

BY		DATE
SURVEY CADD TECHNICIAN DESIGNERS	C. Brooksher - PEC	2024
	R. Standish, K. Romero - PEC	2025
	W. Nyberg, W. Pyles - PEC	2025

Plotted by : Riley Standish
8-JUL-2025 16:12
File : ST2306rft-01.dgn

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DESIGN DESIGNATION

AADT (2023)	= 8,689
V	= 40 mph
C of A	= None
Clear Zone	= 16 ft.

CONVENTIONAL SIGNS

COUNTY LINE	-----
CITY LIMITS	=====
STATE OR NATIONAL LINE	-----
TOWNSHIP, SECTION or GRANT LINE	-----
PROPERTY LINE	-----
HIGHWAY FENCE	-----
EXISTING FENCE	-----
GUARDRAIL	=====
CONSTRUCTION LIMITS	=====
RIGHT OF WAY LINE	=====
TRAVELED WAY	=====
RAILROADS	=====

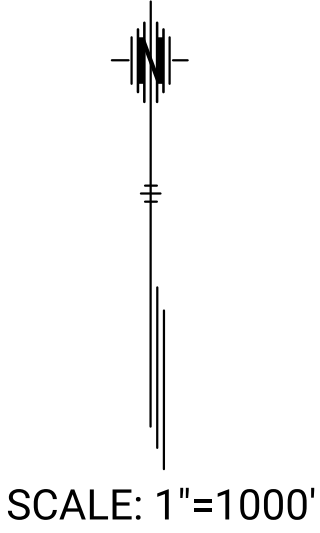
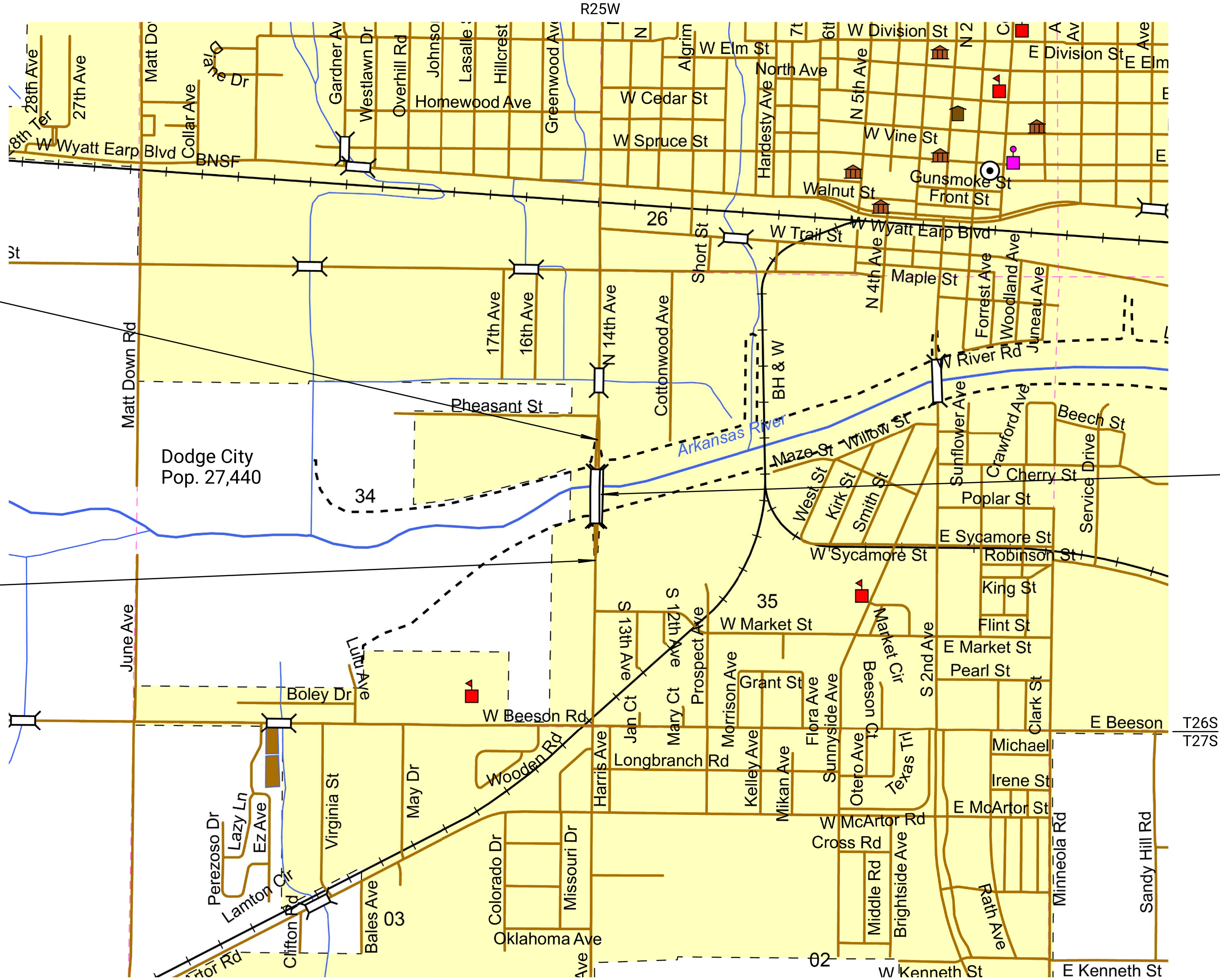
CENTER LINE OF PROJECT	-----
TERRACE	-----
CULVERTS	-----
DROP INLET & STORM SEWER	-----
ACCESS CONTROL	-----
POWER POLE	-----
TELEPHONE POLE	-----
MARSH	-----
HEDGE	-----
TREES	-----
PROFILE ELEVATION	-----
STREAM or CREEK	-----

PLAN AND PROFILE OF PROPOSED
14th AVENUE BRIDGE
OVER THE ARKANSAS RIVER

CITY OF DODGE CITY KANSAS
FORD COUNTY
NORTH 14TH AVENUE
KANSAS LOCAL BRIDGE IMPROVEMENT PROGRAM

Sta. 105+90.00 END
Proj. ST-2306

Sta. 92+75.00 BEGIN
Proj. ST-2306



Sta. 100+00.00
Br. No. 406950290803B01
43'-57'-7@60'-57'-43' Prestressed Concrete Beam Spans (PBMC) (Proposed)
28'-0" Roadway, Skew 0°00'00"

NOTE:
Traffic to be carried through staged construction.
See Sh. No.109 for construction sequence details.

PLANS PREPARED BY:

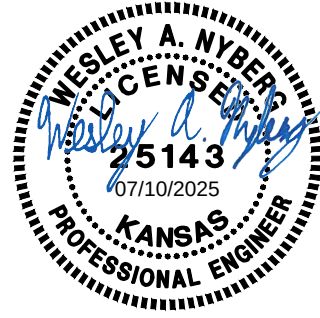
PEC PROFESSIONAL ENGINEERING CONSULTANTS, P.A.
303 SOUTH TOPEKA WICHITA, KS 67202
316-262-2691 www.pec1.com

APPROVED: *Ray Slattery, PE*

RAY SLATTERY, P.E., DIRECTOR OF ENGINEERING SERVICES

GROSS LENGTH OF PROJECT	1,315.00 FT. (Includes Equations)	
EXCEPTIONS	NONE	
NET LENGTH OF PROJECT	1,315.00 FT.	0.249 MILES
NET LENGTH OF BRIDGES	623.00 FT.	0.118 MILES
NET LENGTH OF ROAD	692.00 FT.	0.131 MILES

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	ST-2306	2025	2	139

							
Name: Wesley A. Nyberg	Name: Stephen Matthew Bond	Name: Scott Allan Canfield					
Co. Name: Professional Engineering Consultants, P.A.	Co. Name: Professional Engineering Consultants, P.A.	Co. Name: Professional Engineering Consultants, P.A.					
Plan Section: Road - Sh. 1-13, 17-27, 32-36, 75-88, 127-139	Plan Section: Bridge - Sh. 14-16, 28-31, 37-74	Plan Section: Lighting, Signing, Pavement Marking, Traffic Control - Sh. 89-126					

01	01-24-18	Initial Release	A.L.R.	S.W.K.
NO.	DATE	REVISIONS	BY	APPD
KANSAS DEPARTMENT OF TRANSPORTATION				
Signature Seal Sheet				
RD048				
FHWA APPROVAL		APPD.		
DESIGNED	DETAILED	QUANTITIES	TRACED	
DESIGN CK.	DETAIL CK.	QUAN.CK.	TRACE CK.	
		Scott W. King		

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	ST-2306	2025	3	139

* Dimensions and slopes for standard ditches and fills. See plan and cross-sections for variations.

Note: Intersection of all slope lines shall be softened and rounded for pleasing appearance.

Note: Lane cross-slopes vary with superelevation. See Sh. No. 10 for cross-slopes.

① Varies from 11'-0" at Sta. 95+80.00 to 12'-0" at Sta. 96+20.00.
12'-0" from Sta. 96+20.00 to Sta. 103+80.00.
Varies from 12'-0" at Sta. 103+80.00 to 11'-0" at Sta. 104+20.00.

Crushed Stone Subgrade (8") is to include all preparatory work to the subgrade for all concrete pavement and curb & gutter replacement, including scarifying, adjustment of moisture content, compaction, grading, and installation of crushed concrete. The Crushed Concrete Subgrade shall conform to KDOT 1990 Edition, Section 306. Crushed Concrete shall be uniformly graded as follows:

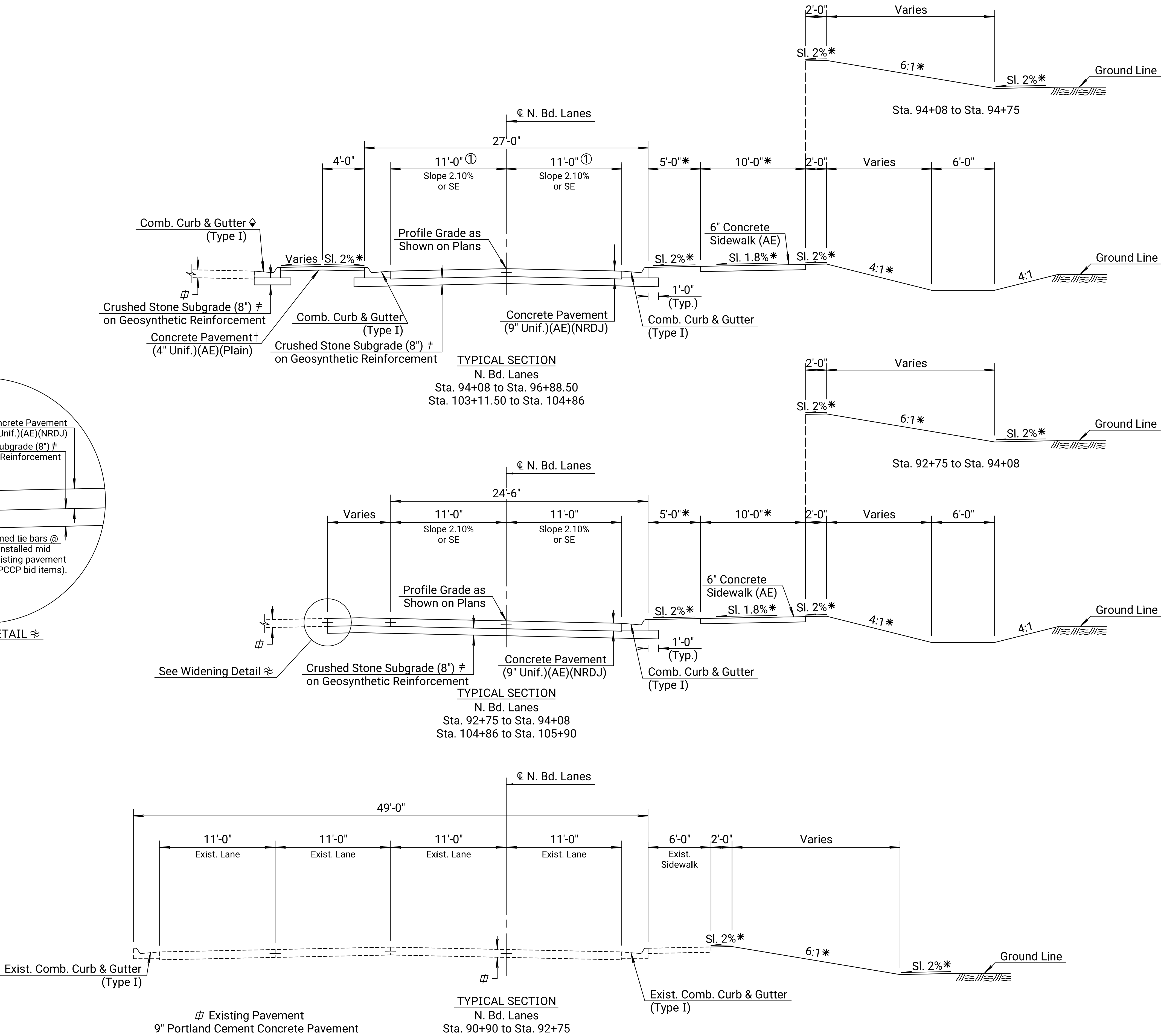
	% of Aggregate Retained
2 1/2"	0
3/4"	20 to 60
#4	50 to 80
#40	80 to 94
#200	90 to 98

8" Crushed Concrete Subgrade will be paid for at Unit Price Bid per Square Yard (S.Y.). The thickness indicated for the Crushed Concrete Subgrade is a nominal dimension and may vary to correct for normal unevenness encountered in the placement operations. Any additional thickness of Crushed Concrete Subgrade shall be considered subsidiary.

◆ See Sh. No. 18 for method of tying curb and gutter to existing pavement. See Paving Details, Sh. No. 11 for variations to tying to the back of existing curb and gutter.

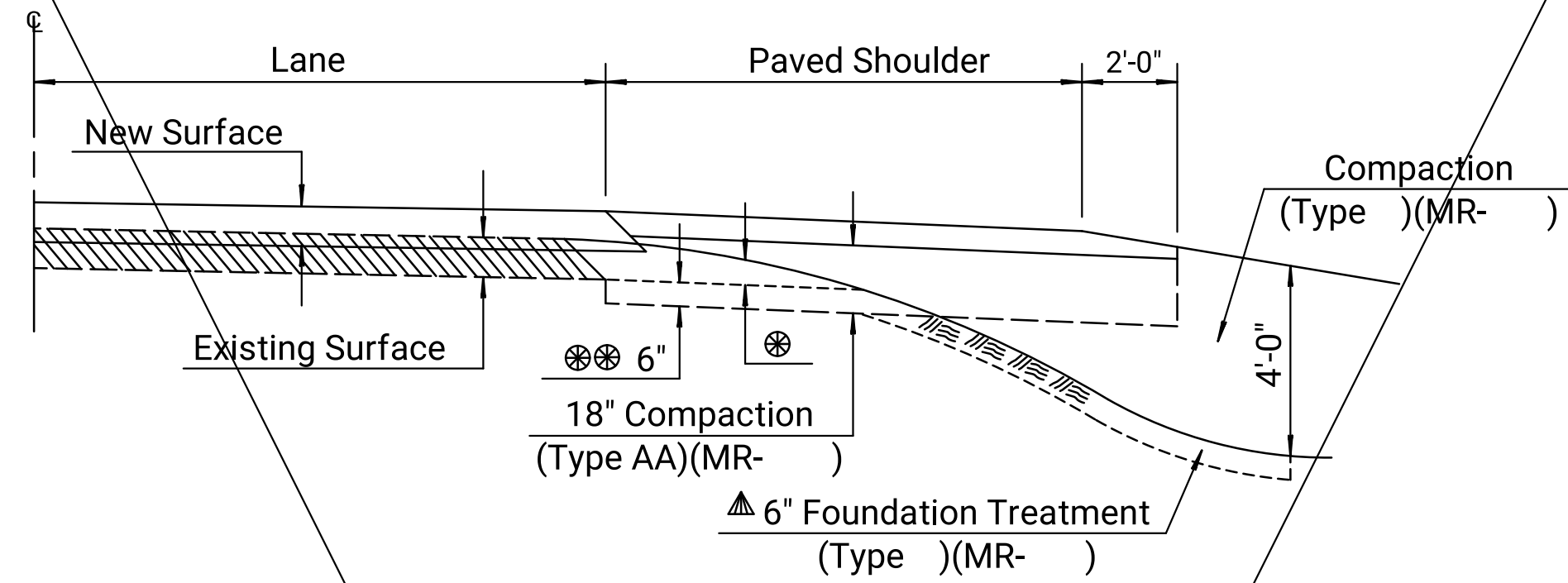
† See Sh. No. 11 for variations to median pavement depth.

Var. Slope
Ground Line
Construct toe ditch (6' x 1') Min.) where indicated on the plans, or as directed by the Engineer.



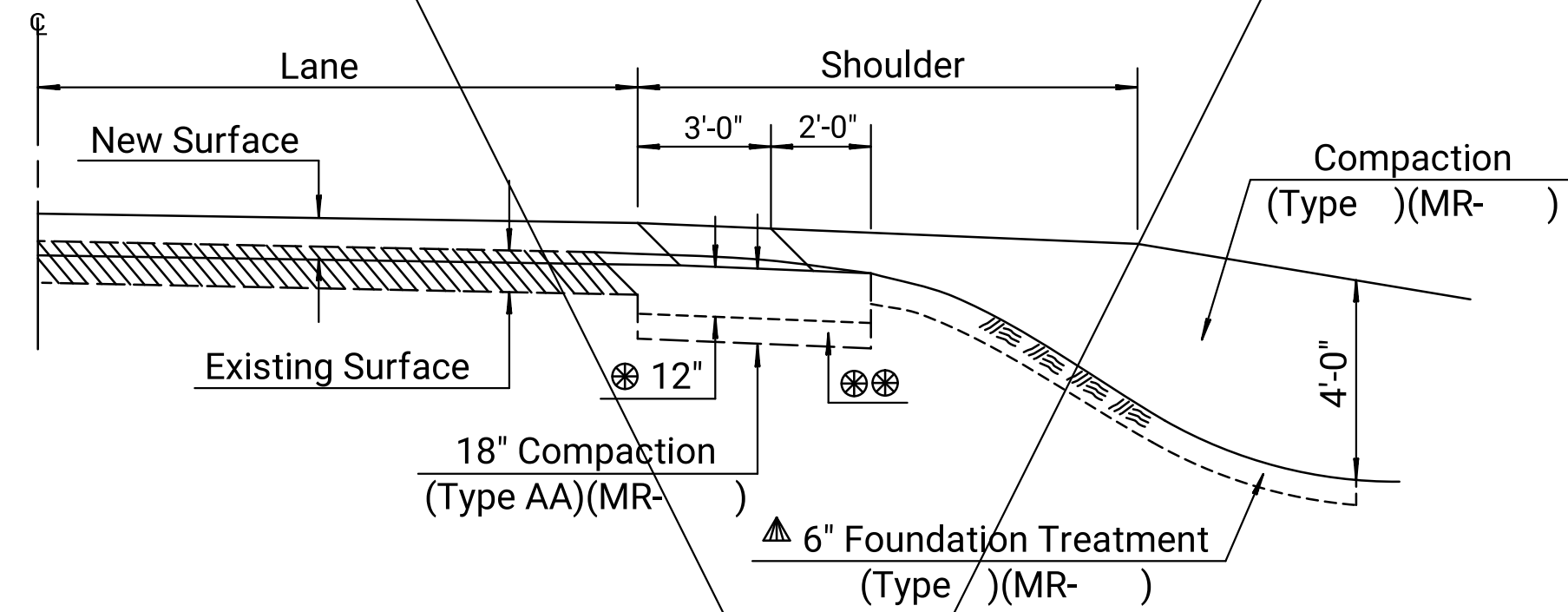
Plotted by : Riley Standish
File : ST2306rss-605.dgn
8-JUL-2025 16:14

REHABILITATION



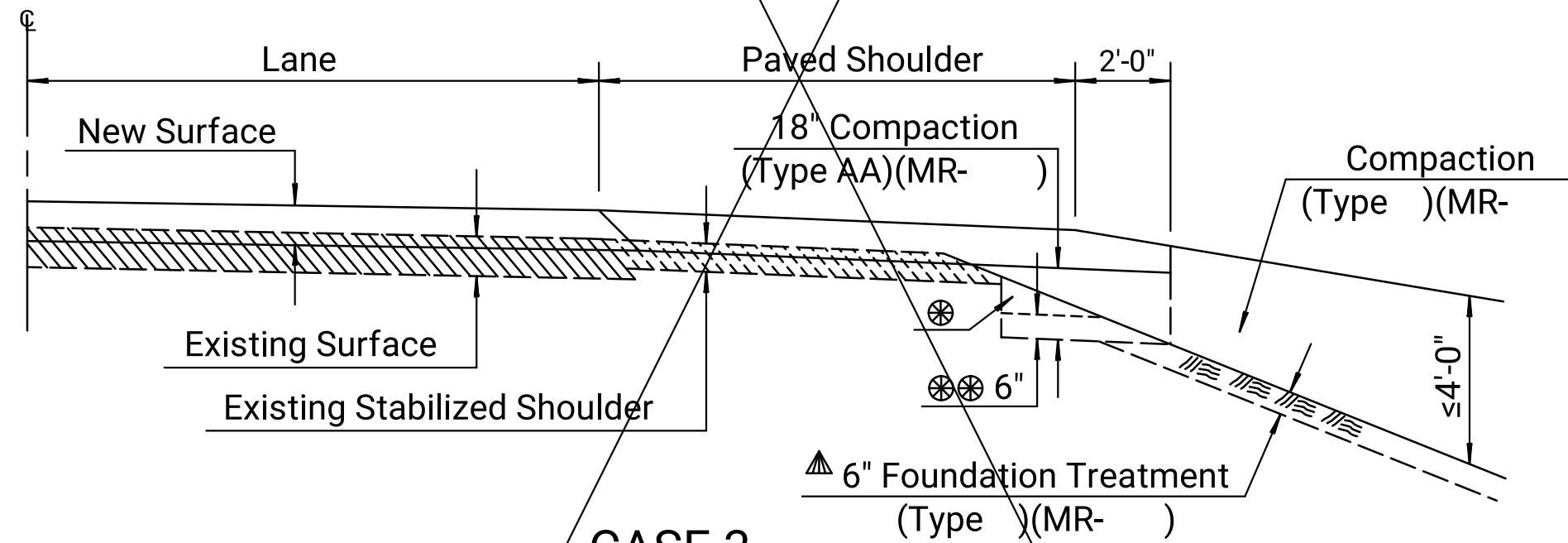
CASE 1

Overlay with Paved Shoulder



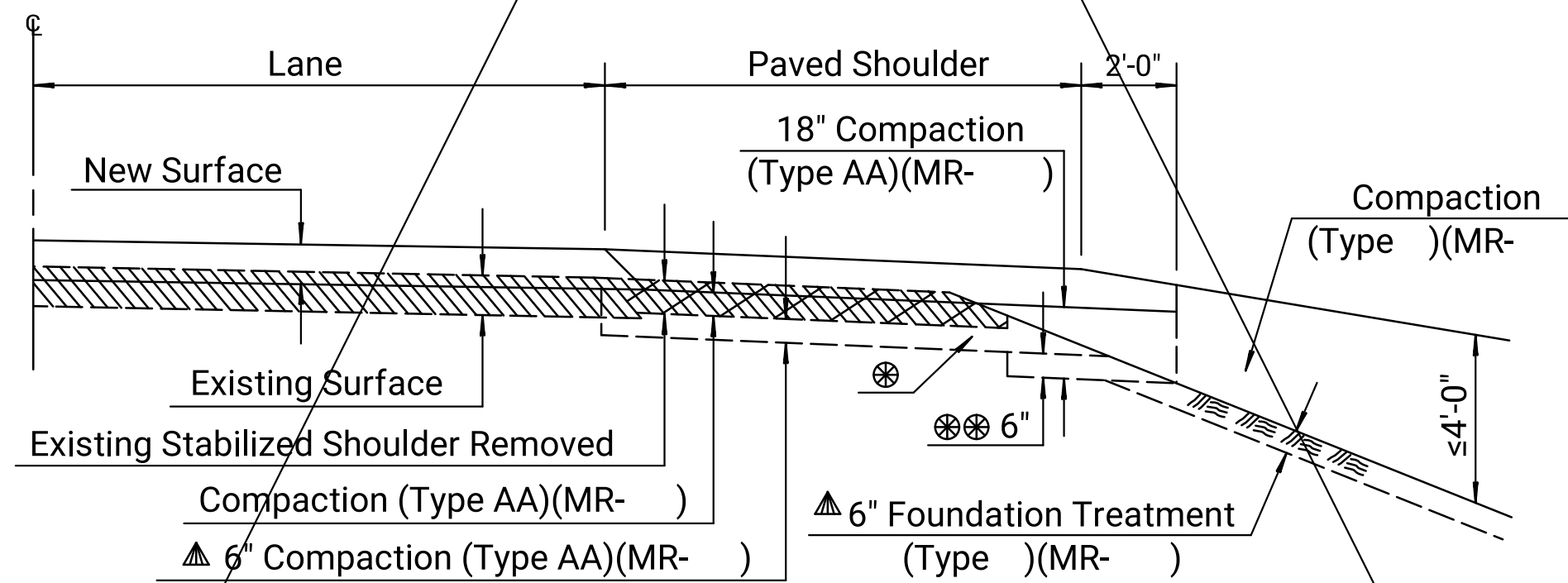
CASE 2

Overlay with Composite Shoulder



CASE 3

Overlay with Existing Paved Shoulder



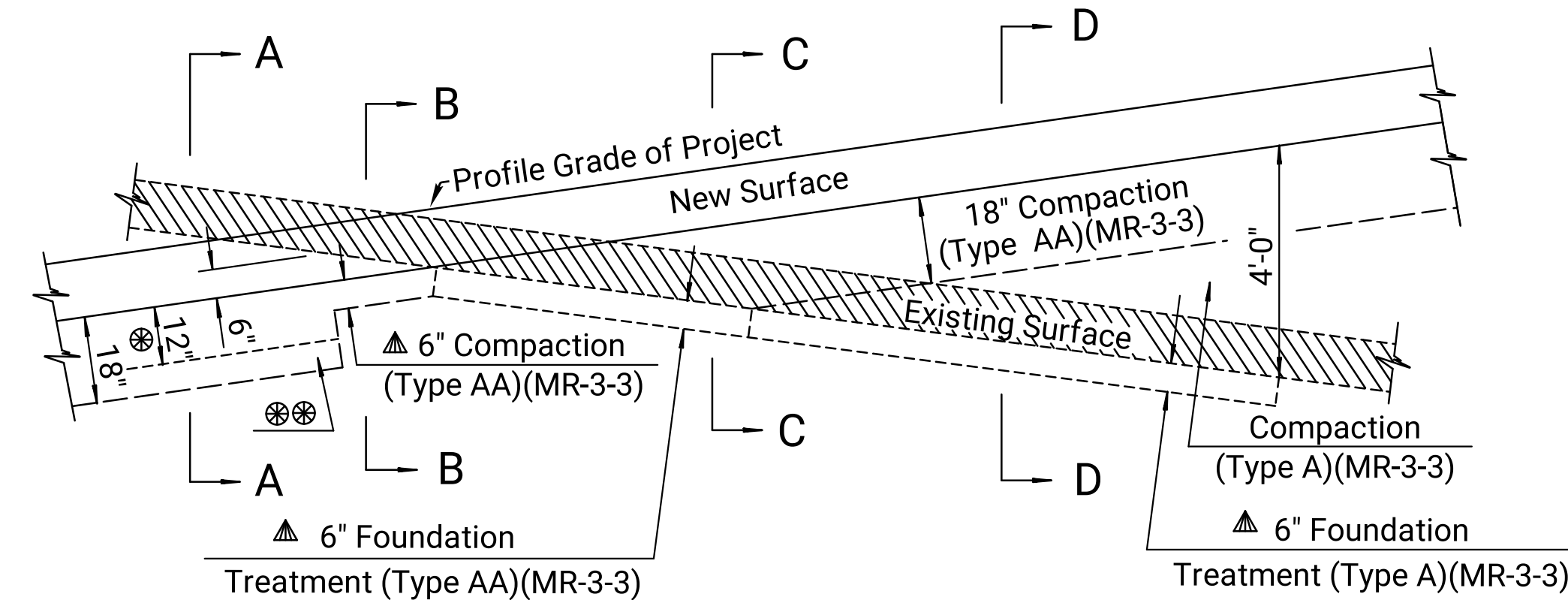
CASE 4

Overlay with Shoulder Replacement

- ⊗ Excavation thru Cuts not Subgraded
- ⊗⊗ The lower 6" of Compaction is subsidiary.
- ▲ Compaction of this material shall be subsidiary.

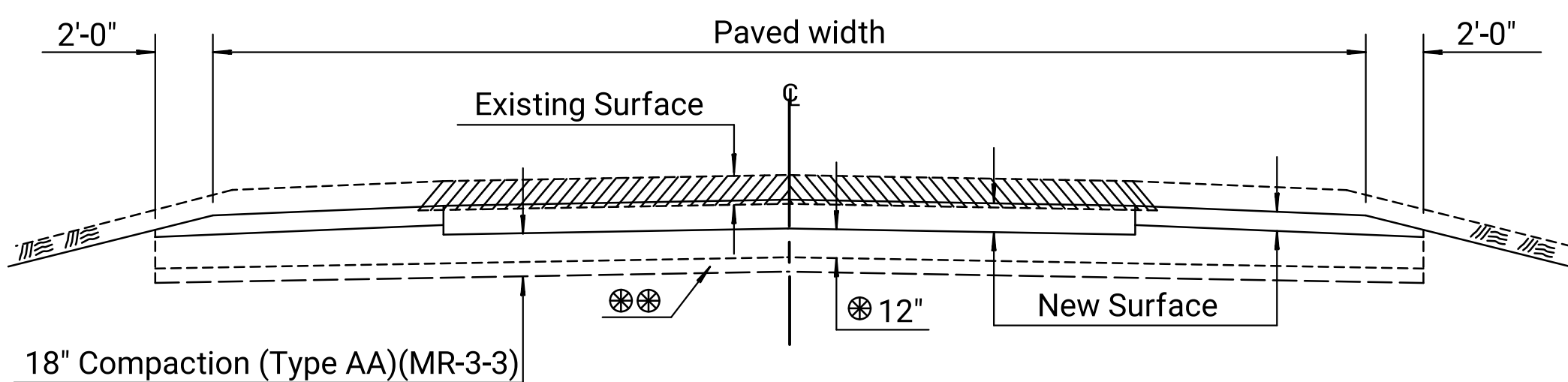
Note: These are 4 general cases. Specific compaction requirements are determined on a project-by-project basis.

RECONSTRUCTION

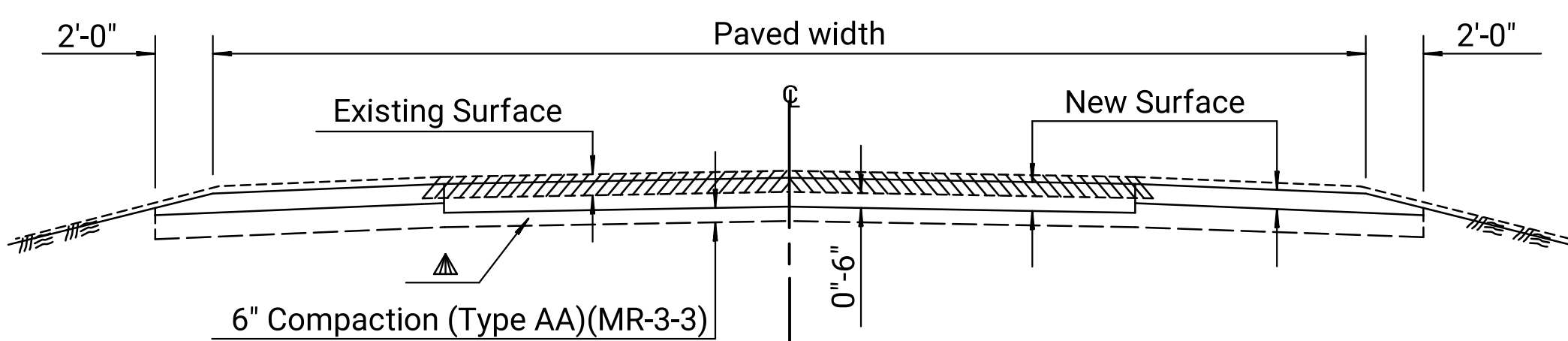


PROFILE

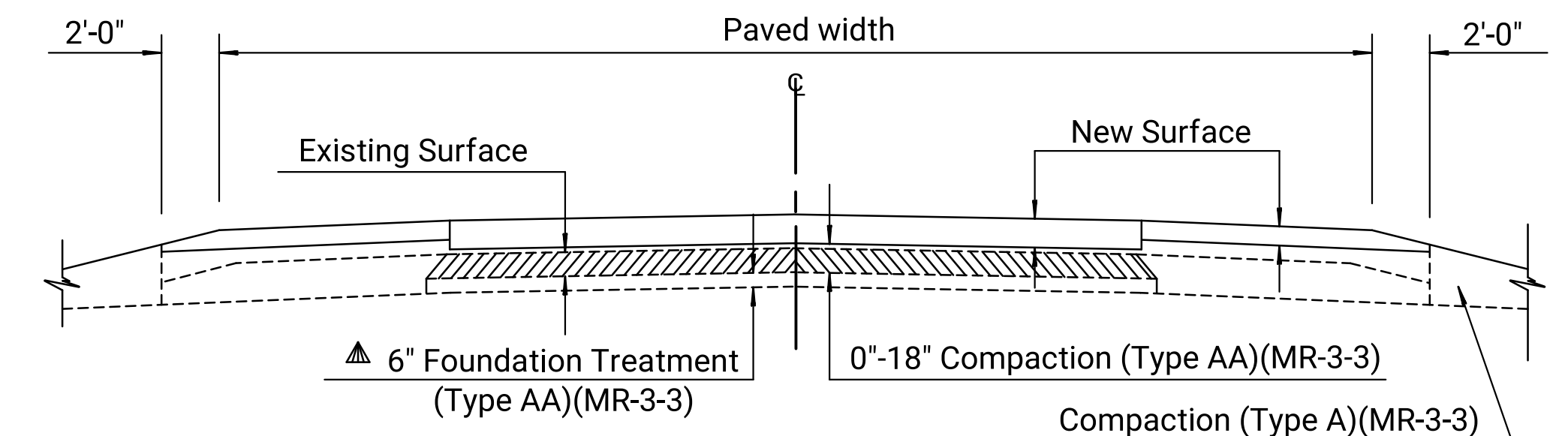
- ⊗ Excavation thru Cuts not Subgraded
- ⊗⊗ The lower 6" of Compaction is subsidiary.
- ▲ Compaction of this material shall be subsidiary.



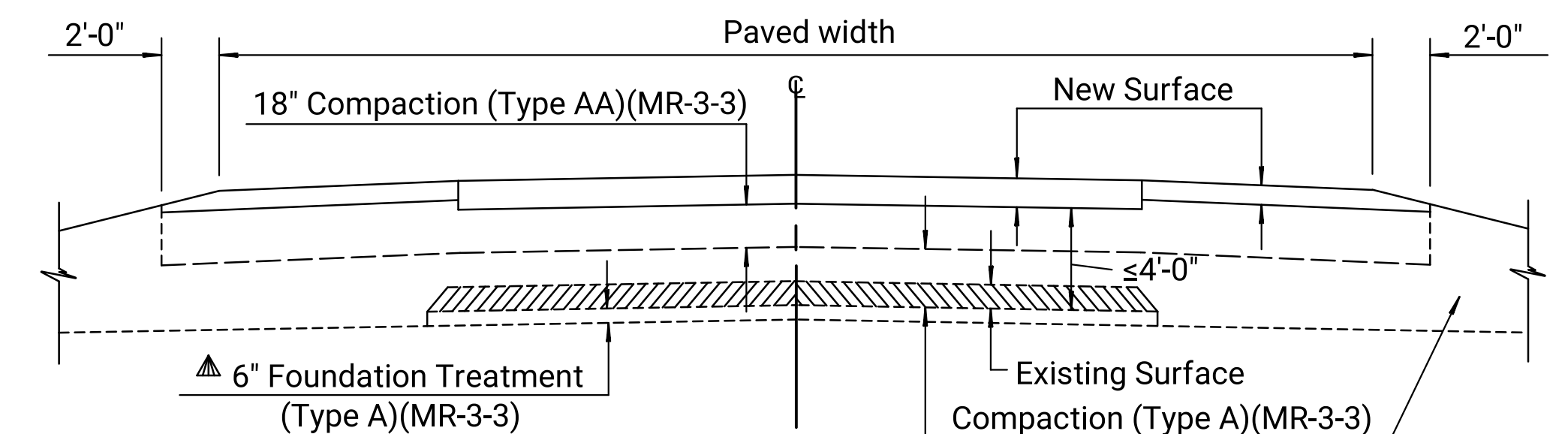
SECTION A-A



SECTION B-B

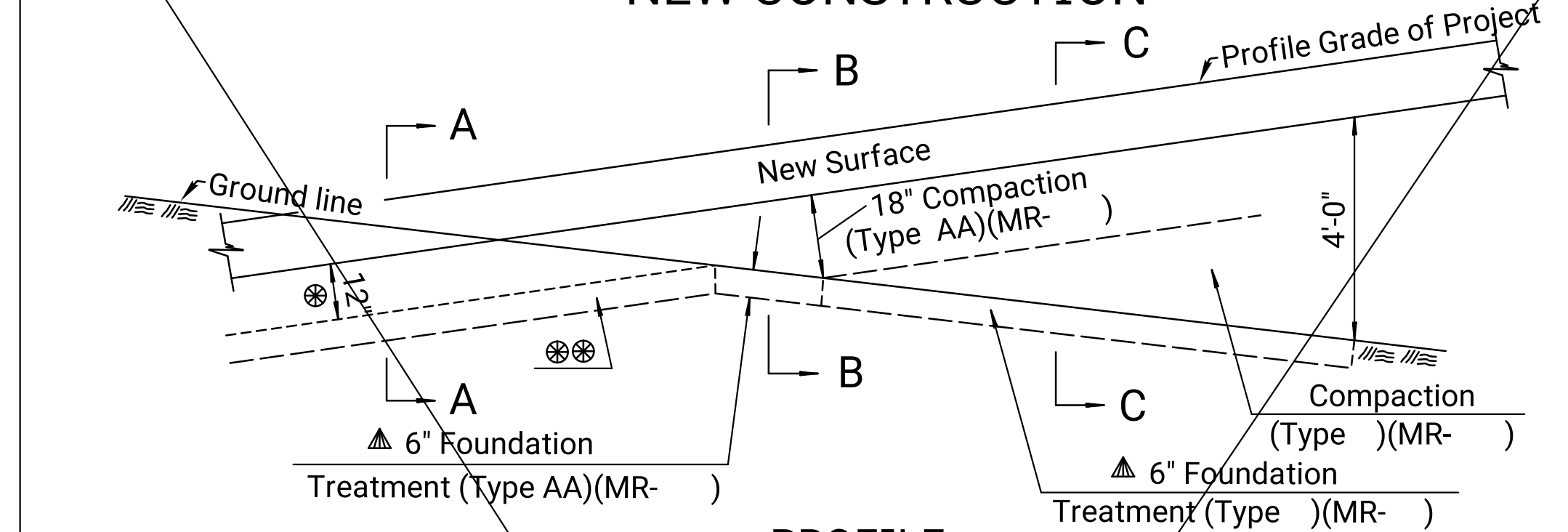


SECTION C-C



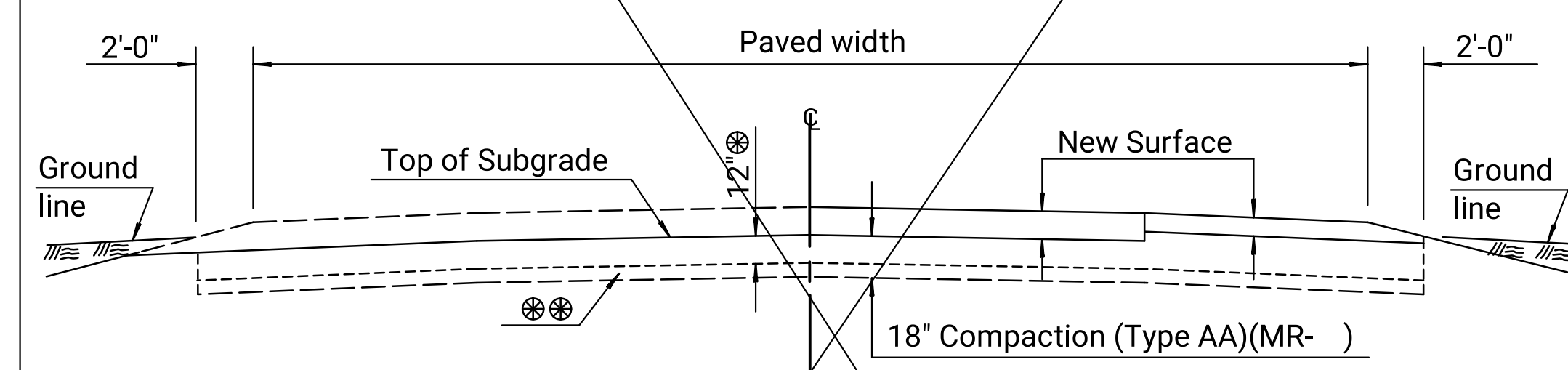
SECTION D-D

NEW CONSTRUCTION

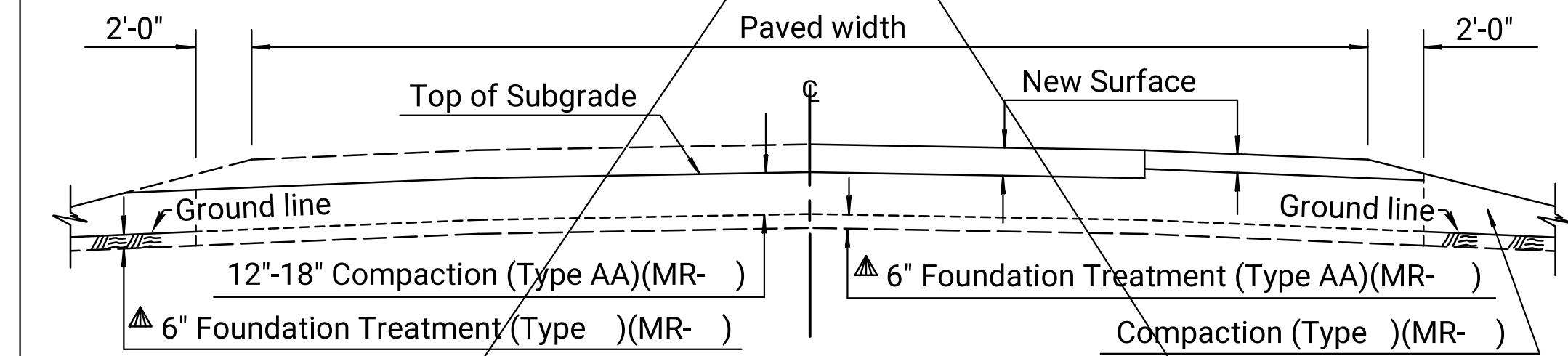


PROFILE

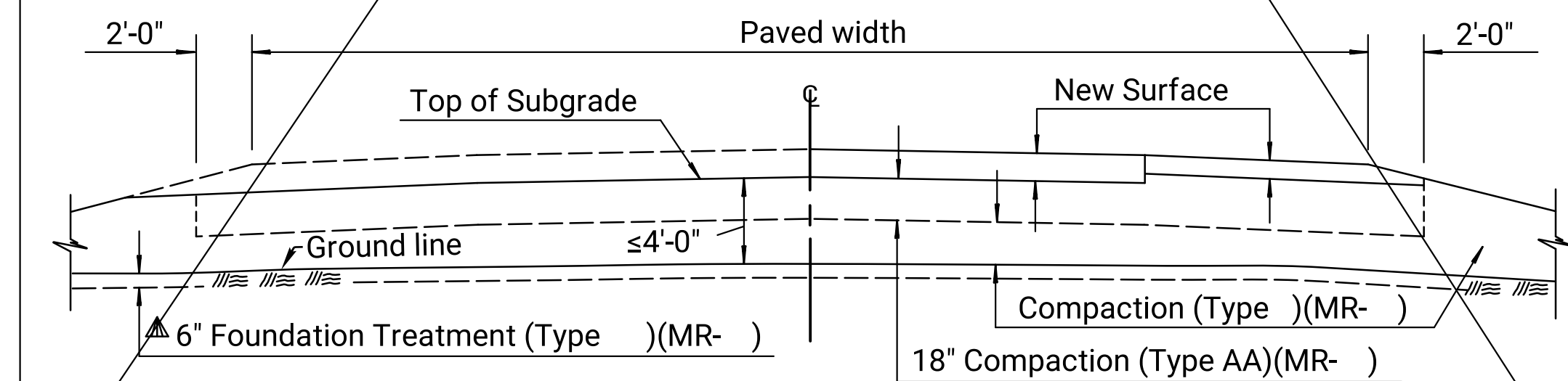
- ⊗ Excavation thru Cuts not Subgraded
- ⊗⊗ The lower 6" of Compaction is subsidiary.
- ▲ Compaction of this material shall be subsidiary.



SECTION A-A



SECTION B-B



SECTION C-C

General Note

For materials designated to be subgraded, compaction of soils, including shales, designated for backfill refer to Standard Drawing RD605A for details.

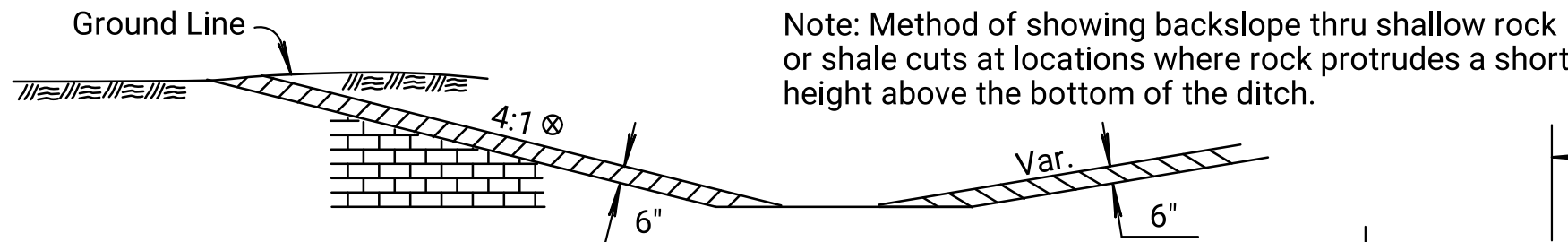
Unless otherwise noted on the Plans, compact all embankment, including side roads and entrances.

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	ST-2306	2025	4	139

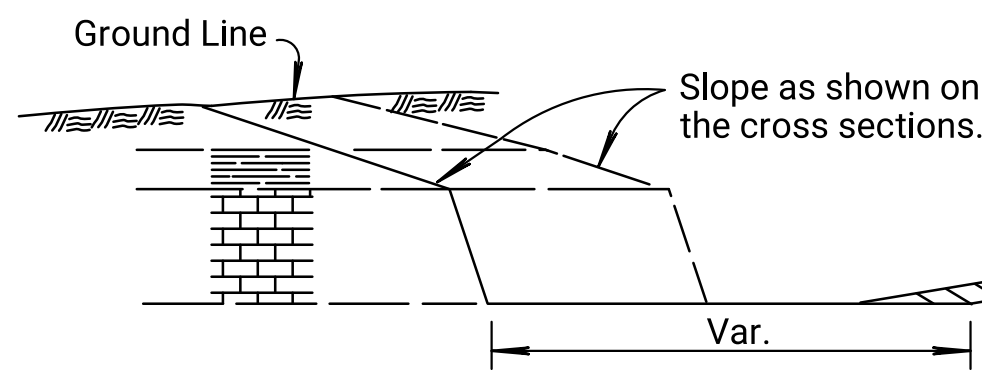
05	10-17-11	Revised General Note	S.W.K.	J.O.B.
04	01-05-10	Added additional subsidiary comp.	S.W.K.	J.O.B.
03	02-16-05	Redrawn, Rev. Recon. Sec. C-C & D-D	S.W.K.	J.O.B.
NO.	DATE	REVISIONS	BY	APPD
KANSAS DEPARTMENT OF TRANSPORTATION				
FOUNDATION TREATMENT & COMPACTION OF EARTHWORK				
RD605				
FHWA APPROVAL		12-05-11	APPD.	James O. Brewer
DESIGNED	DETAILED	QUANTITIES	TRACED	
DESIGN CK.	DETAIL CK.	QUAN. CK.	TRACE CK.	

Plotted by : Riley Standish
File : ST2306rss-599.dgn
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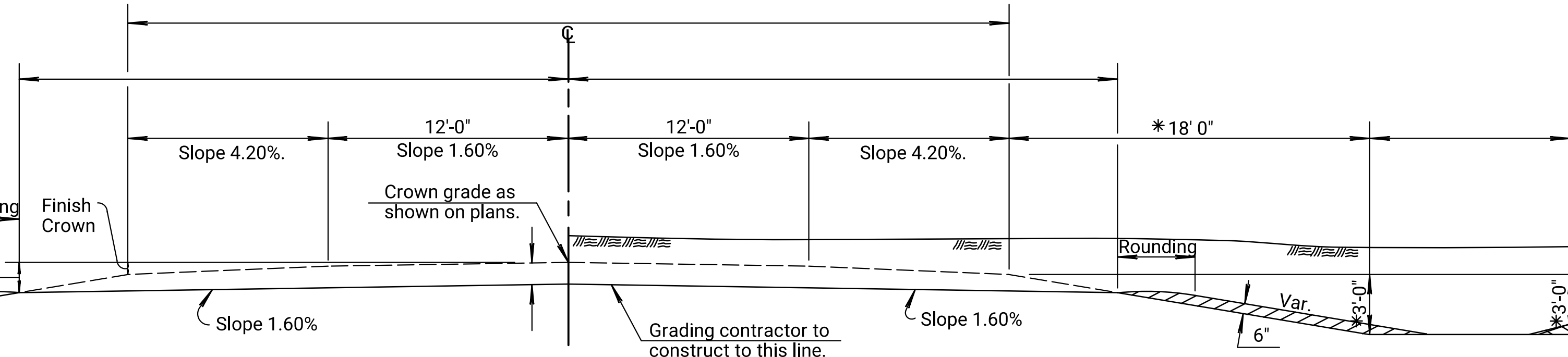
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	ST-2306	2025	5	139



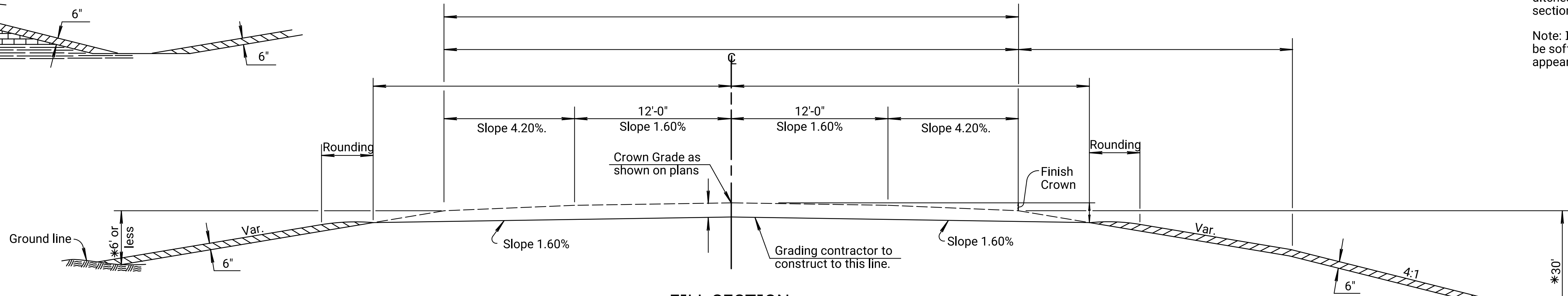
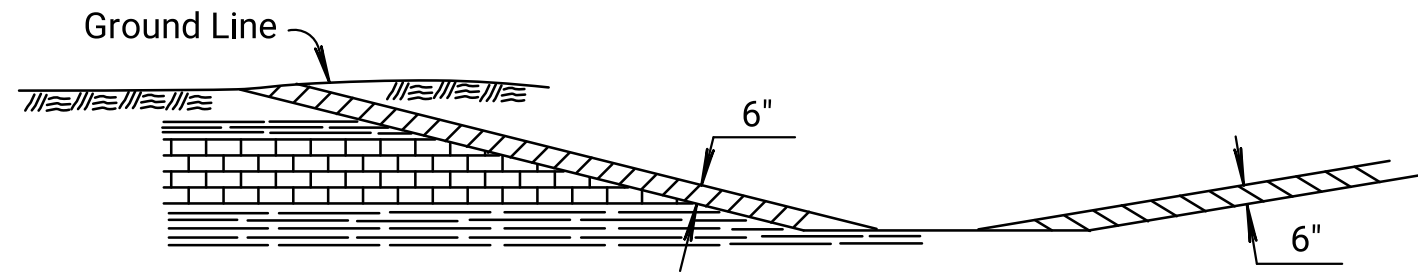
⊗ Slope to be 3:1 when depth of cut is 20' or more.



CUT SECTION

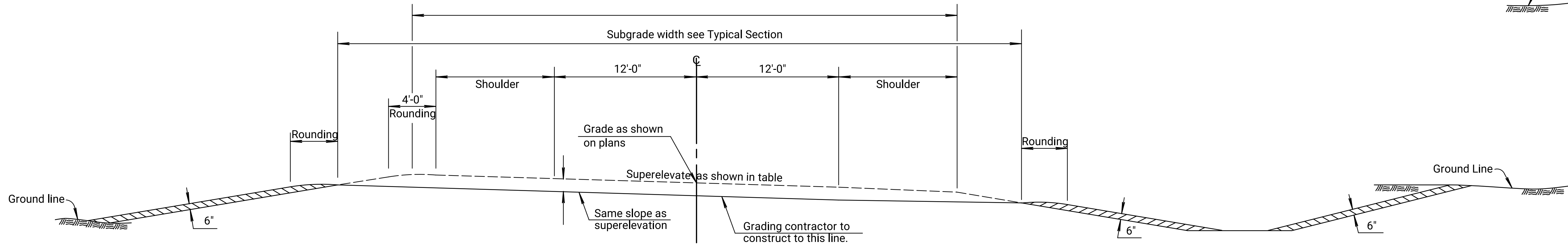


CUT SECTION



FILL SECTION

* Dimensions and slopes for standard ditches and fills. See plan and cross-sections for variations.
Note: Intersection of all slope lines shall be softened and rounded for pleasing appearance.



SUPERELEVATED SECTION

LEGEND
Select soil

07	11-10-04	Changed slope labels to percent	S.W.K.	J.O.B.
06	02-18-98	Revised fill foreslope details	R.J.S.	J.O.B.
05	06-07-95	Revised Super Shoulder	R.J.S.	J.O.B.
NO.	DATE	REVISIONS	BY	APPD

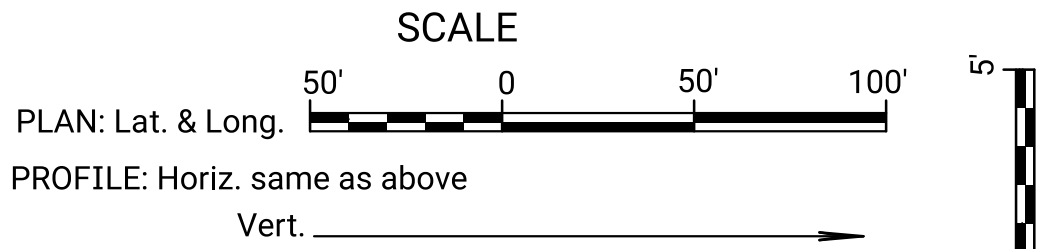
PLACING SELECT SOIL

RD599		06-10-05		APPD.	James O. Brewer
DESIGNED	DETAILED	QUANTITIES	TRACED	B.N.B.	
DESIGN CK.	DETAIL CK.	QUAN. CK.	TRACE CK.	W.L.H.	

DATE	2024
BY	R. Standish - PEC W. Nyberg - PEC
REFERENCES NOTED	
REFERENCES CHECKED	

Plotted by : Riley Standish
File : ST2306rpi-01.dgn
8-JUL-2025 16:15

GENERAL NOTE
THE GEOLOGICAL INFORMATION SHOWN ON THESE PLANS IS FROM STUDIES MADE IN THE FIELD AND REPRESENTS THE BEST INFORMATION AVAILABLE TO THE CITY OF DODGE CITY.
SOIL FOR EMBANKMENT CONSTRUCTION: ALL SOIL USED IN THE TOP 18 INCHES OF THE EMBANKMENT SHOULD CONFORM TO THE FOLLOWING REQUIREMENTS: 6 ± PI ± 30 AND 20 ± LL ± 50. SOILS WHICH CONTAIN SUBSTANTIAL ORGANIC MATTER, SUCH AS THOSE CLASSIFIED AS OL OR OH ACCORDING TO THE UNIFIED SOIL CLASSIFICATION SYSTEM (ASTM D2487) SHOULD NOT BE USED TO CONSTRUCT THE EMBANKMENT OR SUBGRADE. THE ORGANIC MATERIAL MAY BE USED AS SELECT SOIL TO CAP THE SIDESLOPES OF THE EMBANKMENT.
A GROSS VMF OF 0.83 WAS USED TO COMPUTE EARTHWORK QUANTITIES FOR THIS PROJECT. THIS FACTOR INCLUDES QUANTITIES FOR INITIAL CONSOLIDATION AND SETTLEMENT.
ALL BORROW AREA LOCATIONS ADJACENT TO THE RIGHT-OF-WAY, UTILITY POLES MAY BE SET AT THE PERMANENT LOCATIONS PRIOR TO CONSTRUCTION AS APPROVED BY THE ENGINEER PROVIDED A MINIMUM VERTICAL CLEARANCE, IN ACCORDANCE WITH THE NATIONAL ELECTRICAL SAFETY CODE, IS OBTAINED. THE CONTRACTOR WILL BE REQUIRED TO WORK AROUND THESE POLES TO COMPLETE THE WORK.
ALL BORROW TO BE OBTAINED FROM AREAS PROVIDED BY THE CONTRACTOR SHALL BE APPROVED BY THE ENGINEER, BOTH AS TO SUITABILITY OF MATERIAL AND SITE LOCATION. LOCATIONS WHICH, IN THE OPINION OF THE ENGINEER, CONTAIN UNSUITABLE MATERIAL OR WILL LEAVE AN UNSIGHTLY APPEARANCE ON THE PROJECT WILL NOT BE APPROVED.
ALL BORROW/WASTE LOCATIONS SHALL BE SUBMITTED FOR CLEARANCE FROM THE KANSAS HISTORICAL SOCIETY AND THE KANSAS DEPARTMENT OF WILDLIFE AND PARKS PRIOR TO ANY EXCAVATION OR WASTING OF MATERIAL. THE CONTRACTOR IS RESPONSIBLE FOR ACQUIRING ANY PERMITS AND OTHER CLEARANCES THAT ARE REQUIRED.
EXCAVATION SHOWN TO WASTED SHALL BE WASTED ON SITES PROVIDED BY THE CONTRACTOR. THESE SITES SHALL BE APPROVED BY THE ENGINEER AS TO SUITABILITY, APPEARANCE, AND SITE LOCATION. LOCATIONS THAT, IN THE OPINION OF THE ENGINEER, WILL LEAVE AN UNSIGHTLY APPEARANCE WILL NOT BE APPROVED.
ALL TREES, HEDGE ROWS, SHELTER BELTS, AND WOODY SHRUBS NOT SHOWN TO BE REMOVED AND LOCATED BETWEEN THE CONSTRUCTION LIMITS AND RIGHT-OF-WAY LINE OR EASMENT LINE SHALL BE SPARED UNLESS DIRECTED BY THE ENGINEER TO BE REMOVED. ALL TREES WITHIN THE APPROPRIATE CLEAR ZONE SHALL BE REMOVED.
INFORMATION SHOWN IN THE PLANS CONCERNING TYPE AND LOCATION OF UNDERGROUND UTILITIES IS NOT GUARANTEED TO BE ACCURATE OR ALL INCLUSIVE. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO DETERMINE THE TYPE AND LOCATION OF UNDERGROUND UTILITIES AS MAY BE NECESSARY TO AVOID DAMAGES THERETO. ALL CITY OF DODGE CITY OWNED UTILITIES ARE TO BE LOCATED BY THE CONTRACTOR.
THE CONTRACTOR SHALL USE KANSAS DEPARTMENT OF TRANSPORTATION 2015 STANDARD SPECIFICATIONS FOR STATE ROAD AND BRIDGE CONSTRUCTION (LATEST REVISIONS), AND DODGE CITY STANDARD SPECIFICATIONS. IF ANY OF THE SPECIFICATIONS ARE IN DISAGREEMENT, THE CONTRACTOR SHALL USE THE MORE STRINGENT OF THE SPECIFICATIONS. IF ANY SPECIFICATIONS ARE IN DIRECT CONFLICT, THE CONTRACTOR SHALL CONTACT DODGE CITY AND THE ENGINEER OF RECORD FOR THE RESOLUTION. USE KANSAS DEPARTMENT OF TRANSPORTATION'S PREQUALIFIED MATERIALS LIST FOR ALL MATERIALS USED DURING CONSTRUCTION. ANY REPORTS WRITTEN SPECIFICALLY FOR THE PROJECT, OR ANY GENERAL NOTE SHALL OVERRIDE THE SPECIFICATIONS.



