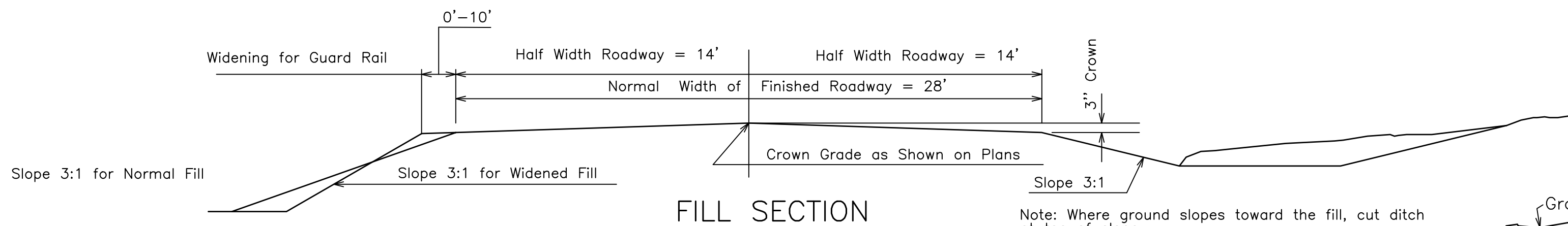
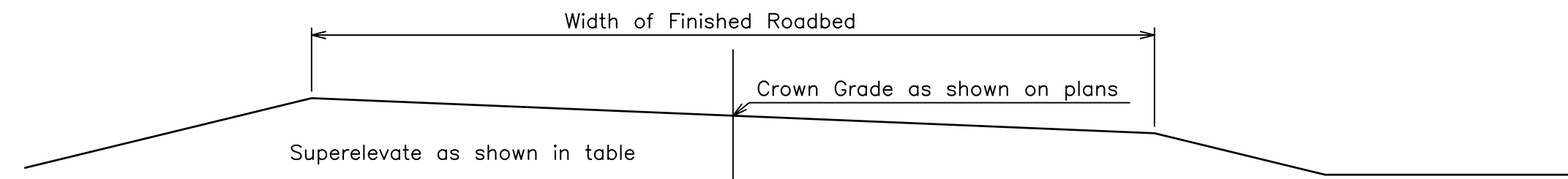


STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	74 C-5227-01	2024	2	51

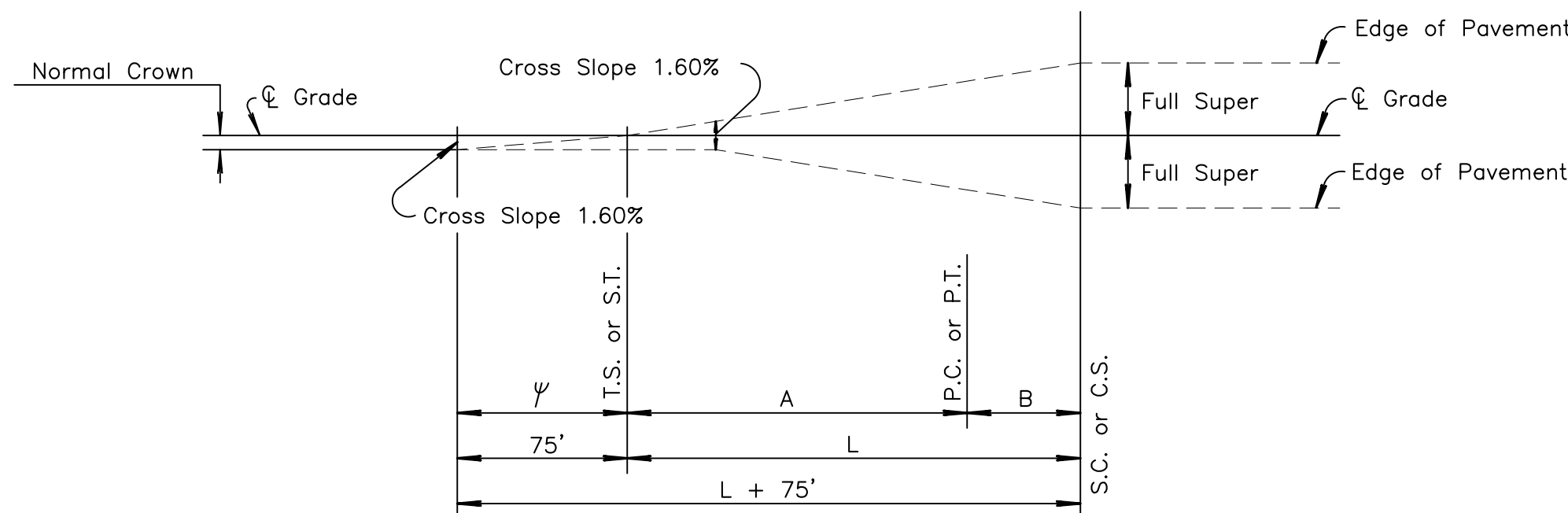
NOTE: For overbreakage in limestone, sandstone or shale see Special Provisions



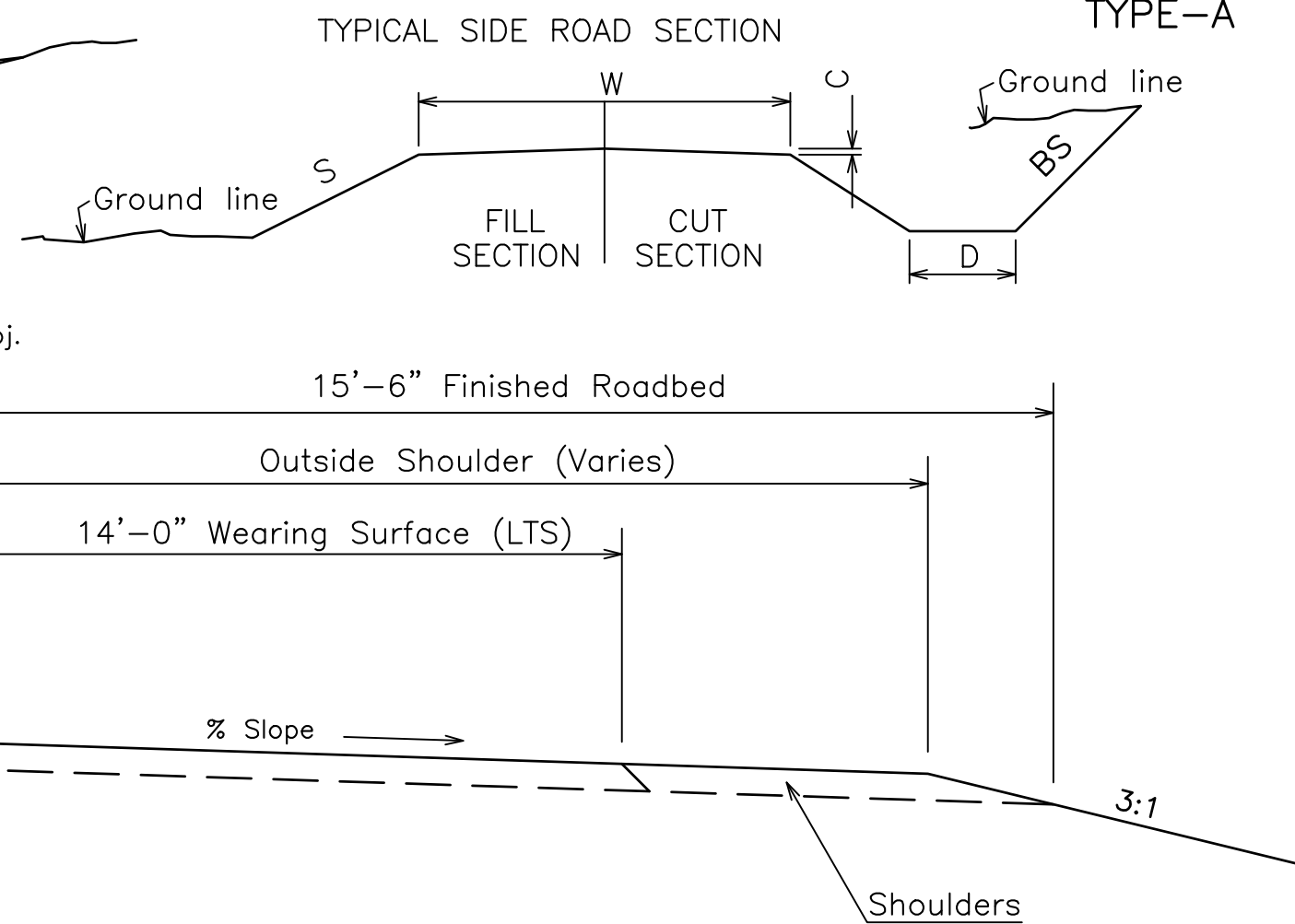
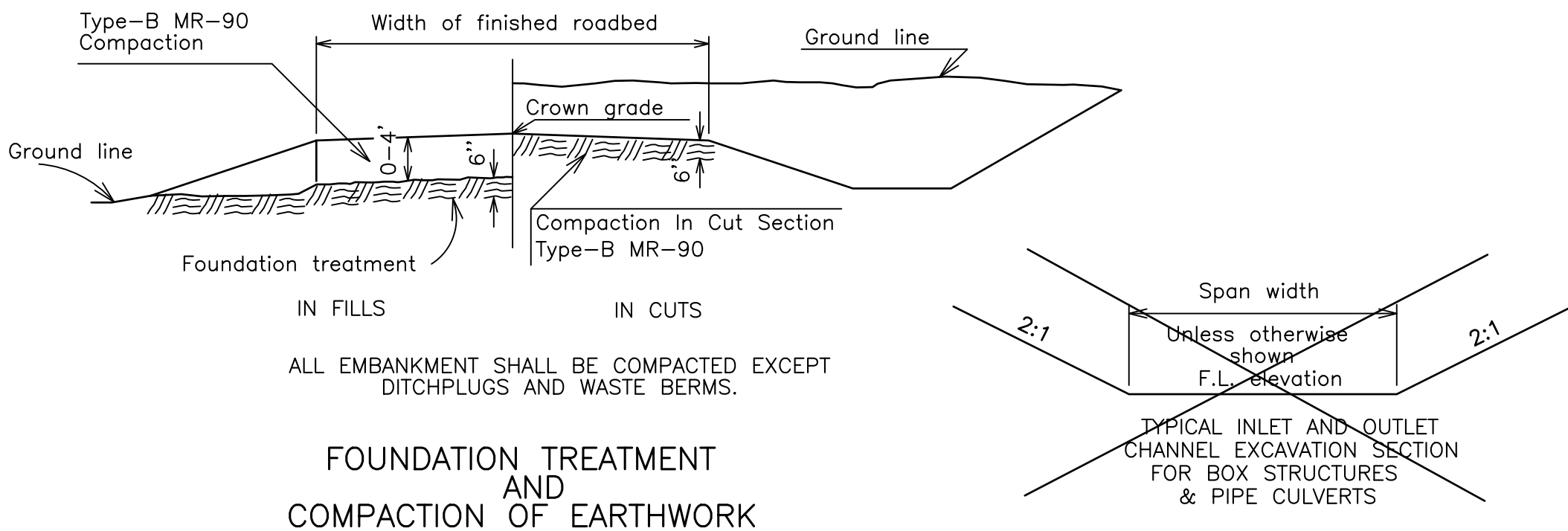
Shoulder Slopes at ends of Guard Rail should be no steeper than 3:1.
When fill exceeds 6' Shoulder Slopes may be steepened



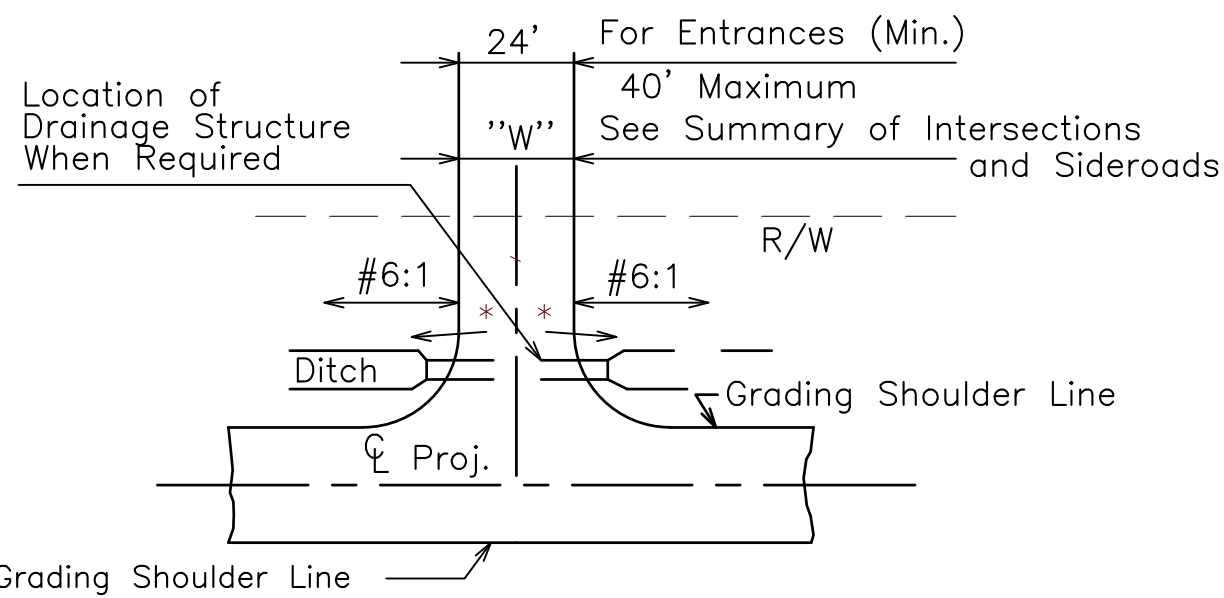
SUPERELEVATED SECTION



PROFILE SHOWING METHOD OF ATTAINING SUPERELEVATION

[illegible]

TYPICAL 1/2 SECTION SURFACING

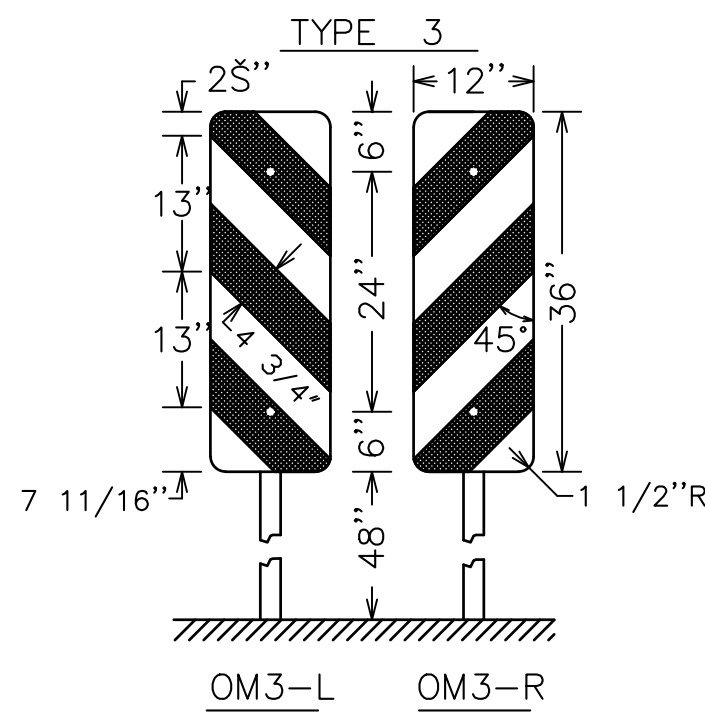


TYPICAL SIDE ROAD OR ENTRANCE DETAIL

* On side roads and entrances which slope toward the roadway, construct a low point approx. 6" deep to divert surface drainage into the roadway ditch.

On ditch plugs and side roads or entrances without drainage structures use 8 : 1 slopes where feasible.

OBJECT MARKER



Light-Type shale surfacing (6") by Phillips County with their own forces and funds.

SUMMARY OF OBJECT MARKERS AND SIGNS

STATION TO STATION	SIDE	TYPE OF STRUCT.	TYPE OF SIGN	OBJECT MARKER		REMARKS
				TYPE	NO.	
1397+69	Lt.	Bridge	Obj. Marker	OM-3L	1	
1397+69	Rt.	Bridge	Obj. Marker	OM-3R	1	
1398+55	Lt.	Bridge	Obj. Marker	OM-3R	1	
1398+55	Rt.	Bridge	Obj. Marker	OM-3L	1	
Total					4	
ØAs you face bridge end from approach						
*Back-to-Back [Sign(s) on Both Sides of Post]						

7	01-08-15	Revised superelevation diagram, updated misc. notes.	TLS	RJS
6	11-9-04	Changed "Culvert" to "Structure"	DMK	RJS
5	12-1-03	Rem. Delin.'s/Add Typ. Sect./Changed OM notes	DMK	RJS
4	5-14-03	Rev. Contractor note in Gen. Notes	DMK	RJS
NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION

TYPICAL GRADING SECTION

LP907				
FHWA APPROVAL			APP'D	RJS
DESIGNED	DETAILED	DMK	QUANTITIES	TRACED
DESIGN CK.	DETAIL CK.	RJS	QUAN.CK.	TRACE CK.

X:\ac2\kdot\KD5227 - Phillips - Off #197\ACAD\p907.dwg | p907 - Layout1 7/25/2024 10:07 AM

UTILITIES

Power: *Prairie Land Electric*
 Norton, KS 67654
 1-785-877-3323

Telephone: *Nex-Tech/Rural Telephone Co.*
 Lenora, KS 67645
 1-877-567-7872

PROJECT COORDINATE SYSTEM: KRCS
HORIZONTAL DATUM: NAD83(2011) Kansas Regional Coordinate
System Zone 4 Hays, using Geoid 18(Consus)

DATUM BENCHMARK: $\frac{5}{8}$ " Rebar w/Green plastic cap
designated as BM #4 Sta. 1400+18, 36' Rt. Project C, 1'
north of fence post = 1920.82

NOTE: The Contractor shall remove the existing 36.1' SMBS bridge (Br. No. 000740629503200) with 17.0' rdwy. width. All materials shall become the property of the Contractor and be removed from the site.

Existing Bridge consists of: steel stringers, piers, timber deck, abutments, and wings.

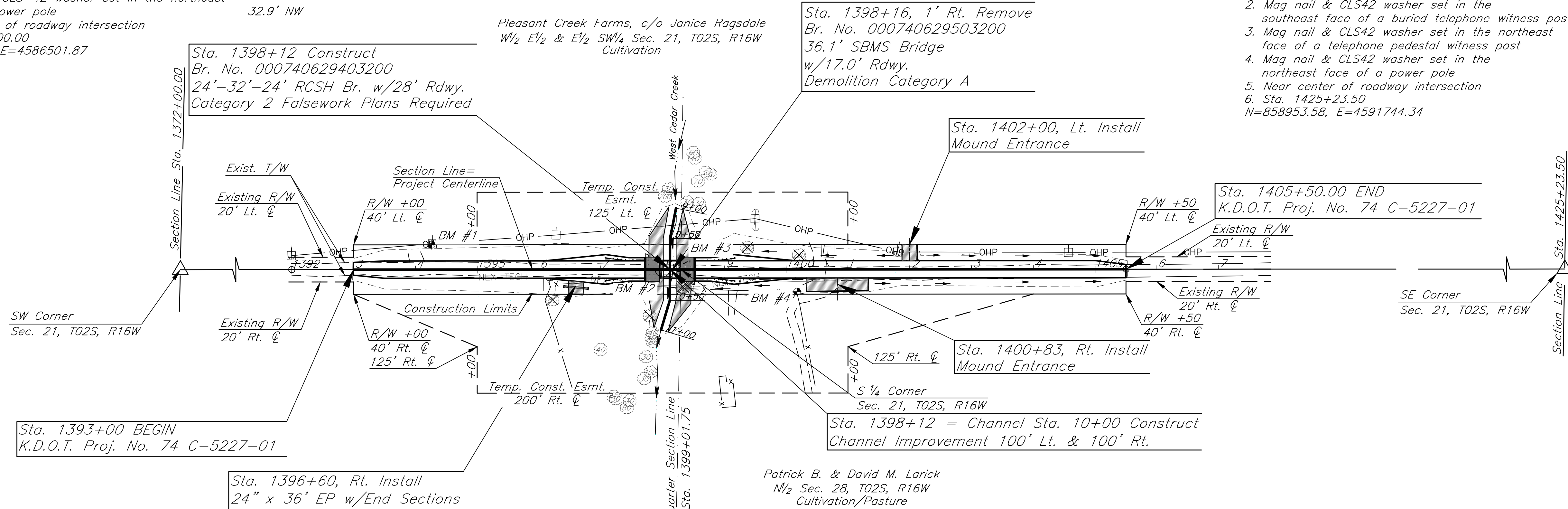
The Contractor shall construct the shoulder widening and install Steel Plate Guardrail (Galv.) and Guardrail End Terminal at each quadrant of the new RCSH Bridge, Sta. 1398+12. See Sheet No. 4-8 for details.

SW Corner of Sec. 21, T02S, R16W		Ref.
1. $\frac{5}{8}$ "x24" rebar with pink plastic cap stamped "PENCO CLS-42"		0.5' Deep
2. Mag nail & CLS-42 washer set in the northwest face of a telephone pedestal witness post	46.8'	ENE
3. Mag nail & CLS-42 washer set in the top of a corner fence post	35.1'	SW
4. Mag nail & CLS-42 washer set in the northeast face of a power pole	32.9'	NW
5. Near center of roadway intersection		
6. Sta. 1372+00.00		
N=858850.08, E=4586501.87		Sta. 1398+12

POT	Ref.	POT
1. Office Set		1. Office Set
2. Section Line=Project Centerline		2. Section Line=Project Centerline
3. Inline w/Travelway E-W		3. Travelway E-W
4. Sta. 1392+00.00		4. Sta. 1405+50.00
5. No other ties available		5. No other ties available
N=858889.55, E=4588501.48		N=858916.20, E=4589851.27

Ref.	S 1/4 Corner of Sec 21, T2S, R16W
	1. No monument found
3.0' S	2. Existing monument would have been placed on or below existing bridge structure. Quarter corner established by calculation of previous surveys.
	3. Sta. 1399+01.75
	N=858901.98, E=44589131.03

SE Corner of Sec 21, T2S, R16W	Ref.
1. 5/8"x24" rebar with aluminum cap stamped "PENCO CLS-42"	0.3' Deep
2. Mag nail & CLS42 washer set in the southeast face of a buried telephone witness post	59.5' NE
3. Mag nail & CLS42 washer set in the northeast face of a telephone pedestal witness post	59.7' SE
4. Mag nail & CLS42 washer set in the northeast face of a power pole	49.1' NW
5. Near center of roadway intersection	
6. Sta. 1425+23.50	
N=858953.58, E=4591744.34	

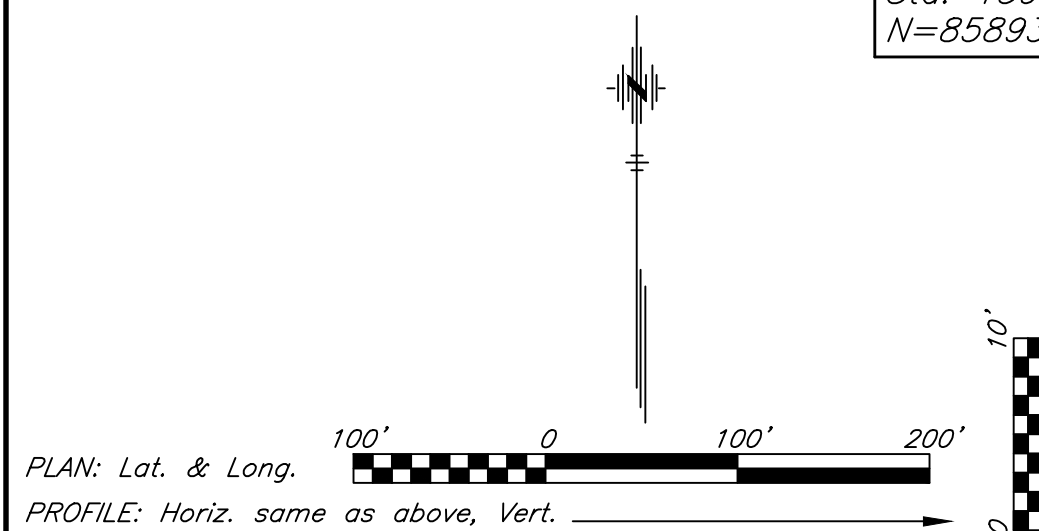


BM #1 5/8" Rebar w/green "PENCO CONTROL" cap 1' south of power pole, 40' Lt
Sta. 1394+26, Elev.=1923.98
N=858934.03, E=4588726.88

BM #2 Mag Nail set in southwest corner of wing pile, 15' Rt
Sta. 1397+95, Elev.=1911.37
N=858886.36, E=4589096.73

BM #3 Mag Nail set in southwest corner of wing pile, 12' Lt
Sta. 1398+38, Elev.=1911.83
N=858913.58, E=4589138.90

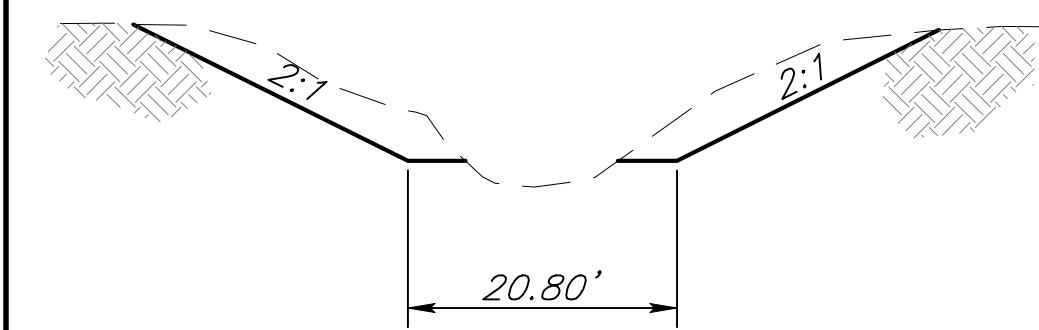
BM #4 5/8" Rebar w/green "PENCO CONTROL" cap 1' north of fence corner post, 36' Rt.
Sta. 1400+18, Elev.=1920.82
N=858869.68, E=4589319.80



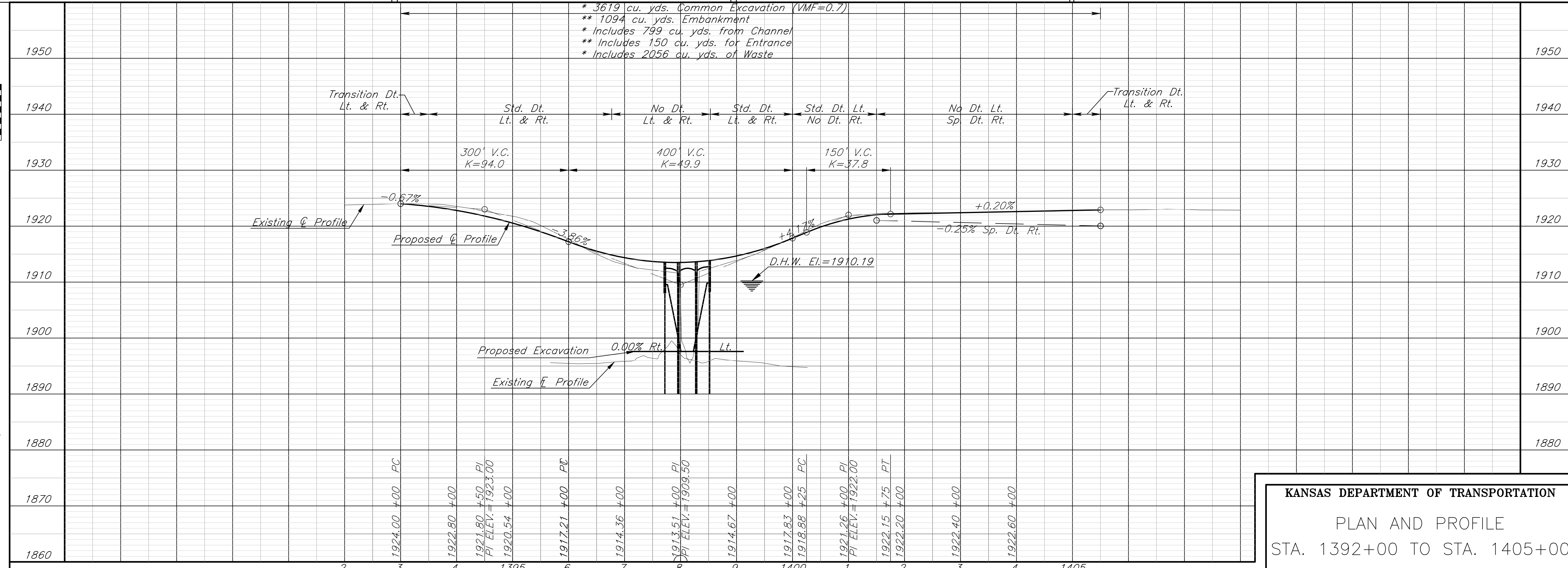
Note: All disposal sites must be approved by the Kansas Department of Health and Environment. Material either stockpiled or disposed of in a flood plain would require a Kansas State Board of Agriculture permit. Any material dumped in waters of the United States or wetlands is subject to U.S. Corps of Engineers permitting regulations.

Any material buried or stockpiled beyond approved construction limits would require additional archeological investigations unless buried in a previously approved borrow location.

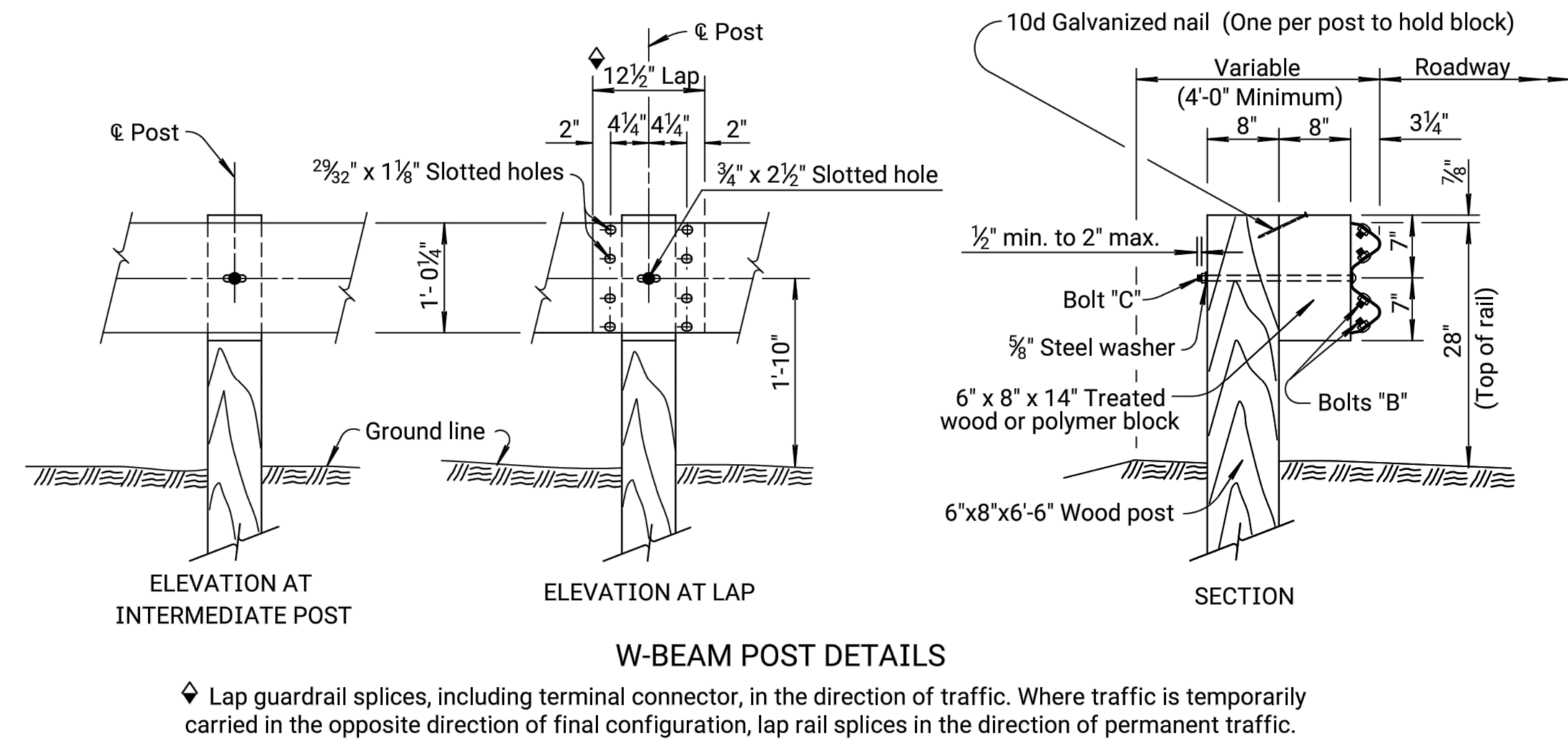
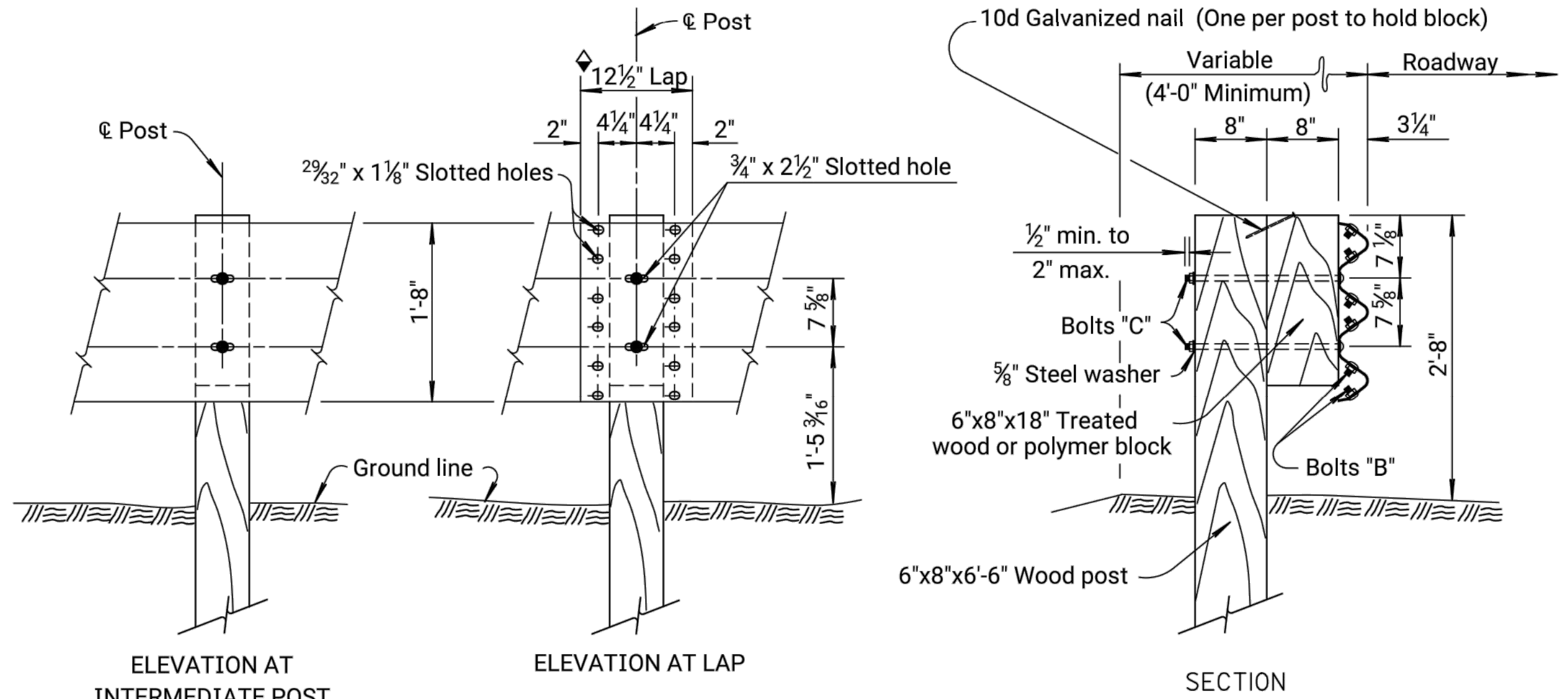
Borrow areas provided by the Contractor shall be approved by the Engineer as to suitability of material and location. Special care shall be taken in this approval to minimize the increase of siltation and turbidity of streams, lakes, and reservoirs and to avoid interference with the movement of migratory fish. Areas which, in the opinion of the Engineer, may leave an unsightly appearance to the project will not be approved.



