. = 922.67

W%	LI	D50	D95	SDI (JS)
18		-	-	N=5
26		0.209	1.290	N=2, A-3(0), SP, S+C=3(3+0)
26		0.209	1.290	N=3, A-3(0), SP, S+C=3(2+1)
22		0.204	1.637	N=3, A-3(0), SP-SM, S+C=10(5+5)
0	100			90 (6) (919.28 - 917.28) Weathered shale, fine grained, mica, planar partings, light gray
43	100			96 (6) (917.28 - 909.28) Shale with siltstone
70	100			

Top of rock elev. = 919.28
Base of weathered rock elev. = 917.28

REVISION	DATE

DATE: June, 2016	CHECKED BY:
DESIGNED BY:	J. GODFREY
DETAILED BY: S. ANDREWS	

Commonwealth of Kentucky DEPARTMENT OF HIGHWAYS	
WOLFE-MORGAN	
ROUTE RAMP D	CROSSING RED RIVER
SUBSURFACE DATA	
PREPARED BY K.S. WARE & ASSOCIATES, LLC	SHEET NO. S4 DRAWING NO. 27082

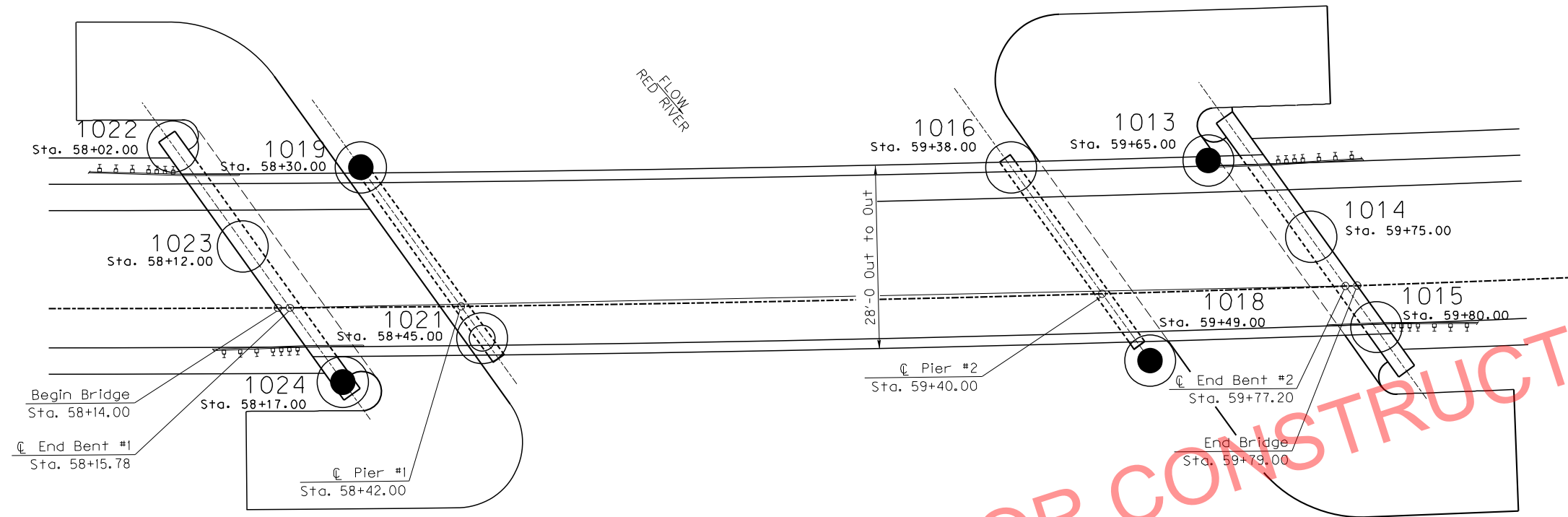
S-018-2014

ITEM NUMBER	10-126.70
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SHEET 1 OF 3

SUBSURFACE DATA

Plan Scale 1" = 10'



● CORE BORING ○ SOUNDING ○ SAMPLING

PRELIMINARY PLANS NOT FOR CONSTRUCTION

Hole No. Station Offset Elev. (NAVD 88 datum)

Hole No.	Station	Offset	Elev.
1016	59+28.00	6.0' Lt.	939.80
1021	58+45.00	8.0' Rt.	938.63
1019	58+30.00	13.0' Lt.	938.80

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

USER: demitson
DATE PLOTTED: October 11, 2016

MicroStation v8.11.9.459

W%	LI	D50	D95
16		0.137	0.411
15			
30		0.200	1.481
27		0.118	0.793
19	-0.206	0.037	0.503

W%	LI	D50	D95
21		0.141	0.397
28		0.211	1.420
25		0.336	1.693
21	0.34	0.018	0.404
39		0.106	1.775

KY	RQD	REC
40	100	
93	100	
66	100	

SDI (JS)	Description
A-2-4(0), SM, S+C-22(13+9)	
N=2, A-3(0), SP-SM, S+C-7(3+4)	
N=1, A-2-4(0), SM, S+C=27(13+14)	
N=5, A-4(1), CL-ML, S+C-68(45+23)	
N=R/5', A-4(0), SM, S+C-42(29+13) [Cored OB]	
(919.30 - 918.30) Weathered shale, mica, fine grained, planar partings, light gray	
95 (6) (918.30 - 917.30) Siltstone, mica, fine grained, planar partings, light gray	
96 (6) (917.30 - 909.30) Shale, with siltstone, mica, fine grained, planar partings, light to medium gray	

Top of rock elev. = 919.3
Base of weathered rock elev. = 918.3

REVISION	DATE

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

COUNTY
WOLFE-MORGAN

ROUTE CROSSING
RAMP D RED RIVER

SUBSURFACE DATA

PREPARED BY
K.S. WARE & ASSOCIATES, LLC

SHEET NO.
S5

DRAWING NO.
27082

SHEET 2 OF 3

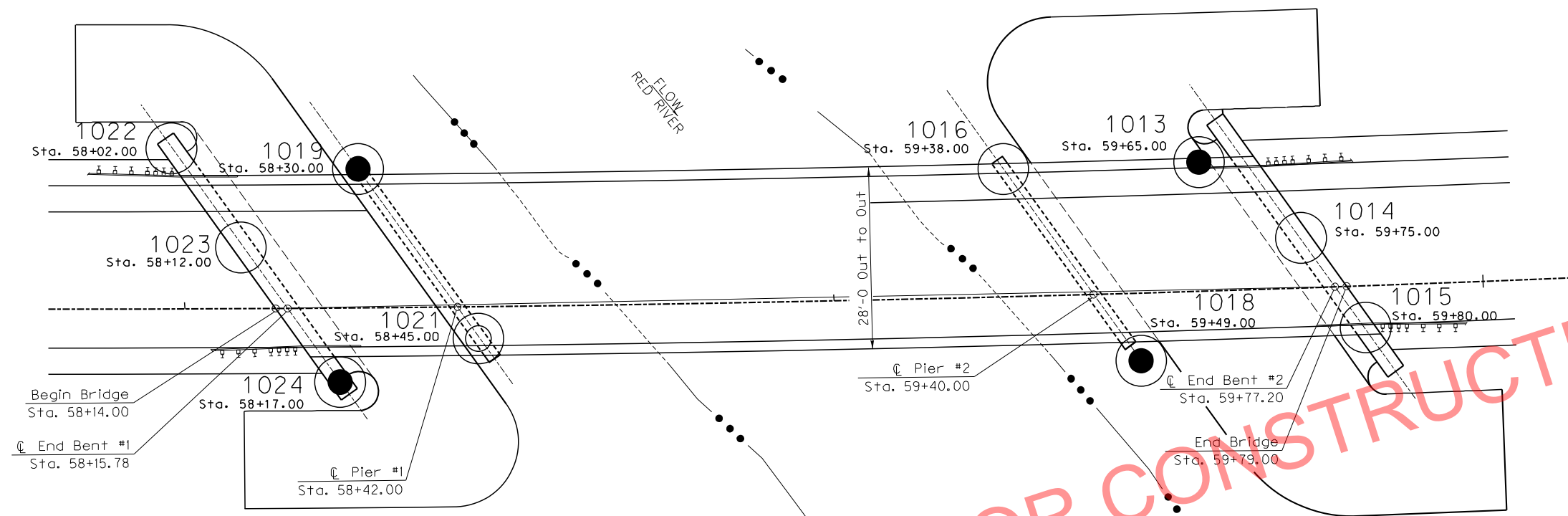
S-018-2014

ITEM NUMBER

10-126.70

SUBSURFACE DATA

Plan Scale 1" = 10'



● CORE BORING ○ SOUNDING ○ SAMPLING

PRELIMINARY PLANS NOT FOR CONSTRUCTION

Hole No. Station Offset Elev. (NAVD 88 datum)

1024
58+17.00
8.0' Rt.
952.92

1023
58+04.00
9.0' Lt.
952.34

1022
58+00.00
18.0' Lt.
952.52

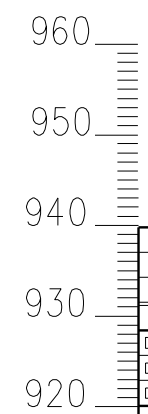
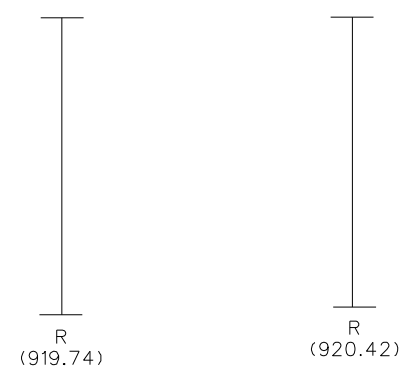
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Vertical 1" = 10'
Horizontal not to scale

END BENT #1
APPROXIMATE ROADWAY GRADE ELEV. = 955.50

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W/L	LI	D50	D95	SDI (JS)	
15		0.009	0.061		N=4, A-4(0), GM, S+C=100(87+13)
15		-	-		N=7
13		0.084	0.369		N=4, A-4(0), SM, S+C=47(31+16)
29		0.443	1.721		N=1, A-2-4(0), SM, S+C=30(25+5)
30	4.49	0.056	3.758		N=7, A-4(0), ML, S+C=53(33+20)
22		0.193	6.732		N=10, A-2-4(0), SM, S+C=19(13+6)
KY RQD	REC				(919.32 - 917.32) Weathered sandstone and shale, micaceous minerals, fine grained, planar partings, light gray
15	80				(917.32 - 914.32) Shale, mica, fine grained, planar partings, gray
100	100				(914.32 - 909.32) Shale with siltstone, mica, fine grained, planar partings, gray
100	100				

Top of rock elev. = 919.32
Base of weathered rock elev. = 917.32



SHEET 3 OF 3

S-018-2014

ITEM NUMBER	10-126.70
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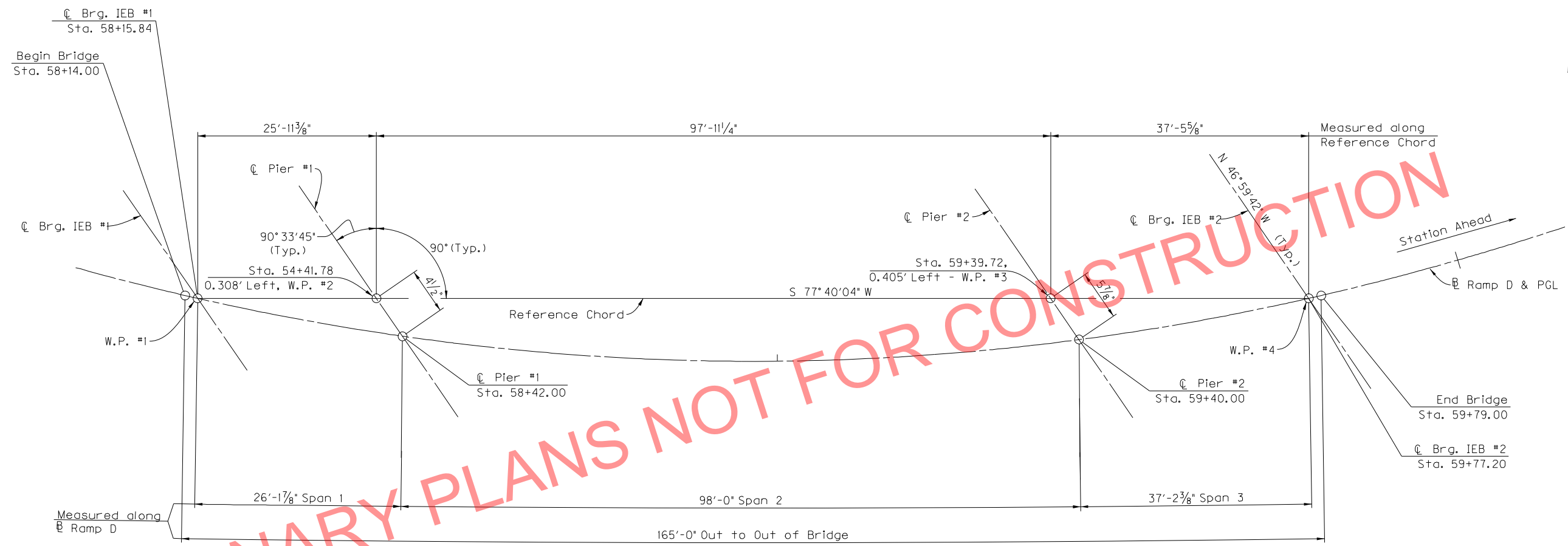
REVISION		DATE
DATE: June, 2016	CHECKED BY:	
DESIGNED BY:	J. GODFREY	
COMMONWEALTH OF KENTUCKY DEPARTMENT OF HIGHWAYS COUNTY WOLFE-MORGAN		
ROUTE RAMP D	CROSSING RED RIVER	
SUBSURFACE DATA		
PREPARED BY		SHEET NO.
K.S. WARE & ASSOCIATES, LLC		27082
		DRAWING NO.
		S6

FILE NAME: I:\LEX\PRJ\00008298\DESIGN\STRUCTURES\FINAL DESIGN\STAGE II FINAL SUBMITTAL\27082\S27082_007.DGN

USER: dsmitthson
DATE PLOTTED: October 11, 2016

E-SHEET NAME:

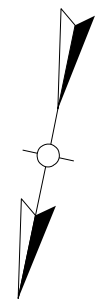
MicroStation v8.11.9.459



GEOMETRIC LAYOUT

(Curvature Exaggerated for Clarity)

REVISION	
DATE: June, 2016	CHECKED BY
DESIGNED BY: B.C. REID	W.D. BURTON
DETAILED BY: W.R. ABBOTT	B.C. REID
Commonwealth of Kentucky DEPARTMENT OF HIGHWAYS	
COUNTY WOLFE-MORGAN	
ROUTE RAMP D	CROSSING RED RIVER
GEOMETRIC LAYOUT	
ITEM NUMBER	PREPARED BY
10-126.70	LOCHNER
	H.W. LOCHNER, INC. LEXINGTON, KENTUCKY
	SHEET NO. S7 DRAWING NO. 27082

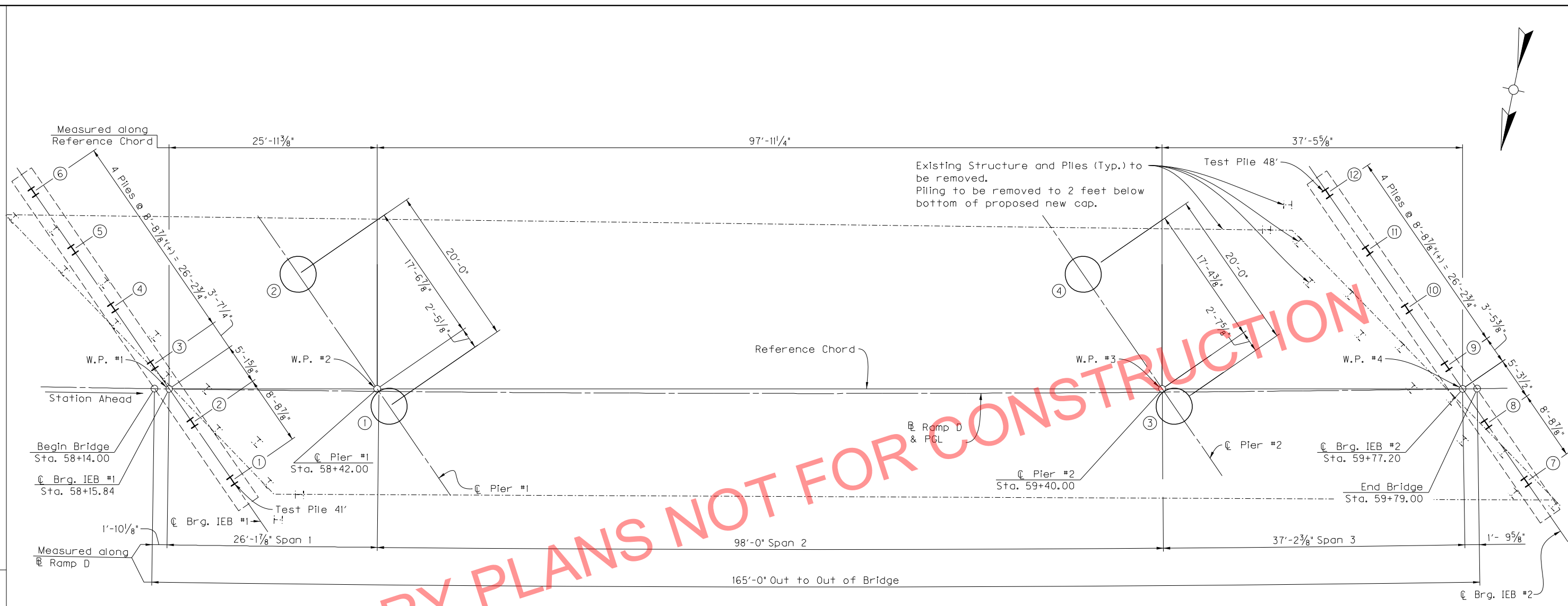


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USER: dsmitthson
DATE PLOTTED: October 11, 2016

E-SHEET NAME:

MicroStation v8.11.9.459



PRELIMINARY PLANS NOT FOR CONSTRUCTION

PLAN

REVISION		DATE
DATE: June, 2016	CHECKED BY	
DESIGNED BY: B.C. REID	W.D. BURTON	
DETAILED BY: W.R. ABBOTT	B.C. REID	
Commonwealth of Kentucky DEPARTMENT OF HIGHWAYS		
COUNTY WOLFE-MORGAN		
ROUTE RAMP D	CROSSING RED RIVER	
FOUNDATION LAYOUT (1 of 2)		
ITEM NUMBER	PREPARED BY	SHEET NO.
10-126.70	LOCHNER H.W. LOCHNER, INC. LEXINGTON, KENTUCKY	S8 27082

FILE NAME: I:\LEX\PRJ\000008298\DESIGN\STRUCTURES\FINAL DESIGN\STAGE II FINAL SUBMITTAL\27082_009.DGN

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MicroStation v8.11.9.459

Pile Record for Point Bearing Piles - IEB #1				
Pile No.	Pile Cut-off Elevation (Feet)	Pile Length in Place (Feet)	Point of Pile Elevation as Driven (Feet)	Design Axial Load (Tons)
1	948.633			43
2	948.633			43
3	948.633			43
4	948.633			43
5	948.633			43
6	948.633			43

Pile Record for Point Bearing Piles - IEB #2				
Pile No.	Pile Cut-off Elevation (Feet)	Pile Length in Place (Feet)	Point of Pile Elevation as Driven (Feet)	Design Axial Load (Tons)
7	950.364			43
8	950.364			43
9	950.364			43
10	950.364			43
11	950.364			43
12	950.364			43

Slope Protection

Slope protection will be required at the bridge meeting the requirements of sections 703 and 805 of the Standard Specifications of Road and Bridge Construction, current edition. The limits, size, and thickness of the slope protection shall be as specified in HEC 23. Place a Type I Geotextile Fabric, in accordance with Sections 214 and 843 of the Standard Specifications of Road and Bridge Construction, current edition, between the embankment and the slope protection.

Miscellaneous

Construction of the Ramp D Bridge may require removal of existing piling at the abutments and pier locations. Existing remnants of wood piling was evident below the existing bridge deck.

Drilled Shaft Record										
Drill Shaft No.	Top of Drilled Shaft Common Elevation (Design)	Top of Drilled Shaft Common Elevation (Actual)	Top of Drilled Shaft Solid Rock Elevation (Design)	Top of Drilled Shaft Solid Rock Elevation (Actual)	Bottom of 66" Steel Casing Elevation (Design)	Bottom of 66" Steel Casing Elevation (Actual)	Bottom of Drilled Shaft Solid Rock Elevation (Design)	Bottom of Drilled Shaft Solid Rock Elevation (Actual)	Total Length of Drilled Shaft Common	Total Length of Drilled Shaft Solid Rock
PIER #1										
1	937.300		918.300		918.300		910.300			
2	937.300		918.300		918.300		910.300			
PIER #2										
3	935.600		917.300		917.300		909.300			
4	935.600		917.300		917.300		909.300			

Hammer Criteria

A single acting diesel hammer with rated energy between 23 and 40 kips-ft is recommended to adequately drive the H-piles to practical refusal without encountering excessive blow counts or damaging piles. The use of hammers other than single-acting diesel may require different energies. 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.