PROJECT SURVEY CONTROL

Horizontal Project Datum:
Kansas Regional Coordinate System
NAD83(2011) Zone 14: Dodge City

Vertical Datum:
North American Vertical Datum of 1988 (NAVD88)

Datum Benchmark:
BM #10 Elev. = 2,487.06

Utility Owners

Communications:
United Telephone Assn., Inc.
1107 W. McArtor Rd.
Dodge City, KS 67801
(620) 227-8641
Contact: Nate Slattery

AT&T Engineering
208 Gunsmoke St.
Dodge City, KS 67801
(620) 227-4980
Contact: Mitch Brenner

Cox Communications
901 S. George Washington Blvd.
Wichita, KS 67211
(316) 260-7491
Contact: James Walburn

Zayo Group
1895 29th St, Ste 20250
Boulder, CO 80301
(866) 364-6033

Gas:
Black Hills Energy
3232 N. 14th Ave.
P.O. Box 1180
Dodge City, KS 67801
(620) 227-4368
Contact: Gerald Miller
24 hr. Emergency # - 1-800-303-3057

Water:
City of Dodge City
100 Chaffin Rd.
P.O. Box 880
Dodge City, KS 67801
(620) 225-8176
Contact: Corey Keller
Kody Stockton
24 hr. Emergency # - (620) 255-9669

Power:
Victory Electric Coop Assn., Inc.
3230 N. 14th Ave.
P.O. Box 1335
Dodge City, KS 67801
(620) 227-2139
Contact: Ryan Miller
24 hr. Emergency #'s - (620) 338-3755
(620) 338-3007

Sewer:
City of Dodge City
100 Chaffin Rd.
P.O. Box 880
Dodge City, KS 67801
(620) 225-8176
Contact: Leonel Ibarra
Kody Stockton
24 hr. Emergency # - (620) 255-9669

Office Location
P.O.T. @ N. Bd. Lanes Sta. 86+00.00
N 360,751.691 E 14,394,035.246
1. Not Set

Office Location
P.C. @ N. Bd. Lanes Sta. 91+70.00
N 361,321.618 E 14,394,044.358
1. Not Set

Office Location
P.I. @ N. Bd. Lanes Sta. 92+65.94 (Bk.) = 92+65.91 (Ahd.)
N 361,150.896 E 14,394,001.891
Δ = 02°23'22" (Rt.)
N 361,417.544 E 14,394,045.892
1. Not Set

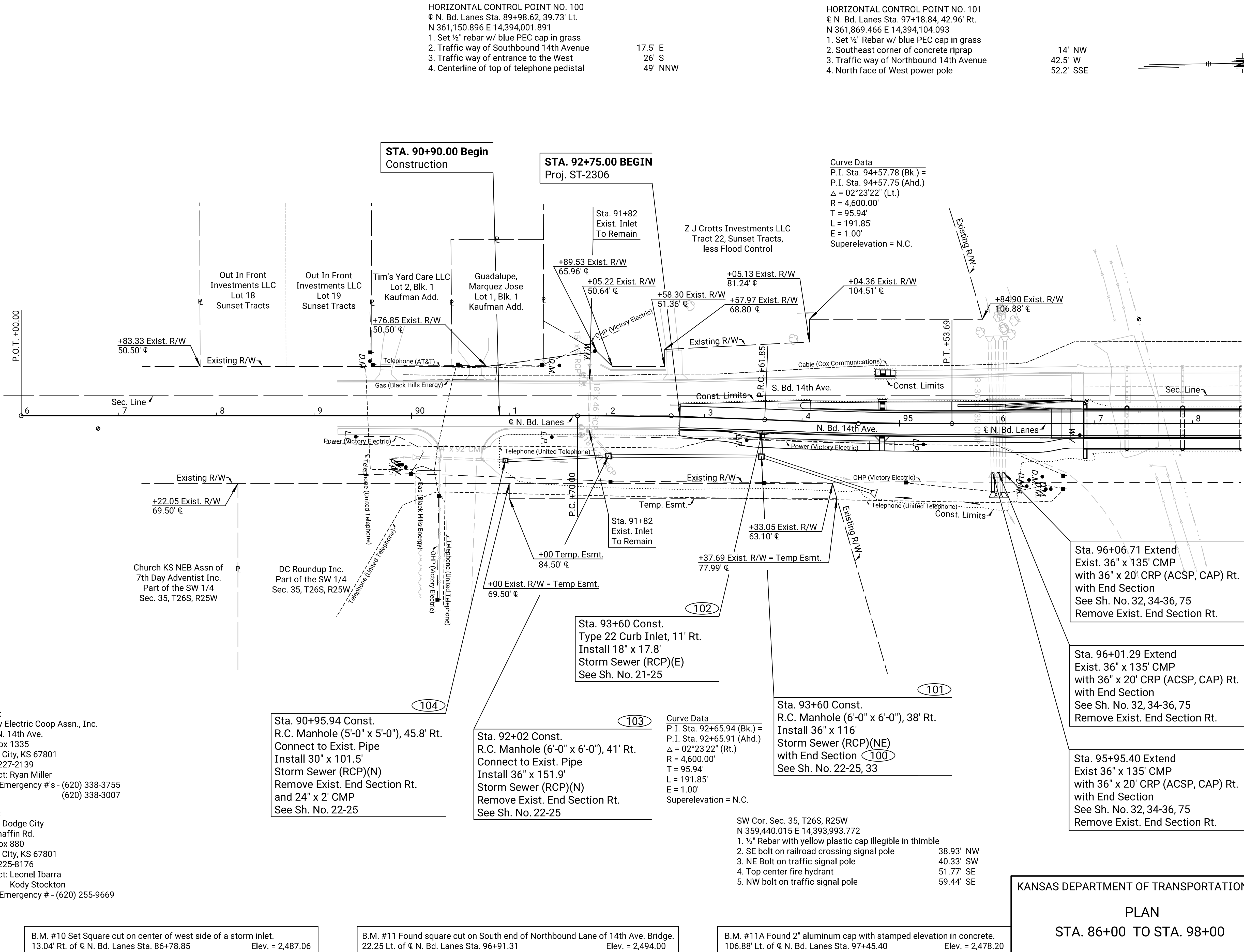
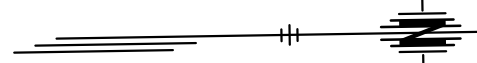
Office Location
P.R.C. @ N. Bd. Lanes Sta. 93+61.85
N 361,513.322 E 14,394,051.424
1. Not Set

Office Location
P.I. @ N. Bd. Lanes Sta. 94+57.78 (Bk.) = 94+57.75 (Ahd.)
Δ = 02°23'22" (Lt.)
N 361,609.099 E 14,394,056.956
1. Not Set

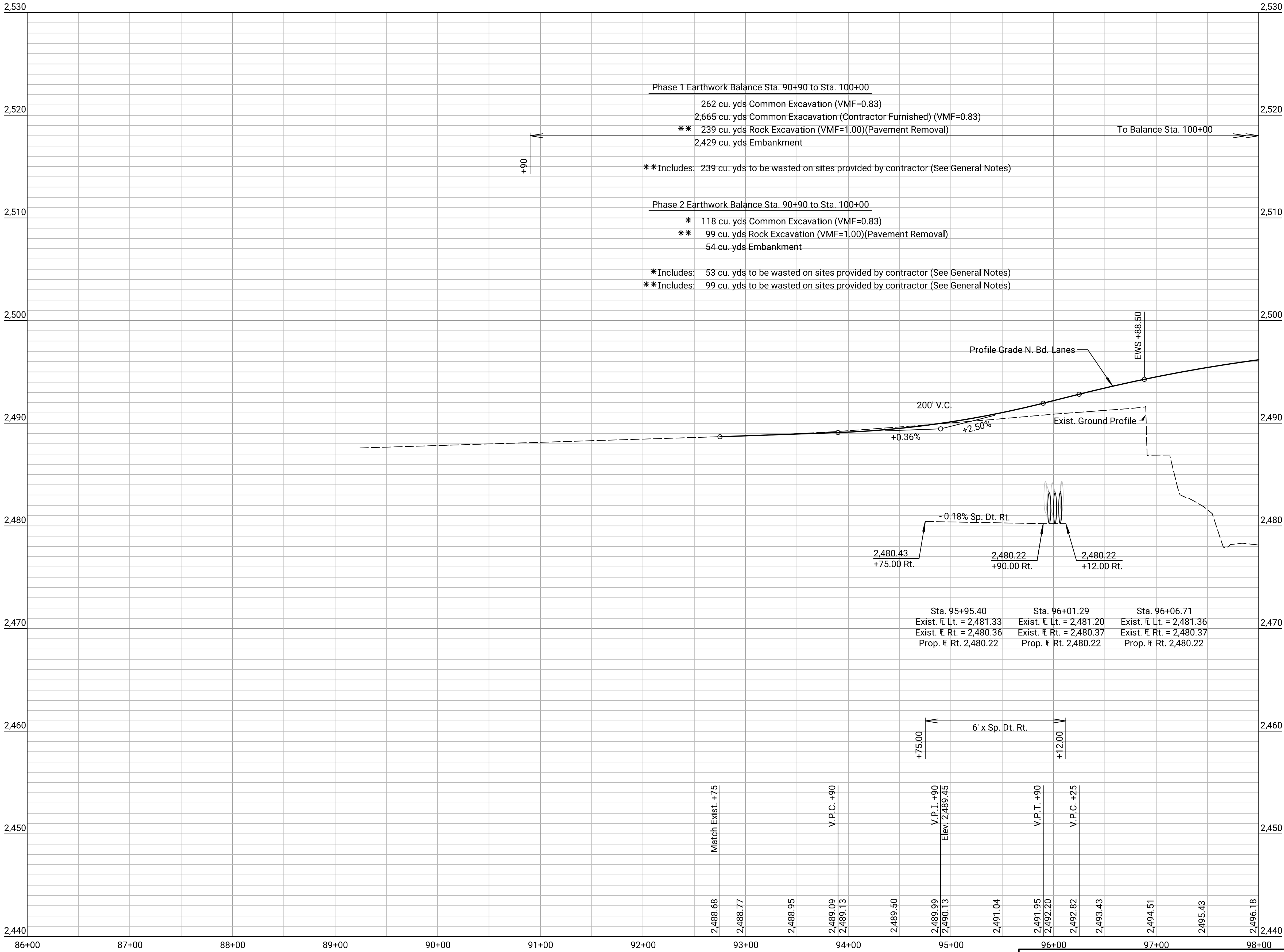
Office Location
P.T. @ N. Bd. Lanes Sta. 95+53.69
N 361,705.025 E 14,394,058.489
1. Not Set

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	ST-2306	2025	6	139

14' NW
42.5' W
52.2' SSE



STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	ST-2306	2025	7	139



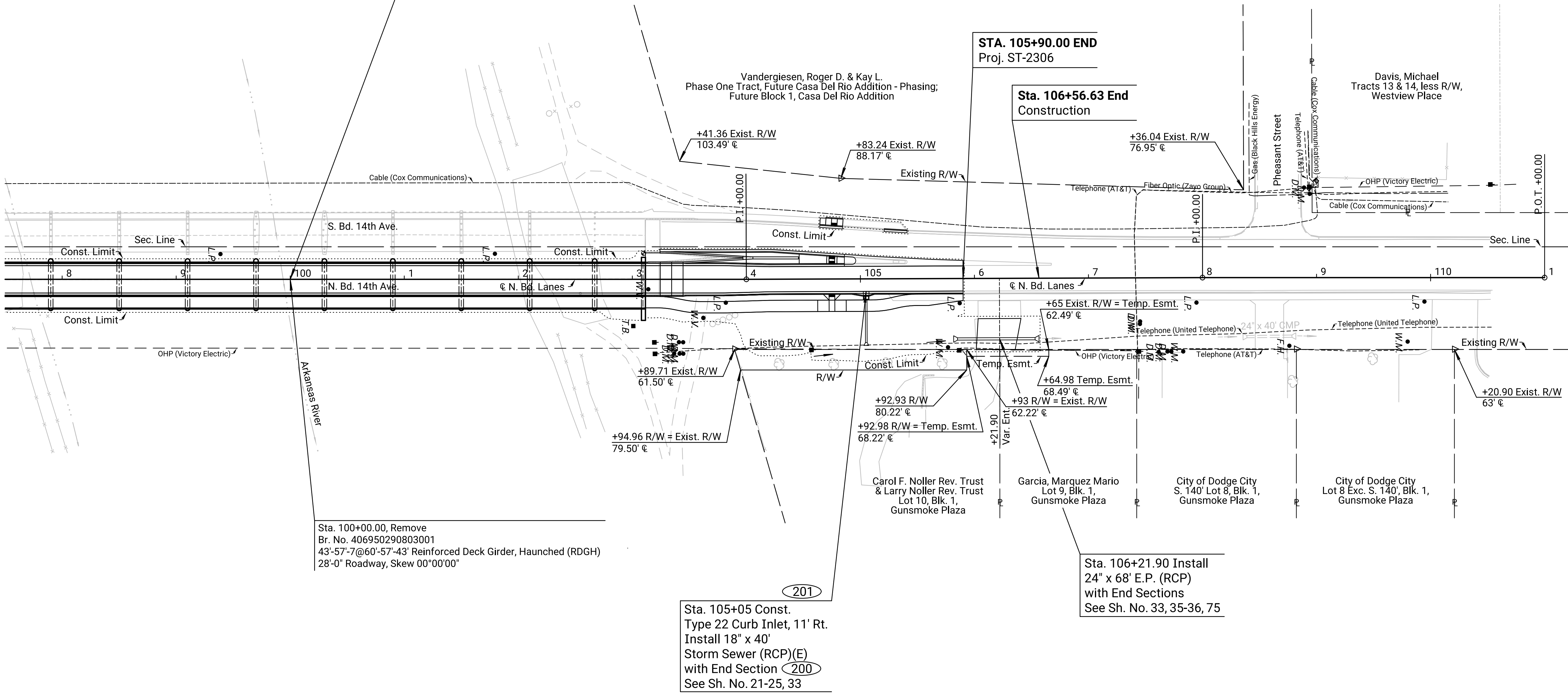
KANSAS DEPARTMENT OF TRANSPORTATION

PROFILE
STA. 86+00 TO STA. 98+00

DATE	BY	REFERENCES NOTED	REFERENCES CHECKED
2024	R. Standish - PEC		
2024	W. Nyberg - PEC		

Plotted by : Riley Standish
File : ST2306rpl-02.dgn
8-JUL-2025 16:16

Utility Owners	
Telephone	United Telephone
Telephone	AT&T
Telephone	Cox Communications
Fiber Optic	Zayo Group
Gas	Black Hills Energy
Water/Sewer	City of Dodge City
Power	Victory Electric



HORIZONTAL CONTROL POINT NO. 102
¢ N. Bd. Lanes 102+90.70, 36.66' Rt.
N 362,441.341 E 14,394,106.930
1. Set ½" Rebar w/ blue PEC cap in grass
2. Traffic Way of Northbound 14th Avenue
3. Southwest corner of USGS gauging station base
4. Northeast corner of concrete riprap
37' W
8.4' NNE
10.5 SSW

Office Location
P.I. ¢ N. Bd. Lanes Sta. 108+00.00 (No Curve)
Δ = 00°12'53" (Rt.)
N 362,951.192 E 14,394,076.913
1. Not Set
Office Location
P.O.T. ¢ N. Bd. Lanes Sta. 111+00.00
N 363,251.154 E 14,394,081.709
1. Not Set
HORIZONTAL CONTROL POINT NO. 103
¢ N. Bd. 14th Lanes 108+38.18, 24.64' Rt.
N 362,988.976 E 14,394,102.162
1. Set ½" Rebar w/ blue PEC cap in grass
2. Traffic way of 14th Avenue
3. Traffic way of Pheasant street going west
4. Northeast Corner of light pole base
36' W
30' N
43.1' S

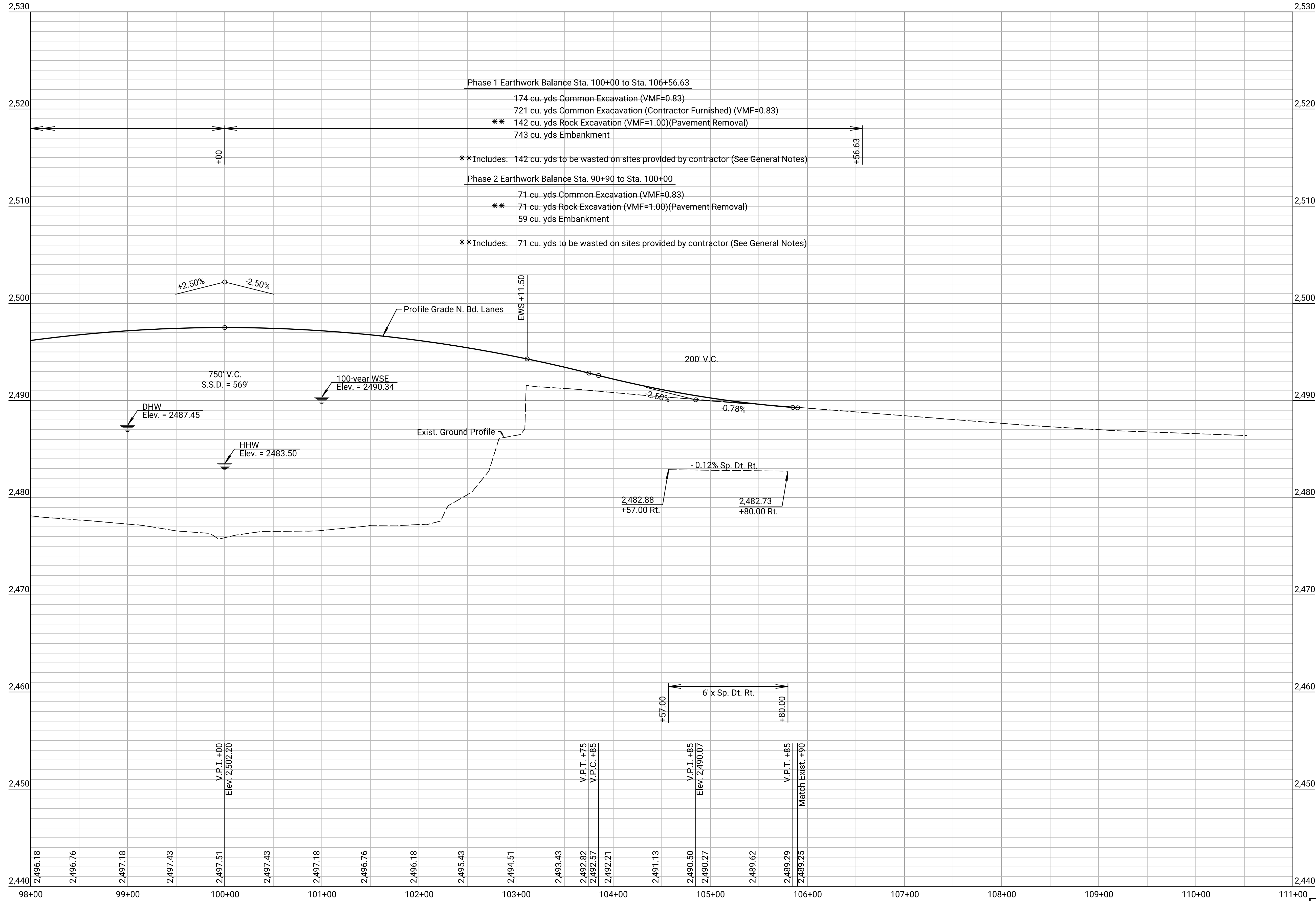
B.M. #12 Found bolt in concrete on North end of Northbound Lane of 14th Ave. Bridge
22.82' Lt. of ¢ N. Bd. Avenue Sta. 103+09.90
Elev. = 2494.07

NW Cor. Sec. 35, T26S, R25W
N 364,697.321 E 14,394,077.828
1. Found ½" Rebar with yellow plastic cap illegible in thimble
2. MAG Nail in SW face of power pole
3. MAG Nail in S face of power pole
4. Spike and washer in N face of power pole
5. Spike and washer in S face of power pole
54.83' SE
51.95' NE
46.09' SW
59.44' NW

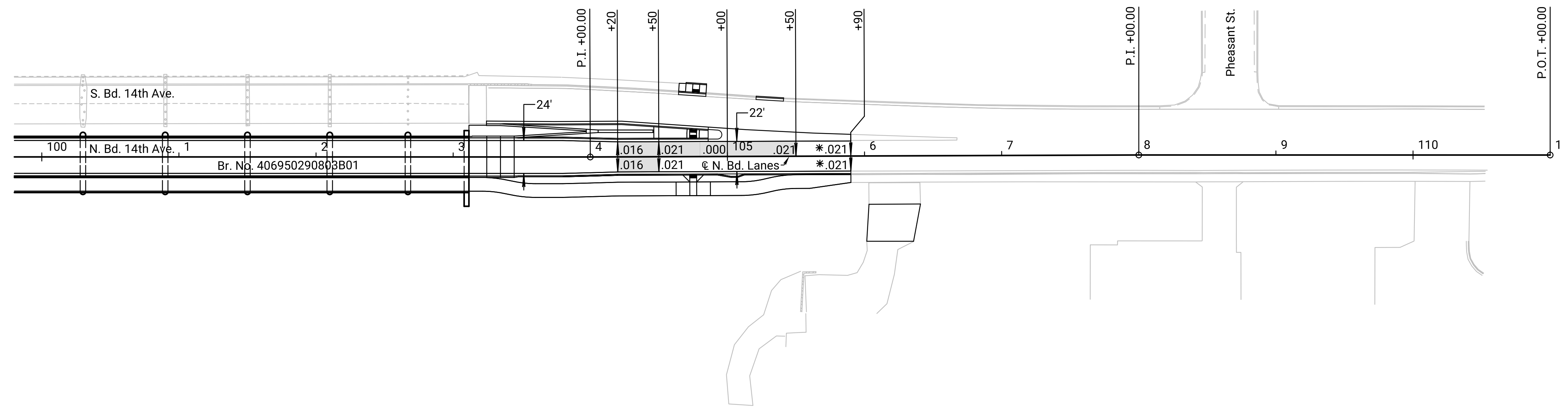
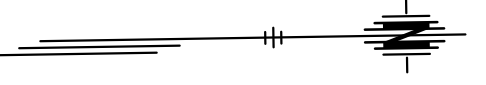
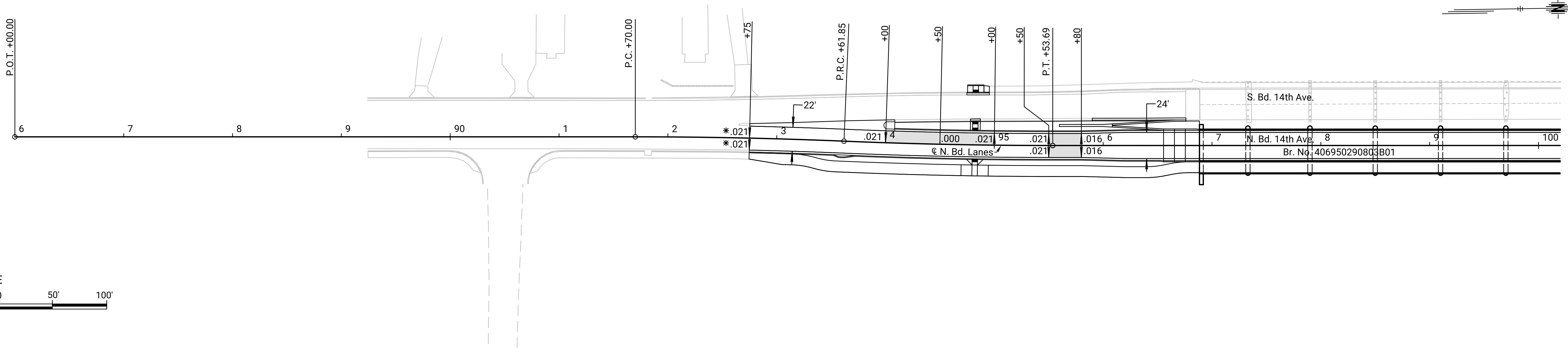
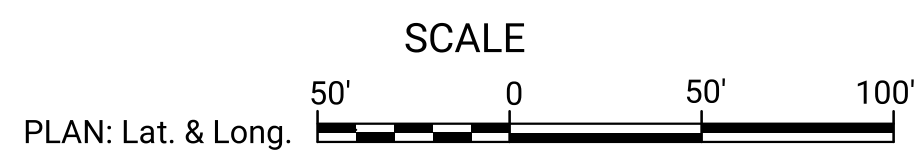
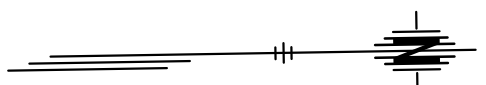
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	ST-2306	2025	8	139

KANSAS DEPARTMENT OF TRANSPORTATION
PLAN
STA. 98+00 TO STA. 111+00

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	ST-2306	2025	9	139



STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	ST-2306	2025	10	139



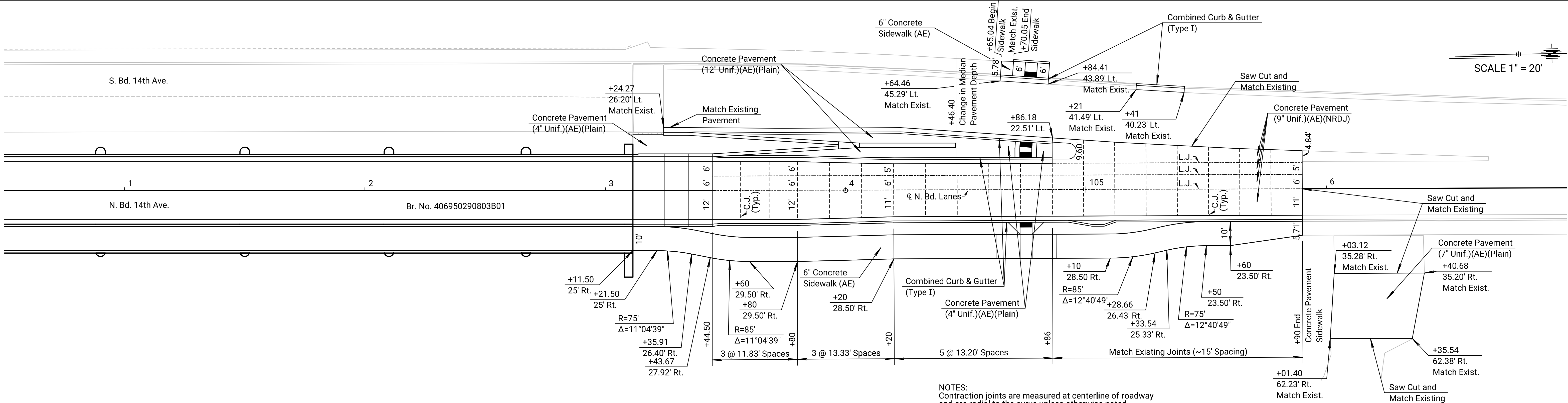
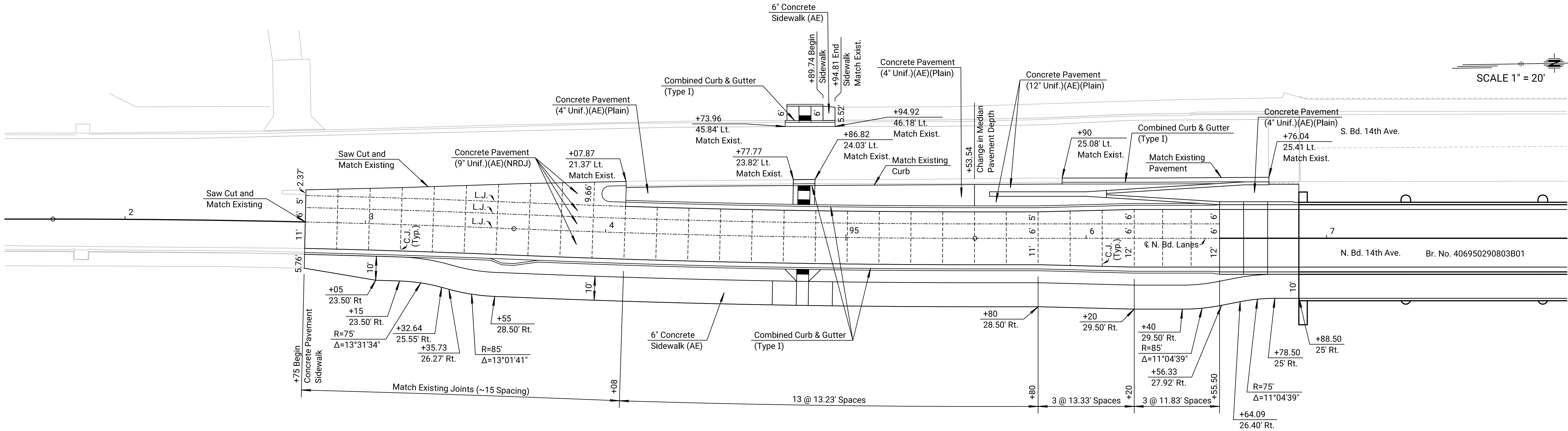
- LEGEND
- SUPERELEVATION TRANSITION FT./FT.
 - * MATCH EXISTING

KANSAS DEPARTMENT OF TRANSPORTATION

SUPERELEVATION PLAN

STA. 92+75 TO STA. 105+90

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	ST-2306	2025	11	139



NOTES:
Contraction joints are measured at centerline of roadway and are radial to the curve unless otherwise noted.

Contraction joint spacing will be 15' maximum along centerline of roadway unless otherwise noted.

Aspect ratio not to exceed 1.25:1 unless otherwise noted.

This layout is the suggested joint plan. The Contractor shall submit a joint plan to the engineer for approval prior to beginning Concrete Pavement Construction.

See Sh. No. 19-20 for Sidewalk Ramp details

LEGEND FOR CONCRETE PAVEMENT
----- Dowled Contraction Joint
----- Longitudinal Joint

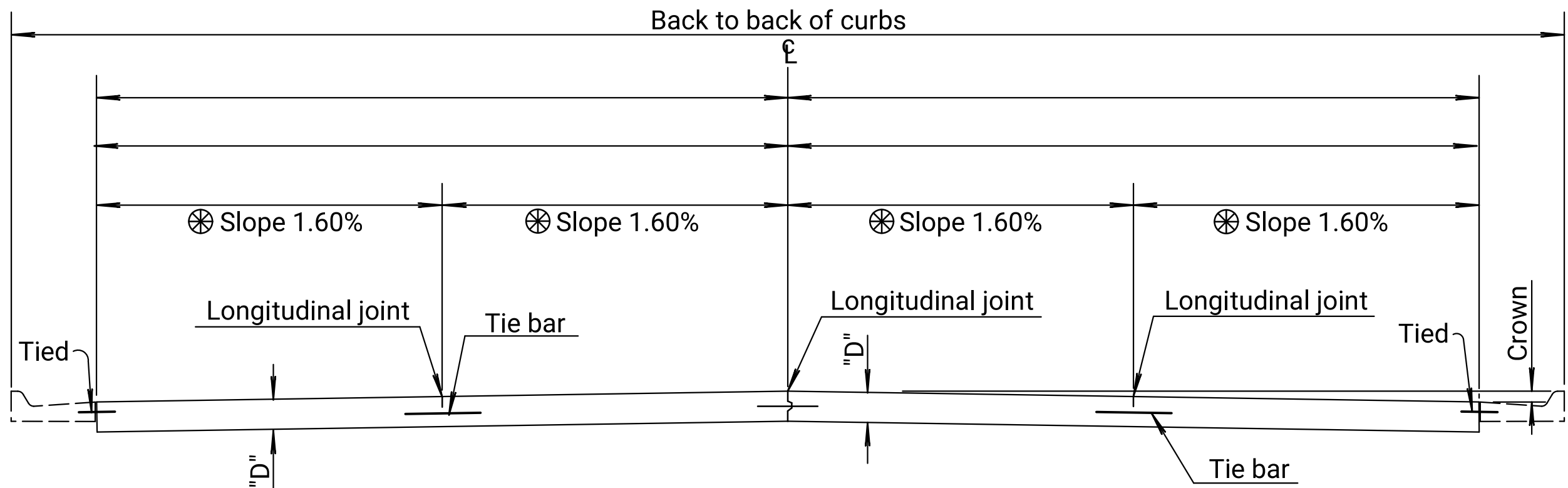
KANSAS DEPARTMENT OF TRANSPORTATION

PAVING DETAIL

STA. 92+75 TO STA. 106+39.07

Note: Designer to add applicable dowel sizes.

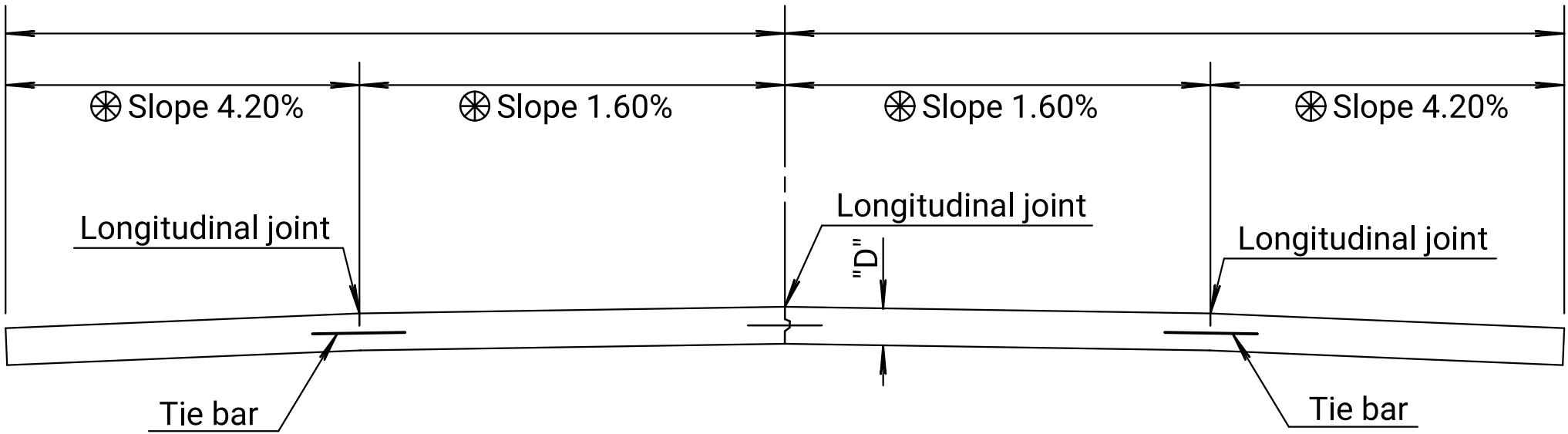
8-JUL-2025 16:18
Plotted by : Riley Standish
File : ST2306rpv-708.dgn



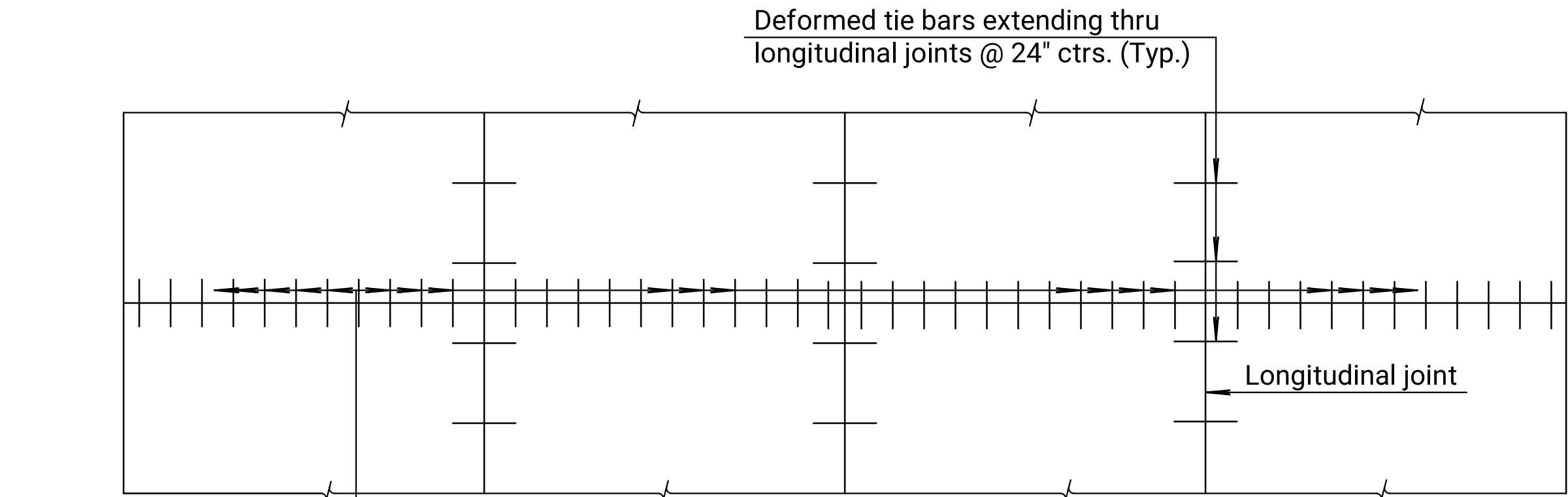
For Curb & Gutter details
See Standard Drawing RD635.

TRANSVERSE SECTION
(4-LANE WITH CURB & GUTTER)

⊗ Normal cross slopes. See Typical Section or
Cross Sections for variations.

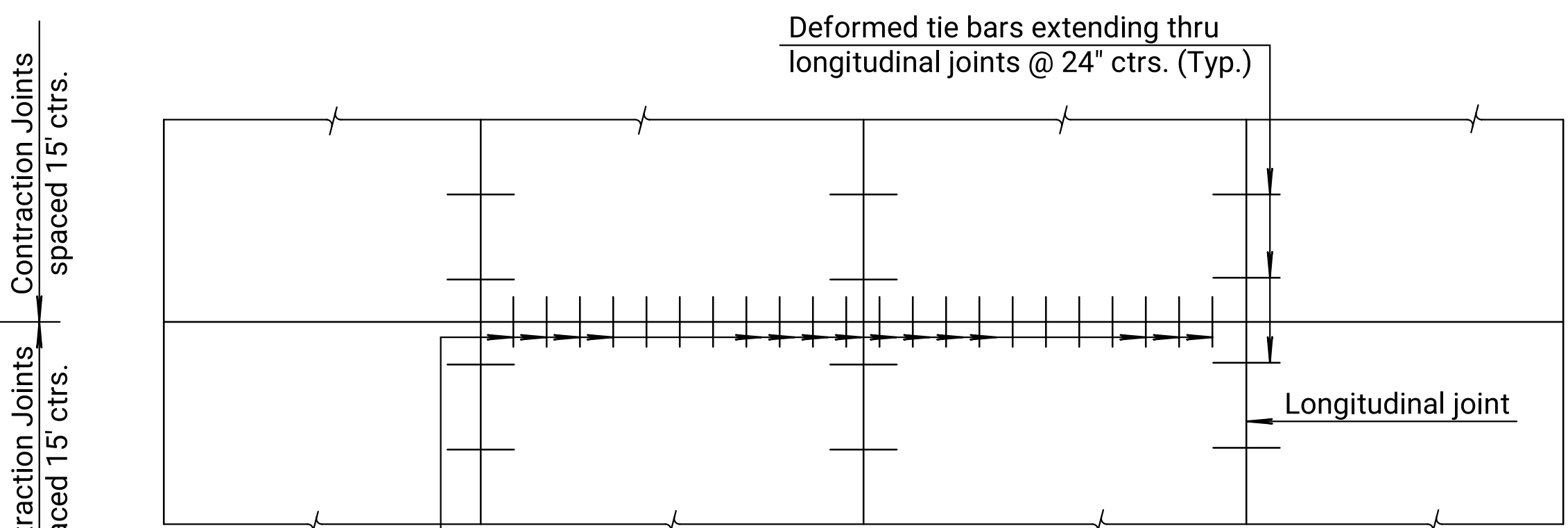


TRANSVERSE SECTION
(2-LANE WITH SHOULDERS)



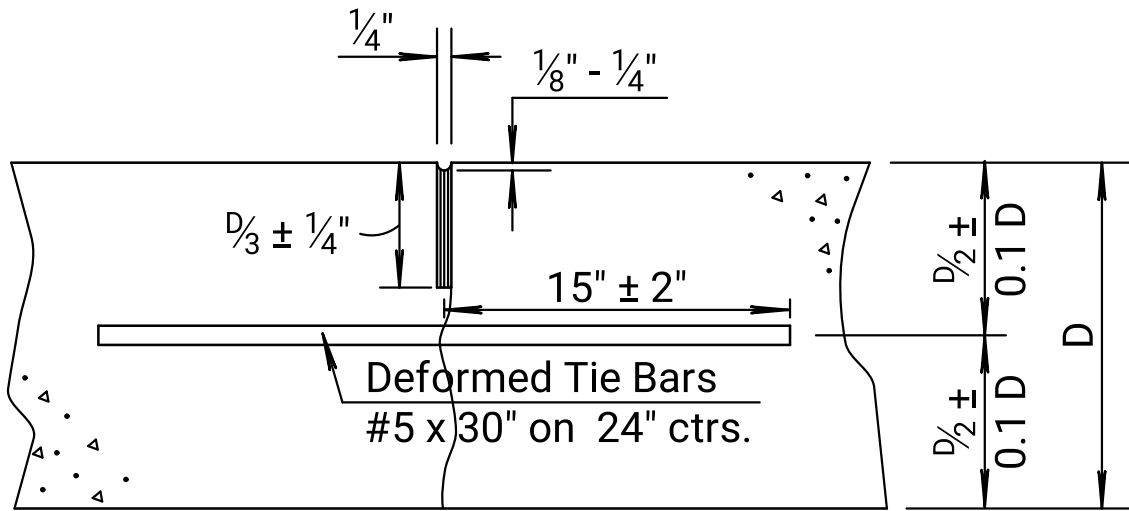
∅ x 18" Smooth Dowel bars
Dowel bars @ 12" ctrs. thru
contraction joint (Typical).

PLAN
(4-LANE WITH CURB & GUTTER)

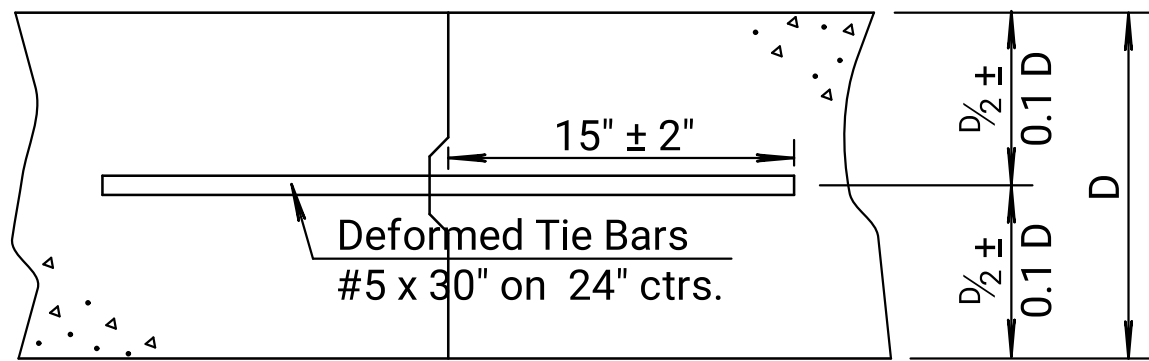


∅ x 18" Smooth Dowel bars
Dowel bars @ 12" ctrs. thru
contraction joint (Typical).

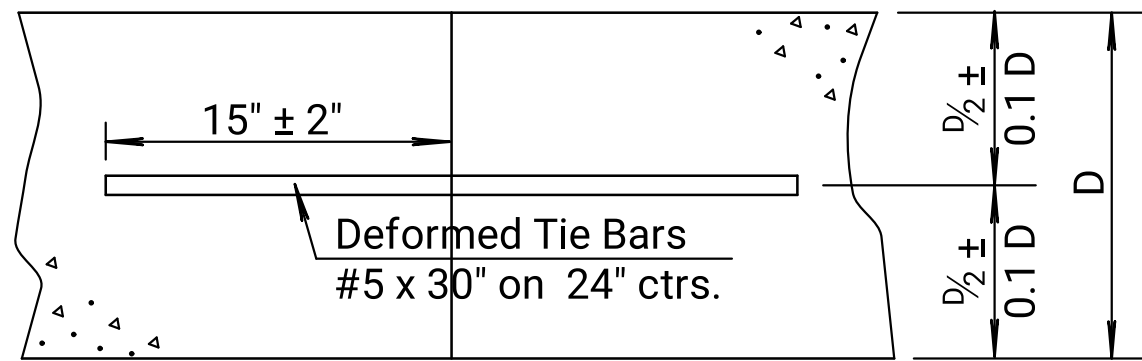
PLAN
(2-LANE WITH SHOULDERS)



Tied Non-Keyed



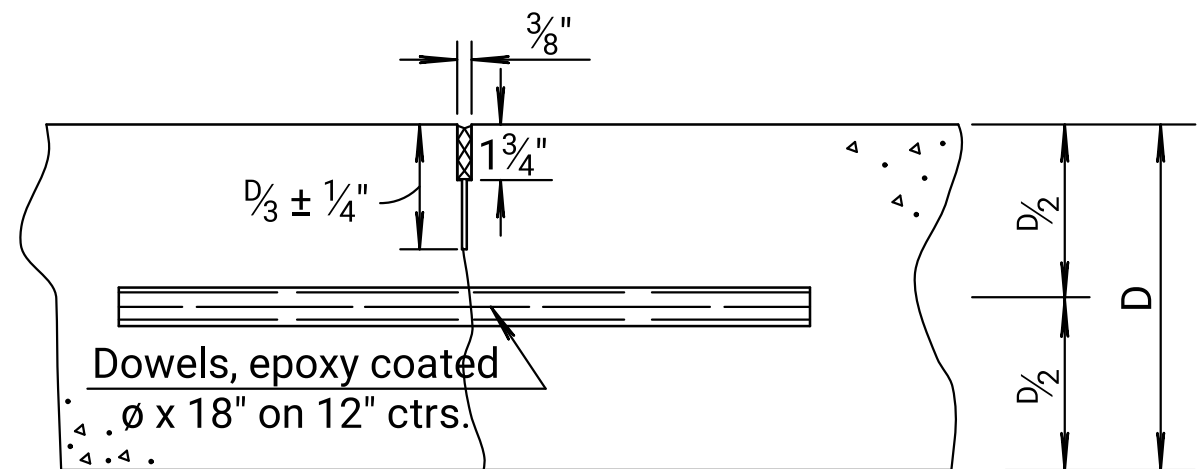
Tied Keyed Construction



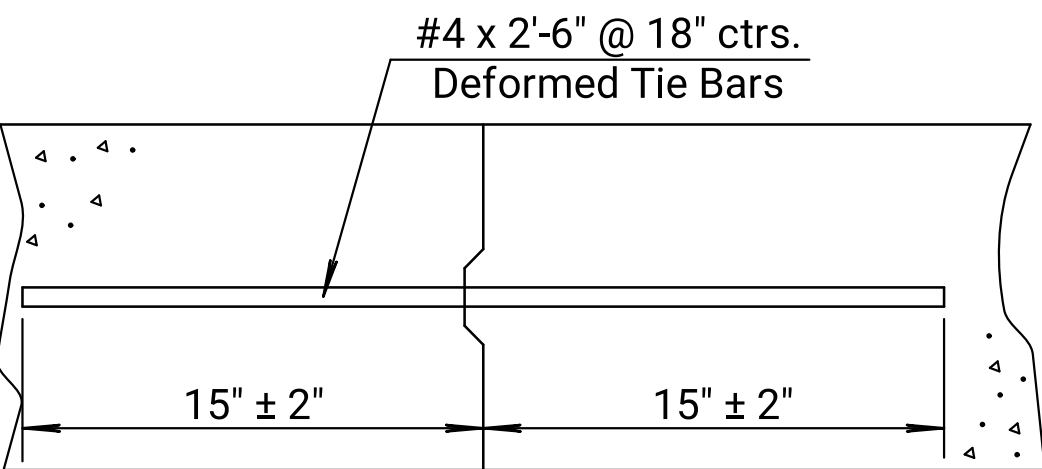
Tied Butt Construction

Note: For longitudinal construction joints the contractor has the option of using either
the keyed or butt type. Place deformed tie bars mid-depth of the shoulder.

LONGITUDINAL JOINTS



Contraction

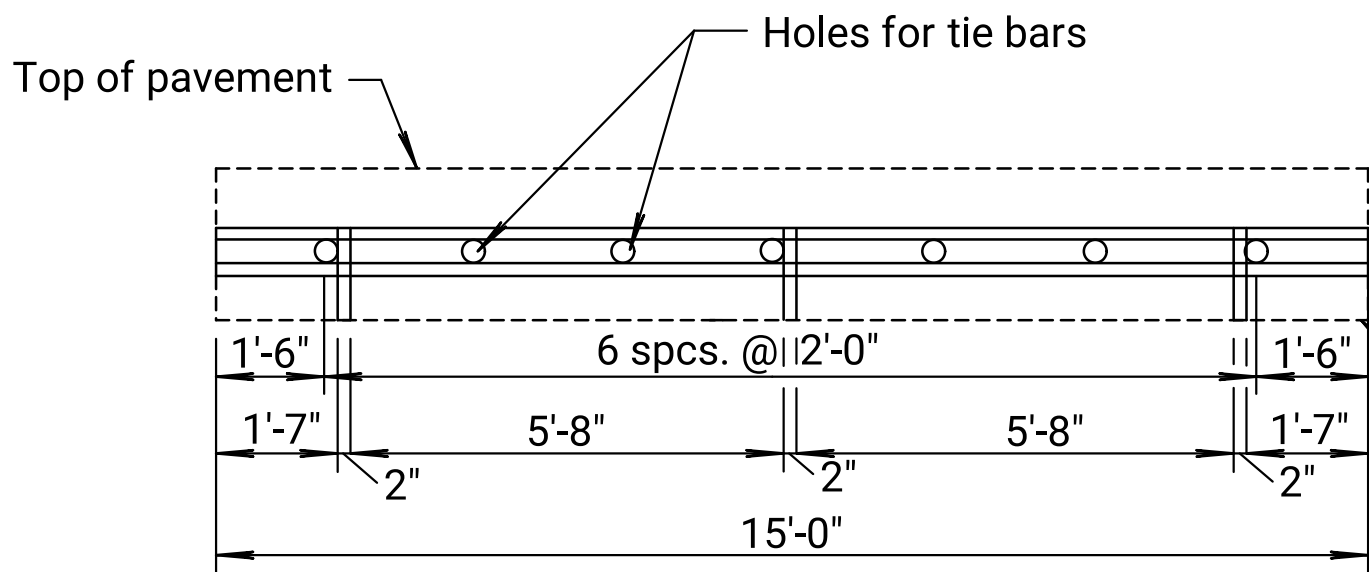


Construction

TRANSVERSE JOINTS

Note: Construct contraction joints at plan locations or at the Engineer's direction.

When necessary to interrupt continuous placement for a substantial length of time or at the end of a day's paving, the Contractor has the option of ending placement at a contraction joint or with a construction joint located a minimum of five (5) feet from a contraction joint. Construct either joint type by placing a header at the end of the pour or by paving past the joint location. After the concrete has hardened, saw joint and drill holes for tie bars or dowels.

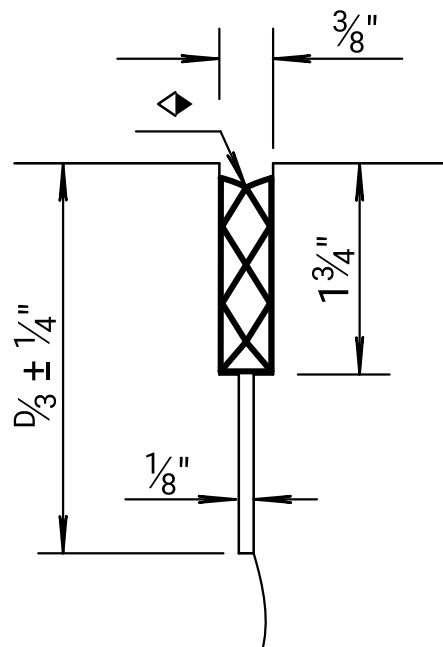


METAL STRIP FOR
LONGITUDINAL CONSTRUCTION JOINT

To be used only against forms, do not extend through contraction joints.

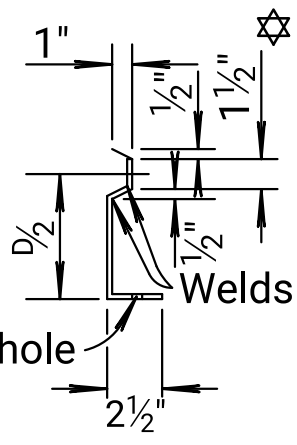
For automated placement tie bars are spaced at uniform 24" centers.

☆ Use snap-in leg or other approved design in lieu of welded leg.



DETAIL OF SEALED
JOINT SAWCUT

Make an initial 1/8" saw cut (D/3 ± 1/4" depth); the second 3/8" saw cut is a separate operation done after concrete has gained sufficient strength to avoid spalling as determined by the Engineer.



SECTION OF
RECESSED
FORM LEG

Epoxy coat all deformed tie bars that are straight. Patch any damage to the epoxy coating in accordance with the Standard Specifications.
Use billet steel Grade 40 reinforcing for deformed tie bars that require bending, may be epoxy coated at the Contractor's option.
Place pressure relief joint at the end of the bridge approach pavement slab (no bars through joint). For details of pressure relief joint see Standard Drawing RD712.
Use load transfer devices as shown in details at all construction joints on mainline pavement unless otherwise noted. Shoulder contraction joints have no dowels unless specifically shown on the plans.
➤ Fill all sawed joints on the project in accordance with the Standard Specifications with the exception of those joints in pavement constructed over Cement or Asphalt Treated Base.
⊗ Use single saw cut, 1/8" wide, joint in pavement constructed over Cement or Asphalt Treated Base (Non-Sealed Joint Sawcut). Use single saw cut, 1/8" wide, joint for shoulder pavement adjacent to mainline pavement constructed over Asphalt or Cement Treated Base (Non-Sealed Joint Sawcut). See detail this sheet.
Shape all keyed joints similar to section of recessed form leg as shown on this sheet.
Evenly space tie bars along the length of slab with no tie bar within 12" of contraction joint. All longitudinal joints are tied.

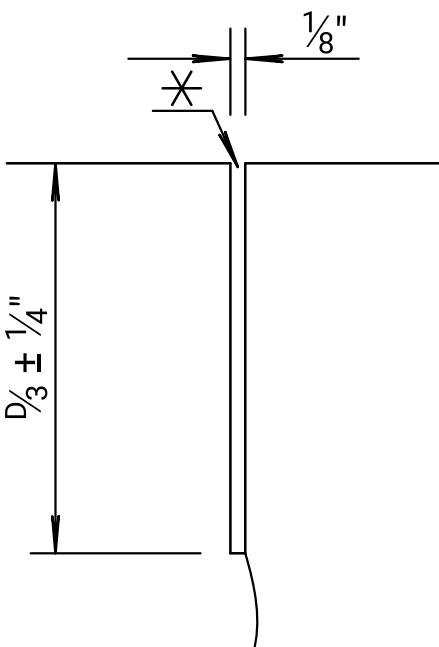
GENERAL NOTE

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	ST-2306	2025	12	139

DOWEL SIZE	
D (in.)	Diameter
6 < D < 9	1"
9 ≤ D < 11	1 1/4"
D ≥ 11	1 1/2"

PAVEMENT DEPTH

D= 9"



DETAIL OF NON-SEALED
JOINT SAWCUT

Make only the initial 1/8" saw cut after concrete has gained sufficient strength to avoid spalling as determined by the Engineer.

19	05-17-13	Revised Note, Longitudinal Joints	S.W.K.	J.O.B.
18	03-21-12	Revised Table, Dowel Size	S.W.K.	J.O.B.
17	01-09-12	Added Detail, Non Sealed Joint	S.W.K.	J.O.B.

NO.	DATE	REVISIONS	BY	APPD
-----	------	-----------	----	------

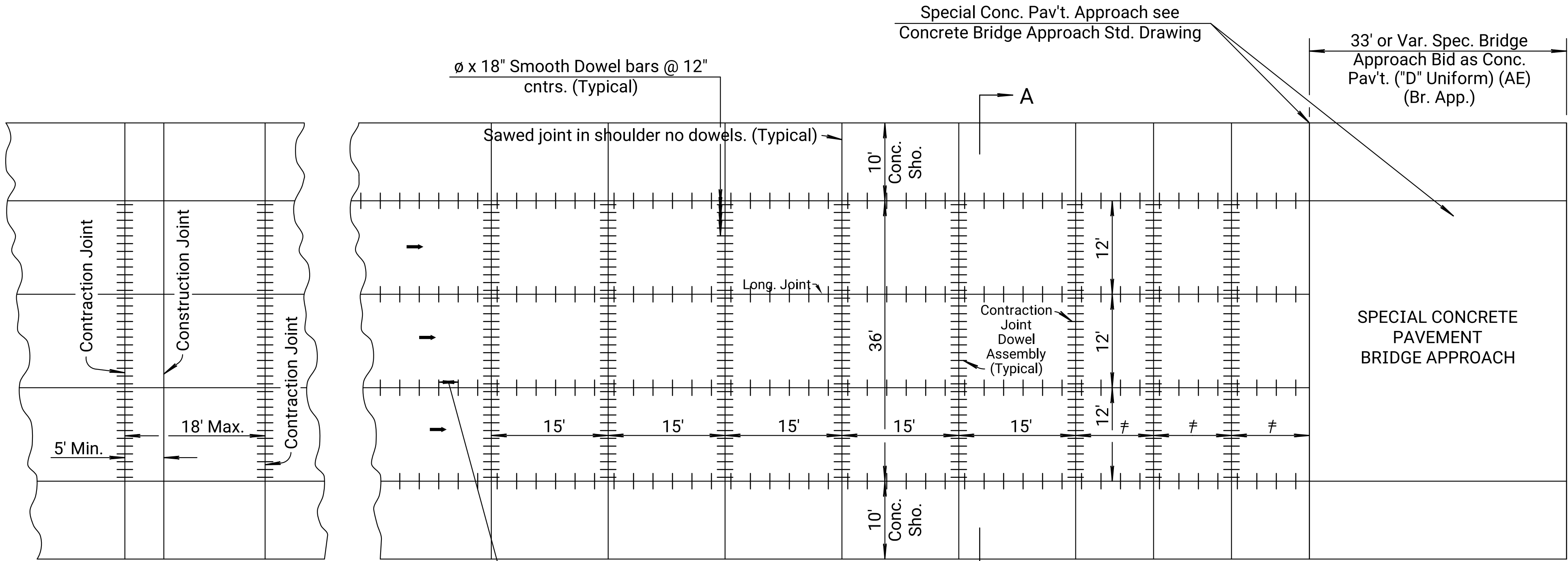
KANSAS DEPARTMENT OF TRANSPORTATION				
CONCRETE PAVEMENT DOWEL JOINTED NON-REINFORCED				
RD708				
FHWA APPROVAL		10-23-13		APPD.
DESIGNED	DETAILED	QUANTITIES	TRACED	James O. Brewer
DESIGN CK.	DETAIL CK.	QUAN. CK.	TRACE CK.	

Note to Designer: Designer will add applicable dowel sizes and pavement depth "D".

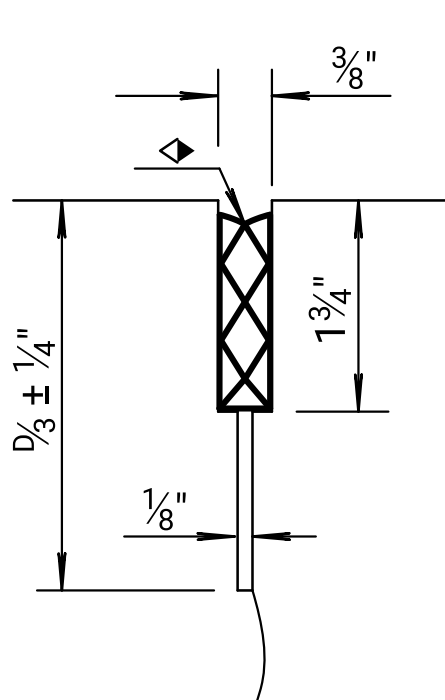
8-JUL-2025 16:18

Plotted by : Riley Standish
File : ST2306rpv-709.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	ST-2306	2025	13	139

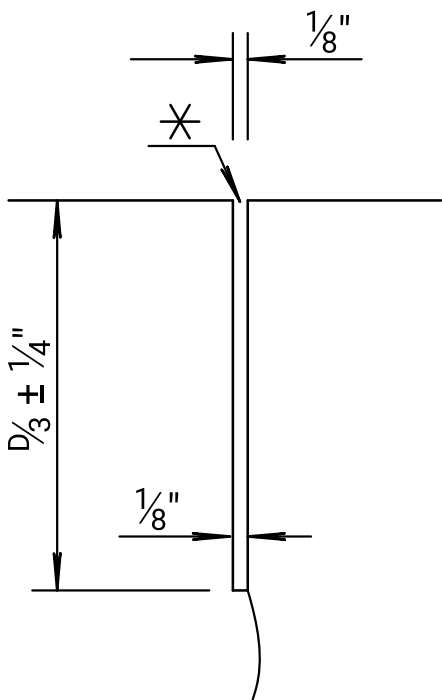


Deformed tie bars extended through longitudinal joints @ 24" ctrs. (Typical)



DETAIL OF SEALED JOINT SAWCUT

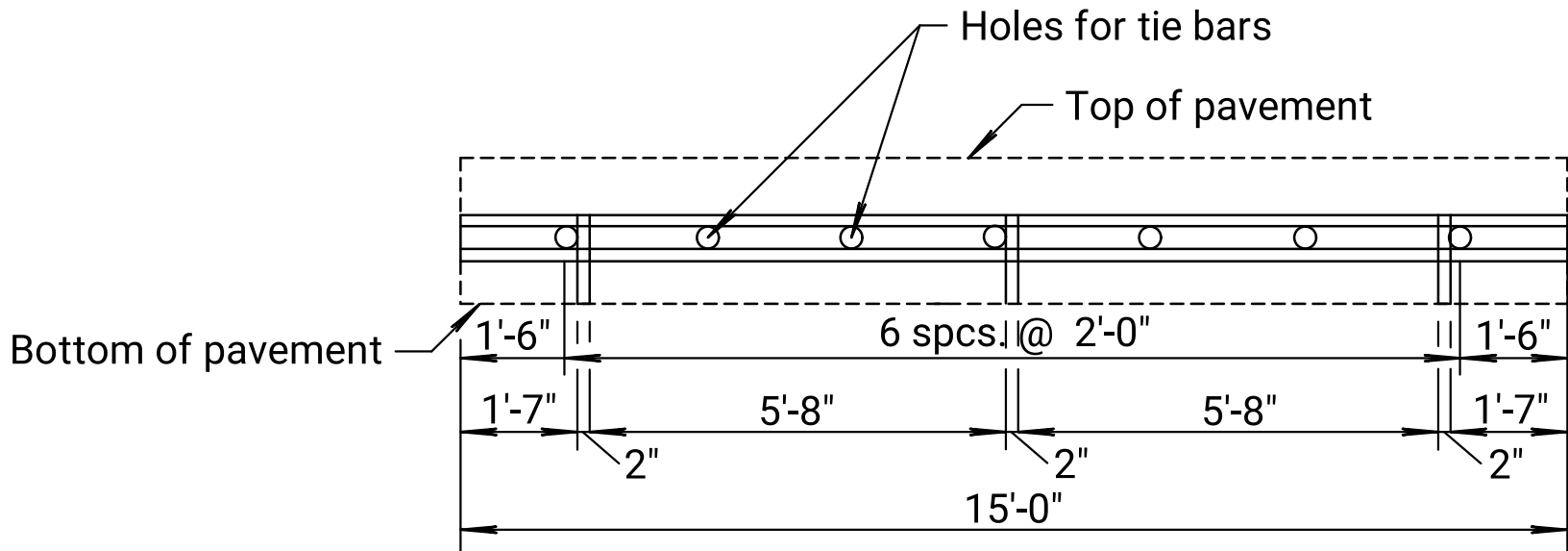
Make an initial $\frac{1}{8}"$ saw cut ($D/3 \pm \frac{1}{4}"$ depth); the second $\frac{3}{8}"$ saw cut is a separate operation done after concrete has gained sufficient strength to avoid spalling as determined by the Engineer.



DETAIL OF NON-SEALED JOINT SAWCUT

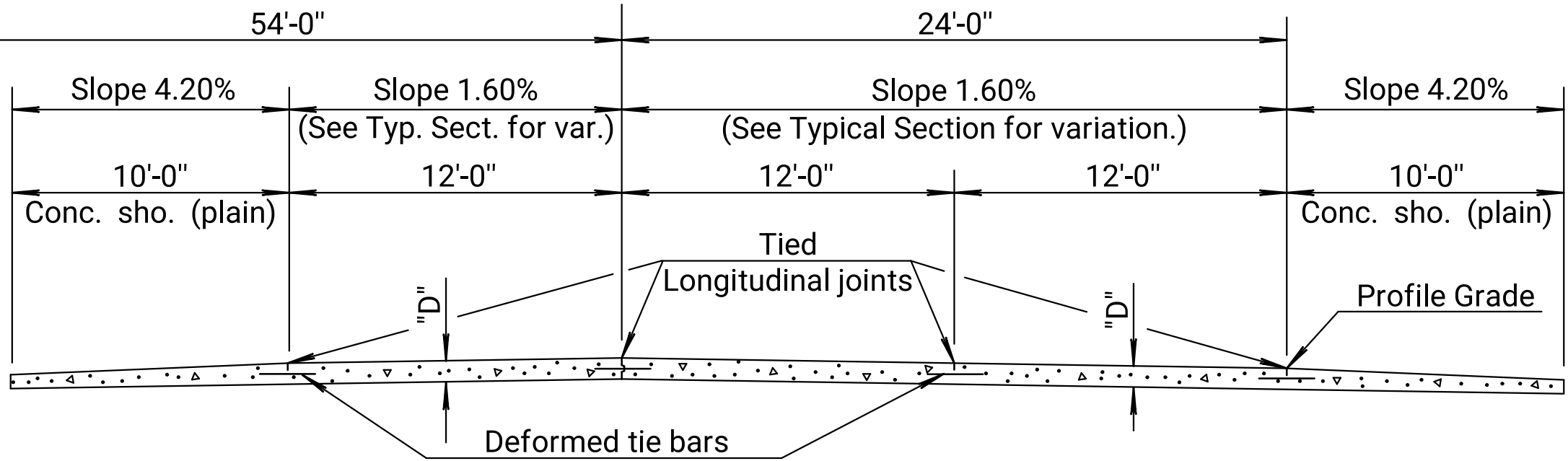
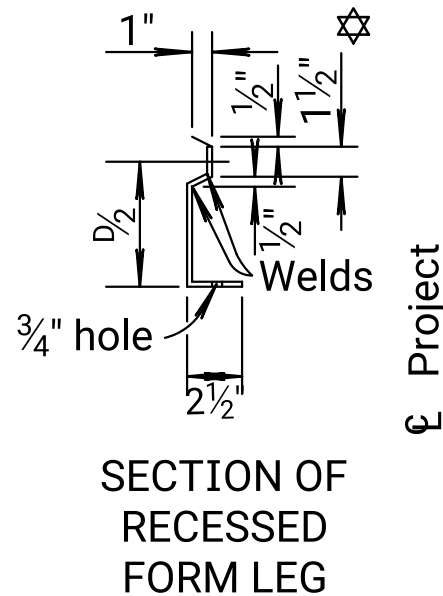
Make only the initial $\frac{1}{8}"$ saw cut after concrete has gained sufficient strength to avoid spalling as determined by the Engineer.