TYPICAL CHANNEL SECTION
Sta. 9+50 to Sta. 10+50



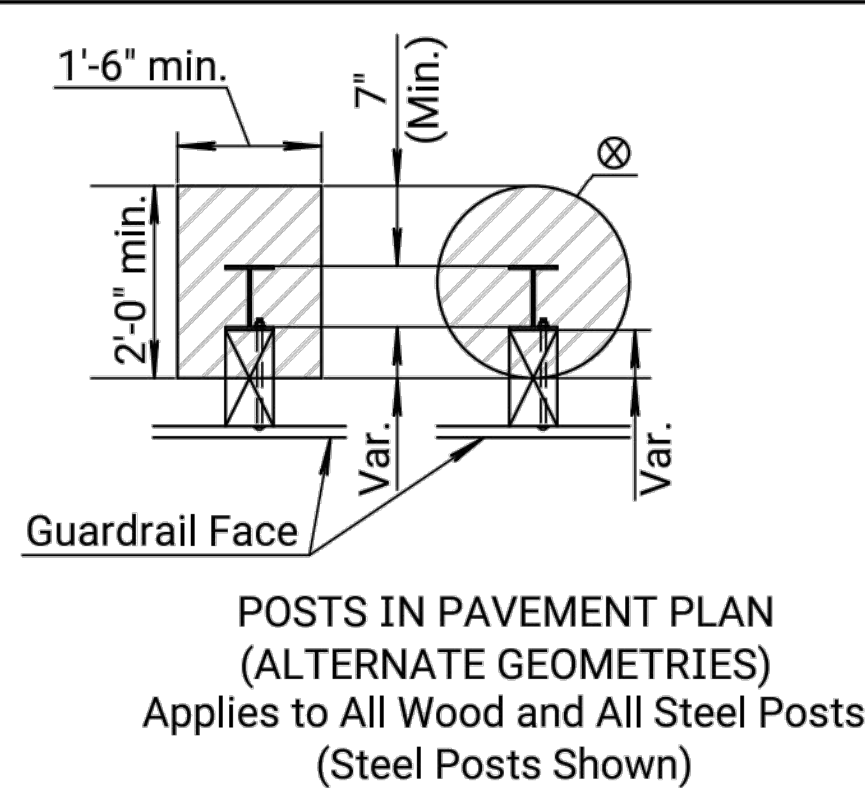
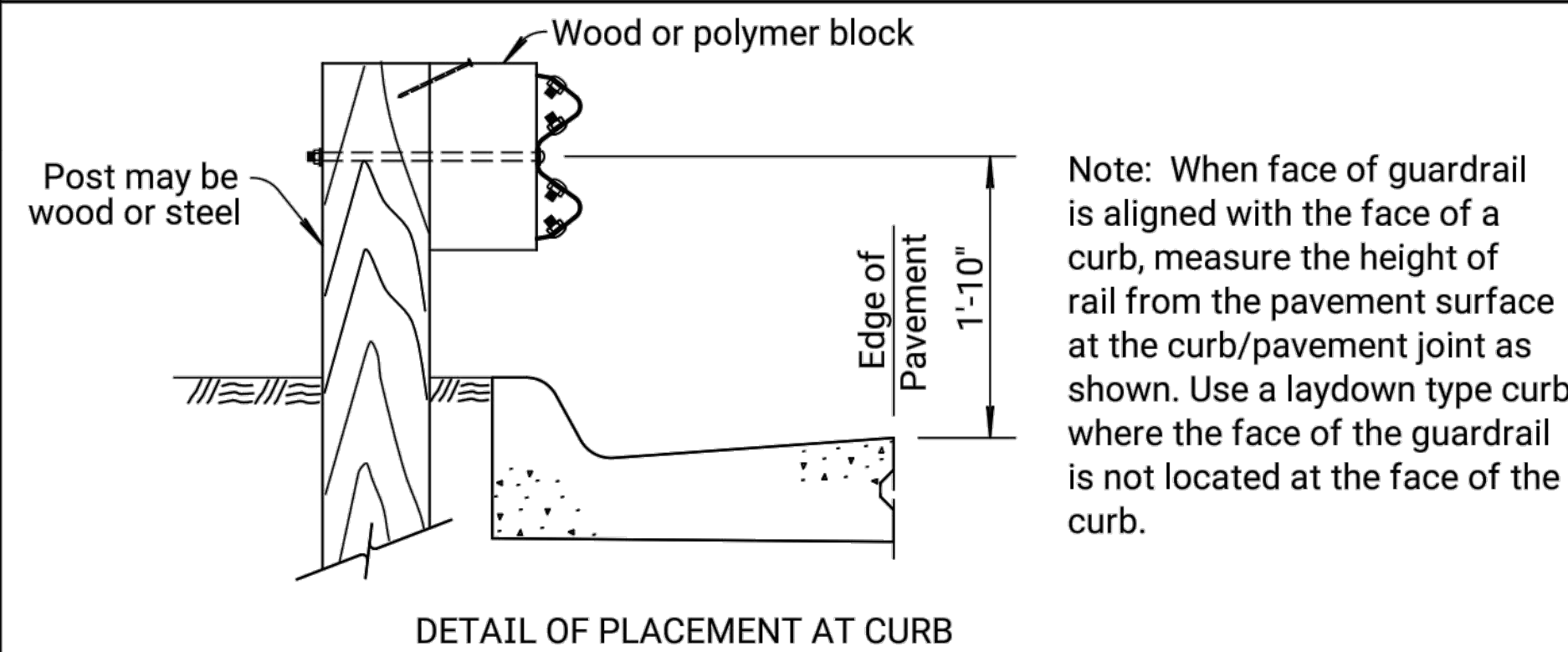
KANSAS DEPARTMENT OF TRANSPORTATION
PLAN AND PROFILE
STA. 1392+00 TO STA. 1405+00



WOOD POSTS

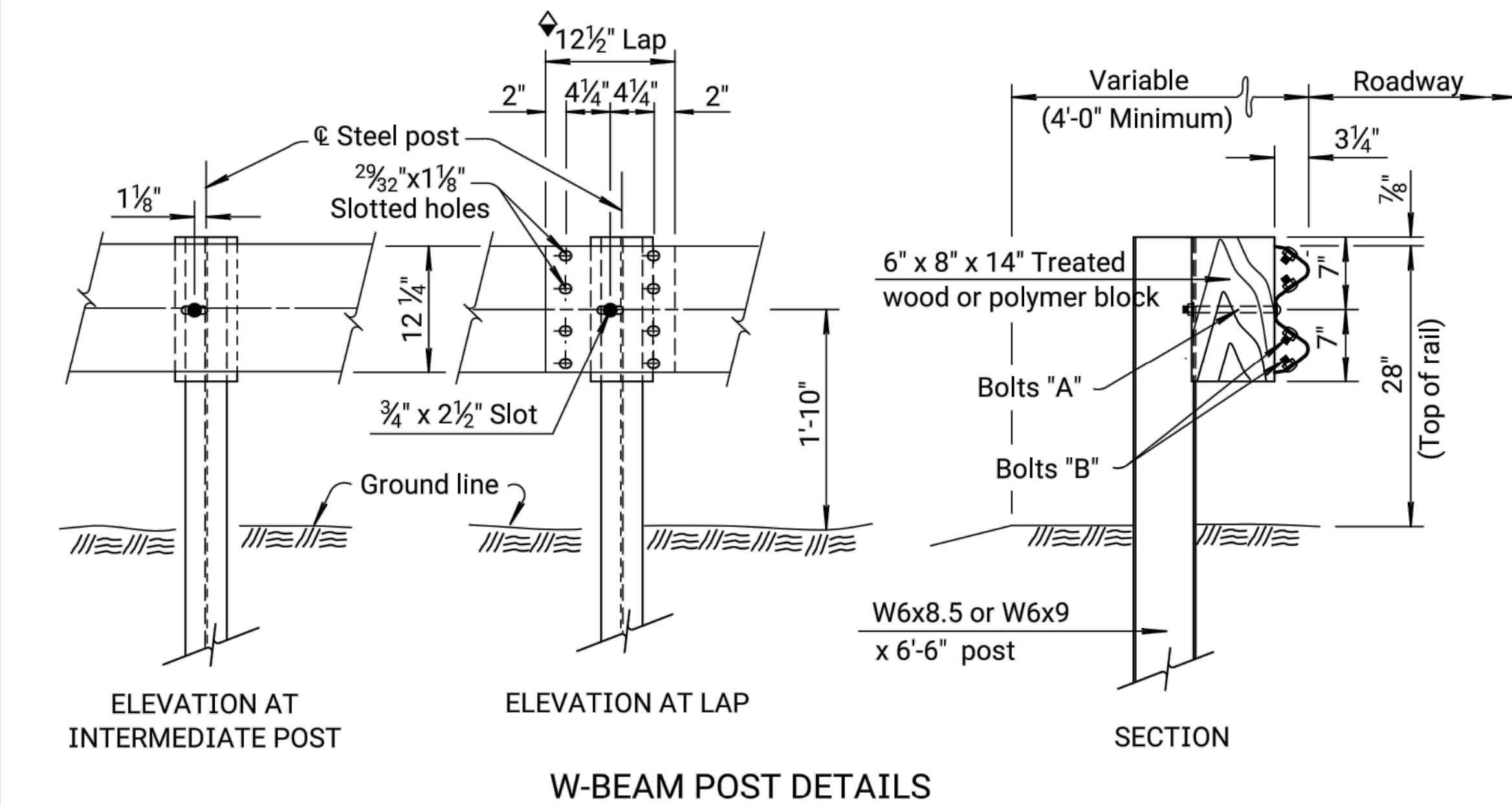
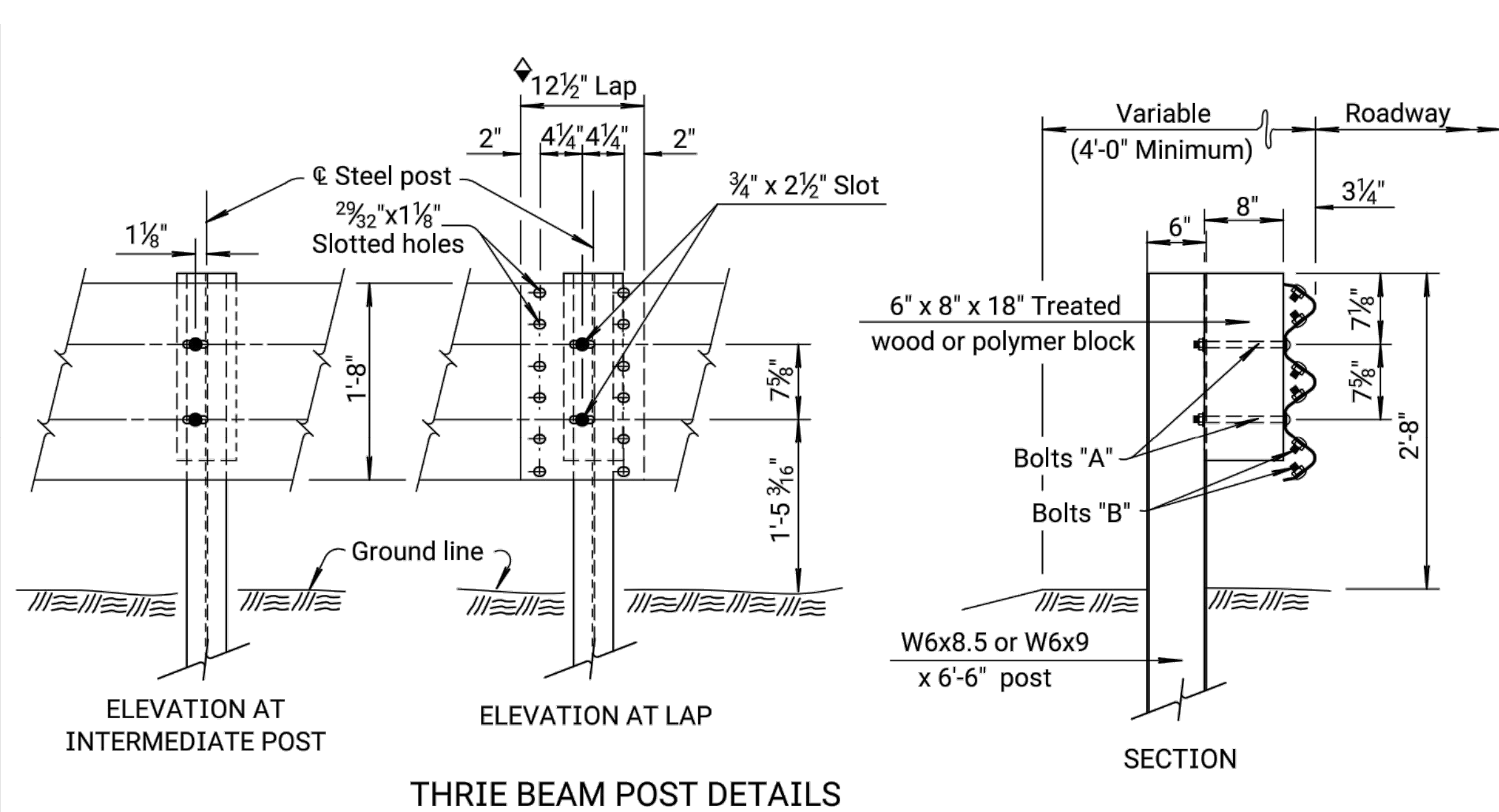
GENERAL NOTES (Wood Posts)

Give all wood posts and wood blocks a preservative treatment, see standard specifications. Thoroughly saturate all cuts, injuries and bolt holes on wood posts and blocks with preservative. Use only one type of preservative treatment on a project. Use S4S rectangular posts and wood blocks, see standard specifications. Use only one post/blockout type within guardrail run, this excludes the guardrail end terminals. Set guardrail posts by digging or by driving. Use post caps to protect the post from crushing during driving operations. Contractor must notify Engineer at the earliest time when a non-removable manmade object (footing, pipe, etc.) is encountered and prevents installation of a full length post. Contractor must obtain Engineer approval prior to cutting post shorter than 6'-6". Approved polymer blockouts may be substituted for wood blockouts. Only one type of blockout is permitted on each guardrail installation. This excludes the guardrail end terminals unless certified by the manufacturer. All dimensions are nominal and are subject to manufacturing tolerances. Excavation including rock, shale, and other materials for erection of Guardrail is subsidiary to various bid items for which payment is made. Where guardrail posts are installed in pavement, form openings in the pavement for the guardrail posts.



- ☐ Slurry Grout (Low Strength). See
KDOT's Standard Specifications
- ⊗ Diameter may vary from 1'-6" (min.)
to 2'-0".

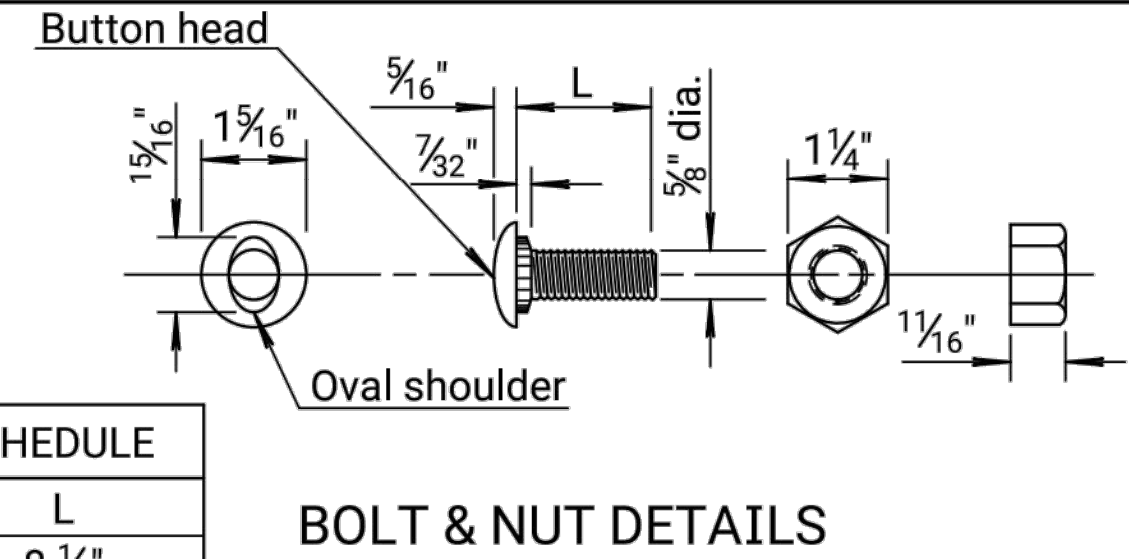
Note: Low Strength Grout must have a 28-day compressive strength of 120 psi or less. All work and materials related to posts in pavement are subsidiary to other guardrail bid items. Rectangular geometry shown in Posts in Pavement detail. Circular geometry, as shown on this sheet, may be used at the Contractor's option.



STEEL POSTS

GENERAL NOTES (Steel Posts)

Use grade of steel for steel posts that meets the requirements of the standard specifications. Hot dip galvanize the posts after fabrication, see standard specifications. Use only one post/blockout type within guardrail run, this excludes the guardrail end terminals. For wood/polymer blockout requirements see standard specifications. Approved polymer blockouts may be substituted for wood blockouts. Only one type of blockout is permitted on each guardrail installation. This excludes the guardrail end terminals. Set guardrail posts by digging or by driving. Use post caps to protect the post from crushing during driving operations. Contractor must notify Engineer at the earliest time when a non-removable manmade object (footing, pipe, etc.) is encountered and prevents installation of a full length post. Contractor must obtain Engineer approval prior to cutting post shorter than 6'-6" except as allowed on Standard Drawing RD617. All dimensions are nominal and are subject to manufacturing tolerances. Excavation including rock, shale, and other materials for erection of Guardrail is subsidiary to various bid items for which payment is made. Where guardrail posts are installed in pavement, form openings in the pavement for the guardrail posts.



BOLT SIZE SCHEDULE	
Bolt	L
A	8 ½"
B	1 ¼"
C	18"

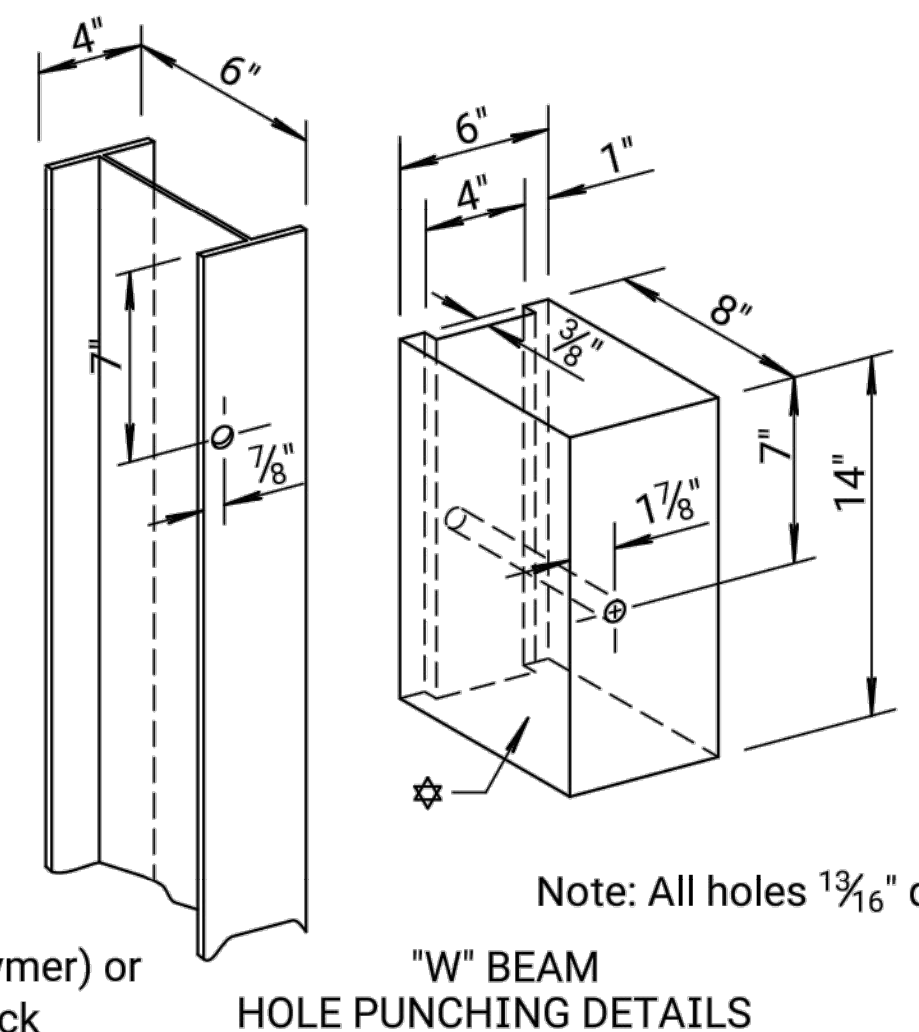
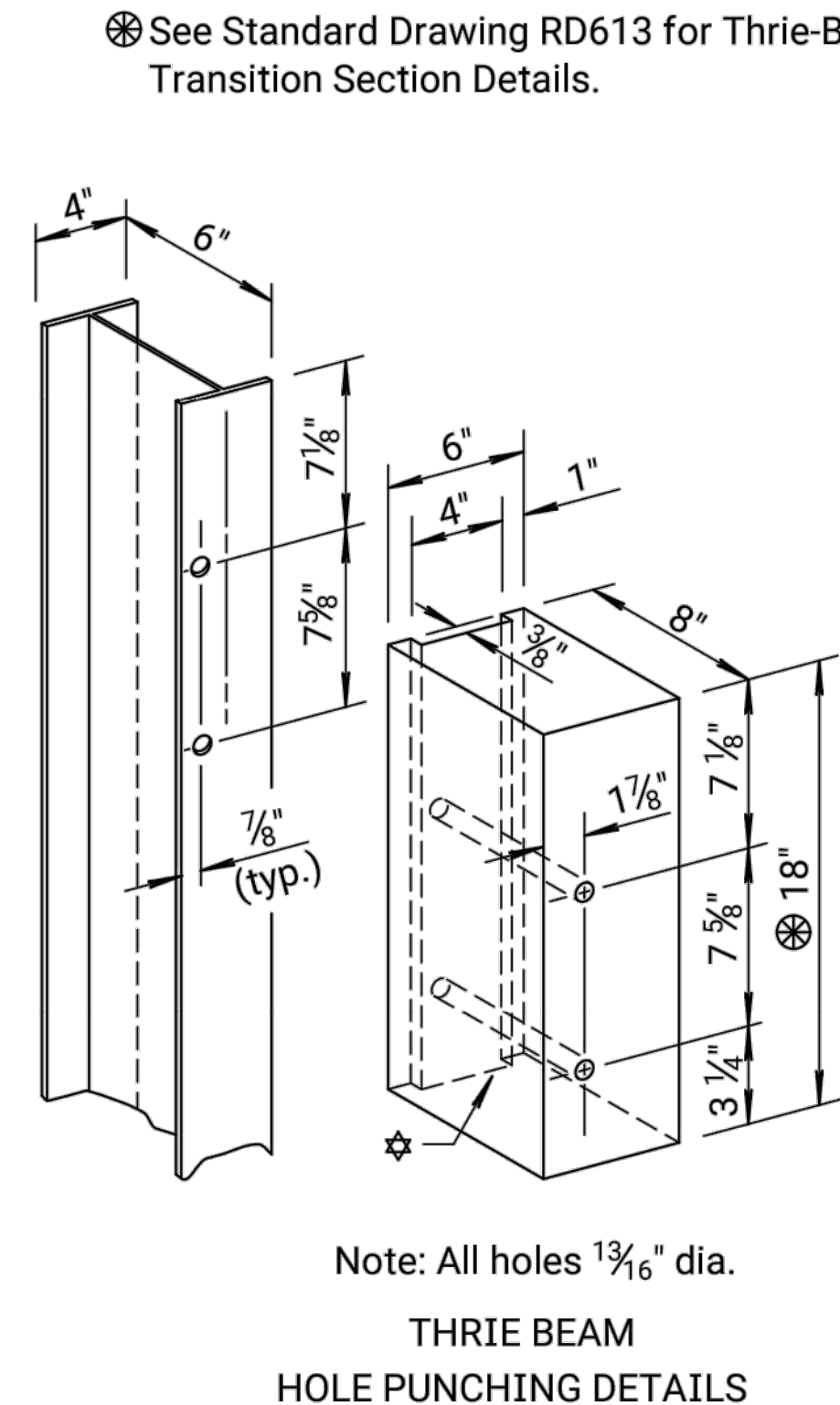
Galvanize all bolts, nuts, and washers in accordance with the KDOT's Standard Specifications.

13	9-5-18	Added Det., Posts In Pavement	A.L.R.	T.T.R.
12	12-14-10	Revised notes, 28" w-be	S.W.K.	J.O.B.
11	6-30-04	Remove steel blockout and notes	S.W.K.	J.O.B.
10	7-15-02	Add polymer block-out alternate	S.W.K.	J.O.B.
NO.	DATE	REVISIONS	BY	APP'D

GUARDRAIL POST DETAILS

RD611			
FHWA APPROVAL		9-25-18	APP'D. SCOTT W. KING
DESIGNED	DETAILED	QUANTITIES	TRACED
DESIGN CK.	DETAIL CK.	QUAN.CK.	TRACE CK.

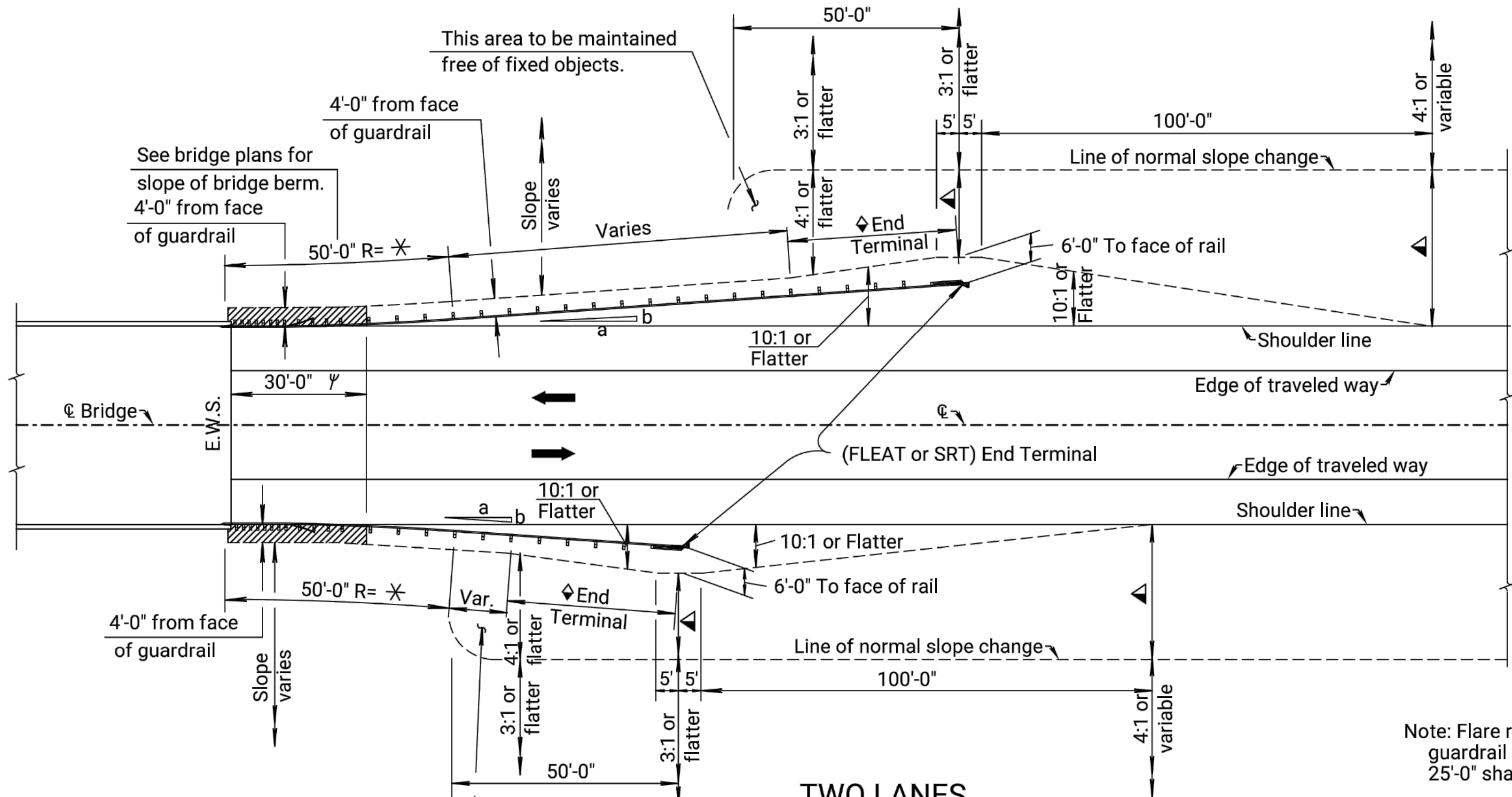
KDOT Graphics Certified 09-26-2018



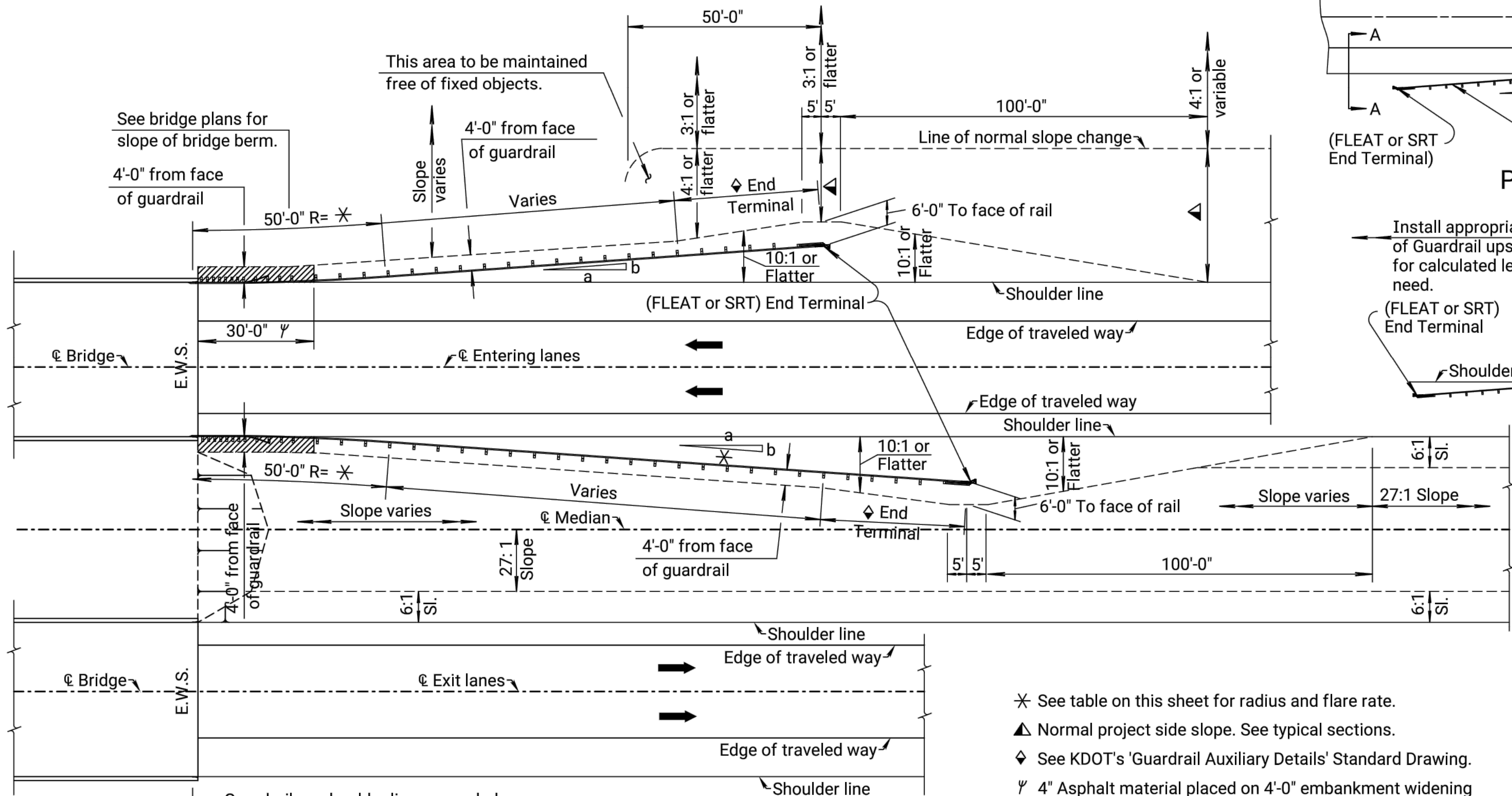
Notes to Designer: Guardrail length of need shall be determined in accordance with the AASHTO Roadside Design Guide using $L_1 = 25'$ for flare rate of a:b and $L_1 = 12.5'$ for flare rate of 2a:b for a typical installation as shown on this sheet. This sheet shall be used when the flared guardrail design for typical layout shown (FLEAT or SRT) is selected. Material for asphalt widening shall be included in the plan quantities.

