STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	B2019-036 POT52	2024	1	47

LOUISVILLE ROAD OVER ROCK CREEK

BRIDGE REPLACEMENT

POTTAWATOMIE COUNTY, KANSAS

KDOT Project No. C-5300-01
County Project No. B2019-036 POT52
Bridge No. 00000000075B190

GRADING
BRIDGE
SURFACING
SEEDING

UTILITIES

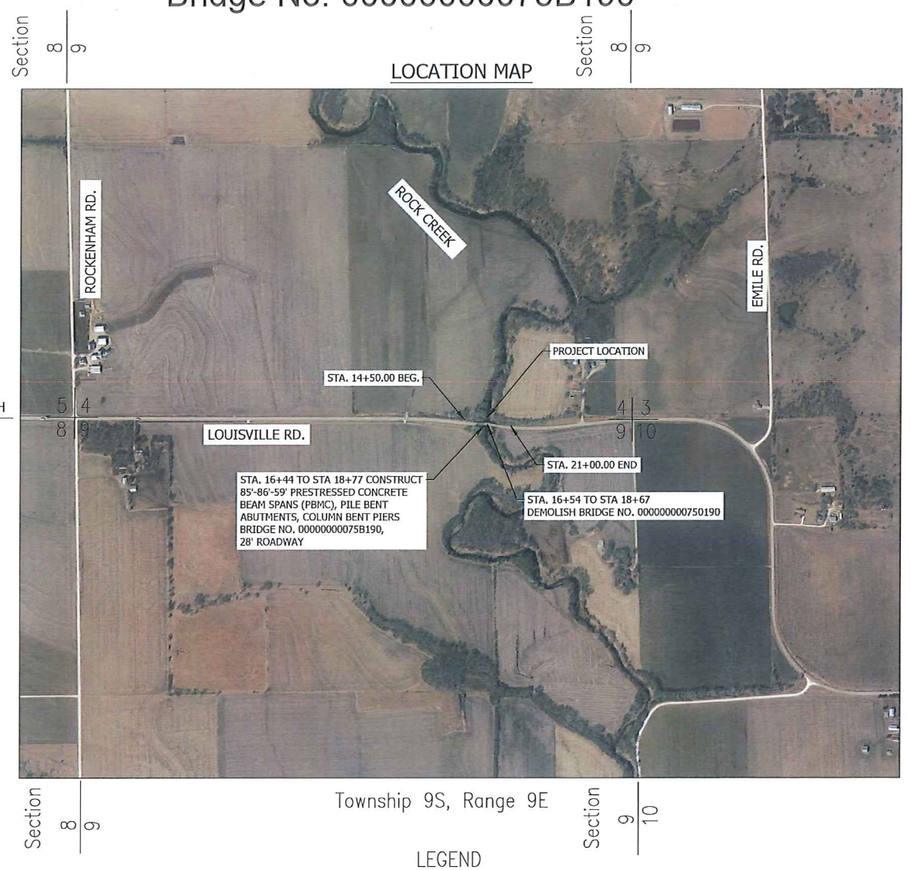
1. KANSAS ONE-CALL — 1-800-344-7233

2. POWER
EVERGY
PO BOX 889
4001 NW 14TH ST.
TOPEKA, KS 66603
DAN LUTHI
Dan.Luthi@evergy.com

3. FIBER OPTIC
WTC FIBER
1009 LINCOLN AVE P.O. BOX 25
WAMEGO, KS 66547
SHAWN SMITH
SSMITH@WTCKS.COM

WTC FIBER
1009 LINCOLN AVE P.O. BOX 25
WAMEGO, KS 66547
COLE HEMPHILL
CHEMPHILL@WTCKS.COM

LOCATION MAP



Not to Scale

INDEX OF SHEETS

DESIGN DESIGNATION

AADT (2023)	= 185 vpd
AADT (2045)	= 300 vpd
DHV	= 20%
D	= 55%
T	= 10%
V	= 55 mph
CLEAR ZONE	= 18 ft.

GROSS LENGTH OF PROJECT	650.0 ft.	
EXCEPTIONS	0	
ADDITIONS	0	
NET LENGTH OF PROJECT	650.0 ft.	0.118 Miles
NET LENGTH OF BRIDGES	233.0 ft.	0.044 Miles
NET LENGTH OF ROAD	417.0 ft.	0.074 Miles

LEGEND

WATER METER	GUY WIRE
WATER VALVE	CHAIN LINK FENCE
FIRE HYDRANT	WOOD FENCE
GAS METER	PROPERTY LINE
GAS VALVE	SECTION LINE
POWER POLE	G — GAS LINE & SIZE
TREE	W — WATERLINE & SIZE
BUSH	UGTV — CABLE TELEVISION LINE
TELEPHONE PED.	UGP — UNDERGROUND POWER LINE
TELEPHONE POLE	UGT — UNDERGROUND TELEPHONE LINE
STREET SIGN	12" SAN. — SANITARY SEWER & SIZE
SANITARY SEWER MANHOLE	18" RCP — STORM SEWER & SIZE
MAILBOX	PLUG PIPE
	PAVEMENT TO BE REMOVED

JEFFREY S. LOLLEY LICENSED 18372 6-19-24 KANSAS PROFESSIONAL ENGINEER

APPROVED BY COUNTY ENGINEERING DIVISION

COUNTY ENGINEER _____ DATE _____

NO.	DATE	REVISION	BY	APP'D

LOUISVILLE ROAD BRIDGE
TITLE SHEET

DATE:
Bartlett&West

DATE: 2024
W.O.: 16756.224
1 OF 47

GENERAL NOTES

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.

THE UTILITIES AS SHOWN ON THIS DRAWING WERE DEVELOPED FROM THE INFORMATION AVAILABLE. THIS IS NOT IMPLIED NOR INTENDED TO BE THE COMPLETE INVENTORY OF UTILITIES IN THIS AREA. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THE LOCATION OF ALL UTILITIES (WHETHER SHOWN OR NOT) AND PROTECT SAID UTILITIES FROM ANY DAMAGE.

EXISTING GUARDRAIL AND STEEL HANDRAIL ON THE BRIDGE TO BECOME THE PROPERTY OF THE COUNTY. CONTRACTOR SHALL REMOVE IN A SALVAGEABLE CONDITION & STOCKPILE IN RIGHT-OF-WAY FOR REMOVAL BY COUNTY PERSONNEL.

ASPHALT PAVEMENT REMOVAL INCLUDES FULL DEPTH PAVEMENT REMOVAL AND THE DESIGNATED 1" MILL. ASPHALT TO BE REMOVED IS TO BE MILLED AND WILL BECOME THE PROPERTY OF THE COUNTY AND HAULED BY THE CONTRACTOR TO THE MIXING STRIP LOCATED A HALF MILE SOUTHWEST OF WESTMORELAND ON FLUSH ROAD.

THE EXISTING BRIDGE WILL BECOME THE PROPERTY OF THE CONTRACTOR. ALL LABOR, EQUIPMENT, AND MATERIALS NECESSARY FOR THE REMOVAL OF THE EXISTING BRIDGE WILL BE INCLUDED IN THE BID ITEM, "REMOVAL OF EXISTING STRUCTURES".

BORROW SITE SHALL BE APPROVED BY THE COUNTY PRIOR TO CONSTRUCTION. NECESSARY PERMITS MUST BE OBTAINED BY THE CONTRACTOR AT HIS OWN EXPENSE. CONTRACTOR MUST OBTAIN POTTAWATOMIE COUNTY BORROW PERMIT FROM COUNTY PLANNING & DEVELOPMENT DEPARTMENT.

ALL COMPACTION NECESSARY FOR THE PROJECT SHALL BE SUBSIDIARY TO OTHER EARTHWORK QUANTITIES. ALL COMPACTION UNDERNEATH THE ROADWAY SHALL BE TYPE AA.

TEMPORARY PAVEMENT MARKINGS TO BE INSTALLED AND SHALL BE SUBSIDIARY TO OTHER BID ITEMS.

PERMANENT PAVEMENT MARKINGS WILL BE INSTALLED BY THE COUNTY AT A LATER DATE.

ANY WATER NECESSARY FOR CONSTRUCTION IS SUBSIDIARY TO OTHER BID ITEMS.

THE STEEL BEAMS WILL BECOME THE PROPERTY OF THE CONTRACTOR. THE EXISTING CONCRETE CAN BE CRUSHED AND USED FOR SLOPE PROTECTION IF ALL EXPOSED STEEL IS REMOVED. THE RAILING FROM THE EXISTING GUARDRAIL AND STEEL PLATE ON THE BRIDGE WILL BECOME PROPERTY OF THE COUNTY.

THE EXISTING DETOUR WHICH UTILIZES ROCKENHAM ROAD, HANSON ROAD, AND JENKINS ROAD IS TO REMAIN IN PLACE AND BE MAINTAINED BY THE OWNER.

ALL ADVANCED WARNING AND ROAD CLOSURE SIGNAGE TO BE THE RESPONSIBILITY OF THE CONTRACTOR. CONTRACTOR WILL COORDINATE WITH POTTAWATOMIE COUNTY FOR REMOVAL OF EXISTING ROAD CLOSURE SIGNAGE. COUNTY TO SIGN AND MAINTAIN DETOUR.

ASPHALT MILLING A TIE-INS TO BE COMPLETED JUST PRIOR TO ASPHALT OVERLAY. MILLINGS TO BECOME PROPERTY OF THE COUNTY.

REMOVAL OF EXISTING ASPHALT PAVEMENT TO BE PAID FOR AS ASPHALT PAVEMENT REMOVAL, AND FULL DEPTH BASE REMOVAL TO BE PAID FOR AS COMMON EXCAVATION (RURAL SMALL).

CONTRACTOR TO SET TWO TEMPORARY BENCHMARKS PRIOR TO DEMOLITION OF BRIDGE. CONTRACTOR TO INSTALL 2 NEW PERMANENT BRASS DISCS ON BRIDGE WHEN CONSTRUCTION IS COMPLETED. TEMPORARY AND PERMANENT BENCHMARKS ARE SUBSIDIARY TO "CONTRACTOR CONSTRUCTION STAKING".

ROADWAY QUANTITIES

	Item No.	Description	Quantity	Unit
		Base Bid		
	1	CONTRACTOR CONSTRUCTION STAKING	1	LS
	2	MOBILIZATION	1	LS
	3	REMOVAL OF EXISTING STRUCTURES	1	LS
	4	CLEARING AND GRUBBING	1	LS
	5	COMMON EXCAVATION (RURAL SMALL)	4,549	CY
	6	ASPHALT PAVEMENT REMOVAL	135	CY
	7	EMBANKMENT	2,886	CY
	8	TRANSPORTING SALVAGEABLE MATERIAL	701	CY
	9	GUARDRAIL, STEEL PLATE	100	LF
	10	GUARDRAIL END TERMINAL (SRT)	4	EA
	11	SLOPE PROTECTION RIPRAP (LIGHT STONE) (200 LB)	120	CY
3	12	BRIDGE APPROACH SLAB FOOTING	17	*CY
	13	CONCRETE PAVEMENT (10" UNIFORM) (AE) (BR APP)	81	SY
	14	MILLING	453	SY
	15	AGGREGATE BASE (AB-3) (6")	658	SY
	16	AGGREGATE SHOULDER (AB-3) (6")	278	SY
	17	HMA-COMMERCIAL GRADE (CLASS A)	329	TN
3	18	*TEMPORARY SEEDING AND FERTILIZER	1.25	*AC
3	19	*PERMANENT SEEDING	1.25	*AC
3	20	*SOIL EROSION MIX	375	LBS
3	21	*EROSION CONTROL (CLASS I, TYPE D)	5,800	SY
3	22	*SEDIMENT REMOVAL (SET PRICE)	1	CY
3	23	*TEMPORARY BERM (SET PRICE)	1	LF
3	24	*TEMPORARY DITCH CHECK (ROCK)	10	CY
3	25	*BIODEGRADABLE LOG (20")	1,000	LF
3	26	*SILT FENCE	1,000	LF
3	27	*SWPPP DESIGN	1	LS
3	28	*SWPPP INSPECTION	40	EA
3	29	*WATER POLLUTION CONTROL MANAGER	40	EA
3	30	*MULCHING	2.5	TN
3	31	*WATER (EROSION CONTROL) (SET PRICE)	1	MGAL
	32	TRAFFIC CONTROL	1	LS

For Guardrail Quantities See Sheet No. 9
For Seeding Quantities See Sheet No. 39,40
For Erosion Control Quantities See Sheet No. 40
For Bridge Quantities See Sheet No. 15

REVISED PLANS

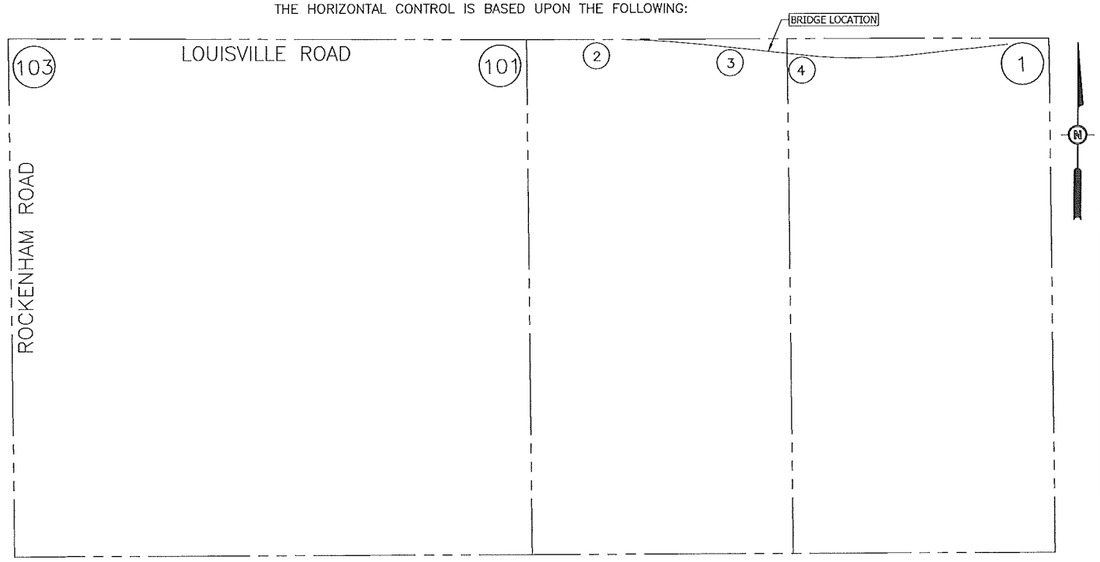
#	DATE	DESCRIPTION	BY
3	7/11/2024	VARIOUS EROSION CONTROL QUANTITIES HAVE BEEN ADDED OR UPDATED. SEEDING UNITS REVISED TO ACRES. UNITS FOR BRIDGE APPROACH SLAB FOOTING REVISED TO CUBIC YARDS.	JBB

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	B2019-036 POT52	2024	2	47

PROJECT CONTROL

VERTICAL DATUM: NORTH AMERICAN NAVD88 (GEOID 18)

THE HORIZONTAL CONTROL IS BASED UPON THE FOLLOWING:



SECTION LINE POINTS

(103) NW CORNER SECTION 9-9-9 (N 352439.02 E 1757787.90)
1. 3/4" REBAR

(101) N 1/4 CORNER SECTION 9-9-9 (N 352433.00 E 1760438.32)

(1) NE 1/4 CORNER SECTION 9-9-9 (N 352438.56 E 1763103.13)
1. 1/2" REBAR

HORIZONTAL CONTROL POINTS

(1) H.C.P. #1
N 352438.56 E 1763103.13 ELEV = 1051.809
1. ½" Rebar

(2) H.C.P. #2
N 352438.56 E 1763103.13 ELEV = 1048.45
1. ½" Rebar Set

BENCHMARKS

(3) U-POST
N 352366.024 E 1761485.413
STA. 15+37.60, 25.12' RT., ELEV. = 1048.331

(4) SQUARE CUT IN BRIDGE
N 352345.229 E 1761816.958
STA. 18+69.46, 10.65' RT., ELEV. = 1053.616

*CONTRACTOR TO INSTALL TWO TEMPORARY BENCHMARKS PRIOR TO DEMOLITION OF EXISTING BENCHMARKS. TWO PERMANENT BRASS DISCS TO BE INSTALLED AFTER COMPLETION OF THE NEW BRIDGE.

LEGEND

- ASPHALT PAVEMENT
- CONCRETE PAVEMENT
- AS-1 SHOULDER
- RIPRAP
- SLOPE PROTECTION
- GUARDRAIL WIDENING

NO.	DATE	REVISION	BY	APP'D

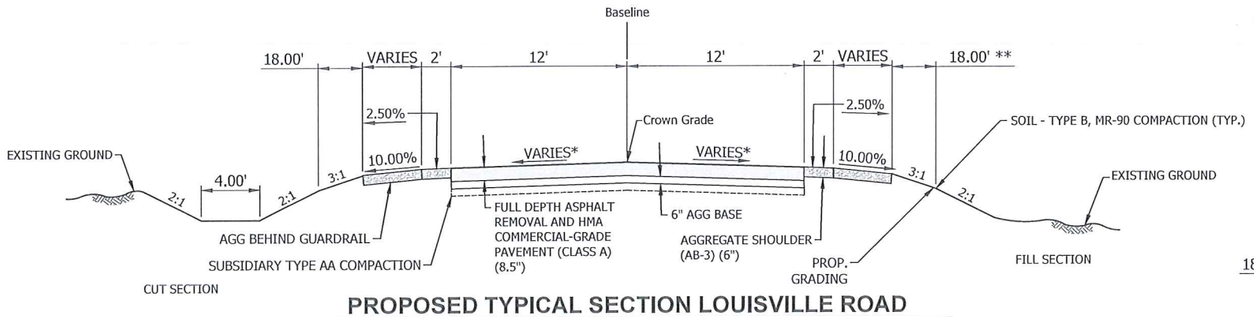
LOUISVILLE ROAD BRIDGE
GENERAL NOTES

DATE:
Bartlett & West

DATE: 2024
W.O.: 16756.224
2 OF 47

Last edit on: 7/11/2024 3:43:24 PM by: JBB01710 Drawing Name: W:\Proj\16001\16750\16756.224\AutoCad\Plan Set\16756.224C_General Notes.DWG Layout Name: GENERAL NOTES Plotted By: JBB01710 Plotted on: 7/11/2024 3:43:24 PM

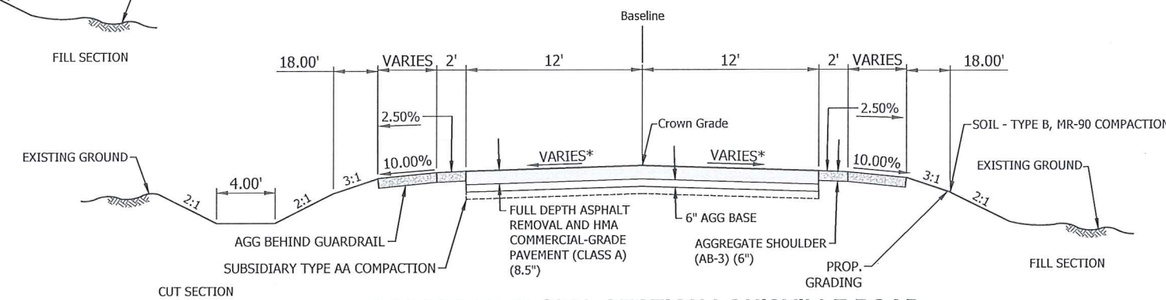
BAR IS ONE INCH ON OFFICIAL DRAWINGS. 0 1" IF NOT ONE INCH, ADJUST SCALE ACCORDINGLY.



PROPOSED TYPICAL SECTION LOUISVILLE ROAD

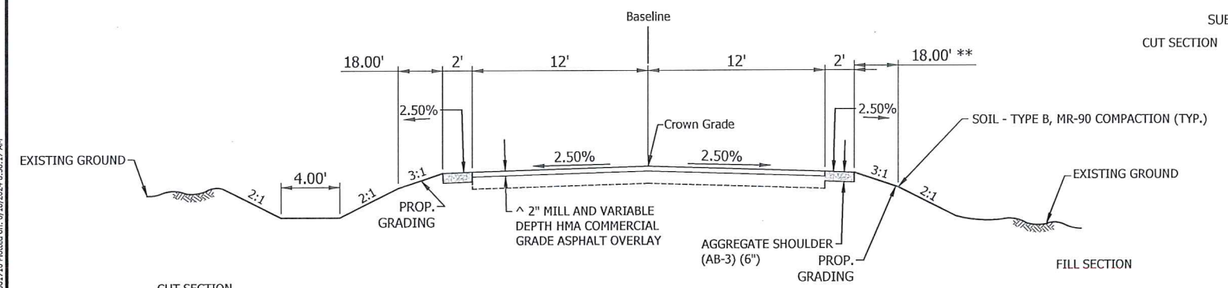
STA. 15+20.00 TO STA. 16+31.00

** 3:1 SECTION IS 12.00' WIDE LT. SIDE- SEE CROSS SECTIONS



PROPOSED TYPICAL SECTION LOUISVILLE ROAD

STA. 18+90.00 TO STA. 20+00.00

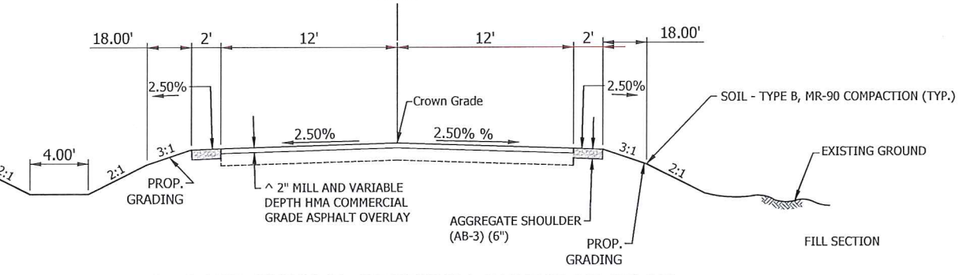


PROPOSED TYPICAL SECTION LOUISVILLE ROAD

STA. 14+50.00 TO STA. 15+20.00

^ 2" MILL ONLY FROM STA. 14+50.00 TO STA. 14+75.00

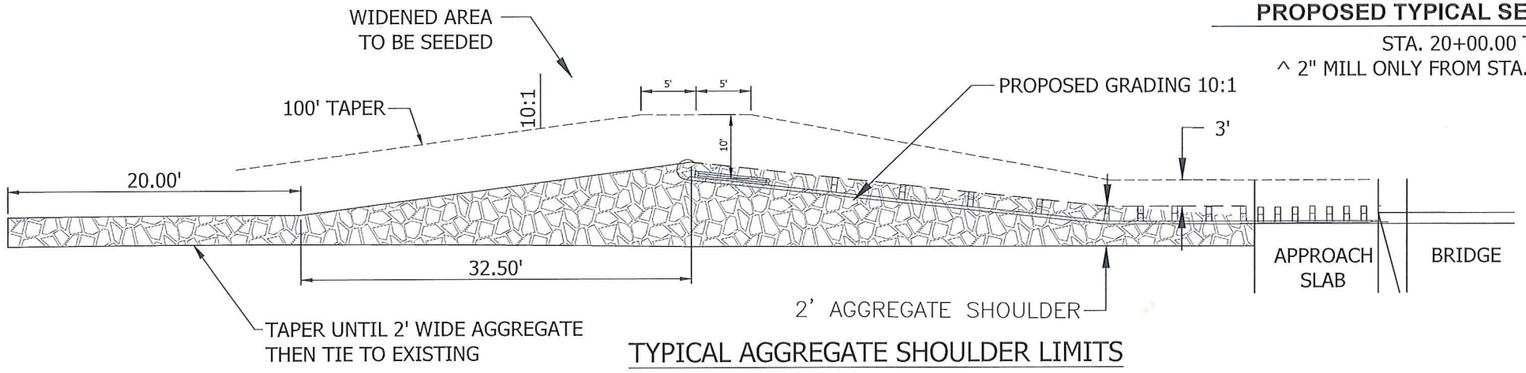
** 3:1 SECTION IS 12.00' WIDE LT. SIDE- SEE CROSS SECTIONS



PROPOSED TYPICAL SECTION LOUISVILLE ROAD

STA. 20+00.00 TO STA. 21+00.00

^ 2" MILL ONLY FROM STA. 20+75.00 TO STA. 21+00.00



TYPICAL AGGREGATE SHOULDER LIMITS

* NOTE:
CROSS GRADE SLOPE WILL TRANSITION FROM 1.60% TO 2.50% WITHIN 50.00' OF EACH END OF THE BRIDGE. THE SLOPE OF THE AGGREGATE SHOULDERS WILL TRANSITION TO 2.50% WITHIN 25.00' OF EACH END OF THE BRIDGE.

NO.	DESCRIPTION	DATE	BY

Bartlett & West
230 POYNTZ AVENUE - MANHATTAN KS 66502
PHONE 785.272.2252 - FAX 785.273.8735
www.bartlettwest.com

TYPICAL SECTIONS

LOUISVILLE ROAD BRIDGE
BRIDGE REPLACEMENT
POTTAWATOMIE COUNTY, KANSAS

BID PLANS

DESIGNED BY:	JBB
DRAWN BY:	JBB
APPROVED BY:	---
DESIGN PROJ:	16756.224
CONST PROJ:	B2019-036 POT52
SCALE:	AS NOTED
DATE:	JULY 2024
DRAWING NO:	3
SHEET NO:	3 of 47

Last edit on: 6/6/2024 3:13 PM by: JBB01710 Drawing Name: W:\Proj\16000\16756\16756.224\AutoCad\Plan Set\16756.224C_TYPICAL SECTIONS.dwg Layout Name: TYPICAL SECTIONS Plotted By: JBB01710 Plotted on: 6/18/2024 8:58:17 AM

BAR IS ONE INCH ON OFFICIAL DRAWINGS. 0 1" IF NOT ONE INCH, ADJUST SCALE ACCORDINGLY.

P.O.T STA 10+00.00
N 352430.61 E 1760952.21
1. NOT SET

EBERT, FRED L & FRIEDA M TRUST
6240 SALZAR RD, WAMEGO, KS

EBERT, TIMOTHY J & LISA
13105 LOUISVILLE RD, ST GEORGE, KS

CONST. LIMITS
EXISTING R/W
PROPERTY LINE
SECTION LINE
14+70.38
42.84' LT
18+80.71
81.80' LT

STA. 14+50 BEGIN PROJECT
N 352400.30, E 1761400.97

STA. 14+75 TO 15+20
VARIABLE OVERLAY

STA. 15+20 TO 16+31 FULL
DEPTH REPLACEMENT

STA. 16+31 TO 16+44
CONSTRUCT BRIDGE
APPROACH SLAB

16+44 TO 17+55
ADD SLOPE PROTECTION
RIPRAP

GRADING LIMITS

14+00 15+00 16+00 17+00 18+00 19+00

Az. 96°05'35"

MATCHLINE STA. 18+25
SEE SH. NO. 5

LOUISVILLE ROAD

PT 14+32.28

STA. 14+50 TO 14+75
2" MILL VARIABLE OVERLAY

STA. 15+20 SAW CUT

PT 3
BENCHMARK
U-POST
N 352366.024, E 1761485.413
STA. 15+37.60, 25.12' RT.
ELEV=1048.331

OHE
FO

WTC FIBER OPTIC:
12' DEEP AT FLOWLINE

14+31.58
49.87' RT

16+91.95
54.82' RT

PIERS TO BE REMOVED AT LEAST
2' BELOW EXISTING GROUND LINE
DURING DEMOLITION
STA. 17+18 & 18+03

18+28.42
44.65' RT

18+29.60
54.31' RT

19+02.35
39.42' RT

19+02.71
69.49' RT

P.I. STA 13+50.00 (Bk)
P.I. STA 14+32.25 (Ahd)
0.154' Lt. STA. 13+91.13
Δ = 0° 51' 45.87"
D = 1° 02' 54.75"
L = 82.25'
T = 41.03'
R = 5450.00'
E = 0.154'

4' (typ.)

CROP LINE
EXISTING R/W
CONST. LIMITS
PROPOSED ROW
PROPERTY LINE

15+77.45
99.97' RT

UMSCHEID, ELDON & RANDALL, BERNADETTE
12470 LOUISVILLE RD, ST GEORGE, KS

EBERT, DOLORES A TRUST
13170 LOUISVILLE RD, ST GEORGE, KS

SCALE: 1" = 20'

PVI STA = 17+60.00
PVI ELEV = 1056.00
K = 209
VC = 480.00'

STA: 14+00.00 ELEV: 1052.21
STA: 14+25.00 ELEV: 1052.35
STA: 14+50.00 ELEV: 1052.48
STA: 14+75.00 ELEV: 1052.62
STA: 15+20.00 ELEV: 1053.12

0.56% 0.52% 0.60% 1.10%

BEGIN PROJECT

PROPOSED GRADE
STA: 17+60.00
ELEV: 1054.62

EXISTING GROUND
PROPOSED GROUND
3:1
2:1

STA: 17+06.90
ELEV: 1030.00

STA: 17+48.20
ELEV: 1021.00

ORDINARY HIGH WATER ELEV. 1019.85'

Common Excavation (Rural Small) = 4549 CY (VMF = .75)
Excess Material = 701 CY
Embankment = 2886 CY

1060 1055 1050 1045 1040 1035 1030 1025 1020 1016

1052.21 1052.2 | 1052.35 1052.3 | 1052.48 1052.5 | 1052.62 1052.6 | 1052.90 1052.8 | 1053.18 1052.8 | 1053.46 1052.9 | 1053.71 1052.9 | 1053.93 1052.9 | 1054.12 1052.9 | 1054.28 1052.9 | 1054.40 1049.2 | 1054.50 1038.7 | 1054.57 1036.3 | 1054.61 1019.7 | 1054.62 1018.8 | 1054.60 1025.2 | 1054.55 1034.8 | 1054.47 1042.2 | 1054.36 1052.9 | 1054.22 1053.1 | 1054.05 1053.2 | 1053.85 1053.3

14+00 15+00 16+00 17+00 18+00 19+00 19+50

Bartlett&West
239 POYNTZ AVENUE - MANHATTAN KS 66502
PHONE 785.272.2252 - FAX 785.273.8735
www.bartlettwest.com

DESCRIPTION | DATE

STA. 14+50 - 18+25 PLAN AND PROFILE

LOUISVILLE ROAD BRIDGE
BRIDGE REPLACEMENT
POTTAWATOMIE COUNTY, KANSAS

BID PLANS

DESIGNED BY:	JBB
DRAWN BY:	JBB
APPROVED BY:	JSL
DESIGN PROJ:	16756.224
CONST PROJ:	B2019-036 POT52
SCALE:	AS NOTED
DATE:	JULY 2024
DRAWING NO:	4
SHEET NO:	4 of 47

Last edit on: 6/18/2024 3:39 PM by: JBB01710 Drawing Name: W:\Proj\16000\16756\16756.224\AutoCad\Plan Sets\16756.224c_PlaPr.dwg Layout Name: STA. 14+50 - 18+25 Plotted By: JBB01710 Plotted on: 6/19/2024 9:45:43 AM

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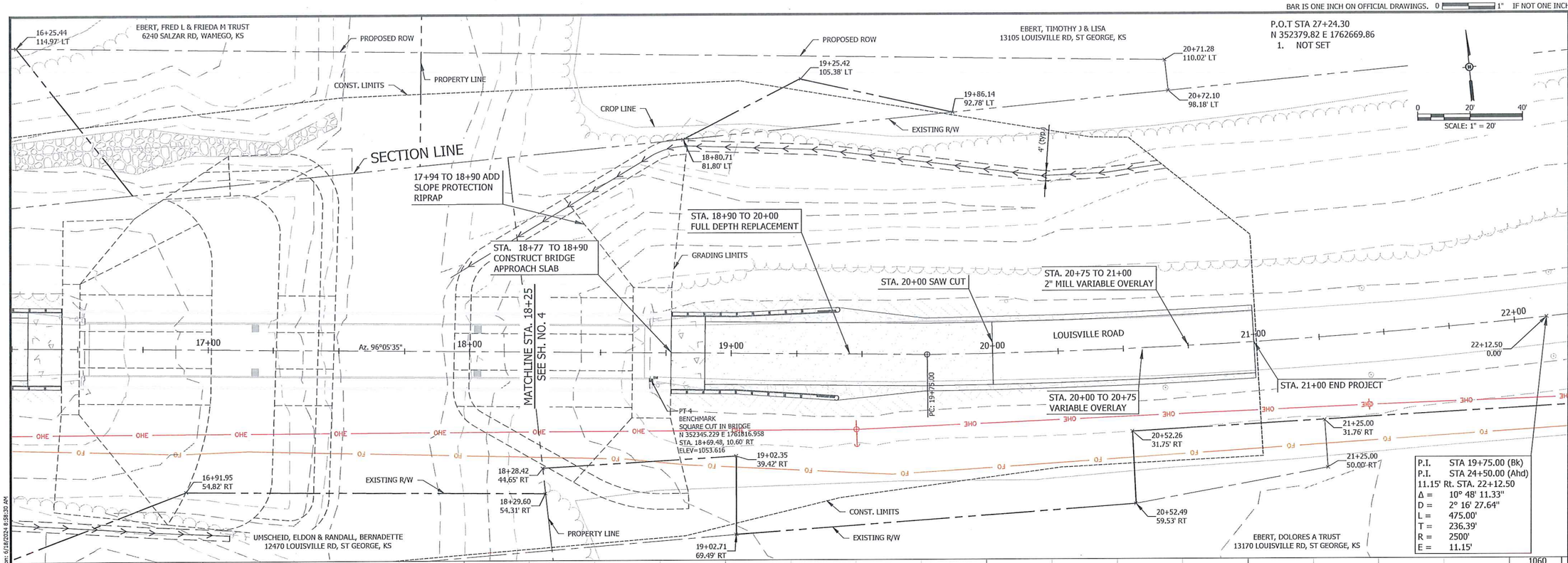

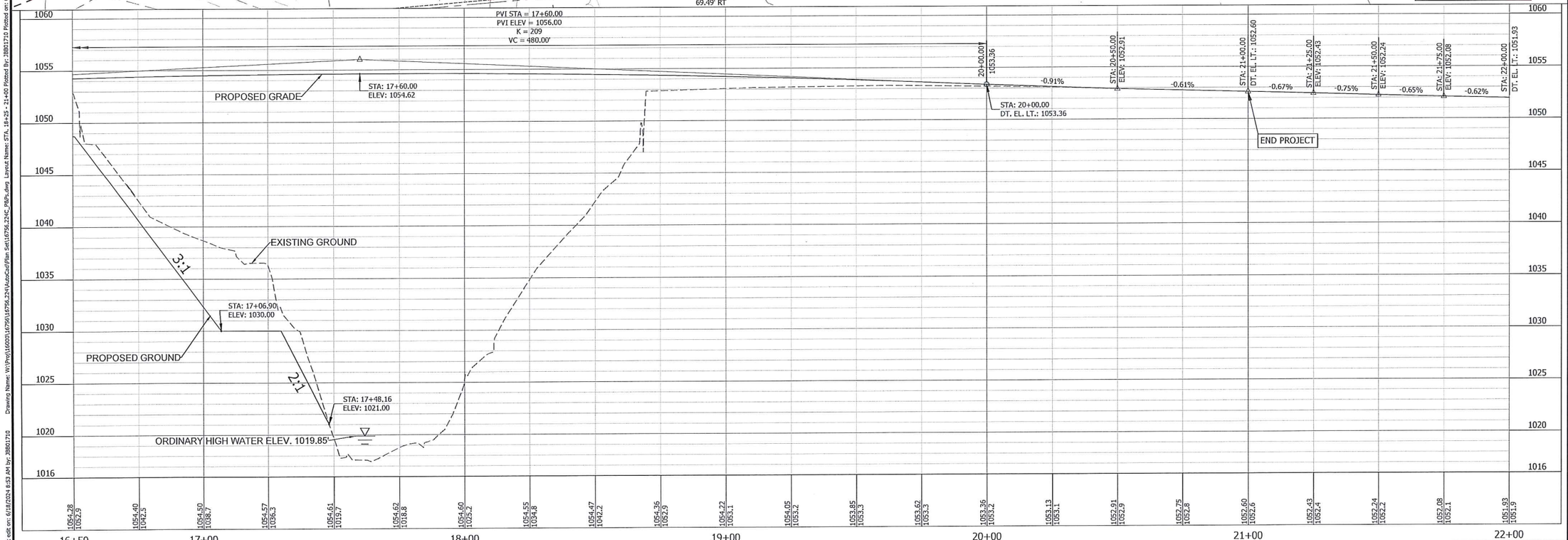

Bartlett & West
230 POYNTZ AVENUE - MANHATTAN KS 66502
PHONE 785.272.2252 - FAX 785.273.6735
www.bartletttwest.com

STA. 18+25 - 21+00 PLAN AND PROFILE

LOUISVILLE ROAD BRIDGE
BRIDGE REPLACEMENT
POTTAWATOMIE COUNTY, KANSAS

BID PLANS

DESIGNED BY:	JBB
DRAWN BY:	JBB
APPROVED BY:	JSL
DESIGN PROJ:	16756.224
CONST PROJ:	B2019-036 POT52
SCALE:	AS NOTED
DATE:	JULY 2024
DRAWING NO:	5
SHEET NO:	5 of 47

BY | DESCRIPTION | DATE | #

Last edit on: 6/18/2024 8:53 AM by: JBB01710 Drawing Name: W:\Proj\16000\16756\16756.224\AutoCad\Plan Set\16756.224C_P&Pv.dwg Layout Name: STA. 18+25 - 21+00 Plotted By: JBB01710 Plotted on: 6/18/2024 8:58:39 AM

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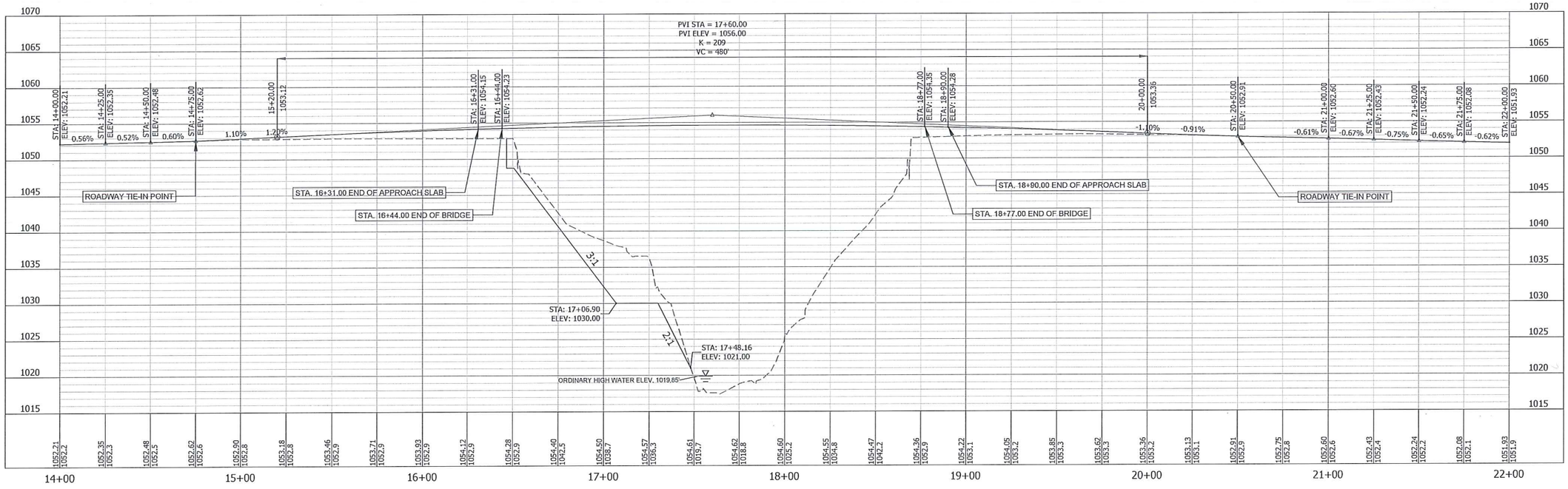
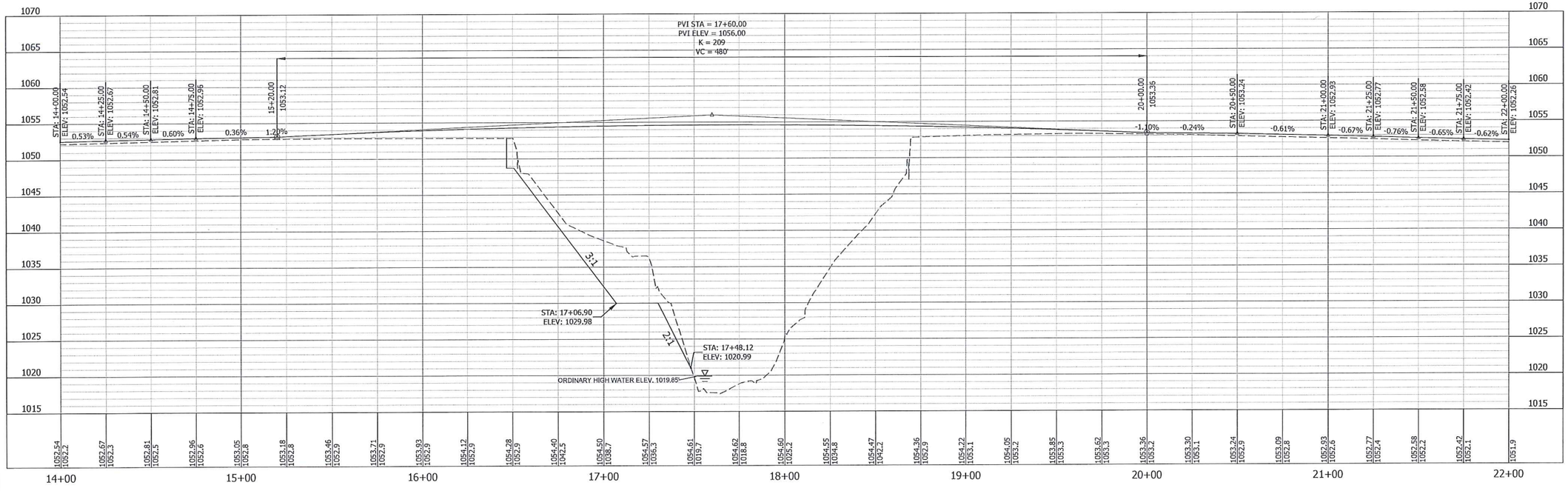
PROPOSED PROJECT PROFILE

SCALE: 1" = 30'



FINAL PROFILE AFTER FUTURE OVERLAY



BY	DESCRIPTION	DATE

Bartlett & West
230 POYNTZ AVENUE - MANHATTAN KS 66502
PHONE 785.272.2252 - FAX 785.273.8735
www.bartlettwest.com

FUTURE ROAD PROFILE PLAN AND PROFILE

LOUISVILLE ROAD BRIDGE
BRIDGE REPLACEMENT
POTTAWATOMIE COUNTY, KANSAS

BID PLANS

DESIGNED BY:	JBB
DRAWN BY:	JBB
APPROVED BY:	JSL
DESIGN PROJ:	16756.224
CONST PROJ:	B2019-036 POT52
SCALE:	AS NOTED
DATE:	JULY 2024
DRAWING NO:	6
SHEET NO:	6 of 47

Last edit on: 6/18/2024 8:53 AM by: JBB01710 Drawing Name: W:\Proj\160001\16756\16756.224\AutoCad\Plan Set\16756.224C_PSPs.dwg Layout Name: PROFILE VIEWS Plotted By: JBB01710 Plotted on: 6/18/2024 8:58:35 AM

BAR IS ONE INCH ON OFFICIAL DRAWINGS. 0 1" IF NOT ONE INCH, ADJUST SCALE ACCORDINGLY.

P.O.T STA 10+00.00
N 352430.61 E 1760952.21
1. NOT SET

P.I. STA 13+50.00
N 352410.30 E 1761301.47

P.I. STA 14+32.28
N 352402.18 E 1761383.35

P.I. STA 19+75.00
N 352344.57 E 1761923.00

P.I. STA 24+50.00
N 352349.18 E 1762397.27

P.O.T STA 27+24.30
N 352379.82 E 1762669.86
1. NOT SET

N

0 30 60
SCALE: 1" = 60'

PROPERTY LINE

P.I.	STA 19+75.00 (Bk)
P.I.	STA 24+50.00 (Ahd)
11.15' Rt. STA. 22+12.50	
Δ =	10° 48' 11.33"
D =	2° 16' 27.64"
L =	475.00'
T =	236.39'
R =	2500'
E =	11.15'

SECTION LINE

10+00 11+00 12+00 13+00 14+00 15+00 16+00 17+00 18+00 19+00 20+00 21+00 22+00 23+00 24+00 25+00 26+00 27+00 27+24

BP: 10+00.00

PCC: 13+50.00

PT: 14+32.28

Rt. 96°05'39"

22+12.50
0.00'

PC: 19+75.00

PT: 24+50.00

Az. 83°35'11"

EP: 27+24.30

OHE FO

P.I.	STA 10+00.00 (Bk)
P.I.	STA 13+50.00(Ahd)
4.255' Lt. STA. 11+75.00	
Δ =	5° 34' 08.38"
D =	1° 35' 28.11"
L =	350.00'
T =	175.09'
R =	3600'
E =	4.255'

PT 3
BENCHMARK
U-POST
N 352366.024, E 1761485.413
STA. 15+37.60, 25.12' RT.
ELEV=1048.331

P.I.	STA 13+50.00 (Bk)
P.I.	STA 14+32.28 (Ahd)
0.154' Lt. STA. 13+91.13	
Δ =	0° 51' 45.87"
D =	1° 02' 54.75"
L =	82.25'
T =	41.03'
R =	5450.00'
E =	0.154'

PT 4
BENCHMARK
SQUARE CUT IN BRIDGE
N 352345.229 E 1761816.958
STA. 18+69.48, 10.60' RT
ELEV=1053.616

PROPERTY LINE

CONTRACTOR TO INSTALL TWO TEMPORARY BENCHMARKS PRIOR TO DEMOLITION OF EXISTING BENCHMARKS. TWO PERMANENT BRASS DISCS TO BE INSTALLED AFTER COMPLETION OF THE NEW BRIDGE.