Drilled Shaft Foundation for Piers

See Sheets S12 and S13 for Drilled Shaft Notes.

Field Data

For each pile, the Project Engineer shall record the following on this sheet: Pile Length in Place and Point of Pile Elevation as Driven.

Submit this record to: Kentucky Transportation Cabinet
Director, Division of Structural Design
Room #322
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 12x53 in accordance with BPS-003, c.e.

Driving Criteria

DRIVING CRITERIA: Drive point bearing piles to practical refusal.

PRACTICAL REFUSAL: For this project minimum blow requirements are reached after total penetration becomes 1/2' or less for 10 consecutive blows, practical refusal is obtained after the pile is struck an additional 10 blows with total penetration of 1/2' or less. Advance the production piling to the driving resistances specified above and to 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 resistances specified for practical refusal is required to further advance the pile. Drive additional production and test piles if directed by the Engineer.

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.

POINT OF PILE 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.

REVISION		DATE
DATE: June, 2016	CHECKED BY	
DESIGNED BY: B.C. REID	W.D. BURTON	
DETAILED BY: W.R. ABBOTT	B.C. REID	

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

COUNTY
WOLFE-MORGAN

ROUTE RAMP D	CROSSING RED RIVER
------------------------	------------------------------

FOUNDATION LAYOUT (2 of 2)

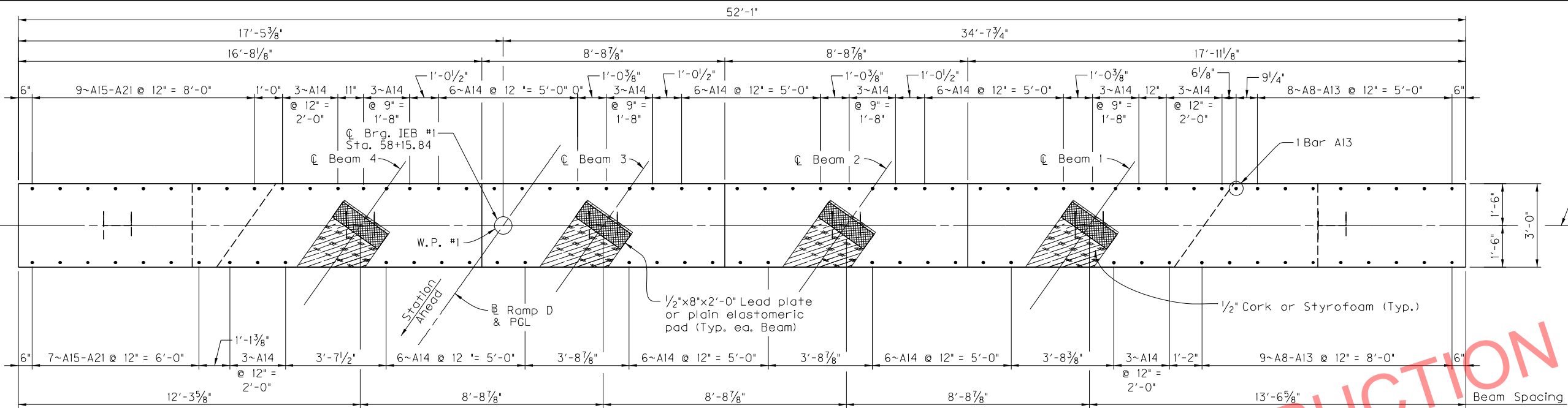
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	SHEET NO. 59 DRAWING NO. 27082

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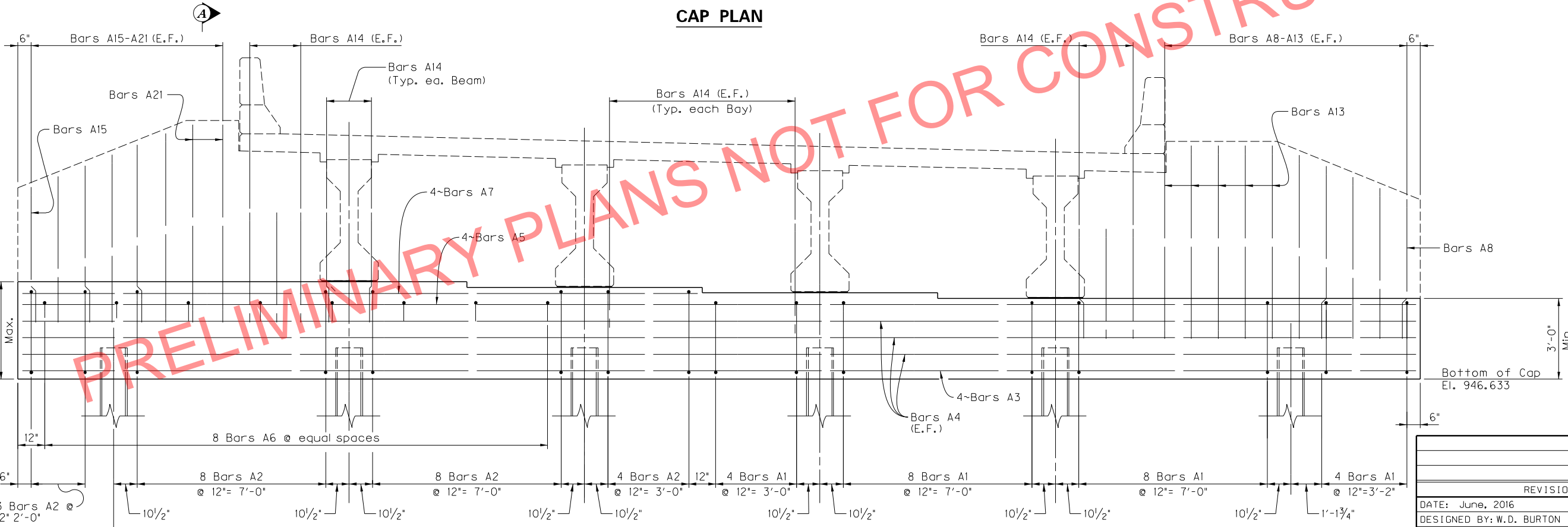
USER: dsmitthson
DATE PLOTTED: October 11, 2016

E-SHEET NAME:

MicroStation v8.11.9.459



CAP PLAN



ELEVATION - SHOWING CAP REINFORCING (Looking Back Station)

NOTES:

1. For pile spacing see Foundation Layout, Sheet S8.
2. Construction joint is not roughened under cork or bearing pads.
3. Elevations are given at the top of concrete.
4. All cap concrete shall be Class "A".
5. For Section A-A, see Sheet S17.

TABLE OF BEARING	
Point	Elevation
Beam 1	949.633
Beam 2	949.837
Beam 3	950.041
Beam 4	950.245

ITEM NUMBER
10-126.70

REVISION	DATE

DATE: June, 2016	CHECKED BY: B.C. REID
DESIGNED BY: W.D. BURTON	DETAILED BY: D.M. SMITHSON

**Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS**

WOLFE-MORGAN

ROUTE	CROSSING
RAMP D	RED RIVER

INTEGRAL END BENT 1 (1 OF 2)

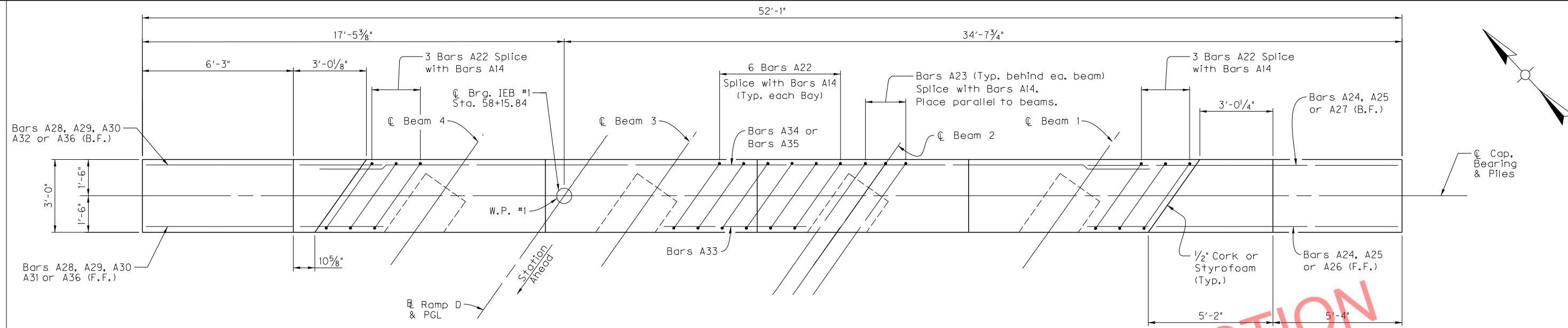
PREPARED BY	SHEET NO.
LOCHNER	S10
H.W. LOCHNER, INC. LEXINGTON, KENTUCKY	DRAWING NO. 27082

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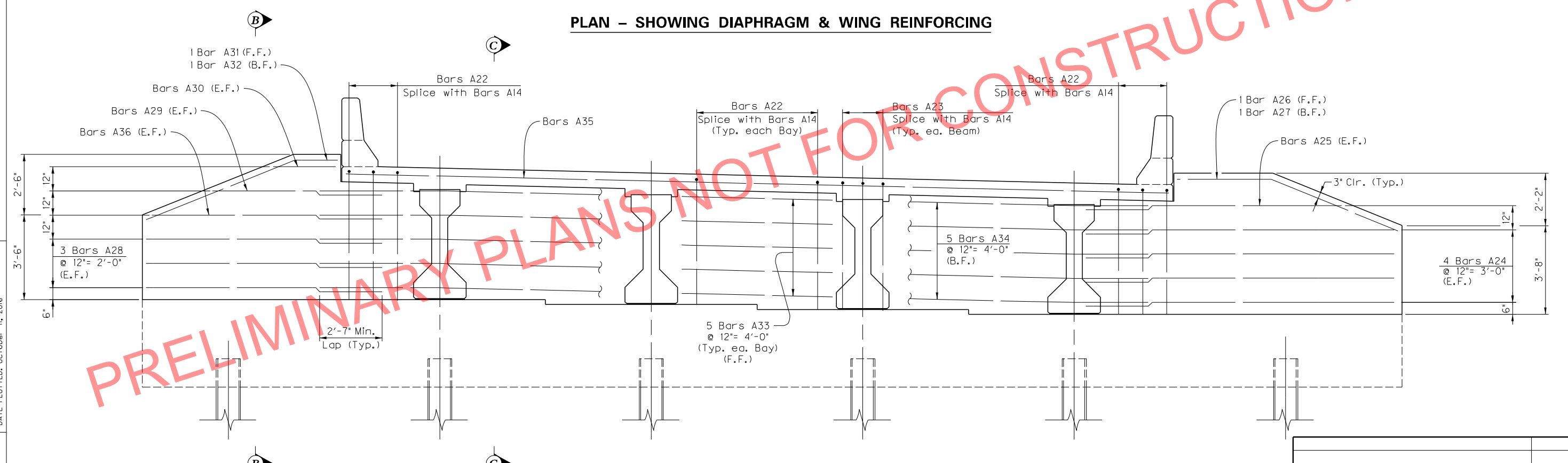
USER: breid
DATE PLOTTED: October 11, 2016

E-SHEET NAME:

MicroStation v8.11.9.714



PLAN - SHOWING DIAPHRAGM & WING REINFORCING



ELEVATION - SHOWING DIAPHRAGM & WING REINFORCING

(Looking Back Station)

- Notes:
1. All Diaphragm Concrete shall be Class 'AA'.
2. For Sections B-B and C-C, see Sheet S17.

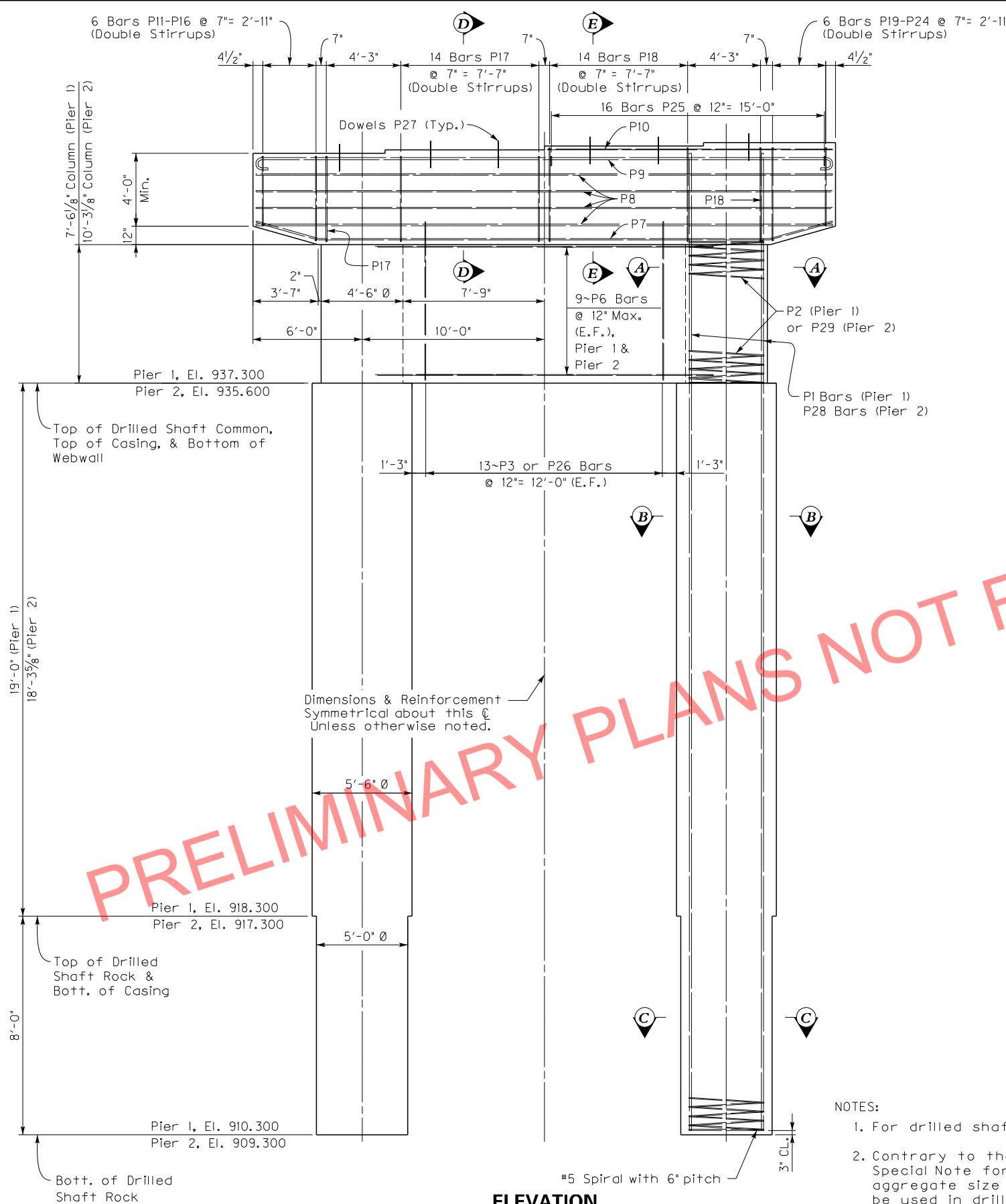
PRELIMINARY PLANS NOT FOR CONSTRUCTION

REVISION		DATE

DATE: June, 2016	CHECKED BY: B.C. REID
DESIGNED BY: W.D. BURTON	
DETAILED BY: D.M. SMITHSON	B.C. REID
Commonwealth of Kentucky DEPARTMENT OF HIGHWAYS	
WOLFE-MORGAN	
ROUTE: RAMP D	CROSSING: RED RIVER
INTEGRAL END BENT 1 (2 of 2)	
PREPARED BY: LOCHNER	SHEET NO. S11
H.W. LOCHNER, INC. LEXINGTON, KENTUCKY	DRAWING NO. 27082

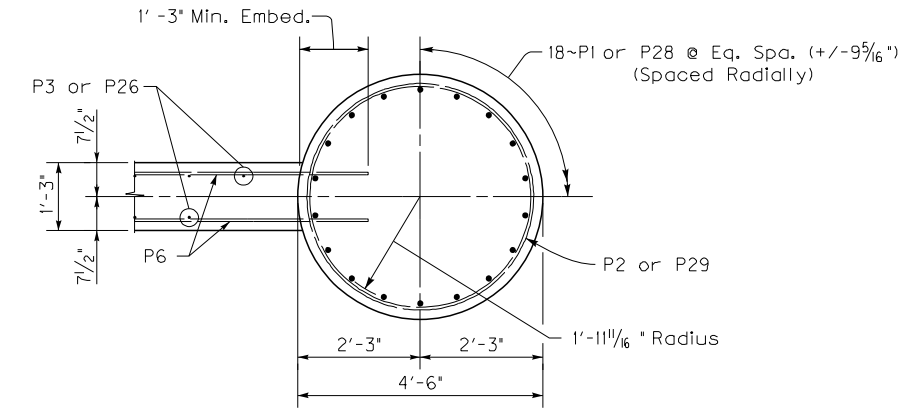
ITEM NUMBER
10-126.70

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 USER: LGRAVES
 DATE PLOTTED: October 11, 2016
 E-SHEET NAME:
 MicroStation v8.11.9.655

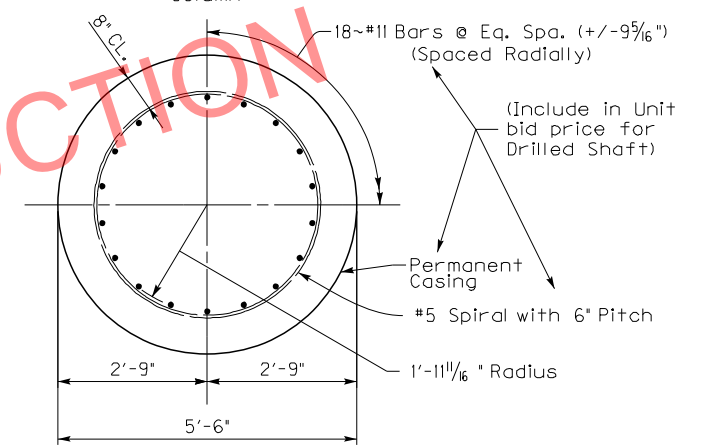


ELEVATION

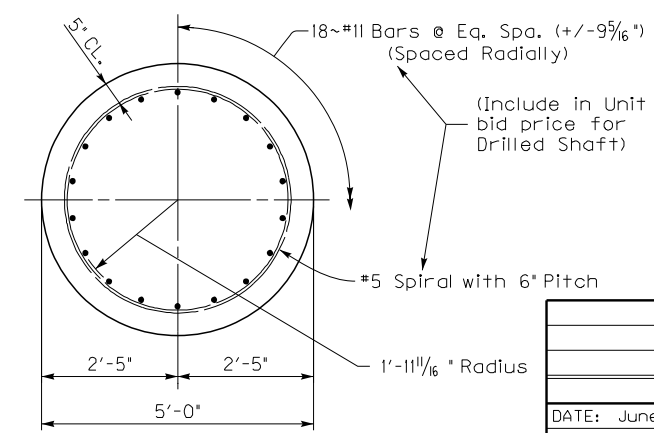
- NOTES:
1. For drilled shaft locations, see Foundation Layout Sheet S8.
 2. Contrary to the Standard Specifications and the Special Note for Drilled Shafts, the maximum coarse aggregate size for Class "A" Modified Concrete to be used in drilled shafts is #78. This applies to all concrete placed below the top of drilled shaft common.
 3. For Sections D-D and E-E, see Sheet S14.