Plotted :18-JUL-2018 15:57

Drawn By : trhoads
File : rd615a.dgn



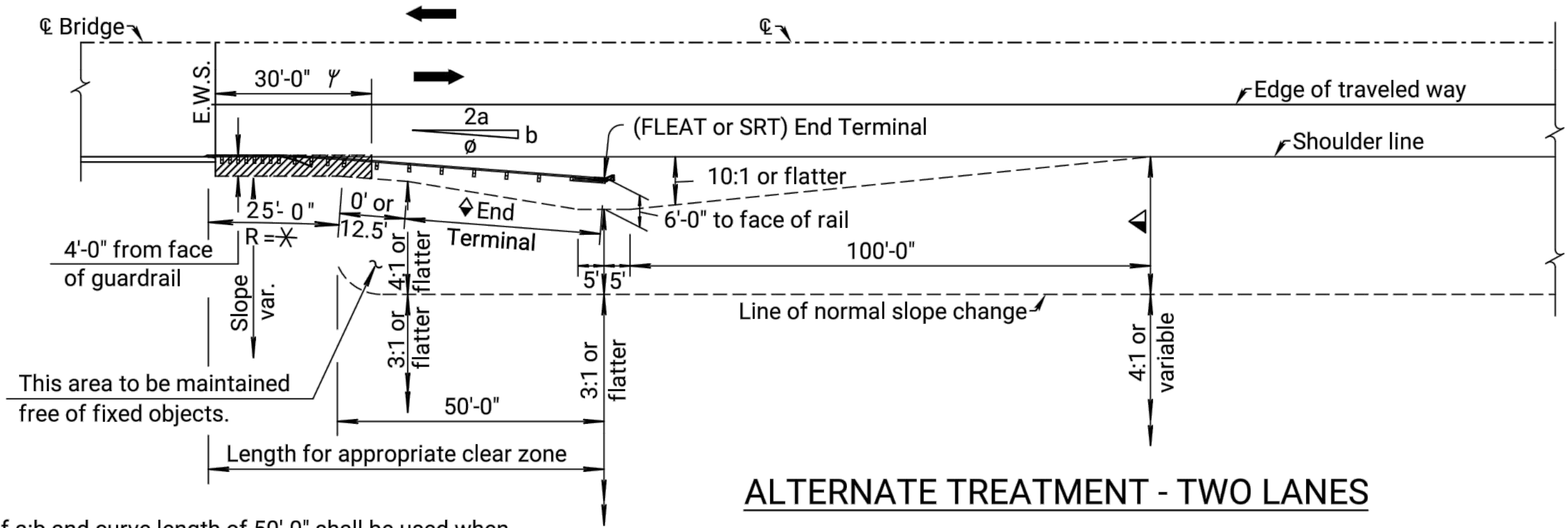
TWO LANES



FOUR LANES - DIVIDED

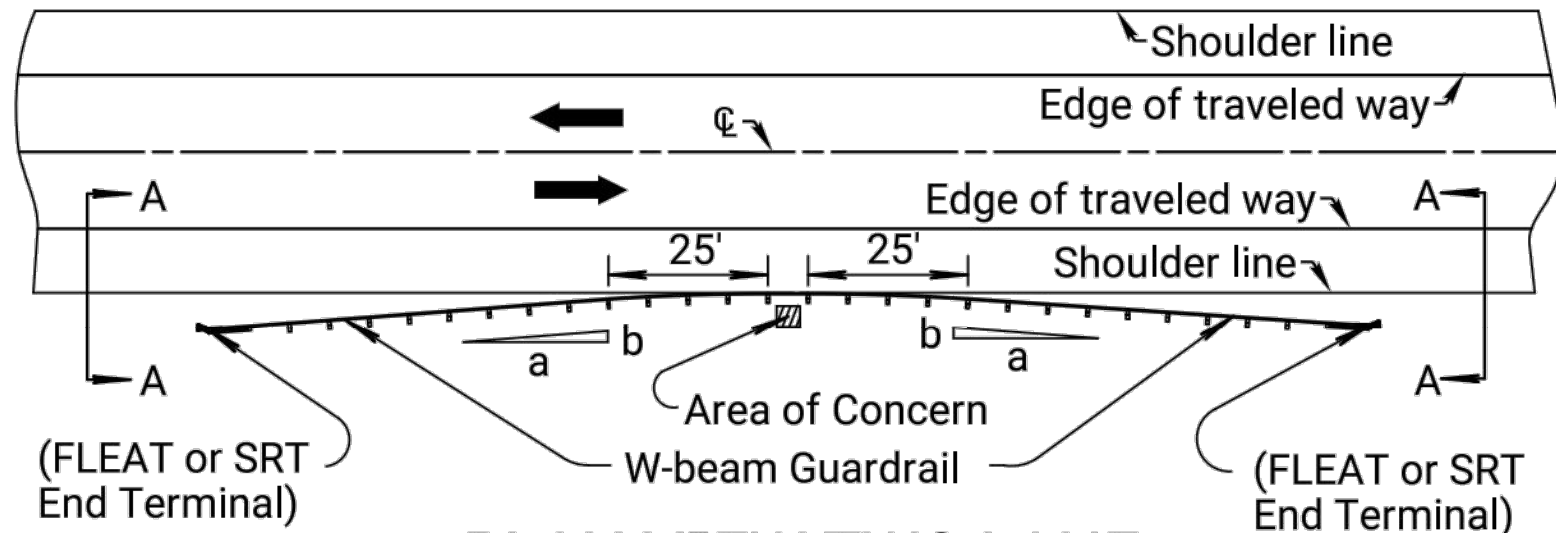
- ✱ See table on this sheet for radius and flare rate.
- ▲ Normal project side slope. See typical sections.
- ◆ See KDOT's 'Guardrail Auxiliary Details' Standard Drawing.
- ♣ 4" Asphalt material placed on 4'-0" embankment widening unless flume inlet and slope drain is constructed.

DESIGN PARAMETERS				
Design Speed (mph)	Flare Rate (a:b)	Radius (R)	Flare Rate (2a:b)	Radius (R)
70	15:1	375.55'	30:1	375.14'
60	14:1	350.59'	26:1	325.16'
55	12:1	300.69'	24:1	300.17'
50	11:1	275.76'	21:1	262.70'
45	10:1	250.83'	18:1	225.23'
40	8:1	201.04'	16:1	200.26'

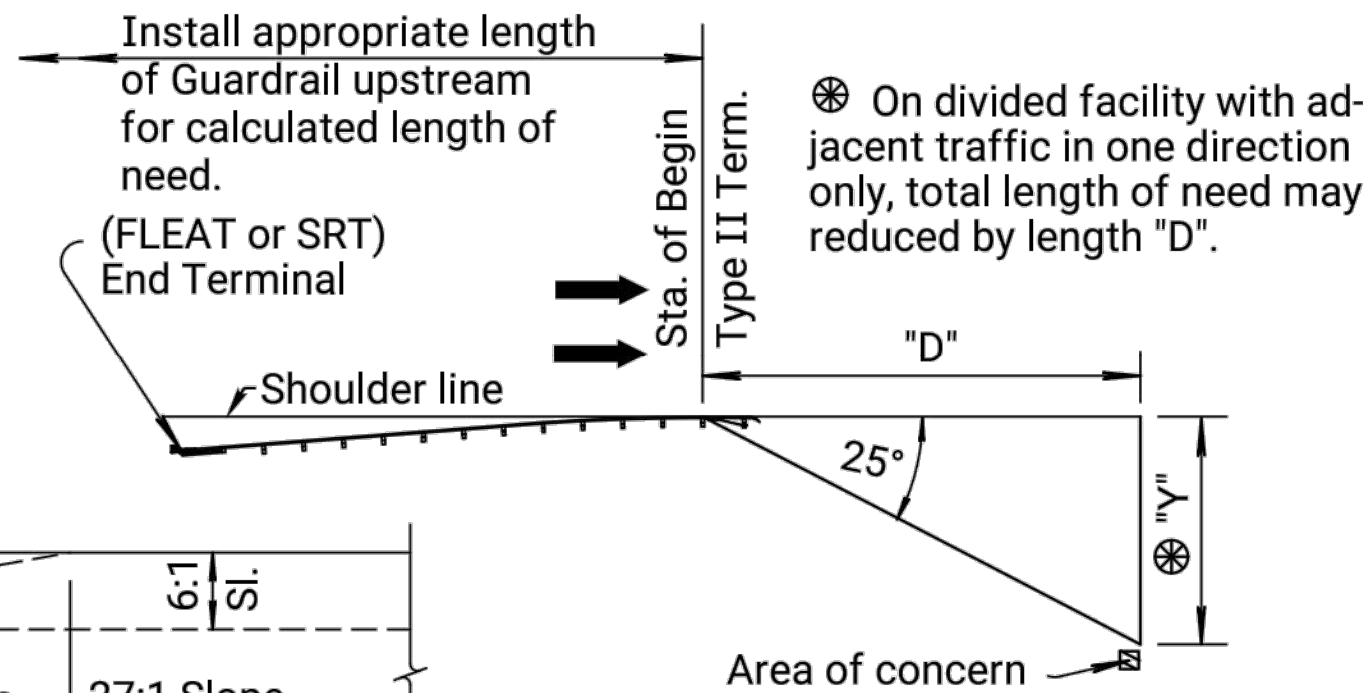


ALTERNATE TREATMENT - TWO LANES

Flare Rate = 2a:b
(GUARDRAIL LENGTHS OF 62.5' AND 75')

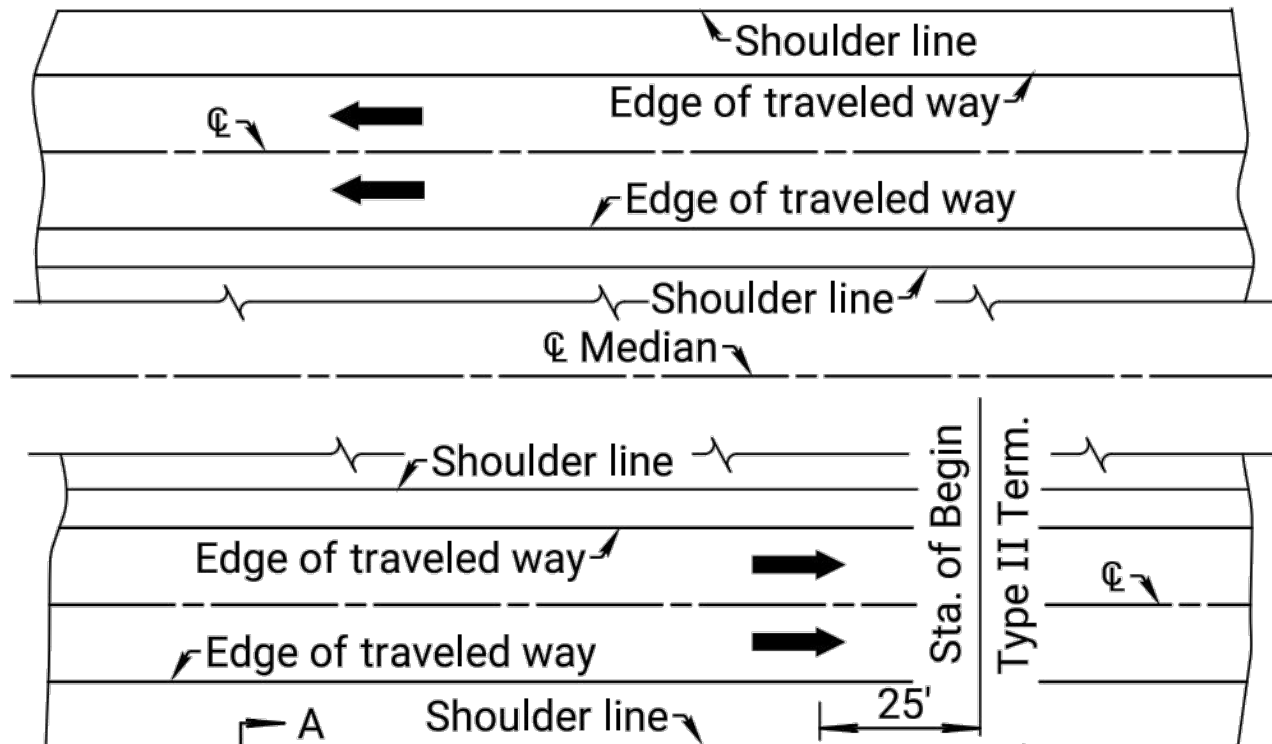


PLAN VIEW TWO LANE

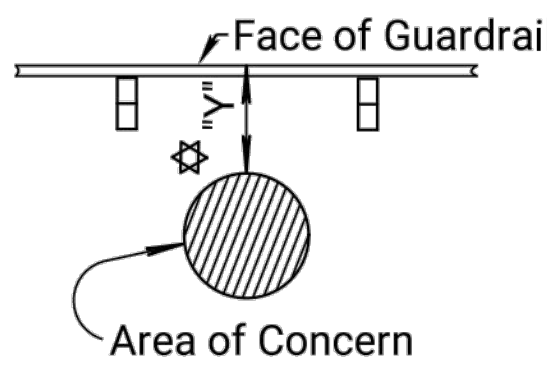


✱ Guardrail shall be nested and post spacing reduced to one half of normal spacing when "Y" is less than 5'. Rigid barrier shall be used when "Y" is less than 3'-3".

DETAILS OF GUARDRAIL PROTECTION AT ROADSIDE OBSTACLE



PLAN VIEW FOUR LANE



ENLARGEMENT - AREA OF CONCERN

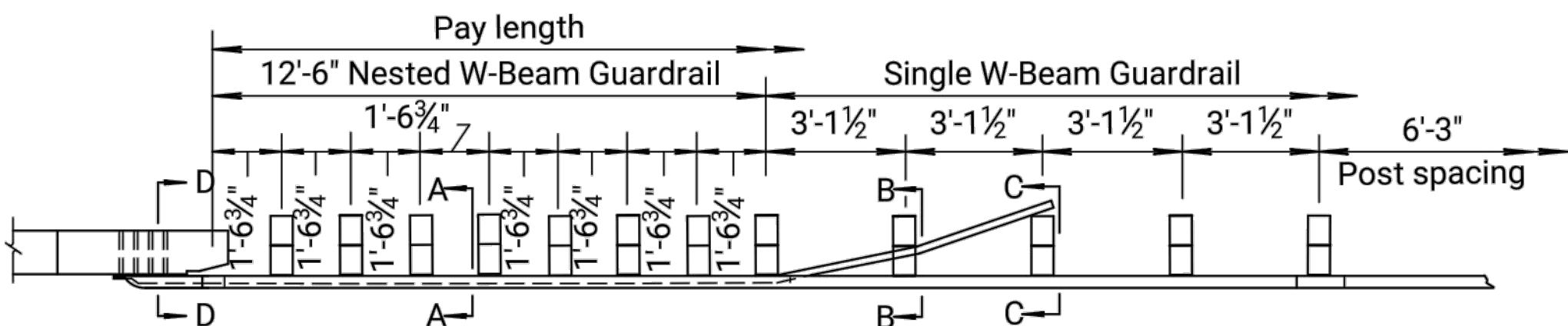
8	6-5-18	Removed Flare-beyond-the-Flare	A.L.R.	T.T.R.
7	5-15-17	Removed X-LITE	A.L.R.	S.W.K.
6	7-2-09	Added roadside obstacle details	S.W.K.	J.O.B.
5	1-10-07	Changed bituminous to asphalt	S.W.K.	J.O.B.
NO.	DATE	REVISIONS	BY	APPD

KANSAS DEPARTMENT OF TRANSPORTATION				
W-BEAM WITH RUBRAIL BRIDGE APPROACH TRANSITION TYPICAL ALIGNMENTS (FLARED)				
RD615A				
FHWA APPROVAL		APPD, SCOTT W. KING		
DESIGNED	6-19-18	QUANTITIES	TRACED	
DESIGN CK.	DETAIL CK.	QUAN. CK.	TRACE CK.	

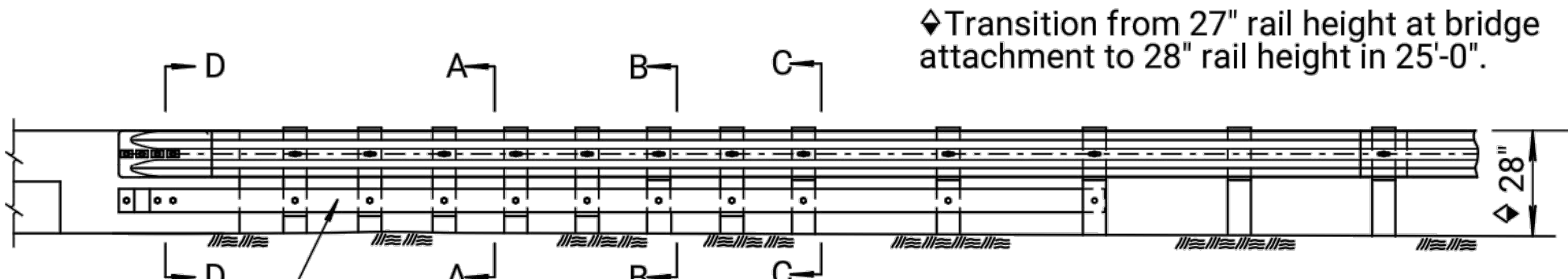
KDOT Graphics Certified 07-18-2018

KDOT Graphics Certified

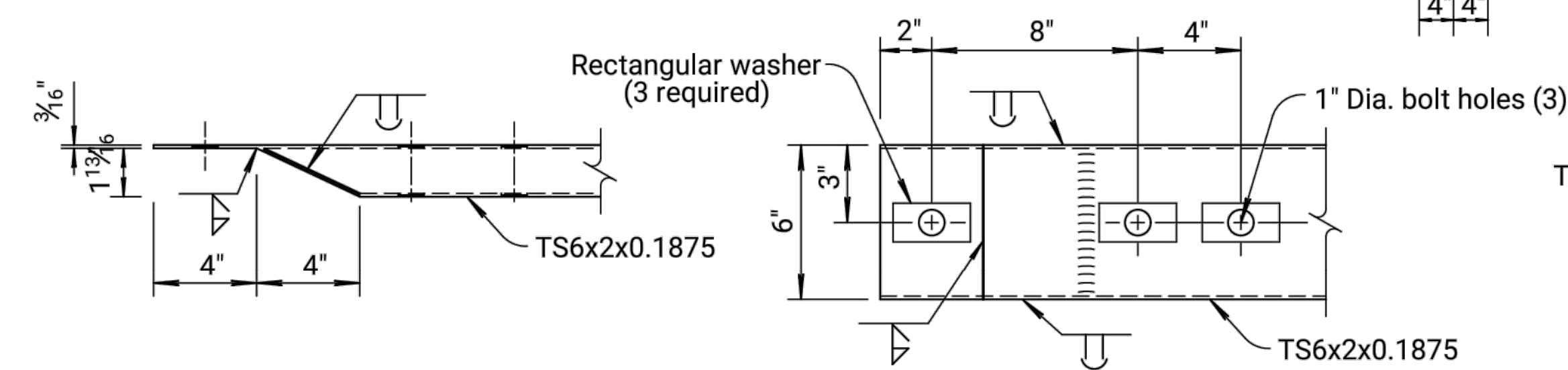
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	74 C-5227-01	2024	7	51