≠ If necessary adjust the spacing of the joint sequence (3 slabs) preceding bridge approach pavement in order to establish slab lengths of no less than 10 ft.

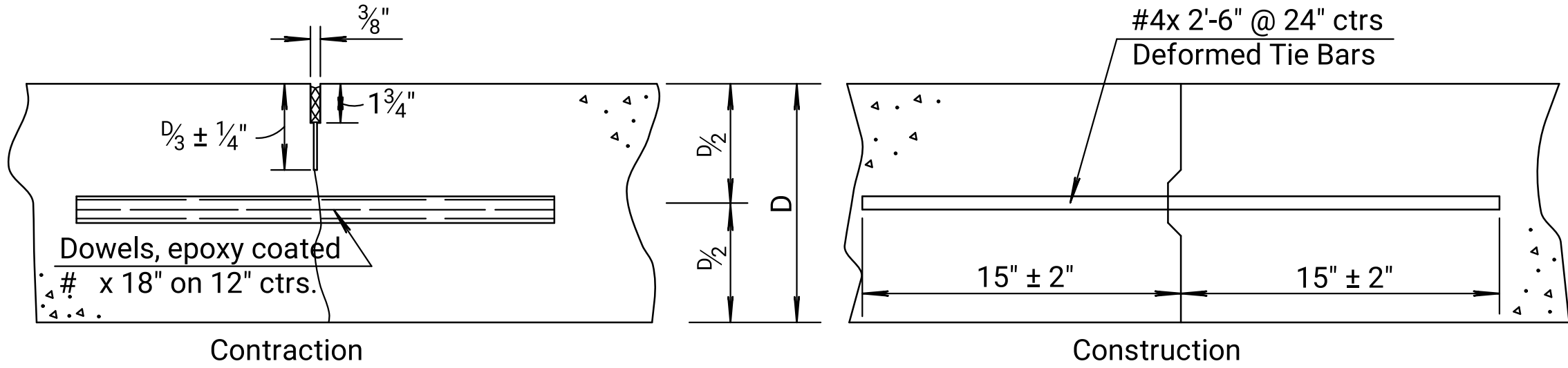


METAL STRIP FOR LONGITUDINAL KEYED CONSTRUCTION JOINT

To be used only against forms, do not extend through contraction joints.
✱ Use snap-in leg or other approved designs in lieu of welded leg.



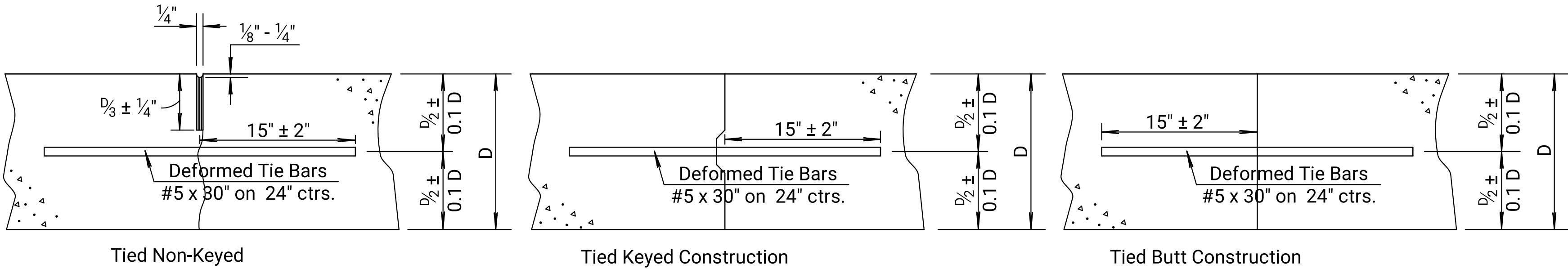
SECTION A-A TRANSVERSE SECTION



TRANSVERSE JOINTS

Note: Construct contraction joints at plan locations or at the Engineer's direction.

When necessary to interrupt continuous placement for a substantial length of time or at the end of a day's pour, the Contractor has the option of ending placement at a contraction joint or with a construction joint located a minimum of five (5) feet from a contraction joint. Construct either joint type by placing a header at the end of the pour or by paving past the joint location. After the concrete has hardened, saw joint and drill holes for tie bars or dowels.



LONGITUDINAL JOINTS

Note: For longitudinal construction joints the contractor has the option of using either the keyed or butt type. Place deformed tie bars mid-depth of the shoulder.

GENERAL NOTE

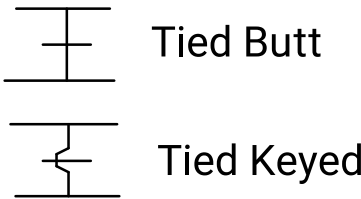
Epoxy coat all deformed tie bars that are straight. Patch any damage to the epoxy coating in accordance with the Standard Specifications.
Use billet steel Grade 40 reinforcing for deformed tie bars that require bending, may be epoxy coated at the Contractor's option.
Place pressure relief joint at the end of the bridge approach pavement slab (no bars thru joint). For details of pressure relief joint see Standard Drawing RD712.
✧ Use load transfer devices as shown in details at all contraction joints on mainline pavement unless otherwise noted. Shoulder contraction joints have no dowels unless specifically shown on the plans.
✱ Fill all sawed joints on the project in accordance with the Standard Specifications with the exception of those joints in pavement constructed over Cement or Asphalt Treated Base.
Use single saw cut, $\frac{1}{8}"$ wide, joint in pavement constructed over Cement or Asphalt Treated Base (Non-Sealed Joint Sawcut). Use single saw cut, $\frac{1}{8}"$ wide, joint for shoulder pavement adjacent to mainline pavement constructed over Asphalt or Cement Treated Base (Non-Sealed Joint Sawcut). See detail this sheet.
Shape all keyed joints similar to section of recessed form leg as shown on this sheet. Evenly space tie bars along the length of the slab with no tie bar within 12" of contraction joint. All longitudinal joints are tied.

DOWEL SIZE	
D (in.)	Diameter
$6 < D < 9$	1"
$9 \leq D < 11$	$1\frac{1}{4}"$
$D \geq 11$	$1\frac{1}{2}"$

PAVEMENT DEPTH

D= 9"

JOINT LEGEND



11	05-17-13	Revised Note, Longitudinal Joints	S.W.K.	J.O.B.
10	03-21-12	Rev. Table & Add. Det., Non-Seal. Joint	S.W.K.	J.O.B.
09	08-18-10	Revised Dowel Sizes & Notes	S.W.K.	J.O.B.
NO.	DATE	REVISIONS	BY	APPD
KANSAS DEPARTMENT OF TRANSPORTATION				
CONCRETE PAVEMENT (NRDJ) MULTI-LANE with CONCRETE SHOULDERS				
RD709				
FHWA APPROVAL		10-23-13	APPD.	James O. Brewer
DESIGNED	DETAILED	QUANTITIES	TRACED	
DESIGN CK.	DETAIL CK.	QUAN.CK.	TRACE CK.	

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	ST-2306	2025	14	139

GENERAL NOTES

All work shall be done in conformity with the Standard Specifications applicable to the project.

The cost of all bars and joint material shown on this sheet is to be included in the bid price for Concrete Pavement.

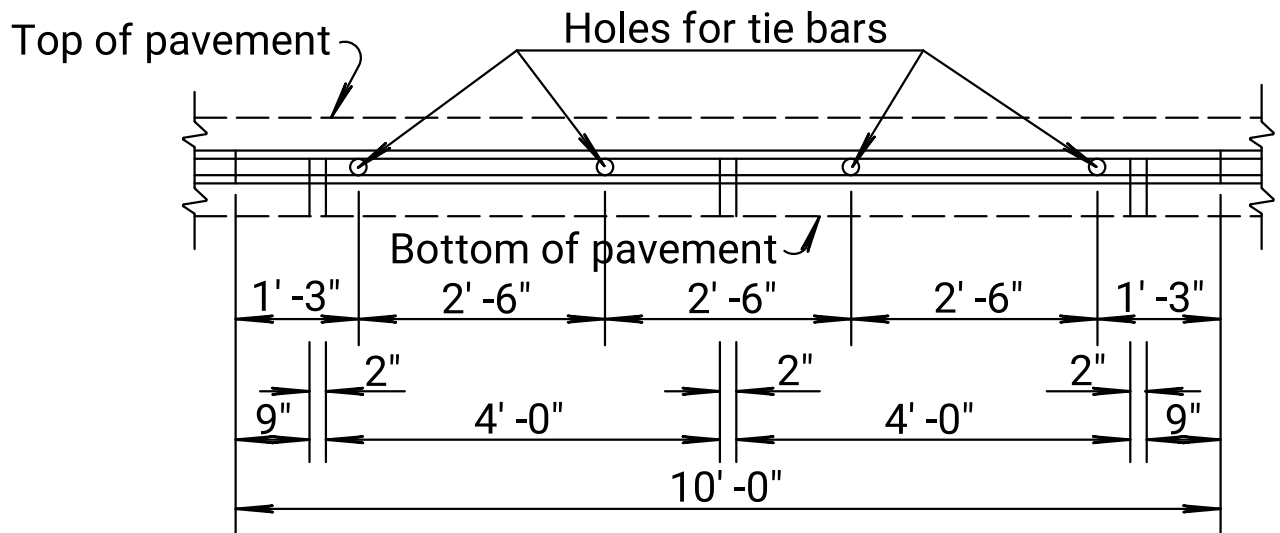
At each planned transverse joint location, a 4 to 6 inch wide strip of the pavement surface shall be protected from the texturing operation to provide a transverse textureless surface centered over the joint sawcut.

All sawed joints on this project shall be filled with sealant in accordance with Standard Specifications.

The 4 inch edge curb shall be constructed integral with the approach slab shoulder.

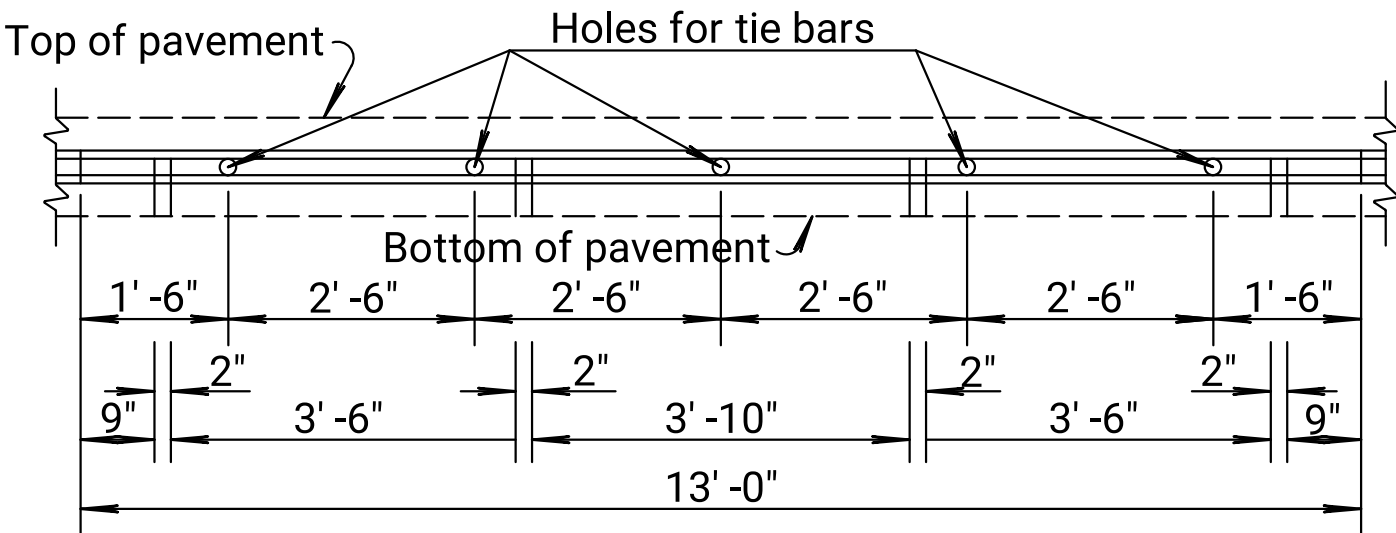
All materials and work required for this construction shall be subsidiary to the concrete approach slab.

Tie bars shall be evenly spaced along the length of the slab and no tie bars shall be within 12" of contraction joint.



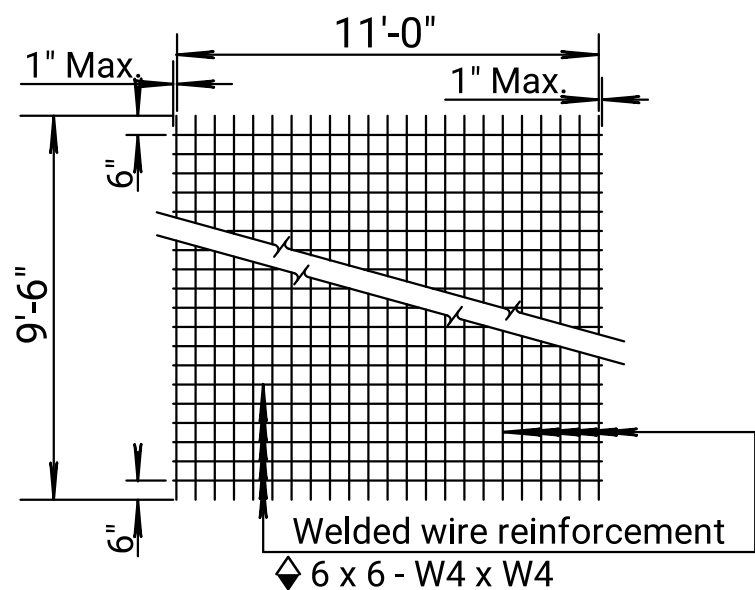
To be used only against forms. Shall not extend through contraction joints.

METAL STRIP FOR
LONGITUDINAL CONSTRUCTION JOINT (10'-0")



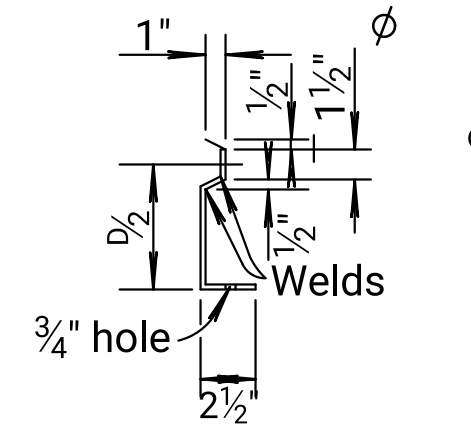
To be used only against forms. Shall not extend through contraction joints.

METAL STRIP FOR
LONGITUDINAL CONSTRUCTION JOINT (13'-0")



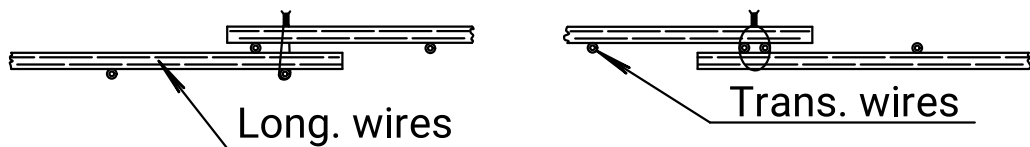
TYPICAL SHEET OF WELDED WIRE REINFORCEMENT
FOR SPECIAL BRIDGE APPROACH PAVEMENT

◆ Note: Epoxy coated #3 bars longitudinally @ 12" ctrs. & #3 bars transversely @ 18" ctrs. may be substituted for each layer of epoxy coated welded wire reinforcement.



SECTION OF RECESSED
FORM LEG

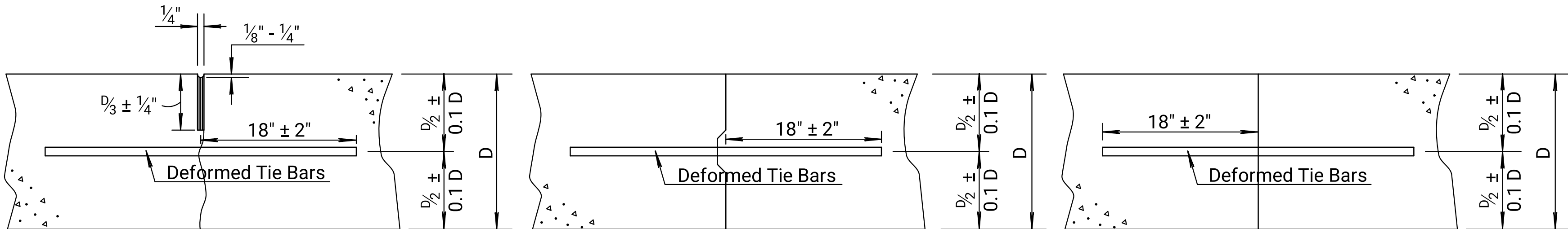
∅ Snap-in leg or other approved designs may be used in lieu of welded leg.



DETAIL OF LAP FOR WELDED WIRE REINFORCEMENT

The lap shall extend beyond the first transverse or bag wire of each sheet.

The sheet shall be wired securely at the edges and at intervals not to exceed 2'-6" for the full width of the sheet. Approximate weight of welded wire reinforcement = 58 lbs. per 100 sq. ft. Other methods for fastening the sheets of welded wire reinforcement at the laps may be used with the approval of the Engineer.



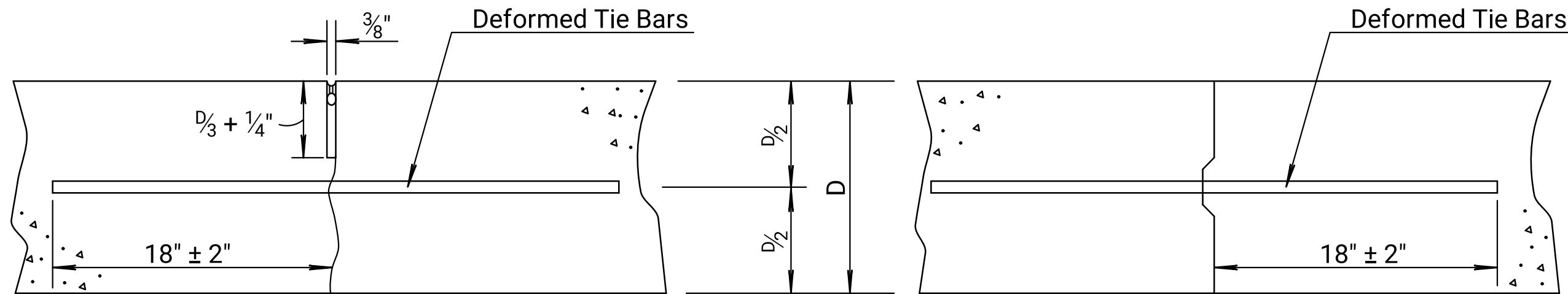
Tied Non-Keyed

Tied Keyed Construction

Tied Butt Construction

LONGITUDINAL JOINTS

Note: For longitudinal construction joints the contractor has the option of using either the keyed or butt type. Place deformed tie bars mid-depth of the shoulder.



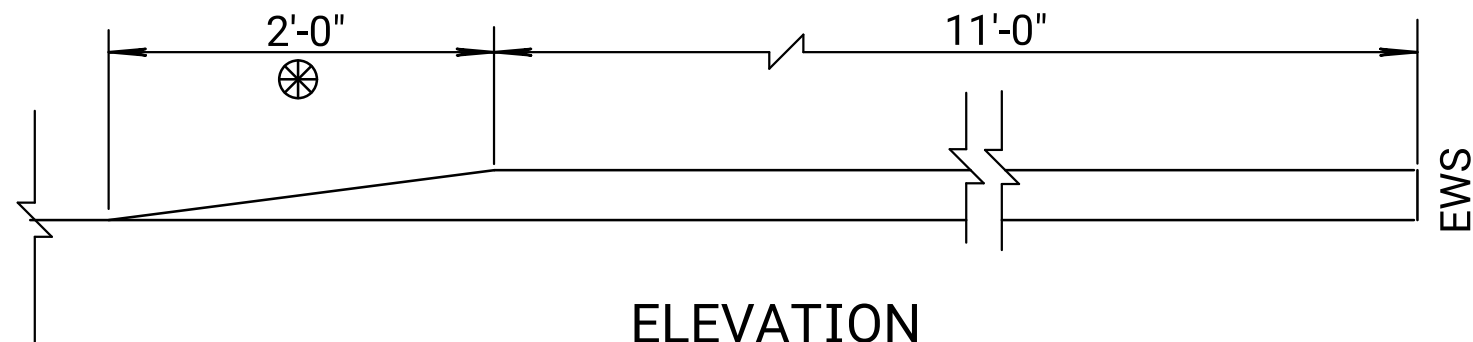
Monolithic Pour

Construction Joint

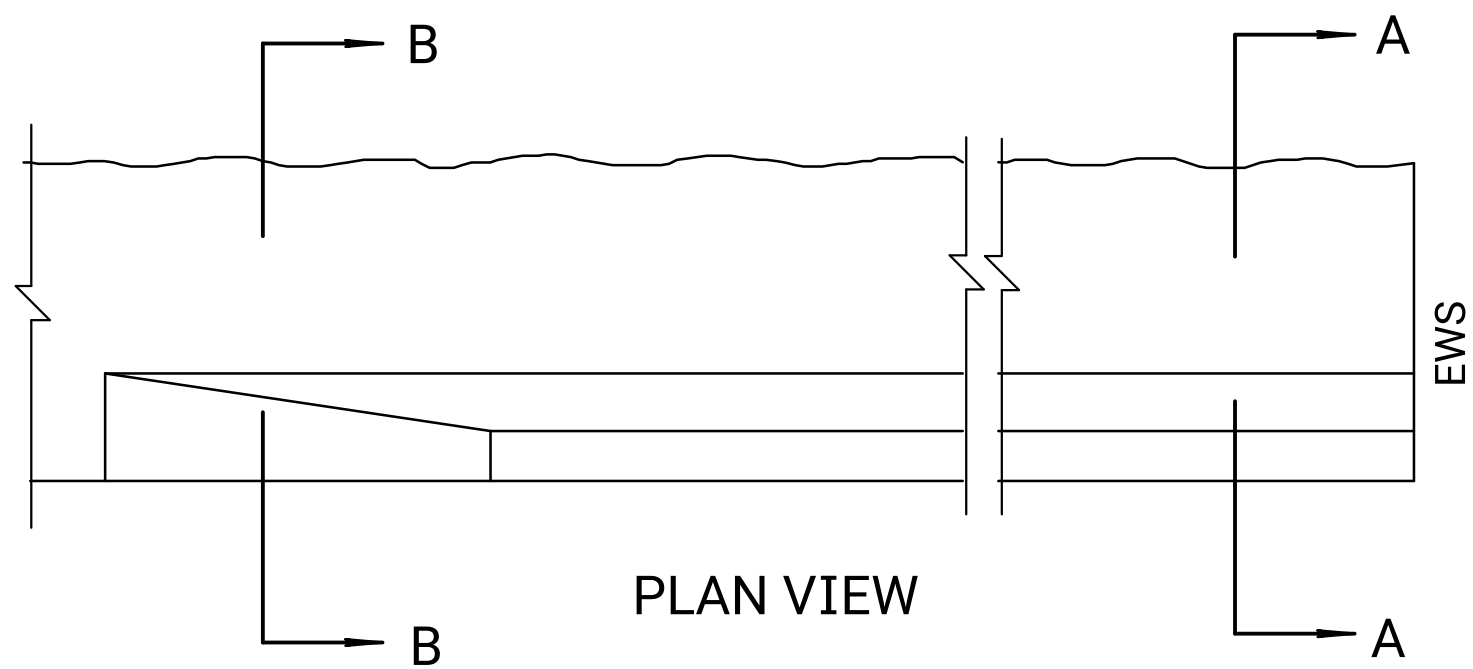
TRANSVERSE JOINTS

Note: A construction joint is required when the concrete placement has been interrupted for a substantial length of time or at the end of a day's placement.

⊗ No 4" Curb transition when adjacent to Flume Inlet.

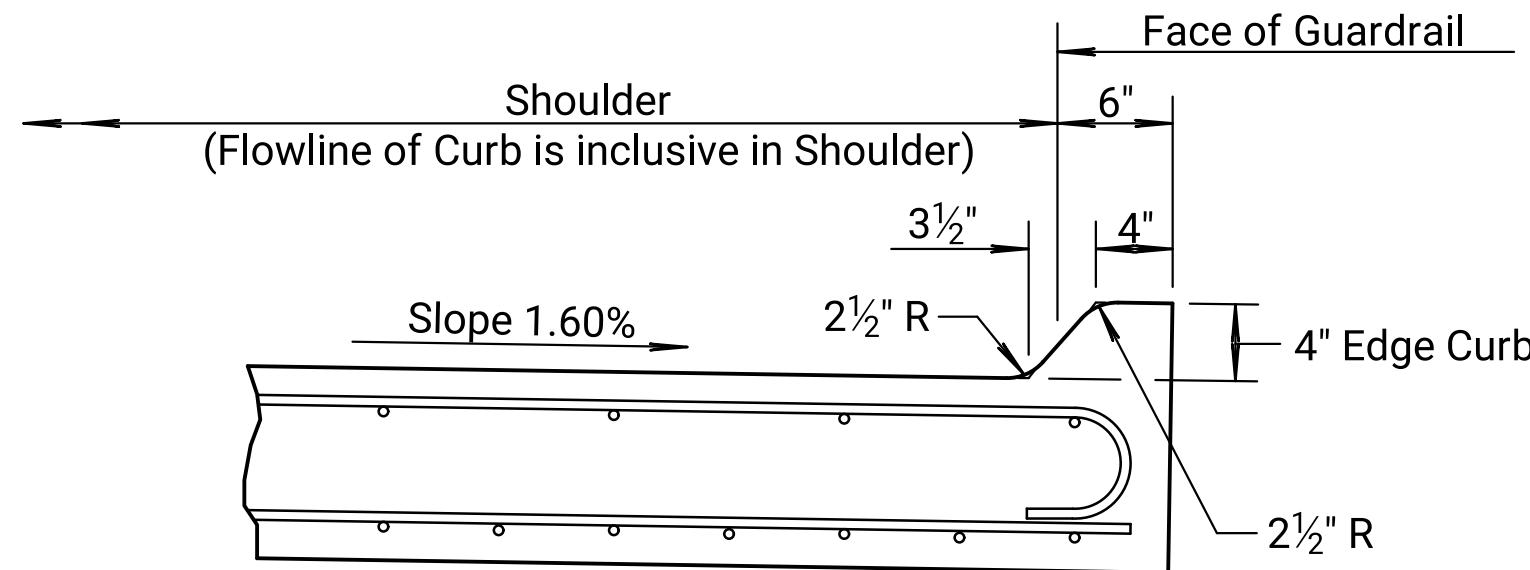


ELEVATION

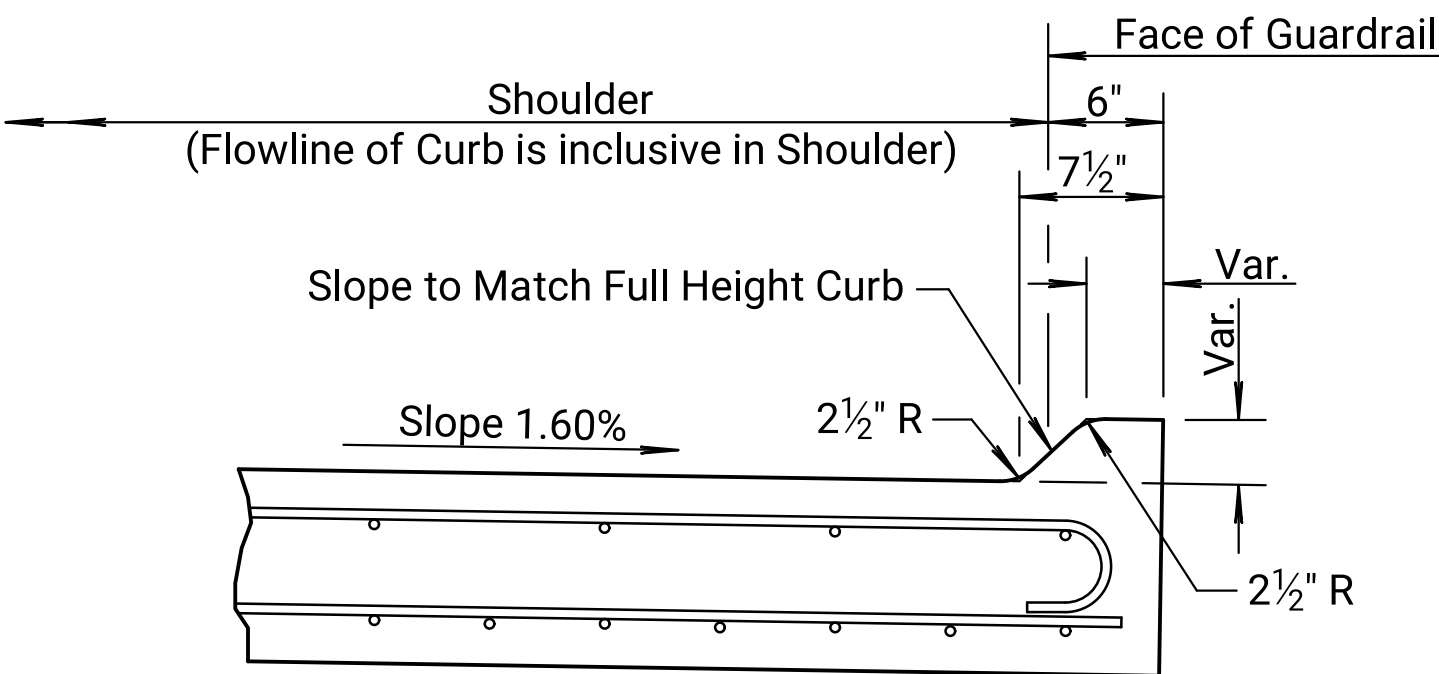


PLAN VIEW

4" EDGE CURB DETAIL



SECTION A-A



SECTION B-B

13	05-17-13	Revised Note, Longitudinal Joints	S.W.K.	J.O.B.
12	05-14-09	Pres. Relief Jt. to RD712/tie bar lab.	S.W.K.	J.O.B.
11	10-23-08	Revised Sec. A-A and Sec. B-B	S.W.K.	J.O.B.
NO.	DATE	REVISIONS	BY	APPD
KANSAS DEPARTMENT OF TRANSPORTATION				
MISCELLANEOUS DETAILS FOR CONCRETE BRIDGE APPROACH PAVEMENT				
RD711				
FHWA APPROVAL		10-23-13	APPD.	James O. Brewer
DESIGNED	DETAILED	QUANTITIES	TRACED	
DESIGN CK.	DETAIL CK.	QUAN.CK.	TRACE CK.	

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	ST-2306	2025	15	139

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)

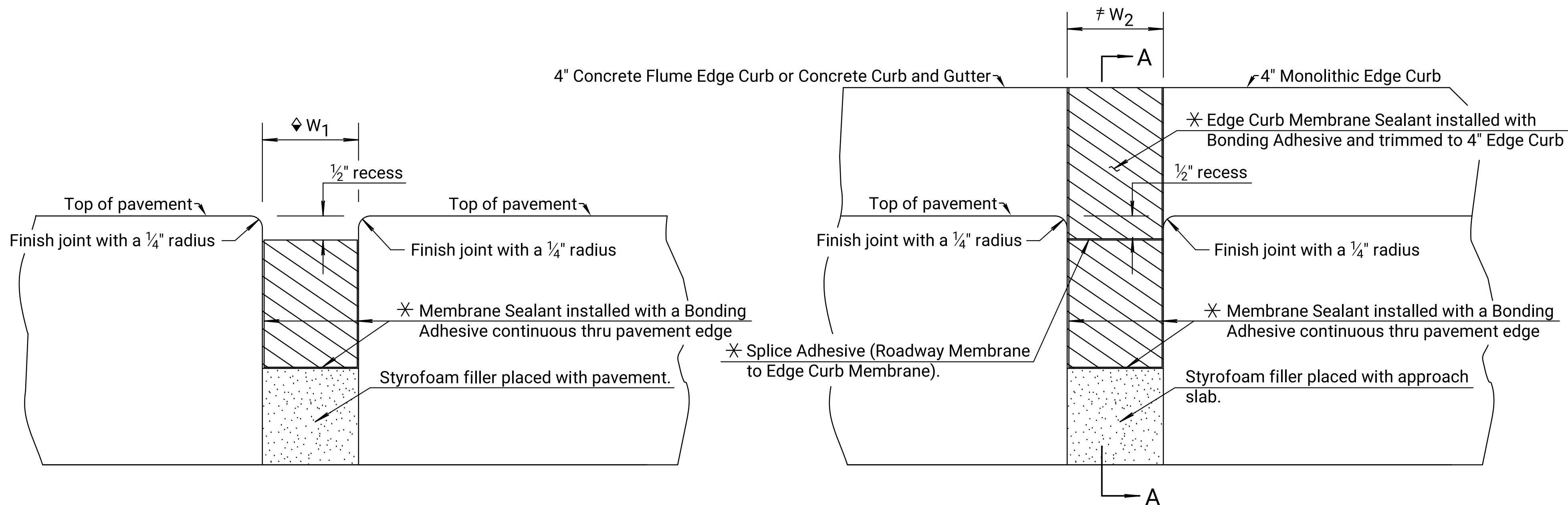
ψ Temperature (F°)	40°	50°	60°	70°	80°	90°	100°
Formed Concrete Opening Size	4.0"	3¾"	3½"	3¼"	3.0"	2¾"	2½"

^ψ Average Ambient Temperature over previous 24 hours.

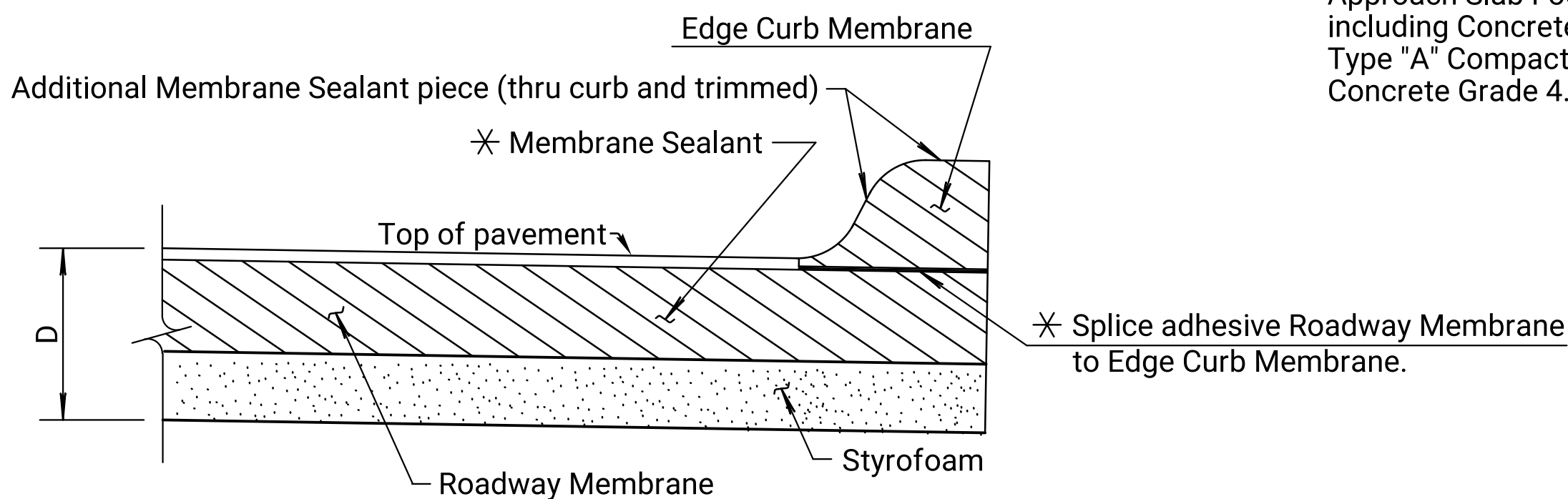
‡ EXPANSION JOINT WIDTH DETAILS (W₂)

See bridge construction layout sheet for details.

ELEVATION PRESSURE RELIEF JT.

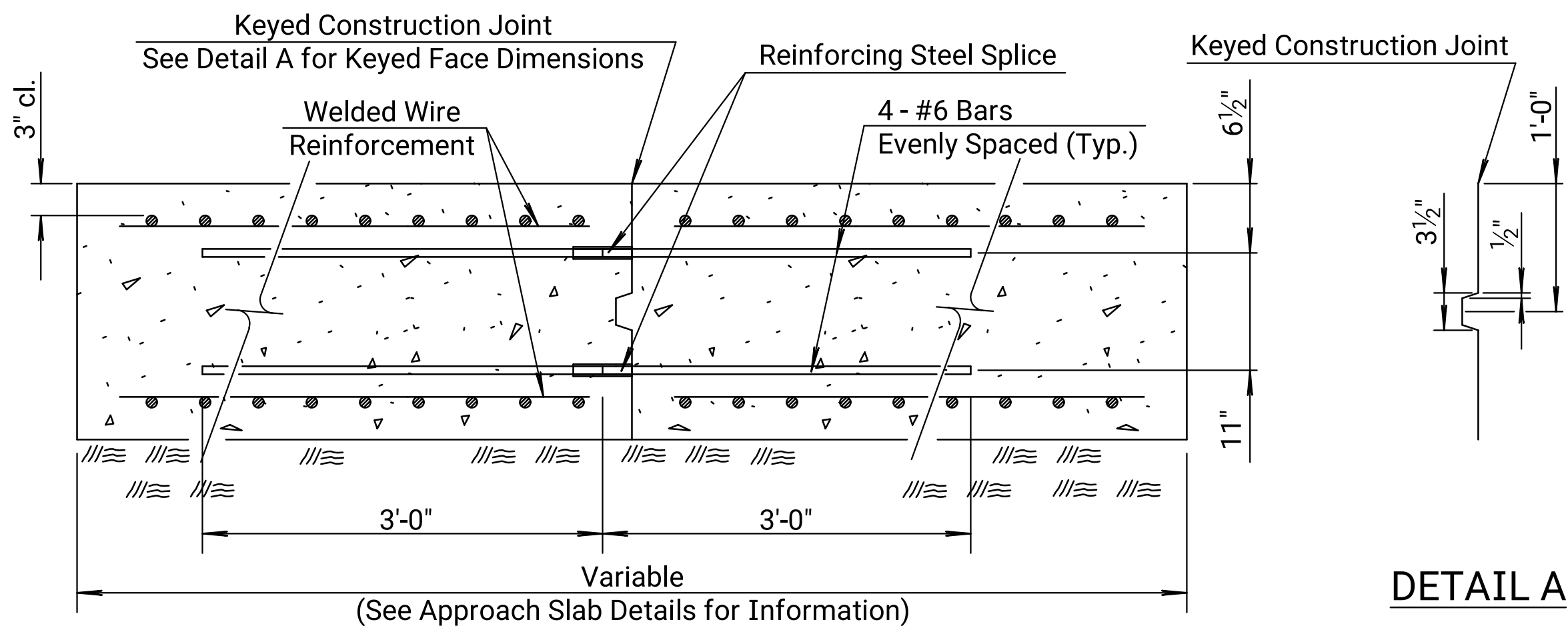


ELEVATION EXPANSION JT.

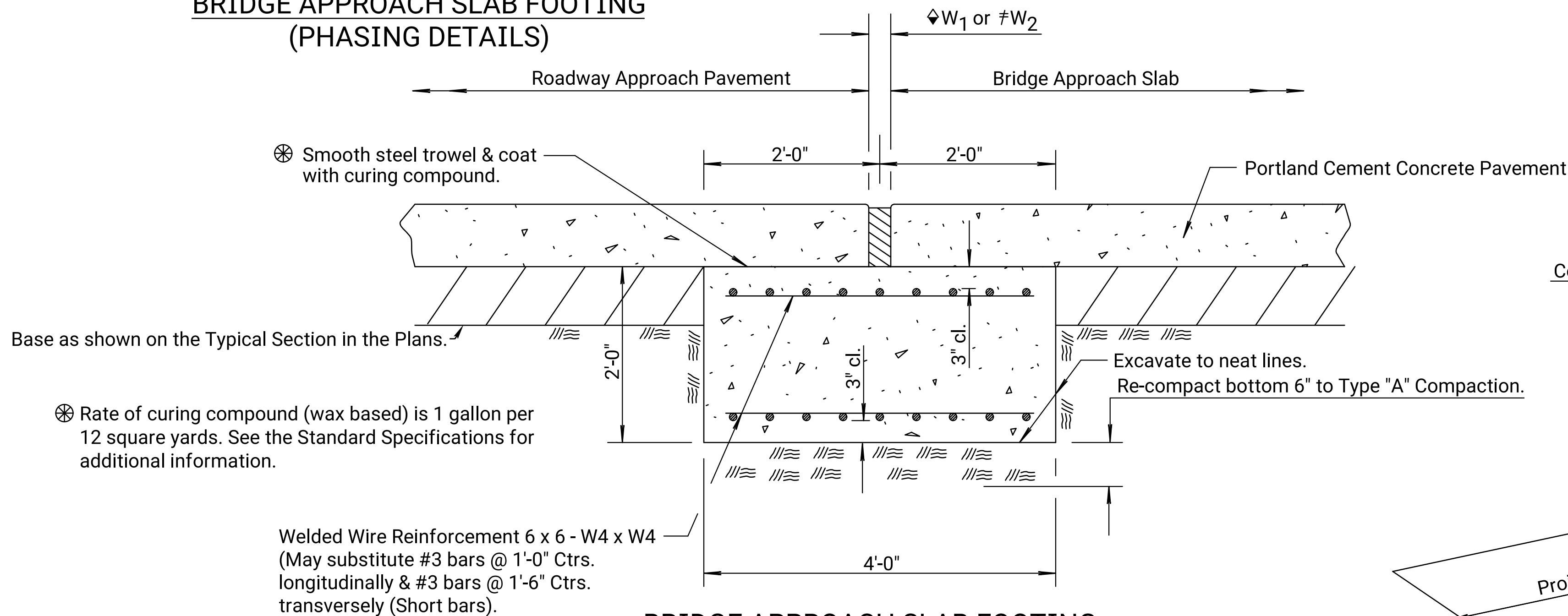


SECTION A-A

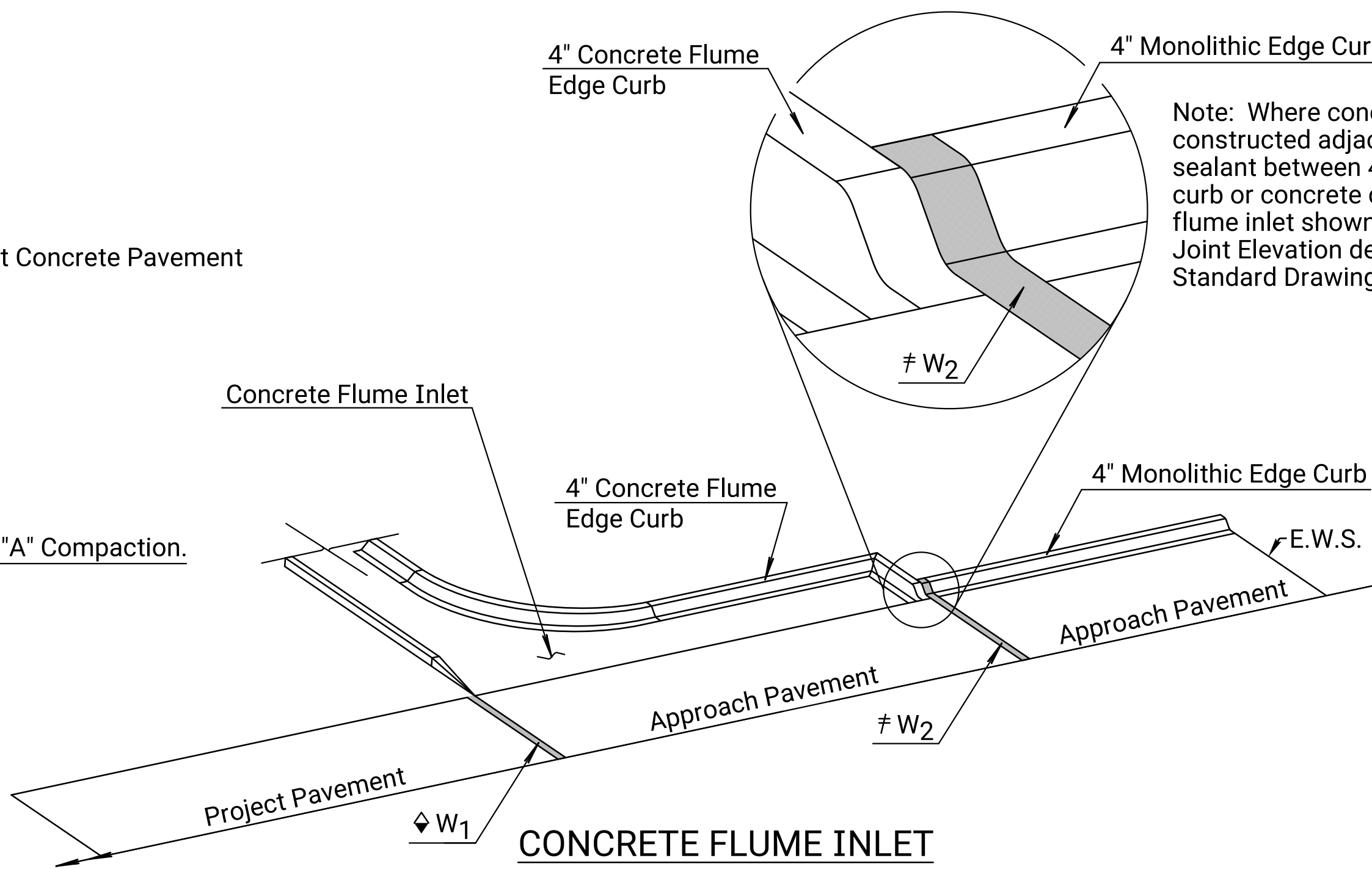
(See Std. Drawing RD711 for details of 4" Edge Curb.)



BRIDGE APPROACH SLAB FOOTING (PHASING DETAILS)



BRIDGE APPROACH SLAB FOOTING



CONCRETE FLUME INLET

(Membrane Sealant Placed Through Edge Curb Detail)

LEGEND

 Membrane Sealant

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.
NO.	DATE	REVISIONS	BY	APP'D

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.	

Note to Designer: For Membrane Sealant Expansion Joint on Non-skewed Bridges the maximum length of expansion is: 380' for Steel Bridges, 410' for Concrete Bridges.

8-JUL-2025 16:19

Plotted by : Riley.Standish
File : ST2306rpv-712.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	ST-2306	2025	16	139

- * For details See Concrete Safety Barrier Details.
- ◊ W₁ and W₂ for Expansion/Pressure Relief Joint width and details See Standard Drawing RD712.
- ≠ Contractor has the option of substituting a Tied Keyed Construction Joint.

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 expansion joints and pressure relief joints 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.

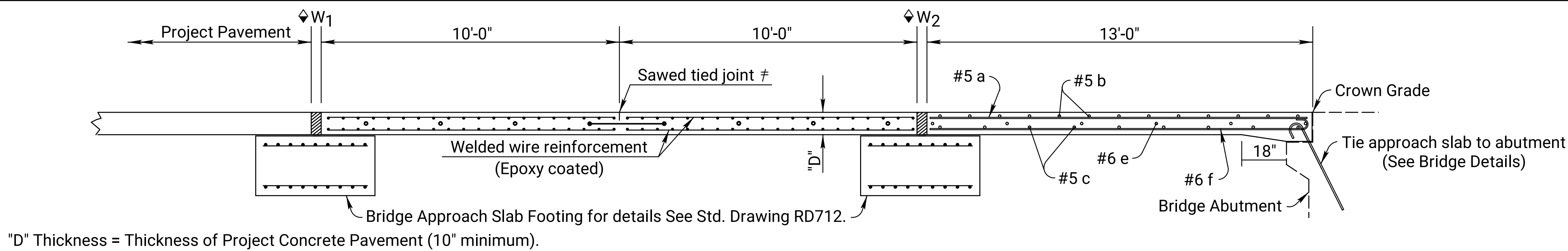
All reinforcing steel shall be epoxy coated.

See Standard Drawing RD711 for details of joints and welded wire reinforcement.

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

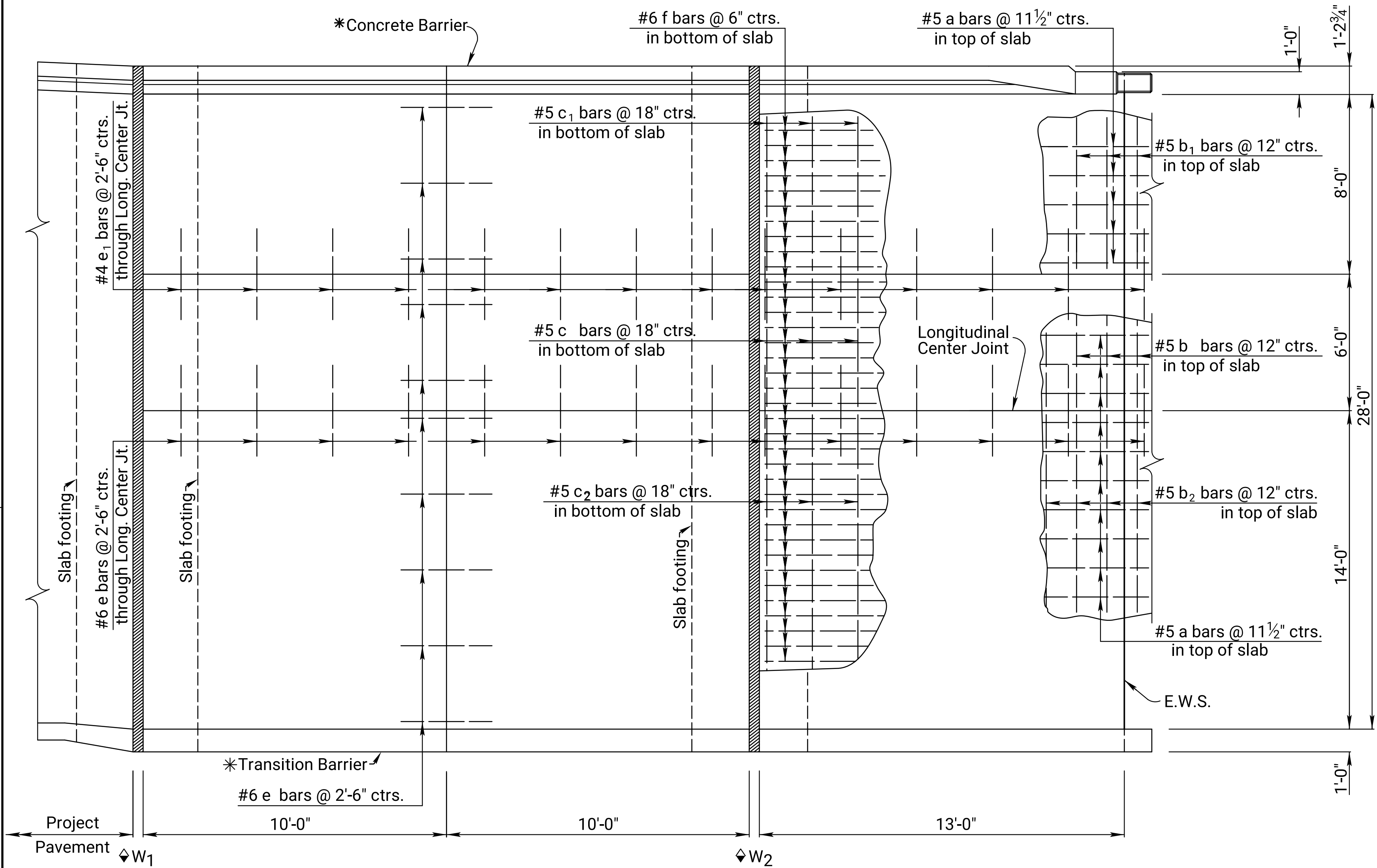
Standard reinforcing bar hooks in accordance with the latest ACI specifications shall be used throughout.

The pressure relief joint shall be omitted when the concrete bridge approach pavement abuts asphalt pavement.



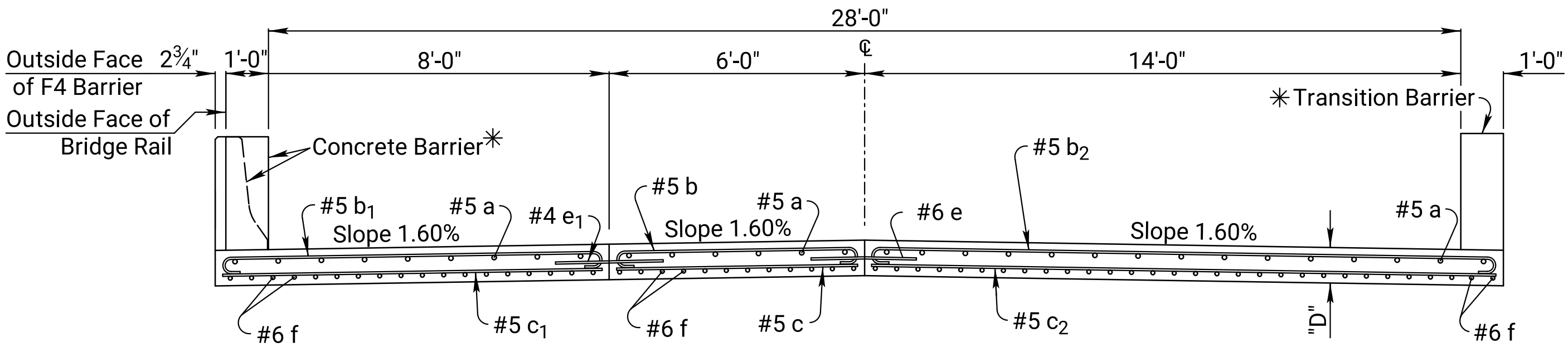
"D" Thickness = Thickness of Project Concrete Pavement (10" minimum).

LONGITUDINAL SECTION

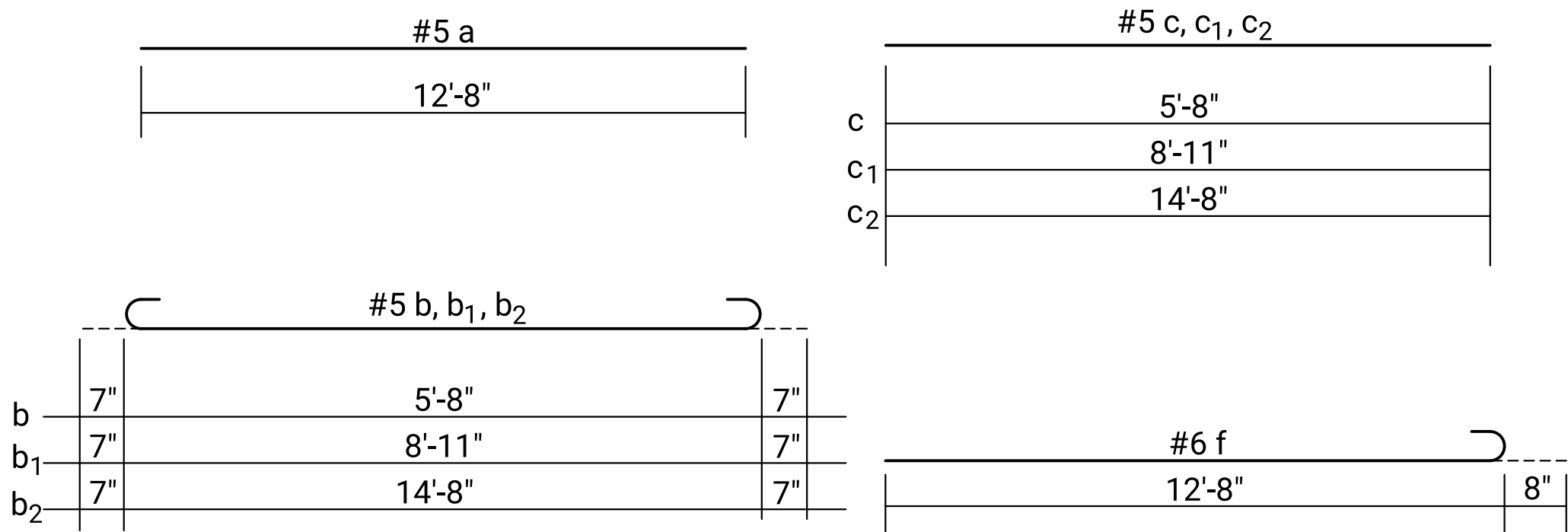


PLAN VIEW
(No Scale)

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



TYPICAL SECTION
(No Scale)



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

BENDING DIAGRAMS

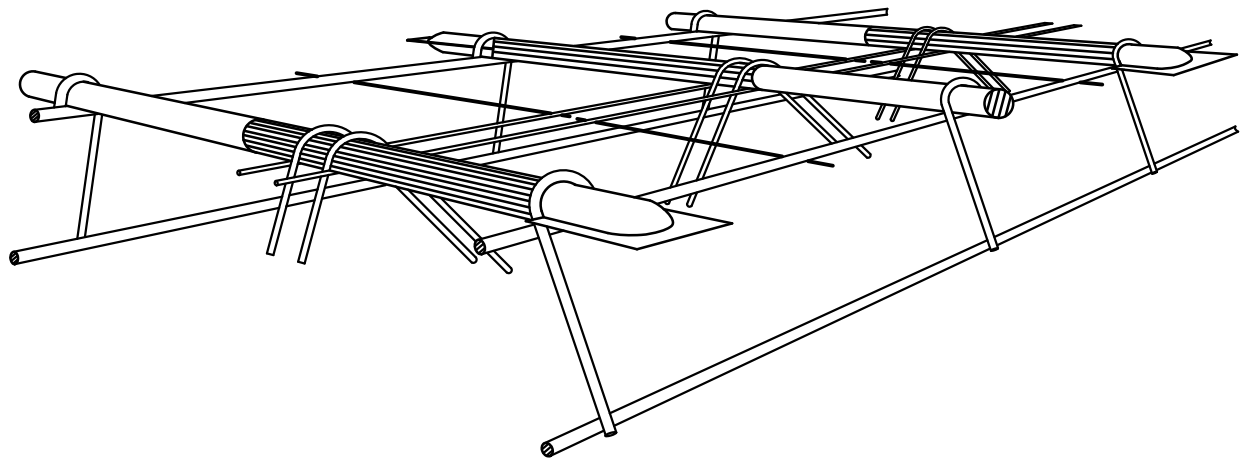
BILL OF MATERIALS										
Bar Schedule										
Bar No.	a	b	b ₁	b ₂	c	c ₁	c ₂	e	e ₁	f
34	14	14	14	10	10	10	24	14	61	
Size	#5	#5	#5	#5	#5	#5	#5	#6	#4	#6
Length	12'-8"	6'-10"	10'-1"	15'-10"	5'-8"	8'-11"	14'-8"	3'-0"	13'-4"	
Reinforcing Steel (Grade 60) (Epoxy Coated)								2,590 lbs.		
Concrete Pavement (10" Unif.)(AE)								110.8 Sq. Yds.		
Expansion Jt. Membrane Sealant								30.25' Lin. Ft.		
Pressure Relief Jt. Membrane Sealant								30.25' Lin. Ft.		

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

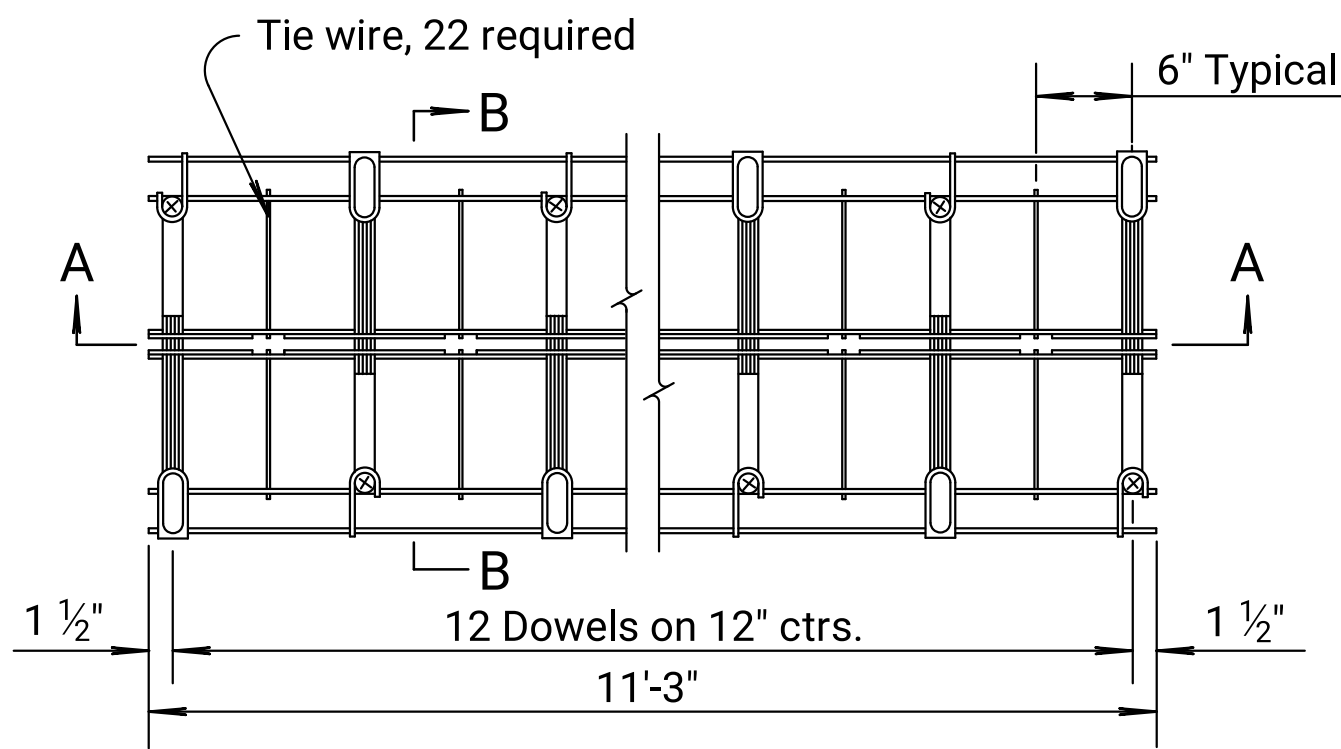
3				
2				
1				
NO.	DATE	REVISIONS	BY	APP'D
KANSAS DEPARTMENT OF TRANSPORTATION				
Br. No. 406950290803B01			© STA. 100+00.00	
CONCRETE BRIDGE				
APPROACH PAVEMENT				
N. Bd. 14th Ave. Over Arkansas River				
PROJECT NO. ST-2306			FORD COUNTY	
SHEET NO.	OF	SCALE	APP'D	
DESIGNED		DETAILED	QUANTITIES	CADD
DESIGN CK.		DETAIL CK.	QUAN. CK.	CADD CK.