SECTION A-A
~Column~



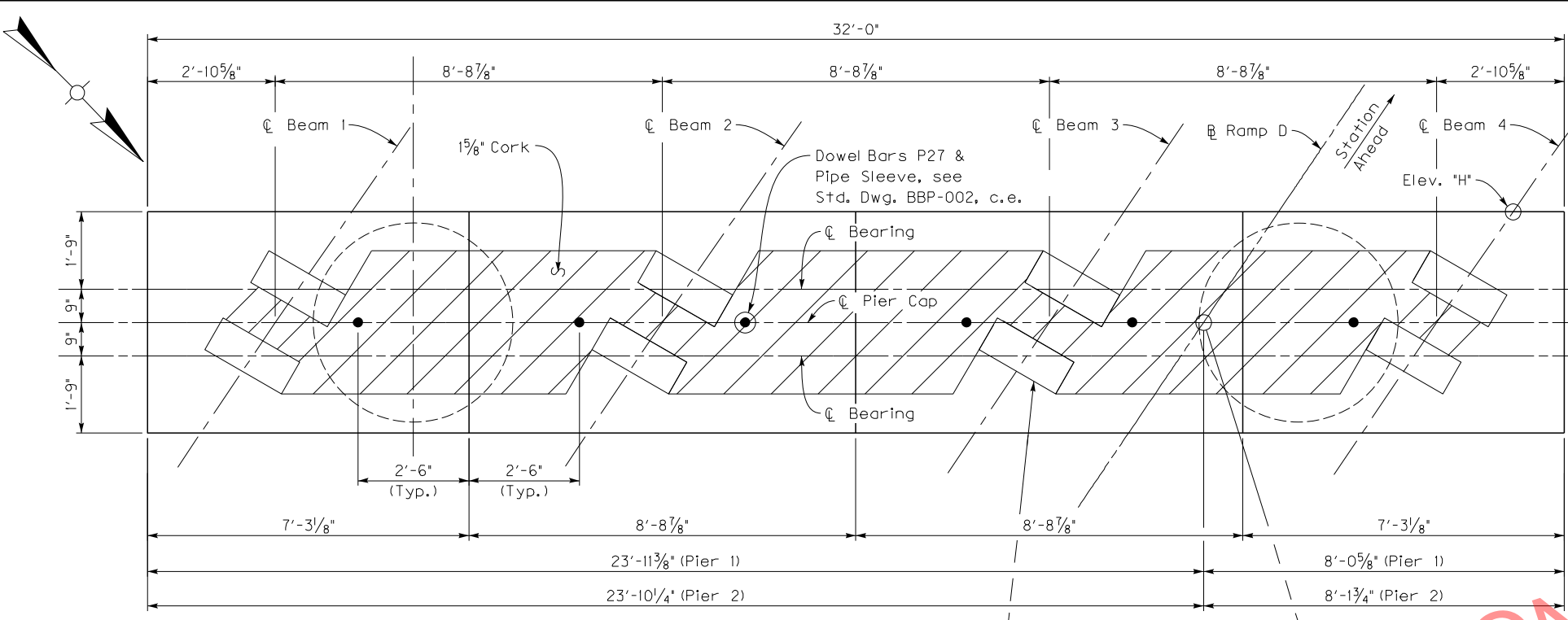
SECTION B-B
~Drilled Shaft Common~



SECTION C-C
~Drilled Shaft Solid Rock~

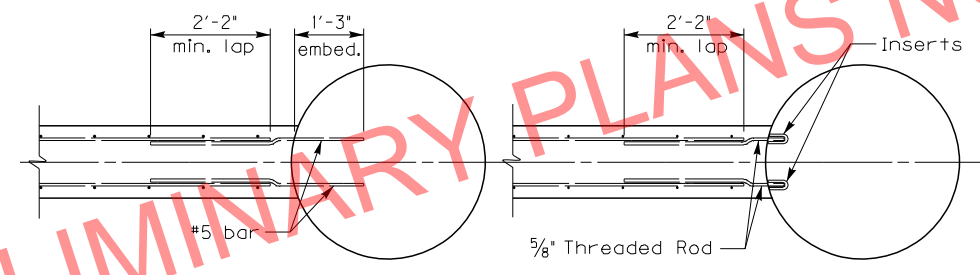
REVISION		DATE
DATE: June, 2016	CHECKED BY	
DESIGNED BY: B.C. REID	W.D. BURTON	
DETAILED BY: D.M. SMITHSON	B.C. REID	
Commonwealth of Kentucky DEPARTMENT OF HIGHWAYS		
WOLFE-MORGAN		
ROUTE RAMP D	CROSSING RED RIVER	
PIER DETAILS (1 OF 3)		
ITEM NUMBER	PREPARED BY LOCHNER H.W. LOCHNER, INC. LEXINGTON, KENTUCKY	SHEET NO. S12 DRAWING NO. 27082
10-126.70		

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 USER: dmithson
 DATE PLOTTED: October 11, 2016
 E-SHEET NAME:
 MicroStation v8.11.9.459



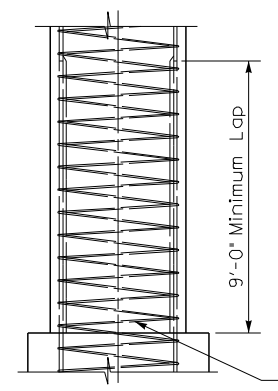
PLAN OF CAP

⊙ Pier 1
Sta. 58+42.00
⊙ Pier 2
Sta. 59+40.00



Permissible Webwall Reinforcement Options (Column Portion)

These options may be used in lieu of detailed webwall reinforcement, however, payment will be based on the Steel Reinforcement quantity shown on the Title Sheet. Threaded inserts are to develop a safe load, in tension, of 9.3 kips with a safety factor of 3. Ensure threaded rods have a minimum 60 ksi yield strength, threaded to fit inserts, and have an effective tensile stress area equal to or greater than that of the reinforcing bars.



MANDATORY SPLICE

Drilled shaft reinforcement must project into columns to be spliced as shown. Projecting shaft reinforcement is incidental to the total cost of the drilled shafts.

DRILLED SHAFT NOTES

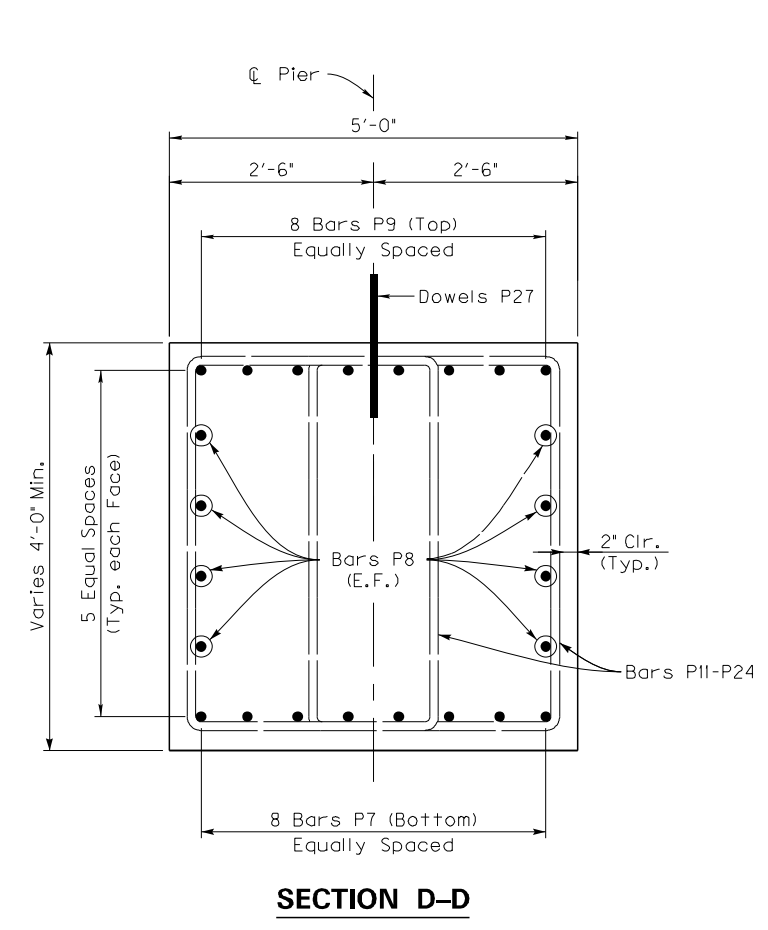
1. Drilled shafts shall be constructed in accordance with the Special Note for Drilled Shafts, current edition. Include all costs (materials including spiral and longitudinal reinforcement, reinforcement splices and mechanical couplers, concrete and temporary or permanent casing, labor and equipment) associated with the drilled shafts in the unit price bid for Drilled Shaft, Common or Solid Rock, as applicable.
2. Permanent casing is required in the overburden. Permanent casing is incidental to the unit bid price for Drilled Shaft 66 in (Common).
3. The Contractor shall provide subsurface exploration boring at each drilled shaft location in accordance with the Special Note for Drilled Shafts, current edition. Rock Sounding and Rock Coring will be required at each shaft location. Payment will be based on actual sounding and coring lengths.
4. Elevations for the Bottom of Drilled Shaft-Common, Bottom of Casing, Top of Drilled Shaft-Solid Rock and Bottom of Drilled Shaft-Solid Rock will be determined by the Division of Structural Design, Geotechnical Branch, based on the results of the Rock Sounding and Rock Coring. Quantities for the Drilled Shafts shown on the title sheet are estimates and the actual installed and paid quantities will be determined after the Rock Sounding and Rock Coring is complete in accordance with the Special Note for Drilled Shafts, current edition.
5. Reinforcement cages shall be held centered in the rock socket and adjusted as necessary to match plan location at the bottom of the pier column.

TOP OF PIER CAP ELEVATION		
	Pier 1	Pier 2
Beam 1	949.812	950.863
Beam 2	950.016	851.068
Beam 3	950.220	951.273
Beam 4	950.424	951.477

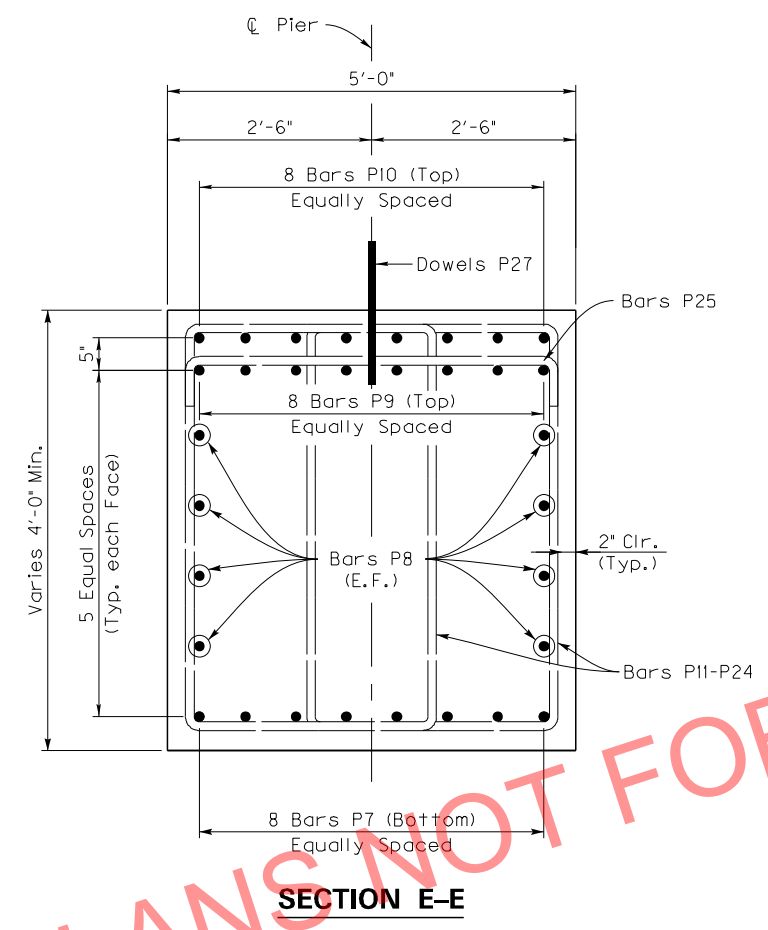
ITEM NUMBER	10-126.70
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REVISION		DATE
DATE: June, 2016	CHECKED BY	
DESIGNED BY: B.C. REID	W.D. BURTON	
DETAILED BY: W.R. ABBOTT	B.C. REID	
Commonwealth of Kentucky DEPARTMENT OF HIGHWAYS		
WOLFE-MORGAN		
ROUTE RAMP D	CROSSING RED RIVER	
PIER DETAILS (2 OF 3)		
PREPARED BY LOCHNER H.W. LOCHNER, INC. LEXINGTON, KENTUCKY		SHEET NO. S13 DRAWING NO. 27082

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 USER: dsmithson
 DATE PLOTTED: October 11, 2016
 E-SHEET NAME:
 MicroStation v8.11.9.459



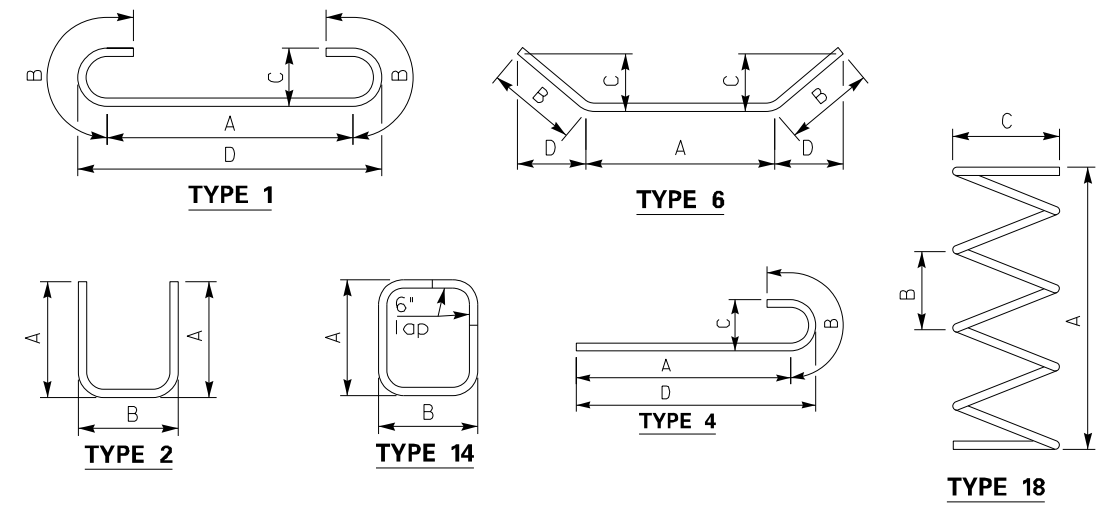
SECTION D-D



SECTION E-E

MARK	TYPE	NO.	SIZE	LENGTH	LOCATION	A	B	C	D
P1	Str.	36	11	12-3	Column, Pier 1				
P2	18	2	5	240-0	Column Spiral, Pier 1	7-8	0-6	4-2	
P3	Str.	26	5	8-6	Webwall Vertical, Pier 1				
P4 - P5 Not Used									
P6	Str.	36	5	18-0	Webwall				
P7	6	16	9	31-10	Cap Bottom Bars	24-8	3-7	0-11 1/2	3-5 3/8
P8	Str.	16	5	31-8	Cap Side				
P9	1	16	8	33-10	Cap Top Bars	31-0	1-5	0-8	31-8
P10	Str.	32	5	15-8	Cap Top Bars				
P11	14s	4	5	15-6	Cap Stirrup	3-9	3-6		
P12	14s	4	5	15-10	Cap Stirrup	3-11	3-6		
P13	14s	4	5	16-2	Cap Stirrup	4-1	3-6		
P14	14s	4	5	16-6	Cap Stirrup	4-3	3-6		
P15	14s	4	5	16-10	Cap Stirrup	4-5	3-6		
P16	14s	4	5	17-2	Cap Stirrup	4-7	3-6		
P17	14s	56	5	17-4	Cap Stirrup	4-8	3-6		
P18	14s	56	5	18-0	Cap Stirrup	5-0	3-6		
P19	14s	4	5	18-4	Cap Stirrup	5-2	3-6		
P20	14s	4	5	18-0	Cap Stirrup	5-0	3-6		
P21	14s	4	5	17-8	Cap Stirrup	4-10	3-6		
P22	14s	4	5	17-4	Cap Stirrup	4-8	3-6		
P23	14s	4	5	17-0	Cap Stirrup	4-6	3-6		
P24	14s	4	5	16-8	Cap Stirrup	4-4	3-6		
P25	2s	32	5	5-8	Cap	0-6	4-8		
P26	Str.	26	5	11-3	Webwall Vertical, Pier 2				
P27e	Str.	12	*	2-0	Cap Dowel				
P28	Str.	36	11	15-0	Column, Pier 2				
P29	18	2	5	312-0	Column Spiral, Pier 2	10-5	0-6	4-2	

* 1/2" Ø Smooth Round Pin May Be Commercial Grade Steel



PRELIMINARY PLANS NOT FOR CONSTRUCTION

REVISION		DATE

DATE: June, 2016	CHECKED BY: W.D. BURTON
DESIGNED BY: B.C. REID	DETAILED BY: W.R. ABBOTT

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

COUNTY
WOLFE-MORGAN

ROUTE RAMP D	CROSSING RED RIVER
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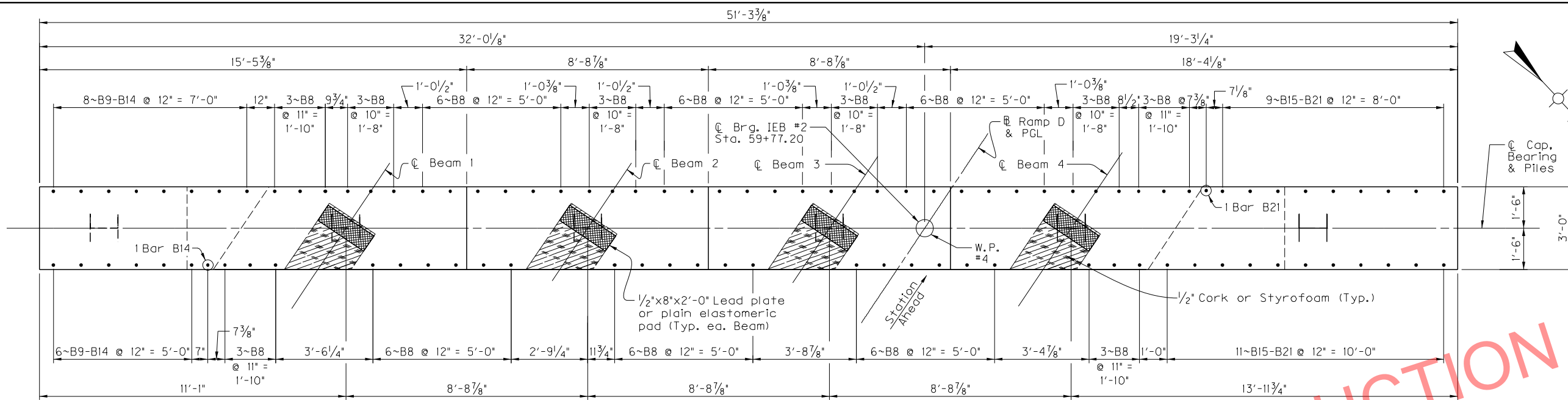
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ITEM NUMBER	PREPARED BY LOCHNER H.W. LOCHNER, INC. LEXINGTON, KENTUCKY	SHEET NO. S14 DRAWING NO. 27082
10-126.70		

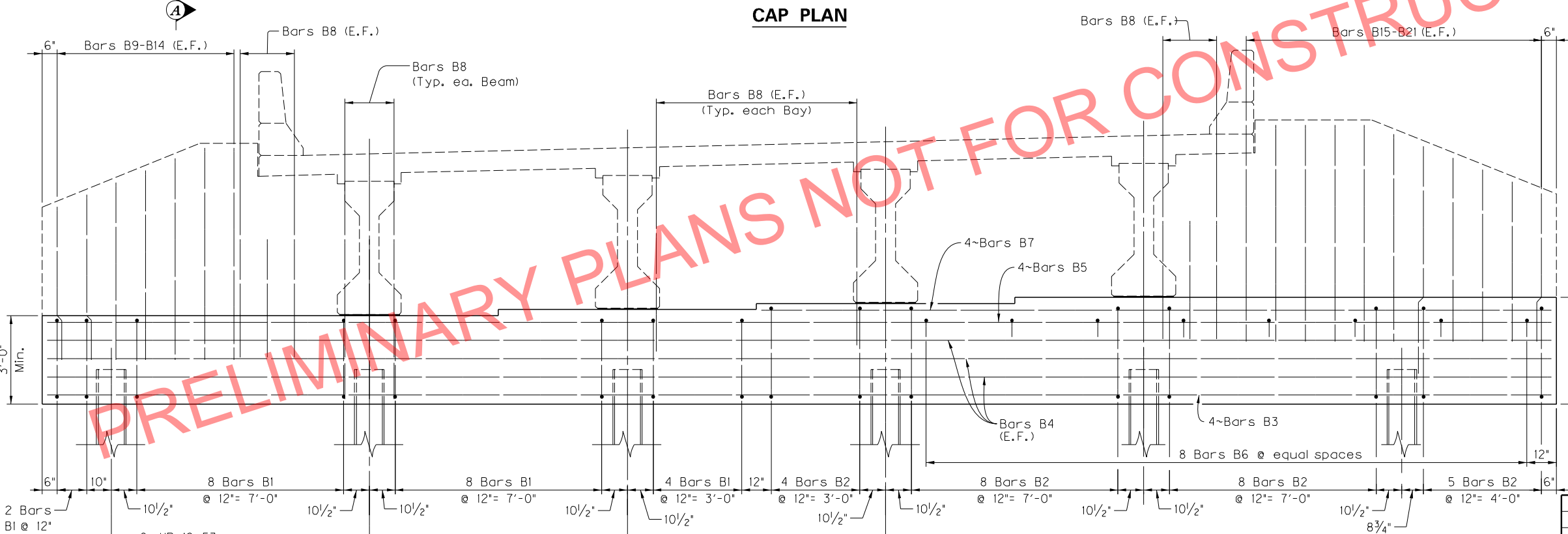
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USER: breid
DATE PLOTTED: October 11, 2016

E-SHEET NAME:
MicroStation v8.11.9.714



CAP PLAN



ELEVATION - SHOWING CAP & DOWEL REINFORCEMENT

- NOTES:**
1. For pile spacing see Foundation Layout, Sheet S8.
 2. Construction joint is not roughened under cork or bearing pads.
 3. Elevations are given at the top of concrete.
 4. All cap concrete shall be Class "A".
 5. For Section A-A, see Sheet S17.