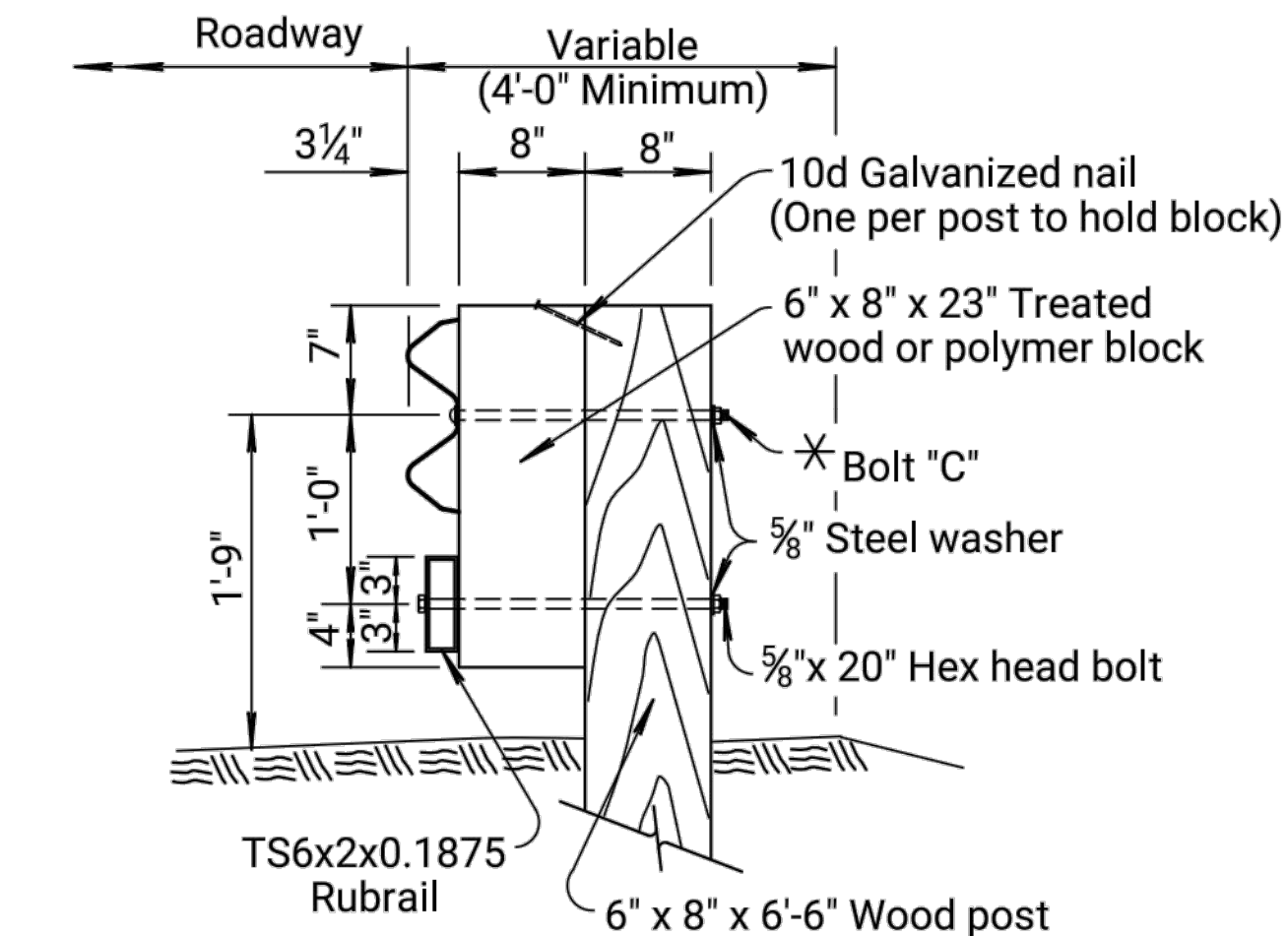
PLAN



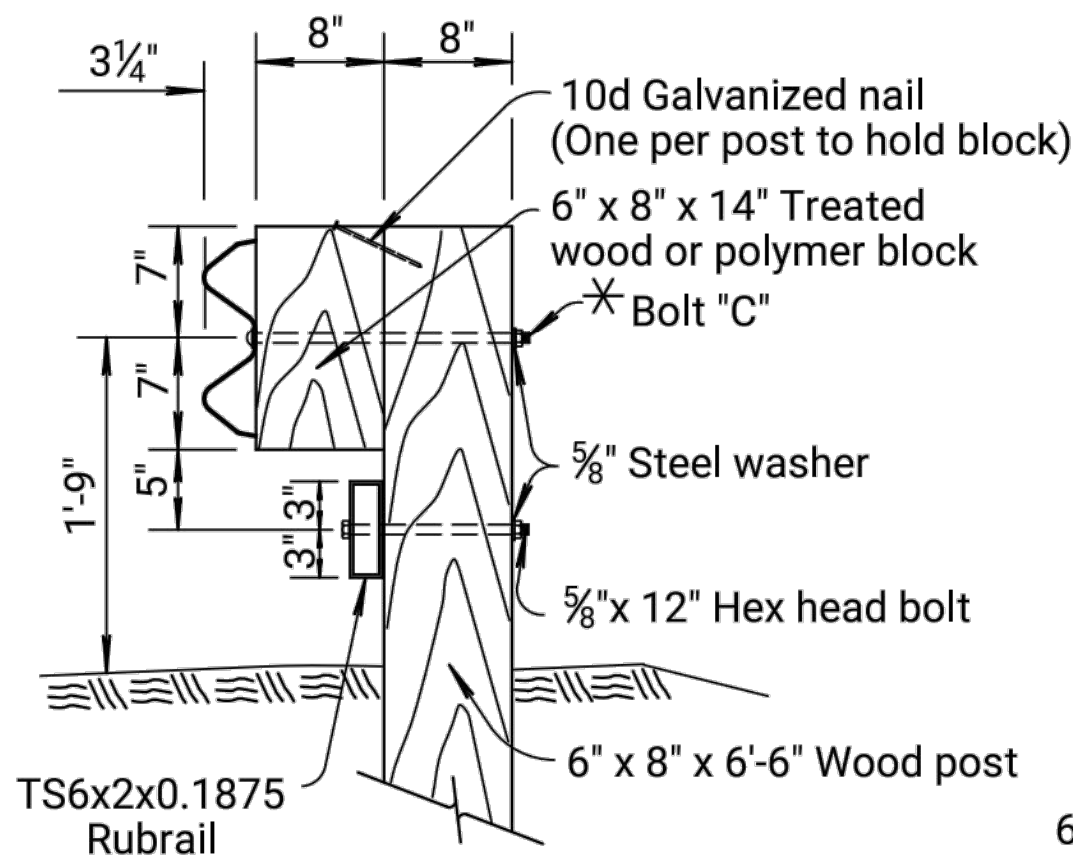
ELEVATION



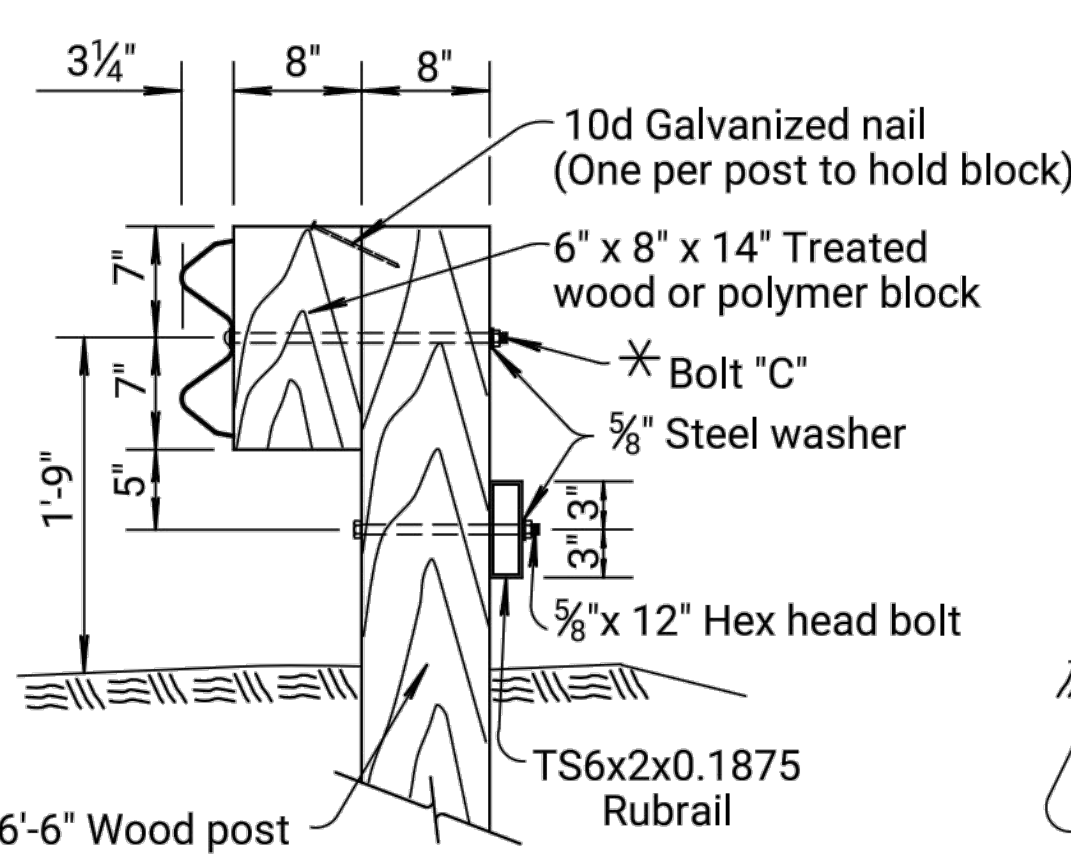
TYPICAL END RUB RAIL DETAILS



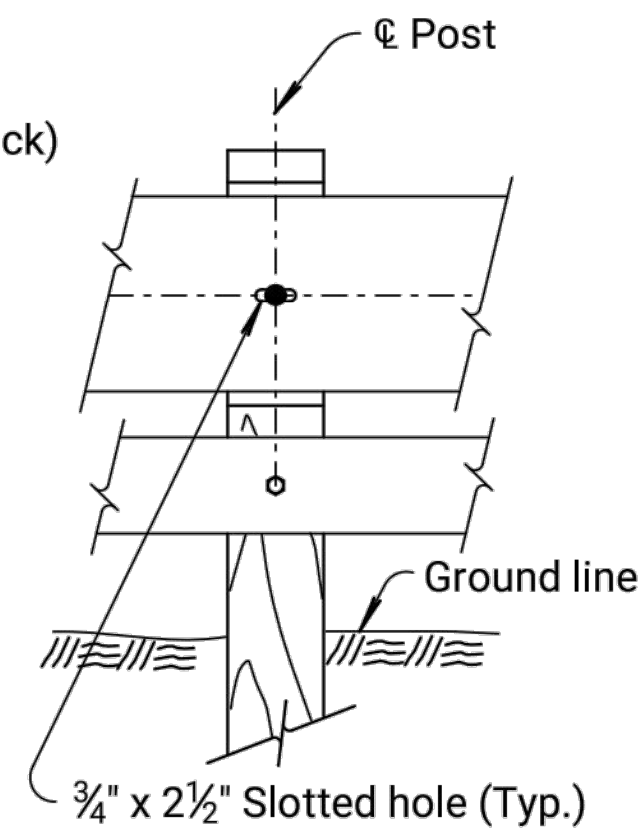
SECTION A-A



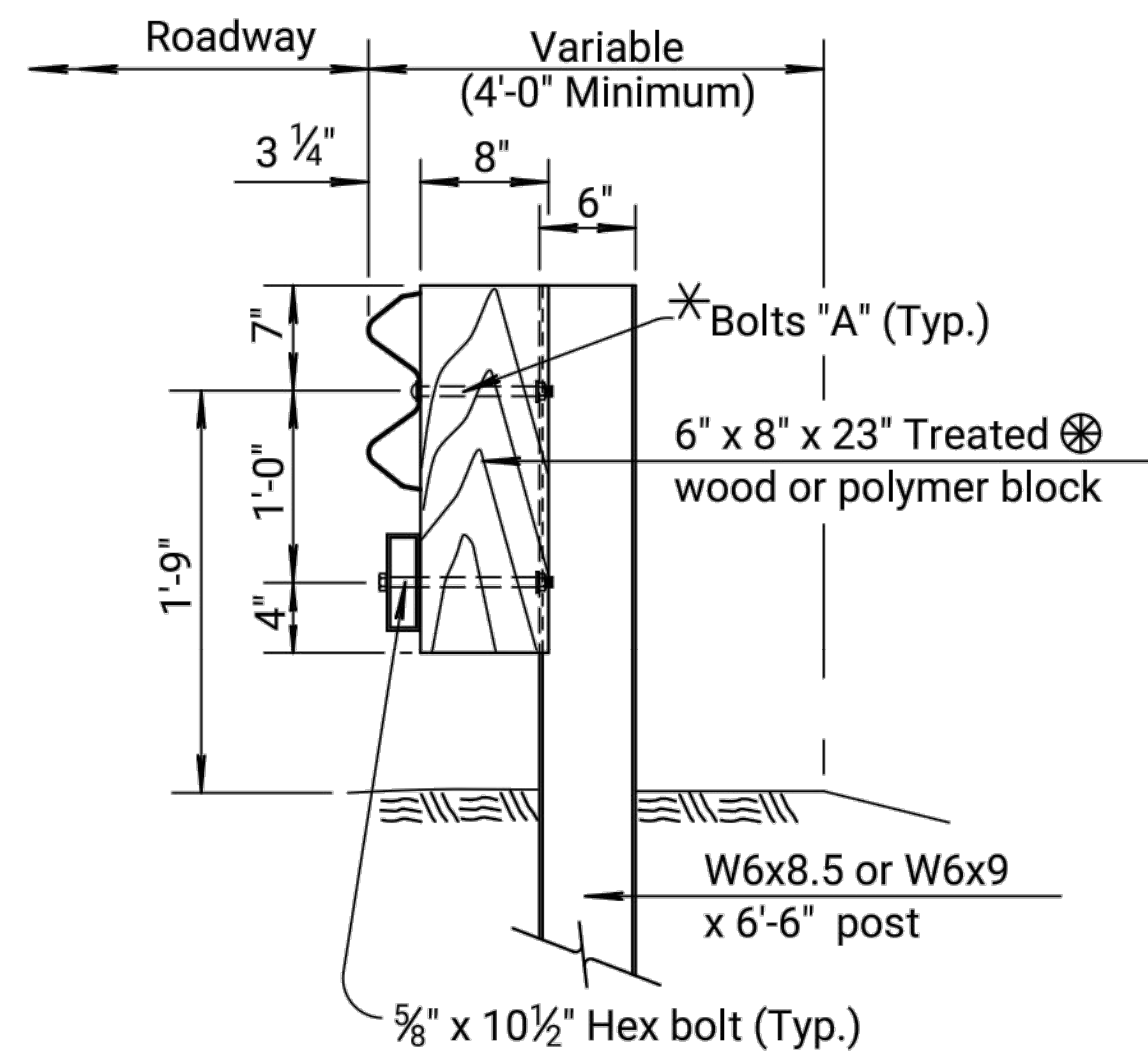
SECTION B-B



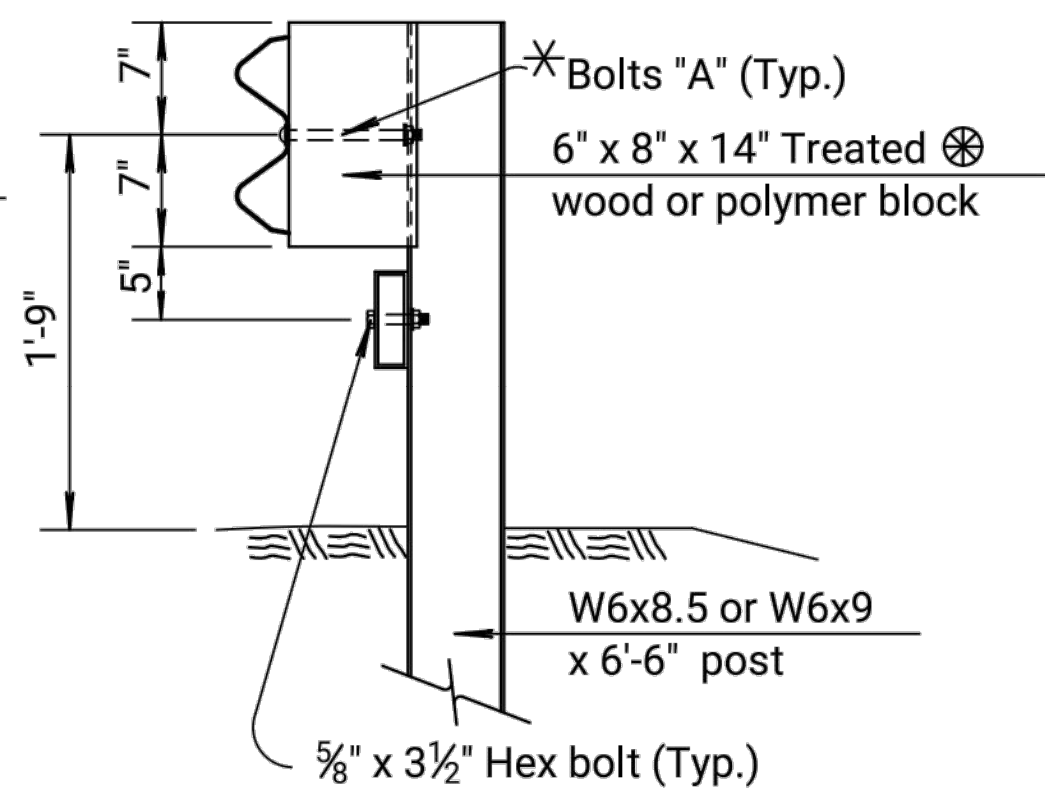
SECTION C-C



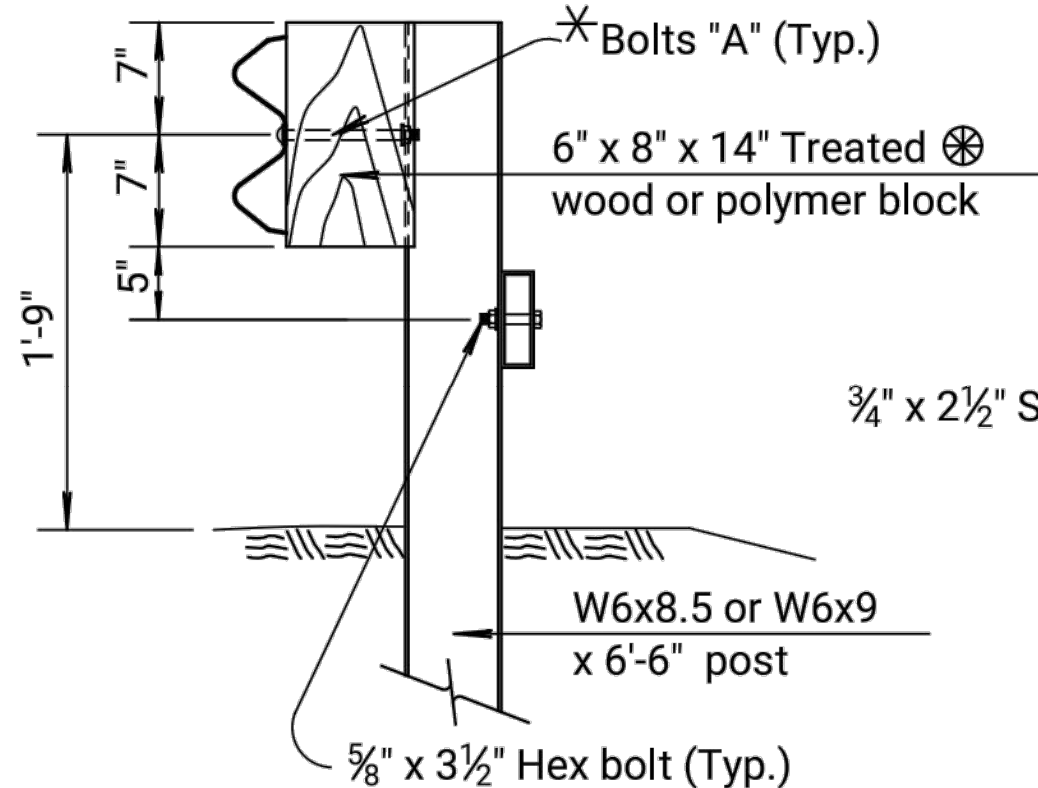
ELEVATION WITH RUBRAIL



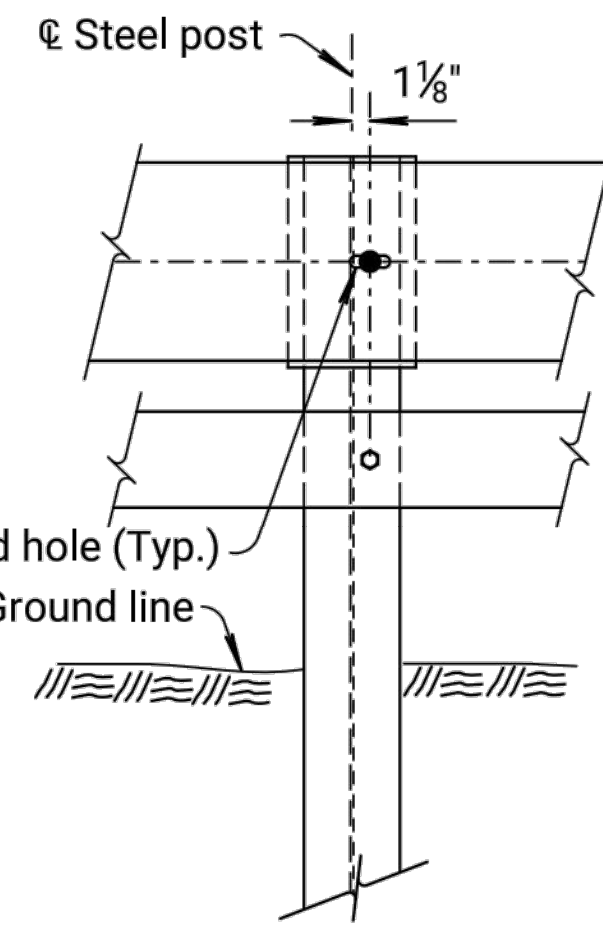
SECTION A-A



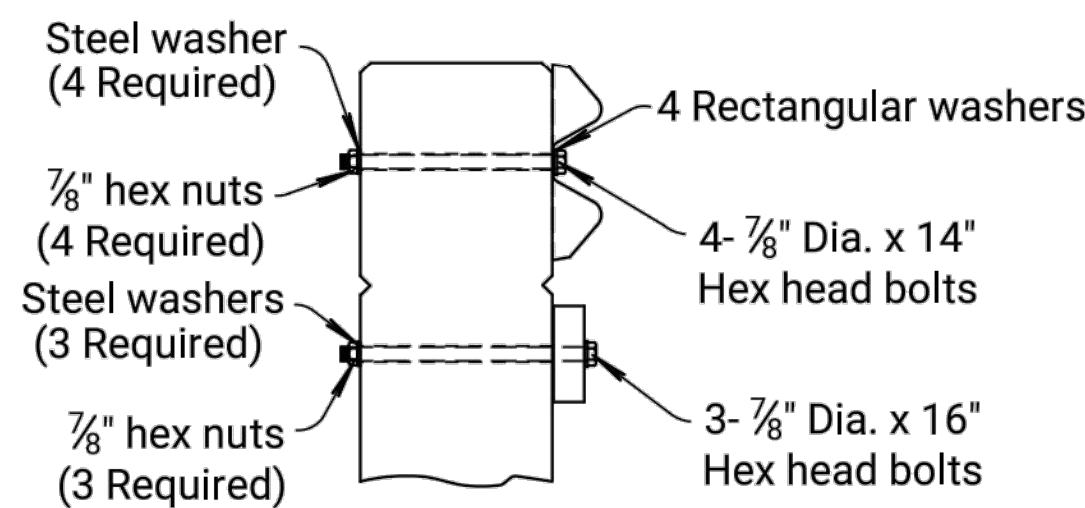
SECTION B-B



SECTION C-C



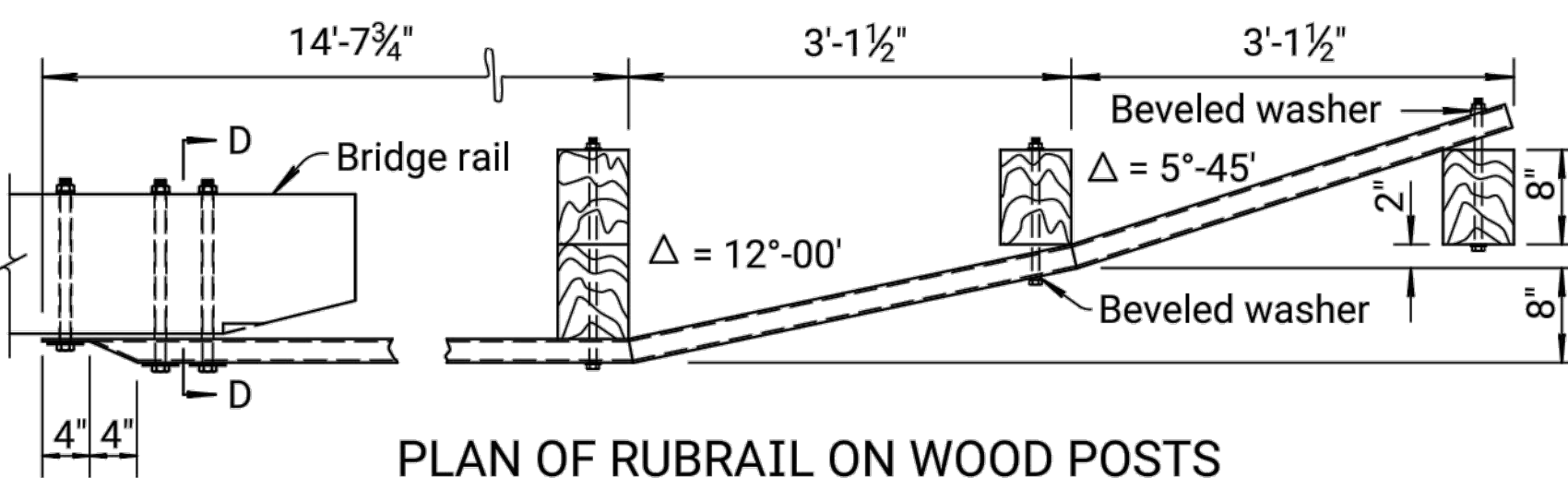
ELEVATION WITH RUBRAIL



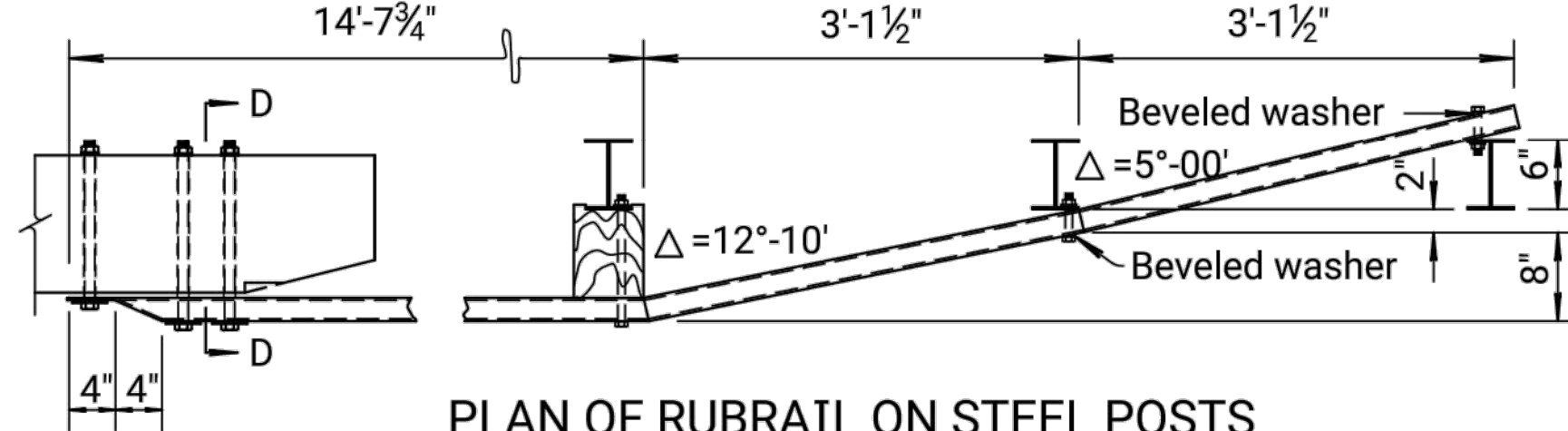
SECTION D-D

WOOD POSTS

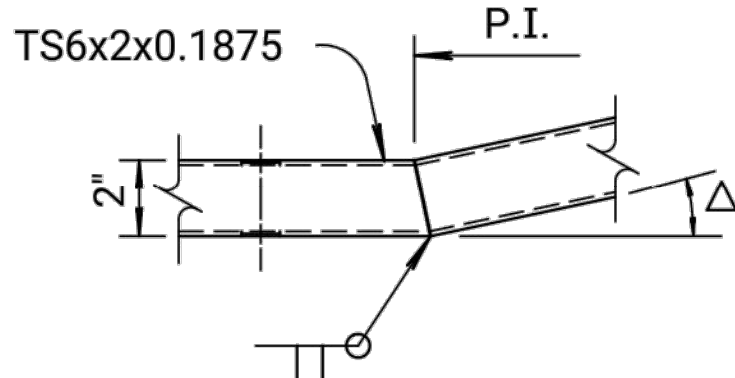
STEEL POSTS



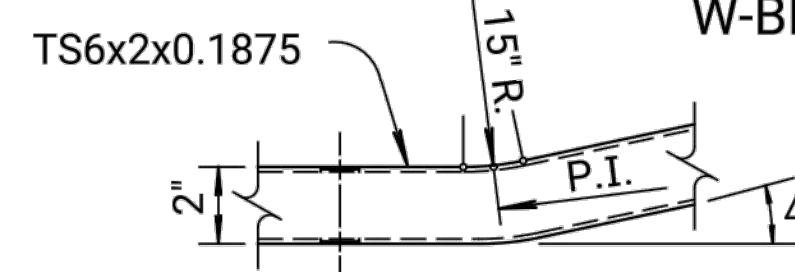
PLAN OF RUBRAIL ON WOOD POSTS



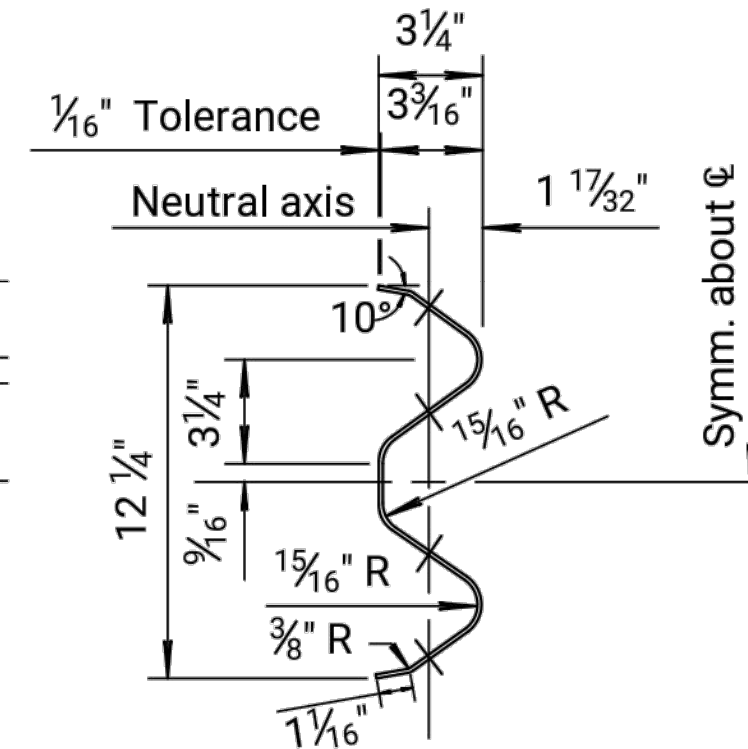
PLAN OF RUBRAIL ON STEEL POSTS



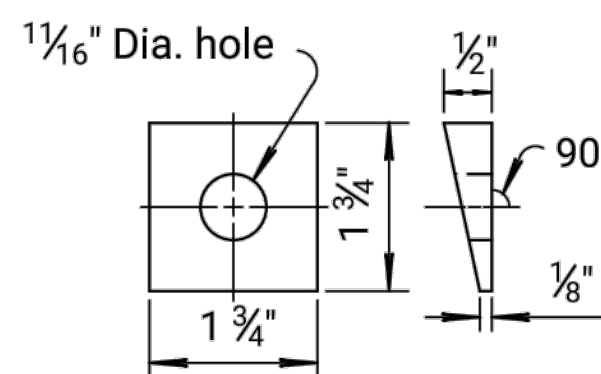
SHOP WELDED OPTION



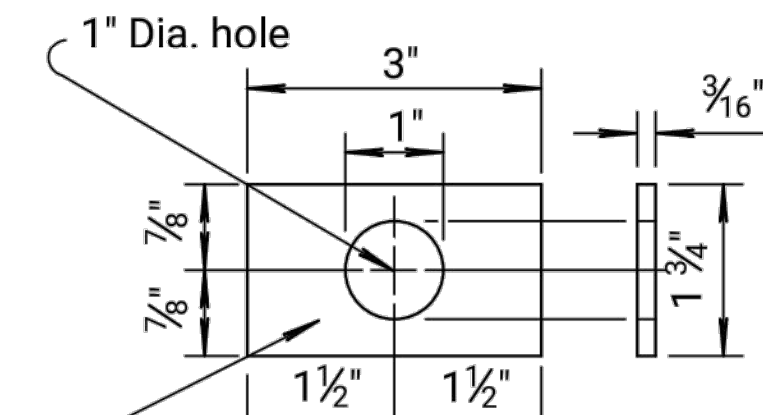
SHOP BENT OPTION



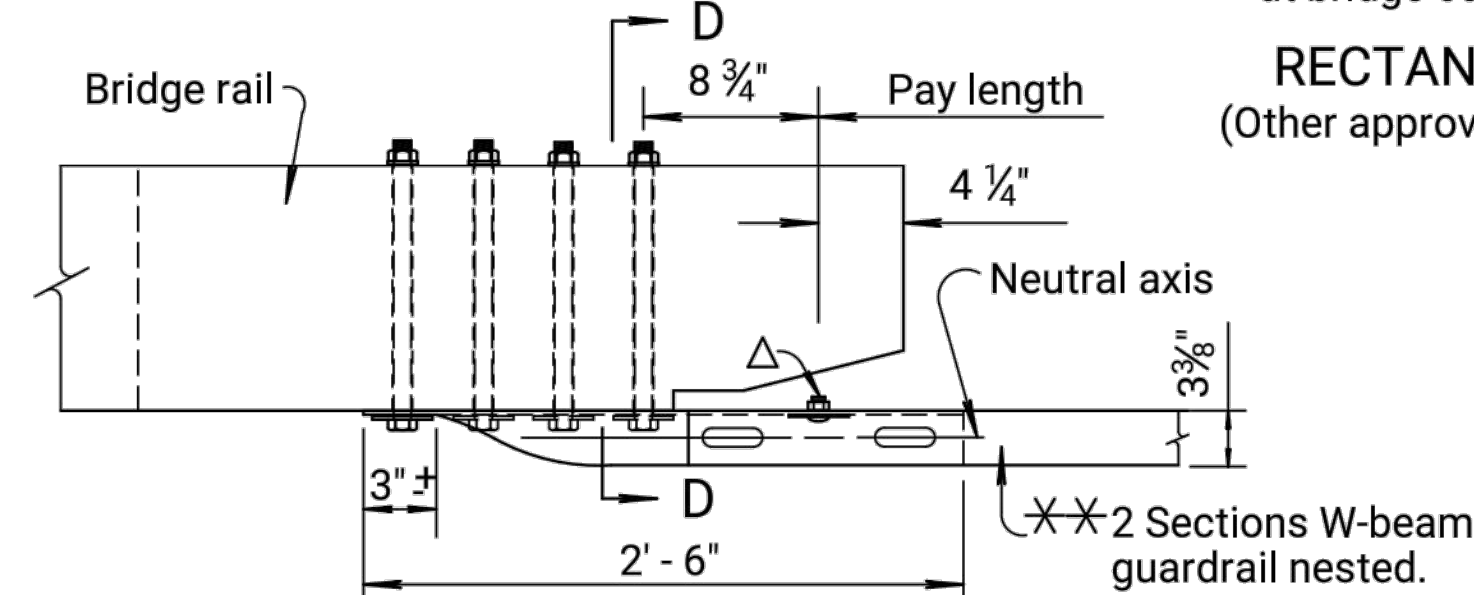
SECTION THRU TYPICAL W-BEAM RAIL ELEMENT



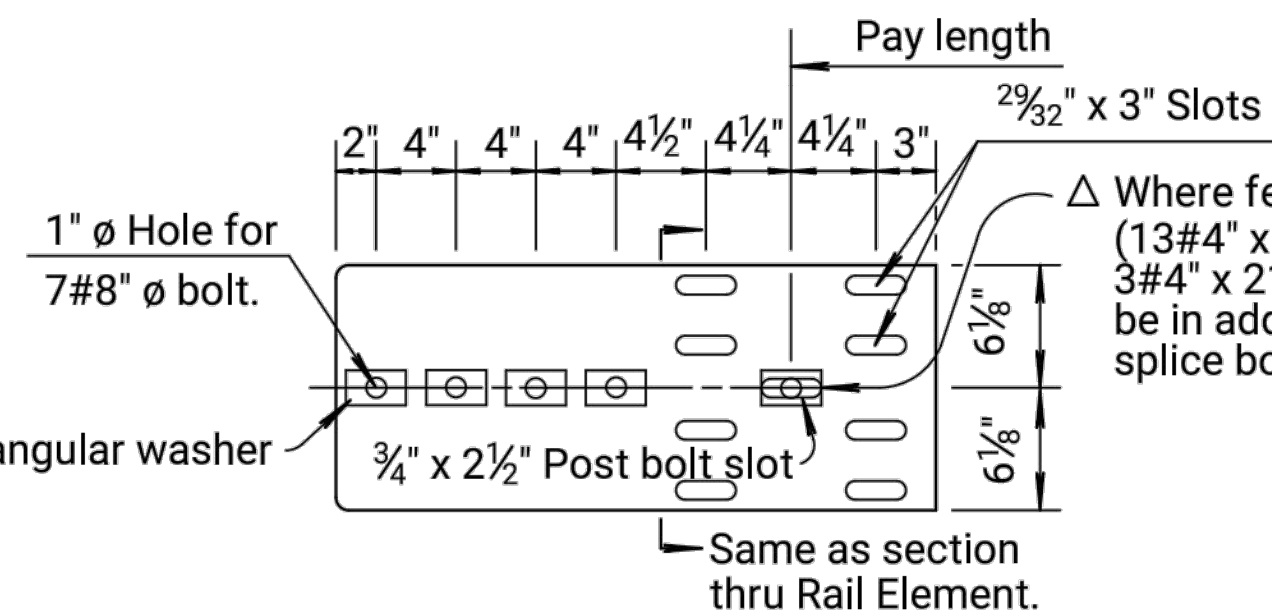
BEVELED WASHER



RECTANGULAR WASHER (Other approved washer may be used.)



PLAN SPECIAL END SHOE



ELEVATION SPECIAL END SHOE

One section of the two shall be considered as subsidiary to the bid item "Steel Plate Guardrail".

GENERAL NOTE

Include all material and work for this installation in the pay item "Steel Plate Guardrail" paid by the lineal foot.

Use 10 or 12 gauge steel guardrail elements unless otherwise called out, see standard specifications.

Bridge Rail Transition consists of one 12'-6" W-beam section nested in back of one 25'-0" section. Furnished remaining rail elements in either 12'-6" or 25'-0" sections.

Guardrail parts furnished under this specification shall be interchangeable with similar parts regardless of the source or manufacturer.

Shop fabricate tubular steel rubrail from ASTM A36 structural steel, form angles in rubrail by shop bending or welding. Rubrail is subsidiary to the bid item "Steel Plate Guardrail".

Galvanize rail elements, post fittings, bolts, nuts, washers and anchor bolts after fabrication in accordance with the standard specifications.

Shop or field drill holes in posts and/or tubular steel rubrail for attachment. When holes are field drilled touch up any damage to the galvanized coating with zinc based paint.

Shop bend rail when radius is less than 150'.

Fabricate Special End Shoe from 10 gauge steel in accordance with standard specifications.

The Special End Shoe has the same section as guardrail and is subsidiary to guardrail.

Lap guardrail splices, including Special End Shoe, in the direction of traffic. Where traffic is temporarily carried in the opposite direction of final configuration, lap rail splices in the direction of permanent traffic.

See Std. Drawing RD611 for additional details of posts not shown on this sheet.

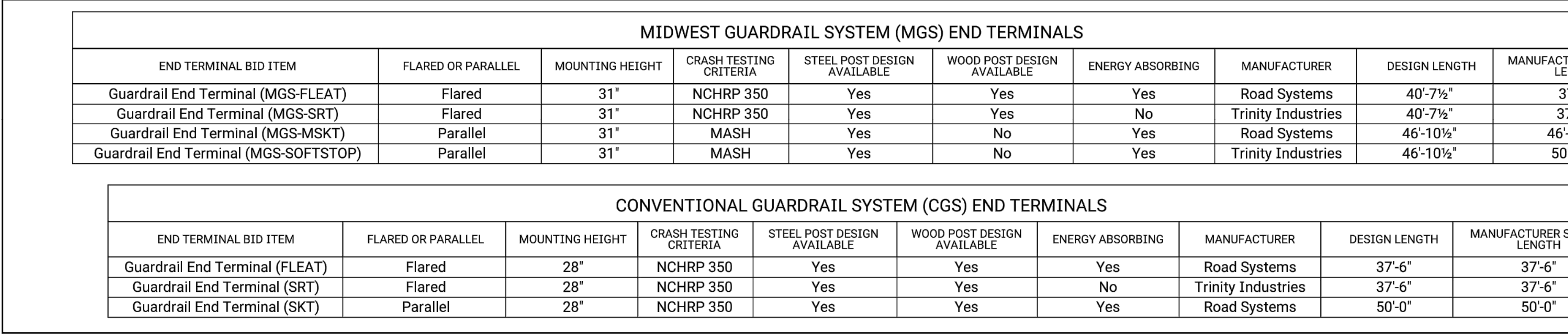
* See Standard Drawing RD611 for details of Bolts A, & C.

* Blocks used with steel posts shall be grooved to fit over the flange of the post and may be Wood or Polymer.

NO.	DATE	REVISIONS	BY	APP'D
14	12-14-10	Revised notes, 28" rail height	S.W.K.	J.O.B.
13	4-02-08	Removed Galvanized callout	S.W.K.	J.O.B.
12	2-06-07	Corrected spelling error	S.W.K.	J.O.B.
KANSAS DEPARTMENT OF TRANSPORTATION				
W-BEAM WITH RUBRAIL BRIDGE APPROACH TRANSITION DETAILS				
RD616				
FHWA APPROVAL		1-1 1-1 1	APP'D, James O. Brewer	
DESIGNED	DETAILED	QUANTITIES	TRACED	Bowser
DESIGN CK.	DETAIL CK.	QUAN. CK.	TRACE CK.	King

KDOT Graphics Certified 03-28-2018

Drawn By : arockers
File : rd606.dgn

[illegible]

2	9-5-18	ADD, OMITTED POST AND TRANS. DETAILS	A.L.R.	T.T.R.
1	6-5-18	INITIAL RELEASE	A.L.R.	T.T.R.
NO.	DATE	REVISIONS	BY	APP'D
KANSAS DEPARTMENT OF TRANSPORTATION				
<p style="text-align: center;">GUARDRAIL AUXILIARY DETAILS</p>				
RD606				
FHWA APPROVAL		9-25-18	APP'D. SCOTT W. KING	
DESIGNED		DETAILED	QUANTITIES	TRACED
DESIGN CK.		DETAIL CK.	QUAN. CK.	TRACE CK.