Plotted By: Riley Standish
File: ST2306rpt-713-01.dgn
Plot Date: 8-JUL-2025 16:19

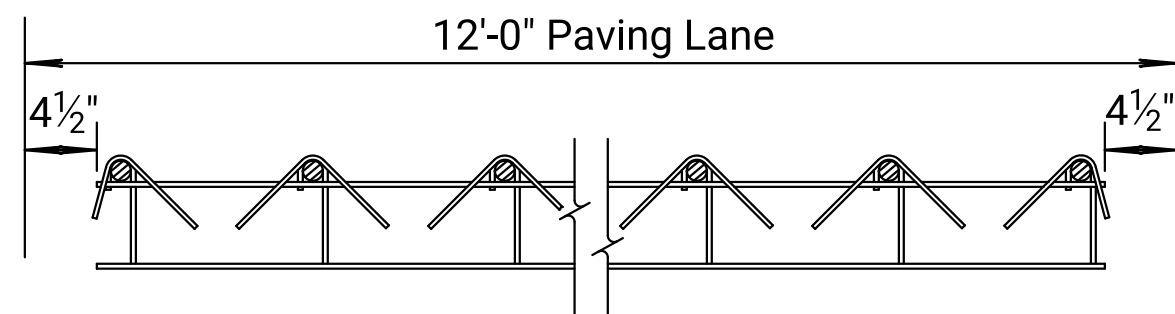
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	ST-2306	2025	17	139



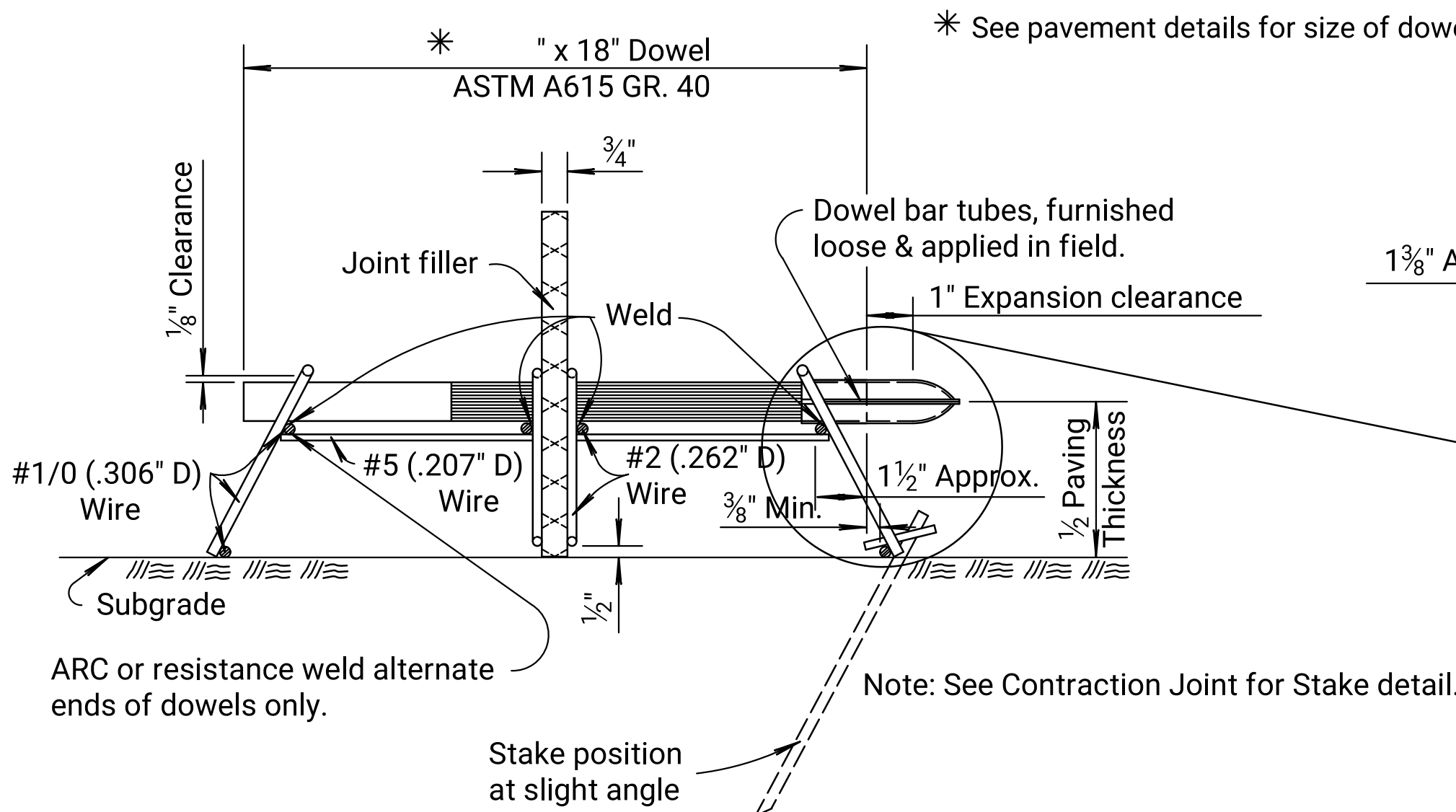
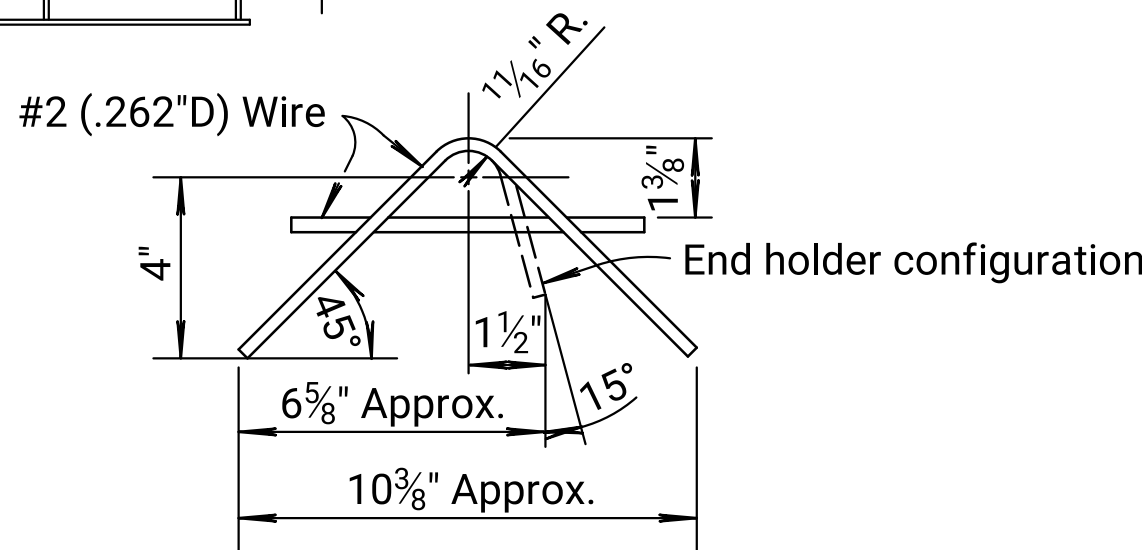
PERSPECTIVE VIEW



PLAN VIEW



SEC. A-A

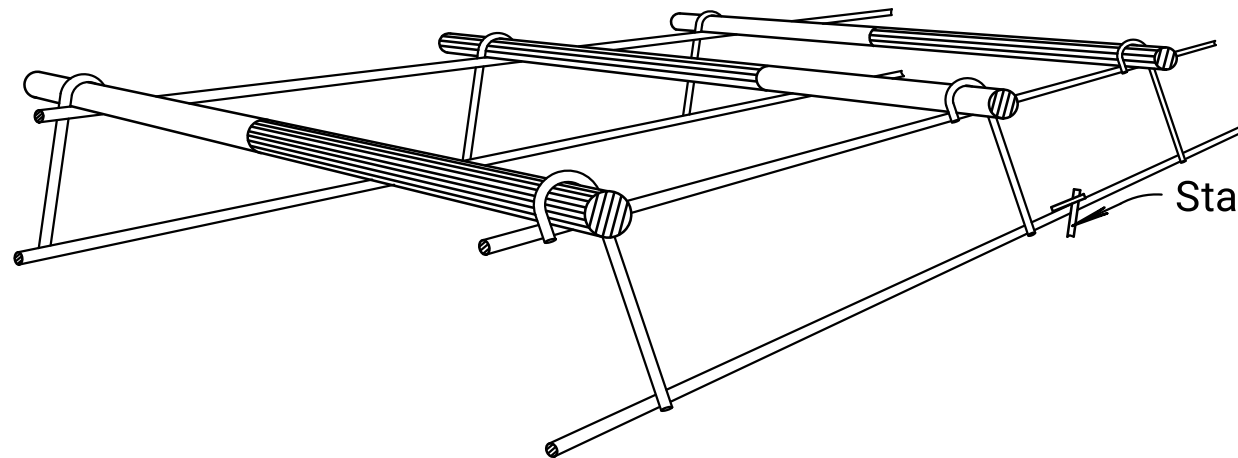


SEC. B-B

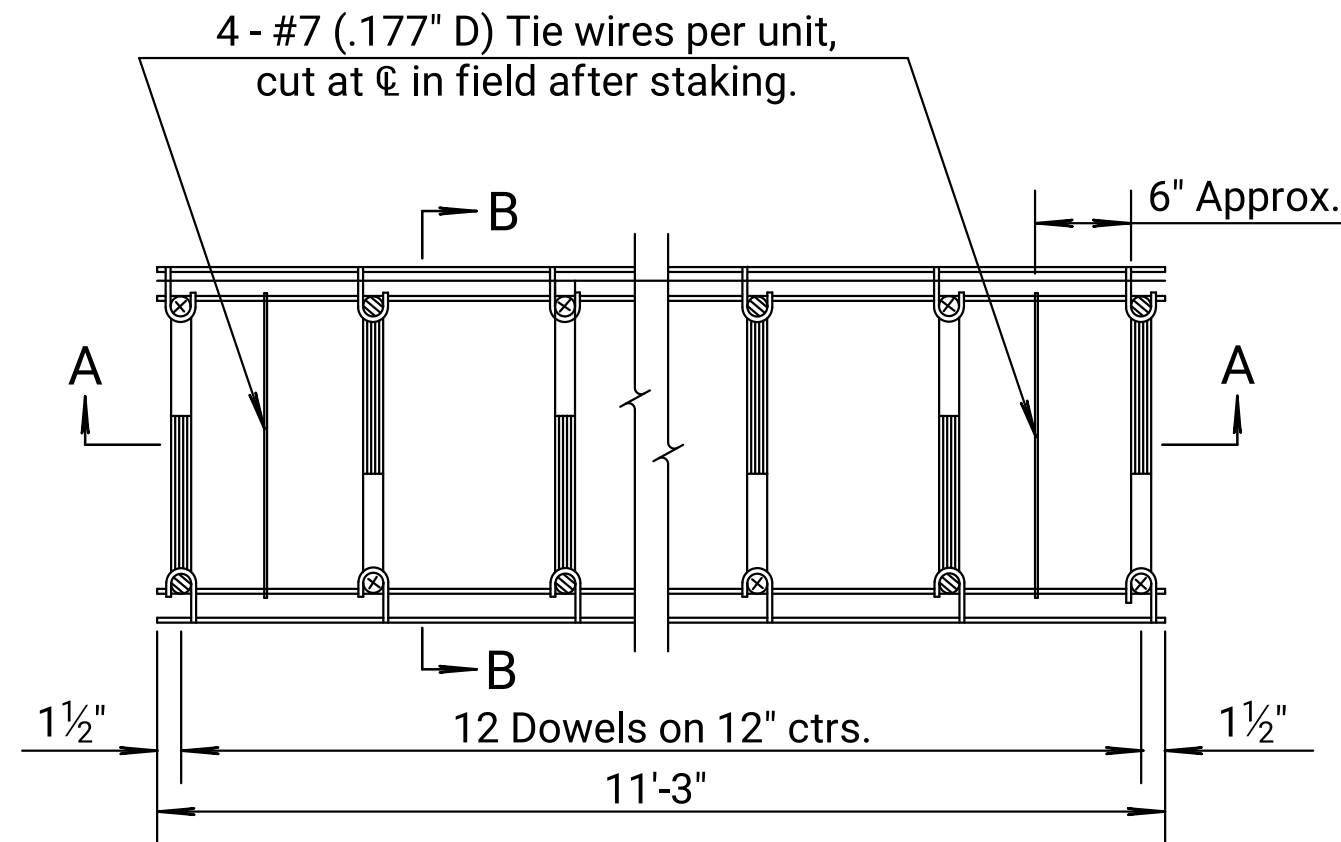
EXPANSION JOINT

GENERAL NOTE
Coat each dowel bar with an epoxy coating that meets the standard specifications. Uniformly apply the powdered epoxy coating according to accepted practices and the coating manufacturer's recommendations. The coating need not be applied to the end faces of the bars and will not be required within 2" of the end which will be fixed in the supporting bracket by welding.
Cut the dowel bars to length in such a manner to result in no appreciable deformation of the ends.

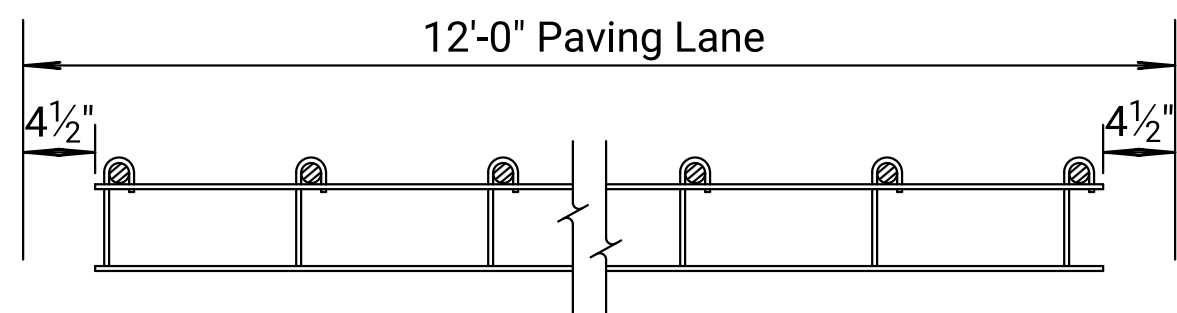
Dowel Baskets
Wire sizes shown are minimum required.
Stake baskets to subgrade as shown. Use ramset or similar type fastener with clip when subgrade condition requires it.
Sides held together with tie wire, allowing quick separation of sides and insertion of expansion material, provided in the field.
Use one length of Preformed Expansion Joint filler (Type B), or other approved material as determined by the Engineer, cut to fit crown and subgrade for each lane of pavement as expansion joint filler.
Stretch a string line between the pavement forms along the center line of the joint.
Visually inspect bond breaker was applied to the dowel bars in accordance with KDOT's Standard Specifications prior to placing concrete pavement.
Carefully level the entire joint assembly so that the dowels are parallel to the slab surface and free to slide in the dowel holders. Replace any coating scraped off the dowels during assembly.
Check each completed contraction joint assembly to be certain the vertical plane of the joint will be perpendicular to the finished surface of the slab and at a right angle with the center line of the slab unless otherwise shown on the plans. Check the dowels to be certain they are level and will remain in a position parallel with the finished surface of the slab.
Place concrete over and adjacent to the joint in accordance with the requirements of the Standard Specifications.
After completion of machine finishing, floating, and straight edging the surface, carefully remove the concrete over the filler and edge the joint with an edger of the proper size.
Install expansion joint material in the field.
Alternative designs may be used in lieu of the type shown as approved by the Engineer.



PERSPECTIVE VIEW

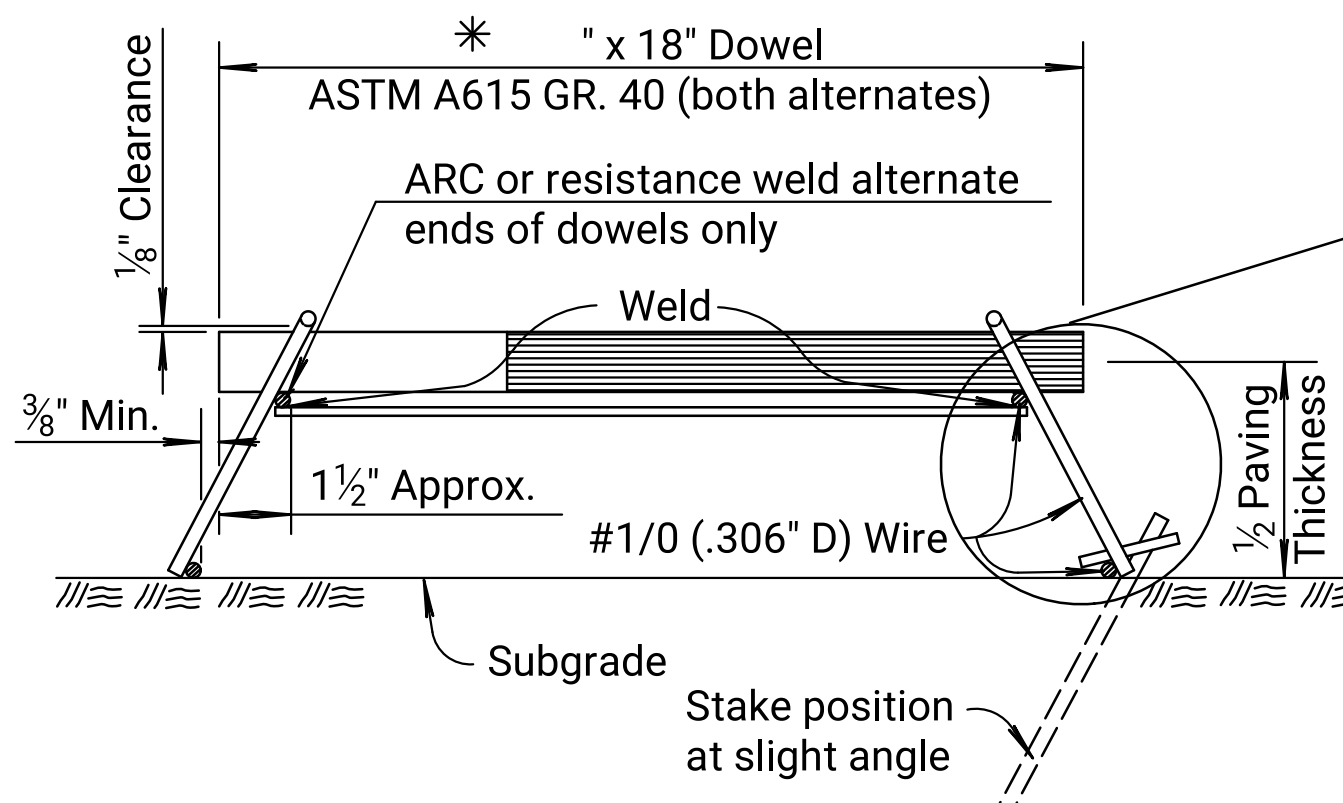


PLAN VIEW



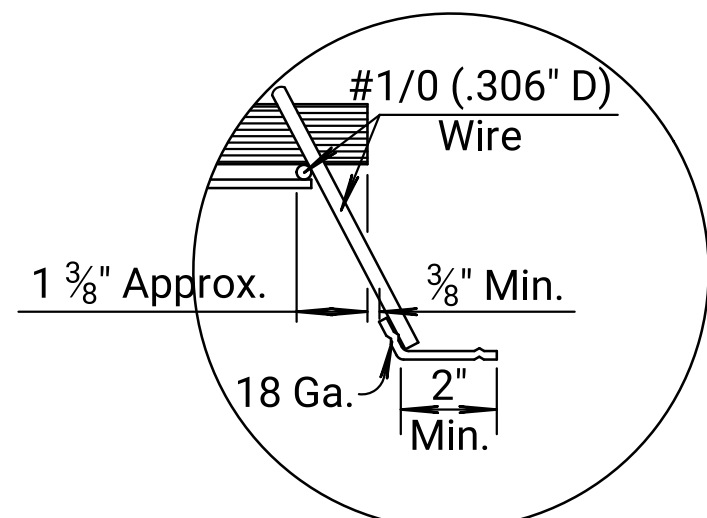
SEC. A-A

* See pavement details for size of dowels.

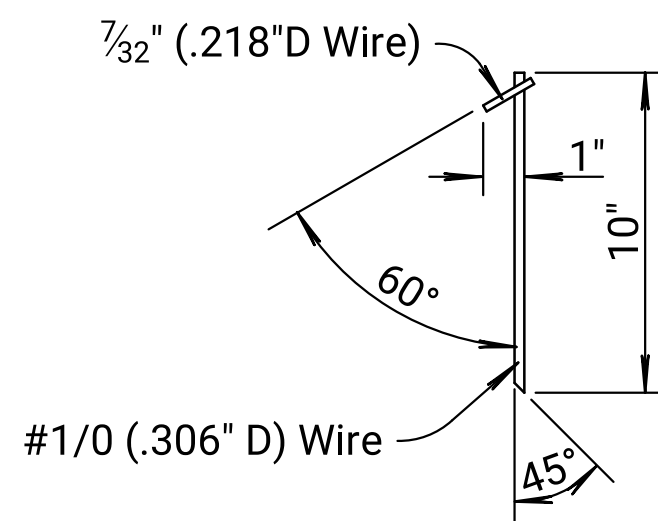


SEC. B-B

CONTRACTION JOINT



SAND PLATE (Alt. 1)



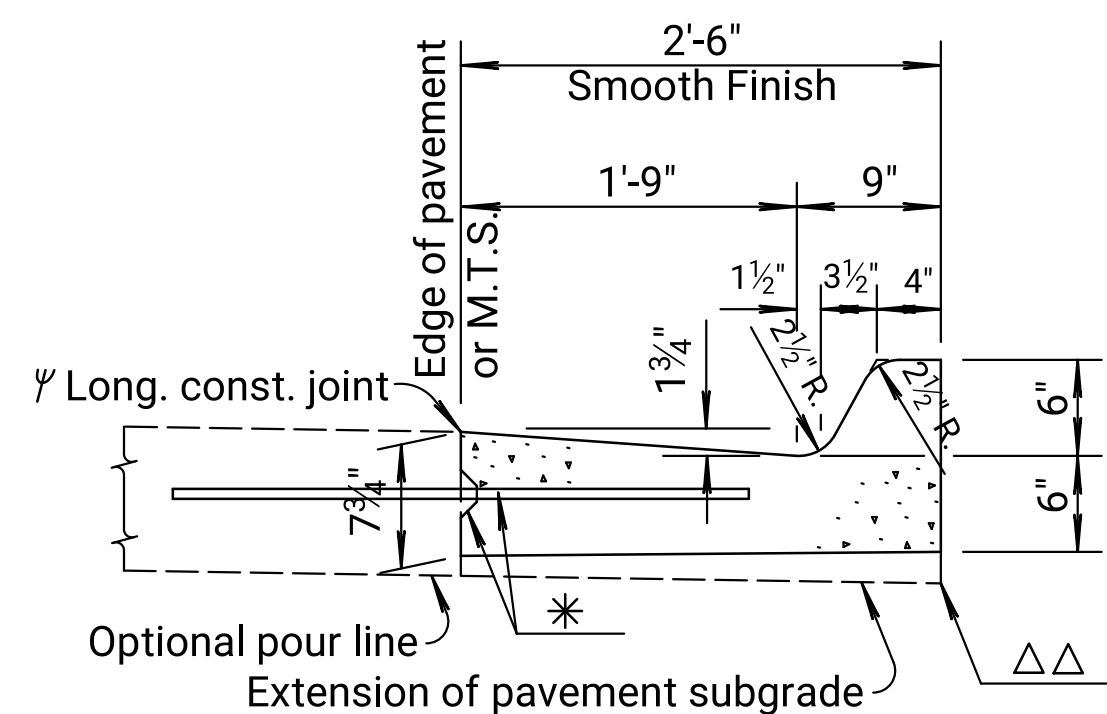
STAKE DETAIL

(6 Pieces minimum required)

GENERAL NOTE
Coat each dowel bar with an epoxy coating that meets the standard specifications. Uniformly apply the powdered epoxy coating according to accepted practices and the coating manufacturer's recommendations. The coating need not be applied to the end faces of the bars and will not be required within 2" of the end which will be fixed in the supporting bracket by welding.
Cut the dowel bars to length in such a manner to result in no appreciable deformation of the ends.

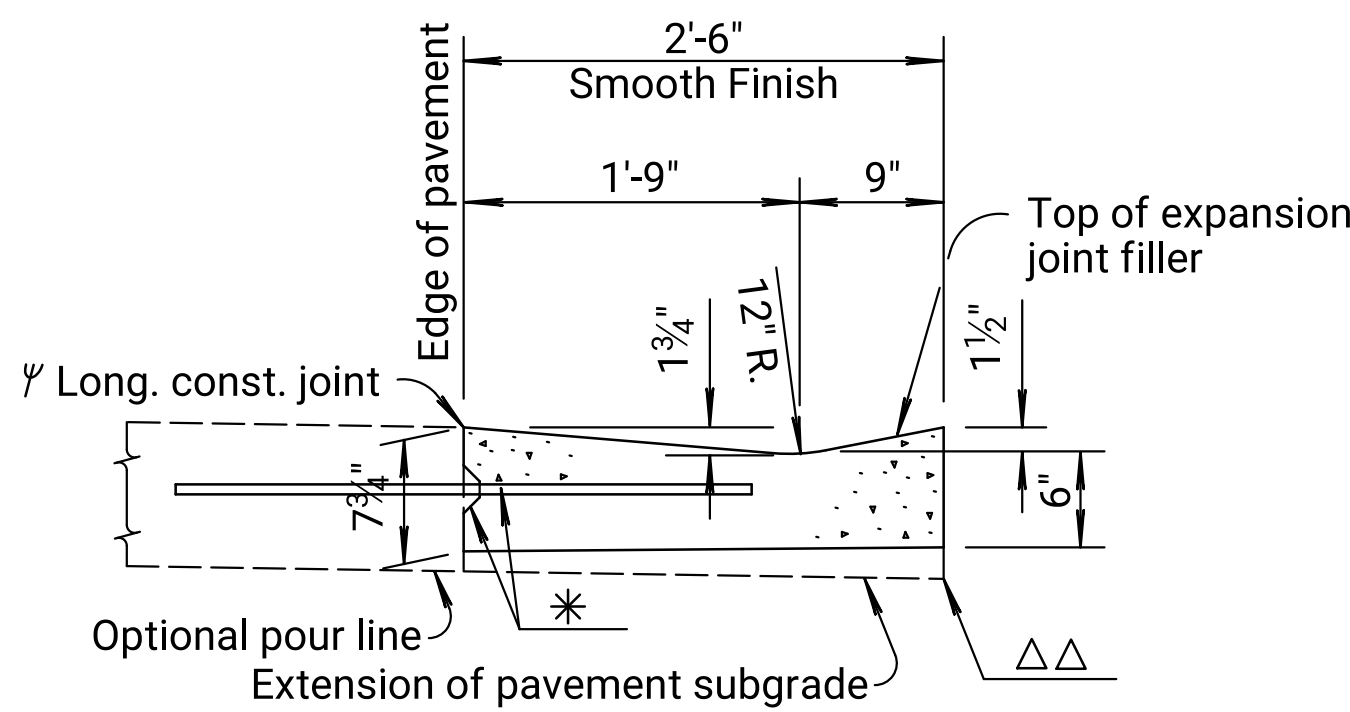
Dowel Baskets
Wire sizes shown are minimum required.
Stake baskets to subgrade as shown. Use ramset or similar type fastener with clip when subgrade condition requires it.
Stretch a string line between the pavement forms along the center line of the joint. Carefully mark the position of the joint so the saw cut will coincide with the center line of the joint.
Visually inspect bond breaker was applied to the dowel bars in accordance with KDOT's Standard Specifications prior to placing concrete pavement.
Carefully level the entire joint assembly so that the dowels are parallel to the slab surface and free to slide in the dowel holders. Replace any coating scraped off the dowels during assembly.
Check each completed contraction joint assembly to be certain the vertical plane of the joint will be perpendicular to the finished surface of the slab and at a right angle with the center line of the slab unless otherwise shown on the plans. Check the dowels to be certain they are level and will remain in a position parallel with the finished surface of the slab.
Place concrete over and adjacent to the joint in accordance with the requirements of the Standard Specifications.
Alternative designs may be used in lieu of the type shown as approved by the Engineer.

09	06-03-15	Rem. Opt., Mechanical Placement	T.T.R.	S.W.K.
08	02-15-06	Chg. Grade 60 to Grade 40 Steel	S.W.K.	J.O.B.
07	05-05-04	Revision on Epoxy coating	S.W.K.	J.O.B.
NO.	DATE	REVISIONS	BY	APPD
KANSAS DEPARTMENT OF TRANSPORTATION				
CONTRACTION & EXPANSION JT. DOWEL ASSEMBLIES				
RD735				
FHWA APPROVAL 03-30-16 APPD. Scott W. King				
DESIGNED	DETAILED	QUANTITIES	TRACED	
DESIGN CK.	DETAIL CK.	QUAN.CK.	TRACE CK.	



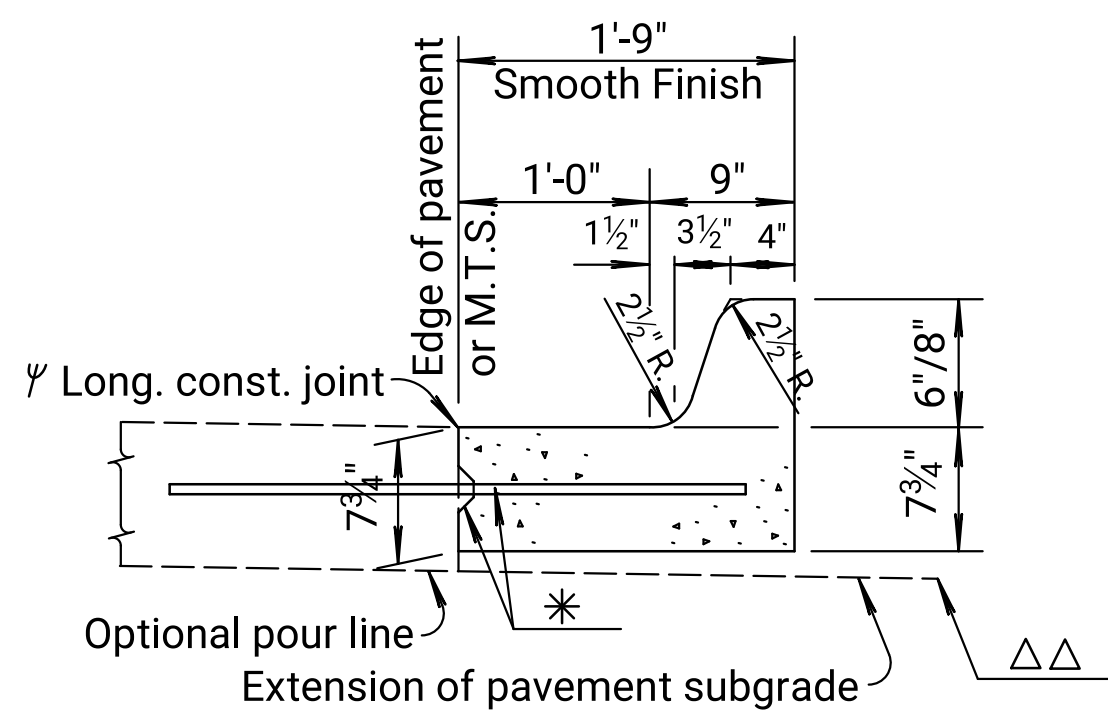
Note: Conc. C.&G. I contains 0.060 cu. yds. Conc. Grade 3.0 (AE) per lin.ft.

COMBINED CURB & GUTTER - TYPE I (2'-6" WIDTH)



Note: Conc. C.&G. II contains 0.053 cu. yds. Conc. Grade 3.0 (AE) per lin.ft

COMBINED CURB & GUTTER - TYPE II (2'-6" WIDTH)

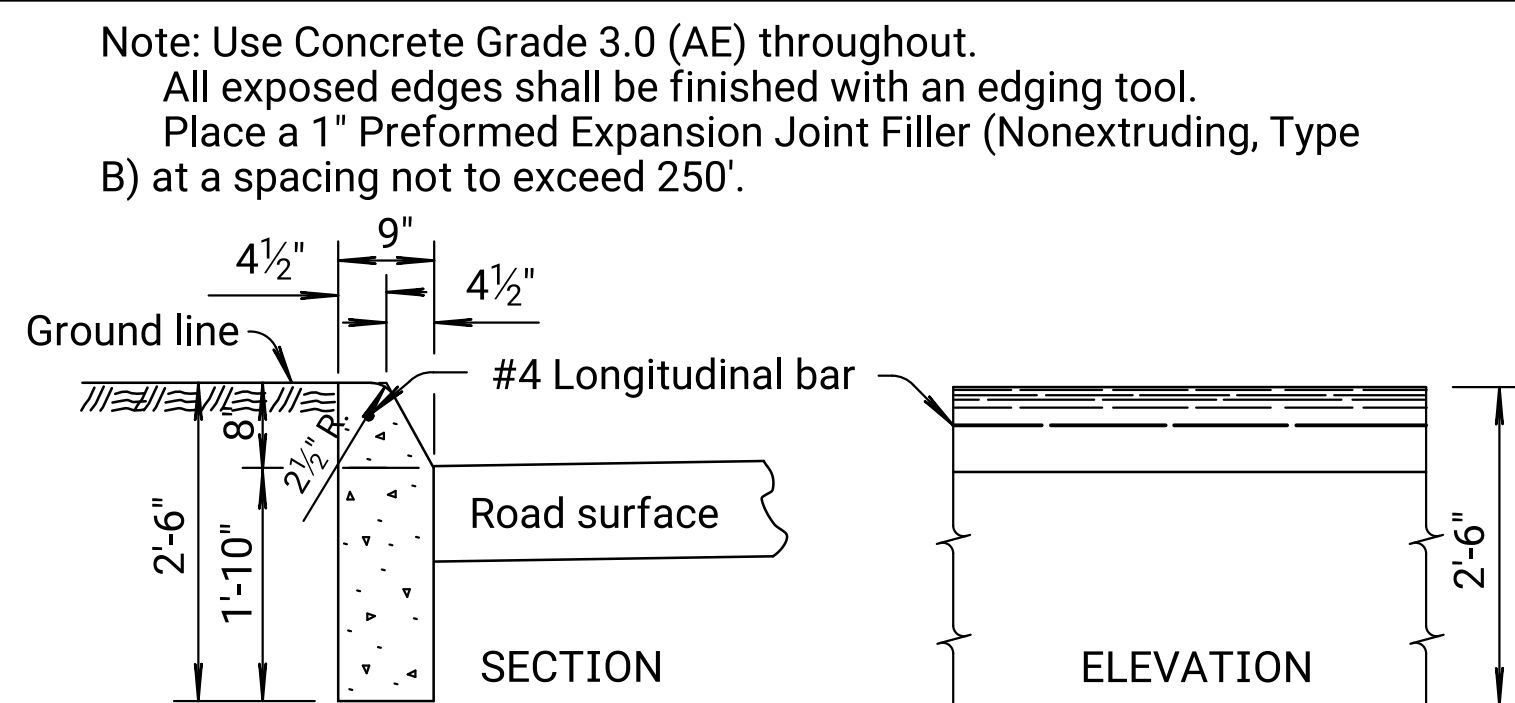


Note: Conc. C.&G. III contains 0.054 (8") & 0.051 (6") cu. yds. Conc. Grade 3.0 (AE) per lin. ft.

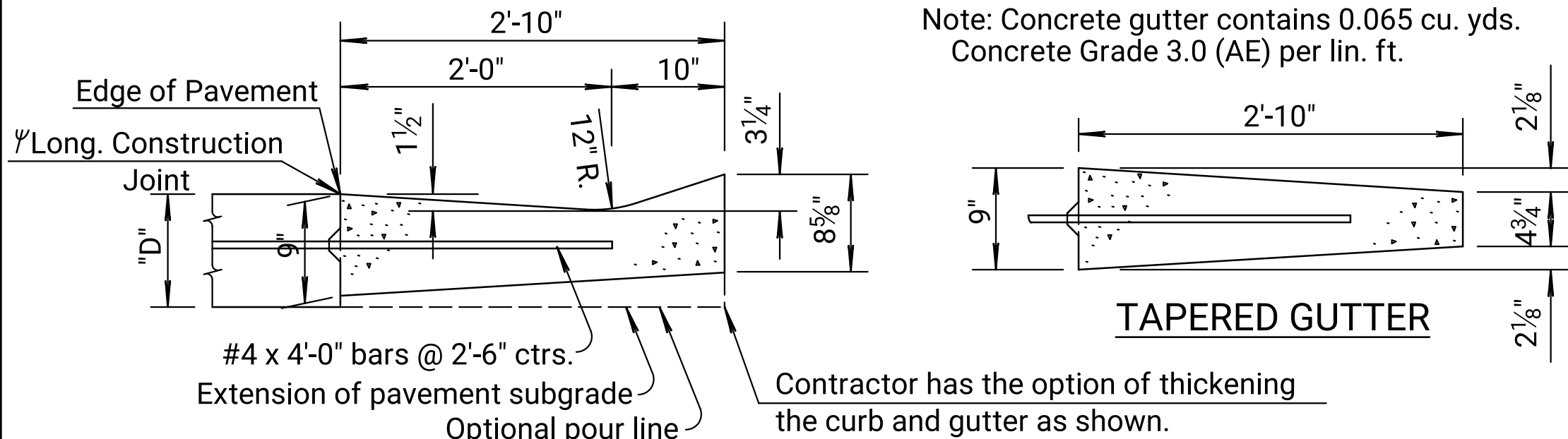
COMBINED CURB & GUTTER - TYPE III (1'-9" WIDTH)

* Longitudinal construction joint and #4 x 3'-0" bars @ 2'-6" ctrs., where concrete pavement is constructed.

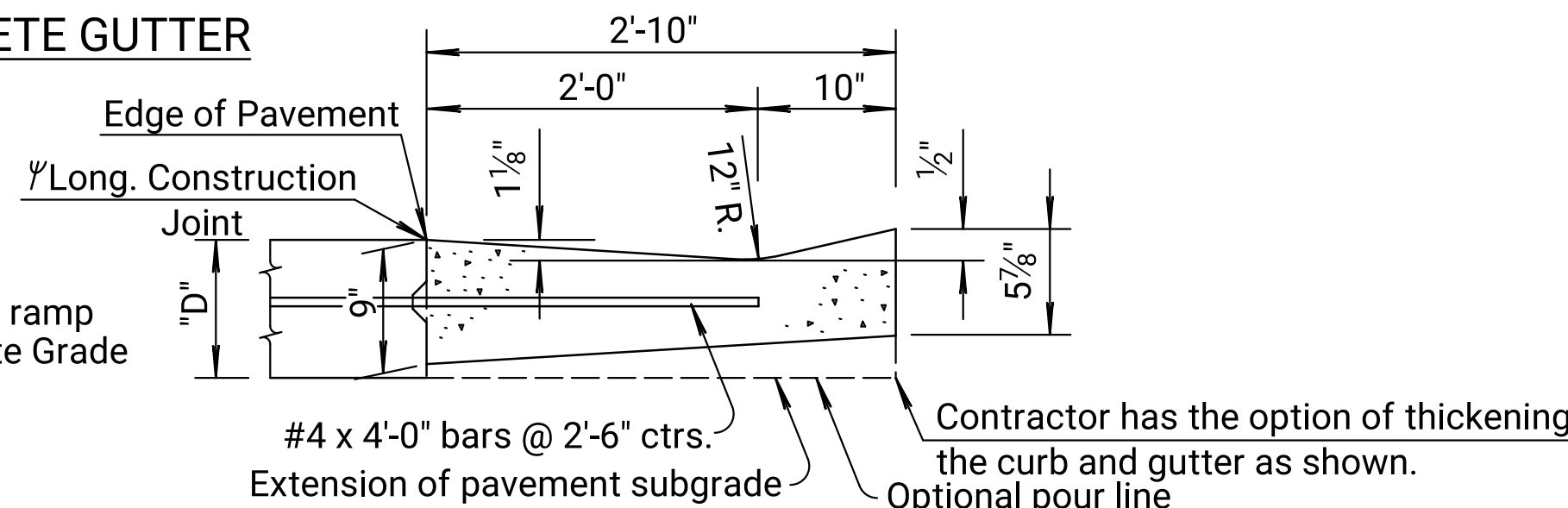
△△ Contractor has the option of thickening the curb and gutter as shown.



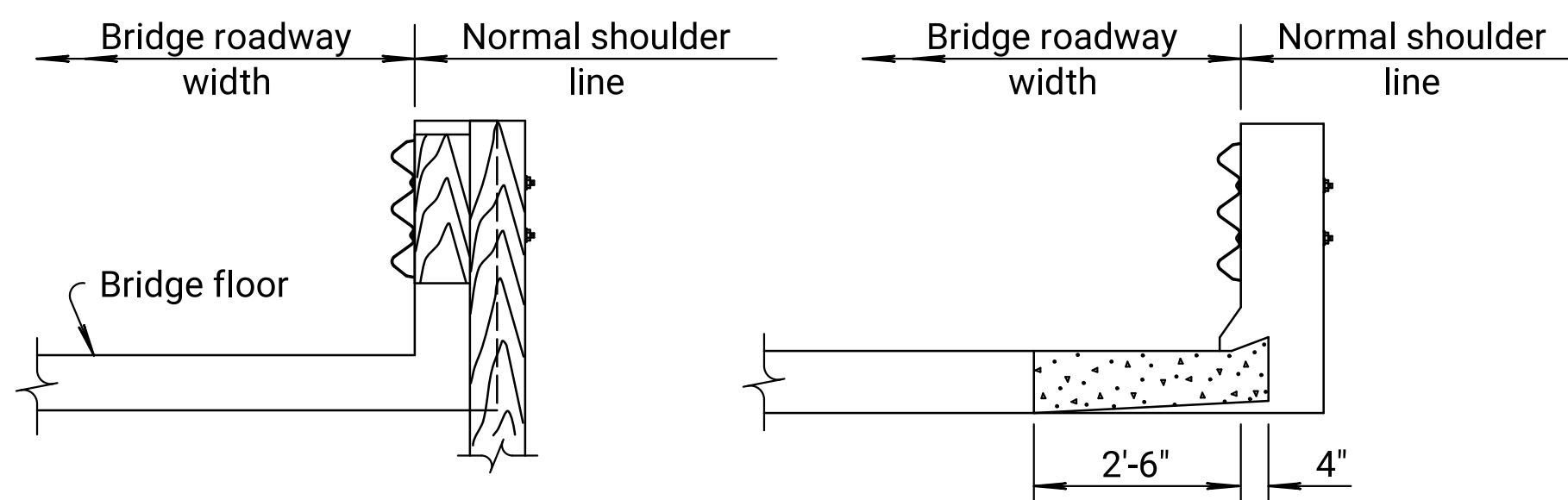
PROTECTION CURB 8'



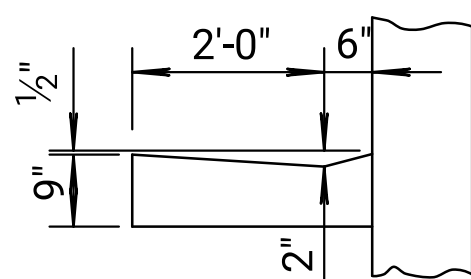
CONCRETE GUTTER



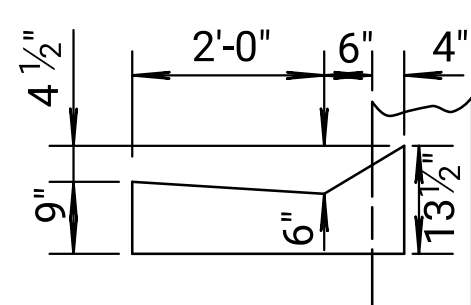
CONCRETE GUTTER THRU CURB RAMP



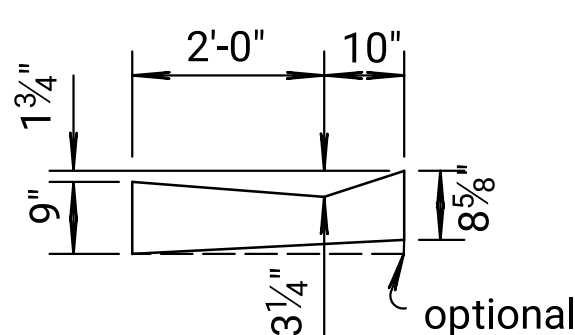
SECTION B-B



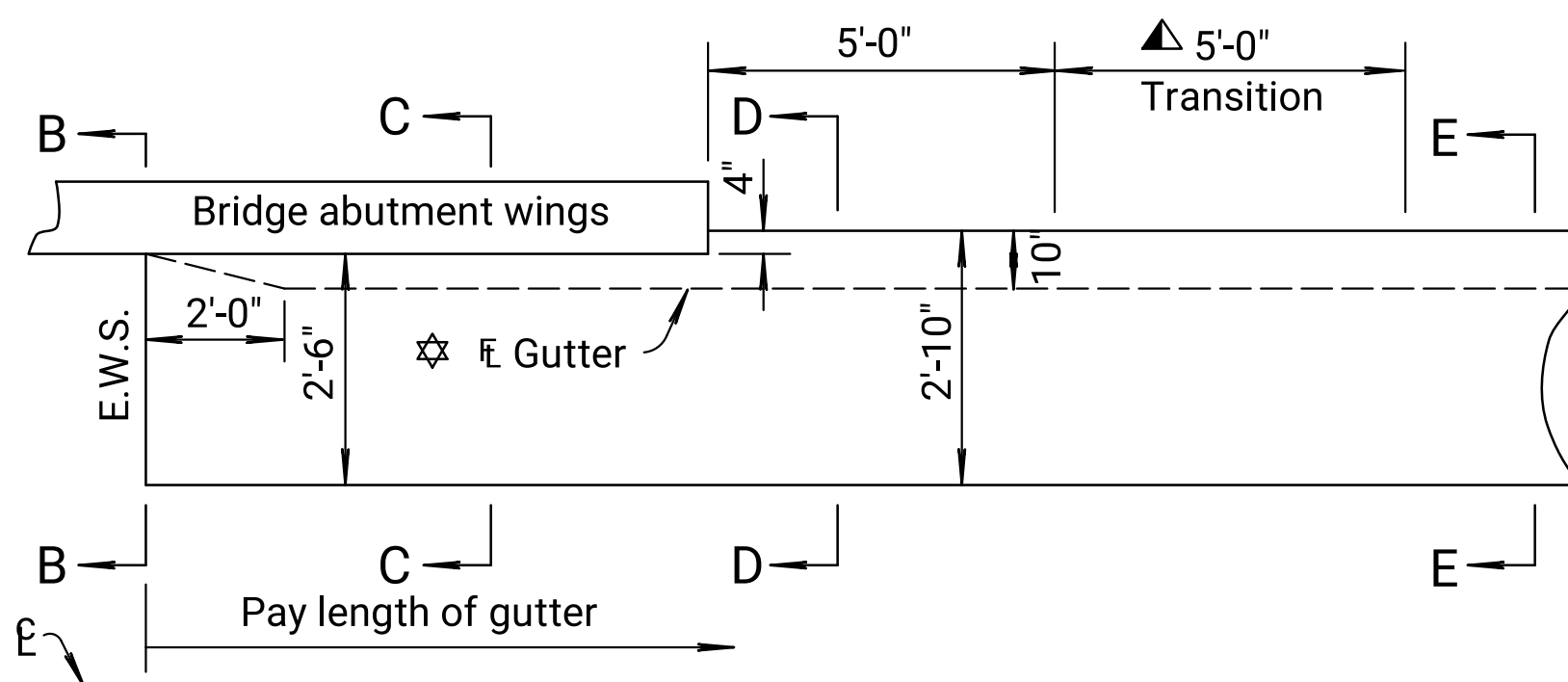
SECTION C-C



SECTION D-D



SECTION E-E



TYPICAL GUTTER @ BRIDGE ENDS

(Drawn for down grade end and "U" Type Abutments)

▲ Transition gutter to standard 2'-10" gutter section.

FOR RETROFIT OF BRIDGE APPROACHES WITH GUTTER

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	ST-2306	2025	18	139

COMBINED CURB AND GUTTER (SPECIAL) (1'-9" WIDTH)

GENERAL NOTE

Combined curb and gutter or gutter adjoining concrete pavement may, at the contractor's option, be constructed either monolithically or separately, using either the mix used in the concrete pavement or Concrete Grade 3.0 (AE). The combined curb and gutter or gutter shall have the same section as shown on the plans. If constructed monolithically, the longitudinal joint and tie bars shall be omitted from the combined curb and gutter or gutter. Pavement Joints shall be continued through curb or gutter and no other planes of weakness will be required. Joints in the combined curb and gutter or gutter are to be filled with the same material as used for the pavement joints.

Expansion joints in the combined curb and gutter are to be placed opposite expansion joints in the pavement.

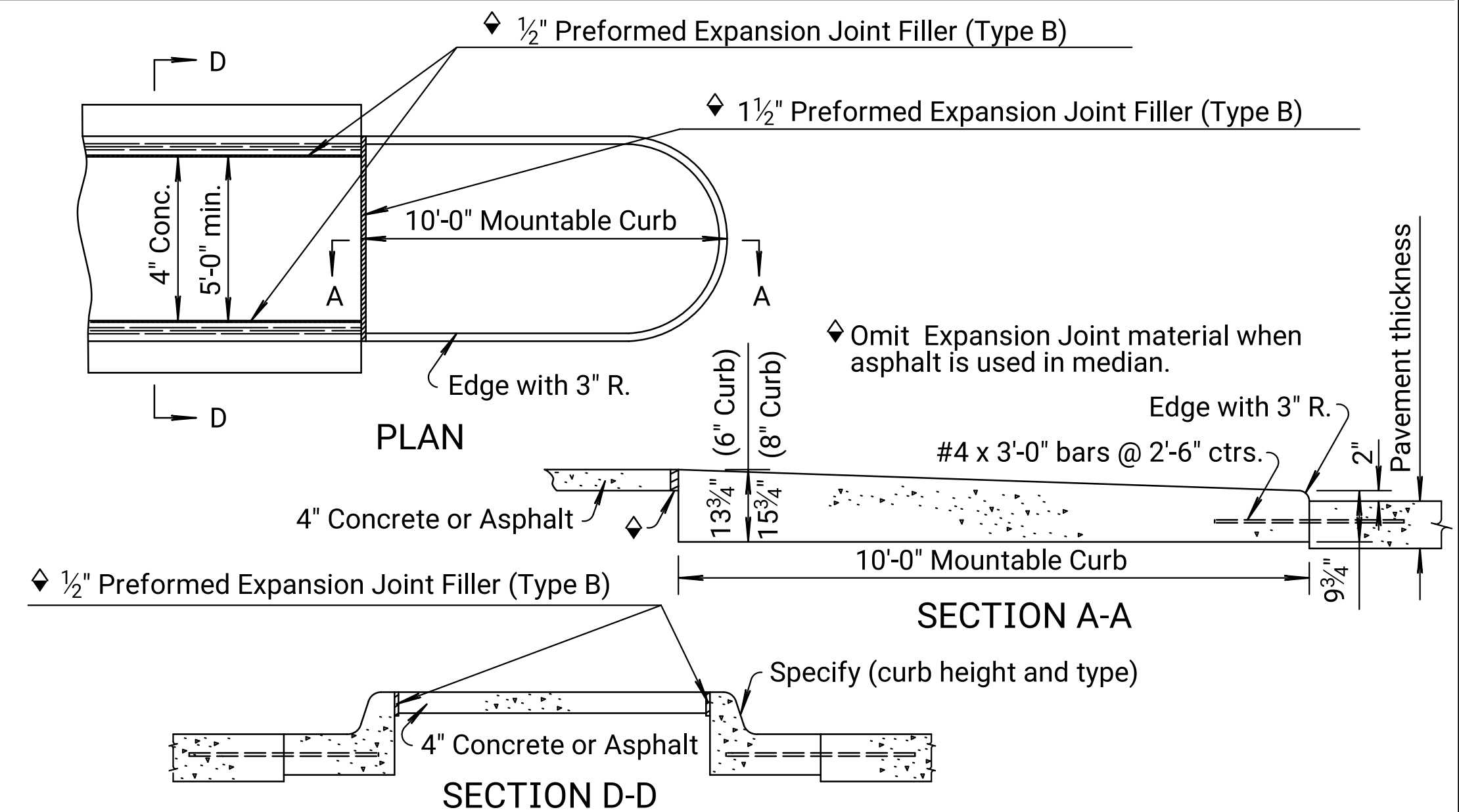
Where combined curb and gutter or gutter does not abut concrete pavement or concrete base course, omit tie bars and place a 1" Preformed Expansion Joint Filler (Type B) cut to the dimensions of the combined curb and gutter or gutter, at a spacing not to exceed 250' and at the ends of curb returns. Planes of weakness shall be constructed at 10'-0" intervals.

A 4' length of transition from normal gutter section to the tapered gutter section shall be used at the ends of each run of gutter except where the gutter abuts a curb, such as at the end of a bridge. Inlets shall be located so as not to fall within this transition section.

Where pressure relief joint is placed across the pavement, and gutter or curb and gutter is continued on for more than 10', use 4"x4" membrane sealant installed with bonding adhesive through gutter section, shaped to fit gutter or curb and gutter. See Std. Drawing RD712.

For expansion joint treatment where combined curb and gutter or gutter abuts a bridge wing on a U-type abutment see bridge drawings.

^ψ If constructed monolithically, the longitudinal joint is not required.



Note: Expansion joints shall be placed in concrete median as follows. In long runs expansion joints Expansion joints in the median shall match expansion joints in the curb and gutter with a maximum spacing of 125'. Plane of weakness in the median shall match plane of weakness in curb and gutter.

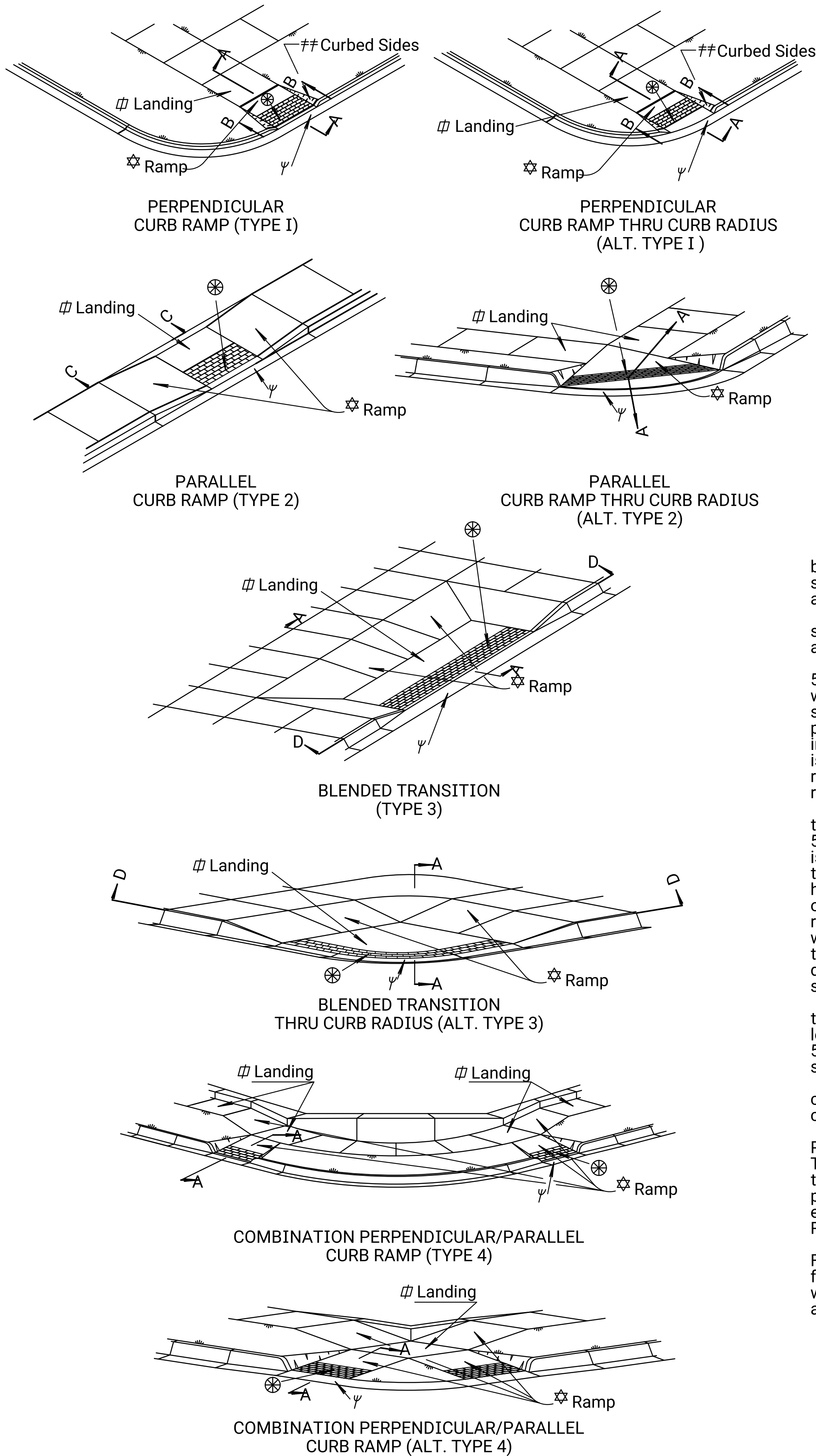
TYPICAL NOSE DETAILS FOR RAISED MEDIANS

Note: Additional Concrete Grade 3.0 (AE) needed to complete median nose shall be subsidiary to the bid item "Combined Curb & Gutter".

20	02-23-17	Det., Conc. Gutter Thru Curb Ramp	T.T.R.	S.W.K.
19	01-29-13	Added Detail, Comb. C&G (Sp.)	S.W.K.	J.O.B.
18	08-13-12	Revised General Note	S.W.K.	J.O.B.
NO.	DATE	REVISIONS	BY	APP'D
KANSAS DEPARTMENT OF TRANSPORTATION CURB, GUTTER AND COMBINED CURB & GUTTER RD635				
FHWA APPROVAL		03-07-17	APP'D.	Scott W. King
DESIGN CK.	DETAILED	QUANTITIES	TRACED	
DESIGN CK.	DETAIL CK.	QUAN.CK.	TRACE CK.	

Note to Designer: Placing newly constructed curb ramps through curb radii should be avoided wherever practicable. The use of Parallel Curb Ramp Thru Curb Radius (Alt. Type 2) should be avoided wherever practicable. Review locations of fixed objects. Placing fixed objects in conflict with sidewalk and ramps should be avoided. Fixed objects may include, but are not limited to, fire hydrants, utility cabinets, drainage structures, manholes, inlets, signal poles, and utility poles.

Plotted by : Riley Standish
File : ST2306rpv-725.dgn
8-JUL-2025 16:20



⌀ Expansion Joint (¾" Redwood board) placed at either back of curb line, at sidewalk back of curb line, or at sidewalk line. Alternate expansion joint material may be used as approved by the Engineer.

✕✕ Expansion joint (¾" Redwood board) located as shown. Alternate expansion joint material may be used as approved by the Engineer.

✦ The minimum width of newly constructed sidewalk is 5'-0". Where existing conditions prohibit the use of 5'-0" wide sidewalk, 4'-0" wide sidewalk may be used. Where sidewalk width is less than 5'-0" construct 5'-0" x 5'-0" passing spaces located at 200' intervals (max) as shown in the Passing Space Detail. In general, where new sidewalk is constructed parallel or adjacent to a roadway the sidewalk running slopes will match the grade of the adjacent roadway.

✧ New construction ramp running slopes are 5% (min) to 8.3% (max). Ramp slopes for blended transitions are 5% or flatter. The maximum allowable ramp cross slope is 2% or flatter. Match the ramp width to the width of the approach sidewalk. Curb ramp lengths will vary with curb height. Curb ramp lengths are 5'-0" (min) to 15'-0" (max). All other ramp lengths are 5'-0" (min) to 30'-0" (max). Where roadway grades are relatively flat and curb ramp lengths will exceed 15'-0", ramps may be constructed in succession to tie into existing sidewalk. Maintain ramp slopes and dimensions as previously stated and install a landing between successive ramp runs.

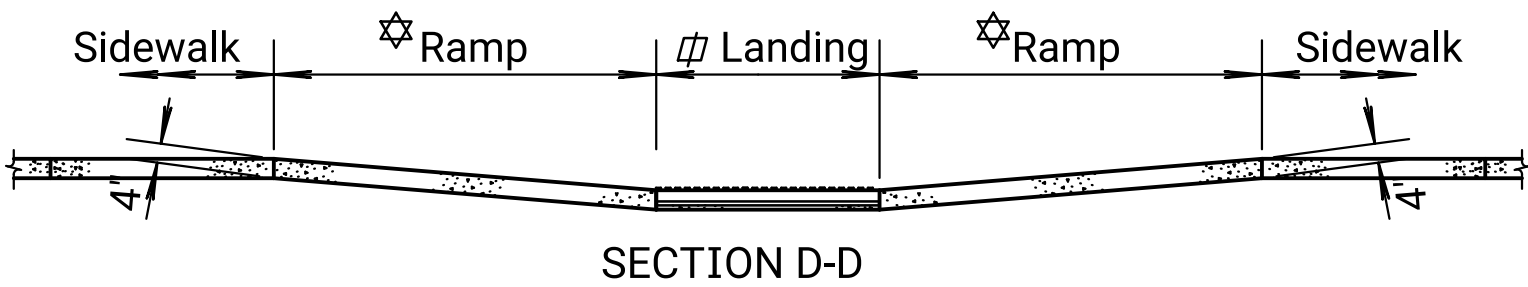
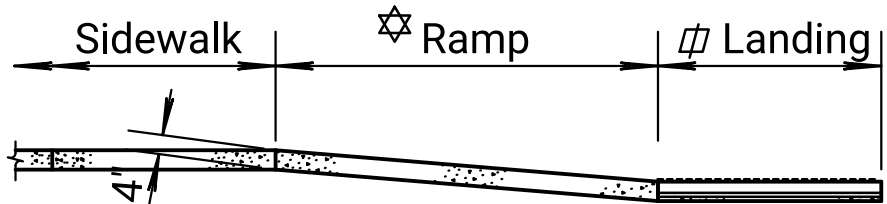
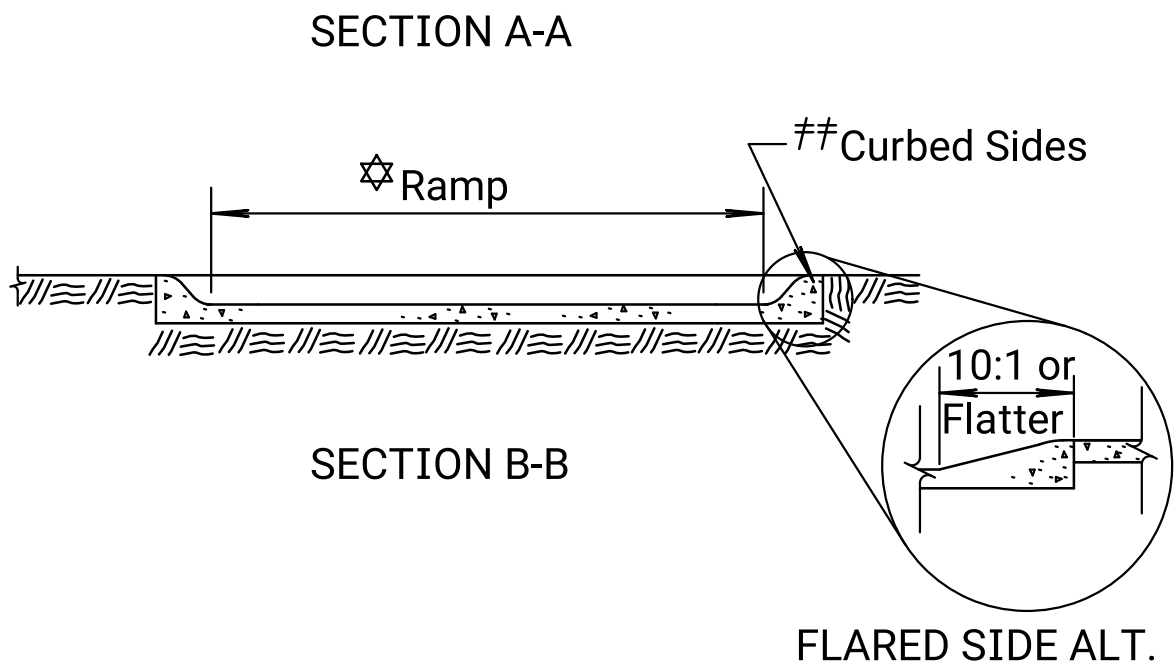
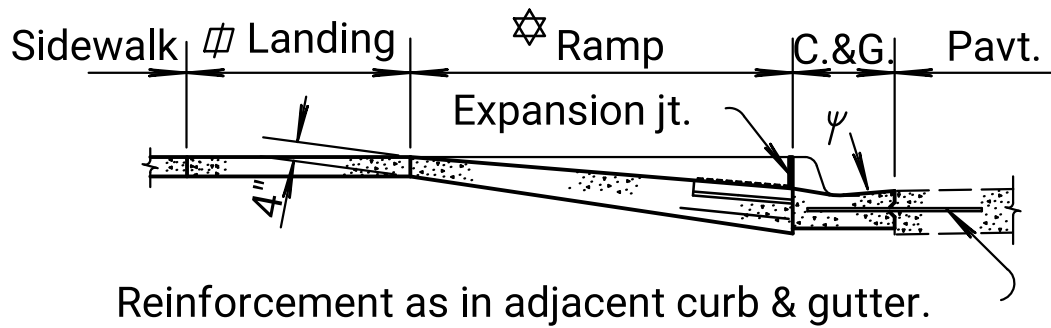
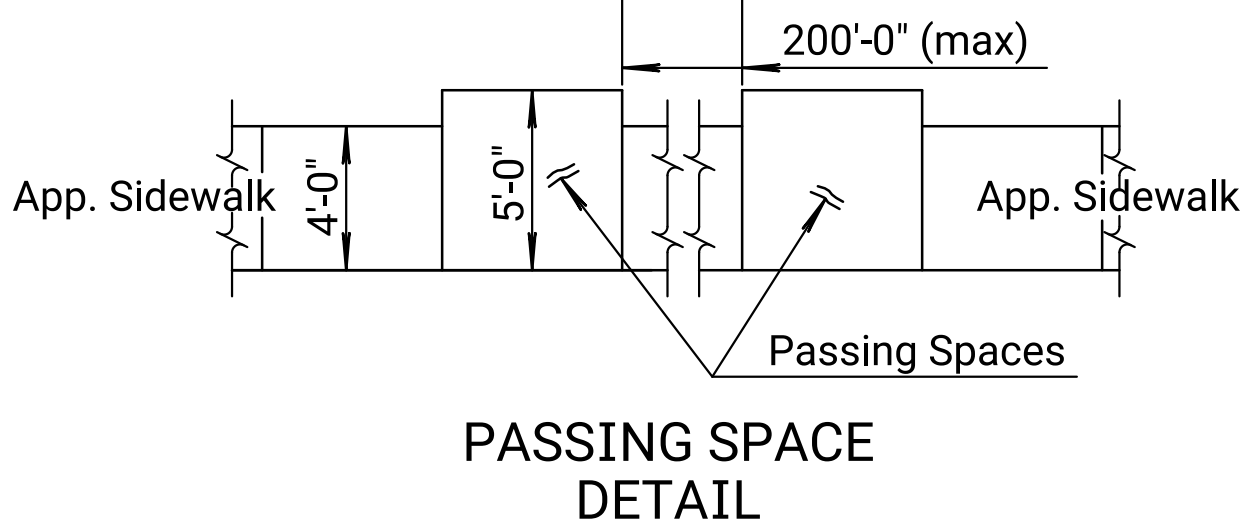
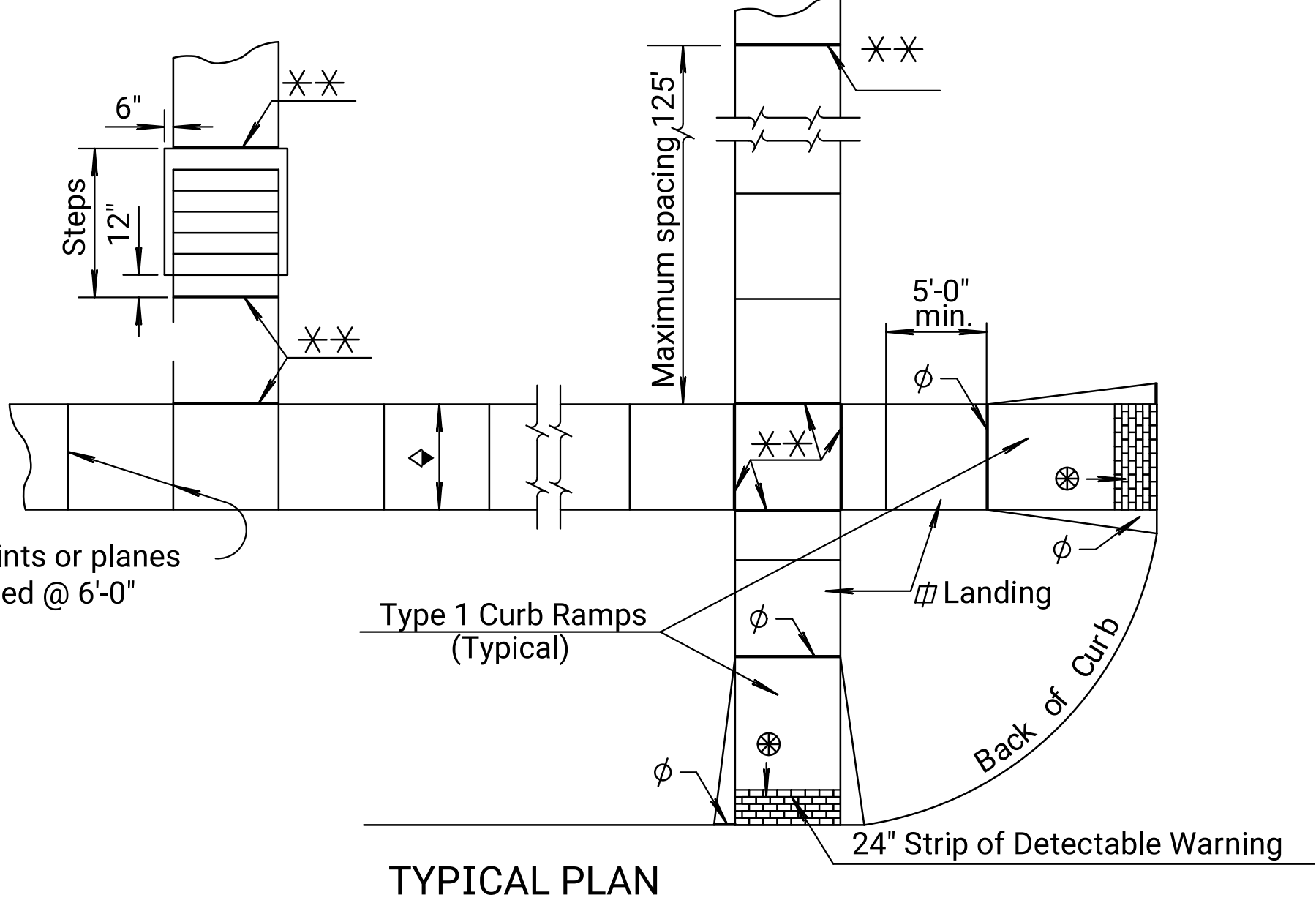
⌒ Use a landing slope of 2% or flatter. Landings are the same width as ramps and adjacent sidewalk with a length measured in the direction of the street crossing of 5'-0" (min). Landings are not required where the ramp running slope is 5% or flatter.