BY	DESCRIPTION	DATE

Bartlett & West
230 POYNTZ AVENUE - MANHATTAN KS 66502
PHONE 785.272.2252 - FAX 785.273.6735
www.bartlettwest.com

HORIZONTAL GEOMETRY PLAN AND PROFILE

LOUISVILLE ROAD BRIDGE
BRIDGE REPLACEMENT
POTTAWATOMIE COUNTY, KANSAS

BID PLANS

DESIGNED BY:	JBB
DRAWN BY:	JBB
APPROVED BY:	JSL
DESIGN PROJ:	16756.224
CONST PROJ:	BZ019-036 POT52
SCALE:	AS NOTED
DATE:	JULY 2024
DRAWING NO:	7
SHEET NO:	7 of 47

Last edit on: 6/18/2024 8:53 AM by: JBB01710 Drawing Name: W:\Proj\160001\16756\16756.224\AutoCad\Plan Set\16756_224C_PltPs.dwg Layout Name: HORIZONTAL GEOMETRY Plotted By: JBB01710 Plotted on: 6/18/2024 8:58:40 AM

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	B2019-036 POT52	2024	8	47

GUARDRAIL END TERMINAL
15+81.25
16.50' LT

16+19.00
14.00' LT

BEGIN GUARDRAIL
16+44.00
14.00' LT

15+00

37.75'

25.00'

16+00

37.75'

25.00'

17+00

GUARDRAIL END TERMINAL
15+81.25
16.50' RT

BEGIN GUARDRAIL
16+44.00
14.00' RT

16+19.00
14.00' RT

BEGIN GUARDRAIL
18+77.00
14.00' LT

19+02.00
14.00' LT

GUARDRAIL END TERMINAL
19+39.75
16.51' LT

18+00

25.00'

37.75'

19+00

25.00'

37.75'

20+00

LOUISVILLE ROAD

BEGIN GUARDRAIL
18+77.00
14.00' RT

19+02.00
14.00' RT

GUARDRAIL END TERMINAL
19+39.75
16.51' RT

0 10 20
SCALE: 1" = 20'

NO.	DATE	REVISION	BY	APP'D

LOUISVILLE ROAD BRIDGE
GUARDRAIL SHEET

DATE:

Bartlett&West

DATE: 2024

W.O.: 16756.224

8 OF 47

Last edit on: 6/6/2024 2:45 PM by: JBB01710 Drawing Name: W:\Proj\18000\16756\224\AutoCad\Plan Set\16756.224C_Guardrail Sheet.dwg Layout Name: GUARDRAIL SHEET Plotted By: JBB01710 Plotted on: 6/18/2024 8:55:48 AM

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	B2019-036 POT52	2024	9	47

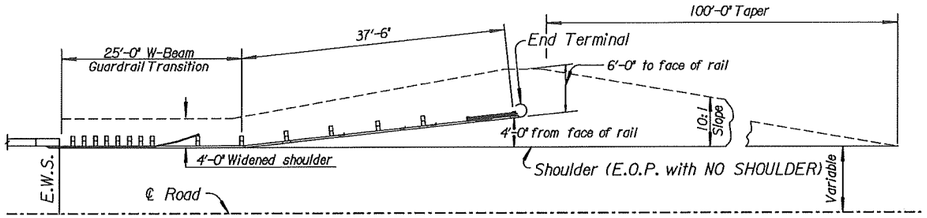
NOTE: Layouts 1, 2, 3, and 4 will be symmetric for any quadrant unless otherwise shown in the plans.

When using Rubrail, attach Std. Drawings No. RD611, RD616 and RD615 or RD615A.

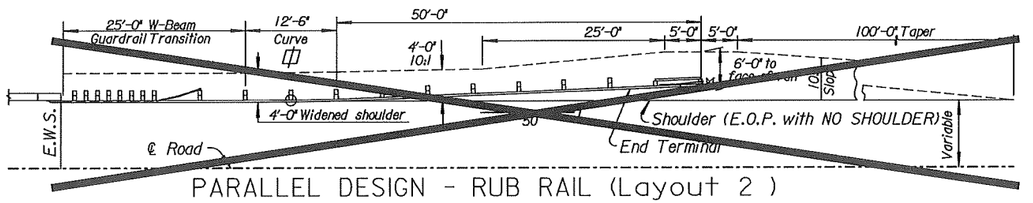
When using Thrie beam, attach Std. Drawings no. RD611 and RD608 or RD613.

Attach Std. Drawing No. RD617 or RD 617A for post over box less than full depth.

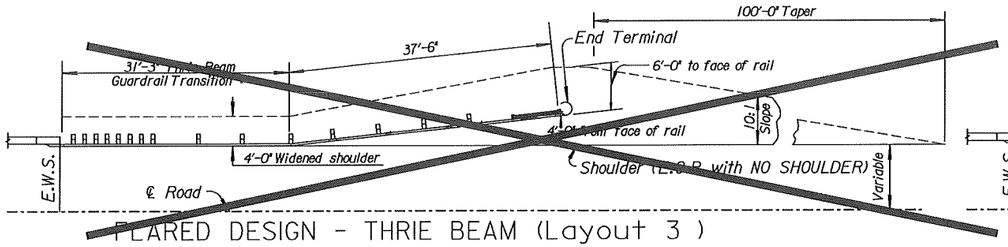
◫ Radius = 625.08'



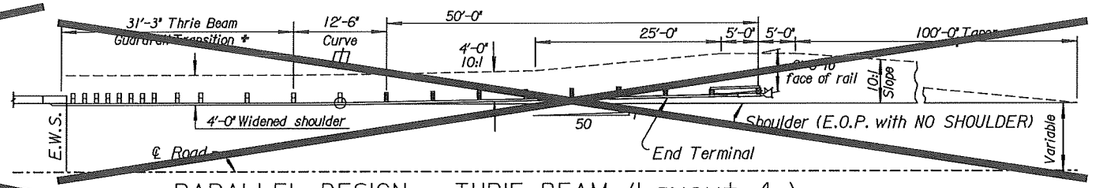
FLARED DESIGN - RUB RAIL (Layout 1)



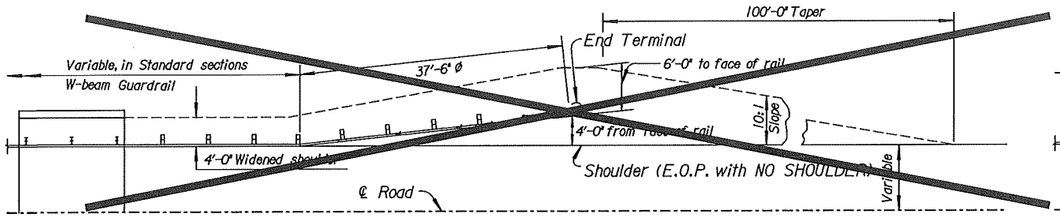
PARALLEL DESIGN - RUB RAIL (Layout 2)



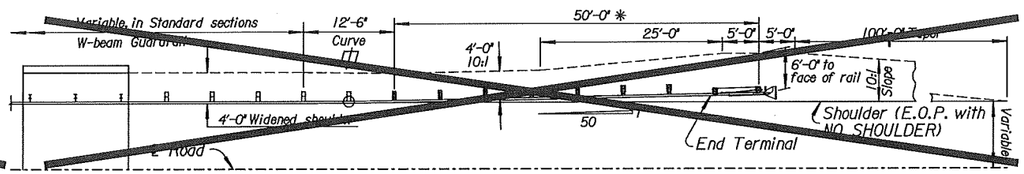
FLARED DESIGN - THRIE BEAM (Layout 3)



PARALLEL DESIGN - THRIE BEAM (Layout 4)



FLARED DESIGN (Layout 5)



PARALLEL DESIGN (Layout 6)

TYPICAL ALIGNMENT OF GUARDRAIL AT CULVERTS & BOX BRIDGES

ALLOWABLE END TERMINALS

TYPE	Layout 1	2	3	4	5	6	Required Standard Drawing
SRT	X		X		X		RD621A
FLEAT	X		X		X		RD606B
SKT		X		X		X	RD606C

SUMMARY OF STEEL PLATE GUARDRAIL

Location	Side	Layout No.	Layout Lin. Ft. *	Additional Standard Sections Lin. Ft.	Total Pay Length Lin. Ft.	Layout 1 or 3: Gd. Rail End Term. (SRT) Alt. #1 Each	Layout 1 or 3: Gd. Rail End Term. (FLEAT) Alt. #2 Each	Layout 2, 4, or 6: Gd. Rail End Term. (SKT) Each	Layout 5: Gd. Rail End Term. (SRT) Alt. #1 Each	Layout 5: Gd. Rail End Term. (FLEAT) Alt. #2 Each	
STA: 15+81.2 TO 16+44.00	LT	1	25		25	1					
STA: 15+81.2 TO 16+44.00	RT	1	25		25	1					
STA: 18+77.00 TO 19+39.73	LT	1	25		25	1					
STA: 18+77.00 TO 19+39.73	RT	1	25		25	1					
TOTAL LENGTH											

*See Gd. Rail Terminal Standard Drawings for Measurement Details. Does Not Include End Terminal.

NO.	DATE	REVISIONS	BY	APP'D
11	10-30-17	Removed X-Lite	WFL	MJS
10	01-06-15	Added X-Lite, Removed ET-PLUS	TLS	RJS
9	11-9-05	Added length for Thrie Beam transition	REA	RJS
8	7-19-05	Added and updated new End Terminals.	DMK	RJS

KANSAS DEPARTMENT OF TRANSPORTATION

TYPICAL ALIGNMENT OF GUARDRAIL INSTALLATIONS

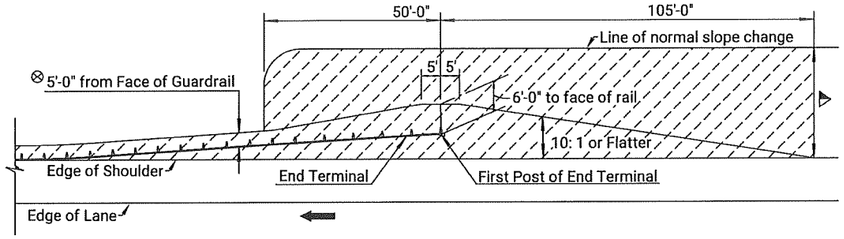
LP620

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

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	B2019-036 POTS2	2024	10	47

GUARDRAIL CLEAR AREA

Applies to all guardrail installations unless otherwise shown in the plans.



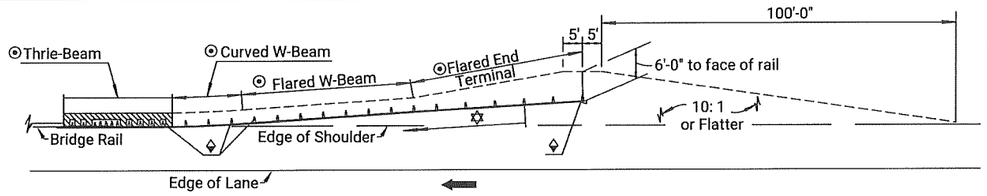
Keep Area Free of Stockpiled Material, Equipment, or Other Obstacles, Such as Temporary Signs, Regardless of Crash Worthiness. This Clear Area Extends 105 Feet in Advance of and 50 Feet behind the First Post of the Guardrail End Terminal and Then, in Order to Maintain Full Post Spacing, Continues 5 Feet 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

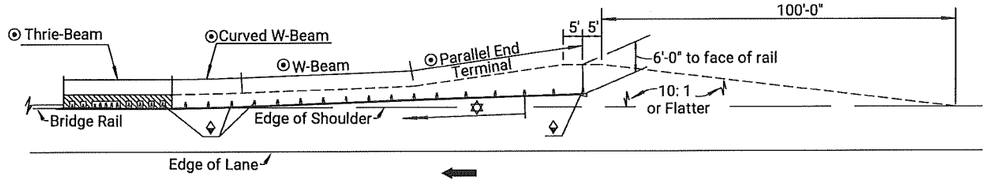
FLARED GUARDRAIL DETAIL

Applies to CGS AND MGS
(MGS Shown)



PARALLEL 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)

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.

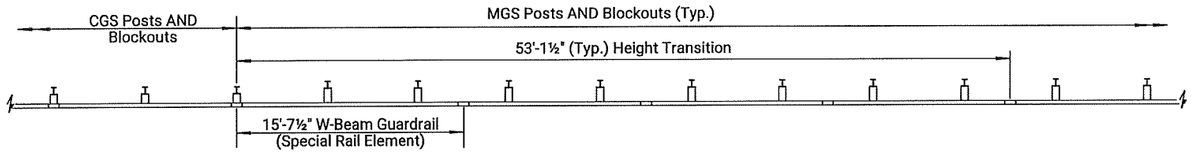
Lap w-beam and thrie-beam guardrail splices, in the direction of permanent traffic, even where temporary traffic may be carried in the opposite direction of the final traffic configuration. Lap end terminal splices per the Manufacturer's Installation Manual in the direction of permanent traffic, even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

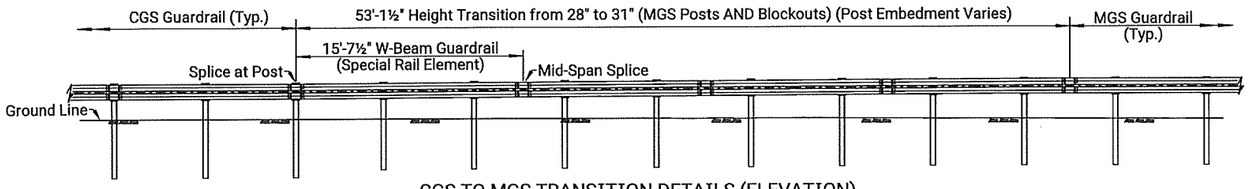
Where pavement with a thickness less than or equal to 8" is encountered during installation, use the details shown on KDOT's 'Guardrail Post Details' Standard Drawings to provide openings in the pavement for the guardrail posts. Where pavement with a thickness greater than 8" or geologic rock is encountered 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-bean guardrail installations are paid for under the appropriate bid items for either CGS or MGS guardrail depending on the type of installation.

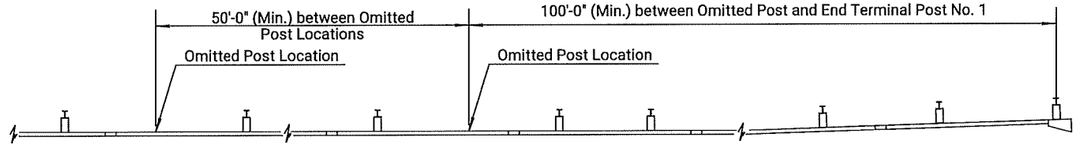
All work and materials required for guardrail end terminal installations are paid for under the bid item for the selected guardrail end terminal. See the table on this sheet for the appropriate end terminal bid item information.



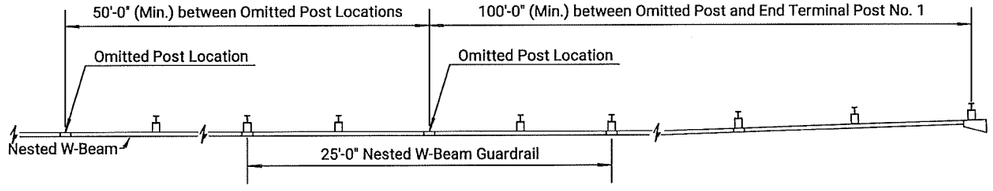
CGS TO MGS TRANSITION DETAILS (PLAN)



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'-7½"	37'-6"
Guardrail End Terminal (MGS-SRT)	Flared	31"	NCHRP 350	Yes	Yes	No	Trinity Industries	40'-7½"	37'-6"
Guardrail End Terminal (MGS-MSKT)	Parallel	31"	MASH	Yes	No	Yes	Road Systems	46'-10½"	46'-10½"
Guardrail End Terminal (MGS-SOFTSTOP)	Parallel	31"	MASH	Yes	No	Yes	Trinity Industries	46'-10½"	50'-9½"

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	Trinity Industries	37'-6"	37'-6"
Guardrail End Terminal (SKT)	Parallel	28"	NCHRP 350	Yes	Yes	Yes	Road Systems	50'-0"	50'-0"

NO.	DATE	REVISIONS	BY	APP'D
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.

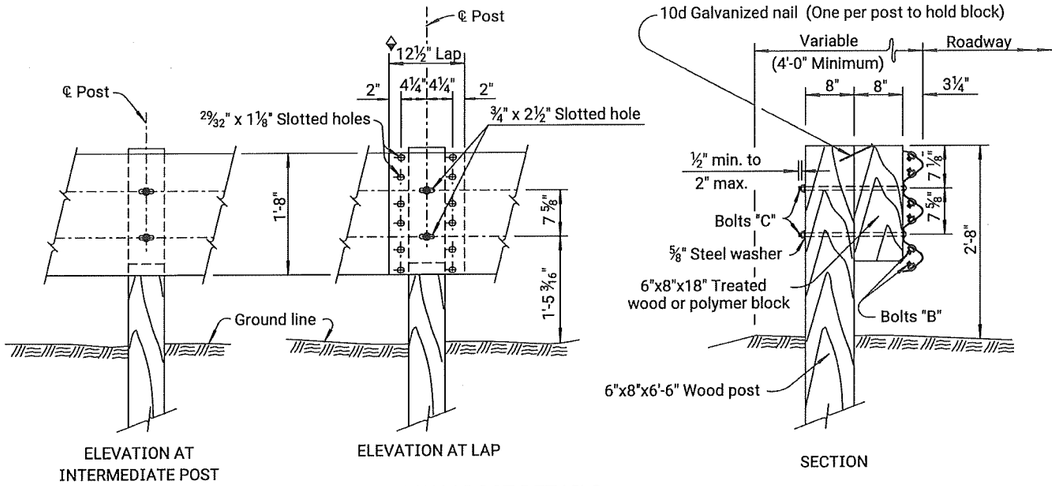
KANSAS DEPARTMENT OF TRANSPORTATION

GUARDRAIL AUXILIARY DETAILS

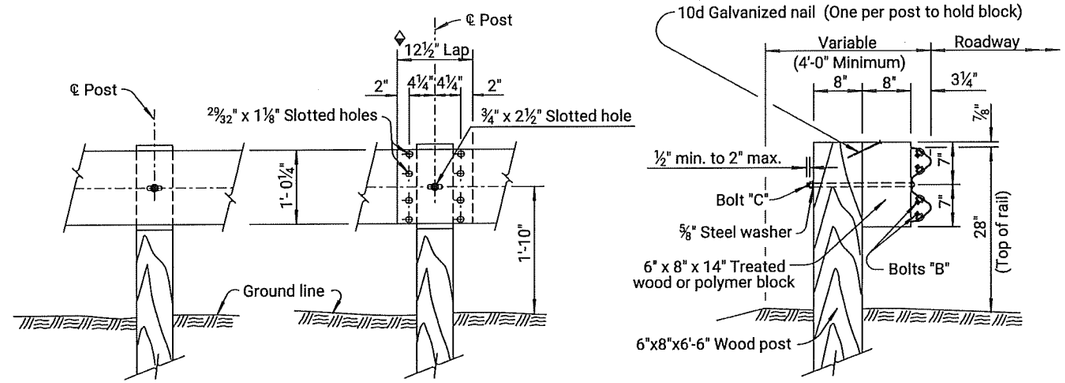
RD606

FHWA APPROVAL	09-25-18	APP'D.	Scott W. King
DESIGNED	DETAILED	QUANTITIES	TRACED
DESIGN CK.	DETAIL CK.	QUAN.CK.	TRACE CK.

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	B2019-036 POT52	2024	11	47



THRIE BEAM POST DETAILS



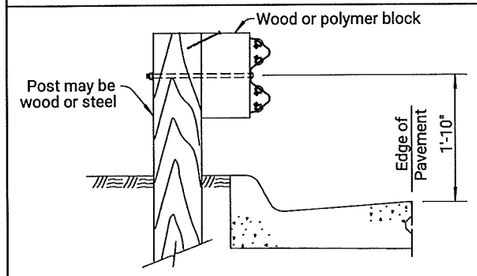
W-BEAM POST DETAILS

◈ 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.

WOOD POSTS

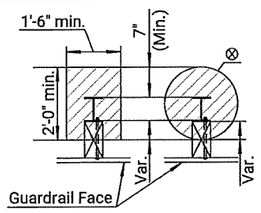
GENERAL NOTES (Wood Posts)

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



DETAIL OF PLACEMENT AT CURB

Note: When face of guardrail is aligned with the face of a curb, measure the height of rail from the pavement surface at the curb/pavement joint as shown. Use a laydown type curb where the face of the guardrail is not located at the face of the curb.

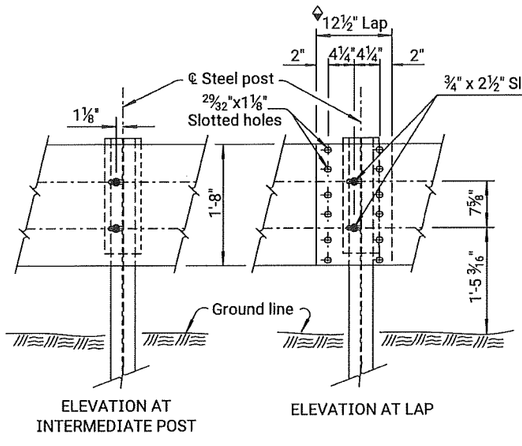


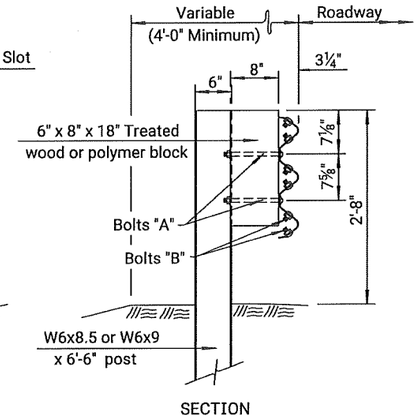
POSTS IN PAVEMENT PLAN
(ALTERNATE GEOMETRIES)
Applies to All Wood and All Steel Posts
(Steel Posts Shown)

▨ Slurry Grout (Low Strength). See KDOT's Standard Specifications

⊗ Diameter may vary from 1'-6" (min.) to 2'-0".

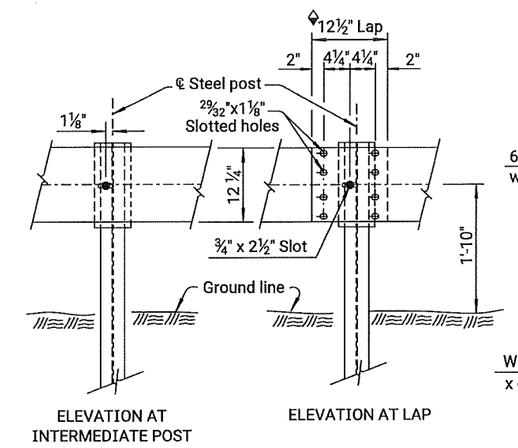
Note: Low Strength Grout must have a 28-day compressive strength of 120 psi or less. All work and materials related to posts in pavement are subsidiary to other guardrail bid items. Rectangular geometry shown in Posts in Pavement detail. Circular geometry, as shown on this sheet, may be used at the Contractor's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

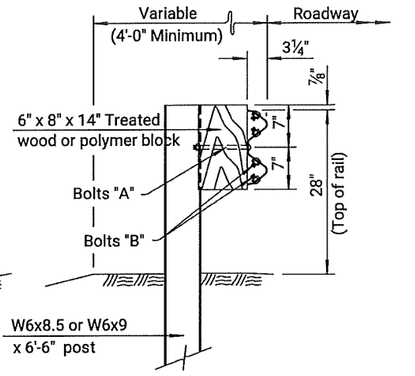




THRIE BEAM POST DETAILS

◈ 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.





W-BEAM POST DETAILS

STEEL POSTS

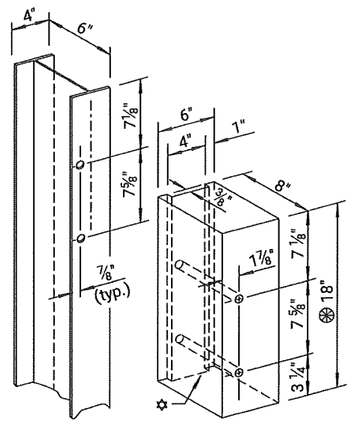
GENERAL NOTES (Steel Posts)

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

BOLT & NUT DETAILS

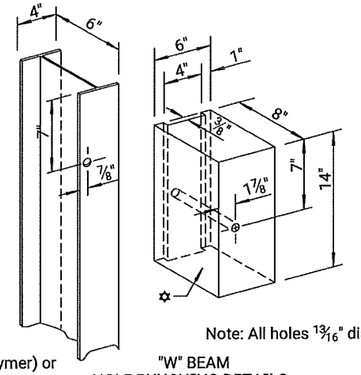
BOLT SIZE SCHEDULE	
Bolt	L
A	8 ½"
B	1 ¼"
C	18"

See Standard Drawing RD613 for Thrie-Beam Transition Section Details.



Note: All holes 13/16" dia.

THRIE BEAM
HOLE PUNCHING DETAILS



Note: All holes 13/16" dia.

✡ Non-Metallic (Polymer) or Treated Wood Block

"W" BEAM
HOLE PUNCHING DETAILS

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

NO.	DATE	REVISIONS	BY	APP'D
13	09-05-18	Added Det., Post In Pavement	A.L.R.	T.T.R.
12	12-14-10	Revised notes, 28" w-be	S.W.K.	J.O.B.
11	06-30-04	Remove steel blockout and notes	S.W.K.	J.O.B.

KANSAS DEPARTMENT OF TRANSPORTATION

GUARDRAIL POST DETAILS

RD611

FHWA APPROVAL	09-25-18	APP'D.	Scott W. King
DESIGNED	DETAILED	QUANTITIES	TRACED
DESIGN CK.	DETAIL CK.	QUAN.CK.	TRACE CK.

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	B2019-036 POT52	2024	12	47

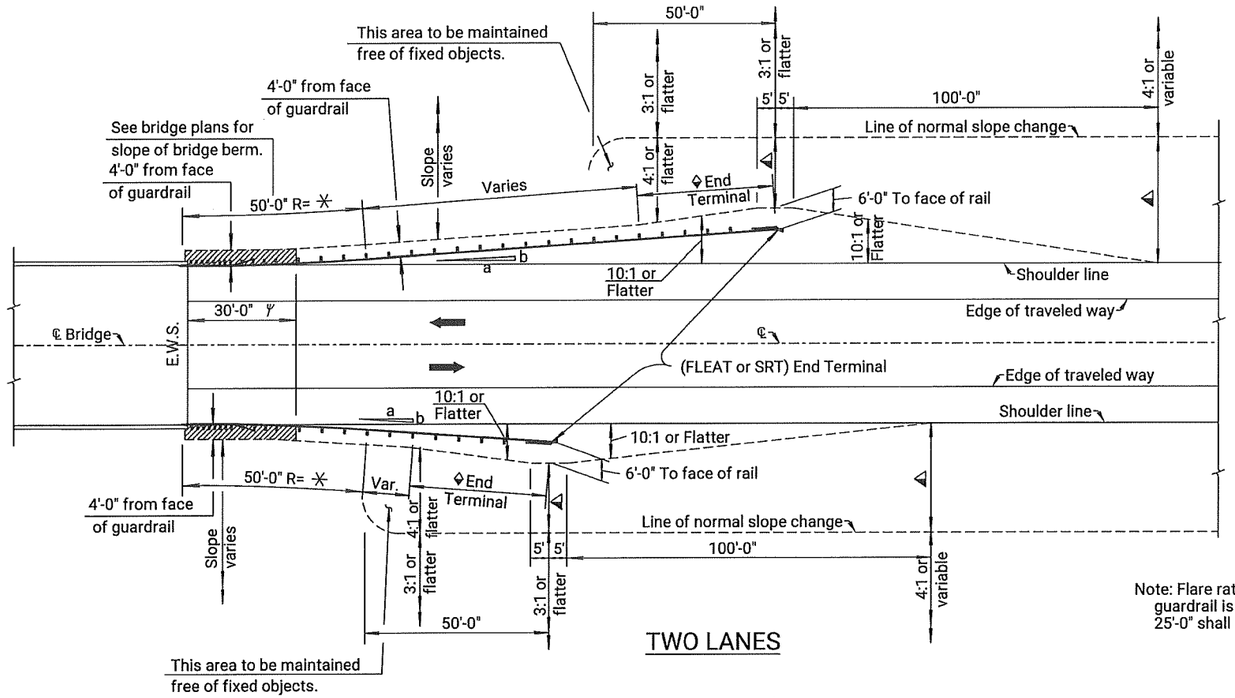
DESIGN PARAMETERS				
Design Speed (mph)	Flare Rate (a:b)	Radius (R)	Flare Rate (2a:b)	Radius (R)
70	15:1	375.55'	30:1	375.14'
60	14:1	350.59'	26:1	325.16'
55	12:1	300.69'	24:1	300.17'
50	11:1	275.76'	21:1	262.70'
45	10:1	250.83'	18:1	225.23'
40	8:1	201.04'	16:1	200.26'

GENERAL NOTE

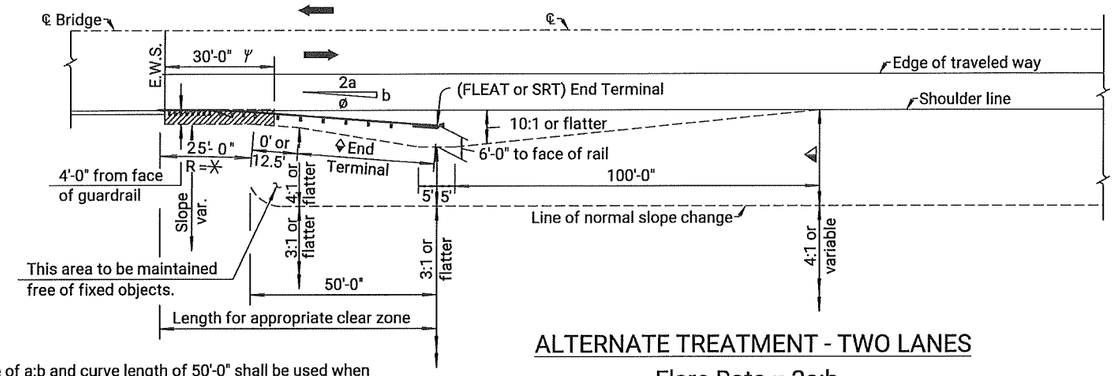
For guardrail and rubrail sections, details, and general notes see KDOT's 'W-Beam with Rubrail Bridge Approach Transition Details' Standard Drawings. For post details see KDOT's 'Guardrail Post Details' Standard Drawings

The ratio of a:b may be specified as zero for long runs of guardrail in high fill areas.

Widening, slopes & transition for Four Lane will be similar to that shown on two lane detail.



TWO LANES

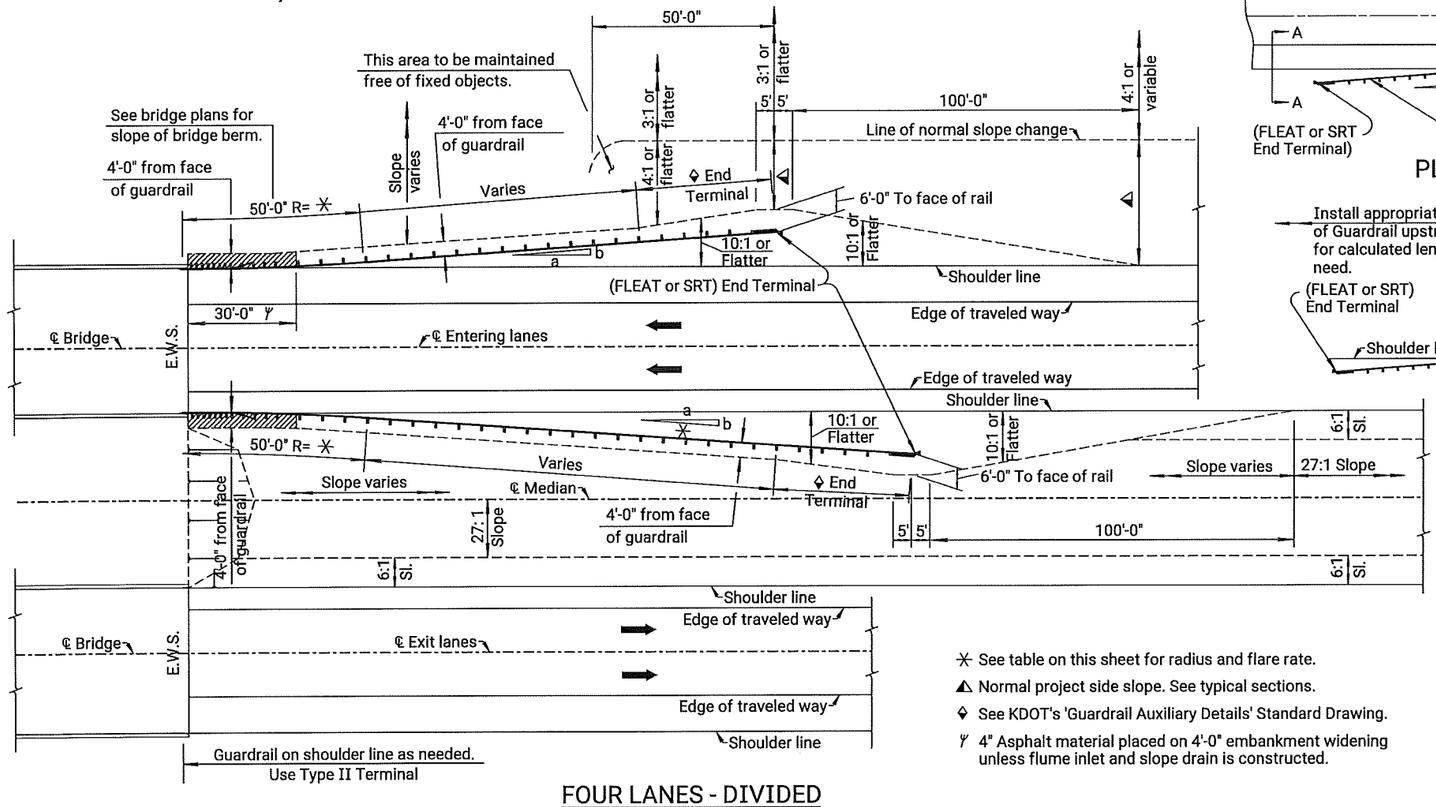


ALTERNATE TREATMENT - TWO LANES

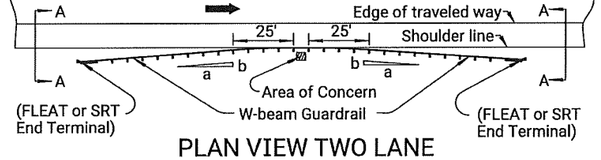
Flare Rate = 2a:b

(GUARDRAIL LENGTHS OF 62.5' AND 75')

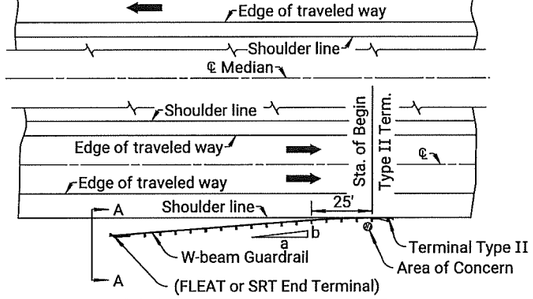
Note: Flare rate of a:b and curve length of 50'-0" shall be used when guardrail is beyond shy line, flare rate of 2a:b and curve length of 25'-0" shall be used when guardrail is located inside the shy line.



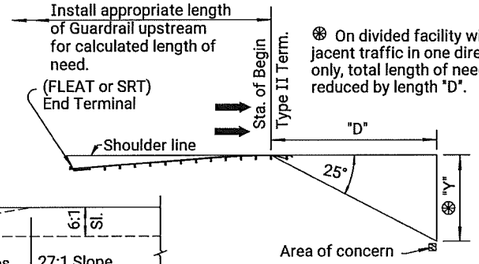
FOUR LANES - DIVIDED



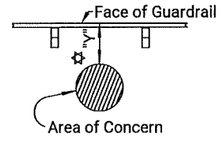
PLAN VIEW TWO LANE



PLAN VIEW FOUR LANE



✻ On divided facility with adjacent traffic in one direction only, total length of need may reduced by length "D".



ENLARGEMENT - AREA OF CONCERN

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

DETAILS OF GUARDRAIL PROTECTION AT ROADSIDE OBSTACLE

✳ See table on this sheet for radius and flare rate.

◭ Normal project side slope. See typical sections.

♦ See KDOT's 'Guardrail Auxiliary Details' Standard Drawing.

ᛉ 4" Asphalt material placed on 4'-0" embankment widening unless flume inlet and slope drain is constructed.

NO.	DATE	REVISIONS	BY	APP'D
08	06-05-18	Removed Flare-beyond-the-Flare	A.L.R.	T.T.R.
07	05-15-17	Removed X-LITE	A.L.R.	S.W.K.
06	07-02-09	Added roadside obstacle details	S.W.K.	J.O.B.

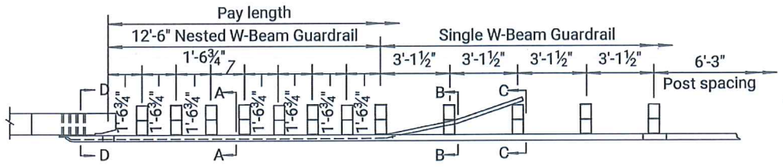
KANSAS DEPARTMENT OF TRANSPORTATION

W-BEAM WITH RUBRAIL BRIDGE APPROACH TRANSITION TYPICAL ALIGNMENTS (FLARED)

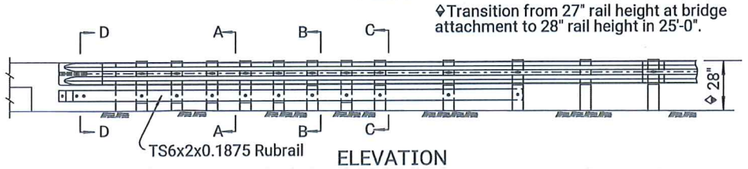
RD615A

FHWA APPROVAL	06-19-18	APP'D.	Scott W. King
DESIGNED	DETAILED	QUANTITIES	TRACED
DESIGN CK.	DETAIL CK.	QUAN.CK.	TRACE CK.

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	B2019-036 POT52	2024	13	47

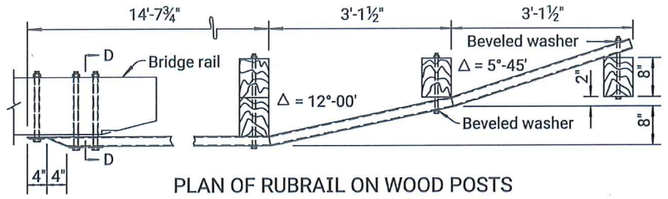


PLAN

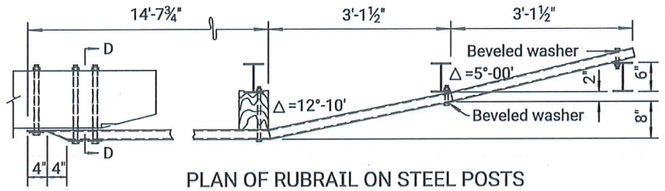


◆Transition from 27" rail height at bridge attachment to 28" rail height in 25'-0".

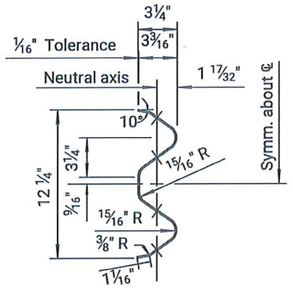
ELEVATION



PLAN OF RUBRAIL ON WOOD POSTS



PLAN OF RUBRAIL ON STEEL POSTS



SECTION THRU TYPICAL W-BEAM RAIL ELEMENT

GENERAL NOTE

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

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

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

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

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

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

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

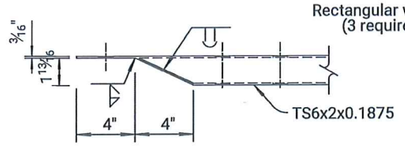
Shop bend rail when radius is less than 150'.

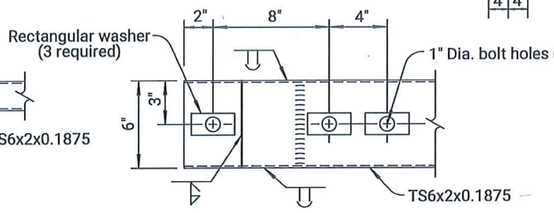
Fabricate Special End Shoe from 10 gauge steel in accordance with standard specifications.

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

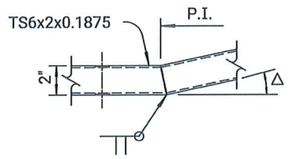
Lap guardrail splices, including Special End Shoe, in the direction of traffic. Where traffic is temporarily carried in the opposite direction of final configuration, lap rail splices in the direction of permanent traffic.

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

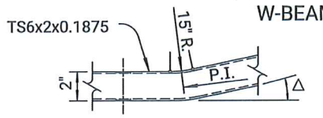




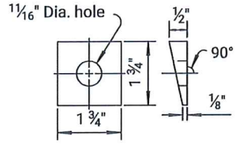
TYPICAL END RUB RAIL DETAILS



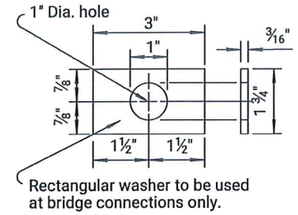
SHOP WELDED OPTION



SHOP BENT OPTION

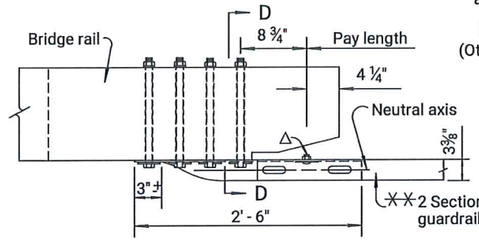


BEVELED WASHER



Rectangular washer to be used at bridge connections only.

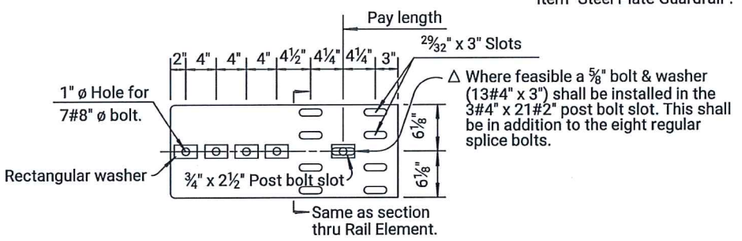
RECTANGULAR WASHER
(Other approved washer may be used.)



PLAN SPECIAL END SHOE

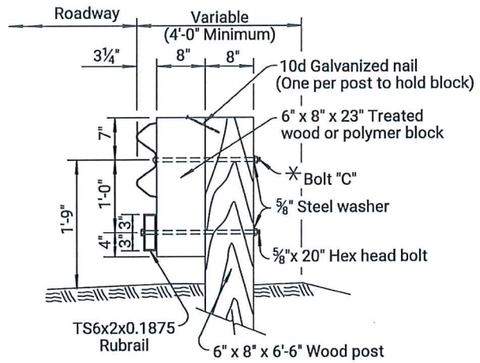
†† 2 Sections W-beam guardrail nested.