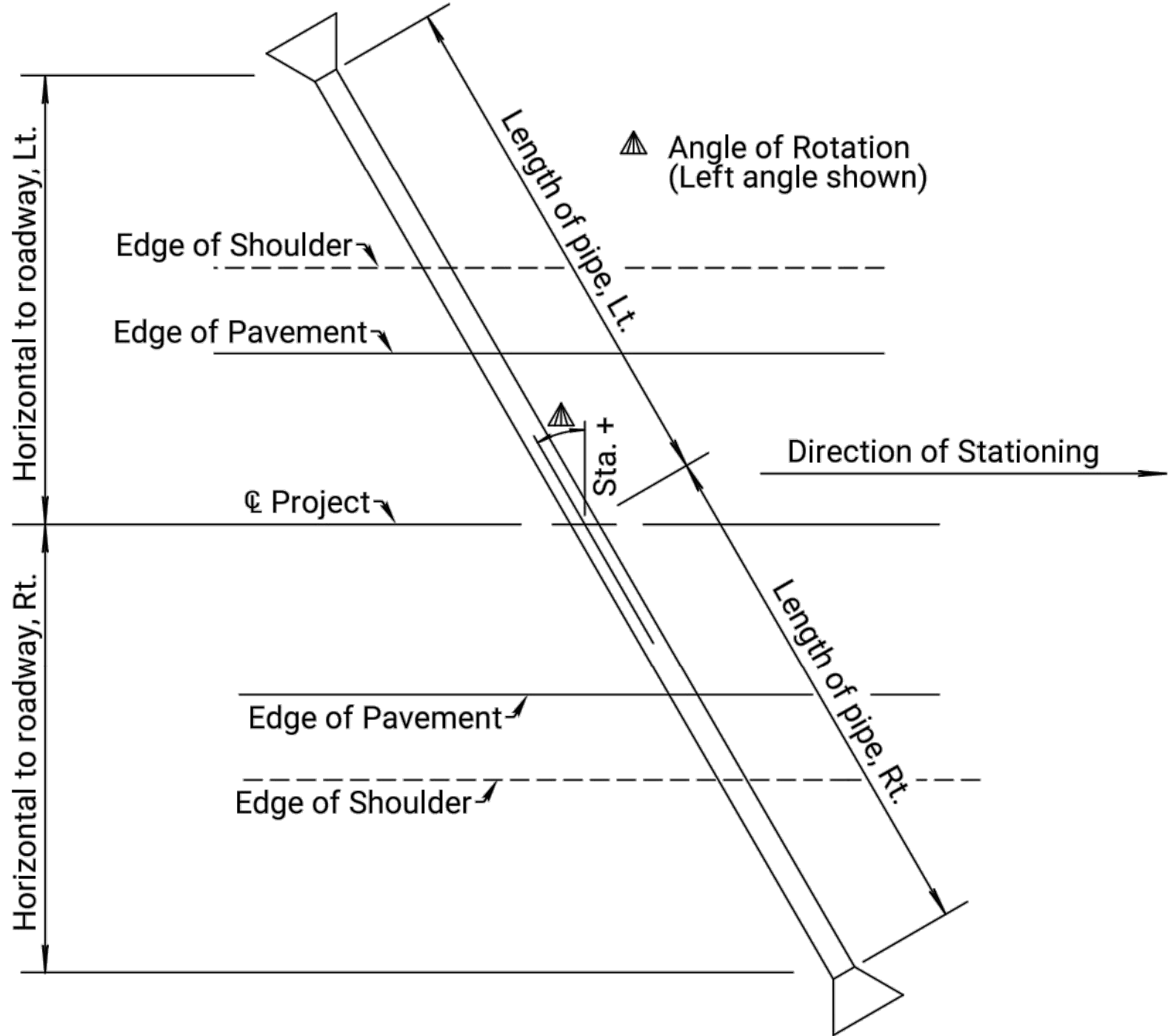
Note to Designer:

KDOT Pipe Policy provides guidance in identifying the prohibited and/or restricted uses of CSP, ACSP, PEP, PVCP, PPP, SSPE, CAP & RCP. Provide end sections of the same type and coating as the pipe. Exceptions to this are noted in the Standard Specifications. Refer to the KDOT Design Manual, Volume I (Part C), Road Section, "Elements of Drainage & Culvert Design" for structural pipe design information which includes: corrugations, sizes, gauges, maximum/minimum fill heights and classes of pipe.

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	74 C-5227-01	2024	9	51






[illegible]

- Unless otherwise noted, minimum pipe gauge & corrugations to be as shown in RD660. See Summary of Quantities for End Section information.
- ✱ Only include floor elevations for embedded pipes. See RD668 for details. For structures not embedded, the floor elevations may be omitted.



PLAN
(Showing Rotation about \mathbb{C})

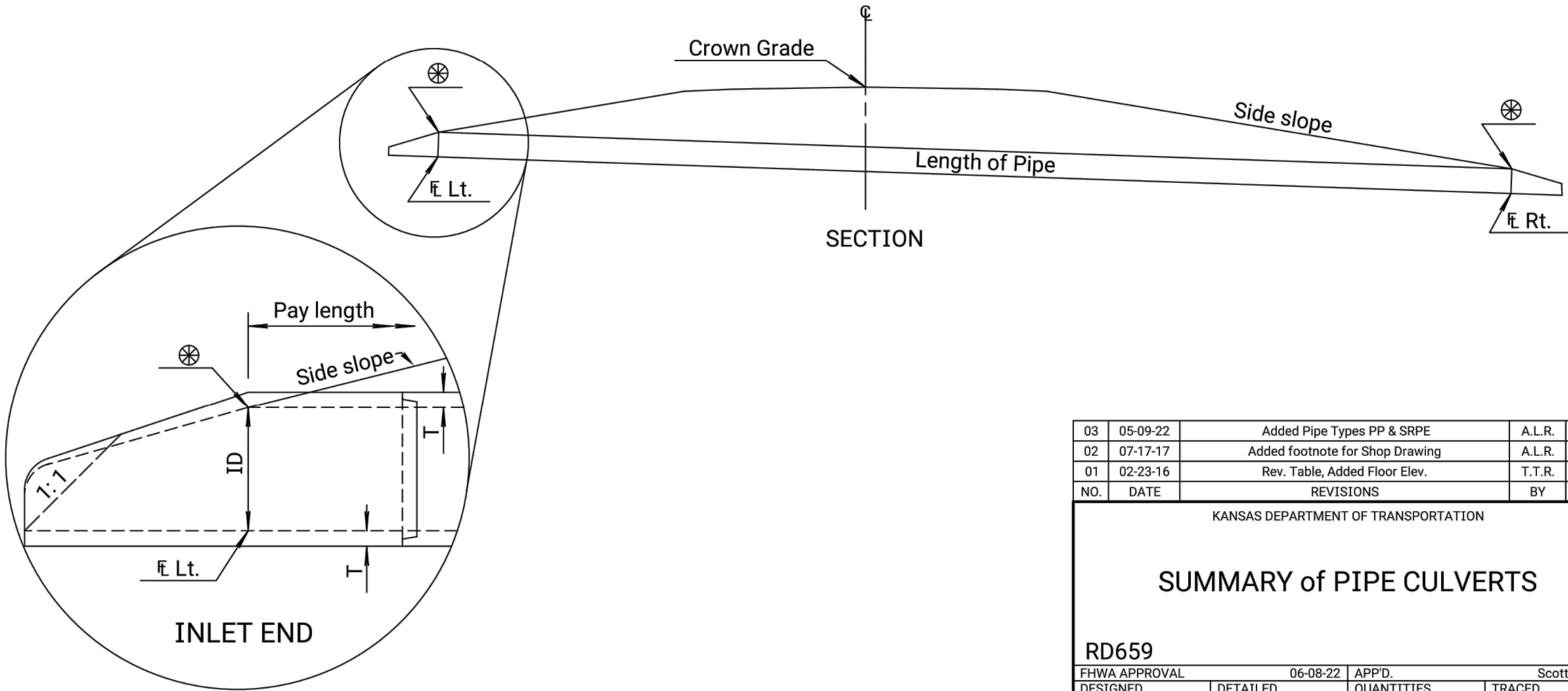
⊗ Design side slope to intersect inside diameter of pipe outside of Clear Zone.

Type	ALLOWABLE LOCATION 			
	Mainline	Side Road	Entrance	Storm Sewer Under ML Not Under ML
 PVPC				
 PEP				
 PPP				
 SRPE				
CSP			X	
ACSP			X	
CAP			X	
RCP				

- ✱ When inside diameter of pipe is 36" or less.
- ⚠ Unless otherwise specified in the plans. Some pipe types may not be allowed at a location if the fill height exceeds the maximum allowable or is less than the minimum allowable cover.
- 📏 When inside diameter of pipe is 60" or less.
- 📏 For inside diameter: $\geq 30"$

Type	ALLOWABLE END SECTIONS			
	◆ CS	◆ ACS	CA	RC
PVCP	X	X	X	
PEP	X	X	X	X
PPP				X
SRPE				
RCP				
ACSP CAP CSP	Provide End Sections of the same material and coating type as the pipe.			

- ◆ Type IV End Sections are only made of CS or ACS
- ψ Submit Shop Drawing of connection for review



03	05-09-22	Added Pipe Types PP & SRPE	A.L.R.	S.W.K.
02	07-17-17	Added footnote for Shop Drawing	A.L.R.	S.W.K.
01	02-23-16	Rev. Table, Added Floor Elev.	T.T.R.	S.W.K.
NO.	DATE	REVISIONS	BY	APP'D

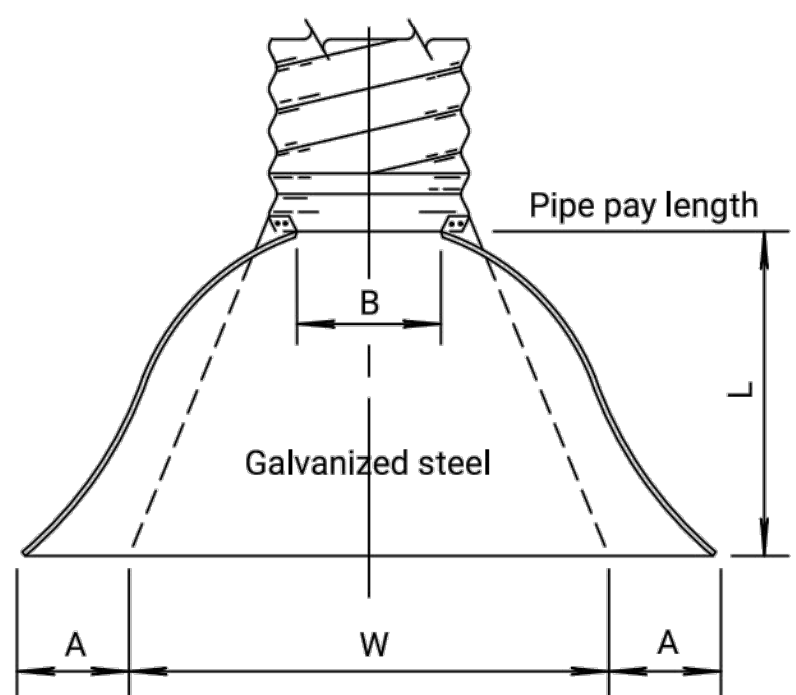
KANSAS DEPARTMENT OF TRANSPORTATION

SUMMARY of PIPE CULVERTS

RD659

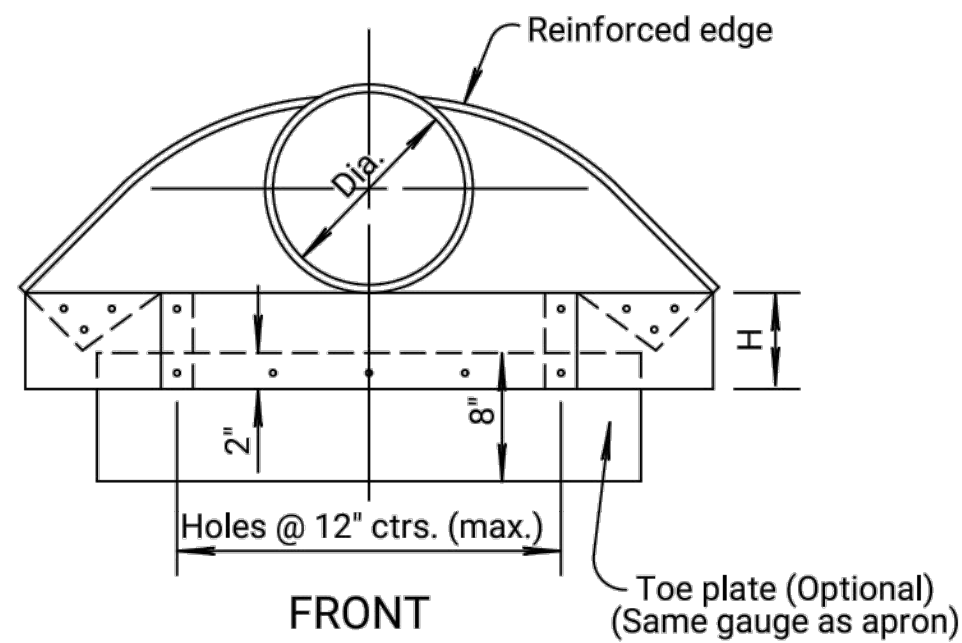
FHWA APPROVAL		06-08-22	APP'D.	Scott W. King
DESIGNED	DETAILED	QUANTITIES	TRACED	
DESIGN CK.	DETAIL CK.	QUAN.CK.	TRACE CK.	

Note to Designer: KDOT Pipe Policy provides guidance in identifying the prohibited and/or restricted uses of CSP, ACSP, PEP, PVCP, CAP & RCP. Provide end sections of the same type and coating as the pipe. Exceptions to this are noted in the Standard Specifications. Refer to the KDOT Design Manual, Volume I (Part C), Road Section, "Elements of Drainage & Culvert Design" for structural pipe design information which includes: corrugations, sizes, gauges, maximum/minimum fill heights and classes of pipe.

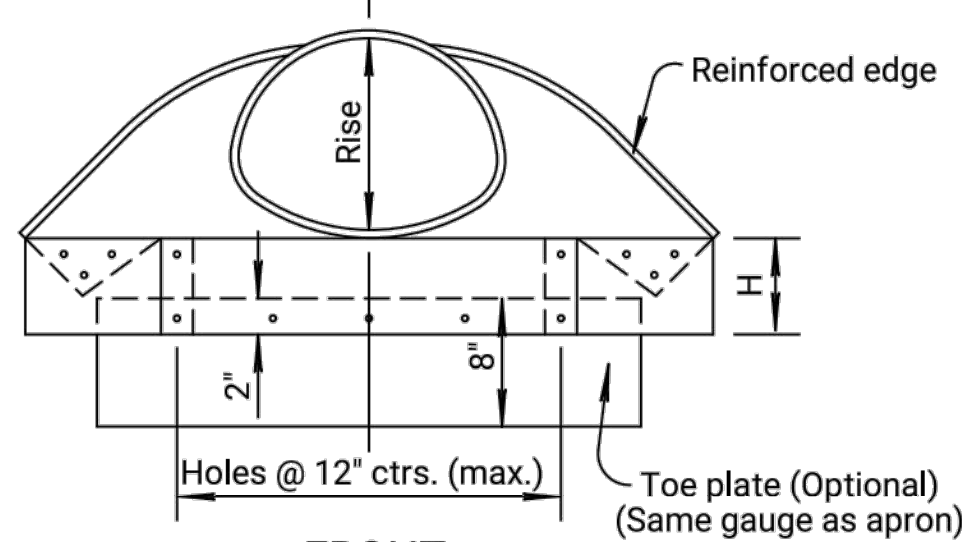


PLAN

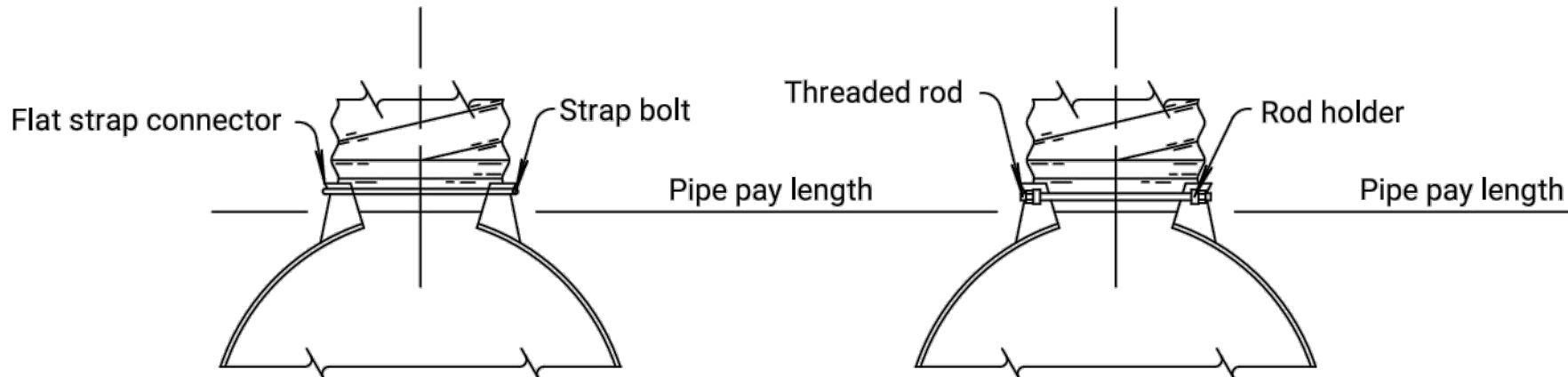
(Illustrated with Type #3 Connection)



FRONT



FRONT

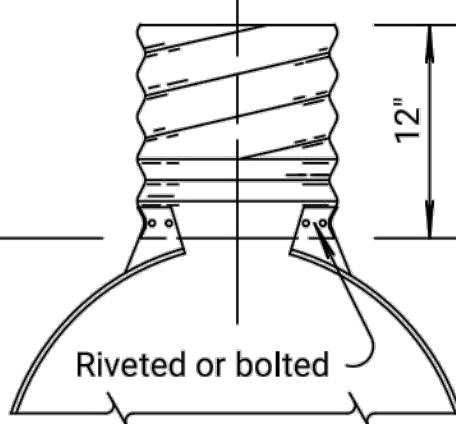


TYPE 1

Available in sizes 12" through 24" only.

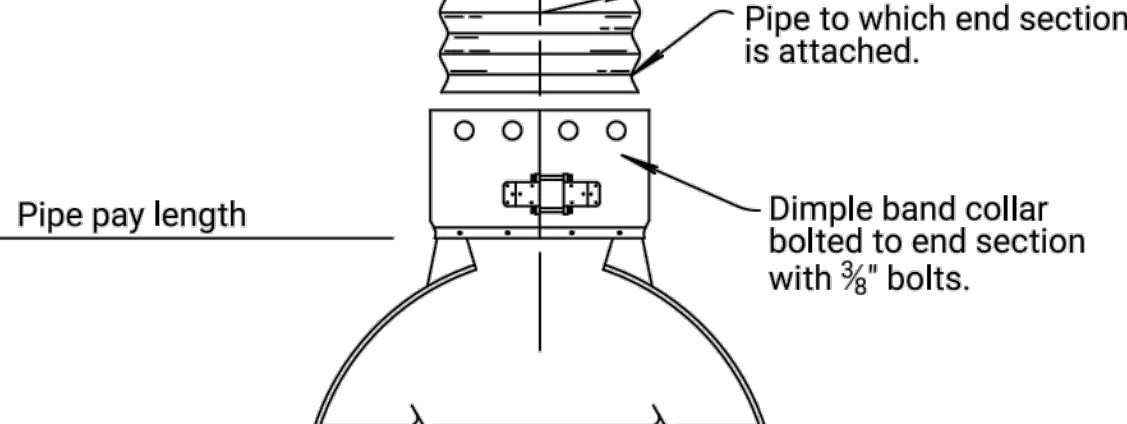
TYPE 2

Available in sizes 30" and 36" Round and 17"x13" through 57"x38" Pipe-Arches.



TYPE 3

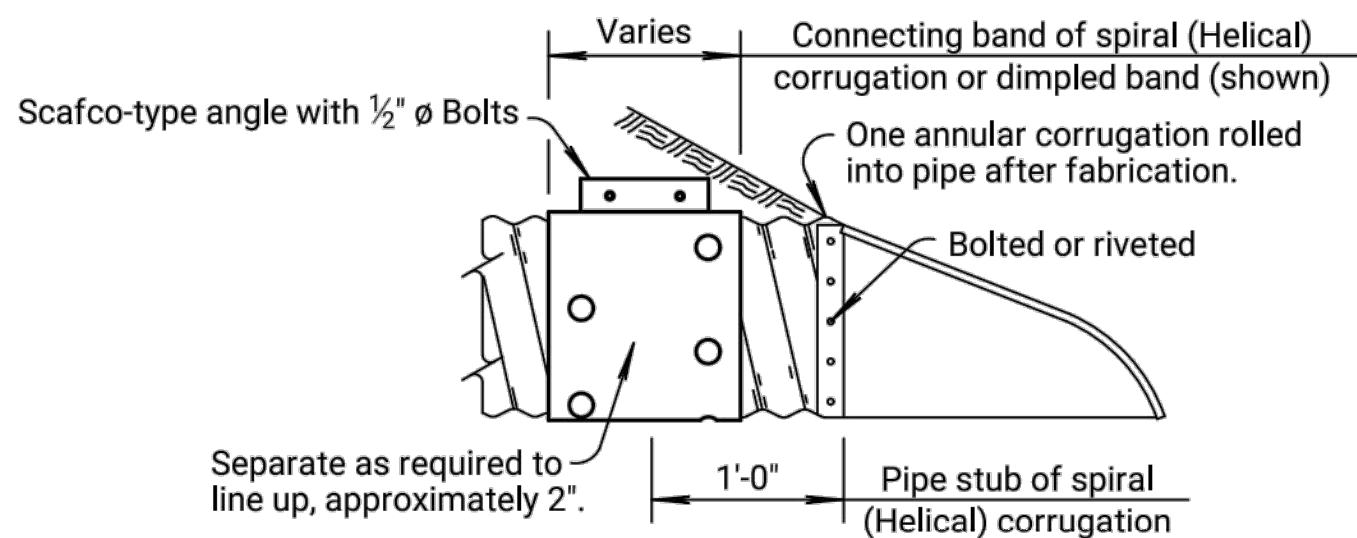
Available in sizes 42" through 96" Round and 60"x46" through 81"x59" Pipe-Arches.



TYPE 5

Available for all Round and equivalent Pipe-Arch sizes, (Type 1 and Type 2 connections are recommended for the smaller sizes with annular ends).

Note: Type 3 connection may be furnished instead of Type 1 or Type 2 for smaller round or arch pipe.



SPIRAL (HELICAL) CORRUGATION

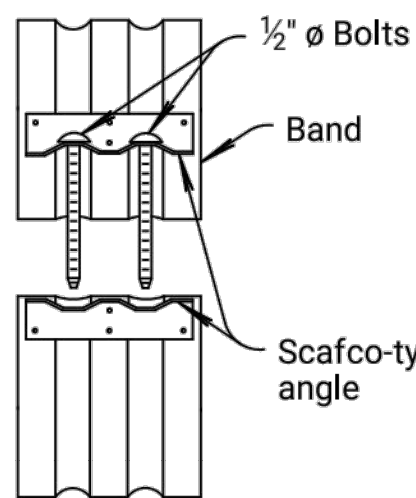
For all sizes of round and arch culvert pipes having Spiral (Helical) corrugations, the end sections and connecting bands shall be as shown above.

Thickness CSP/ACSP	Thickness CAP	Gauge
0.064"	0.060"	16 ga.
0.079"	0.075"	14 ga.
0.109"	0.105"	12 ga.
0.138"	0.135"	10 ga.
0.168"	0.164"	8 ga.

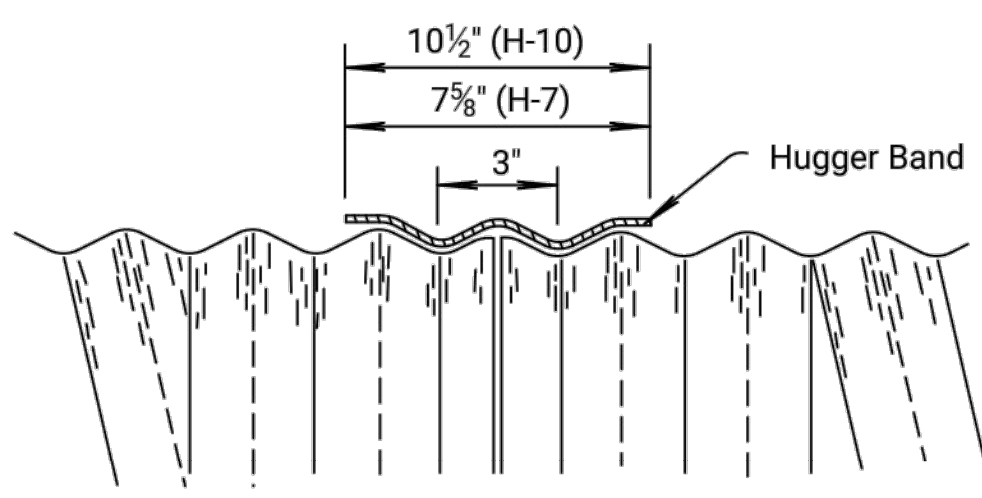
Pipe Dia. (In.)	CS, ACS or CA Gauge	Dimensions in Inches					Approx. Slope
		A (min.)	B (max.)	H (min.)	L (±2")	W (min.)	
12"	16	5	7	6	21	22	2 1/2: 1
15"	16	6	8	6	26	28	2 1/2: 1
18"	16	7	10	6	31	34	2 1/2: 1
21"	16	8	12	6	36	40	2 1/2: 1
24"	16	9	13	6	41	46	2 1/2: 1
30"	14	11	16	8	51	55	2 1/2: 1
36"	14	13	19	9	60	70	2 1/2: 1
42"	12	15	25	10	69	82	2 1/2: 1
48"	12	17	29	12	78	88	2 1/2: 1
54"	12	17	33	12	84	100	2 1/2: 1
60"	12/10	17	36	12	87	112	2: 1
66"	12/10	17	39	12	87	118	2: 1
72"	12/10	17	44	12	87	120	2: 1
78"	12/10	17	48	12	87	130	1 1/2: 1
84"	12/10	17	52	12	87	136	1 1/2: 1
90"	12/10	17	58	12	87	142	1 1/2: 1
96"	12/10	17	58	12	87	144	1 1/2: 1

Bid Designation Sq. Ft.	Nom. W.W. Area Sq. Ft.	Pipe Arch	Dimensions in Inches 2 3/4" x 1/2" Corrugations						Dimensions in Inches 3" x 1" or 5" x 1" Corr.						Approx. Slope
		Span & Rise	CS, ACS or CA Gauge	A (min.)	B (max.)	H (min.)	L (±2")	W (min.)	CS, ACS or CA Gauge	A (min.)	B (max.)	H (min.)	L (±2")	W (min.)	
1.0	1.1	17" x 13"	16	5	9	6	20	28							2 1/2: 1
1.5	1.6	21" x 15"	16	6	11	6	24	34							2 1/2: 1
2.0	2.2	24" x 18"	16	7	12	6	28	40							2 1/2: 1
2.5	2.9	28" x 20"	16	7	16	6	32	46							2 1/2: 1
3.0 or 4.0	4.5	35" x 24"	14	9	16	6	39	58							2 1/2: 1
5.0 or 6.0	6.5	42" x 29"	14	11	18	7	46	73							2 1/2: 1
7.0 or 8.5	8.9	49" x 33"	12	12	21	9	53	82							2 1/2: 1
10.0 or 11.0	11.7	53" x 41"							12	17	26	12	63	88	2: 1
10.0 or 11.0	11.6	57" x 38"	12	16	26	12	62	88							2: 1
12.5 or 14.0	15.6	60" x 46"							12	17	36	12	70	100	2: 1
12.5 or 14.0	14.7	64" x 43"	12	17	30	12	69	100							2: 1
16.5	19.3	66" x 51"							12/10	17	36	12	70	112	1 1/2: 1
16.5	18.1	71" x 47"	12/10	17	36	12	77	112							1 1/2: 1
21.0	23.2	73" x 55"							12/10	17	36	12	77	124	1 1/2: 1
21.0	21.9	77" x 52"	12/10	17	36	12	77	124							1 1/2: 1
25.0	27.4	81" x 59"							12/10	17	44	12	77	136	1 1/2: 1
25.0	26.0	83" x 57"	12/10	17	44	12	77	130							1 1/2: 1
32.0	32.1	87" x 63"							12/10	17	44	12	77	136	1 1/2: 1
36.0	37.0	95" x 67"							12/10	17	44	12	87	160	1 1/2: 1
42.0	42.4	103" x 71"							12/10	17	44	12	87	172	1 1/2: 1
47.0	48.0	112" x 75"							12/10	17	44	12	87	172	1 1/2: 1

(Information listed in these tables are nominal and may vary by manufacturer.)

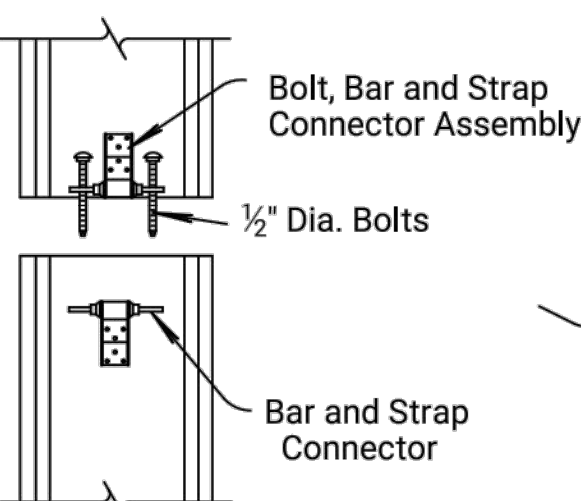


CONNECTION DETAIL H-7 or H-10 BAND

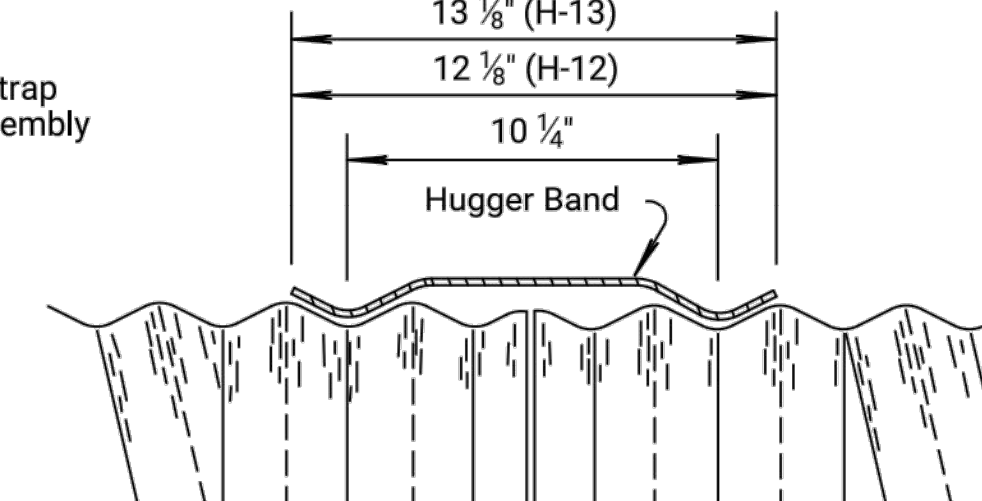


UNIVERSAL REFORMED END with H-7 or H-10 HUGGER BAND

DETAILS FOR H-7 HUGGER BAND (12" thru 36") or H-10 HUGGER BAND (12" thru 120")

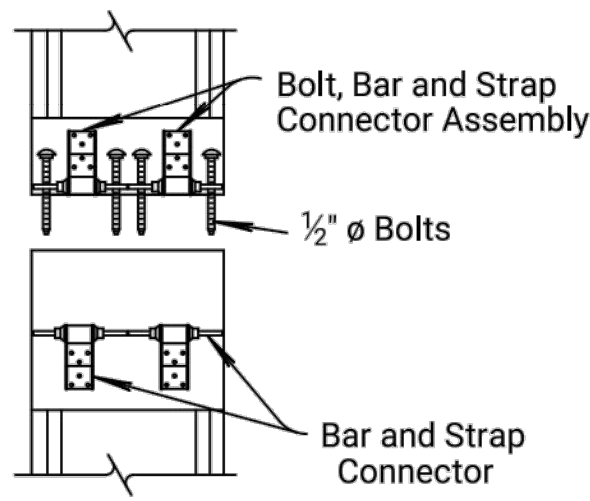


CONNECTION DETAIL SINGLE HARNESS



UNIVERSAL REFORMED END with HUGGER BAND

DETAILS FOR H-12 or H-13 HUGGER BAND



CONNECTION DETAIL DOUBLE HARNESS

Pipe Dia. Inches	Minimum Gauge of Round Pipe				
	2 3/4" x 1/2" Corr. CSP or ACSP	3" x 1" Corr. CSP or ACSP	5" x 1" Corr. CSP or ACSP	2 3/4" x 1/2" Corr. CAP	3" x 1" Corr. CAP
12"	14			16	
15"	14			16	
18"	14			16	
21"	14			16	
24"	14			16	
30"	14			14	
36"	14			14	16
42"	14			12	16
48"	12	14	16	14	16
54"	12	14	16	14	16
60"	10	14	16	14	16
66"	10	14	16	14	16
72"	10	14	16	14	16
78"	8	14	14	14	14
84"	8	14	14	14	14
90"		14	14	14	14
96"		12	12	12	12
102"		12	12	12	12
108"		12	12	12	12
114"		12	12	12	12
120"		10	10	10	10

Bid Designation Sq. Ft.	Pipe Dimension Span & Rise	Sq. Ft.	Equiv. Round Pipe Diameter	Minimum Gauge of Arch Pipe				
				2 3/4" x 1/2" Corr. CSP or ACSP	3" x 1" Corr. CSP or ACSP	5" x 1" Corr. CSP or ACSP	2 3/4" x 1/2" Corr. CAP	3" x 1" Corr. CAP
1.0	17" x 13"	1.1	15"	14			16	
1.5	21" x 15"	1.6	18"	14			16	
2.0	24" x 18"	2.2	21"	14			16	
2.5	28" x 20"	2.9	24"	14			14	
3.0 or 4.0	35" x 24"	4.5	30"	14			14	
5.0 or 6.0	42" x 29"	6.5	36"	14			12	
7.0 or 8.5	49" x 33"	8.9	42"	14			12	
10.0 or 11.0	53" x 41"	11.7	48"		14			
10.0 or 11.0	57" x 38"	11.6	48"	12			10	
12.5 or 14.0	60" x 46"	15.6	54"		14			14
12.5 or 14.0	64" x 43"	14.7	54"	12			10	
16.5	66" x 51"	19.3	60"		14			14
16.5	71" x 47"	18.1	60"	10			8	
21.0	73" x 55"	23.2	66"		14			14
21.0	77" x 52"	21.9	66"	8				
25.0	81" x 59"	27.4	72"		14	12		12
25.0	83" x 57"	26.0	72"	8				
32.0	87" x 63"	32.1	78"		12	12		12
36.0	95" x 67"	37.0	84"		12	12		12
42.0	103" x 71"	42.4	90"		12	12		10
47.0	112" x 75"	48.0	96"		12	12		8
54.0	117" x 79"	54.2	102"		10	10		
60.0	128" x 83"	60.5	108"		10	10		
67.0	137" x 87"	67.4	114"		10	10		
74.0	142" x 91"	74.5	120"		8	8		

GENERAL NOTE for METAL PIPE
Culvert "Type" listed may be CSP, ACSP, CAP, RCP, PVCP & PEP within guidelines of KDOT Pipe Policy for geographic location. More than one pipe "Type" may be acceptable for a design location with allowable types listed for each site.
There shall be no payment for gain in pipe length due to fit of pipe at connecting band.
When Hugger Bands are used, the H-7 Hugger Band may be used on circular pipes 36" diameter and smaller or pipe arches 42"x 29" and smaller. The H-10 Hugger Band may be used on 12" thru 120" pipe. The H-12 or H-13 Hugger Band are for pipe sizes larger than 36" diameter or 42"x29" arch pipe.
Pipe gauge listed in the tables on this sheet are minimum for E=750 p.s.i. soil. Pipe gauge will be determined for each site based on the Design Manual Volume I- Part C Fill Height Tables and shall be listed in the Pipe Culvert Summary. Gauges shown on this Standard Drawing are KDOT minimum and may not be industry minimum gauge.
In geographic areas that allow CSP (24" or smaller arched or round pipe) for entrance and side road installation with less than 3,000 AADT, 16 gauge ACSP may be substituted for 14 gauge CSP.
Aluminum or aluminized pipes or end sections shall be coated with an asphaltic paint when in contact with fresh concrete in accordance with the Standard Specifications.