∇ Use a counter slope of 5% or flatter at the base of curb ramps. Refer to Standard Drawing RD725A for additional curb and gutter details.

⊗ Detectable warning installation is typical and required on Perpendicular Ramps (Type 1), Parallel Ramps (Type 2), Blended Transitions (Type 3), median ramp crossings with widths greater than or equal to 6'-0", and other locations as shown in the plans. Install detectable warnings parallel to pedestrian travel except where otherwise shown in the plans. See Standard Drawing RD725A for additional details.

Use flared sides in place of curbed sides as shown in Flared Side Alt. when not located adjacent to landscaping, street furniture, chains, fencing, or railing. Curbed sides are not permitted within the pedestrian access route. See PROWAG for pedestrian access route definition.

Construction joints or planes of weakness spaced @ 6'-0" ctrs. or less.



GENERAL NOTES

Construct sidewalk and ramps in accordance with the current Public Rights of Way Accessibility Guidelines (PROWAG).

The details depicted here may not be appropriate for all locations. Construct to meet this criteria on all roadway alteration projects as defined by the Department of Justice/ Department of Transportation Joint Technical Assistance on ADA Title II Requirements. For an existing sidewalk facility where the sidewalk will be replaced, replace sidewalk in accordance with PROWAG.

Details shown on this sheet apply to newly constructed and existing sidewalk and ramps where roadway alteration projects take place. See KDOT's Standard Specifications for additional information.

Provide ramps at all corners of street intersections where there is an existing or proposed sidewalk and curb. Provide curb ramps at mid-block walk locations for hospitals, medical centers, and athletic stadiums.

Locate ramps as shown on the plans or as directed by the Engineer.

Do not place drainage structures in line with ramps except where existing drainage structures are being utilized in the new construction. Ramp locations should take precedence over the location of drainage structures. Where existing manhole access lids are located on ramps within the area of the detectable warnings and the manhole lid cannot be removed or relocated; install a lid with a detectable warning surface in accordance with PROWAG. Limit drainage across ramps where practicable.

Construct ramps with uniform grade free of sags and short grade changes.

Place ¾" Redwood expansion joints flush with the surface at a maximum spacing of 125'. Place ¾" Redwood expansion joints at sidewalk junctions, see plan details. Where sidewalk abuts a curb place ¾" Redwood board expansion joint flush with the surface.

Place ½" premolded (Type B or C) joint filler where sidewalk is parallel and adjacent to a rigid surface.

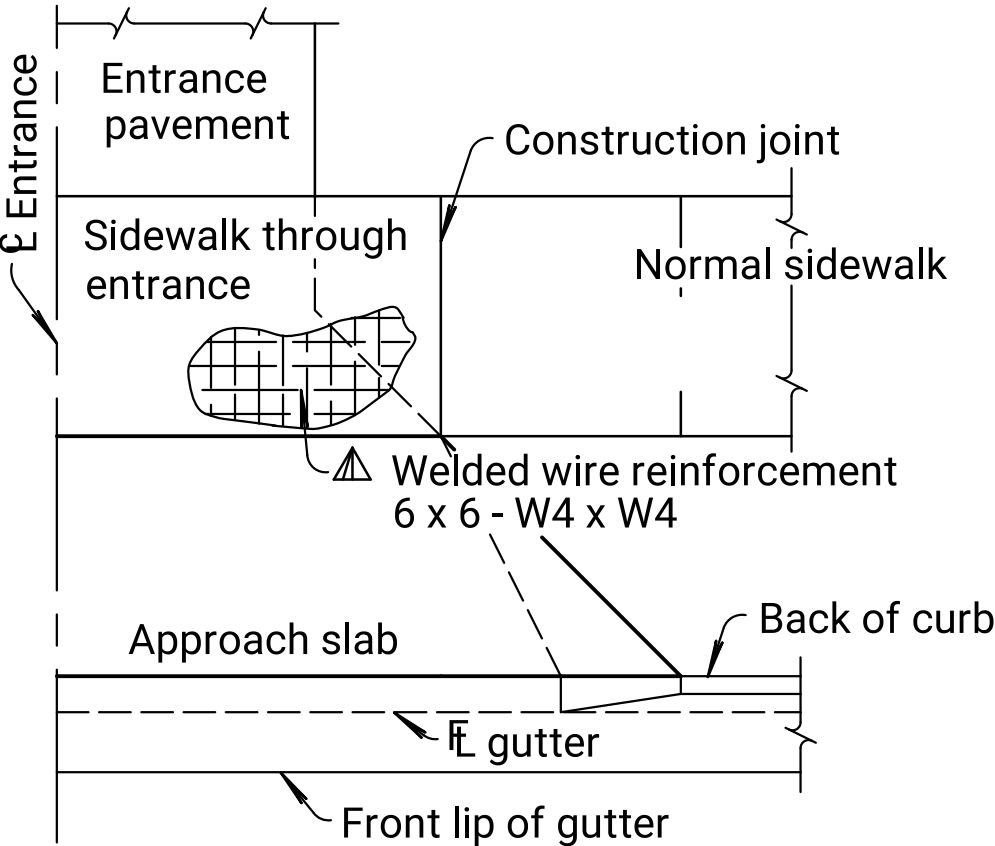
▲ Place sidewalk shown to be constructed in back of an entrance 6" thick with welded wire mesh reinforcement. Gauge and spacing of wires are the same as entrance pavement (See Reinforcement Diagram). The bid item will be "Sidewalk Constructiton" either with or without air entrainment. Macro fiber reinforcement may be substituted for welded wire. See KDOT's Standard Specifications for additional information. Slope sidewalk toward the street at 2% or flatter. Slope or depress sidewalk where necessary to fit alleys and entrances, see plans for details.

Contractor may opt to use Concrete Grade 3.0 (AE) throughout for construction of steps, but all work and materials are paid for under the bid item "Grade 3.0 Conc. (Misc.)".

All work and materials needed to construct sidewalk will be paid for under the bid item "Sidewalk Construction".

All work and materials needed to construct ramps will be paid for under the bid item "Sidewalk Ramps".

See Standard Drawing RD725A for additional information.
Ramps shall be present at each end of a crosswalk.
For handrails with steps see Standard Drawing RD725B for details.
For handrails with ramps see Standard Drawing RD725C for details.
For alley and entrance pavement see Standard Drawing RD726 for details.



REINFORCEMENT DIAGRAM
SIDEWALK THROUGH ENTRANCE

13	10-31-17	Joint Filler Type C Added	A.L.R.	S.W.K.
12	02-23-17	Rev. Ramp Typ., Gen. Note, & Details	T.T.R.	S.W.K.
11	10-17-11	Revised General Note	S.W.K.	J.O.B.
NO.	DATE	REVISIONS	BY	APPD

KANSAS DEPARTMENT OF TRANSPORTATION

SIDEWALKS, RAMPS, & STEPS

RD725

FHWA APPROVAL		03-05-18	APPD.	SCOTT W. KING
DESIGNED	DETAILED	QUANTITIES	TRACED	
DESIGN CK.	DETAIL CK.	QUAN.CK.	TRACE CK.	

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	ST-2306	2025	20	139

GENERAL NOTES
Construct sidewalk and ramps in accordance with the current Public Rights of Way Accessibility Guidelines (PROWAG).
Details depicted here may not be appropriate for all locations. Design to meet this criteria on all roadway alteration projects as defined by the Department of Justice/ Department of Transportation Joint Technical Assistance on ADA Title II Requirements. For an existing sidewalk facility where the sidewalk will be replaced, replace sidewalk according to this drawing to the maximum extent feasible.

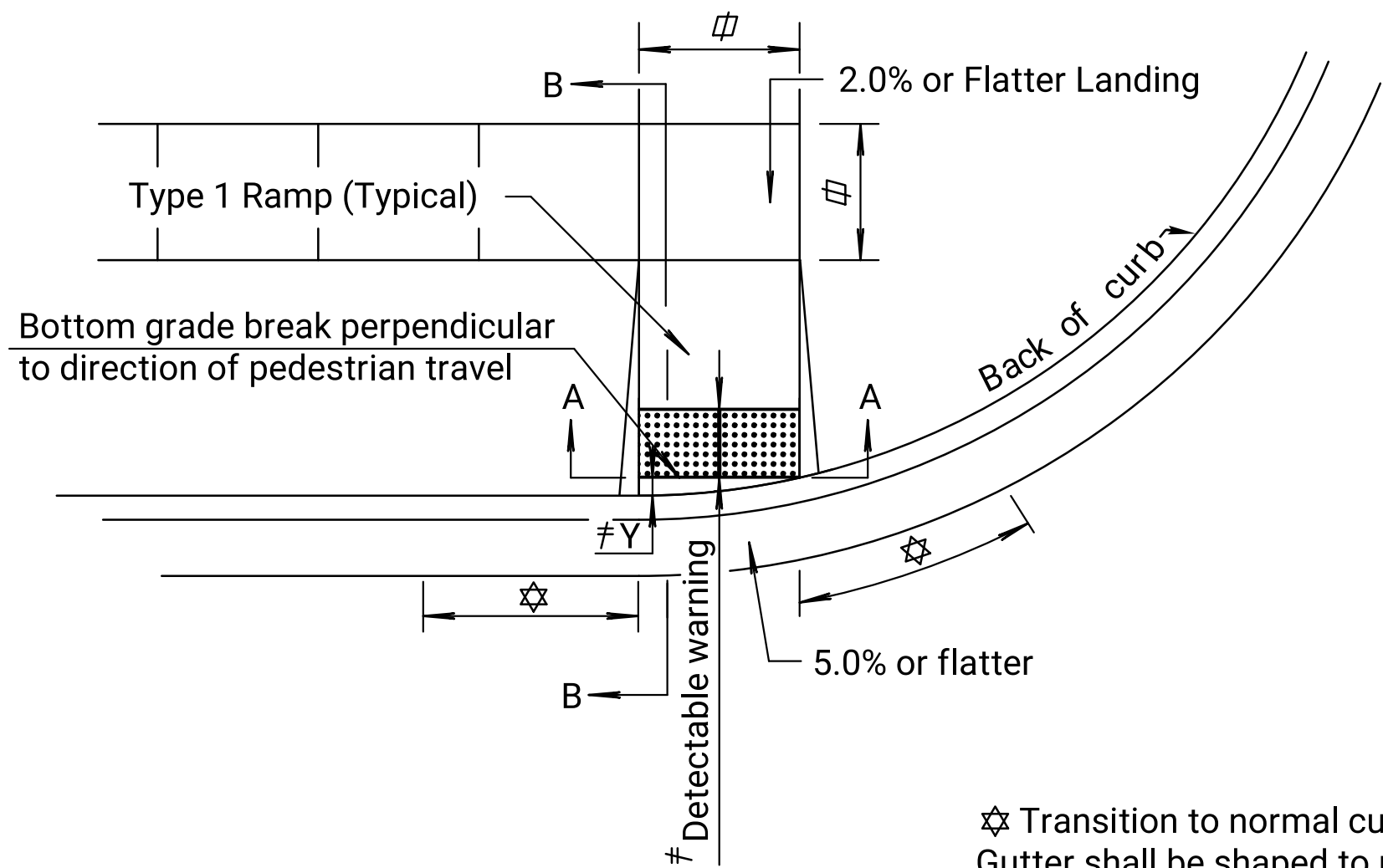
Install detectable warning surfaces at all ramp locations unless otherwise shown. Do not install detectable warning surfaces through residential driveway crossing locations. Use DURALAST Plate units that meet the requirements of the Standard Specifications and comply with PROWAG. Use a contrasting color DURALAST Plate to adjacent surfaces. Where existing manhole access lids are located on ramps within the area of the detectable warnings and the manhole lid cannot be removed or relocated, install a lid with a detectable warning surface in accordance with PROWAG.

Cover the ramp width and 24" length with truncated dome surface, see examples Standard Drawing RD725 & RD725A. Place Truncated Dome DURALAST Plate to align parallel in the direction of pedestrian travel unless otherwise shown in the plans.

DURALAST Plate are installed in fresh concrete, see KDOT's Standard Specifications for information.

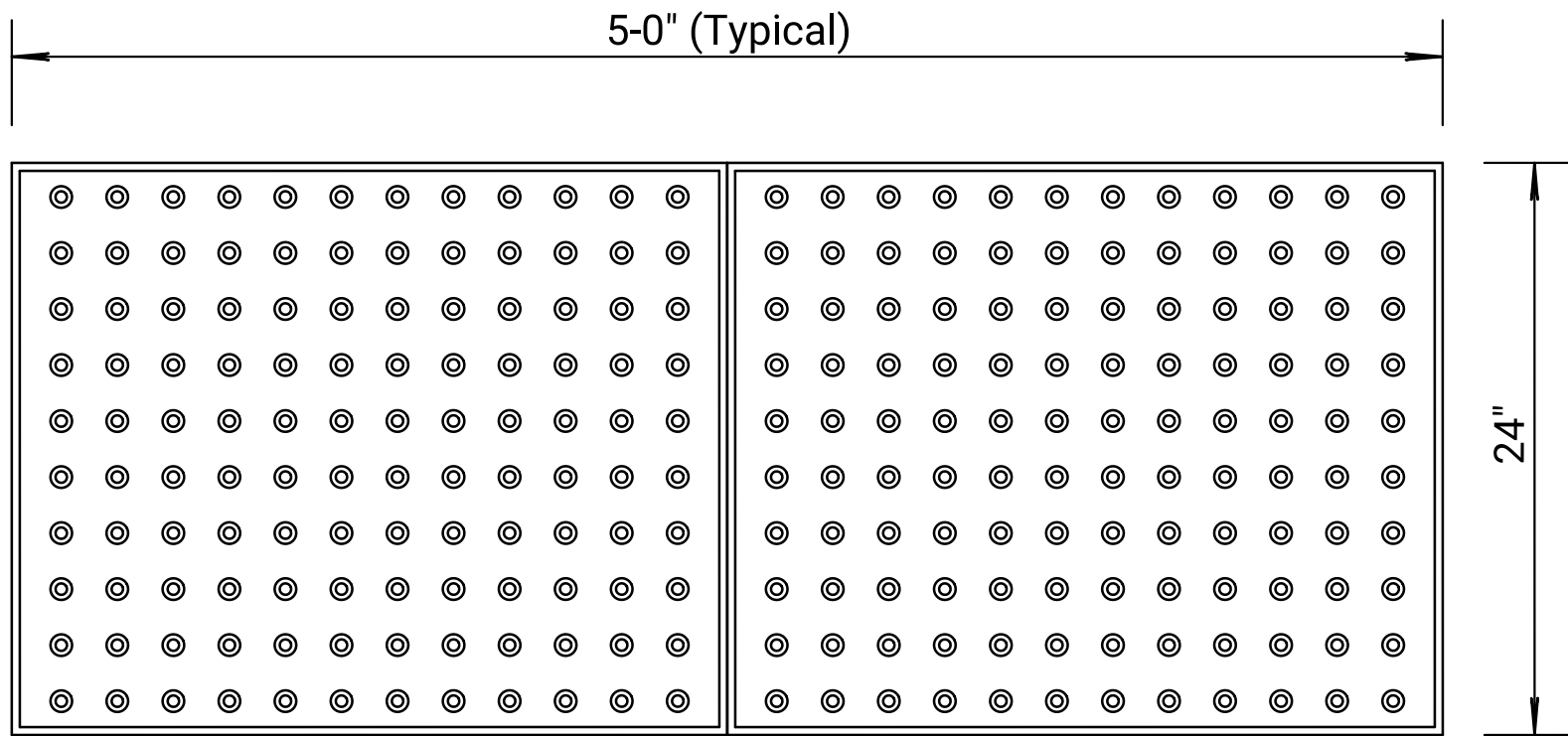
All work and materials needed to install detectable warnings will be paid for under the bid item "Sidewalk Ramps (Detectable Warning)".

The detectable warning surface shall be DURALAST plates that are slip resistant an asphaltic black dip finish (or approved equivalent).

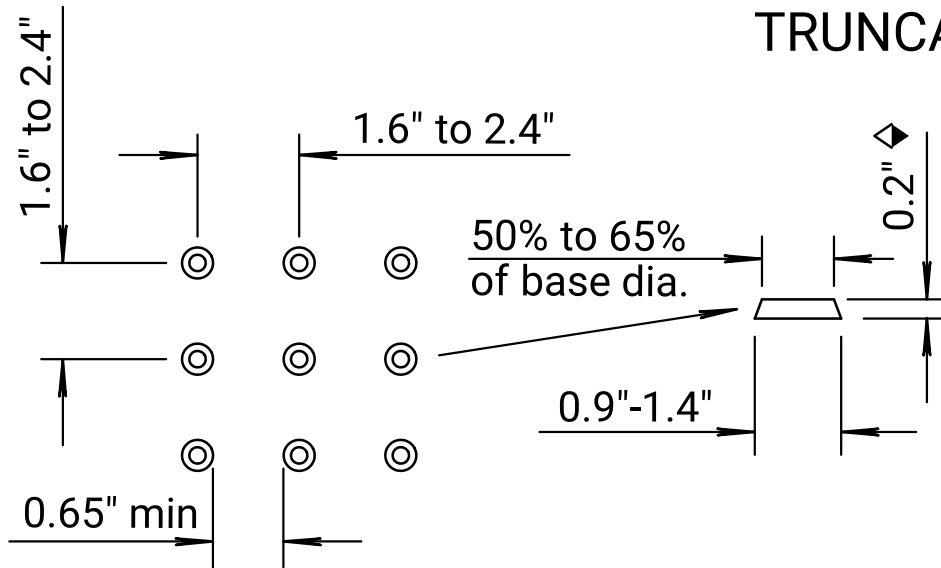


TYPICAL PLAN

- ★ Transition to normal curb and gutter section. Gutter shall be shaped to provide positive drainage.
- ⌘ See Standard Drawing No. RD725 for additional details.
- ≠ When the dimension "Y" from the back of curb to the bottom ramp grade break is greater than 5'-0" or the ramp is not located through a curb radius, place detectable warning at the back of curb. Otherwise, place detectable warning at the bottom grade break as shown.

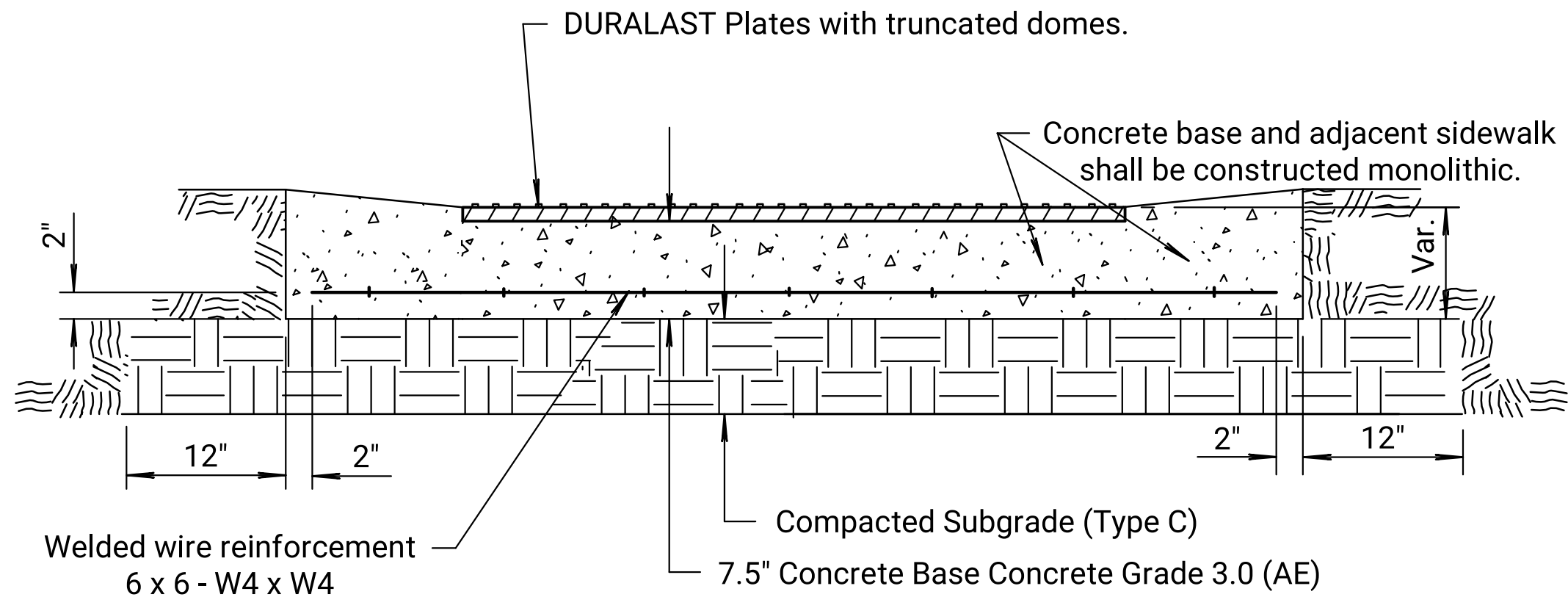


DURALAST PLATE
with
TRUNCATED DOME SURFACE

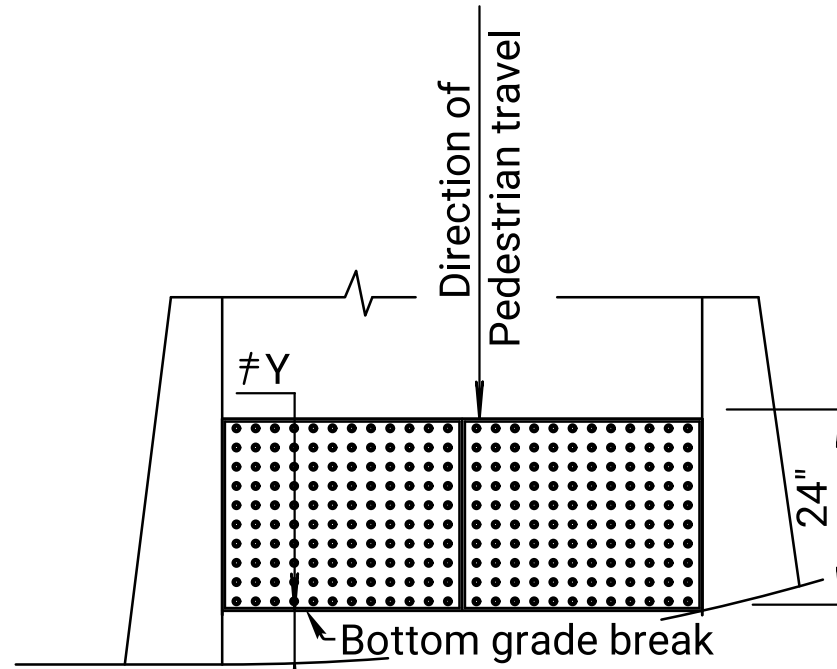


TRUNCATED DOME DIMENSIONS
for SQUARE PATTERN
(Parallel Alignment)

⬆ These dimensions are nominal.

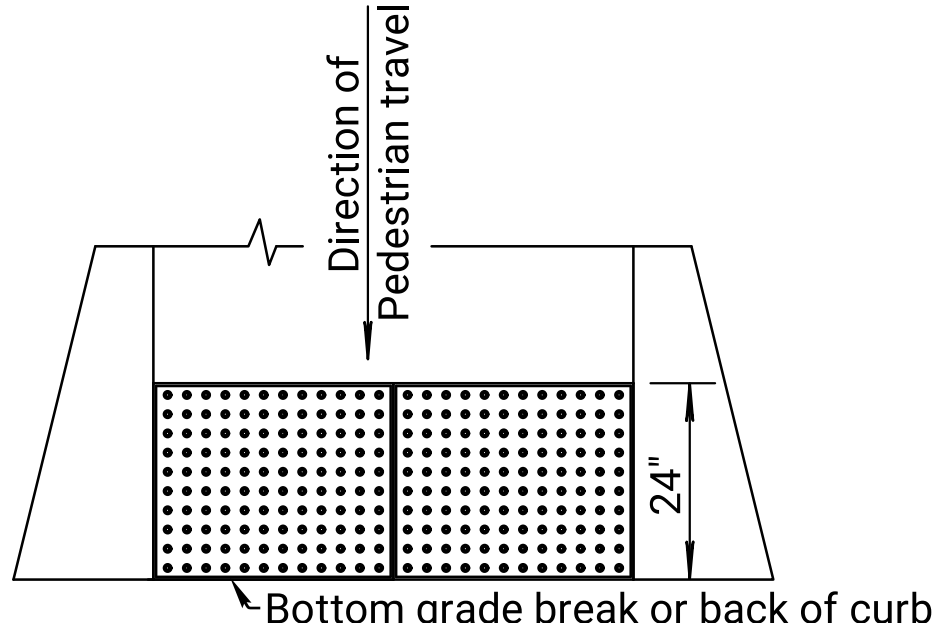


TYPICAL SECTION
SECTION A-A

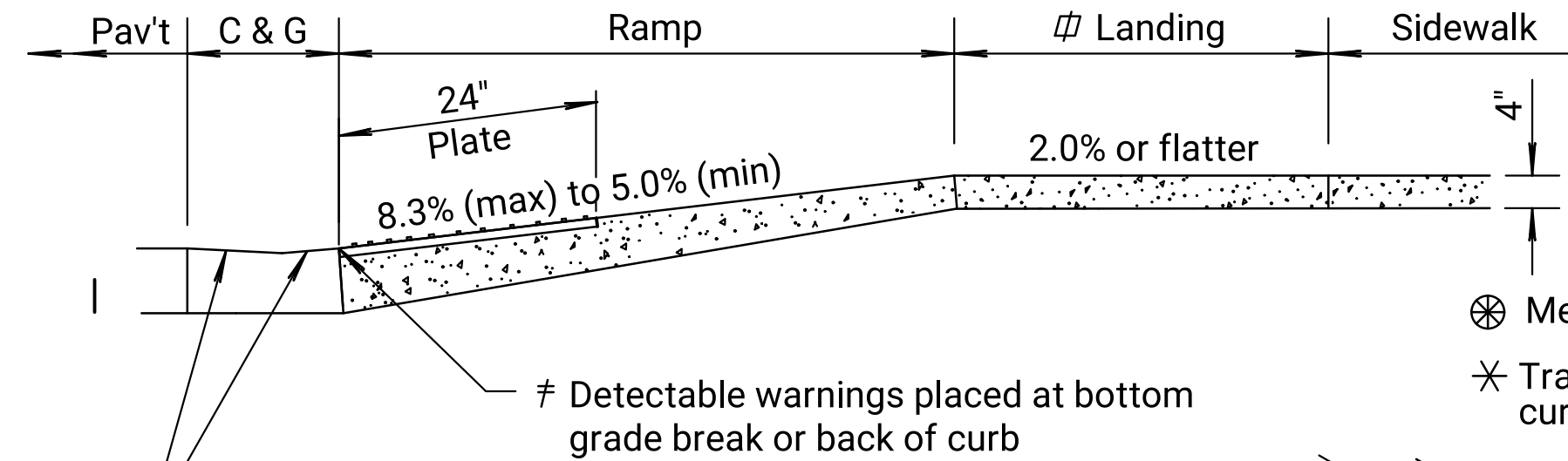


⊗ CURB RADIUS DETAILS
Install DURALAST Plates to fit.

⊗ Curb radius or greater than 30" ramp width will require more than one plate as approved by the Engineer. Limit number of plates installed at each site. Layouts shown are for example and may vary in the field.

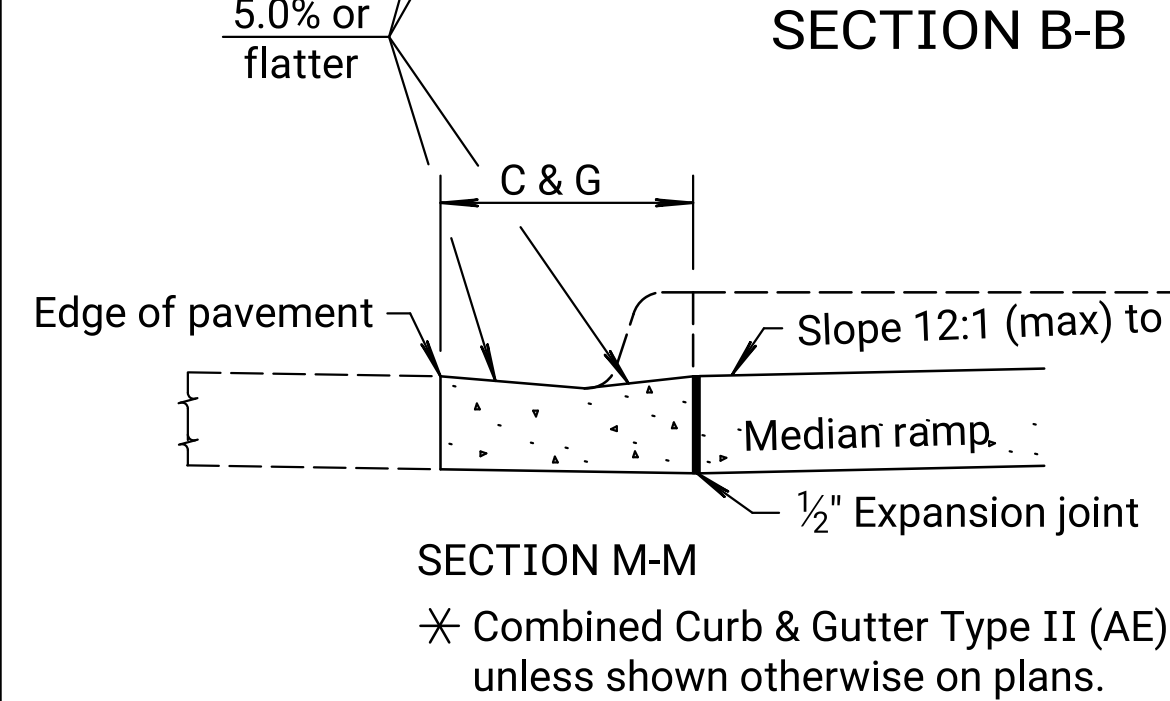


STRAIGHT CURB DETAILS



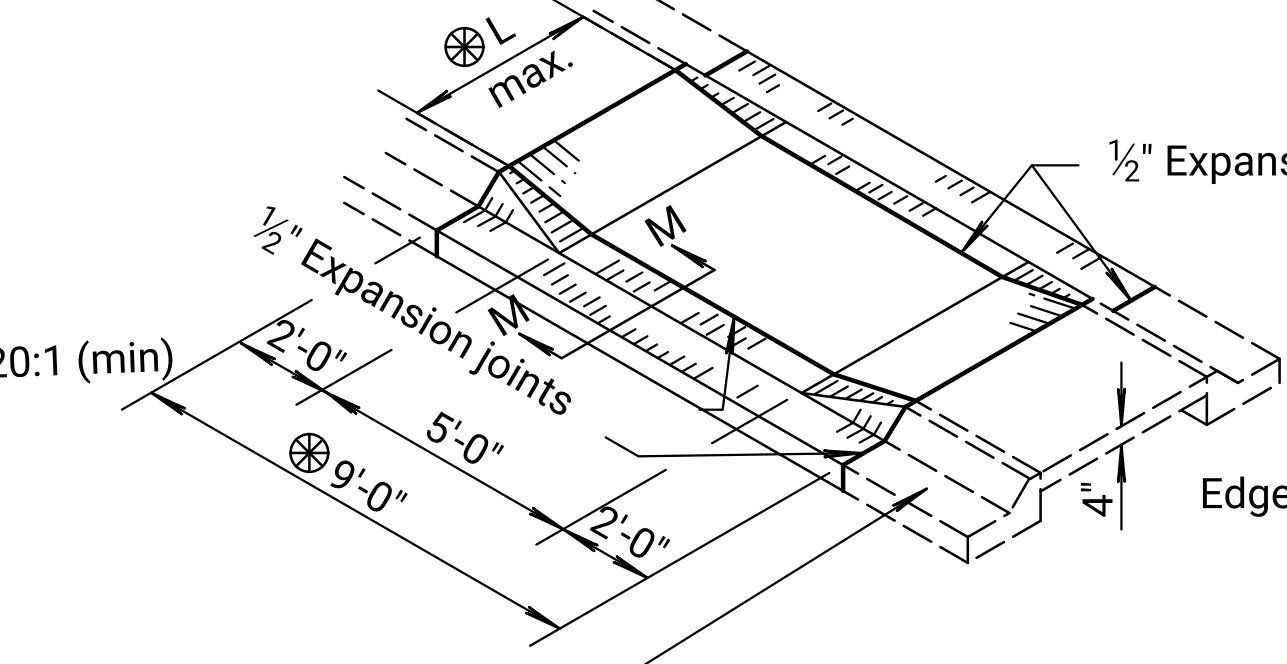
SECTION B-B

- ⊗ Median ramp crossing limits will be paid for as "Sidewalk Ramp."
- ✕ Transition Combined Curb & Gutter Type III (AE) through curb ramp as shown.



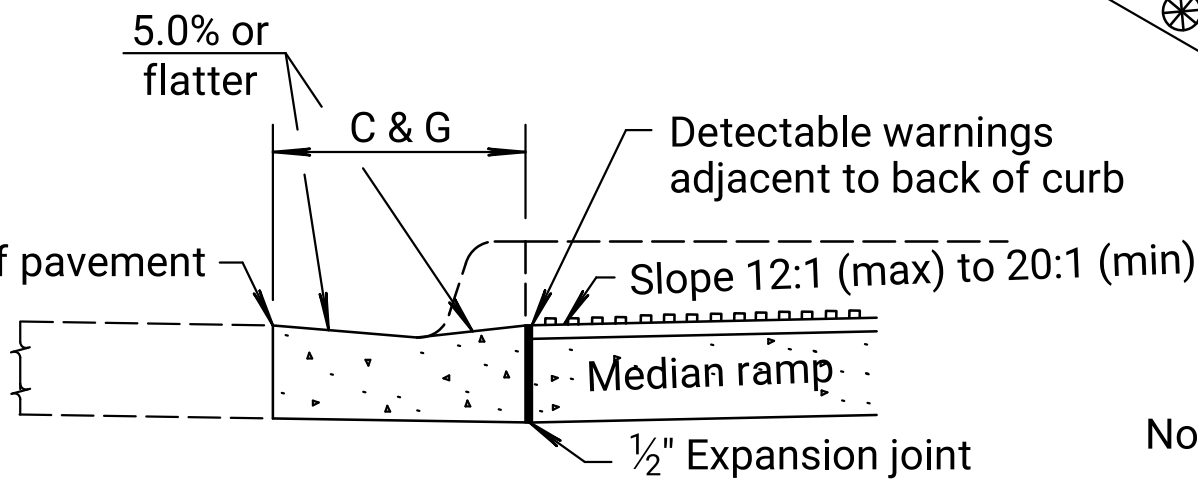
SECTION M-M

✕ Combined Curb & Gutter Type II (AE) unless shown otherwise on plans.

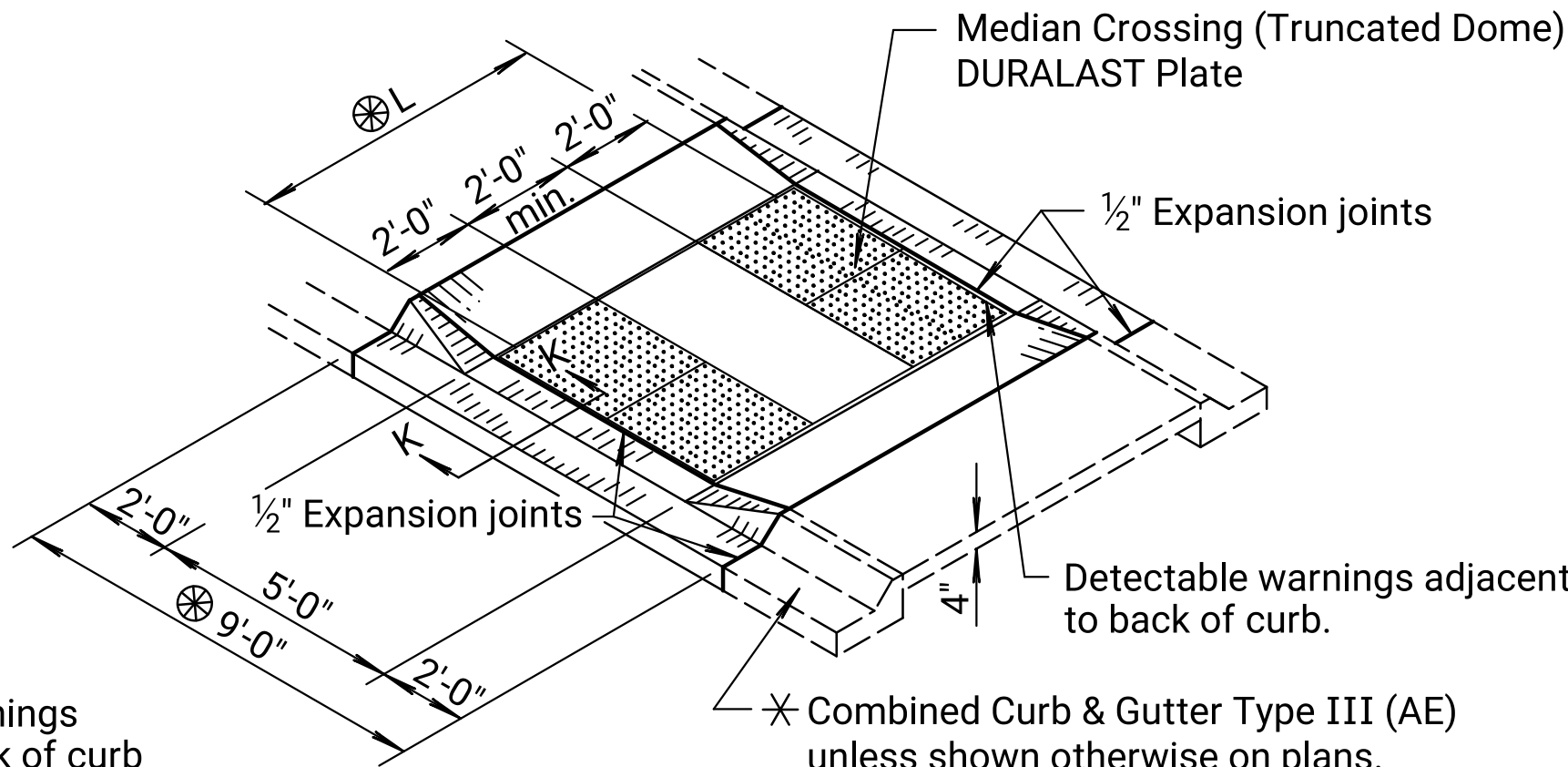


NARROW MEDIAN RAMP CROSSING
(L < 6'-0")

Note: A Median Ramp Crossing shall be constructed at Crosswalk locations. Do not install detectable warnings on narrow median ramp crossings.



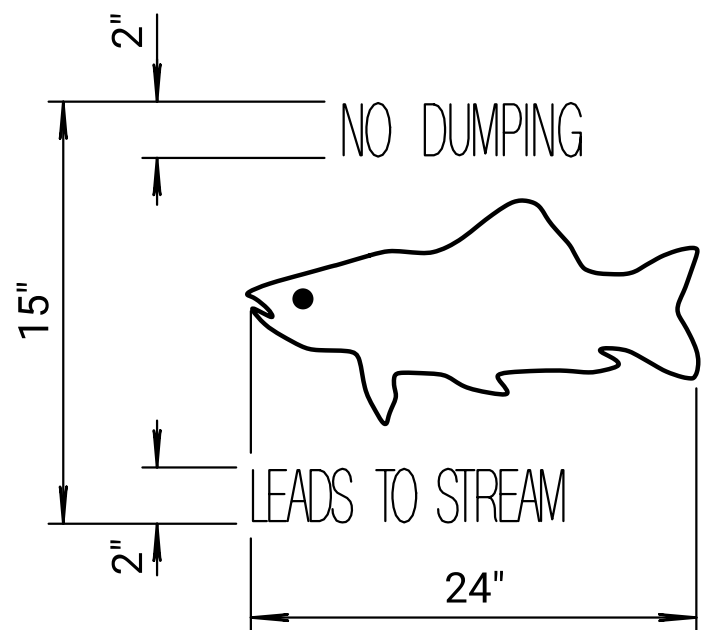
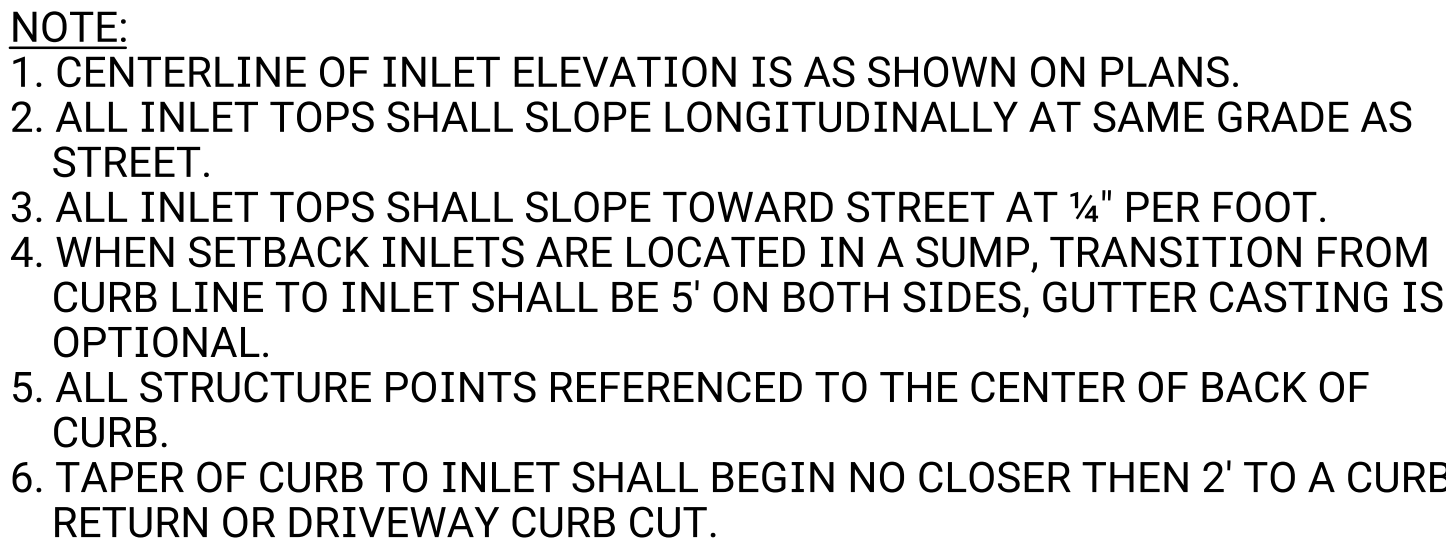
SECTION K-K



WIDE MEDIAN RAMP CROSSING
(L ≥ 6'-0")

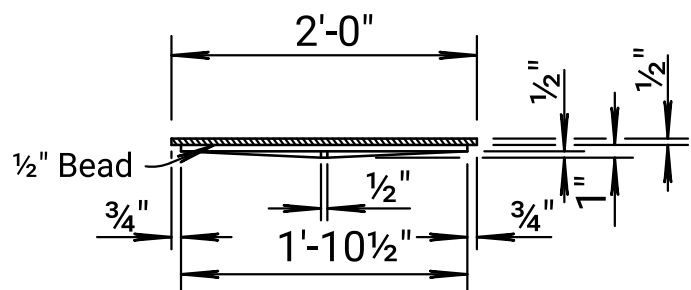
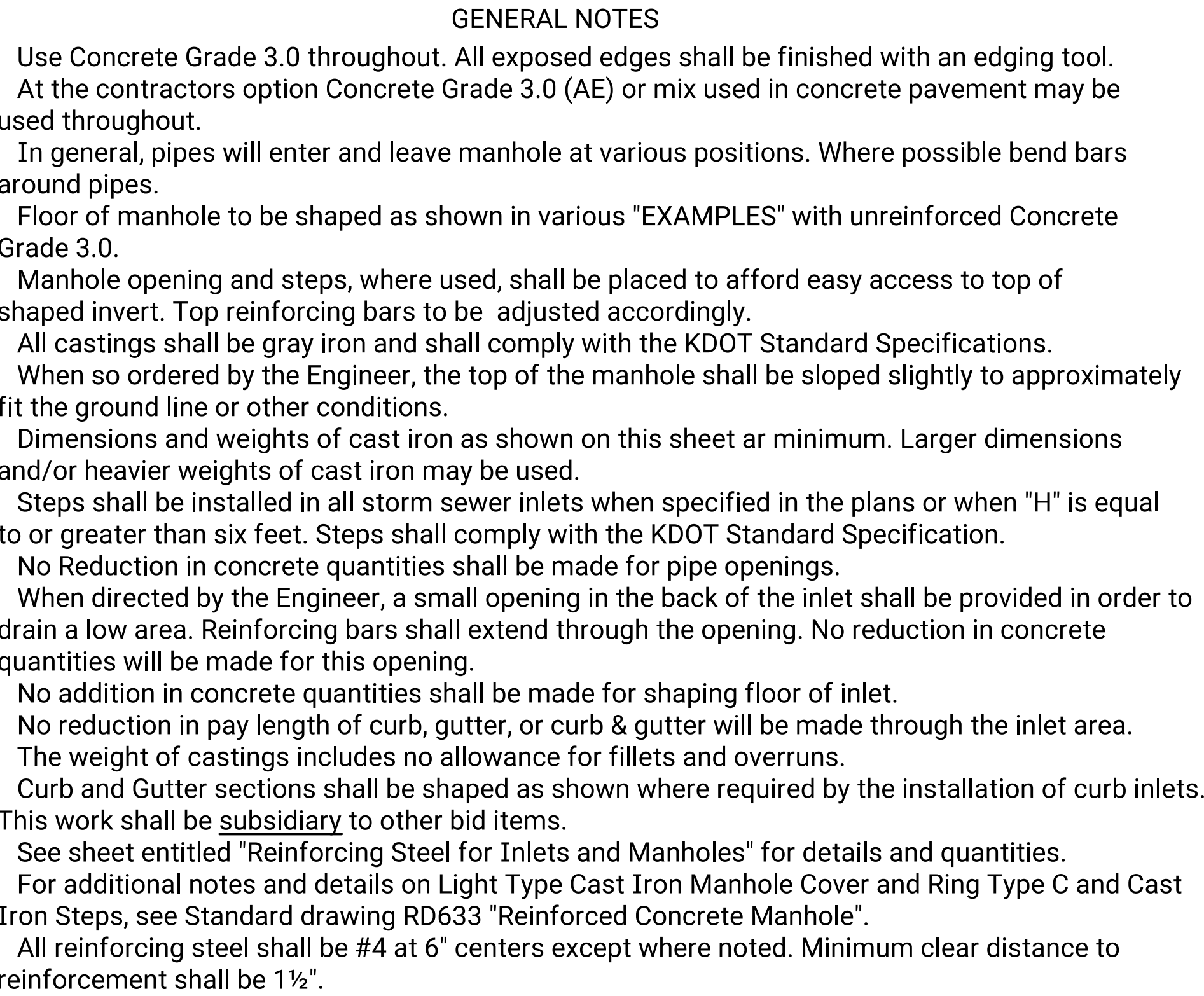
Note: A Median Ramp Crossing shall be constructed at Crosswalk locations. Wider median islands will result in a 2' minimum gap between the detectable warning areas.

05	02-23-17	Rev. Gen. Note & Panel Det.	T.T.R.	S.W.K.
04	02-10-10	Added Composite Panel	S.W.K.	J.O.B.
03	08-15-05	Added Prestressed Ramp Panel alt.	S.W.K.	J.O.B.
NO.	DATE	REVISIONS	BY	APPD
KANSAS DEPARTMENT OF TRANSPORTATION				
AUXILIARY DETAILS FOR SIDEWALK & STEPS				
RD725A				
FHWA APPROVAL		03-07-17		APPD
DESIGNED	DETAIL	QUANTITIES	TRACED	Scott W. King
DESIGN CK.	DETAIL CK.	QUAN. CK.	TRACE CK.	

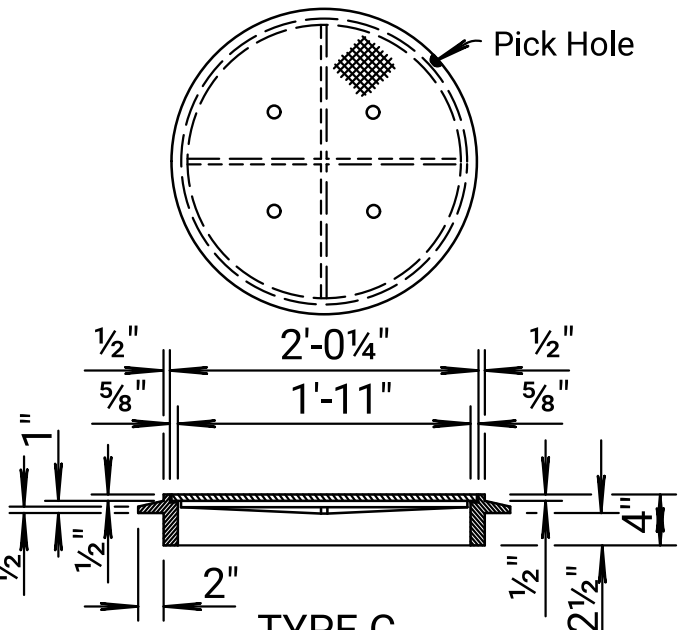


ENVIRONMENTAL STAMP
IMPRINT TO BE 1/4" DEEP STAMPED
INTO INLET TOP WHEN POURED

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	ST-2306	2025	21	139



MANHOLE COVER TYPE C
(Weight= 64 lbs.)



TYPE C

MANHOLE RING

(Weight= 53 lbs.)

✱LIGHT TYPE
MANHOLE COVER & RING
Rings with four equally spaced lugs will be permitted.
✱NOTE: All manhole castings are cast iron.
Weight of castings includes no allowance for fillets and overruns.

07	10-31-17	Joint Filler Type C Added	A.L.R.	S.W.K.
06	01-28-05	Changed Class to Grade concrete	S.W.K.	J.O.B.
05	12-11-97	Revised step spacing	R.J.S.	J.O.B.
NO.	DATE	REVISIONS	BY	APP'D

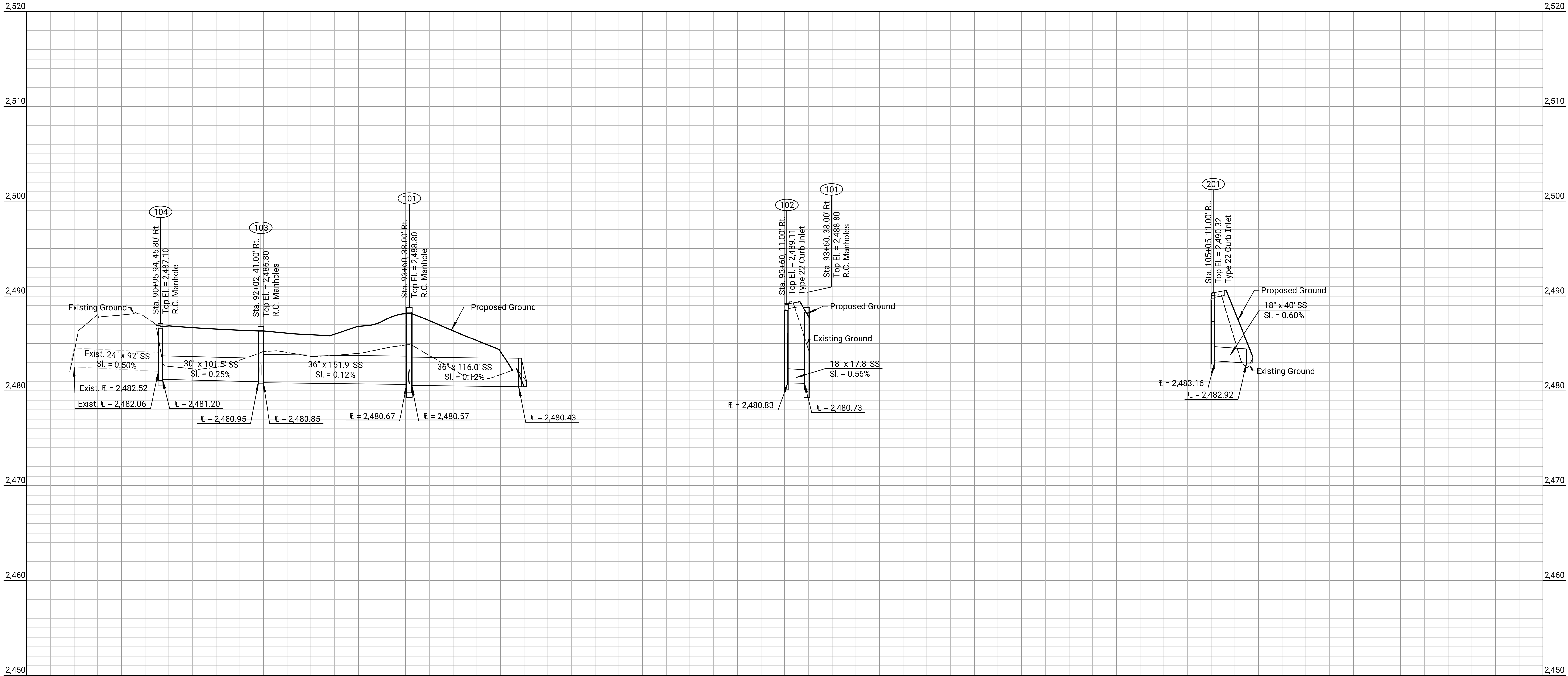
KANSAS DEPARTMENT OF TRANSPORTATION

TYPE 22
CURB INLET

RD646

FHWA APPROVAL		03-05-18	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	ST-2306	2025	24	139



STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	ST-2306	2025	25	139

[illegible]

* End Sections are recapitulated with the Conduits below.

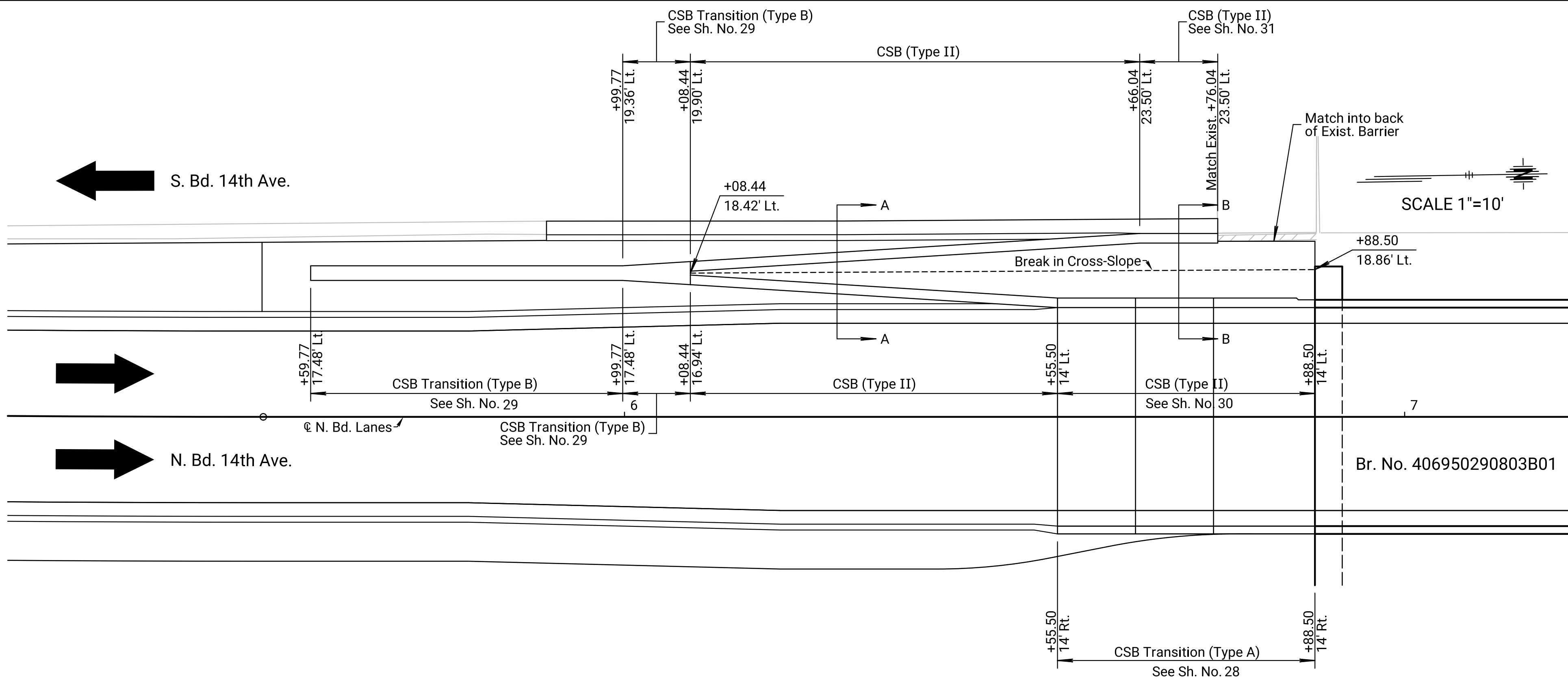
[illegible]

⊗ Note: Top Elevation is located as follows:

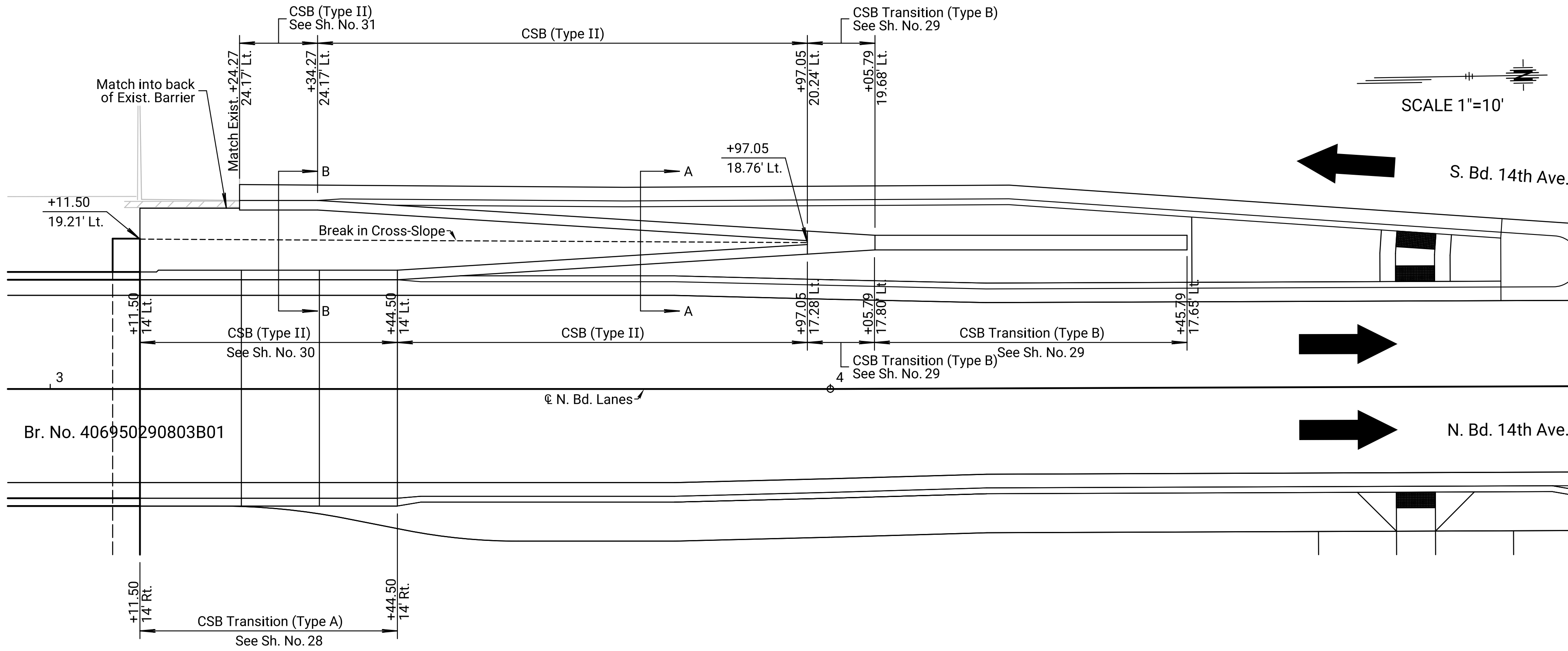
1. Manhole - Top of Manhole Ring
2. Curb Inlet - Top of curb.
3. Gutter Inlet - Top back of gutter.
4. Inlet - Manhole, Special - Top of Grate.
5. Ditch Inlet - Top of Concrete at Cover Plate.