TABLE OF BEARING	
Point	Elevation
Beam 1	951.364
Beam 2	951.569
Beam 3	951.774
Beam 4	951.979

ITEM NUMBER
10-126.70

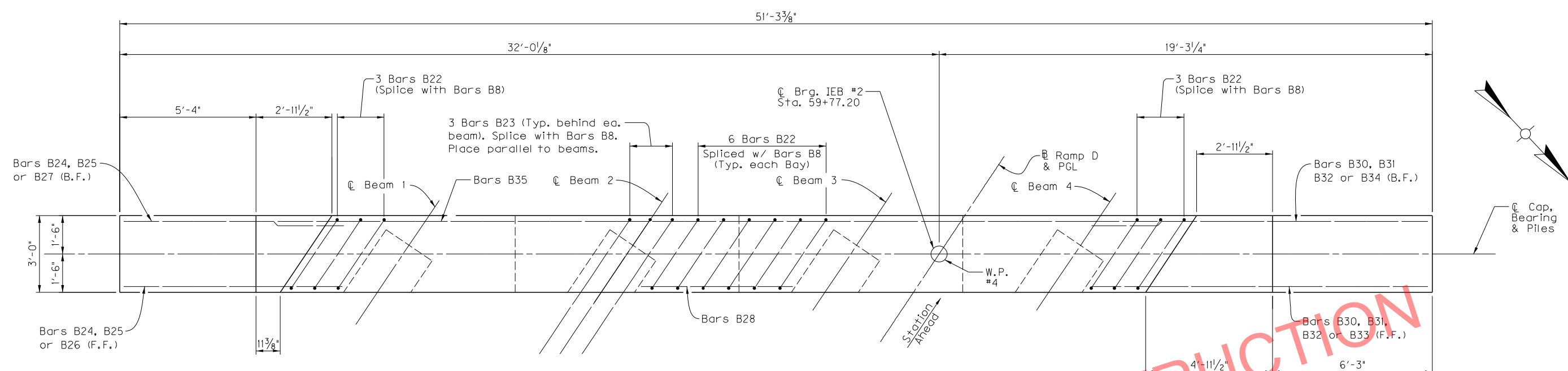
REVISION		DATE
DATE: June, 2016	CHECKED BY	
DESIGNED BY: W.D. BURTON	B.C. REID	
DETAILED BY: W.R. ABBOTT	B.C. REID	
Commonwealth of Kentucky DEPARTMENT OF HIGHWAYS		
WOLFE-MORGAN		
ROUTE RAMP D	CROSSING RED RIVER	
INTEGRAL END BENT 2 (1 of 2)		
PREPARED BY LOCHNER		SHEET NO. S15
H.W. LOCHNER, INC. LEXINGTON, KENTUCKY		DRAWING NO. 27082

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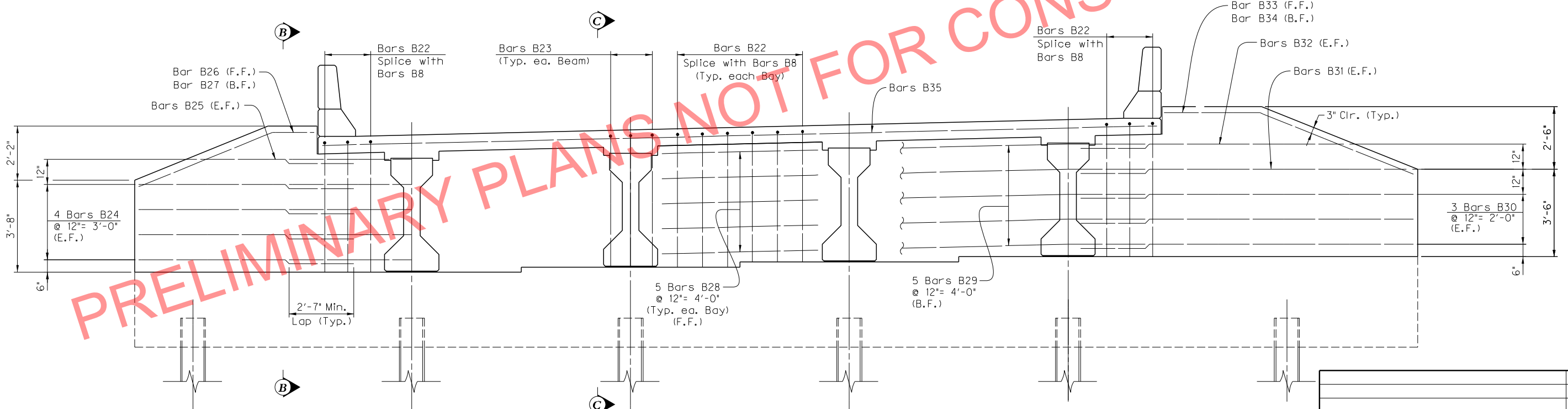
USER: breid
DATE PLOTTED: October 11, 2016

E-SHEET NAME:

MicroStation v8.11.9.714



PLAN - SHOWING DIAPHRAGM & WING REINFORCEMENT



PLAN - SHOWING DIAPHRAGM & WING REINFORCEMENT

PRELIMINARY PLANS NOT FOR CONSTRUCTION

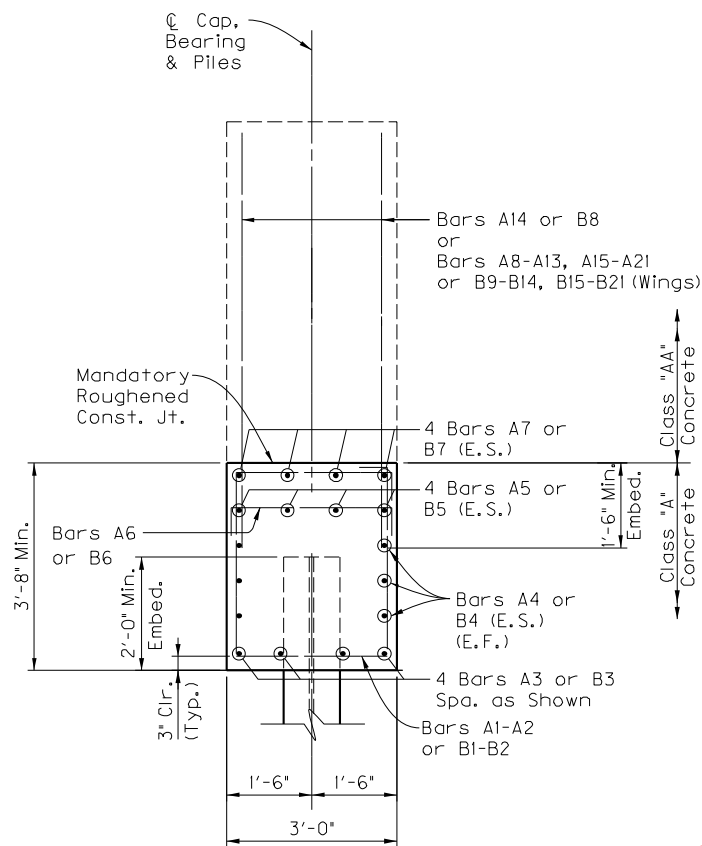
- Notes:
- All Diaphragm Concrete shall be Class "AA".
 - For Sections B-B and C-C, see Sheet S17.

ITEM NUMBER	10-126.70
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REVISION		DATE
DATE: June, 2016	CHECKED BY	
DESIGNED BY: W.D. BURTON	B.C. REID	
DETAILED BY: W.R. ABBOTT	B.C. REID	
Commonwealth of Kentucky DEPARTMENT OF HIGHWAYS		
COUNTY WOLFE-MORGAN		
ROUTE RAMP D	CROSSING RED RIVER	
INTEGRAL END BENT 2 (2 of 2)		
PREPARED BY LOCHNER H.W. LOCHNER, INC. LEXINGTON, KENTUCKY		SHEET NO. S16 DRAWING NO. 27082

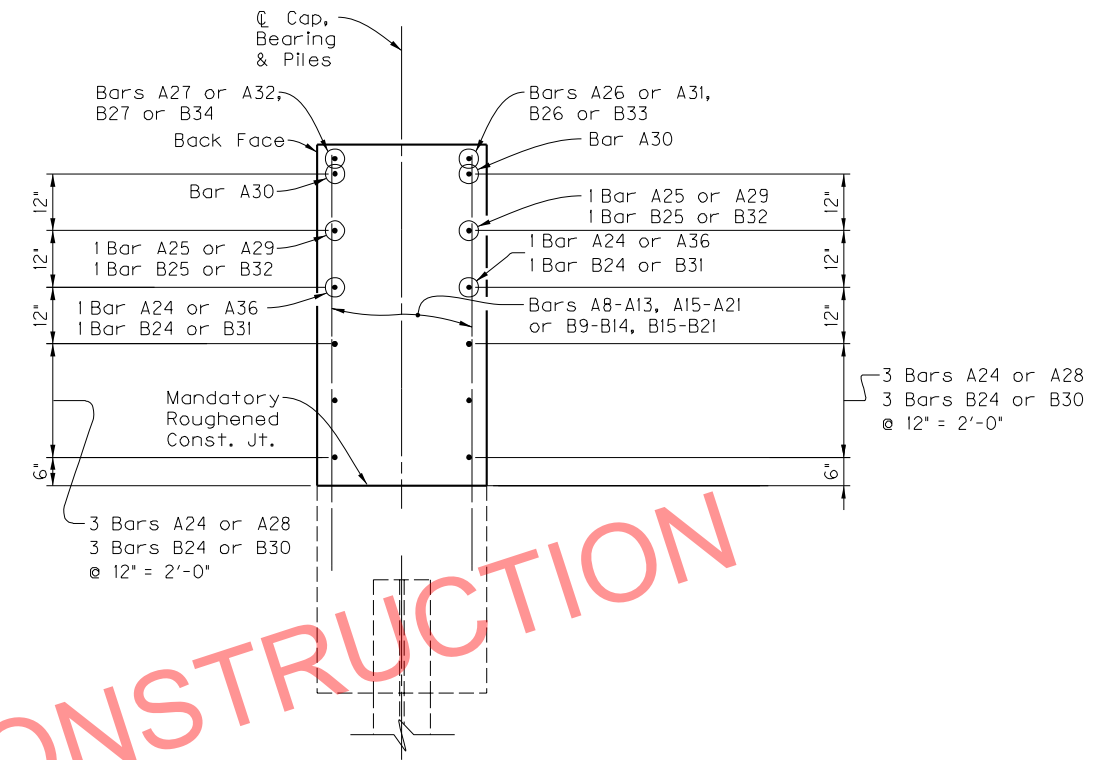
BILL OF REINFORCEMENT

MARK	TYPE	SIZE	NO.	LENGTH FT. IN.	LOCATION	A		B		C		D	
						FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.
A1e	14s	5	24	11-6	Cap	2-7	2-8						
A2e	14s	5	23	12-4	Cap	3-0	2-8						
A3e	Str.	8	4	51-9	Cap								
A4e	Str.	5	6	51-9	Cap								
A5e	Str.	8	4	51-9	Cap								
A6e	2s	5	8	3-8	Cap	2-8	0-6						
A7e	Str.	5	4	25-1	Cap								
A8e	Str.	5	2	5-2	Cap/Wing								
A9e	Str.	5	2	5-7	Cap/Wing								
A10e	Str.	5	2	6-0	Cap/Wing								
A11e	Str.	5	2	6-5	Cap/Wing								
A12e	Str.	5	2	6-10	Cap/Wing								
A13e	Str.	5	9	7-2	Cap/Wing								
A14e	Str.	5	60	4-3	Cap/Diaphragm								
A15e	Str.	5	2	5-0	Cap/Wing								
A16e	Str.	5	2	5-5	Cap/Wing								
A17e	Str.	5	2	5-10	Cap/Wing								
A18e	Str.	5	2	6-2	Cap/Wing								
A19e	Str.	5	2	6-7	Cap/Wing								
A20	Str.	5	2	7-0	Cap/Wing								
A21e	Str.	5	4	7-4	Cap/Wing								
A22e	2s	5	24	13-7	Diaphragm/Slab	5-2	3-3						
A23e	5	5	12	15-2	Diaphragm/Slab	5-2	10-0						
A24e	Str.	5	8	12-10	Wing/Diaphragm								
A25e	Str.	5	2	10-6	Wing/Diaphragm								
A26e	8	5	1	10-5	Wing	5-8	4-9	1-9 1/2	4-4 3/4				
A27e	8	5	1	9-4	Wing	5-8	3-8	1-4 1/2	3-4 3/4				
A28e	Str.	5	6	9-9	Wing/Diaphragm								
A29e	Str.	5	2	7-0	Wing/Diaphragm								
A30e	Str.	5	2	4-6	Wing/Diaphragm								
A31e	8	5	1	7-4	Wing	6-7	0-9	0-8 3/8	0-3 3/8				
A32e	8	5	1	9-2	Wing	6-7	2-7	0-11 1/2	2-4 3/4				
A33e	Str.	5	15	5-10	Diaphragm								
A34e	Str.	5	5	34-3	Diaphragm								
A35e	Str.	5	2	34-0	Slab								
A36e	Str.	5	2	9-6	Wing/Diaphragm								
B1e	14s	5	22	11-6	Cap	2-7	2-8						
B2e	14s	5	25	12-4	Cap	3-0	2-8						
B3e	Str.	8	4	50-11	Cap								
B4e	Str.	5	6	50-11	Cap								
B5e	Str.	8	4	50-11	Cap								
B6e	2s	5	8	3-8	Cap	2-8	0-6						
B7e	Str.	5	4	26-9	Cap								
B8e	Str.	5	60	4-4	Cap/Diaphragm								
B9e	Str.	5	2	5-2	Cap/Wing								
B10e	Str.	5	2	5-7	Cap/Wing								
B11e	Str.	5	2	6-0	Cap/Wing								
B12e	Str.	5	2	6-5	Cap/Wing								
B13e	Str.	5	2	6-10	Cap/Wing								
B14e	Str.	5	5	7-2	Cap/Wing								
B15e	Str.	5	2	5-0	Cap/Wing								
B16e	Str.	5	2	5-5	Cap/Wing								
B17e	Str.	5	2	5-10	Cap/Wing								
B18e	Str.	5	2	6-3	Cap/Wing								
B19e	Str.	5	2	6-8	Cap/Wing								
B20	Str.	5	2	7-0	Cap/Wing								
B21e	Str.	5	9	7-4	Cap/Wing								
B22e	2s	5	24	13-6	Diaphragm/Slab	5-2	3-2						
B23e	5	5	12	15-2	Diaphragm/Slab	5-2	10-0						
B24e	Str.	5	8	8-7	Wing/Diaphragm								
B25e	Str.	5	2	6-1	Wing/Diaphragm								
B26e	8	5	1	6-5	Wing	5-9	0-8	0-3	0-7 3/8				
B27e	8	5	1	8-2	Wing	5-9	2-5	0-10 7/8	2-2 7/8				
B28e	Str.	5	15	5-10	Diaphragm								
B29e	Str.	5	5	34-3	Diaphragm								
B30e	Str.	5	6	13-3	Wing/Diaphragm								
B31e	Str.	5	2	12-8	Wing/Diaphragm								
B32e	Str.	5	2	10-5	Wing/Diaphragm								
B33e	8	5	1	11-2	Wing	6-7	4-7	1-8 3/8	4-3 1/8				
B34e	8	5	1	9-4	Wing	6-7	2-9	1-0 1/4	2-6 5/8				
B35e	Str.	5	2	33-4	Slab								



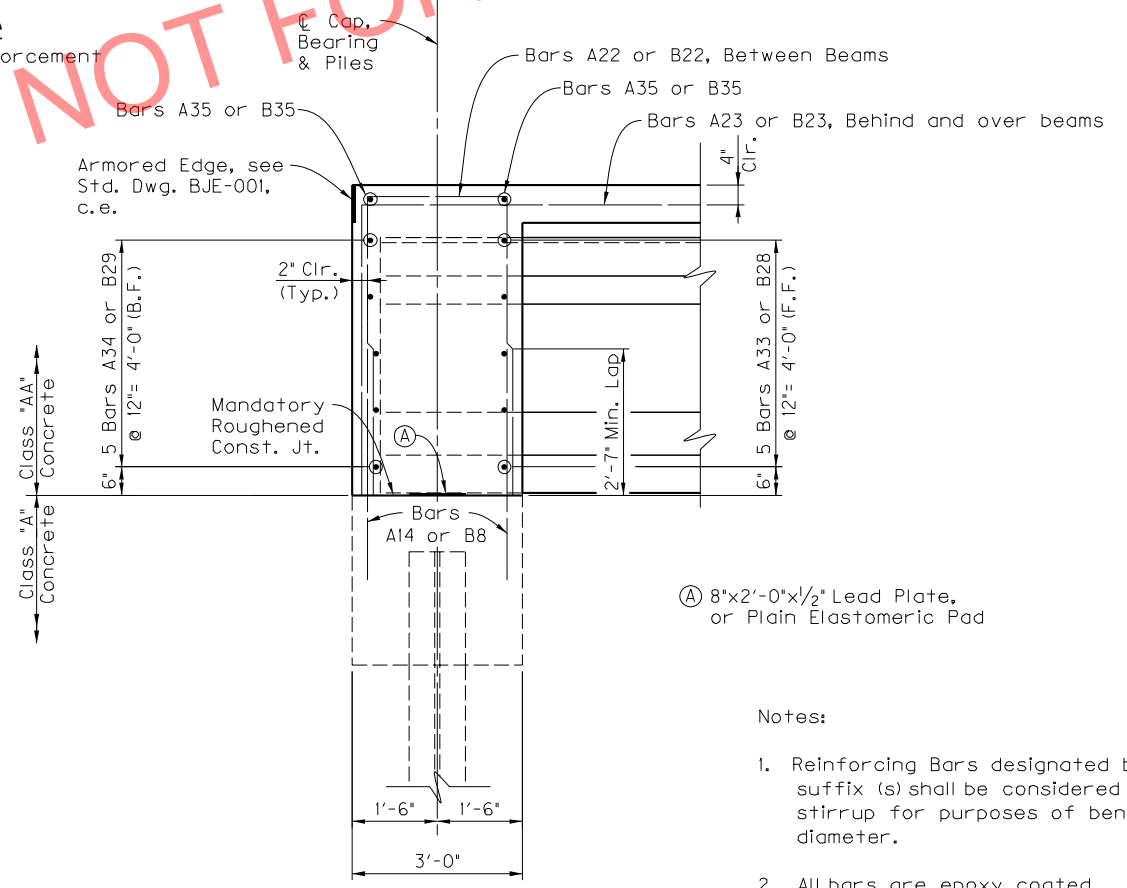
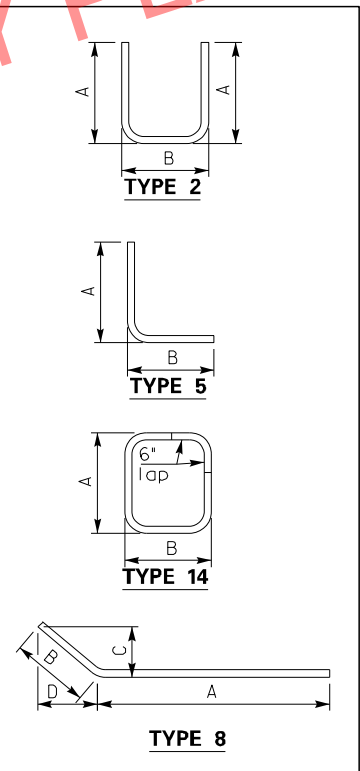
SECTION A-A

Showing Cap & Dowel Reinforcement



SECTION B-B

Showing Wing Reinforcement



SECTION C-C

Showing Diaphragm Reinforcement

PRELIMINARY PLANS NOT FOR CONSTRUCTION

- Notes:
- Reinforcing Bars designated by suffix (s) shall be considered a stirrup for purposes of bend diameter.
 - All bars are epoxy coated.