04	09-10-09	Rev. Round and Arch tables, add. Alum.	S.W.K.	J.O.B.
03	01-20-09	Rev. Round and Arch tables, add. Alum.	S.W.K.	J.O.B.
02	04-18-08	Rev. layout, details, tables and notes	S.W.K.	J.O.B.
NO.	DATE	REVISIONS	BY	APPD
KANSAS DEPARTMENT OF TRANSPORTATION				
METAL END SECTION FOR ROUND & ARCH METAL CULVERTS (TYPE I) & PIPE GAUGE TABLES				
RD660				
FHWA APPROVAL		12-16-09	APPD.	James O. Brewer
DESIGNED	DETAILED	QUANTITIES	TRACED	
DESIGN CK.	DETAIL CK.	QUAN.CK.	TRACE CK.	

SW Corner of Sec. 21, T02S, R16W	Ref.
1. 3/8"x24" rebar with pink plastic cap stamped "PENCO CLS-42"	0.5' Deep
2. Mag nail & CLS-42 washer set in the northwest face of a telephone pedestal witness post	46.8' ENNE
3. Mag nail & CLS-42 washer set in the top of a corner fence post	35.1' SW
4. Mag nail & CLS-42 washer set in the northeast face of a power pole	32.9' NW
5. Near center of roadway intersection	
6. Sta. 1372+00.00	
N=858850.08, E=4586501.87	

POT

1. Office Set
2. Section Line=Project Centerline
3. Inline w/Travelway E-W
4. Sta. 1392+00.00
5. No other ties available

N=858889.55, E=4588501.48

Ref.	<p>S 1/4 Corner of Sec 21, T2S, R16W</p> <ol style="list-style-type: none"> 1. No monument found 2. Existing monument would have been placed on or below existing bridge structure. Quarter corner established by calculation of previous surveys. 3. Sta. 1399+01.75 <p>N=858901.98, E=44589131.03</p>
------	--

POT

1. Office Set
2. Section Line=Project Centerline
3. Travelway E-W
4. Sta. 1405+50.00
5. No other ties available

N=858916.20, E=4589851.21

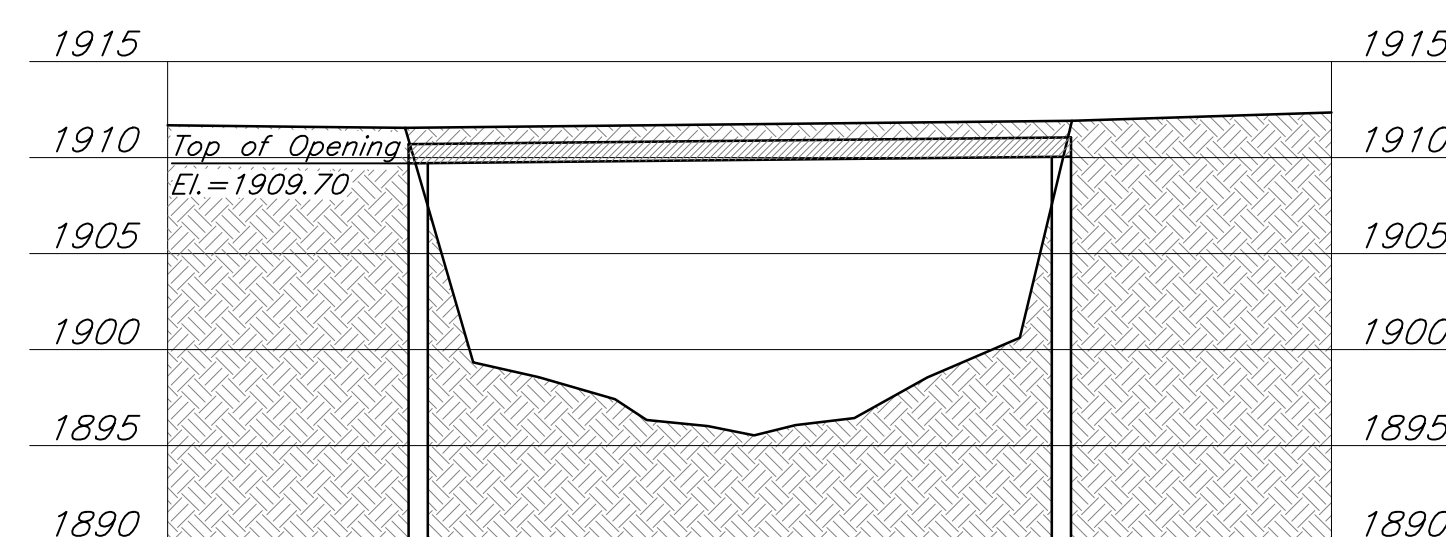
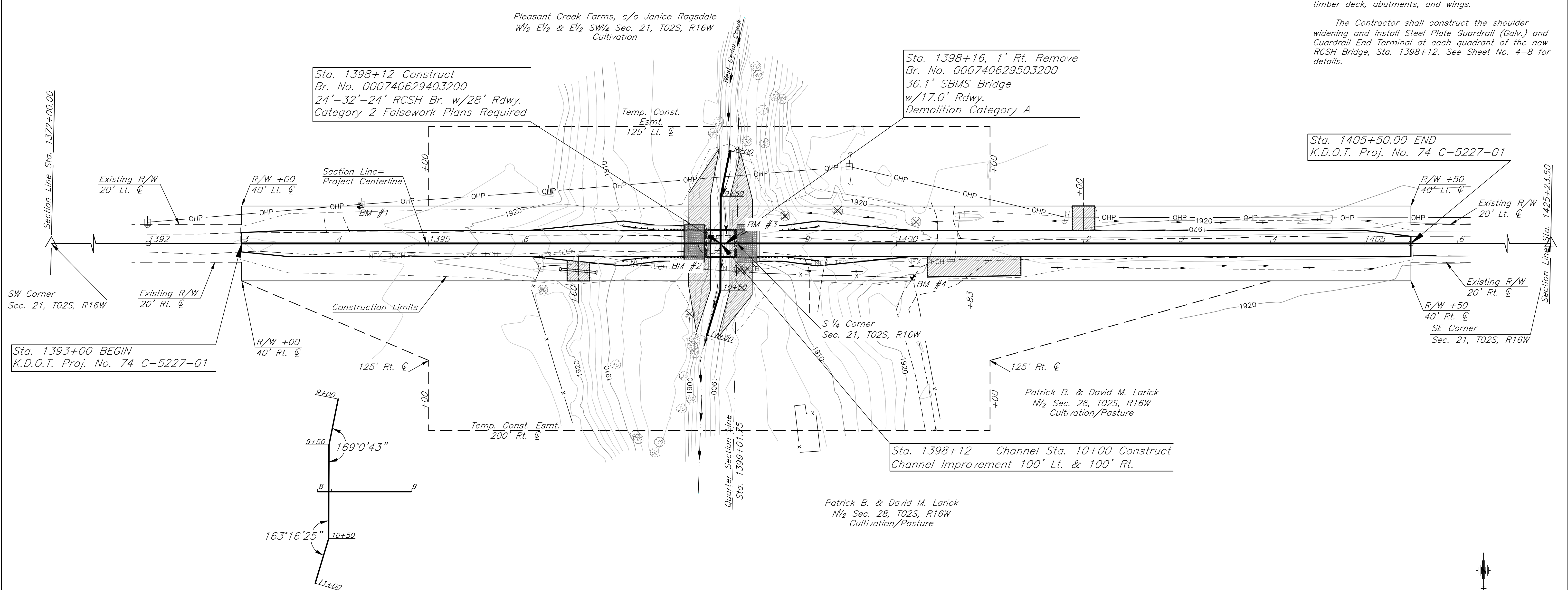
Ref.	SE Corner of Sec 21, T2S, R16W
	1. $\frac{9}{16}$ "x24" rebar with aluminum cap stamped "PENCO CLS-42"
3.0' S	2. Mag nail & CLS42 washer set in the southeast face of a buried telephone witness post
	3. Mag nail & CLS42 washer set in the northeast face of a telephone pedestal witness post
	4. Mag nail & CLS42 washer set in the northeast face of a power pole
	5. Near center of roadway intersection
	6. Sta. 1425+23.50 N=858953.58, E=4591744.34

<i>Ref.</i>	STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
<i>0.3' Deep</i>	KANSAS	74 C-5227-01	2024	11	51
<i>59.5' NE</i>	<i>NOTE: The Contractor shall remove the existing</i>				
<i>59.7' SE</i>	<i>36.1' SMBS bridge (Br. No. 000740629503200) with</i>				
<i>49.1' NW</i>	<i>17.0' rdwy. width. All materials shall become the property of the Contractor and be removed from the site.</i>				

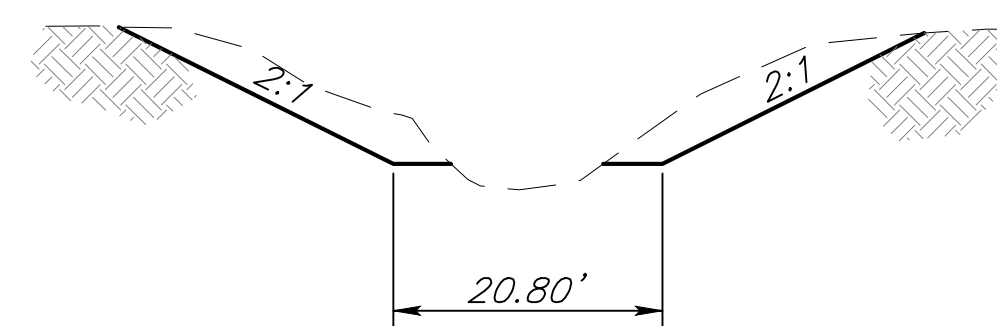
The Contractor shall excavate the channel and complete the embankments prior to construction of the RCSH bridge.

Existing Bridge consists of: steel stringers, piers, timber deck, abutments, and wings.

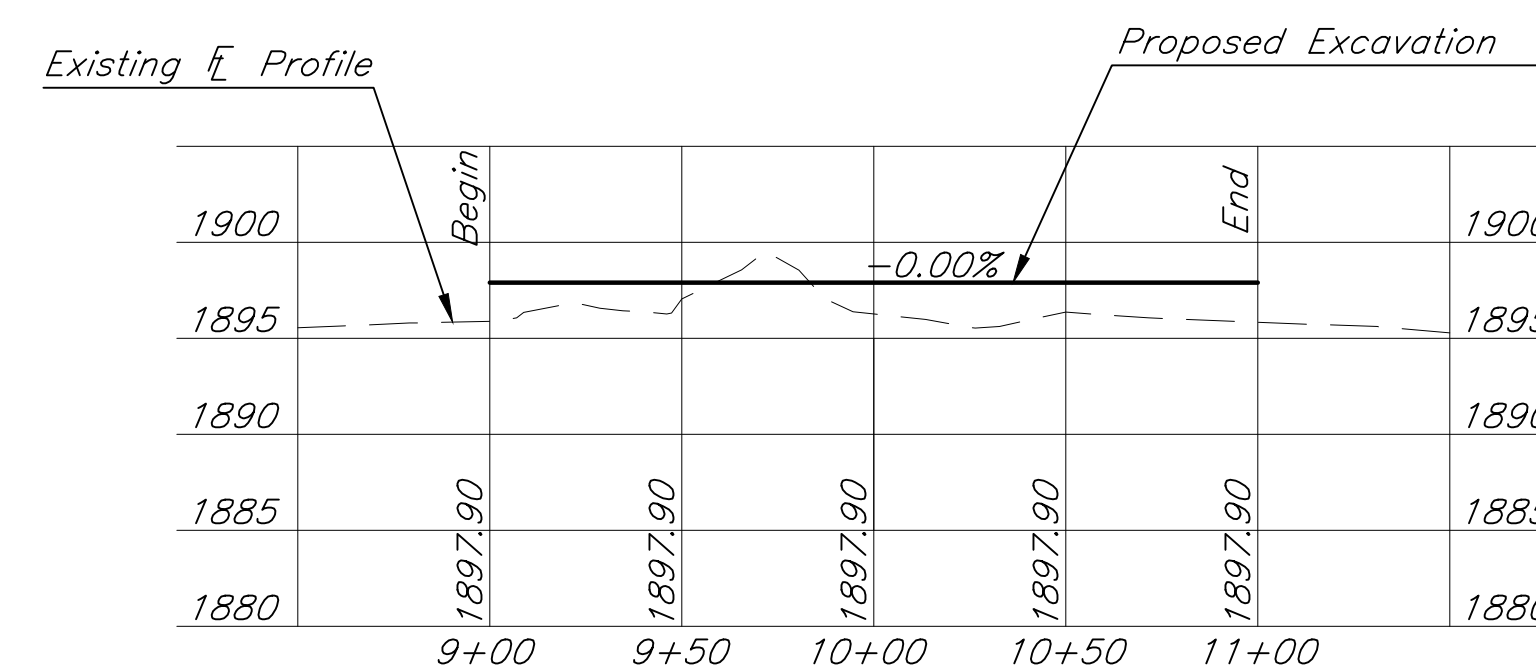
The Contractor shall construct the shoulder widening and install Steel Plate Guardrail (Galv.) and Guardrail End Terminal at each quadrant of the new RCHS Bridge, Sta. 1398+12. See Sheet No. 4-8 for details.



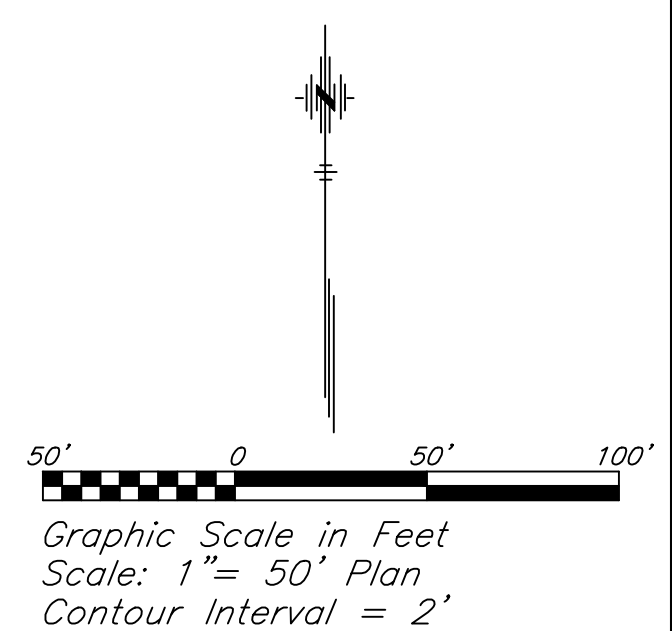
SKETCH OF EXISTING STRUCTURE
Existing Waterway Opening = 376 sq. ft.
Sta. 1398+16, 1' Rt.



TYPICAL CHANNEL SECTION
Sta. 9+50 to Sta. 10+50



CHANNEL PROFILE & GRADE



CONTOUR MAP

PENCO ENGINEERING, P.A.
PLAINVILLE, KANSAS

DESIGNED BY: JGD	SCALE: As Shown
DRAWN BY: MRH	PROJ. NO.: 74 C-5227-01
CHECKED BY: JJD	DATE: 2024

X:\ac2\kdots\kdots\ACAD\EG_KD7401.dwg - Off #197 - Phillips - Contour Map 50 Scale 2/1/2024 1:55 PM

BM #1 5/8" Rebar w/green "PENCO CONTROL" cap 1' south of power pole, 40' Lt Sta. 1394+26, Elev.=1923.98
N=858934.03, E=4588726.88

BM #2 Mag Nail set in southwest corner of wing pile, 15' Rte.
Sta. 1397+95, Elev.=1911.37
N=858886.36, E=4589096.73

BM #3 Mag Nail set in southwest corner of wing pile, 12' Lt.
Sta. 1398+38, Elev.=1911.83
N=858913.58, E=4589138.90

CP #4 5/8" Rebar w/green "PENCO CONTROL" cap 1' north of fence corner post, 36' Rt.
Sta. 1400+18, Elev.=1920.82
N=858869.68, E=4589319.80

X:\ac2\kdot\KD5227 - Phillips - Off #197\ACAD\Bridge Quantities.dwg | Bridge Quantities - Layout1 8/7/2024 10:11 AM

BRIDGE QUANTITIES								
Location	Excavation		Concrete		Reinf.	Slope	# Pile	Contractor
			(Grade 4.0)	(Grade 4.0)	Steel	Protection	(Steel)	Furnished
	Class I	Class II	(AE)	(AE)(SW)	(Gr. 60)	(Shot Rock)	(HP10x42)	PDA
	CUYD	CUYD	CUYD	CUYD	LBS	CUYD	LNFT	EACH
Abutment #1	40			**	**	53	150	1
Pier #1	7	52	39.4		1,586		210	
Pier #2	7	51	39.4		1,586		250	1
Abutment #2	41			**	**	53	160	
Total Substructure					3,172			
Total Superstructure				166.4	40,399			
TOTAL	95	103	78.8	166.4	43,570	106	770	2
								84

**Quantities are included in the Superstructure Quantity.

≠ NOTE: Only Steel HP 10 x 42 Piles shall be used on this project.

GENERAL NOTES

QUANTITIES: Items not listed separately in the Summary of Quantities are subsidiary to other items in the proposal.

DIMENSIONS: All dimensions shown on the design plans are horizontal dimensions unless otherwise noted. Make necessary allowances for roadway grade and cross slope.

BRIDGE EXCAVATION: Elevation 1897.90 shall designate the Excavation Boundary Plane of Class I and Class II Excavation; Class I above the plane, Class II below the plane. See the Bridge Excavation sheet for the limits of pay excavation.

EMBANKMENTS: Complete the embankment at the abutments as shown on the Bridge Excavation sheet prior to driving the abutment piling or commencing with the abutment footing excavation.

SLOPE PROTECTION (Shot Rock): Place Slope Protection (Shot Rock) to the limits and thicknesses shown on the plans or as directed by the Engineer. Place geotextile fabric under the rock/rubble embankment on the berm and berm slopes.

PILING: Drive all piling to penetrate or bear upon the shale formation. Driving shall stop when in the opinion of the Engineer additional driving may damage the piling. Drive all piling to the Pile Driving Formula Load of:

Abutment No. 1	42 Tons
Pier No. 1	64 Tons
Pier No. 2	64 Tons
Abutment No. 2	42 Tons

As a minimum drive each pile to the load and penetration, but in no case shall the pile be driven to more than 110% of Pile Driving Formula Driving Load.

CONCRETE: Superstructure concrete is bid as Concrete (Grade 4.0)(AE)(SW). Substructure concrete is bid as Concrete (Grade 4.0)(AE). The Contractor may use Concrete (Grade 4.0) in the footings. Bevel all exposed edges of all concrete with a 3/4" inch triangular molding, except as otherwise noted on the plans. Construction joints are optional with the Contractor, but if used, place only at locations shown, or at locations approved by the Engineer.

REINFORCING STEEL: All reinforcing steel dimensions are to the centerline of bars unless otherwise noted. All reinforcing steel, except the spiral bars, shall conform to the requirements of ASTM A615, Grade 60. Spiral bars may meet the requirements of either ASTM A615 (Gr. 40 or 60) or A82, and are included in the bid item "Reinforcing Steel (Gr. 60)".

FALSEWORK PLANS: A licensed Professional Engineer shall design the falsework details. Details shall bear the seal of a licensed Professional Engineer. See the Bridge Design Manual, Section 5.1 "Review and Approval of Falsework Plans", for a listing of items to be included on the falsework plan. Submit three sets of details in compliance with KDOT Specifications to the Owner's designated Engineer for review and distribution.

FALSEWORK INSPECTION: This project has falsework plan requirements which are considered "Category 2" by KDOT specifications. If falsework deficiencies or variations from the approved and sealed plans are found, the falsework design Engineer of Record will provide written approval of the changes. If for the convenience of the Contractor the falsework becomes "Category 1" by the use of non-typical supports; then the inspection and review requirement of "Category 1" will be fully enforced, but at no cost to the Owner. "Category 2" falsework inspection is not paid for directly, but is subsidiary to other bid items.

FALSEWORK: Leave the falsework in place for the entire unit until 15 days after the last concrete pour for the unit or longer as directed by the Engineer.

CAMBER: Provide camber as shown on the Camber Diagram unless the Contractor uses either long span steel beam falsework (concrete dead load deflection greater than 1/4 inch) or timber falsework with greater than 12'-0" clear span. If either case exists, submit falsework plans that show the additional required camber.

Summary of Piling	
Abutment No. 1	3 @ 35', 1 @ 45' for PDA
Pier No. 1	6 @ 35'
Pier No. 2	5 @ 40', 1 @ 50' for PDA
Abutment No. 2	4 @ 40'

CORRAL RAIL: Build the corral rail after the falsework is struck.

CONSTRUCTION LOADS: Limited traffic is permitted on the new sub-deck, one-course deck or any concrete overlay during the curing period, keep any exposed deck wet during the curing period. See KDOT Specifications Section 710 Tables 710-1 & 710-2 for additional information.

PILING SPLICE LOCATION: Integral pile splice locations and weld testing criteria for Abutments and Piers will follow the "Standard Pile Details" Sheet (BR110).

BACKFILL COMPACTION: Compact backfill at the abutments.

CONCRETE PLACING SEQUENCE: The sequence of placing concrete in the slab and curbs shall be as shown, or the Contractor may submit an alternate placing sequence for review. Submit the alternate placing sequence to the Owner's designated Engineer at the Preconstruction Conference. Include the proposed rate of concrete placement in C.Y./h, the plant capacity, placement direction, construction joint location, a description of the equipment used in placing the concrete, proposed admixtures, and the quantity of concrete in each placing segment. Any additional cost for the Contractor's alternate plan of placing concrete, including admixtures, shall be at the Contractor's expense and shall be considered subsidiary to the bid item, "Concrete (Grade 4.0) (AE) (SW)". Approval of the Contractor's alternate sequence is required prior to placement of concrete in the deck.

DEMOLITION PLANS: This is a Category A Demolition. Submit detailed Demolition Plans to the Owner's designated Engineer for review and distribution per KDOT Specifications. No Demolition work will begin without approved Demolition Plans. A Licensed Professional Engineer is not required.

REMOVAL OF EXISTING STRUCTURE: Removal of existing structure is included in the bid item, "Removal of Existing Structures", Lump Sum.

BRIDGE DECK FINISHING: Give the surface a suitable texture by transverse grooving a tining float having a single row of fins. Make the grooving approximately 3/16 inch in width at 3/4 inch centers, with a depth approximately 1/8 inch.

BRIDGE DECK CURING: Within 15 minutes, or as soon as the surface water disappears, apply 2 coats of Type 2 white liquid membrane forming compound at a minimum rate per coat of 1 gallon per 200 square feet of concrete surface. Place the second coat at right angles to the first coat. Protect the curing membrane against marring for a minimum of 7 days. The Engineer may limit work during this 7-day period.

CONTRACTOR FURNISHED PDA: Use the Pile Driving Analyzer equipment at the locations shown on the Construction Layout. Use Pile Driving Analyzer equipment and methods compliant with KDOT Special Provision. The piling shall remain in place as permanent piling. Drive the piling to the resistance value of 65 for Abutments and 98 for Piers (Strength I divided by Phi).

At any location where problems are experienced, pile damage is suspected, or the Pile Driving Formula Load occurs significantly above the design pile tip elevation, the Owner's designated Engineer may request that the Pile Driving Analyzer (PDA) equipment be used.

ASBESTOS INFORMATION: Samples of this structure were tested to determine the amount of Asbestos Containing Materials (ACM) present in the components. The results are below:

Concrete	0%
Date of Report	9/25/2018

For any result greater than 1%, abatement shall be performed according to KDOT Specifications. Results less than 1% require no abatement.

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	74 C-5227-01	2024	12	51

DESIGN DATA

DESIGN SPECIFICATIONS: AASHTO Specifications, 2010 Edition and latest Interim Specifications. Load and Resistance Factor Design.

DESIGN LOADING: HL-93 Design Dead Load includes an allowance of 25 psf for a future wearing surface.

UNIT STRESSES: Concrete (Grade 4.0)	f'c = 4 ksi
Concrete (Grade 4.0)(AE)	f'c = 4 ksi
Concrete (Grade 4.0)(AE)(SW)	f'c = 4 ksi
Reinforcing Steel (Grade 60)	fy = 60 ksi

LRFD PILE DESIGN LOAD:

Design Loading (Tons/Pile)	Strength I	Service	Phi	PDA Load
Abutment 1&2	42	28	0.65	65
Piers 1&2	64	45	0.65	98

3				
2				
1				
NO.	DATE	REVISIONS	BY	APP'D
KANSAS DEPARTMENT OF TRANSPORTATION				
Br. No. 000740629403200 Sta. 1398+12				
GENERAL NOTES AND QUANTITIES				
Proj. No. 74 C-5227-01 Phillips Co.				
SHEET NO.	OF	SCALE	APP'D	
DESIGNED	DRT	DETAILED	DRT	QUANTITIES
DESIGN CK.		DETAIL CK.	QUAN. CK.	CADD CK.

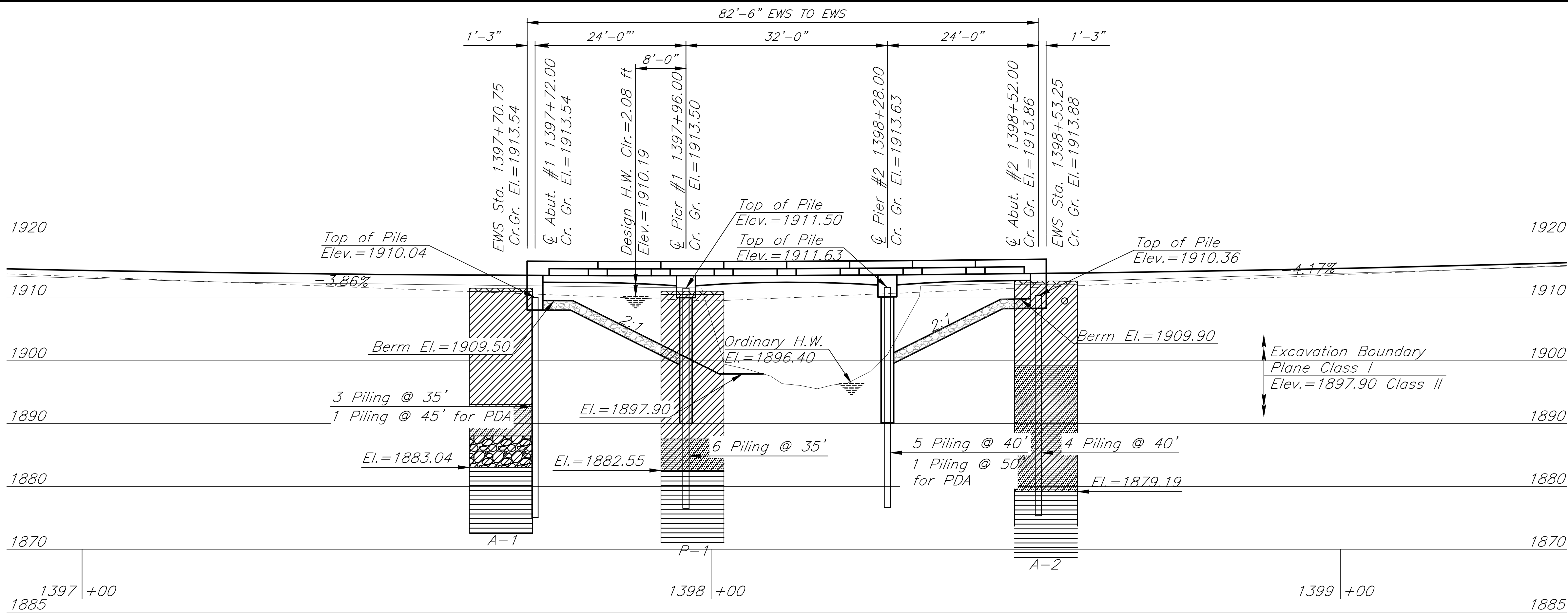
LFD & LRFR RATING FACTORS		
Rating Level	Inventory	Operating
Truck		
HS-20 (36T)	1.59	2.66
Type HET (110T)		1.49
2002 LFD Rating, 17th Edition AASHTO		
HL-93 Loading	1.33	1.72
NRL Loading		2.22
2011 Manual for Bridge Evaluation		

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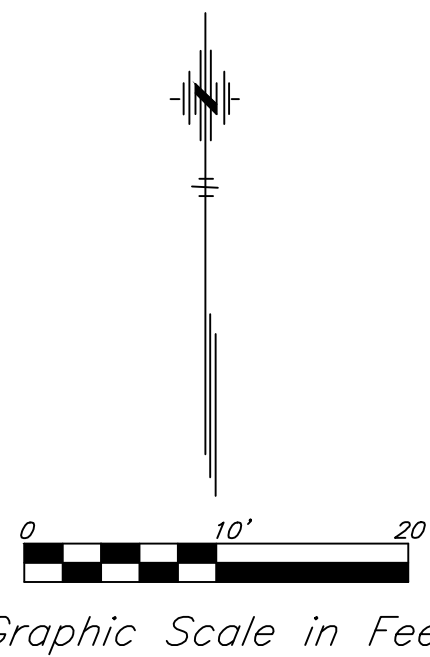
STANDARD GEOLOGICAL SYMBOLS

Sandy Lean Clay	
Clayey Gravel	
Shale	
Lean Clay	
Gravel Road	



ELEVATION

24'-32'-24' R.C. Haunched Slab
Pile Bent Abutments, Pile Bent Piers
28' Rdwy.