03	01-28-05	Changed Class to Grade concrete	S.W.K.	J.O.B.
02	05-21-99	Added top elevation location note	R.J.S.	J.O.B.
01	10-08-90	Detailed on CADD	R.J.S.	J.O.B.
NO.	DATE	REVISIONS	BY	APP'D

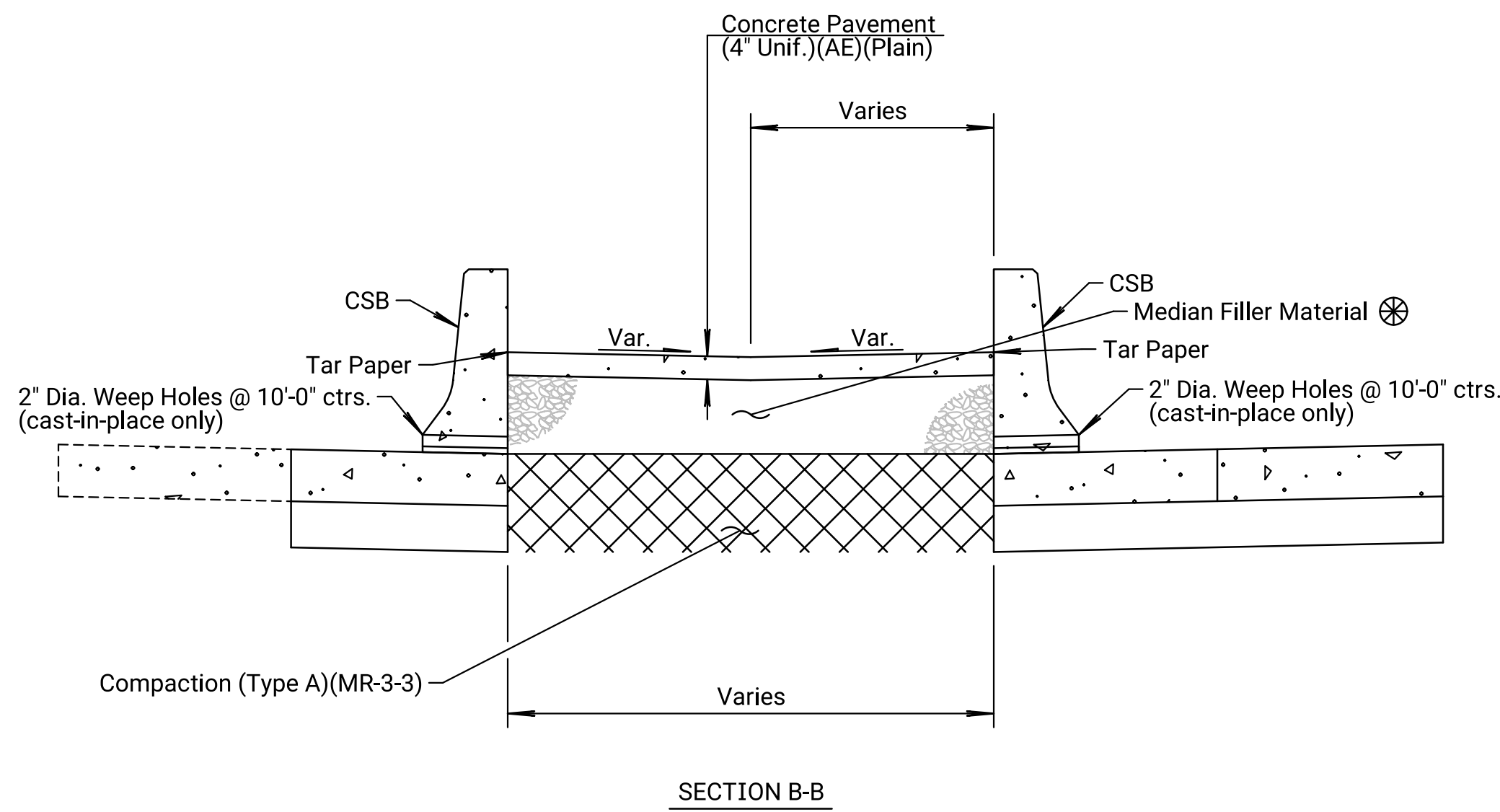
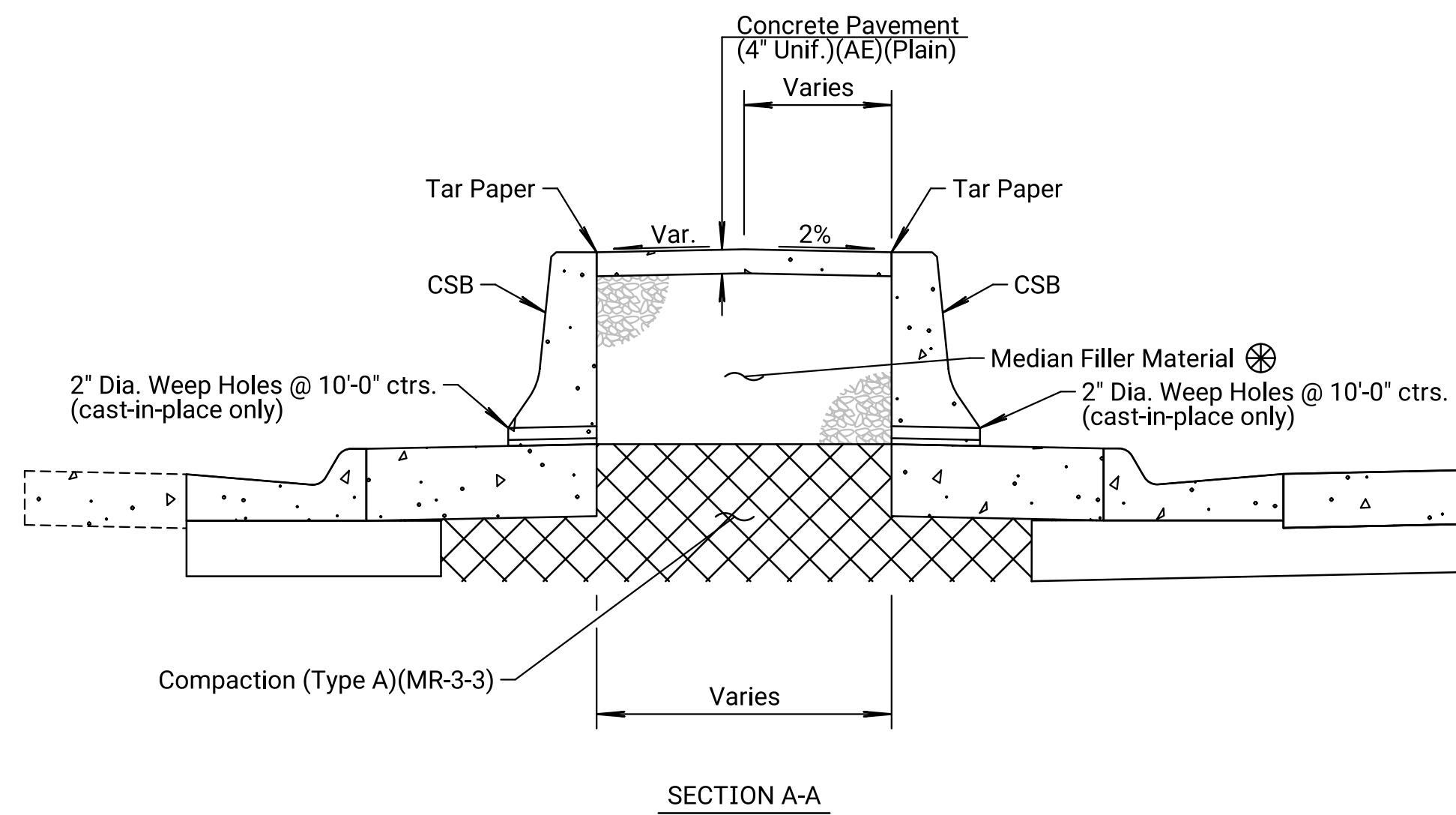
KANSAS DEPARTMENT OF TRANSPORTATION			
SCHEDULE OF INLETS AND MANHOLES			
RD653G			
FHWA APPROVAL	06-10-05	APP'D.	James O. Brewer
DESIGNED	DETAILED	QUANTITIES	TRACED B.N.B.
DESIGN CK.	DETAIL CK.	QUAN.CK.	TRACE CK. R.J.S.



PLAN STA. 95+59.77 to STA. 96+88.50



PLAN STA. 103+11.50 to STA. 104+45.79



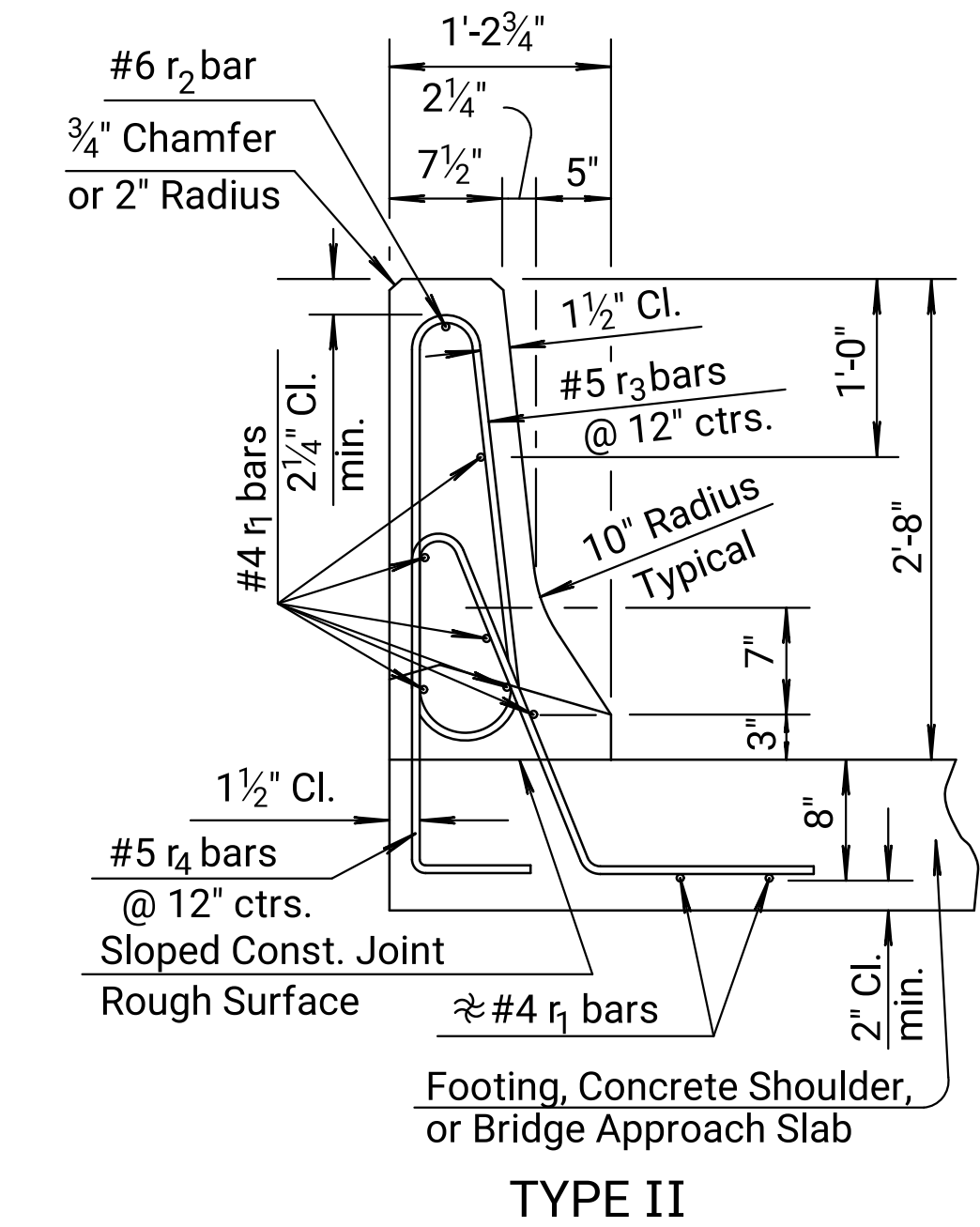
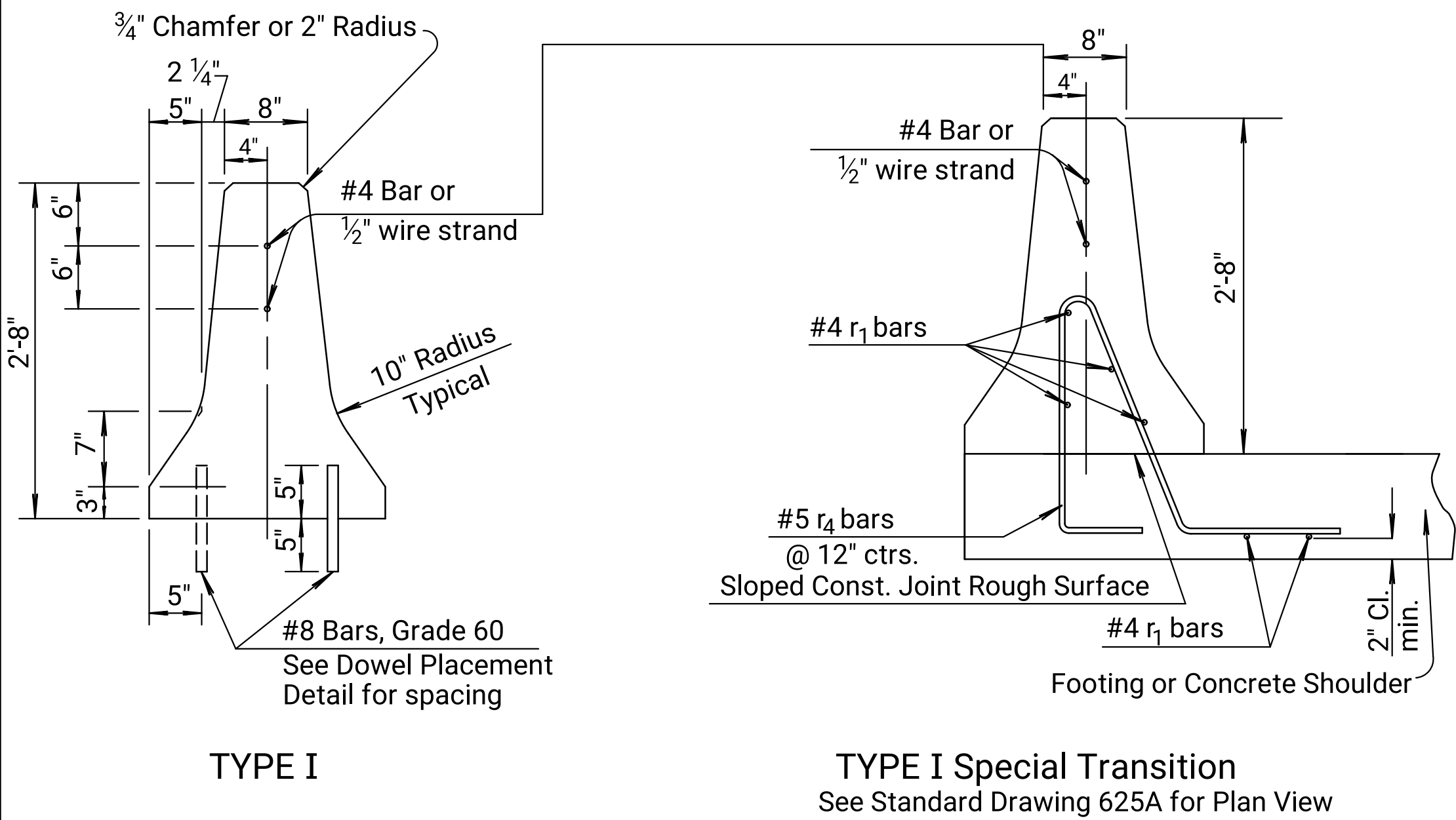
⊗ Median Barrier filler material shall meet the material requirements of the Standards Specifications for "Median Filler Material". All Work and materials required for filling between barriers shall be Subsidiary to the concrete safety barrier.

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	ST-2306	2025	26	139

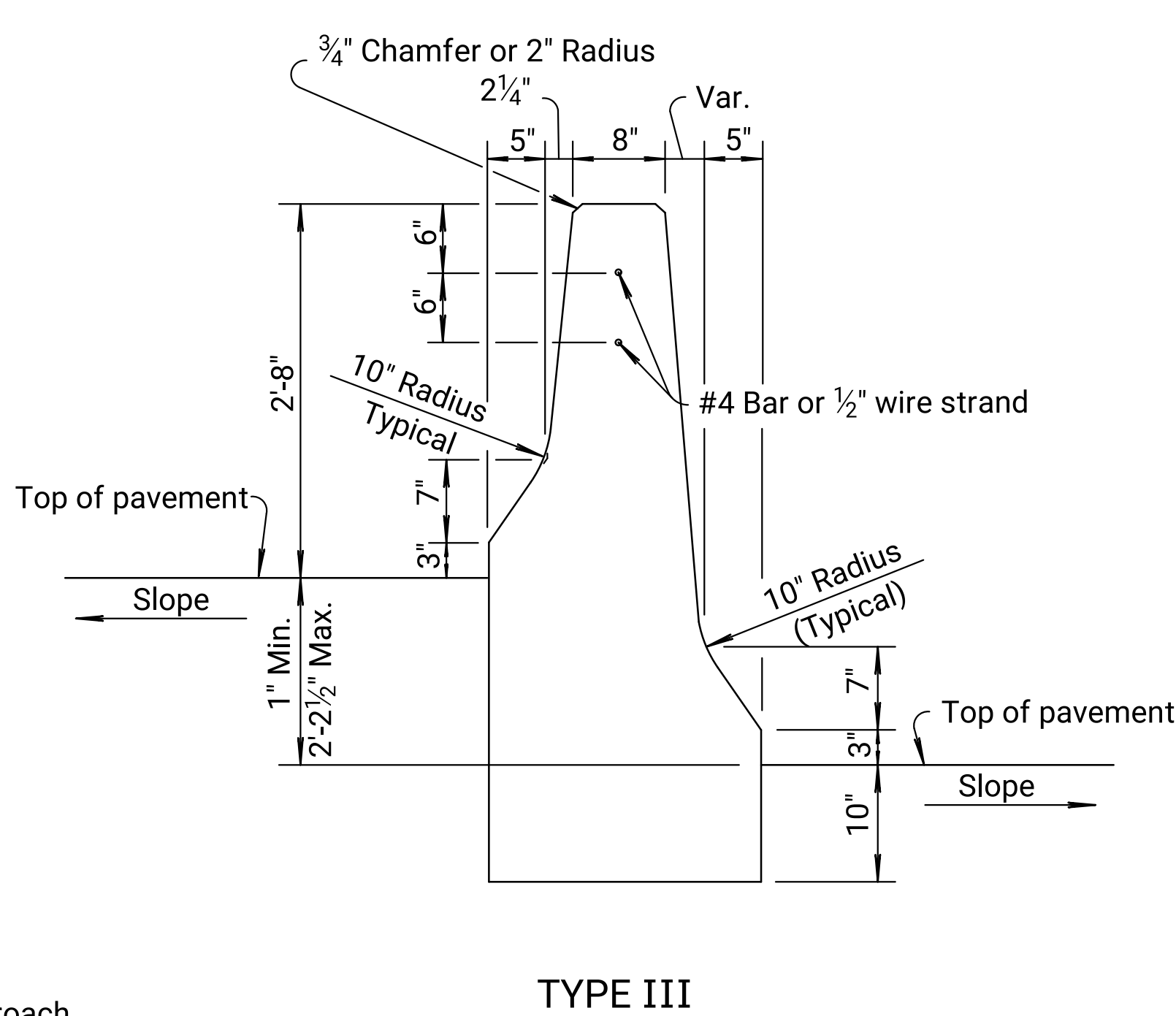
KANSAS DEPARTMENT OF TRANSPORTATION
CSB LAYOUT
STA. 95+59.77 TO STA. 104+45.79

Note to Designer: The scenario depicted is for Type II CSB to Type I CSB, this sheet will need to be modified for other transition scenarios.

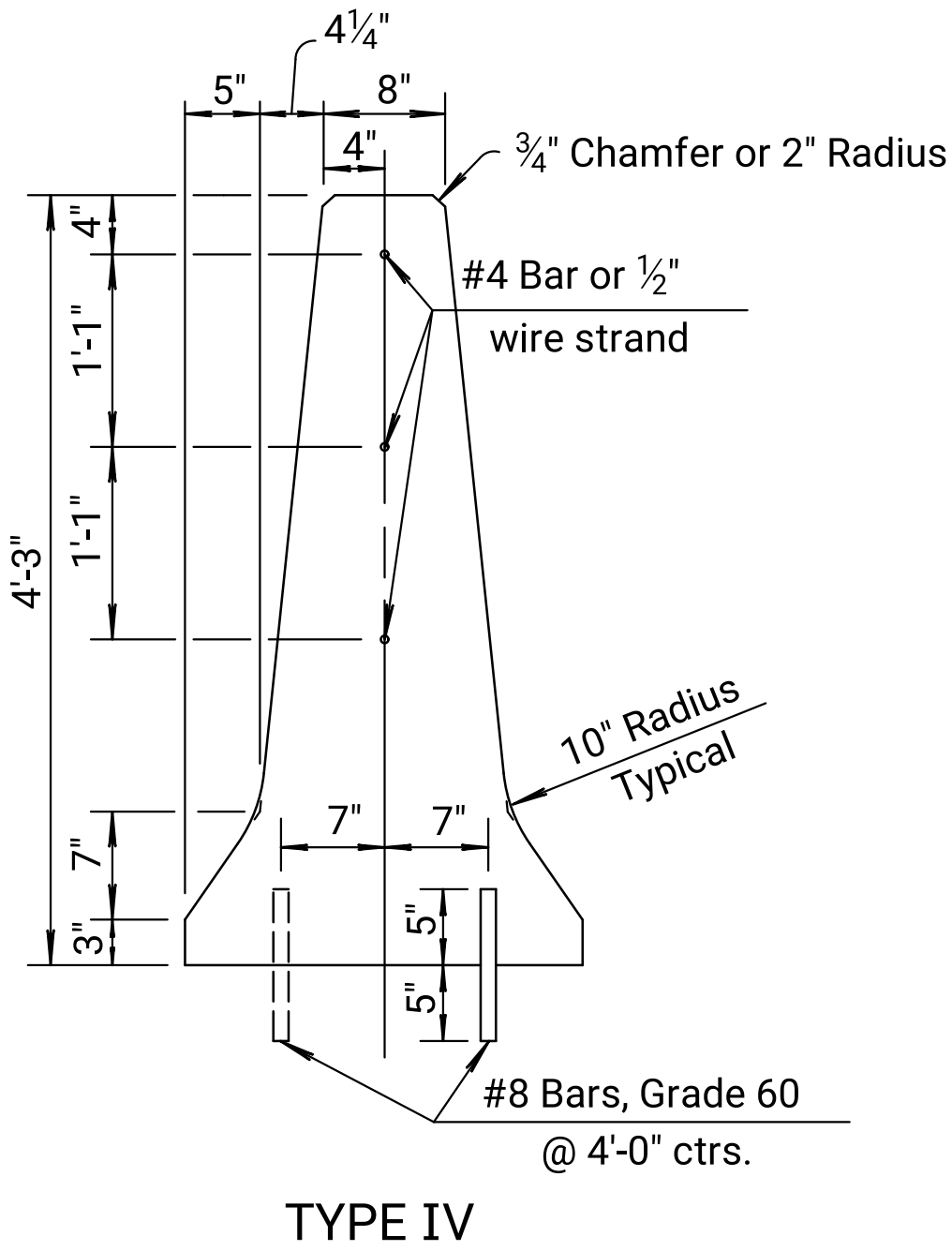
8-JUL-2025 16:23
Plotted by : Riley Standish
File : ST2306rss-625.dgn



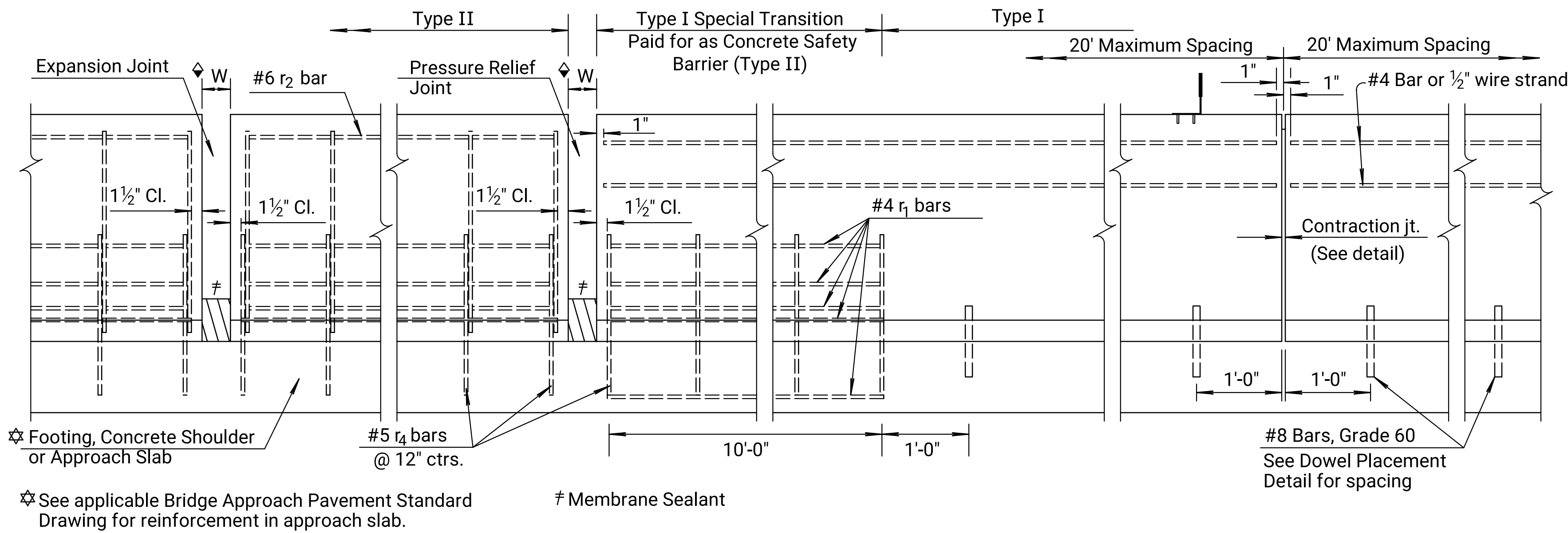
≈ Omit r₁ bars in approach slabs. Tie r₄ bars to longitudinal reinforcement (#6 f bars) shown in the applicable Bridge Approach Pavement Standard Drawing.



STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	ST-2306	2025	27	139

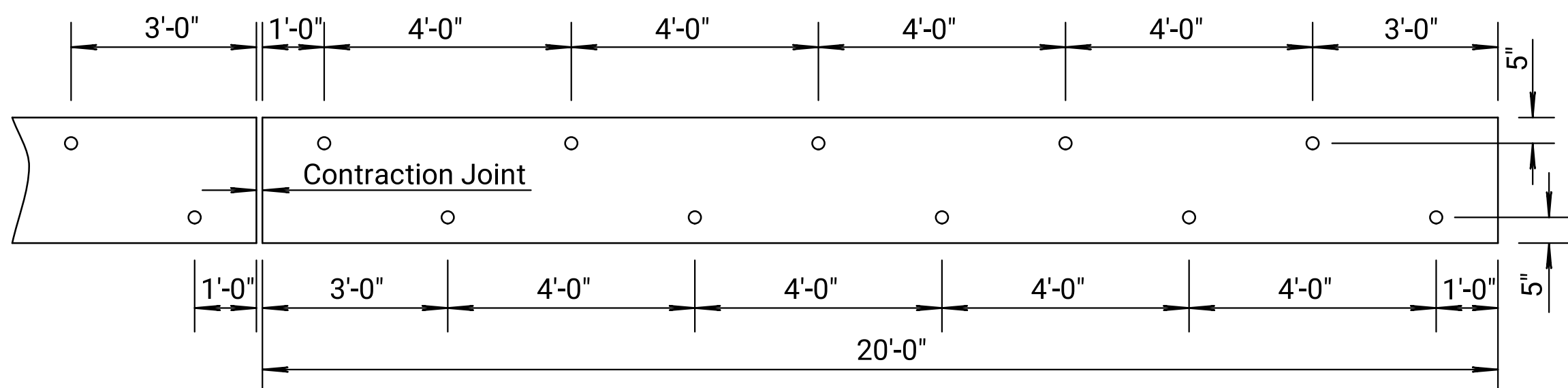


◆ W= Formed Concrete Opening Size - See "Temperature Expansion/Pressure Relief Joint Width Table", Standard Drawing RD712.

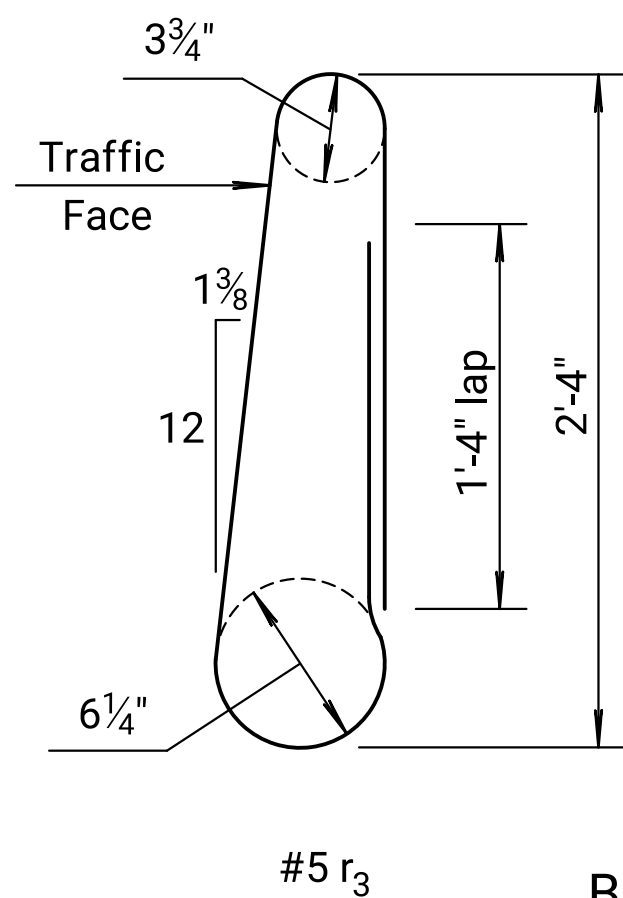


PRESSURE RELIEF/EXPANSION JOINT (Bridge Ends)

Pressure relief joint will match relief joint in bridge approach slab. Joints wider than 4" need a special design.

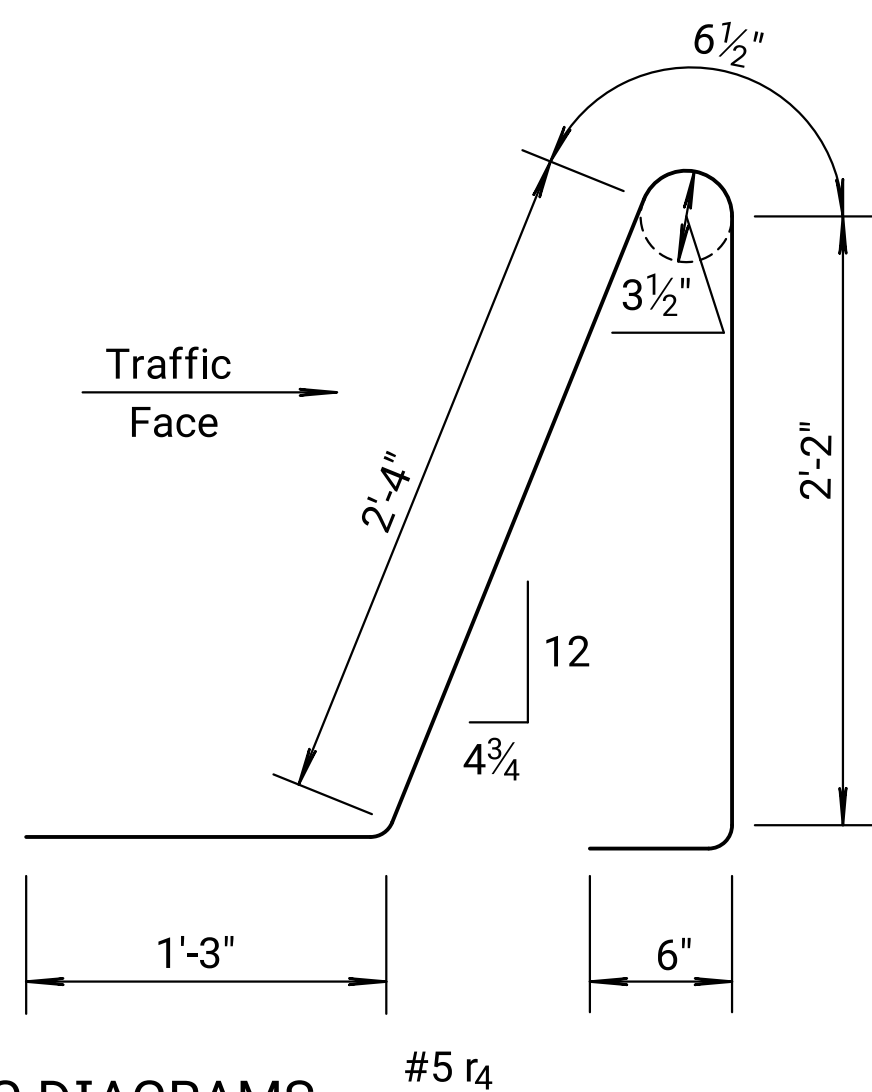


CONTRACTION JOINT



BENDING DIAGRAMS

Note: All dimensions are out to out of bars.



OPTION A

OPTION B

CONTRACTION JOINT DETAIL

GENERAL NOTES:

Use Concrete Grade 3.0 (AE) or Concrete Pavement Mix (Contractor's Option).
Construction drainage slots where specified in the plans, inlet locations or Engineer's direction.

Use epoxy coated reinforcing steel, Grade 60. See details for spacing, keep a minimum reinforcing steel clear distance of 1 1/2".

Payment for all reinforcing bars, joint material, median barrier filler material, reflectors and supporting materials, associated work, etc., is subsidiary.

The section furnished must generally comply with the dimensions shown. Requests for minor variations in section geometry may be submitted for review.

Permanent concrete barriers are cast in place or slip formed construction only. Precast barriers are not permitted.

CONSTRUCTION JOINTS

Place joint material (Type B or C) where shown for structures and at the end of day construction joint.

CONTRACTION JOINTS

Form or saw contraction joints on 20' centers maximum. Where barrier is on or adjacent to concrete pavement space joints to match contraction joints and definite transverse cracks in the pavement. Contraction joints not to exceed 20' centers.

BARRIER BASE

Where barrier base is not paved full width, place barrier on a 10' x 2'-0" bed of concrete Grade 3.0, or the mix used in concrete pavement or asphalt base course (Contractor's option, Engineer's approval) to assure proper alignment.

APPROACH SLAB EXPANSION/PRESSURE RELIEF JOINT

Install membrane sealant expansion joint material with a lubricant adhesive cut to the shape shown on Standard Drawing RD625A. Construct joint to match pressure relief joint of concrete pavement approach slabs.

See Standard Drawing RD712 for Expansion/Pressure Relief Joint Details.

Work and materials required for installation of joint material is subsidiary to Concrete Safety Barrier and conforms to standard specifications.

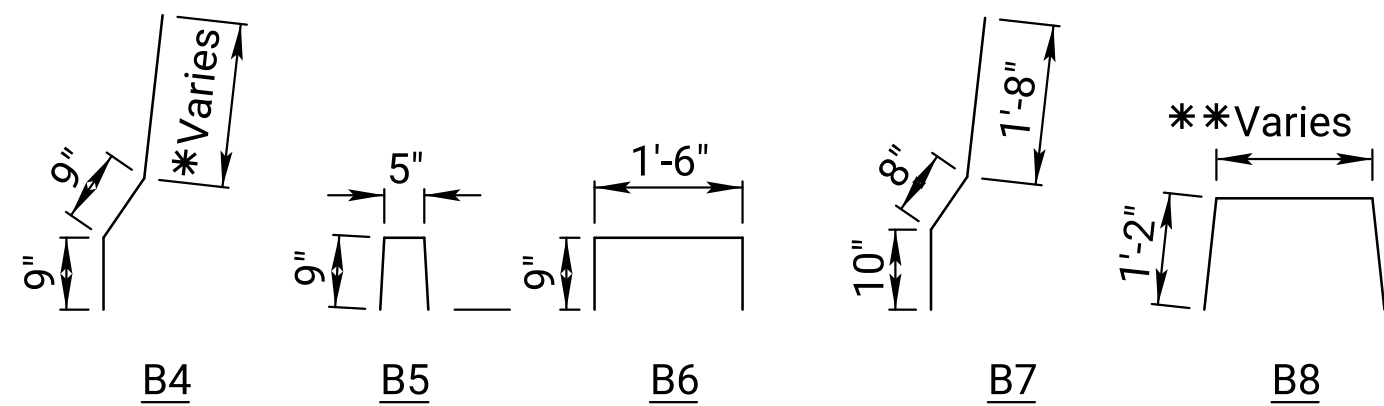
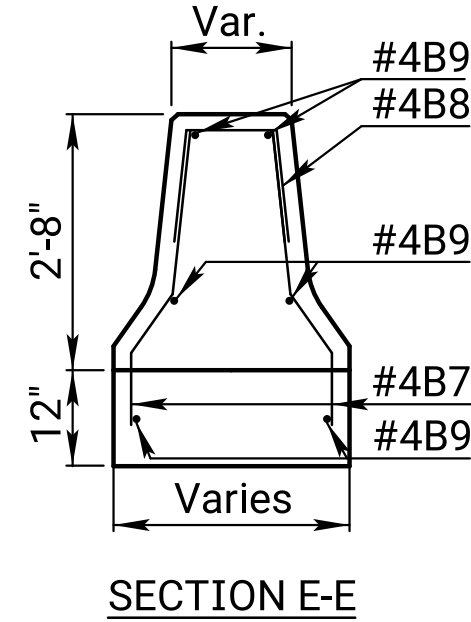
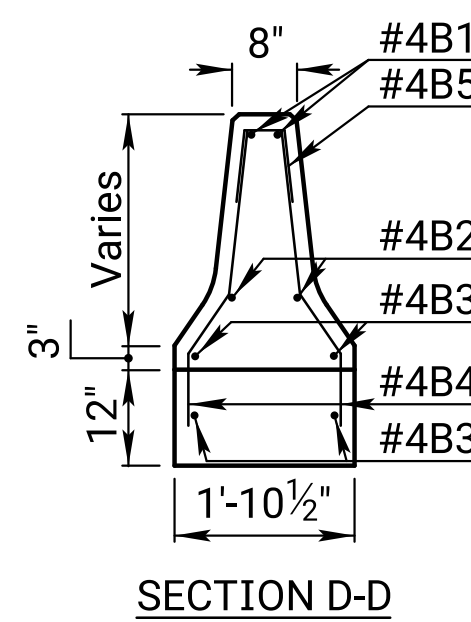
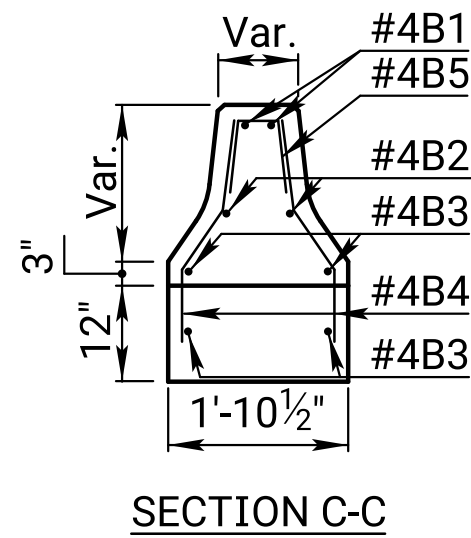
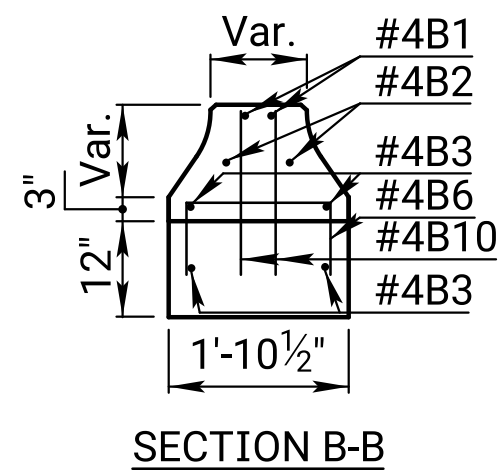
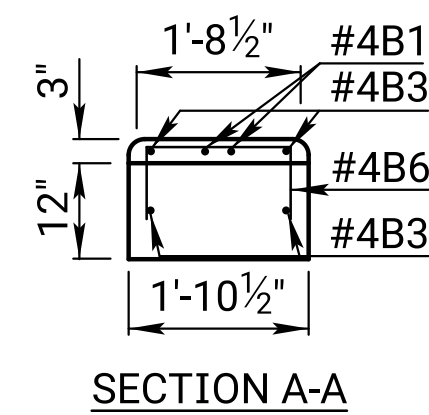
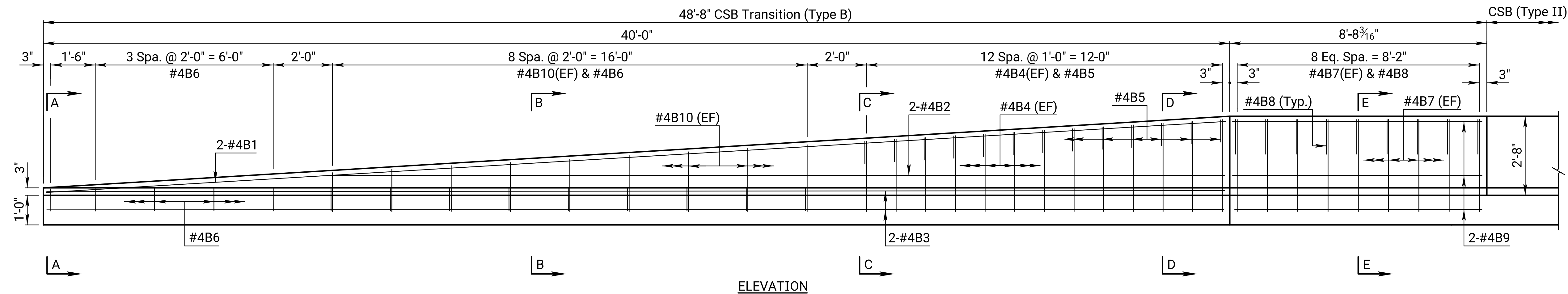
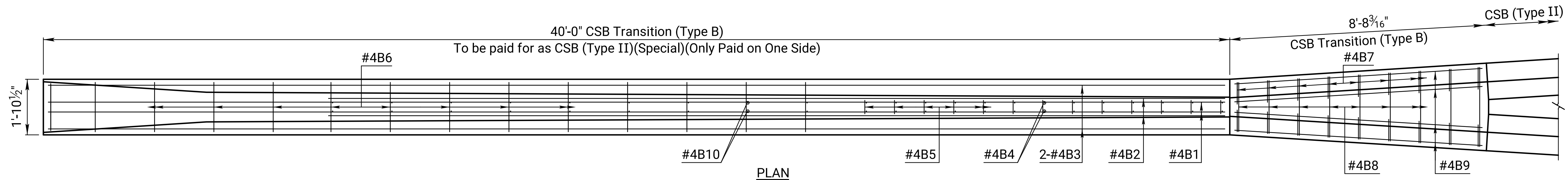
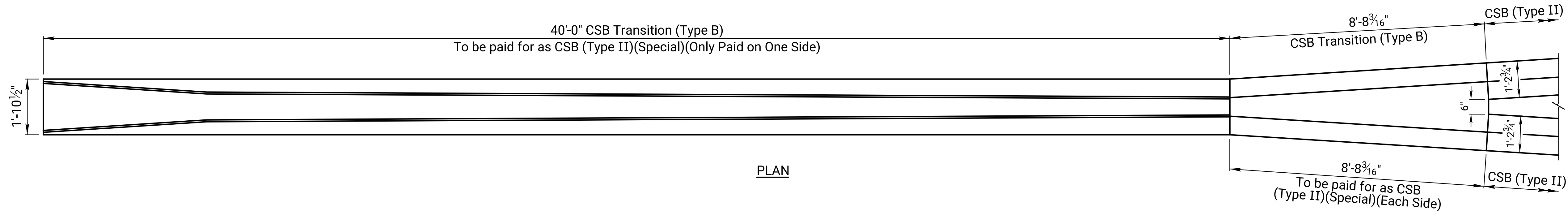
DELINEATION

See Standard Drawing RD610 for details of barrier delineation.

06	09-11-17	Added Type I transition	A.L.R.	S.W.K.
05	04-28-11	Rev. I,II,III & IV dimen. & notes	S.W.K.	J.O.B.
04	05-28-09	Revised Type III dimensions	S.W.K.	J.O.B.
NO.	DATE	REVISIONS	BY	APPD

KANSAS DEPARTMENT OF TRANSPORTATION				
PERMANENT CONCRETE SAFETY BARRIER TYPE I,II,III & IV (F-SHAPE)				
RD625				
FHWA APPROVAL		03-05-18	APPD.	Scott W. King
DESIGNED	DETAILED	QUANTITIES	TRACED	
DESIGN CK.	DETAIL CK.	QUAN.CK.	TRACE CK.	

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	ST-2306	2025	29	139



BENDING DIAGRAM
Note: All Dimensions are out to out of bars.

B1	39'-7"
B2	30'-3"
B3	39'-8"
B9	8'-2"
B10	† Varies

B1, B2, B3, B9, B10

GENERAL NOTE

Quantities shown for information only. Concrete quantity may vary, based on horizontal curvature of barrier transition, and type of curb to transition to. No additional payment will be made for extra concrete.

Details shown as standard only. Adjust for actual geometry on plans for each individual transition barrier.

All concrete shall be Grade 3.0 (AE) or Concrete Pavement Mix (Contractor's Option). Bevel all exposed edges with a 3/4" triangular moulding and fillet corners where indicated. All dimensions relative to placement of reinforcing steel are to centerline of bars unless otherwise noted.

Concrete Safety Barrier transition shall be paid for as "Concrete Safety Barrier (Type II)(Special)" and include all work and material required to build the barrier as detailed on the plans.

1/2" Type B Expansion Joint is subsidiary to other bid items.

UNIT STRESSES:
Concrete (Grade 3.0)(AE) f'c = 3.0 ksi
Reinforcing Steel (Grade 60) fy = 60 ksi

EF = Each Face

FOR INFORMATION ONLY			
TYPE I (SPECIAL) CONC. SAFETY BARRIER TRANSITION BILL OF REINFORCING STEEL EPOXY COATED GRADE 60			
Bent Bars			
Mark	Size	Number	Length
B1	#4	2	39'-7"
B2	#4	2	30'-3"
B3	#4	4	39'-8"
B4	#4	26	*
B5	#4	18	31'-3"
B6	#4	5	1'-11"
B7	#4	18	3'-0"
B8	#4	9	**
B9	#4	6	8'-2"
B10	#4	18	†
Reinforcing Steel (Grade 60)(Epoxy Coated)			390.0 Lbs.
Concrete (Grade 3.0)(AE)			3.0 C.Y.

Note: Quantity for one, two required

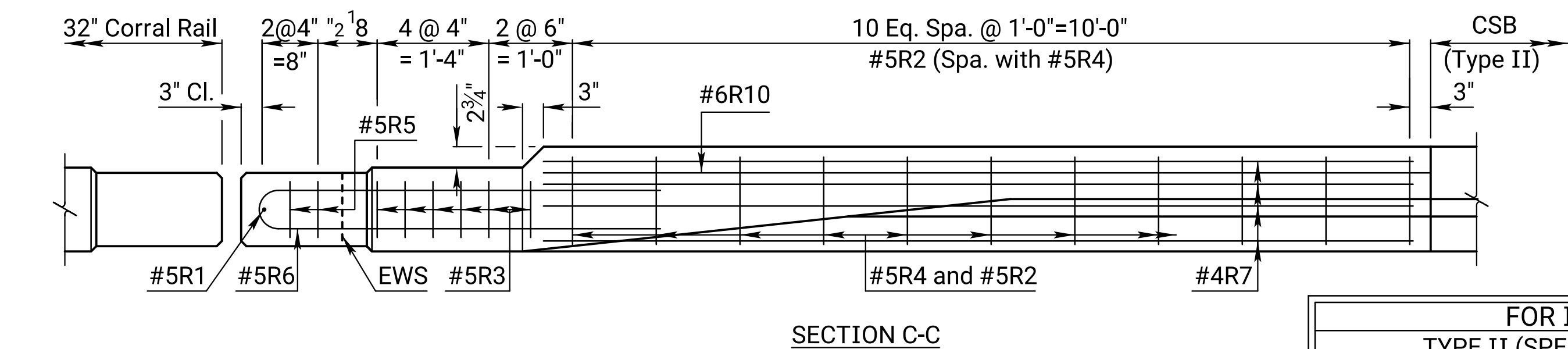
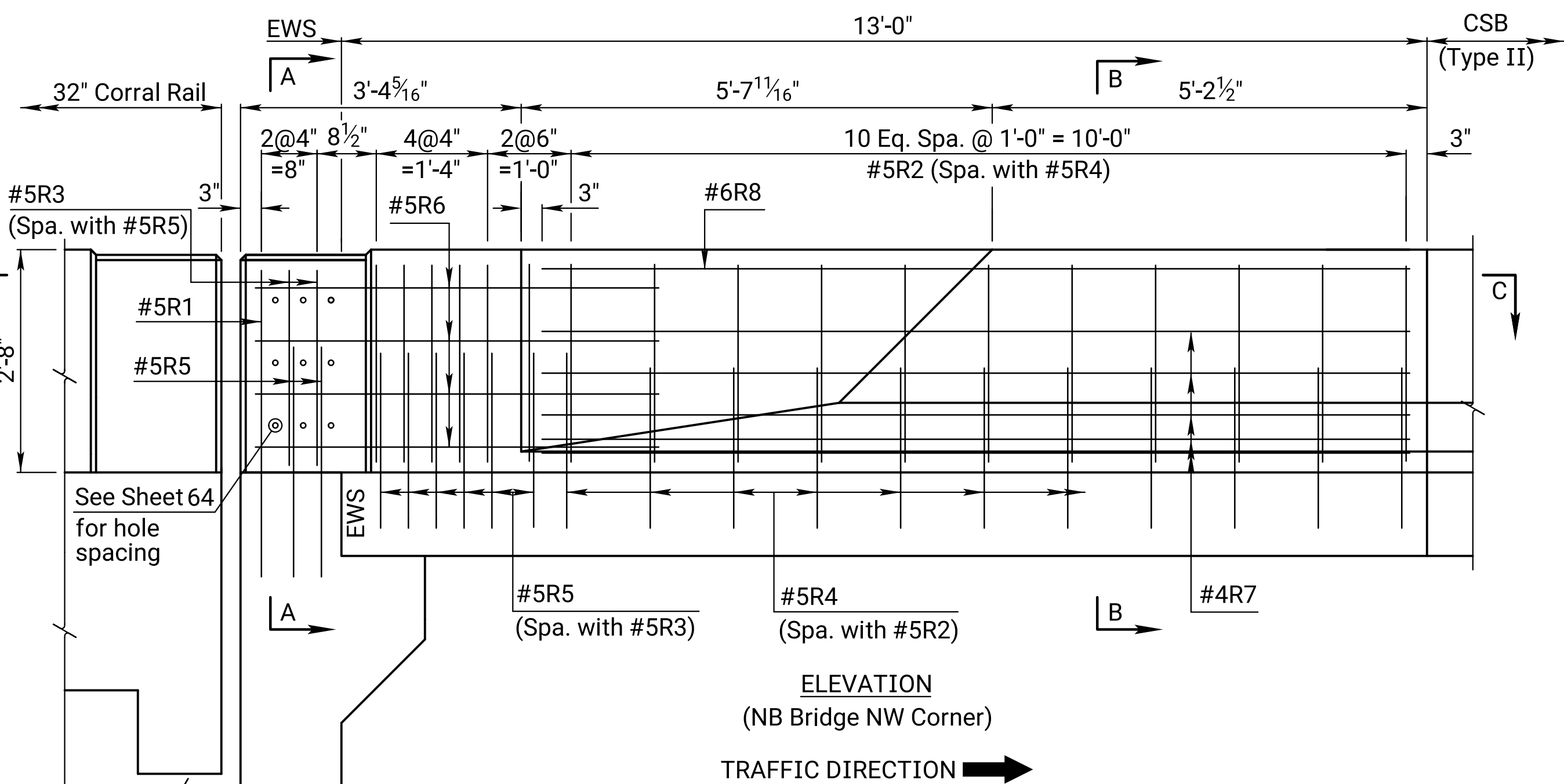
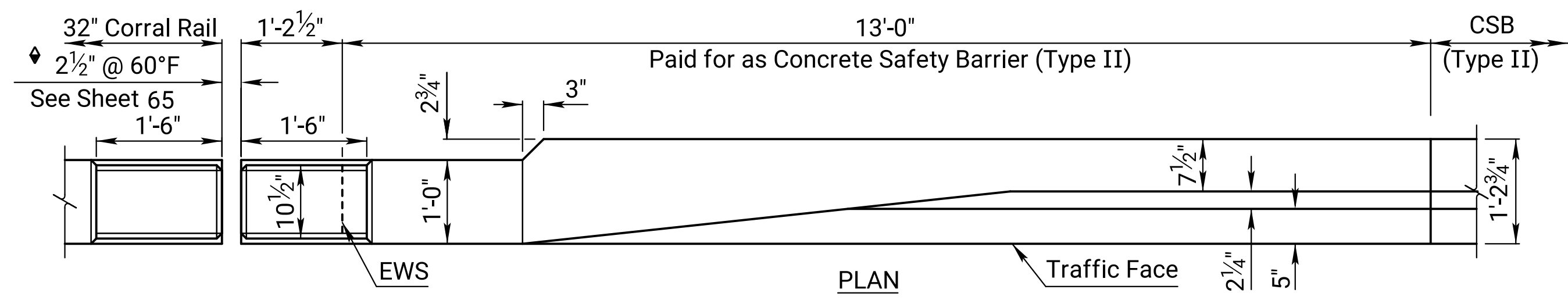
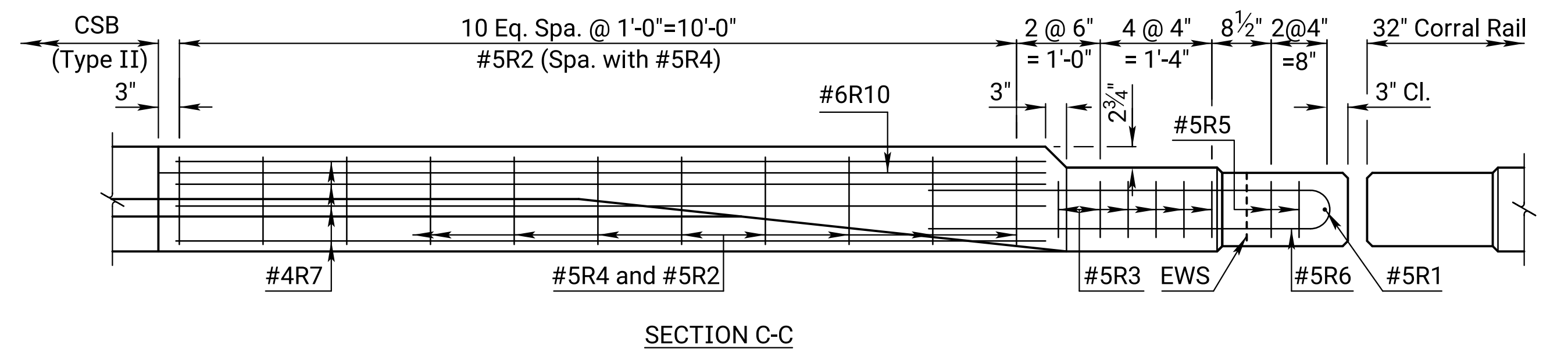
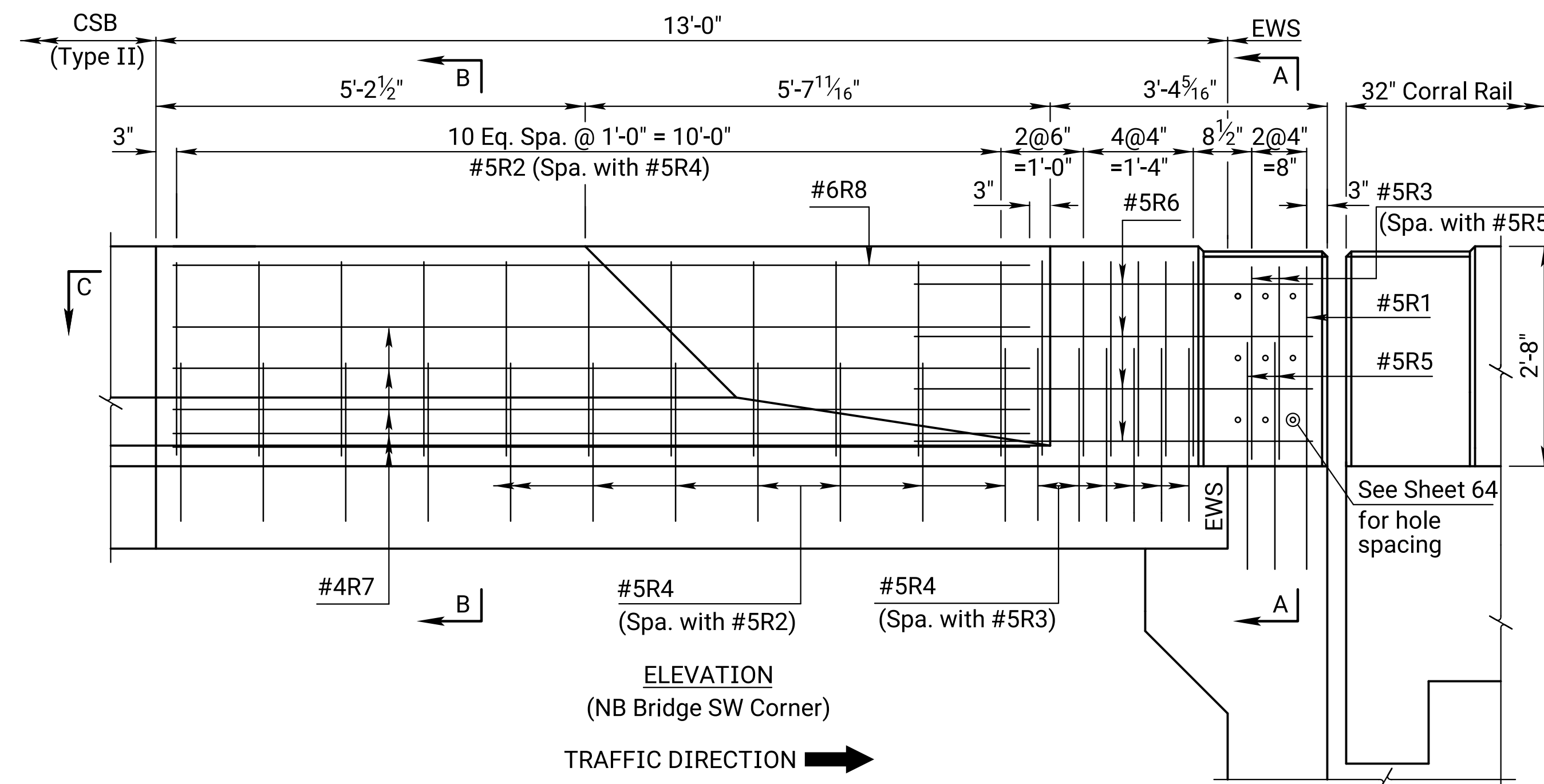
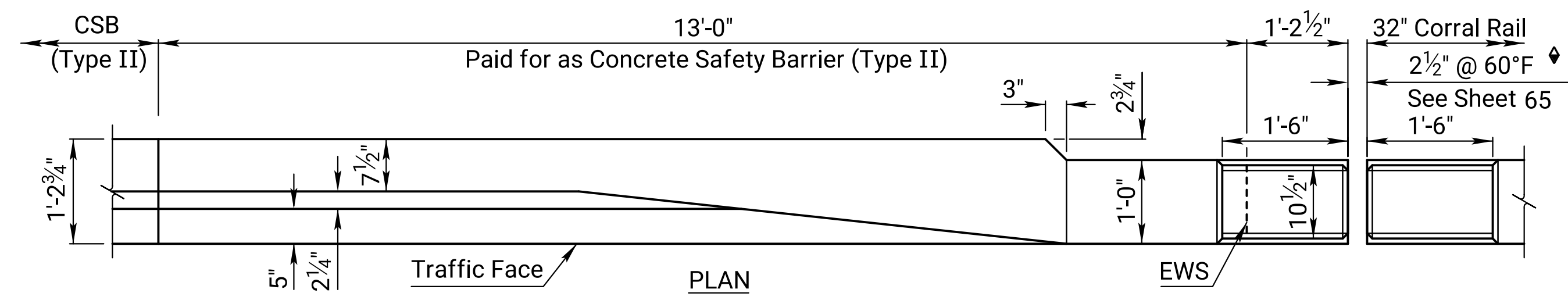
* Varies from 1'-0 1/8" to 1'-7 5/8" by 5/8" Increments. Cut 2 at each length

† Varies from 1'-3 3/8" to 2'-3 1/8" by 7/16" increments. Cut 2 at each length.

** Varies from 1'-7" to 2'-7" by 1 1/2" increments. Cut 2 at each length.

KANSAS DEPARTMENT OF TRANSPORTATION
CONCRETE BARRIER TRANSITION
TYPE B

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	ST-2306	2025	30	139



GENERAL NOTES

Quantities shown for information only.
Concrete quantity may vary based on
horizontal curvature of barrier transition
and type of curb to transition to.
No additional payment will be made for
extra concrete.

Details shown as standard only. Adjust for actual geometry on plans for each individual transition barrier.

All concrete shall be Grade 3.0 (AE) or Concrete Pavement Mix (Contractor's Option). Bevel all exposed edges with a 3/4" triangular moulding and fillet corners where indicated. All dimensions relative to placement of reinforcing steel are to centerline of bars unless otherwise noted.

Concrete Safety Barrier transition shall be paid for as "Concrete Safety Barrier (Type II)" and include all work and material required to build the barrier as detailed on the plans.

