

PLOTTED: Tuesday, April 08, 2025 @ 08:43AM

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STATE OF KANSAS

# HARVEY COUNTY BRIDGE E-30.7

## KANSAS DEPARTMENT OF TRANSPORTATION PROJECT NUMBER 040 C-5283-01 FEDERAL AID PROJECT

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	040 C-5283-01	2025	1	55
F.A. NO. STP - C528(301)				

**GRADING  
SURFACING  
BRIDGE  
SEEDING**

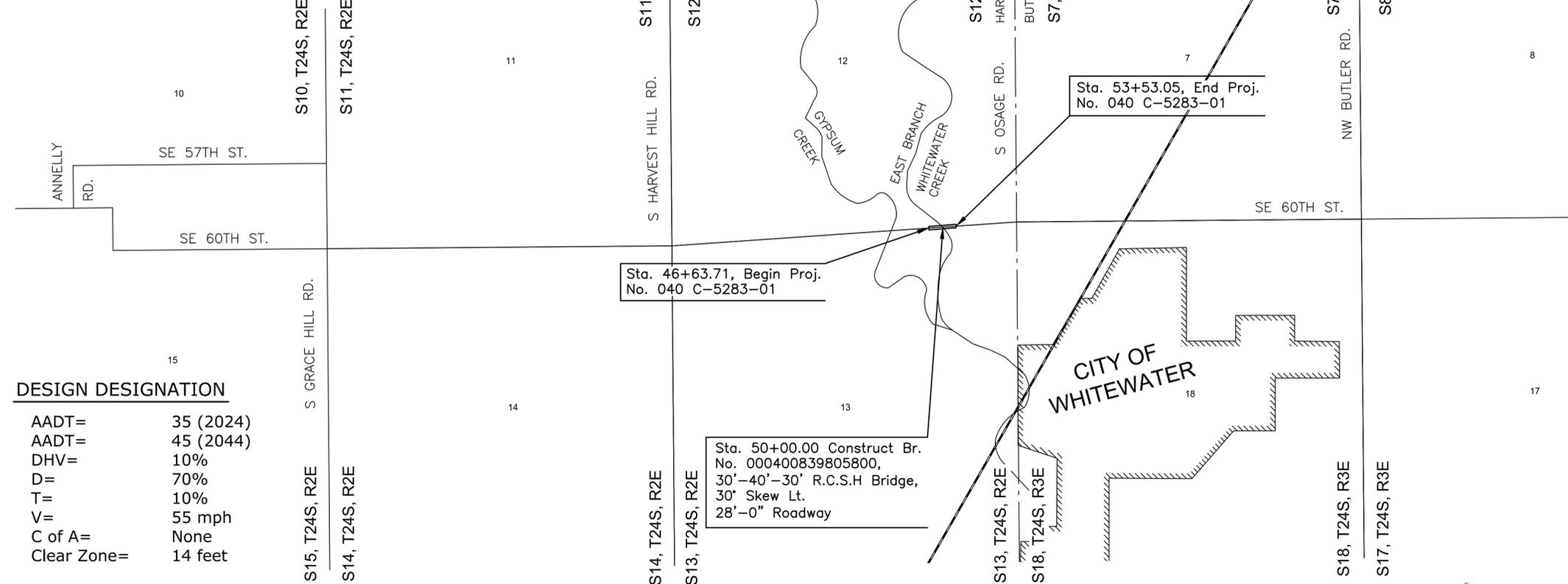
C1228

**INDEX OF SHEETS**

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LOCATION MAP



**DESIGN DESIGNATION**

AADT=	35 (2024)
AADT=	45 (2044)
DHV=	10%
D=	70%
T=	10%
V=	55 mph
C of A=	None
Clear Zone=	14 feet

**CONVENTIONAL SIGNS**

COUNTY LINE	.....	CENTER LINE OF PROJECT	.....
CITY LIMITS	.....	TERRACE	.....
STATE OR NATIONAL LINE	.....	CULVERTS	.....
TOWNSHIP, SECTION or GRANT LINE	.....	DROP INLET & STORM SEWER	.....
PROPERTY LINE	.....	ACCESS CONTROL	.....
HIGHWAY FENCE	.....	POWER POLE	.....
EXISTING FENCE	.....	TELEPHONE POLE	.....
GUARDRAIL	.....	MARSH	.....
CONSTRUCTION LIMITS	.....	HEDGE	.....
RIGHT OF WAY LINE	.....	TREES	.....
TRAVELED WAY	.....	PROFILE ELEVATION	.....
RAILROADS	.....	STREAM or CREEK	.....

GROSS LENGTH OF PROJECT	689.34	FT.	
EXCEPTIONS	0.00	FT.	
ADDITIONS	0.00	FT.	
NET LENGTH OF PROJECT	689.34	FT.	0.13 MILES
NET LENGTH OF BRIDGES	102.88	FT.	0.02 MILES
NET LENGTH OF ROAD	586.46	FT.	0.11 MILES

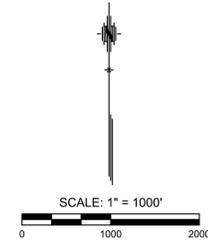
Sta. 53+53.05, End Proj.  
No. 040 C-5283-01

Sta. 46+63.71, Begin Proj.  
No. 040 C-5283-01

Sta. 50+00.00 Construct Br.  
No. 000400839805800,  
30'-40'-30' R.C.S.H Bridge,  
30' Skew Lt.  
28'-0" Roadway

NOTE: ROAD SHALL BE CLOSED TO TRAFFIC DURING CONSTRUCTION.

Prepared and Submitted by:  
MKEC Engineering, Inc.  
Wichita, Kansas



RECOM. FOR APPROVAL-DATE 4/7/2025

JIM MEIER, SUPERINTENDENT  
HARVEY COUNTY ROAD & BRIDGE DEPARTMENT

Approved: Jun 10, 2025  
Date

*D. M. Mil*  
State Transportation Engineer

By: *Dawn Imphuska*  
Chief, Bureau of Local Projects

KANSAS DEPARTMENT OF TRANSPORTATION



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 PLOTJOB: Thursday, June 05, 2013 8:02:53AM

**GENERAL NOTES**

THE GEOLOGICAL INFORMATION SHOWN ON THESE PLANS IS FROM STUDIES MADE IN THE FIELD AND REPRESENTS THE BEST INFORMATION AVAILABLE.

AT BORROW AREA LOCATIONS ADJACENT TO THE RIGHT OF WAY, UTILITY POLES MAY BE SET AT THE PERMANENT LOCATIONS PRIOR TO CONSTRUCTION AS APPROVED BY THE ENGINEER PROVIDED A MINIMUM VERTICAL CLEARANCE, IN ACCORDANCE WITH THE NATIONAL ELECTRICAL SAFETY CODE IS OBTAINED. THE CONTRACTOR WILL BE REQUIRED TO WORK AROUND THESE POLES TO COMPLETE THE WORK.

ALL BORROW TO BE OBTAINED FROM AREAS PROVIDED BY THE CONTRACTOR SHALL BE APPROVED BY THE ENGINEER, BOTH AS TO SUITABILITY OF MATERIAL AND SITE LOCATION. LOCATIONS WHICH, IN THE OPINION OF THE ENGINEER, CONTAIN UNSUITABLE MATERIAL OR WILL LEAVE AN UNSIGHTLY APPEARANCE ON THE PROJECT WILL NOT BE APPROVED.

EXCAVATION SHOWN TO BE WASTED SHALL BE WASTED ON SITES PROVIDED BY THE CONTRACTOR. THESE SITES SHALL BE APPROVED BY THE ENGINEER AS TO SUITABILITY, APPEARANCE, AND SITE LOCATION. LOCATIONS THAT, IN THE OPINION OF THE ENGINEER, WILL LEAVE AN UNSIGHTLY APPEARANCE WILL NOT BE APPROVED.

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. EXCAVATION REQUIRED FOR PLACING SELECT SOIL IS INCLUDED IN THE COMMON EXCAVATION QUANTITIES.

EXISTING UTILITIES AND THEIR LOCATIONS, AS SHOWN ON THE PLANS, REPRESENT THE BEST INFORMATION OBTAINABLE FOR DESIGN. LOCATION INFORMATION HAS BEEN OBTAINED FROM THE VARIOUS UTILITY COMPANIES, EITHER FROM COMPANY RECORD DRAWINGS OR COMPANY PROVIDED FIELD LOCATION. THE PLAN LOCATIONS SHOWN ARE NOT GUARANTEED. ADDITIONAL EXISTING UTILITIES MAY ALSO BE ENCOUNTERED.

ALL SAW CUTS SHALL BE FULL DEPTH. THIS WORK SHALL NOT BE PAID FOR DIRECTLY, BUT SHALL BE SUBSIDIARY TO OTHER ITEMS OF THE CONTRACT.

ALL TREES, HEDGE ROWS, SHELTERBELTS, AND WOODY SHRUBS NOT SHOWN TO BE REMOVED AND LOCATED BETWEEN THE CONSTRUCTION LIMITS AND THE RIGHT OF WAY LINE OR EASEMENT LINE SHALL BE SPARED UNLESS DIRECTED BY THE ENGINEER TO BE REMOVED. ALL TREES WITHIN THE APPROPRIATE CLEAR ZONE SHALL BE REMOVED.

- S ¼ Cor. Sec. 12, T24S, R2E  
 Sta. 35+81.07, 0.0' Rt.  
 Found ¾" Rebar  
 1. MAG nail in SE face Power Pole 46.7' NE  
 2. ½" rebar/MKEC CLS39 Witness id cap 21.8' SE  
 3. ½" rebar/MKEC CLS39 Witness id cap 36.3' NW  
 4. About 2' north of the centerline of SE 60th St.

KURR, GARY D; TR  
 10028 E 1ST ST.  
 NEWTON, KS 67114-9672

Sta. 35+81.07, 0.0' Rt.  
 S ¼ Cor. Sec. 12, T24S, R2E

20' RURAL WATER DISTRICT NO. 1 ESMT.  
 BOOK 279, PAGE 291

EX. 30' R/W Const. Limits

SE 60TH ST.

Sta. 46+00.00  
 N=1790228.6701  
 E=1699249.5659

Sta. 46+63.71, Begin Proj.  
 No. 040 C-5283-01

BUSENITZ, AARON K  
 4208 S HARVEST HILL RD.  
 WHITEWATER, KS 67154-9015

NE 1/4 SEC. 13, T24S, R2E

Sta. 50+00.00 Construct Br.  
 No. 000400839805800  
 30'-40'-30' R.C. Haunched  
 Slab Spans Bridge, 30' Skew Lt.  
 28'-0" Roadway

Install 262.7 c.y. Slope  
 Protection (Shot Rock)(18").  
 See Sheet 15.

Install 205.9 c.y. Slope  
 Protection (Shot Rock)(18").  
 See Sheet 15.

Sta. 51+49.03 Install 18"x42'  
 "Entrance Pipe (CSP)" w/18"  
 End Sections, Lt.  
 See Sh. No. 5,28

- SE Cor. Sec. 12, T24S, R2E  
 Sta. 62+46.82, 0.0' Rt.  
 Found ¾" Rebar  
 1. Top center of telephone pedestal 44.8' NE  
 2. Face of pipe line marker 68.5' NE  
 3. Face of pipe line marker 65.1' SE  
 4. Face of steel corner fence post 42.2' SE  
 5. Face of steel corner fence post 54.6' SW  
 6. 60d with washer in S. face of Power Pole 62.6' NW

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	040 C-5283-01	2025	3	55

06-04-2025 REVISED

SE 1/4 SEC. 12, T24S, R2E

THIESSEN, FAMILY LP  
 14405 NW 100TH ST.  
 WHITEWATER, KS 67154-8961

Sta. 62+46.82, 0.0' Rt.  
 SE Cor. Sec. 12, T24S, R2E

40' RURAL WATER DISTRICT NO. 1 ESMT.  
 BOOK 268, PAGE 235

EX. 30' R/W

Sta. 54+00.00  
 N=1790283.8542  
 E=1700047.6604

Sta. 53+53.05, End Proj.  
 No. 040 C-5283-01

VEGES, DENNIS & ALANA  
 11911 SE 60TH ST.  
 WHITEWATER, KS 67154-8859

**SCALE**



PLAN: Lat. & Long.

PROFILE: Horiz. same as above,  
 Vert.

**PROJECT SURVEY CONTROL**

**Datum:**

The Horizontal Datum is based on the Kansas Coordinate System of 1983, NAD83(2011), EPOCH:2010.0000, South Zone. Coordinates shown have been modified to the ground using a combined adjustment factor of 1.0001200144. State Plane coordinates can be calculated by multiplying the shown values by 0.99988.

All elevations shown are based on the NAVD 88 vertical datum, Geoid 18B.

**Note:**

All Control Points shown have elevations established using standard surveying procedures and can be used as temporary benchmarks. When using a Control point as a temporary benchmark, it is recommended that cross-checks be made to other control points or benchmarks to confirm elevations prior to use.

**UTILITIES**

Contractor will be required to provide a minimum advance notice of seventy-two (72) hours to utility companies prior to starting any excavation as follows:

Kansas one-call 1-800-344-7233  
 The contractor must notify the following in case of emergency.

Shannon Brinkmeyer Harvey County RWD #1  
 AT&T (620)-837-5634  
 (316) 268-2359

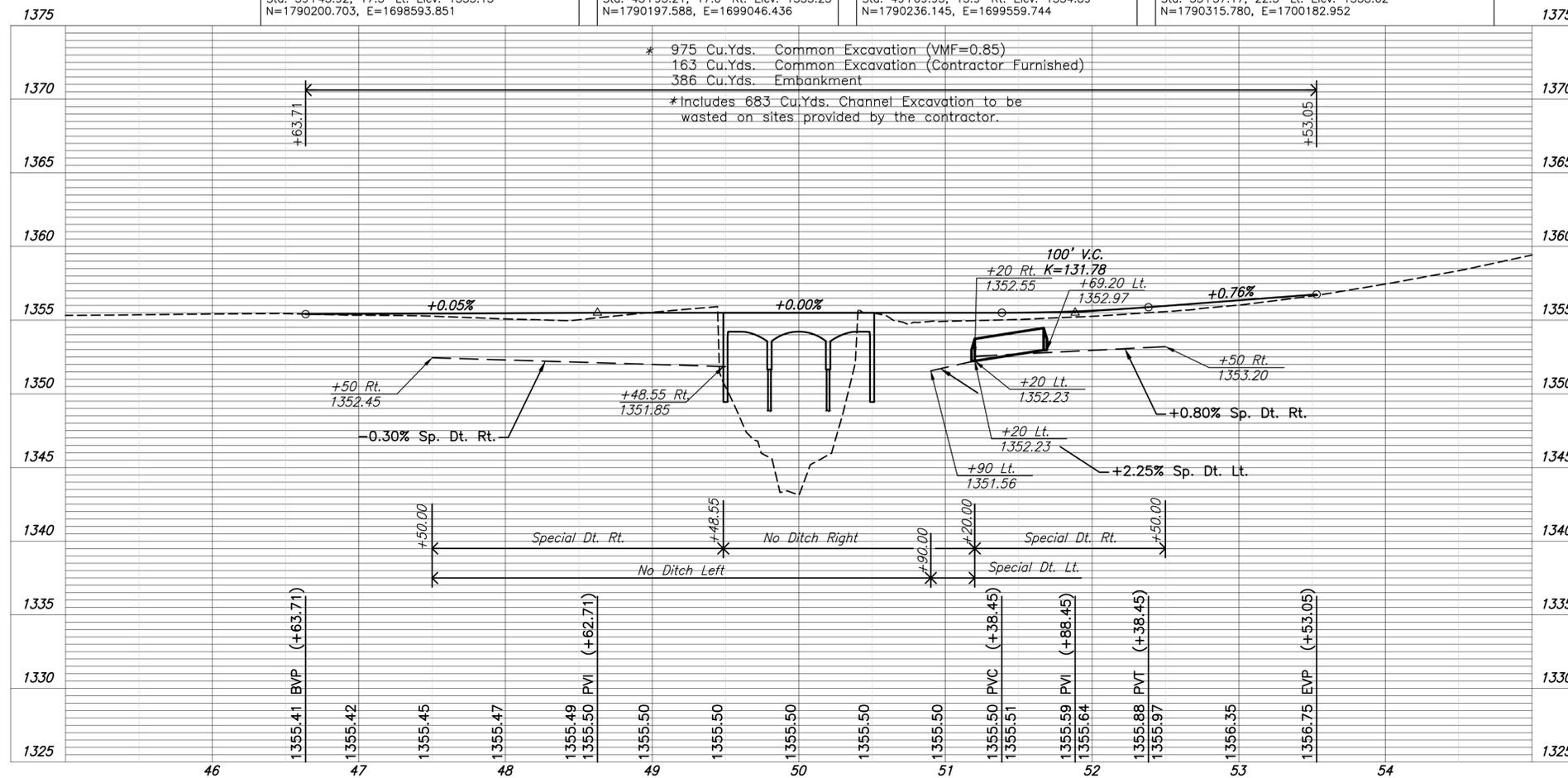
Alan Harper  
 Butler County Rural Electric  
 Co-Op Association  
 (316) 321-9600

BM-1 ¾" Rebar with MKEC aluminum control id cap  
 Sta. 39+43.92, 17.3' Lt. Elev. 1355.13  
 N=1790200.703, E=1698593.851

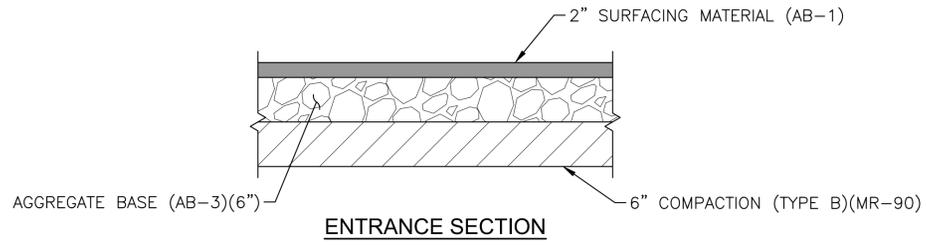
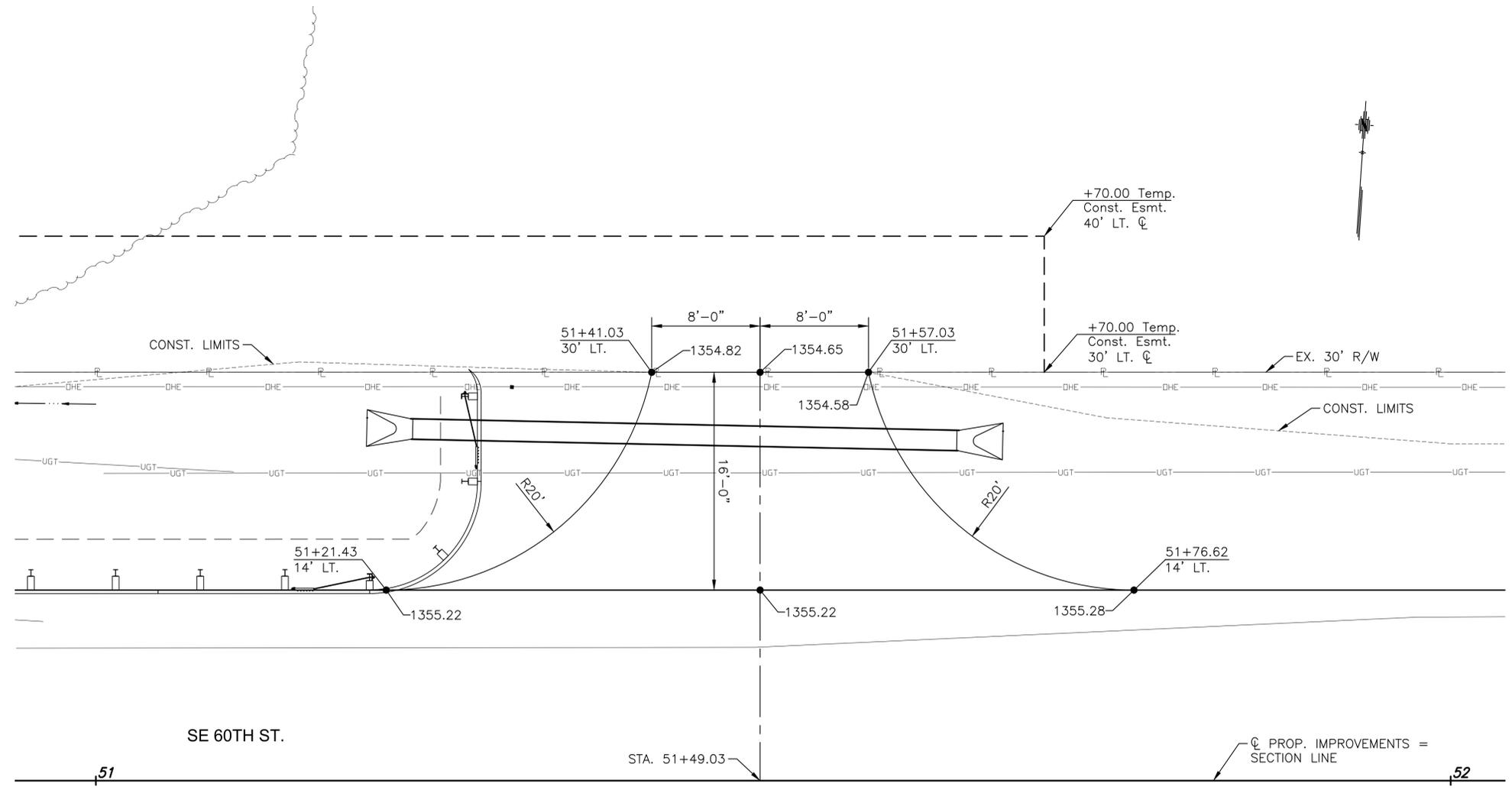
BM-2 MAG nail/MKEC control id washer  
 Sta. 43+95.21, 17.0' Rt. Elev. 1355.25  
 N=1790197.588, E=1699046.436

BM-3 ¾" Rebar with red MKEC control id cap  
 Sta. 49+09.95, 13.9' Rt. Elev. 1354.89  
 N=1790236.145, E=1699559.744

BM-4 ¾"x36" rebar with MKEC aluminum control id cap  
 Sta. 55+37.17, 22.5' Lt. Elev. 1358.62  
 N=1790315.780, E=1700182.952



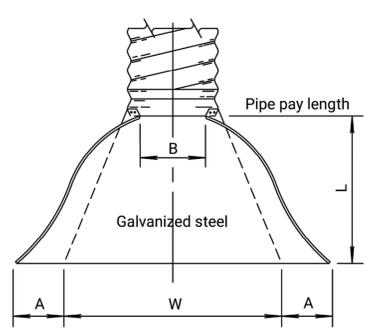
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	040 C-5283-01	2025	4	55



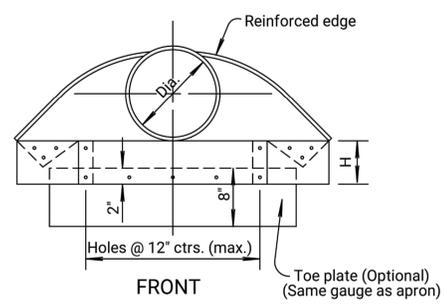
J:\PROJECTS\2014\101010284 - HARVEY COUNTY GENERAL SERVICES\05-CIVIL\CAD\PAV\BRIDGE E-30.71\40084\_DRIEWAY GRADING PLAN.DWG  
 PLOTTED: Wednesday, June 04, 2025 @ 09:03AM

KANSAS DEPARTMENT OF TRANSPORTATION	
Br. No. 000400839805800	Sta. 50+00.00
<b>ENTRANCE GRADING PLAN</b>	
PROJ. NO. 040 C-5283-01	HARVEY COUNTY
<b>M K E C ENGINEERING, INC.</b>	
WICHITA, KANSAS	
DESIGNED BY: DJL	CHECKED BY: JRA
DRAWN BY: RAM	DATE: 12/11/24 SHEET 4 OF 55

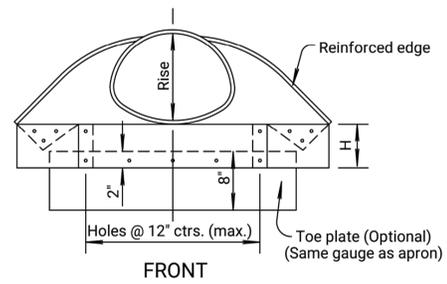
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	040 C-5283-01	2025	5	55



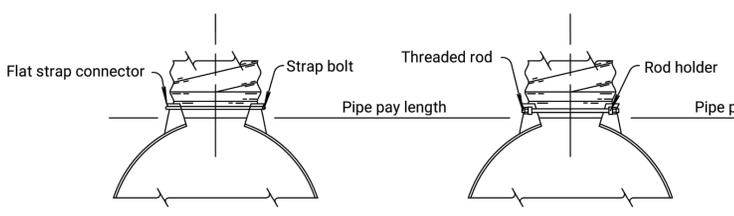
PLAN  
(Illustrated with Type #3 Connection)



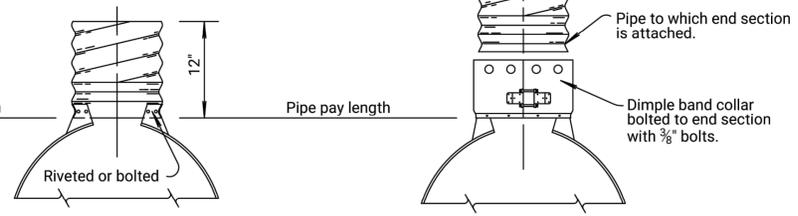
FRONT  
Holes @ 12" ctrs. (max.)  
Toe plate (Optional)  
(Same gauge as apron)



FRONT  
Holes @ 12" ctrs. (max.)  
Toe plate (Optional)  
(Same gauge as apron)

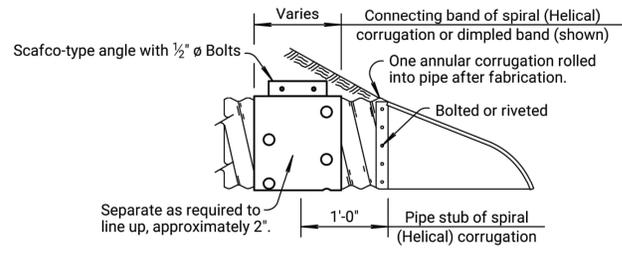


TYPE 1 Available in sizes 12" through 24" only.  
TYPE 2 Available in sizes 30" and 36" Round and 17"x13" through 57"x38" Pipe-Arches.



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.



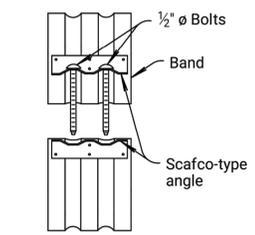
SPIRAL (HELICAL) CORRUGATION  
For all sizes of round and arch culvert pipes having Spiral (Helical) corrugations, the end sections and connecting bands shall be as shown above.

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.

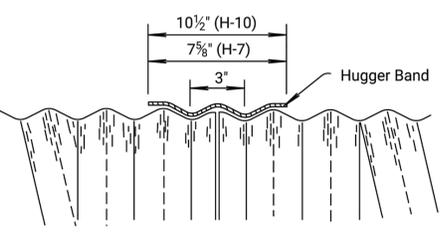
Pipe Dia. (In.)	CS, ACS or CA Gauge	Dimensions in Inches					Approx. Slope
		A (min.)	B (max.)	H (min.)	L (±2")	W (min.)	
12"	16	5	7	6	21	22	2 1/2: 1
15"	16	6	8	6	26	28	2 1/2: 1
18"	16	7	10	6	31	34	2 1/2: 1
21"	16	8	12	6	36	40	2 1/2: 1
24"	16	9	13	6	41	46	2 1/2: 1
30"	14	11	16	8	51	55	2 1/2: 1
36"	14	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 Span & Rise	Dimensions in Inches 2 1/2" x 1/2" Corrugations					Dimensions in Inches 3" x 1" or 5" x 1" Corr.					Approx. Slope	
			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")
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.)

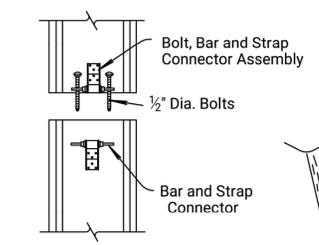


CONNECTION DETAIL H-7 or H-10 BAND

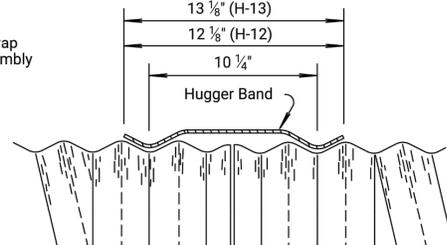


UNIVERSAL REFORMED END with H-7 or H-10 HUGGER BAND

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

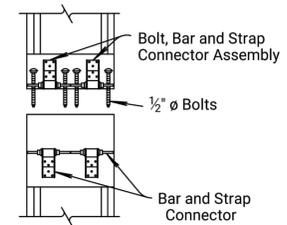


CONNECTION DETAIL SINGLE HARNESS



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 1/2" x 1/2" Corr. CSP or ACSP	3" x 1" Corr. CSP or ACSP	5" x 1" Corr. CSP or ACSP	2 1/2" 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	12
96"	12	12	12	12	12
102"	12	12	12	12	10
108"	12	12	12	12	10
114"	12	12	12	12	8
120"	10	10	10	10	8

Bid Designation Sq. Ft.	Pipe Dimension Span & Rise	Sq. Ft.	Equiv. Round Pipe Diameter	Minimum Gauge of Arch Pipe				
				2 1/2" x 1/2" Corr. CSP or ACSP	3" x 1" Corr. CSP or ACSP	5" x 1" Corr. CSP or ACSP	2 1/2" 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.



J:\PROJECTS\2014\141010284 - HARVEY COUNTY - GENERAL SERVICES\05-CIVIL\CAD\STDBRIDGE E-30.71\40084\_RD606.DWG  
 PLOTTED: Wednesday, June 04, 2025 @ 09:03AM

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	040 C-5283-01	2025	7	55

**GENERAL NOTES**

Install the guardrail end terminals according to the Manufacturer's Installation Manual. The Contractor will furnish a copy of the Manufacturer's Installation Manual to the Engineer prior to the start of the installation.

Use approved steel (preferred) or wood posts provided by the Manufacturer. The guardrail end terminal post type may be independent of the post type used in the remainder of the installation. However, no mixing of post types is permitted in the remaining w-beam and thrie-beam installation.

Use approved polymer (preferred) or wood blockouts provided by the Manufacturer. The guardrail end terminal blockout size and type may be independent of the blockout size and type used in the remainder of the installation. For blockout size and types for the remaining w-beam and thrie-beam portion of the installation see the details shown on KDOT's 'Guardrail Post Details' and 'Guardrail Thrie-Beam Transition Details' Standard Drawings.

Apply retroreflective sheeting to the end terminal impact head before installation.

Tighten all cable anchor assemblies as per the Manufacturer's Installation Manual.

Lap w-beam and thrie-beam guardrail splices, in the direction of permanent traffic, even where temporary traffic may be carried in the opposite direction of the final configuration. Lap end terminal splices per the Manufacturer's Installation Manual in the direction of permanent traffic, even where temporary traffic may be carried in the opposite direction of the final configuration.

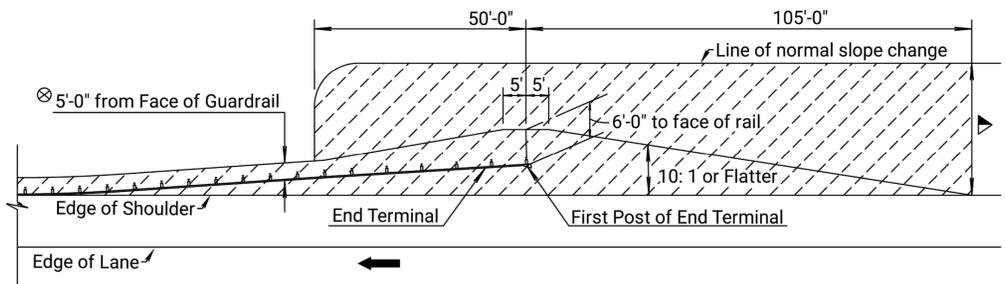
The minimum length of w-beam guardrail required between the thrie-beam transition and the guardrail end terminal is 12'-6" for all installations; unless otherwise stated in the Manufacturer's Installation Manual.

Where pavement with a thickness less than or equal to 8" is encountered during installation, use the details shown on KDOT's 'Guardrail Post Details' Standard Drawings to provide openings in the pavement for the guardrail posts. Where pavement with a thickness greater than 8" or geologic rock is encountered during installation, follow the Manufacturer's Installation Manual for guidance. Where the Manufacturer's Installation Manual does not address pavement with a thickness greater than 8" or geologic rock, contact the manufacturer for instructions or install the guardrail posts as directed by the Engineer.

All work and materials required for w-beam and thrie-beam guardrail installations are paid for under the appropriate bid items for either CGS or MGS guardrail depending on the type of installation.

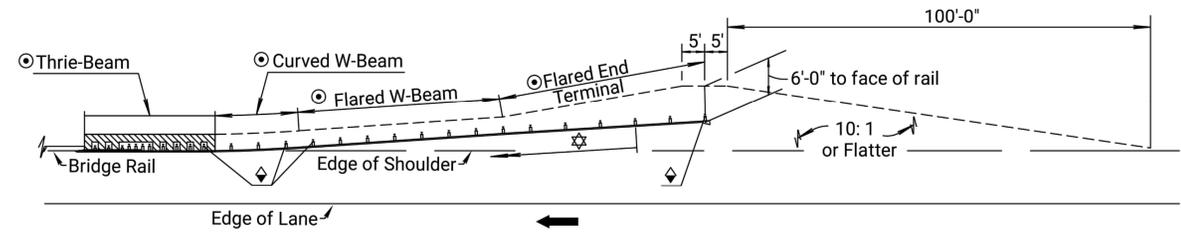
All work and materials required for guardrail end terminal installations are paid for under the bid item for the selected guardrail end terminal. See the table on this sheet for the appropriate end terminal bid item information.

**GUARDRAIL CLEAR AREA**  
Applies to all guardrail installations unless otherwise shown in the plans.



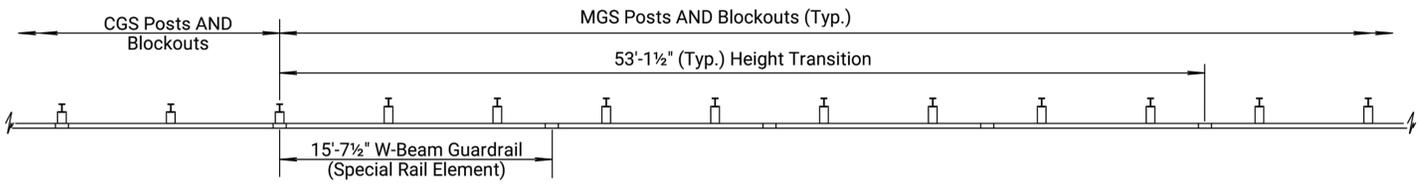
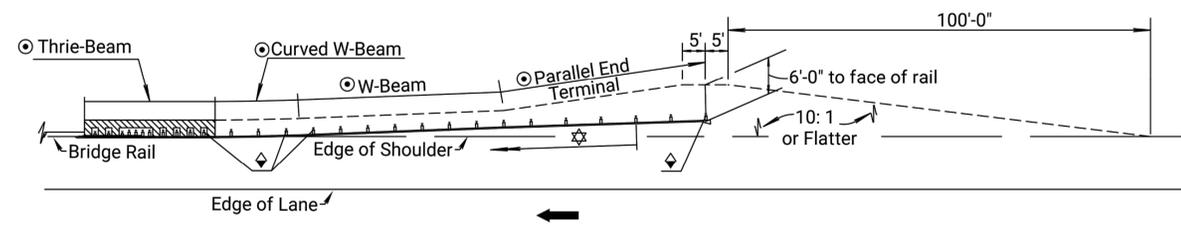
- Keep Area Free of Stockpiled Material, Equipment, or Other Obstacles, Such as Temporary Signs, Regardless of Crash Worthiness. This Clear Area Extends 105 Feet in Advance of and 50 Feet behind the First Post of the Guardrail End Terminal and Then, in Order to Maintain Full Post Spacing, Continues 5 Feet behind the Face of the Guardrail through the W-Beam Portion of the Installation as Shown in the 'Guardrail Clear Area' Detail on this Sheet.
- Normal Project Side Slope.
- Deflection Distance for Normal Post Spacing

**FLARED GUARDRAIL DETAIL**  
Applies to CGS AND MGS (MGS Shown)

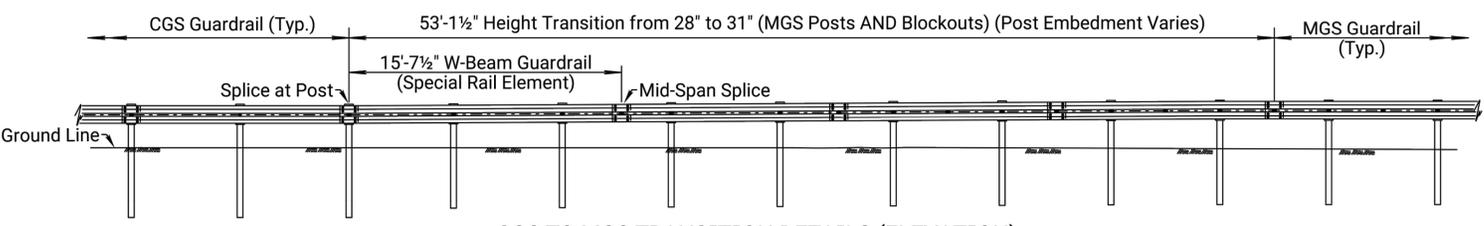


- See Guardrail Layout Sheets for Details
- On Guardrail Layout Sheets, Show Station AND Offset from the Roadway Alignment to the Face of Post at these Locations.
- Length of Need (Begins at Post 3)

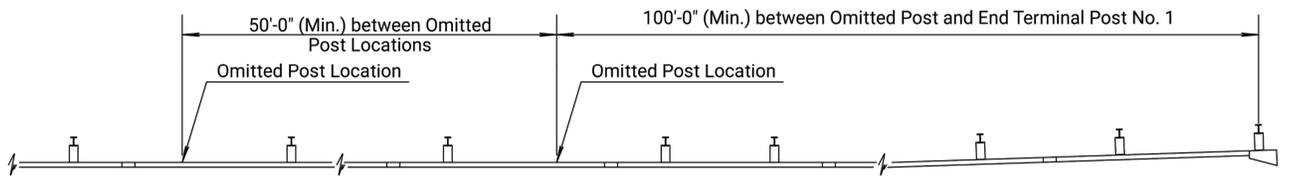
**PARALLEL GUARDRAIL DETAIL**  
Applies to CGS AND MGS (MGS Shown)



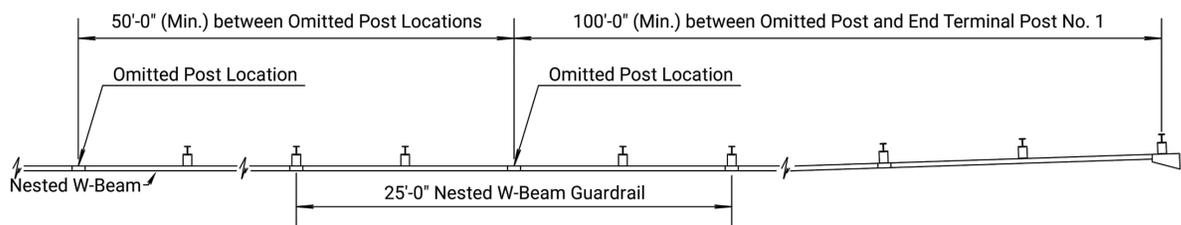
**CGS TO MGS TRANSITION DETAILS (PLAN)**



**CGS TO MGS TRANSITION DETAILS (ELEVATION)**



**MGS OMITTED POST DETAIL**



**CGS OMITTED POST DETAIL**

**MIDWEST GUARDRAIL SYSTEM (MGS) END TERMINALS**

END TERMINAL BID ITEM	FLARED OR PARALLEL	MOUNTING HEIGHT	CRASH TESTING CRITERIA	STEEL POST DESIGN AVAILABLE	WOOD POST DESIGN AVAILABLE	ENERGY ABSORBING	MANUFACTURER	DESIGN LENGTH	MANUFACTURER SYSTEM LENGTH
Guardrail End Terminal (MGS-FLEAT)	Flared	31"	NCHRP 350	Yes	Yes	Yes	Road Systems	40'-7 1/2"	37'-6"
Guardrail End Terminal (MGS-SRT)	Flared	31"	NCHRP 350	Yes	Yes	No	Valtir	40'-7 1/2"	37'-6"
Guardrail End Terminal (MGS-MSKT)	Parallel	31"	MASH	Yes	No	Yes	Road Systems	46'-10 1/2"	46'-10 1/2"
Guardrail End Terminal (MGS-SOFTSTOP)	Parallel	31"	MASH	Yes	No	Yes	Valtir	46'-10 1/2"	50'-9 1/2"

**CONVENTIONAL GUARDRAIL SYSTEM (CGS) END TERMINALS**

END TERMINAL BID ITEM	FLARED OR PARALLEL	MOUNTING HEIGHT	CRASH TESTING CRITERIA	STEEL POST DESIGN AVAILABLE	WOOD POST DESIGN AVAILABLE	ENERGY ABSORBING	MANUFACTURER	DESIGN LENGTH	MANUFACTURER SYSTEM LENGTH
Guardrail End Terminal (FLEAT)	Flared	28"	NCHRP 350	Yes	Yes	Yes	Road Systems	37'-6"	37'-6"
Guardrail End Terminal (SRT)	Flared	28"	NCHRP 350	Yes	Yes	No	Valtir	37'-6"	37'-6"
Guardrail End Terminal (SKT)	Parallel	28"	NCHRP 350	Yes	Yes	Yes	Road Systems	50'-0"	50'-0"

02	09-05-18	ADD. OMITTED POST AND TRANS. DETAILS	A.L.R.	T.T.R.
01	06-05-18	INITIAL RELEASE	A.L.R.	T.T.R.
NO.	DATE	REVISIONS	BY	APPD.

KANSAS DEPARTMENT OF TRANSPORTATION

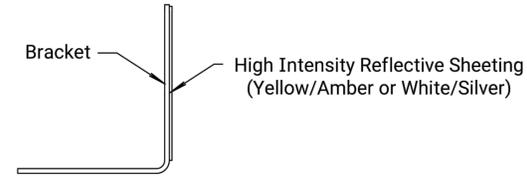
**GUARDRAIL AUXILIARY DETAILS**

**RD606**

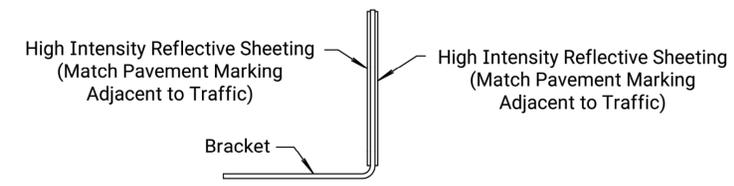
FHWA APPROVAL: 09-25-18 APPD. Scott W. King

DESIGNED	DETAILED	QUANTITIES	TRACED
DESIGN CK.	DETAIL CK.	QUAN. CK.	TRACE CK.

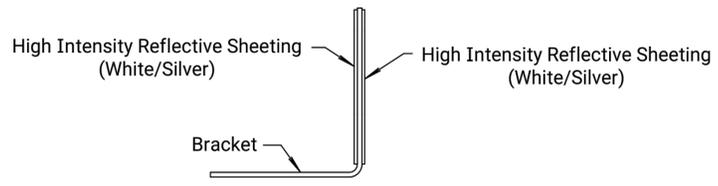
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	040 C-5283-01	2025	8	55



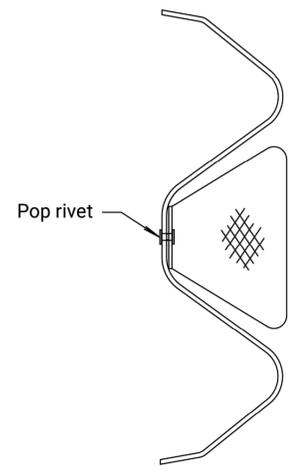
Side View  
Flexible Marker  
One-Way Traffic



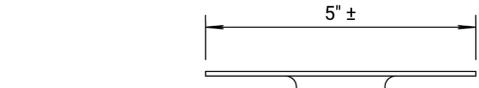
Side View  
Flexible Marker  
Median Locations



Side View  
Flexible Marker  
Two-Way Traffic

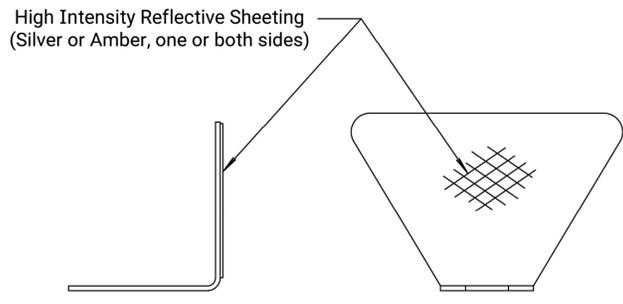


Typical Mounting on W-Beam  
Pop rivet attachment to Guardrail when necessary.