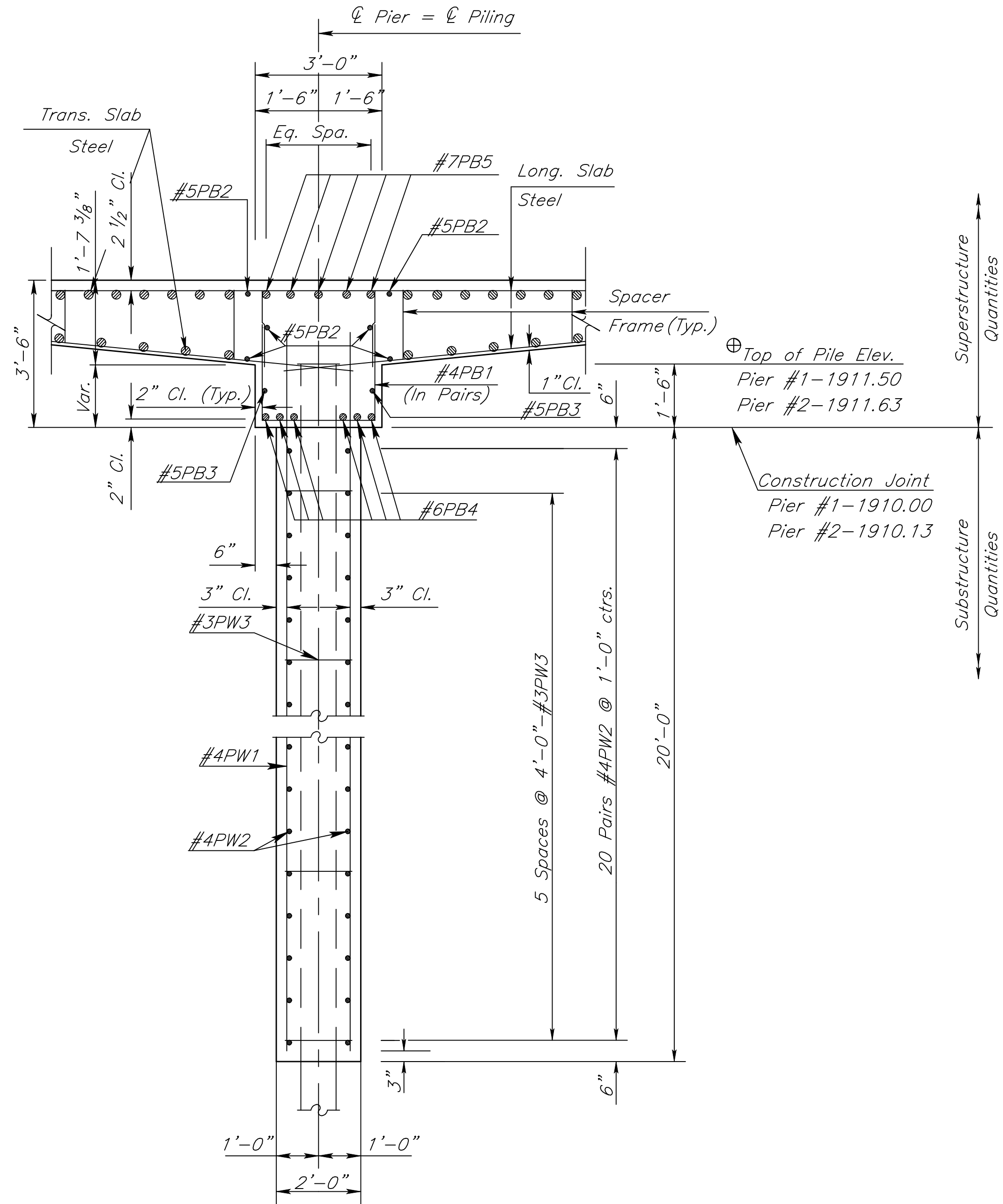
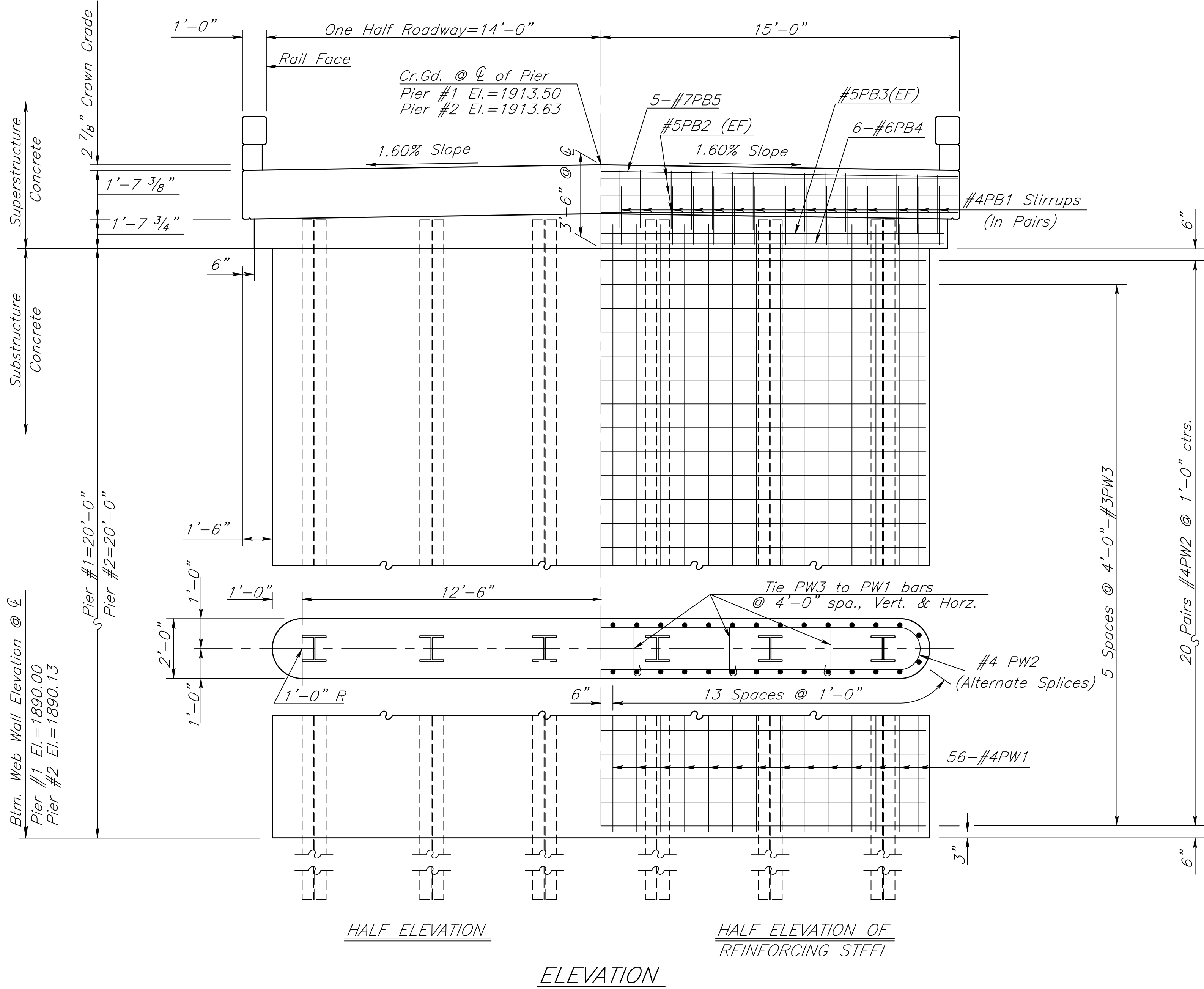
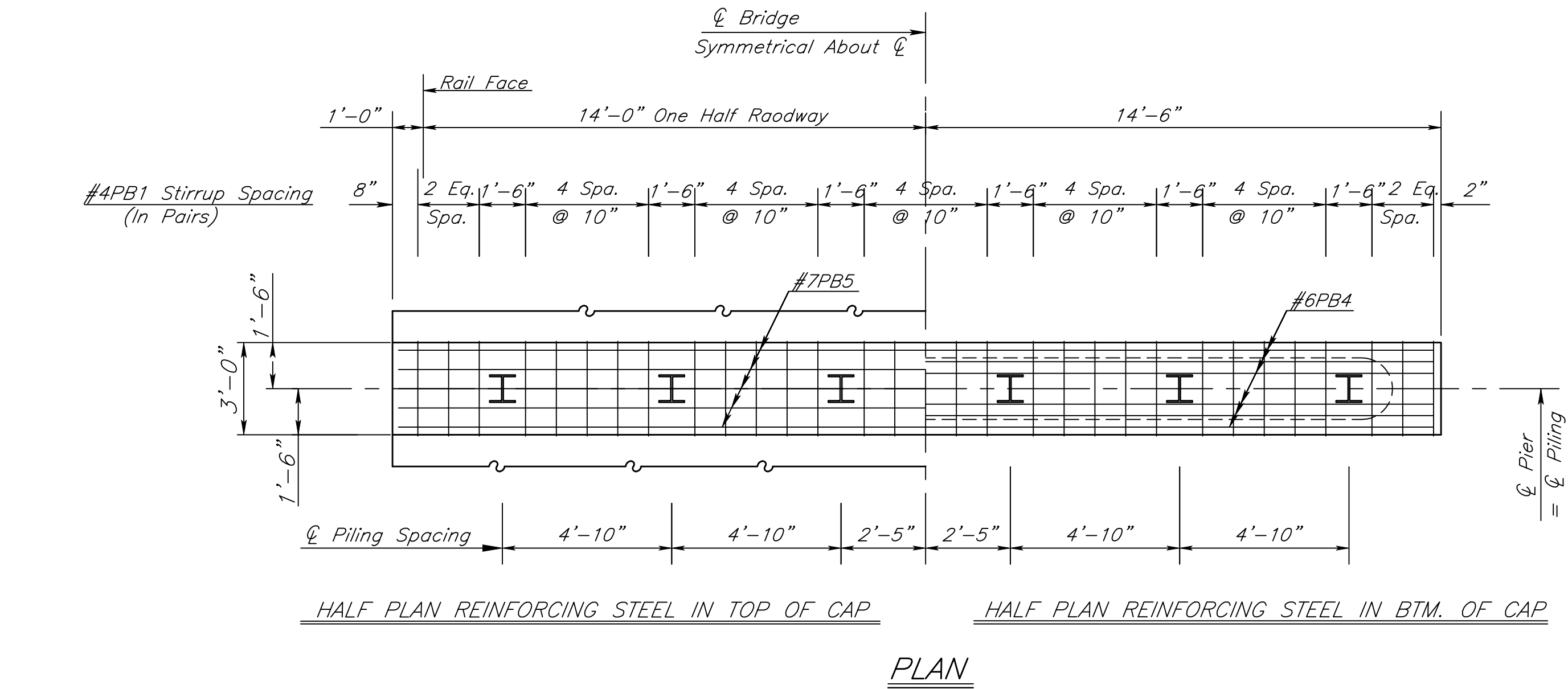


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KANSAS DEPARTMENT OF TRANSPORTATION Br. No. 000740629403200  Sta. 1398+12				
GEOLOGY				
Proj. No. 74 C-5227-01			Phillips Co.	
SHEET NO.	OF	SCALE	APP'D	
DESIGNED		DETAILED	QUANTITIES	CADD
DESIGN CK.		DETAIL CK.	QUAN. CK.	CADD CK.

X:\acc2\kdot\K05227 - Phillips - Off #197\ACAD\Bridge Details.dwg Bridge Details - Pier 9/15/2023 9:57 AM

⊕ Note: Top of pile elevation is based on 1'-6" embed into the pier beam.

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	74 C-5227-01	2024	16	51

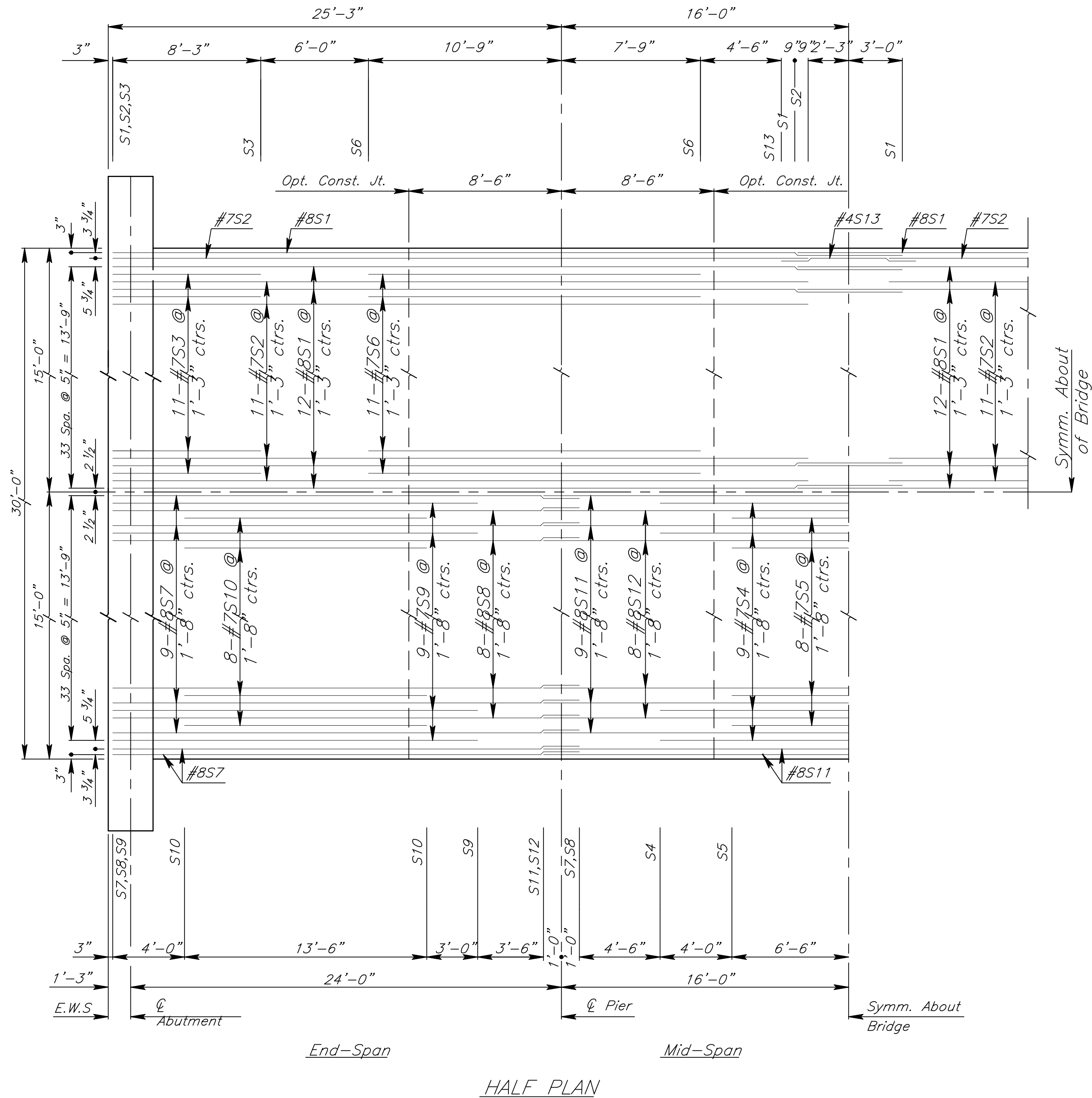


PIER PILE LOADING
Design
Strength I
64 Tons/Pile

LEGEND
EF = EACH FACE

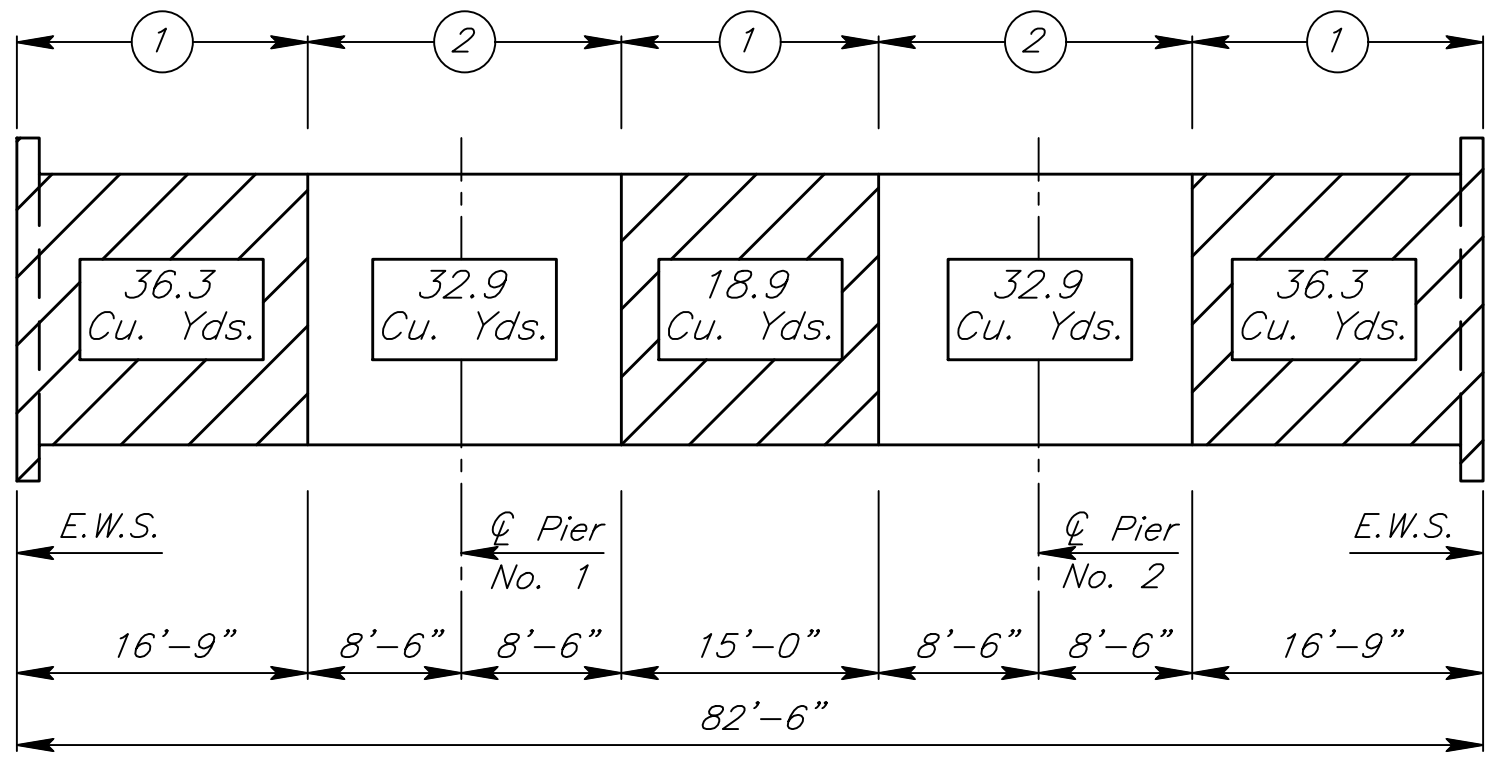
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1					
NO.	DATE	REVISIONS	BY	APP'D	
KANSAS DEPARTMENT OF TRANSPORTATION					
Br. No. 000740629403200 CL Sta. 1398+12					
PEIR DETAILS					
Proj. No. 74 C-5227-01			Phillips Co.		
SHEET NO.	OF	SCALE	APP'D		
DESIGNED	DRT	DETAILED	DRT	QUANTITIES	DRT
DESIGN CK.	DETAIL CK.	QUAN. CK.	CADD	CADD	RCJ

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Longitudinal Reinf. Steel in
Top of Slab

Longitudinal Reinf. Steel in
Bottom of Slab

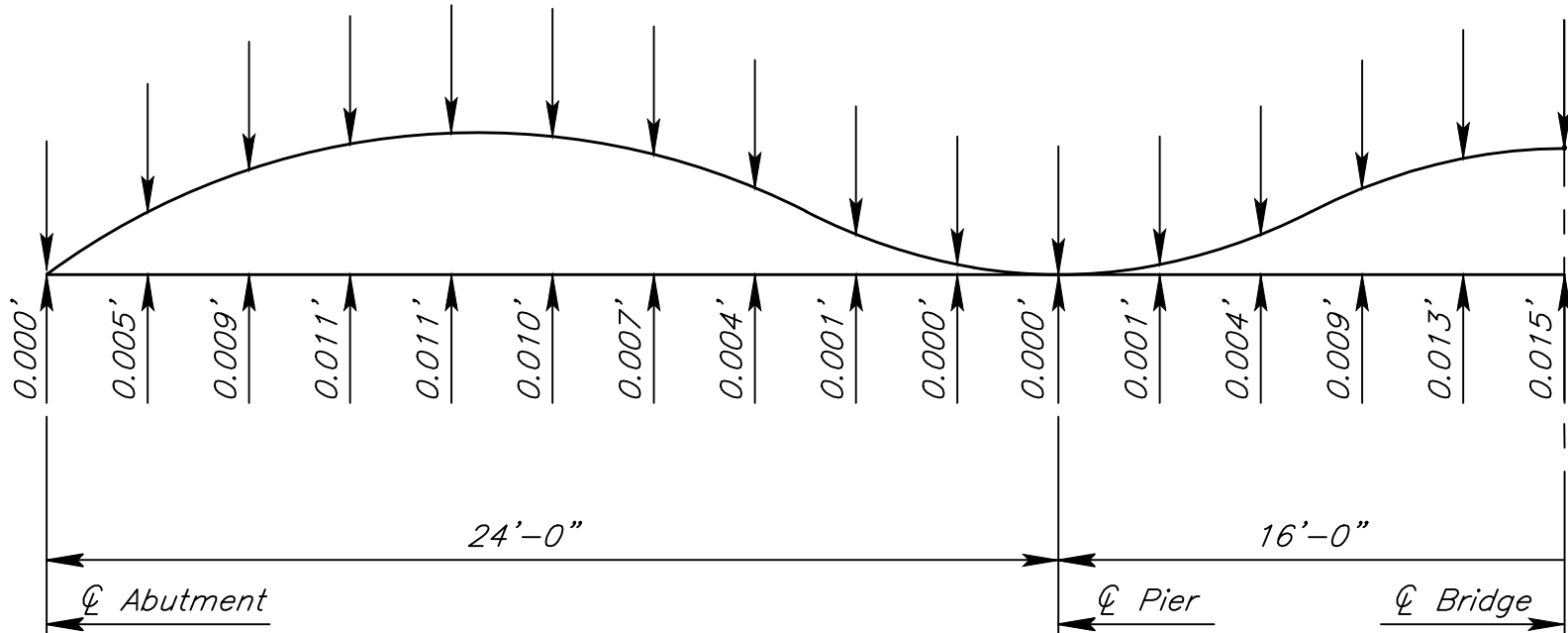


CONCRETE PLACING SEQUENCE

When long span steel beams having a concrete dead load deflection greater than 1/4" are used or when timber falsework with greater than 12'-0" clear span is used, follow the placing sequence shown. Segmental, combined or continuous pours are allowed, but stop a discontinuous pour at a construction joint short of a pier.

When timber falsework with 12'-0" or less clear span is used, the Contractor, subject to the approval of the Engineer, may use a continuous pour or may discontinue the pour at any construction joint shown.

The Contractor may place the corral rail continuously from one end of the bridge to the other.



Note:
See longitudinal section for
transverse reinforcing steel.

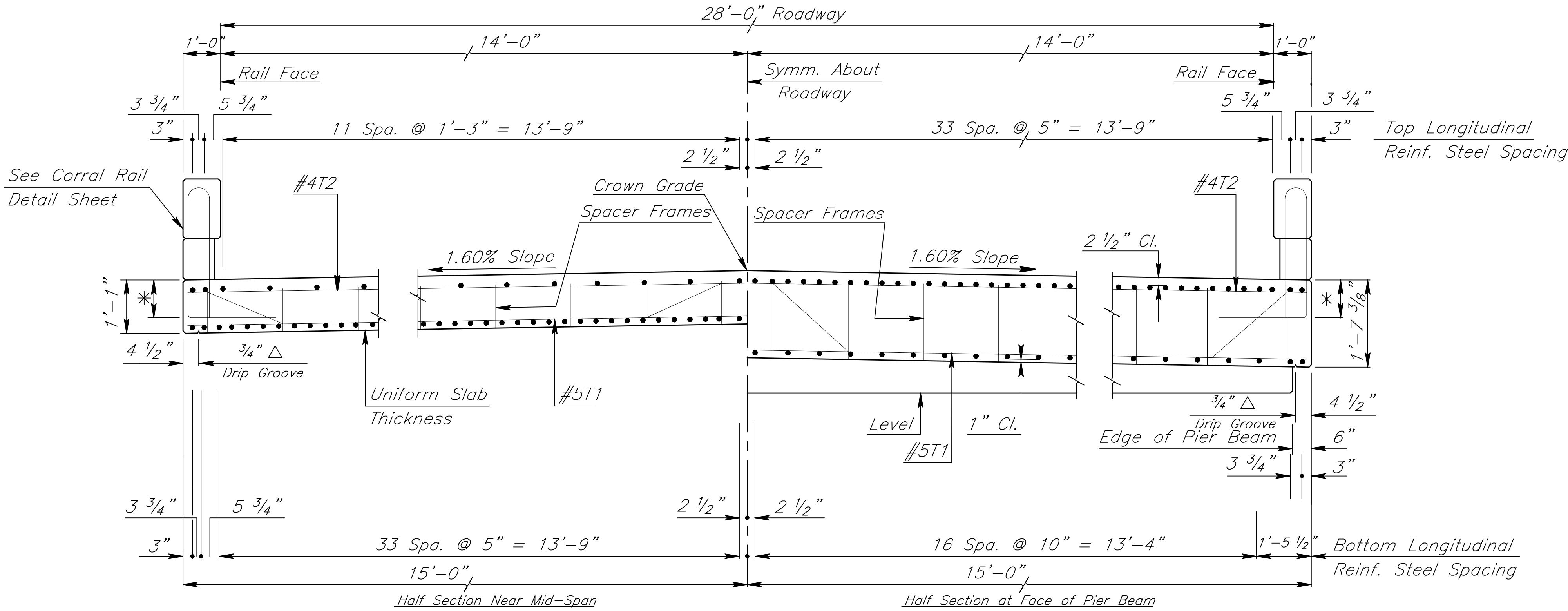
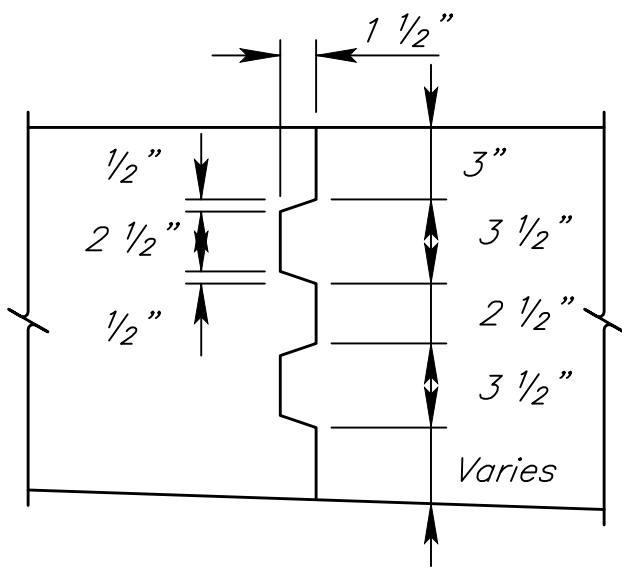
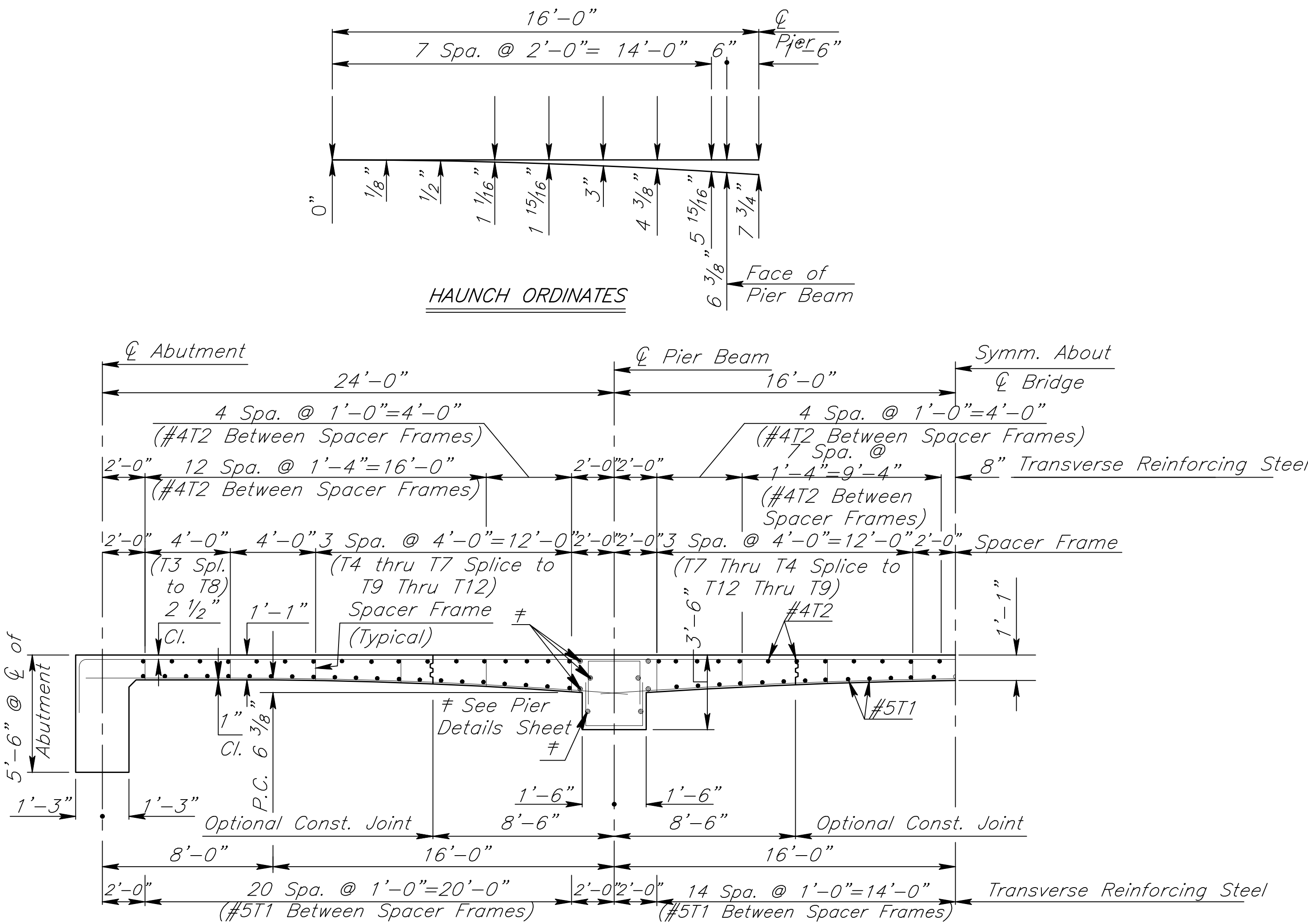
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2				
1				
NO.	DATE	REVISIONS		BY APP'D
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Br. No. 000740629403200			Sta. 1398+12	
SUPERSTRUCTURE DETAILS				
Proj. No. 74 C-5227-01			Phillips Co.	
SHEET NO.	OF	SCALE	APP'D	
DESIGNED	DRT	DETAILED	DRT	QUANTITIES
DESIGN CK.		DETAIL CK.		QUAN. CK.
			CADD	CADD CK.
				RCJ

lrrd\br506.dgn	Plot 3
Roadway Width = 28'	Longest Span Length = 32'
Skew and Direction = 0	Total No. of Spans = 3
Loading = HL-93	Railing Type = Corral

7/28/2023 7:28 AM

X:\ac2\kdot\KD5227 - Phillips - Off #197\AC40\Bridge Details.dwg\Bridge Details - Slab

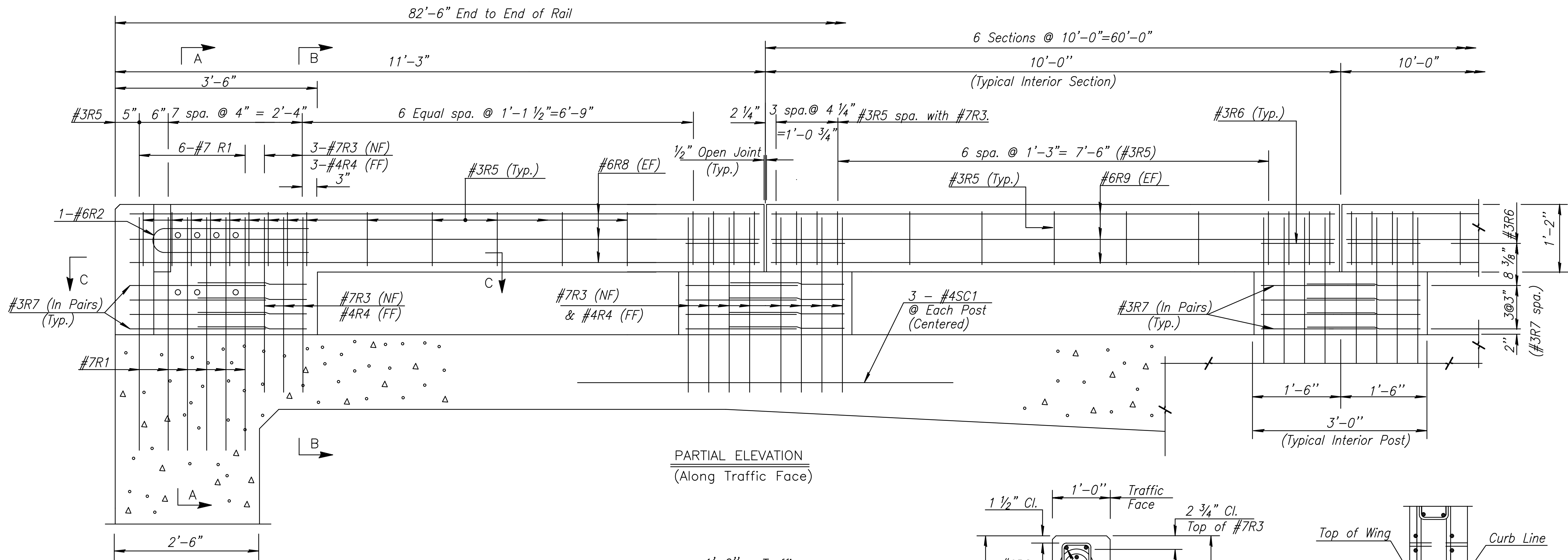
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	74 C-5227-01	2024	18	51



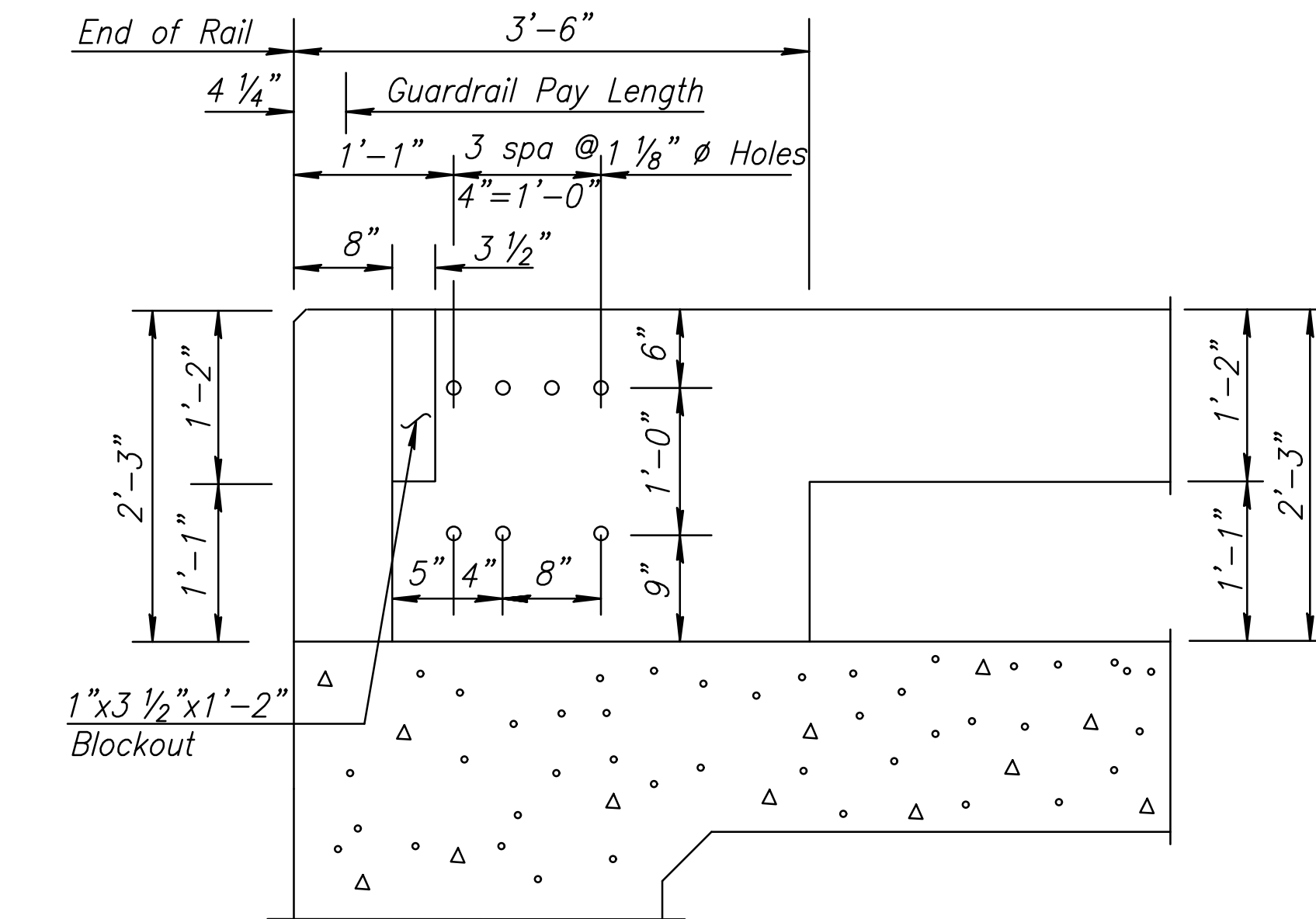
* See Corral Rail Detail Sheet.