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

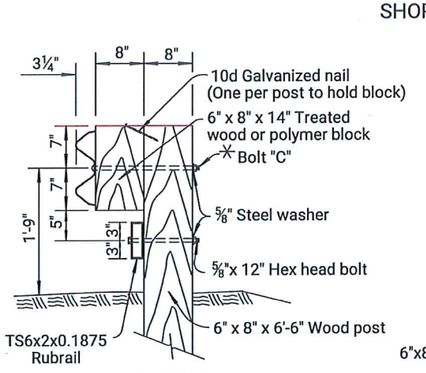


Δ Where feasible a ⅝" bolt & washer (13#4" x 3") shall be installed in the 3#4" x 21#2" post bolt slot. This shall be in addition to the eight regular splice bolts.

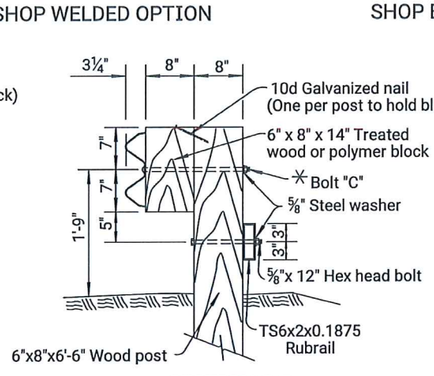
ELEVATION SPECIAL END SHOE



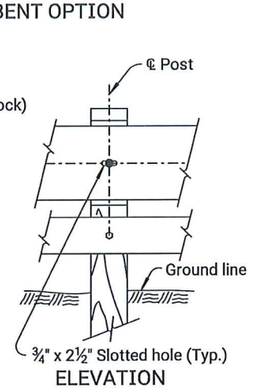
SECTION A-A



SECTION B-B



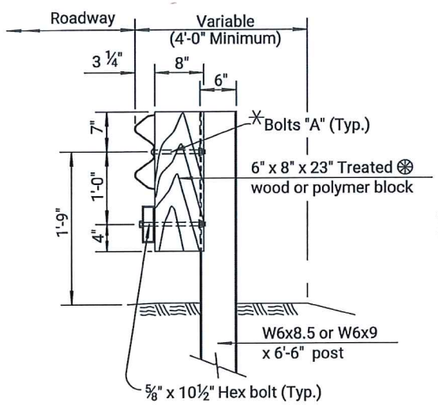
SECTION C-C



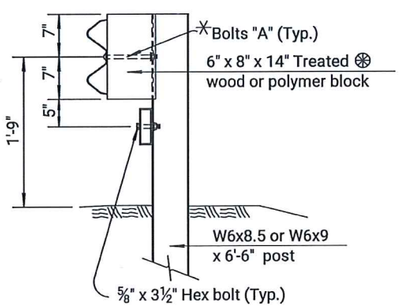
ELEVATION
WITH RUBRAIL

WOOD POSTS

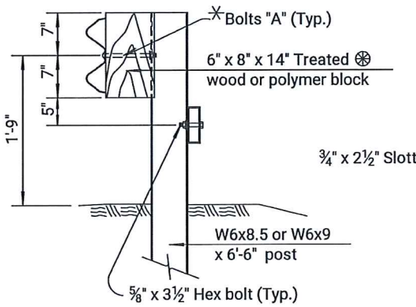
✳ See Standard Drawing RD611 for details of Bolts A, & C.



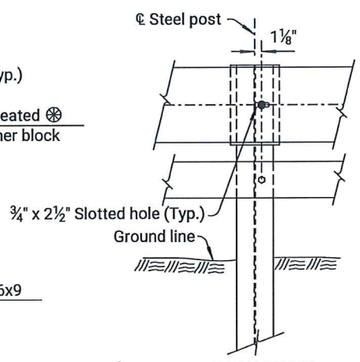
SECTION A-A



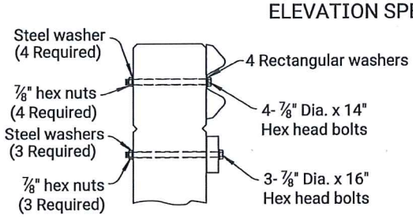
SECTION B-B



SECTION C-C



ELEVATION
WITH RUBRAIL



SECTION D-D

STEEL POSTS

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

NO.	DATE	REVISIONS	BY	APP'D
14	12-14-10	Revised notes 28' rail height	S.W.K.	J.O.B.
13	04-02-08	Removed Galvanized callout	S.W.K.	J.O.B.
12	02-06-07	Corrected spelling error	S.W.K.	J.O.B.

KANSAS DEPARTMENT OF TRANSPORTATION

W-BEAM WITH RUBRAIL BRIDGE APPROACH TRANSITION DETAILS

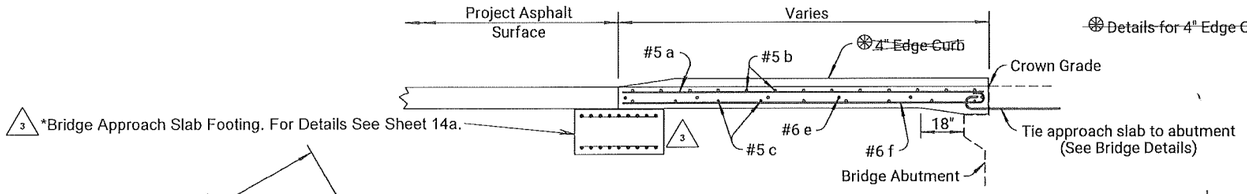
RD616

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

REVISED PLANS

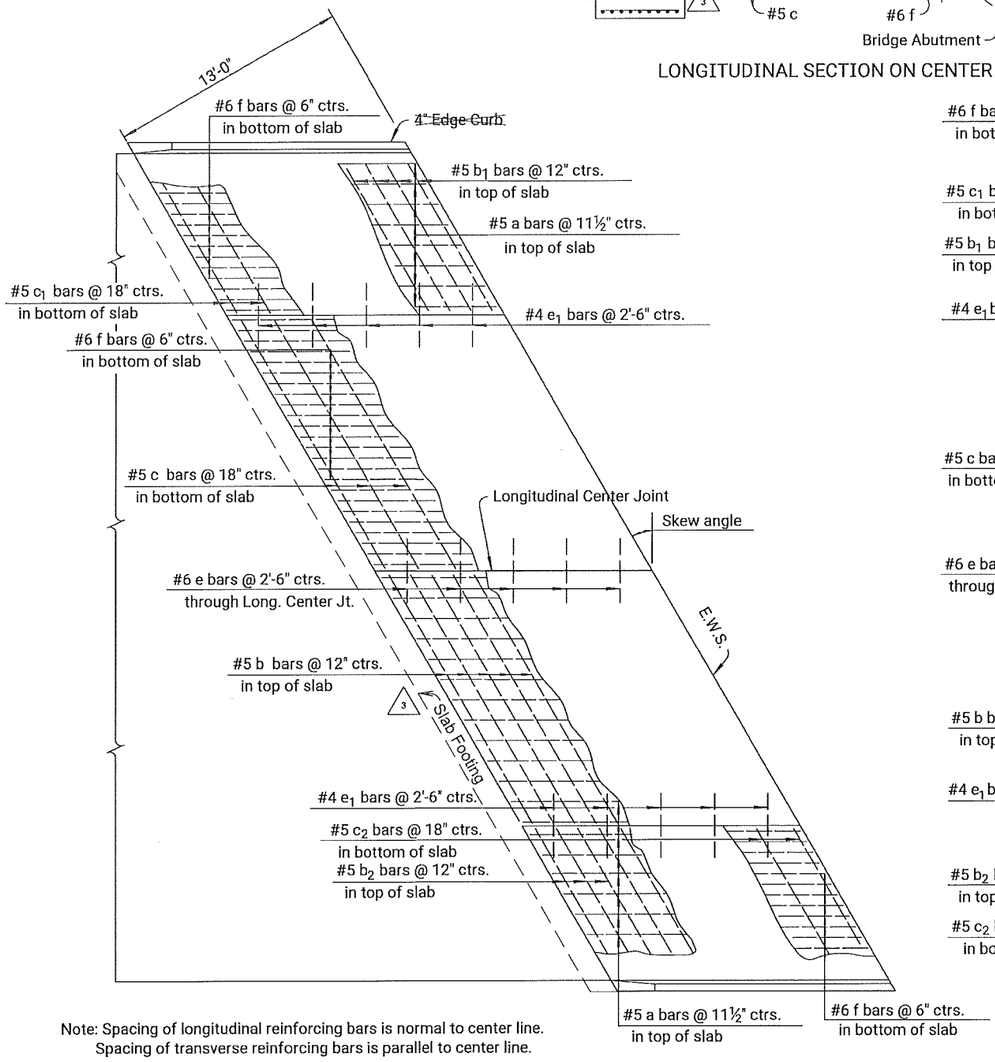
#	DATE	DESCRIPTION	BY
3	7/11/2024	BRIDGE APPROACH SLAB FOOTING DIAGRAM AND DETAILS ADDED TO SHEET.	JBB

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	B2019-036 POT52	2024	14	47



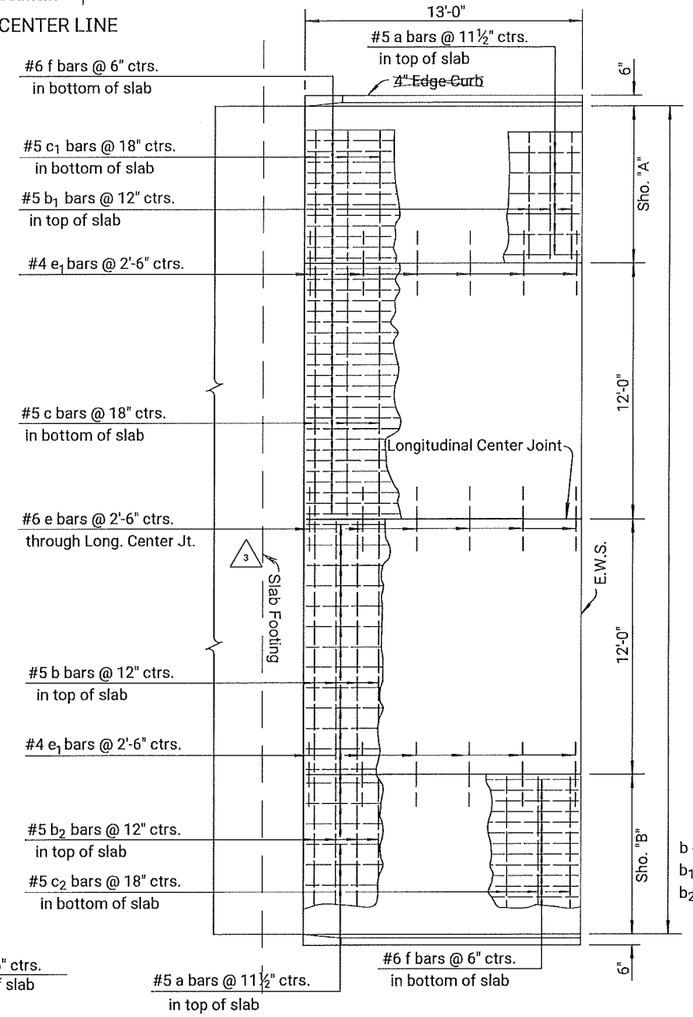
~~Details for 4" Edge Curb, See Standard Drawing RD711.~~

LONGITUDINAL SECTION ON CENTER LINE



Note: Spacing of longitudinal reinforcing bars is normal to center line.
Spacing of transverse reinforcing bars is parallel to center line.

PLAN FOR SKEWED APPROACH (SKEW ≥ 5 °)
(No Scale)



"D" Thickness = Thickness of Project Concrete Pavement (10" minimum).

PLAN FOR NORMAL APPROACH
(No Scale)

GENERAL NOTE

Special Concrete Bridge Approach shall be paid for as Sq. Yds. of Concrete Pavement (10" Unif.)(AE)(Br. App.) and includes all work and materials required to construct the approach slab as shown on this sheet.

All work and materials required for installation of joint material shall be subsidiary to this bid item.

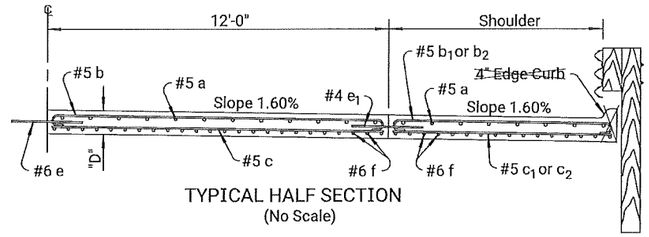
At the Contractor's option #4x3'-0" tie bars @ 15" centers may be substituted for the #6 e bars at 2'-6" centers.

All reinforcing steel shall be epoxy coated.

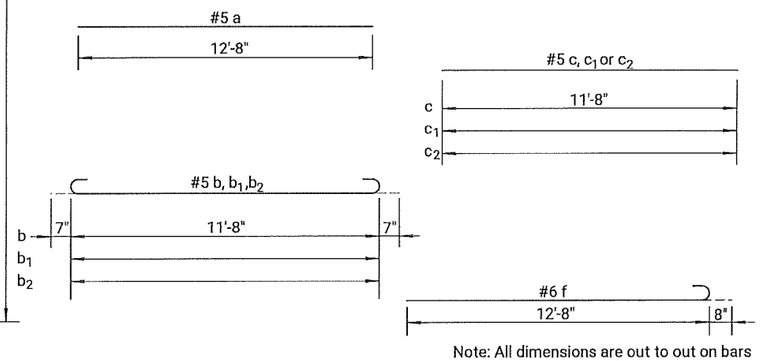
~~See Standard Drawing RD711 for details of joints and edge curb.~~

Clearance from the face of concrete for all reinforcing steel shall be 2 inches.

Standard reinforcing bar hooks in accordance with the latest ACI specifications shall be used throughout.



TYPICAL HALF SECTION
(No Scale)



Note: All dimensions are out to out on bars unless noted otherwise.

BENDING DIAGRAMS

BILL OF MATERIALS

BAR SCHEDULE

NORMAL APPROACH

Bar	a	b	b_1	b_2	c	c_1	c_2	e	e_1	f
No.		26	13	13	18	9	9	6	12	
Size	#5	#5	#5	#5	#5	#5	#5	#6	#4	#6
Length	12'-8"	12'-10"			11'-8"			3'-0"	3'-0"	13'-4"

Reinforcing Steel (Grade 60) (Epoxy Coated) 2290 lbs.

Concrete Pavement (10" Unif.)(AE) 40.5 Sq. Yds.

__° SKEW

a	b	b_1	b_2	c	c_1	c_2	e	e_1	f
#5	#5	#5	#5	#5	#5	#5	#6	#4	#6
							3'-0"	3'-0"	

Reinforcing Steel (Grade 60) (Epoxy Coated) lbs.

Concrete Pavement (__" Unif.)(AE) Sq. Yds.

__° SKEW

a	b	b_1	b_2	c	c_1	c_2	e	e_1	f
#5	#5	#5	#5	#5	#5	#5	#6	#4	#6
							3'-0"	3'-0"	

Reinforcing Steel (Grade 60) (Epoxy Coated) lbs.

Concrete Pavement (__" Unif.)(AE) Sq. Yds.

Note: Quantities listed for one approach slab only. Two required per bridge. Reinforcing steel and joint lengths shown for information only.

NO.	DATE	REVISIONS	BY	APP'D
09	09-09-09	Revised Reinforcing Steel listing	S.W.K.	J.O.B.
08	05-14-09	Revised General Note	S.W.K.	J.O.B.
07	10-30-08	Added guardrail post detail at curb	S.W.K.	J.O.B.

KANSAS DEPARTMENT OF TRANSPORTATION

CONCRETE BRIDGE APPROACH PAVEMENT ADJACENT TO ASPHALT SURFACE

~~RD715~~

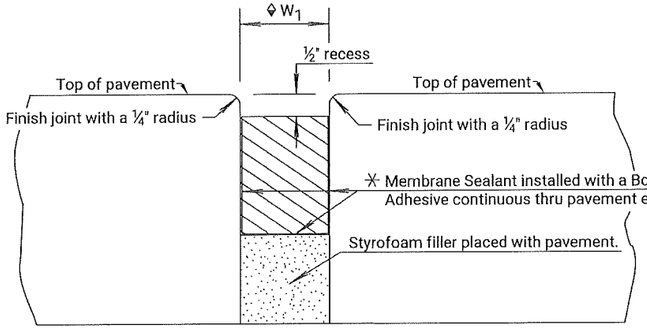
FHWA APPROVAL	06-09-09	APP'D.	James G. Brewer
DESIGNED	DETAILED	QUANTITIES	TRACED
DESIGN CK.	DETAIL CK.	QUAN.CK.	TRACE CK.

REVISED PLANS

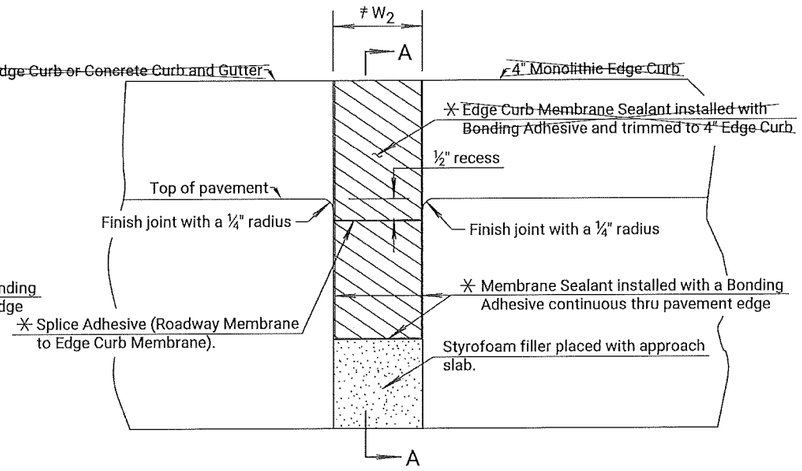
#	DATE	DESCRIPTION	BY
3	7/11/2024	SHEET 14a ADDED TO PLAN SET.	JBB

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	B2019-036 POT52	2024	14a	47

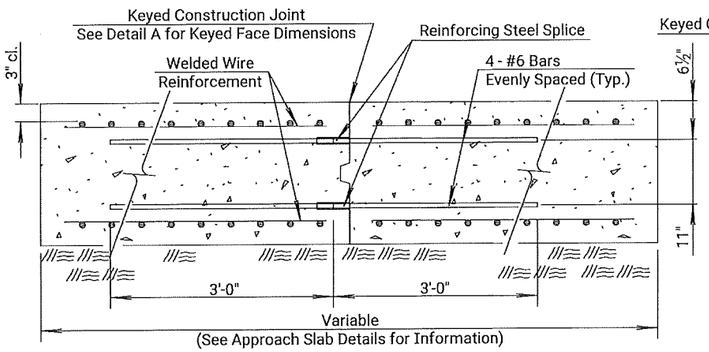
3 4" Edge Curb Not Constructed for Project B2019-036 POT52

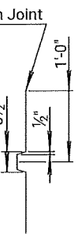


ELEVATION PRESSURE RELIEF JT.

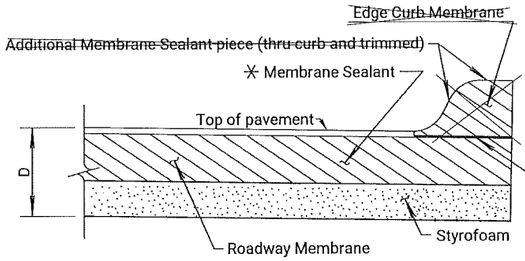


ELEVATION EXPANSION JT.





DETAIL A



SECTION A-A

(See Std. Drawing RD711 for details of 4" Edge Curb.)

GENERAL NOTES

EXPANSION/PRESSURE RELIEF JOINTS

See Concrete Bridge Approach Pavement standard drawings for location of expansion and pressure relief joints.

Form the joint opening prior to placement of the pavement approach. Remove the material used to form the joint after the pavement approach has been in place for a minimum of 6 days.

Clean and construct the joint only after the concrete in the approach slab has cured for a minimum of 7 days.

Thoroughly clean the joint by sandblasting and by high pressure air blast to remove all laitance and contaminants from the joint. When any joint is shaped by saw cutting in lieu of forming, blast the joint with water prior to sandblasting and air cleaning.

Accomplish sandblasting in two passes to clean each face of the joint (one pass for each face). Hold the nozzle 1 to 2 inches from the joint face at an angle to the joint face.

Remove any contaminants such as oil, curing compound, etc. by sandblasting to the satisfaction of the Engineer. Solvents, wire brushing, or grinding are not permitted.

Air blast the joint just prior to installing the Membrane Sealant. Equip the air compressor used to clean the joint with trap devices capable of providing moisture-free and oil-free air at a recommended pressure of 90 psi. Spot check the joint to verify any residual dust or dirt has been removed. The Engineer is required to inspect the joint immediately prior to installing the joint material.

⚹ See KDOT Standard Specifications for Membrane Sealant, Bonding Adhesive and Splice Adhesive. The width of the membrane sealant is 4 inches (nominal).

Do not allow traffic on the joint for a minimum of 3 hours unless otherwise directed by the Engineer.

Use splice materials and methods recommended by the Manufacturer.

All work and materials for the preparation, construction, and installation of the joint will be subsidiary to the concrete approach pavement.

BRIDGE APPROACH SLAB FOOTING

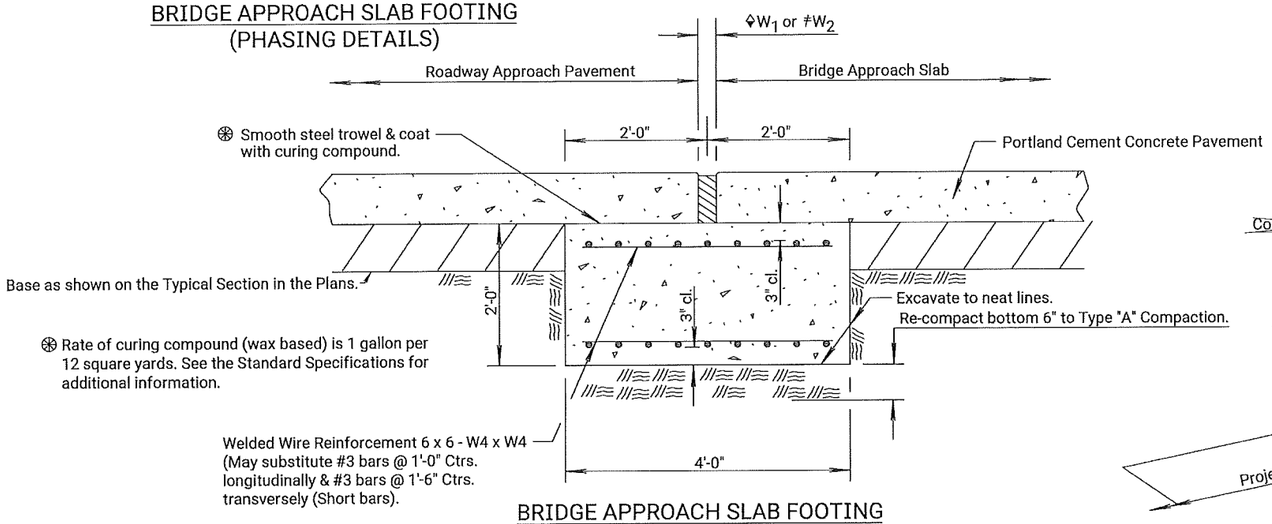
Pay for the Bridge Approach Slab Footing at the unit price bid per cubic yard for "Bridge Approach Slab Footing". This price will be full compensation for furnishing all materials and labor including Concrete Grade 4.0 (AE) Pavement, Reinforcing Steel (Gr. 60) (Epoxy Coated), excavation, Type "A" Compaction and materials used to prevent bonding of concrete. The Contractor may use Concrete Grade 4.0 (AE) or the mix used in the concrete pavement for the slab footing.

◊ PRESSURE RELIEF JOINT WIDTH DETAILS (W_1)							
℉ Temperature (F°)	40°	50°	60°	70°	80°	90°	100°
Formed Concrete Opening Size	4.0"	3¾"	3½"	3¼"	3.0"	2¾"	2½"

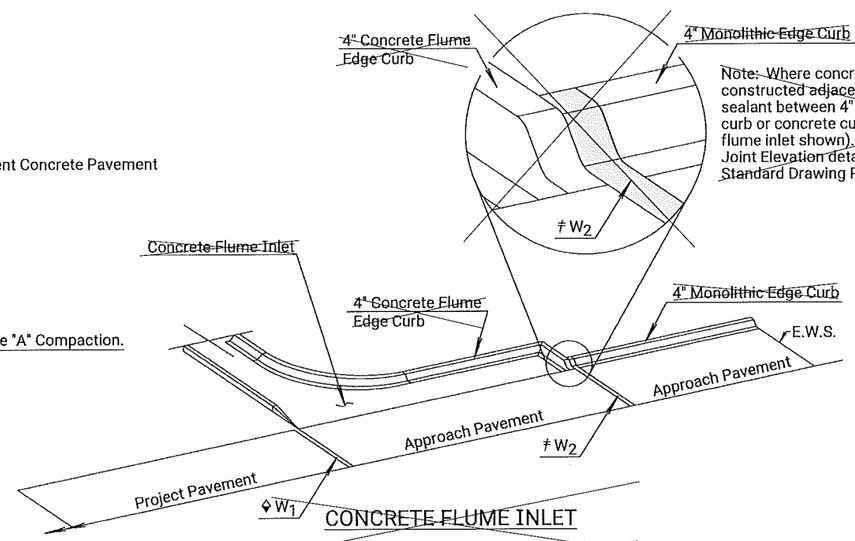
℉ Average Ambient Temperature over previous 24 hours.

≠ EXPANSION JOINT WIDTH DETAILS (W_2)
See bridge construction layout sheet for details.

BRIDGE APPROACH SLAB FOOTING
(PHASING DETAILS)



BRIDGE APPROACH SLAB FOOTING



CONCRETE FLUME INLET

(Membrane Sealant Placed Through Edge Curb Detail)

Note: Where concrete flume inlets or concrete curb and gutter are constructed adjacent to bridge approach slab pavement place membrane sealant between 4" monolithic edge curb and 4" concrete flume inlet edge curb or concrete curb and gutter as shown on this sheet (concrete flume inlet shown). See approach slab Standard Drawings, Expansion Joint Elevation detail this sheet, Standard Drawing RD628, and Standard Drawing RD635 for additional details.

LEGEND

Membrane Sealant

NO.	DATE	REVISIONS	BY	APP'D
10	01-22-16	Add. Det., Keyed Joint & Flume Inlet	T.T.R.	S.W.K.
09	10-16-13	Revised General Note	S.W.K.	J.O.B.
08	04-04-13	Rev. Joint Width Det. Table	S.W.K.	J.O.B.

KANSAS DEPARTMENT OF TRANSPORTATION

BRIDGE APPROACH SLAB DETAILS
EXPANSION/PRESSURE RELIEF JOINT/
BRIDGE APPROACH SLAB FOOTING

RD712

FHWA APPROVAL	02-01-16	APP'D.	Scott W. King
DESIGNED	DETAILED	QUANTITIES	TRACED
DESIGN CK.	DETAIL CK.	QUAN.CK.	TRACE CK.

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	B2019-036 POT52	2024	15	47

SUMMARY OF QUANTITIES

Item / Location	Excavation	Concrete		Reinforcing Steel		Prestressed Concrete Beams (NU35) Lin. Ft.	✳ Steel Piles HP12X53 Lin. Ft.	Cast Steel Pile Points Each	Drilled Shaft (72") (Cased) Lin. Ft.	Sonic Test (Drilled Shaft) (Set Price) Each	Core Hole (Investigative) Lin. Ft.	Bridge Backwall Prot. System Sq. Yds.	Abutment Aggregate Drain Cu. Yds.	Slope Protection (Riprap Stone) Cu. Yds.
	Class I Cu. Yds.	(Grade 4.0) (AE) (SW) Cu. Yds.	(Grade 4.0) (AE) Cu. Yds.	(Grade 60) (Epoxy Coated) Lbs.	(Grade 60) Lbs.									
Abutment No. 1	25	✳✳	17.4	✳✳	✳✳		300	6				31	40	1165
Pier No. 1			24.0		21,220				91.0		56			
Pier No. 2			23.3		21,590				95.0		55			
Abutment No. 2	25	✳✳	17.3	✳✳	✳✳		306	6				31	40	790
Substr. Total	50		82.0		42,810		606	12	186.0		111			
Superstr. Total				83,580	3380									
Total	50	269.4	82.0	83,580	46,190	916	† 606	12	186.0	1	111	62	80	1955

✳✳Quantities are included in the Superstr. Total Quantity.

† Summary of Piling
Abutment No. 1 6 @ 50 ft.
Abutment No. 2 6 @ 51 ft.

✳NOTE: Only steel pile HP12X53 shall be used on this project.

TRAFFIC DATA - (2023)	
AADT (2023)	185 vpd
AADT (2045)	300 vpd
DHV	20%
D	55/45
T	10%

INDEX OF BRIDGE DRAWINGS

Sheet No.	Drawing
15	General Notes and Quantities
16	Contour Map
17	Construction Layout
18	Engineering Geology
19-20	Abutment Details
21	Abutment Aggregate Drain
22-23	Pier Details
24	Prestressed Beam Layout
25	NU35 Beam Details
26	Standard Prestressed Concrete Beam Details NU35
27	Details of Concrete Diaphragm at Piers
28	Typical Section
29	Slab Plan and Details
30	Slab Details
31	27" Kansas Corral Rail
32	Bill of Reinforcing Steel and Bending Diagrams
	Standards
33	Bridge Excavation
34	Standard Pile Details
35	Supports and Spacers for Reinforcing Steel

GENERAL NOTES

EXISTING STRUCTURE: Plans of the existing structure are on file and available for inspection by qualified bidders from the Owner's Engineer.

EMBANKMENT: Complete the embankment at the abutments as shown on the Bridge Excavation sheet prior to driving the abutment piling.

BRIDGE EXCAVATION: Elevation 1021.35 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: Drive all piling to penetrate the shale layer. Driving shall stop when in the opinion of the Engineer additional driving may damage the piling. Drive all piling to the Pile Driving Formula Load of:

Abutment No. 1	75 Tons
Abutment No. 2	62 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 1 & 2 will follow the "Standard Pile Details" Sheet (BR110).

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

REINFORCING STEEL: All reinforcing steel dimensions are to the centerline of bars unless otherwise noted. All reinforcing steel, except the spiral bars, shall conform to the requirements of ASTM A615, Grade 60. Spiral bars may meet the requirements of either ASTM A615 (Gr. 40 or 60) or AASHTO M32, and are included in the bid item "Reinforcing Steel (Gr. 60)".

Where non-coated bars come in contact with epoxy coated bars, they need not be coated.

PRESTRESSED BEAM CONCRETE: Use air entrained concrete with select course aggregate as specified in the KDOT Specifications. The release strength and 28 day strength requirements shall be as noted on the plans. Submit mix designs to the Owner's Engineer for approval.

CAMBER: Construct the finished deck to plan grade by varying the depth of the fillet over the beam to provide for prestress camber, concrete dead load deflection and, if necessary, vertical curvature. After the prestressed beams are erected measure the camber in the field by taking a profile of each beam. Correct any variation between the actual camber and concrete dead load deflection shown in the plans by varying the depth of the concrete fillets over the beam so that the finished floor is constructed to the theoretical grade. The minimum depth of the slab over the beam shall be 8 inches. Prior to shipping, the camber shall be no greater than the design camber +1/2". The design camber is equal to the 50 day camber shown in the plans.

The theoretical amount of concrete required for the fillets is 23.7 Cu. Yds. This amount of concrete is included in the Summary of Quantities. Any additional concrete required to construct the fillets will be subsidiary.

ERECTION ELEVATION CHECKS: After the abutment and pier concrete has cured and before setting any prestressed beams, present verification to the Engineer that the elevations at the bearings match plan elevation (± ¼").

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

ABUTMENT AGGREGATE DRAIN: See the General Notes on the "Abutment Aggregate Drain" sheet.

BRIDGE BACKWALL PROTECTION SYSTEM: See the General Notes on the "Abutment Aggregate Drain" sheet.

CAUSEWAY: If the Contractor chooses to build a causeway for bridge construction purposes, the Contractor shall obtain any required U.S. Army Corps of Engineers Section 404 Permit, Kansas Department of Agriculture permit, Kansas Department of Health and Environment Section 401 Permit, Kansas Department of Wildlife Parks and Tourism Permit, or any other permit required by law for causeway construction. Obtain the permit in a timely manner so as not to delay the completion of the project.

REMOVAL OF EXISTING STRUCTURE: Removal of existing structure is included in the bid item, "Removal of Existing Structures", Lump Sum. The steel plate on the bridge deck shall be removed by the Contractor and will become the property of Pottawatomie County. Steel handrail shall be removed by the Contractor in a salvageable condition and stockpiled in right-of-way for removal by Pottawatomie County personnel. All other materials removed from the existing structure shall become the property of the Contractor.

SLOPE PROTECTION (Riprap Stone): Place Slope Protection (Riprap Stone) to the limits and thicknesses shown on the plans or as directed by the Engineer. Use (Light 200 lb.) as described in Division 1114 placed to the limits shown on the plans.

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.

Waste the broken concrete from the existing bridge on sites provided by the Contractor and approved by the Engineer. The amount of suitable concrete rubble available for slope protection is approximate and is furnished only as an aid to the Contractor.

Concrete Rubble = 175 C.Y.

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

CONCRETE PLACING SEQUENCE: The sequence of placing concrete in the slab 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 Cu. Yds./hr., 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.

Place and hand vibrate all concrete for the pier diaphragms and the abutments above the construction joints to the bottom of the deck just prior to the normal paving train operations. Do this work in a manner to avoid a cold joint in either the abutments or in the diaphragms.

CONSTRUCTION LOADS: Limited traffic is permitted on the new full-depth deck during the curing period. Keep any exposed deck wet during the curing period. See KDOT Specifications Section 710 Tables 710-1 & 710-2 for additional information.

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.

ERECTION PLANS: This is a Category A Structure. Submit detailed Erection Plans to the Field Engineer per KDOT Specifications. A Licensed Professional Engineer is not required.

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 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 I" by the use of non-typical supports; then the inspection and review requirement of "Category I" will be fully enforced, but at no cost to the State. "Category 2" falsework inspection is not paid for directly, but is subsidiary to other bid items.

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

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

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

BRIDGE DECK FINISHING: Give the surface a suitable texture by transverse grooving perpendicular to the center line of the bridge with a tining float having a single row of fins. Make the grooving approximately 3/16 inch in width at 3/4 inch centers, with a depth of approximately 1/8 inch. Bridge deck finishing is not paid for directly, but will be considered subsidiary to the bid item "Concrete (Grade 4.0)(AE)(SW).

BRIDGE DECK CURING: The curing of the full-depth bridge deck shall be in compliance with Section 710 of the KDOT Specifications.

DESIGN DATA

DESIGN SPECIFICATIONS: AASHTO Specifications, 2020 Edition and latest Interim Specifications. Load and Resistance Factor Design.

DESIGN LOADING:
HL-93

Design Dead Load includes an allowance of 15 psf for a future wearing surface.

UNIT STRESSES:

Concrete (Grade 4.0)	f'c = 4,000 psi
Concrete (Grade 4.0)(AE)	f'c = 4,000 psi
Concrete (Grade 4.0)(AE)(SW)	f'c = 4,000 psi
Prestressed Beam Concrete	f'c = 8,000 psi
Reinforcing Steel (Grade 60)	fy = 60 ksi
Steel Piles	Fy = 50 ksi
Prestressed Strand	0.6"Ø Grade 270 uncoated 7-wire, low relaxation strand.

LRFD DESIGN PILE LOAD:

Design Loading (Tons/Pile)	Strength	Service	Phi
Abutment No. 1	75	54	0.4
Abutment No. 2	62	44	0.4

LRFD DESIGN DRILLED SHAFT LOAD: See the General Notes on the "Pier Details" sheets.

NO.	DATE	REVISIONS	BY	APP'D
3				
2				
1				

Br. No. 00000000075B190 Sta. 17+60.50

GENERAL NOTES AND QUANTITIES
LOUISVILLE ROAD OVER ROCK CREEK

Proj. B2019-036 POT52 Pottawatomie Co.

DESIGNED	CJC	DETAILED	TAA	QUANTITIES	CJC	CADD	TAA
DESIGN CK.	TRB	DETAIL CK.	CJC	QUAN.CK.	TRB	CADD CK.	CJC

KDOT Graphics Certified 07-15-2022 Sh. No. 15

KDOT Graphics Certified

Drawn By : TAA Plotted : 06/18/2024
File : W:\Proj\16000\16756\16756.224\MicroStation\16756.244_015_General Notes_Quantities_br301.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	B2019-036 POT52	2024	16	47

P.O.T STA 10+00.00
N 352430.61 E 1760952.21
1. NOT SET

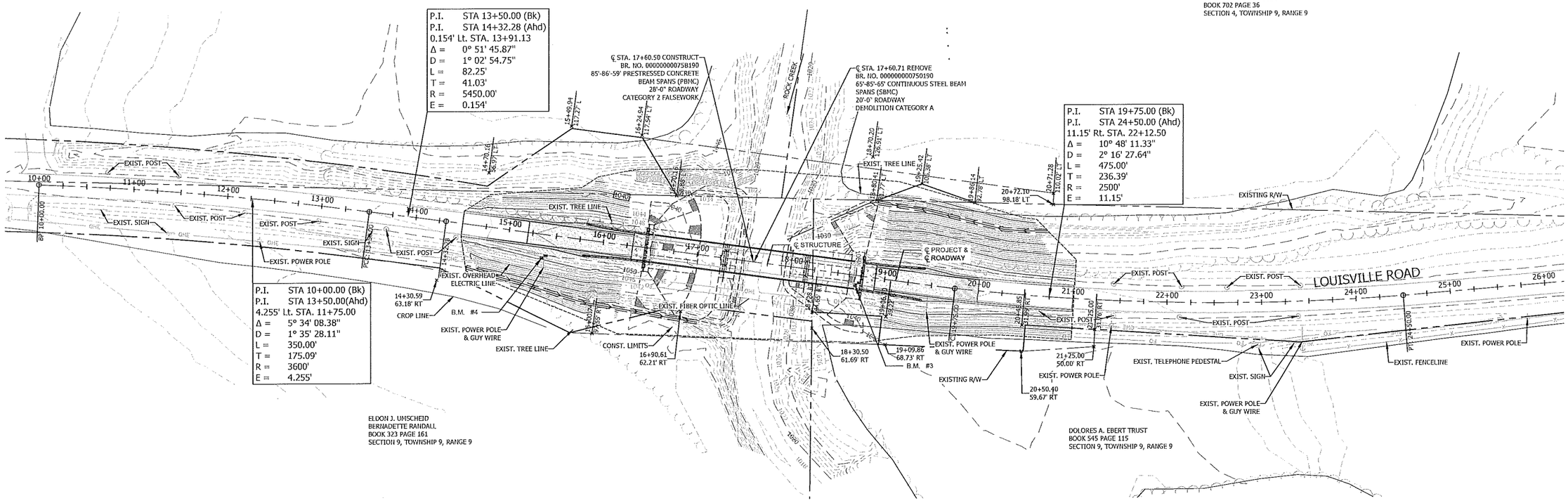
P.O.T STA 27+24.30
N 352379.82 E 1762669.86
1. NOT SET

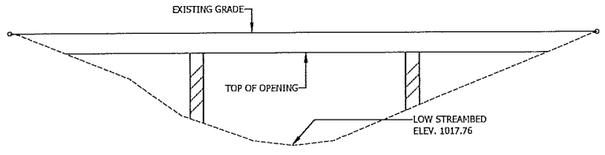
HISTORIC HIGHWATER INFORMATION

MR. GARY EBERT, WHOSE FAMILY HAS OWNED THIS PROPERTY FOR MANY YEARS AND HAS KNOWLEDGE OF THE SITE, SAYS THAT ROCK CREEK REGULARLY GETS INTO THE STONE BARN AND SILO ON THE NORTH SIDE AND A BUILDING ON THE SOUTH SIDE.

NO HISTORY OF ROADWAY OVERTOPPING.

SCALE: 1" = 50'





EXISTING WATERWAY OPENING
LOUISVILLE ROAD OVER ROCK CREEK
(LOOKING UPSTREAM)
TOTAL WATERWAY OPENING = 3157 SQ. FT.
TOP OF OPENING ELEV. 1049.80

UTILITY OWNERS

WATER
POTTAWATOMIE COUNTY RWD NO. 1
BOX 228 WAMEGO, KS 66547
LARRY ALLARD
pottrwd@gmailcom
785-456-2452

TELEPHONE
BRIGHTSPEED
138 W. 6TH ST. JUIKCTION CITY, KS 66441
CHARLENE MEADOWS
RELOCATIONS2BRIGHTSPEED.COM
charlene.meadows@brightspeed.com
980-376-1494 c. 785-375-1735

BLUE VALLEY TECHNOLOGIES
1559 PONY EXPRESS HWY
HOME, KS 66438
785-799-3311
RANDY OSTERHAUS
rosterhaus@bluevalleyinc.net

POWER
EVERGY
P.O. BOX 889
4001 NW 14TH ST.
TOPEKA, KS 66603
DAN LUTHI
dan.luthi@evergy.com
785-629-8804

FIBER OPTIC
WAMEGO TELECOMMUNICATIONS COMPANY, INC
1009 LINCOLN AVE P.O. BOX 25
WAMEGO, KS 66547
785-456-1000
SHAWN SMITH
ssmith@wtcks.com
COLE HEMPHILL
chemphill@wtcks.com

NO.	DATE	REVISION	BY	APP'D

CONTOUR MAP
LOUISVILLE ROAD OVER ROCK CREEK

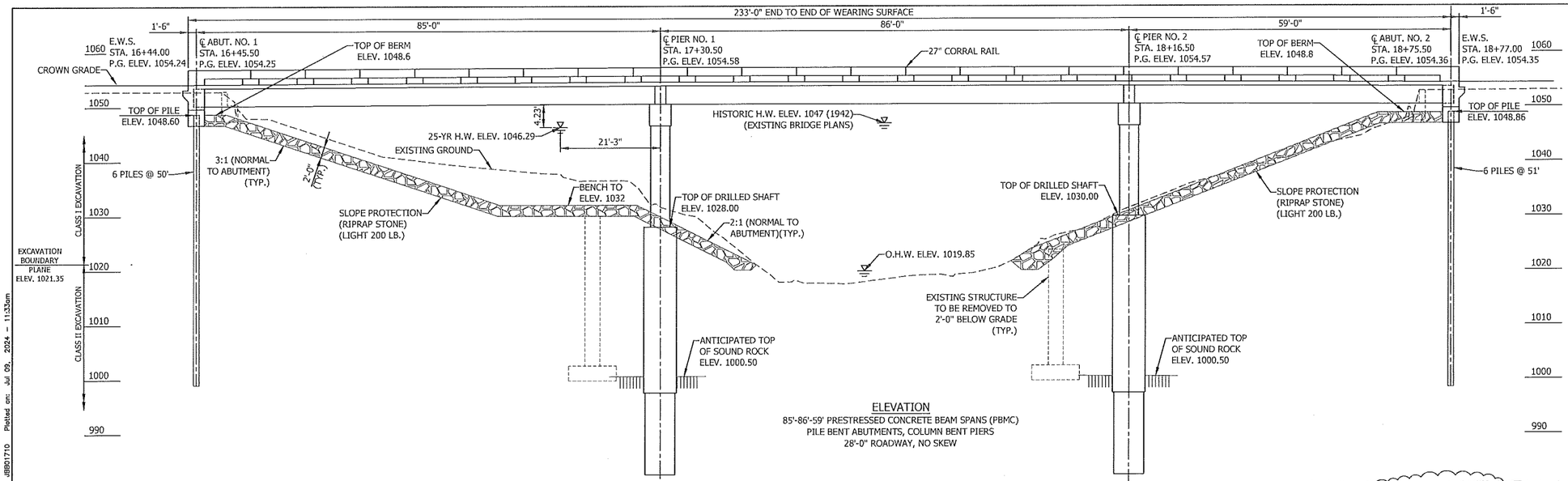
PROJECT NO. B2019-036 POT52 BRIDGE NO. 000000000758190

Bartlett&West
www.bartlettwest.com

DATE: JUNE 2024
W.O.: 16756.224
16 OF 47

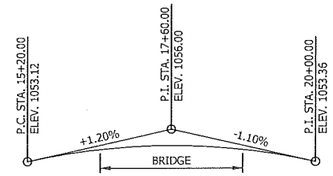
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	B2019-036 POT52	2024	17	47

#	DATE	DESCRIPTION	BY
2	7/09/2024	UPDATED SLOPE PROTECTION FOOTPRINT AND SLOPES	JBB

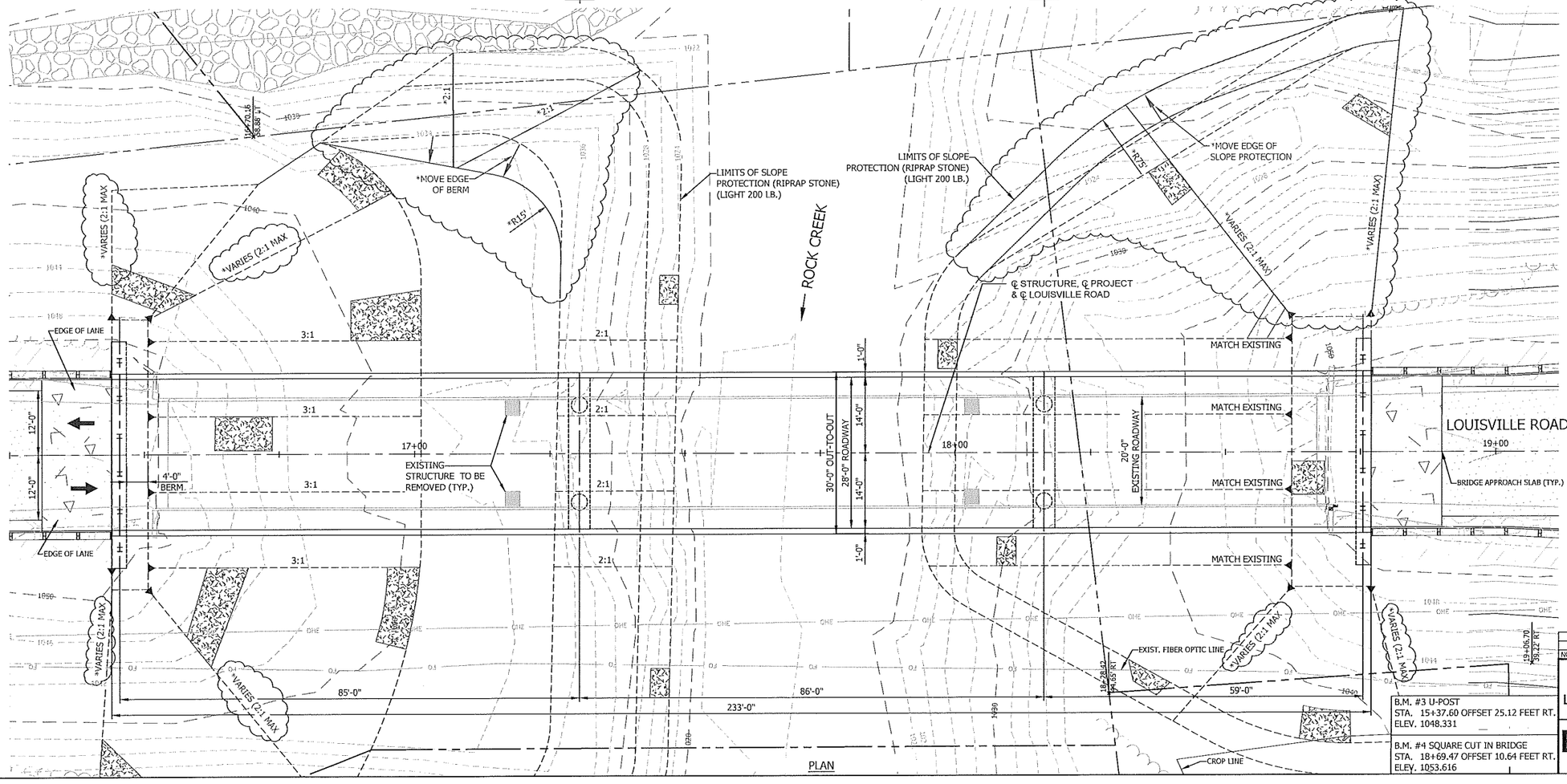


ELEVATION

85'-86'-59' PRESTRESSED CONCRETE BEAM SPANS (PBMC)
PILE BENT ABUTMENTS, COLUMN BENT PIERS
28'-0" ROADWAY, NO SKEW



PROPOSED CROWN GRADE INFORMATION
480' V.C.