Slot fits under existing guardrail post bolt

Top View

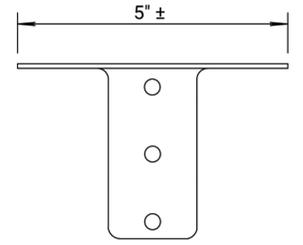


Side View

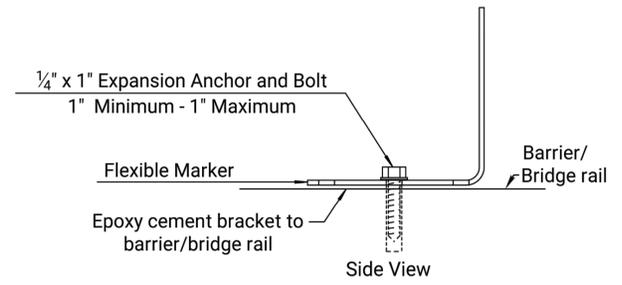
Front View

Flexible Guardrail Marker

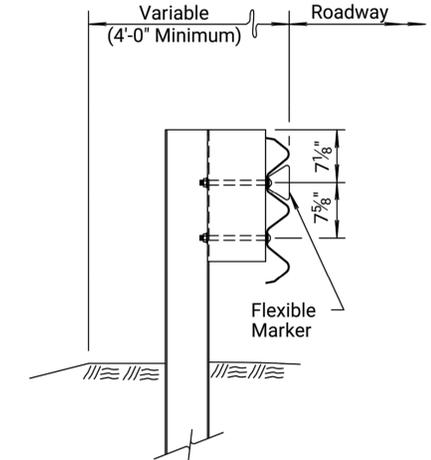
(High Impact Polycarbonate approx. .085" thick, 5 1/4" x 3")



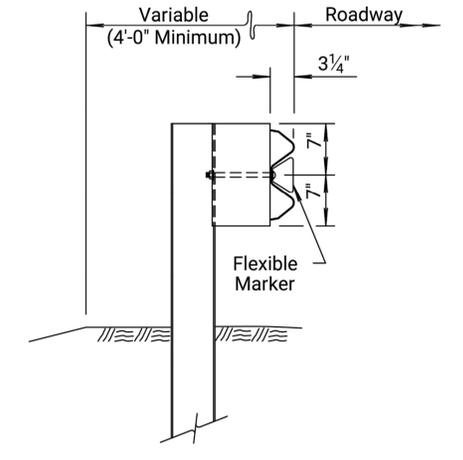
Top View  
Barrier/Bridge Rail



Method of Attaching Flexible Marker to Barrier/Bridge Rail



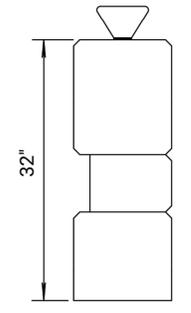
THREE-BEAM GUARDRAIL



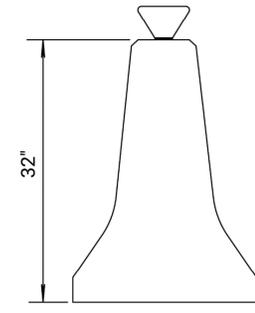
W-BEAM GUARDRAIL

GENERAL NOTES

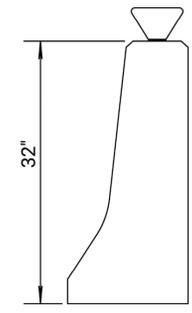
Install flexible markers on a post behind the guardrail bolt head on the traffic side of guardrail installations at a spacing not to exceed 25'. No marker is installed between the head and post #5 when the guardrail is terminated with a crashworthy end terminal.  
 Install flexible markers on the top of bridge rails at a spacing not to exceed 50', except for long bridges (greater than 200' long), where spacing may be increased to 100'.  
 Install flexible markers on the top of concrete safety barrier at a spacing not to exceed 100', except for barrier along a horizontal curve or along ramps and ramp tapers, where spacing is not to exceed 50'.  
 Where the height of the bridge rail or concrete barrier is greater than 32", mount the flexible markers on the side of the barrier at a height of 32" as shown on this sheet.  
 For guardrail, bridge rail, or concrete safety barrier located on two-way roadways, use flexible markers with white/silver high intensity reflective sheeting on both sides.  
 For guardrail located on one-way or divided roadways, use flexible markers with reflective sheeting installed on the approach traffic side of the bracket only. For bridge rail or concrete safety barrier located on the outside edge of one-way or divided roadways, use flexible markers with reflective sheeting installed on the approach traffic side of the bracket only. For bridge rail or concrete safety barrier located in the median, use flexible markers with reflective sheeting installed on both sides of the bracket. Match the color of the marker (yellow/amber or white/silver) to the color of the pavement marking adjacent to the traffic lane.  
 Use High Impact Polycarbonate Flexible Guardrail Marker with High Intensity Reflective Sheetting or an approved equivalent, see Standard Specifications.  
 Use zinc and cadmium plated fasteners that comply with Standard Specifications.  
 Work and materials required for installation of markers on guardrail, bridge rail, or concrete safety barrier are subsidiary to other bid items in the contract.  
 Install flexible markers for the final (permanent) traffic configuration.



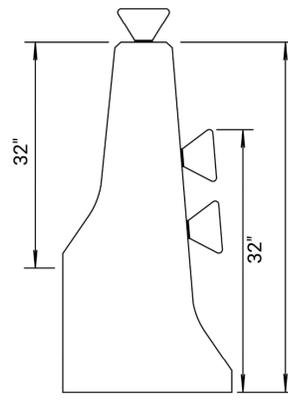
CORRAL RAIL



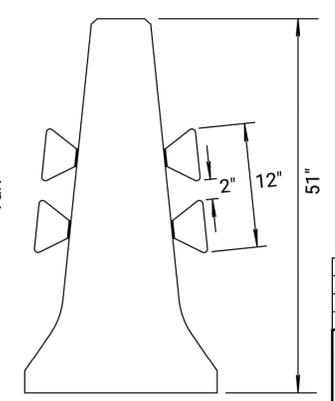
TYPE I CSB



TYPE II CSB or  
F-SHAPED BRIDGE RAIL



TYPE III CSB



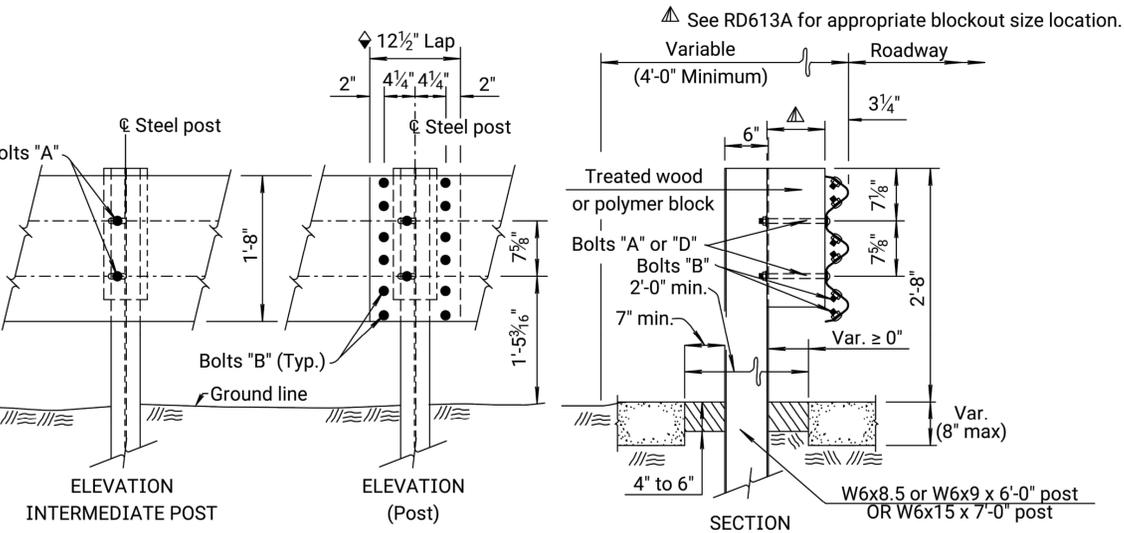
TYPE IV CSB

TYPICAL BARRIER/BRIDGE RAIL MOUNTING DETAILS

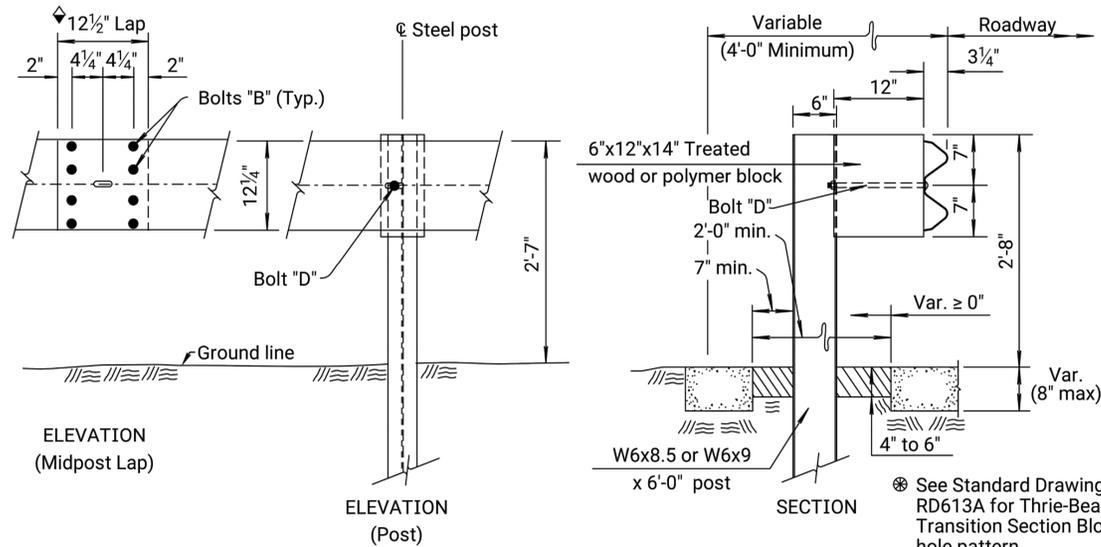
09	09-11-17	Rev. Det. Markers, Rev. Gen. Note	A.L.R.	S.W.K.
08	11-15-10	Revised notes	S.W.K.	J.O.B.
07	12-21-08	AKT marker or approved equal	S.W.K.	J.O.B.
NO.	DATE	REVISIONS	BY	APPD

KANSAS DEPARTMENT OF TRANSPORTATION			
<b>MARKER DETAILS FOR GUARDRAIL, BARRIER, AND BRIDGE RAILS</b>			
RD610			
FHWA APPROVAL	03-15-18	APP'D.	Scott W. King
DESIGNED	DETAILED	QUANTITIES	TRACED
DESIGN CK.	DETAIL CK.	QUAN. CK.	TRACE CK.

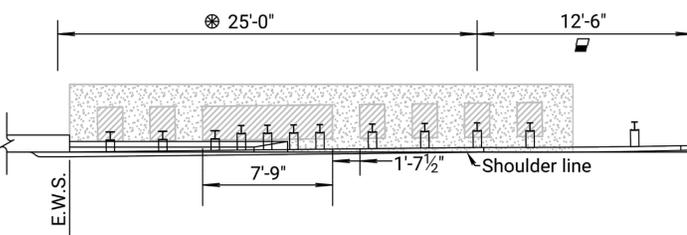
◆ Lap guardrail splices, including terminal connector, in the direction of traffic. Where traffic is temporarily carried in the opposite direction of final configuration, lap rail splices in the direction of permanent traffic.



THRIE BEAM POST DETAILS/POSTS IN PAVEMENT



W-BEAM (MGS) POST DETAILS/POSTS IN PAVEMENT

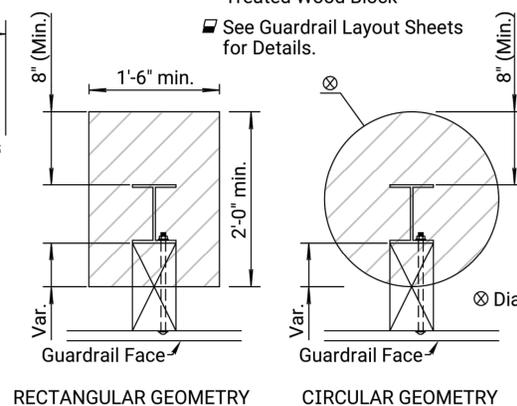


POSTS IN PAVEMENT

(Not to Scale)

- ▨ Slurry Grout (Low Strength)  
See KDOT's Standard Specifications
- ▨ Pavement (Concrete or Asphalt)

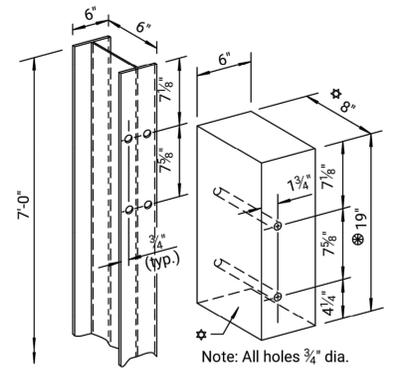
Note: Low Strength Grout must have a 28-day compressive strength of 120 psi or less. All work and materials related to posts in pavement are subsidiary to other guardrail bid items. Rectangular geometry shown in Posts in Pavement detail. Circular geometry, as shown on this sheet, may be used at the Contractor's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



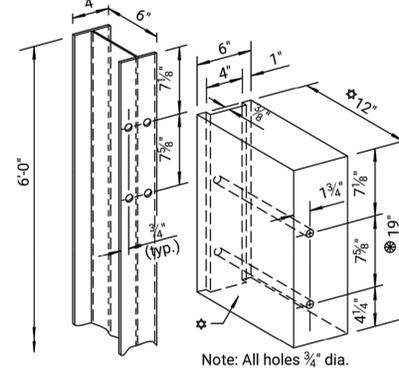
RECTANGULAR GEOMETRY

CIRCULAR GEOMETRY

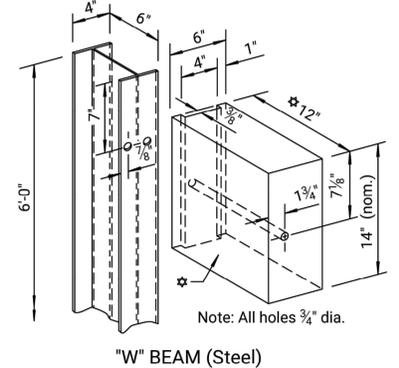
PLAN (ALTERNATE GEOMETRIES)



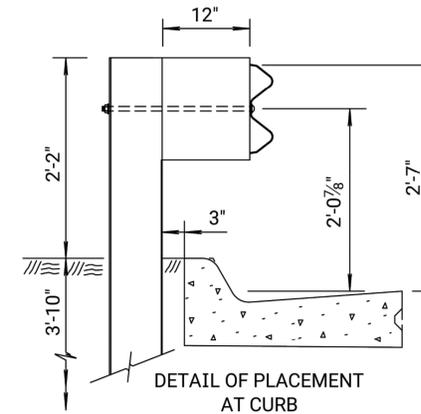
THRIE BEAM (Steel)



THRIE BEAM (Steel)

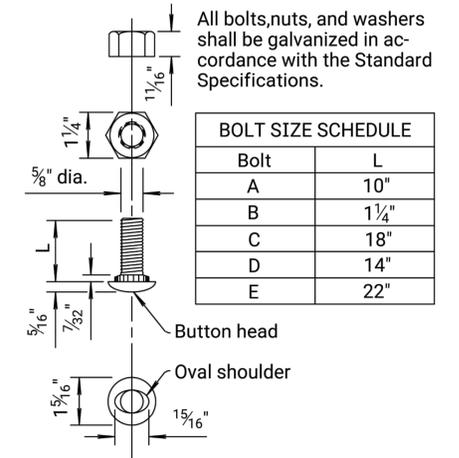


"W" BEAM (Steel)



DETAIL OF PLACEMENT AT CURB

Note: Measure height of rail from the pavement surface at the curb/pavement joint as shown. A special design is needed when guardrail is not located as detailed. A Type II (laydown) curb & gutter is preferred when guardrail is adjacent to curb.



All bolts, nuts, and washers shall be galvanized in accordance with the Standard Specifications.

BOLT SIZE SCHEDULE		
Bolt	L	
A	10"	
B	1 1/4"	
C	18"	
D	14"	
E	22"	

BOLT & NUT DETAILS

NO.	DATE	REVISIONS	BY	APPD
05	09-24-15	Separated Steel/Wood Post Details	S.W.K.	S.W.K.
04	11-08-12	Revised Detail, Posts in Pavement	S.W.K.	J.O.B.
03	08-01-12	Revised Note to Designer	S.W.K.	J.O.B.

KANSAS DEPARTMENT OF TRANSPORTATION

GUARDRAIL POST (STEEL) (MGS) DETAILS

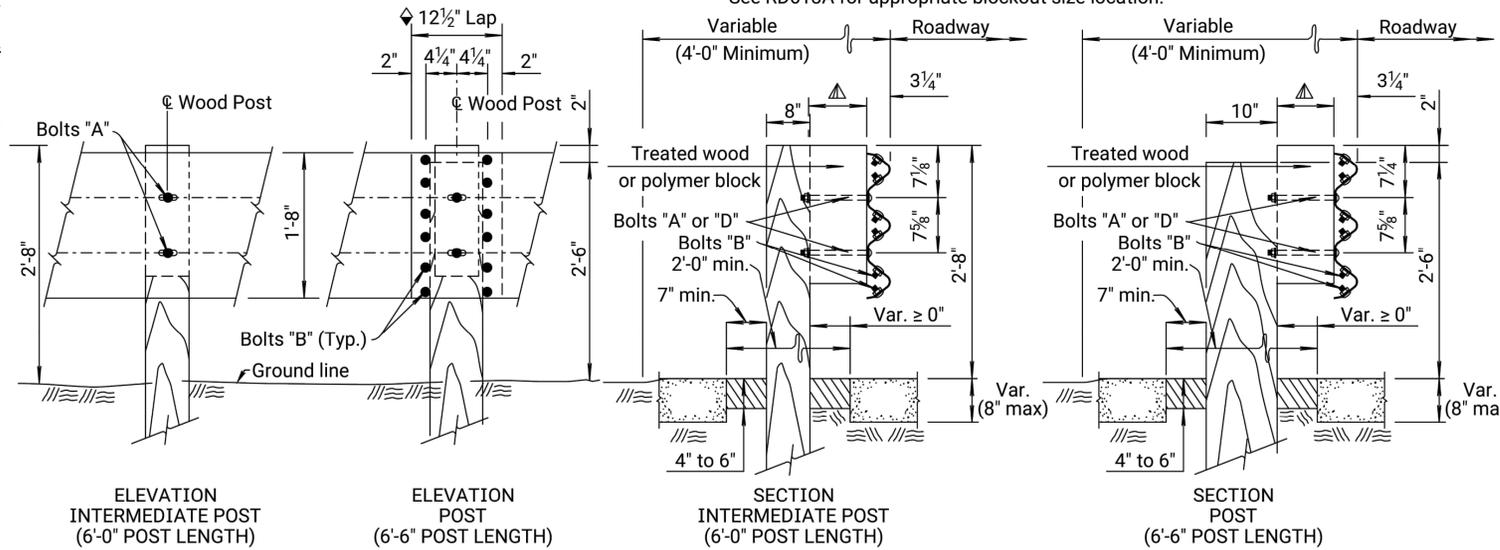
RD611A		01-29-16		APPD.	Scott W. King
DESIGNED	DETAIL	QUANTITIES	TRACED		
DESIGN CK.	DETAIL CK.	QUAN. CK.	TRACE CK.		

J:\PROJECTS\2011\101010284 - HARVEY COUNTY\_GENERAL SERVICES\05-CIVIL\CAD\STD\BRIDGE E-3071-10084\_RD611B.DWG  
 PLOTTED: Wednesday, June 04, 2025 @ 09:24AM

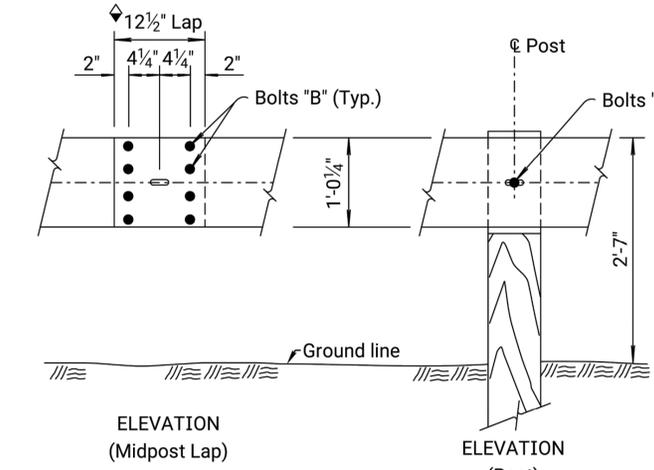
◆ Lap guardrail splices, including terminal connector, in the direction of traffic. Where traffic is temporarily carried in the opposite direction of final configuration, lap rail splices in the direction of permanent traffic.

▲ See RD613A for appropriate blockout size location.

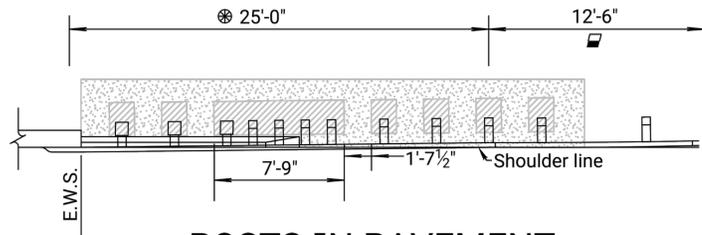
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	040 C-5283-01	2025	10	55



THRIE BEAM POST DETAILS/POSTS IN PAVEMENT



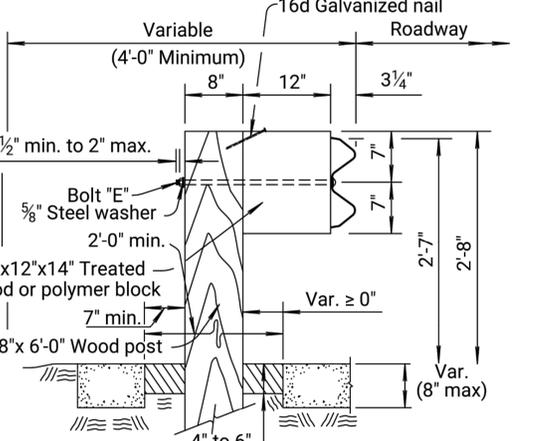
W-BEAM (MGS) POST DETAILS/POSTS IN PAVEMENT



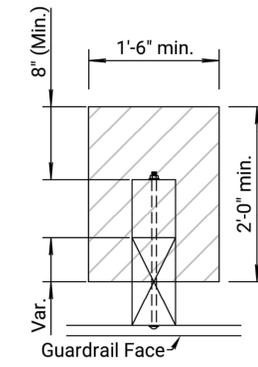
POSTS IN PAVEMENT (Not to Scale)

- Slurry Grout (Low Strength)  
 See KDOT's Standard Specifications
- Pavement (Concrete or Asphalt)

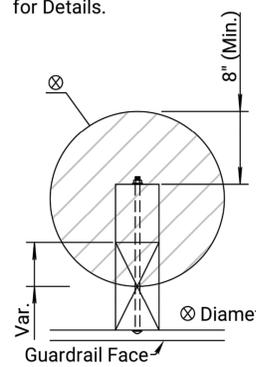
Note: Low Strength Grout must have a 28-day compressive strength of 120 psi or less. All work and materials related to posts in pavement are subsidiary to other guardrail bid items. Rectangular geometry shown in Posts in Pavement detail. Circular geometry, as shown on this sheet, may be used at the Contractor's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



- See Standard Drawing RD613A for Thrie-Beam Transition Section Blockout hole pattern.
- Non-Metallic (Polymer) or Treated Wood Block
- See Guardrail Layout Sheets for Details.

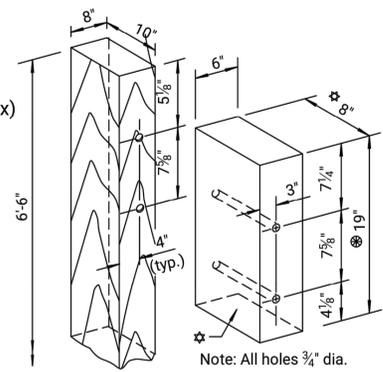


RECTANGULAR GEOMETRY

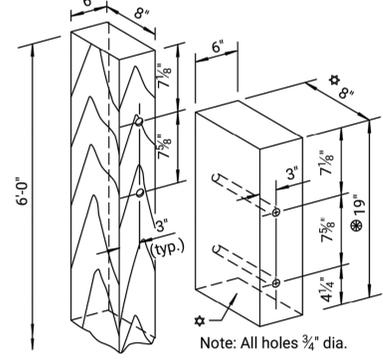


CIRCULAR GEOMETRY

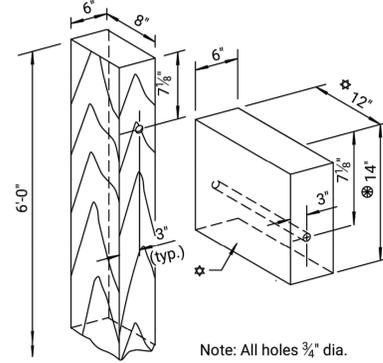
PLAN (ALTERNATE GEOMETRIES)



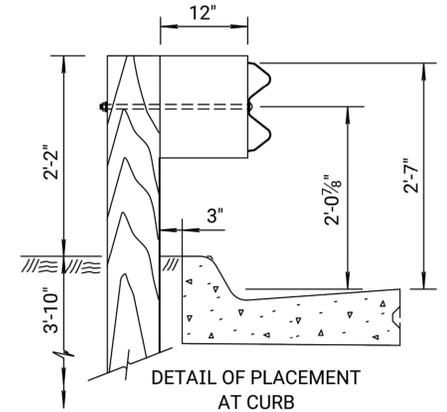
THRIE BEAM (Wood)



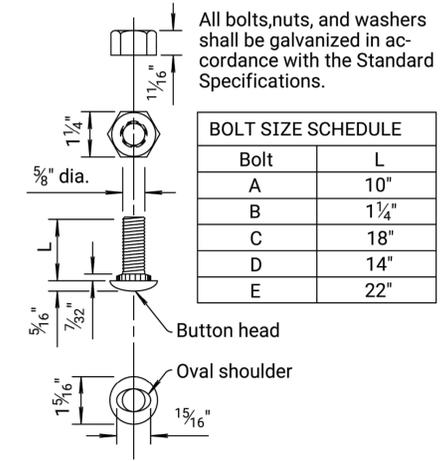
THRIE BEAM (Wood)



"W" BEAM (Wood)



Note: Measure height of rail from the pavement surface at the curb/pavement joint as shown. A special design is needed when guardrail is not located as detailed. A Type II (laydown) curb & gutter is preferred when guardrail is adjacent to curb.



BOLT SIZE SCHEDULE	
Bolt	L
A	10"
B	1 1/4"
C	18"
D	14"
E	22"

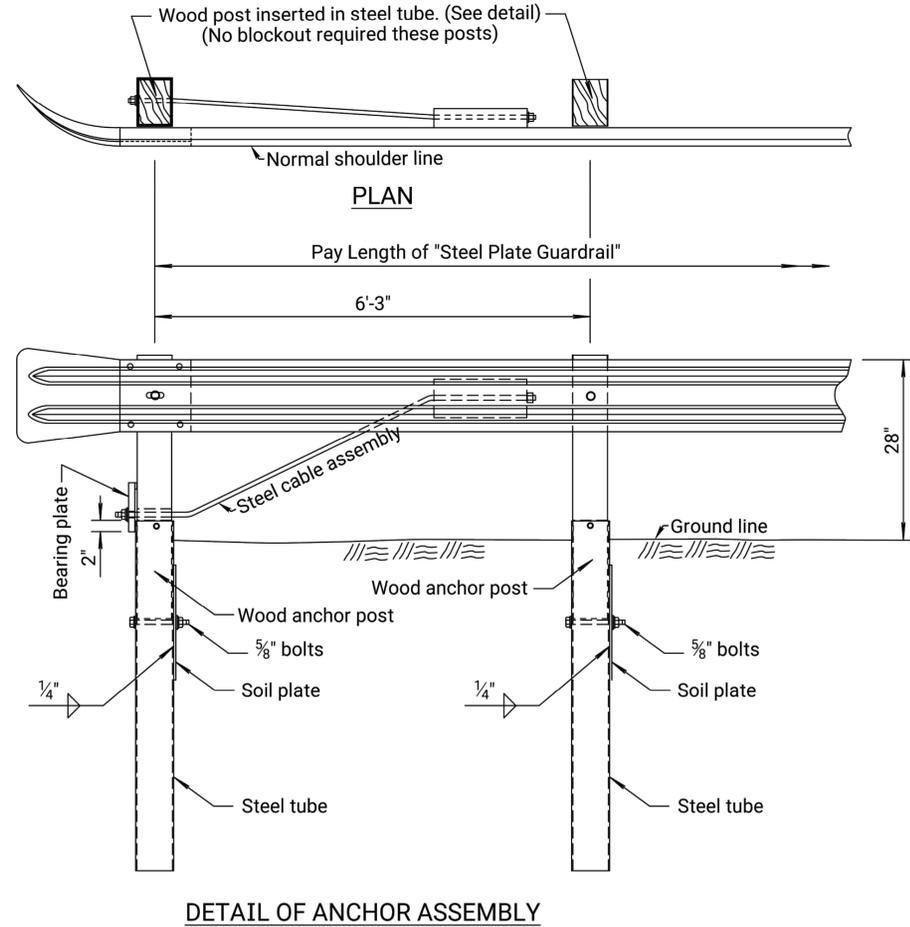
GENERAL NOTES (Wood Posts)

- 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.
- Set guardrail posts by digging or by driving. Use post caps to protect the post from crushing during driving operations.
- Wood blockouts may be used through the 25'-0" thrie-beam section with wood or polymer blockouts used throughout the remainder of the w-beam installation. The blockout size and material used in the guardrail end terminal may be independent from the remainder of the installation. For wood/polymer blockout requirements see standard specifications.
- Use S4S rectangular posts/blockouts for Thrie Beam/W-Beam installation. See standard specifications for additional information.
- Contractor must notify Engineer at the earliest time when a non-removable man-made object (footing, pipe, etc.) is encountered and prevents installation of a full length post.
- 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.

04	09-24-15	Initial Release	T.T.R.	S.W.K.
NO.	DATE	REVISIONS	BY	APPD
KANSAS DEPARTMENT OF TRANSPORTATION				
<b>GUARDRAIL POST (WOOD) (MGS) DETAILS</b>				
RD611B				
FHWA APPROVAL	01-29-16	APPD.	Scott W. King	
DESIGNED	DETAILED	QUANTITIES	TRACED	
DESIGN CK.	DETAIL CK.	QUAN. CK.	TRACE CK.	



STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	040 C-5283-01	2025	12	55



**GENERAL NOTE**

Terminal end posts consist of a wood post inserted into a steel tube see details on this sheet.

The steel soil tubes may be driven with an approved driving head. Set steel tube and soil plate before installing wood anchor post assembly. Do not drive steel soil tubes with wood post in the tube. Backfill and satisfactorily compact around steel soil tubes placed in drilled holes to prevent tube settlement.

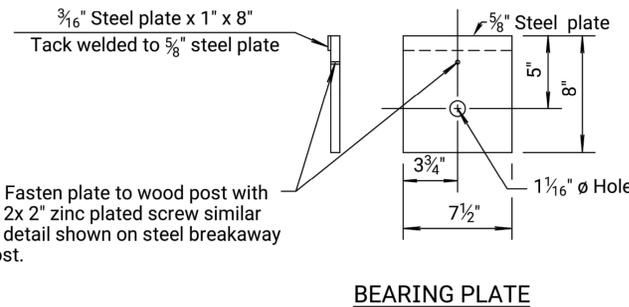
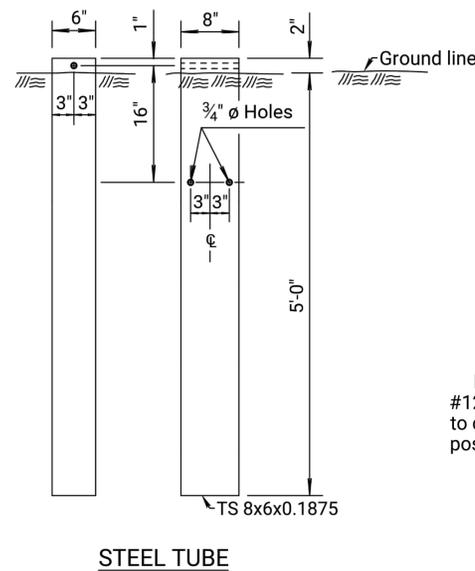
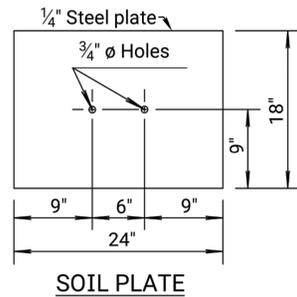
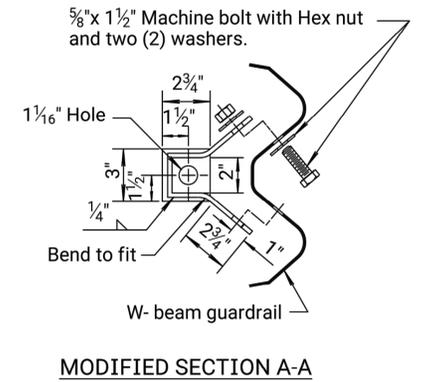
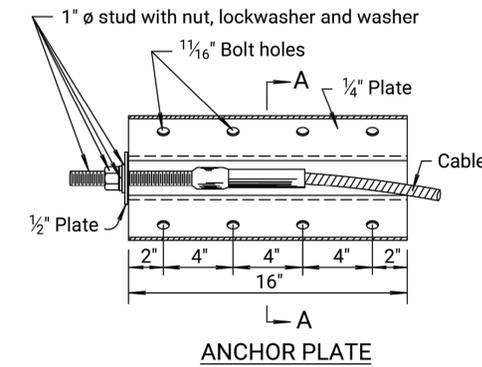
Galvanize all steel parts after fabrication.

Lap guardrail splices, including terminal connector, in the direction of traffic.

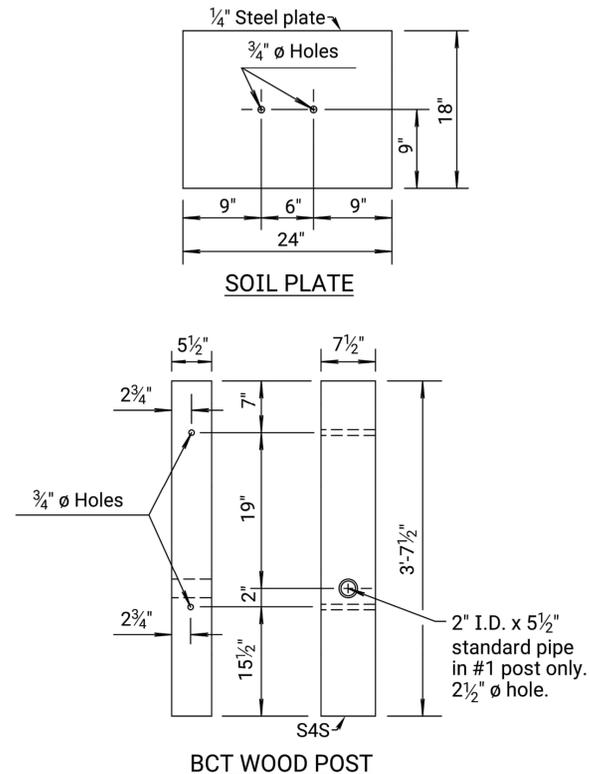
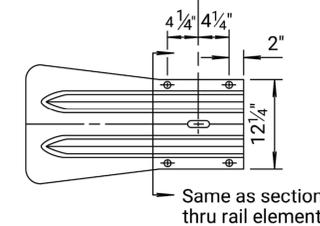
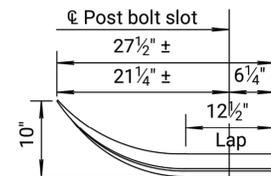
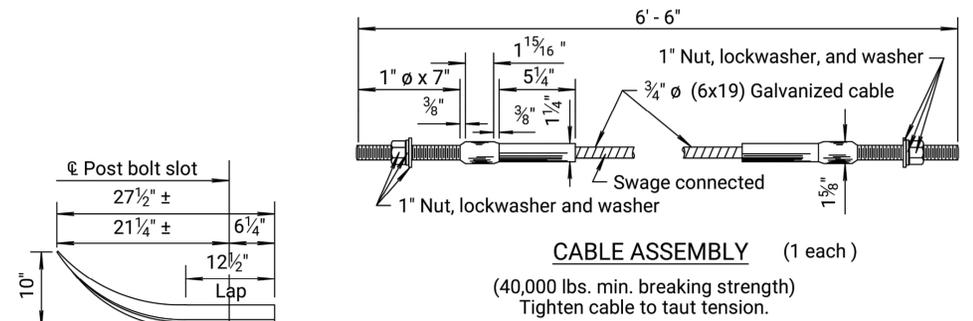
Where traffic is temporarily carried in the opposite direction of final configuration, lap rail splices in the direction of the permanent traffic.

All work and materials required for the installation of Barrier Terminal Type II are considered subsidiary to the bid item "Steel Plate Guardrail".

Include Type II end terminal in pay length of "Steel Plate Guardrail".



Fasten plate to wood post with #12x 2" zinc plated screw similar to detail shown on steel breakaway post.



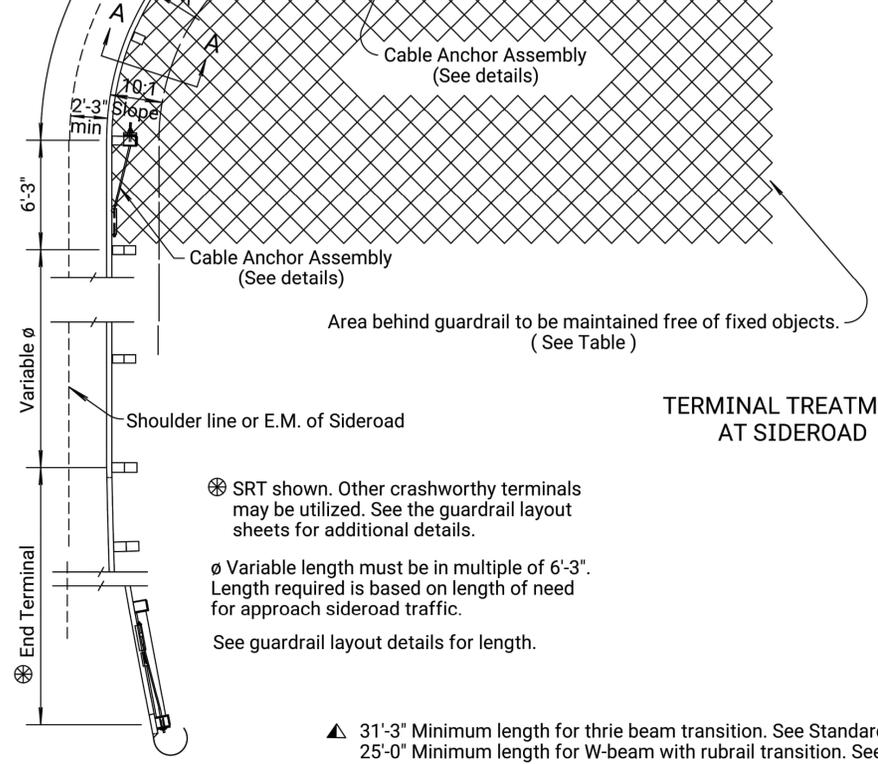
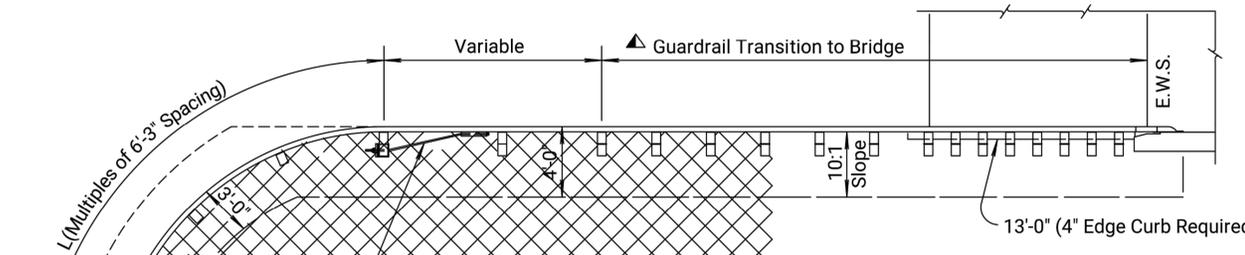
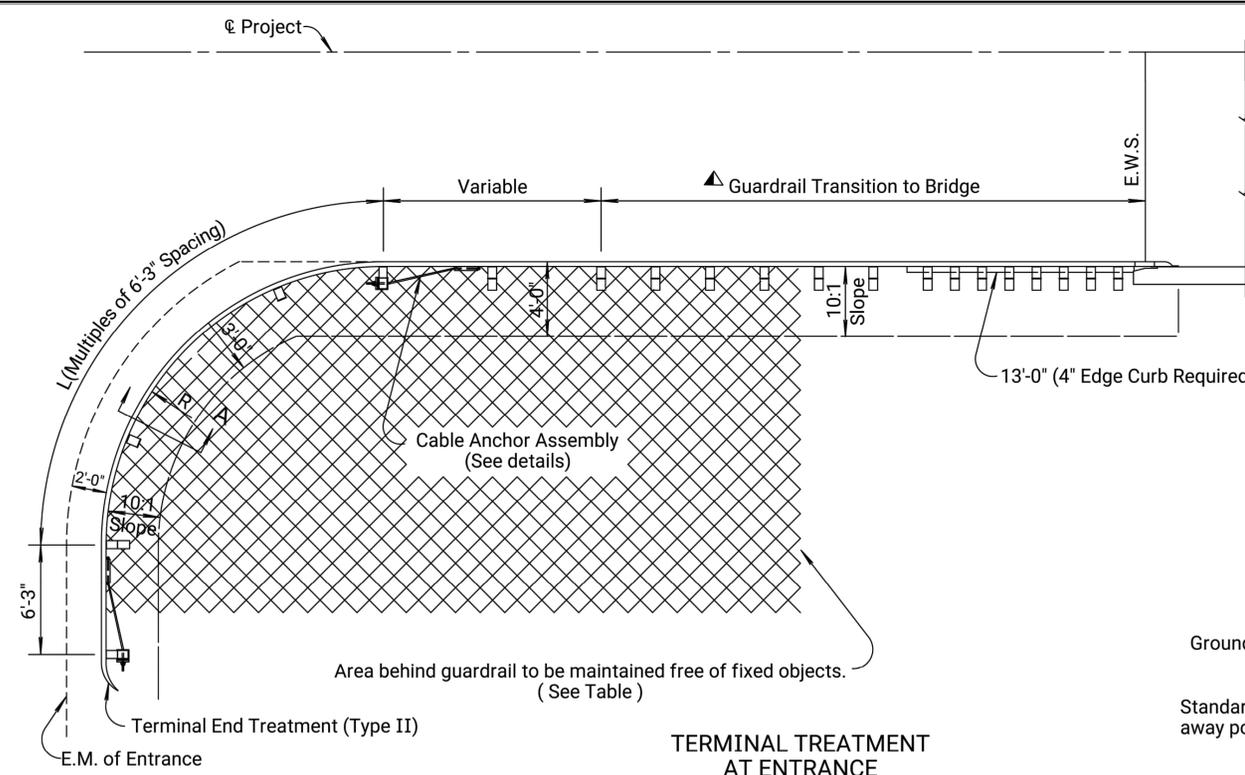
06	12-14-10	Rev. notes, details & 28" rail height	S.W.K.	J.O.B.
05	07-20-04	Changed Guard Fence to Guardrail	S.W.K.	J.O.B.
04	05-18-00	Added note for temporary traffic	R.J.S.	J.O.B.
NO.	DATE	REVISIONS	BY	APPD

KANSAS DEPARTMENT OF TRANSPORTATION

**GUARDRAIL END TERMINAL TYPE II**

RD618	01-11-11	APP'D.	James O. Brewer
DESIGNED	DETAILED	QUANTITIES	TRACED
DESIGN CK.	DETAIL CK.	QUAN. CK.	TRACE CK.

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	040 C-5283-01	2025	13	55

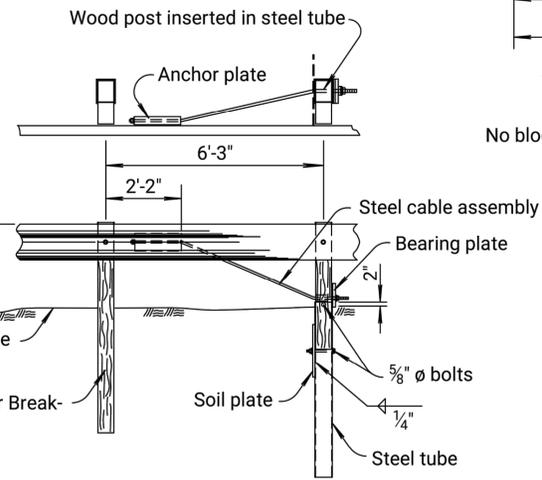


L	R	Required Area Free of Fixed Objects
12.50	7.96	25 X 15
18.75	11.94	25 X 15
25.00	15.92	30 X 15
31.25	19.89	30 X 15
37.50	23.87	40 X 20
43.75	27.85	40 X 20
50.00	31.83	40 X 20
56.25	35.81	50 X 20
62.50	39.79	50 X 20

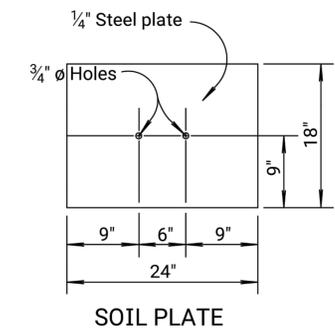
⊗ SRT shown. Other crashworthy terminals may be utilized. See the guardrail layout sheets for additional details.

∅ Variable length must be in multiple of 6'-3". Length required is based on length of need for approach sideroad traffic. See guardrail layout details for length.

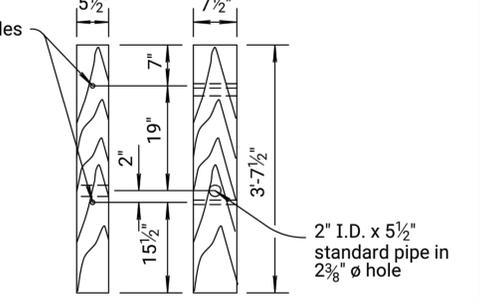
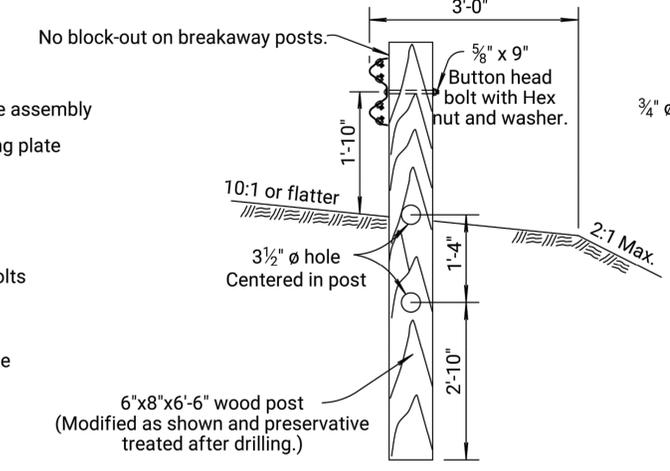
▲ 31'-3" Minimum length for thrie beam transition. See Standard Drawings RD612 & RD613.  
25'-0" Minimum length for W-beam with rubrail transition. See Standard Drawing RD615.