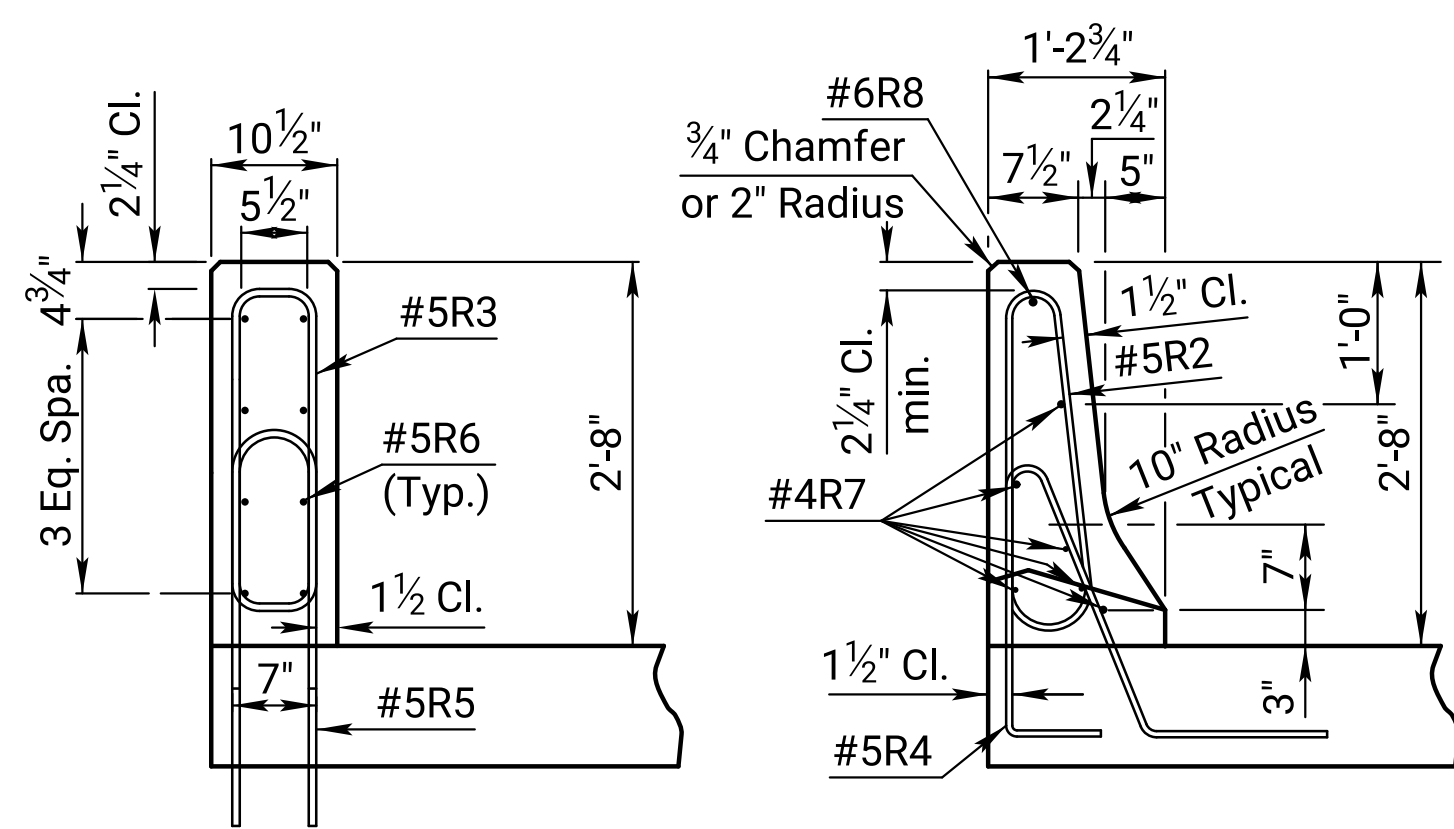
1/2" Type B Expansion Joint is subsidiary to other bid items.

UNIT STRESSES:
Reinforcing Steel (Grade 60) $f'_c = 3.0$ ksi
Concrete (Grade 3.0)(AE) $f_y = 60$ ksi

FOR INFORMATION ONLY							
TYPE II (SPECIAL) CONC. SAFETY BARRIER TRANSITION BILL OF REINFORCING STEEL EPOXY COATED GRADE 60 (PER END)							
Straight Bars				Bent Bars			
Mark	Size	Number	Length	Mark	Size	Number	Length
R8	#6	1	10'-4"	R2	#5	12	6'-6"
R1	#5	1	3'-8"	R3	#5	8	7'-4"
R7	#5	6	10'-4"	R4	#5	17	6'-11"
				R5	#5	2	6'-0"
				R6	#5	4	11'-1"
Reinforcing Steel (Grade 60)(Epoxy Coated)						365.5 Lbs.	
Concrete (Grade 3.0)(AE)						3.0 C.Y.	

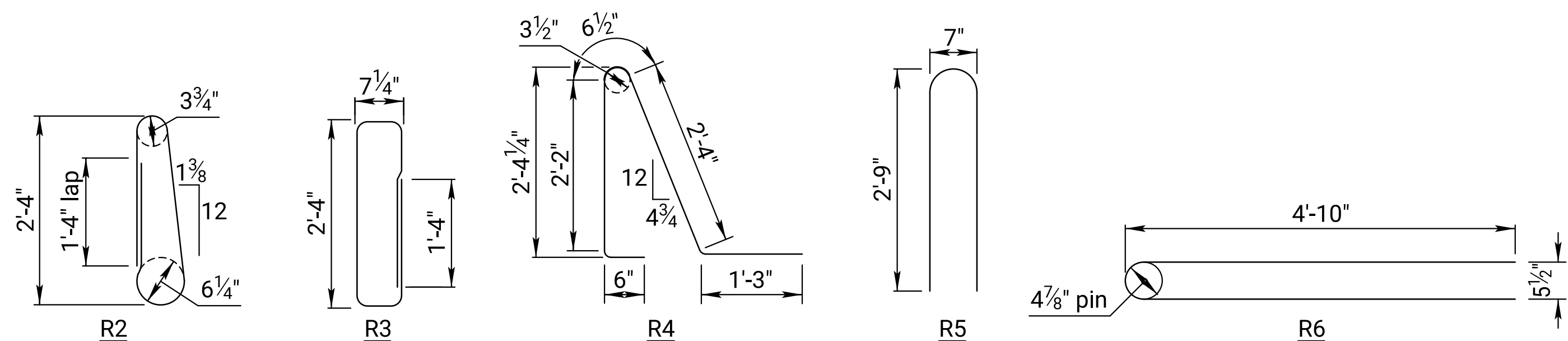
3				
2				
1				
NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION Br. No. 406950290803B01 STA. 100+00.00 			
CONCRETE BARRIER DETAILS N. BD. APPROACH SLAB N. Bd. 14th Ave. Over Arkansas River			
PROJECT NO. ST-2306		FORD COUNTY	
SHEET NO.	OF	SCALE	APP'D
DESIGNED		DETAILED	QUANTITIES
DESIGN CK.		DETAIL CK.	CADD CK.



SECTION A-A
(At abutment)

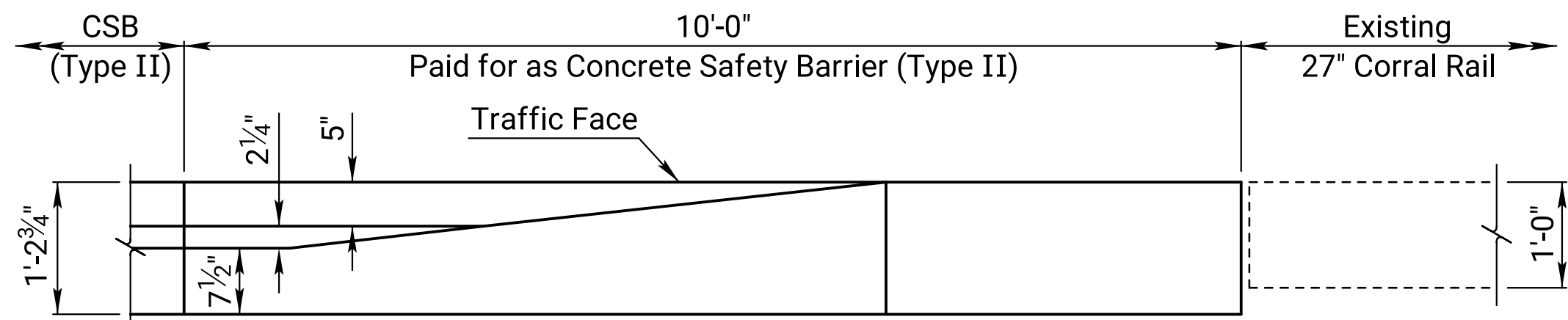
SECTION B-B



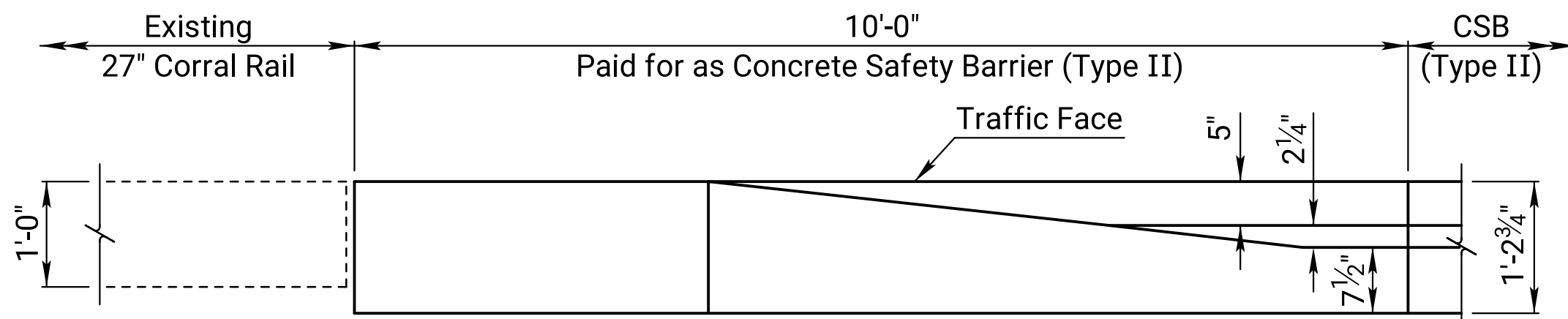
SAFETY BARRIER (TYPE II)
TO CORRAL RAIL

Plotted By: Katie.Romero	Plot Location:
File: ST2306rsb-07.dgn	
Plot Date: 9-JUL-2025 10:16	

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	ST-2306	2025	31	139



PLAN



PLAN

GENERAL NOTE

Quantities shown for information only. Concrete quantity may vary, based on horizontal curvature of barrier transition and type of curb to transition to. No additional payment will be made for extra concrete.

Details shown as standard only. Adjust for actual geometry on plans for each individual transition barrier.

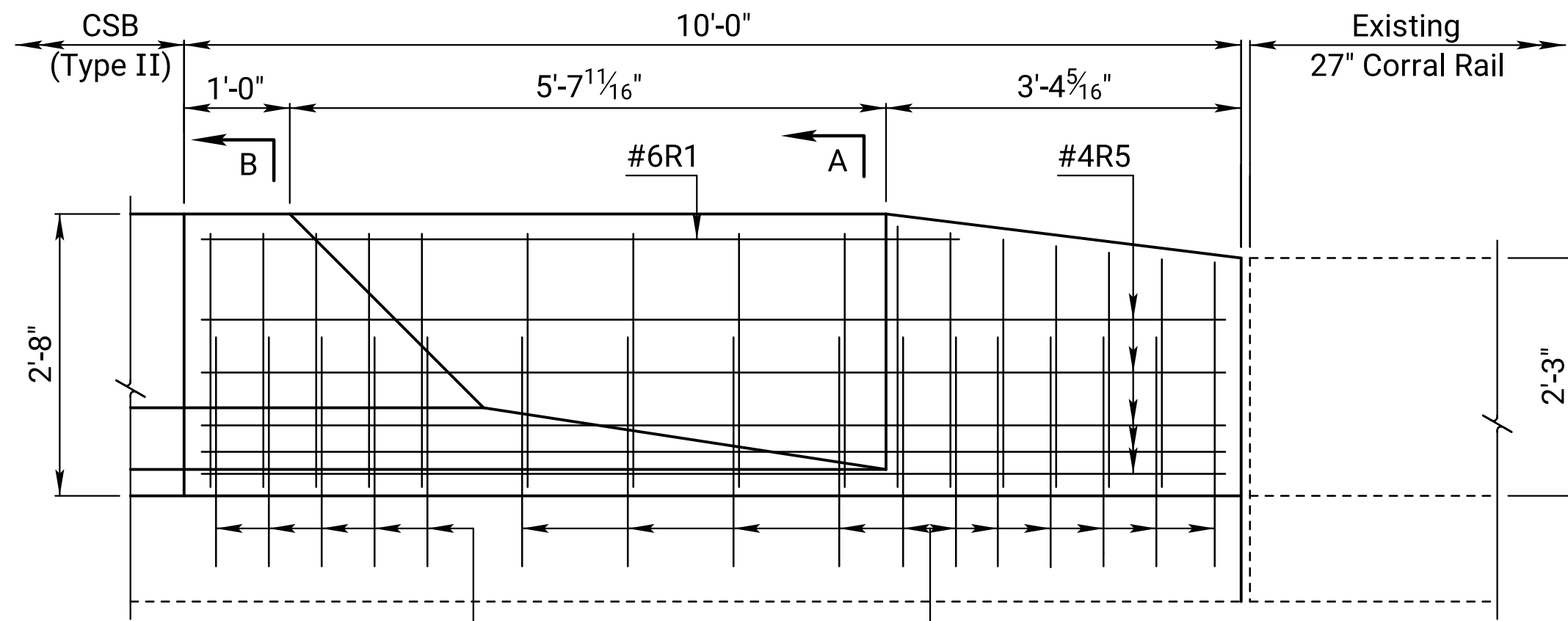
All concrete shall be Grade 3.0 (AE) or Concrete Pavement Mix (Contractor's Option). Bevel all exposed edges with a 3/4" triangular moulding and fillet corners where indicated. All dimensions relative to placement of reinforcing steel are to centerline of bars unless otherwise noted.

Concrete Safety Barrier transition shall be paid for as "Concrete Safety Barrier (Type II)" and include all work and material required to build the barrier as detailed on the plans.

1/2" Type B Expansion Joint is subsidiary to other bid items.

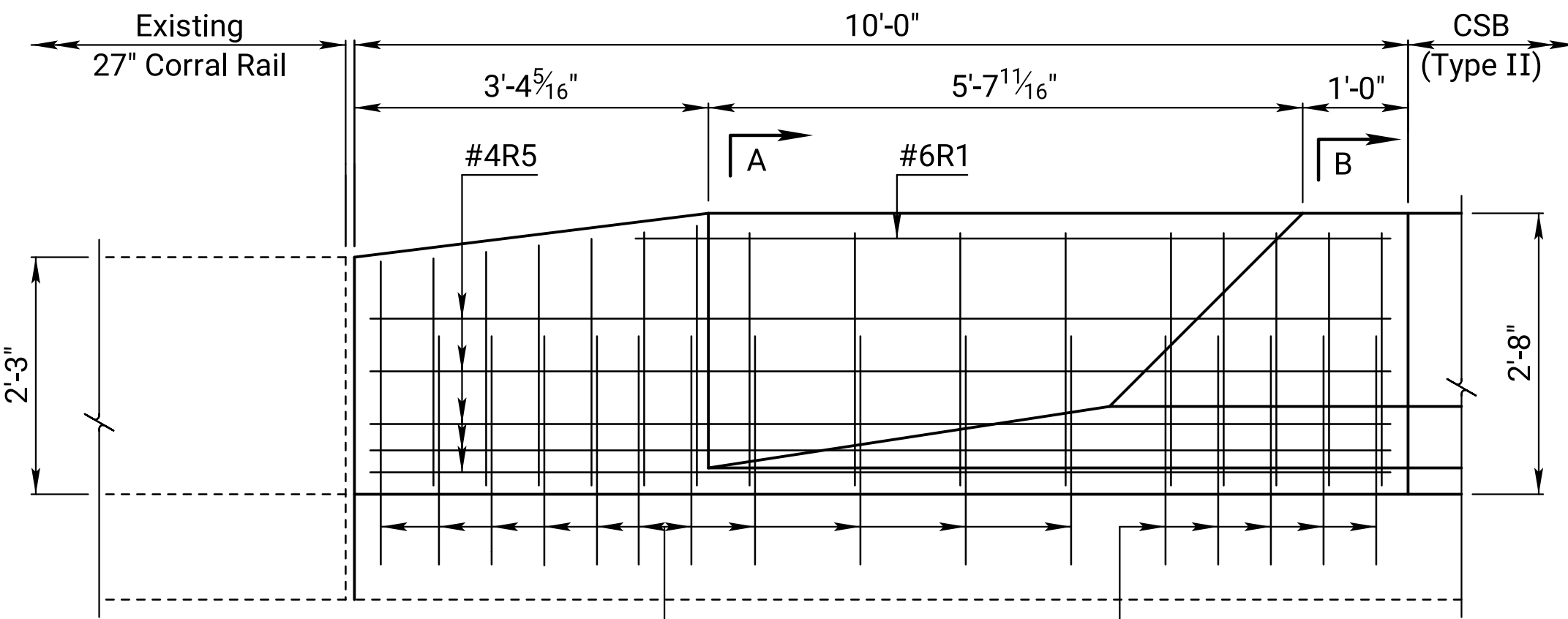
UNIT STRESSES:
Reinforcing Steel (Grade 60) f'c = 3.0 ksi
Concrete (Grade 3.0)(AE) fy = 60 ksi

EF = Each Face



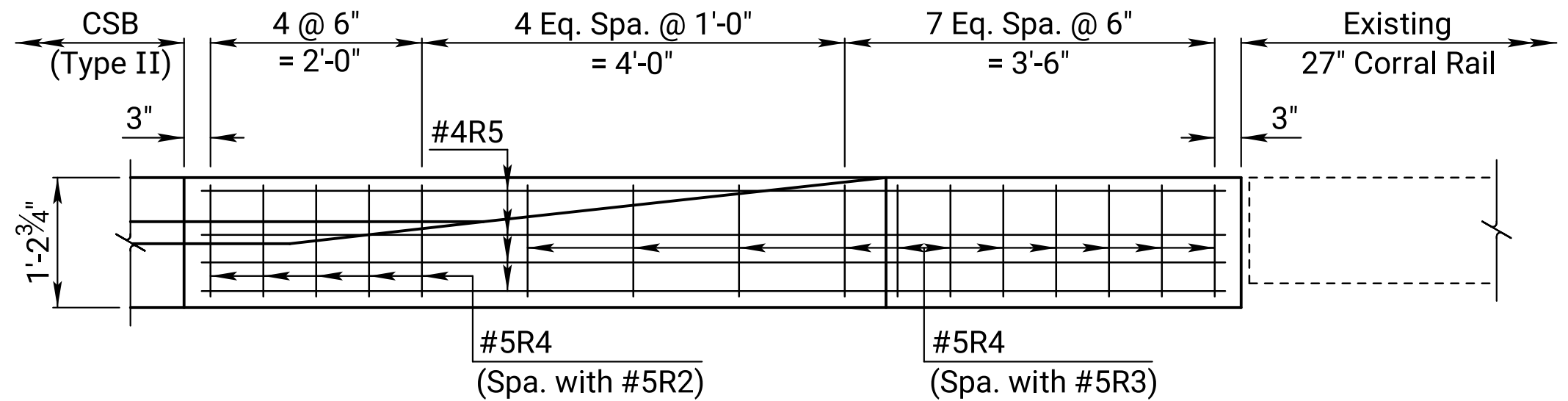
ELEVATION
(SB BRIDGE SE CORNER)

TRAFFIC DIRECTION

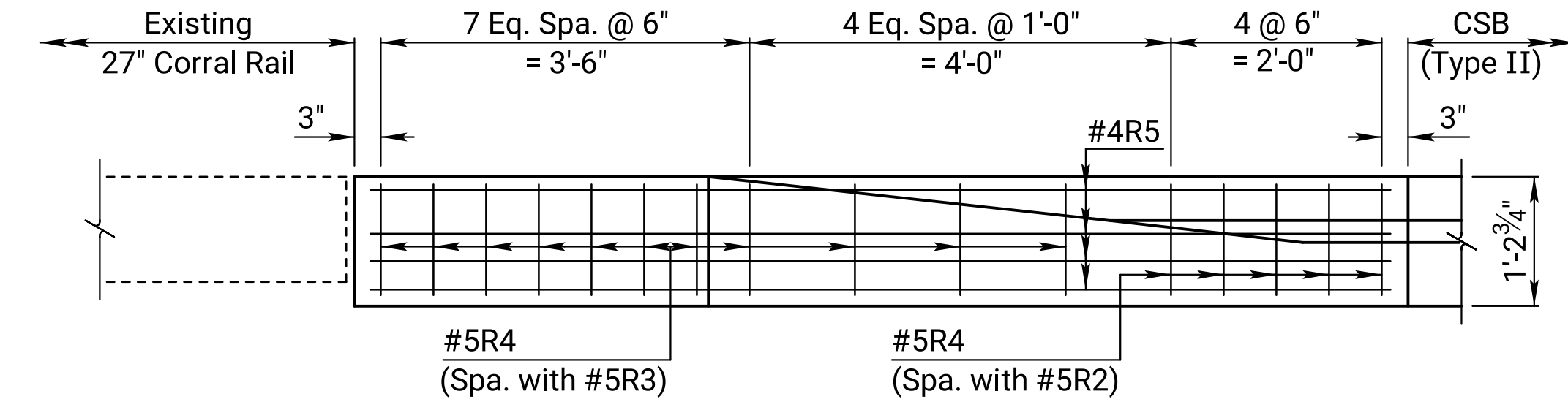


ELEVATION
(SB BRIDGE NE CORNER)

TRAFFIC DIRECTION

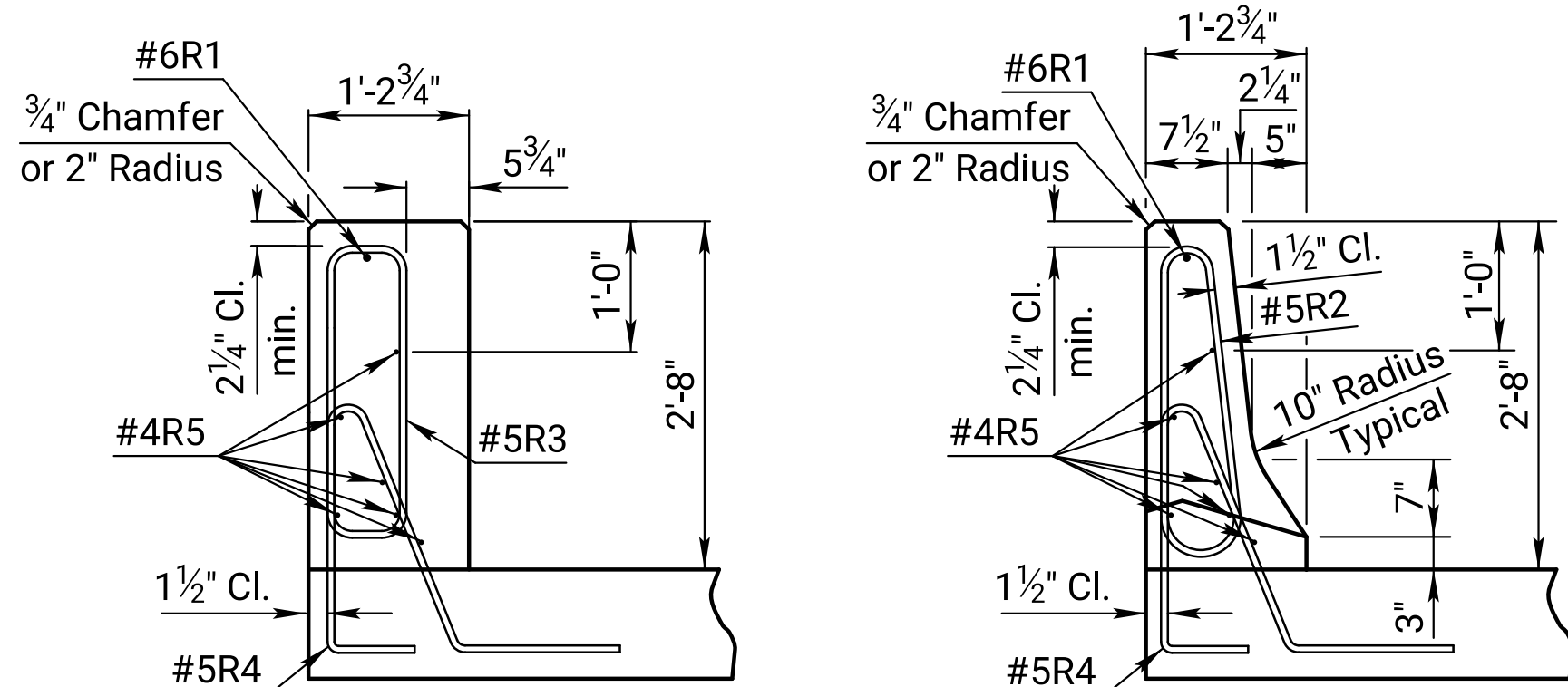


SECTION C-C



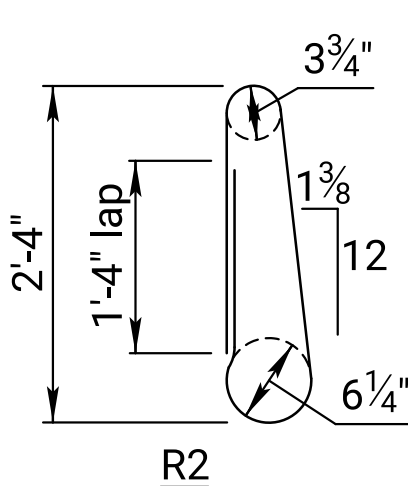
SECTION C-C

SAFETY BARRIER (TYPE II)
TO EXISTING SAFETY BARRIER

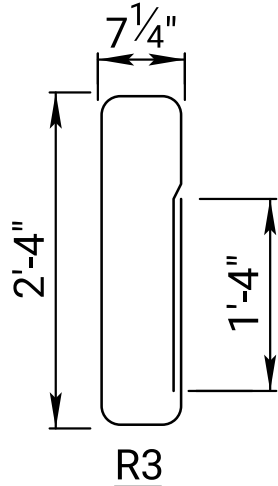


SECTION A-A
(At Abutment)

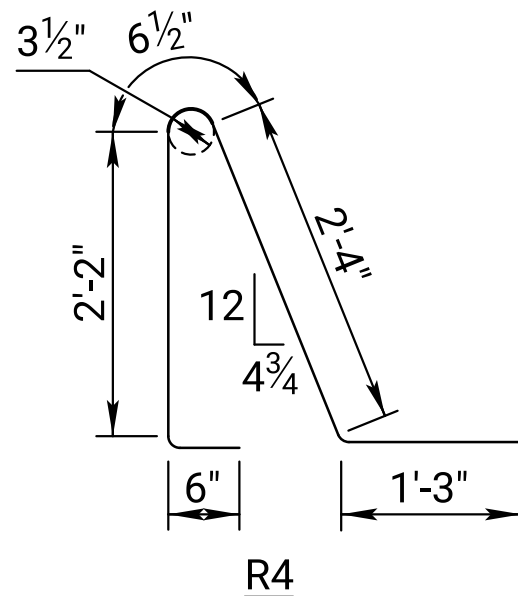
SECTION B-B



R2



R3



R4

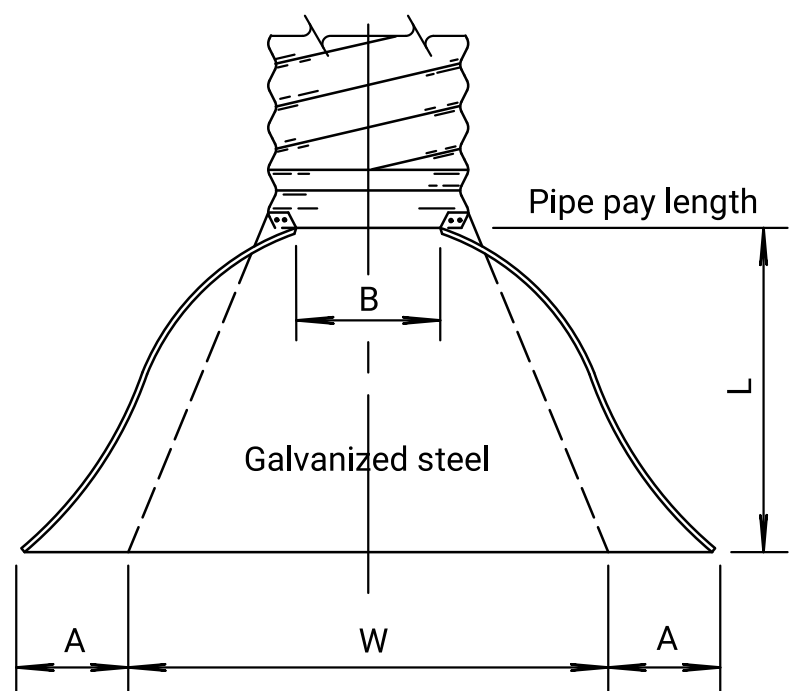
FOR INFORMATION ONLY							
TYPE II (SPECIAL) CONC. SAFETY BARRIER TRANSITION BILL OF REINFORCING STEEL EPOXY COATED GRADE 60 (PER END)							
Straight Bars				Bent Bars			
Mark	Size	Number	Length	Mark	Size	Number	Length
R1	#6	1	7'-2"	R2	#5	5	6'-6"
R5	#4	5	9'-8"	R3	#5	11	7'-4"
				R4	#5	16	6'-11"
Reinforcing Steel (Grade 60)(Epoxy Coated)							276.5 Lbs.
Concrete (Grade 3.0)(AE)							1.2 C.Y.

3					
2					
1					
NO.	DATE	REVISIONS	BY	APP'D	

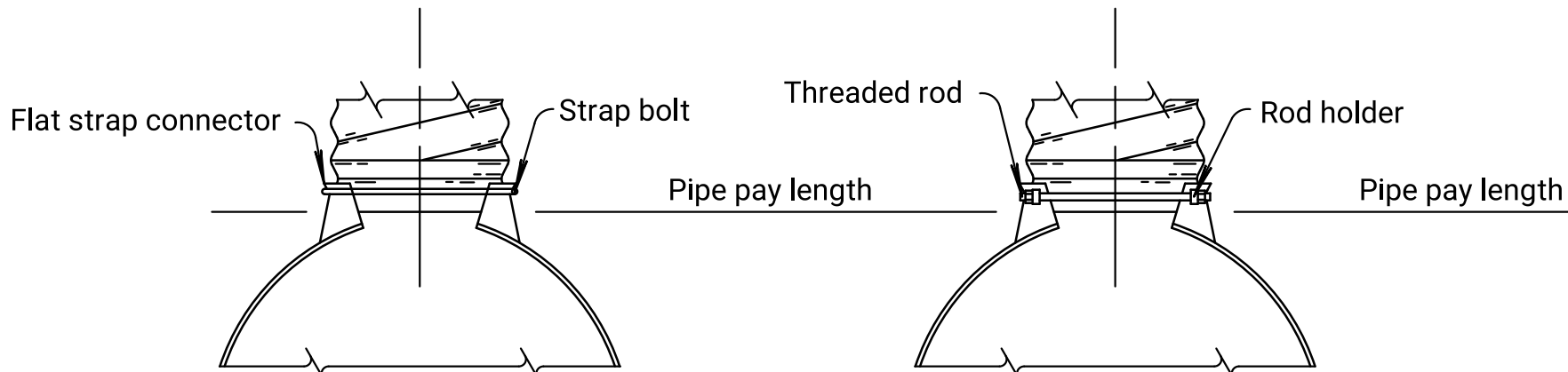
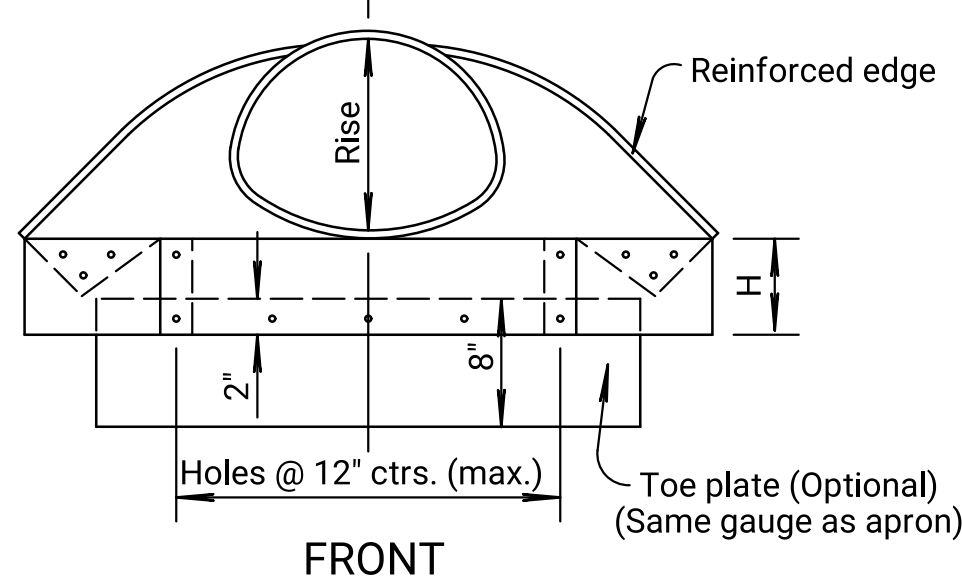
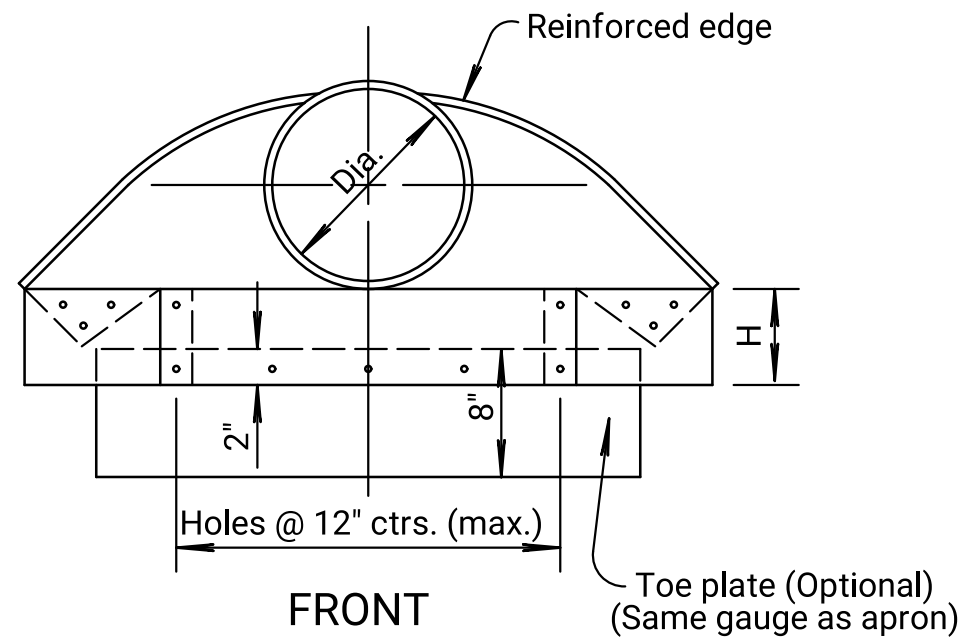
KANSAS DEPARTMENT OF TRANSPORTATION					
Br. No. 406950290803B01			© STA. 100+00.00		
CONCRETE BARRIER DETAILS					
S. BD. APPROACH SLAB					
N. Bd. 14th Ave. Over Arkansas River					
PROJECT NO. ST-2306			FORD COUNTY		
SHEET NO.	OF	SCALE	APP'D		
DESIGNED		DETAILED	QUANTITIES	CADD	
DESIGN CK.		DETAIL CK.	QUAN. CK.	CADD CK.	

Plotted By: Katie Romero
File: ST2306rsb-08.dgn
Plot Date: 9-JUL-2025 10:17

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

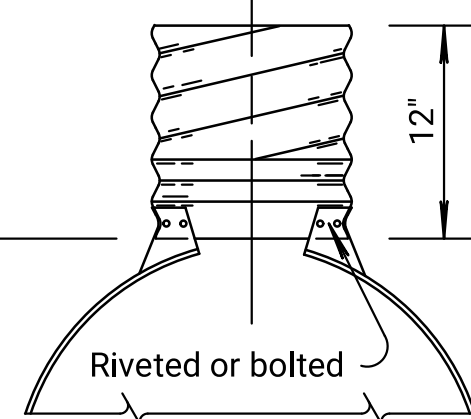


PLAN
(Illustrated with Type #3 Connection)

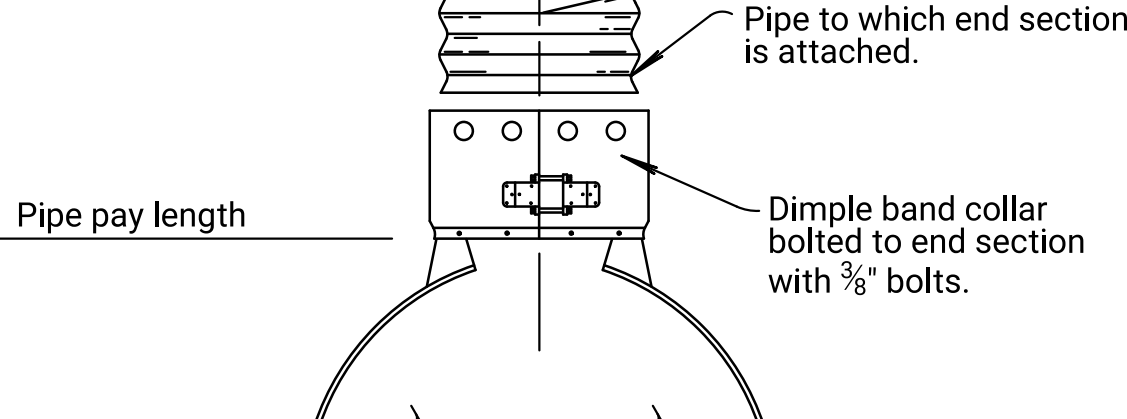


TYPE 1
Available in sizes 12" through 24" only.

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

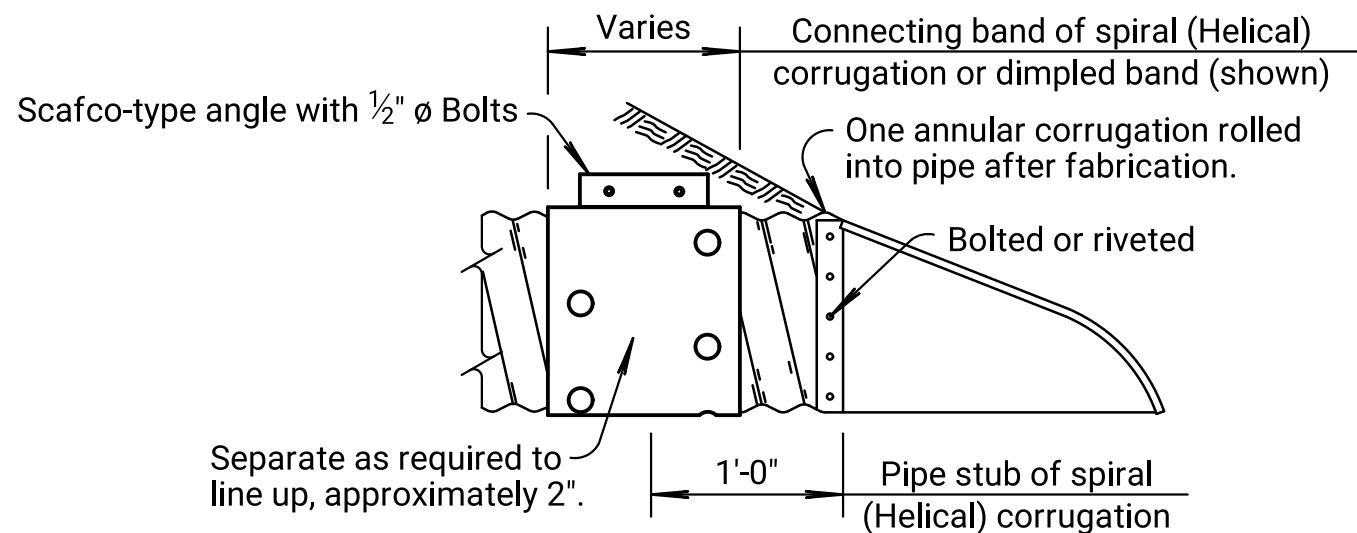


TYPE 3
Available in sizes 42" through 96" Round and 60"x46" through 81"x59" Pipe-Arches.



TYPE 5
Available for all Round and equivalent Pipe-Arch sizes, (Type 1 and Type 2 connections are recommended for the smaller sizes with annular ends).

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



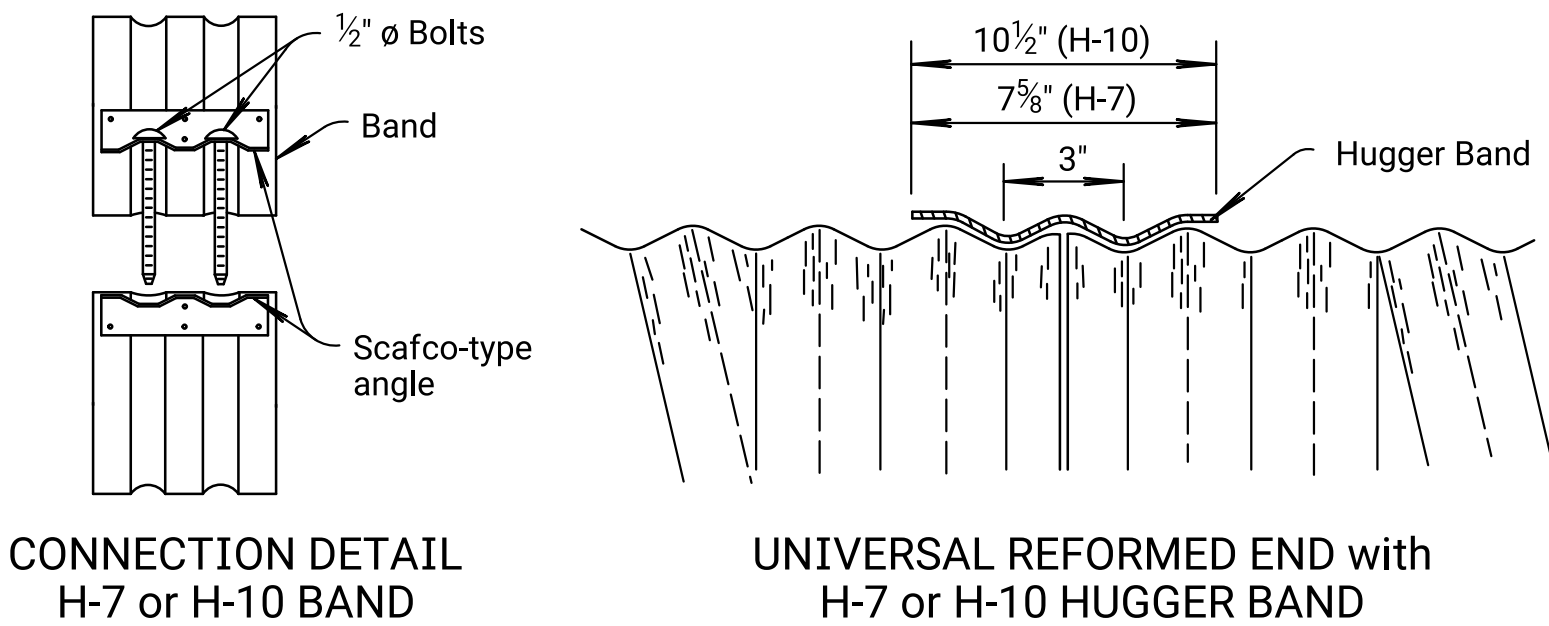
SPIRAL (HELICAL) CORRUGATION
For all sizes of round and arch culvert pipes having Spiral (Helical) corrugations, the end sections and connecting bands shall be as shown above.

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

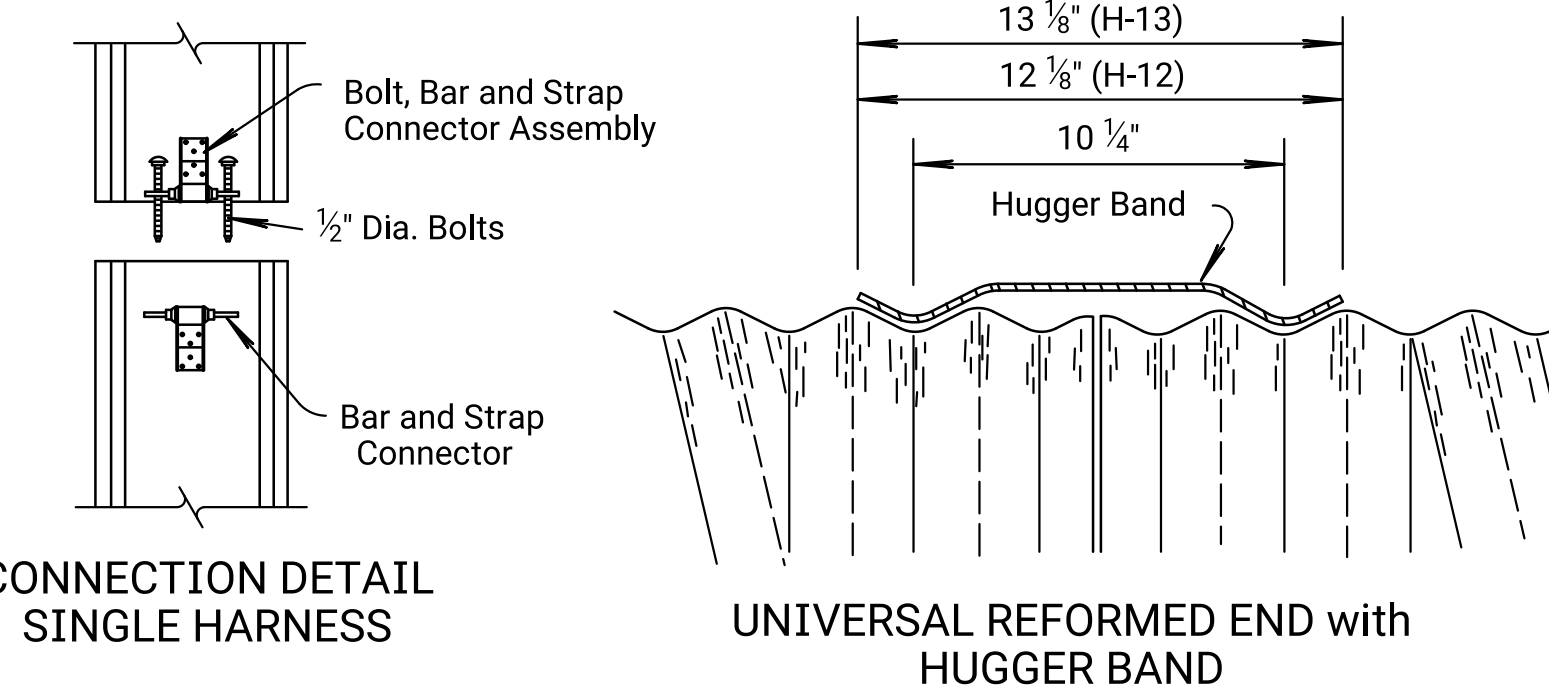
Pipe Dia. (In.)	CS, ACS or CA Gauge	Dimensions in Inches					Approx. Slope
		A (min.)	B (max.)	H (min.)	L (±2")	W (min.)	
12"	16	5	7	6	21	22	2 1/2: 1
15"	16	6	8	6	26	28	2 1/2: 1
18"	16	7	10	6	31	34	2 1/2: 1
21"	16	8	12	6	36	40	2 1/2: 1
24"	16	9	13	6	41	46	2 1/2: 1
30"	14	11	16	8	51	55	2 1/2: 1
36"	14	13	19	9	60	70	2 1/2: 1
42"	12	15	25	10	69	82	2 1/2: 1
48"	12	17	29	12	78	88	2 1/4: 1
54"	12	17	33	12	84	100	2 1/4: 1
60"	12/10	17	36	12	87	112	2: 1
66"	12/10	17	39	12	87	118	2: 1
72"	12/10	17	44	12	87	120	2: 1
78"	12/10	17	48	12	87	130	1 1/2: 1
84"	12/10	17	52	12	87	136	1 1/2: 1
90"	12/10	17	58	12	87	142	1 1/2: 1
96"	12/10	17	58	12	87	144	1 1/2: 1

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

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

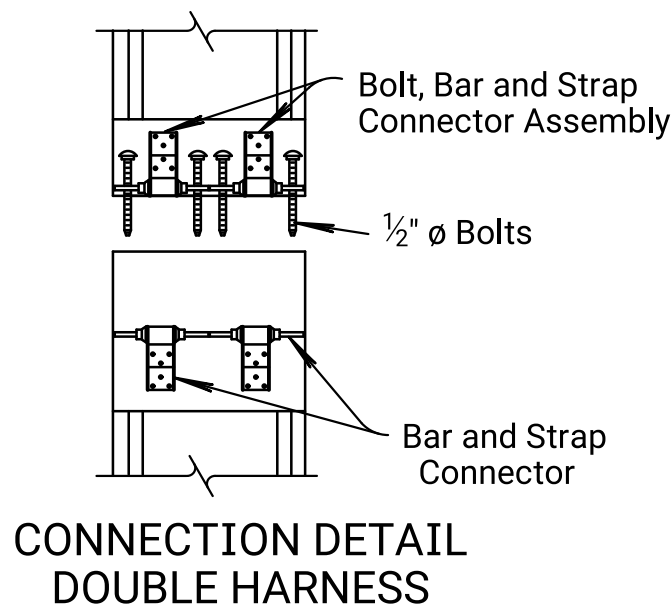


DETAILS FOR H-7 HUGGER BAND (12" thru 36") or H-10 HUGGER BAND (12" thru 120")



DETAILS FOR H-12 or H-13 HUGGER BAND

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



CONNECTION DETAIL DOUBLE HARNESS

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

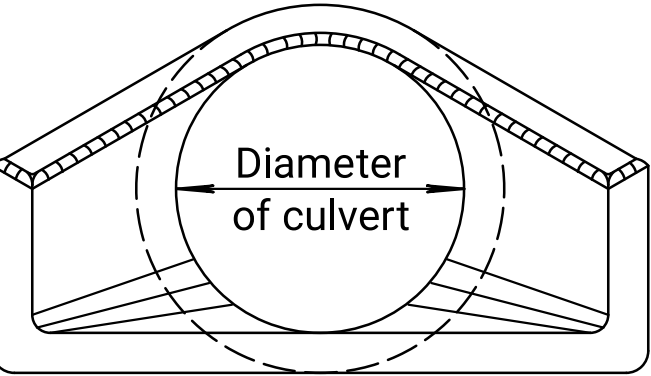
GENERAL NOTE for METAL PIPE
Culvert "Type" listed may be CSP, ACSP, CAP, RCP, PVCP & PEP within guidelines of KDOT Pipe Policy for geographic location. More than one pipe "Type" may be acceptable for a design location with allowable types listed for each site.
There shall be no payment for gain in pipe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

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

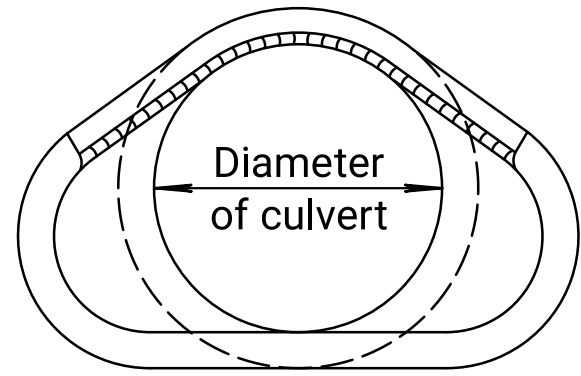
Note to Designer: KDOT Pipe Policy provides guidance in identifying the prohibited and/or restricted uses of CSP, ACSP, PEP, PVCP, CAP & RCP. Provide end sections of the same type and coating as the pipe. Exceptions to this are noted in the Standard Specifications. Refer to the KDOT Design Manual, Volume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

Plotted by : Riley Standish
File : ST2306rss-662.dgn

8-JUL-2025 16:25

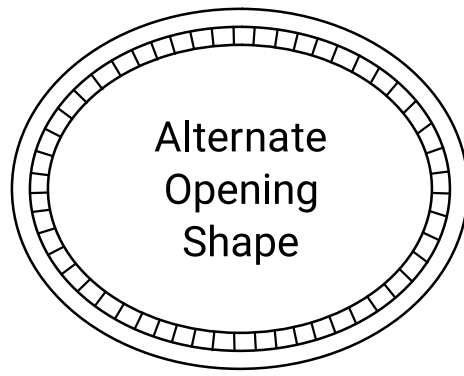


END ELEVATION (TYPE I)

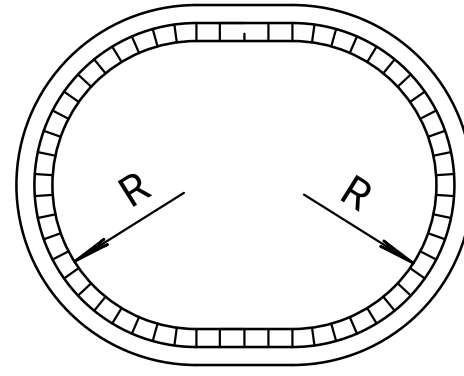


SECTION A-A

Showing rounding of inside edge of end section.

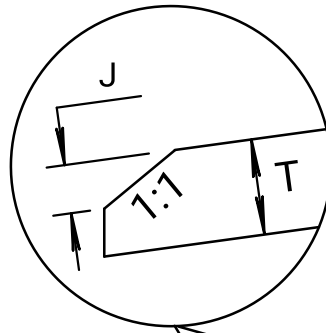


Alternate
Opening
Shape



END ELEVATION (TYPE III)

END ELEVATION (TYPE III)

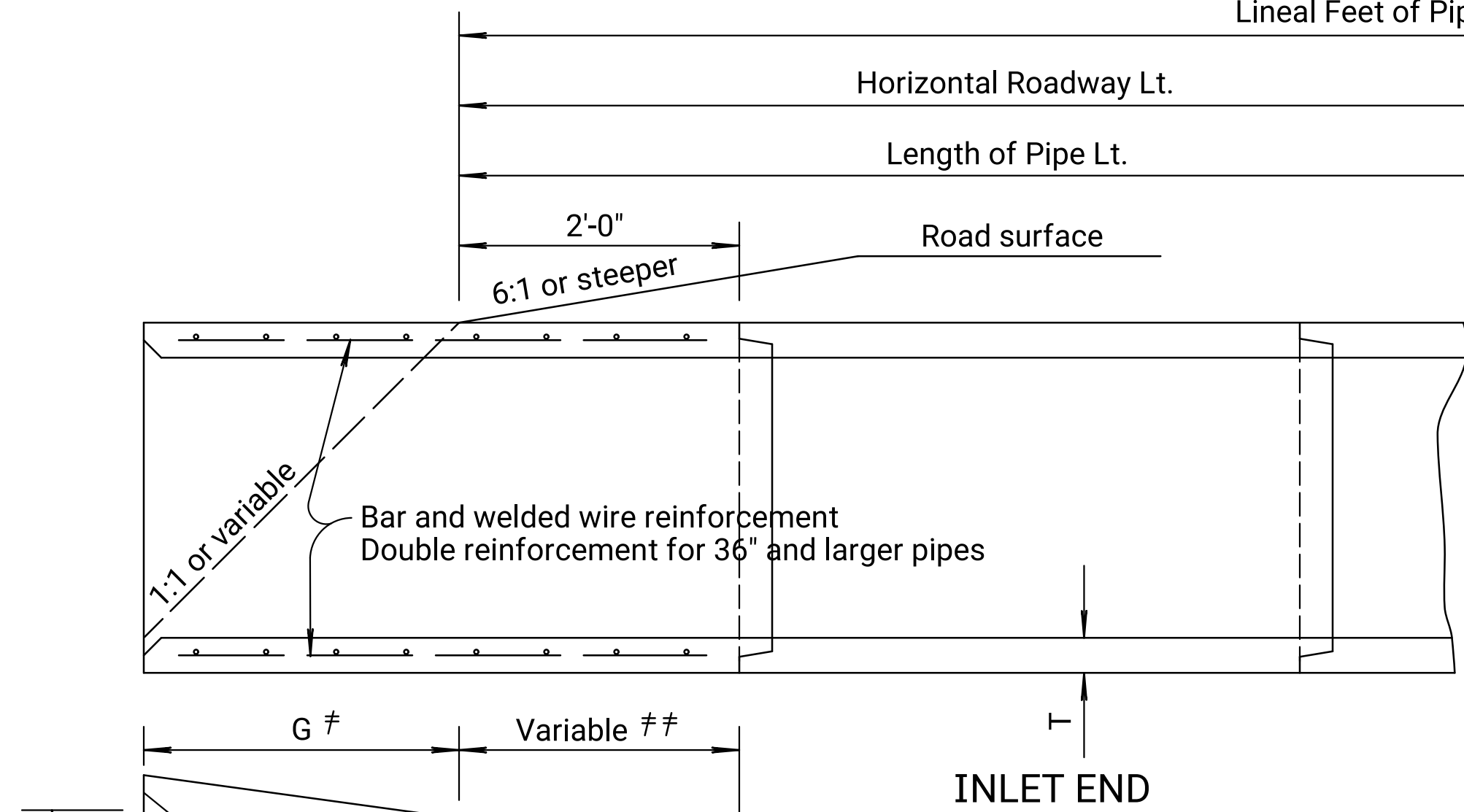


∅ Transition to round pipe.

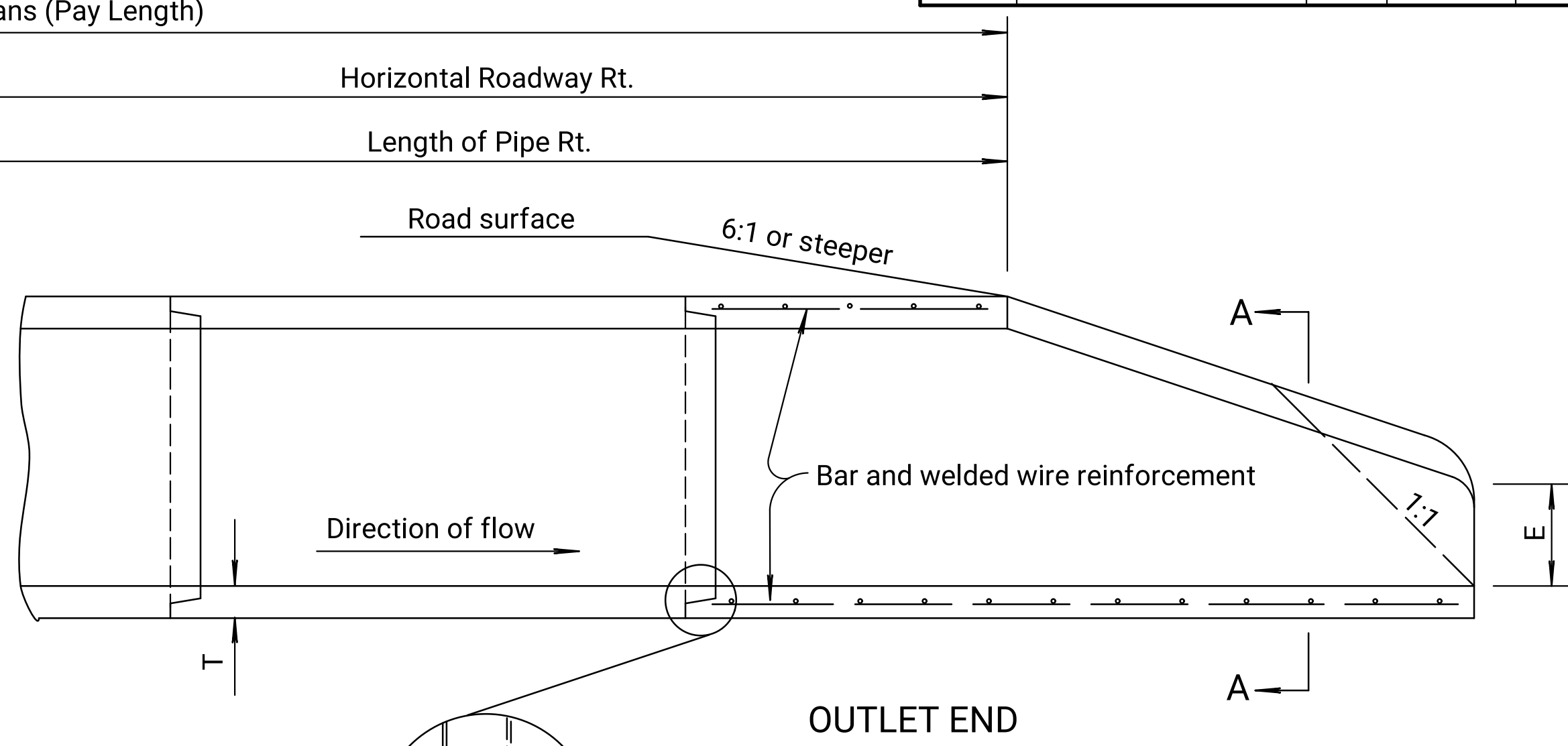
≠ Paid for as separate item of End Section, except when structures shall bid as alternates. In that case End Sections shall be subsidiary to bid item. "Drainage Structure No. ".

≠≠ Included in pay length of pipe.

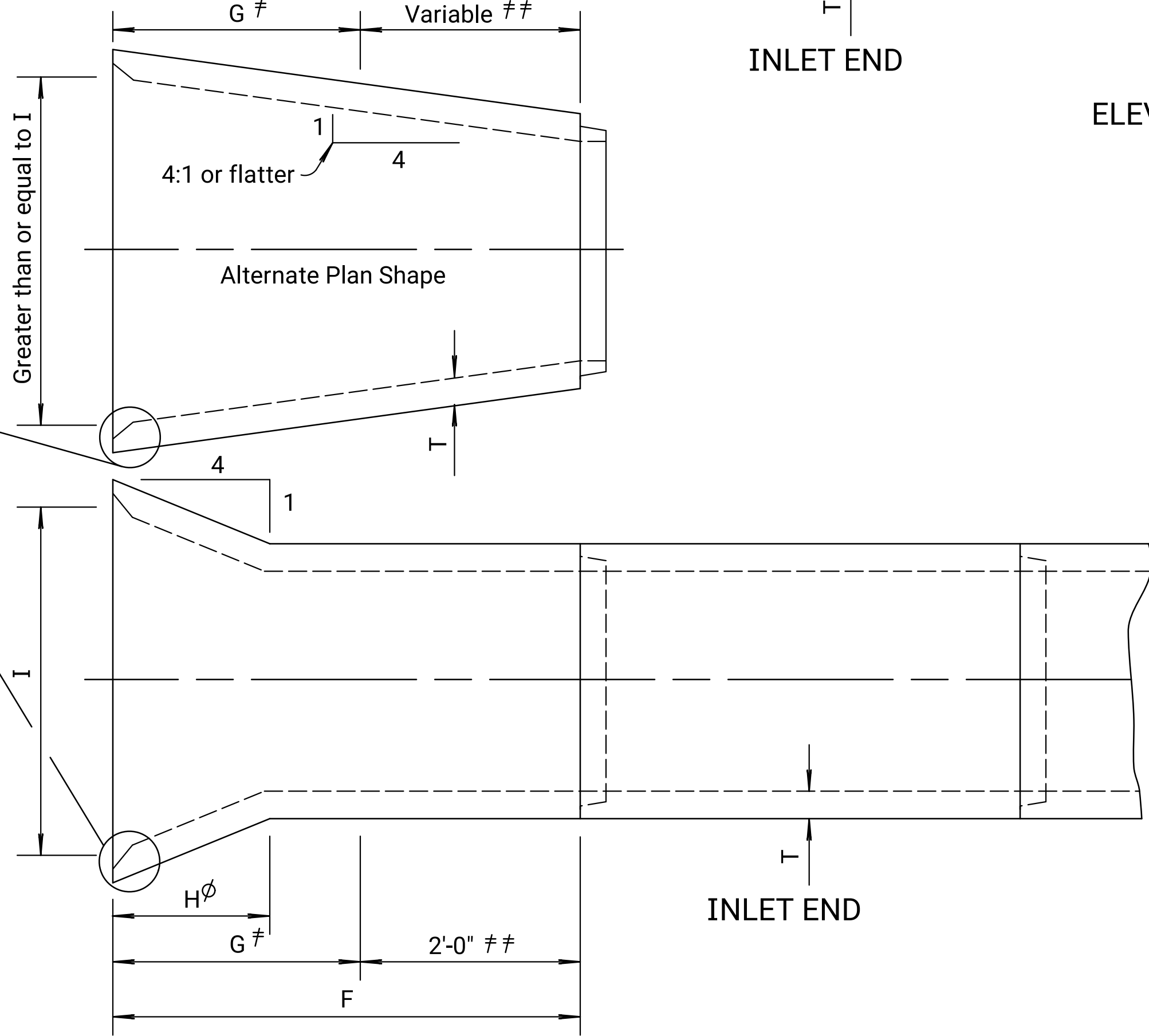
✱ Minimum waterway area is calculated at the inside of the bevel.