PLAN

DRAINAGE DATA

Drainage Area	87.11 Sq. Mi.
Design Frequency	25 Years
Design Discharge (Q_{25})	19,729 cfs.
Design High Water Elevation	1046.29
Change in Design Backwater	-0.22 Ft.
Design Backwater Elevation	1046.98
Overtopping Elevation (Sta. 9+17)	1049.91
Overtopping Discharge	31,600 cfs
Overtopping Frequency	95 yrs.
Discharge at Q_{100}	32,066 cfs.
Change in Backwater at Q_{100}	-0.47 Ft.
Backwater Elevation at Q_{100}	1051.01
Historic High Water Elevation (1942)	1047.00
Ordinary High Water Elevation	1019.85
Total Waterway Provided (Flow Area)	3,630 Sq. Ft.
Design Waterway Provided	2,809 Sq. Ft.
Estimated Ordinary High Water Discharge	45 cfs
Change in Waterway Opening	+568 Sq. Ft.

SCALE: 1" = 10'

B.M. #3 U-POST
STA. 15+37.60 OFFSET 25.12 FEET RT.
ELEV. 1048.331

B.M. #4 SQUARE CUT IN BRIDGE
STA. 18+69.47 OFFSET 10.64 FEET RT.
ELEV. 1053.616

NO.	DATE	REVISION	BY	APP'D

CONSTRUCTION LAYOUT

LOUISVILLE ROAD OVER ROCK CREEK

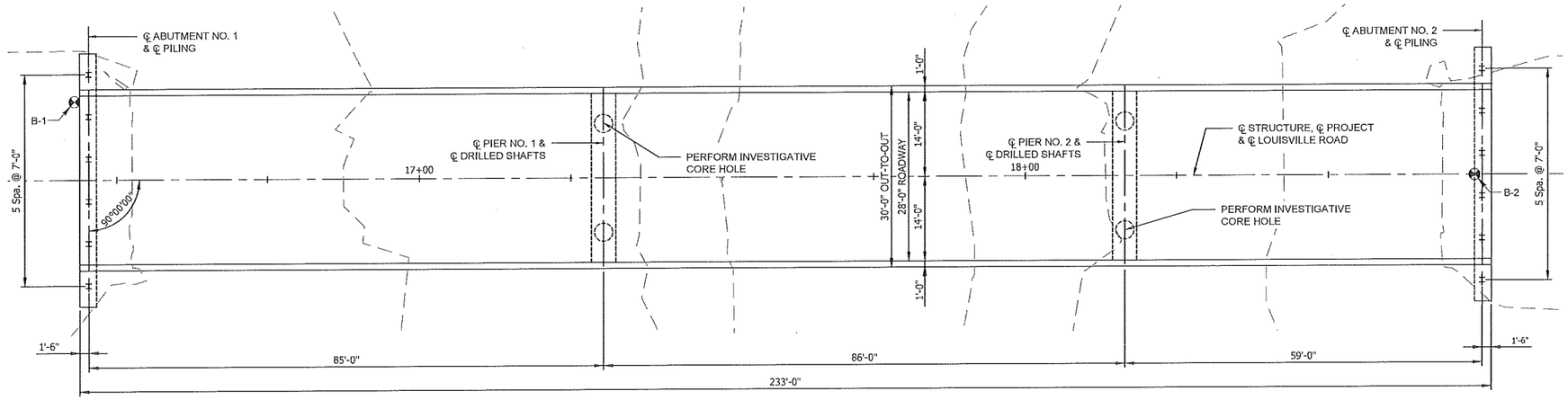
PROJECT NO. B2019-036 POT52 BRIDGE NO. 000000000075B190

Bartlett&West
www.bartlettwest.com

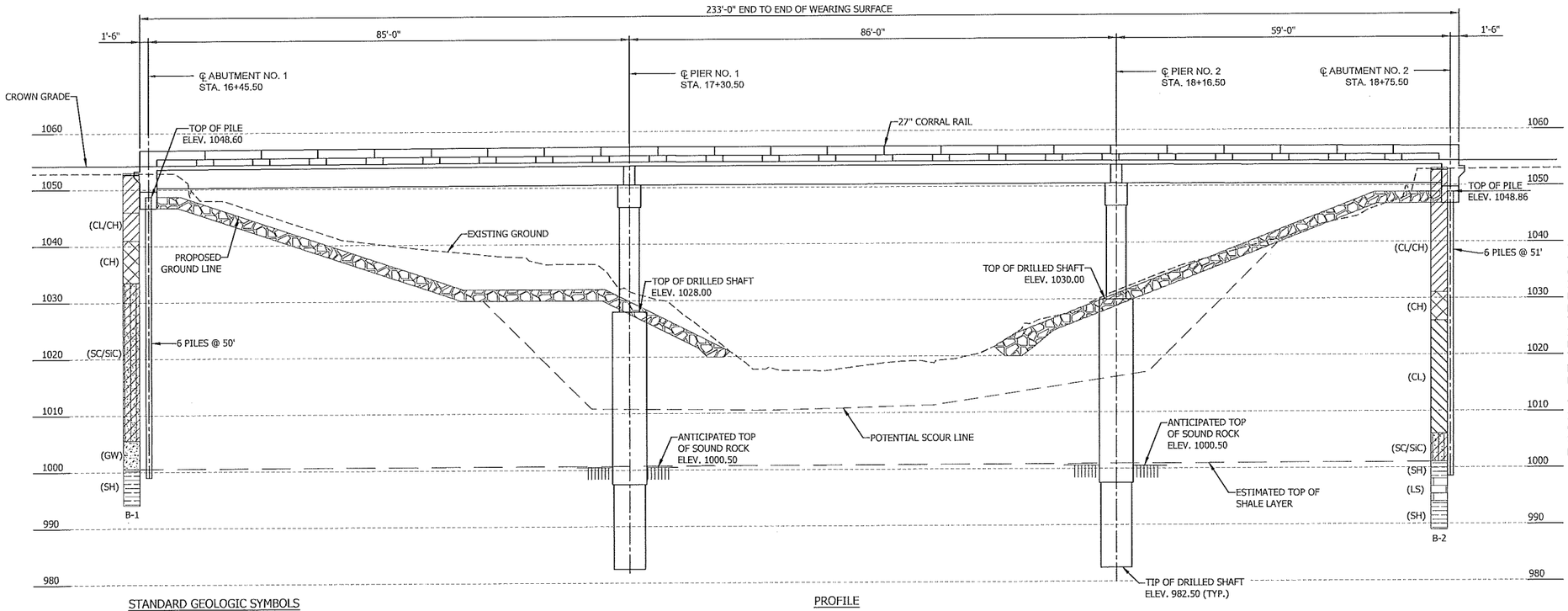
DATE: JUNE 2024
W.O.: 16756.224
17 OF 47

Drawing name: W:\Proj\160001\16756\16756.224\AutoCad\Plan Set\Bridge Plans\Office Check Bridge Plans\16756.224_BR_Contour Map and Construction Layout.dwg Layout name: CONSTRUCTION LAYOUT SHEET Plotted by: JBB01710 Plotted on: Jul 09, 2024 – 11:33am

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	B2019-036 POT52	2024	18	47



PLAN



PROFILE

SCALE: 1" = 10'

DRILLED SHAFT NOTES

TIP OF DRILLED SHAFT SHALL BE A MINIMUM OF 15' BELOW THE PERMANENT CASING AND INTO SOUND ROCK CONFIRMED WITH A INVESTIGATIVE CORE HOLE. DRILL AN INVESTIGATIVE CORE HOLE AT EACH DRILLED SHAFT LOCATION IN ACCORDANCE WITH KDOT SPECIFICATIONS TO PENETRATE THE BEDROCK A MINIMUM OF 6 FEET BELOW THE TIP OF THE SHAFT. IF A CAVITY OR OTHERWISE INCOMPETENT ZONE IS DETECTED BELOW THE SHAFT, REVISE THE SHAFT TO ENSURE A COMPETENT SHAFT. DRILL THE TEST HOLES IN THE PRESENCE OF THE ENGINEER. PAYMENT FOR LOWERING OR REPAIRING THE SHAFTS WILL BE IN ACCORDANCE WITH KDOT SPECIFICATIONS.

THE DRILLED SHAFTS HAVE END BEARING COMPONENTS AND IT IS BEST PRACTICE THAT THE BOTTOM OF THE SOCKET BE CLEAN AND RELATIVELY FLAT. ALLOW NO LOOSE MATERIAL WITHIN THE SHAFT WHEN THE SHAFT IS CONSIDERED READY TO POUR.

SOUNDINGS NOTES

SOUNDINGS SHOWN ON THESE PLANS ARE TAKEN FROM NOTES OBTAINED IN THE FIELD AND REPRESENT THE BEST INFORMATION AVAILABLE. LOGS OF THESE SOUNDINGS ARE PROVIDED WITH THE BID DOCUMENTS OR ARE AVAILABLE FROM THE ENGINEER FOR INSPECTION BY INTERESTED AND QUALIFIED BIDDERS.

PILE NOTES

ONCE SUFFICIENT BEARING AND PENETRATION INTO SHALE IS ACHIEVED, DRIVING SHOULD CEASE TO AVOID DAMAGE TO THE PILE. FINAL TIP ELEVATIONS SHOULD BE DETERMINED IN THE FIELD BASED ON FORCE CALCULATIONS.

STANDARD GEOLOGIC SYMBOLS

- Lean Clay (CL)
- Fat Clay
- Lean to Fat Clay (CL/CH)
- Sand
- Well Graded Gravel with Sand (GW)
- SILT
- Caliche
- Silty Clayey Shale
- Limy Shale
- Black or Fissile Shale
- Sandy Shale
- Gypsiferous Shale
- Shale (SH)
- Sandstone
- Shaly Sandstone
- Gypsum bed
- Dolomite
- Cross-bedded Sandstone
- Limestone (LS)
- Cherty Limestone
- Shaly Limestone
- Sandy Limestone
- Weathered or Broken Limestone
- Loess
- Mortar bed
- Coal
- Siltstone
- Chalk
- Wavy limestone
- Chalky limestone
- Sandy Silty Clay (SC/SIC)
- Boulders

SOUNDINGS
- Core drill
- Power auger
- Hand tools
- Air hammer
- Cone (CPT) penetrometer
- Shelby tube

NOTE: SOUNDINGS SHOWN ON THESE PLANS ARE TAKEN FROM NOTES OBTAINED IN THE FIELD AND REPRESENT THE BEST INFORMATION AVAILABLE. LOGS OF THESE SOUNDINGS ARE PROVIDED WITH THE BID DOCUMENTS, OR ARE AVAILABLE FROM THE ENGINEER FOR INSPECTION BY INTERESTED AND QUALIFIED BIDDERS.

NO.	DATE	REVISION	BY	APP'D

ENGINEERING GEOLOGY

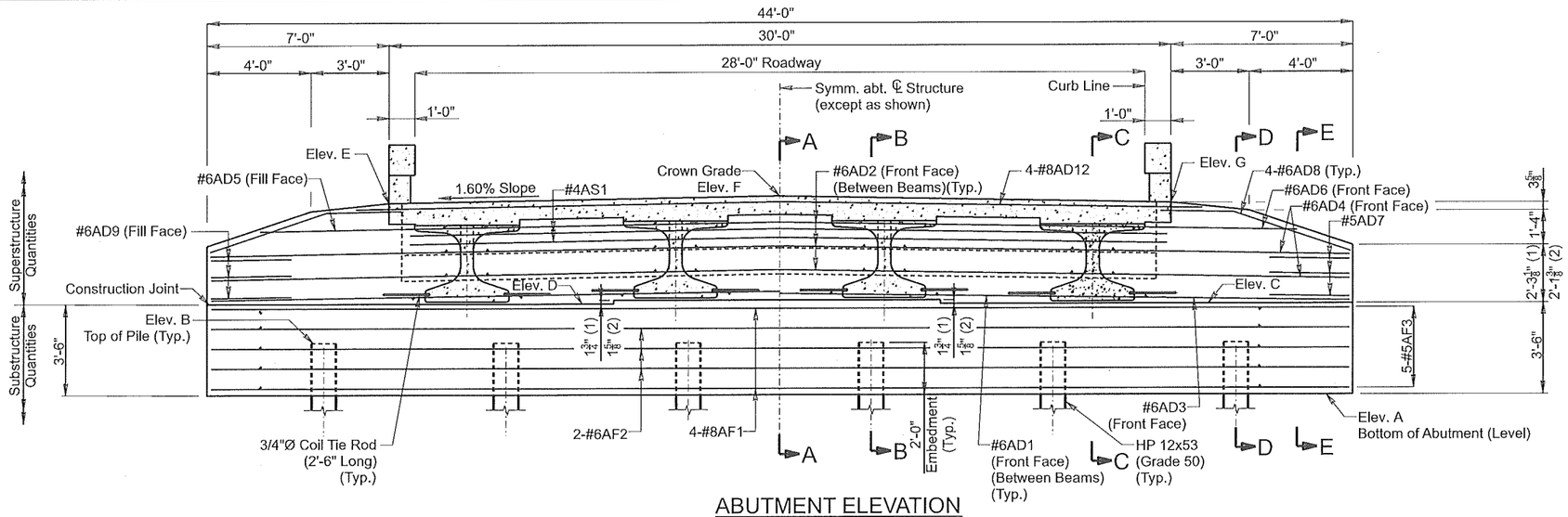
LOUISVILLE ROAD OVER ROCK CREEK

PROJECT NO. B2019-036 POT52 BRIDGE NO. 00000000075B190

Bartlett&West
www.bartlettwest.com

DATE: JUNE 2024
W.O.: 16756.224
18 OF 47

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	B2019-036 POT52	2024	19	47

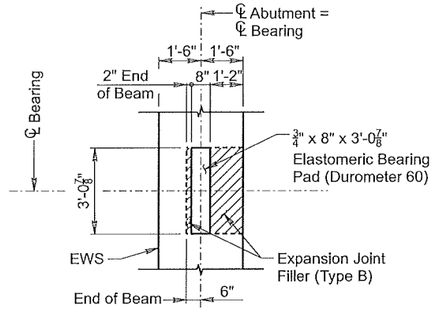


ABUTMENT ELEVATION

Note: Vertical Reinforcement not shown for clarity.

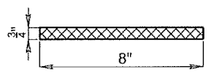
TABLE OF ELEVATIONS		
Location	Abutment No. 1	Abutment No. 2
Elev. A	1046.60	1046.86
Elev. B	1048.60	1048.86
Elev. C	1050.10	1050.36
Elev. D	1050.10	1050.36
Elev. E	1054.00 ✳	1054.11 ✳
Elev. F	1054.24 ✳	1054.35 ✳
Elev. G	1054.00 ✳	1054.11 ✳

✳ Elev. @ EWS

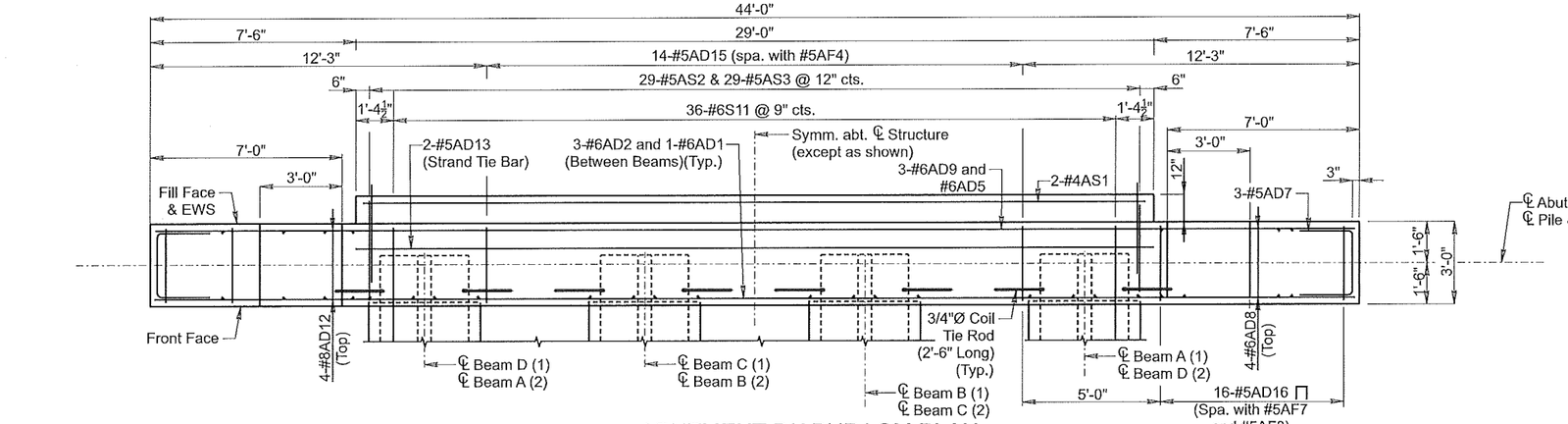


Note: Elastomeric Bearing Pads (Durometer 60) and Preformed Expansion Joint Filler (Type B) shall be included in the unit price bid for "Prestressed Concrete Beams".

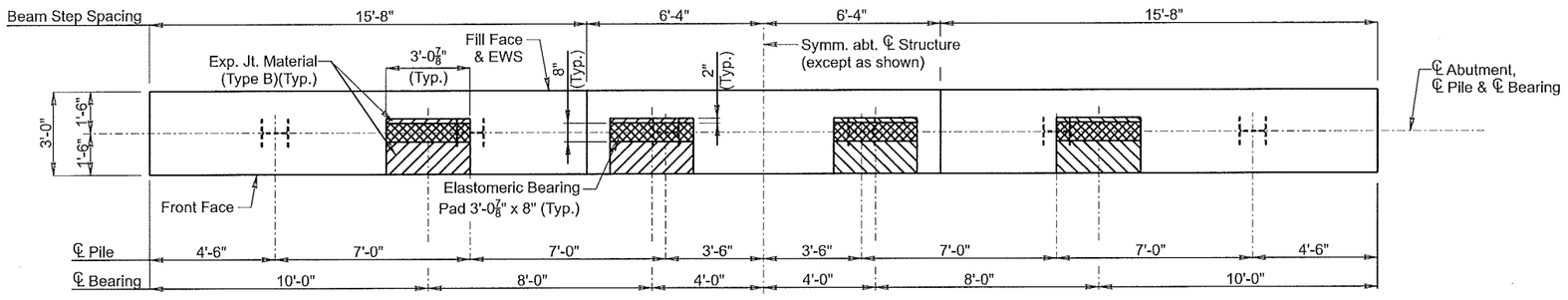
PLAN OF BEARING PADS AT ABUTMENTS



TYPICAL SECTION THRU 8" x 3'-0 7/8" PLAIN NEOPRENE BEARING PAD



ABUTMENT DIAPHRAGM PLAN



ABUTMENT BEAM PLAN SHOWING BEARINGS AND DIMENSIONS

Notes:

See Sheet No. 20 for Abutment Sections.

See Sheet No. 31 for Corral Rail Reinforcement details.

(1) = Abut. No. 1
(2) = Abut. No. 2

NO.	DATE	REVISIONS	BY	APP'D
3				
2				
1				

Br. No. 00000000075B190 Sta. 17+60.50

ABUTMENT DETAILS
(SHEET 1 OF 2)
LOUISVILLE ROAD OVER ROCK CREEK

Proj. B2019-036 POT52 Pottawatomie Co.

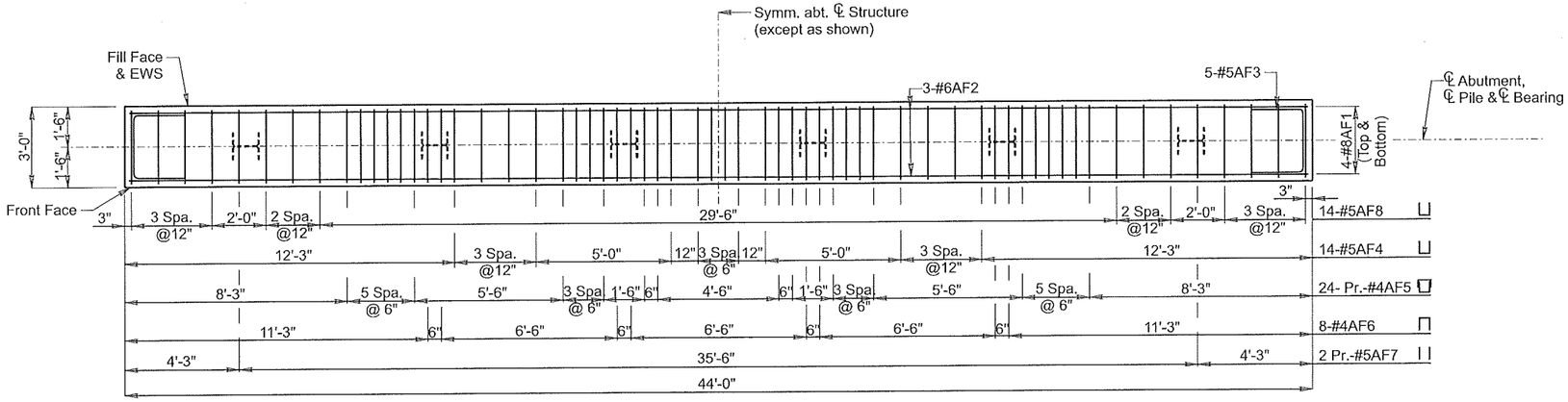
DESIGNED	CJC	DETAILED	TAA	QUANTITIES	CJC	CADD	TAA
DESIGN CK.		DETAIL CK.	CJC	QUAN.CK.	TRB	CADD CK.	CJC

KDOT Graphics Certified 10-11-2022 Sh. No. 19

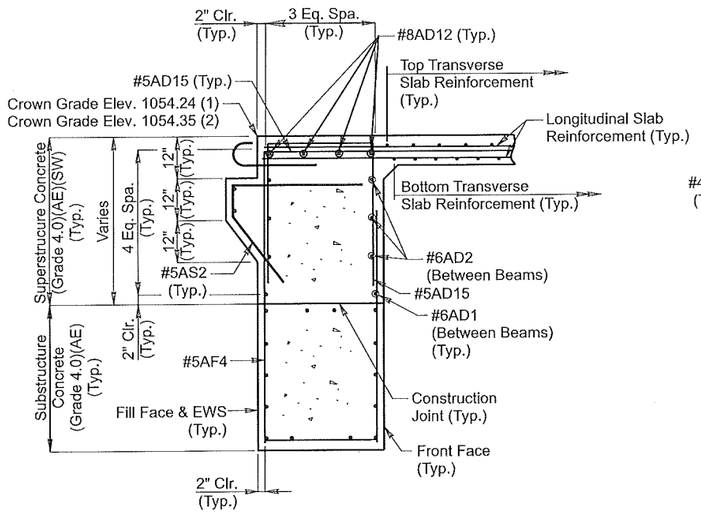
KDOT Graphics Certified

Drawn By : TAA
Plotted : 06/17/2024
File : W:\Proj\16000\16756\16756.224\MicroStation\16756.224_019_Abutment Details_br500.dgn

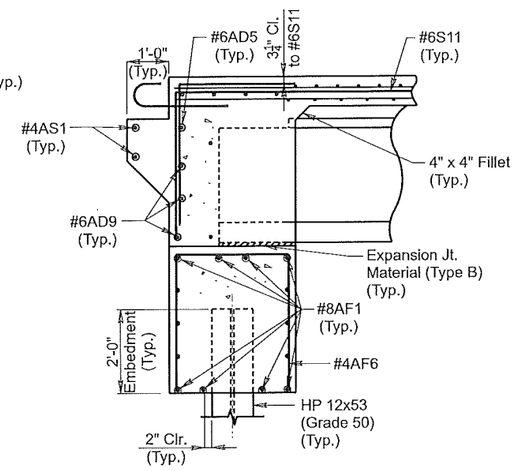
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	B2019-036 POT52	2024	20	47



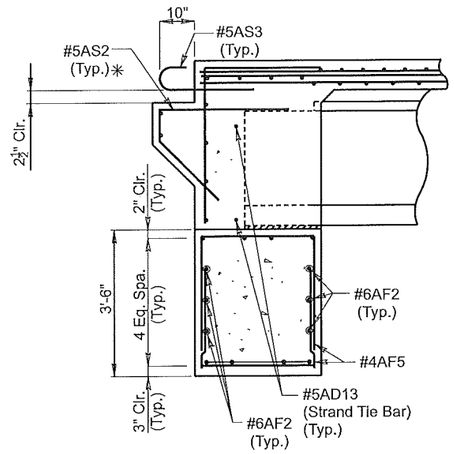
ABUTMENT BEAM PLAN SHOWING REINFORCEMENT



SECTION A-A

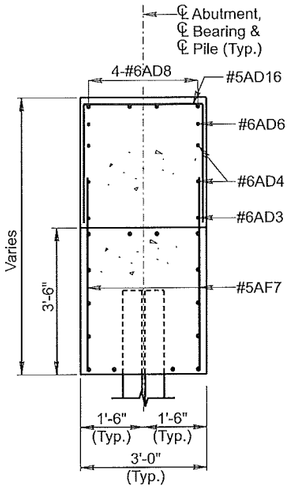


SECTION B-B

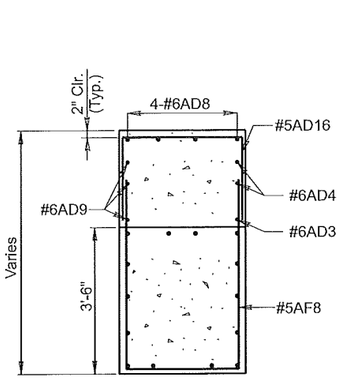


SECTION C-C

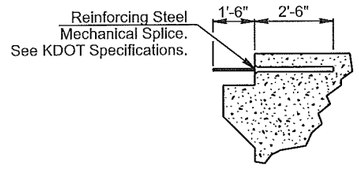
∗ Adjust bar to keep 2" Clr. from beam as needed.



SECTION D-D



SECTION E-E



APPROACH SLAB TIE BAR OPTION

The Contractor has the option (at no additional cost to the County) of substituting a mechanically spliced reinforcing bar of the same size for any or all of the cast-in-place approach slab tie bars.

Notes:

See Sheet No. 19 for Abutment Details not shown.

(1) = Abut. No. 1
(2) = Abut. No. 2

NO.	DATE	REVISIONS	BY	APP'D
3				
2				
1				

Br. No. 00000000075B190 Sta. 17+60.50

ABUTMENT DETAILS
(SHEET 2 OF 2)
LOUISVILLE ROAD OVER ROCK CREEK

Proj. B2019-036 POT52 Pottawatomie Co.

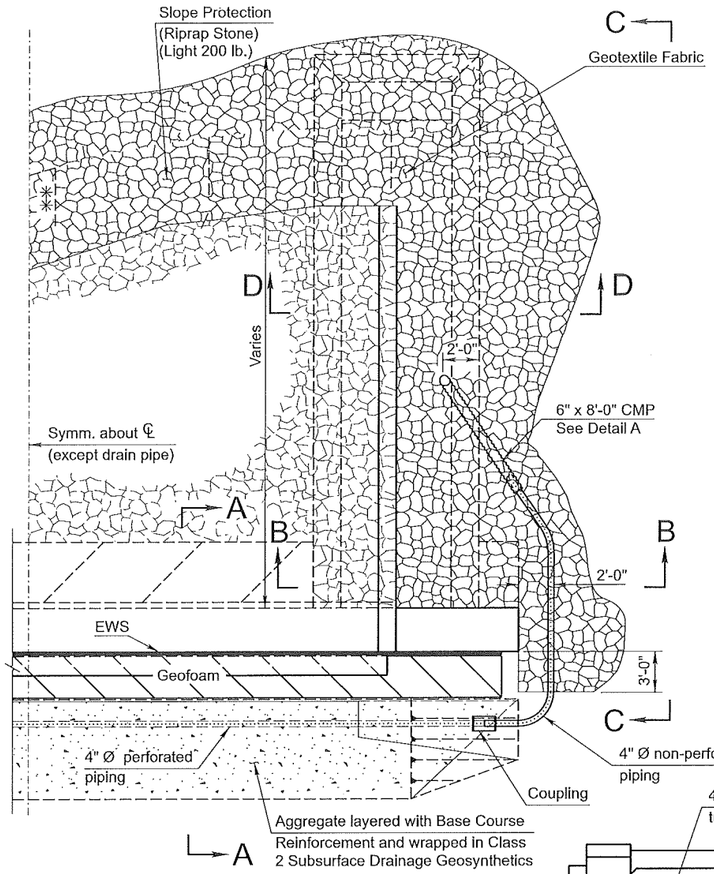
DESIGNED	CJC	DETAILED	TAA	QUANTITIES	CJC	CADD	TAA
DESIGN CK.		DETAIL CK.	CJC	QUAN.CK.	TRB	CADD CK.	CJC

KDOT Graphics Certified 10-11-2022 Sh. No. 20

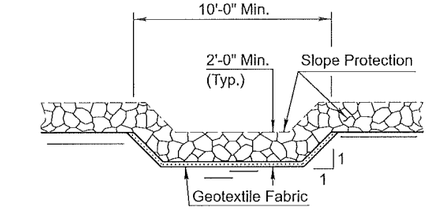
KDOT Graphics Certified

Plotted : 06/18/2024
Drawn By : TAA
File : W:\Proj\16000\16756\16756.224\MicroStation\16756.224_020_Abutment Details_br500.dgn

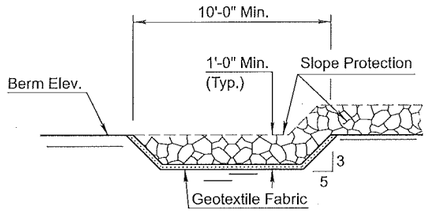
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	B2019-036 POT52	2024	21	47



PLAN



SECTION D-D



SECTION B-B

✳✳ 3H : 1V slope at Abutment No. 1
Match existing slope at Abutment No. 2

GENERAL NOTES

GEOSYNTHETICS: Use material that complies with KDOT Specification Section 1710 Class 2 subsurface drainage fabric. Place the Class 2 subsurface drainage fabric on graded and compacted material shaped as shown. Allow for enough material so that the sides can be overlapped and that the ends fully separate the aggregate drain from the embankment soils. Place the perforated drain pipe and couple to non-perforated pipe as shown. Allow the non-perforated pipe to pass through a hole carefully cut in fabric. Place aggregate within fabric to just leave the top of the pipe visible. Verify the slope of the pipe, that it is not damaged or displaced and that the couplers are firmly coupled. Continue to backfill to the elevation and shape shown.

AGGREGATE: Use aggregates that complies with KDOT Specifications for SB-1 or SB-2.

BASE COURSE REINFORCEMENT: Use "Base Course Reinforcement" that complies with KDOT Specification Division 1700 or approved material. Place this material in uniform layers without gaps or sags per the manufacturer's recommendations.

GEOFOAM: Use "Geofoam" that complies with ASTM D6817 EPS 12. Acceptance according to Type "C" certification. Bond this material to the backwall protection using materials recommended by the manufacturer.

GEOTEXTILE FABRIC: Use "Geotextile Fabric" that conforms with KDOT Specification 1710 and found on the Prequalified Materials List.

PIPE: Place perforated pipe within the limits and use non-perforated pipe outside the limits of the Abutment Aggregate Drain.

ABUTMENT AGGREGATE DRAIN: The Bridge Contractor shall excavate to the limits shown on the Bridge Excavation Sheet. Backfill, compact & grade the cohesive soil to the limits shown. Place the bridge backwall protection, geofoam, geotextile, perforated pipe, alternating layers of aggregate and base course reinforcement as shown. Place the outlet pipe, the CMP, and the backfill. Separate as shown the entire Abutment Aggregate Drain with the geotextile.

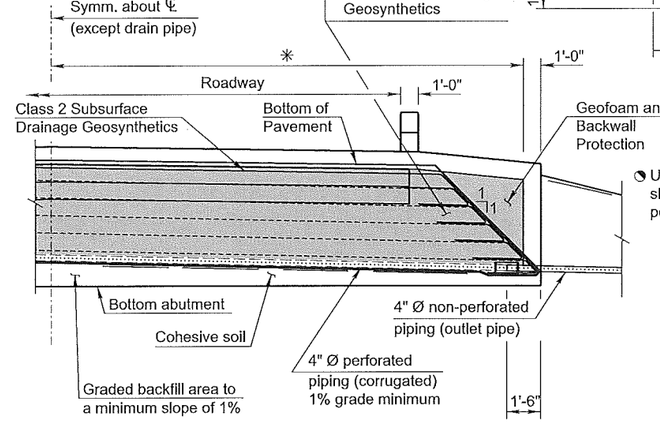
BRIDGE BACKWALL PROTECTION SYSTEM: Apply a non coal-tar Bridge Backwall Protection System to the approach side of the abutments and the wings in accordance with KDOT Specifications and the manufacturer's recommendations. Cover the abutments and wings to the limits shown on the details. Repair any damage done at no charge to the state.

Compact the abutment backfill. See the KDOT Specifications.

Perforated pipe and non-perforated outlet pipe shall be corrugated polyethylene tubing conforming to the KDOT Specifications.

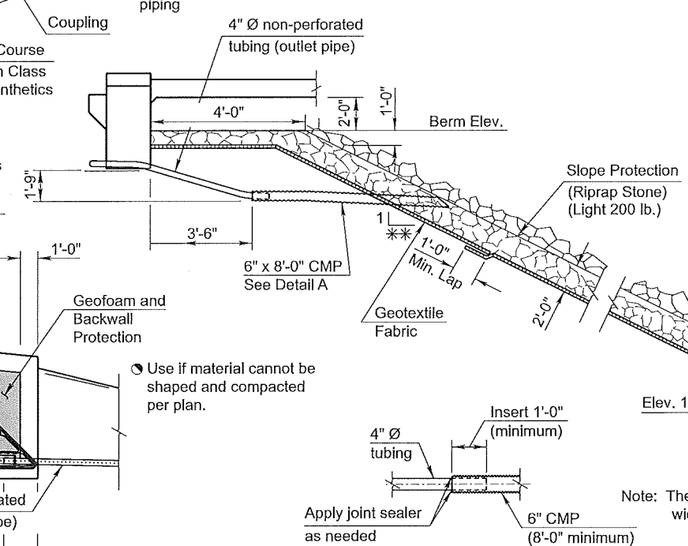
Fit the CMP end section with ¼" galvanized mesh screen to prevent the entrance of rodents. Seal the joint between the outlet pipe and the end section with a joint sealer.

COHESIVE SOILS: Grade the bottom surface of the excavated area to drain as shown. Backfill this area with a cohesive type of soil. The soil will have a Unified Soil Classification of CL, CH, ML or MH according to ASTM D2487 Classification System with a minimum plasticity index of 13. Compact the material to Type A, MR-90 specifications. If the plasticity index cannot be met, add and mix Bentonite to the soil prior to placement and compaction so that the PI ï 13.



✳ Limits of Bridge Backwall Protection System & Geofoam

ELEVATION

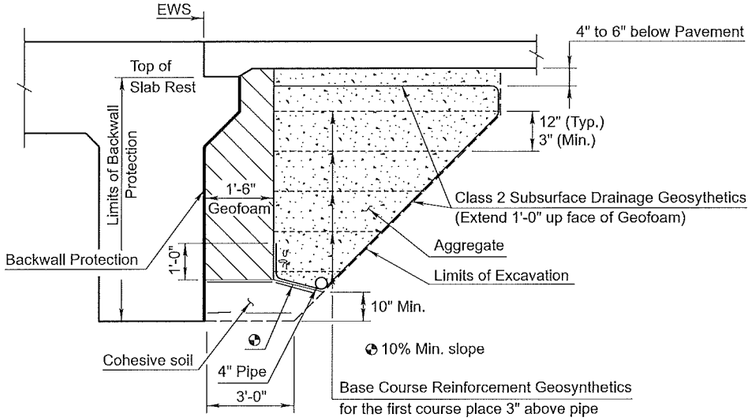


SECTION C-C

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

DETAIL A

Note: The 1'-0" lap and joint sealer may be replaced by a reducing coupler at the junction of the CMP and the 4" round tubing. For stream crossings place outlet on downstream side of bridge.



SECTION A-A
(Abutment Aggregate Drain)
Taken at ì

SUMMARY OF QUANTITIES (2 Abutments)	
Abutment Aggregate Drain	80 Cu. Yds.
Bridge Backwall Protection System	62 Sq. Yds.
Items subsidiary to Abutment Aggregate Drain	
4" Ø Perforated Pipe	84 Lin. Ft.
4" Ø Outlet Pipe	60 Lin. Ft.
6" Ø CMP	16 Lin. Ft.
Geosynthetics (Class 2 Subsurface Drainage)	172 Sq. Yds.
Geosynthetics (Base Course Reinforcement)	234 Sq. Yds.
Geofoam	26 Cu. Yds.
Items subsidiary to Slope Protection	
Geotextile Fabric	221 Sq. Yds.

NO.	DATE	REVISIONS	BY	APP'D

Br. No. 00000000075B190 Sta. 17+60.50

ABUTMENT AGGREGATE DRAIN
LOUISVILLE ROAD OVER ROCK CREEK

Proj. B2019-036 P0T52 Pottawatomie Co.

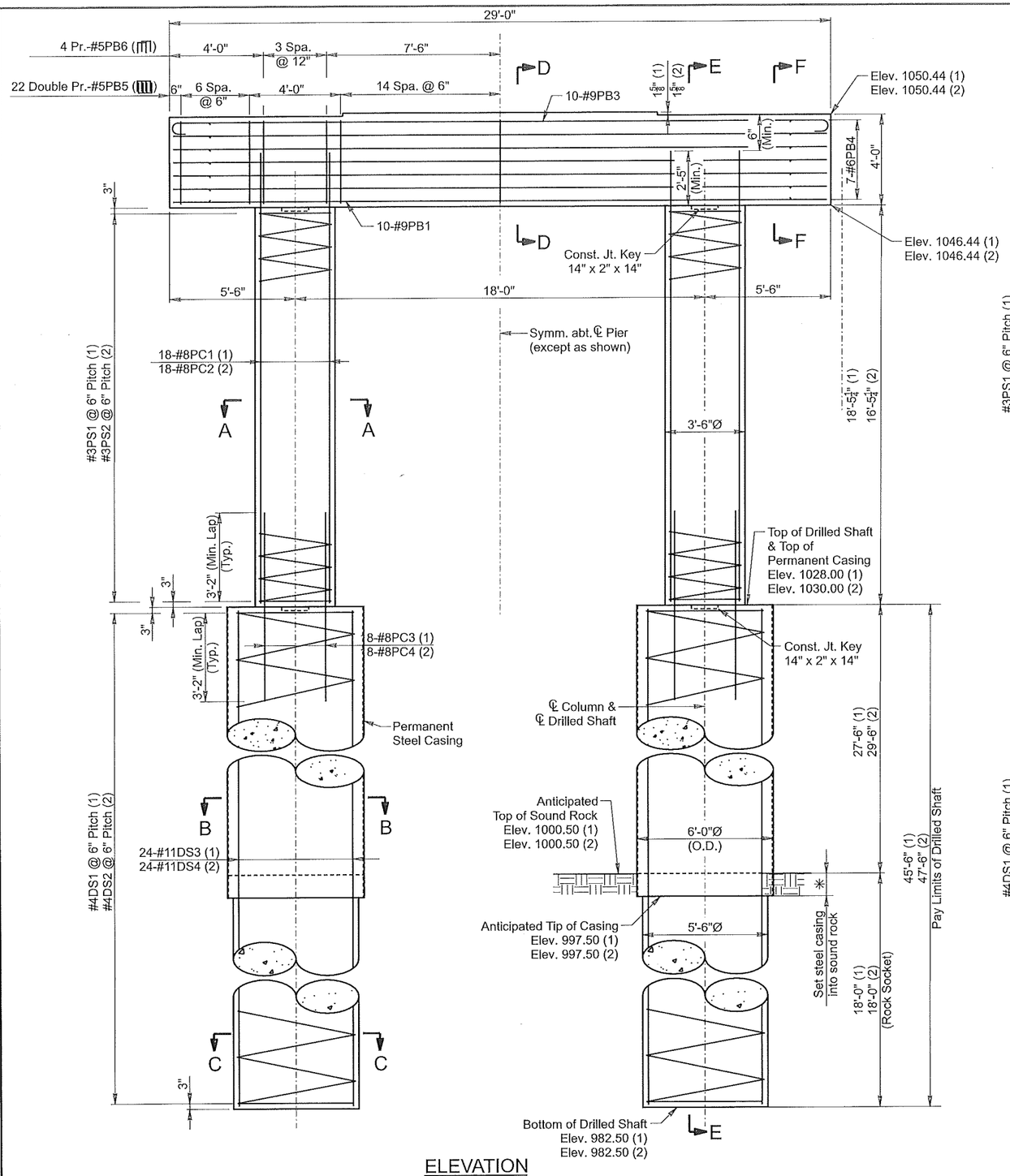
DESIGNED	JEB	DETAILED	TAA	QUANTITIES	JEB	CADD	TAA
DESIGN CK.	CJC	DETAIL CK.	CJC	QUAN.CK.	CJC	CADD CK.	