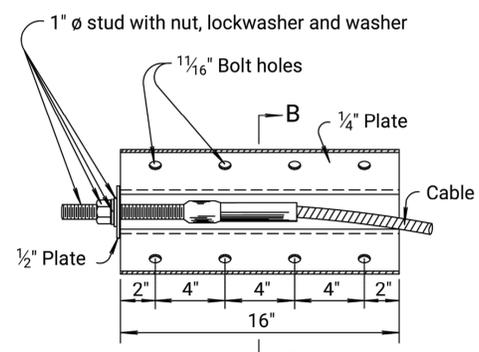
ANCHOR ASSEMBLY



SOIL PLATE

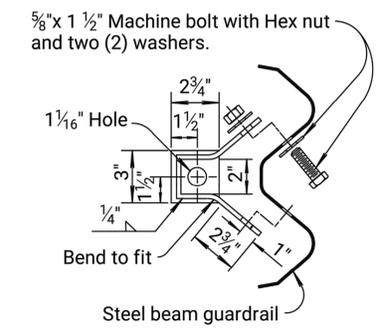


ANCHOR ASSEMBLY POST

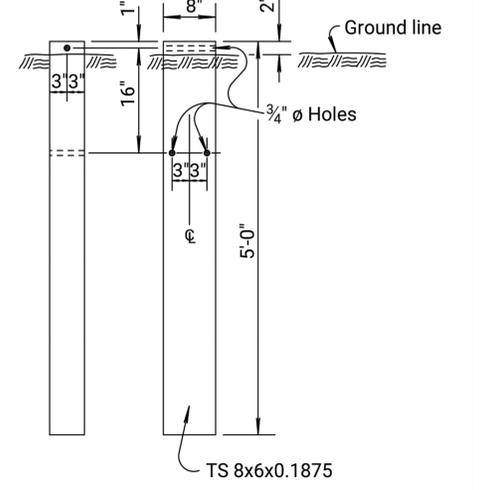


ANCHOR PLATE

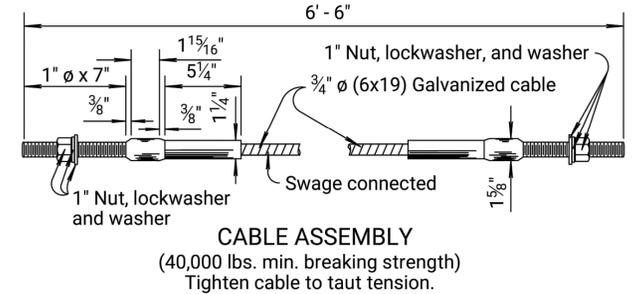
SECTION A-A  
(Typical through curved portion of guardrail.)



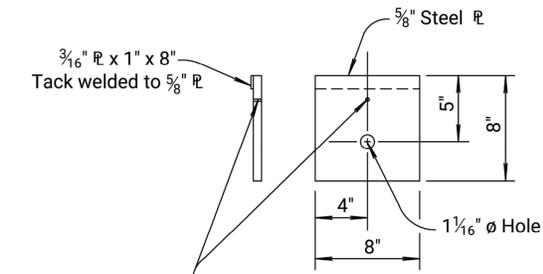
MODIFIED SECTION B-B



STEEL TUBE



CABLE ASSEMBLY  
(40,000 lbs. min. breaking strength)  
Tighten cable to taut tension.



BEARING PLATE

NO.	DATE	REVISIONS	BY	APPD
07	12-14-10	Rev. notes, details & 28" rail height	S.W.K.	J.O.B.
06	07-20-04	Rev. layout, notes, gd.fc. to guardrail	R.J.S.	J.O.B.
05	03-05-01	Add sideroad detail	R.J.S.	J.O.B.

KANSAS DEPARTMENT OF TRANSPORTATION

**DETAILS FOR GUARDRAIL INSTALLATION AT INTERSECTING ROADWAY**

RD619

DESIGNED	Detailed	QUANTITIES	TRACED
DESIGN CK.	DETAIL CK.	QUAN. CK.	TRACE CK.

James O. Brewer  
Bowser  
King

PLOTTED: Thursday, June 05, 2025 @ 02:49PM  
 J:\PROJECTS\2014\140101084 - HARVEY COUNTY\_GENERAL\_SERVICES\05-CIVIL\CAD\BRIDGE\GENERAL NOTES AND QUANTITIES.DWG

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	040 C-5283-01	2025	14	55

**SUMMARY OF QUANTITIES**

Item	Class I Excavation	Class II Excavation	Concrete (Grade 4.0) (AE)(SW)	Concrete (Grade 4.0) (AE)	Reinforcing Steel (Grade 60)	Reinforcing Steel (Epoxy Coated) (Grade 60)	Piles (Steel) (HP12x53)	Cast Steel Pile Points	Contractor Furnished PDA	Slope Protection (Shot Rock) (18")	Geotextile Fabric	Bridge Project Marker (Non Participating)
	Cu. Yds.	Cu. Yds.	Cu. Yds.	Cu. Yds.	Lbs.	Lbs.	Lin. Ft.	Each	Each	Cu. Yds.	Sq. Yds.	Each
Abutment No. 1	47.0		**	-	-	**	290	5	1			
Pier No. 1		75.0	-	32.5	2,274	1,422	413	7	-			
Pier No. 2		75.0	-	32.5	2,274	1,422	374	7	1			
Abutment No. 2	47.0		**	-	-	**	230	5	-			
Substr. Total	94.0	150.0	-	65.0	4,548	-	1307	24	2			
Superstr. Total	-	-	214.0	-	-	59,100	-					
Total	94.0	150.0	214.0	65.0	4,548	59,100	1307 ≠	24	2	469	128	1

\*\* Quantities are included in the Superstructure Total Quantity.

≠ Summary of Piling  
 Abutment No. 1      4 @ 56', 1 @ 66' for PDA  
 Pier No. 1          7 @ 59'  
 Pier No. 2          6 @ 52', 1 @ 62' for PDA  
 Abutment No. 2      5 @ 46'

INDEX TO BRIDGE DRAWINGS	
Sh. No.	Drawing
14	BRIDGE GENERAL NOTES & QUANTITIES
15	CONTOUR MAP
16	CONSTRUCTION LAYOUT
17	ENGINEERING GEOLOGY
18	ABUTMENT DETAILS
19	PIER DETAILS
20	SUPERSTRUCTURE DETAILS
21	SUPERSTRUCTURE DETAILS
22	27 INCH KANSAS CORRAL RAIL R.C. HAUNCHED SLAB (Without Curb)
23	BILL OF REINFORCING STEEL AND BENDING DIAGRAMS
24	BRIDGE PLAQUE DETAILS
	<b>Standards</b>
25	BRIDGE EXCAVATION (LRFD)
26	STANDARD PILE DETAILS
27	SUPPORTS AND SPACERS FOR REINFORCING STEEL

**GENERAL NOTES**

**PLAN SPECIFICATIONS:** "KDOT Standard Specifications for Road and Bridge Construction, 2015 Edition" are referenced for bridge construction. When differences occur between plan notes and these specifications, the plan notes govern.

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

**BRIDGE EXCAVATION:** Elevation 1347.37 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.

**BACKFILL COMPACTION:** Compact backfill at the abutments.

**PILING:** Use the Pile Driving Analyzer (PDA) equipment at the substructure locations shown on the Construction Layout. Use PDA 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 Strength I divided by Phi or 9.3 Tons at the Abutments and 98 Tons at the Piers.

Drive Abutment 1 & 2 piling to a minimum elevation of 1296.00 & 1306.00, respectively and Pier 1 & 2 piling to a minimum elevation of 1294.50 & 1301.50, respectively unless the Engineer directs otherwise based on the PDA results. Driving shall stop when in the opinion of the Engineer additional driving may damage the piling. Drive remaining piling to the Pile Driving Formula Load of:

Abutment No. 1 and 2	59.9 Tons
Pier No. 1 and 2	63.7 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. 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 Engineer may request that the Pile Driving Analyzer (PDA) equipment be used.

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

**CONTRACTOR CONSTRUCTION STAKING:** Contractor Construction Staking for clear span bridges requires two independent surveys. See KDOT Specifications.

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

**REMOVAL OF EXISTING STRUCTURE:** Removal of existing structure is included in the bid item, "Removal of Existing Structures"; Lump Sum. All materials removed from the existing structure shall become the property of the Contractor. Remove this material from the site.

**SLOPE PROTECTION (Shot Rock):** Place Slope Protection (Shot Rock)(18") to the limits and thickness shown on the plans or as directed by the Engineer. Place a 10 foot wide mat of geotextile under the rock/rubble embankment on the berm and berm slopes and centered on the drip lines of the slab.

**CONCRETE:** Superstructure concrete is bid as Concrete (Grade 4.0)(AE)(SW). Substructure concrete is bid as Concrete (Grade 4.0)(AE). Bevel all exposed edges of all concrete with a 3/4" 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 shall conform to the requirements of ASTM A615, Grade 60.

**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") or timber falsework with greater than 12'-0" clear span. If either case exists, submit falsework plans that show the additional required camber.

**CONSTRUCTION JOINTS:** The construction joints shown are optional with the Contractor. If used, place the construction joints only at locations shown or at locations approved by the Engineer.

**FALSEWORK PLANS:** A licensed Professional Engineer shall design the falsework details. Details shall bear the seal of a licensed Professional Engineer. Submit electronic plans conforming to Section 105 of the Standard Specification with details in compliance with KDOT Specifications to the Field Engineer for review.

**FALSEWORK PLANS AND SHOP DRAWINGS:** Use the U.S. Customary system of units on falsework plans and shop drawing details.

**DEMOLITION PLANS:** This is a Category A Demolition. Submit detailed Demolition Plans to the Field Engineer per KDOT Specifications. No Demolition work will begin without approved Demolition Plans. A Licensed Professional Engineer is not required.

**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 County. "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.

**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 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.

**CONSTRUCTION LOADS:** Only foot traffic is permitted on the new sub-deck, one-course deck or any concrete overlay during the seven day curing period, keep any exposed deck wet during the 7-day curing period. See KDOT Specifications Section 710 Table. See tables 710-1 and 710-2 for additional information.

**TEMPERATURE:** The design temperature for all dimensions is 60° F.

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

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

**BRIDGE DECK FINISH:** Rough burlap drag.

**DESIGN DATA**

**DESIGN SPECIFICATIONS:**  
 AASHTO Specifications, 9th (2020) 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)(AE)(SW):  $f'_c = 4$  k.s.i.  
 Reinforcing Steel (Grade 60):  $f_y = 60$  k.s.i.  
 Steel Piles (ASTM A572, Gr. 50):  $f_y = 50$  k.s.i.

**LRFD DESIGN PILE LOAD:**

Design Loading (Tons/Pile)	Strength I	Service I	Phi
Abutment	59.9	38.5	0.65
Piers	63.7	45.3	0.65

LFD & LRFR RATING FACTORS		
Rating Level	Inventory	Operating
Truck		
HS-20 (36T)	1.55	2.59
Type HET (110T)		1.35
2002 LFD Rating, 17th Edition AASHTO		
HL-93 Loading	1.58	2.05
2018 Manual for Bridge Evaluation		

<b>KANSAS DEPARTMENT OF TRANSPORTATION</b> Br. No. 000400839805800      Sta. 50+00.00 <b>BRIDGE GENERAL NOTES AND QUANTITIES</b> PROJ. NO. 040 C-5283-01      HARVEY COUNTY <b>M K E C ENGINEERING, INC.</b> WICHITA, KANSAS	
DESIGNED BY: DJL	CHECKED BY: JRA
DRAWN BY: RAM	DATE: 12/12/24 SHEET 14 OF 55

J:\PROJECTS\2011\101010284 - HARVEY COUNTY - GENERAL SERVICES\05-CIVIL\CAD\BRIDGE\HC BRIDGE E-301\140284\_CONTOUR MAP.DWG  
 PLOTTED: Wednesday, June 04, 2025 @ 09:24AM

S 1/4 Cor. Sec. 12, T24S, R2E  
 Sta. 35+81.07, 0.0' Rt.  
 Found 3/4" Rebar  
 1. MAG nail in SE face Power Pole  
 2. 1/2" rebar/MKEC CLS39 Witness id cap  
 3. 1/2" rebar/MKEC CLS39 Witness id cap  
 4. About 2' north of the centerline of SE 60th St.

46.7' NE  
 21.8' SE  
 36.3' NW

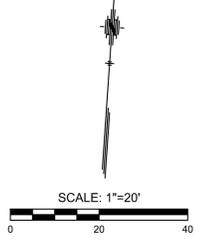
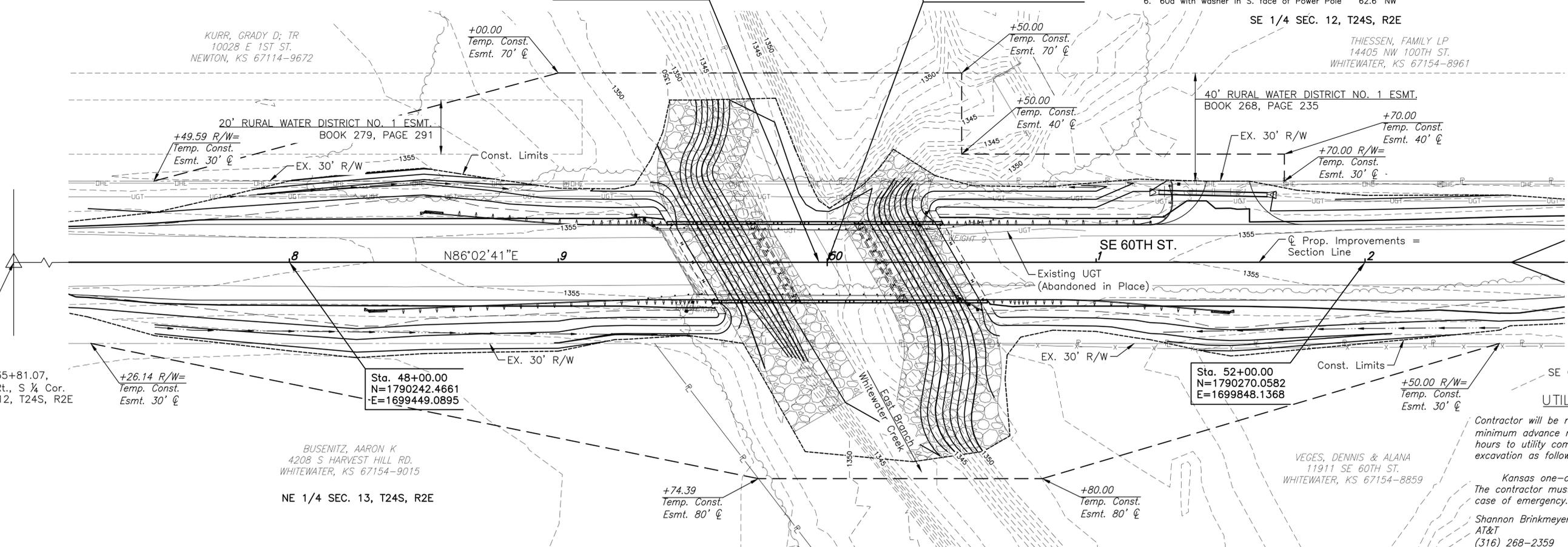
Sta. 49+92.37 Remove Br.  
 No. 000400839705800,  
 18'-19'-19'-19'-18' TBMS  
 (Timber Pile Bent Abutments  
 & Piers), 18'-0" Roadway,  
 Category A Demolition.

Sta. 50+00.00 Construct Br.  
 No. 000400839805800  
 30'-40'-30' R.C.S.H. Bridge,  
 30' Skew Lt.  
 28'-0" Roadway

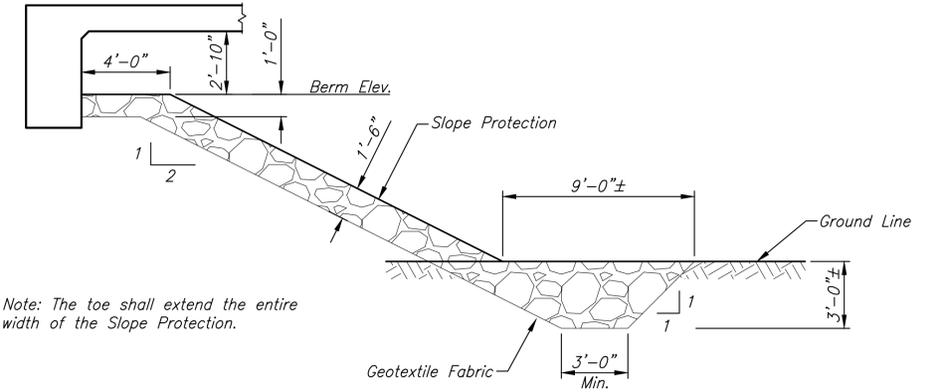
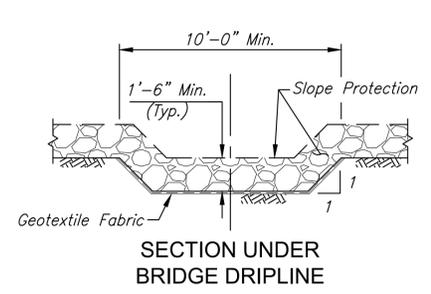
SE Cor. Sec. 12, T24S, R2E  
 Sta. 62+46.82, 0.0' Rt.  
 Found 3/4" Rebar  
 1. Top center of telephone pedestal  
 2. Face of pipe line marker  
 3. Face of pipe line marker  
 4. Face of steel corner fence post  
 5. Face of steel corner fence post  
 6. 60d with washer in S. face of Power Pole

44.8' NE  
 68.5' NE  
 65.1' SE  
 42.2' SE  
 54.6' SW  
 62.6' NW

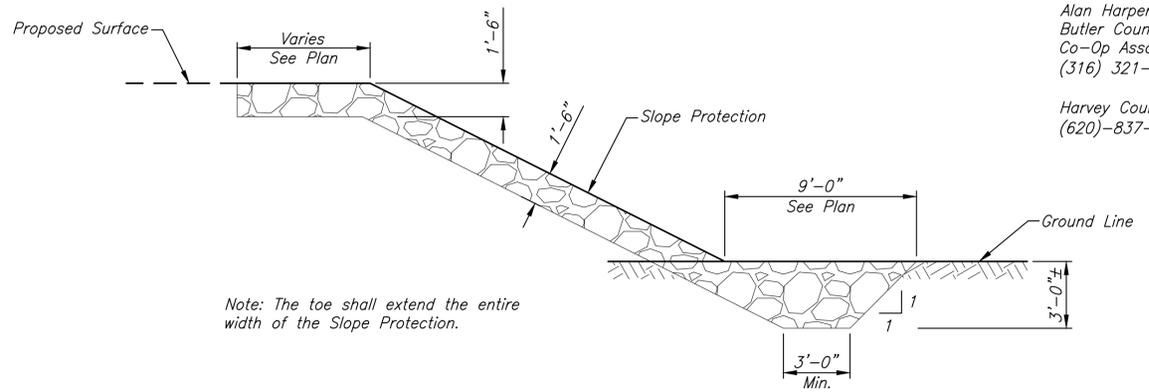
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	040 C-5283-01	2025	15	55



**UTILITIES**  
 Contractor will be required to provide a minimum advance notice of seventy-two (72) hours to utility companies prior to starting any excavation as follows:  
 Kansas one-call 1-800-344-7233  
 The contractor must notify the following in case of emergency.  
 Shannon Brinkmeyer  
 AT&T  
 (316) 268-2359  
 Alan Harper  
 Butler County Rural Electric Co-Op Association  
 (316) 321-9600  
 Harvey County RWD #1  
 (620)-837-5634

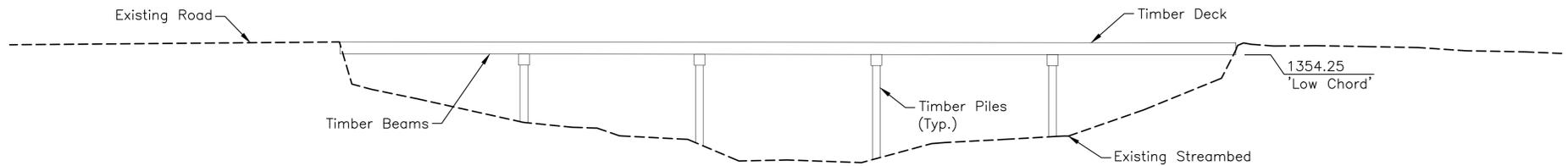


Note: The toe shall extend the entire width of the Slope Protection.



Note: The toe shall extend the entire width of the Slope Protection.

See Sheet 30 for Slope Protection points.



**EXISTING ELEVATION**

(Existing Bridge Waterway Opening Area = 660.47 s.f.)

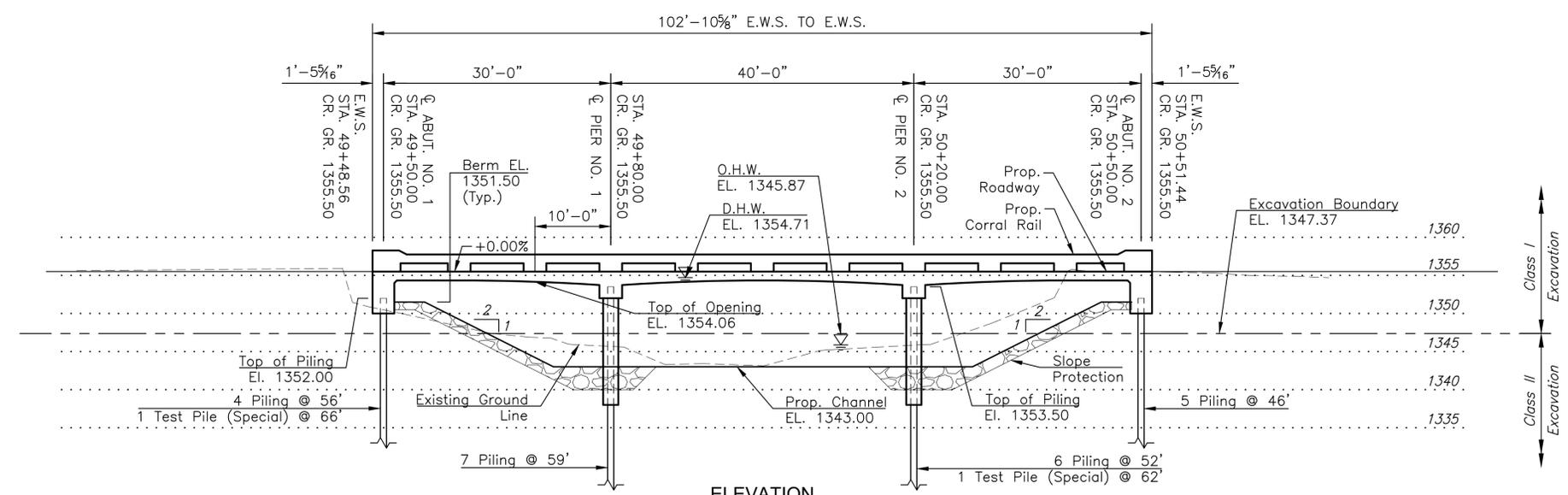
**KANSAS DEPARTMENT OF TRANSPORTATION**  
 Br. No. 000400839805800 Sta. 50+00.00  
**CONTOUR MAP**  
 PROJ. NO. 040 C-5283-01 HARVEY COUNTY  
**M K E C ENGINEERING, INC.**  
 WICHITA, KANSAS

DESIGNED BY: DJL	CHECKED BY: JRA
DRAWN BY: RAM	DATE: 12/11/24 SHEET 15 OF 55

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	040 C-5283-01	2025	16	55

**DRAINAGE DATA**

Drainage Area	18.8	Sq. Mi.
Design Frequency	$Q_5$	Years
Design Discharge ( $Q_5$ )	2,660	cfs
Design Velocity	2.9	fps
Design High Water Elevation	1354.71	Ft.
Change in Design Backwater	-0.02	Ft.
Design Backwater Elevation	1354.71	Ft.
Overtopping Elevation	1355.50	Ft.
Overtopping Discharge	3,264	cfs
Overtopping Station	50+00	
Overtopping Frequency	$<Q_{10}$	Years
Discharge at $Q_{100}$	8,830	cfs
Velocity at $Q_{100}$	3.3	fps
Change in Backwater at $Q_{100}$	0.00	Ft.
Backwater Elevation at $Q_{100}$	1358.21	Ft.
Historic High Water Elevation	N/A	Ft.
Ordinary High Water Elevation	1345.87	Ft.
Total Waterway Provided	839	Sq. Ft.
Design Waterway Provided	839	Sq. Ft.
Estimated Ordinary High Water Discharge	1,260	cfs



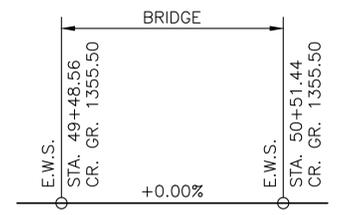
**ELEVATION**

30'-40'-30' R.C. Haunched Slab Spans  
 30' Skew Lt.  
 28'-0" Roadway

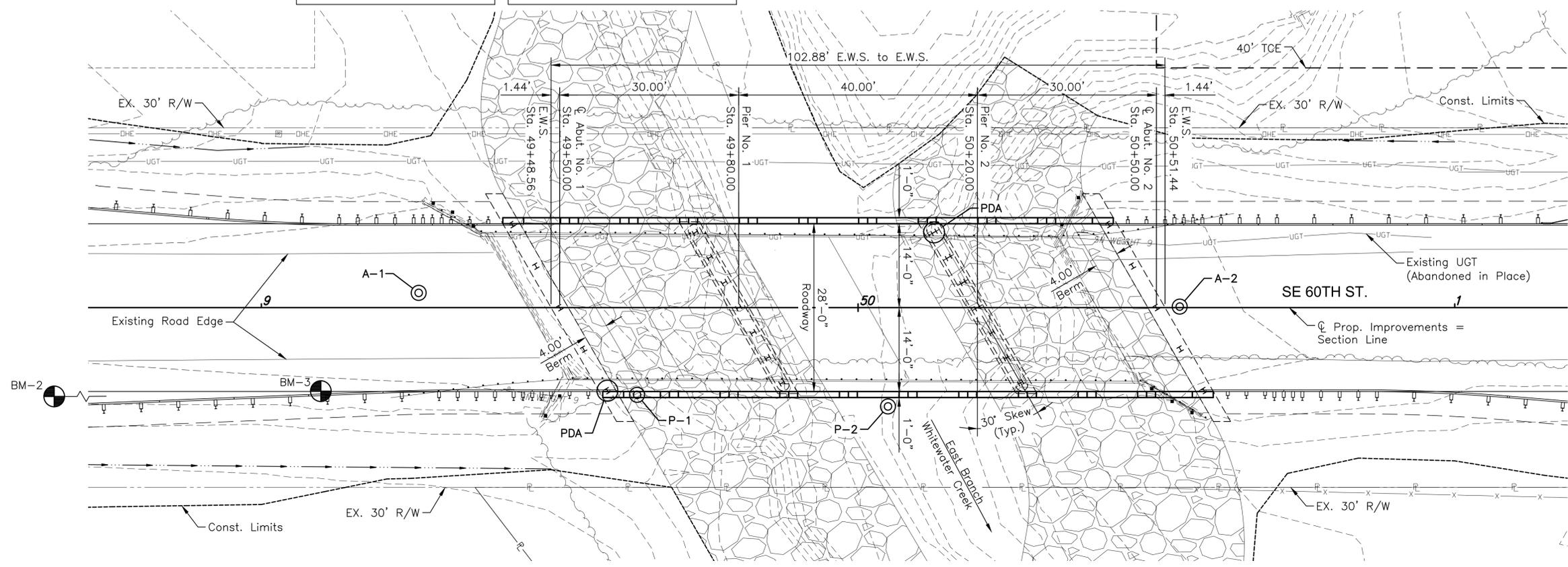
**PILING NOTE:**  
 All H-Pile cutoffs to become the property of Harvey County and stockpiled on-site for haul-off by County staff.

BM-2 MAG nail/MKEC control id washer  
 Sta. 43+95.21, 17.0' Rt. Elev. 1355.25  
 N=1790197.588, E=1699046.436

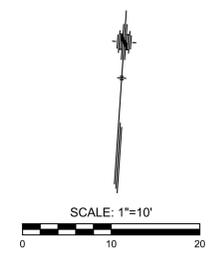
BM-3 3/8" Rebar with red MKEC control id cap  
 Sta. 49+09.95, 13.9' Rt. Elev. 1354.89  
 N=1790236.145, E=1699559.744



**CROWN PROFILE GRADE**



**PLAN**

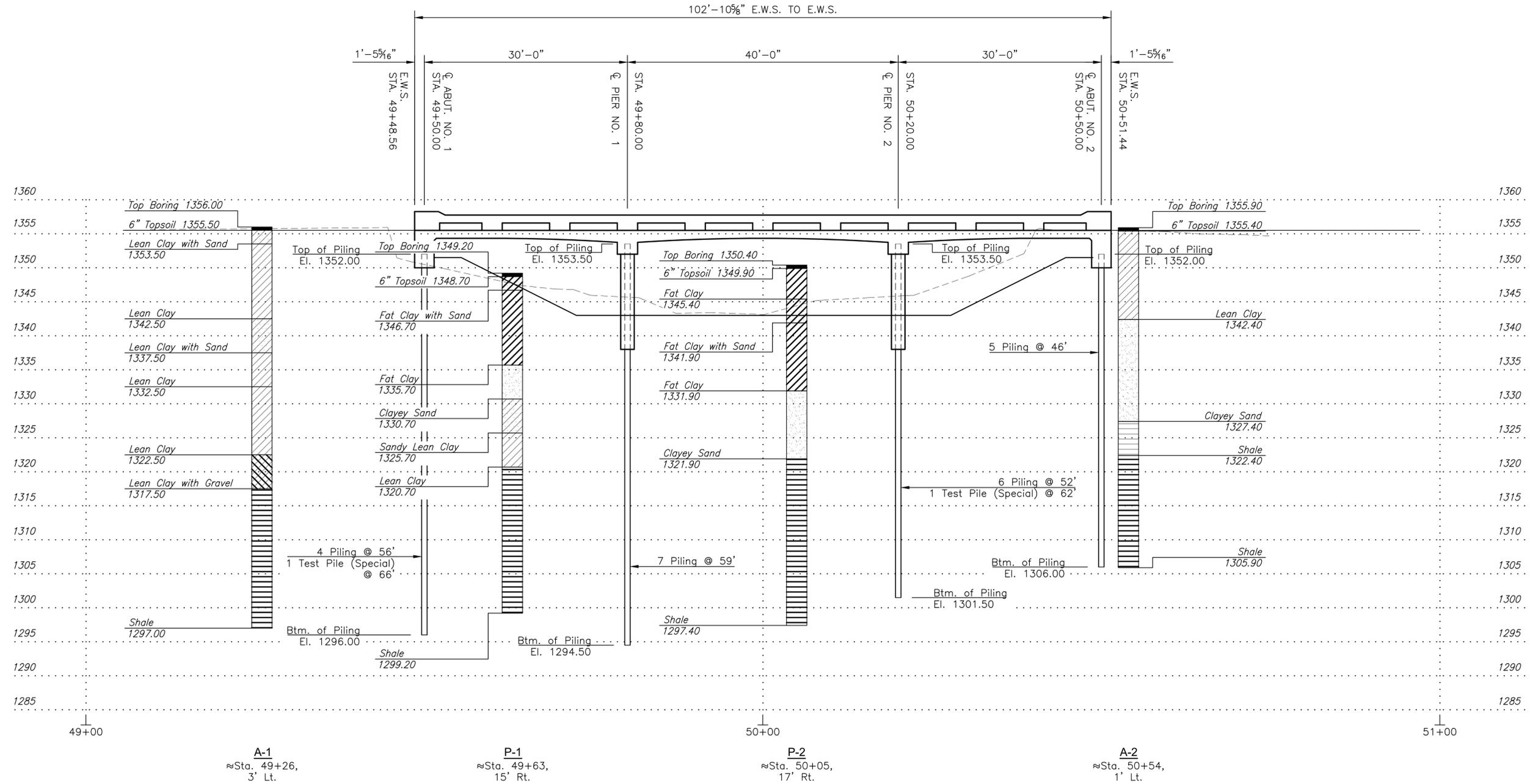


**KANSAS DEPARTMENT OF TRANSPORTATION**  
 Br. No. 000400839805800 Sta. 50+00.00  
**CONSTRUCTION LAYOUT**  
 PROJ. NO. 040 C-5283-01 HARVEY COUNTY  
**M K E C ENGINEERING, INC.**  
 WICHITA, KANSAS

DESIGNED BY: DJL	CHECKED BY: JRA
DRAWN BY: RAM	DATE: 12/5/24 SHEET 16 OF 55

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	040 C-5283-01	2025	17	55

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 PLOTTED: Wednesday, June 04, 2025 @ 09:05AM



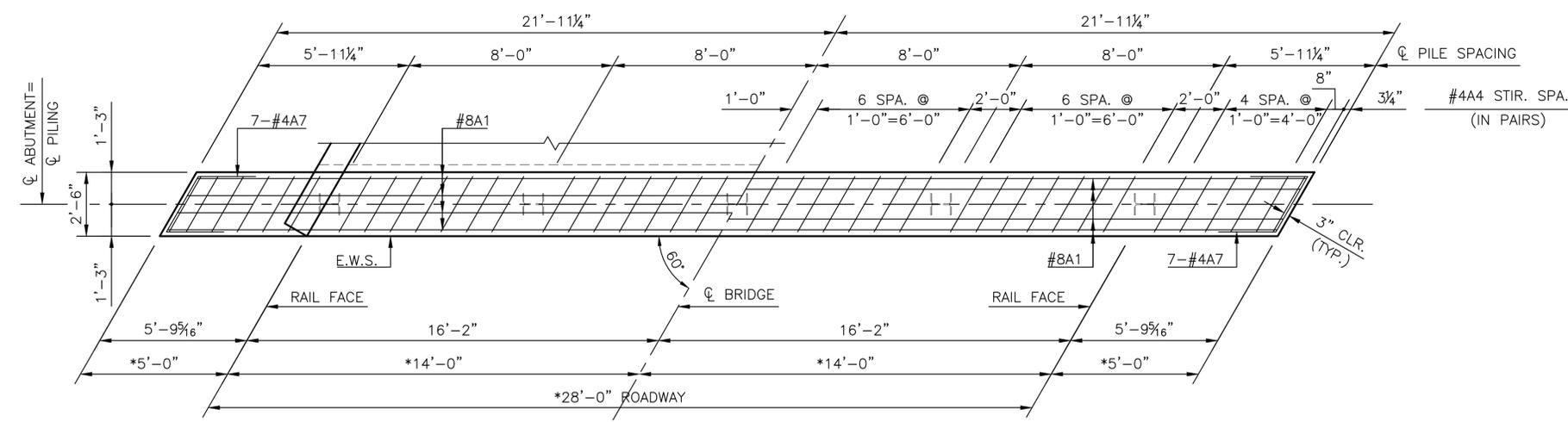
**ELEVATION**  
 30'-40'-30' R.C. Haunched Slab Spans  
 Pile Bent Abutment & Piers  
 30° Skew Lt.  
 28'-0" Roadway

**LEGEND KEY**

Topsoil	
CL	
CL	
CL	
CL	
SC	
CH	
Shale	

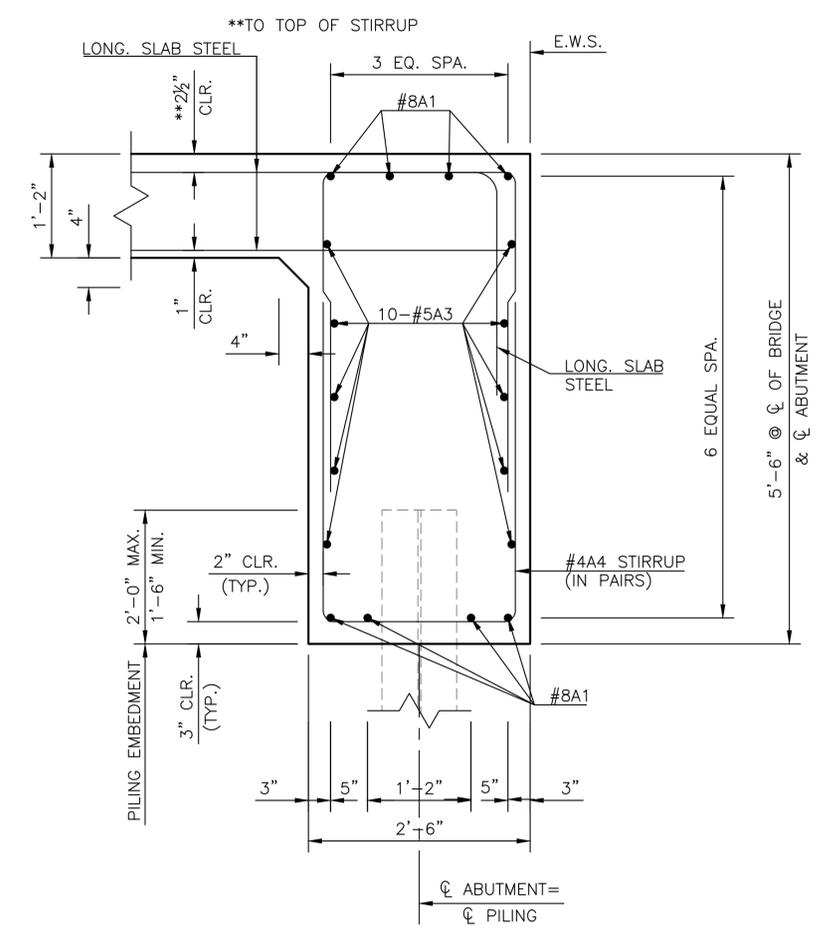
<b>KANSAS DEPARTMENT OF TRANSPORTATION</b>	
Br. No. 000400839805800	Sta. 50+00.00
<b>ENGINEERING GEOLOGY</b>	
PROJ. NO. 040 C-5283-01	HARVEY COUNTY
<b>M K E C ENGINEERING, INC.</b>	
WICHITA, KANSAS	
DESIGNED BY: DJL	CHECKED BY: JRA
DRAWN BY: RAM	DATE: 12/5/24 SHEET 17 OF 55

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	040 C-5283-01	2025	18	55

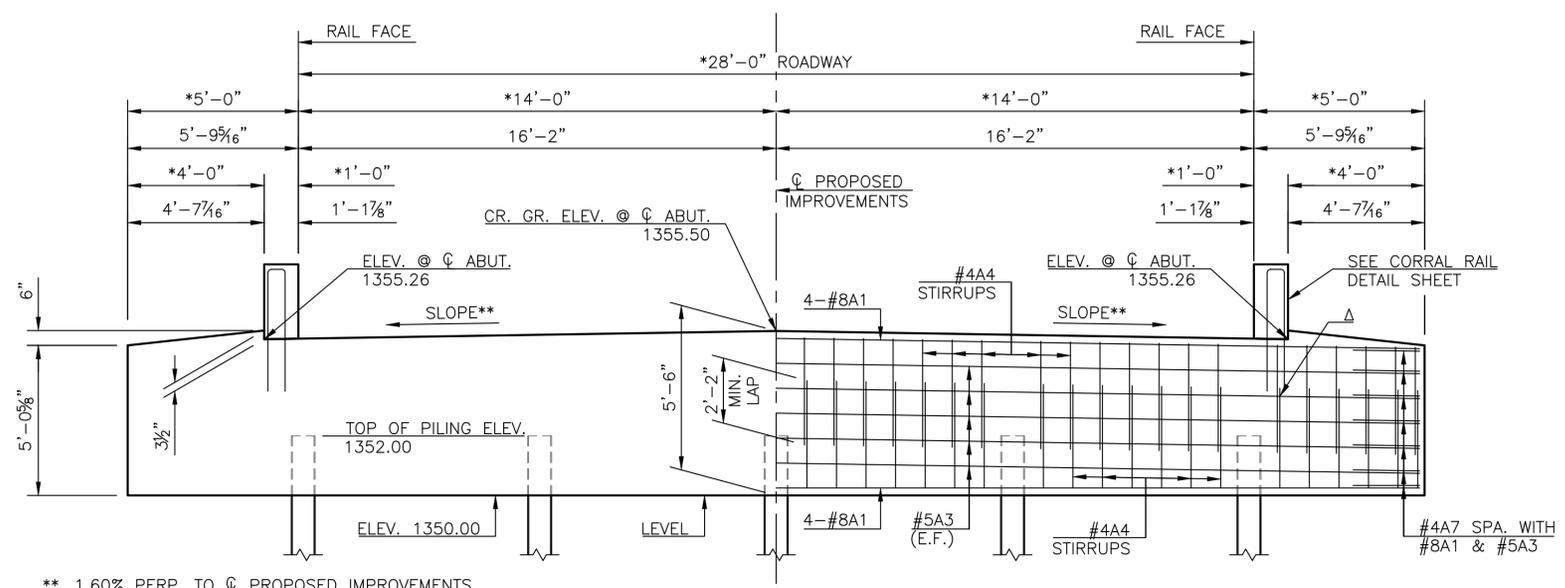


REINFORCING STEEL IN TOP OF ABUTMENT  
 REINFORCING STEEL IN BOTTOM OF ABUTMENT

PLAN  
 \*DIMENSIONED PERPENDICULAR TO CL OF PROPOSED IMPROVEMENTS



TYPICAL SECTION  
 (DIMENSIONED PERPENDICULAR TO CL OF ABUTMENT)



ELEVATION  
 (ALONG CL ABUTMENT)  
 (\*DIMENSIONED PERPENDICULAR TO CL OF PROPOSED IMPROVEMENTS)

\*\* 1.60% PERP. TO CL PROPOSED IMPROVEMENTS  
 1.39% ALONG CL ABUTMENT

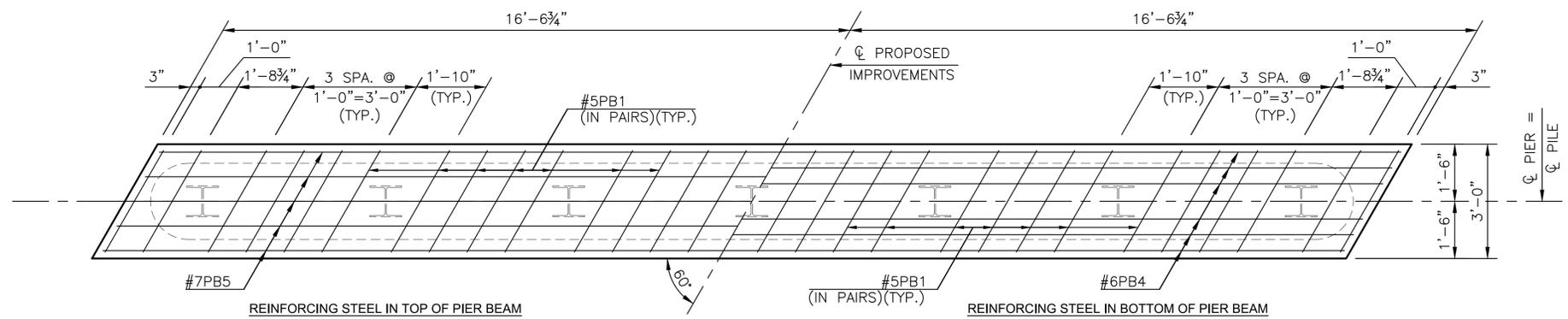
Δ ADJUST STIRRUP TO AVOID CONFLICT WITH RAIL BARS.

NOTE:  
 TOP OF PILING ELEVATIONS ARE BASED ON 2'-0" MAXIMUM EMBEDMENT.