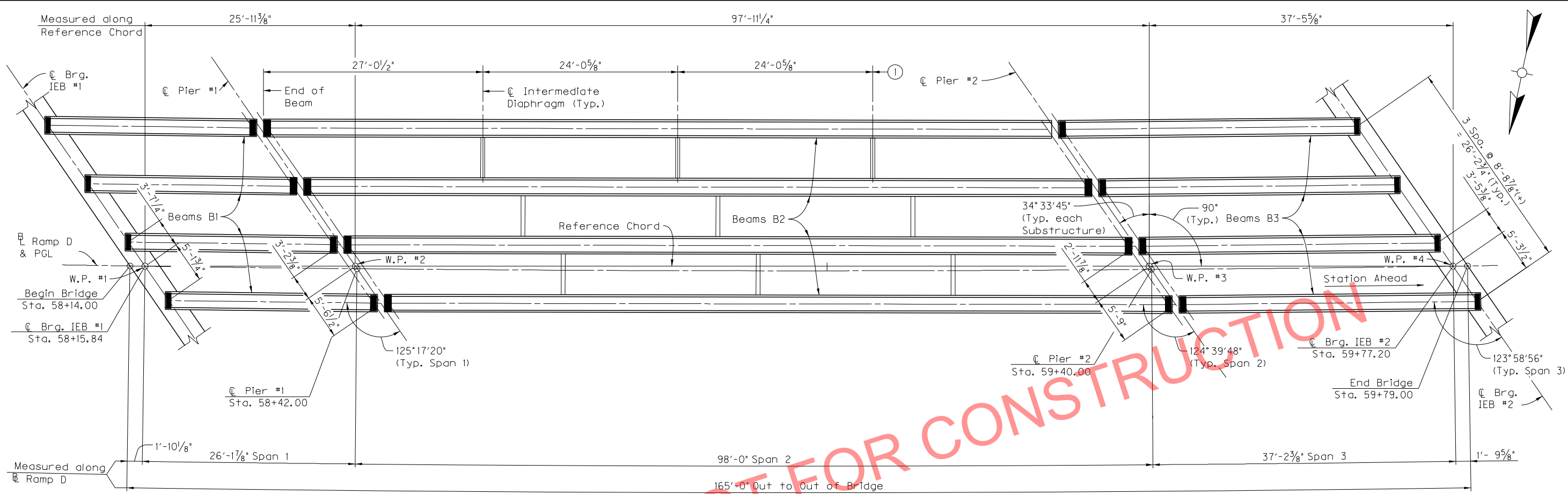
REVISION		DATE
DATE: June, 2016	CHECKED BY	
DESIGNED BY: W.D. BURTON	B.C. REID	
DETAILED BY: D.M. SMITHSON	B.C. REID	
Commonwealth of Kentucky DEPARTMENT OF HIGHWAYS		
WOLFE-MORGAN		
ROUTE RAMP D	CROSSING RED RIVER	
INTEGRAL END BENT DETAILS		
ITEM NUMBER		SHEET NO.
10-126.70		S17
PREPARED BY LOCHNER H.W. LOCHNER, INC. LEXINGTON, KENTUCKY		DRAWING NO. 27081

FILE NAME: I:\LEX\PR\A00008298\DESIGN\STRUCTURES\FINAL DESIGN\STAGE II FINAL SUBMITTAL\27082\S27082_018.DGN

USER: dsmitthson
DATE PLOTTED: October 11, 2016

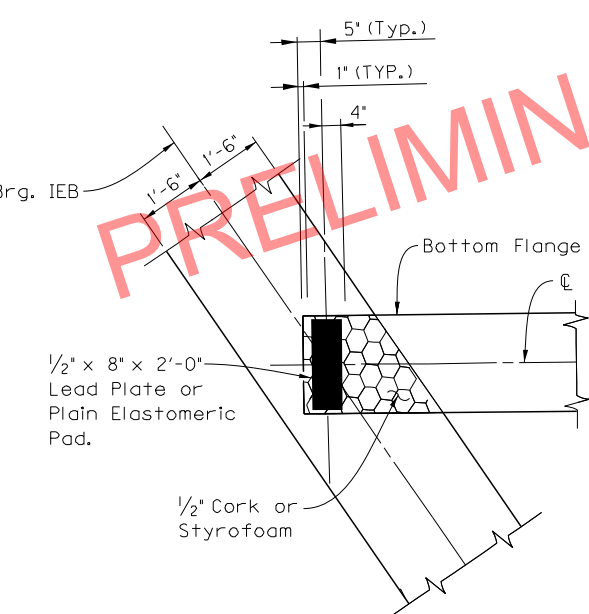
E-SHEET NAME:

MicroStation v8.11.9.459

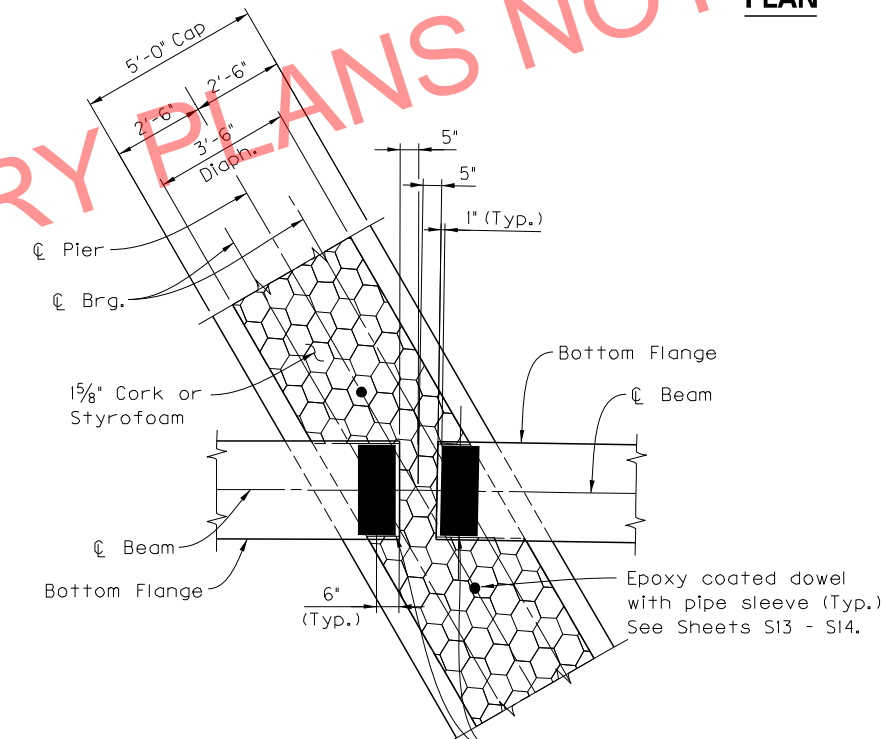


PLAN

PRELIMINARY PLANS NOT FOR CONSTRUCTION

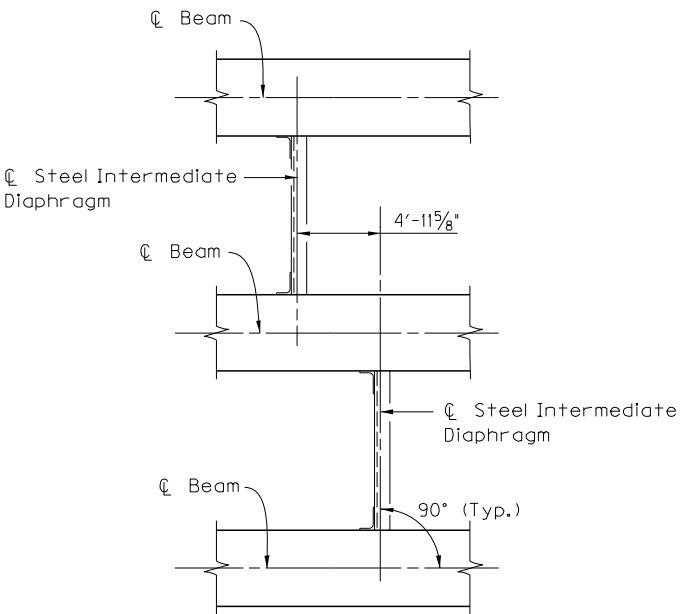


INTEGRAL END BENTS



PIERS

BEARING DETAILS



INTERMEDIATE DIAPHRAGM DETAIL

① - Typical along Beams B2

NOTE:
For Steel Diaphragm
Details, See Sheet S26.

ITEM NUMBER	10-126.70
-------------	-----------

REVISION		DATE
DATE: June, 2016		
DESIGNED BY: B.C. REID		CHECKED BY: W.D. BURTON
DETAILED BY: W.R. ABBOTT		B.C. REID
Commonwealth of Kentucky		
DEPARTMENT OF HIGHWAYS		
COUNTY		
WOLFE-MORGAN		
ROUTE	CROSSING	
RAMP D	RED RIVER	
FRAMING PLAN		
PREPARED BY		
LOCHNER		
H.W. LOCHNER, INC. LEXINGTON, KENTUCKY		
SHEET NO.	DRAWING NO.	
S18	27082	

MicroStation v8.11.9.459 E-SHEET NAME: DATE PLOTTED: October 11, 2016 USER: dsmitthson FILE NAME: I:\LEX\PR\00008298\DESIGN\STRUCTURES\FINAL DESIGN\STAGE II FINAL SUBMITTAL\27082_019.DGN

Mark	Strand Data with number indicated in rows																Total No.	Concrete Stress (psi)		No. of S Bars		Hold-Down Capacity lbs.	Beam Data (measured along centerline)											Maximum Allowable Camber							
	Midspan (SECTION B-B)								End (SECTION A-A)									Total No.	Dimensions																						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)			(1)	(2)	(3)		(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)		(15)	(16)	A	B	C	D	E
B1	8								8									11	5000	8000	34	8	N/A	4	26'-2 1/8"	N/A	N/A	12	6"	18"	10	4 1/8"	13 1/2"	0"	22,380 lbs	1 5/8"					
B2	11	11	4					8	8	4								5000	8000	96	12	17394	4	97'-2 5/8"	43'-7"	10'-0"	23	6"	18"	50	4 3/8"	13 1/2"	0"	83,122 lbs	2 7/8"						
B3	8							8										5000	8000	43	8	N/A	4	37'-2 5/8"	N/A	N/A	14	6"	18"	15	4 3/8"	13 1/2"	0"	31,819 lbs	1 5/8"						

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

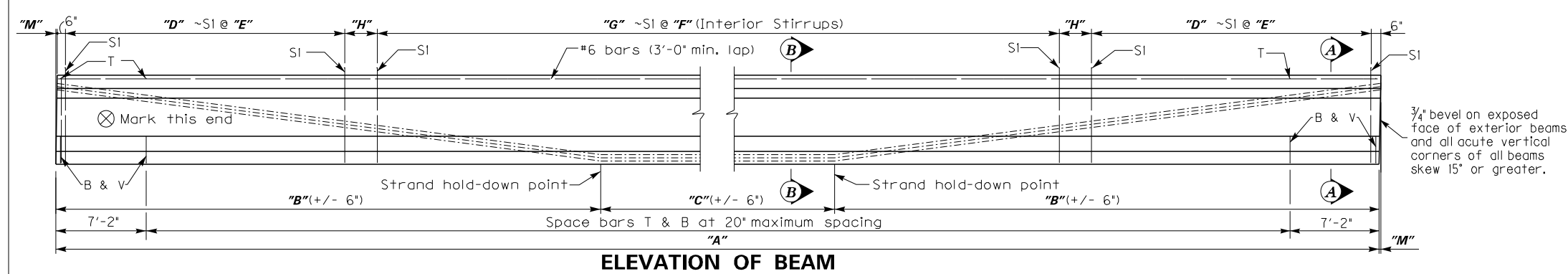
PRESTRESSING REINFORCEMENT: Ensure that strands are 1/2" (oversized diameter, 0.167 sq. in.), uncoated seven-wire low-relaxation conforming to AASHTO M 203, Grade 270. Billing of the cost for redesign of beam and subsequent plans modifications will be made for any request of alternate strand type or 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 33,817 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.

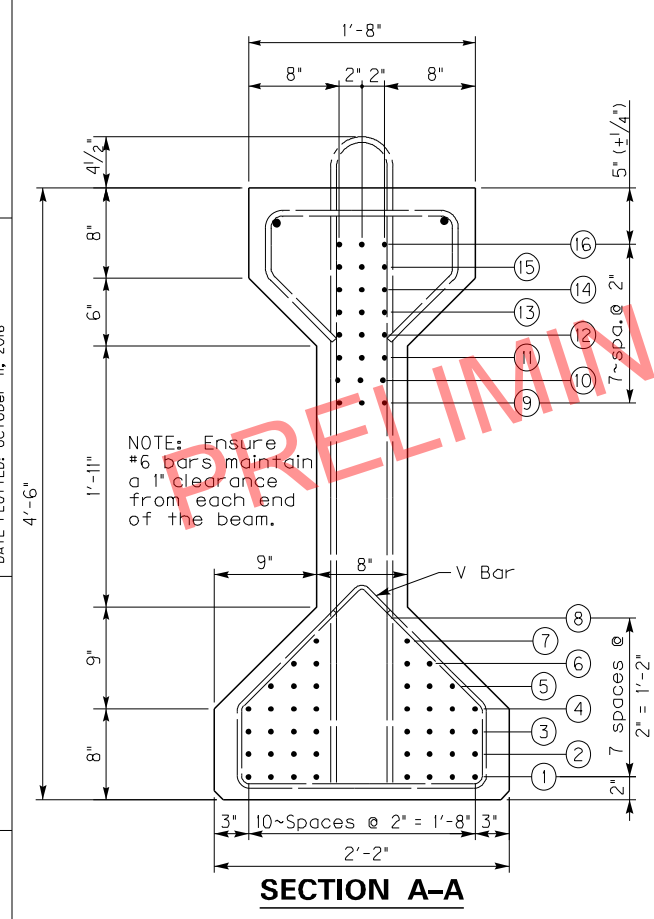
LIFTING DEVICES: Detail lifting devices on the shop plans. Loads are to be distributed equally to each device.

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

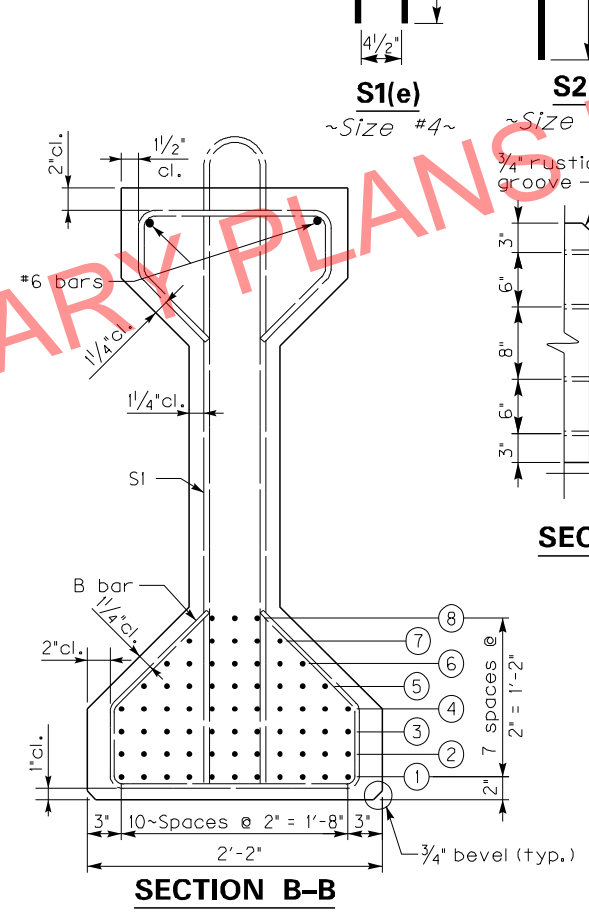
FABRICATION: The "Maximum Allowable Camber" shown on the beam sheet is the amount of camber, measured prior to casting the deck, above which the beam will begin to encroach into the slab. If the measured camber is greater than the "Maximum Allowable Camber" the contractor will be responsible for any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



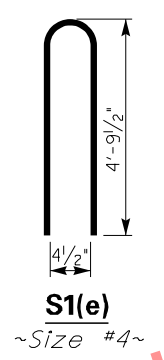
ELEVATION OF BEAM



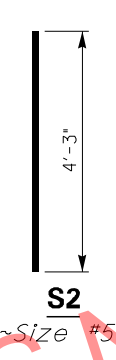
SECTION A-A



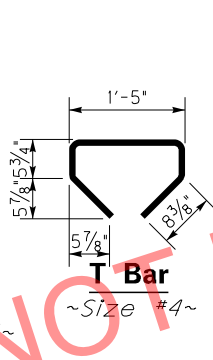
SECTION B-B



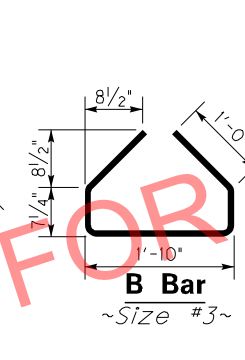
S1(e) ~Size #4~



S2 ~Size #5~



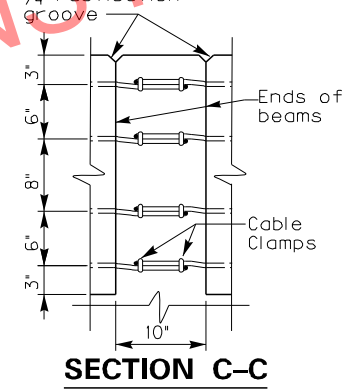
T Bar ~Size #4~



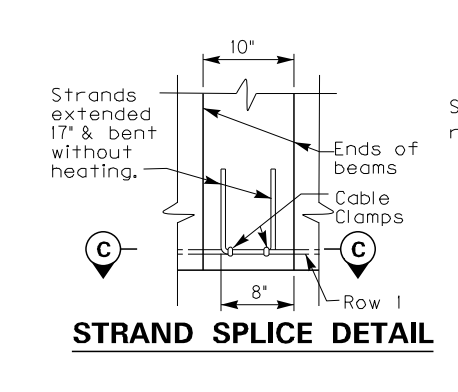
B Bar ~Size #3~



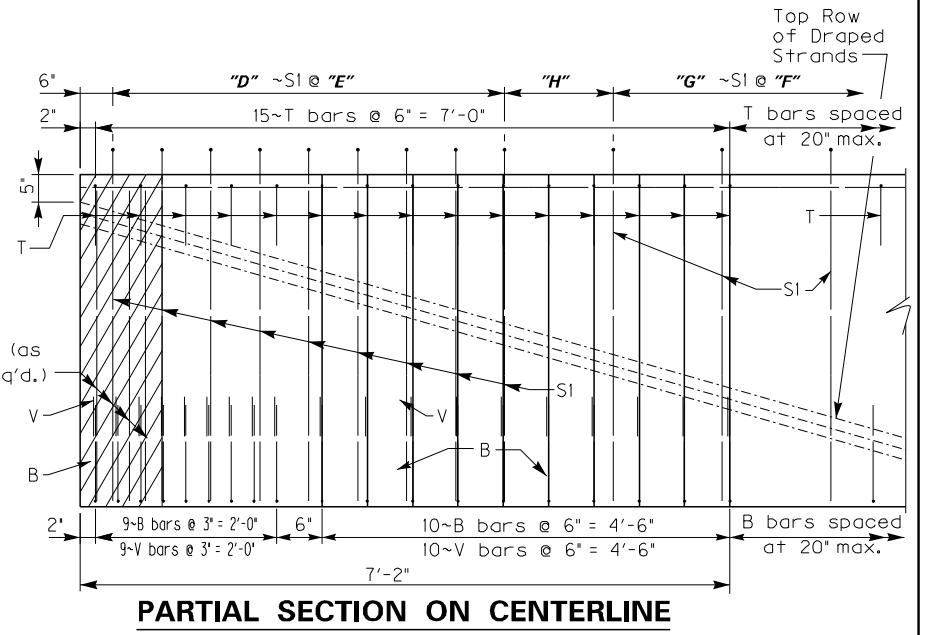
V Bar ~Size #3~



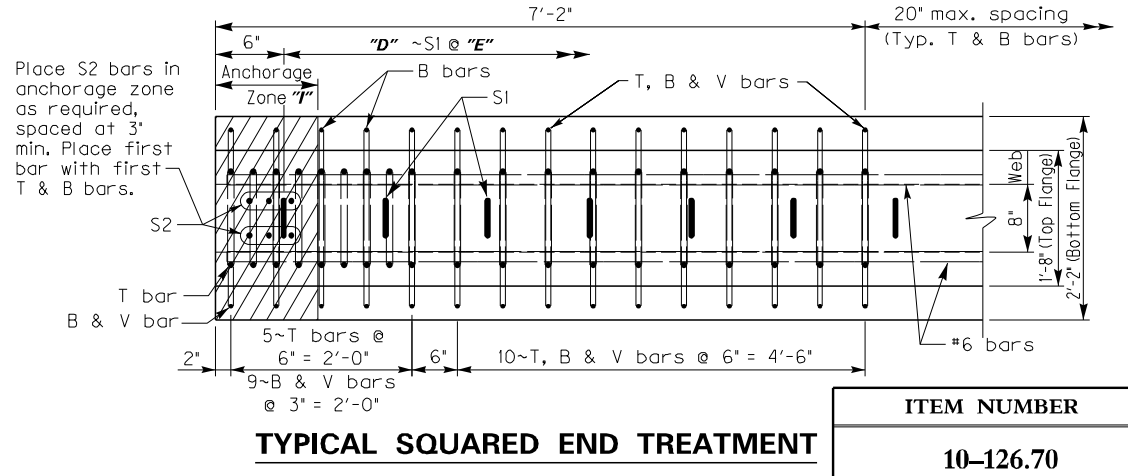
SECTION C-C



STRAND SPlice DETAIL



PARTIAL SECTION ON CENTERLINE



TYPICAL SQUARED END TREATMENT

REVISION		DATE
DATE: June, 2016	CHECKED BY	
DESIGNED BY: B.C. REID	W.D. BURTON	
DETAILED BY: D.M. SMITHSON	B.C. REID	
Commonwealth of Kentucky DEPARTMENT OF HIGHWAYS		
WOLFE-MORGAN		
ROUTE	CROSSING	
RAMP D	RED RIVER	
PPC I-BEAM TYPE 4		
PREPARED BY		SHEET NO.
LOCHNER		S19
H.W. LOCHNER, INC. LEXINGTON, KENTUCKY		DRAWING NO.
		27082