3					
2					
1					
NO.	DATE	REVISIONS	BY	APP'D	
KANSAS DEPARTMENT OF TRANSPORTATION					
Br. No. 000740629403200 Sta. 1398+12					
SUPERSTRUCTURE DETAILS					
Proj. No. 74 C-5227-01 Phillips Co.					
SHEET NO.	OF	SCALE	APP'D		
DESIGNED	DRT	DETAILED	DRT	QUANTITIES	DRT
DESIGN CK.		DETAIL CK.		QUAN. CK.	CADD CK.

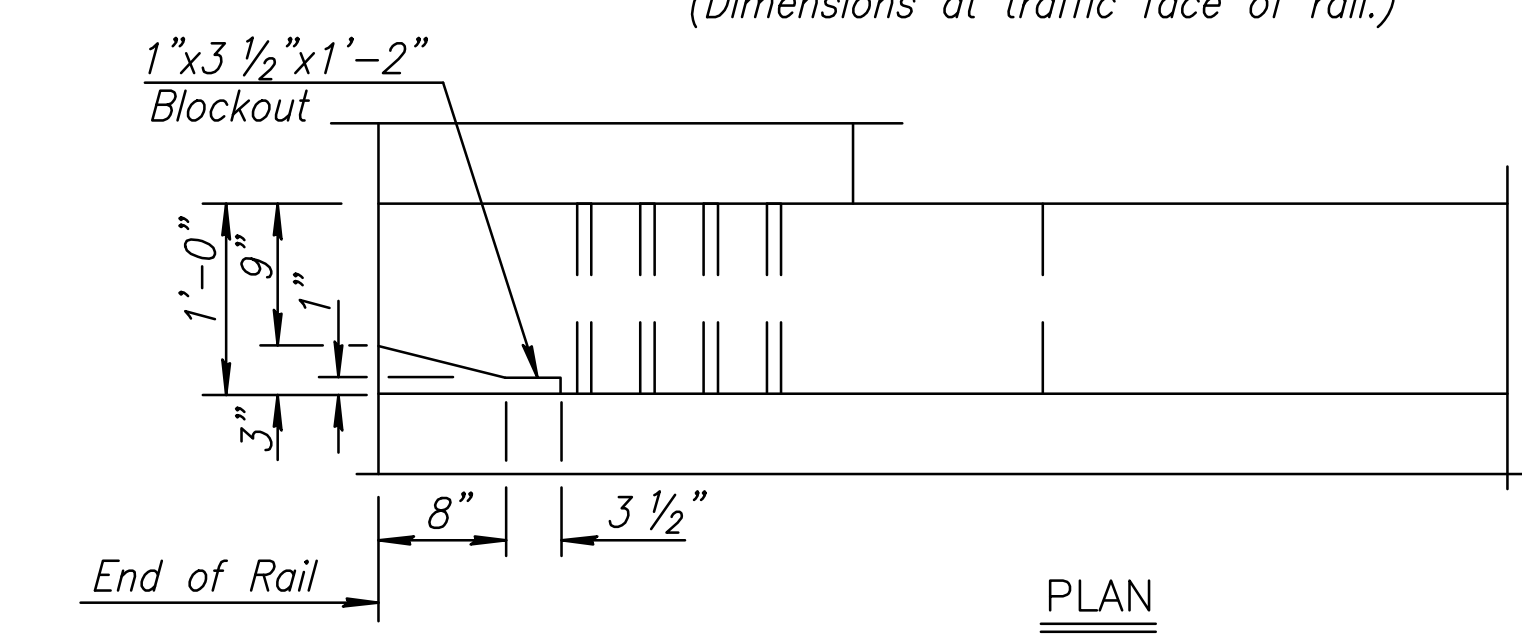
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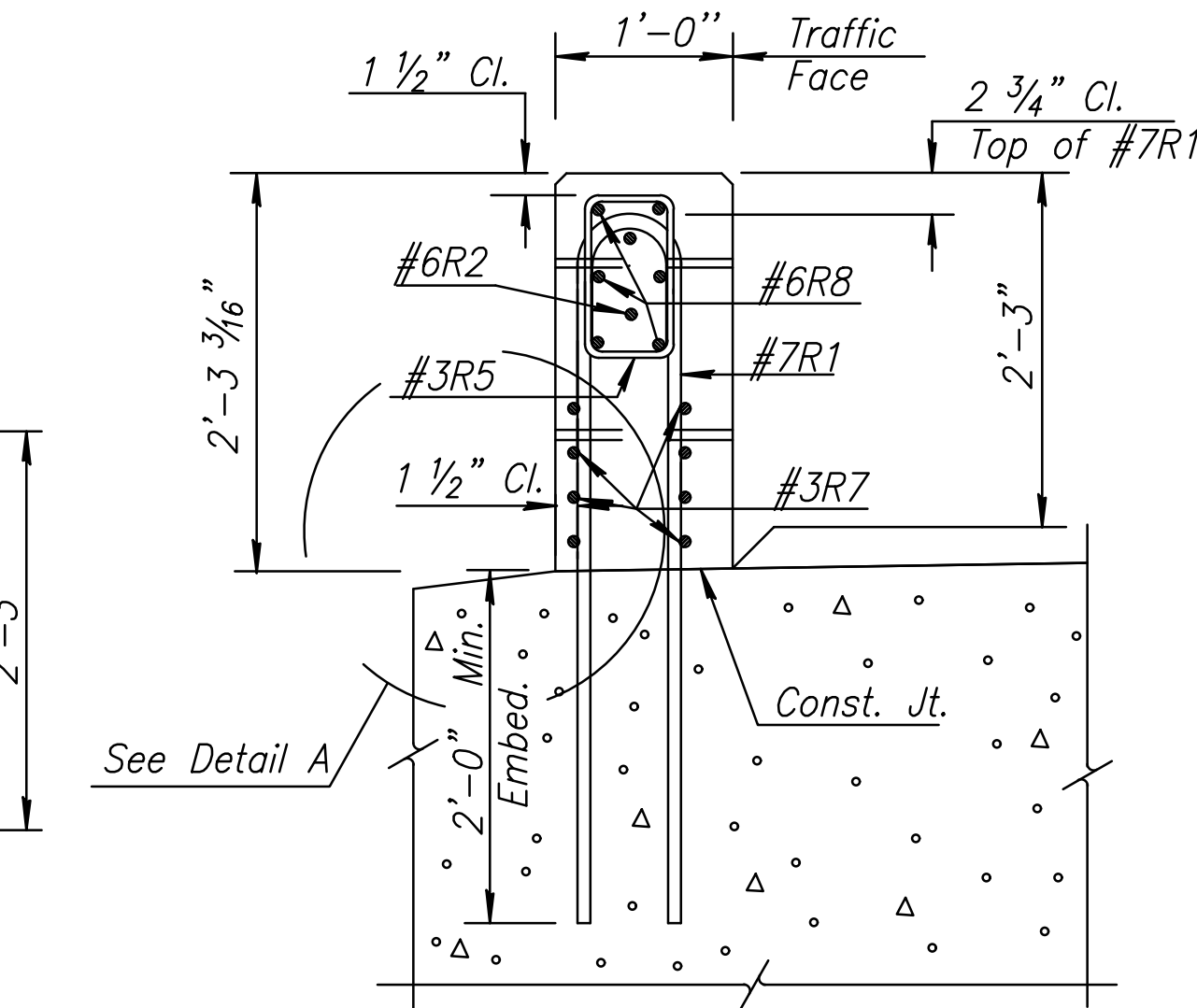
PARTIAL ELEVATION
(Along Traffic Face)



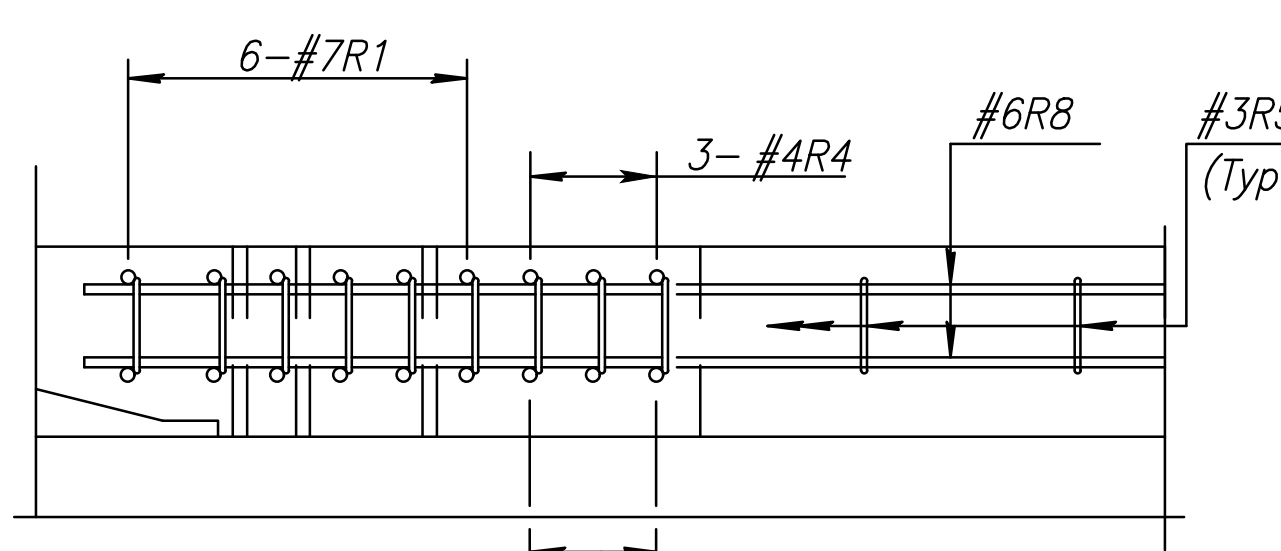
ELEVATION
(Dimensions at traffic face of rail.)



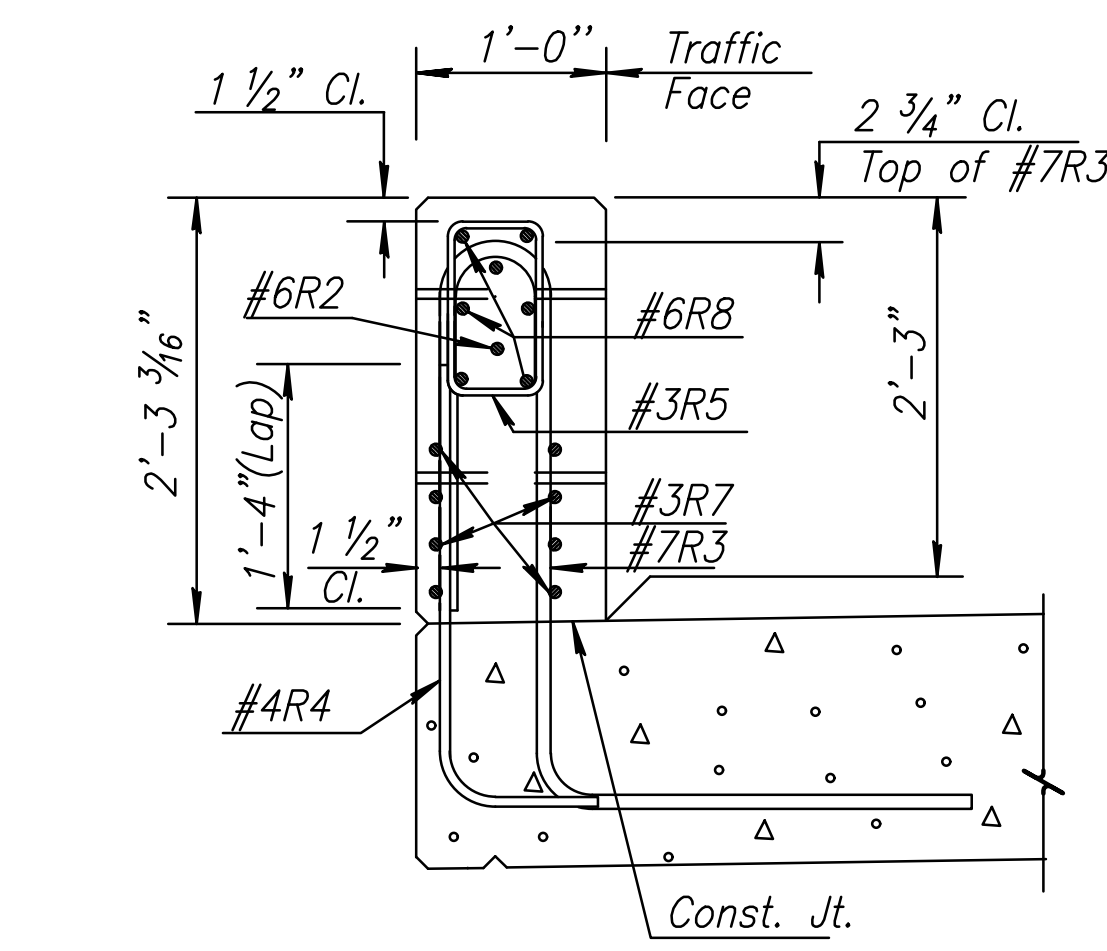
PLAN



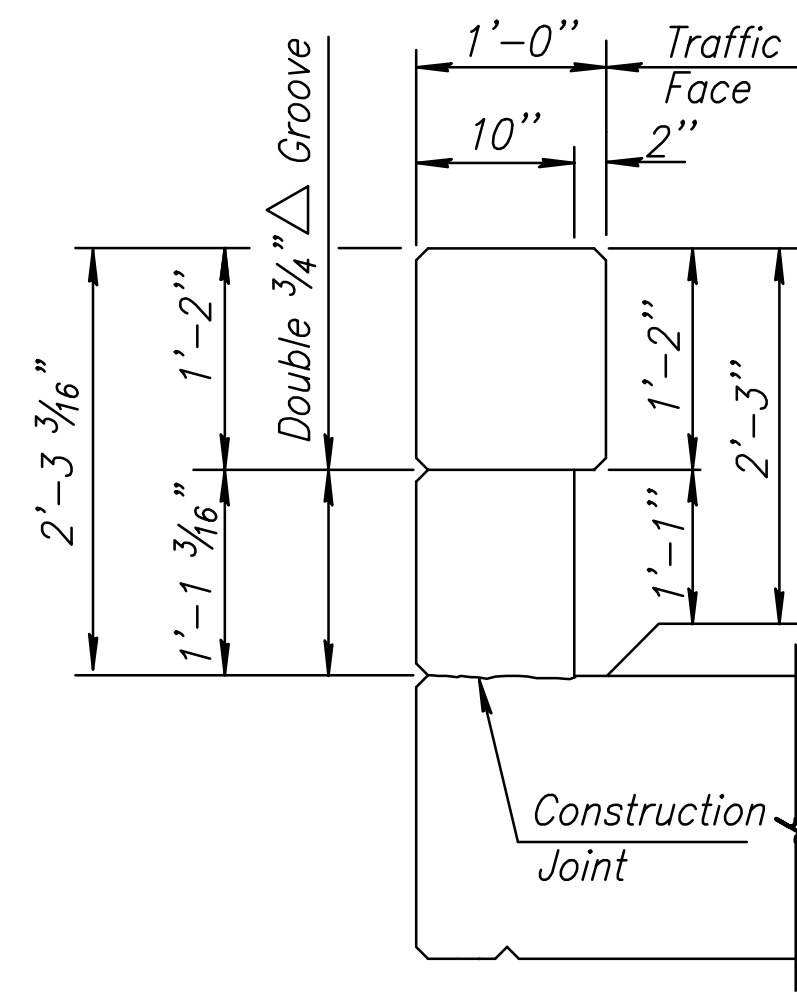
SECTION A-A



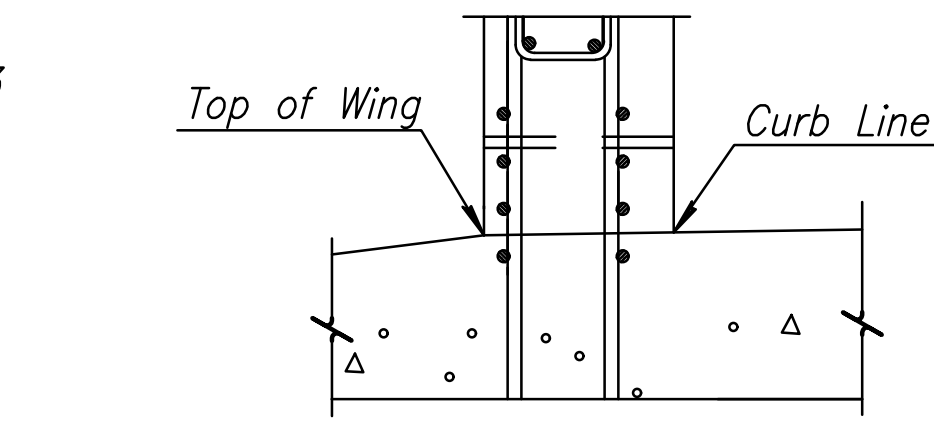
SECTION C-C



SECTION B-B

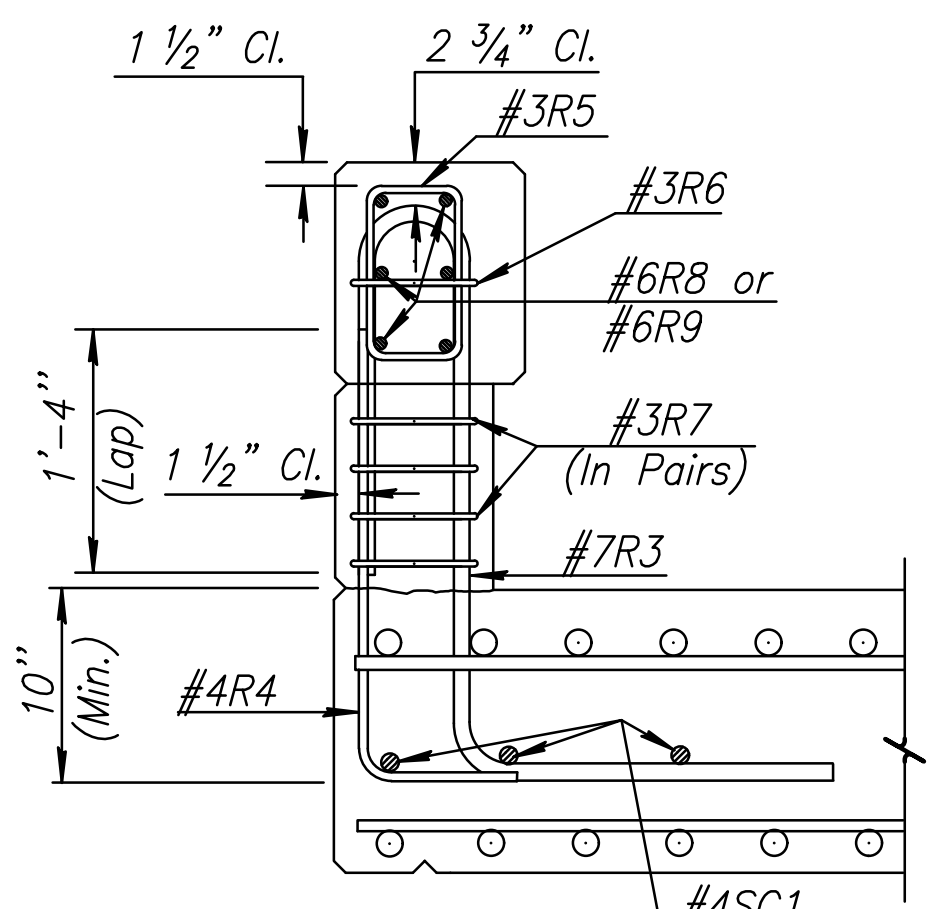


TYPICAL INTERIOR POST

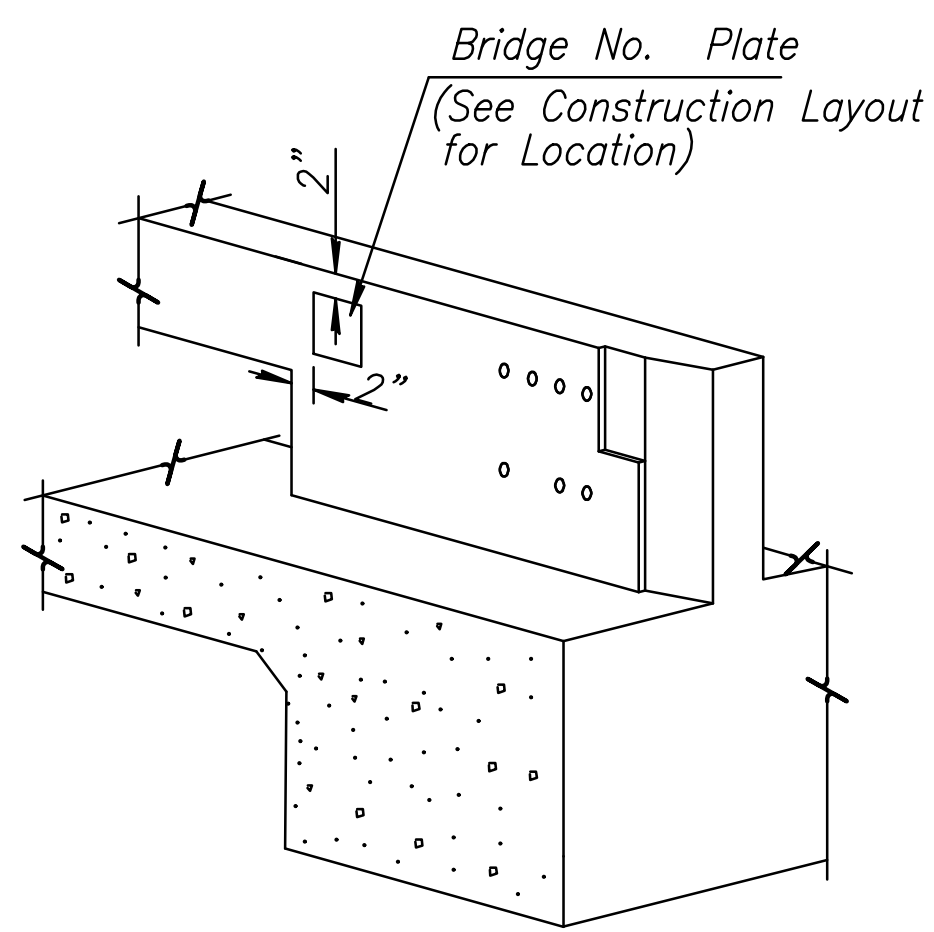


DETAIL A

(For bridges w/o an approach slab curb, detail top of wing at curb line as shown)



SECTION THRU POST



BRIDGE NUMBER PLATE PLACEMENT DETAIL
(If Required)

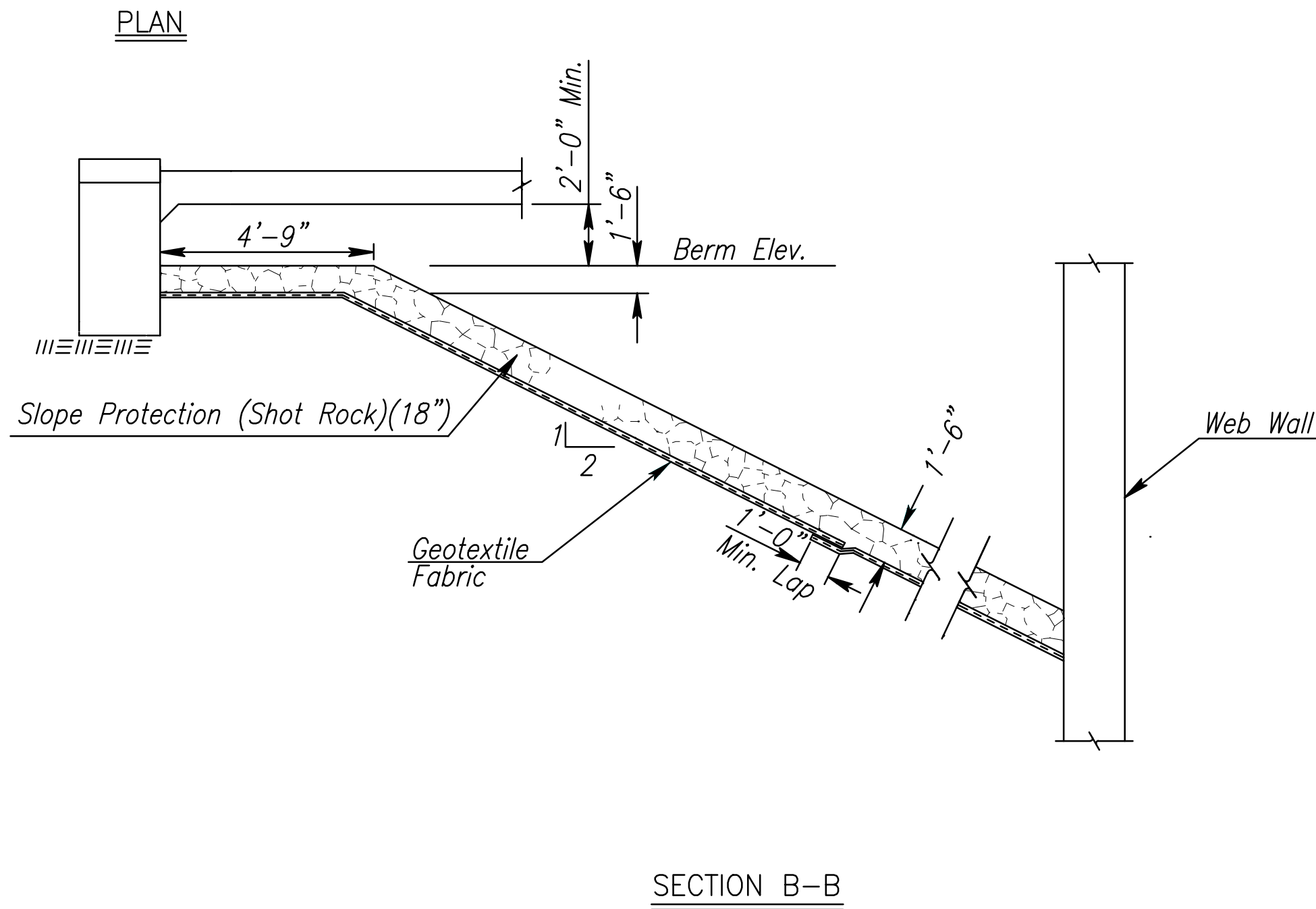
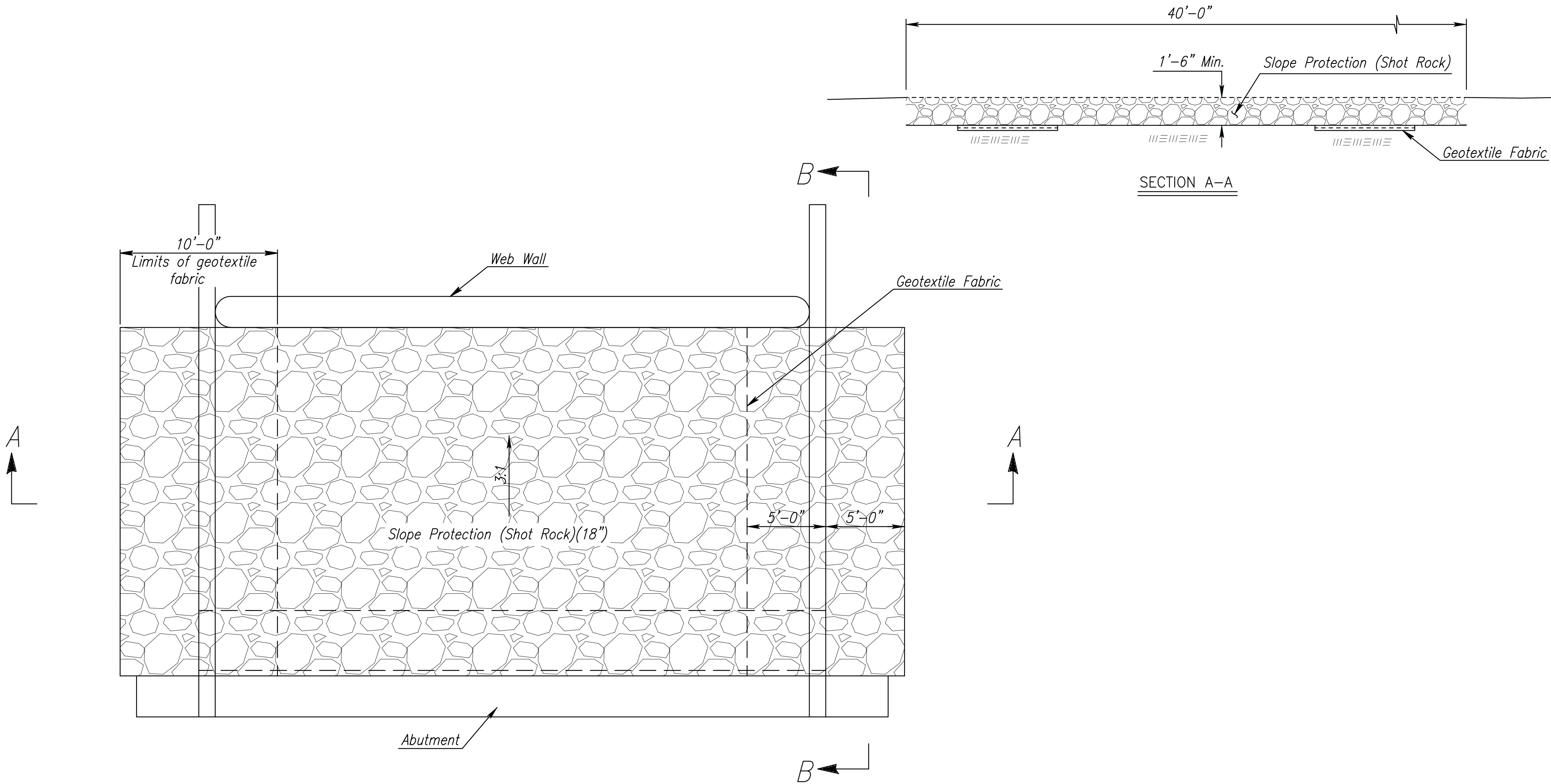
LEGEND
NF = Near Face
FF = Far Face
EF = Each Face

3					
2					
1					
NO.	DATE	REVISIONS	BY	APP'D	
KANSAS DEPARTMENT OF TRANSPORTATION					
Br. No. 000740629403200 @ Sta. 1398+12					
27" KANSAS CORRAL RAIL					
(W-BEAM WITH RUBRAIL)					
R.C. HAUNCHED SLAB (Without Curb)					
Proj. No. 74 C-5227-01			Phillips Co.		
SHEET NO.	OF	SCALE	APP'D	QUANTITIES	CADD
DESIGNED		DETAILED		QUAN. CK.	CADD CK.

X:\loc2\loc1\K05227 - Phillips - Off #197\ACAD\Corral Rail.dwg | Corral Rail - Layout1 7/29/2023 7:29 AM

X:\loc2\kdot\K05227 - Phillips - Off #197\ACAD\Slope Protection.dwg | Slope Protection - Layout1 8/7/2024 10:12 AM

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	74 C-5227-01	2024	21	51



GENERAL NOTES

- Limits of slope protection are as shown and centered along drip line of the slab.
- Excavation and grading for placement of slope protection shall be subsidiary to slope protection.
- Slope protection shall be underlain with geotextile fabric. Fabric damaged or displaced during construction shall be replaced at no cost to KDOT. Fabric shall be installed and secured as recommended by the fabric manufacturer. One (1) copy of the fabric manufacturer's installation procedure shall be submitted to the Engineer. The installation procedure shall show details of the splices, overlaps, and pin layout. Minimum overlap of geotextile shall be 1 ft. Fabric shall be anchored along edges and splices at a maximum of 3 foot centers with staples or pins (w/washers). Interior area of fabric shall be pinned or stapled as recommended by the manufacturer but not more than 5 foot centers. Pins or staples shall be a minimum of 12 inches in length. Geotextile fabric shall meet the requirements of KDOT Specifications.
- The Contractor shall place the rock from the bottom to the top of the slope. Place the rock in a manner which produces a reasonably well graded mass of rock without segregation of the material sizes. Placement, measurement, and payment shall conform to KDOT Specifications for Slope Protection.
- The maximum size of the shot rock will be limited to a thickness of 18".

SLOPE PROTECTION (Shot Rock)			
Sta. to Sta.	Side	Cu. Yds.	
1397+73	1397+95	Lt.	53
1398+29	1398+51	Rt.	53
TOTAL			106

QUANTITIES		
	Slope Protection (Shot Rock) Cu. Yds.	Geotextile Sq. Yds.
	106	84

NO.	DATE	REVISIONS	BY	APP'D
BRIDGE BERM AND SLOPE PROTECTION STRAIGHT WINGWALL ABUTMENT				
FHWA APPROVAL		APP'D		
DESIGNED	DETAILED	QUANTITIES	CADD	
DESIGN CK.	DETAIL CK.	QUAN. CK.	CADD CK.	