KDOT Graphics Certified 05-05-2023 Sh. No. 21

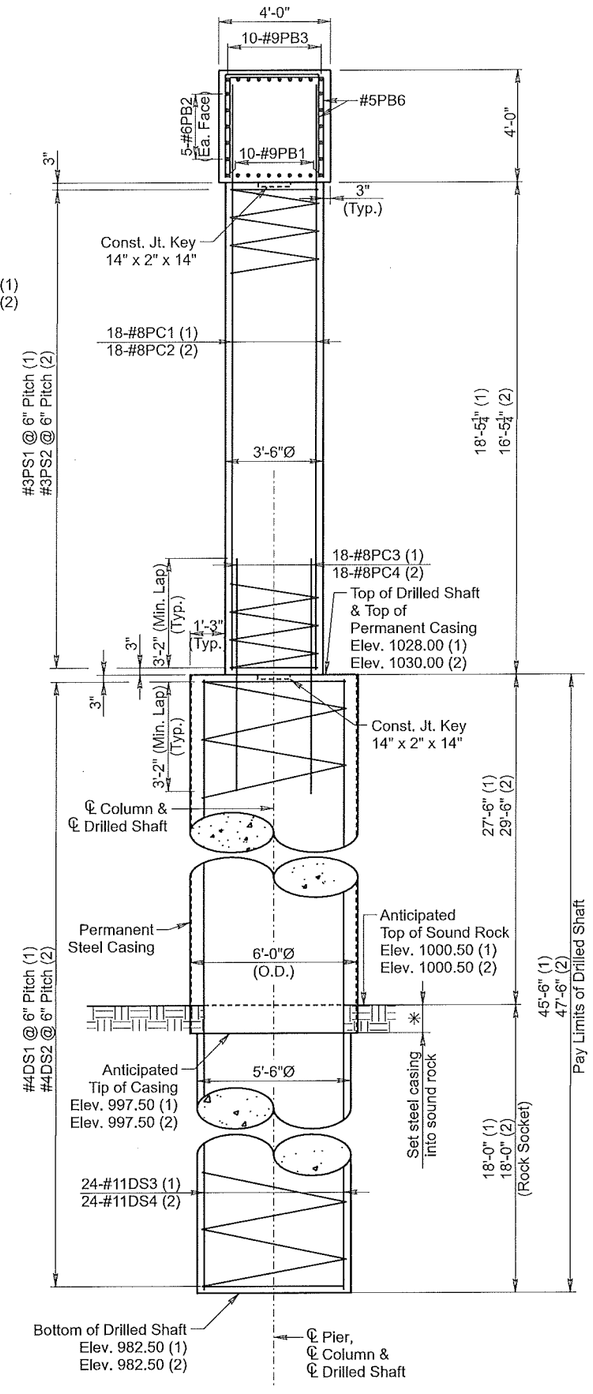
KDOT Graphics Certified

Plotted : 06/11/2024
Drawn By : TAA
File : W:\Proj\16000\16756\16756.224\MicroStation\16756.224_021_Abutment Aggregate Drain_br104cc.dgn

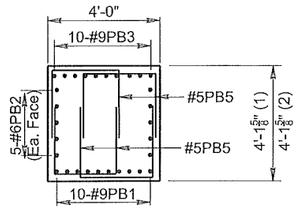
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	B2019-036 POT52	2024	22	47



ELEVATION



SECTION E-E



SECTION D-D

Notes:

For additional details, see Sheet No. 23.

All reinforcement in drilled shafts is included in the Substructure Quantities.

Additional length has been added to DS1, DS2, DS3 & DS4 lengths per shaft for possible change up to an additional 4 feet in drilled shaft or rock socket depth. The additional lengths shall be cut-off if not required.

The thickness of the steel casing shall meet all the requirements of KDOT Specifications Section 703.

✳Permanent casing shall be extended at least 12" or as needed to provide a positive seal and to stabilize the shaft excavation against collapse, excessive deformation, or flow of water.

Permanent casing shall be smooth walled and may be fabricated with teeth or a cutting edge to facilitate insertion into the rock.

Minimum clearance to reinforcing steel shall be 2", unless otherwise shown.

(1) = Pier No. 1
(2) = Pier No. 2

LRFD DESIGN DRILLED SHAFT LOAD		
	Strength I	Service I
Pier No. 1	708 tons	506 tons
Pier No. 2	626 tons	435 tons

ALL PIERS	Phi	Nominal Resistance	Factored Resistance
End Bearing	0.5	80 ksf	40 ksf
Side Friction	0.5	4 ksf	2 ksf

NO.	DATE	REVISIONS	BY	APP'D
3				
2				
1				

Br. No. 00000000075B190 Sta. 17+60.50

PIER DETAILS
(SHEET 1 OF 2)
LOUISVILLE ROAD OVER ROCK CREEK

Proj. B2019-036 POT52 Pottawatomie Co.

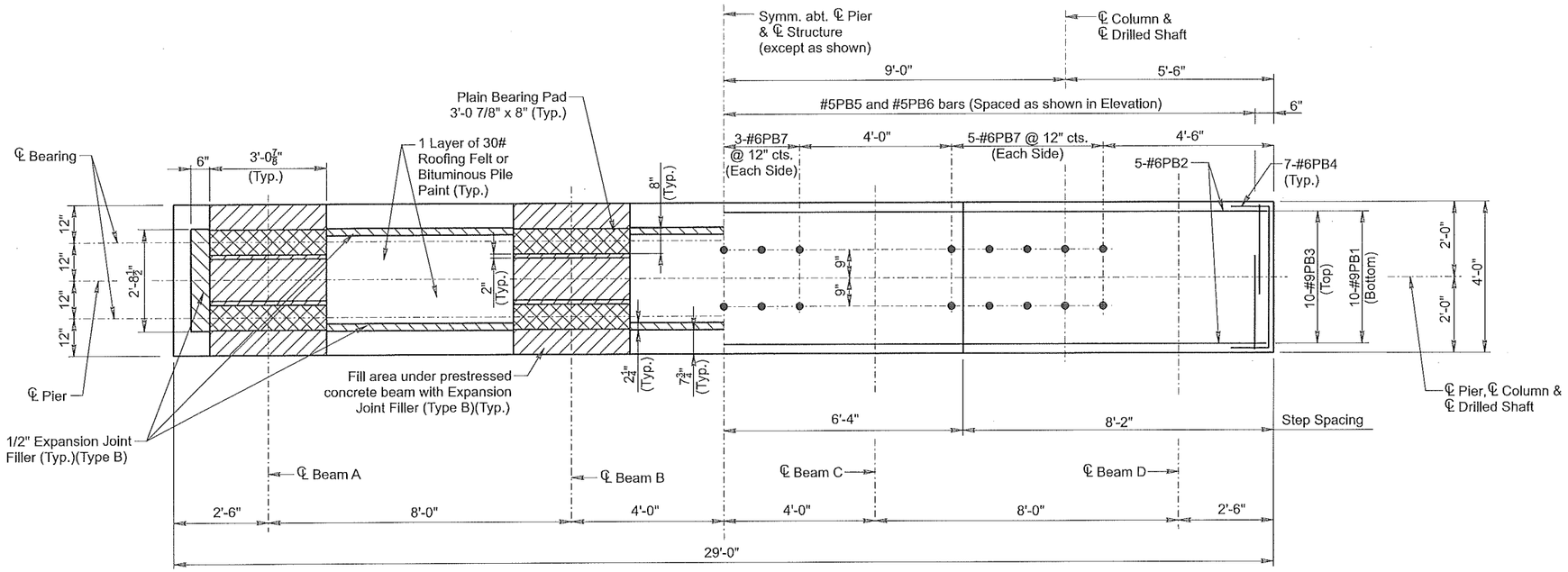
DESIGNED	DAS	DETAILED	TAA	QUANTITIES	CJC	CADD	TAA
DESIGN CK.	CJC	DETAIL CK.	CJC	QUAN.CK.	TRB	CADD CK.	CJC

KDOT Graphics Certified 10-11-2022 Sh. No. 22

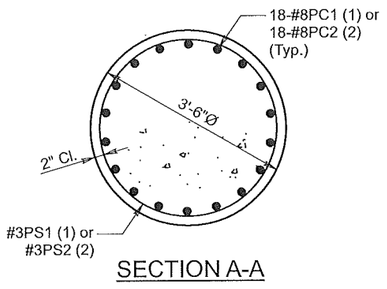
KDOT Graphics Certified

Drawn By : TAA
File : W:\Proj\16000\16756\16756.224\MicroStation\16756.224_022_Pier Details.dgn
Plotted : 06/18/2024

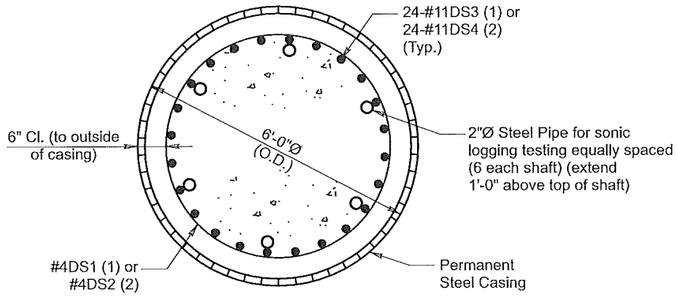
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	B2019-036 POT52	2024	23	47



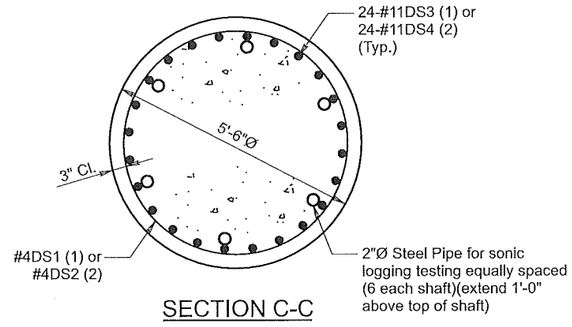
PLAN OF BEAM



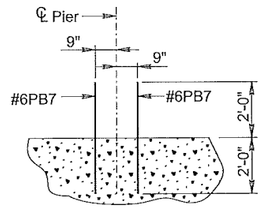
SECTION A-A



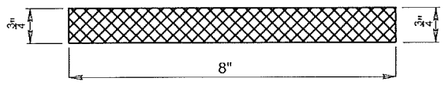
SECTION B-B



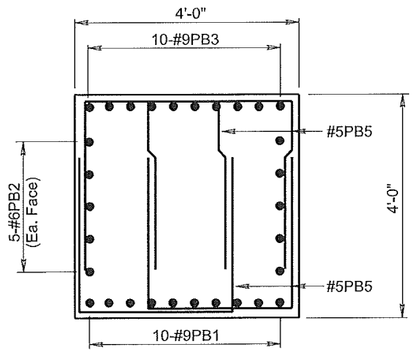
SECTION C-C



DETAIL OF DOWELS



TYPICAL SECTION THRU 8" X 3'-0 7/8" PLAIN NEOPRENE BEARING PAD



SECTION F-F

GENERAL NOTES

DRILLED SHAFTS: Construct the drilled shafts using the cased method. A permanent casing is required. See KDOT Specifications. All excavation, concrete, pipes for Sonic Testing, casings, labor, and incidentals necessary to complete the shaft as shown on the details and as directed by KDOT Specifications shall be included in the bid item "Drilled Shafts (60")(Cased)". Use Grade 4.0 Concrete in the drilled shaft. In no case shall the bottom of the drilled shaft be placed higher than the elevation shown unless otherwise directed by the Owner's Engineer.

All reinforcement in drilled shafts is included in the Substructure Quantities.

Drill and Investigative Core Hole at the locations shown on the plans. See KDOT Specifications.

If the location of the top of the shaft is such that the casing cannot be overtopped to remove concrete impurtities, provide extra casing length to over-pour the concrete in the shaft and chip back to the plan elevation of the top of the shaft.

SONIC TESTING: Equip all drilled shafts with piping to allow sonic testing to be done. Install pipes at locations shown on the plans. All wet pours will be tested. Also, the Engineer has the option to require sonic, non-destructive, integrity testing at any location of concern. Sonic testing shall be paid for at the unit price set for "Sonic Test" (Drilled Shaft)(Set Price). If the sonic testing indicates defective concrete in the shaft, the Engineer will measure the first sonic test for payment, and the Contractor is responsible for subsequent sonic testing of that shaft. Report test results directly to Owner's Engineer. No work will be done above the top of drilled shaft without the approval of the Owner's Engineer.

COLUMN CONSTRUCTION: Cure the drilled shaft footing as required by the KDOT Specifications before beginning the column construction (placing resteel or formwork). Do not place cast in place shear bolts, coil inserts or other devices used as falsework support in the column without the approval of the Engineer. Do not remove the column formwork without the approval of the Engineer. Curing shall continue after the formwork is removed as required by the KDOT Specifications.

PIER BEAM CONSTRUCTION: Cure the columns as required by the KDOT Specifications before beginning the pier beam construction (placing resteel or formwork). Do not drill and grout bolts or other devices into the columns used for falsework support unless approved by the Engineer. Cure the columns as required by the KDOT Specifications before placing pier beam concrete. Do not remove falsework used to support the pier beam until the pier beam concrete has cured as required by the KDOT Specifications. Do not set prestressed concrete beams on the pier beam until after the falsework is removed or the pier beam concrete has 0.75 f'c strength as tested.

Notes:

Minimum clearance to reinforcing steel shall be 2", unless otherwise shown.

For additional details, see Sheet No. 22.

(1) = Pier No. 1
(2) = Pier No. 2

NO.	DATE	REVISIONS	BY	APP'D
3				
2				
1				

Br. No. 00000000075B190 Sta. 17+60.50

PIER DETAILS
(SHEET 2 OF 2)
LOUISVILLE ROAD OVER ROCK CREEK

Proj. B2019-036 POT52 Pottawatomie Co.

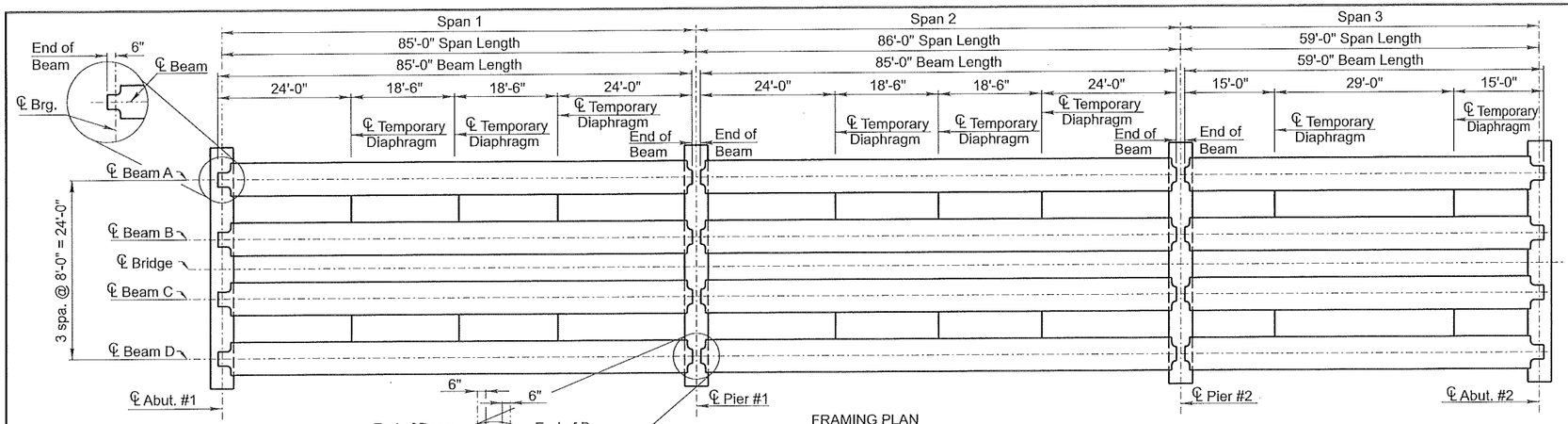
DESIGNED	DAS	DETAILED	TAA	QUANTITIES	CJC	CADD	TAA
DESIGN CK.	CJC	DETAIL CK.	CJC	QUAN.CK.	TRB	CADD CK.	CJC

KDOT Graphics Certified 10-11-2022 Sh. No. 23

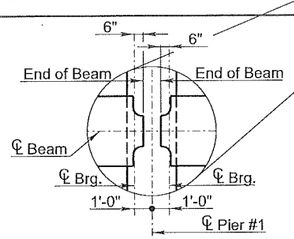
KDOT Graphics Certified

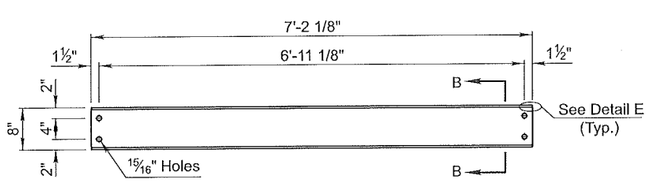
Plotted : 06/18/2024
Drawn By : TAA
File : W:\Proj\16000\16756\16756.224\MicroStation\16756.224_023_Pier Details.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	B2019-036 POT52	2024	24	47

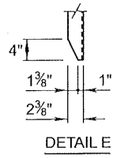


FRAMING PLAN

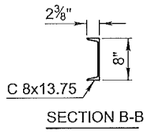




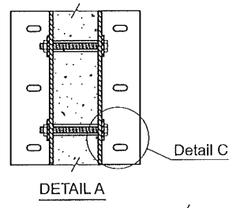
TEMPORARY DIAPHRAGM
(or equivalent)



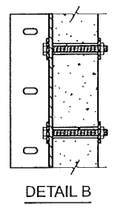
DETAIL E



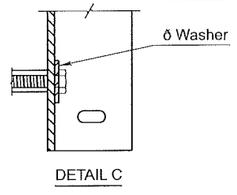
SECTION B-B



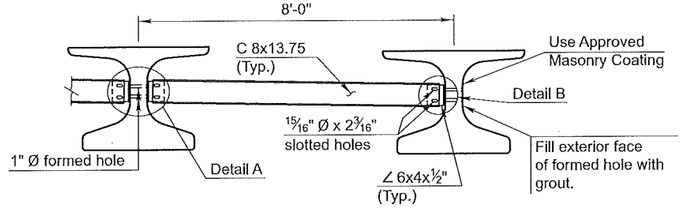
DETAIL A



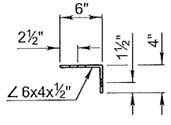
DETAIL B



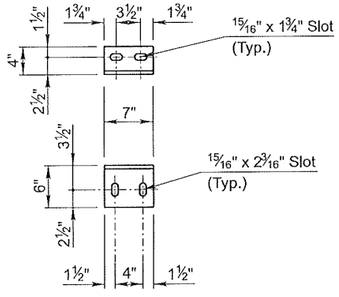
DETAIL C



ELEVATION OF TEMPORARY DIAPHRAGMS



TYPICAL SECTION



7" CONNECTION ANGLE
(32 each Req'd.)
(Weight = 9.45 Lb. each)

CONNECTION ANGLE DETAILS
(or equivalent)

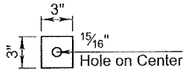
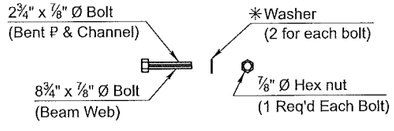


PLATE WASHER



∗ Plate washers required for slotted holes.

FASTENER DETAILS

TEMPORARY DIAPHRAGMS: Use ASTM A709 Gr. 36 steel for all angles and bent plates for temporary diaphragms. All bolts, nuts, and washers for fasteners shall conform to the heavy hex structural requirements of ASTM F3125 Gr. A325, Type 1. Galvanize the angles, bolts, nuts, and washers in accordance with the KDOT Specifications. Use hardened steel washers over any oversized holes. Use 5/16" plate washers over any slotted holes along with hardened washers under the turned elements. Use the turn-of-the-nut tightening method. DTI's are not required. Install the temporary diaphragms, as shown in the details, prior to placing any superstructure concrete. Leave the temporary diaphragms in place until the concrete diaphragms and deck have cured. Remove the angles from the beams and fill the holes in the prestressed beams with an approved epoxy grout. The bent plate diaphragms, angles, nuts, bolts, and washers shall remain the property of the Contractor. Submit shop drawings of the temporary diaphragms to the KDOT Bridge Section for review and approval. The material, equipment, and labor necessary for the installation of the temporary diaphragms, including filling the bolt holes, shall not be paid for directly, but shall be subsidiary to the bid item "Prestressed Concrete Beams".

NO.	DATE	REVISIONS	BY	APP'D
3				
2				
1				

KANSAS DEPARTMENT OF TRANSPORTATION

Br. No. 00000000075B190 Sta. 17+60.50

PRESTRESSED BEAM LAYOUT
LOUISVILLE ROAD OVER ROCK CREEK

Proj. B2019-036 POT52 Pottawatomie Co.

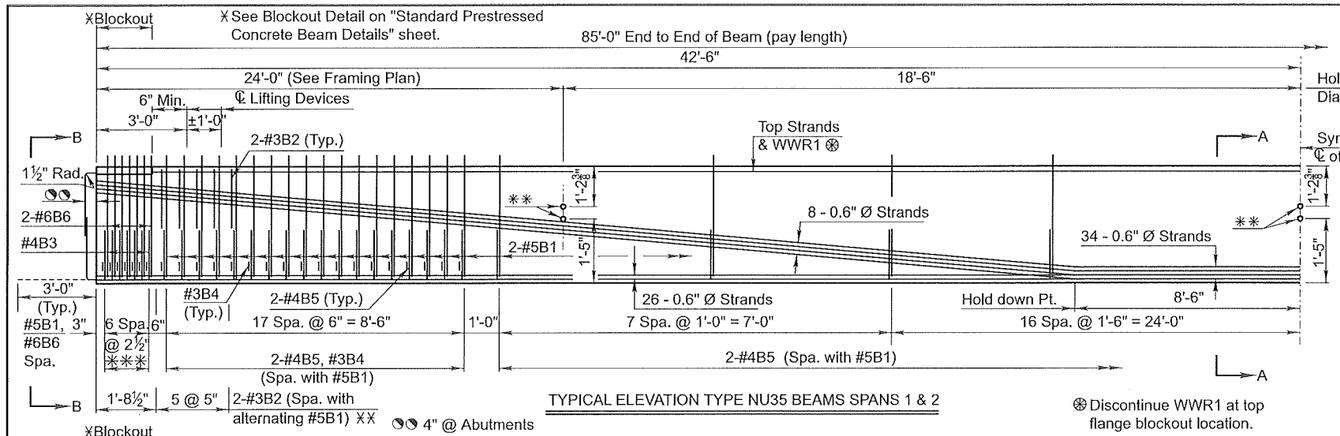
DESIGNED	DETAILED	QUANTITIES	CADD
DESIGN CK.	DETAIL CK.	QUAN.CK.	CADD CK.

KDOT Graphics Certified 08-10-2022 Sh. No. 24

KDOT Graphics Certified

Drawn By : TAA
File : W:\Proj\16000\16756\16756.224\MicroStation\16756.224_024_Prestressed Beam Layout_br305A.dgn
Plotted : 06/17/2024

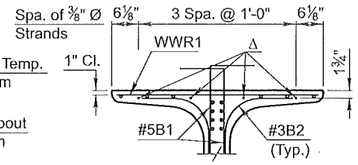
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	B2019-036 POT52	2024	25	47



TYPICAL ELEVATION TYPE NU35 BEAMS SPANS 1 & 2

℗℗ 4" @ Abutments
8" @ Piers

⊛ Discontinue WWR1 at top flange blockout location.



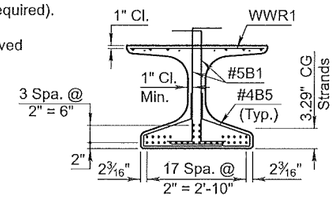
†† TOP FLANGE DETAIL

Δ ⅜" Dia. reinforcement support strands (required). Tension to 2.0 kips/strand and place symmetrical about ℄ beam. May be moved laterally in pairs to maintain symmetry.

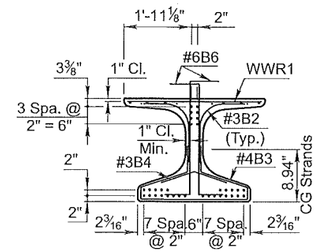
†† Check flange for Overhang Bracket loads where applicable.

** 1"Ø Formed Hole

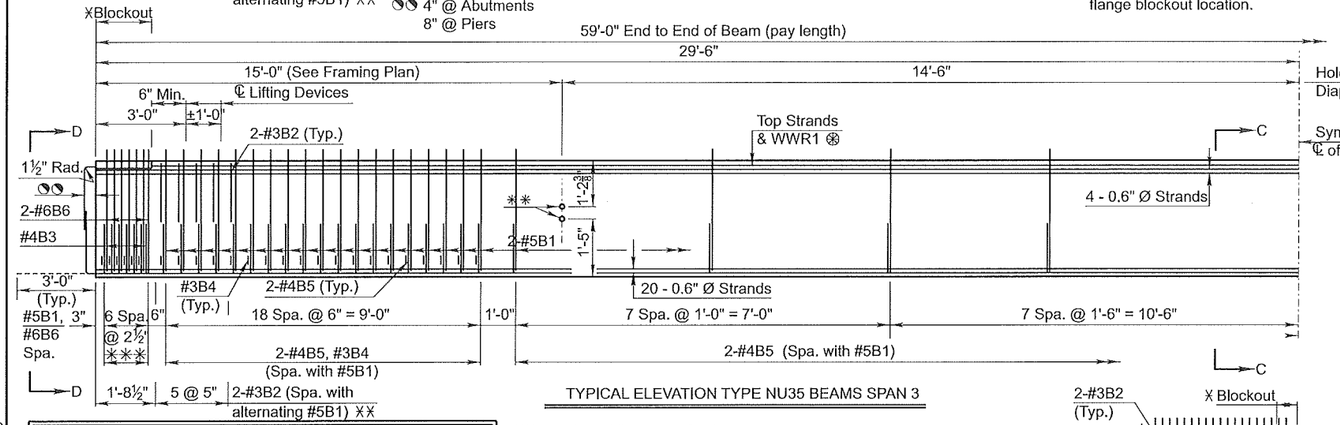
*** #4B3, #3B4 (Spa. with #6B6)



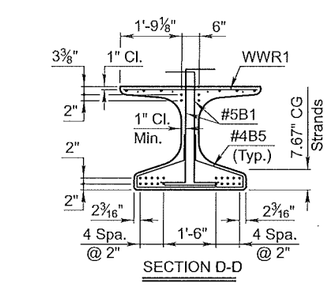
SECTION A-A



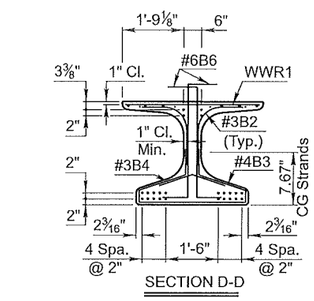
SECTION B-B



TYPICAL ELEVATION TYPE NU35 BEAMS SPAN 3



SECTION D-D



SECTION D-D

† WELDED WIRE REINFORCEMENT EQUIVALENT STEEL As						
Size	3"	6"	9"	12"	15"	18"
#3	0.440	0.220	0.147	0.110	0.088	0.073
#4	0.800	0.400	0.267	0.200	0.160	0.133
#5	1.234	0.617	0.411	0.308	0.247	0.206
#6	1.761	0.880	0.587	0.440	0.352	0.293

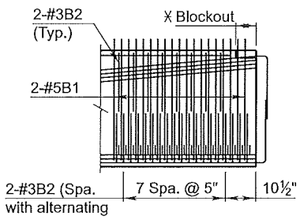
† If Welded Wire Reinforcement (WWR) is used in-lieu of reinforcing steel bars shown on this sheet, the spacing of wires for the WWR shall be equal to or less than the vertical bars shown in the typical beam section above. The equivalent As for the WWR shall be equal to or greater than typical beam section above.

ЖЖ Spacing of #3B2 bar @ Abutment End.

NOTE: Extend 10 strands 3'-0" beyond the end of the beam. Strands not shown shall be cut flush with the end of the beam. See "Strand Extension Details."

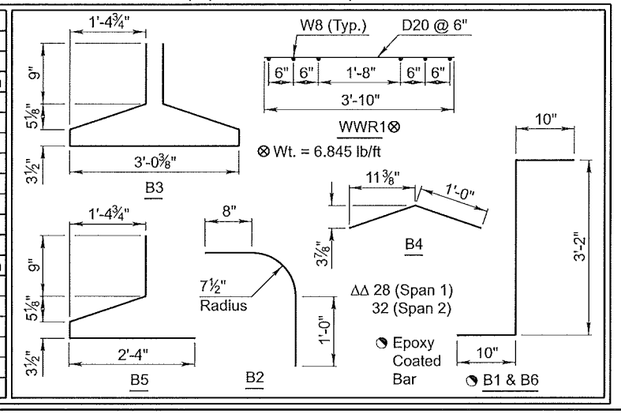
NOTE: During transportation and construction only, support beams on bearing points a maximum of 5 feet from the beam end. The Fabricator shall show the proposed support locations on the shop drawings.

NOTE: The hold down force at the harp points for 8 strands at 2.58 kips per strand = 20.64 kips total.

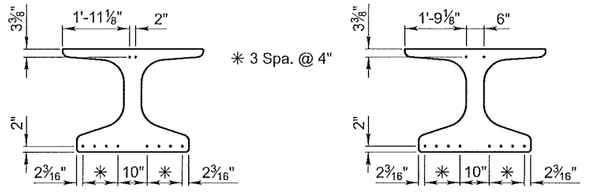


ELEVATION PIER END
(Spacing of #3B2 bar)

BILL OF REINFORCING STEEL							
85'-0" Beam (1 Listed-8 Reqd.)							
Straight bars				Bent bars			
Mark	No.	Size	Length	Mark	No.	Size	Length
				B2	ΔΔ	#3	2'-8"
				B4	50	#3	2'-0"
				B3	14	#4	7'-8"
				B5	166	#4	4'-8"
				◔ B1	166	#5	4'-10"
				◔ B6	28	#6	4'-10"
59'-0" Beam (1 Listed-4 Reqd.)							
Straight bars				Bent bars			
Mark	No.	Size	Length	Mark	No.	Size	Length
				B2	28	#3	2'-8"
				B4	52	#3	2'-0"
				B3	14	#4	7'-8"
				B5	134	#4	4'-8"
				◔ B1	134	#5	4'-10"
				◔ B6	28	#6	4'-10"



BILL OF MATERIAL		
Item	Unit	Quantity
Prestressed Concrete Beams (NU35) (85'-0")	Lin.Ft.	680
Prestressed Concrete Beams (NU35) (59'-0")	Lin.Ft.	236
The following quantities are given for information only and shall not be paid for directly but shall be made subsidiary to the bid item "Prestressed Concrete Beams"		
Beam concrete (f'c= 8,000 PSI) (per 85'-0" beam)	Cu.Yds.	14.2
Beam concrete (f'c= 8,000 PSI) (per 59'-0" beam)	Cu.Yds.	9.8
Approx. Wt. per 85'-0" beam	Tons	28.7
Approx. Wt. per 59'-0" beam	Tons	19.9
0.6"Ø Prestressing strand (270 KSI low relaxation fy= 243 KSI)	Lin.Ft.	24,485
Epoxy reinforcing steel (fy=60,000 PSI)	Lbs.	11,836
Reinforcing steel (fy=60,000 PSI)	Lbs.	7,481
Welded Wire Reinforcement (fy=70,000 PSI)	Lbs.	6,102
Elastomeric Brg. pads (¾"x8"x3'-0⅞")	Each	24
1" Formed Holes	Each	64
Lifting devices	Each	48
Bearing plates (✡x 1'-4" x 3'-0⅜")	Each	24



STRAND EXTENSION DETAIL
(85'-0" span beams)

STRAND EXTENSION DETAIL
(59'-0" span beams)

✡ Use ¾"℄ when field welding will occur, otherwise use ½"℄.

NO.	DATE	REVISIONS	BY	APP'D
3				
2				
1				

Br. No. 00000000075B190 Sta. 17+60.50

NU35 BEAM DETAILS
LOUISVILLE ROAD OVER ROCK CREEK

Proj. B2019-036 POT52 Pottawatomie Co.

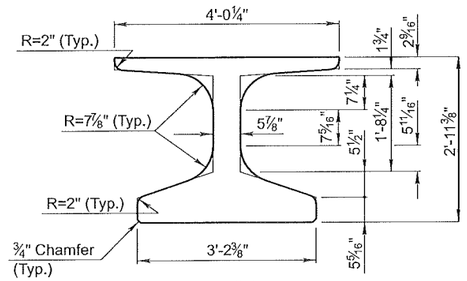
DESIGNED	TRB	DETAILED	TAA	QUANTITIES	TRB	CADD	TAA
DESIGN CK.	CJC	DETAIL CK.	TRB	QUAN.CK.	CJC	CADD CK.	TRB

KDOT Graphics Certified 08-10-2022 Sh. No. 25

KDOT Graphics Certified

Drawn By : TAA
File : W:\Proj\160001\16756\16756.224\MicroStation\16756.224_NU35 Beam Details_br350.dgn
Plotted : 06/18/2024

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	B2019-036 POT52	2024	26	47



TYPE NU35

Area	648.3 in.²
IcG	110,307 in.⁴
Y Bot	16.12 in.
Vol./Surf. Area	3.10 in.
Wt./Ft.	675 lbs

TYPICAL BEAM SECTION

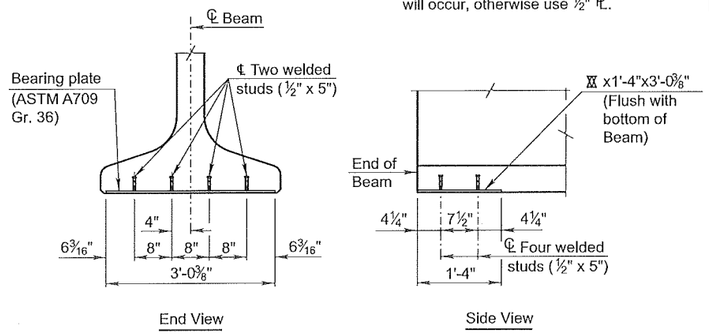
(Dimensions and properties are converted from metric fabrication forms.)

✳ Prior to shipping, the camber shall be no greater than the design camber + ½". The design camber is equal to the 50 day camber shown in the plans.

⊗⊗ At expansion joint locations coat beam with approved epoxy substructure waterproofing membrane.

⊗ At bridge deck drain locations coat beam with approved epoxy substructure waterproofing membrane.

⊠ Use ¾" ℙ when field welding will occur, otherwise use ½" ℙ.



End View

Side View

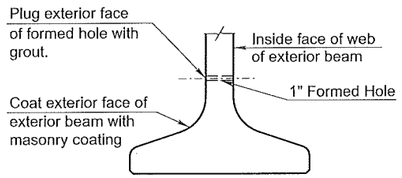
BEARING PLATE DETAILS

Note: Stud welding will be in accordance with the latest edition of AWS D1.1.

Use plate conforming to the requirements of ASTM A709 Grade 36. The stud anchors will be made of material as specified for Shear Connector Studs in the KDOT Specifications.

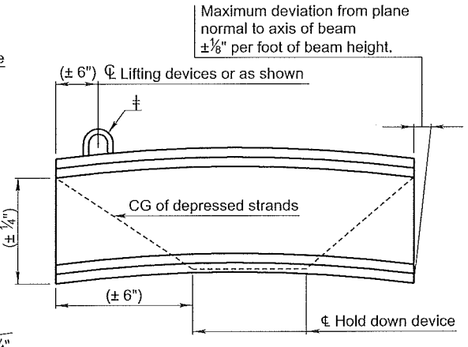
The exposed surface of the bearing plates shall be galvanized.

All work and material to install the bearing plates shall be subsidiary to the bid item "Prestressed Concrete Beam".



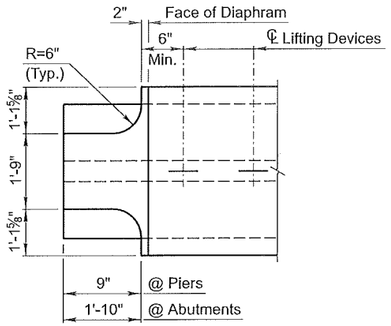
DETAIL OF FORMED HOLE(S)

(See Beam Detail sheet for locations)

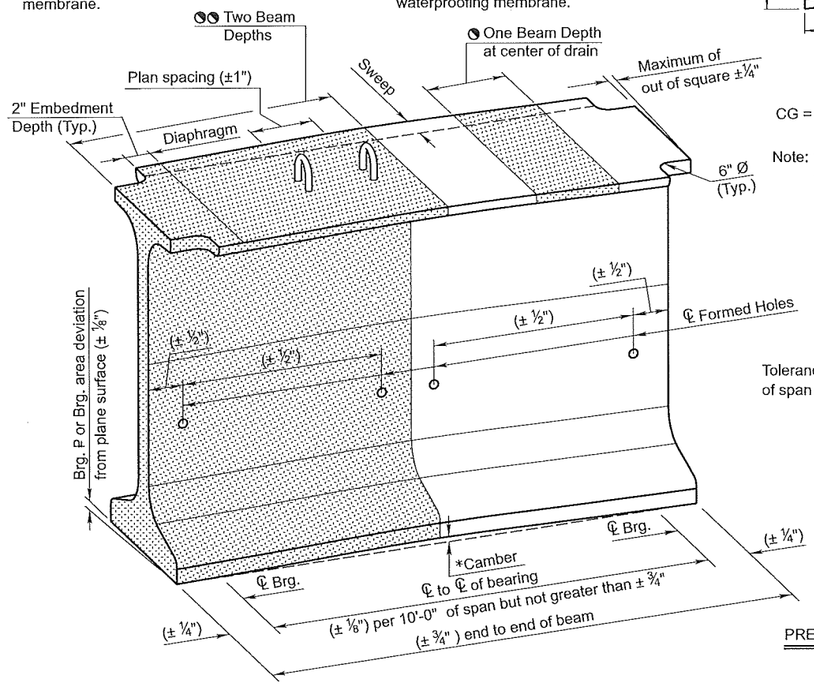


ELEVATION

CG = Center of Gravity



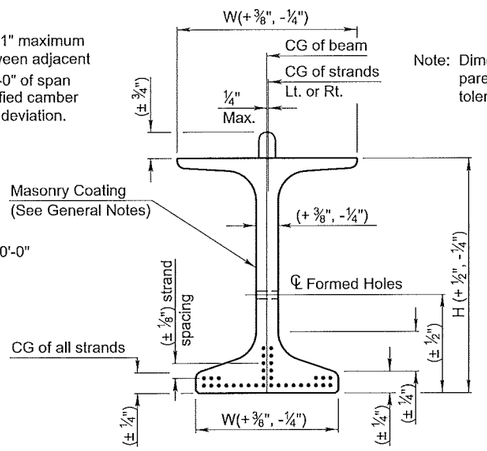
TOP FLANGE BLOCKOUT DETAIL



PRESTRESSED BEAM FABRICATION TOLERANCES

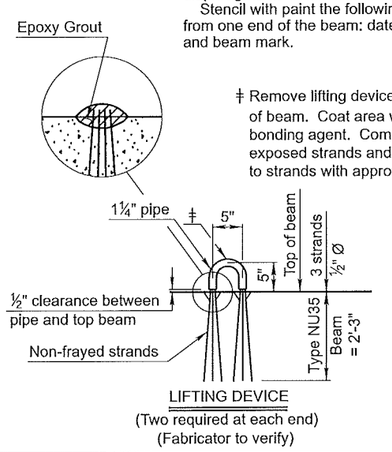
Note: Tolerance for camber is 1" maximum variation in camber between adjacent beams; and ±⅛" per 10'-0" of span deviation from the specified camber but not greater than ±1" deviation.

Tolerance for sweep is ⅛" per 10'-0" of span but not greater than 1".



TYPICAL SECTION

Note: Dimensions shown in parentheses are tolerances only.



LIFTING DEVICE

(Two required at each end)

(Fabricator to verify)

‡ Remove lifting device within ½" from top of beam. Coat area with approved epoxy bonding agent. Completely cover remaining exposed strands and fill depressions adjacent to strands with approved epoxy grout.

GENERAL NOTES

Fabricate the precast prestressed beams in accordance with the KDOT Specifications. Submit shop drawings in accordance with the KDOT Specifications.

Use air entrained concrete. The Engineer shall approve the mix design. Unless otherwise shown on the plans, f'c = 8000 psi and f'c at release = 6500 psi.

Use reinforcing steel conforming to the requirements of ASTM A615, Grade 60. The reinforcing steel shown shall be uncoated unless otherwise indicated. Hooks and bends shall be in accordance with the CRSI Manual of Standard Practice for Detailing Reinforced Concrete Structures, Stirrup and Tie Dimensions.

Use 0.60" nominal diameter (unless otherwise indicated), uncoated, seven-wire, low relaxation prestressing tendons conforming to the requirements of ASTM A416, Grade 270.

Use bolts having an ultimate strength 50% in excess of the manufacturer's safe load. All items (except the tendons) cast-in or inserted in prestressed beams shall be epoxy coated or galvanized. Show Formed Holes on shop drawings. All bolts, nuts and washers shall be subsidiary to the bid item, "Prestressed Concrete Beams".

Show on the shop drawings any hardware, holes or other appurtenances that are required to be incorporated into the girder to construct the girder or for any temporary works needed to construct the bridge (e.g. safety railing pockets).

After beams are in the final position, remove lifting devices. See "Lifting Device" detail below. Removal of the lifting devices, coating and grouting shall be subsidiary to the bid item: "Prestressed Concrete Beams".

Use elastomeric bearing pads conforming to the KDOT Specifications. Bearing pads and Type B expansion joint material shall be subsidiary to the bid item, "Prestressed Concrete Beams".

The beam lengths shown on the design plans are net lengths measured horizontally along the beam centerline. The beam manufacturer shall make necessary allowances for grade, and for shortening due to elastic shortening, creep and shrinkage.

The beams shall reasonably conform to the lines and dimensions shown on the design plans and be within the tolerances specified in the latest edition of Prestressed Concrete Institute's, "Manual for Quality Control for Plants and Production of Structural Precast Concrete Products", except as modified by this sheet or the KDOT Specifications.

Apply an initial force of 1,000 to 3,000 pounds to each strand to take up any slack in the cables. Unless otherwise noted on the plans, apply a force of 43,900 pounds to each strand. Stress harped strands to a magnitude such that they are tensioned to 43,900 pounds after they are in position.

The center portion of the girder top flange shall be rough finished by scarifying the surface transversely with a wire brush or stiff broom and no laitance shall remain on the surface. The outside 9" on each side of the top flange shall be steel troweled to a smooth finish and a bond breaker shall be applied to this region only. Bond breaker shall be 30# roofing felt. Secure roofing felt to the top flange with an adhesive approved by the Engineer.

Fill trapped air holes and surface voids on the exterior face of the exterior beams with an approved concrete masonry coating. This work shall conform to KDOT Specifications. This work shall be subsidiary to the bid item, "Prestressed Concrete Beams".

Detension strands in a sequence which minimizes lateral eccentricity. Show the method and sequence of strand release on the shop drawings. Use extreme care when lifting, handling, storing and transporting beams. Use the lifting system shown or an alternate system approved by the Engineer. Keep the beam in an upright position at all times. Support the beam on bearing points positioned directly below the designated lifting points or designated bearing points.

Do not place the bridge slab before the beams are 28 days old. Pour diaphragms as detailed in the bridge plans.

Stencil with paint the following information on the webs approximately 5'-0" from one end of the beam: date of concrete placement, date of strand release, and beam mark.

NO.	DATE	REVISIONS	BY	APP'D
3				
2				
1				

Br. No. 00000000075B190 Sta. 17+60.50

STANDARD PRESTRESSED CONCRETE BEAM DETAILS NU35

LOUISVILLE ROAD OVER ROCK CREEK

Proj. B2019-036 POT52 Pottawatomie Co.

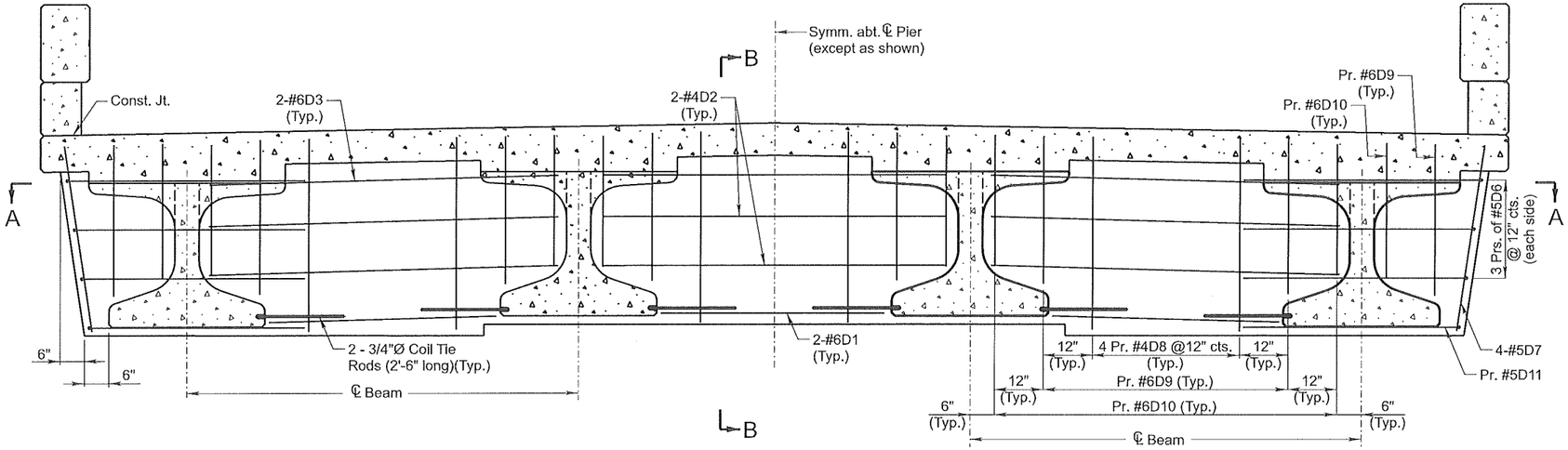
FHWA APPROVAL		09-11-18	APP'D.	John P. Jones	
DESIGNED	DETAILED	M.L.L.	QUANTITIES	TRACED	M.L.L.
DESIGN CK.	DETAIL CK.	S.G.B.	QUAN.CK.	TRACE CK.	S.G.B.