LEGEND  
 E.F. = EACH FACE

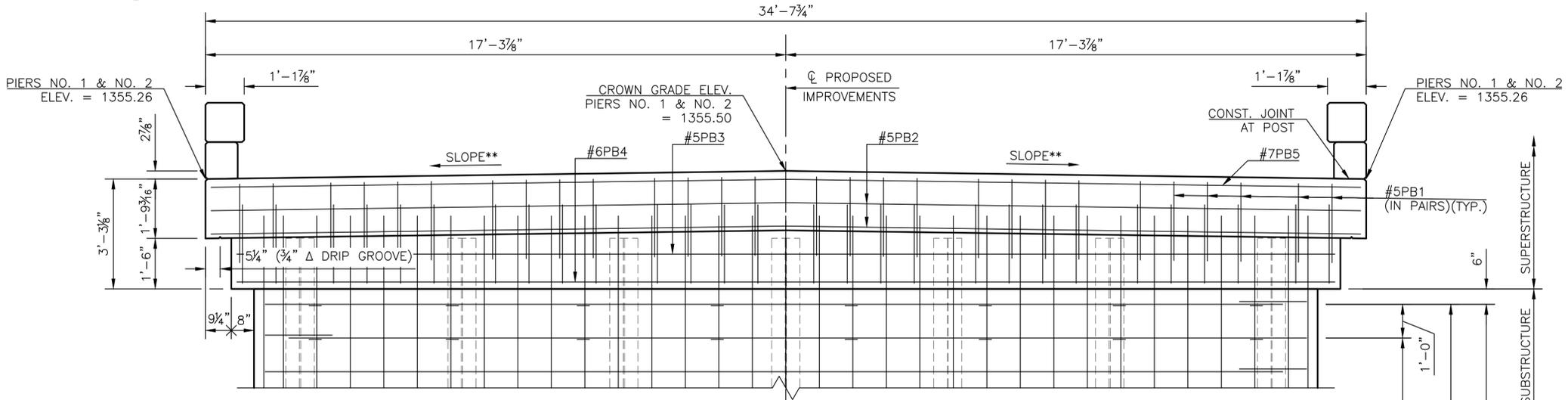
KANSAS DEPARTMENT OF TRANSPORTATION	
Br. No. 000400839805800	Sta. 50+00.00
<b>ABUTMENT DETAILS</b>	
PROJ. NO. 040 C-5283-01 HARVEY COUNTY	
M K E C ENGINEERING, INC. WICHITA, KANSAS	
DESIGNED BY: DJL	CHECKED BY: JRA
DRAWN BY: RAM	DATE: 12/5/24 SHEET 18 OF 55

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	040 C-5283-01	2025	19	55

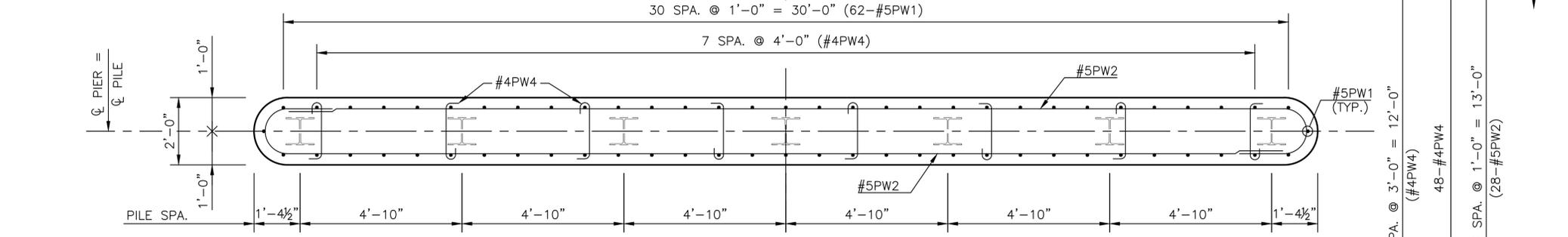


**PLAN**  
(PIER BEAM)(DIMENSIONED ALONG  $\phi$  OF PIER)

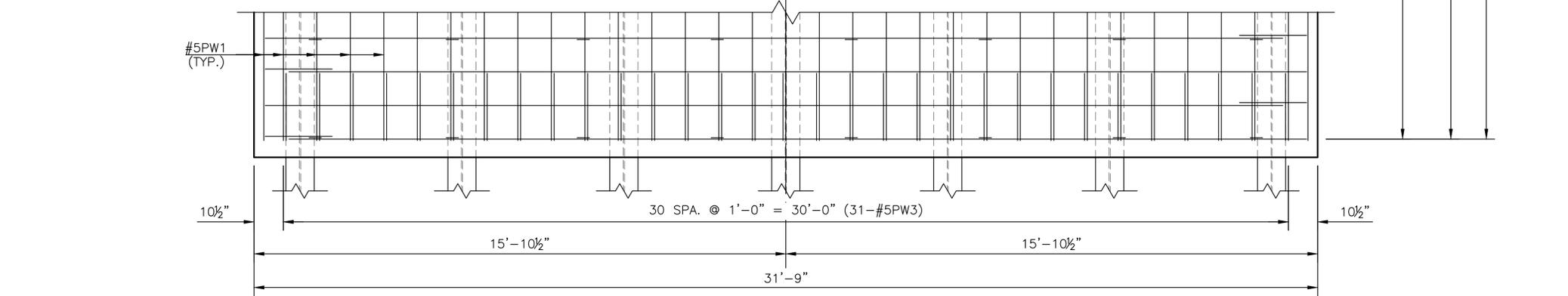
\*\* 1.60% PERP. TO  $\phi$  PROPOSED IMPROVEMENTS  
1.39% ALONG  $\phi$  PIER



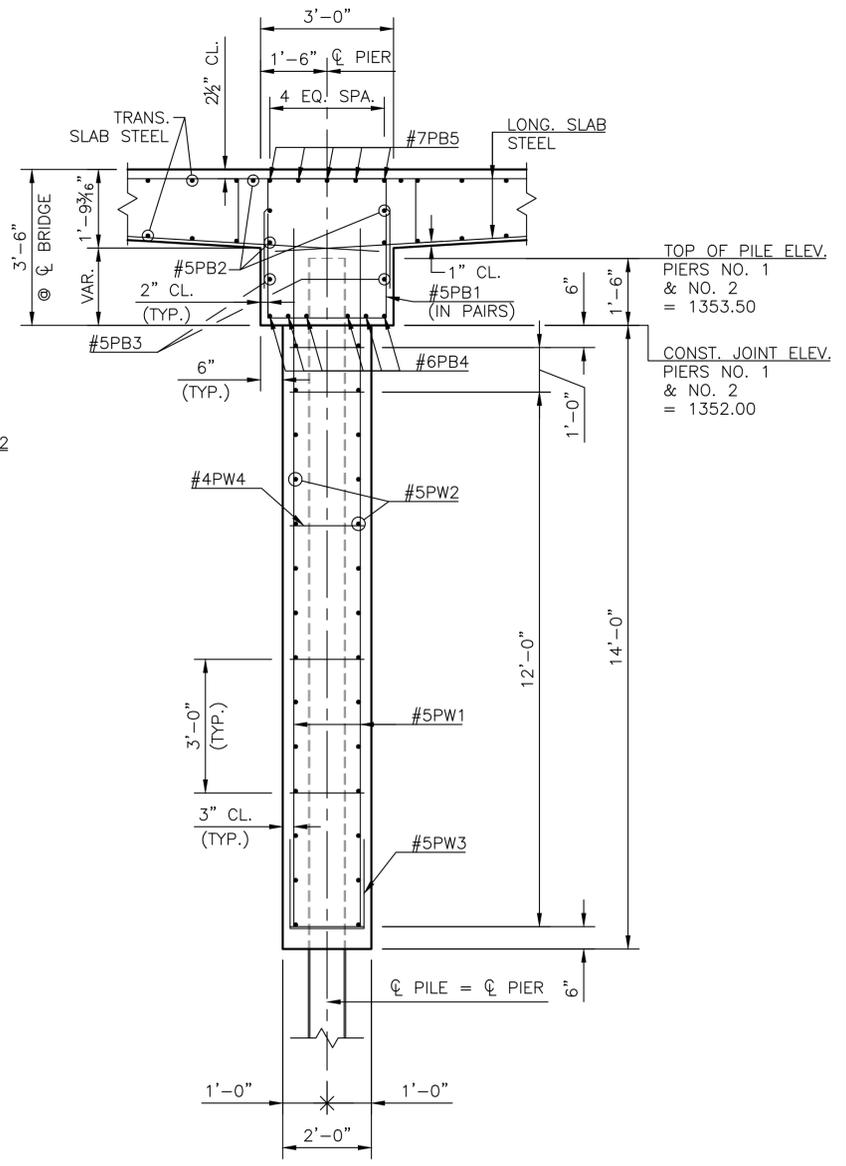
**ELEVATION**  
(DIMENSIONED ALONG  $\phi$  OF PIER)



**PLAN**  
(WEB WALL)(DIMENSIONED ALONG  $\phi$  OF PIER)



**ELEVATION**  
(DIMENSIONED ALONG  $\phi$  OF PIER)



**SECTION THRU PIER BEAM**  
(PERPENDICULAR TO  $\phi$  OF PIER)

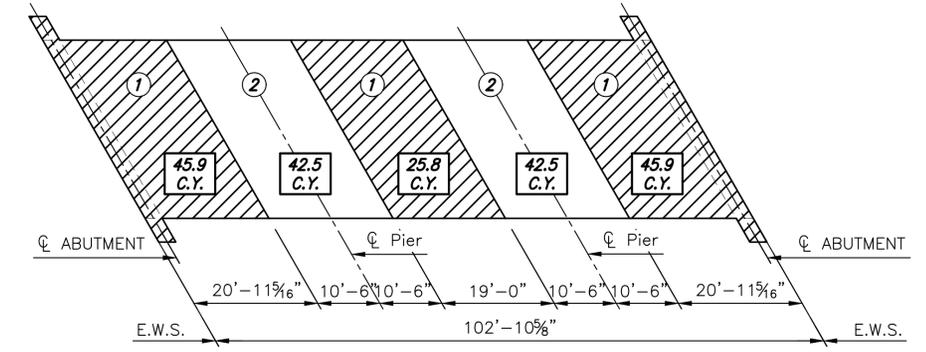
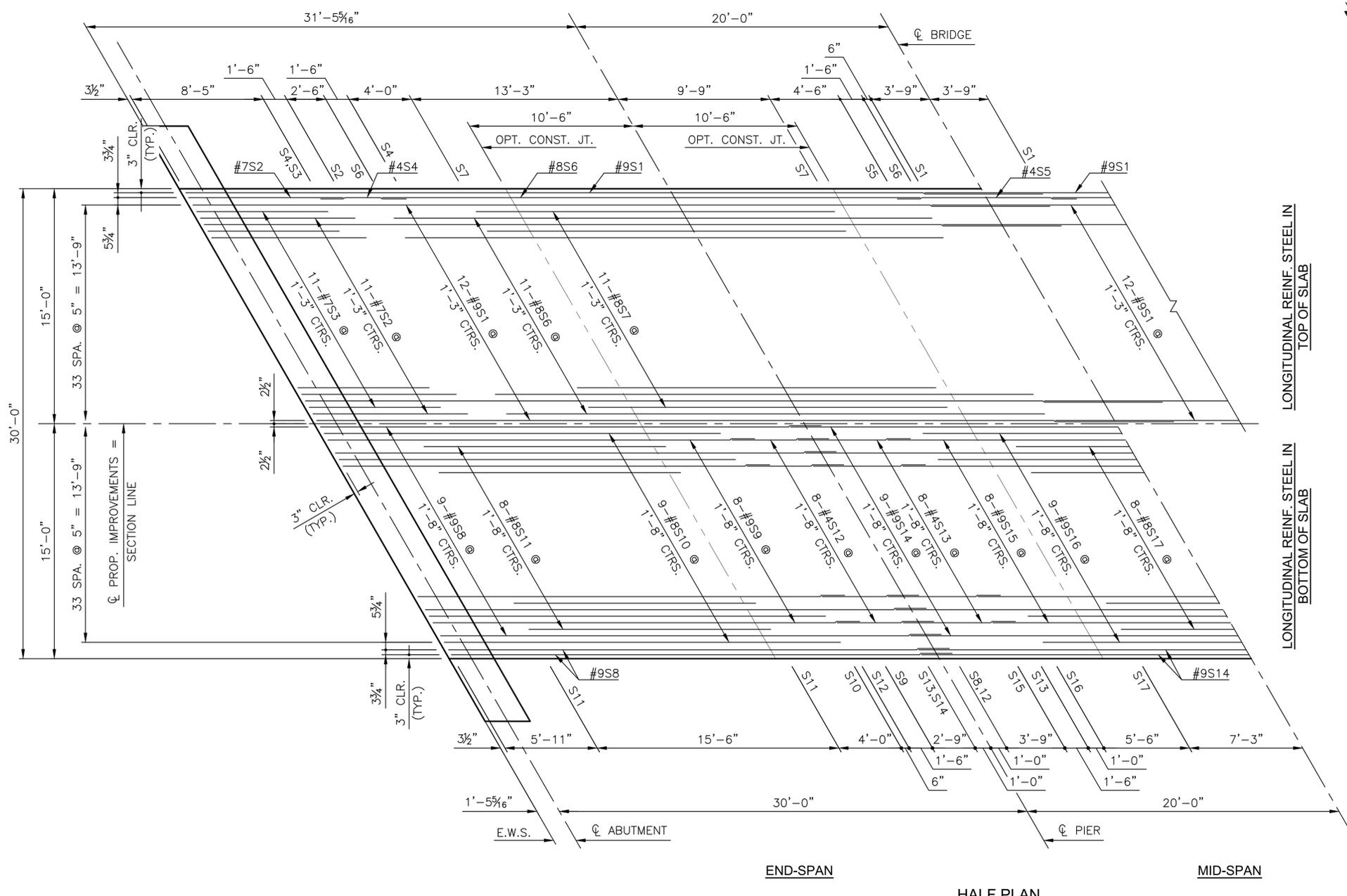
KANSAS DEPARTMENT OF TRANSPORTATION  
Br. No. 000400839805800 Sta. 50+00.00  
**PIER DETAILS**  
PROJ. NO. 040 C-5283-01 HARVEY COUNTY  
M K E C ENGINEERING, INC.  
WICHITA, KANSAS

DESIGNED BY: DJL	CHECKED BY: JRA
DRAWN BY: RAM	DATE: 12/5/24 SHEET 19 OF 55

PLOTTED: Wednesday, June 04, 2025 @ 09:05AM  
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STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	040 C-5283-01	2025	20	55

J:\PROJECTS\2014\1401010084 - HARVEY COUNTY - GENERAL SERVICES\05-CIVIL\CAD\BRIDGE\CHC BRIDGE E-30,7140084-5100-SUPERSTRUCTURE DETAILS.DWG  
 PLOTTED: Wednesday, June 04, 2025 @ 09:55AM



**CONCRETE PLACING SEQUENCE DIAGRAM**

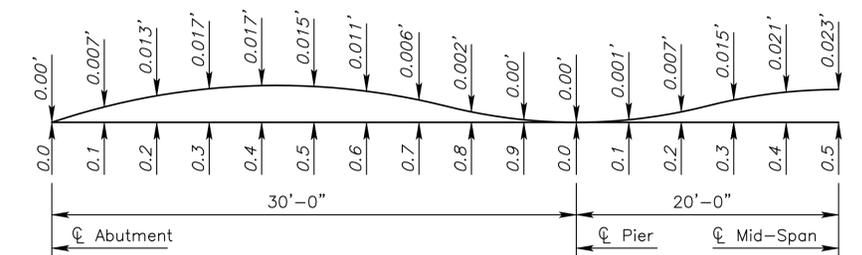
**CONCRETE PLACING SEQUENCE**

When long span steel beams having a concrete dead load deflection greater than  $\frac{1}{4}$ " 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.

Quantities shown do not include Corral Rail concrete.



**TYPICAL DEAD LOAD CAMBER DIAGRAM AT TENTH POINTS**

Long Term Deflections = Initial Deflections x 3.5  
 (Initial Deflections Based on  $E_c = 3.644 \times 10^9$  p.s.i.)  
 (camber values in inches)  
 Camber show is for 70% of that computed for the same bridge with no skew.

Note: 1.0 & 4.0 pts. are taken at  $\phi$  of abutments  
 2.0 & 3.0 pts. are taken at  $\phi$  of piers

Top of Form at 10th Points, (ft.)															
1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0	2.1	2.2	2.3	2.4	2.5
1354.35	1354.36	1354.37	1354.37	1354.37	1354.33	1354.26	1354.15	1354.01	1353.85	1353.66	1353.91	1354.11	1354.26	1354.35	1354.38
2.6	2.7	2.8	2.9	3.0	3.1	3.2	3.3	3.4	3.5	3.6	3.7	3.8	3.9	4.0	
1354.35	1354.26	1354.11	1353.91	1353.66	1353.85	1354.01	1354.15	1354.26	1354.33	1354.37	1354.37	1354.37	1354.36	1354.35	

Note: Elevations are taken at Crown Grade.

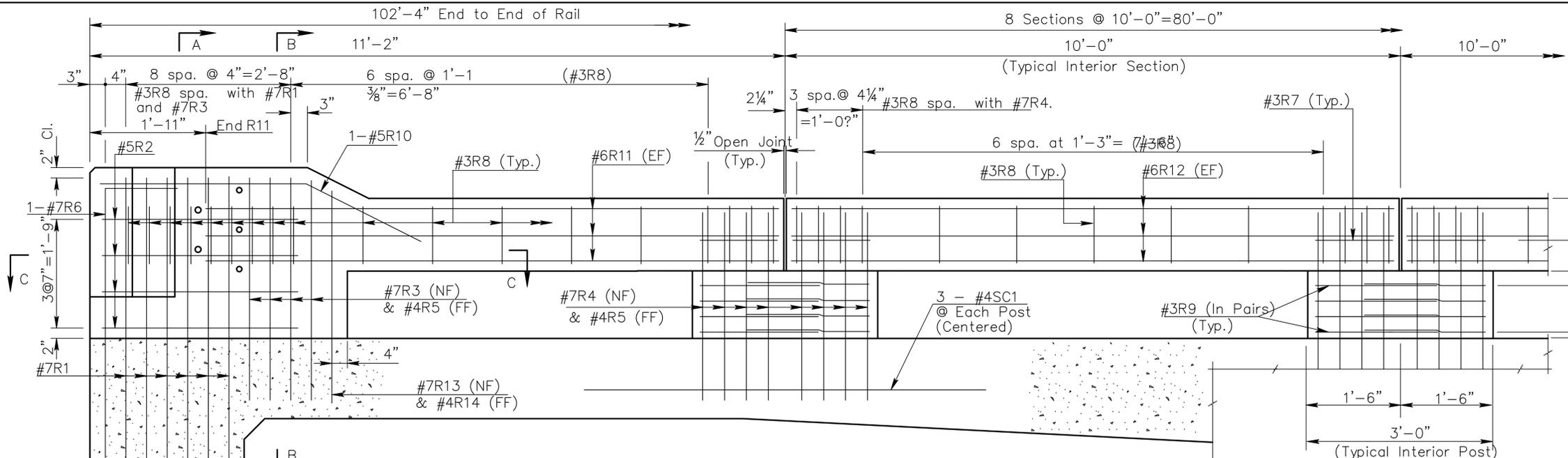
Note: The change in elevation from Crown Grade to the Edge of Slab is -0.240'

**KANSAS DEPARTMENT OF TRANSPORTATION**  
 Br. No. 000400839805800 Sta. 50+00.00  
**SUPERSTRUCTURE DETAILS**  
 PROJ. NO. 040 C-5283-01 HARVEY COUNTY  
**M K E C ENGINEERING, INC.**  
 WICHITA, KANSAS  
 DESIGNED BY: DJL CHECKED BY: JRA  
 DRAWN BY: RAM DATE: 12/5/24 SHEET 20 OF 55

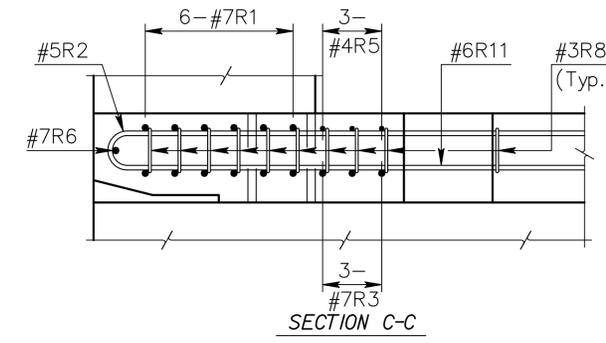
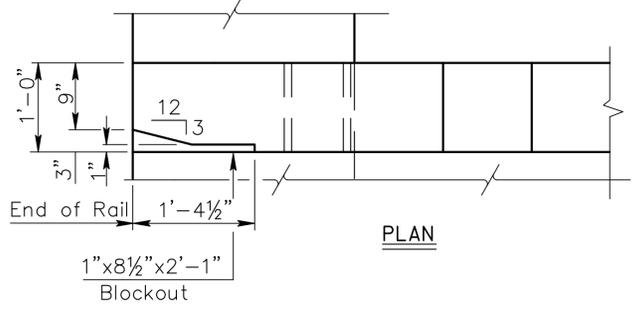
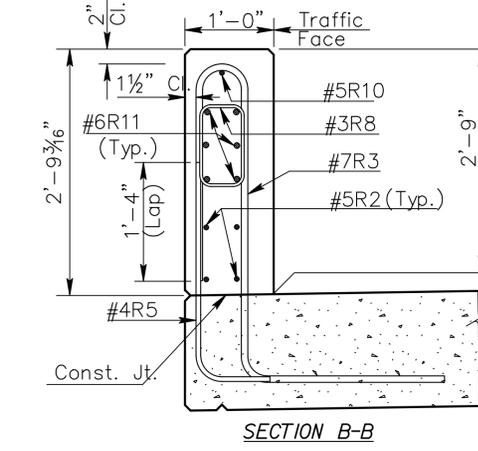
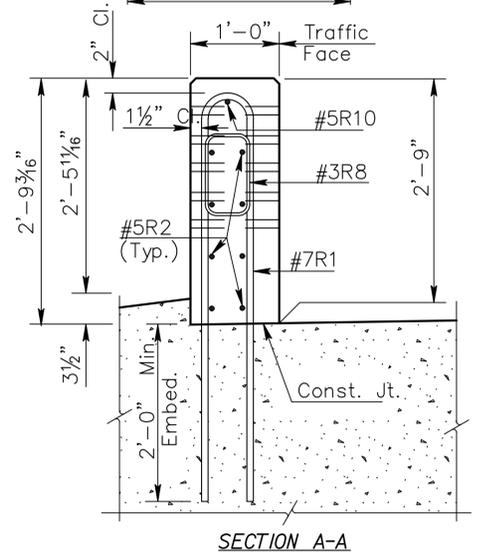
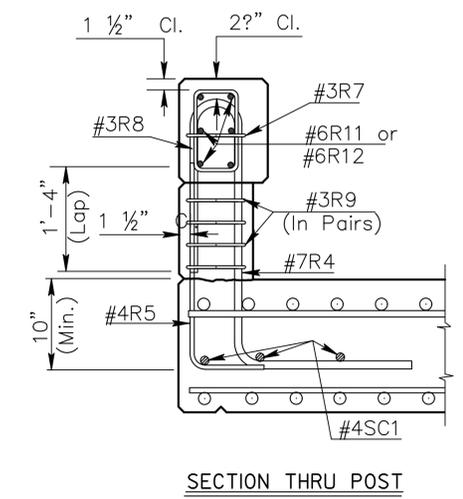
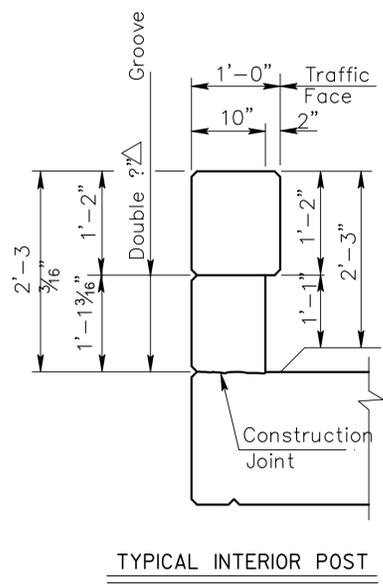
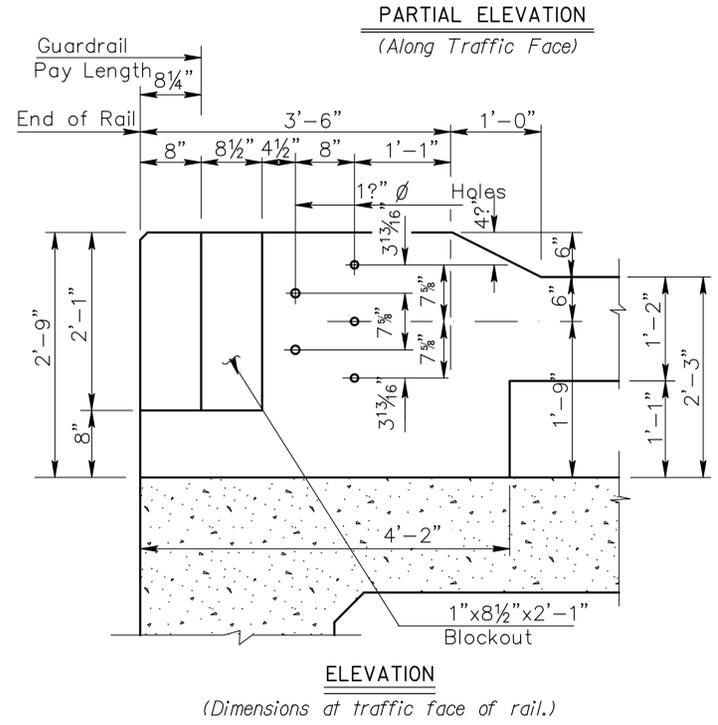
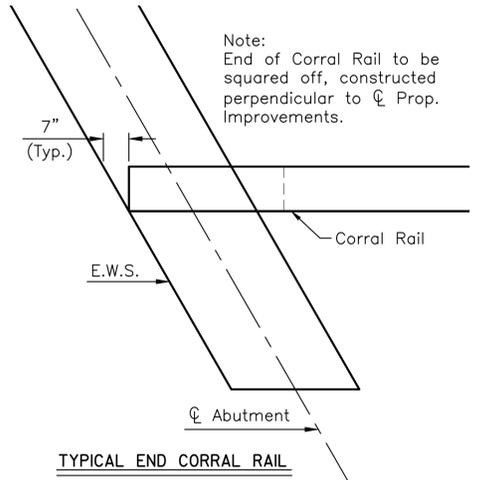


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 PLOTTED: Wednesday, June 04, 2025 @ 09:05AM

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	040 C-5283-01	2025	22	55



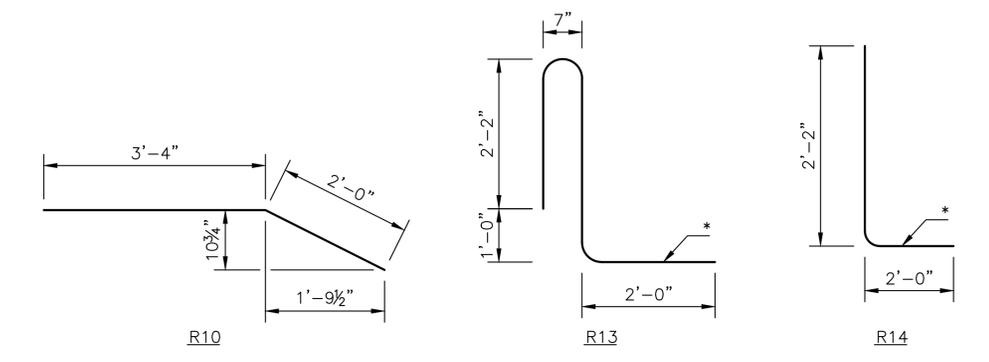
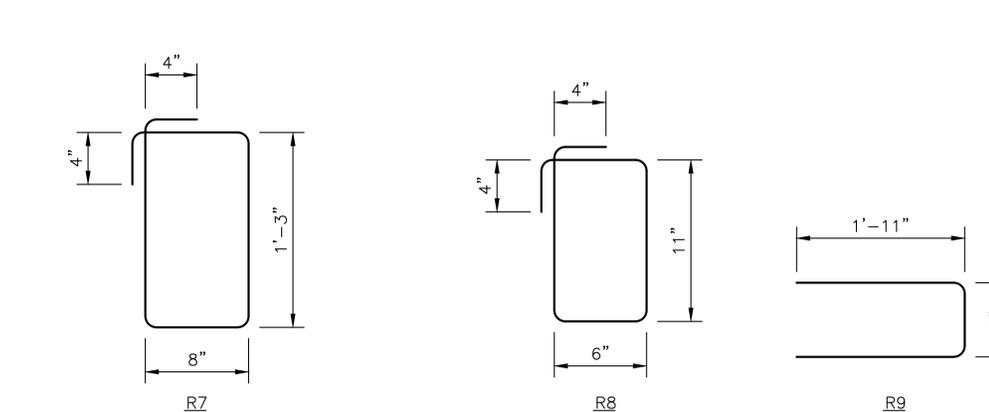
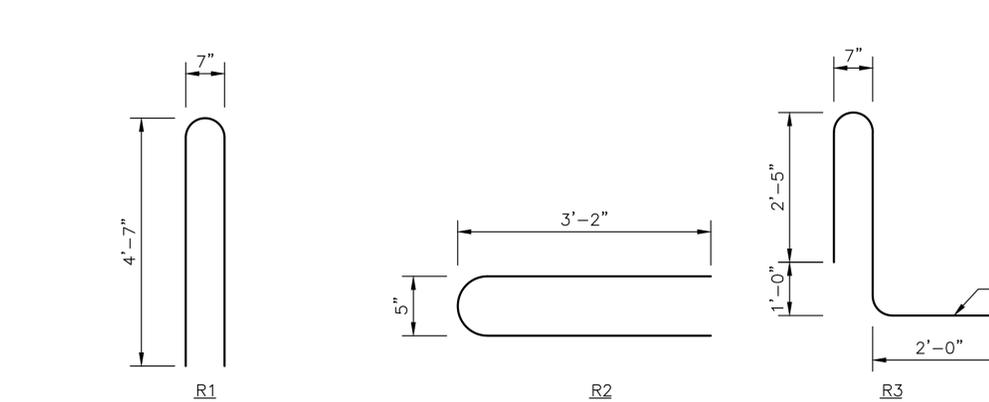
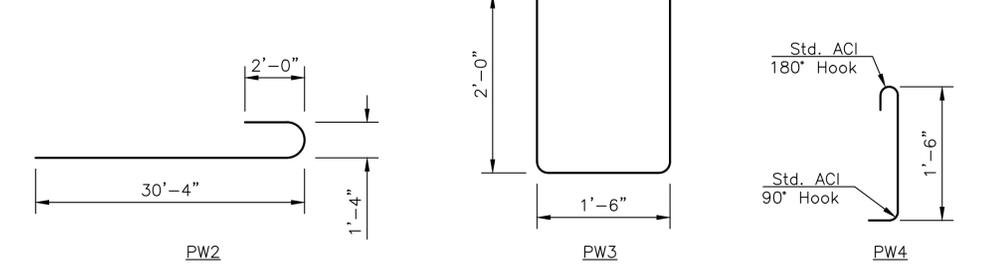
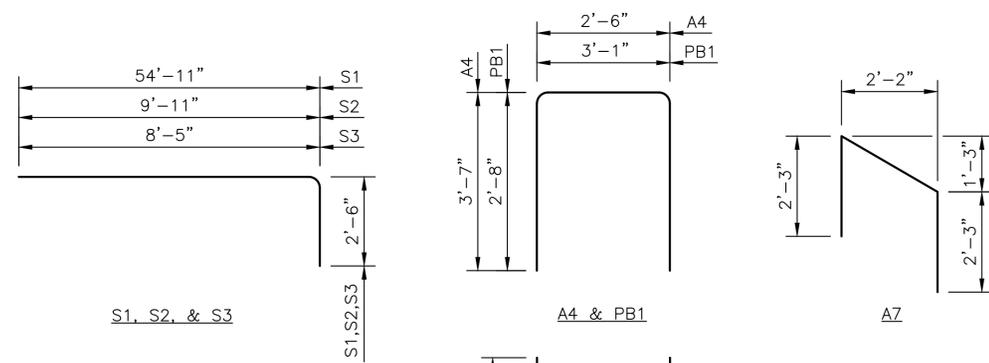
**LEGEND**  
 N.F. = NEAR FACE  
 F.F. = FAR FACE  
 E.F. = EACH FACE



KANSAS DEPARTMENT OF TRANSPORTATION  
 Br. No. 000400839805800 Sta. 50+00.00  
**27 INCH KANSAS CORRAL RAIL R.C. HAUNCHED SLAB (WITHOUT CURB)**  
 PROJ. NO. 040 C-5283-01 HARVEY COUNTY  
**M K E C ENGINEERING, INC.**  
 WICHITA, KANSAS

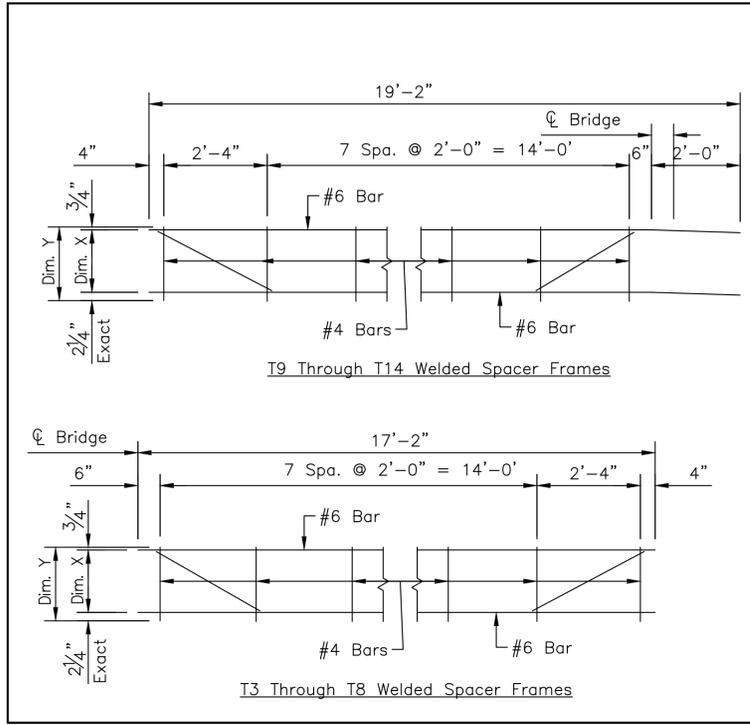
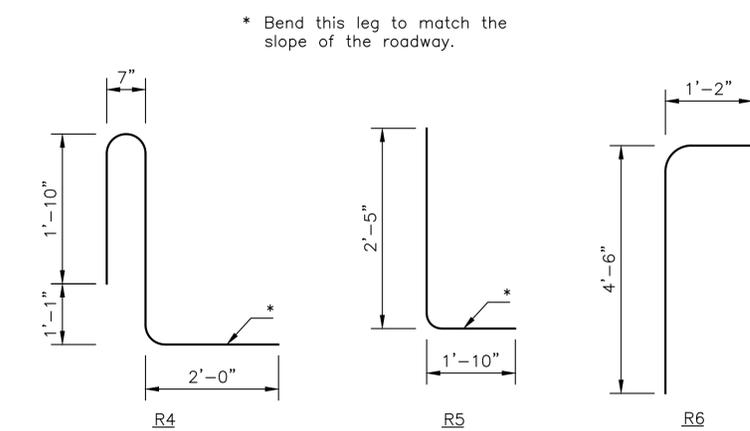
DESIGNED BY: DJL	CHECKED BY: JRA
DRAWN BY: RAM	DATE: 12/12/24 SHEET 22 OF 55

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	040 C-5283-01	2025	23	55



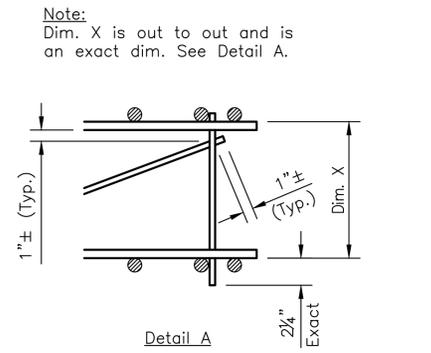
BILL OF REINFORCING STEEL (Grade 60, Non-Epoxy Coated)								
Substructure	Straight Bars				Bent Bars			
	Mark	Size	No.	Length	Mark	Size	No.	Length
Pier Wall	PW1	#5	128	15'-8"	PW2	#5	56	33'-2"
					PW3	#5	62	5'-6"
					PW4	#4	96	2'-8"

BILL OF REINFORCING STEEL (Grade 60, Epoxy Coated)								
Superstructure	Straight Bars				Bent Bars			
	Mark	Size	No.	Length	Mark	Size	No.	Length
Abutment - Deck - Rail	S8	#9	44	32'-2"	S1	#9	52	57'-5"
	S9	#9	32	27'-5"				
	S14	#9	22	42'-0"	R1	#7	24	9'-9"
	S15	#9	16	30'-6"	R3	#7	16	8'-5"
	S16	#9	18	25'-6"	R4	#7	144	7'-4"
					R6	#7	4	5'-8"
	S6	#8	48	34'-6"	R13	#7	4	7'-11"
	S7	#8	44	23'-0"	S2	#7	48	12'-5"
	S10	#8	36	25'-5"	S3	#7	44	10'-11"
	S11	#8	32	15'-6"				
	S17	#8	16	14'-6"	R2	#5	16	6'-9"
	A1	#8	16	43'-6"	R10	#5	4	5'-4"
	R11	#6	24	9'-2"	A4	#4	160	9'-8"
	R12	#6	96	9'-8"	A7	#4	28	7'-0"
	T1	#6	67	34'-3"	R5	#4	160	4'-3"
					R14	#4	4	4'-2"
	A3	#5	20	43'-6"				
					R7	#3	36	4'-6"
	S4	#4	4	5'-6"	R8	#3	280	3'-6"
S5	#4	2	11'-6"	R9	#3	144	4'-6"	
S12	#4	32	6'-3"					
S13	#4	32	7'-3"					
SC1	#4	54	6'-6"					
T2	#4	50	34'-3"					
Pier Beam	PB5	#7	10	34'-4"	PB1	#5	112	8'-5"
	PB4	#6	12	32'-9"				
	PB2	#5	12	34'-4"				
	PB3	#5	4	32'-9"				



SPACER FRAMES (Epoxy-Coated)			
Mark	No. Ea.	Dim. X	Dim. Y
T3, T9	4	8 1/8"	11 1/8"
T4, T10	4	8 3/16"	11 3/16"
T5, T11	4	8 7/8"	11 7/8"
T6, T12	4	10 1/4"	1'-1 1/4"
T7, T13	4	1'-0 1/4"	1'-3 1/4"
T8, T14	4	1'-2 15/16"	1'-5 15/16"

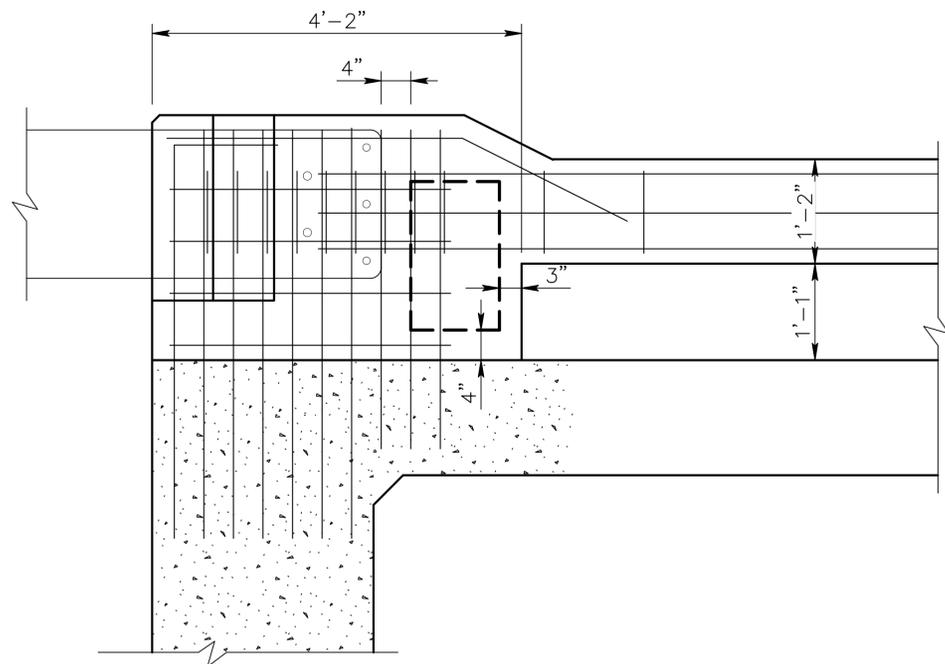
Weight of Spacer Frames included in the weight of Reinforcing Steel.



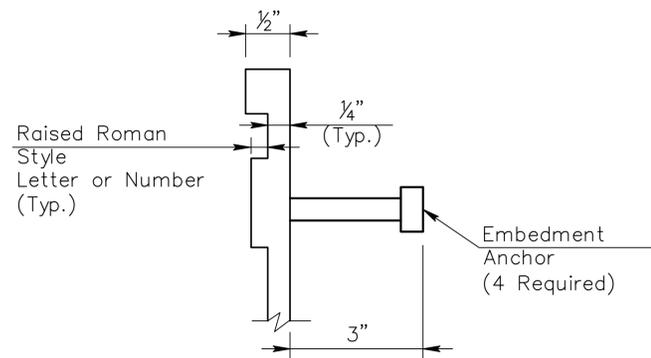
KANSAS DEPARTMENT OF TRANSPORTATION  
Br. No. 000400839805800 Sta. 50+00.00  
**BILL OF REINFORCING STEEL  
AND BENDING DIAGRAM**  
PROJ. NO. 040 C-5283-01 HARVEY COUNTY  
**M K E C ENGINEERING, INC.**  
WICHITA, KANSAS

DESIGNED BY: DJL	CHECKED BY: JRA
DRAWN BY: RAM	DATE: 12/12/24 SHEET 23 OF 55

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	040 C-5283-01	2025	24	55



**ELEVATION**  
(Along Traffic Face)



**SECTION A-A**

**BRIDGE PROJECT MARKER**  
(Northwest Corner)

**NOTES:**

Variance of dimensions from Section 1625-Standard Specifications, 2015 Edition, Kansas Department of Transportation.

# BRIDGE E-30.7 2025 HARVEY COUNTY

RANDY HAGUE  
DON SCHROEDER  
BECKY REIMER  
COUNTY COMMISSIONERS

JIM MEIER  
ROAD & BRIDGE DIRECTOR

MKEC ENGINEERING, INC.  
ENGINEERS

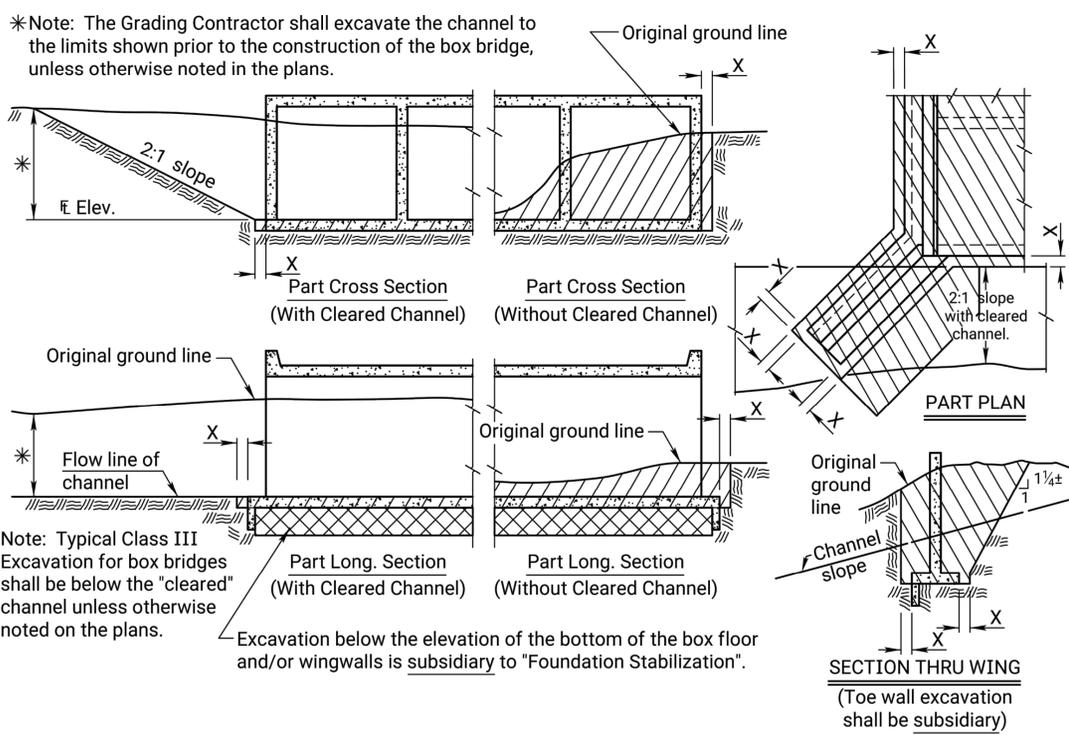
XXXX  
XXXX  
CONTRACTOR

HL - 93

NO.	DATE	REVISIONS	BY	APP'D
3				
2	12-3-21	Changed Bridge Number Plate detail	MLL	MAH
1	02-14-05	Current release		

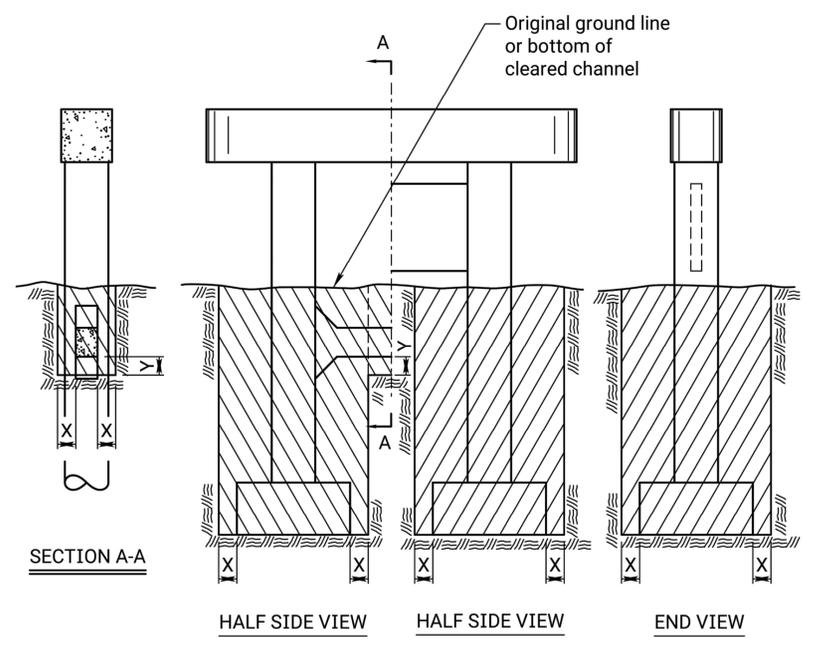
KANSAS DEPARTMENT OF TRANSPORTATION			
Br. No. 000400839805800	Sta. 50+00.00		
BRIDGE PROJECT MARKER			
Proj. No. 40 C-5283-01	Harvey Co.		
SHEET NO. OF	SCALE	APP'D	
DESIGNED	DETAILED	QUANTITIES	CADD
DESIGN CK.	DETAIL CK.	QUAN. CK.	CADD CK.

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	040 C-5283-01	2025	25	55



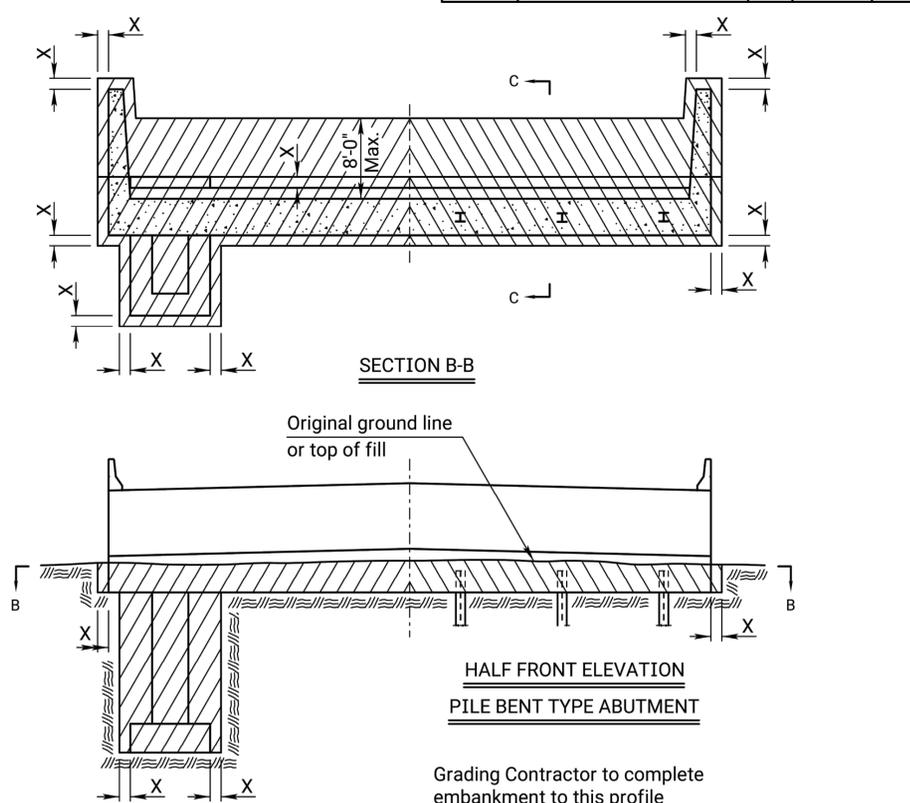
**EXCAVATION DETAILS FOR REINFORCED CONCRETE BOX CULVERT**

**Note:** Excavation for culverts less than bridge length and the additional excavation for "Embedded Structures" shall not be paid for as Class III Excavation, but shall be subsidiary to Grade 4.0 Concrete.