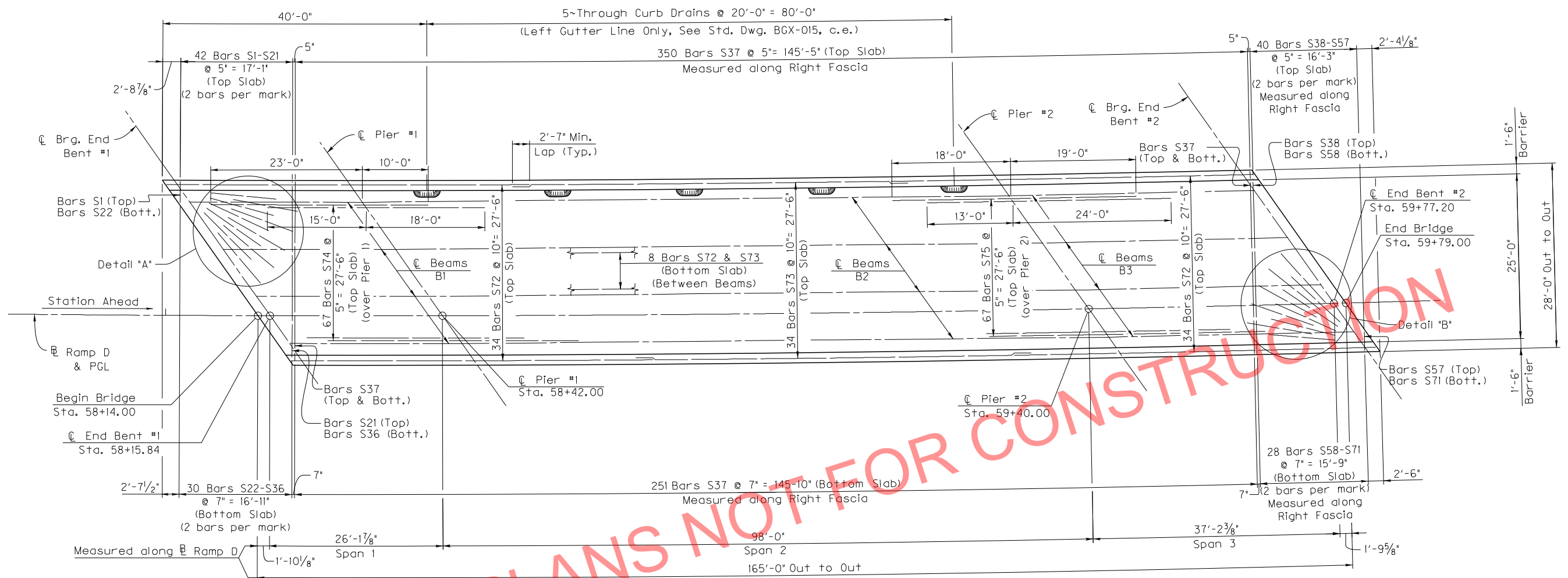
ITEM NUMBER
10-126.70

FILE NAME: I:\LEX\PRJ\00008298\DESIGN\STRUCTURES\FINAL DESIGN\STAGE II FINAL SUBMITTAL\27082\27082.020.DGN

USER: dsmithson
DATE PLOTTED: October 11, 2016

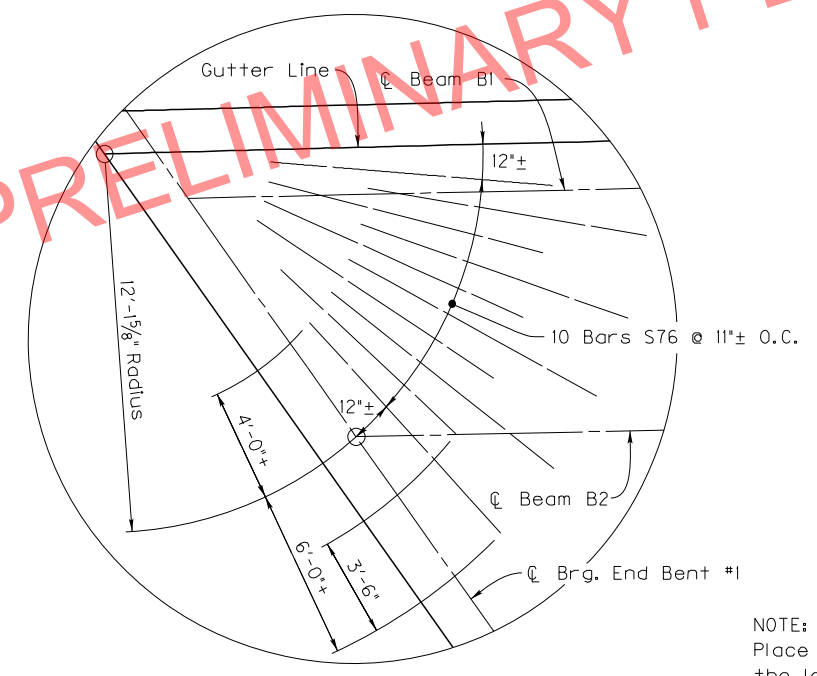
E-SHEET NAME:

MicroStation v8.11.9.459

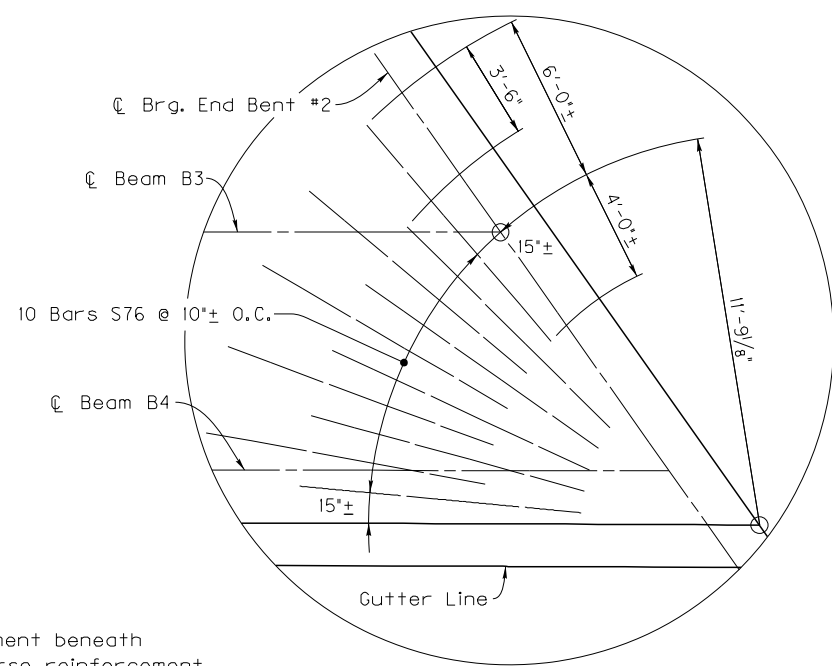


PRELIMINARY PLANS NOT FOR CONSTRUCTION

PLAN



DETAIL "A"

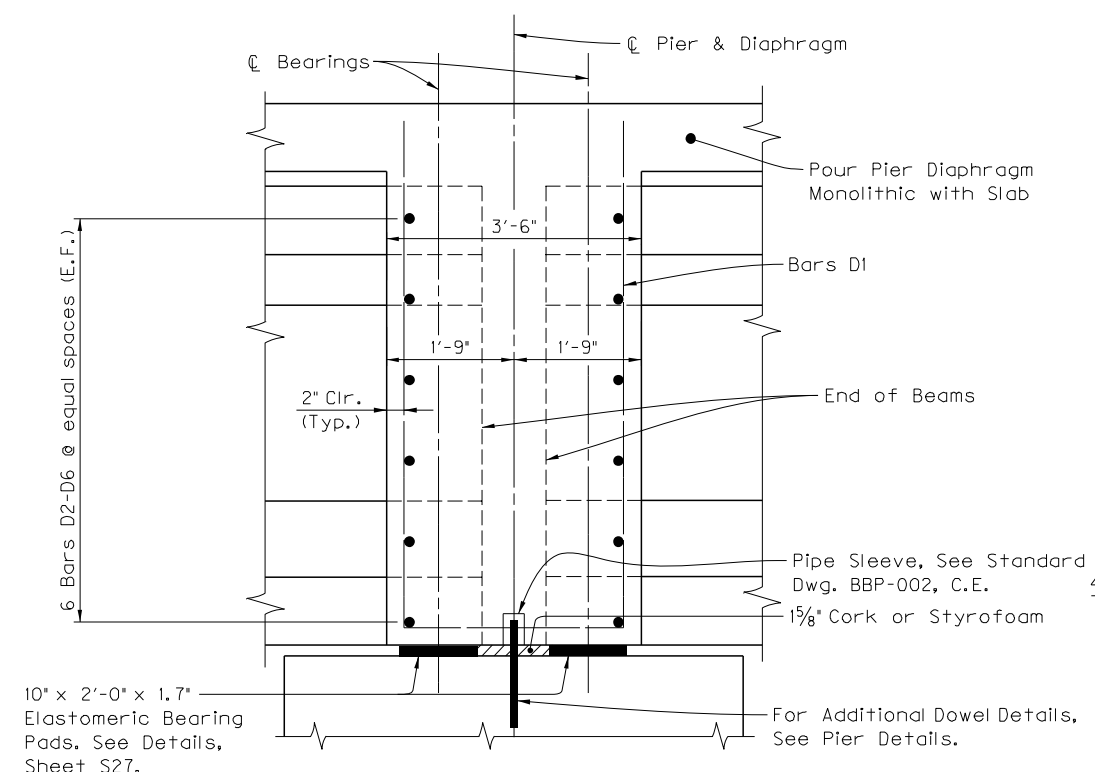


DETAIL "B"

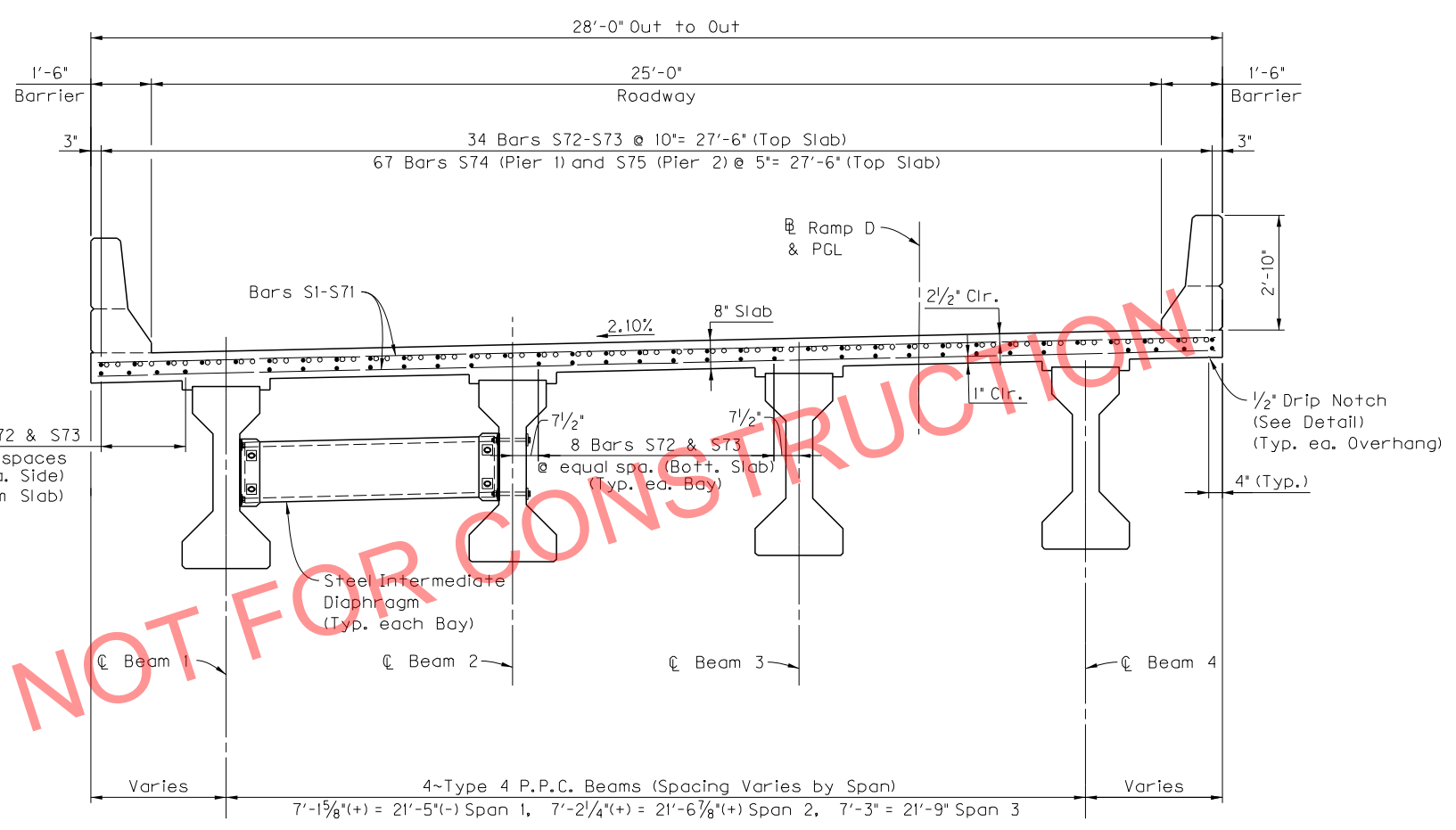
NOTE:
Place the corner reinforcement beneath the longitudinal and transverse reinforcement in the top of the slab.

REVISION		DATE
DATE: June, 2016		CHECKED BY
DESIGNED BY: B.C. REID		W.D. BURTON
DETAILED BY: D.M. SMITHSON		B.C. REID
Commonwealth of Kentucky DEPARTMENT OF HIGHWAYS		
COUNTY WOLFE-MORGAN		
ROUTE RAMP D	CROSSING RED RIVER	
SUPERSTRUCTURE (1 OF 3)		
ITEM NUMBER	PREPARED BY	SHEET NO.
10-126.70	LOCHNER	S20
	H.W. LOCHNER, INC. LEXINGTON, KENTUCKY	DRAWING NO. 27082

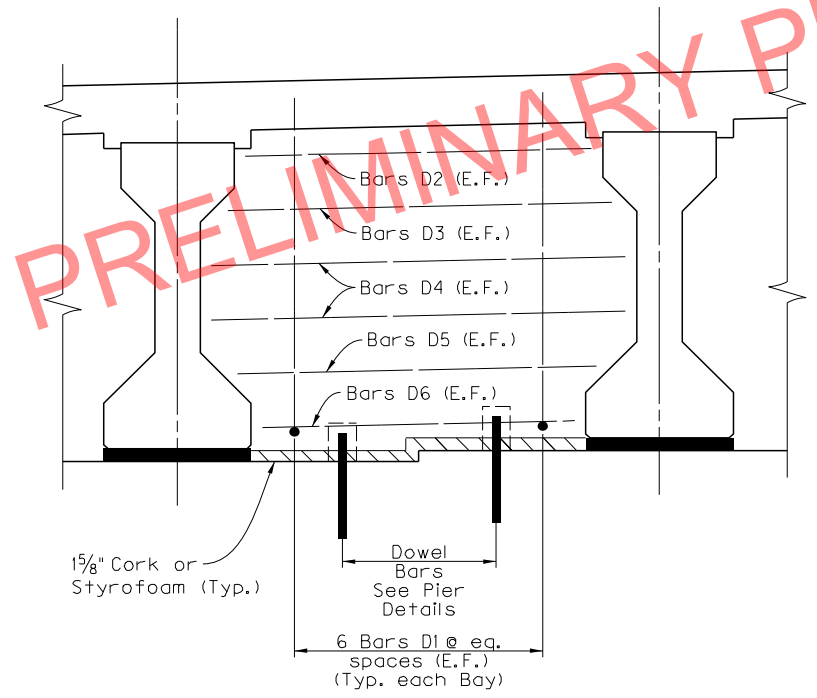
FILE NAME: I:\LEX\PRJ\000008298\DESIGN\STRUCTURES\FINAL DESIGN\STAGE II FINAL SUBMITTAL\27082-S27082-021.DGN
 USER: dsmithson
 DATE PLOTTED: October 11, 2016
 E-SHEET NAME:
 MicroStation v8.11.9.459



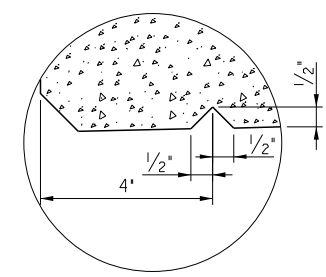
PIER DIAPHRAGM - SECTION
 (Perpendicular to $\text{\textcircled{C}}$ Pier)



TYPICAL SECTION



PIER DIAPHRAGM - ELEVATION



DRIP NOTCH

REVISION		DATE
DATE: June, 2016	CHECKED BY	
DESIGNED BY: B.C. REID	W.D. BURTON	
DETAILED BY: D.M. SMITHSON	B.C. REID	
Commonwealth of Kentucky DEPARTMENT OF HIGHWAYS		
WOLFE-MORGAN		
ROUTE RAMP D	CROSSING RED RIVER	
SUPERSTRUCTURE (2 OF 3)		
ITEM NUMBER	PREPARED BY LOCHNER H.W. LOCHNER, INC. LEXINGTON, KENTUCKY	SHEET NO. S21 DRAWING NO. 27082
10-126.70		

FILE NAME: I:\LEX\PRJ\000008298\DESIGN\STRUCTURES\FINAL DESIGN\STAGE II FINAL SUBMITTAL\27082\27082.022.DGN

USER: dsmithson
DATE PLOTTED: October 11, 2016

E-SHEET NAME:

MicroStation v8.11.9.459

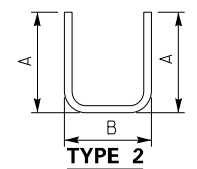
BILL OF REINFORCEMENT

MARK	TYPE	SIZE	NO.	LENGTH		LOCATION	a		b		c		d	
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S1e	Str.	5	2	3	3	Top Slab								
S2e	Str.	5	2	4	5	Top Slab								
S3e	Str.	5	2	5	7	Top Slab								
S4e	Str.	5	2	6	9	Top Slab								
S5e	Str.	5	2	7	11	Top Slab								
S6e	Str.	5	2	9	1	Top Slab								
S7e	Str.	5	2	10	3	Top Slab								
S8e	Str.	5	2	11	5	Top Slab								
S9e	Str.	5	2	12	7	Top Slab								
S10e	Str.	5	2	13	9	Top Slab								
S11e	Str.	5	2	14	11	Top Slab								
S12e	Str.	5	2	16	1	Top Slab								
S13e	Str.	5	2	17	3	Top Slab								
S14e	Str.	5	2	18	5	Top Slab								
S15e	Str.	5	2	19	7	Top Slab								
S16e	Str.	5	2	20	9	Top Slab								
S17e	Str.	5	2	21	11	Top Slab								
S18e	Str.	5	2	23	1	Top Slab								
S19e	Str.	5	2	24	3	Top Slab								
S20e	Str.	5	2	25	6	Top Slab								
S21e	Str.	5	2	26	8	Top Slab								
S22e	Str.	5	2	3	1	Bottom Slab								
S23e	Str.	5	2	4	9	Bottom Slab								
S24e	Str.	5	2	6	4	Bottom Slab								
S25e	Str.	5	2	8	0	Bottom Slab								
S26e	Str.	5	2	9	7	Bottom Slab								
S27e	Str.	5	2	11	3	Bottom Slab								
S28e	Str.	5	2	12	10	Bottom Slab								
S29e	Str.	5	2	14	6	Bottom Slab								
S30e	Str.	5	2	16	2	Bottom Slab								
S31e	Str.	5	2	17	9	Bottom Slab								
S32e	Str.	5	2	19	5	Bottom Slab								
S33e	Str.	5	2	21	1	Bottom Slab								
S34e	Str.	5	2	22	8	Bottom Slab								
S35e	Str.	5	2	24	4	Bottom Slab								
S36e	Str.	5	2	26	0	Bottom Slab								
S37e	Str.	5	60	27	8	Top & Bottom Slab								
S38e	Str.	5	2	26	7	Top Slab								
S39e	Str.	5	2	25	4	Top Slab								
S40e	Str.	5	2	24	1	Top Slab								
S41e	Str.	5	2	22	10	Top Slab								
S42e	Str.	5	2	21	7	Top Slab								
S43e	Str.	5	2	20	4	Top Slab								
S44e	Str.	5	2	19	2	Top Slab								
S45e	Str.	5	2	17	11	Top Slab								
S46e	Str.	5	2	16	8	Top Slab								
S47e	Str.	5	2	15	5	Top Slab								
S48e	Str.	5	2	14	2	Top Slab								
S49e	Str.	5	2	12	10	Top Slab								
S50e	Str.	5	2	11	8	Top Slab								
S51e	Str.	5	2	10	5	Top Slab								

BILL OF REINFORCEMENT

MARK	TYPE	SIZE	NO.	LENGTH		LOCATION	a		b		c		d	
				FT.	IN.		FT.	IN.	FT.	IN.	FT.	IN.		
S52e	Str.	5	2	9	2	Top Slab								
S53e	Str.	5	2	7	11	Top Slab								
S54e	Str.	5	2	6	8	Top Slab								
S55e	Str.	5	2	5	5	Top Slab								
S56e	Str.	5	2	4	2	Top Slab								
S57e	Str.	5	2	2	11	Top Slab								
S58e	Str.	5	2	25	10	Bottom Slab								
S59e	Str.	5	2	24	2	Bottom Slab								
S60e	Str.	5	2	22	5	Bottom Slab								
S61e	Str.	5	2	20	8	Bottom Slab								
S62e	Str.	5	2	18	11	Bottom Slab								
S63e	Str.	5	2	17	1	Bottom Slab								
S64e	Str.	5	2	15	5	Bottom Slab								
S65e	Str.	5	2	13	8	Bottom Slab								
S66e	Str.	5	2	11	11	Bottom Slab								
S67e	Str.	5	2	10	2	Bottom Slab								
S68e	Str.	5	2	8	5	Bottom Slab								
S69e	Str.	5	2	6	8	Bottom Slab								
S70e	Str.	5	2	4	11	Bottom Slab								
S71e	Str.	5	2	3	1	Bottom Slab								
S72e	Str.	5	132	55	1	Top & Bottom Slab								
S73e	Str.	5	66	60	0	Top & Bottom Slab								
S74e	Str.	7	67	33	0	Top Slab								
S75e	Str.	6	67	37	0	Top Slab								
S76e	Str.	6	20	10	0	Top Slab								
D1e	2s	5	36	13	0	Pier Diaphragm	4	11	3	2				
D2e	Str.	5	12	5	1	Pier Diaphragm								
D3e	Str.	5	12	5	8	Pier Diaphragm								
D4e	Str.	5	24	6	1	Pier Diaphragm								
D5e	Str.	5	12	5	3	Pier Diaphragm								
D6e	Str.	5	12	4	7	Pier Diaphragm								

PRELIMINARY PLANS NOT FOR CONSTRUCTION



NOTE:
All Reinforcing Bars are Epoxy Coated.