KDOT Graphics Certified 05-05-2023 Sh. No. 26

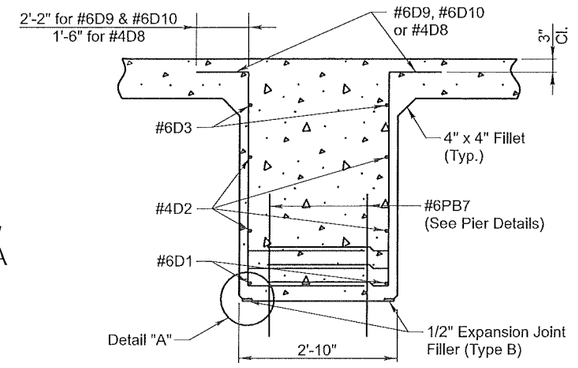
KDOT Graphics Certified

Drawn By : TAA
File : W:\Proj\160001\16756\16756.224\MicroStation\16756.224_026_Standard Prestressed Concrete Beam Details NU35_bbr340.dgn
Plotted : 06/12/2024

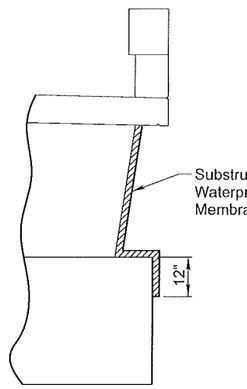
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	B2019-036 POT52	2024	27	47



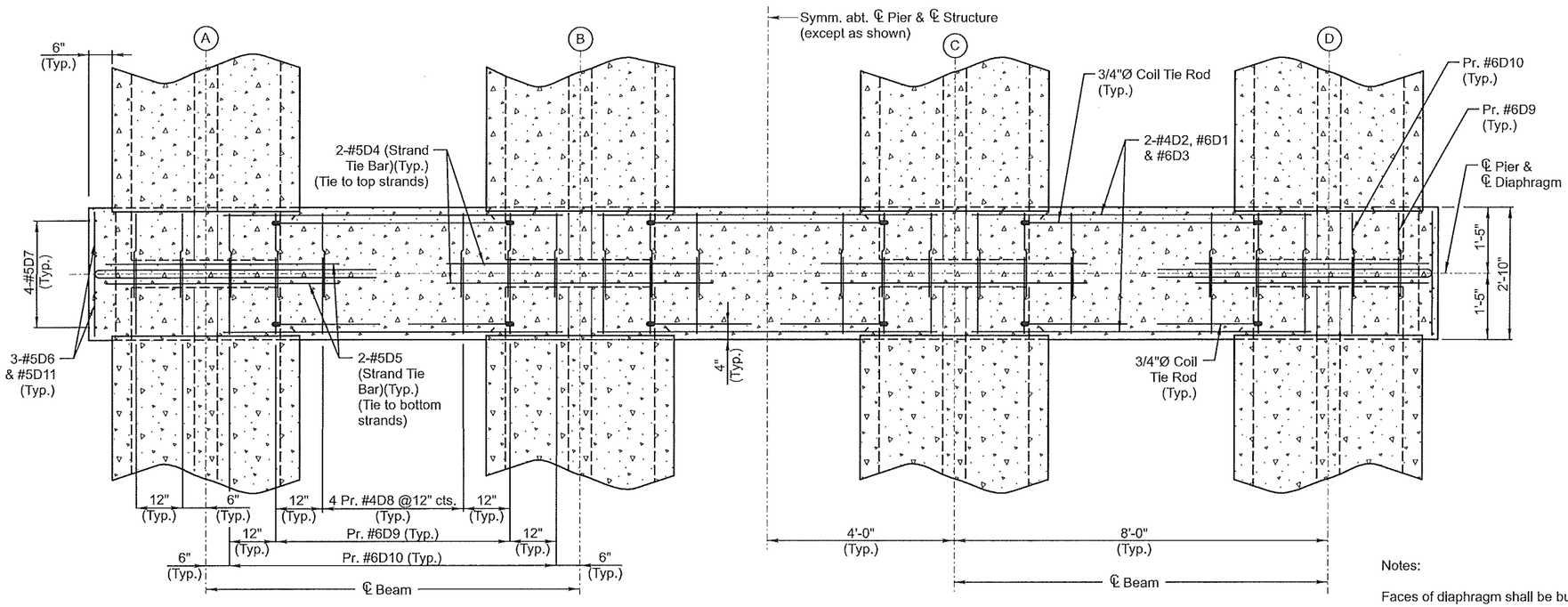
ELEVATION NEAR PIER



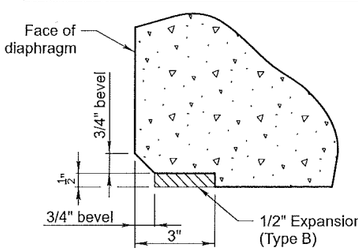
SECTION B-B



PART SECTION SHOWING
SUBSTRUCTURE
WATERPROOFING MEMBRANE



SECTION A-A



DETAIL "A"

Notes:

Faces of diaphragm shall be built vertical.

Substructure waterproofing membrane shall be in accordance with KDOT Specifications. Cost of substructure waterproofing membrane shall be subsidiary to other items.

NO.	DATE	REVISIONS	BY	APP'D
3				
2				
1				

Br. No. 00000000075B190 Sta. 17+60.50

DETAILS OF CONCRETE
DIAPHRAGM AT PIERS
LOUISVILLE ROAD OVER ROCK CREEK

Proj. B2019-036 POT52 Pottawatomie Co.

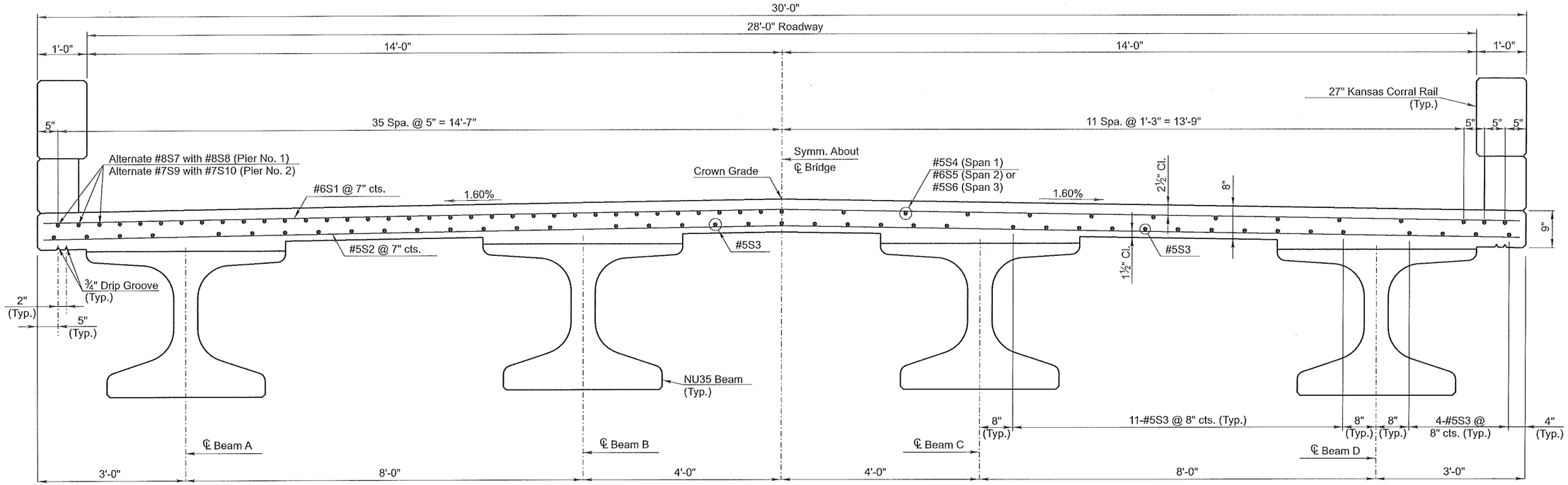
DESIGNED	KEG	DETAILED	TAA	QUANTITIES	CJC	CADD	TAA
DESIGN CK.	CJC	DETAIL CK.	CJC	QUAN.CK.	TRB	CADD CK.	CJC

KDOT Graphics Certified 10-11-2022 Sh. No. 27

KDOT Graphics Certified

Plotted : 06/18/2024
Drawn By : TAA
File : W:\Proj\16000\16756\16756.224\MicroStation\16756.224_027_Diaphragm at Piers.dgn

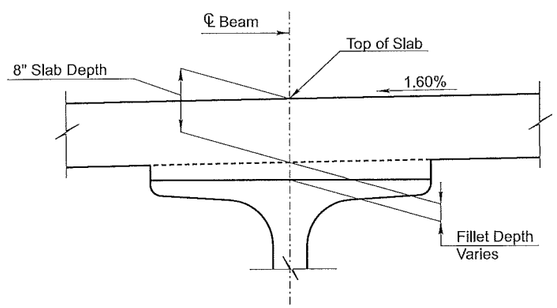
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	B2019-036 POT52	2024	28	47



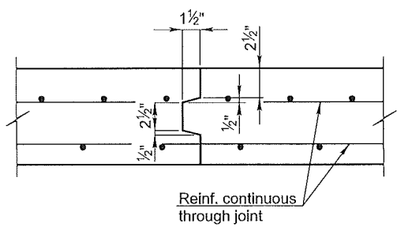
AT PIER

AT MIDSPAN

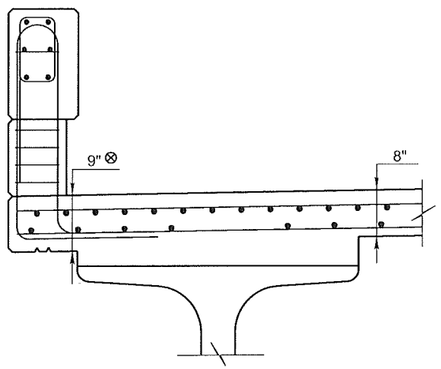
TYPICAL SECTION



CONCRETE FILLET DETAIL



TRANSVERSE SLAB CONSTRUCTION JOINT



OVERHANG DETAIL

⊗ Note: Increase the depth of the cantilevered slab by 1" to maintain cover on post bars.

NO.	DATE	REVISIONS	BY	APP'D
3				
2				
1				

Br. No. 00000000075B190 Sta. 17+60.50

TYPICAL SECTION
LOUISVILLE ROAD OVER ROCK CREEK

Proj. B2019-036 POT52 Pottawatomie Co.

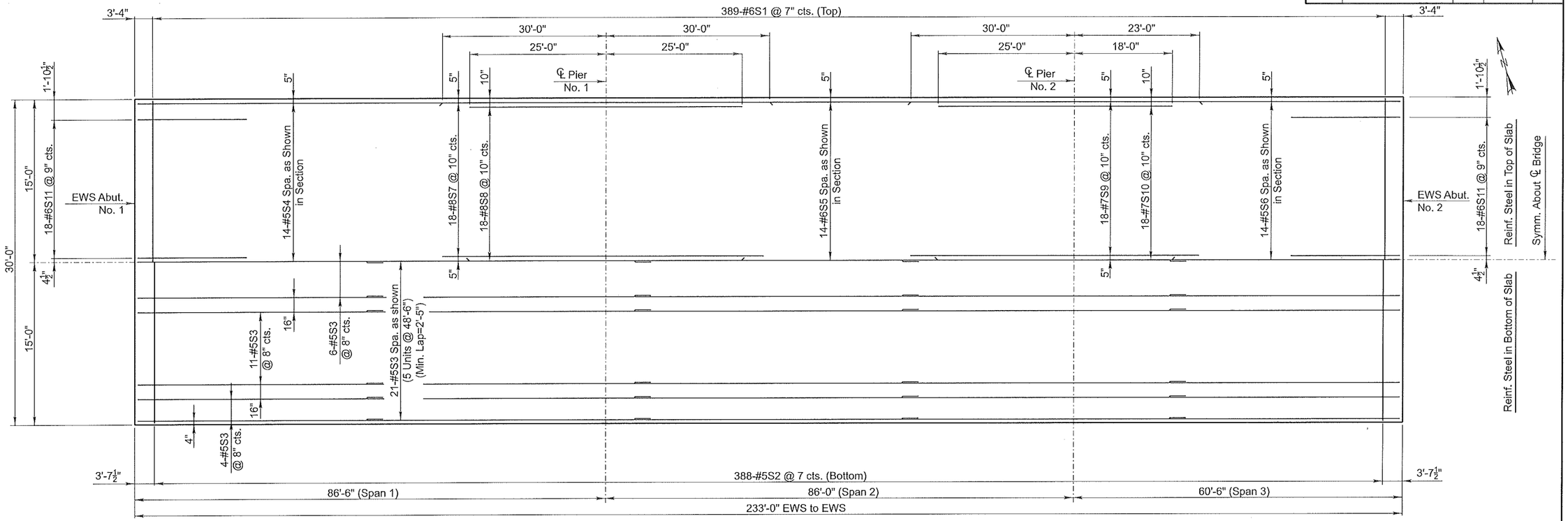
DESIGNED	KEG	DETAILED	TAA	QUANTITIES	CJC	CADD	TAA
DESIGN CK.	CJC	DETAIL CK.	CJC	QUAN.CK.	TRB	CADD CK.	CJC

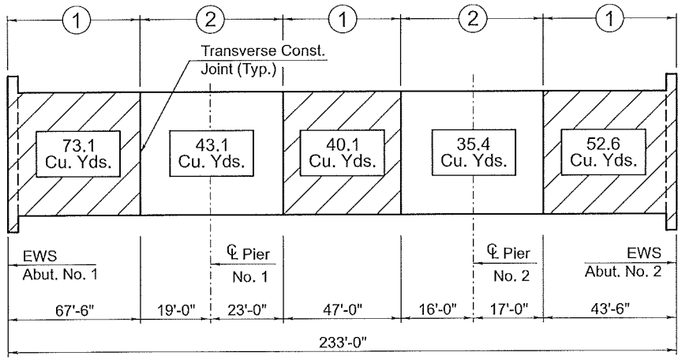
KDOT Graphics Certified 10-11-2022 Sh. No. 28

KDOT Graphics Certified

Plotted : 06/13/2024
Drawn By : TAA
File : W:\Proj\16000\16756\16756.224\MicroStation\16756.024_028_Typical Section.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	2019-036 POT52	2024	29	47





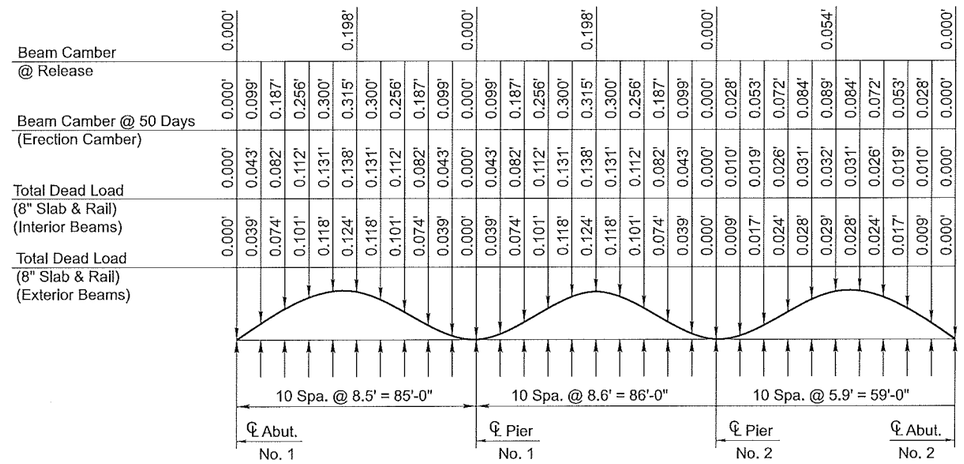
CONCRETE PLACING SEQUENCE

Circled numbers indicate placing sequence. Segmental, combined or continuous pours are allowed by an approved alternate placing sequence. Any discontinuous pour must stop at a construction joint short of a pier. See General Notes, Sheet No. 15, for "Concrete Placing Sequence" note.

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

Boxed numbers indicate quantity of Grade 4.0 (AE)(SW) concrete required to pour slab, pier diaphragms, and abutments above the construction joint (for Information only).

SLAB PLAN-REINFORCING STEEL



BEAM CAMBER AND DEAD LOAD DEFLECTION

Measure beam camber at midspan by the Contractor at the project site at time of delivery. Submit a copy of the field notes of measured beam camber to the Engineer not more than 5 working days after delivery of the beams to the site. beam camber shall meet the tolerance specified on the "Standard Prestressed Concrete Beam Details".

Note: Camber is upward. Dead load deflection is downward. Ordinates are in feet.

Beam Concrete: Ei = 4790 ksi, Ef = 5314 ksi

Note: Lengths of #5S4, #6S5 and #5S6 bars provide for a 3'-0" length of lap or non-contact lap with #8S7 or #7S9 bars.

NO.	DATE	REVISIONS	BY	APP'D
3				
2				
1				

Br. No. 00000000075B190 Sta. 17+60.50

SLAB PLAN AND DETAILS
LOUISVILLE ROAD OVER ROCK CREEK

Proj. 2019-036 POT 52 Pottawatomie Co.

DESIGNED	KEG	DETAILED	TAA	QUANTITIES	CJC	CADD	TAA
DESIGN CK.	CJC	DETAIL CK.	CJC	QUAN.CK.	TRB	CADD CK.	CJC

Sh. No. 29

Drawn By : TAA Plotted : 06/17/2024
File : W:\Proj\16000\16756\16756.224\MicroStation\16756.224_029_Slab Plan and Details.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	B2019-036 POT52	2024	30	47

✳ TOP OF FINISHED SLAB ELEVATIONS

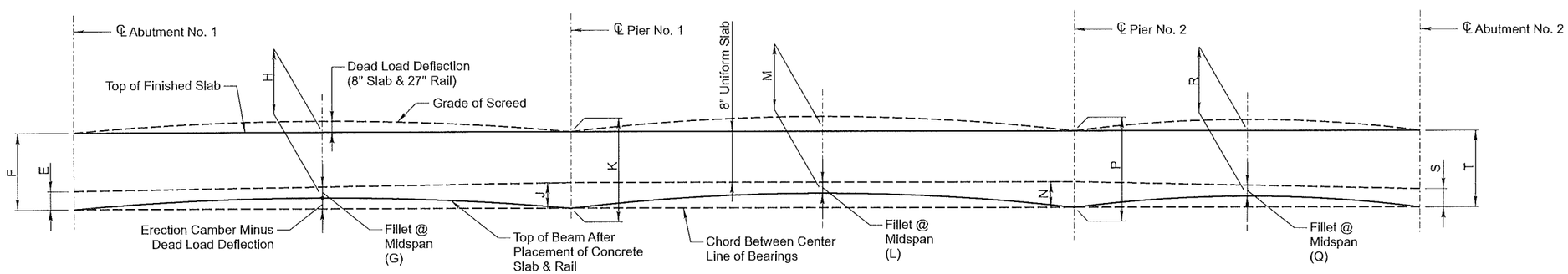
		LEFT FASCIA (NORTH)		BEAM A		BEAM B		BEAM C		BEAM D		RIGHT FASCIA (SOUTH)	
LOCATION	POINT	STATION	ELEV.	STATION	ELEV.	STATION	ELEV.	STATION	ELEV.	STATION	ELEV.	STATION	ELEV.
℄ Brg. Abt. No. 1	0	1645.500	1054.01	1645.500	1054.06	1645.500	1054.18	1645.500	1054.18	1645.500	1054.06	1645.500	1054.01
	1	1654.000	1054.06	1654.000	1054.11	1654.000	1054.23	1654.000	1054.23	1654.000	1054.11	1654.000	1054.06
	2	1662.500	1054.10	1662.500	1054.15	1662.500	1054.28	1662.500	1054.28	1662.500	1054.15	1662.500	1054.10
	3	1671.000	1054.15	1671.000	1054.19	1671.000	1054.32	1671.000	1054.32	1671.000	1054.19	1671.000	1054.15
	4	1679.500	1054.18	1679.500	1054.23	1679.500	1054.36	1679.500	1054.36	1679.500	1054.23	1679.500	1054.18
	5	1688.000	1054.22	1688.000	1054.27	1688.000	1054.39	1688.000	1054.39	1688.000	1054.27	1688.000	1054.22
	6	1696.500	1054.25	1696.500	1054.30	1696.500	1054.43	1696.500	1054.43	1696.500	1054.30	1696.500	1054.25
	7	1705.000	1054.28	1705.000	1054.33	1705.000	1054.45	1705.000	1054.45	1705.000	1054.33	1705.000	1054.28
	8	1713.500	1054.30	1713.500	1054.35	1713.500	1054.48	1713.500	1054.48	1713.500	1054.35	1713.500	1054.30
	9	1722.000	1054.33	1722.000	1054.37	1722.000	1054.50	1722.000	1054.50	1722.000	1054.37	1722.000	1054.33
℄ Pier No. 1	10	1730.500	1054.34	1730.500	1054.39	1730.500	1054.52	1730.500	1054.52	1730.500	1054.39	1730.500	1054.34
℄ Pier No. 1	0	1730.500	1054.34	1730.500	1054.39	1730.500	1054.52	1730.500	1054.52	1730.500	1054.39	1730.500	1054.34
	1	1739.100	1054.36	1739.100	1054.41	1739.100	1054.54	1739.100	1054.54	1739.100	1054.41	1739.100	1054.36
	2	1747.700	1054.37	1747.700	1054.42	1747.700	1054.55	1747.700	1054.55	1747.700	1054.42	1747.700	1054.37
	3	1756.300	1054.38	1756.300	1054.43	1756.300	1054.55	1756.300	1054.55	1756.300	1054.43	1756.300	1054.38
	4	1764.900	1054.38	1764.900	1054.43	1764.900	1054.56	1764.900	1054.56	1764.900	1054.43	1764.900	1054.38
	5	1773.500	1054.38	1773.500	1054.43	1773.500	1054.56	1773.500	1054.56	1773.500	1054.43	1773.500	1054.38
	6	1782.100	1054.38	1782.100	1054.43	1782.100	1054.56	1782.100	1054.56	1782.100	1054.43	1782.100	1054.38
	7	1790.700	1054.37	1790.700	1054.42	1790.700	1054.55	1790.700	1054.55	1790.700	1054.42	1790.700	1054.37
	8	1799.300	1054.36	1799.300	1054.41	1799.300	1054.54	1799.300	1054.54	1799.300	1054.41	1799.300	1054.36
	9	1807.900	1054.35	1807.900	1054.40	1807.900	1054.53	1807.900	1054.53	1807.900	1054.40	1807.900	1054.35
℄ Pier No. 2	10	1816.500	1054.33	1816.500	1054.38	1816.500	1054.51	1816.500	1054.51	1816.500	1054.38	1816.500	1054.33
℄ Pier No. 2	0	1816.500	1054.33	1816.500	1054.38	1816.500	1054.51	1816.500	1054.51	1816.500	1054.38	1816.500	1054.33
	1	1822.400	1054.32	1822.400	1054.37	1822.400	1054.49	1822.400	1054.49	1822.400	1054.37	1822.400	1054.32
	2	1828.300	1054.30	1828.300	1054.35	1828.300	1054.48	1828.300	1054.48	1828.300	1054.35	1828.300	1054.30
	3	1834.200	1054.29	1834.200	1054.33	1834.200	1054.46	1834.200	1054.46	1834.200	1054.33	1834.200	1054.29
	4	1840.100	1054.27	1840.100	1054.31	1840.100	1054.44	1840.100	1054.44	1840.100	1054.31	1840.100	1054.27
	5	1846.000	1054.25	1846.000	1054.29	1846.000	1054.42	1846.000	1054.42	1846.000	1054.29	1846.000	1054.25
	6	1851.900	1054.22	1851.900	1054.27	1851.900	1054.40	1851.900	1054.40	1851.900	1054.27	1851.900	1054.22
	7	1857.800	1054.20	1857.800	1054.25	1857.800	1054.37	1857.800	1054.37	1857.800	1054.25	1857.800	1054.20
	8	1863.700	1054.17	1863.700	1054.22	1863.700	1054.35	1863.700	1054.35	1863.700	1054.22	1863.700	1054.17
	9	1869.600	1054.15	1869.600	1054.20	1869.600	1054.32	1869.600	1054.32	1869.600	1054.20	1869.600	1054.15
℄ Brg. Abut. No. 2	10	1875.500	1054.12	1875.500	1054.17	1875.500	1054.29	1875.500	1054.29	1875.500	1054.17	1875.500	1054.12

✳ Notes: Slab elevations shown are at top of slab over the center of beam at span tenth points.

For Louisville Road Profile Grade data, see "Construction Layout" sheet.

FILLET AND SLAB DIMENSIONS @ CENTERLINE BEAM

DIMENSION	BEAM A	BEAM B	BEAM C	BEAM D
E	$3\frac{3}{8}$"	$3\frac{1}{8}$"	$3\frac{1}{8}$"	$3\frac{3}{8}$"
F	$11\frac{3}{8}$"	$11\frac{1}{8}$"	$11\frac{1}{8}$"	$11\frac{3}{8}$"
G	$1\frac{1}{2}$"	$1\frac{1}{2}$"	$1\frac{1}{2}$"	$1\frac{1}{2}$"
H	$9\frac{1}{2}$"	$9\frac{1}{2}$"	$9\frac{1}{2}$"	$9\frac{1}{2}$"
J	$3\frac{1}{4}$"	$3\frac{1}{4}$"	$3\frac{1}{4}$"	$3\frac{1}{4}$"
K	$11\frac{1}{4}$"	$11\frac{1}{4}$"	$11\frac{1}{4}$"	$11\frac{1}{4}$"
L	$1\frac{1}{2}$"	$1\frac{1}{2}$"	$1\frac{1}{2}$"	$1\frac{1}{2}$"
M	$9\frac{1}{2}$"	$9\frac{1}{2}$"	$9\frac{1}{2}$"	$9\frac{1}{2}$"
N	$3\frac{1}{8}$"	$3\frac{1}{8}$"	$3\frac{1}{8}$"	$3\frac{1}{8}$"
P	$11\frac{1}{8}$"	$11\frac{1}{8}$"	$11\frac{1}{8}$"	$11\frac{1}{8}$"
Q	$1\frac{7}{8}$"	$1\frac{3}{4}$"	$1\frac{3}{4}$"	$1\frac{7}{8}$"
R	$9\frac{7}{8}$"	$9\frac{3}{4}$"	$9\frac{3}{4}$"	$9\frac{7}{8}$"
S	$1\frac{1}{2}$"	$1\frac{1}{2}$"	$1\frac{1}{2}$"	$1\frac{1}{2}$"
T	$9\frac{1}{2}$"	$9\frac{1}{2}$"	$9\frac{1}{2}$"	$9\frac{1}{2}$"



PRESTRESSED FILLET DIAGRAM

(Along ℄ of Beam)

NO.	DATE	REVISIONS	BY	APP'D
3				
2				
1				

Br. No. 00000000075B190 Sta. 17+60.50

SLAB DETAILS
LOUISVILLE ROAD OVER ROCK CREEK

Proj. B2019-036 POT52 Pottawatomie Co.

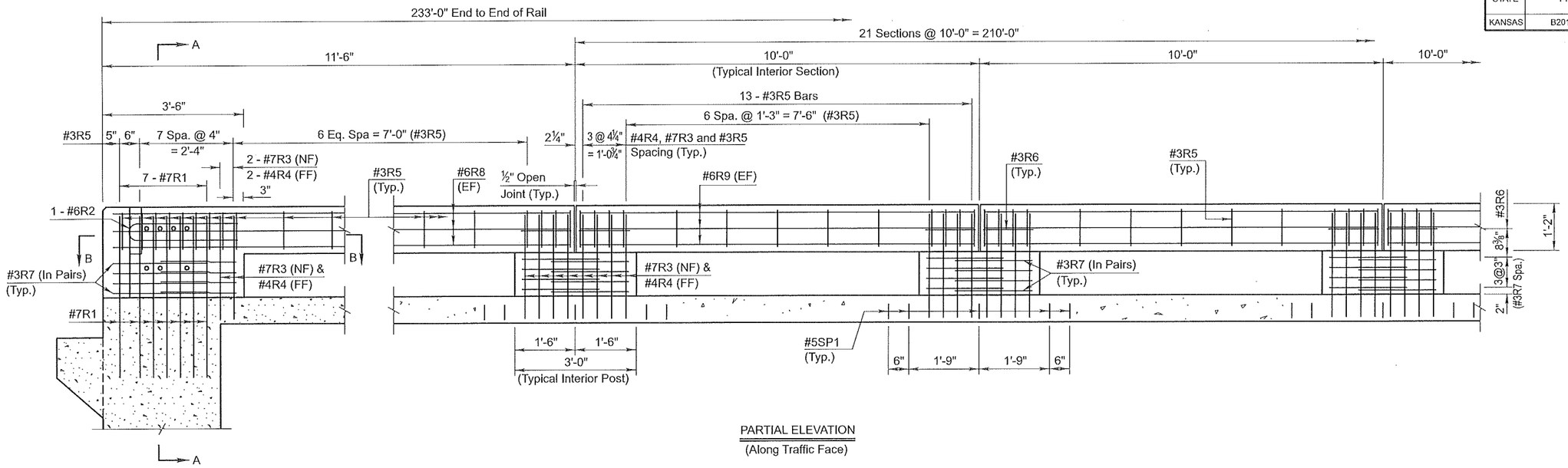
DESIGNED	KEG	DETAILED	TAA	QUANTITIES	CJC	CADD	TAA
DESIGN CK.	CJC	DETAIL CK.	CJC	QUAN.CK.	TRB	CADD CK.	CJC

KDOT Graphics Certified 10-11-2022 Sh. No. 30

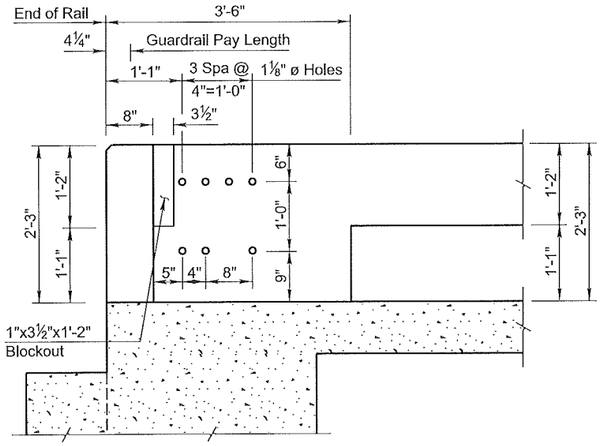
KDOT Graphics Certified

Plotted : 06/12/2024
Drawn By : TAA
File :W:\Proj\16000\16756\16756.224\MicroStation\16756.224_030_Slab Details.dgn

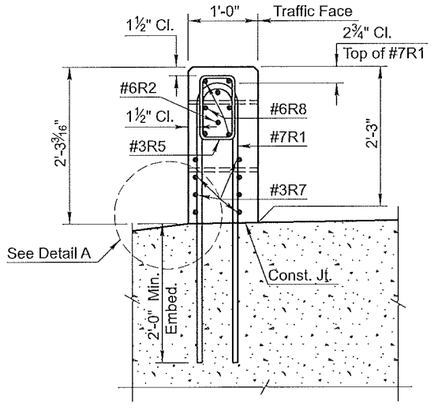
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	B2019-036 POT52	2024	31	47



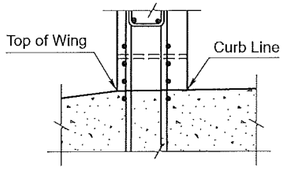
PARTIAL ELEVATION
(Along Traffic Face)



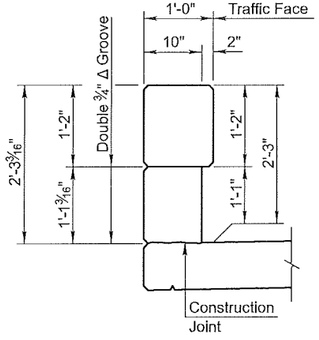
ELEVATION
(Dimensions at traffic face of rail.)

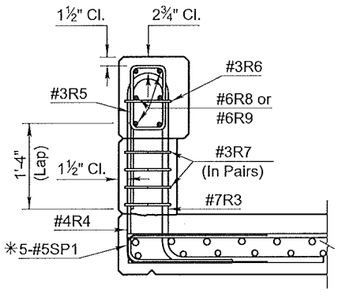


SECTION A-A



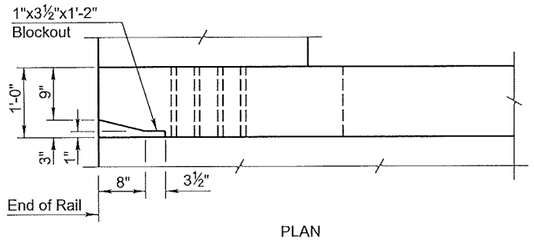
DETAIL A



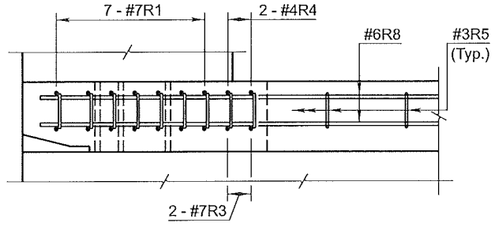


TYPICAL INTERIOR POST SECTIONS

✳ The hook may be canted to provide clearance and/or fit between reinforcing.



PLAN



SECTION B-B

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

NO.	DATE	REVISIONS	BY	APP'D
3				
2				
1				

Br. No. 00000000075B190 Sta. 17+60.50

27" KANSAS CORRAL RAIL
LOUISVILLE ROAD OVER ROCK CREEK

Proj. B2019-036 POT52 Pottawatomie Co.

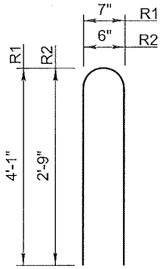
DESIGNED	DETAILED	QUANTITIES	CADD
DESIGN CK.	DETAIL CK.	QUAN.CK.	CADD CK.

KDOT Graphics Certified 10-24-2022 Sh. No. 31

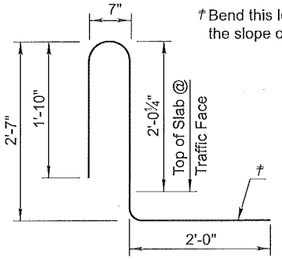
KDOT Graphics Certified

Drawn By : TAA
Plotted : 06/14/2024
File : W:\Proj\160001\16756\16756.224\MicroStation\16756.224_031_27in Kansas Corral Rail_br183c.dgn

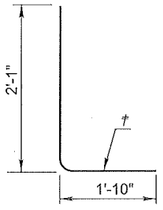
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	B2019-036 POT52	2024	32	47



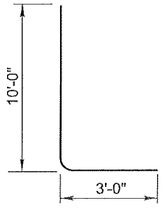
R1 & R2



R3



R4



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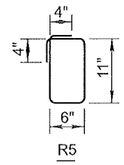

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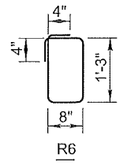

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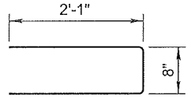

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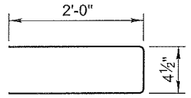
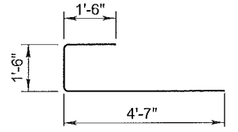
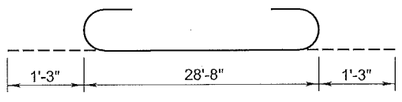


SP1



D6

D11



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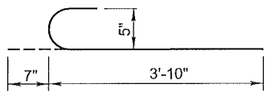
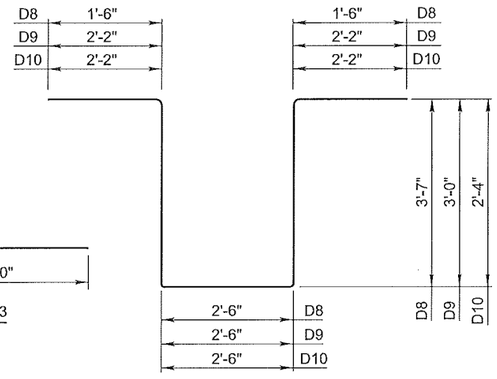
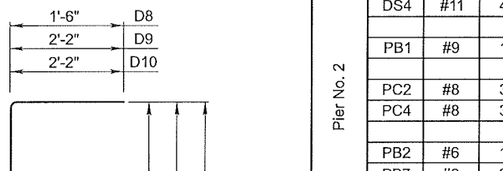
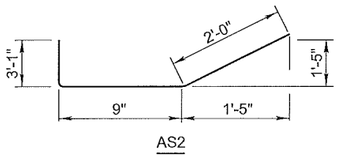


AS3



D8, D9 & D10





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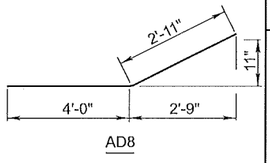
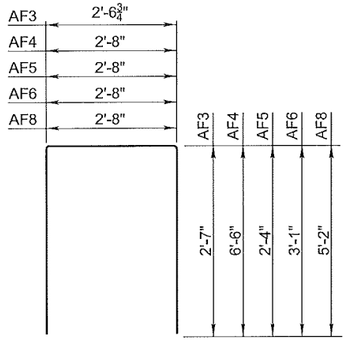
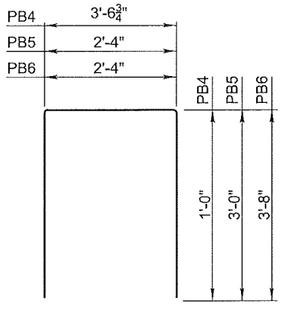


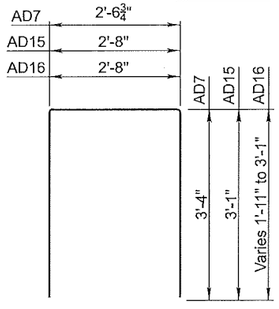
AD8



AF3, AF4, AF5, AF6 & AF8

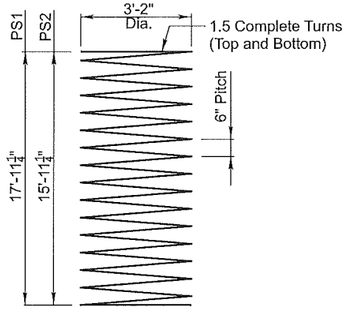


PB4, PB5 & PB6



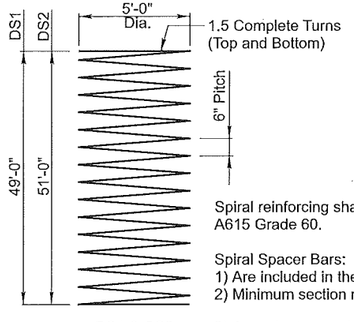
BENDING DIAGRAMS

(All dimensions are out to out of bars.)



PS1 & PS2

($\frac{3}{8}$"Ø smooth or deformed bar)



DS1 & DS2

($\frac{1}{2}$"Ø smooth or deformed bar)

Spiral reinforcing shall meet the requirements of ASTM A615 Grade 60.

Spiral Spacer Bars:
1) Are included in the weight of reinforcing steel.
2) Minimum section modulus = 0.008 in³ (3/8"Ø spiral), 0.30 in³ (1/2"Ø spiral)
3) 4 required per spiral.

BILL OF REINFORCING STEEL
Non-Epoxy Coated (Gr. 60)

	Straight Bars				Bent Bars ✳			
	Mark	Size	Number	Length	Mark	Size	Number	Length
Abutment No. 1 and No. 2 (Totals for 2 Abutments)	AF1	#8	16	43'-8"	AF3	#5	20	7'-9"
	AF2	#6	12	43'-8"	AF5	#4	96	7'-4"
					AF6	#4	16	8'-10"
Pier No. 1	DS3	#11	48	49'-2"	PB3	#9	10	31'-2"
	PB1	#9	10	28'-8"	PB4	#6	14	5'-7"
	PC1	#8	36	20'-11"	PB5	#5	43	8'-4"
	PC3	#8	36	6'-8"	PB6	#5	8	9'-8"
	PB2	#6	10	28'-8"	DS1	#4	2	✳
	PB7	#6	30	4'-0"				
					PS1	#3	2	✳
Pier No. 2	DS4	#11	48	51'-2"	PB3	#9	10	31'-2"
	PB1	#9	10	28'-8"	PB4	#6	14	5'-7"
	PC2	#8	36	18'-11"	PB5	#5	43	8'-4"
	PC4	#8	36	6'-8"	PB6	#5	8	9'-8"
	PB2	#6	10	28'-8"	DS2	#4	2	✳
	PB7	#6	30	4'-0"				
					PS2	#3	2	✳

BILL OF REINFORCING STEEL
Epoxy Coated (Gr. 60)

	Straight Bars				Bent Bars ✳			
	Mark	Size	Number	Length	Mark	Size	Number	Length
Corral Rail	R8	#6	24	11'-2"	R1	#7	28	8'-5"
	R9	#6	252	9'-8"	R3	#7	360	6'-8"
					R2	#6	4	5'-10"
					S11	#6	72	13'-0"
					SP1	#5	220	4'-5"
					R4	#4	360	3'-11"
					R5	#3	618	3'-6"
					R6	#3	88	4'-6"
					R7	#3	384	4'-10"
Slab	S7	#8	36	60'-0"	S11	#6	72	13'-0"
	S8	#8	35	50'-0"				
	S9	#7	36	53'-0"				
	S10	#7	35	43'-0"				
	S1	#6	389	29'-8"				
	S5	#6	27	32'-0"				
	S2	#5	388	29'-8"				
	S3	#5	205	48'-6"				
	S4	#5	27	59'-4"				
	S6	#5	27	40'-4"				
Pier Diaphragms (Totals for 2 Diaphragms)	D1	#6	12	4'-5"	D9	#6	32	12'-10"
	D3	#6	12	5'-11"	D10	#6	32	11'-6"
	D4	#5	16	5'-9"	D6	#5	24	7'-7"
	D5	#5	16	4'-9"	D11	#5	8	6'-1"
	D7	#5	16	3'-6"				
					D8	#4	48	12'-8"
	D2	#4	24	6'-8"				
Abutment No. 1 and No. 2 (Totals for 2 Abutments)	AD12	#8	8	31'-8"	AD8	#6	16	6"-11"
	AD1	#6	6	4'-4"	AD7	#5	12	9'-3"
	AD2	#6	18	6'-0"	AD15	#5	28	8'-10"
	AD3	#6	4	8'-0"	AD16	#5	32	Varies
	AD4	#6	8	9'-0"	AF4	#5	28	15'-8"
	AD5	#6	2	43'-6"	AF8	#5	28	13'-0"
	AD6	#6	4	5'-6"	AS2	#5	58	5'-10"
	AD9	#6	6	43'-8"	AS3	#5	58	4'-5"
	AD13	#5	4	30'-6"				
	AF7	#5	8	6'-3"				
	AS1	#4	4	28'-8"				

✳ See Bending Diagrams

NO.	DATE	REVISIONS	BY	APP'D
03				
02				
01				

Br. No. 00000000075B190 Sta. 17+60.50

BILL OF REINFORCING STEEL AND BENDING DIAGRAMS
LOUISVILLE ROAD OVER ROCK CREEK

Proj. B2019-036 POT52 Pottawatomie Co.