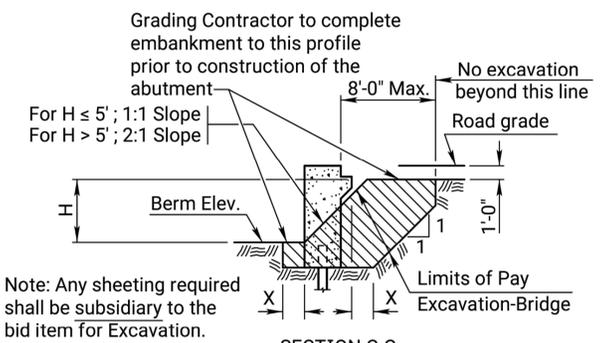
**EXCAVATION DETAILS FOR TYPICAL PIERS**

See detail when rock or shale (rock) is encountered. ☉

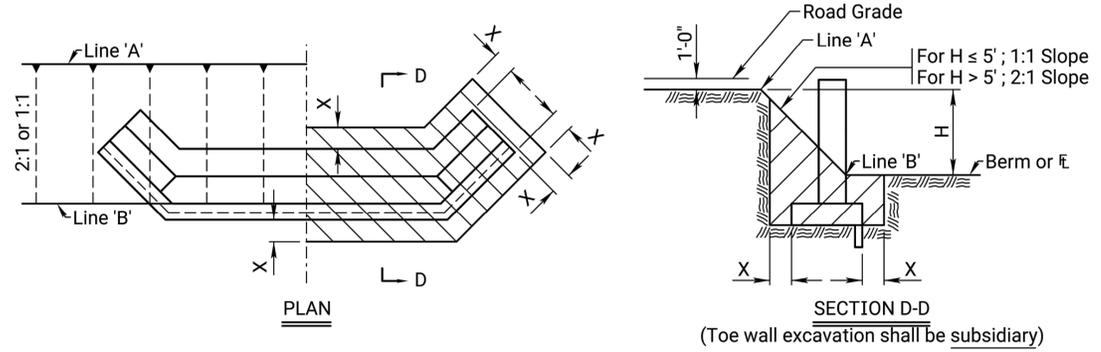


**EXCAVATION DETAILS FOR TYPICAL ABUTMENTS**

**Note:** Bridge Contractor shall finish the embankment and berms after the construction of the abutment and dispose of any excess material as approved by the Engineer.



See detail when rock or shale (rock) is encountered. ☉

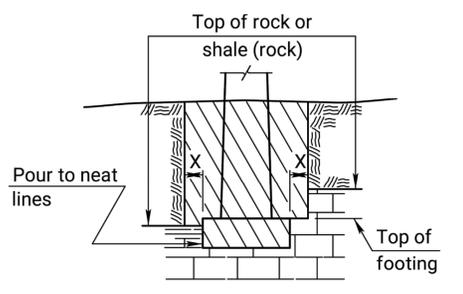
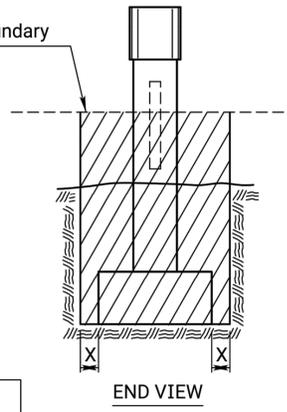


**EXCAVATION DETAILS FOR ABUTMENTS WITH FLARED WINGWALLS**

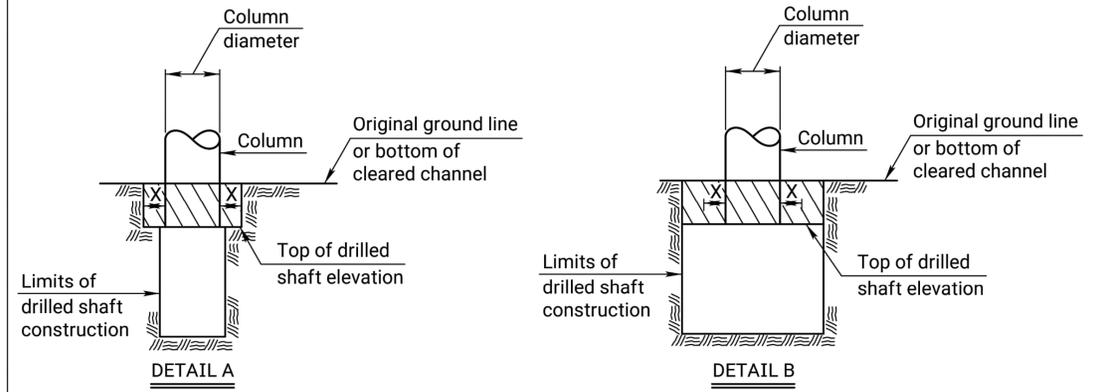
**Note:** Class II Excavation includes the entire volume of whatever nature found below the "Excavation Boundary Plane", within the limits specified for measurement. This may include water or air.

**CLASS II EXCAVATION QUANTITIES**

See detail when rock or shale (rock) is encountered. ☉



**Note:** Excavation below top of rock, hard shale or below top of footing, whichever is lower, shall be to neat lines of the concrete construction.



**Note:** Whenever the limits of the drilled shaft construction are greater than the Column Diameter + 2X, the limits of Class I, II or III Excavation shall be the limits of the drilled shaft construction. (See Detail B)

**Note:** All bridge excavation shall be computed on the basis of the cross-hatch areas and boundary lines indicated on this sheet and the Excavation Boundary Plane on the Construction Layout.

Sides of trenches in hard or compacted soil including embankments shall be shored, sheeted, braced or otherwise supported when the trench is more than 5 feet in depth and 8 feet or more in length. In lieu of the shoring, the sides of the trench above the 5 foot level may be sloped to preclude collapse. The slope for average soils shall be 1:1. If the angle of repose of the soil is less, flatter slopes shall be required.

Dimension "X" shall be 2'-0" unless indicated otherwise on the general plans.

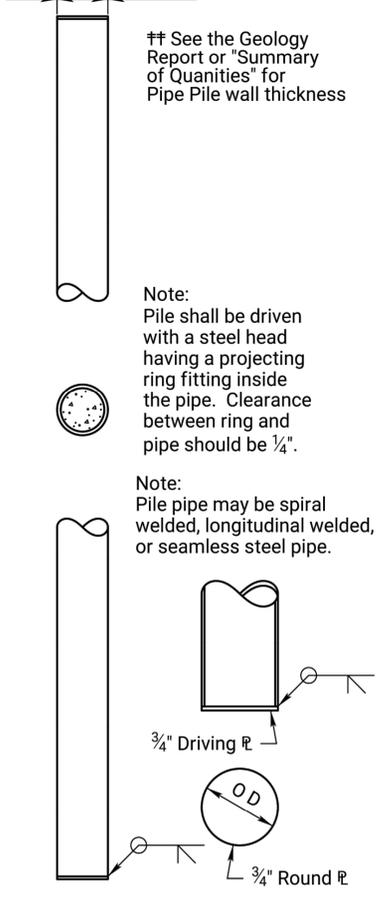
Dimension "Y" shall be 1'-6" unless indicated otherwise on the general plans.

06	09-15-12	Embedment Excavation Subsidiary	J.P.J.	T.L.F.
05	05-15-12	Revised Wing Excavation	J.P.J.	T.L.F.
04	03-03-10	Revised Wing Excavation	J.P.J.	T.L.F.
NO.	DATE	REVISIONS	BY	APPD

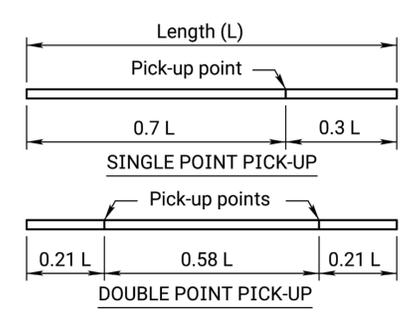
KANSAS DEPARTMENT OF TRANSPORTATION				
<b>BRIDGE EXCAVATION (LRFD)</b>				
BR100B				
FHWA APPROVAL	04-17-10	APPD.	Terry L. Fleck	
DESIGNED	DETAILED	R.D.R.	QUANTITIES	TRACED
DESIGN CK.	DETAIL CK.	L.R.R.	QUAN. CK.	TRACE CK.

J:\PROJECTS\2014\1401010284 - HARVEY COUNTY\_GENERAL SERVICES\05-CIVIL\CAD\STD\BRIDGE E-30.71\40084\_BR110.DWG  
 PLOTTED: Wednesday, June 04, 2025 @ 09:55AM

OD	10 3/4"	T. = #
OD	12 3/4"	T. = #
OD	14"	T. = #

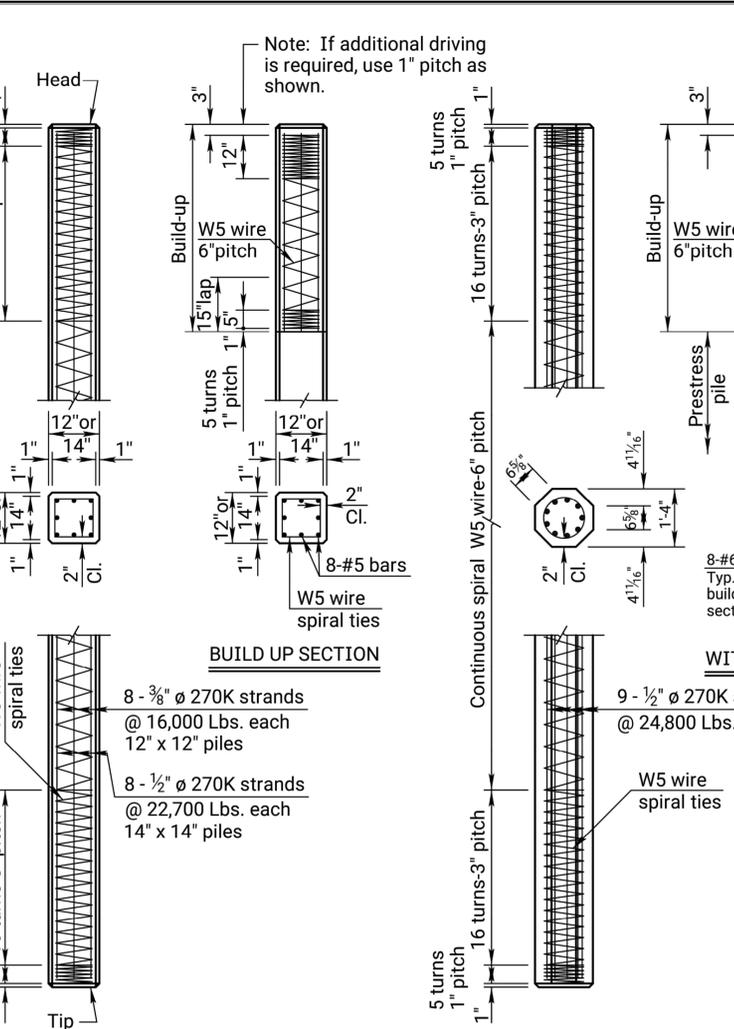


**PLAIN ROUND CAST-IN-PLACE CONCRETE PILES**

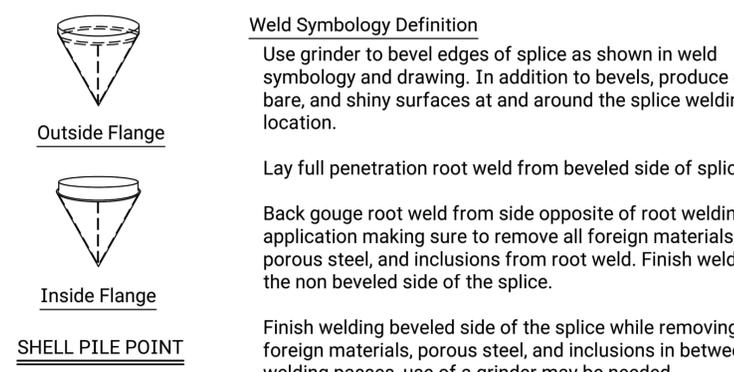


**PICK-UP POINTS FOR PRESTRESSED PILING**

Max. length - 55' single point pick-up  
 Max. length - 80' double point pick-up  
 Note: Piles shall be marked at Pick-up points to indicate proper points for attaching handling lines.



**12" OR 14" PRESTRESSED CONCRETE PILES**



**CAST STEEL PILE POINT**

The pile point shall be a one-piece unit of cast steel. Weld pile points in accordance with manufacturer's recommendations to each steel pile before driving.

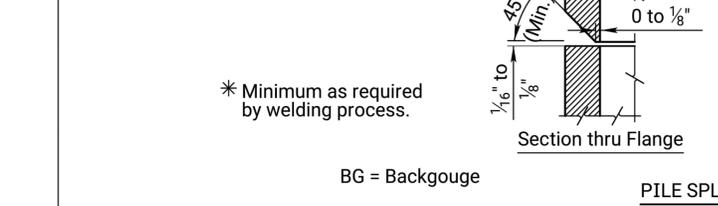
FOR INFORMATION ONLY EQUIVALENT POINT BEARING PILES		
STEEL PILES	CONCRETE PILES	
	Pipe	Pre-stress
HP10x42	10 3/4"	
HP12x53	12 3/4"	
HP14x73	14	12
HP14x102		14
HP14x117		16

**SPLICES:** Splices for steel piles and shell piling shall be in accordance with details shown on this sheet and the Standard Specifications.

For integral pile bent abutments and piers, if a pile splice is required, do not locate the pile splice within a region extending 2'-0" above and 10'-0" below the bottom of the concrete web wall. For abutments, locate the pile splice at least 10'-0" below top of fill.

With the approval of the Engineer, one splice per bent may be allowed in the region described above without testing. If additional splices are anticipated, based on the geology, the Contractor prior to driving, will locate the splice so that the splice will not fall within the regions described above.

† For integral pile bent abutments and piers, if a splice is located within the regions described above, then the Contractor will test the welds by Radiograph (RT) test methods. Repair and retest any welds not passing the test(s). Each weld tested will have written confirmation of results. Report these results to the Engineer. This work is not paid for directly, but is subsidiary to "Piles".



**GENERAL NOTES**

**PRESTRESSED PILES:** Fabricate prestressed concrete pile splices in accordance with the Manufacturer's recommendations subject to the approval of the Engineer.

Method of attachment of pile to build-up may be by any of the methods given in the notes on "Alternate Methods." If mild reinforcing steel is used for attachment, the area shall be no less than that used in the build-up.

- ALTERNATE METHODS:** Method of attachment of a pile to build-up may be by any of the following methods:
- Cut off at least 2'-0" of pile and expose a minimum of 2'-0" of strands.
  - Cast 8-#6, or 8-#5 bars (equally spaced) into pile head. All bars shall extend into pile head and project from pile head a minimum of 2'-0".
  - Drill 8 holes in pile head (equally spaced) for installation of 8 grouted dowel bars of same size and length as in 2.
  - Provide cored holes for bars as in 3.

No bars or strands are to extend from head of pile or build-up into footing or pile cap unless approved by the Engineer.

**TEST PILES:** Drive test piles where called for on the bridge plans. The test piles located within the limits of the substructure will become a part of the bridge pile system.

**DRIVING FORMULA:** Driving formula shall conform to the Standard Specifications.

**MEASUREMENT AND PAYMENT:** Measurement and payment for all piles shall comply with the Standard Specifications.

**REINFORCEMENT:** Use reinforcing steel conforming to ASTM A615, Grade 60. Hoops and spirals may be either plain or deformed bars.

**PRESTRESSING STEEL:** Use uncoated seven-wire low relaxation prestressing strand conforming to ASTM A416, Gr. 270.

**STEEL PILE:** Steel pile shall conform to the requirements of the Standard Specifications.

**PILE POINTS:** Pile points shall conform to the dimensions shown and to requirements of the Standard Specifications.

**SPECIFICATIONS:** Standard Specifications for State Road and Bridge Construction as currently used by the Kansas Department of Transportation.

**CONCRETE:** Concrete for cast-in-place shall be f'c = 3,500 PSI. Concrete for prestressed shall be f'c = 5,000 PSI.

**WELDING:** All field welding shall meet the requirements of the Standard Specifications.

Use only Shielded Metal Arch Welding SMAW (stick welding) for pile splices.

Use only low hydrogen E7018, 7016, or 7015 series welding rod (electrode) for all welding applications during pile splicing.

New electrodes are to be purchased for each KDOT project. The electrodes shall arrive on the project in factory hermetically sealed containers, opened and labeled with indelible ink in front of the engineer. The label shall include the current date and the project number. If the container seal is questionable or shows signs of damage the electrode is to be dried in an oven at least one hour at a temperature of 700°F to 800°F.

Upon removal from intact hermetically sealed factory packaging or the drying oven the electrode is to be placed in a storage oven with a minimum temperature of 250°F.

When electrodes are removed from the hermetically sealed container or storage oven and exposed to the atmosphere for less than 4 hours place into the storage oven for at least 4 hours before removing for use.

If electrode is exposed to the atmosphere for 4 hours or more (or 9 hours for moisture resistant electrodes designated with an R in their labeling) then electrode can be dried in a drying oven at a temperature of 450°F to 550°F.

If the electrode is exposed to the atmosphere for 4 hours or more a second time or the rod becomes wet discard rod.

**CAST-IN-PLACE SHELLS:** Steel shells for cast-in-place concrete piles shall conform to the requirements of the Standard Specifications.

All piles driven without a mandrel shall be of the minimum thicknesses shown. Piles driven with a mandrel shall be of sufficient strength and thickness to withstand driving without injury and to resist harmful distortion and/or buckling due to soil pressure after the mandrel is removed.

Remove, replace or correct to the satisfaction of the Engineer improperly driven, broken or otherwise defective pipe piles. Otherwise drive an additional pile at no extra cost.

The Contractor shall maintain a light suitable for visual inspection of the pile on the job at all times prior to and during the filling of the pipe.

**PAINT:** All paint shall comply with the Standard Specifications, or as specified on the plans.

**MILL TEST REPORTS:** Steel piles test reports and steel shell test reports shall comply with the Standard Specifications.

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	040 C-5283-01	2025	26	55

04	09-16-19	Add splice web section, clarify note	M.L.L.	J.P.J.
03	09-15-15	Clarify Notes	J.P.J.	C.E.R.
02	06-18-12	Clarify f'c, rod type, use and weld	J.P.J.	T.L.F.
NO.	DATE	REVISIONS	BY	APPD

KANSAS DEPARTMENT OF TRANSPORTATION

## STANDARD PILE DETAILS

**BR110**

FHWA APPROVAL	10-04-12	APPD.	Terry L. Fleck
DESIGNED	J.P.J.	DETAILED	QUANTITIES
DESIGN CK.	DETAIL CK.	TRACED	R.A.A.
		QUAN. CK.	TRACE CK.

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	040 C-5283-01	2025	27	55

**GENERAL NOTES**

Reference is made to the latest edition of the CRSI "Manual of Standard Practice" for recommended industry practices concerning reinforcing steel.

Use only the following types of bar supports:

- 1) Wire Bar Supports:
  - a) Epoxy coated reinforcing: Class 1 Protection
  - b) Non-epoxy coated reinforcing: Class 1, 2, or 3 Protection
- 2) Plastic Bar Supports
- 3) Supplementary bars

When securing epoxy coated reinforcement, use tie wires or metal clips that are epoxy or plastic coated.

Do not weld reinforcing steel to bar supports or to other reinforcing steel. Shop weld spacer frames for haunched slabs.

Tie bars at all intersections around the perimeter of each mat and at not less than 2'-0" centers or at every intersection, whichever is greater.

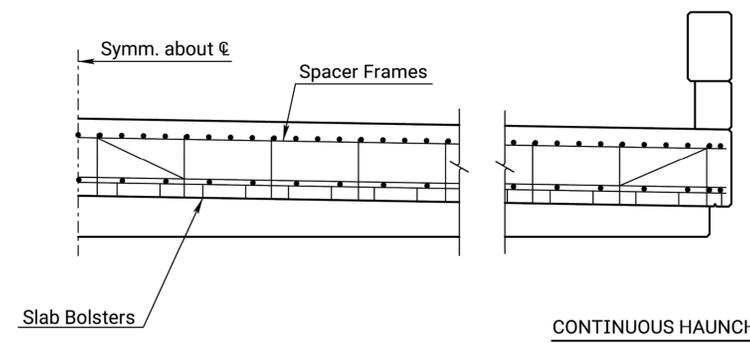
Where more than one length of bar support is required, lap the end legs so they are locked or tied together.

Use proper height supports to maintain the distance between the reinforcing and the formed surface or the top surface of deck slabs within 1/4" of that indicated on the plans.

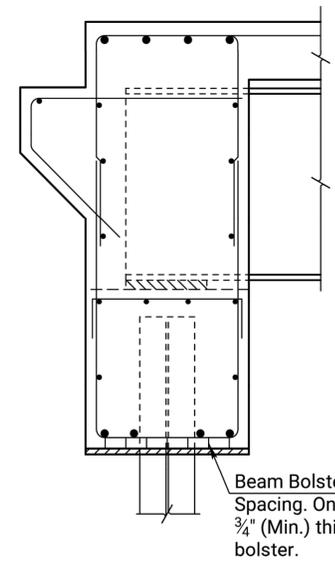
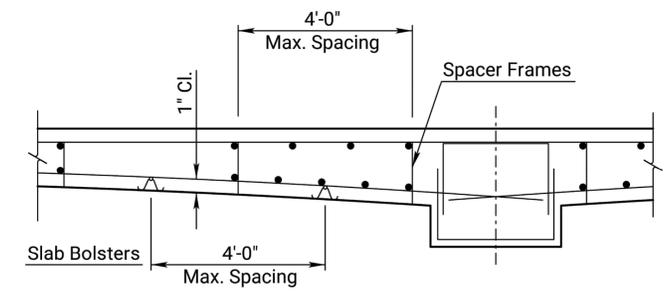
Spacings shown are maximums. Use sufficient supports, as determined by the Engineer, to retain the reinforcing steel in position.

Construct any platforms, required for the support of workers and/or equipment during concrete placement, directly on the forms and not on the reinforcing steel.

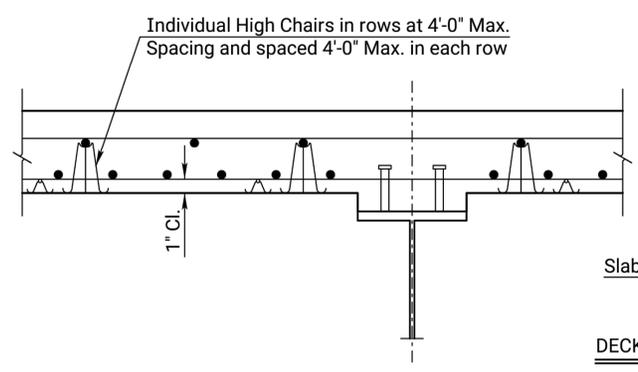
Designs and arrangements of Supports or Spacers other than as shown on this sheet, may be used with the permission of the Engineer.



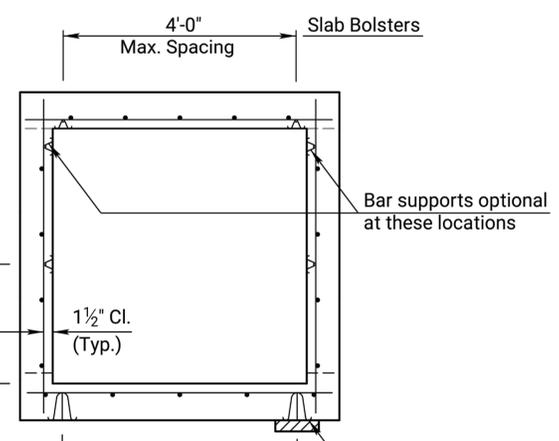
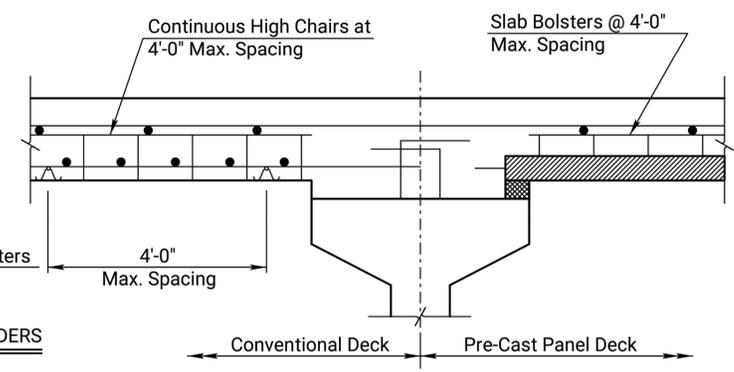
**CONTINUOUS HAUNCHED SLAB**



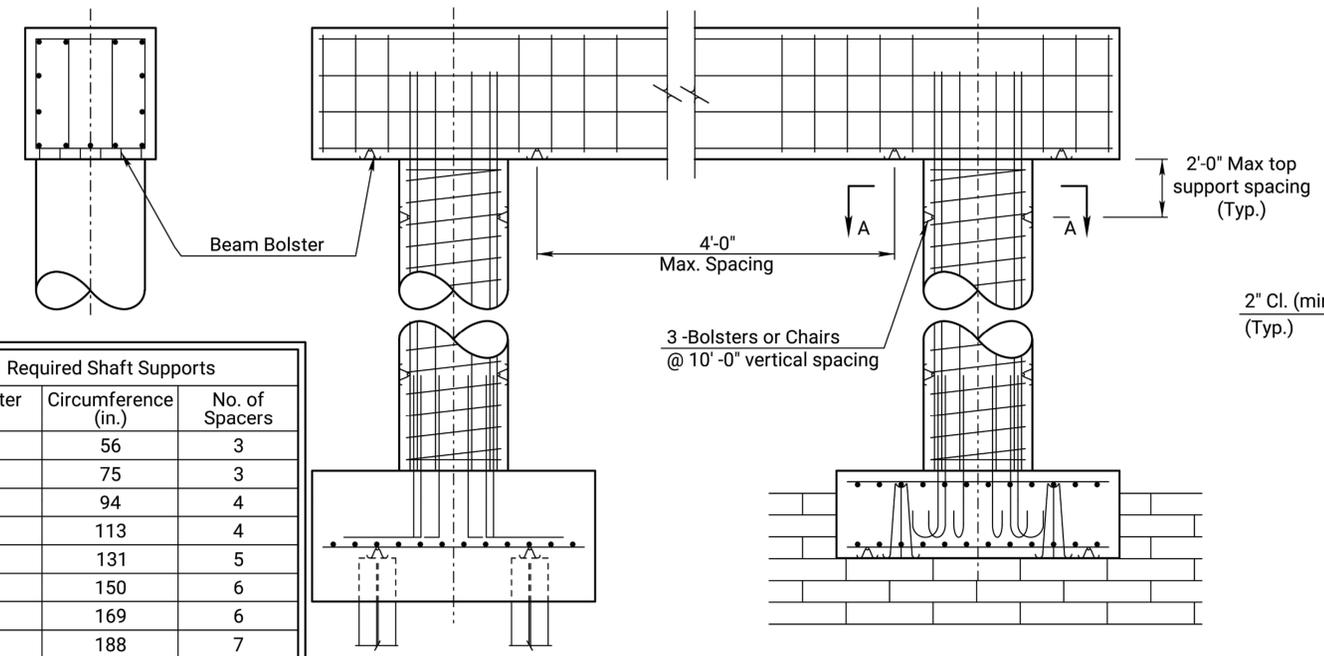
**ABUTMENT**



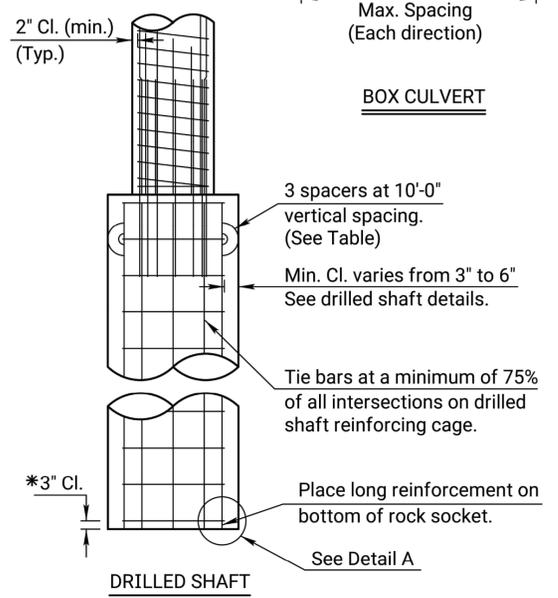
**DECK GIRDERS**



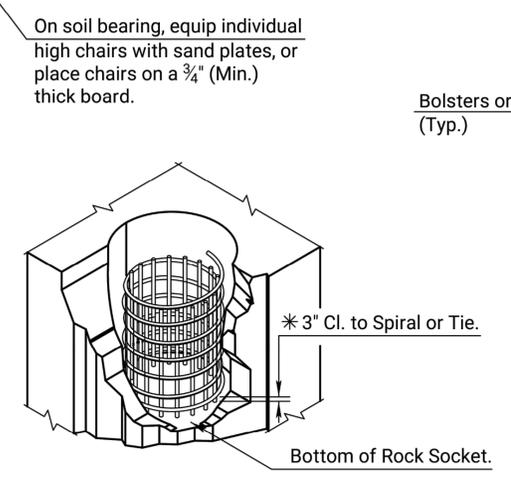
**BOX CULVERT**



**PIER**

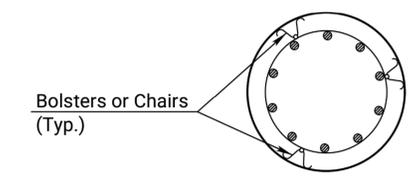


**DRILLED SHAFT**



**DETAIL A**

\* Note: Longitudinal reinforcing steel is placed on the bottom of the rock socket. Maintain 3" clearance from the bottom of rock socket to the first spiral or tie bar.



**Bolsters or Chairs (Typ.)**

**SECTION A-A**

Required Shaft Supports		
Diameter (in.)	Circumference (in.)	No. of Spacers
18	56	3
24	75	3
30	94	4
36	113	4
42	131	5
48	150	6
54	169	6
60	188	7
66	207	7
72	226	8
78	244	9
84	263	9
90	282	10
96	301	11
102	320	11
108	339	12

05	11-10-10	Column Bar Supports Required	J.P.J.	T.L.F.
04	12-01-05	Drilled Shaft Spiral Steel Placement	J.P.J.	K.F.H.
03	08-21-00	Added Pre-Cast Panel Detail	R.A.M.	K.F.H.
NO.	DATE	REVISIONS	BY	APPD

KANSAS DEPARTMENT OF TRANSPORTATION

**SUPPORTS AND SPACERS FOR REINFORCING STEEL**

BR120

DESIGNED	R.A.M.	DETAILED	R.A.M.	QUANTITIES	TRACED	R.A.M.
DESIGN CK.	L.R.R.	DETAIL CK.	R.A.M.	QUAN. CK.	TRACE CK.	R.A.M.

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	040 C-5283-01	2025	28	55

REMOVAL OF EXISTING STRUCTURES (FOR INFORMATION ONLY)			
Location	Offset	Items	Remarks
Sta. 49+41.50	13.4' Rt.	Weight Limit Sign	
Sta. 49+41.50	13.4' Rt.	OM-3 Sign	
Sta. 49+92.37	0.0'	Existing Bridge Structure	Include Bridge Rail
Sta. 50+37.66	12.8' Lt.	Weight Limit Sign	
Sta. 50+37.66	12.8' Lt.	OM-3 Sign	
Sta. 49+21.70 to Sta. 49+51.36	11.9' Rt.	Guardrail	
Sta. 49+26.85 to Sta. 49+37.65	12.6' Lt.	Guardrail	
Sta. 50+46.85 to Sta. 50+58.65	12.3' Rt.	Guardrail	
Sta. 50+33.50 to Sta. 50+62.99	11.9' Lt.	Guardrail	

RECAPITULATION OF QUANTITIES		
BID ITEM DESCRIPTION	QUANTITY	UNIT
<b>ROAD QUANTITIES</b>		
Mobilization	1	LS
Mobilization (DBE)	1	LS
Contractor Construction Staking	1	LS
Field Office and Laboratory (Type C)	1	LS
Concrete For Seal Course (Set Price)	1	CY
Foundation Stabilization (Set Price)	1	CY
Removal of Existing Structures	1	LS
Clearing and Grubbing	1	LS
Common Excavation (Rural Small)	975	CY
Compaction of Earthwork (Type B)(MR 90)	386	CY
Water (Grading)(Set Price)	1	MGAL
End Section (18")(CS)	2	Each
Entrance Pipe (18")(CSP)	42	LF
Guardrail, Steel Plate (MGS)	285	LF
Guardrail End Terminal (Flared) (MGS FLEAT) (Alt. 1)	3	Each
Guardrail End Terminal (Flared) (MGS-SRT) (Alt. 2)	3	Each
Signing Object Marker (Type 3)	4	Each

For Summary of Object Markers see sheet 2.  
 For Summary of Bridge Quantities see sheet 14.  
 For Summary of Surfacing Quantities see sheet 29.  
 For Summary of Erosion Control Quantities see sheet 31.  
 For Summary of Seeding Quantities see sheet 36.  
 For Summary of Traffic Control Quantities see sheet 47.

GUARDRAIL SUMMARY					
Location	Side	Guardrail, Steel Plate (Road) (L.F.)	End Terminal		Remarks
			Flared		
			MGS FLEAT ALT. 1	MGS SRT ALT. 2	
Sta. 48+91.16 to Sta. 49+41.15	Lt.	50.0*	1	1	
Sta. 48+70.44 to Sta. 49+57.91	Rt.	87.5*	1	1	
Sta. 50+42.08 to Sta. 51+07.72	Lt.	97.3			TYPE II END TERMINAL SUBSIDIARY TO GUARDRAIL LENGTH
Sta. 50+58.84 to Sta. 51+08.84	Rt.	50.0*	1	1	
Totals		284.8	3	3	

\*Does not include end terminal

EARTHWORK						
Station to Station	Excavation			Compaction		Remarks
	Common (cy)	VMF	Rock Excavation (cy)	(Type B) (MR-90) (cy)	Excavation to be wasted (cy)	
Sta. 46+63.71 to Sta. 49+50.00	178	0.85	0	216	0	
Sta. 49+50.00 to Sta. 50+50.00	683	0.85		0	520	*Channel Excavation
Sta. 50+50.00 to Sta. 53+53.05	114	0.85	0	170	0	
Totals		975		0	386	520

\*Suitable Material Only Shall be used for Compaction

PIPE CULVERT SUMMARY										
Routing Sequencing Mark No.		Station	Offset	Type		Inflow (FL Elev.)	Outflow (FL Elev.)	Pipe Length	Pipe Slope	End Section (18")(CS) (Each)
From	To			Size	Material					
1		51+20.00	25.9' Lt.	18"	CSP		1352.23	42	1.57%	1
	2	51+66.93	24.9' Lt.			1352.97	1			

Routing Sequencing marks are located at the end of pipe end sections.

<b>KANSAS DEPARTMENT OF TRANSPORTATION</b>	
Br. No. 000400839805800	Sta. 50+00.00
<b>SUMMARY AND RECAPITULATION OF QUANTITIES</b>	
PROJ. NO. 040 C-5283-01	HARVEY COUNTY
<b>M K E C ENGINEERING, INC.</b>	
WICHITA, KANSAS	
DESIGNED BY: DJL	CHECKED BY: JRA
DRAWN BY: RAM	DATE: 12/10/24 SHEET 28 OF 55



STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	040 C-5283-01	2025	30	55

**EROSION CONTROL NOTES**

This project will not disturb more than 0.9 acres.

Refer to the KDOT standards for bmp installation, inspection and maintenance details and specifications.

Cost for each erosion and sediment control item shall include maintenance, inspection and eventual removal. Besides keeping each device in working order, maintenance shall include, at a minimum, sediment removal before 50% of the device's capacity is reached.

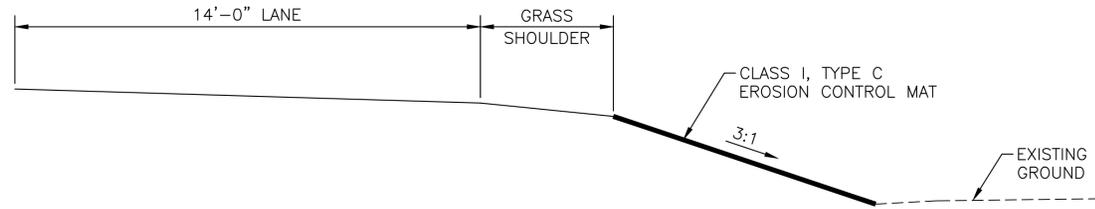
Contractor shall adjust erosion and sediment control plans to conform to actual construction operations.

Install Class I, Type C erosion control mat on all slopes 3:1 or steeper as shown.

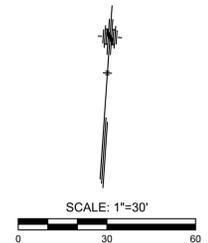
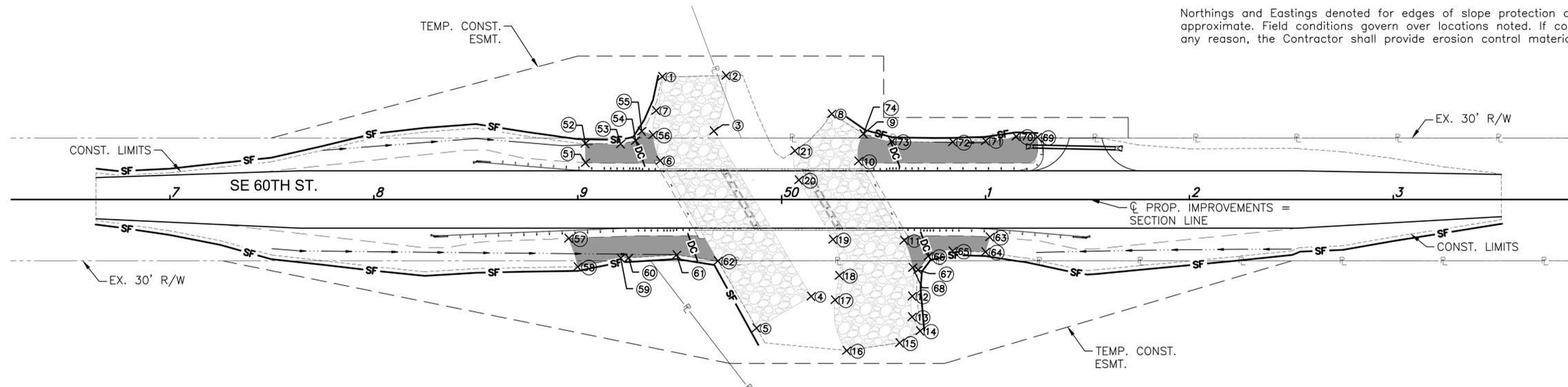
Stockpiling of excavated material on the project site is generally prohibited. Small and interim stock piles not immediately hauled off-site should be enclosed and protected with silt barrier around the entire circumference of the stock pile. Installing and maintaining this fence shall be considered Subsidiary to the bid item "BMP, Silt Fence".

Erosion Control Mix Seeding shall be performed prior to placing erosion control mat. Quantities reflect seeding in mat areas and in all unsurfaced areas within the Right-Of-Way and Temporary Construction Easements between project start and end stations. (No seeding in channel bottom required).

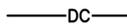
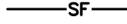
Northings and Eastings denoted for edges of slope protection and erosion control mat are approximate. Field conditions govern over locations noted. If construction limits are extended for any reason, the Contractor shall provide erosion control materials to cover new extents.



**TYPICAL SECTION**  
(EROSION CONTROL MAT LIMITS)



**LEGEND**

-  SLOPE PROTECTION (SHOT ROCK)(18")
-  CLASS I, TYPE C EROSION CONTROL MAT
-  **DC** TEMPORARY DITCH CHECK (ROCK)
-  **SF** SILT FENCE
-  - - - - - CONST. LIMITS

SLOPE PROTECTION POINTS		
Point #	Northing	Easting
1	1790312.08	1699586.04
2	1790314.71	1699617.22
3	1790287.36	1699613.15
4	1790210.12	1699666.34
5	1790192.81	1699640.66
6	1790271.11	1699587.90
7	1790295.33	1699584.24
8	1790299.66	1699670.23
9	1790290.98	1699686.47
10	1790277.54	1699684.99
11	1790240.51	1699709.93
12	1790213.60	1699715.77
13	1790203.51	1699716.40
14	1790196.94	1699720.83
15	1790190.45	1699711.19

SLOPE PROTECTION POINTS		
Point #	Northing	Easting
16	1790184.90	1699685.54
17	1790209.14	1699678.14
18	1790221.18	1699679.40
19	1790238.55	1699675.08
20	1790266.32	1699656.37
21	1790280.42	1699653.45

NOTE:  
SEE SHEET 3 FOR CONTROL INFORMATION.

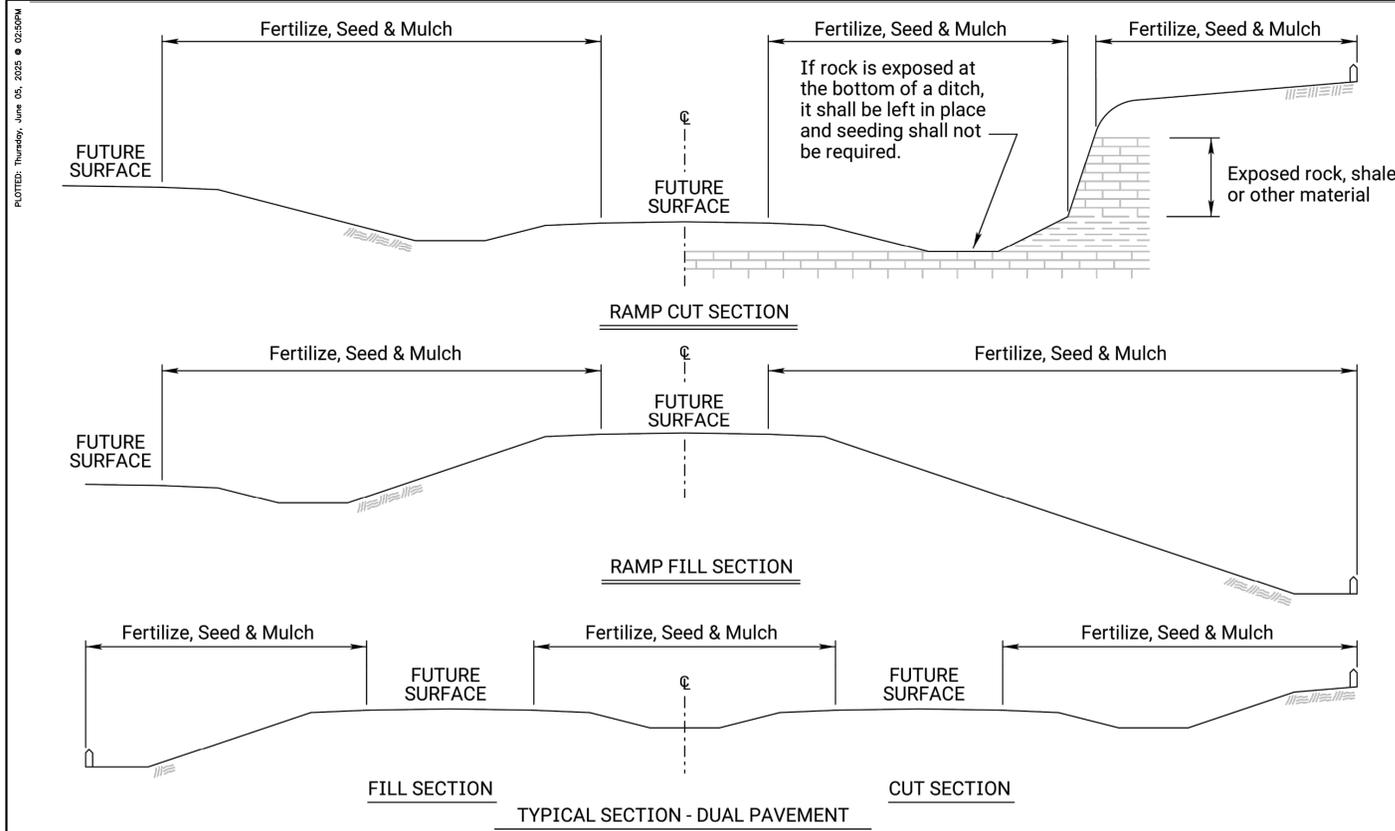
EROSION CONTROL MAT POINTS		
Point #	Northing	Easting
51	1790267.55	1699551.42
52	1790276.89	1699550.62
53	1790277.89	1699567.99
54	1790279.95	1699575.19
55	1790284.78	1699577.88
56	1790283.37	1699583.44
57	1790230.11	1699545.75
58	1790216.59	1699551.12
59	1790222.30	1699571.83
60	1790222.65	1699575.76
61	1790225.73	1699599.14
62	1790224.18	1699619.51
63	1790245.05	1699751.72
64	1790237.65	1699750.14
65	1790236.99	1699733.99

EROSION CONTROL MAT POINTS		
Point #	Northing	Easting
66	1790233.62	1699722.30
67	1790226.64	1699717.72
68	1790227.53	1699715.04
69	1790295.29	1699771.67
70	1790294.88	1699761.22
71	1790291.66	1699746.40
72	1790290.06	1699730.39
73	1790288.24	1699700.66
74	1790290.98	1699686.47

**KANSAS DEPARTMENT OF TRANSPORTATION**  
Br. No. 000400839805800 Sta. 50+00.00  
**EROSION CONTROL & ROADSIDE IMPROVEMENT PLAN**  
PROJ. NO. 040 C-5283-01 HARVEY COUNTY  
**M K E C ENGINEERING, INC.**  
WICHITA, KANSAS

DESIGNED BY: DJL	CHECKED BY: JRA
DRAWN BY: RAM	DATE: 12/11/24 SHEET 30 OF 55

PLOTED: Thursday, June 05, 2025 @ 02:50PM



**FERTILIZER:** A ratio and application rate that equals or exceeds the required minimum rate per acre of N, P<sub>2</sub>O<sub>5</sub>, K<sub>2</sub>O listed in Summary of Quantities will be acceptable.

- \* - N = Nitrogen Rate of Application
- \*\* - P<sub>2</sub>O<sub>5</sub> = Phosphorous Rate of Application
- \*\*\* - K<sub>2</sub>O = Potassium Rate of Application

The Contractor will be required to finish areas of excavation, borrow and embankment in accordance with the specifications. Areas that require installation or construction of temporary water pollution control items will be finished in reasonable close conformity to the alignment, grade and cross section shown on the plans or as established by the Engineer.

**CLT = Construction Limit Tract.** This area is defined by the entire disturbed area of the project that requires seeding and erosion control measures to be placed. Any impervious areas (i.e. pavement, gravel, riprap, etc.) shall not be included in this measurement.