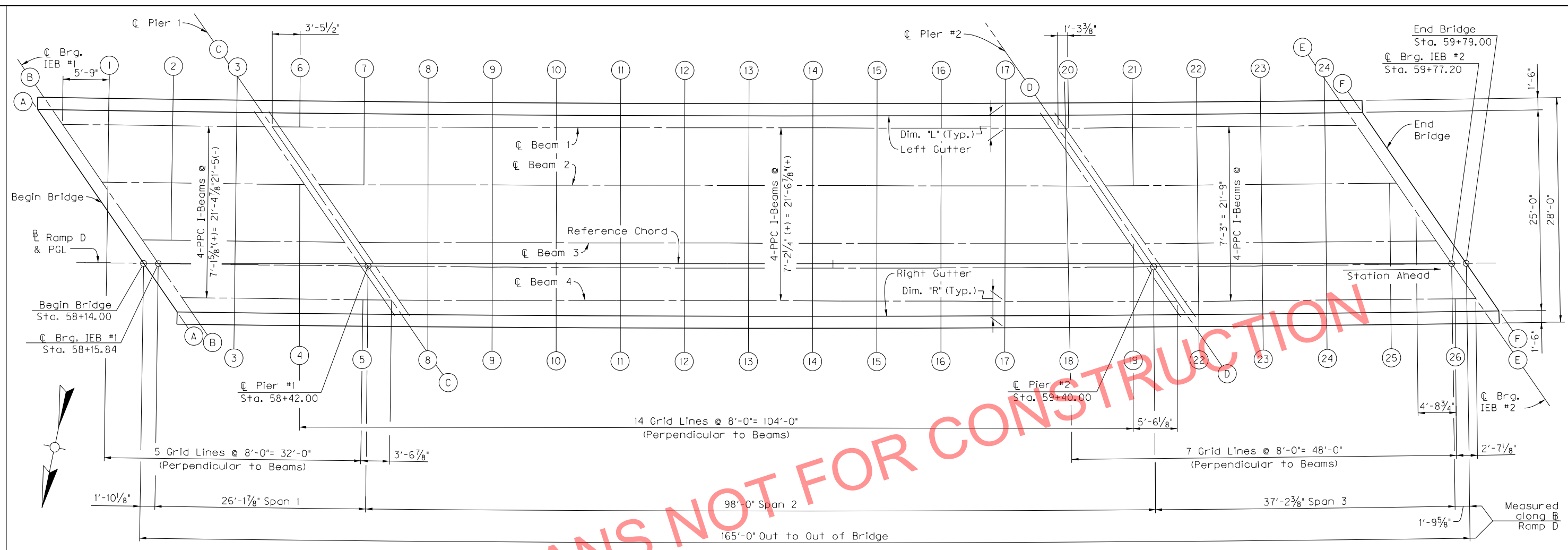
REVISION	
DATE: June, 2016	CHECKED BY
DESIGNED BY: B.C. REID	W.D. BURTON
DETAILED BY: D.M. SMITHSON	B.C. REID
Commonwealth of Kentucky DEPARTMENT OF HIGHWAYS	
COUNTY WOLFE-MORGAN	
ROUTE RAMP D	CROSSING RED RIVER
SUPERSTRUCTURE (3 OF 3)	
ITEM NUMBER	PREPARED BY
10-126.70	LOCHNER
	H.W. LOCHNER, INC. LEXINGTON, KENTUCKY
	SHEET NO. S22
	DRAWING NO. 27082

FILE NAME: I:\LEX\PRJ\00008298\DESIGN\STRUCTURES\FINAL DESIGN\STAGE II FINAL SUBMITTAL\27082\S27082.023.DGN

USER: dsmitthson
DATE PLOTTED: October 11, 2016

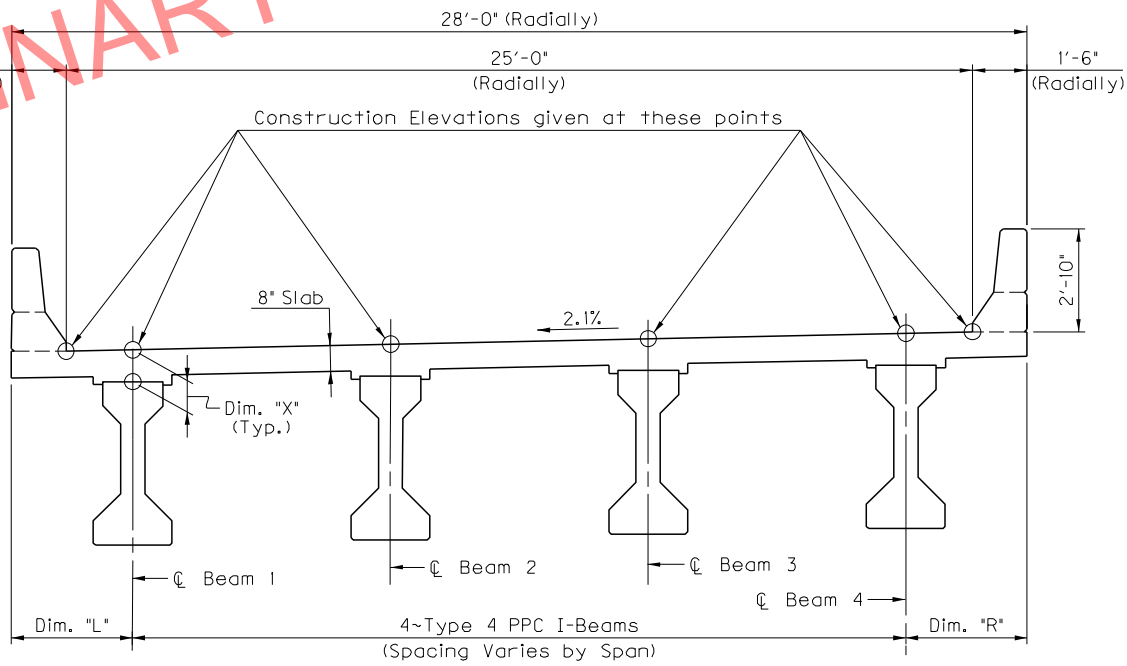
E-SHEET NAME:

MicroStation v8.11.9.459



GRID LAYOUT

PRELIMINARY PLANS NOT FOR CONSTRUCTION



TYPICAL SECTION

REVISION	DATE

DATE: June, 2016
DESIGNED BY: B.C. REID
CHECKED BY: W.D. BURTON
DETAILED BY: W.R. ABBOTT
R.C. REID

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS
COUNTY
WOLFE-MORGAN

ROUTE: **RAMP D** CROSSING: **RED RIVER**
CONSTRUCTION ELEVATIONS
PREPARED BY: **LOCHNER**
H.W. LOCHNER, INC.
LEXINGTON, KENTUCKY

ITEM NUMBER	
10-126.70	

SHEET NO.
S23
DRAWING NO.
27082

FILE NAME: I:\LEX\PRJ\0008298\DESIGN\STRUCTURES\FINAL DESIGN\STAGE II FINAL SUBMITTAL\27082.S27082.024.DGN

USER: breid
DATE PLOTTED: October 11, 2016

E-SHEET NAME:

MicroStation v8.11.9.714

CONSTRUCTION ELEVATIONS

LOCATION	Dim. "L" (Ft.)	Left Gutter	C Beam 1			C Beam 2			C Beam 3			C Beam 4			Right Gutter	Dim. "R" (Ft.)
			Const. Elev.	Top of Beam	Dim. "X"	Const. Elev.	Top of Beam	Dim. "X"	Const. Elev.	Top of Beam	Dim. "X"	Const. Elev.	Top of Beam	Dim. "X"		
Skew Line AA	--	954.942	954.994			955.198			955.402			955.606			955.658	--
Skew Line BB	--	954.961	955.014			955.218			955.422			955.626			955.677	--
Skew Line CC	--	955.243	955.292			955.498			955.704			955.909			955.957	--
Skew Line DD	--	956.300	956.347			956.551			956.756			956.961			957.007	--
Skew Line EE	--	956.701	956.746			956.951			957.156			957.361			957.405	--
Skew Line FF	--	956.720	956.766			956.970			957.175			957.380			957.425	--
Grid Line 1	3.300	955.037	955.075			955.225			--			--			--	--
Grid Line 2	3.284	955.124	955.161			955.311			955.461			--			--	--
Grid Line 3	3.280	955.209	955.245			955.396			955.548			955.697			955.734	3.310
Grid Line 4	--	--	--			955.482			955.633			955.784			955.821	3.303
Grid Line 5	--	--	--			--			--			955.870			955.906	3.284
Grid Line 6	3.249	955.313	955.345			--			--			--			--	--
Grid Line 7	3.180	955.427	955.457			955.593			--			--			--	--
Grid Line 8	3.122	955.537	955.566			955.704			955.841			955.977			956.009	3.304
Grid Line 9	3.076	955.643	955.673			955.812			955.951			956.089			956.122	3.350
Grid Line 10	3.041	955.742	955.771			955.916			956.058			956.198			956.232	3.385
Grid Line 11	3.017	955.834	955.864			956.013			956.158			956.303			956.339	3.409
Grid Line 12	3.004	955.918	955.950			956.103			956.253			956.401			956.439	3.422
Grid Line 13	3.002	955.995	956.028			956.186			956.341			956.493			956.531	3.423
Grid Line 14	3.012	956.066	956.100			956.262			956.421			956.577			956.617	3.414
Grid Line 15	3.033	956.130	956.166			956.331			956.494			956.655			956.696	3.393
Grid Line 16	3.066	956.190	956.228			956.395			956.560			956.726			956.767	3.360
Grid Line 17	3.109	956.248	956.287			956.456			956.624			956.790			956.832	3.317
Grid Line 18	--	--	--			956.514			956.684			956.852			956.893	3.262
Grid Line 19	--	--	--			--			956.750			956.911			956.952	3.196
Grid Line 20	3.148	956.327	956.361			--			--			--			--	--
Grid Line 21	3.119	956.414	956.448			956.599			--			--			--	--
Grid Line 22	3.101	956.500	956.533			956.686			956.838			956.990			957.024	3.149
Grid Line 23	3.095	956.585	956.618			956.772			956.924			957.076			957.111	3.155
Grid Line 24	3.099	956.670	956.704			956.857			957.010			957.162			957.197	3.151
Grid Line 25	--	--	--			956.942			957.094			957.247			957.281	3.135
Grid Line 26	--	--	--			--			--			957.332			957.366	3.108

PRELIMINARY PLANS NOT FOR CONSTRUCTION

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 into table 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 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 beam 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 or slab or when taking the "Top of Beam" elevations.

Construct barriers to roadway grade. Do NOT add camber to the barrier.

Note to Engineer: 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 8 inches as shown in the plans. This work will be considered incidental to the completion of the structure and must have the approval of the Engineer.

REVISION		DATE
DATE: June, 2016	CHECKED BY	
DESIGNED BY: B.C. REID	W.D. BURTON	
DETAILED BY: W.R. ABBOTT	B.C. REID	

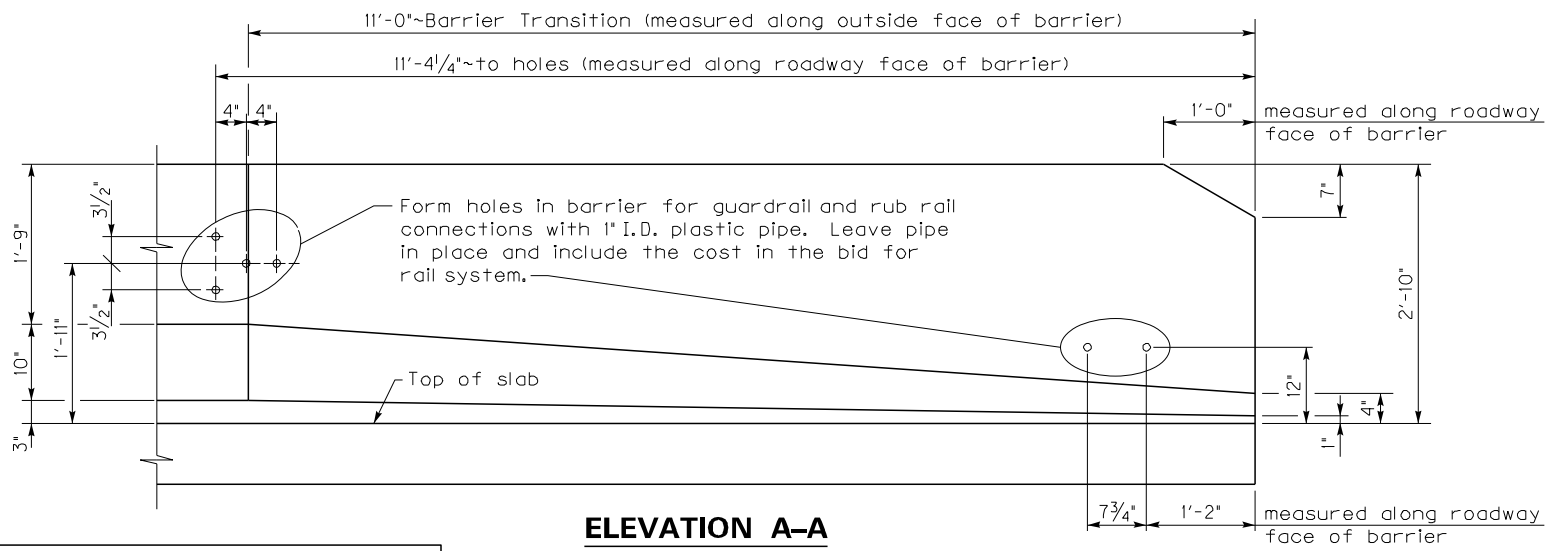
Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

COUNTY
WOLFE-MORGAN

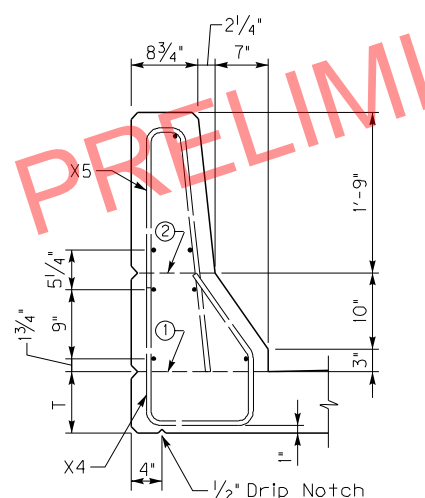
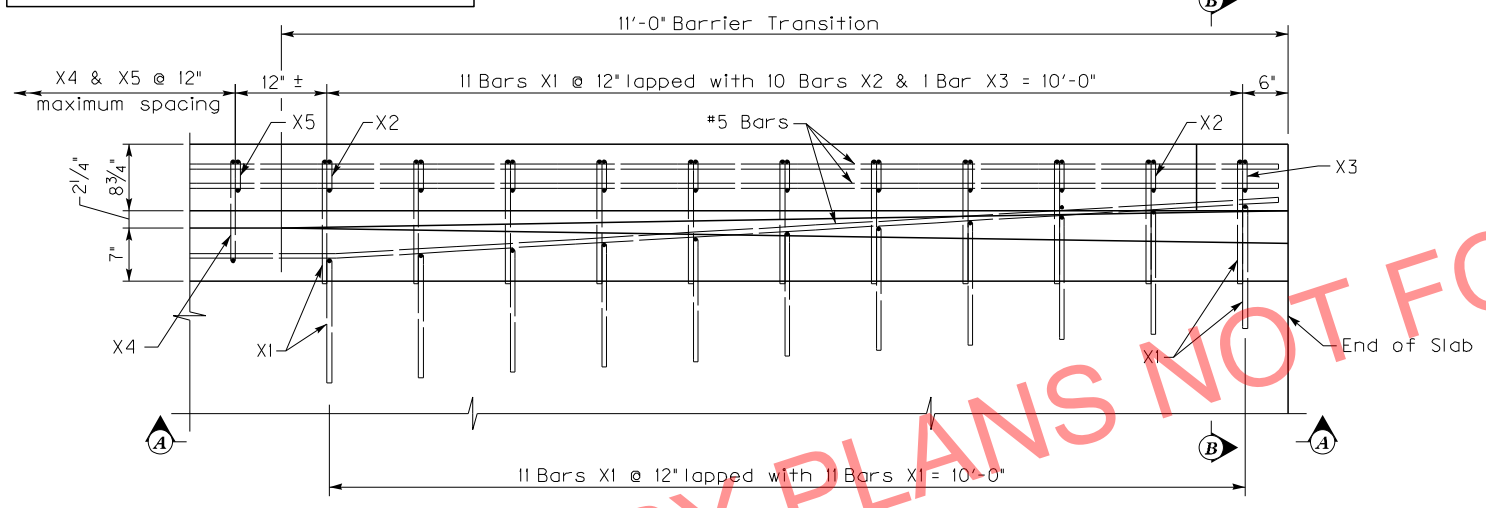
ROUTE CROSSING
RAMP D RED RIVER

CONSTRUCTION ELEVATIONS

ITEM NUMBER	PREPARED BY	SHEET NO.
10-126.70	LOCHNER H.W. LOCHNER, INC. LEXINGTON, KENTUCKY	S24 DRAWING NO. 27082

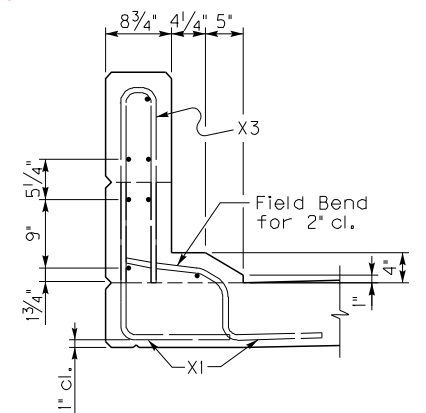


Note: Open joints are not required.

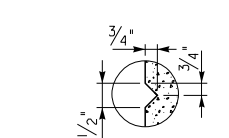


TYPICAL BARRIER SECTION

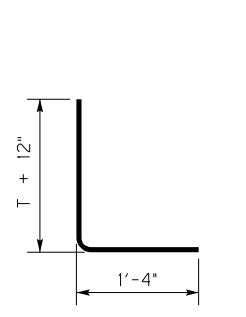
- Mandatory roughened construction joint. Concrete above this joint is to be placed after slab has been properly cured and included in the bid for Rail System, Type 3.
- Permissible construction joint. "V-Groove" rustication joint is required if construction joint is used. 1/4" Open joints are not required.