DESIGNED	CJC	DETAILED	TAA	QUANTITIES	CJC	CADD	TAA
DESIGN CK.	TRB	DETAIL CK.	CJC	QUAN.CK.	TRB	CADD CK.	CJC

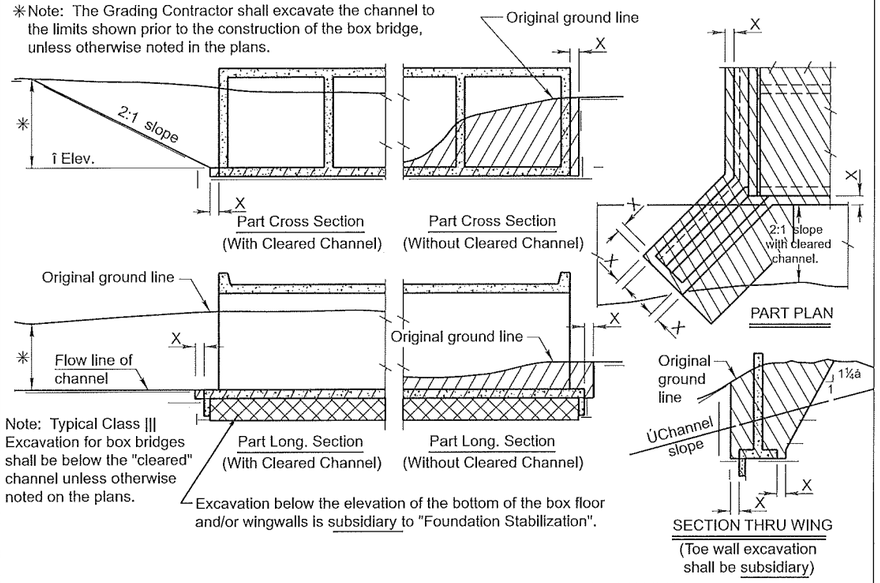
KDOT Graphics Certified 10-11-2022 Sh. No. 32

KDOT Graphics Certified

Plotted : 06/18/2024
Drawn By : TAA
File : W:\Prog\16000\16756\16756.224\MicroStation\16756.224_032_Bill of Reinforcing Steel_Bending Diagrams_br181g.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	B2019-036 POT52	2024	33	47

✳Note: The Grading Contractor shall excavate the channel to the limits shown prior to the construction of the box bridge, unless otherwise noted in the plans.

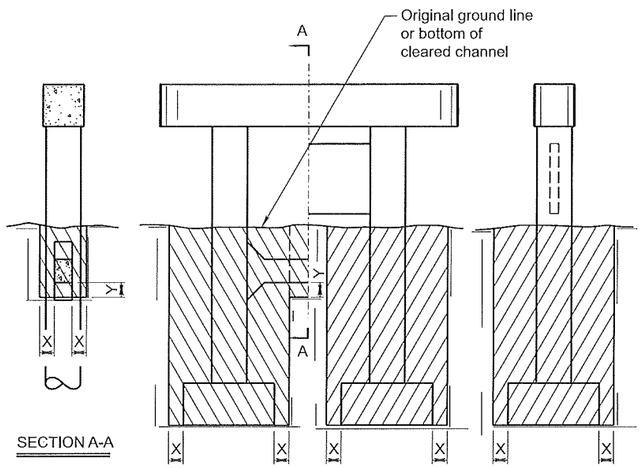


Note: Typical Class ||| Excavation for box bridges shall be below the "cleared" channel unless otherwise noted on the plans.

Excavation below the elevation of the bottom of the box floor and/or wingwalls is subsidiary to "Foundation Stabilization".

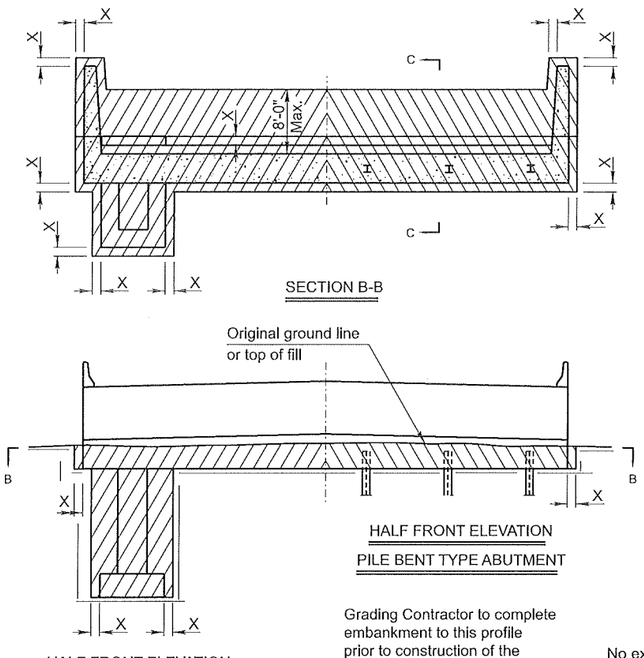
EXCAVATION DETAILS FOR REINFORCED CONCRETE BOX CULVERT

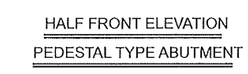
Note: Excavation for culverts less than bridge length and the additional excavation for "Embedded Structures" shall not be paid for as Class ||| Excavation, but shall be subsidiary to Grade 4.0 Concrete.



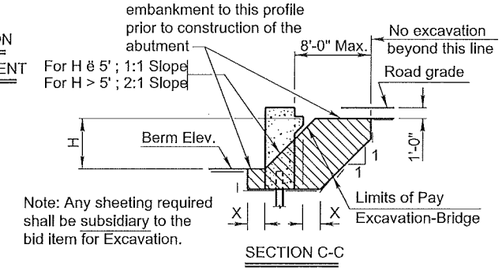
EXCAVATION DETAILS FOR TYPICAL PIERS

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





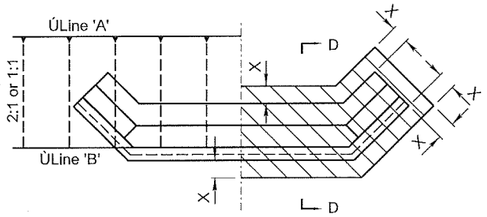
Note: Bridge Contractor shall finish the embankment and berms after the construction of the abutment and dispose of any excess material as approved by the Engineer.

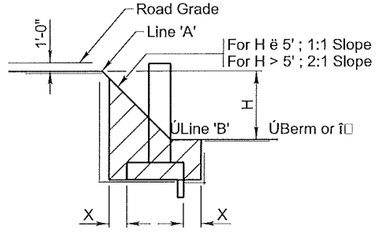


Note: Any sheeting required shall be subsidiary to the bid item for Excavation.

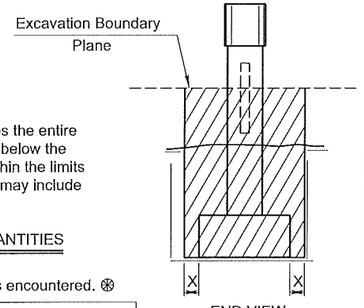
EXCAVATION DETAILS FOR TYPICAL ABUTMENTS

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





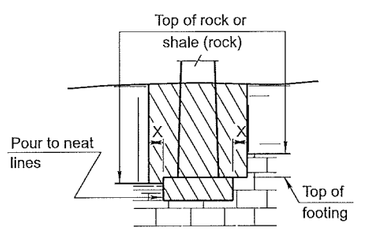
EXCAVATION DETAILS FOR ABUTMENTS WITH FLARED WINGWALLS



Note: Class || 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

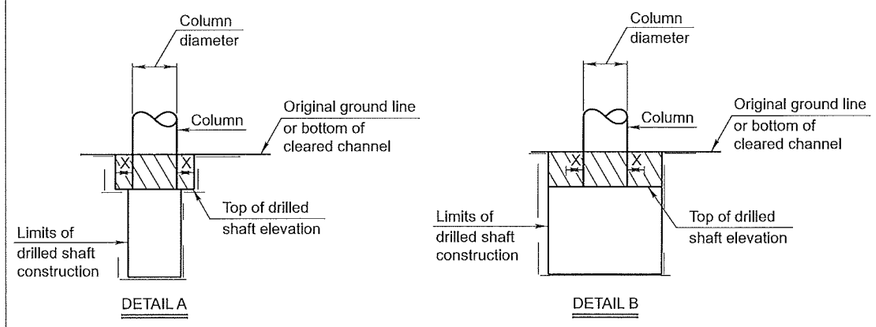
See detail when rock or shale (rock) is encountered. ⊛



⊛ EXCAVATION DETAIL FOR FOOTINGS IN ROCK OR SHALE (ROCK)

(Piers and Abutments)

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.



DRILLED SHAFT DETAILS

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.

NO.	DATE	REVISIONS	BY	APP'D
06	08-15-12	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.

BRIDGE EXCAVATION

BR100B

FHWA APPROVAL			04-17-10	APP'D.	Terry L. Fleck
DESIGNED	DETAILED	R.D.R.	QUANTITIES	TRACED	
DESIGN CK.	DETAIL CK.	L.R.R.	QUAN.CK.	TRACE CK.	

KDOT Graphics Certified 05-05-2023 Sh. No. 33

KDOT Graphics Certified

Plotted : 06/14/2024
Drawn By : TAA
File : W:\Proj\16000\16756\16756.224\MicroStation\16756.224_033_Bridge Excavation_br100b.dgn

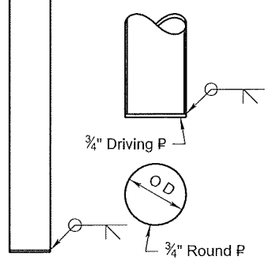
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	B2019-036 POT52	2024	34	47

O D 10¾" T. = ‡‡
O D 12¾" T. = ‡‡
O D 14" T. = ‡‡

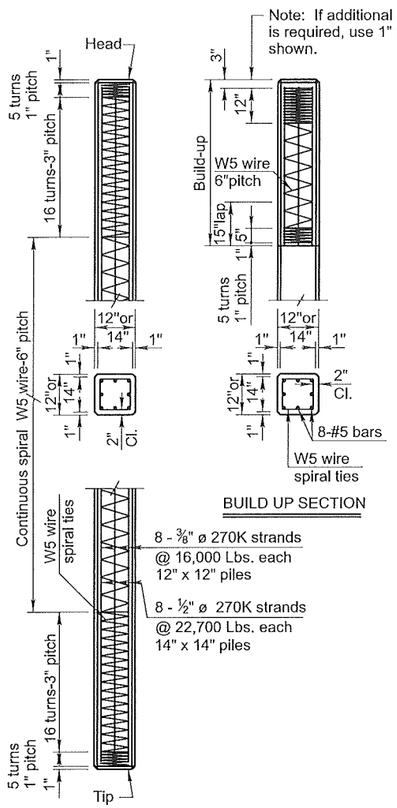
‡‡ See the Geology Report or "Summary of Quantities" for Pipe Pile wall thickness

Note:
Pile shall be driven with a steel head having a projecting ring fitting inside the pipe. Clearance between ring and pipe should be ¼".

Note:
Pile pipe may be spiral welded, longitudinal welded, or seamless steel pipe.

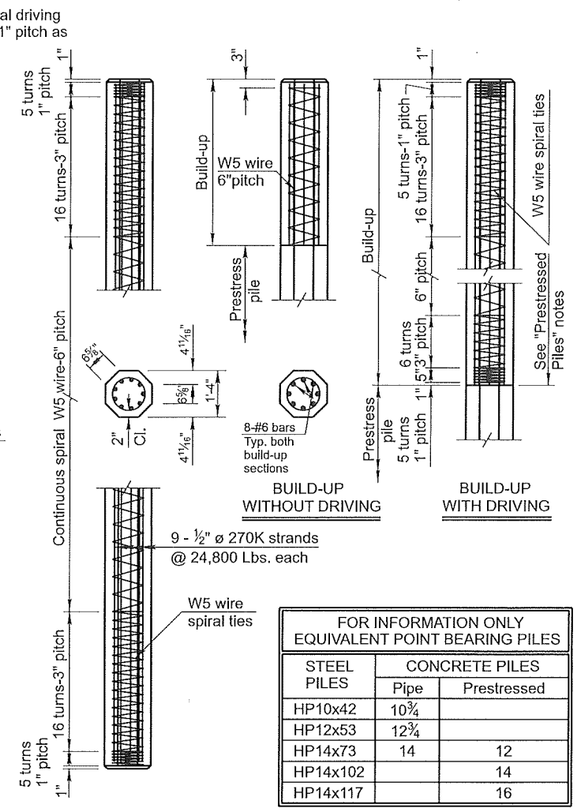


PLAIN ROUND
CAST-IN-PLACE CONCRETE PILES



12" OR 14"
PRESTRESSED
CONCRETE PILES

BUILD UP SECTION

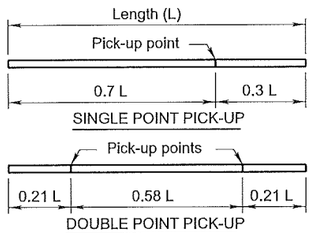


16" PRESTRESSED
CONCRETE PILES

BUILD-UP
WITHOUT DRIVING

BUILD-UP
WITH DRIVING

FOR INFORMATION ONLY EQUIVALENT POINT BEARING PILES		
STEEL PILES	CONCRETE PILES	
	Pipe	Prestressed
HP10x42	10¾	
HP12x53	12¾	
HP14x73	14	12
HP14x102		14
HP14x117		16



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.

SHELL PILE POINT

H-Pile Point

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.

Weld Symbology Definition

Use grinder to bevel edges of splice as shown in weld symbology and drawing. In addition to bevels, produce clean, bare, and shiny surfaces at and around the splice welding location.

Lay full penetration root weld from beveled side of splice.

Back gouge root weld from side opposite of root welding application making sure to remove all foreign materials, porous steel, and inclusions from root weld. Finish welding the non beveled side of the splice.

Finish welding beveled side of the splice while removing slag, foreign materials, porous steel, and inclusions in between welding passes, use of a grinder may be needed.

Verify that enough filler metal has been correctly placed in all weld locations to obtain a flush or convex surface with no concavity produced upon completion of the final welds.

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:

1. Cut off at least 2'-0" of pile and expose a minimum of 2'-0" of strands.
2. 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".
3. Drill 8 holes in pile head (equally spaced) for installation of 8 grouted dowel bars of same size and length as in 2.
4. 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.

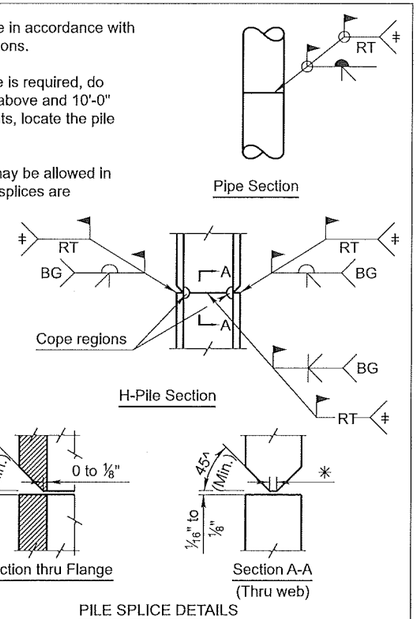
MILL TEST REPORTS: Steel piles test reports and steel shell test reports shall comply with the Standard Specifications.

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".



* Minimum as required by welding process.

BG = Backgouge

PILE SPLICE DETAILS

NO.	DATE	REVISIONS	BY	APP'D
04	08-16-18	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 Fc, rod type, use and weld	J.P.J.	T.L.F.

STANDARD PILE DETAILS

BR110

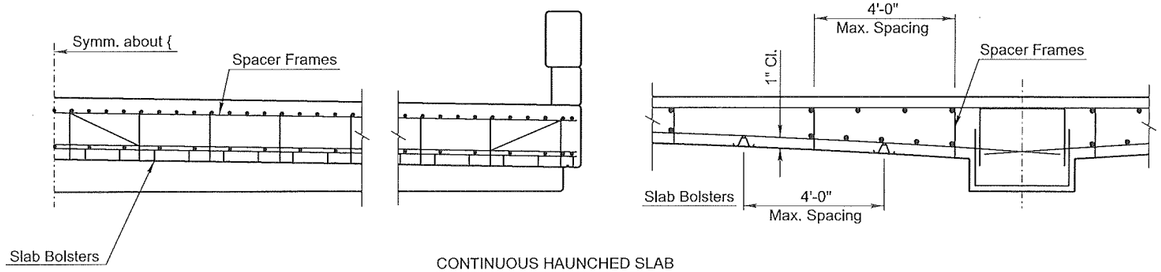
FHWA APPROVAL		10-04-12	APP'D.	Terry L. Fleck
DESIGNED J.P.J.	DETAILED		QUANTITIES	TRACED R.A.A.
DESIGN CK.	DETAIL CK.		QUAN.CK.	TRACE CK.

KDOT Graphics Certified 05-05-2023 Sh. No. 34

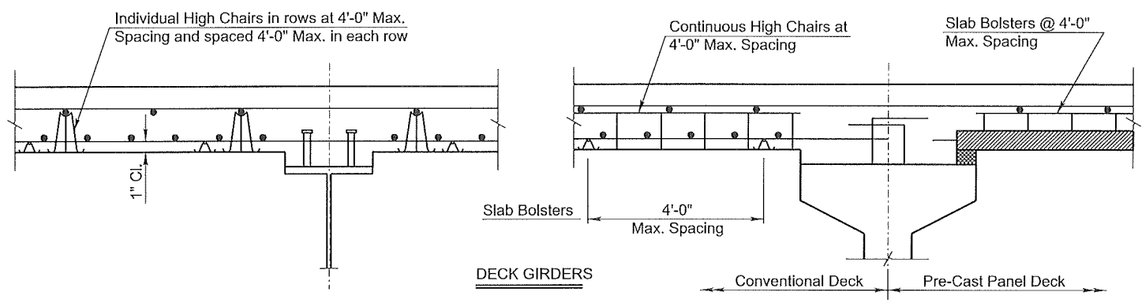
KDOT Graphics Certified

Drawn By : TAA
Plotted : 06/11/2024
File : W:\Proj\160001\16756\16756.224\MicroStation\16756.224_034_Standard Pile Details_br110.dgn

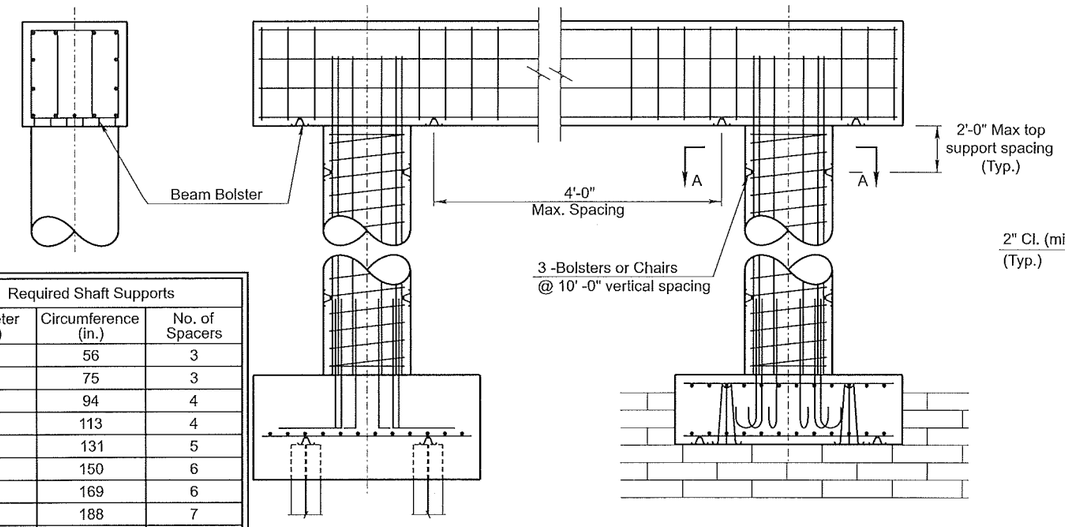
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	B2019-036 POT52	2024	35	47



CONTINUOUS HAUNCHED SLAB

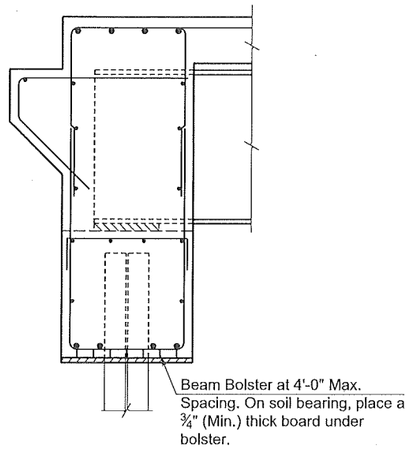


DECK GIRDERS

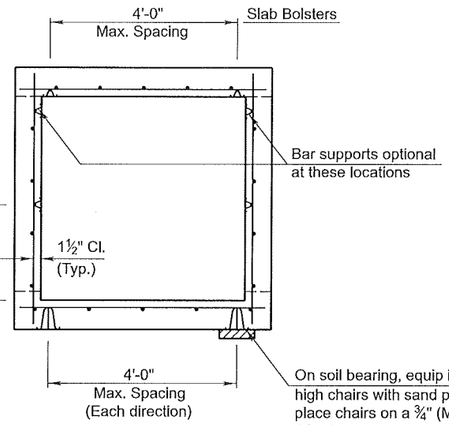


PIER

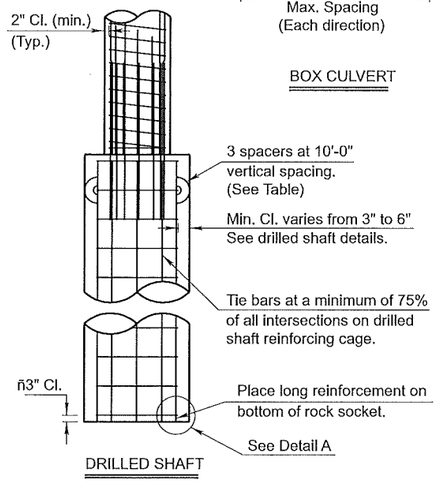
Required Shaft Supports		
Diameter (in.)	Circumference (in.)	No. of Spacers
18	56	3
24	75	3
30	94	4
36	113	4
42	131	5
48	150	6
54	169	6
60	188	7
66	207	7
72	226	8
78	244	9
84	263	9
90	282	10
96	301	11
102	320	11
108	339	12



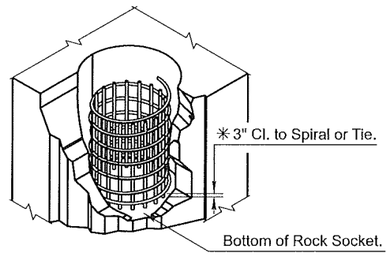
ABUTMENT



BOX CULVERT

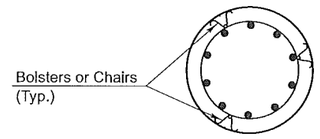


DRILLED SHAFT



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.



SECTION A-A

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 ¼" 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.

NO.	DATE	REVISIONS	BY	APP'D
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.

SUPPORTS AND SPACERS FOR REINFORCING STEEL

BR120

FHWA APPROVAL		11-17-10	APP'D.		Terry L. Fleck
DESIGNED	R.A.M.	DETAILED	R.A.A.	QUANTITIES	TRACED R.A.A.
DESIGN CK.	L.R.R.	DETAIL CK.	R.A.M.	QUAN.CK.	TRACE CK. R.A.M.

KDOT Graphics Certified 06-28-2022 Sh. No. 35

KDOT Graphics Certified

Drawn By : TAA
File : W:\Proj\16000\16756\16756.224\MicroStation\16756.224_035_Supports_Spacers for Reinforcing Steel_br120.dgn
Plotted : 06/12/2024

BAR IS ONE INCH ON OFFICIAL DRAWINGS. 0 1" IF NOT ONE INCH, ADJUST SCALE ACCORDINGLY.

EBERT, FRED L & FRIEDA M TRUST
6240 SALZAR RD, WAMEGO, KS

EBERT, TIMOTHY J & LISA
13105 LOUISVILLE RD, ST GEORGE, KS

N

0 20' 40'
SCALE: 1" = 20'

CONST. LIMITS

EXISTING R/W

SECTION LINE

EXISTING R/W

14+49.98
11.39' LT

STA. 14+50 BEGIN PROJECT

14+50.00
1.00' LT

14+50.05
1.00' RT

14+50.00
11.53' RT

PT: 14+32.28

14+00 15+00 16+00 17+00

6" SOLID WHITE EDGE LINE

LOUISVILLE ROAD

MATCHLINE STA. 17+75
SEE SH. NO. 37

18+00 19+00

PC: 19+76.00

4" SOLID YELLOW LANE LINE

PT 3
BENCHMARK
U-POST
STATE PLANE = N352331.847, E1761329.557
GROUND = N352366.021, E1761485.413
ELEV = 1048.331
CAF = .99991152

CONST. LIMITS

EXISTING R/W

PT 4
BENCHMARK
SQUARE CUT IN BRIDGE
STATE PLANE = N352314.053, E1761661.072
GROUND = N352345.229 E1761816.958
ELEV = 1053.616
CAF = 99991152

UMSCHEID, ELDON & RANDALL, BERNADETTE
12470 LOUISVILLE RD, ST GEORGE, KS

EBERT, DOLORES A TRUST
13170 LOUISVILLE RD, ST GEORGE, KS

#	DESCRIPTION	DATE

Bartlett&West
230 POYNTZ AVENUE - MANHATTAN KS 66502
PHONE 785.272.2252 - FAX 785.273.8735
www.bartlettwest.com

STA. 14+50 TO 17+75 PAVEMENT MARKINGS

LOUISVILLE ROAD BRIDGE
BRIDGE REPLACEMENT
POTTAWATOMIE COUNTY, KANSAS

BID PLANS

DESIGNED BY:	WDH
DRAWN BY:	WDH
APPROVED BY:	JSL
DESIGN PROJ:	16756.224
CONST PROJ:	B2019-036 POT52
SCALE:	AS NOTED
DATE:	JULY 2024
DRAWING NO:	36
SHEET NO:	36 of 47

Last edit on: 4/9/2024 2:08 PM by: JBB01710 Drawing Name: W:\Proj\16000\16756\16756.224\AutoCad\Plan Set\16756.224_Pavement Markings.dwg Layout Name: PM-1 Plotted By: JBB01710 Plotted on: 6/18/2024 9:20:45 AM

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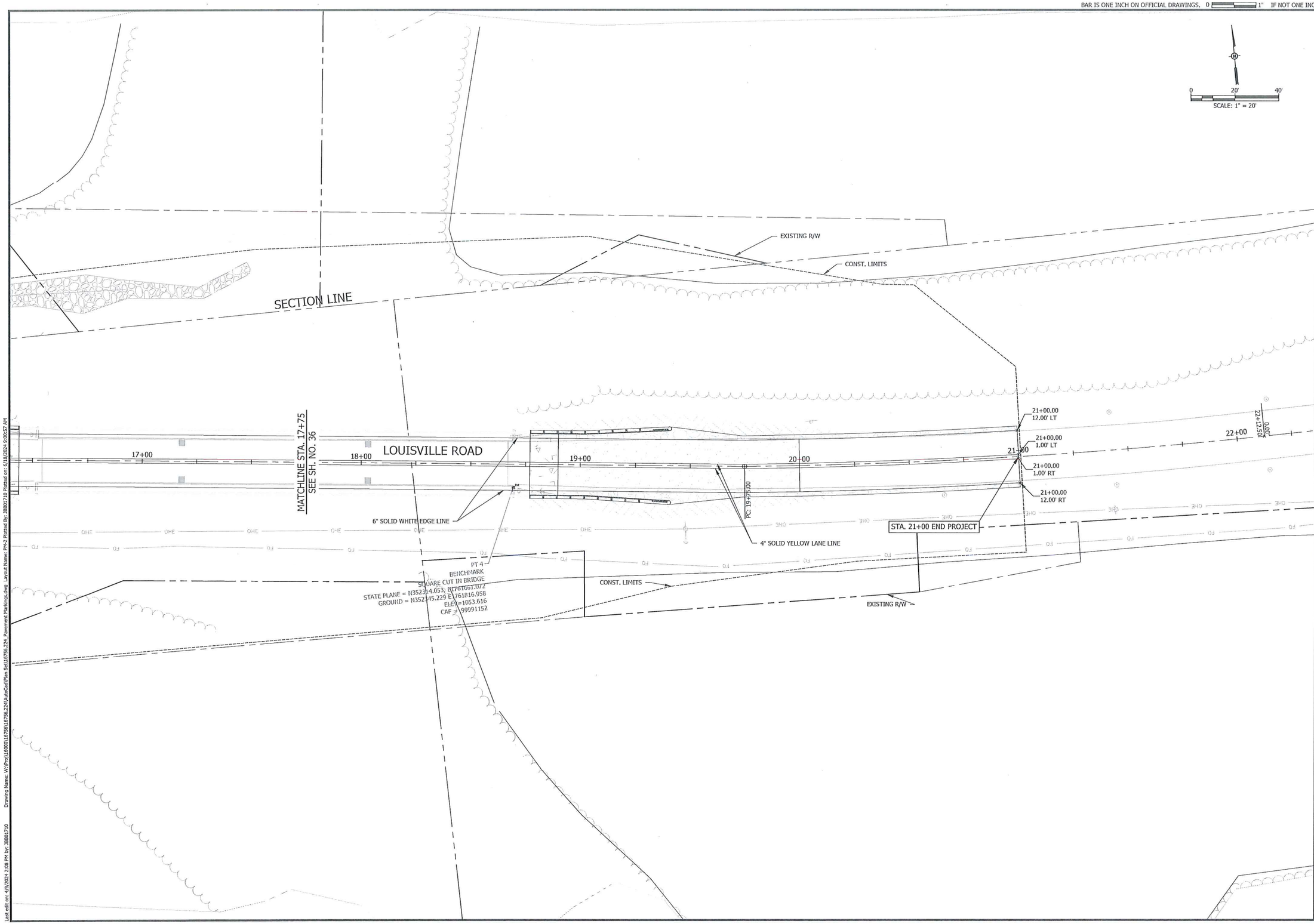

#	DESCRIPTION	DATE	BY

Bartlett&West
230 POYNTZ AVENUE - MANHATTAN KS 66502
PHONE 785.272.2252 - FAX 785.273.8735
www.bartlettwest.com

STA. 17+75 TO 21+00
PAVEMENT MARKINGS

LOUISVILLE ROAD BRIDGE
BRIDGE REPLACEMENT
POTTAWATOMIE COUNTY, KANSAS

BID PLANS

DESIGNED BY:	WDH
DRAWN BY:	WDH
APPROVED BY:	JSL
DESIGN PROJ:	16756,224
CONST PROJ:	B2019-036 POT52
SCALE:	AS NOTED
DATE:	JULY 2024
DRAWING NO:	37
SHEET NO:	37 of 47

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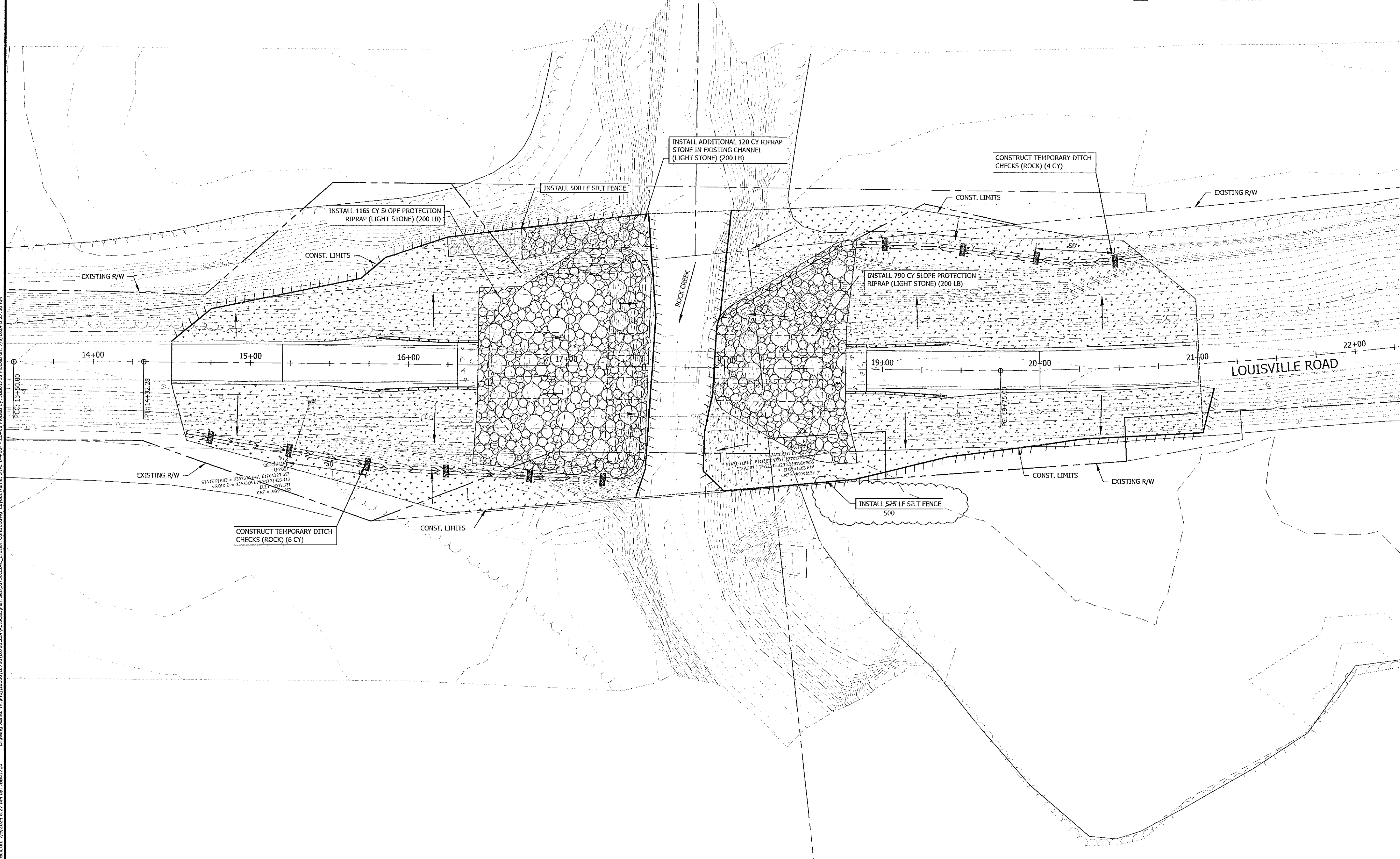
BAR IS ONE INCH ON OFFICIAL DRAWINGS. 0 1" IF NOT ONE INCH, ADJUST SCALE ACCORDINGLY.

#	DATE	DESCRIPTION	BY
2	7/09/2024	UPDATED SILT FENCE QUANTITY	JBB

LEGEND

- SILT FENCE
- SEED AREA
- SLOPE PROTECTION
- ROCK DITCH CHECK

SCALE: 1" = 30'



#	DATE
DESCRIPTION	BY

Bartlett & West

250 POYNTZ AVENUE - MANHATTAN KS 66502
PHONE 785.272.2252 - FAX 785.273.0735
www.bartlettwest.com

STA. 14+50 TO 21+00 EROSION CONTROL

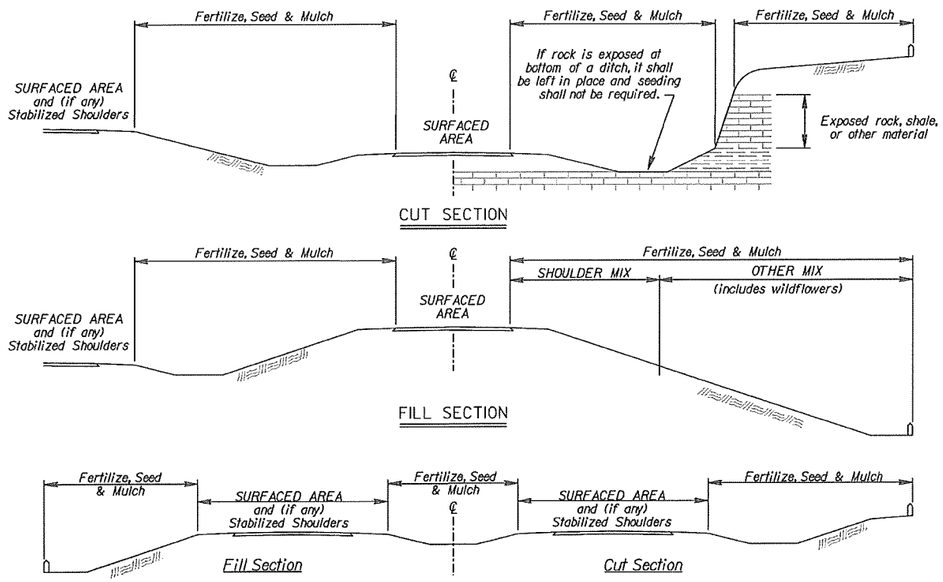
LOUISVILLE ROAD BRIDGE
BRIDGE REPLACEMENT
POTTAWATOMIE COUNTY, KANSAS

BID PLANS

DESIGNED BY:	JBB
DRAWN BY:	JBB
APPROVED BY:	JSL
DESIGN PROJ:	16756.224
CONST PROJ:	B2019-036 POT52
SCALE:	AS NOTED
DATE:	JULY 2024
DRAWING NO:	38
SHEET NO:	38 of 47

Last edit on: 7/9/2024 8:27 AM by: JBB01710 Drawing Name: W:\Proj\16000\16756\16756.224\AutoCad\Plan Set\16756.224C_Erosion Control.dwg Layout Name: STA. 14+00 -- 22+00 Plotted By: JBB01710 Plotted on: 7/9/2024 8:27:30 AM

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	B2019-036 POT52	2024	39	47



TYPICAL SECTION - DUAL PAVEMENT

GRASS & WILDFLOWER SEEDING SEASONS

COOL SEASON GRASSES	WARM SEASON GRASSES & WILDFLOWERS
February 15 thru April 20 August 15 thru September 30	November 15 thru June 1
SPECIES	SPECIES
Bluegrasses	Bermuda Grass
Brome Grasses	Big Bluestem
Canada Wildrye	Blue Grama
Fescues	Buffalo Grass
Prairie Junegrass	Indiangrass
Ryegrasses	Little Bluestem
Sterile Wheatgrass	Sand Bluestem
Tall Dropseed	Sand Dropseed
Western Wheatgrass	Sand Lovegrass
	Side Oats Grama
	Switchgrass
	Wildflower Mixes

When the area to be seeded is 1 acre or more, if Cool Season grasses are mixed with Warm Season grasses, seed the area during the Warm Season.

When the area to be seeded is less than 1 acre, seed the area any time of the year.

SODDING SEASONS

COOL SEASON GRASSES	WARM SEASON GRASSES
March 1 thru April 15 September 1 thru November 15	May 15 thru September 1
SPECIES	SPECIES
Bluegrass Sod	Buffalo Grass Sod
Fescue Sod	

If the soil is workable, the Engineer may allow placement of sod between November 15 and March 1. If sod is placed during this time, maintain the sod until 20 days after the beginning of the spring sodding season.

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 except as noted below.

All borrow areas shown on the plans are to be fertilized, seeded, and mulched. However, operation in borrow areas where crops are growing may be omitted when requested by the owner.

If temporary cover has provided stable slopes with no erosion, seed the permanent grasses into the existing cover. If there has been erosion that requires repair prior to seeding, then it may be necessary to regrade the area, resulting in bare ground.

FERTILIZER: A ratio and application rate that equals or exceeds the required minimum rate per acre of N, P_2O_5, K_2O listed in Summary of Seeding Quantities will be acceptable.

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 material is generally as follows:

1¾ - 2¼ Tons per Acre = 1½" 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.

NATIVE WILDFLOWER MIX 1

PLS RATE	NAME	QTY (lb)
0.3	Butterfly Milkweed	
0.3	Common Milkweed	
0.3	Black Eyed Susan	
0.5	Blanket Flower	
0.5	False Sunflower	
0.5	Lance-Leaf Coreopsis	
0.2	Maximilian Sunflower	
0.1	New England Aster	
0.2	Pinnate Prairie Coneflower	
0.2	Plains Coreopsis	
0.3	Purple Coneflower	
0.3	Upright Prairie Coneflower	
0.3	Dames Rocket	
0.3	Lemon Mint	
0.2	Pitcher Sage	
0.2	Wild Bergamot	
1.0	Illinois Bundleflower	
0.2	Common Evening Primrose	
0.1	Hoary Verbena	
0.8	Purple Prairie Clover	
0.3	Roundhead Lespedeza	
3.0	Showy Partridge Pea	
0.2	White Prairie Clover	
10.3	Total (lb)	

NATIVE WILDFLOWER MIX 2

PLS RATE	NAME	QTY (lb)
0.3	Butterfly Milkweed	
0.3	Black Eyed Susan	
0.5	Black Sampson Coneflower	
1.0	Blanket Flower	
0.2	Maximilian Sunflower	
0.2	Plains Coreopsis	
0.2	Upright Prairie Coneflower	
0.2	Western Yarrow	
0.3	Lemon Mint	
0.4	Pitcher Sage	
1.5	Illinois Bundleflower	
0.2	Common Evening Primrose	
1.0	Blue Wild Indigo	
0.4	Leadplant	
0.4	Purple Prairie Clover	
0.3	White Prairie Clover	
7.4	Total (lb)	

Package and deliver the wildflower seed separately from the grass seed mix. Package and deliver the Tall Drop Seed separately from the grass seed and the wildflower mix. Place the grass seed (except Tall Drop Seed) in the large seed box and drill (cover) seed 1/8" - 1/4". Place the wildflower seed in a separate seed box and drill (cover) seed 1/16" maximum. Place the Tall Drop Seed in a separate (third) seed box and place the seed (using the seed drill) on the soil surface.

OPTION: Broadcast Tall Drop Seed on the soil surface.

SUMMARY OF SEEDING QUANTITIES

P.L.S. RATE/ACRE SHLDR	P.L.S. RATE/ACRE OTHER	ACRES SHLDR	ACRES OTHER	BID ITEM	QUANTITY	UNIT
200		0.270		FERTILIZER (13-13-13)	54.00	LBS
	80		0.980	FERTILIZER (15-30-15)	78.40	LBS
	2		0.980	BIG BLUESTEM GRASS SEED (KAW)	1.96	LBS
0.5		0.270		BLUE GRAMA GRASS SEED (LOVINGTON)	0.14	LBS
4.5		0.270		BUFFALOGRASS SEED (TREATED)	1.22	LBS
	10		0.980	CANADA WILDRYE GRASS SEED	9.80	LBS
	2		0.980	INDIANGRASS SEED (OSAGE)	1.96	LBS
	2		0.980	LITTLE BLUESTEM GRASS SEED (ALDOUS)	1.96	LBS
45		0.270		PERENNIAL RYEGRASS	12.15	LBS
2.6		0.270		PRAIRIE JUNEGRASS	.70	LBS
6.3	6.3	0.270	0.980	SIDE OATS GRAMA GRASS SEED (EL RENO)	7.88	LBS
	10		0.980	STERILE WHEATGRASS (REGREEN/QUICK GUARD)	9.80	LBS
	0.7		0.980	SWITCHGRASS SEED (BLACKWELL)	0.69	LBS
	0.5		0.980	TALL DROPSEED	0.49	LBS
45		0.270		TALL FESCUE (ENDOPHYTE FREE)	12.15	LBS
6	4	0.270	0.980	WESTERN WHEATGRASS SEED (BARTON)	5.54	LBS
	10.3		0.980	NATIVE WILD FLOWER MIX 1	10.09	LBS
				Mulching *		

SHLDR = Seeded with the Shoulder Mix. Typically 15 feet for 2-lane roads and 30 feet for 4-lane roads. Includes outside roadsides, turfed portions of shoulders, and turfed portion of the median.

OTHER = Seeded with the "Other" Mix. Designated as all other turf areas, except the Shoulder. Usually includes a Native Wildflower Mix.

NOTE: Projects less than 1 acre shall be bid as "Seeding" by the lump sum. All disturbed areas shall be seeded, fertilized and mulched at the listed rate per acre. The acres are estimated.

Refer to the Standard Specifications, Division 900, Section 904 'Seeding', and Section 907 'Sodding', for the seeding and sodding seasons.

* *See LA852A for mulching quantity. The quantity of mulch is estimated (Acres of Seeding X 1.5 X 2 Tons/Acre). The total mulch required shall be determined in the field. The bid item for mulching shall be paid for according to the Standard Specifications.*

NO.	DATE	REVISIONS	BY	APP'D
2	11/25/20	Updated Seeding / Sodding Periods Charts	MRD	ML
1	08/03/20	Revised Standard	MRD	SHS

KANSAS DEPARTMENT OF TRANSPORTATION

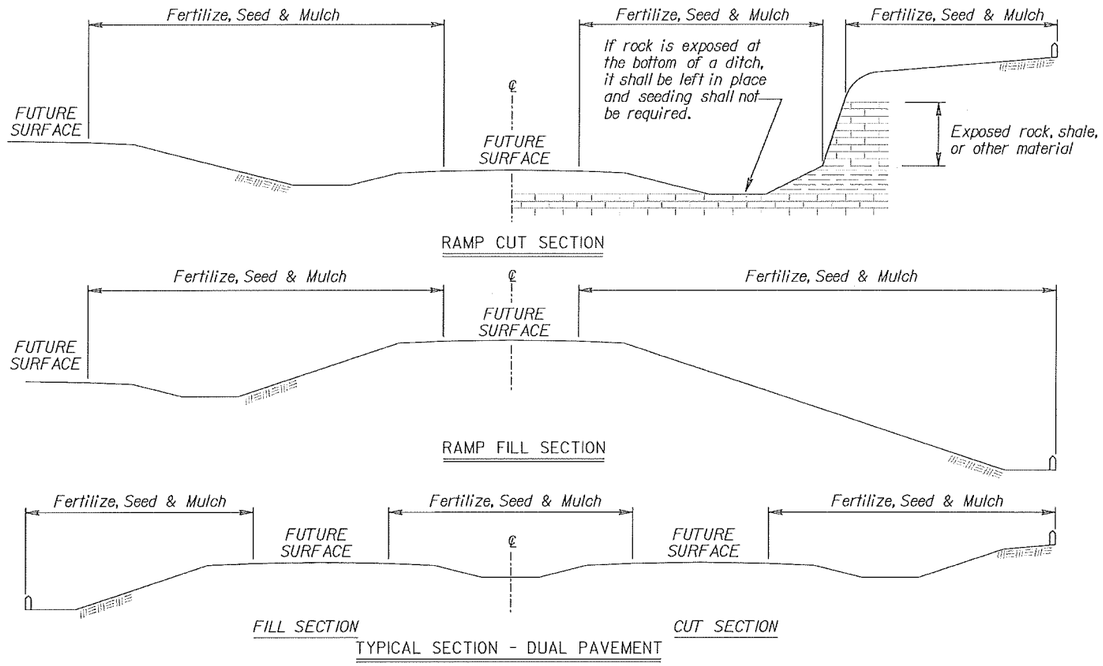
PERMANENT SEEDING
SUMMARY OF SEEDING QUANTITIES

LA850

FHWA APPROVAL	05/06/2019	APP'D	Marvin Lare		
DESIGNED MRD	DETAILED MRD	QUANTITIES	CADD		
DESIGN CK.	DETAIL CK.	QUAN.CK.	CADD CK.		