**Slope =** Defined by the area of the project that requires Class 1 erosion control material to be placed. This area shall be seeded using the Soil Erosion Mix prior to placement of the material. Drilling seed is preferred, however, broadcasting is acceptable if drilling is not possible.

**Channel =** Defined by the area of the project that requires Class 2 erosion control material to be placed. This area shall be seeded using the Soil Erosion Mix prior to placement of the material. Drilling seed is preferred, however, broadcasting is acceptable if drilling is not possible.

**GENERAL NOTES**

The entire disturbed area, excepting the paved or surfaced areas, steep rocky slopes and areas of undisturbed native sod or other desirable vegetation shall be fertilized (limed when required), seeded, and mulched. Soil preparation shall conform to the Standard Specifications.

Temporary seeding shall be done during any time of the year that the soil can be cultivated. After the temporary seeding has been completed on the entire project, permanent seeding shall be done during the normal seeding season.

**MULCHING:** Mulch shall be spread uniformly over all disturbed areas and punched in the soil, unless otherwise noted on the plans. The rate of application per acre, thickness in place, for the mulching materials is generally as follows:

1 3/4 - 2 1/4 Tons per Acre = 1 1/2" loose depth spread uniformly over acre.

Agricultural products, such as native prairie hay, used for mulching and erosion control practices, excluding wood based mulch, shall meet the North American Weed Free Forage Standards. Other vegetative mulches are acceptable only with the Engineer's concurrence.

The above rate is a guide. It will be at the discretion of the Engineer to determine what rate is sufficient for adequate protection of newly seeded areas.

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SUMMARY OF SEEDING / EROSION CONTROL QUANTITIES						
P.L.S. RATE/ ACRE		ACRES		BID ITEM	QUANTITY	UNIT
CLT	SL/CH	CLT	SL/CH			
150	150	0.3	0.1	Temporary Fertilizer (16 - 20 - 0)	15	LB
20		0.3		Temporary Seed (Canada Wildrye)		LB
45		0.3		Temporary Seed (Grain Oats)		LB
45		0.3		Temporary Seed (Sterile Wheatgrass)		LB
	109.9		0.1	Soil Erosion Mix	11.1	LB
				Erosion Control (Class 1, Type C)	276	SQ YD
				Erosion Control (Class 2, Type Y)		SQ YD
				Sediment Removal (Set Price)	1	CU YD
				Synthetic Sediment Barrier		LF
				Temporary Berm (Set Price)	1	LF
				Temporary Ditch Check (Rock)	27	CU YD
				Temporary Inlet Sediment Barrier		EACH
				Temporary Sediment Basin		CU YD
				Temporary Slope Drain		LF
				Temporary Stream Crossing		EACH
				Biodegradable Log (9")		LF
				Biodegradable Log (12")		LF
				Biodegradable Log (20")		LF
				Filter Sock (****)		LF
				Geotextile (Erosion Control)	500	SQ YD
				Silt Fence	1,066	LF
				SWPPP Design †		LS
				SWPPP Inspection †		EACH
				Water Pollution Control Manager †		EACH
900 lbs / acre		0.3		Mulch Tacking Slurry		LB
2 tons / acre		0.3		Mulching		TON
				Water (Erosion Control) (Set Price)	1	MGAL

NOTE: Projects less than 1 acre shall be bid as "Seeding" by the lump sum. See Permanent Seeding Summary of Seeding Quantities sheet LA850 for further details.

Geotextile (Erosion Control) shall be removed prior to placement of permanent slope protection.

Regreen and Quick Guard are the approved sterile wheatgrass products.

† If the total disturbed area of the project, not just the seeding area, is 1 acre or more, then these bid items must be included.

\*\*\*\* List size of material.

The amount of mulch and mulch tacking slurry in the bid quantities is estimated. (Acres of Seeding X 1.5 X 2 Tons/Acre). The estimated quantity includes mulching associated with both temporary and permanent seeding operations. The total mulch and mulch tacking slurry required shall be determined in the field. The bid item for mulching and mulch tacking slurry shall be paid for according to the Standard Specifications.

Quantities for all erosion control items are estimated to give full flexibility for compliance with the NPDES permit. Final quantities will be determined in the field.

SOIL EROSION MIX		
PLS RATE	NAME	QTY (lb)
0.5	Blue Grama (Lovington)	0.1
4.5	Buffalograss (Treated)	0.5
45	Perennial Ryegrass	4.5
2.6	Prairie Junegrass	0.3
6.3	Side Oats Grama (El Reno)	0.6
45	Tall Fescue (Endophyte Free)	4.5
6	Western Wheat (Barton)	0.6
109.9	Total (lb)	11.1

The Soil Erosion Mix is to be placed under the Class 1 and/or Class 2 erosion control material.

The Soil Erosion Mix consists of the Shoulder Area of the Permanent Seed Mix used on the project.

03	08-03-20	Added Note	M.R.D.	M.L.
02	12-01-17	Revised Standard	M.R.D.	S.H.S.
01	06-01-17	Revised Standard	M.R.D.	S.H.S.
NO.	DATE	REVISIONS	BY	APPD

KANSAS DEPARTMENT OF TRANSPORTATION

## TEMPORARY EROSION AND POLLUTION CONTROL

**LA852A**

FHWA APPROVAL	01-26-18	APPD.	Scott H. Shields
DESIGNED	M.R.D.	DETAILED	M.R.D.
DESIGN CK.	S.H.S.	DETAIL CK.	S.H.S.
QUANTITIES	TRACED	QUAN. CK.	TRACE CK.



PLOTTED: Wednesday, June 04, 2025 @ 09:09AM

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STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	040 C-5283-01	2025	33	55

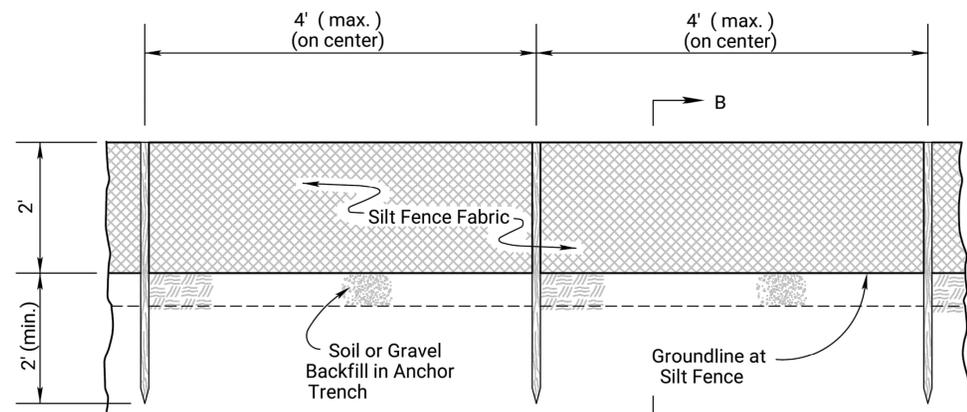
**INSTALLATION NOTES**

**SILT FENCE:**

- Stakes shall be 4' (min.) long and of one of the following materials:
  - Hardwood - 1 3/16" x 1 3/16";
  - Southern Pine (No. 2) - 2 5/8" x 2 5/8";
  - Steel U, T, L, or C Section - .95 lbs. per 1'-0"; or
  - Synthetic - same strength as wood stakes.
- Attach fence fabric with 3 zip ties within the top 8" of the fence. Alternate attachment methods may be approved by the Engineer on a performance basis.
- Use of high flow material is acceptable.
- Refer to plan sheets to estimate the length of silt fence required.

**BIODEGRADABLE LOG OR FILTER SOCK**

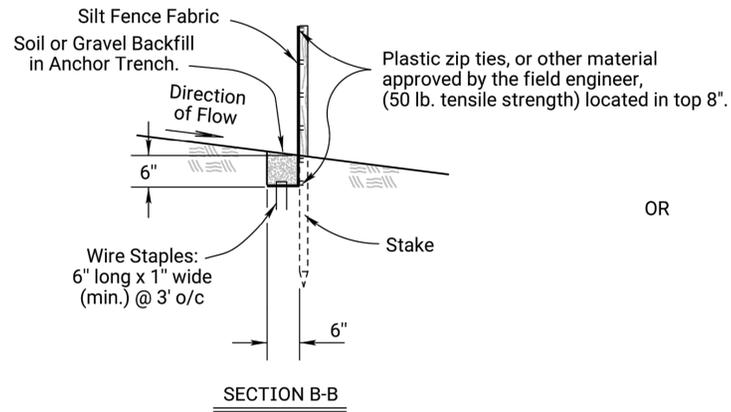
- Place biodegradable logs or filter sock tightly together minimum overlap of 18".
- Wood stakes shall be 2" x 2" (nom.).
- Refer to plan sheets to estimate length of biodegradable log and filter sock required.
- Each log or sock (except compost filter socks) should be keyed into the ground at a minimum of 25% of its height. Compost filter socks should be placed on smooth prepared ground with no gaps between the sock and soil.
- Length of stakes should be 2 times the height of the log at a minimum with minimum ground embedment equal to the height of the log / sock.



**TYPICAL ELEVATION**

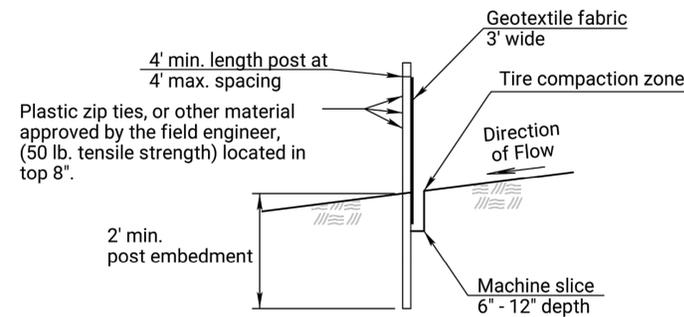
**SILT FENCE BARRIER**

NO SCALE



**SECTION B-B**

OR



**SECTION B-B**

**Biodegradable Log or Filter Sock Slope Interruptions**

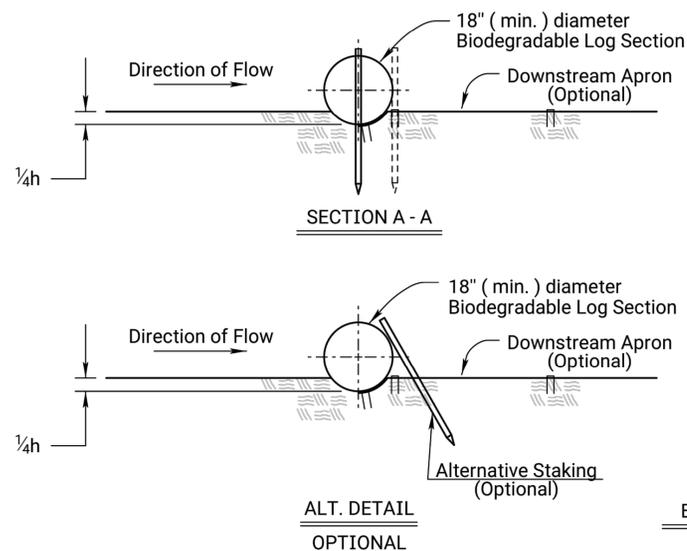
		PRODUCT		
		9" Sediment Log or 8" Filter Sock (ft)	12" Sediment Log or 12" Filter Sock (ft)	20" Sediment Log or 18" Filter Sock (ft)
Slope Gradient	≤4H:1V	40	60	80
	3H:1V	30	45	60

BIODEGRADABLE LOG MATERIAL		
	LOW FLOW	HIGH FLOW
9"	Straw/Compost	Excelsior / Wood Chips / Coconut Fiber
12"	Straw/Compost	Excelsior / Wood Chips / Coconut Fiber
18"-20"	Straw/Compost	Excelsior / Wood Chips / Coconut Fiber

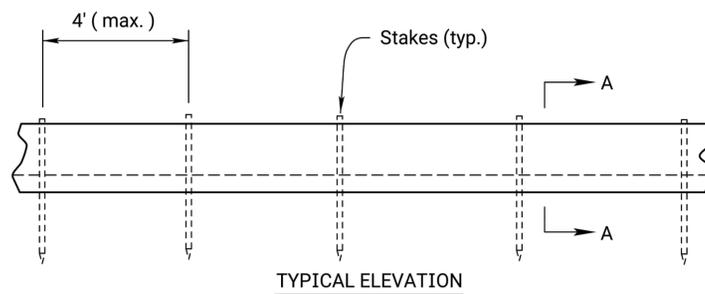
Deviations should be approved by the Field Engineer.

**GENERAL NOTES**

- Slope interruptions shall be placed along contour lines, with a short section turned upgrade at each end of the barrier.
- The maximum length of the slope interruptions shall not exceed 250 feet, and the barrier ends need to be staggered.
- Interruptions damaged by Contractor's negligence, including improper maintenance or lack of maintenance, shall be repaired immediately by Contractor at no additional cost to KDOT.
- Agricultural products, such as native prairie hay, used for mulching and erosion control practices, excluding wood based mulch, shall meet the North American Weed Free Forage Standards.



**ALT. DETAIL**  
OPTIONAL



**TYPICAL ELEVATION**

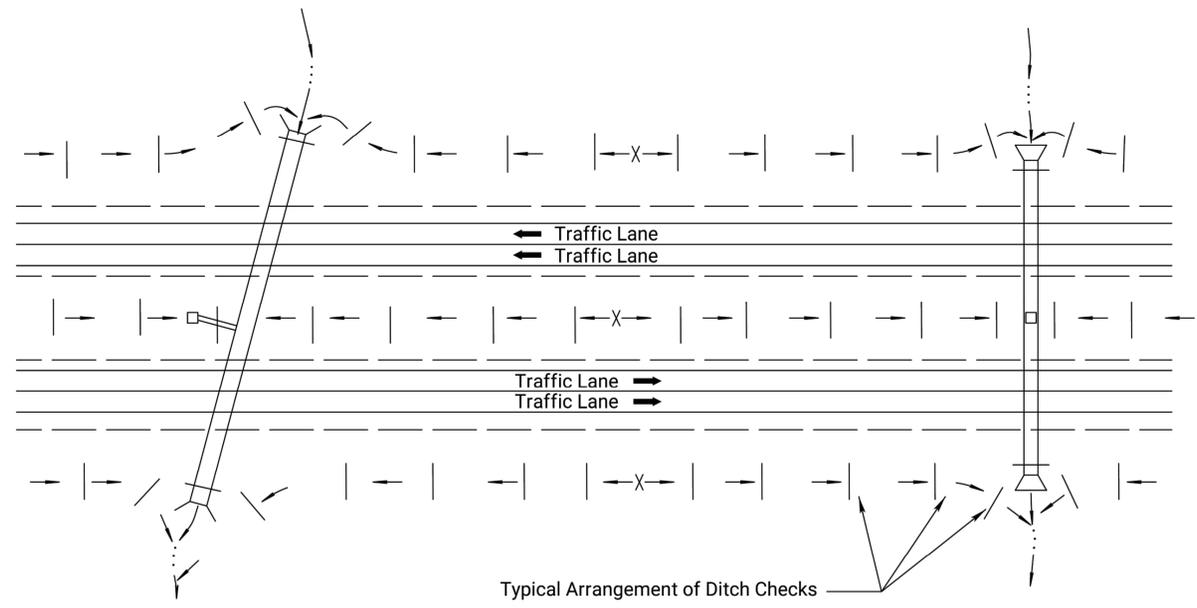
**BIODEGRADABLE LOG SLOPE INTERRUPTIONS**

OR Filter Sock

03	06-28-16	Revised Standard	R.A.	S.H.S.
02	03-01-15	Revised Standard	R.A.	S.H.S.
01	06-01-13	Revised Standard	M.R.M.	S.H.S.
NO.	DATE	REVISIONS	BY	APPD

KANSAS DEPARTMENT OF TRANSPORTATION				
<b>TEMPORARY EROSION AND POLLUTION CONTROL SLOPE INTERRUPTIONS BIODEGRADABLE LOG / SILT FENCE LA852D</b>				
FHWA APPROVAL	09-14-16	APP'D.	Scott H. Shields	
DESIGNED	S.H.S.	DETAILED	R.A.	QUANTITIES
DESIGN CK.	S.H.S.	DETAIL CK.	QUAN. CK.	TRACE CK.

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	040 C-5283-01	2025	34	55



TYPICAL DITCH CHECK LAYOUT PLAN  
NO SCALE

20" BIOLOG CHECK SPACING	
DITCH @ SLOPE (%)	SPACING INTERVAL (FEET)
1.0	125
2.0	60
3.0	40
4.0	30
5.0	25

NOTE: Use this spacing for all except Rock Ditch Checks.

18" FILTER SOCK CHECK SPACING	
DITCH @ SLOPE (%)	SPACING INTERVAL (FEET)
1.0	110
2.0	55
3.0	35
4.0	25
5.0	20

NOTE: Use this spacing for all except Rock Ditch Checks.

GENERAL NOTES

- 1) The choice of ditch check methods is at the option of the Contractor.
- 2) Use only rock checks in situations where the ditch slope is 6 percent or greater.
- 2) Ditch checks damaged by Contractor's negligence, including improper maintenance or lack of maintenance, shall be repaired by Contractor at no extra cost to KDOT.

NO.	DATE	REVISIONS	BY	APPD
03	08-10-16	Revised Standard	R.A.A.	S.H.S.
02	06-28-16	Revised Standard	R.A.A.	S.H.S.
01	06-01-13	Revised Standard	M.R.M.	S.H.S.

KANSAS DEPARTMENT OF TRANSPORTATION

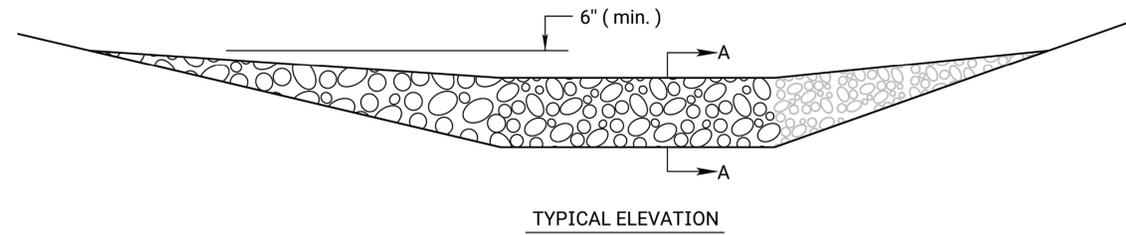
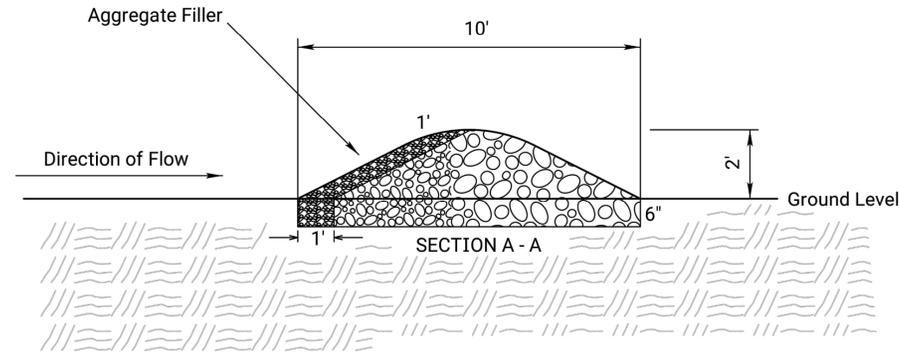
**TEMPORARY EROSION AND POLLUTION CONTROL DITCH CHECKS**

LA852E

FHWA APPROVAL	09-14-16	APP'D.	Scott H. Shields
DESIGNED	S.H.S.	DETAILED	R.A.A.
DESIGN CK.	S.H.S.	DETAIL CK.	S.H.S.
QUANTITIES	TRACED	R.A.A.	
QUAN. CK.	TRACE CK.	S.H.S.	

PLOTTED: Wednesday, June 04, 2025 @ 09:09AM  
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STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	040 C-5283-01	2025	35	55



TYPICAL ELEVATION

ROCK DITCH CHECK

NO SCALE

TEMPORARY ROCK DITCH CHECK SPACING	
DITCH @ SLOPE (%)	SPACING INTERVAL (FEET)
5.0	60
6.0	50
7.0	43
8.0	36
9.0	33
10.0	29

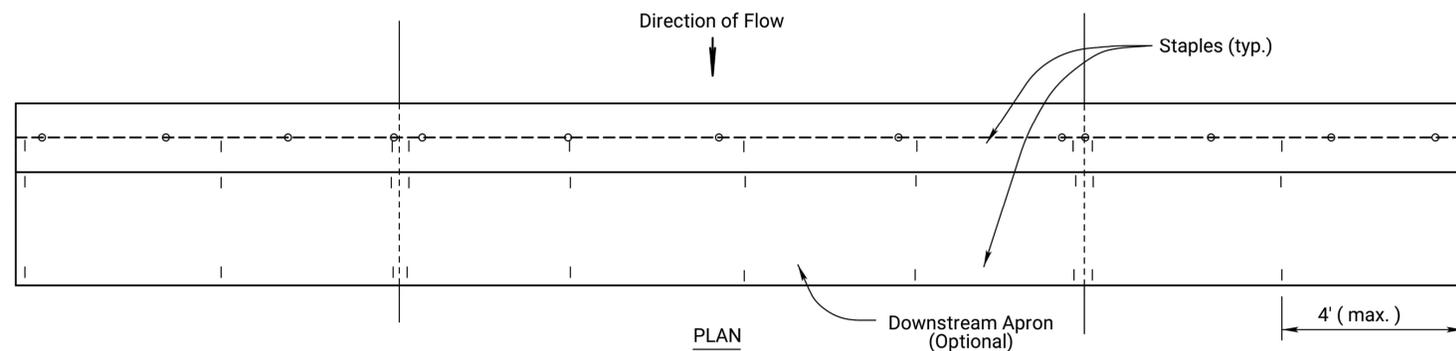
NOTE: Use this spacing for Rock Ditch Checks only.

ROCK DITCH CHECK NOTES

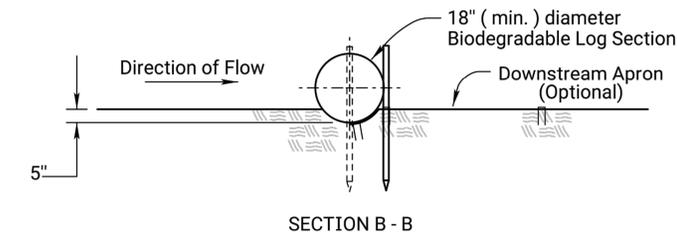
1. Rock shall be clean aggregate, D50-6" and aggregate filler.
2. Place rock in such manner that water will flow over, not around ditch check.
3. Do not use rock ditch checks in clear zone.
4. Excavation: The ditch area shall be reshaped to fill any eroded areas. Prior to placement of the rock, the ditch shall be excavated to the dimensions of the Rock Ditch Check and to a minimum depth of 6" (150mm). After placement of the rock, backfill and compact any over-excavated soil to ditch grade. This work shall be subsidiary to the bid item Temporary Ditch Check (Rock).
5. Aggregate excavated on site may be used as an alternate to the 6" rock, if approved by the Engineer.
6. The Engineer may approve the use of larger aggregates for the downstream portion of the check when conditions warrant their use.
7. When the use of larger rock is approved, D50-6" rock will be placed between the larger aggregate and the aggregate filler.
8. Aggregate filler will be placed on the upstream face of the ditch check. Aggregate filler will comply with Filter Course Type I, Division 1114.

BIODEGRADABLE LOG DITCH CHECK NOTES

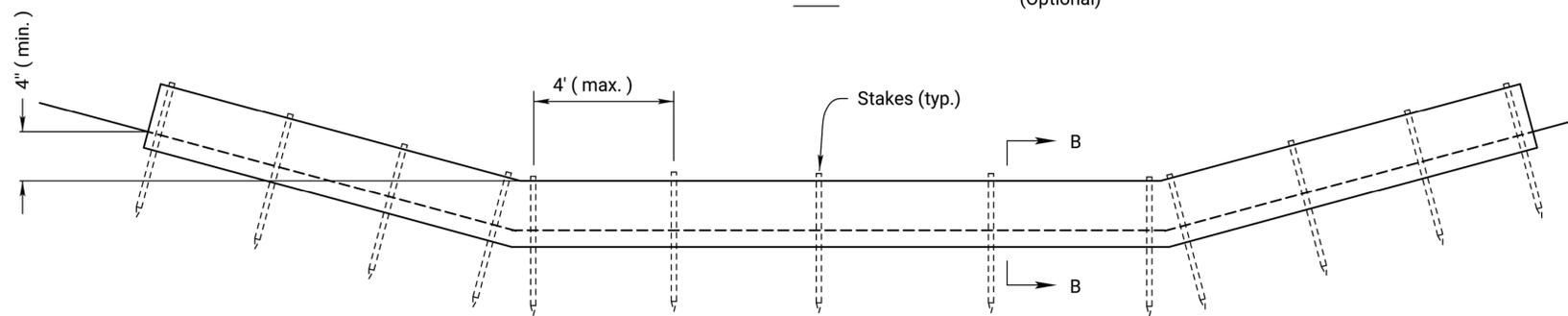
1. Use as many biodegradable log sections as necessary to ensure water does not flow around end of ditch check.
2. Overlap sections a minimum of 18".
3. Stakes shall be wood or steel according to Section 2114 of the Standard Specifications. Length of stakes shall be a minimum of 2 x the diameter of the log.
4. Use Erosion Control (Class 1) (Type C) as the downstream apron when required.
5. A downstream apron is required when directed by the Engineer. Apron material will be paid at the contract unit price.
6. Each log or sock (except compost filter socks) should be keyed into the ground at a minimum of 25% of its height. Compost filter socks should be placed on smooth prepared ground with no gaps between the sock and soil.



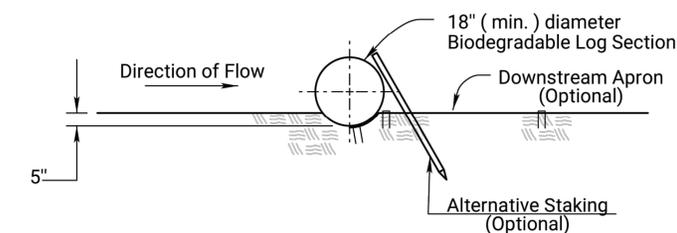
PLAN



SECTION B - B



TYPICAL ELEVATION



ALT. DETAIL OPTIONAL

BIODEGRADABLE LOG DITCH CHECK

OR Filter Sock Ditch Check

NO SCALE

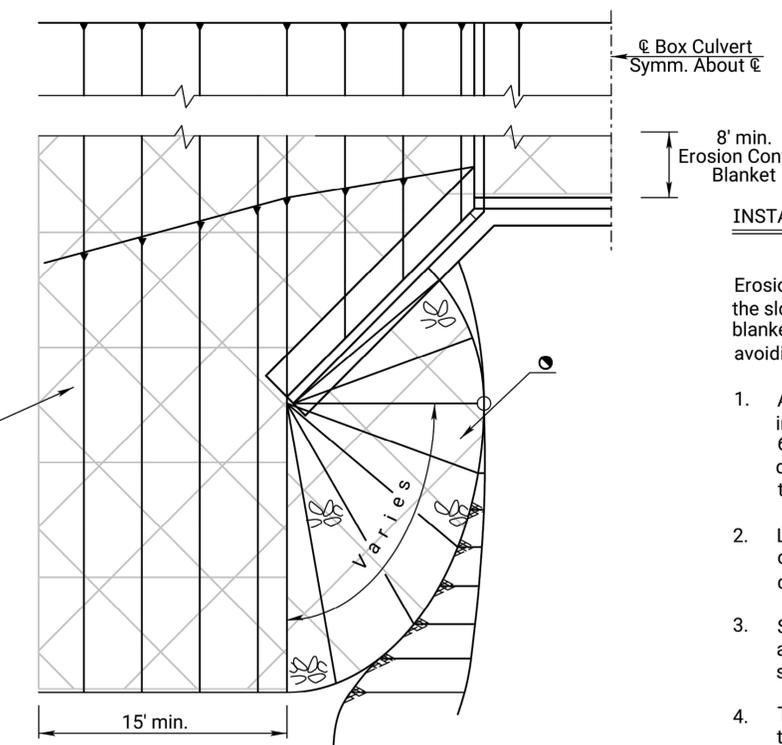
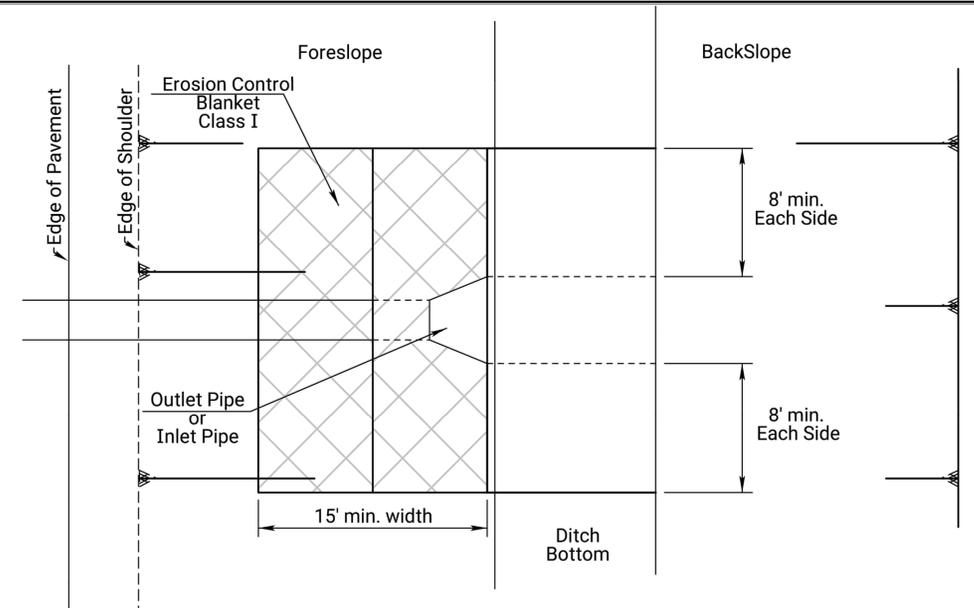
NO.	DATE	REVISIONS	BY	APPD
03	11-19-20	Revised Standard	M.R.D.	M.L.
02	08-10-16	Revised Standard	R.A.A.	S.H.S.
01	10-21-15	Revised Standard	R.A.A.	S.H.S.

KANSAS DEPARTMENT OF TRANSPORTATION					
<b>TEMPORARY EROSION AND POLLUTION CONTROL</b>					
<b>ROCK DITCH CHECKS</b>					
<b>BIODEGRADABLE LOG DITCH CHECKS</b>					
<b>LA852G</b>					
FHWA APPROVAL	11-19-20	APP'D.	Mervin Lare		
DESIGNED	M.L.	DETAILED	D.K.	QUANTITIES	TRACED R.A.A.
DESIGN CK.	M.L.	DETAIL CK.	M.L.	QUAN. CK.	TRACE CK. R.A.A.



PLOTTED: Wednesday, June 04, 2025 @ 09:09AM  
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STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	040 C-5283-01	2025	37	55



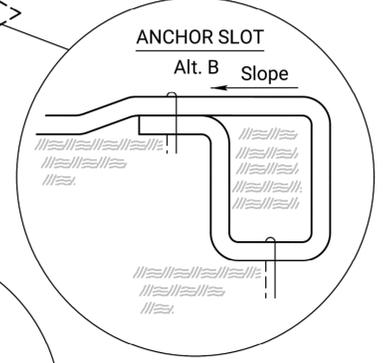
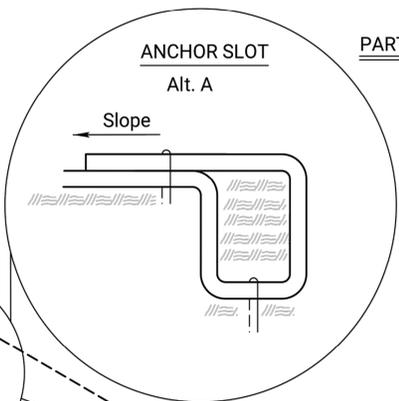
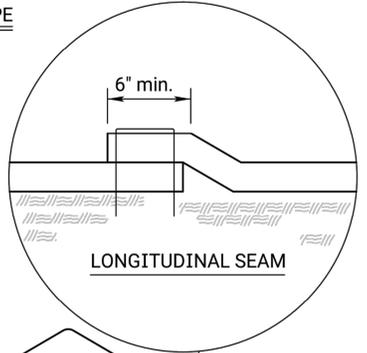
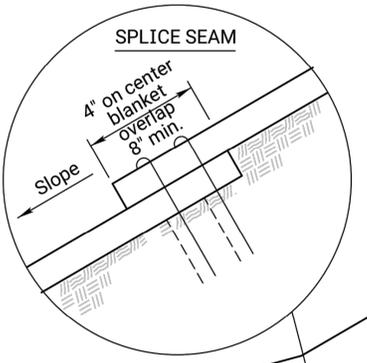
**INSTALLATION DETAILS FOR EROSION CONTROL CLASS 1**

Erosion Control Blankets shall be laid loosely in the direction of the slope, beginning at the bottom of the slope. In order for blanket to be in contact with the soil, lay blanket loosely, avoiding stretching.

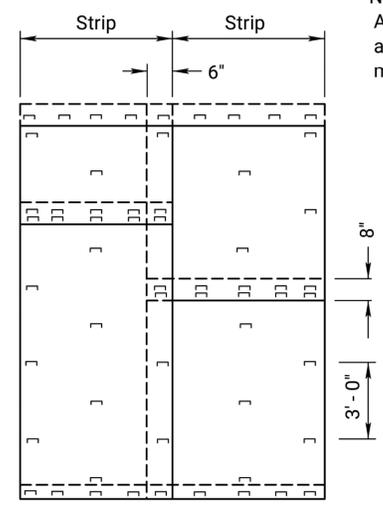
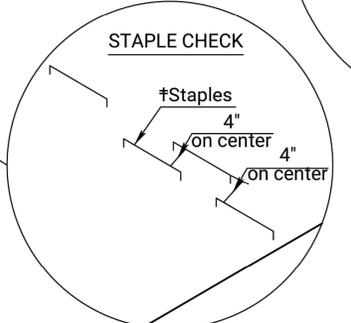
- ANCHOR SLOTS:** The top of the blanket should be "slotted in" at the top of the slope and anchored in place with anchors 6 inches apart. The slots should be 6 inches wide x 6 inches deep with the blanket anchored in the bottom of the slot, then backfilled, tamped and seeded.
- LONGITUDINAL SEAMS:** The edges of the blanket should overlap each other a minimum of 6 inches, with anchors catching the edges of both blankets.
- SPLICE SEAM:** When splices are necessary, overlap end a minimum of 8 inches in direction of water flow. Stagger splice seams.
- TERMINAL FOLD:** The bottom edge of the blanket shall be turned under a minimum of 4 inches, then anchored in place with anchors 9 inches apart.
- TYPICAL ANCHORS:** Anchor design shall be as recommended by the manufacturer.
- STAPLE CHECK:** Establish Staples in 2 rows 4" on center apart. Staple Checks - shall be 30' apart.

**PARTIAL PLAN PIPE**

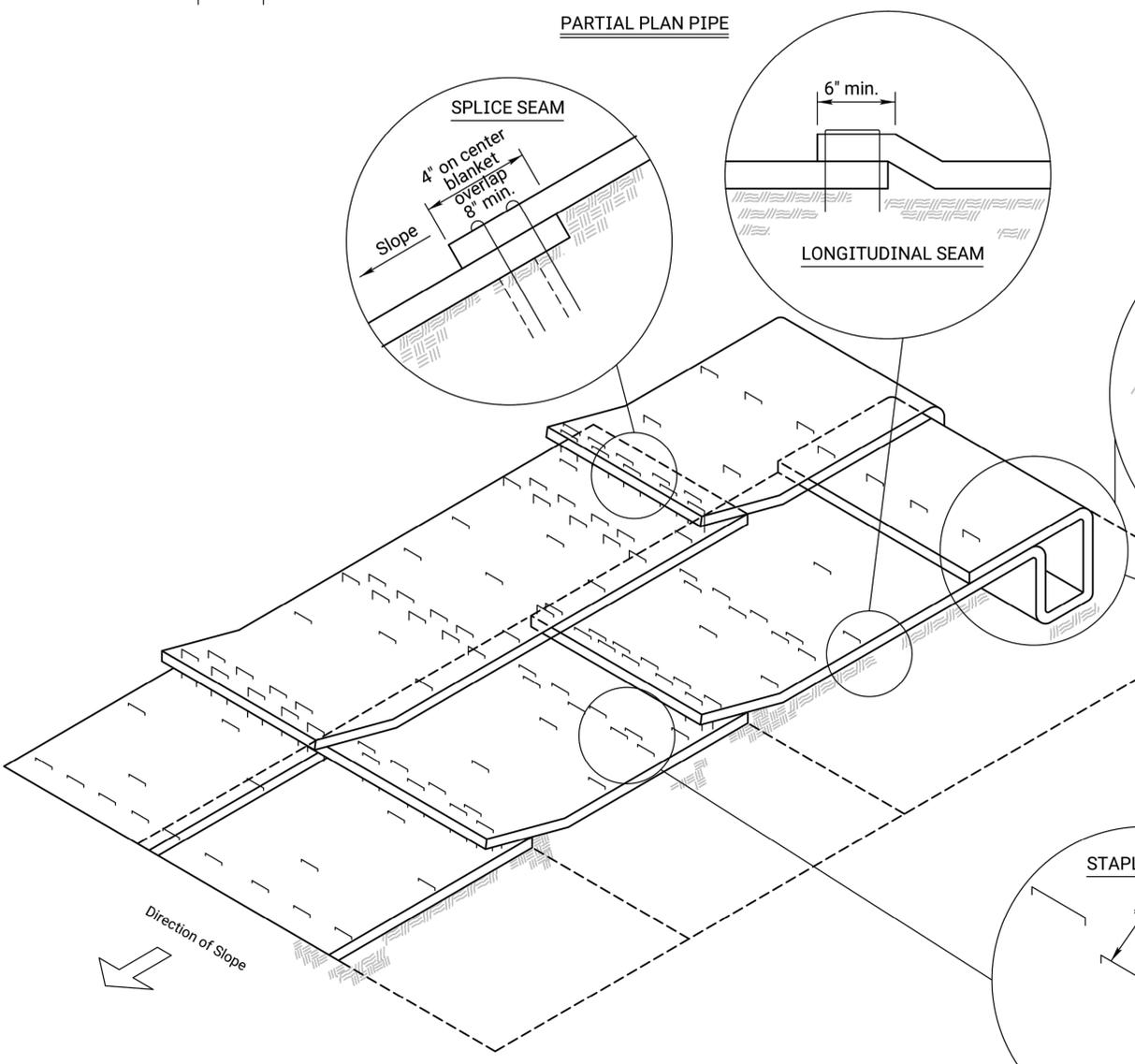
**PARTIAL PLAN BOX CULVERT**



● Erosion Control Class I may be omitted if the area is immediately covered by permanent slope protection (where directed by the plans).



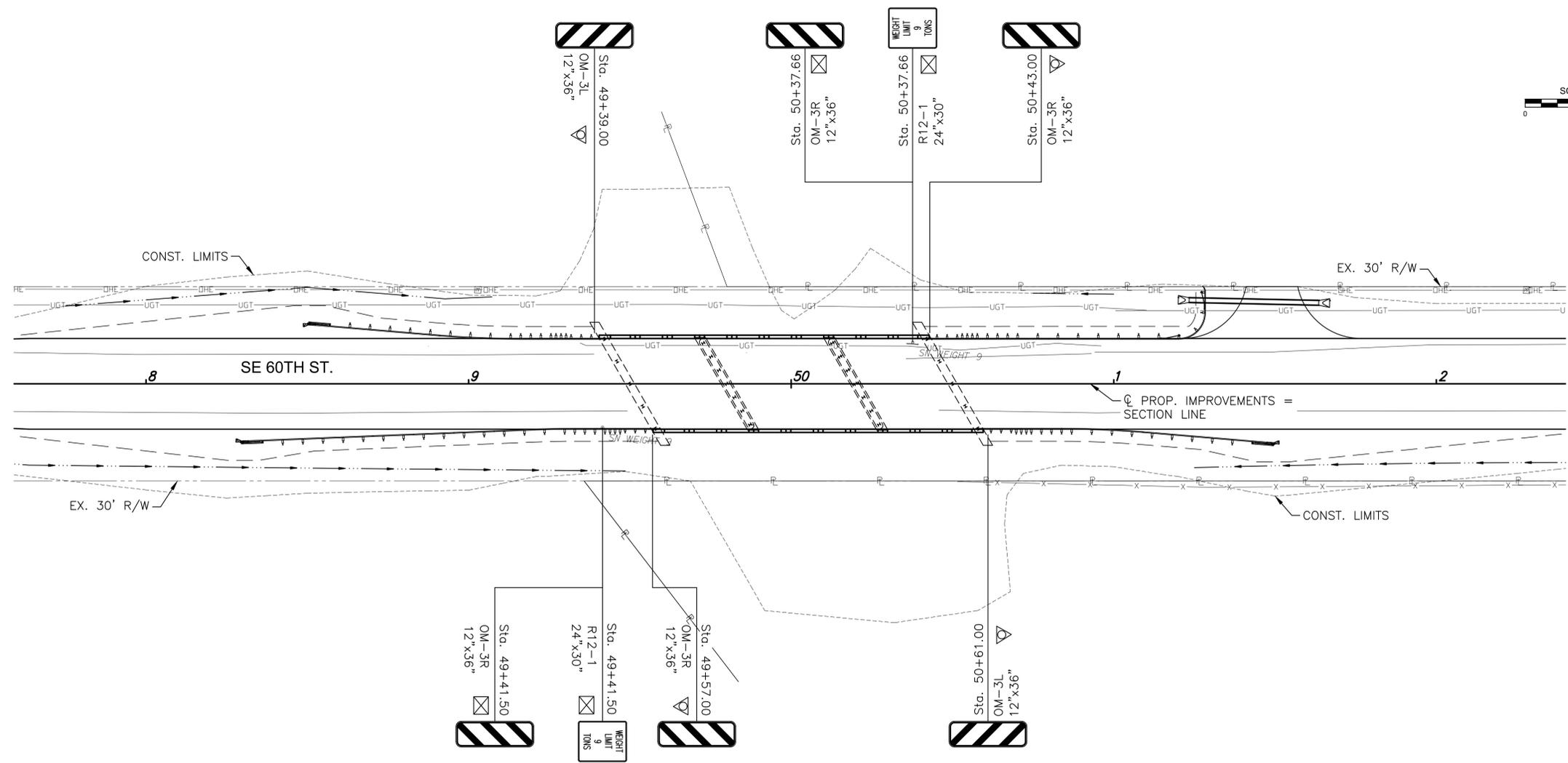
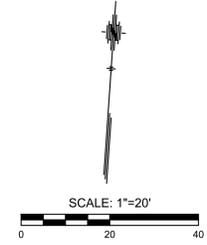
**NOTE:**  
Agricultural products, such as native prairie hay, used for mulching and erosion control practices, excluding wood based mulch, shall meet the North American Weed Free Forage Standards.  
Single post ring and shank staple is acceptable.



NO.	DATE	REVISIONS	BY	APPD
04	03-01-15	Revised Standard	R.A.A.	S.H.S.
03	02-23-15	Revised Standard	R.A.A.	S.H.S.
02	09-15-14	Revised Standard	M.R.M.	S.H.S.

KANSAS DEPARTMENT OF TRANSPORTATION				
<b>INSTALLATION DETAIL EROSION CONTROL CLASS 1 SLOPE PROTECTION</b>				
<b>LA855</b>				
FHWA APPROVAL	03-10-15	APP'D.	Scott H. Shields	
DESIGNED	R.A.A.	DETAILED	R.A.A.	QUANTITIES
DESIGN CK.		DETAIL CK.		QUAN. CK.
			TRACED	R.A.A.
			TRACE CK.	R.A.A.

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	040 C-5283-01	2025	38	55



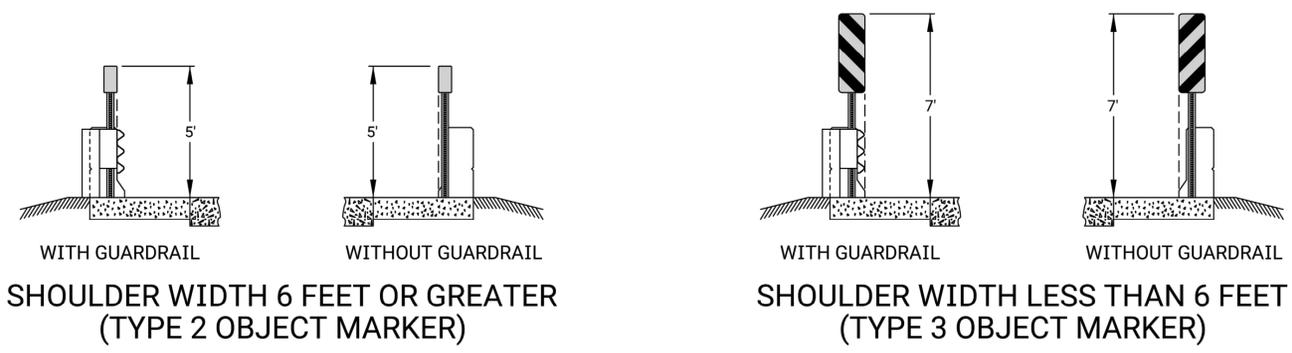
**SIGNING LEGEND**

- New sign and post
- Remove sign, post, & return to owner
- Traffic Sign

KANSAS DEPARTMENT OF TRANSPORTATION	
Br. No. 000400839805800	Sta. 50+00.00
<b>SIGNING PLAN</b>	
PROJ. NO. 040 C-5283-01	HARVEY COUNTY
M K E C ENGINEERING, INC. WICHITA, KANSAS	
DESIGNED BY: DJL	CHECKED BY: JRA
DRAWN BY: RAM	DATE: 12/9/24 SHEET 38 OF 55

J:\PROJECTS\2014\101010284 - HARVEY COUNTY - GENERAL SERVICES\05-CIVIL\CAD\TRAFFIC\BRIDGE E-30,7140084\_SIGNING PLAN.DWG  
 PLOTTED: Wednesday, June 04, 2025 @ 09:09AM

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	040 C-5283-01	2025	39	55

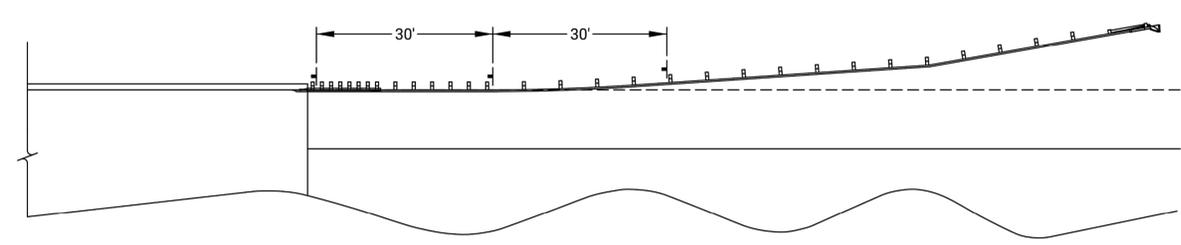


WITH GUARDRAIL  
WITHOUT GUARDRAIL  
SHOULDER WIDTH 6 FEET OR GREATER  
(TYPE 2 OBJECT MARKER)

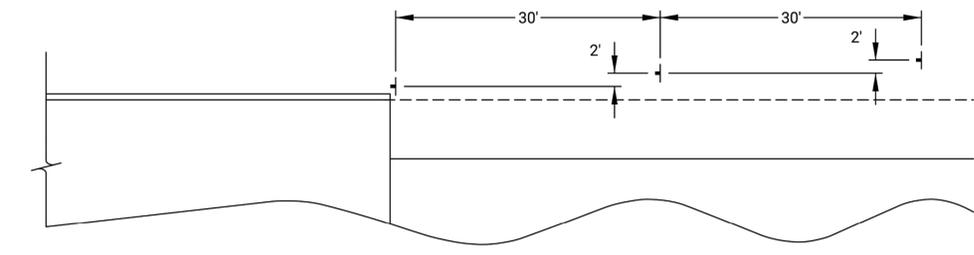
WITH GUARDRAIL  
WITHOUT GUARDRAIL  
SHOULDER WIDTH LESS THAN 6 FEET  
(TYPE 3 OBJECT MARKER)

NOTE:  
The longitudinal location of the object markers from the structure end shall be a maximum spacing of 42'.