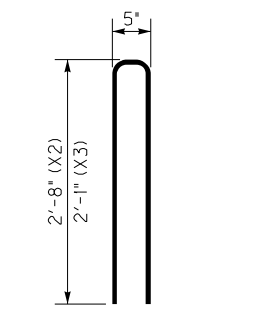
SECTION B-B



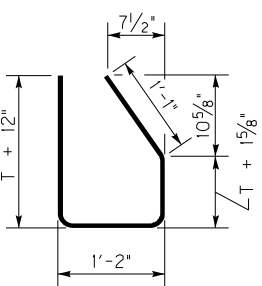
"V-Groove" Rustication



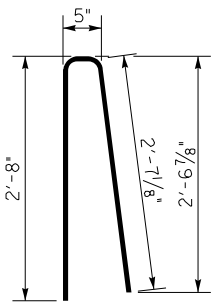
X1(e) Bars
 #5 Bar



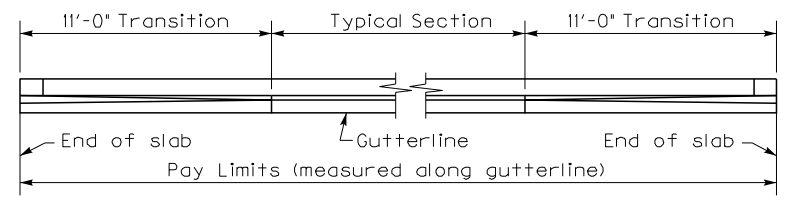
X2(e) & X3(e) Bars
 #5 Bar



X4(e) Bars
 #5 Bar

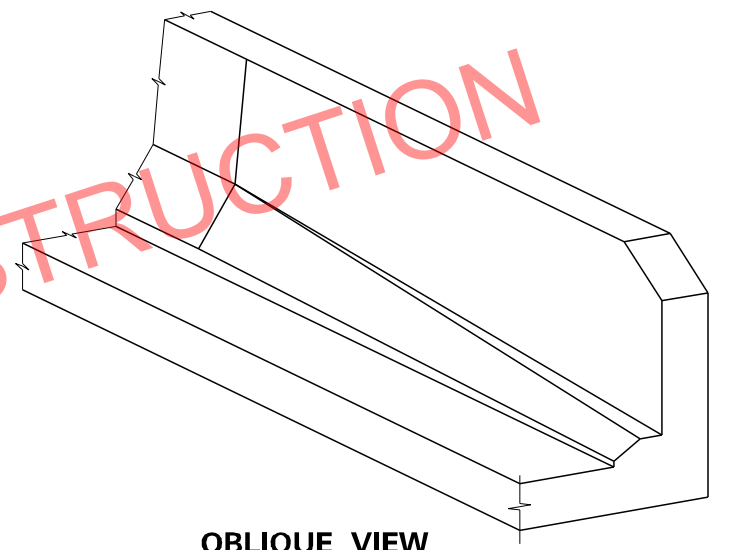


X5(e) Bars
 #5 Bar



PLAN OF BARRIER

Note: X1 & X3 Bars at end of slab may be adjusted to maintain 2" minimum clearance on curved and skewed end bridges.



OBLIQUE VIEW

General Notes

CONCRETE: Use Class AA Concrete throughout.

OPTIONAL WELDED WIRE REINFORCEMENT:

As the contractor's option, deformed welded wire reinforcement (WWR) in accordance with ASTM A497 and epoxy coated in accordance with ASTM A884 may be used in place of stirrup bars X2, X3, and X5 as well as the straight or longitudinal reinforcement attached to these stirrups. Use size D31 wire for both stirrups and straight reinforcement. Locate and space the wire reinforcement the same as the conventional reinforcement except lower the top straight bar at least 2 1/2" away from the bend in the stirrup. Use a minimum 2'-8" lap for the straight reinforcement between sheets of WWR.

MEASUREMENT: The linear foot bid for the barrier is measured along the roadway gutterline. Include all reinforcement shown and all concrete above the top of slab in the bid item for Rail System Type 3.

REINFORCEMENT: All reinforcement shown on this sheet is to be epoxy coated. Use stirrup bend diameters for all bent bars. Straight reinforcement is to be Size #5 and lapped 2'-2" when necessary.

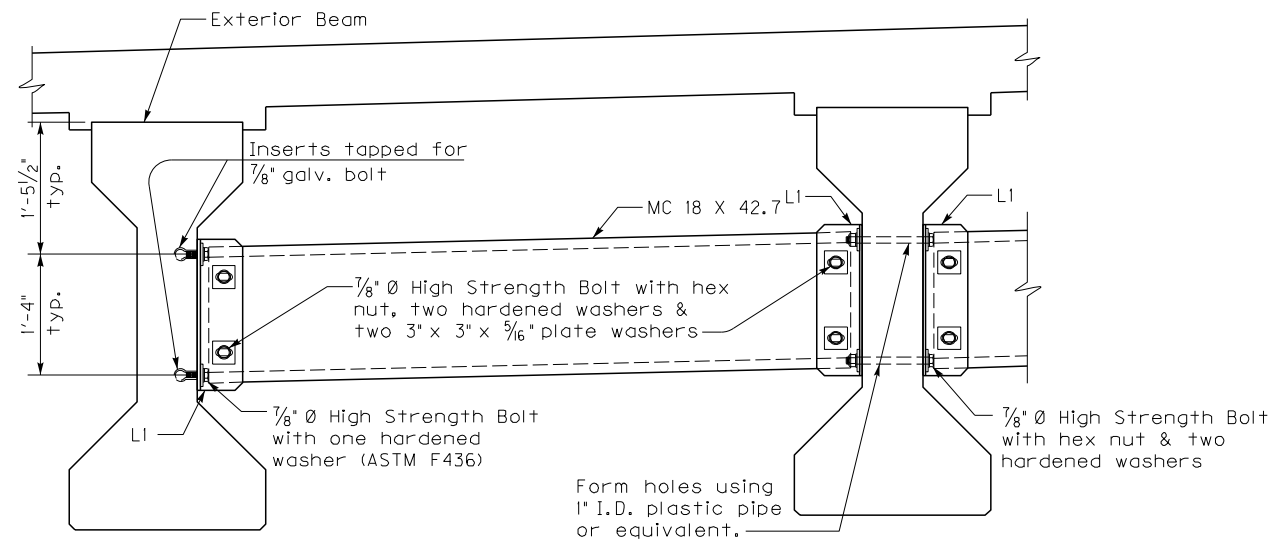
REVISION		DATE
DATE: June, 2016	CHECKED BY	
DESIGNED BY: B.C. REID	W.D. BURTON	
DETAILED BY: W.R. ABBOTT	W.D. BURTON	
Commonwealth of Kentucky DEPARTMENT OF HIGHWAYS		
WOLFE-MORGAN		
ROUTE RAMP D	CROSSING RED RIVER	
RAIL SYSTEM TYPE 3		
ITEM NUMBER		PREPARED BY
10-126.70		LOCHNER
		H.W. LOCHNER, INC. LEXINGTON, KENTUCKY
		SHEET NO. S25
		DRAWING NO. 27082

FILE NAME: I:\LEX\PRJ\00008298\DESIGN\STRUCTURES\FINAL DESIGN\STAGE II FINAL SUBMITTAL\27082\S27082.026.DGN

USER: dsmitthson
DATE PLOTTED: October 11, 2016

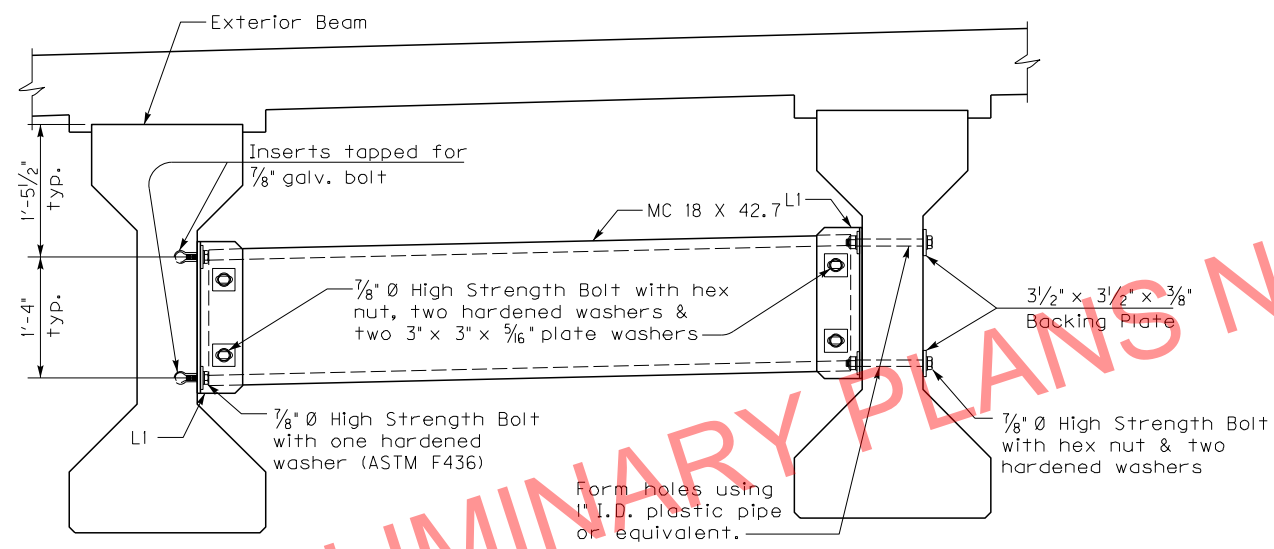
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MicroStation v8.11.9.459



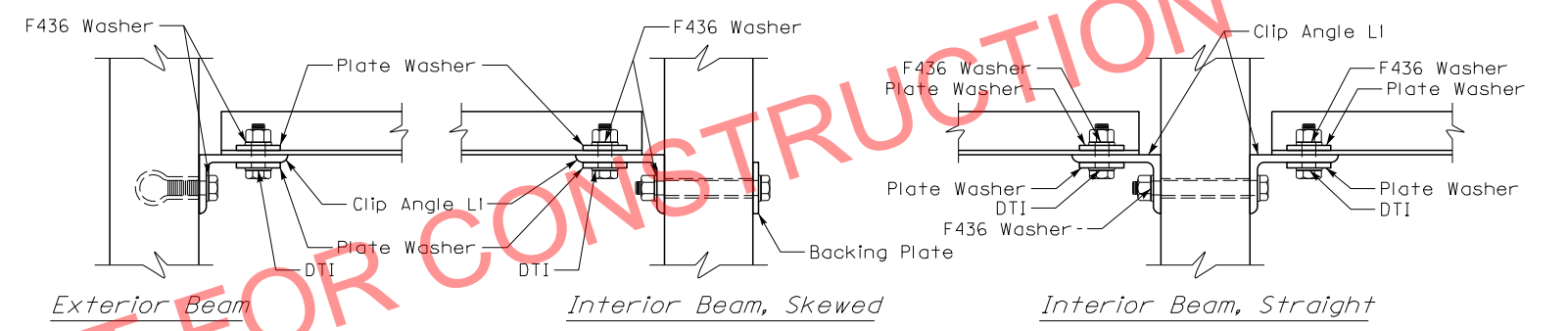
INTERMEDIATE DIAPHRAGM

~Typical for 0° Skew PCI, Type 4 Beams~

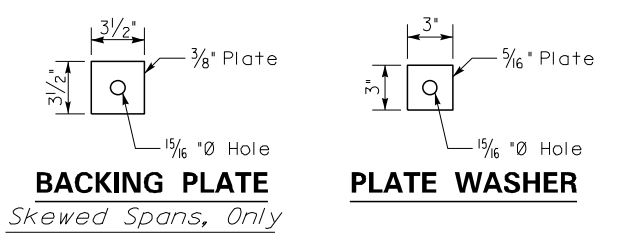


INTERMEDIATE DIAPHRAGM

~Typical for Skewed PCI, Type 4 Beams~



CONNECTION DETAILS



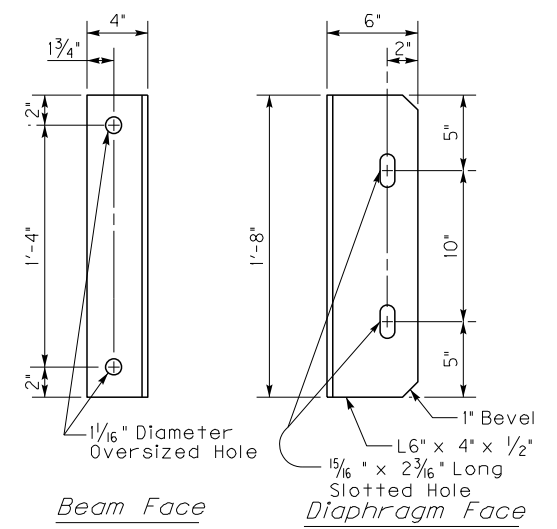
Diaphragm Notes

CONNECTIONS: Ensure all bolted connections are ASTM A325, 7/8 inch diameter high strength bolts, nuts, and washers, mechanically zinc coated in accordance with AASHTO M298, for Class 50. Install all high strength bolted field connections using "direct tension indicators" (DTI's) in accordance with the Standard Specifications and ASTM F959. Ensure all DTI's are mechanically zinc coated. Show installation details of the DTI's on the shop plans. Place DTI's under the bolt head. ASTM A449 bolts may be used in lieu of A325 for the bolts carried through the girder webs only.

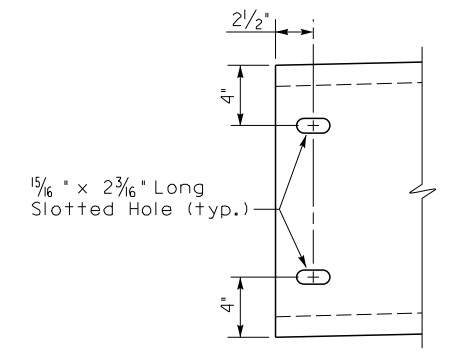
STRUCTURAL STEEL: Ensure plates, angles, and channels conform to ASTM A36 or A572 and galvanized after fabrication.

SHOP DRAWINGS: Show the location of all inserts and holes on the precast beam shop drawings. Submit shop drawings for the steel diaphragms to the Bridge Consultant for approval.

DIAPHRAGMS: Erect the diaphragms the same day that the precast beams are placed on the substructure. Include the cost of all materials and labor required to fabricate and erect the diaphragms in the bid for Precast Beams.



CLIP ANGLE - L1

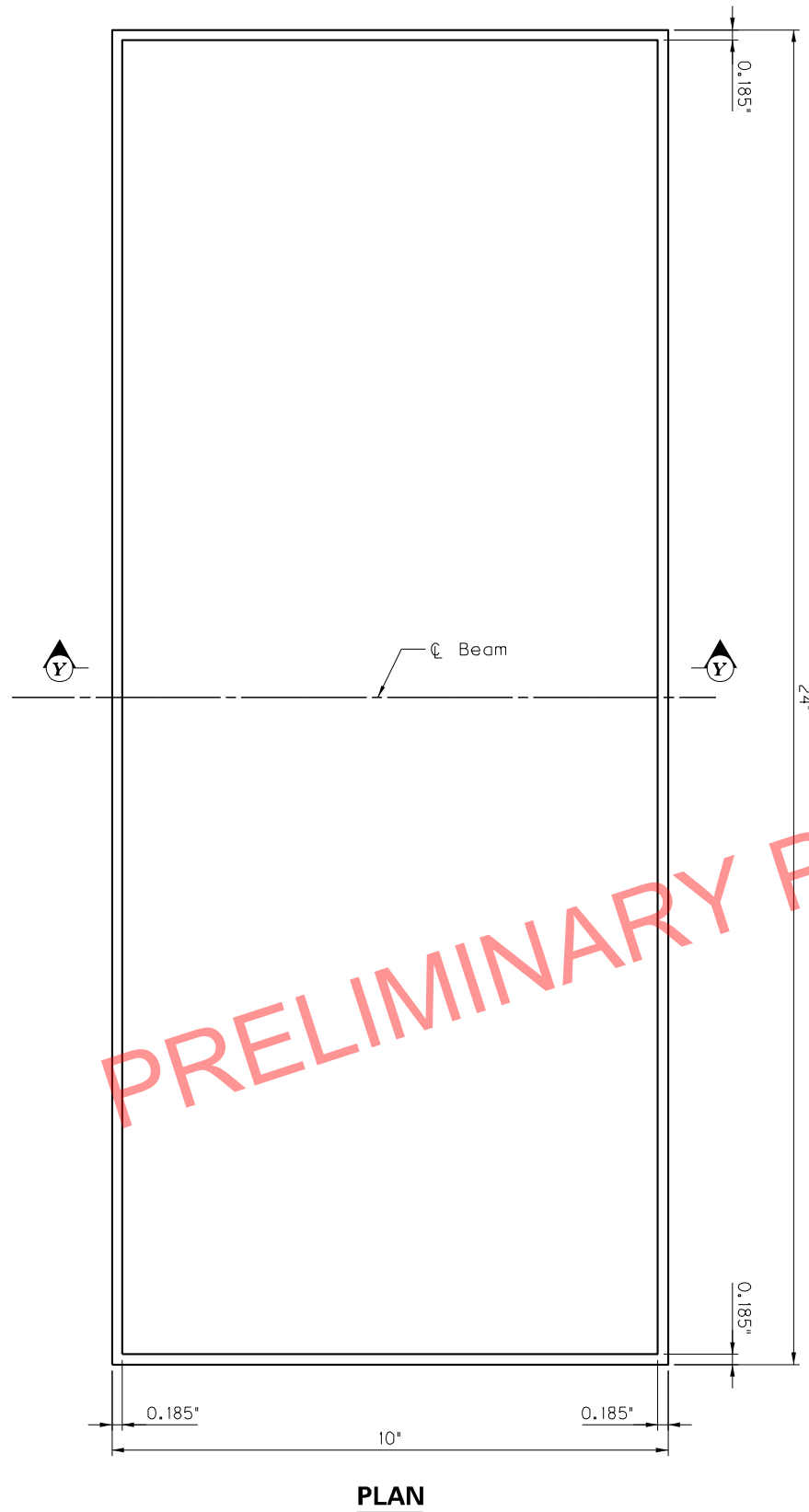


CHANNEL END

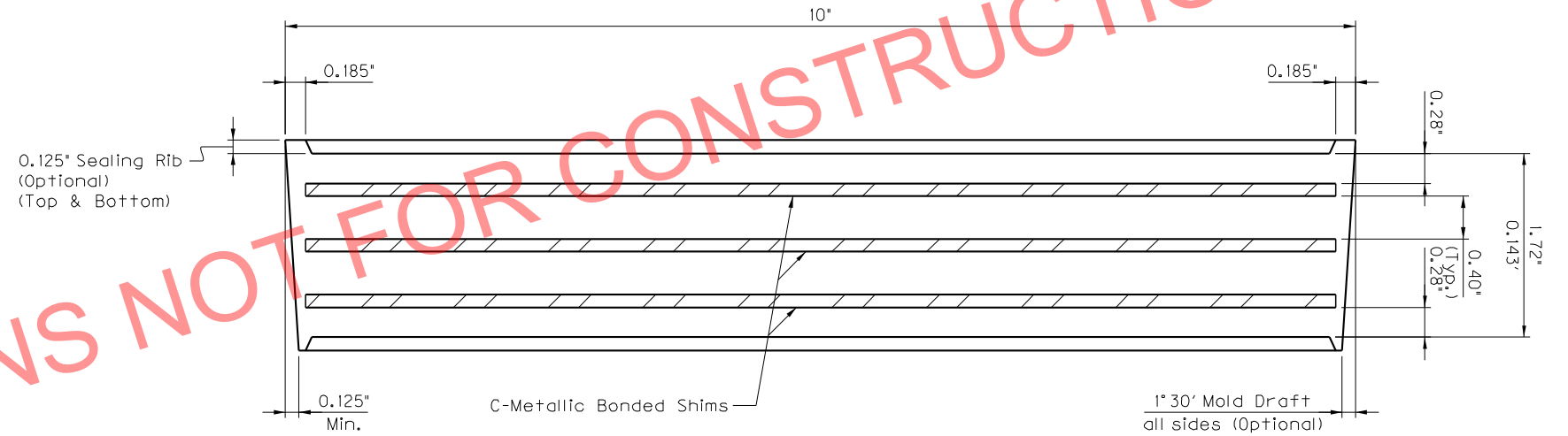
ITEM NUMBER	10-126.70
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REVISION		DATE
DATE: June, 2016	CHECKED BY	
DESIGNED BY: B.C. REID	W.D. BURTON	
DETAILED BY: W.R. ABBOTT	W.D. BURTON	
Commonwealth of Kentucky DEPARTMENT OF HIGHWAYS		
WOLFE-MORGAN		
ROUTE RAMP D	CROSSING RED RIVER	
STEEL DIAPHRAGMS		
PREPARED BY LOCHNER H.W. LOCHNER, INC. LEXINGTON, KENTUCKY		SHEET NO. S26 DRAWING NO. 27082

MicroStation v8.11.9.459 E-SHEET NAME: USER: dsmitthson DATE PLOTTED: October 11, 2016 FILE NAME: I:\LEX\PRJ\00008298\DESIGN\STRUCTURES\FINAL DESIGN\STAGE II FINAL SUBMITTAL\27082\S27082.027.DGN



PLAN



SECTION Y-Y

PRELIMINARY PLANS NOT FOR CONSTRUCTION

GENERAL NOTES

SPECIFICATIONS: Fabricate the Elastomeric Bearing Pads to the design and dimensions as shown on these drawings and to AASHTO LRFD Bridge Construction Specifications, Section 18.

Ensure bearings are low temperature Grade 3 with durometer hardness of 50 and subjected to the load testing requirements corresponding to Design Method A.

Include the price of bearing pads in the bid for the beams.

REVISION		DATE
DATE: June, 2016	DESIGNED BY: B.C. REID	CHECKED BY: W.D. BURTON
DESIGNED BY: B.C. REID	DATE PLOTTED: October 11, 2016	W.D. BURTON
DETAILED BY: W.R. ABBOTT	ELASTOMERIC BEARING PADS	W.D. BURTON
Commonwealth of Kentucky DEPARTMENT OF HIGHWAYS		
WOLFE-MORGAN		
ROUTE RAMP D	CROSSING RED RIVER	
ELASTOMERIC BEARING PADS		
ITEM NUMBER	PREPARED BY LOCHNER	SHEET NO. S27
10-126.70	H.W. LOCHNER, INC. LEXINGTON, KENTUCKY	DRAWING NO. 27082

ITEM NUMBER	10-126.70
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