Std. Base File:
Plotted By: JA6007137 | Plot Location:
File: la850.dgn
Plot Date: 03-FEB-2022 07:53

#	DATE	DESCRIPTION	BY	STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
2	7/09/2024	UPDATED SOIL EROSION MIX, EROSION CONTROL (CLASS 1, TYPE D) SILT FENCE, SWPPP DESIGN, SWPPP INSPECTION QUANTITY. ADDED BIODEGRADABLE LOG QUANTITY.	JBB	KANSAS	B2019-036 POT52	2024	40	47



FERTILIZER: A ratio and application rate that equals or exceeds the required minimum rate per acre of N, P_2O_5, K_2O listed in Summary of Quantities will be acceptable.

- *x – N = Nitrogen Rate of Application*
- *xx – P_2O_5 = Phosphorous Rate of Application*
- *xxx – K_2O = 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:

1¾ – 2¼ Tons per Acre = 1½" 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.

SUMMARY OF SEEDING / EROSION CONTROL QUANTITIES

P.L.S. RATE/ ACRE		ACRES		BID ITEM	QUANTITY	UNIT
CLT	SL/CH	CLT	SL/CH			
150		1.250		Temporary Fertilizer (15-30-15)	187.50	LB
20		1.250		Temporary Seed (Canada Wildrye)	25.00	LB
45		1.250		Temporary Seed (Grain Oats)	56.25	LB
45		1.250		Temporary Seed (Sterile Wheatgrass)	56.25	LB
				Soil Erosion Mix	375	LB
				Erosion Control (Class 1, Type D)	5800	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)	10	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")	1000	LF
				Filter Sock (****)		LF
				Geotextile (Erosion Control)		SQ YD
				Silt Fence	1000	LF
				SWPPP Design †	1	LS
				SWPPP Inspection †	40	EACH
				Water Pollution Control Manager †	40	EACH
900 lbs / acre				Mulch Tacking Slurry		LB
2 tons / acre		1.250		Mulching	2.50	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)
200	FERTILIZER (13-13-13)	240
0.5	BLUE GRAMA GRASS SEED (LOVINGTON)	60
4.5	BUFFALOGRASS SEED (TREATED)	5.39
45	PERENNIAL RYEGRASS	53.91
2.6	PRAIRIE JUNEGRASS	3.12
6.3	SIDE OATS GRAMA GRASS SEED (EL RENO)	7.55
45	TALL FESCUE (ENDOPHYTE FREE)	53.91
6	WESTERN WHEATGRASS SEED (BARTON)	7.19
	Total (lb)	375

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.

NO.	DATE	REVISIONS	BY	APP'D
3	08/03/20	Added Note	MRD	ML
2	12/01/17	Revised Standard	MRD	SHS
1	06/01/17	Revised Standard	MRD	SHS

KANSAS DEPARTMENT OF TRANSPORTATION

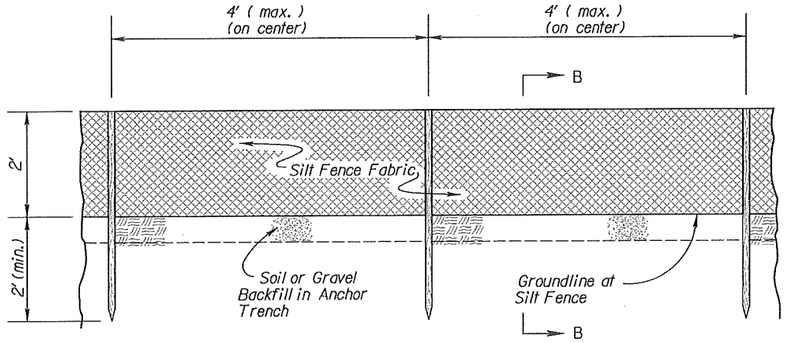
TEMPORARY EROSION AND POLLUTION CONTROL

LA852A

FHWA APPROVAL		1/26/2018	APP'D	Scott H. Shields	
DESIGNED	MRD	DETAILED	MRD	QUANTITIES	CADD
DESIGN CK.	SHS	DETAIL CK.	SHS	QUAN.CK.	CADD CK.

Std. Base File:	
Plotted By: JAG00737	Plot Location:
File: la852a.dgn	
Plot Date: 03-FEB-2022 08:28	

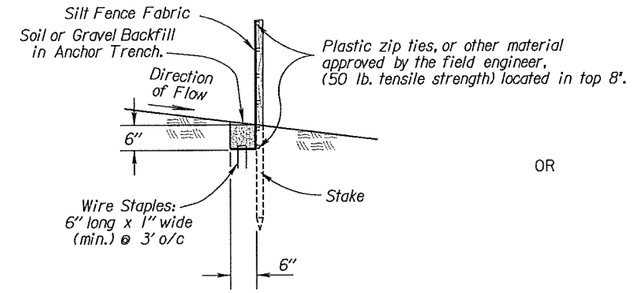
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	B2019-036 POT52	2024	41	47



TYPICAL ELEVATION

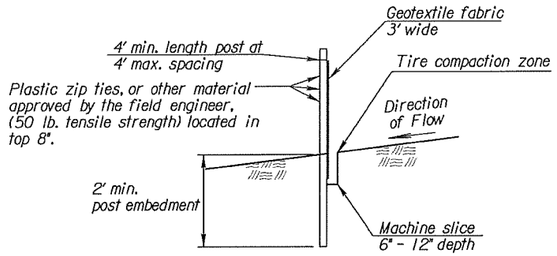
SILT FENCE BARRIER

NO SCALE

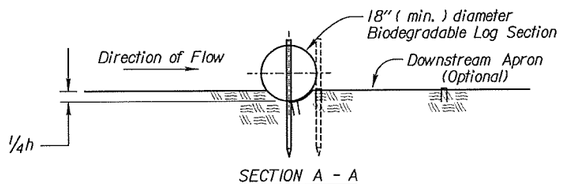


SECTION B-B

OR



SECTION B-B



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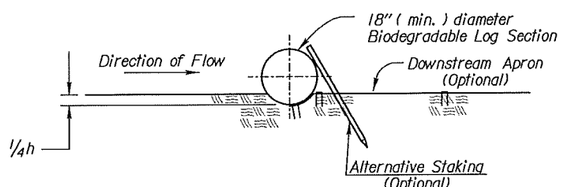
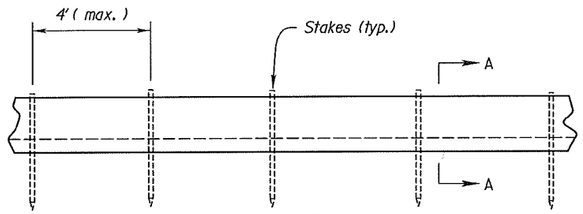


ALT. DETAIL

OPTIONAL



TYPICAL ELEVATION

BIODEGRADABLE LOG SLOPE INTERRUPTIONS

OR Filter Sock

INSTALLATION NOTES

SILT FENCE:

1. Stakes shall be 4' (min.) long and of one of the following materials:
   a. Hardwood - 1 3/16" x 1 3/16";
   b. Southern Pine (No. 2) - 2 5/8" x 2 5/8";
   c. Steel U, T, L, or C Section - .95 lbs. per 1'-0"; or
   d. Synthetic - same strength as wood stakes.
2. 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.
3. Use of high flow material is acceptable.
4. Refer to plan sheets to estimate the length of silt fence required.

BIODEGRADABLE LOG OR FILTER SOCK

1. Place biodegradable logs or filter sock tightly together minimum overlap of 18".
2. Wood stakes shall be 2" x 2" (nom.).
3. Refer to plan sheets to estimate length of biodegradable log and filter sock required.
4. 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.
5. 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.

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

Deviations should be approved by the Field Engineer.

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

GENERAL NOTES

1) Slope interruptions shall be placed along contour lines, with a short section turned upgrade at each end of the barrier.
2) The maximum length of the slope interruptions shall not exceed 250 feet, and the barrier ends need to be staggered.
3) 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.
4) 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.

NO.	DATE	REVISIONS	BY	APP'D
3	6/28/16	Revised Standard	RA	SHS
2	3/01/15	Revised Standard	RA	SHS
1	6/01/13	Revised Standard	MRM	SHS

KANSAS DEPARTMENT OF TRANSPORTATION

TEMPORARY EROSION AND POLLUTION CONTROL

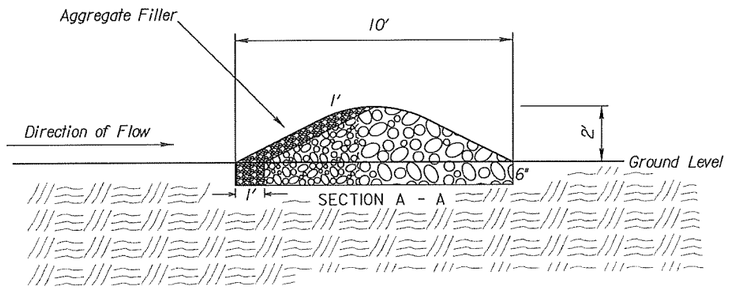
SLOPE INTERRUPTIONS BIODEGRADABLE LOG / SILT FENCE

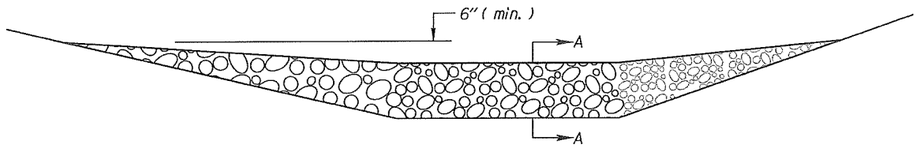
LA852D

FHWA APPROVAL		9/14/2016	APP'D	Scott H. Shields	
DESIGNED	SHS	DETAILED	RA	QUANTITIES	CADD
DESIGN CK.	SHS	DETAIL CK.		QUAN.CK.	CADD CK.

Std. Base File:
Plotted By: JAG00737 | Plot Location:
File: la852d.dgn
Plot Date: 03-FEB-2022 08:35

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	B2019-036 POT52	2024	42	47





TYPICAL ELEVATION

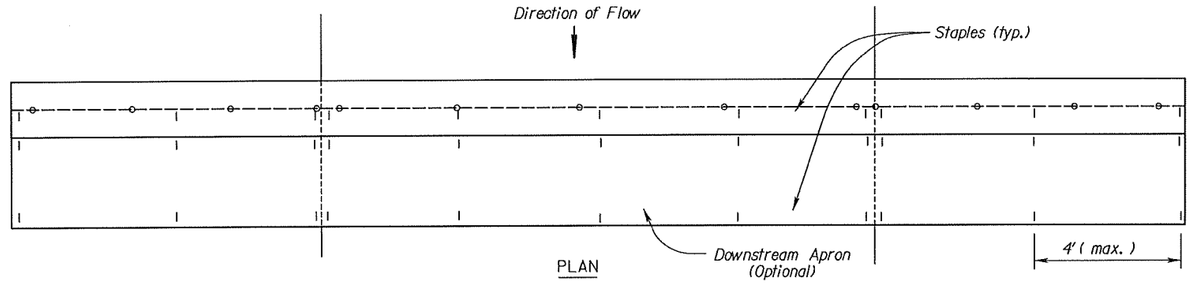
ROCK DITCH CHECK

NO SCALE

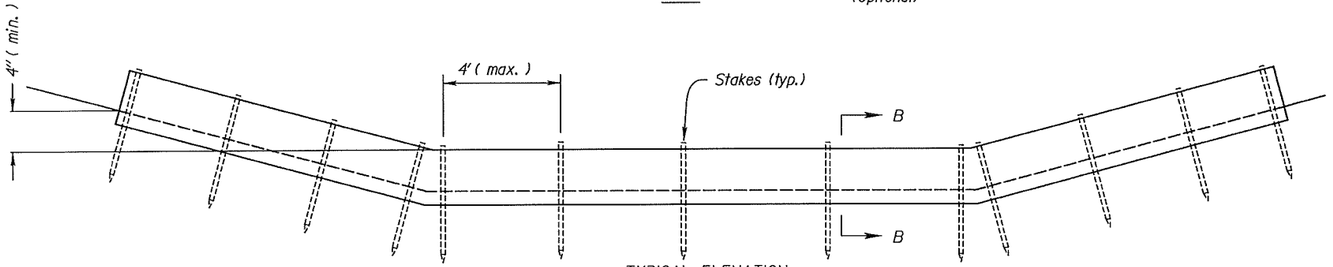
TEMPORARY ROCK DITCH CHECK SPACING	
DITCH ℄ SLOPE (%)	*SPACING INTERVAL (FEET)*
5.0	60
6.0	50
7.0	43
8.0	36
9.0	33
10.0	29
NOTE: Use this spacing for Rock Ditch Checks only.	

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.*



PLAN

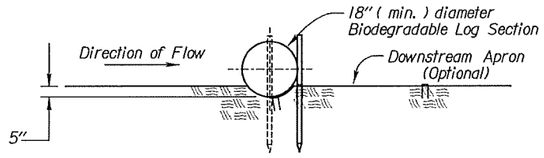


TYPICAL ELEVATION

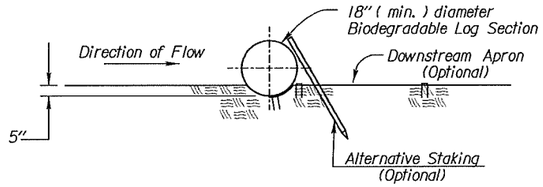
BIODEGRADABLE LOG DITCH CHECK

OR Filter Sock Ditch Check

NO SCALE



SECTION B - B



ALT. DETAIL
OPTIONAL

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.*

NO.	DATE	REVISIONS	BY	APP'D
3	11/19/20	Revised Standard	MRD	ML
2	8/10/16	Revised Standard	RAA	SHS
1	10/21/15	Revised Standard	RAA	SHS

KANSAS DEPARTMENT OF TRANSPORTATION

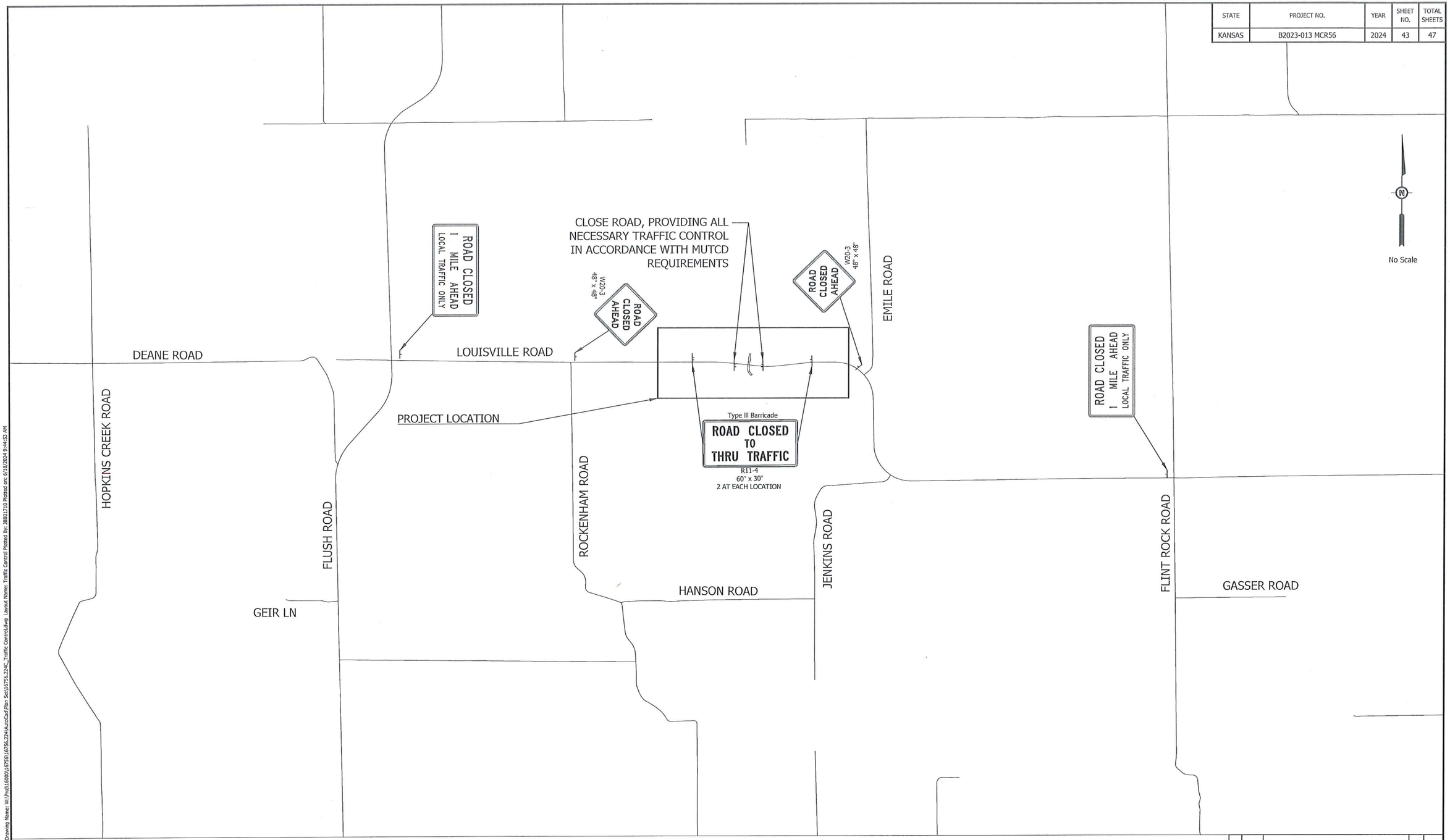
TEMPORARY EROSION AND POLLUTION CONTROL
ROCK DITCH CHECKS
BIODEGRADABLE LOG DITCH CHECKS

LA852G

FHWA APPROVAL			11/19/2020	APP'D		Marvin Lare	
DESIGNED	ML	DETAILED	DK	QUANTITIES		CADD	RAA
DESIGN CK.	ML	DETAIL CK.	ML	QUAN.CK.		CADD CK.	RAA

Std. Base File: la852g.dgn
Plotted By: JAC00737
Plot Location:
File: la852g.dgn
Plot Date: 03-FEB-2022 08:48

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	B2023-013 MCR56	2024	43	47



GENERAL NOTES:

The contractor shall furnish and maintain all advanced warning and road closure traffic control devices. Contractor will coordinate with Pottawatomie County for removal of existing Road Closure signage. County to sign and maintain detour.

All barricades shall be reflectorized and have amber flashing lights.

Type III barricade placement for road closures shall be one barricade per driving lane closed.

All traffic control devices shall conform to the Manual on Uniform Traffic Control Devices (M.U.T.C.D.) or current revision thereof.

Channelizing devices shall be used to separate work zone from traveled way.

NO.	DATE	REVISION	BY	APP'D

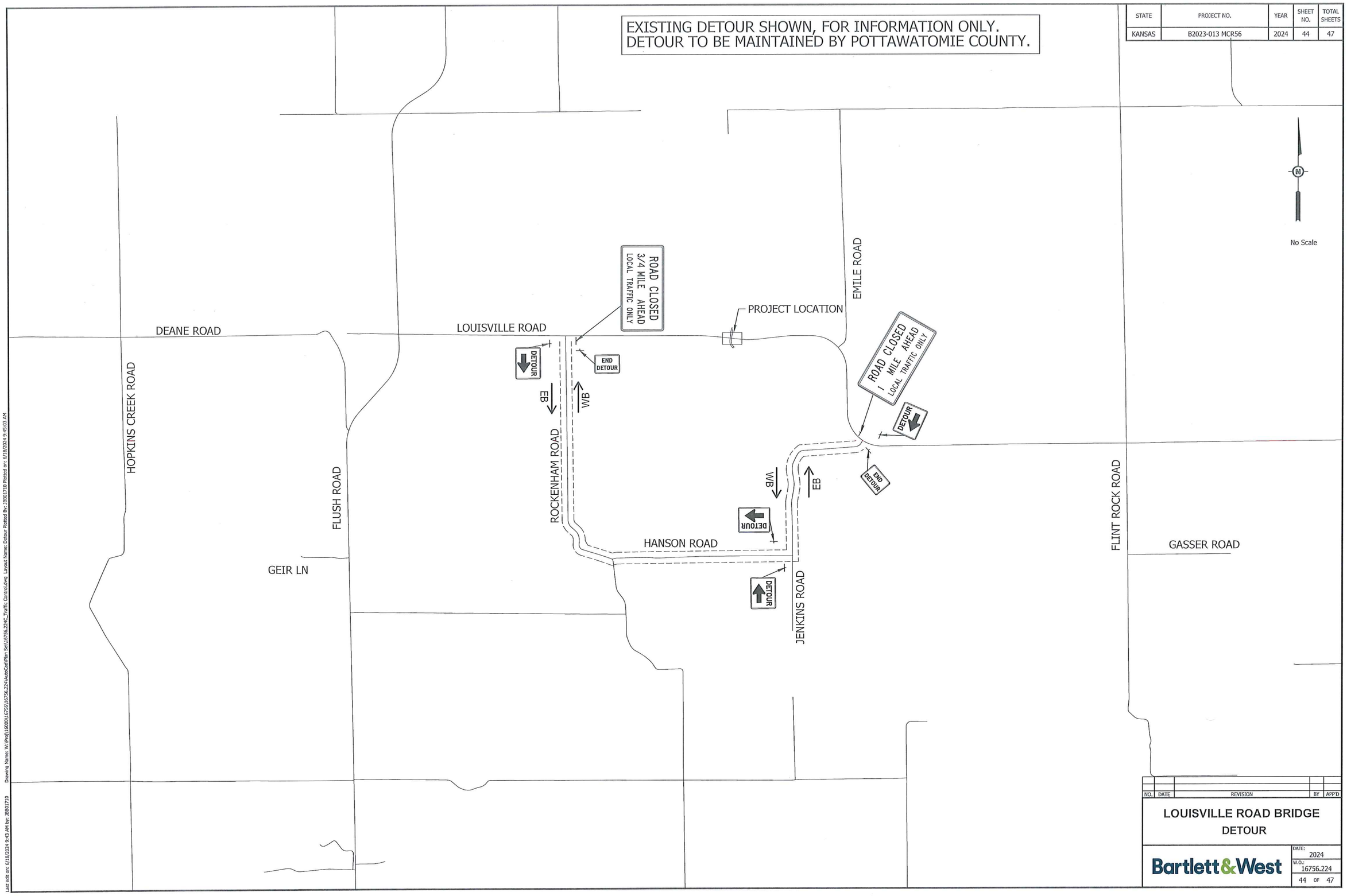
LOUISVILLE ROAD BRIDGE
TRAFFIC CONTROL

Bartlett&West

DATE: 2024
W.O.: 16756.224
43 OF 47

EXISTING DETOUR SHOWN, FOR INFORMATION ONLY.
DETOUR TO BE MAINTAINED BY POTTAWATOMIE COUNTY.

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	B2023-013 MCR56	2024	44	47



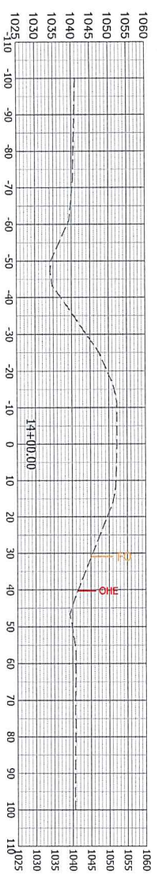
NO.	DATE	REVISION	BY	APP'D

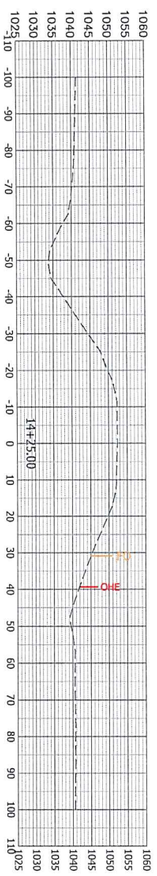
LOUISVILLE ROAD BRIDGE
DETOUR

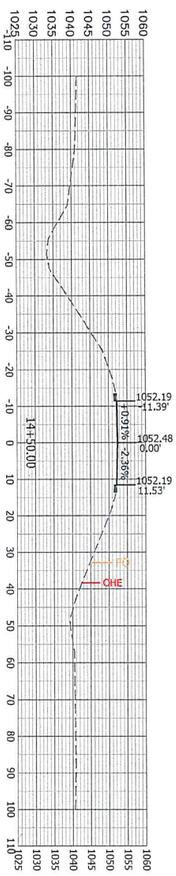
Bartlett&West

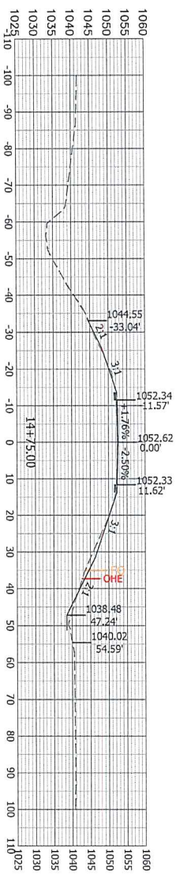
DATE: 2024
W.O.: 16756.224
44 OF 47

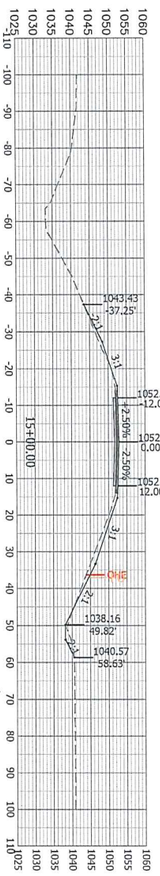
Last edit on: 6/18/2024 9:43 AM by: JBB01710 Drawing Name: W:\Proj\1\60001\16750\16756.224\AutoCad\Plan Set\16756.224C_Traffic Control.dwg Layout Name: Detour Plotted By: JBB01710 Plotted on: 6/18/2024 9:45:03 AM

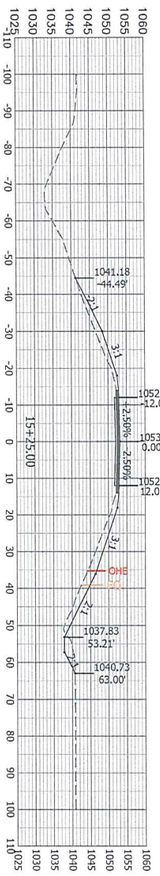


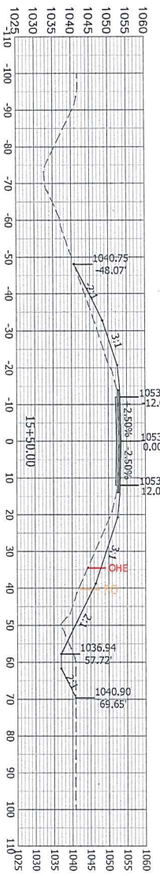


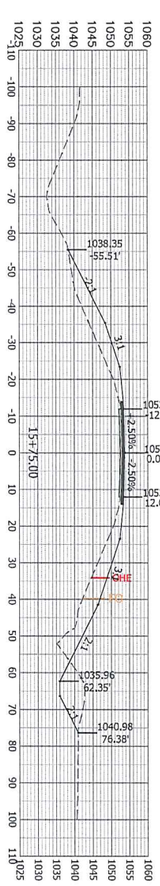


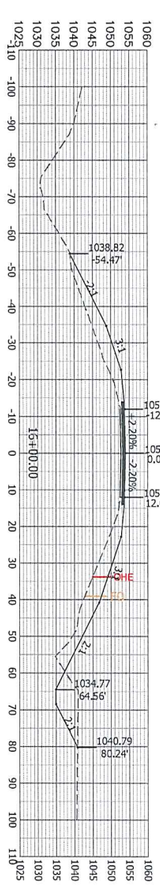


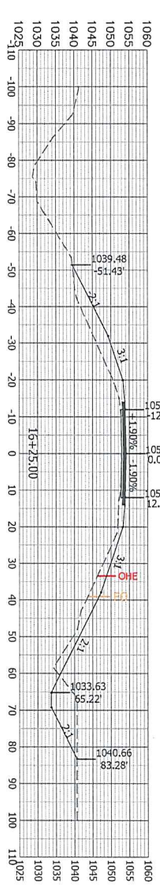


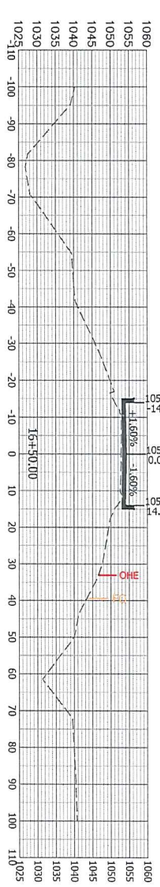


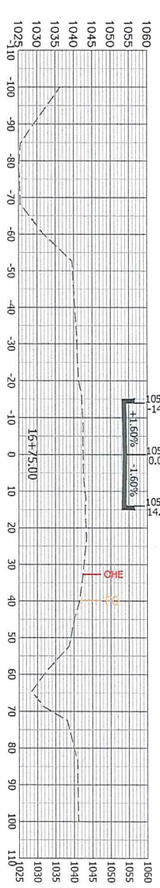


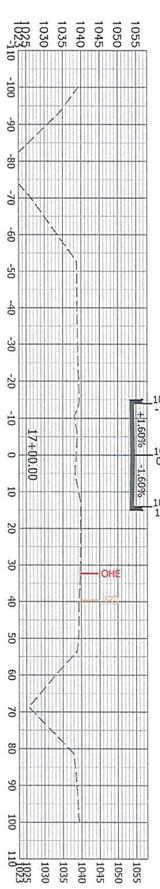


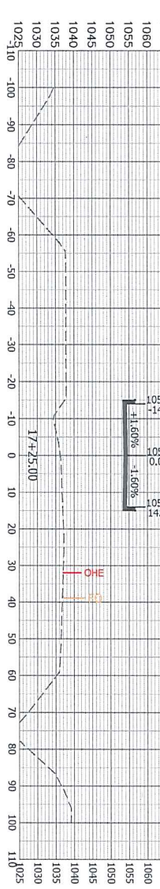












BAR IS ONE INCH ON OFFICIAL DRAWINGS. 0 1" IF NOT ONE INCH, ADJUST SCALE ACCORDINGLY.

DESIGNED BY:	JBB
DRAWN BY:	JBB
APPROVED BY:	JSL
DESIGN PROJ:	16756.224
CONST PROJ:	B2019-036 POTS2
SCALE:	AS NOTED
DATE:	JULY 2024
DRAWING NO:	45
SHEET NO:	45 of 47

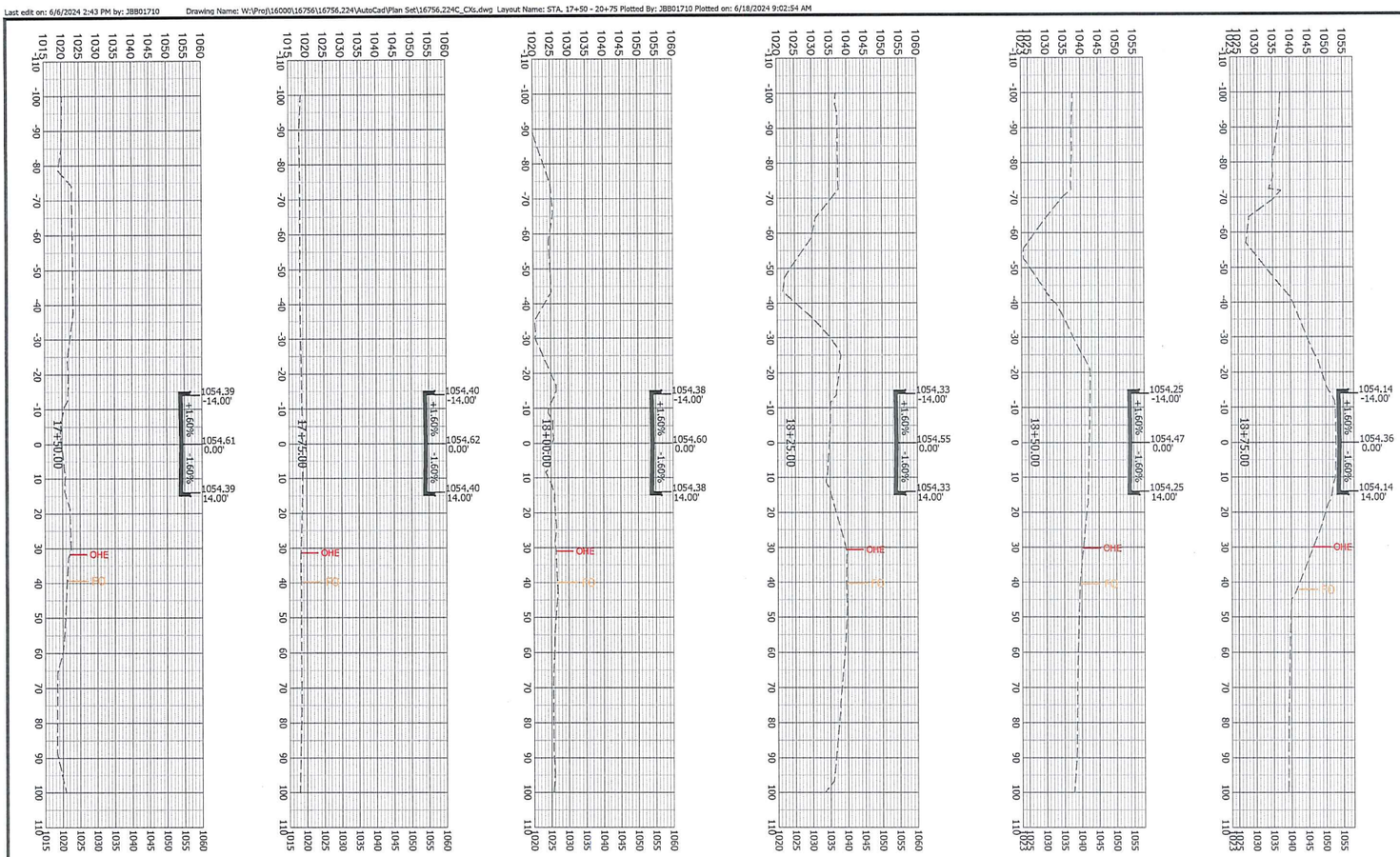
BID PLANS

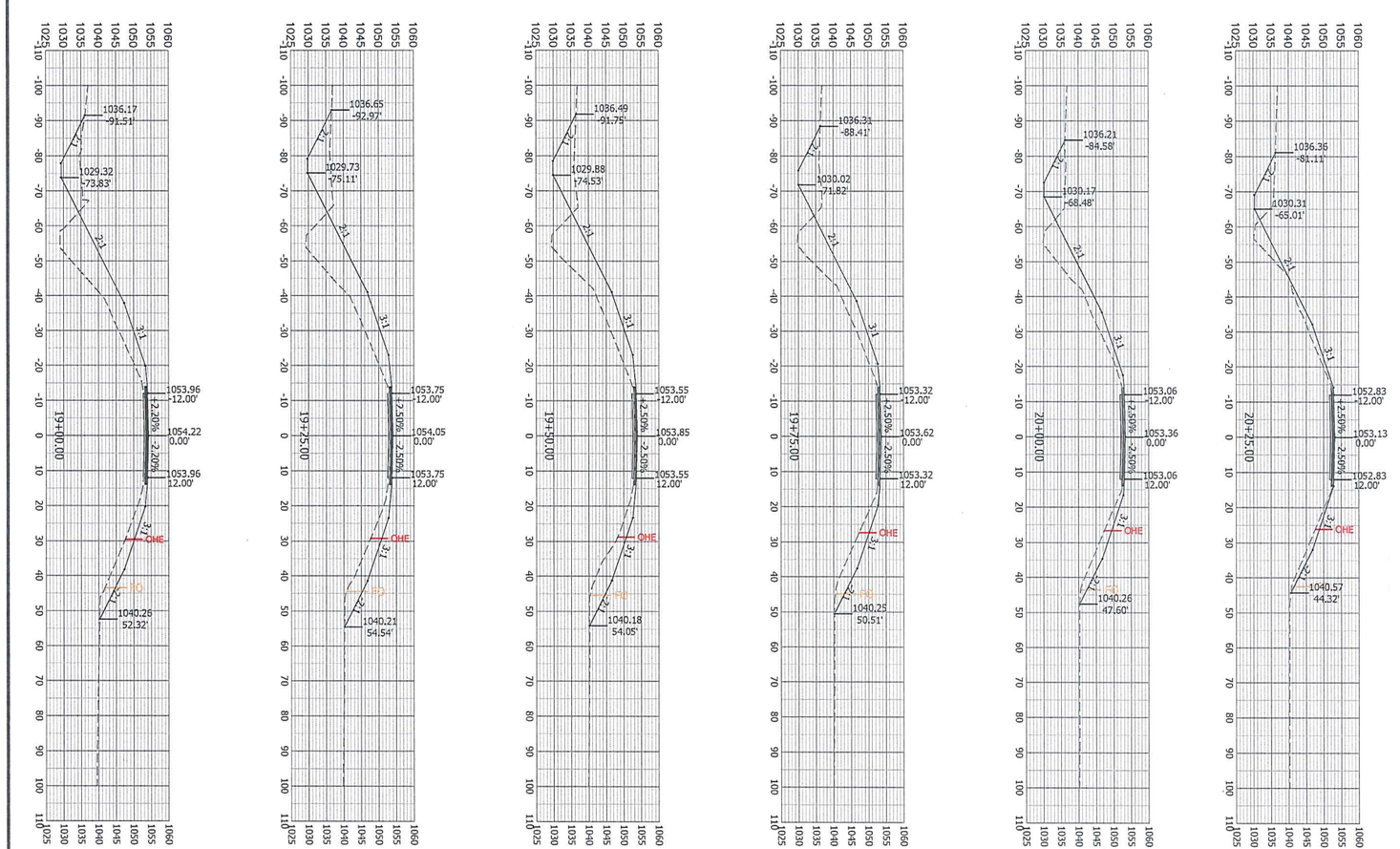
CROSS SECTIONS
STA. 14+00 - 17+25

LOUISVILLE ROAD BRIDGE
BRIDGE REPLACEMENT
POTTAWATOMIE COUNTY, KANSAS

Bartlett & West
230 POYNTZ AVENUE - MANHATTAN KS 66502
PHONE 785.272.2252 - FAX 785.273.8735
www.bartlettwest.com

#	DATE	DESCRIPTION	BY





BAR IS ONE INCH ON OFFICIAL DRAWINGS. 0 1" IF NOT ONE INCH, ADJUST SCALE ACCORDINGLY.

DESIGNED BY:	JBB
DRAWN BY:	JBB
APPROVED BY:	JSL
DESIGN PROJ:	16756.224
CONST PROJ:	B2019-036 POTS2
SCALE:	AS NOTED
DATE:	JULY 2024
DRAWING NO:	46
SHEET NO:	46 of 47

BID PLANS

CROSS SECTIONS
STA. 17+50 - 20+75

LOUISVILLE ROAD BRIDGE
BRIDGE REPLACEMENT
POTTAWATOMIE COUNTY, KANSAS

Bartlett & West
230 POYNTZ AVENUE - MANHATTAN KS 66502
PHONE 785.272.2252 - FAX 785.273.8735
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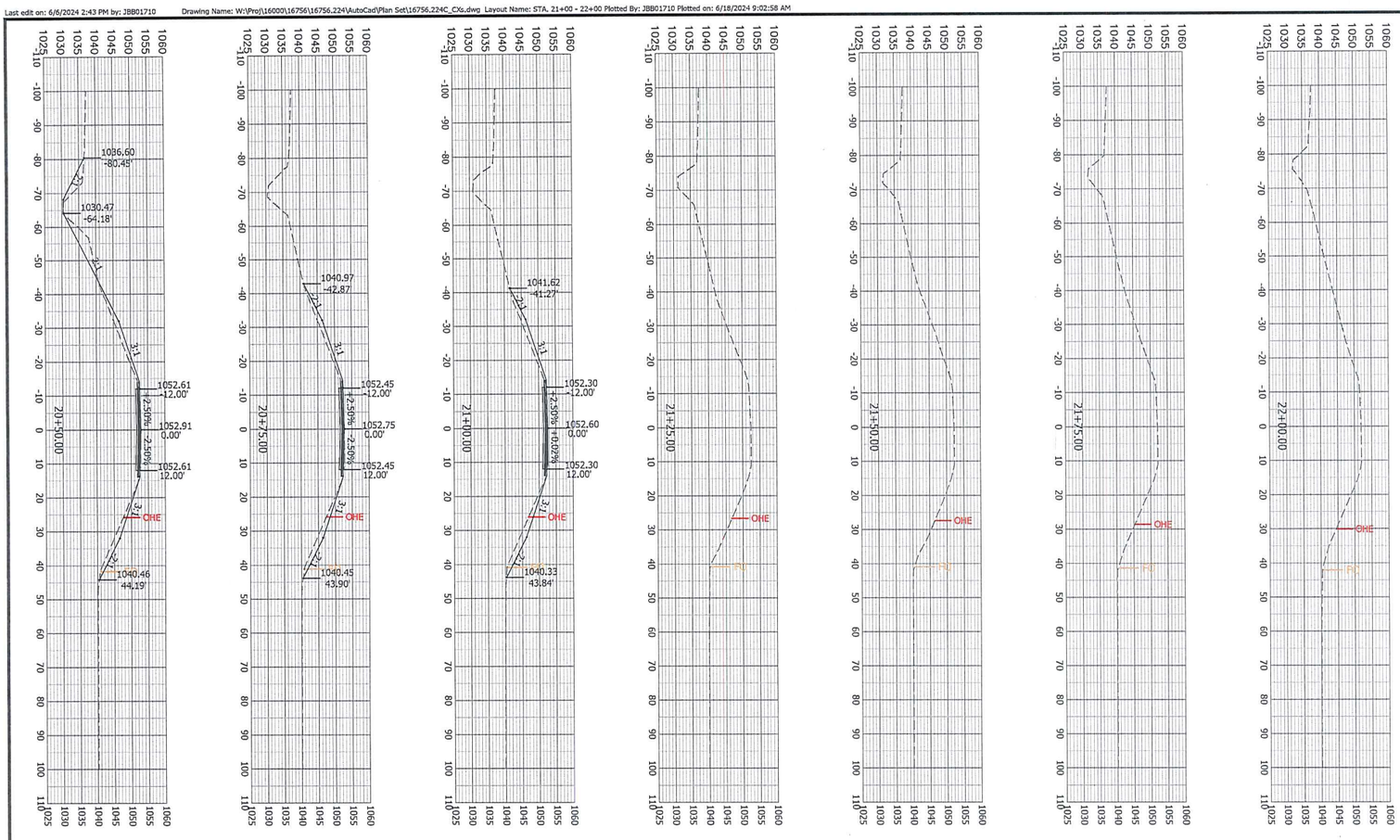
#	DATE	DESCRIPTION	BY

Last edit on: 6/6/2024 2:43 PM by: JBB01710 Drawing Name: W:\Proj\16000\16756\16756.224\AutoCad\Plan Set\16756.224C_CXs.dwg Layout Name: STA. 21+00 - 22+00 Plotted By: JBB01710 Plotted on: 6/18/2024 9:02:58 AM



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CROSS SECTIONS
STA. 21+00 - 22+00

LOUISVILLE ROAD BRIDGE
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BID PLANS

DESIGNED BY:	JBB
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APPROVED BY:	JSL
DESIGN PROJ:	16756.224
CONST PROJ:	B2019-036 POTTZ
SCALE:	AS NOTED
DATE:	JULY 2024
DRAWING NO:	47
SHEET NO:	47 of 47

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