END OF STRUCTURE

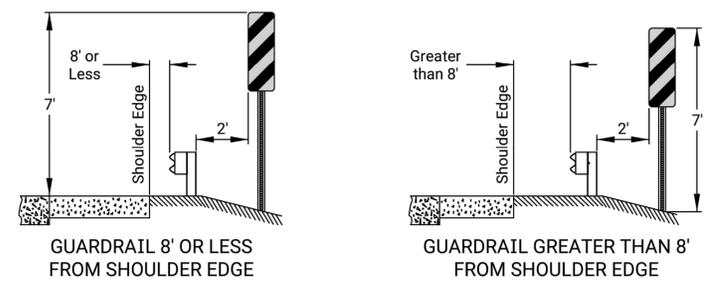


LONGITUDINAL PLACEMENT

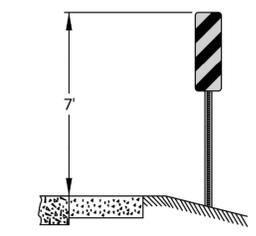


LONGITUDINAL PLACEMENT

NOTE:  
The lateral offset is measured from the centerline of the object markers.



STRUCTURE APPROACH  
GUARDRAIL WITHOUT MARKERS

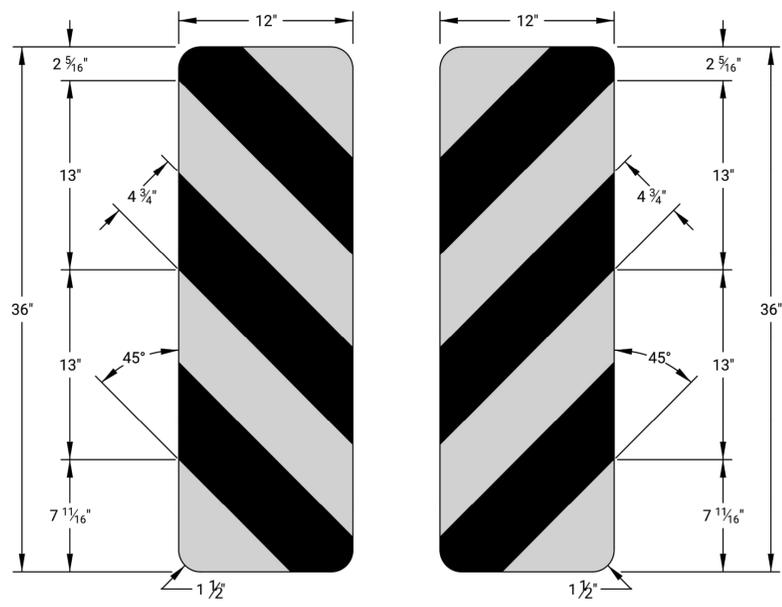


STRUCTURE APPROACH  
WITHOUT GUARDRAIL

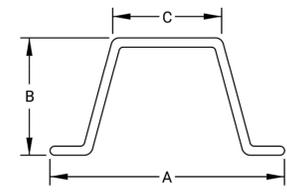
NO.	DATE	REVISIONS	BY	APPD.
KANSAS DEPARTMENT OF TRANSPORTATION				
<b>DESIGN DETAILS FOR OBJECT MARKERS (TYPE 2 &amp; 3) FOR STRUCTURES WITH PARAPETS</b>				
TE415		10-01-19		Eric W. Nichol
DESIGNED	D.D.G.	DETAILED	D.D.G.	QUANTITIES
DESIGN CK.	E.W.N.	DETAIL CK.	E.W.N.	QUAN. CK.

PLOTTED: Wednesday, June 04, 2025 @ 09:09AM  
 J:\PROJECTS\2014\1401010284 - HARVEY COUNTY\_GENERAL SERVICES\05-CIVIL\CAD\STD\BRIDGE E-30.71\40084\_TE415.DWG

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	040 C-5283-01	2025	40	55



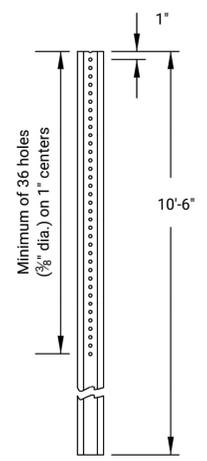
OM3-L  
OM3-R  
COLORS:  
Yellow Background (Reflective)  
Black Stripes (Non-reflective)



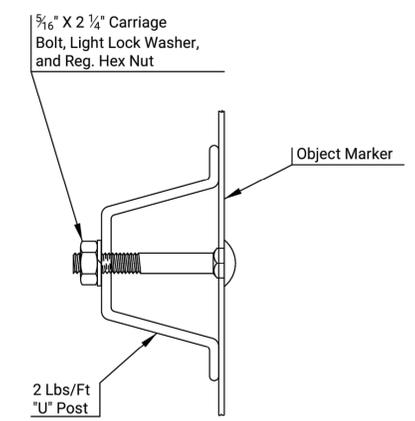
DIMENSIONS	
A	3 1/8
B	1 17/32
C	1 1/4

(Dimensions are nominal)

2 lb/ft "U" POST



PUNCHING DETAILS

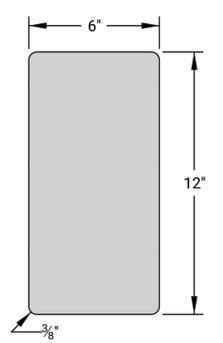


MOUNTING DETAILS

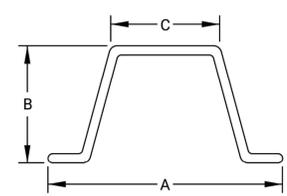
### TYPE 3 OBJECT MARKER

GENERAL NOTE:  
See flat sheet sign blank standard sheets for the 6" x 12" and 12" x 36" sign blank details.

The object markers shall be covered with Type XI High Intensity yellow retroreflective sheeting.



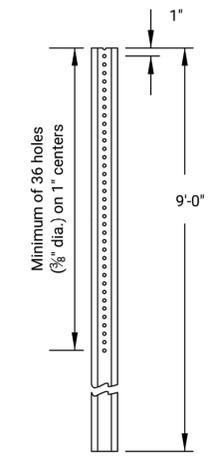
OM2  
COLOR:  
Yellow Background (Reflective)



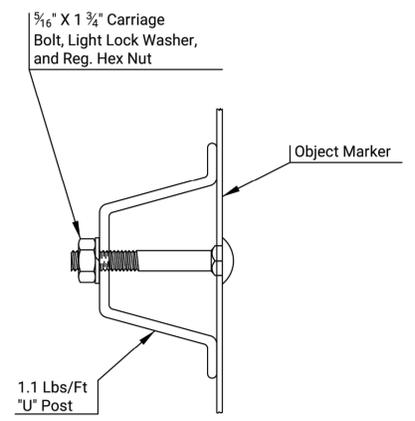
DIMENSIONS	
A	2 1/16
B	7/8
C	1 3/16

(Dimensions are nominal)

DELINEATOR POST  
(1.1 lb/ft "U" Post)



PUNCHING DETAILS



MOUNTING DETAILS

### TYPE 2 OBJECT MARKER

All dimensions are in inches unless otherwise noted.  
See standard plan sheet TE590 for detailed specifications.

NO.	DATE	REVISIONS	BY	APPD.

KANSAS DEPARTMENT OF TRANSPORTATION  
**DESIGN DETAILS  
FOR OBJECT MARKERS  
TYPE 2 AND TYPE 3**

TE416 10-01-19

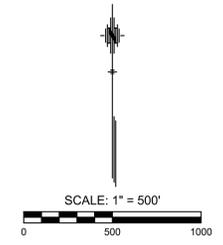
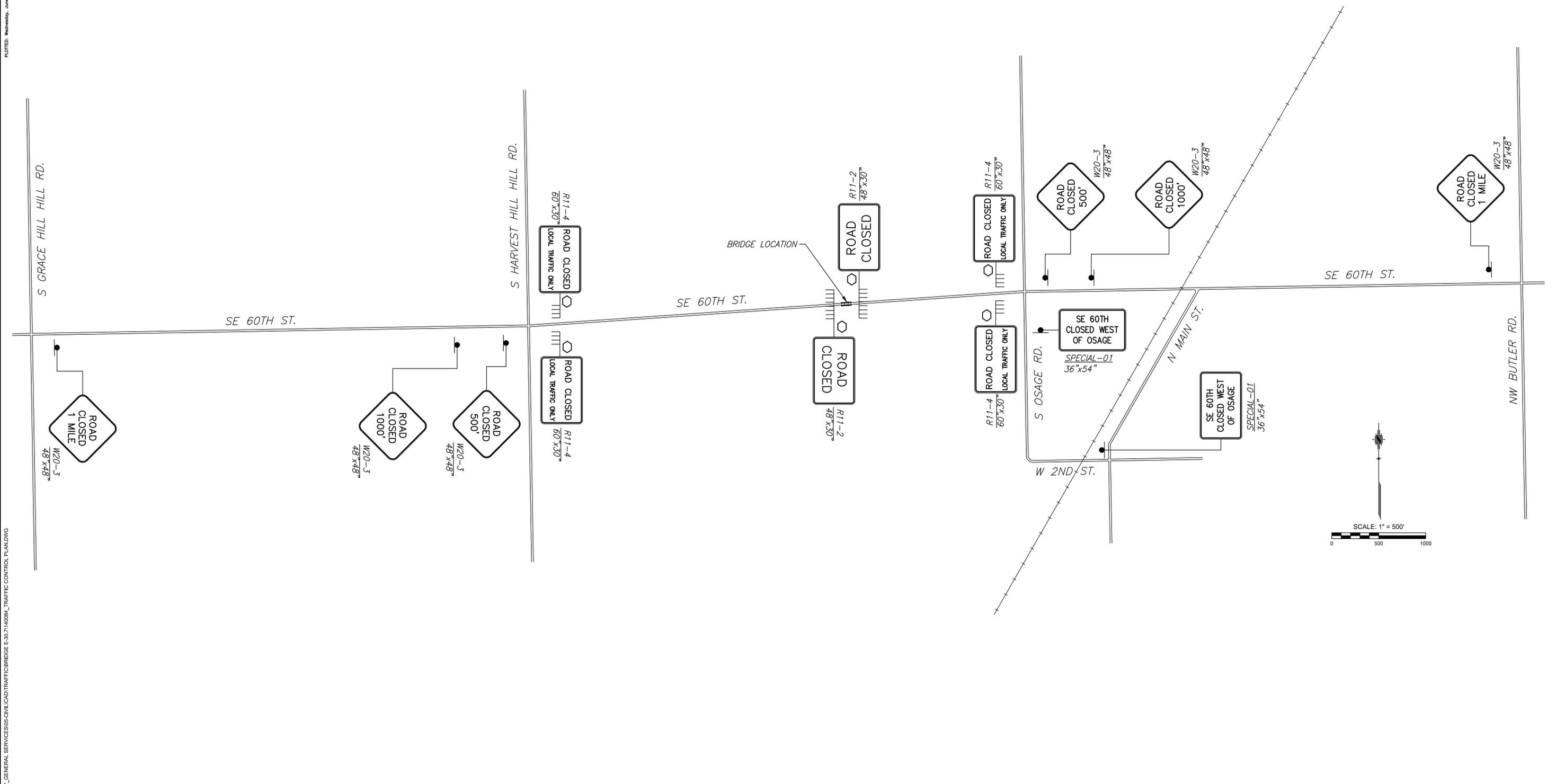
FHWA APPROVAL	10-01-19	APP'D.	Eric W. Nichol
DESIGNED	D.D.G.	DETAILED	D.D.G.
DESIGN CK.	E.W.N.	DETAIL CK.	E.W.N.
QUANTITIES		TRACED	
QUAN. CK.		TRACE CK.	

PLOTTED: Wednesday, June 04, 2025 @ 09:07AM  
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STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	040 C-5283-01	2025	41	55

PLOTTED: Wednesday, June 04, 2025 @ 09:07AM

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- LEGEND**
- ⏏ Type III Barricades
  - Sign
  - ⬡ Mount on Barricades

<b>KANSAS DEPARTMENT OF TRANSPORTATION</b>	
Br. No. 000400839805800	Sta. 50+00.00
<b>TRAFFIC CONTROL PLAN</b>	
PROJ. NO. 040 C-5283-01 HARVEY COUNTY	
<b>M K E C ENGINEERING, INC.</b>	
WICHITA, KANSAS	
DESIGNED BY: JRA	CHECKED BY: JRA
DRAWN BY: RAM	DATE: 12/11/24 SHEET 41 OF 55

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	040 C-5283-01	2025	42	55

1) Design Speed: Those items delegated to temporary traffic control should be designed and installed using the posted/legal speed of the roadway prior to work starting.

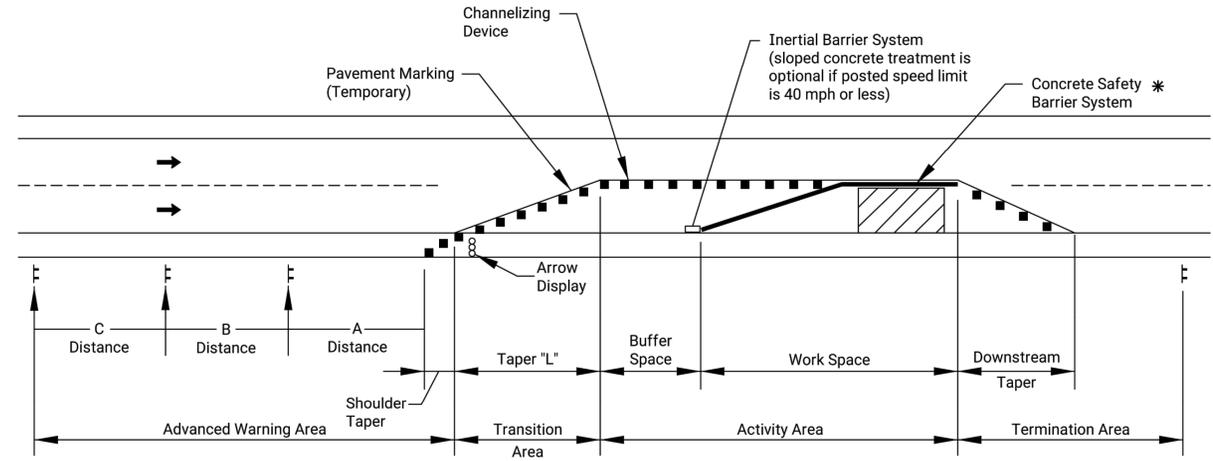
2) Minimum Lane Width: Lane widths shall be a minimum of 11' (measured between centerlines of pavement markings) or as shown on the plans, or as directed by the engineer. A lane width less than 11' may require restricted roadway width signing.

3) Consideration should be made to separate pedestrian and, if needed, bicycle movements from both work site activity and vehicular traffic. Unless a reasonable safe route that does not involve crossing the roadway can be provided, pedestrians should be appropriately directed with advance signing that encourages them to cross to the opposite side of the roadway. In urban and suburban areas with high vehicular traffic volumes, these signs should be placed at intersections (rather than midblock locations) so that pedestrians are not confronted with midblock work sites that will induce them to attempt skirting the work site or making a midblock crossing.

4) When existing pedestrian facilities are disrupted, closed, or relocated, the temporary facilities shall be detectable and include accessibility features consistent with the features present in the existing pedestrian facility.

5) When the driving surface open to traffic is milled or is a temporary surface made of loose material, or when directed by the engineer a W8-15 (Grooved Pavement) or W8-7 (Loose Gravel) sign shall be used on mainline approaches. This sign should be placed a "C" distance after the W20-1 (Road Work Ahead) sign. A W8-15p motorcycle plaque shall be used to supplement the W8-15 or W8-7 signs. All signs shall be displayed as long as the condition is present.

6) Alternative temporary rumble strip options may be available. Please contact the Temporary Traffic Control Unit for more information at 785-296-1179 or 785-296-1183.



**TYPICAL WORK ZONE COMPONENTS**

\* When concrete barrier system is used, portable channelizing devices are not needed along the tangent barrier section.

*Minimum advance warning sign spacing (in feet):*

SPEED (MPH) *	A	B	C
URBAN (40 MPH OR LOWER)	100	100	100
URBAN (45 MPH OR HIGHER)	350	350	350
RURAL (55 MPH OR LOWER)	500	500	500
RURAL (60 MPH OR HIGHER)	750	750	750
EXPRESSWAY/FREEWAY	1000	1500	2640

\* Posted speed prior to work starting  
 The minimum spacing between signs shall be no less than 100', unless directed by the engineer.  
 The spacing between any signs may be increased beyond the minimum values in the table above as approved by the engineer in order to maximize visibility.

*Taper Formulas:*

$L = WS$  for speeds of 45 MPH or more  
 $L = WS^2/60$  for speeds of 40 MPH or less  
 Where: L = Minimum length of taper in feet  
 S = Numerical value of posted speed prior to work starting in MPH  
 W = Width in offset feet

Shifting Taper=1/2 L  
 Shoulder Taper=1/3 L

**Channelizer Placement:**

- The spacing between devices in transition area (taper) should not exceed a distance in feet equal to 1/2 the posted speed limit in mph prior to work starting.
- The spacing between devices in the advanced warning area and the activity area should not exceed a distance in feet equal to two times the posted speed limit in mph prior to work starting.
- Channelizing devices shall be placed for optimum visibility, normally at right angles to the traffic flow.
- Place directional indicator barricades in series to direct traffic onto the new path. The arrow sign should not be visible to opposing traffic.
- Alternating diagonal orange and white striping must slope downward in the direction traffic is expected to pass.

**Buffer Space**

SPEED (MPH) *	20	25	30	35	40	45	50	55	60	65	70	75
LENGTH (ft)	115	155	200	250	305	360	425	495	570	645	730	820

\* Posted speed prior to work starting  
 Neither work activity nor storage of equipment, vehicles, or material should occur in the buffer space. When a protection vehicle is placed in advance of the work space, only the space upstream of the vehicle constitutes the buffer space.  
 If temporary concrete safety barrier system is used to separate approaching traffic from the work space, the barrier system shall be considered part of the activity area. A full lane width should be available throughout the length of the buffer space. See typical work zone components above.

02	03-13-18	W8-15p usage changed to Shall	R.W.B.	E.K.G.
01	08-18-15	Channelizer spacing info	R.W.B.	K.E.
NO.	DATE	REVISIONS	BY	APPD

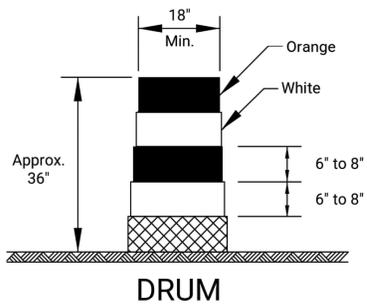
KANSAS DEPARTMENT OF TRANSPORTATION

**TRAFFIC CONTROL GENERAL NOTES**

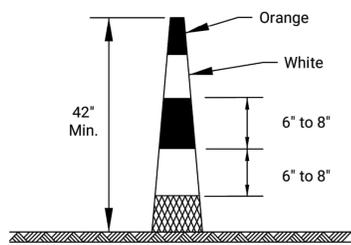
TE700

FHWA APPROVAL	03-13-18	APPD.	Eric Kocher
DESIGNED	B.A.H.	DETAILED	R.W.B.
DESIGN CK.		DETAIL CK.	
QUANTITIES	TRACED	QUAN. CK.	TRACE CK.

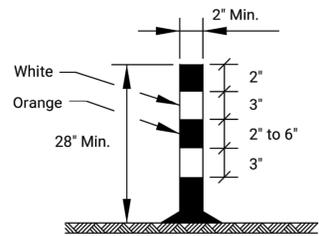
PLOTTED: Wednesday, June 04, 2025 @ 09:07AM  
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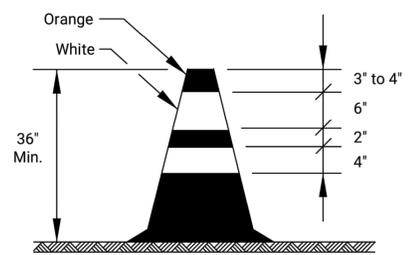
**DRUM**



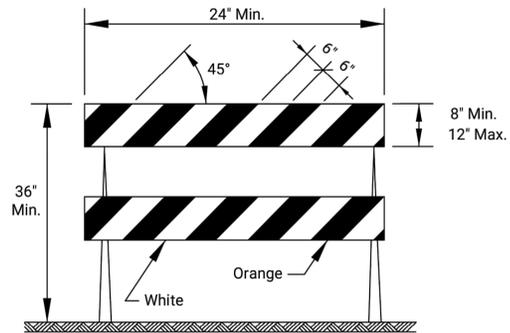
**CONICAL DELINEATOR**



**TUBULAR MARKER**  
Striping as shown for up to 42".

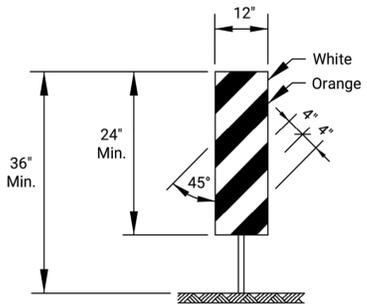


**TRAFFIC CONE**



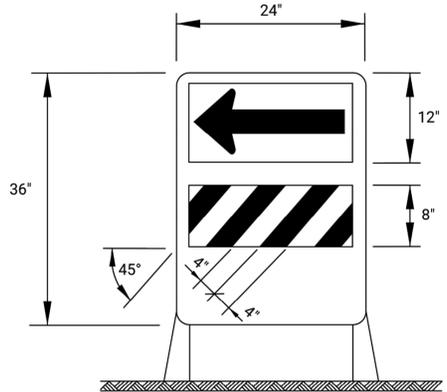
**TYPE 2 BARRICADE**

For rails less than 36" long, 4" wide stripes may be used. All stripes shall slope downward to the traffic side for channelization.



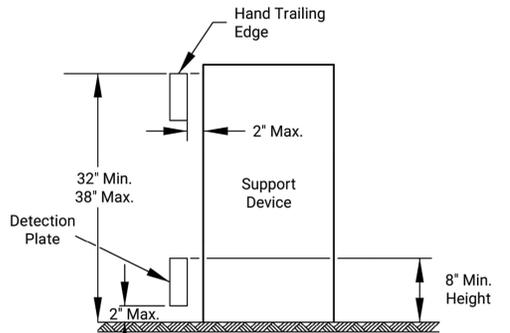
**VERTICAL PANEL**

The stripes shall slope downward to the traffic side for channelization.



**DIRECTION INDICATOR BARRICADE**

The stripes shall slope downward in the direction traffic is to pass. The direction indicator barricade shall be used in series to direct the motorist into the intended lane of travel.



**PEDESTRIAN CHANNELIZER**

- Support device shall not project beyond the detection plate into the pathway.
- Hand trailing edges and detection plates are optional for continuous walls.
- Interconnect pedestrian channelizers to prevent displacement and to provide continuous guidance through or around work.
- Alternate pathways shall be firm, stable, and slip resistant.
- Treat height differentials > 1/2" in the surfaces of alternate paths with a firm, stable, and slip resistant temporary ramp having a slope of 12:1 or flatter and having a width equal to the alternate path.
- Use alternating orange/white on interconnected devices.

Item	Location	Location									
		Cross-overs	Shoofly Divisions	Tangents	Tapers	Ramps	Head to Head	Object Identifier	Lead-in Devices	Gores	
Portable	Drums	Yes	Yes	Yes	Yes	Yes	(1)	Yes	Yes	Yes	
	Conical Delineators	Yes	Yes	Yes	Yes	Yes	(1)	Yes	Yes	Yes	
	Vertical Panels	(2)	(2)	(2)	(2)	(2)	(1,2)	Yes	(2)	(2)	
	Direction Indicator Barricade	No	No	No	Yes	No	No	No	No	No	
	Type 2 Barricade	(2)	(2)	(2)	(2)	No	No	Yes	No	No	
	Traffic Cones	No	No	(4)	(4)	(4)	No	(4)	(4)	(4)	
Fixed	Tubular Markers	(3)	(3)	(3)	No	(3)	Yes	No	Yes	Yes	
	Vertical Panels	(3)	(3)	(3)	(3)	(3)	(3)	Yes	(2,3)	(2)	

- Not allowed on centerline delineation along freeways or expressways.
- The stripes shall slope downward to the traffic side for channelization.
- May be used upon the approval of the engineer.
- Daytime operations only.

NO.	DATE	REVISIONS	BY	APPD.

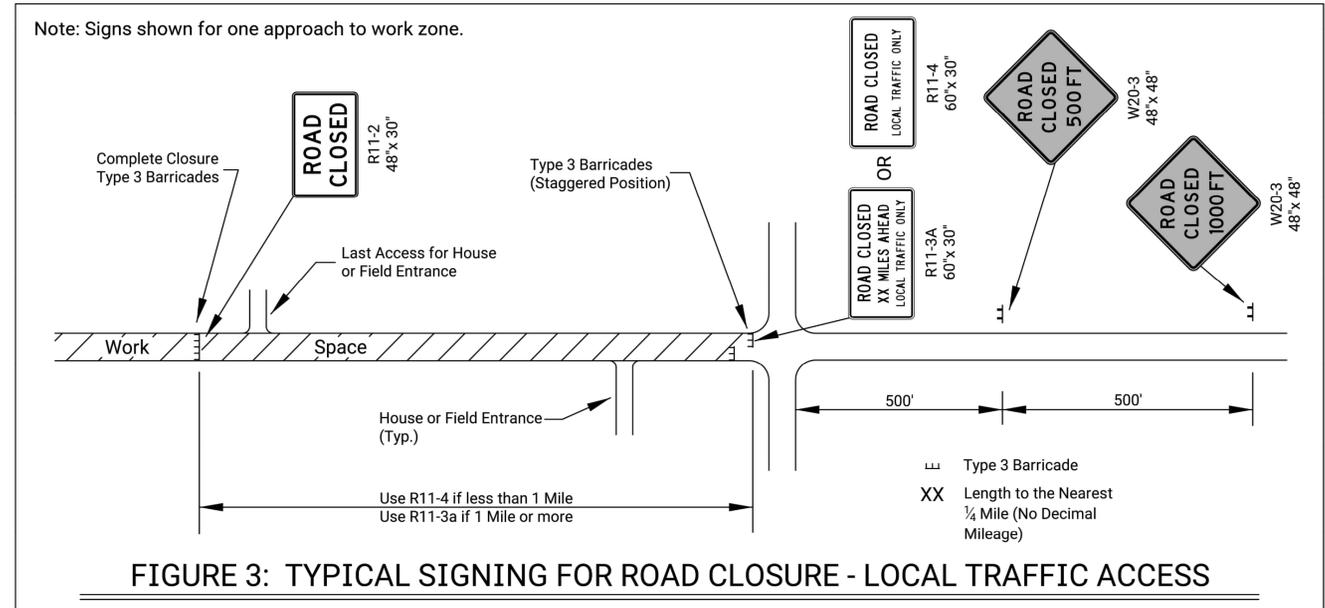
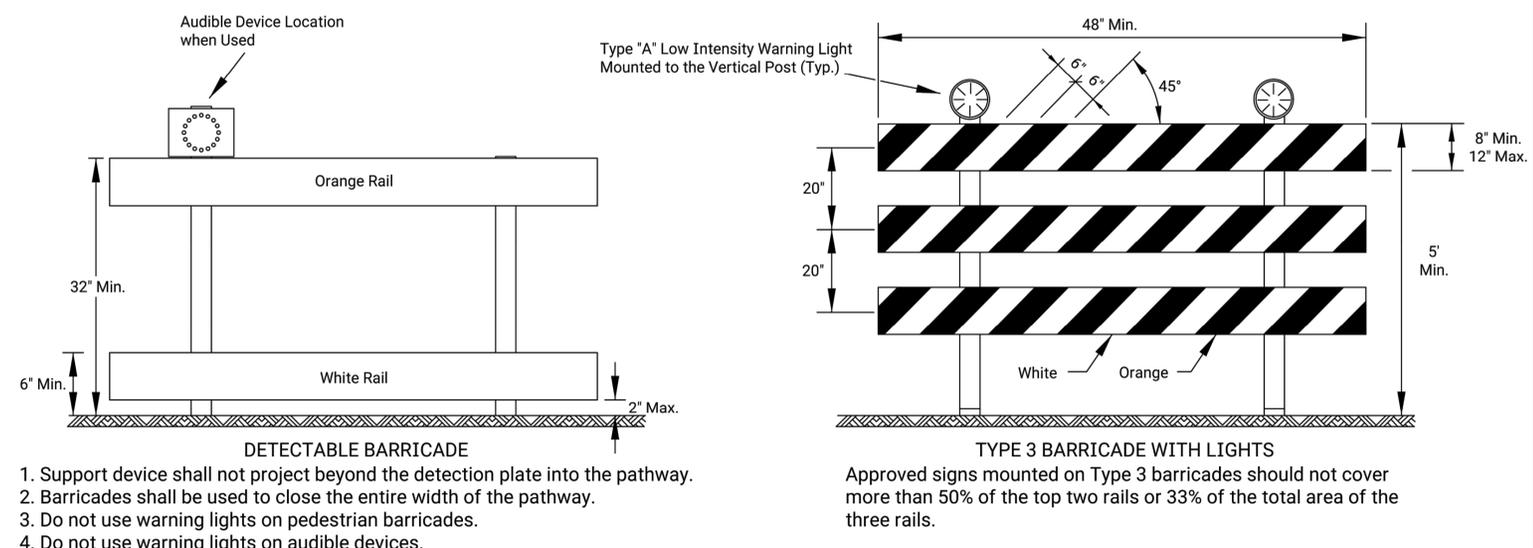
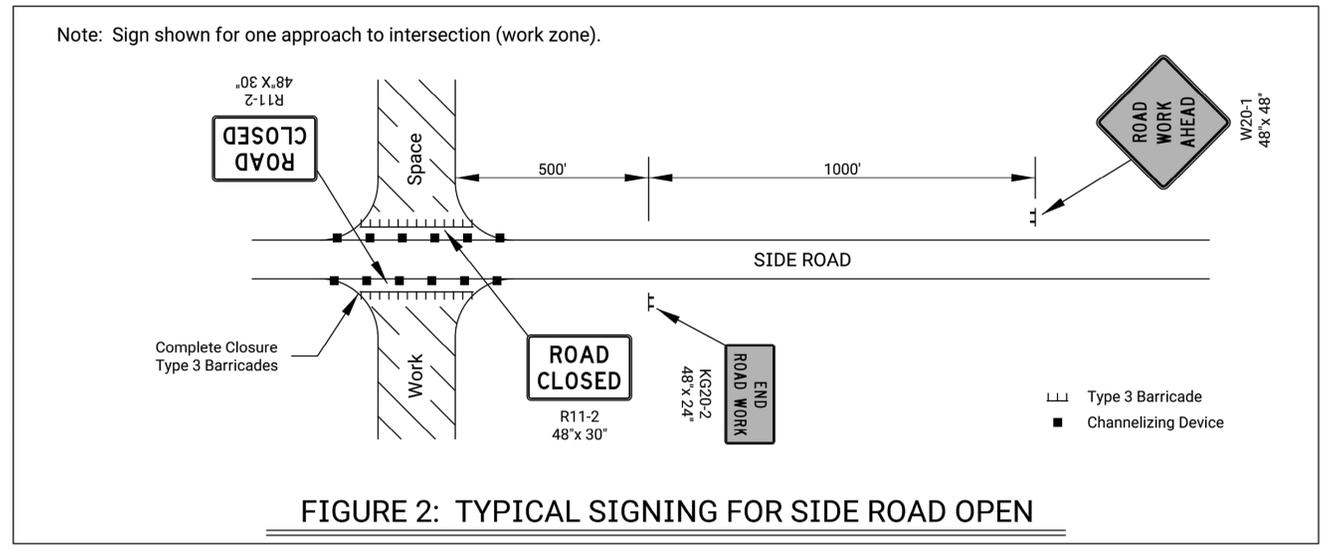
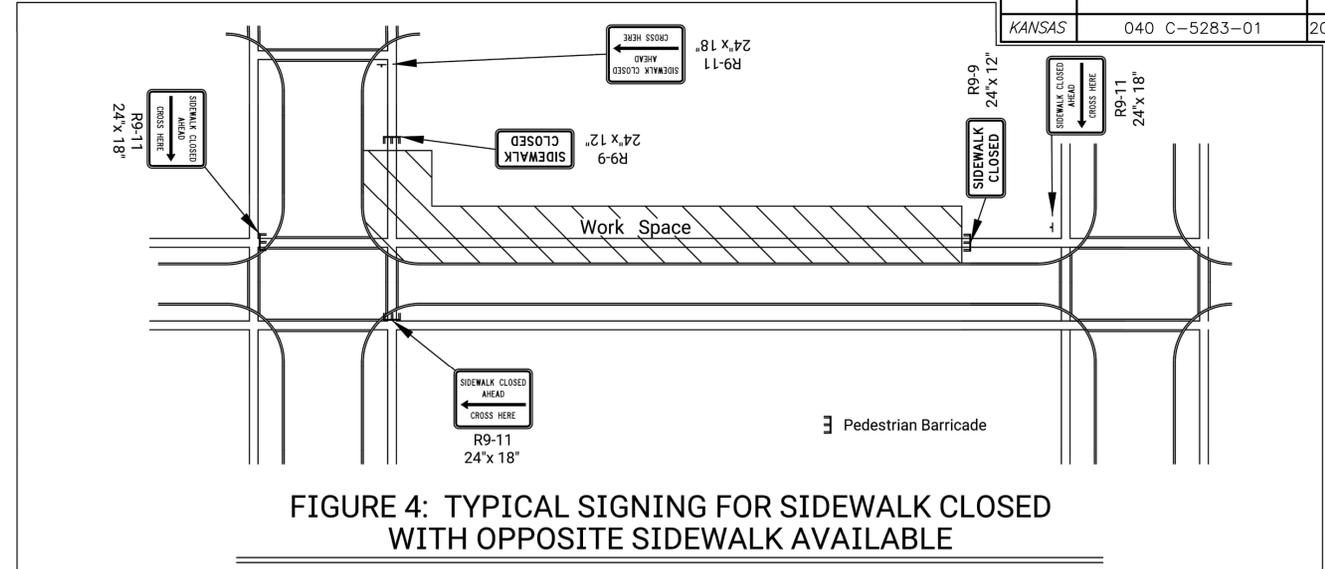
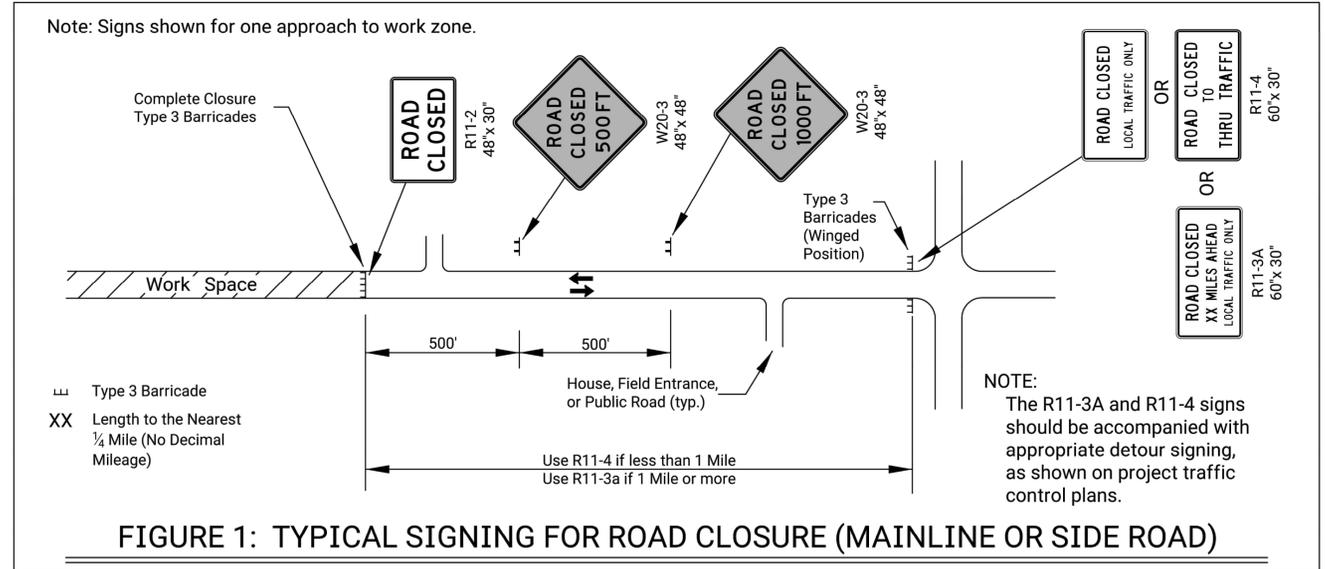
KANSAS DEPARTMENT OF TRANSPORTATION

**TRAFFIC CONTROL CHANNELIZING DEVICES**

TE702

FHWA APPROVAL	06-01-15	APP'D.	Kristina Ericksen
DESIGNED	L.E.R.	DETAILED	R.W.B.
DESIGN CK.	DETAIL CK.	QUANTITIES	TRACE CK.

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	040 C-5283-01	2025	44	55



**ROAD CLOSED GENERAL NOTES**

As shown in Figure 1, at the point where thru traffic must detour and local traffic can proceed to the location where the roadway is completely closed, the R11-3a (ROAD CLOSED # MILES AHEAD LOCAL TRAFFIC ONLY) or R11-4 (ROAD CLOSED LOCAL TRAFFIC ONLY or ROAD CLOSED TO THRU TRAFFIC) sign shall be used with Type 3 barricades (winged position), placed on the shoulders of roadway.

As shown in Figure 3, when local traffic must be allowed access into the work zone, Type 3 barricades shall be longitudinally staggered to maintain the appearance of a closed roadway. A second line of end-to-end Type 3 barricades shall be placed just beyond the last access point in the work zone, to completely close the roadway.

The R11-4 (ROAD CLOSED TO THRU TRAFFIC or ROAD CLOSED LOCAL TRAFFIC ONLY) sign shall be used when the distance to the point of complete closure of the roadway is less than 1 mile.

The R11-3a (ROAD CLOSED # MILES AHEAD LOCAL TRAFFIC ONLY) sign shall be used when the distance to the point of complete closure of the roadway is 1 mile or greater.

The words "BRIDGE OUT" (or BRIDGE CLOSED) may be substituted for the words "ROAD CLOSED" on the R11-3a or R11-4 sign where applicable.

NO.	DATE	REVISIONS	BY	APP'D
KANSAS DEPARTMENT OF TRANSPORTATION				
<b>TRAFFIC CONTROL CLOSURES</b>				
TE704				
FHWA APPROVAL	06-01-15	APP'D.	Kristina Ericksen	
DESIGNED	B.A.H.	DETAILED	R.W.B.	QUANTITIES
DESIGN CK.		DETAIL CK.		TRACE CK.

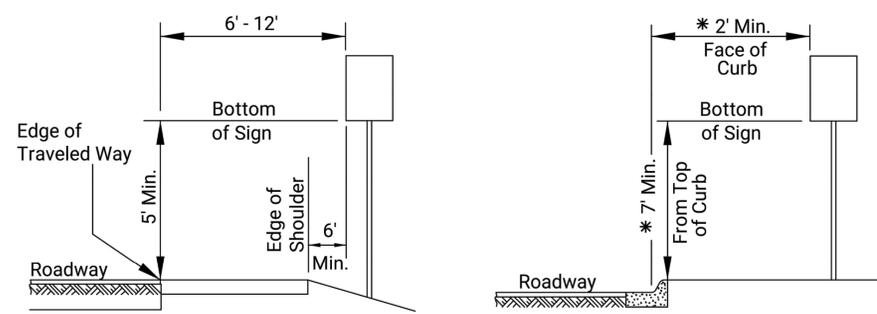
PLOTTED: Wednesday, June 04, 2025 @ 09:07AM  
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PLOTTED: Wednesday, June 04, 2025 @ 09:07AM  
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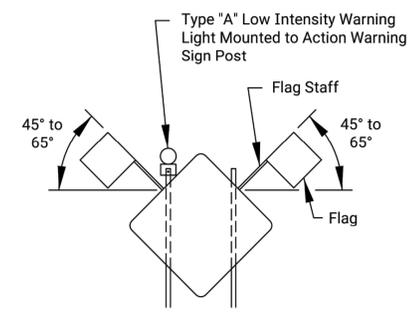
### SIGN LAYOUT INFORMATION

<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <b>END ROAD WORK</b>            KG20-2         </div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <b>WAIT FOR PILOT CAR</b>            KG20-5         </div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <b>WORK ZONE</b>            KM4-20         </div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <b>NEXT X MILES</b>            W7-3a         </div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;">             W8-17         </div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <b>SHOULDER DROP-OFF</b>            W8-17P (Optional)         </div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <b>NB US-75 CLOSED FOLLOW DETOUR</b>            SP-01 (Special Sign)         </div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <b>US-75 CLOSED NORTH OF Topeka FOLLOW DETOUR</b>            SP-02 (Special Sign)         </div>	<p>Std. Size Expwy/Freeway 6" C 48"x 24"</p> <p>Std. Size Expwy/Freeway 6" C 48"x 24"</p> <p>Std. Size Expwy/Freeway 3" C 24"x 6"      6" C 48"x 12"</p> <p>Mileage to be Determined by the Engineer.</p> <p>Std. Size Expwy/Freeway 48"x 48"</p> <p>Std. Size Expwy/Freeway 30"x 24"</p> <p>Std. Size Expwy/Freeway 6" C      10" D</p> <p>Std. Size Expwy/Freeway Uppercase: 6" C      Uppercase: 10" D Lowercase: 4.5" C      Lowercase: 8" D</p>	<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;">             W8-15         </div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;">             W8-7         </div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;">             W8-15p         </div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;">             W8-11         </div>
---	--	---

All city names and street names on special signs and destination signs must have upper and lower case letters.

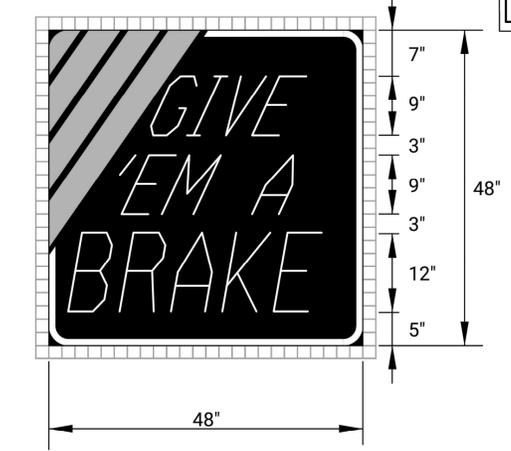


- #### RURAL
- Ground-mounted signs shall be mounted at a minimum height of 5' measured from the bottom of sign to the near edge of the pavement.
  - Large signs having an area exceeding 50 square feet installed on multiple breakaway posts shall be mounted a minimum of 7' above the ground.
  - The height of the secondary sign mounted below another sign may be 4' measured from the bottom of the sign to the near edge of the pavement. Signs shall not overlap each other.
- #### URBAN
- Signs shall be mounted at a minimum height of 7' measured from the bottom of sign to the near edge of the pavement.
  - Neither portable nor permanent sign supports should be located on sidewalks or areas designated for pedestrian or bicycle traffic.
  - Signs mounted lower than 7' should not project more than 4" into pedestrian facilities.
  - The height from of the secondary sign mounted below another sign may be 6' measured from the bottom of sign to the near edge of the pavement. Signs shall not overlap each other.
  - Large signs having an area exceeding 50 square feet installed on multiple breakaway posts shall be mounted a minimum of 7' above the ground.
  - \* Pedestrian detour signing shall be a minimum of 2' measured from the top of the pedestrian pathway to the bottom of the sign and shall not protrude into the walkway nor shall it project beyond the back of curb.

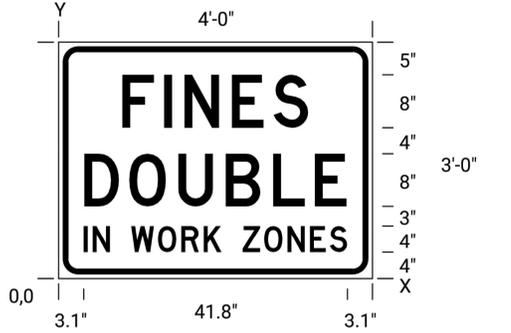


When the sign width is equal to or greater than 9', three or more wood posts may be used with a minimum of 4' between the centerline of each post. All signs less than 9' in width shall use a maximum of two wood posts.

- In the case of hitting rock when driving posts
- Shift the sign location. Do not violate minimum sign spacing.
  - With the engineer's approval, use acceptable alternative sign stands.



48" KI-104a



4'-0" 3'-0" KI-105a

Dimensions in inches      Spacings are to start of next letter

Y FONT		LETTER SPACINGS										HT LEN					
23.0	D	9.7	6.4	3.2	7.3	6.4	5.4	9.7							8.0		
	D	3.9	6.9	7.5	7.3	6.4	4.9	3.9							28.6		
11.0	D	3.9	6.9	7.5	7.3	6.4	4.9	3.9							8.0		
	D	3.1	1.6	2.7	3.2	4.3	3.8	3.6	2.8	3.2	3.4	3.8	3.6	3.2	2.7	3.1	40.3
4.0	D	3.1	1.6	2.7	3.2	4.3	3.8	3.6	2.8	3.2	3.4	3.8	3.6	3.2	2.7	3.1	4.0
	D	3.1	1.6	2.7	3.2	4.3	3.8	3.6	2.8	3.2	3.4	3.8	3.6	3.2	2.7	3.1	41.8

Notes:

Typically, there are two sets of informational signs installed per project: one for each direction of traffic.

Install signs a minimum of 500' in advance of the road work ahead sign. The engineer may designate a more appropriate location if conditions dictate.

The informational signs are not to interfere with the traffic control signs for the project.

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	040 C-5283-01	2025	45	55

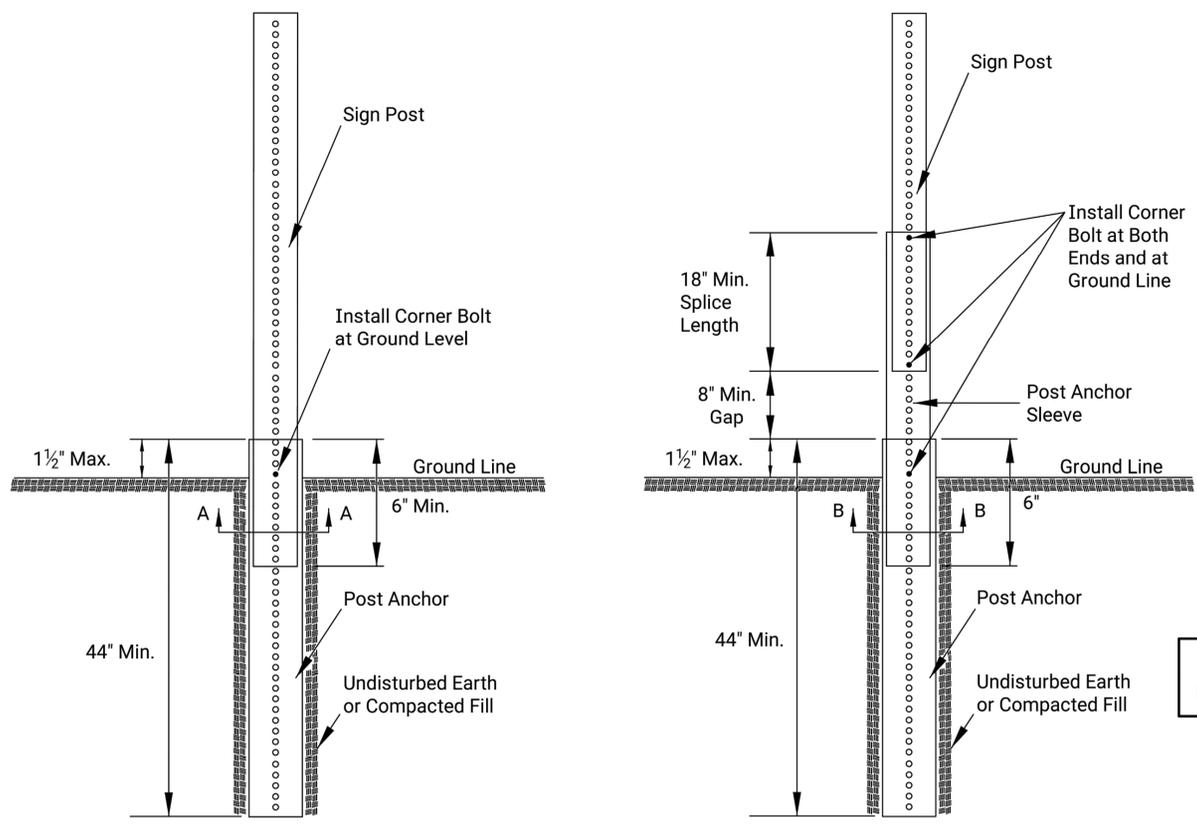
Sign Number	GIVE EM A BRAKE
Width x Height	4'-0" x 4'-0"
Border Width	1.0"
Corner Radius	4.0"
Stripe Width	3.0"
Mounting	Ground
Background	Type: Non-Reflective Color: Black
Legend/Border	Type: Reflective Color: White
Legend Font	Dutch 801 Roman SWC 25 Degree Slant
Stripes	Type: Reflective Color: Orange

Sign Number	FINES DOUBLE
Width x Height	4'-0" x 3'-0"
Border Width	0.9"
Corner Radius	3.0"
Mounting	Ground
Background	Type: Reflective Color: White
Legend/Border	Type: Non-Reflective Color: Black

KANSAS DEPARTMENT OF TRANSPORTATION				
<b>TRAFFIC CONTROL SIGN INFORMATION</b>				
TE710				
FHWA APPROVAL	06-01-15	APP'D.	Kristina Erickson	
DESIGNED	R.W.B.	DETAILED	R.W.B.	QUANTITIES
DESIGN CK.		DETAIL CK.		TRACE CK.

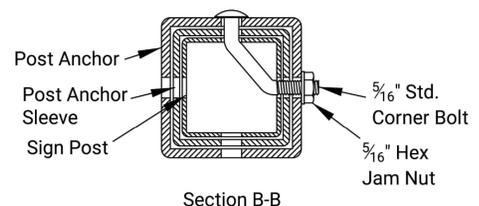
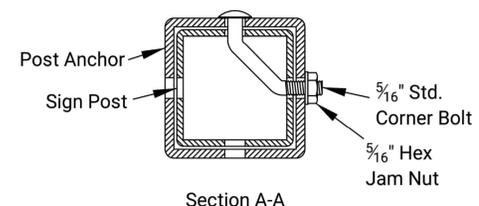
PLOTTED: Wednesday, June 04, 2025 @ 09:07AM  
 J:\PROJECTS\2014\1401010284 - HARVEY COUNTY\_GENERAL SERVICES\CIVIL\CAD\STD\BRIDGE E-30.71\40084\_TE712.DWG

### PERFORATED SQUARE STEEL TUBE (P.S.S.T.) POST SETUP



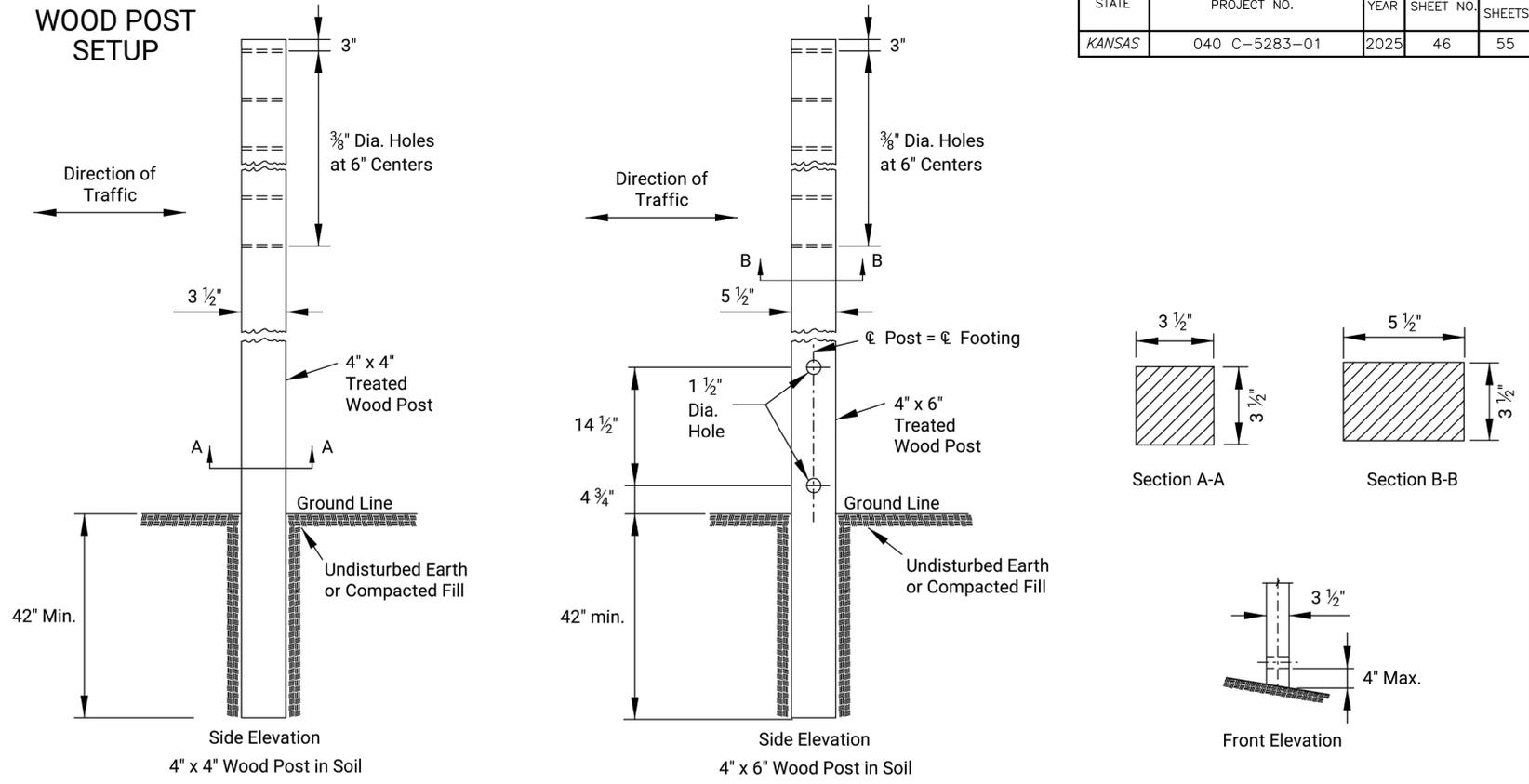
P.S.S.T. Detail

Telescoping P.S.S.T. Detail



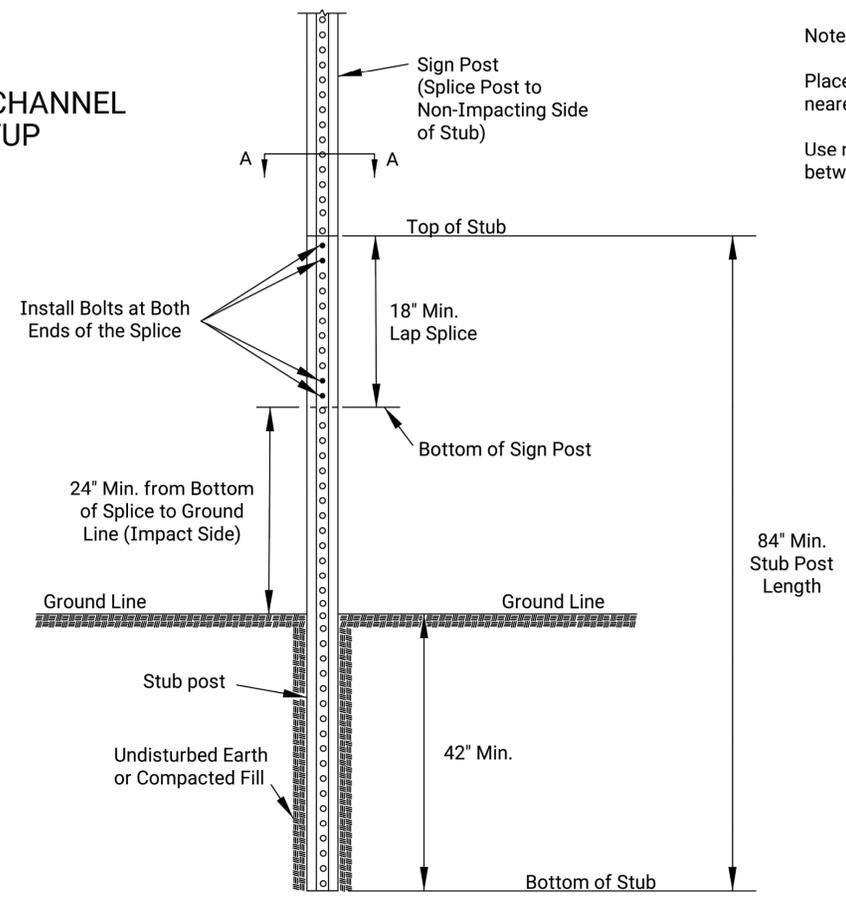
Details for 2", 2 1/4", or 2 1/2" sign posts  
 Place bolts in the same corner along each sign post.

### WOOD POST SETUP

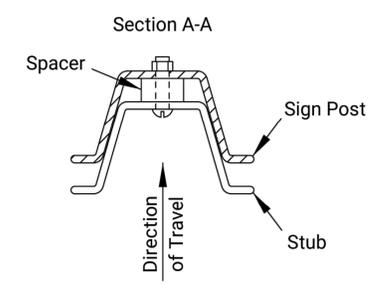


See TE710 for Additional Details and Requirements

### 3 LB/F U-CHANNEL SETUP



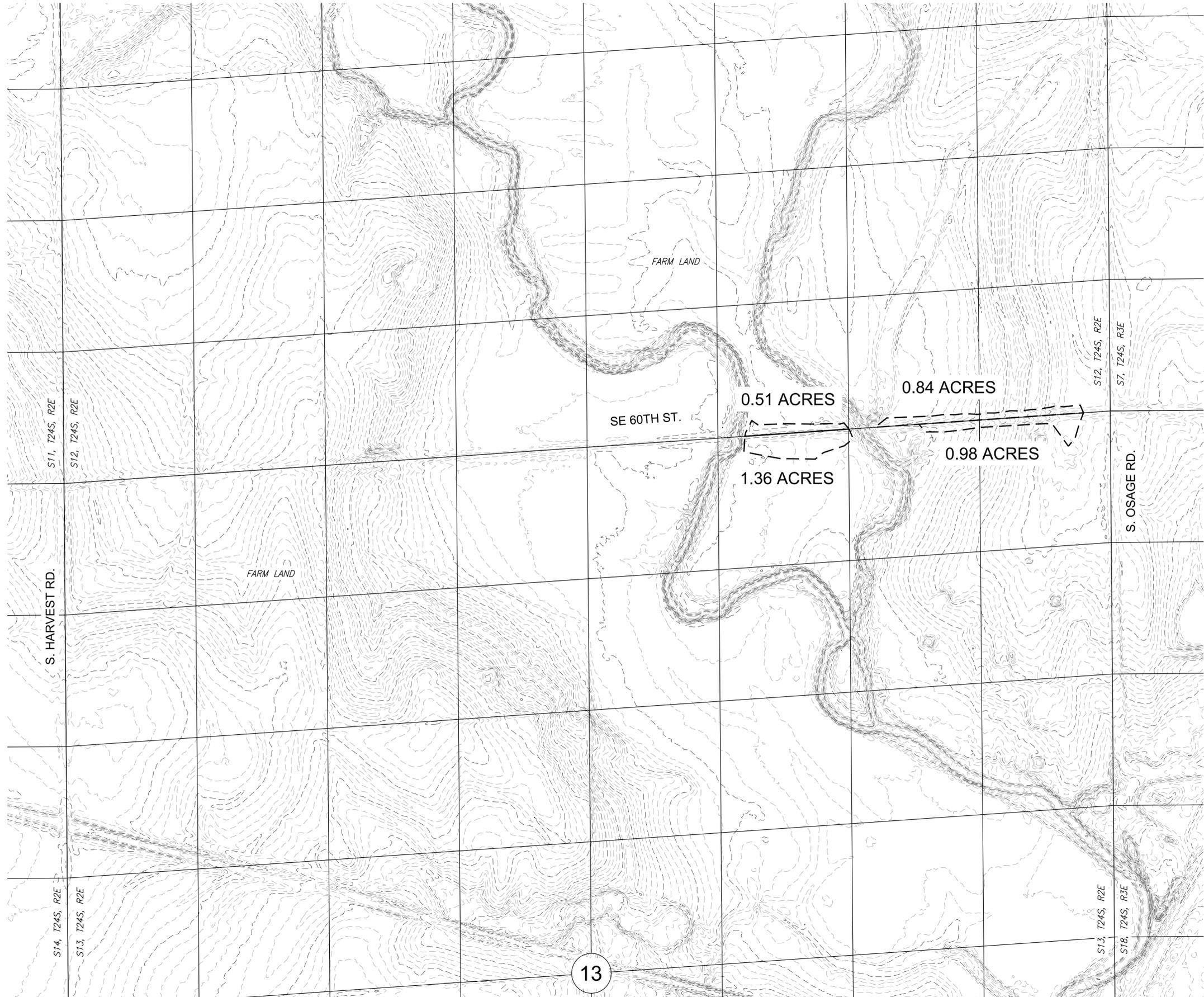
**Notes:**  
 Place two bolts at both ends of the splice through the holes nearest the ends of the splice.  
 Use manufacturer recommended spacers over the bolts between the spliced pieces of U-Channel.



NO.	DATE	REVISIONS	BY	APPD.
KANSAS DEPARTMENT OF TRANSPORTATION				
<b>TRAFFIC CONTROL SIGN POSTS</b>				
TE712				
DESIGNED	B.A.H.	DATE	06-01-15	APP'D.
DESIGN CK.	DETAIL CK.	QUANTITIES	QUAN. CK.	TRACE CK.
				Kristina Ericksen

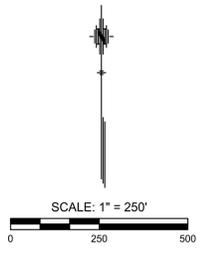


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PLOTTED: Wednesday, June 04, 2025 @ 09:07AM



13

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	040 C-5283-01	2025	48	55



LEGEND	
	= Drainage System Boundary

KANSAS DEPARTMENT OF TRANSPORTATION	
Br. No. 000400839805800	Sta. 50+00.00
DRAINAGE MAP	
PROJ. NO. 040 C-5283-01	HARVEY COUNTY
M K E C ENGINEERING, INC.	
WICHITA, KANSAS	

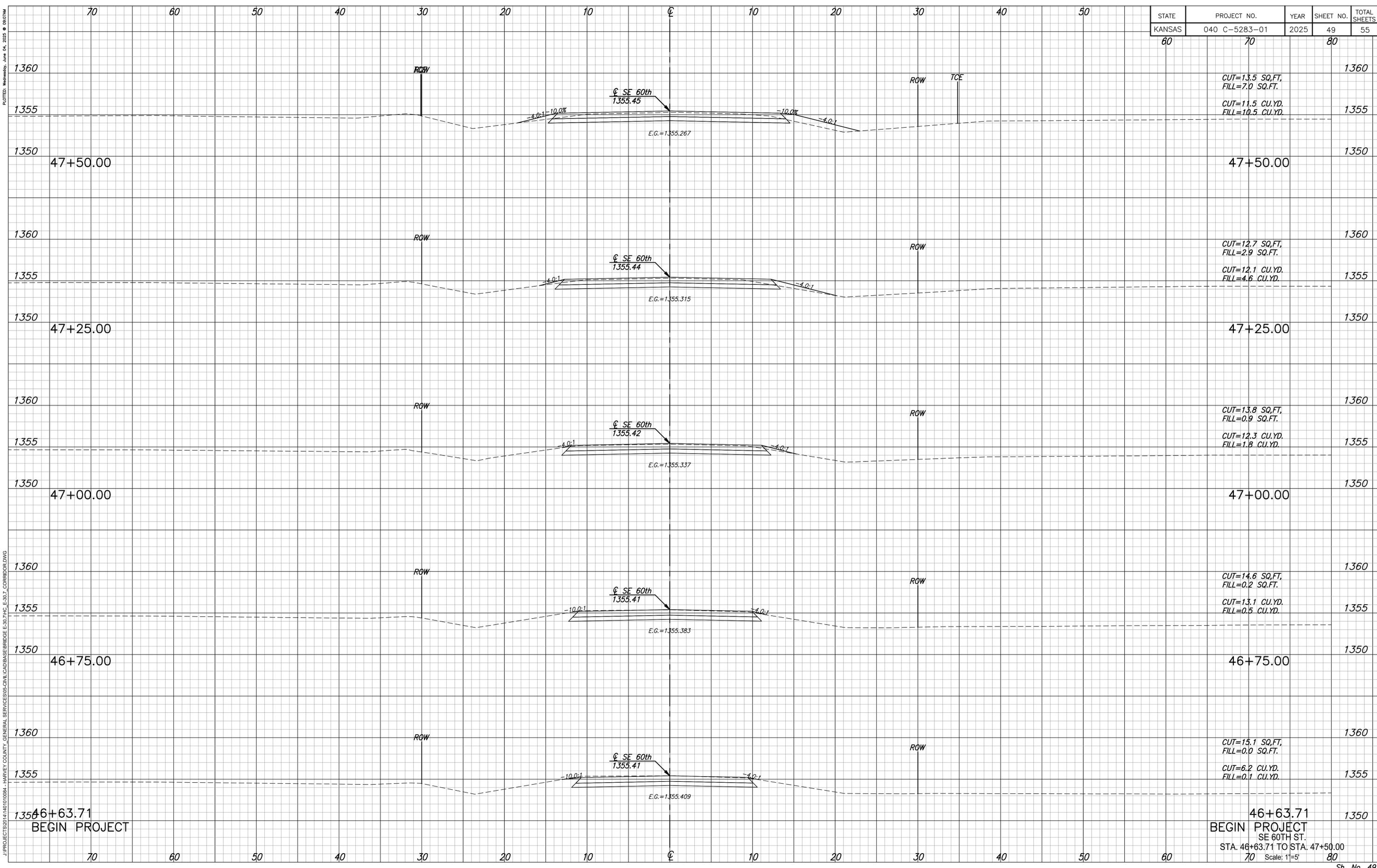
DESIGNED BY:	DJL	CHECKED BY:	JRA
DRAWN BY:	RAM	DATE:	6/5/24
		SHEET	48 OF 55

Sh. No. 48

PLOTTED: Wednesday, June 04, 2025 @ 09:07:21M

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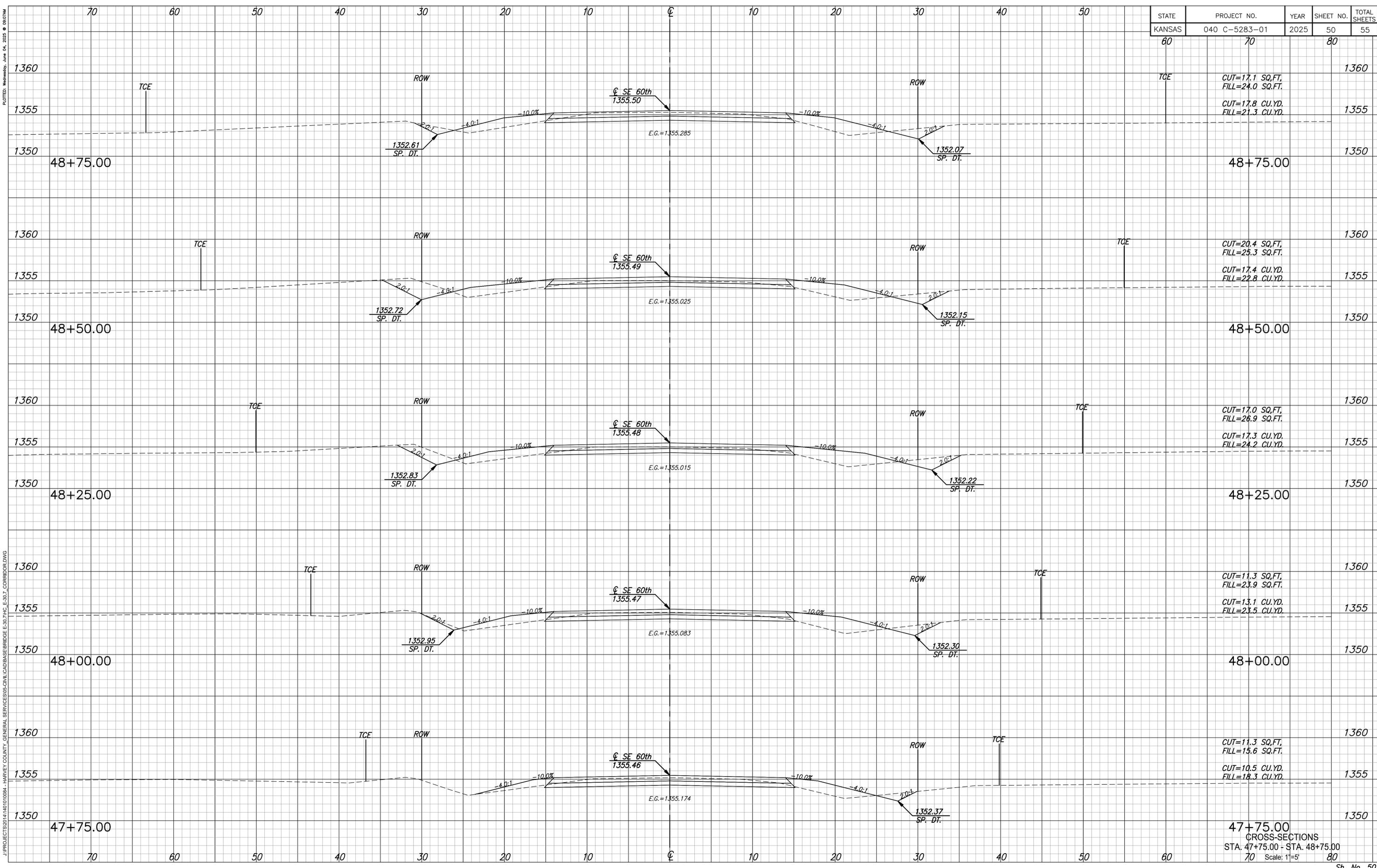
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	040 C-5283-01	2025	49	55



46+63.71  
 BEGIN PROJECT  
 SE 60TH ST.  
 STA. 46+63.71 TO STA. 47+50.00  
 Scale: 1"=5'

J:\PROJECTS\20141401010084 - HARVEY COUNTY GENERAL SERVICES\US-CIVIL\CAD\BASE\BRIDGE E-307.HC\_E-307\_CORRIDOR.DWG  
 PLOTTED: Wednesday, June 04, 2025 @ 09:07AM

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	040 C-5283-01	2025	50	55

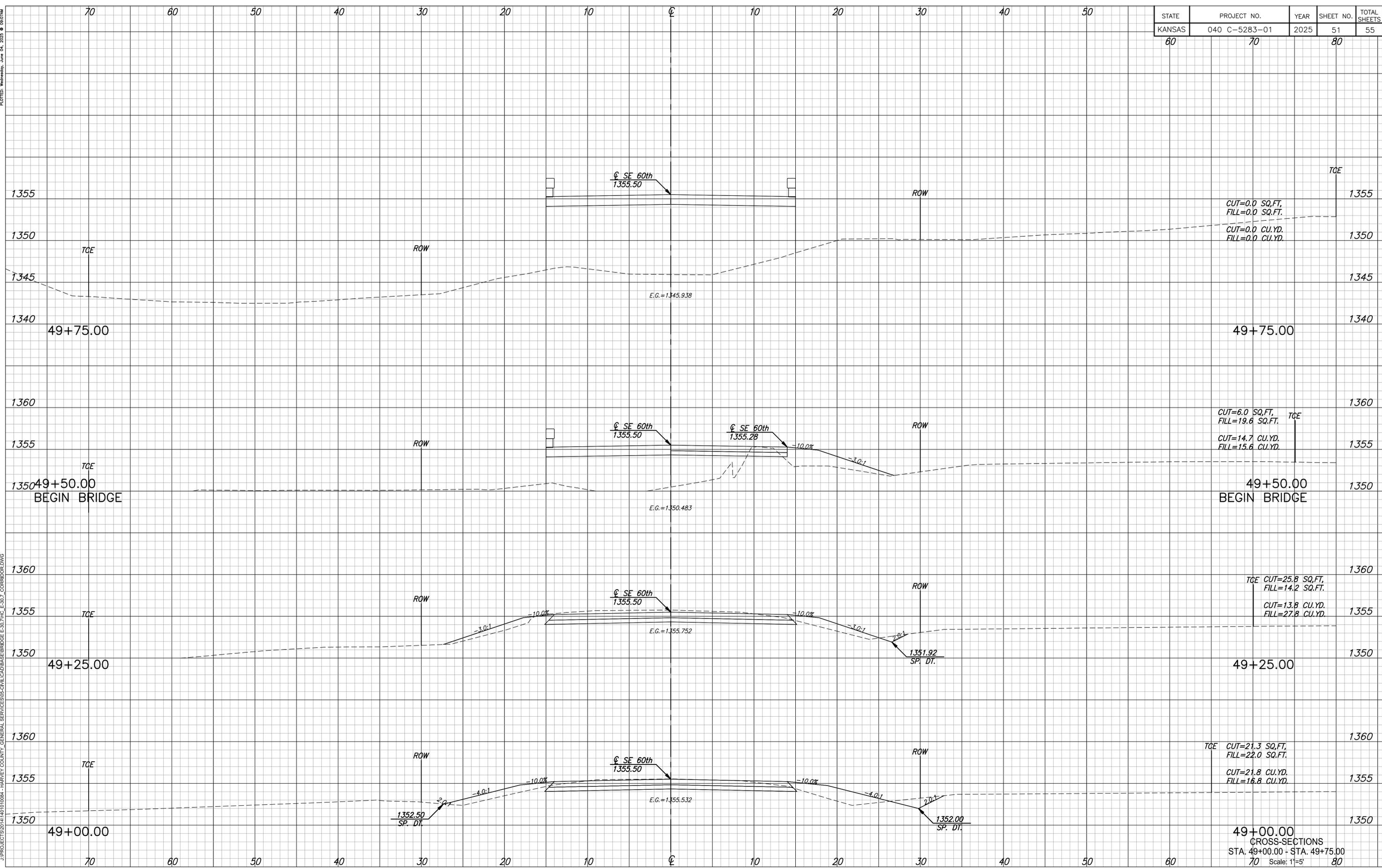


47+75.00  
 CROSS-SECTIONS  
 STA. 47+75.00 - STA. 48+75.00  
 Scale: 1"=5'  
 70 80

PLOTTED: Wednesday, June 04, 2025 @ 09:07AM

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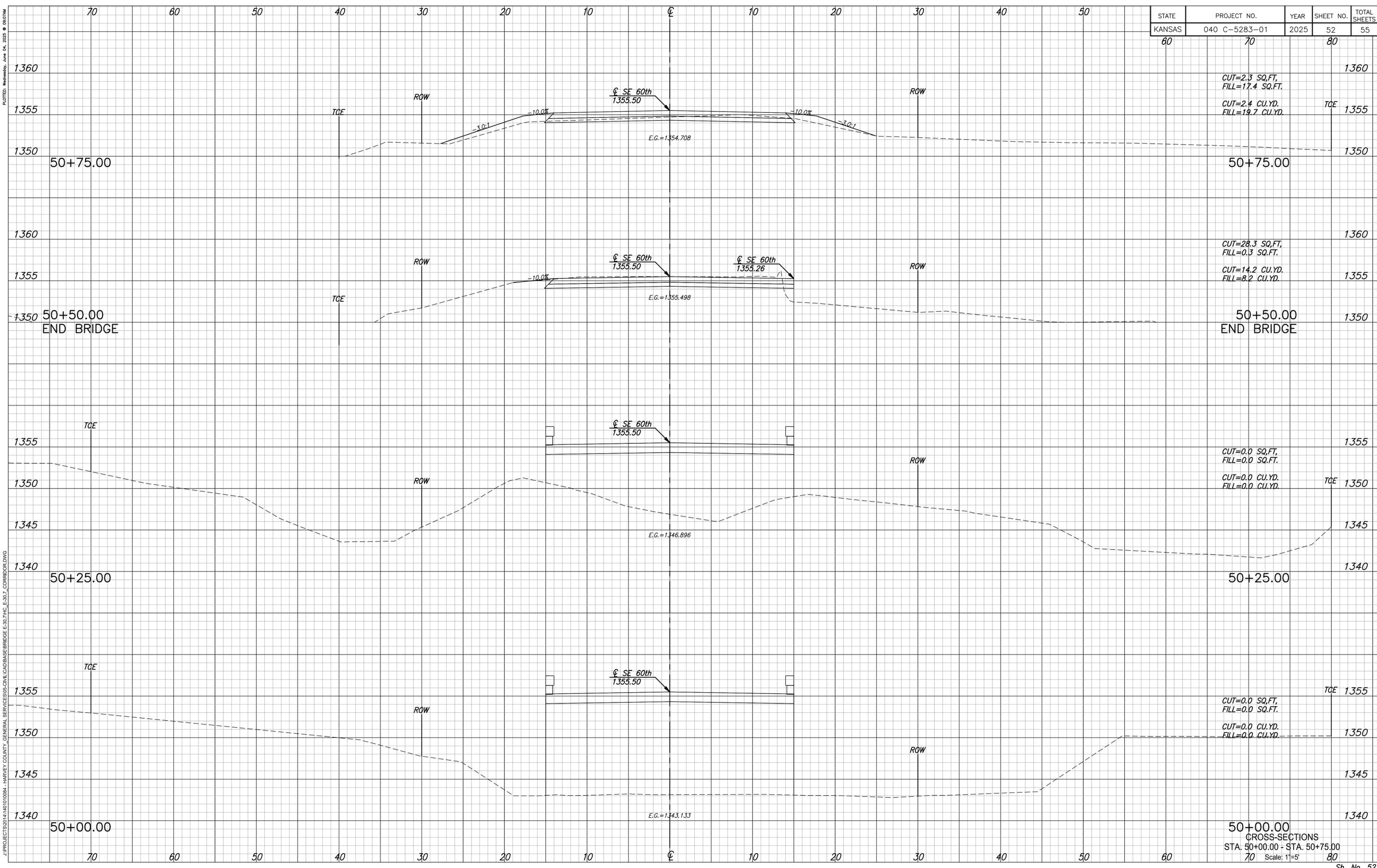
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	040 C-5283-01	2025	51	55



49+00.00  
 CROSS-SECTIONS  
 STA. 49+00.00 - STA. 49+75.00  
 70 Scale: 1"=5' 80

J:\PROJECTS\2014\10110084 - HARVEY COUNTY, GENERAL SERVICES\5-CIVIL\CAD\BASE\BRIDGE E-30.7\HC\_E-30.7\_CORRIDOR.DWG  
 PLOTTED: Wednesday, June 04, 2025 @ 09:07AM

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	040 C-5283-01	2025	52	55



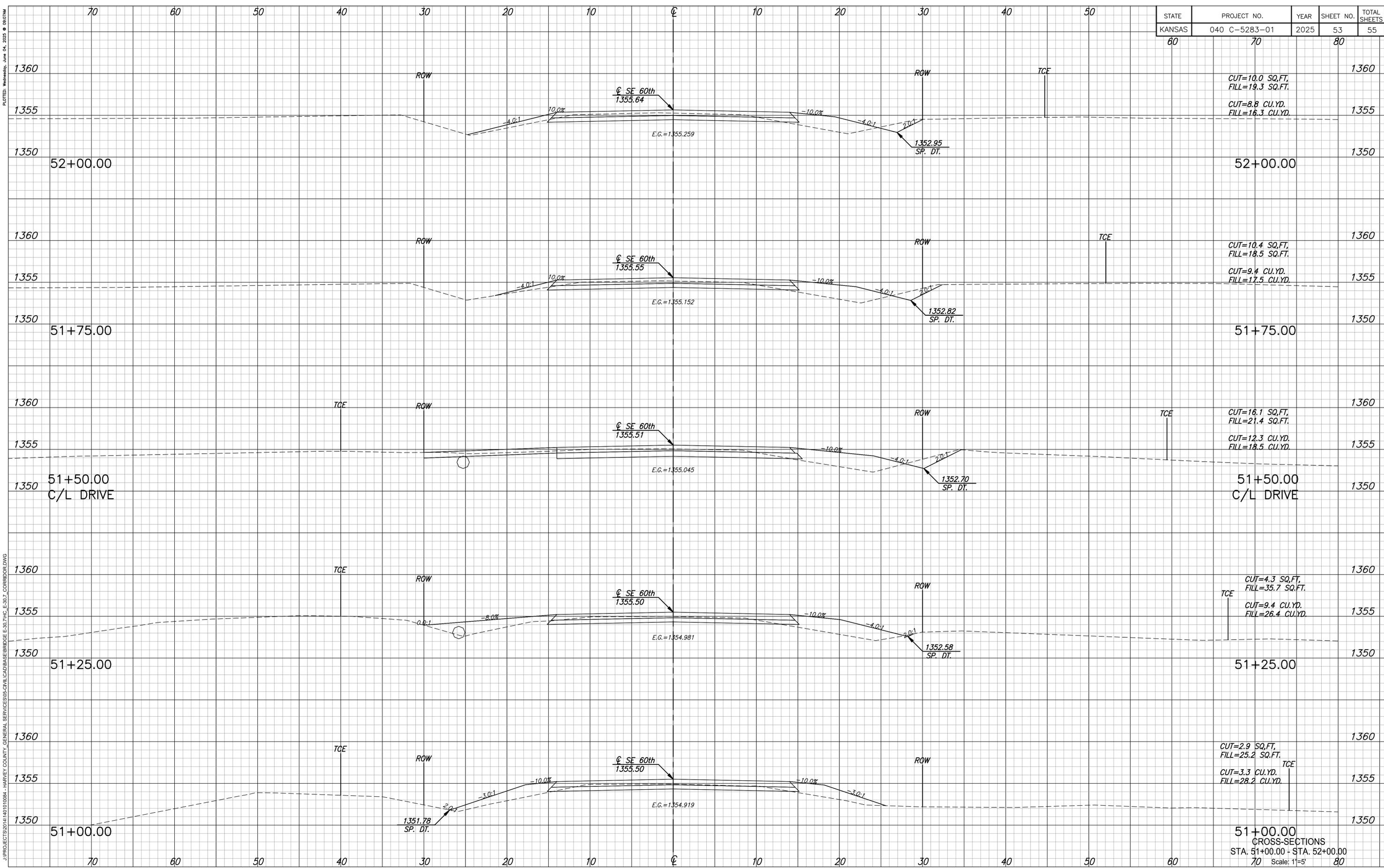
1360  
 1355  
 1350  
 50+75.00  
 1360  
 1355  
 1350  
 50+50.00  
 END BRIDGE  
 1355  
 1350  
 1345  
 1340  
 50+25.00  
 1355  
 1350  
 1345  
 1340  
 50+00.00

CUT=2.3 SQ.FT.  
 FILL=17.4 SQ.FT.  
 CUT=2.4 CU.YD.  
 FILL=19.7 CU.YD.  
 E.G.=1354.708  
 ROW  
 TCE  
 -3.0:1  
 -10.0%  
 -10.0%  
 -3.0:1  
 1355.50  
 1355.26  
 E.G.=1355.498  
 1355.50  
 1355.50  
 E.G.=1346.896  
 1355.50  
 1355.50  
 E.G.=1343.133  
 CROSS-SECTIONS  
 STA. 50+00.00 - STA. 50+75.00  
 70 80  
 Scale: 1"=5'  
 Sh. No. 52

PLOTTED: Wednesday, June 04, 2025 @ 09:07AM

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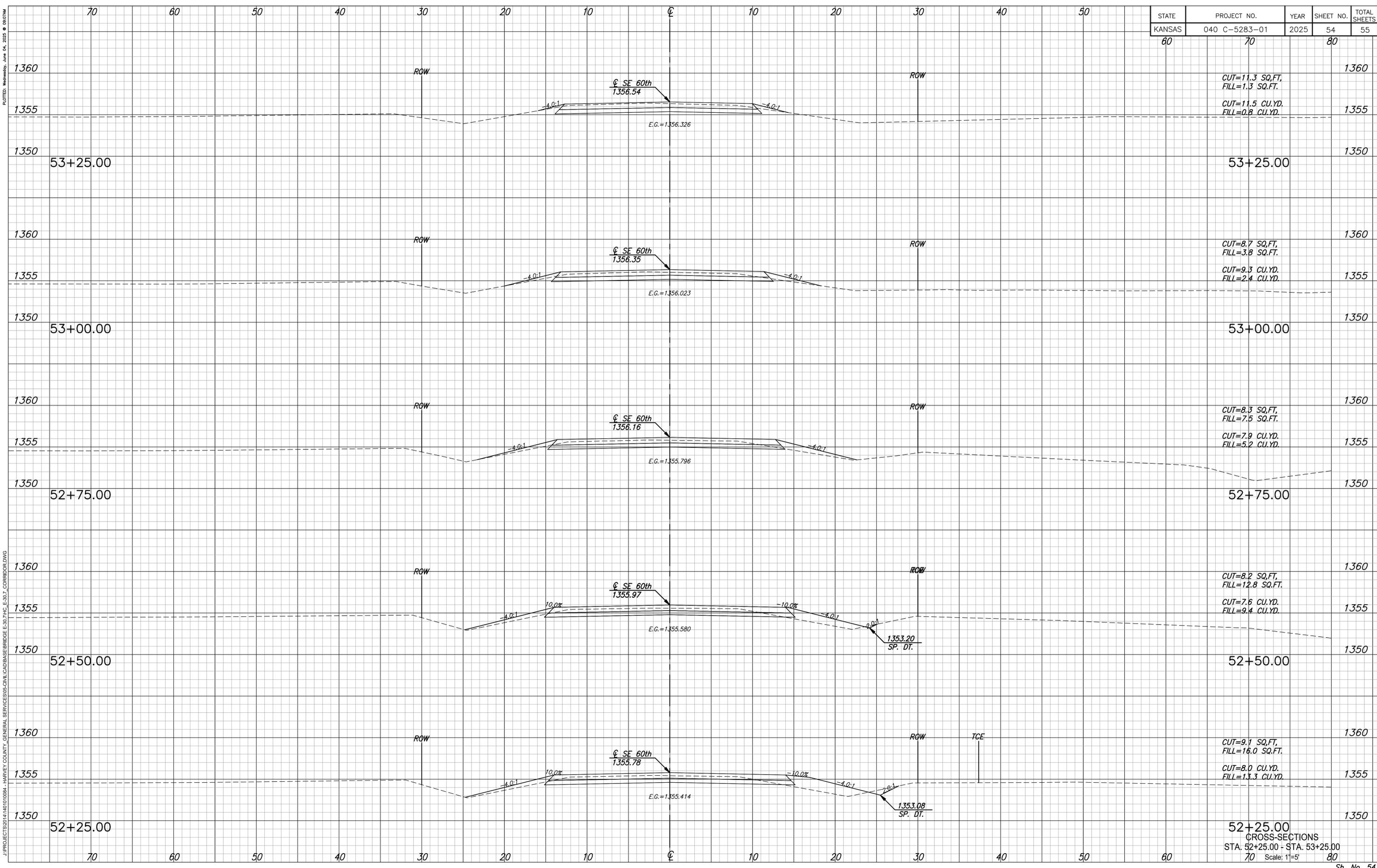
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	040 C-5283-01	2025	53	55



51+00.00  
CROSS-SECTIONS  
STA. 51+00.00 - STA. 52+00.00  
Scale: 1"=5'

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 PLOTTED: Wednesday, June 04, 2025 @ 09:07AM

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	040 C-5283-01	2025	54	55

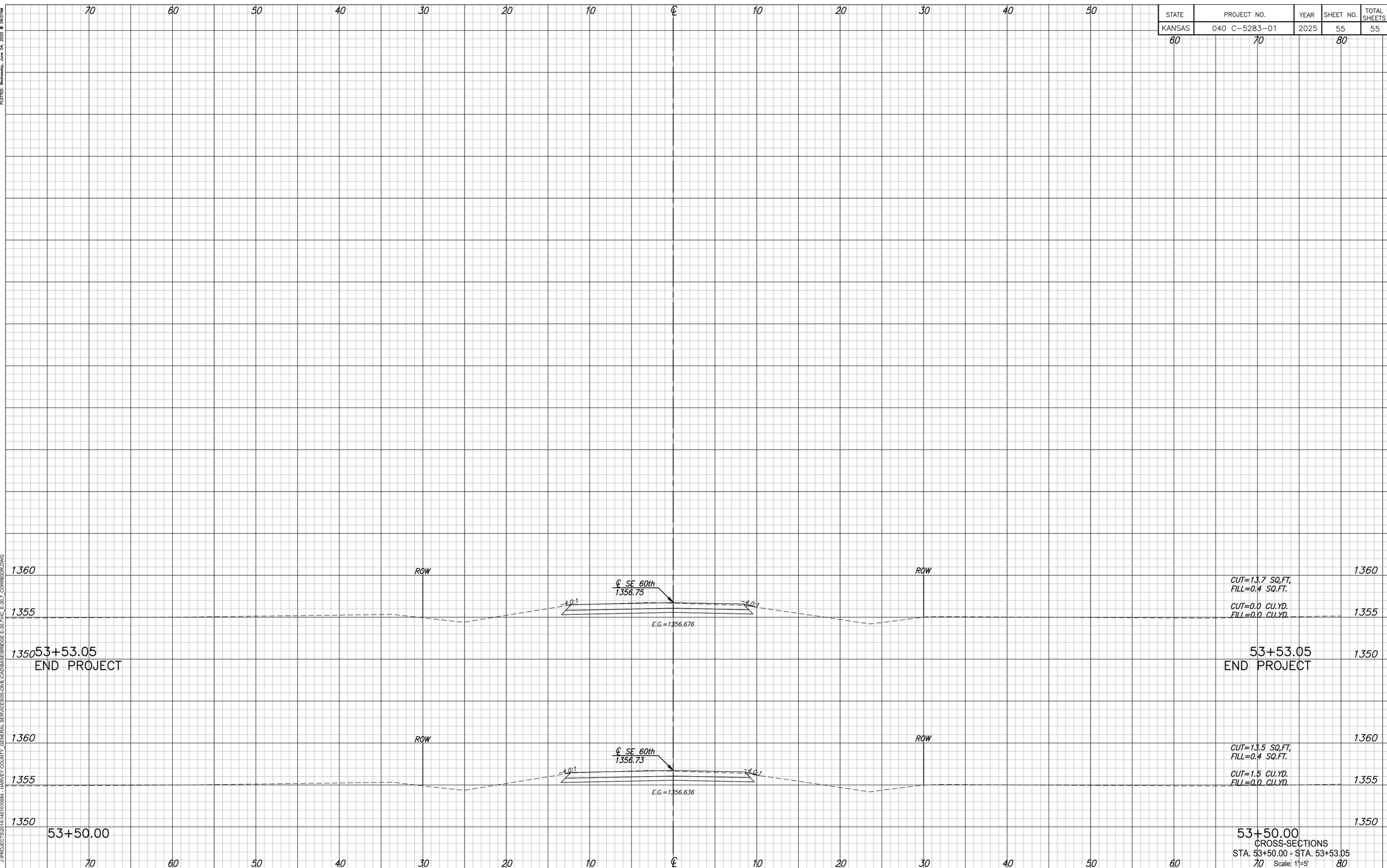


52+25.00  
 CROSS-SECTIONS  
 STA. 52+25.00 - STA. 53+25.00  
 70 Scale: 1"=5' 80

PLotted: Wednesday, June 04, 2025 @ 09:07AM

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STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	040 C-5283-01	2025	55	55
60	70		80	



53+50.00  
 CROSS-SECTIONS  
 STA. 53+50.00 - STA. 53+53.05  
 70 Scale: 1"=5' 80