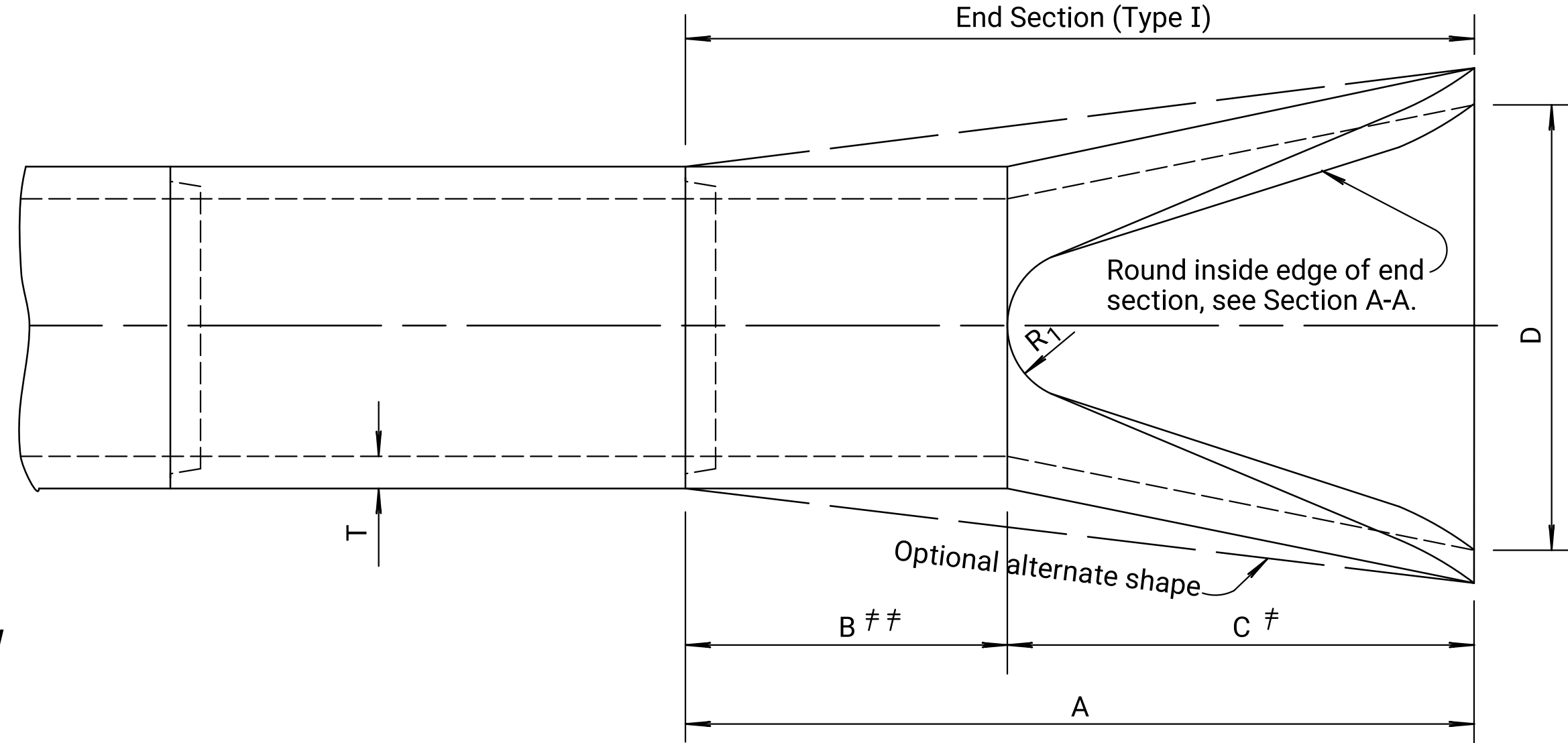
ELEVATION SECTION



Note: There shall be no payment for gain in length due to joint fit tolerance.



PLAN VIEW



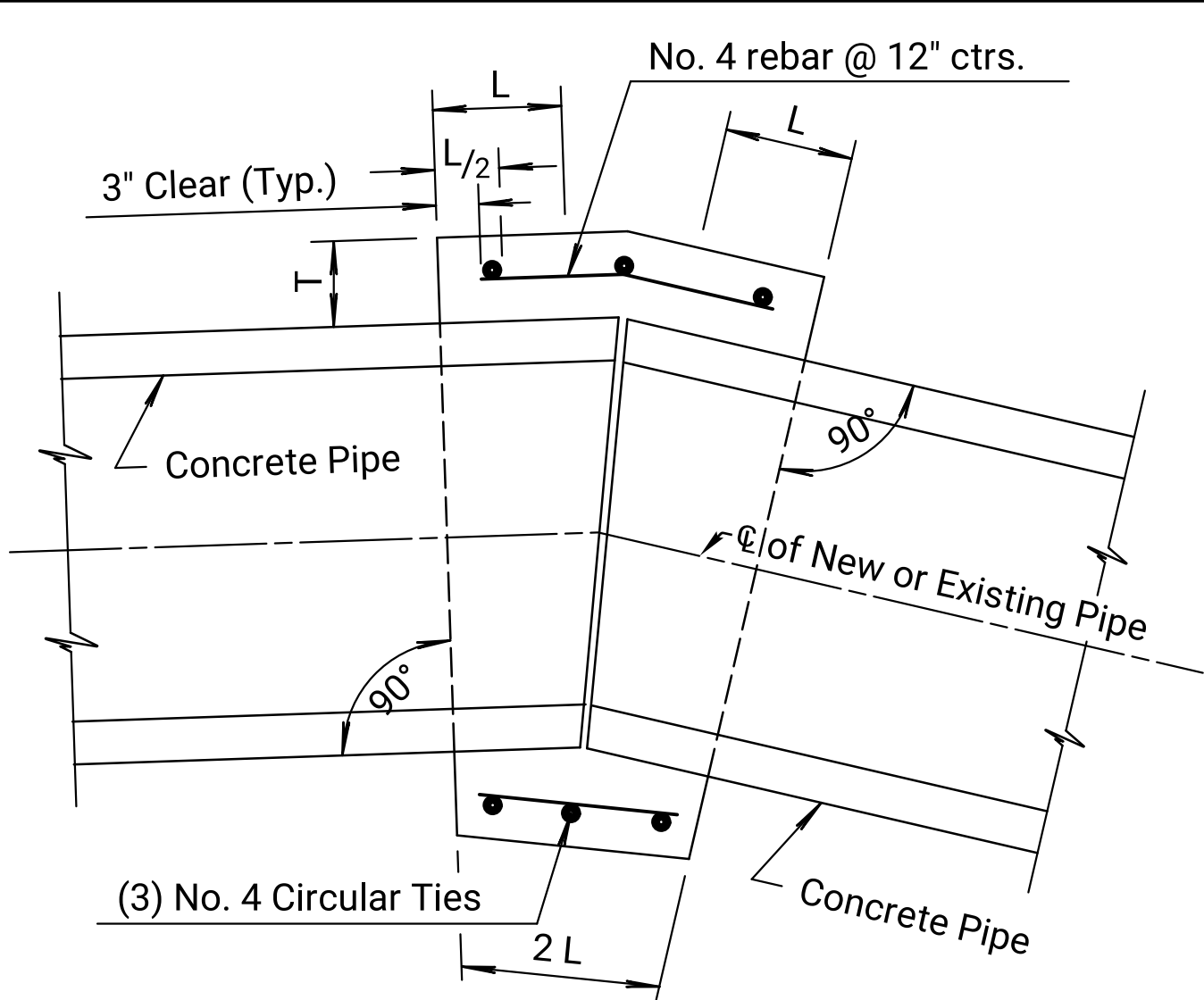
END SECTION (TYPE I) NOMINAL DIMENSIONS								
Diam.	A	B≠≠	C≠	D	E	Ri	Slope	T
12"	6'-0 7/8"	4'-0 7/8"	2'-0"	2'-0"	4"	9	3:1	2"
15"	6'-1"	3'-10"	2'-3"	2'-6"	6"	11	3:1	2 1/4"
18"	6'-1"	3'-10"	2'-3"	3'-0"	9"	12	3:1	2 1/2"
24"	6'-1 1/2"	2'-6"	3'-7 1/2"	4'-0"	9 1/2"	14	3:1	3"
30"	6'-1 3/4"	1'-7 3/4"	4'-6"	5'-0"	1'-0"	15	3:1	3 1/2"
36"	8'-1 3/4"	2'-10 3/4"	5'-3"	6'-0"	1'-3"	20	3:1	4"
42"	8'-2"	2'-11"	5'-3"	6'-6"	1'-9"	22	3:1	4 1/2"
48"	8'-2"	2'-2"	6'-0"	7'-0"	2'-0"	22	3:1	5"
54"	8'-2 1/4"	2'-9 1/4"	5'-5"	7'-6"	2'-3"	24	2.4:1	5 1/2"
60"	8'-3"	3'-3"	5'-0"	8'-0"	2'-11"	24	21	6"
72"	8'-3"	1'-9"	6'-6"	9'-0"	3'-0"	24	1.86:1	7"
84"	9'-3 1/2"	1'-9"	7'-6 1/2"	10'-0"	3'-0"	24	1.6:1	8"

SIDE TAPERED INLET SECTION (TYPE III)-NOMINAL DIMENSIONS									
Diam.	Min. W.W.✱ Area Sq. Ft.	F	G	H	I	J	K	R	T
24"	4.5	4'-3"	2'-3"	1'-5 1/8"	2'-8"	1 1/2"	8"	1'-0"	3"
30"	7.0	4'-9 1/2"	2'-9 1/2"	1'-9 1/2"	3'-4"	2"	10"	1'-3"	3 1/2"
36"	10.1	5'-4"	3'-4"	2'-1 1/2"	4'-0"	2"	1'-0"	1'-6"	4"
42"	13.7	5'-10 1/2"	3'-10 1/2"	2'-5 7/8"	4'-8"	2 1/2"	1'-2"	1'-9"	4 1/2"
48"	17.9	6'-5"	4'-5"	2'-10 1/8"	5'-4"	3"	1'-4"	2'-0"	5"
54"	22.7	6'-11 1/2"	4'-11 1/2"	3'-2 1/2"	6'-0"	3 1/2"	1'-6"	2'-3"	5 1/2"
60"	28.0	7'-6"	5'-6"	3'-6 7/8"	6'-8"	4"	1'-8"	2'-6"	6"
72"	40.3	8'-7"	6'-7"	4'-3 3/8"	8'-0"	5"	2'-0"	3'-0"	7"
84"	54.8	9'-8"	7'-8"	5'-0 3/8"	9'-4"	6"	2'-4"	3'-6"	8"

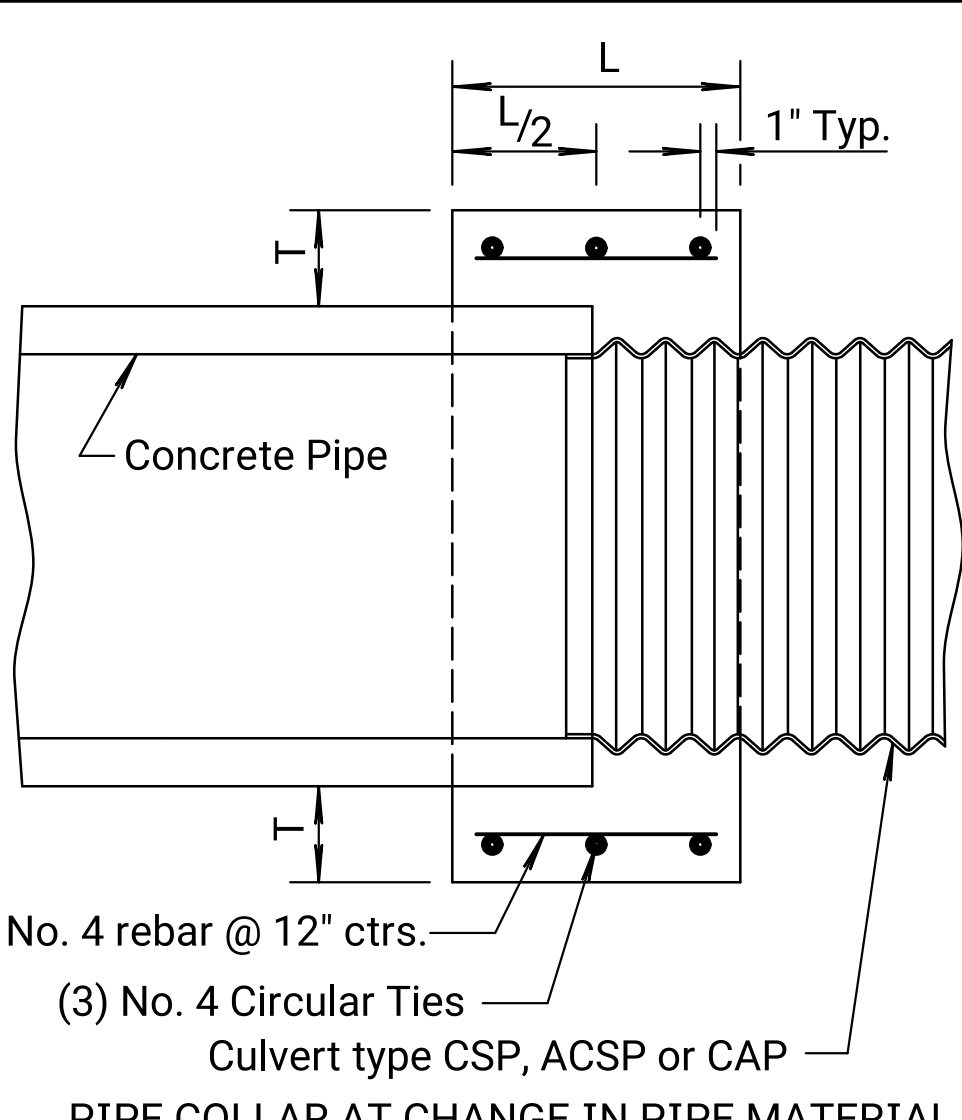
Dimensions for alternate shapes shall be equal to or greater than those shown in the table, unless otherwise shown.

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	ST-2306	2025	33	139

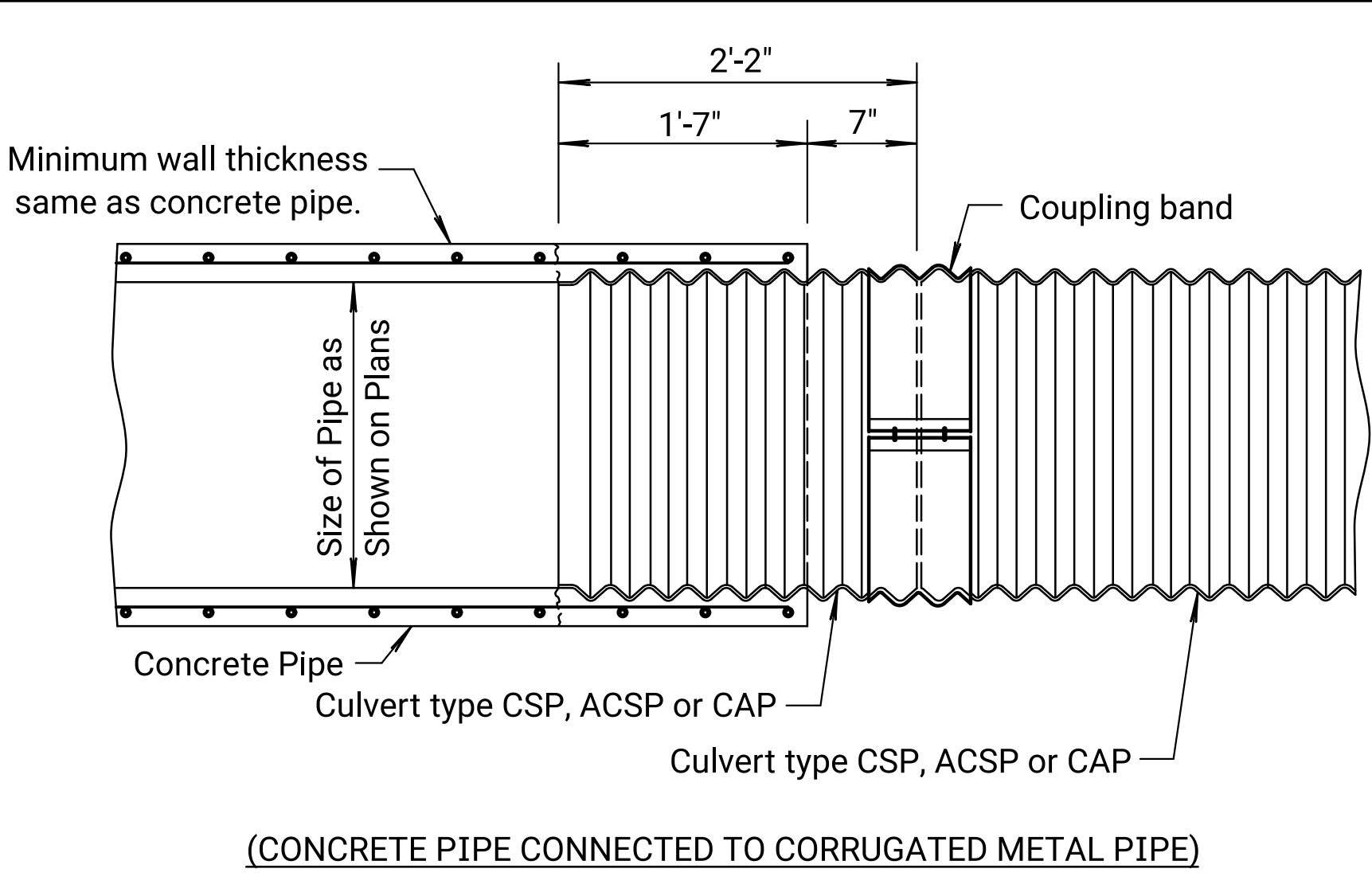
02	04-18-08	Added ref. to KDOT Pipe Policy	S.W.K.	J.O.B.
01	04-05-05	Revised reinforcement callout	S.W.K.	J.O.B.
NO.	DATE	REVISIONS	BY	APP'D
KANSAS DEPARTMENT OF TRANSPORTATION				
CONCRETE END SECTIONS				
FOR CONCRETE PIPES				
TYPE I & SIDE TAPERED				
INLET SECTION (TYPE III)				
RD662				
FHWA APPROVAL		06-27-08	APP'D.	James O. Brewer
DESIGNED	DETAILED	QUANTITIES	TRACED	
DESIGN CK.	DETAIL CK.	QUAN.CK.	TRACE CK.	



PIPE COLLAR AT CHANGE IN ALIGNMENT
TYPE A COLLAR



PIPE COLLAR AT CHANGE IN PIPE MATERIAL
TYPE B COLLAR



(CONCRETE PIPE CONNECTED TO CORRUGATED METAL PIPE)

TYPE C COLLAR ▲

▲ A section of concrete pipe (6'-0" min.) is cast 1'-7" short with the re-steel protruding. Tack weld the re-steel to the 2'-2" section of CMP and finish casting the remaining 1'-7" of RCP around the CMP. This is an approved connection provided it is fabricated as an integral part of a section of concrete pipe.

CONCRETE PIPE COLLAR			
Pipe Dia.	L	T	
18"	1'-0"	6"	
24"	1'-0"	6"	
36"	1'-6"	8"	
48"	1'-6"	10"	
60"	1'-9"	11"	

General Notes:

Pipe collar shall be used to join pipes of different diameters or materials or where change in alignment or grade exceeds that allowed for ordinary joints.

All concrete shall be Concrete Grade 3.0. All reinforcing steel shall be Grade 60 and shall have a minimum of 2" of cover.

The diameter of the circular ties shall be the outside diameter of the larger pipe plus "T".

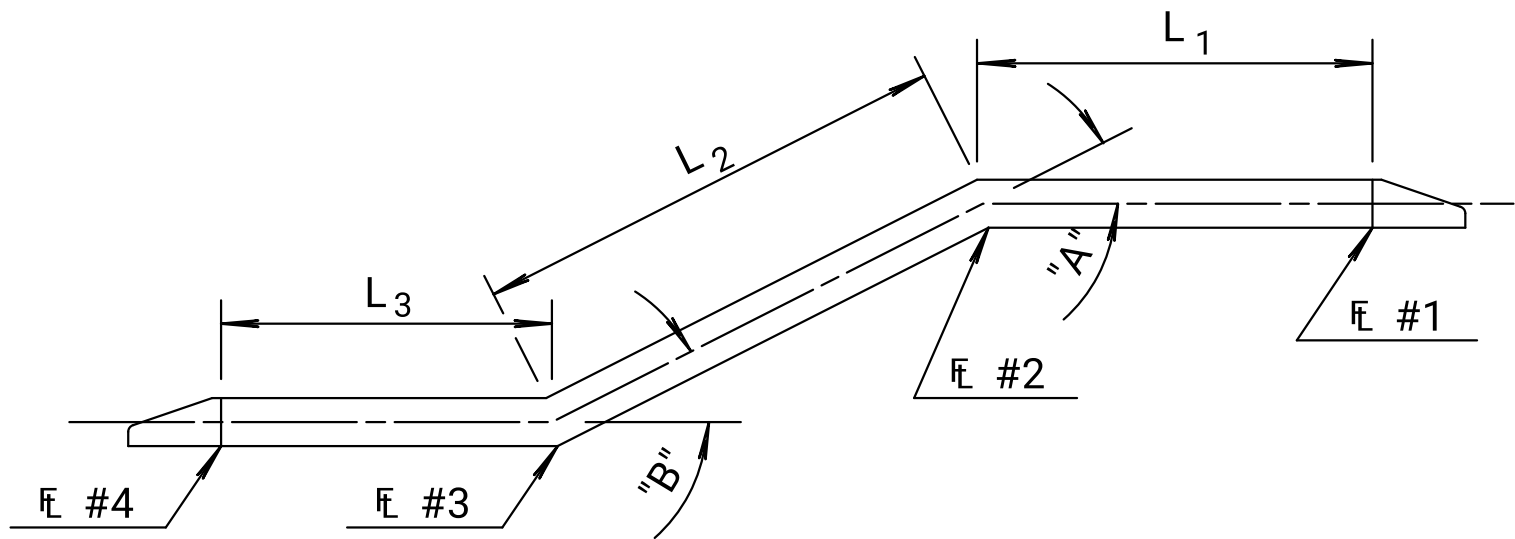
The maximum allowable distance between the ends of the pipes at any point is 2".

All labor, materials and incidentals required to construct the pipe collar Type A, B or C shall not be paid for directly but shall be subsidiary to the individual pipe bid items.

Aluminum or aluminized pipes or end sections shall be coated with an asphaltic paint when in contact with fresh concrete in accordance with the Standard Specifications.

Pipe ends shall be trimmed such that the maximum distance between pipes at any point is 2".

PIPE COLLARS



Sketch Along ϕ CRP (CMP)
Broken-Back

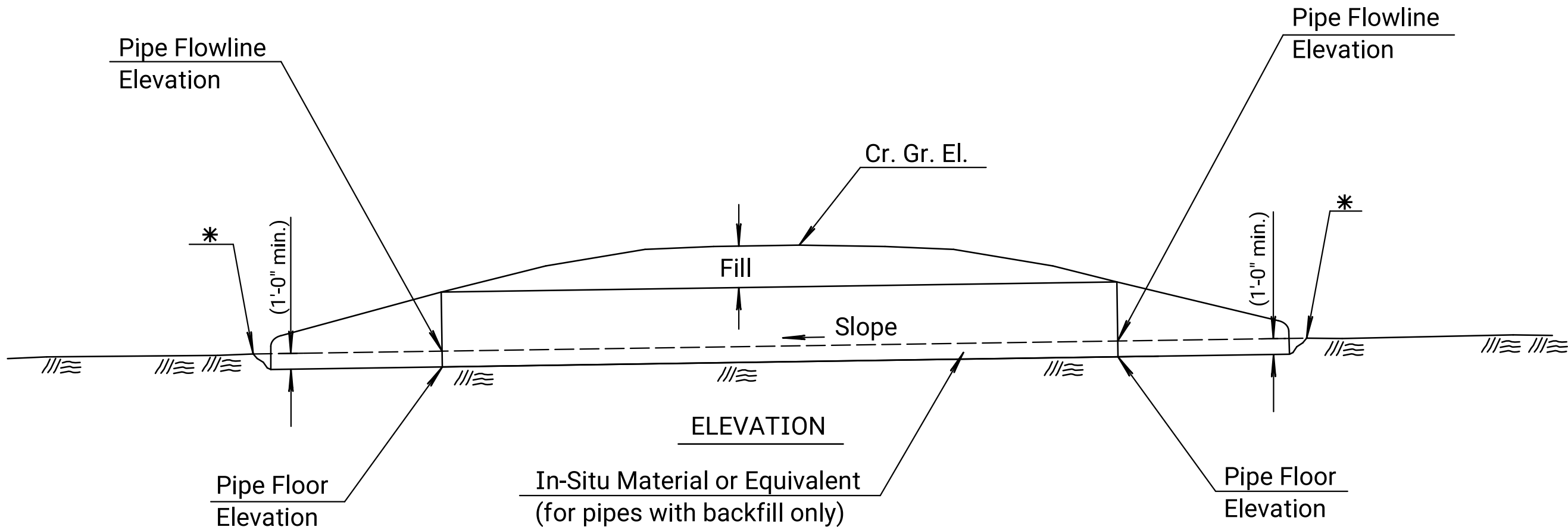
SUMMARY OF BROKEN BACK PIPES											
STATION	SIZE	FLOW LINES				LENGTH			ANGLES		REMARKS
		#1	#2	#3	#4	L ₁	L ₂	L ₃	A	B	

GENERAL NOTE

For pipes where the height or rise is greater than 4'-0" place uncompacted backfill through the pipe, including the end sections, 1'-0" (Min.). Backfill material will be reasonably free of organic material. In-situ material may be used for backfill as approved by the Engineer.

For pipes where the height or rise is less than or equal to 4'-0" install the pipe such that embedment will occur through natural sedimentation. See Pipe Embedment detail shown on this sheet.

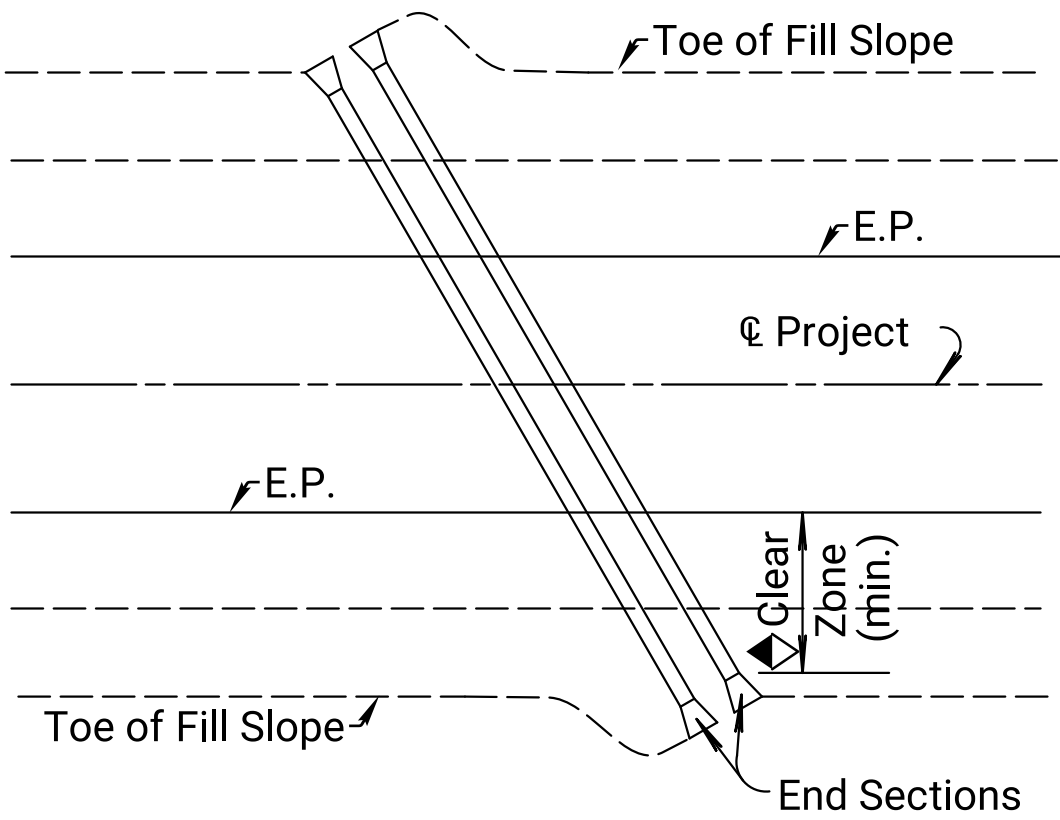
Work and material for embedding pipes will not be paid for directly, but will be Subsidiary to the other pipe bid items in the contract.



PIPE EMBEDMENT

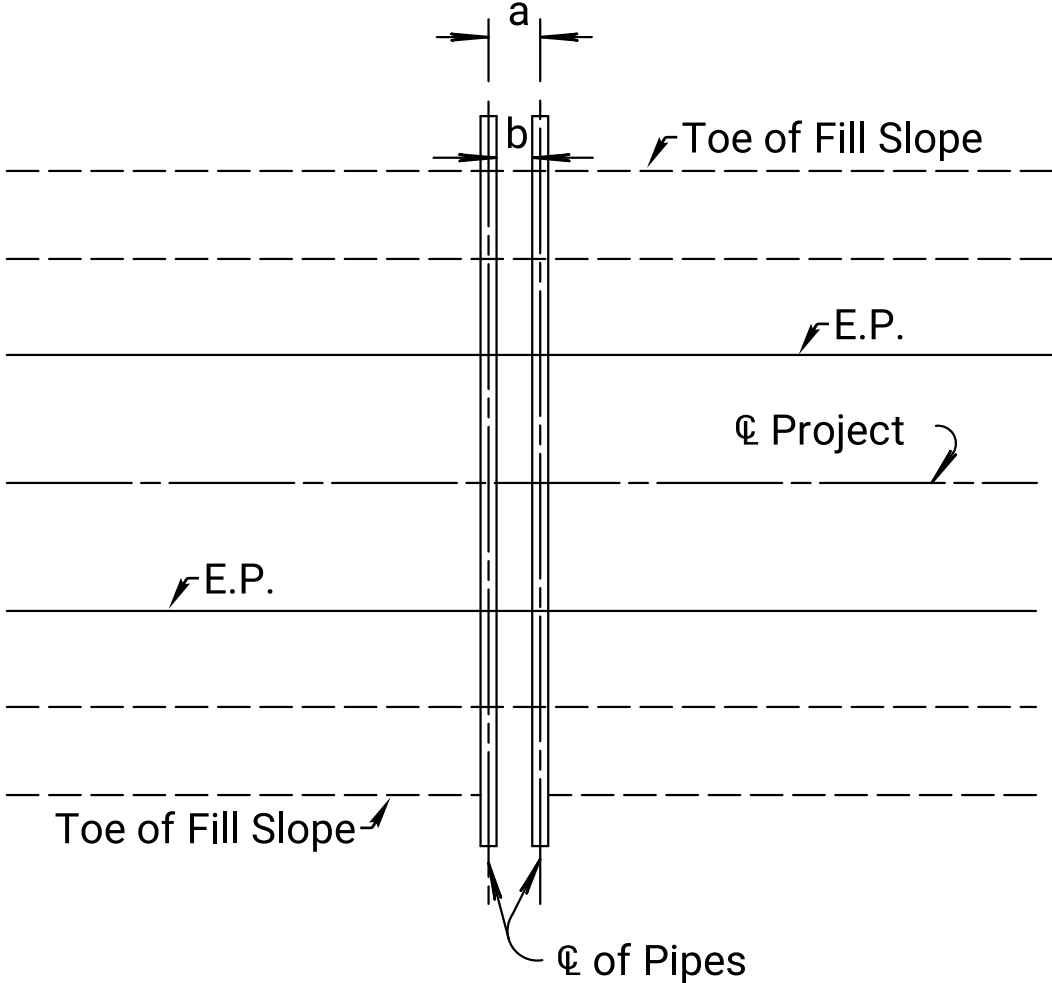
*Natural channel or ditch flowline elevation. See profile sheets and cross sections for details.

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	ST-2306	2025	34	139



PLACEMENT OF ROTATED PIPES
RELATIVE TO FILL SLOPE
AND CLEAR ZONE

◆ Pipe culverts 2'-0" or less in height may terminate within the clear zone with Type I or Type III End Section. Any size pipe may terminate within the clear zone with a Type IV End Section.



ϕ of Pipes

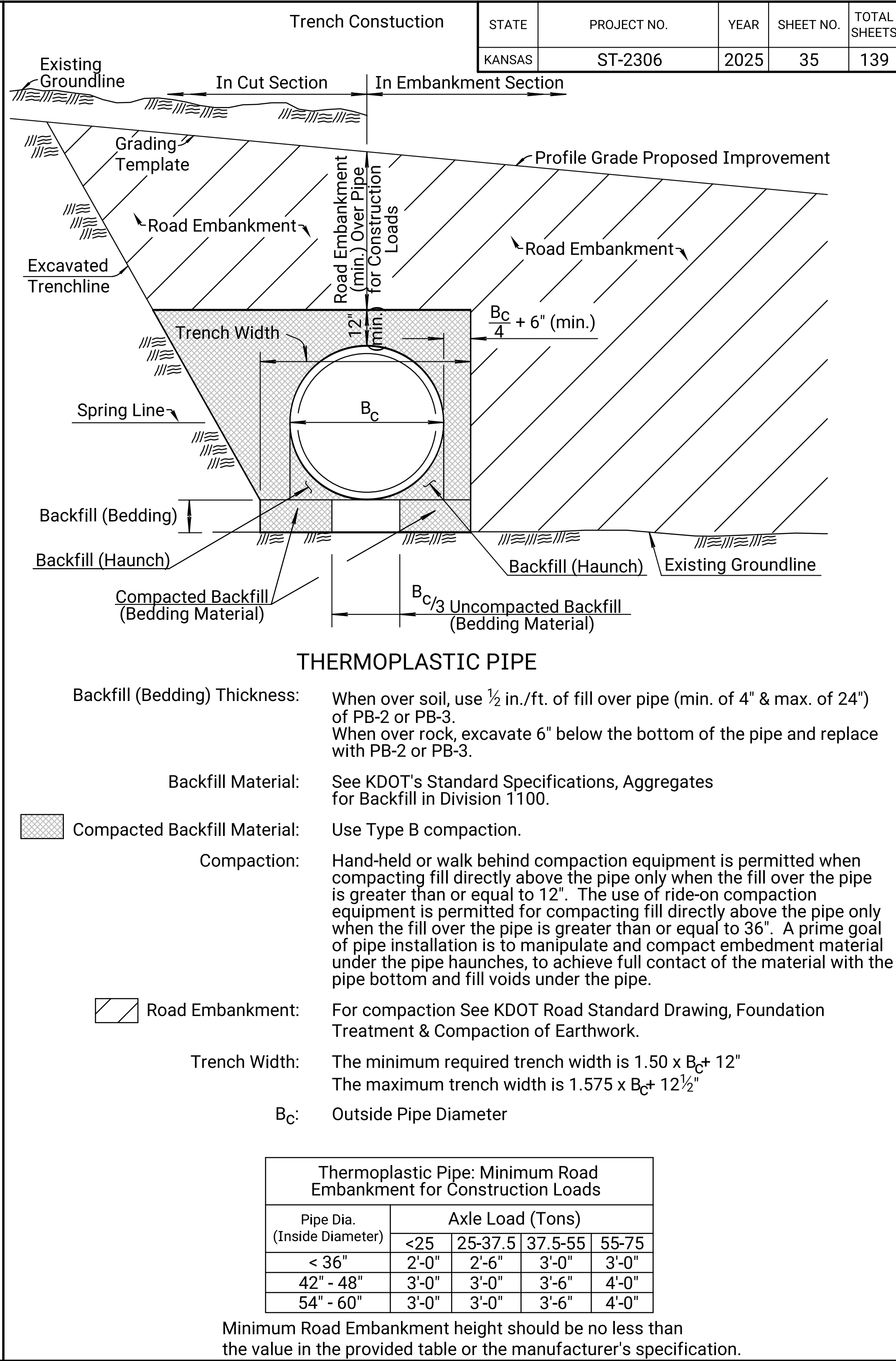
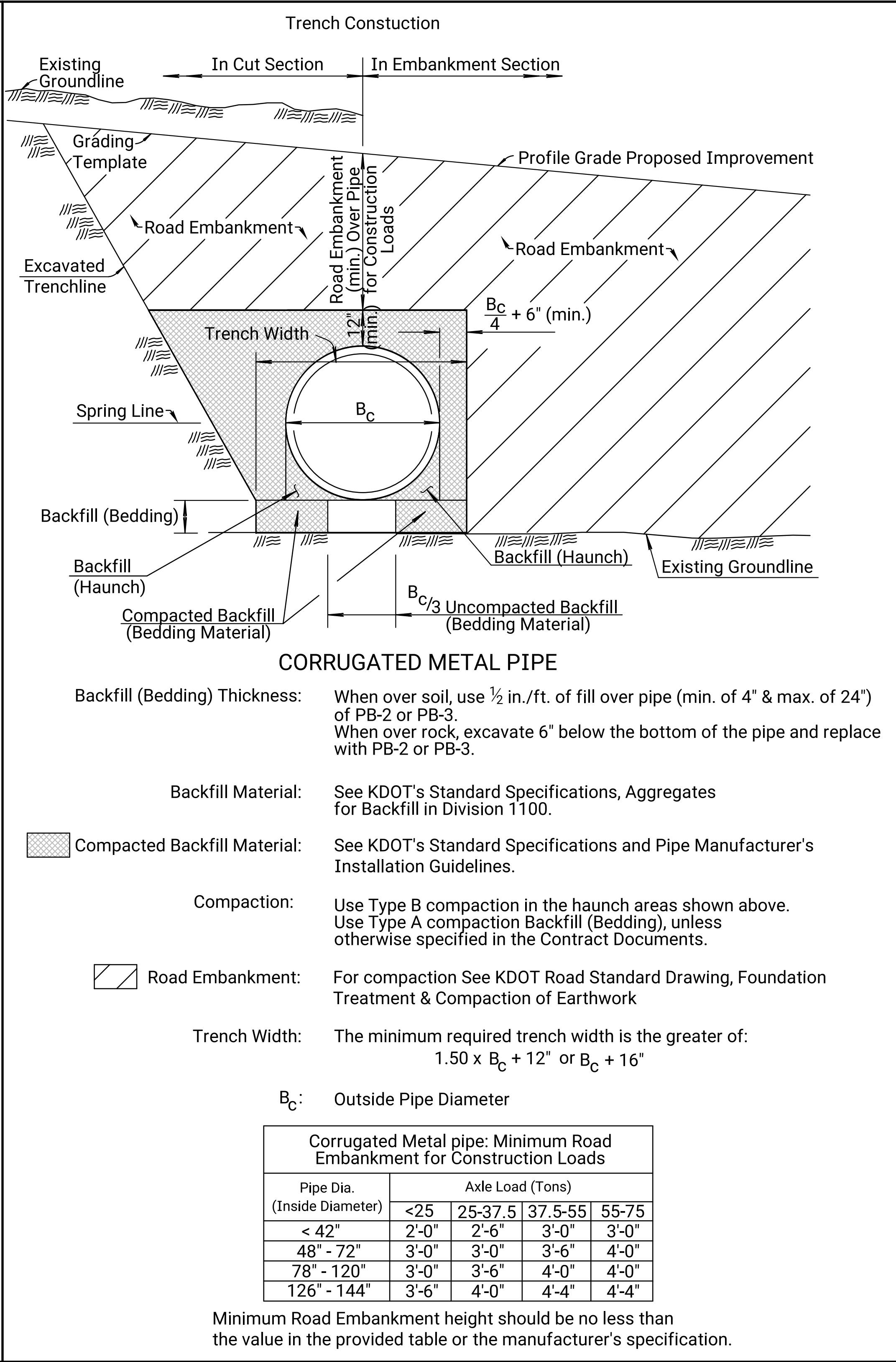
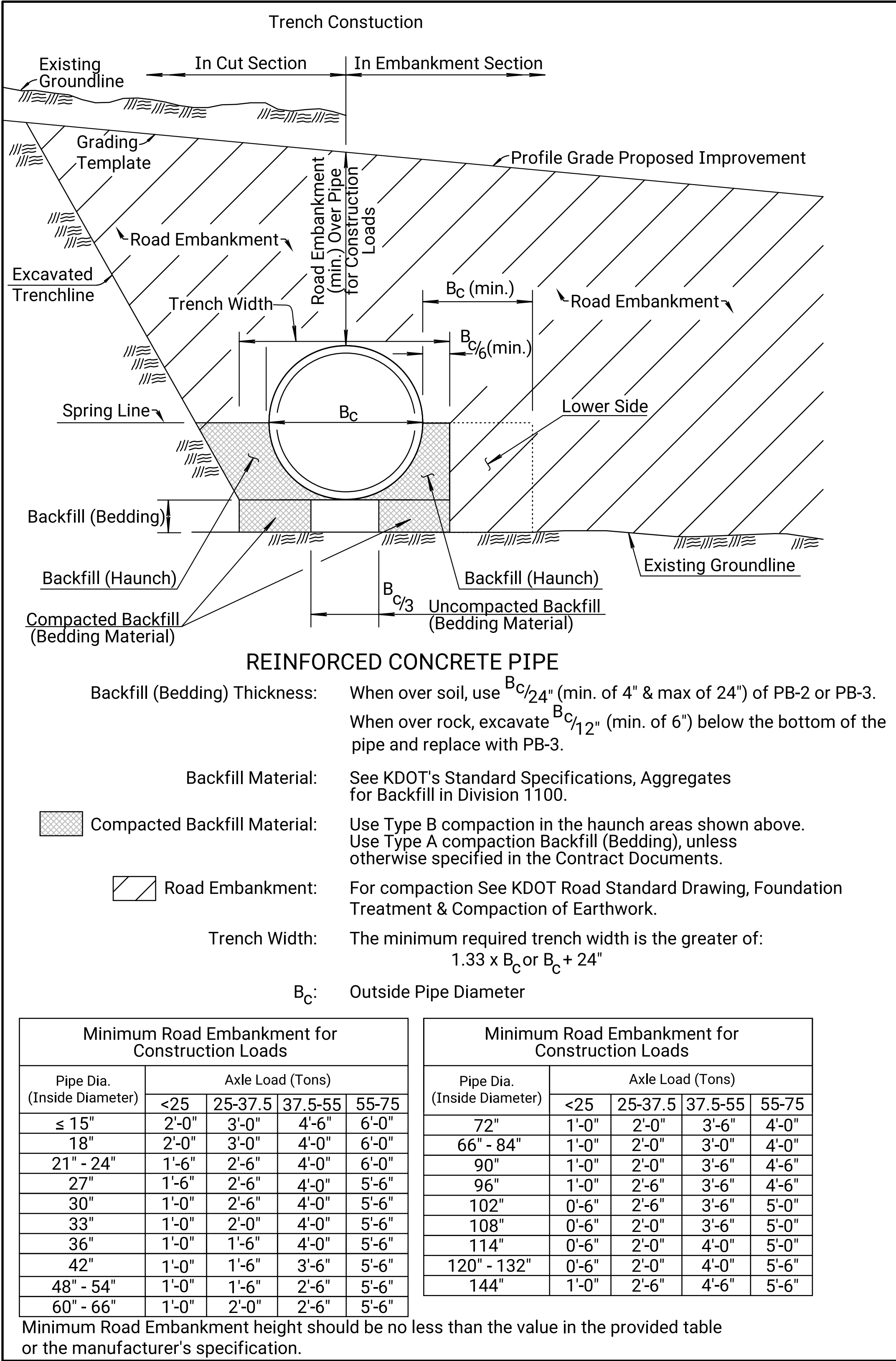
a = Face width of end section ☆ + 1'.
☆ Face width is equal to the following dimension shown on the end section std. drawing.

Type I Concrete = D
Type III Concrete = I
Type I CM = W+ 2A
Type III CM = G
Type IV = W+ 2A

b = Pipe diameter or span (3' min.)
Spacing shall be equal to the larger of dimensions a or b.
Spacing for three or more pipes shall be determined using a similar method.

MULTIPLE PIPE SPACING

06	01-21-16	Added Details, Pipe Embedment	T.T.R.	S.W.K.
05	05-17-13	Rev. Dimension, Type B Collar	S.W.K.	J.O.B.
04	04-18-08	Added asphaltic paint note	S.W.K.	J.O.B.
NO.	DATE	REVISIONS	BY	APPD
KANSAS DEPARTMENT OF TRANSPORTATION				
MISCELLANEOUS PIPE CULVERT DETAILS				
RD668				
FHWA APPROVAL 03-16-16 APPD. Scott W. King				
DESIGNED	DETAILED	QUANTITIES	TRACED	
DESIGN CK.	DETAIL CK.	QUAN.CK.	TRACE CK.	



Do not drop, drag or otherwise handle pipe sections in a manner which may cause damage. Inspect the line and grade before and during placement of compacted backfill and uncompacted backfill materials.

For trench installations place pipe in the center of the excavated trench.

When installing pipe, place the uncompacted backfill and compacted backfill material in the bedding area to grade, install pipe to grade, place and compact the haunch area up to the spring line of the pipe and complete the backfill as specified in KDOT's Standard Specifications unless otherwise noted in the contract documents.

B_c for horizontal elliptical pipe, vertical elliptical pipe, arch pipe, and non bridge-sized concrete box structures will be measured along the horizontal axis; similar to the dimension shown for circular pipe on this sheet.

The spring line is a line along the side of the culvert where the tangent to the culvert wall is vertical. It occurs at the widest point in the culvert.

Material used for the roadway embankment may be used in lieu of compacted backfill material as approved by the Engineer.

The backfill load transmitted to the pipe is directly dependent on the trench width. Where maximum trench widths are not indicated in any of the contract documents, trench widths should be as narrow as possible with side clearance adequate enough to ensure proper compaction of backfill material at the sides of the pipe. The trench width formulas provided can be used as a general guide.

GENERAL NOTES

01	05-09-22	Initial Release	A.L.R.	T.T.R.
NO.	DATE	REVISIONS	BY	APPD
KANSAS DEPARTMENT OF TRANSPORTATION				
PIPE INSTALLATION DETAILS				
RD658				
FHWA APPROVAL		06-08-22	APPD.	
DESIGNED	DETAILED	QUANTITIES	TRACED	
DESIGN CK.	DETAIL CK.	QUAN.CK.	TRACE CK.	

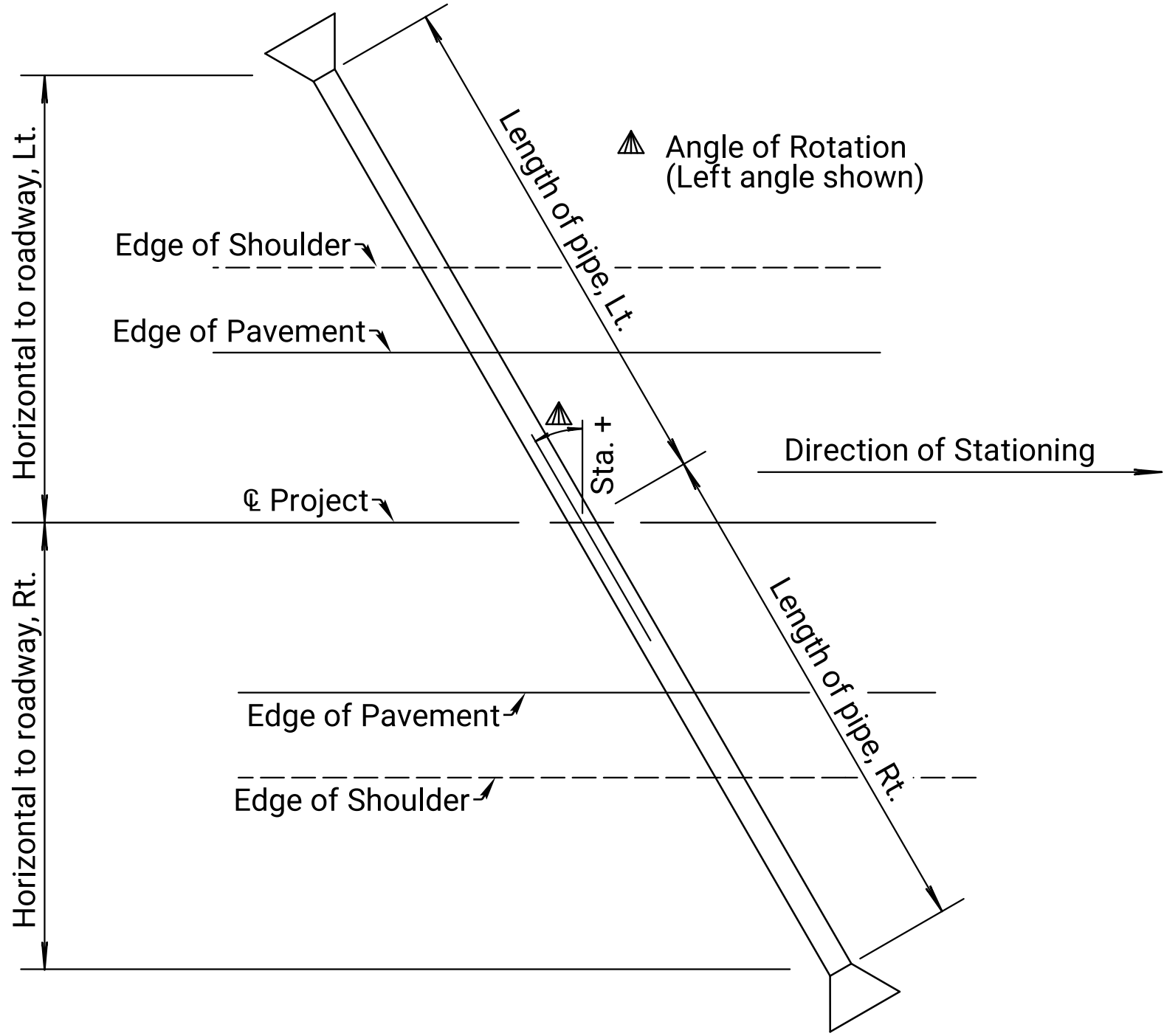
Note to Designer:

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

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	ST-2306	2025	36	139

[illegible]

● Unless otherwise noted, minimum pipe gauge & corrugations to be as shown in RD660. See Summary of Quantities for End Section information.



PLAN
(Showing Rotation about $\mathbb{C}$)

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

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

★ When inside diameter of pipe is 36" or less.

▲ Unless otherwise specified in the plans. Some pipe types may not be allowed at a location if the fill height exceeds the maximum allowable or is less than the minimum allowable cover.

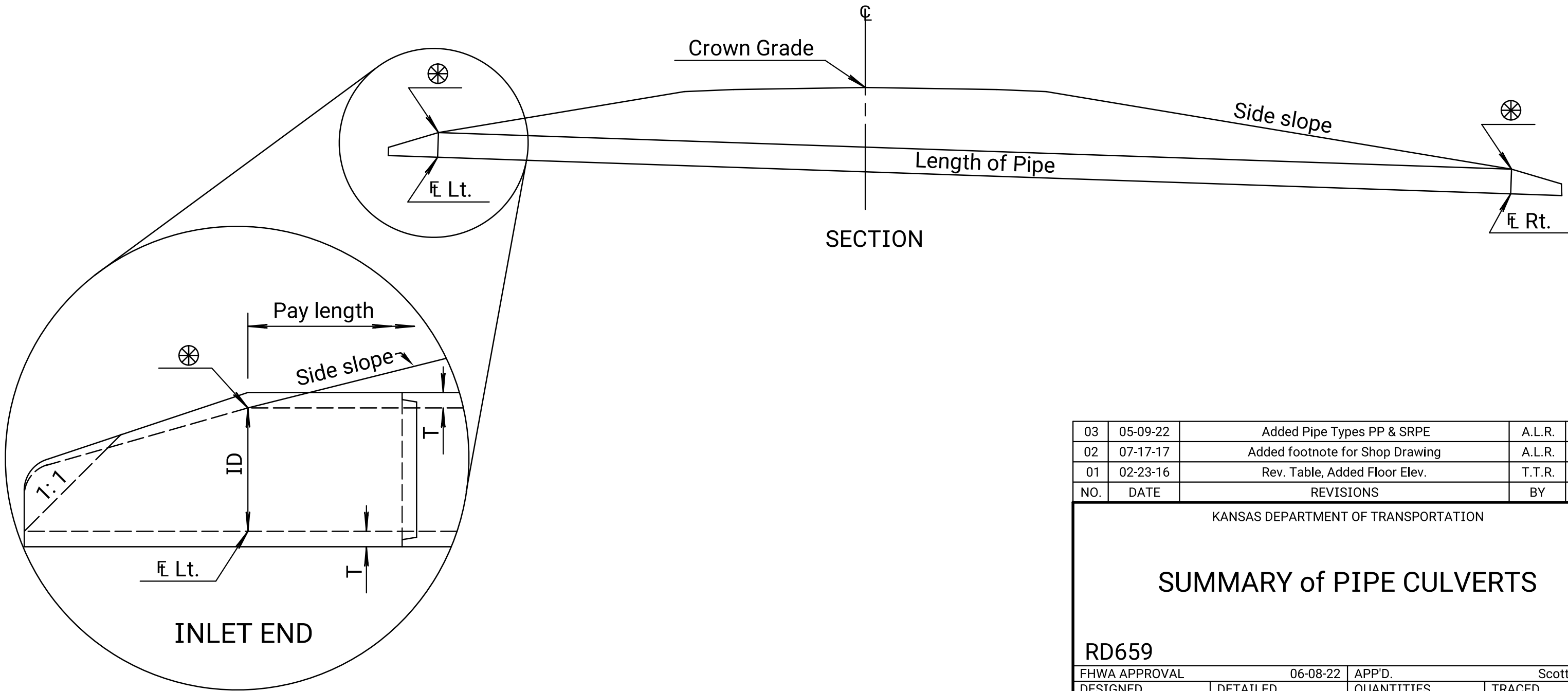
 When inside diameter of pipe is 60" or less.

☞ For inside diameter: $\geq 30''$

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

◆ Type IV End Sections are only made of CS or ACS.

Submit Shop Drawing of connection for review



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

KANSAS DEPARTMENT OF TRANSPORTATION

SUMMARY of PIPE CULVERTS

RD659

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

Plotted By: Katie Romero

File: ST2306bbr001.dgn

Plot Date: 10-JUL-2025 13:01

Plot Location:

‡ SUMMARY OF PILING		
Abutment #1	3 @ 62' 1 @ 72' PDA pile	HP 10x42
Pier #1	4 @ 57'	HP 12x53
Pier #2	4 @ 53'	HP 12x53
Pier #3	3 @ 52' 1 @ 62' PDA pile	HP 12x53
Pier #4	4 @ 37'	HP 12x53
Pier #5	4 @ 47'	HP 12x53
Pier #6	3 @ 47' 1 @ 57' PDA pile	HP 12x53
Pier #7	4 @ 52'	HP 12x53
Pier #8	4 @ 56'	HP 12x53
Pier #9	3 @ 56' 1 @ 66' PDA pile	HP 12x53
Pier #10	4 @ 56'	HP 12x53
Abutment #2	3 @ 56'	HP 10x42

LRFD DESIGN PILE LOAD:

Location	Design Loading (Tons/Pile)		
	Strength I	Service I	Phi (ø)
Abutment No. 1	93	67	0.65
Pier No. 1	171	121	0.65
Pier No. 2	174	123	0.65
Pier No. 3	175	124	0.65
Pier No. 4	175	124	0.65
Pier No. 5	175	124	0.65
Pier No. 6	175	124	0.65
Pier No. 7	175	124	0.65
Pier No. 8	175	124	0.65
Pier No. 9	174	123	0.65
Pier No. 10	171	121	0.65
Abutment No. 2	93	67	0.65

LFD & LRFR RATING FACTORS		
Rating Level	Inventory	
	Operating	
Truck		
HS-20 (36T)	1.183	1.976
Type HET (110T)		1.253
2002 LFD Rating. 17th Edition AASHTO		
HL-93 Loading	1.881	2.438
Manual for Bridge Evaluation, 3rd Edition		

*
* 2019 Interims

DESIGN SPECIFICATIONS:

AASHTO Specifications, 8th Edition.
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:

Steel Piles (Grade 50)
Concrete (Grade 4.0)
Concrete (Grade 4.0)(AE)(SW)
Prestressed Beam Concrete

Reinforcing Steel(Grade 60)
Prestressed Strand

fy = 50 ksi
f'c = 4 ksi
f'c = 4 ksi
f'c = 8.0 ksi
f'ci = 6.0 ksi
fy = 60 ksi
0.6'Ø Grade 270 uncoated 7-wire

DESIGN DATA

INDEX TO BRIDGE DRAWINGS	
Br. No. 406950290803B01	
Sheet No.	Drawing
37	Summary of Quantities and Index of Sheets
38	General Notes
39	Contour Map
40- 41	Construction Layout
42- 43	Engineering Geology
44- 45	Abutment Details
46	Abutment Aggregate Drain
47	Pier Details
48	Pier Diaphragm Details
49	Abutment Diaphragm Details
50	Pier Typical Section
51	Framing Plan
52	Diaphragm Details
53	Steel Reinforced Elastomeric Bearing Device
54	NU 35+1 Prestressed Concrete Beam Details
55	Standard Prestressed Concrete Beam Details, NU 35+1
56- 58	Roadway Surface Elevations
59- 60	Beam Camber and Dead Load Deflection
61	Slab Plan
62	Typical Sections
63	Kansas Corral Rail
64	Corral Handrail/Expansion Device Details
65	Srip Seal Details
66	Expansion Joint Safety Cover Details
67- 68	Pedestrian Fence
69	Reinforcing Bending Diagrams
70	Bill of Reinforcing (Piers, Slab, Rails, Light Poles)
Standards	
71	Bridge Excavation
72	Standard Pile Details
73	Supports and Spacers for Reinforcing Steel
74	Bridge Lighting Detail

3				
2				
1				
NO.	DATE	REVISIONS	BY	APP'D
KANSAS DEPARTMENT OF TRANSPORTATION				
Br. No. 406950290803B01			© STA. 100+00.00	
INDEX OF SHEETS				
N. Bd. 14th Ave. Over Arkansas River				
PROJECT NO. ST-2306			FORD COUNTY	
SHEET NO.	OF	SCALE	APP'D	
DESIGNED		DETAILED	QUANTITIES	CADD
DESIGN CK.		DETAIL CK.	QUAN. CK.	CADD CK.

SUMMARY OF QUANTITIES - Br. No. 406950290803B01																		
Item Location	Excavation		Concrete Grade 4.0 (AE)	Concrete Grade 4.0 (AE)(SW)	Reinforcing Steel		‡ Piles		Contractor Furnished PDA	Prestressed Concrete ø Beam NU 35+1 Lin. Ft.	Abutment Aggregate Drain	Bridge Backwall Protection System Sq. Yds.	Slope Protection (Riprap Stone)	Bridge Deck Grooving	● Bridge Handrail (Special)	● Fence (Tubular Steel)	Bearing (Steel Reinforced) (Elastomeric) (14"x36") Each	Expansion Joint (Strip Seal Assembly) Lin.Ft.
	Class I Cu. Yds.	Class II Cu. Yds.			(Grade 60) (Epoxy-Coated) Lbs.	(Grade 60) Lbs.	(Steel) (HP10x42) Lin. Ft.	(Steel) (HP12x53) Lin. Ft.										
Abutment No. 1	195.0		48.6	**	2,550	4,929	258		1		110.0	62.5	73.0				5	41.0
Pier No. 1	46.5		68.0		1,299	17,765		228										
Pier No. 2		54.7	98.2		1,312	21,247		212										
Pier No. 3		72.1	109.6		1,299	22,585		218	1									
Pier No. 4		123.5	134.0		1,312	25,408		148										
Pier No. 5		120.2	134.0		1,299	25,408		188										
Pier No. 6		120.2	134.0		1,312	25,408		198	1									
Pier No. 7		123.5	134.0		1,299	25,408		208										
Pier No. 8		72.1	109.6		1,312	22,585		224										
Pier No. 9		54.7	98.2		1,299	21,247		234	1									
Pier No. 10	39.6		68.0		1,312	17,765		224										
Abutment No. 2	195.0		48.6	**	2,550	4,929	168				110.0	62.5	73.0				5	41.0
Substr. Total	476.1	741.0	1,184.8		18,155	234,864												
Superstr. Total	-	-	-	1,010.3	243,215		426	2,082	4	3,448.3	220.0	125.0	146.0	1,649.0	616.7	618.7	10	82.0
Total	477	741	1,184.8	1,010.3	261,370	234,870	426	2,082	4	3,449	220	125	146	1,649	617	619	10	82

** Quantities included in
the Superstructure Total Quantity

ø Bid and Paid for as "PRESTRESSED
CONCRETE BEAM (NU35+1)"

● Contractor to coordinate with the City of Dodge City and the city's fabricator for the materials and fabrication of the "Bridge Handrail (Special)" and the "Fence (Tubular Steel)". Contractor only responsible for the installation of the anchor bolts and the installation/erection of "Bridge Handrail (Special)" and the "Fence (Tubular Steel)".

Plotted By: Katie Romero

File: ST2306bbr002.dgn

Plot Date: 9-JUL-2025 10:04

Plot Location:

TEMPERATURE:

The design temperature for all dimensions is 60° F.

QUANTITIES:

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

DIMENSIONS:

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

BRIDGE EXCAVATION:

Elevation 2479.21 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.

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.

EMBANKMENT:

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

PILING:

Drive all piling to penetrate the Kiowa Formation. Driving shall stop when in the opinion of the Engineer additional driving may damage the piling. Drive all the piling to the Pile Driving Formula Load of:

Abutment No. 1	93 Tons
Pier No. 1	171 Tons
Pier No. 2	174 Tons
Pier No. 3	175 Tons
Pier No. 4	175 Tons
Pier No. 5	175 Tons
Pier No. 6	175 Tons
Pier No. 7	175 Tons
Pier No. 8	175 Tons
Pier No. 9	174 Tons
Pier No. 10	171 Tons
Abutment No. 2	93 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.

CONTRACT FURNISHED PDA:

Drive the test pile special at the locations directed by the Engineer/Geologist or as shown in the Plans. Use Pile Driving Analyzer (PDA) equipment and methods compliant with KDOT Specifications. The test piling shall remain in place as permanent piling. Drive the test pile special piling to the resistance value of Strength I load divided by Phi shown on the plans.

PILING SPLICE LOCATION:

Integral pile splice locations and weld testing criteria for Abutments 1 and 2 will follow the "Standard Pile Details" sheet.

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 (±1/4").

PIER BEAM CONSTRUCTION:

Cure the pier walls 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 pier walls used for falsework support unless shown on the plans. Cure the pier walls 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 girders or beams on the pier beam until after the falsework is removed or the pier beam concrete has 0.75f'c strength as tested.

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.

BACKFILL COMPACTION:

Compact backfill at the abutments.

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 lbs. Series as described in Division 1100 placed to the limits shown on the plans.

DRIP LINE PROTECTION:

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.

CONTRACTOR CONSTRUCTION STAKING:

Contractor Construction Staking for clear span bridges requires two independent surveys. See KDOT Specifications.

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 1" by the use of non-typical supports; then the inspection and review requirement of "Category 1" will be fully enforced, but at no cost to the 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.

PRESTRESSED BEAM CONCRETE:

Use air entrained concrete with select coarse aggregate as specified in the Special Provisions. The release strength and 28 day strength requirements shall be as noted on the plans. Submit mix designs to the 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 10" inches. Prior to shipping, the camber shall be no greater than the design camber ±1½". The design camber is equal to the 50 day camber shown in the plans.

The theoretical amount of concrete required for the fillets is 65.7 C.Y. This amount of concrete is included in the Summary of Quantities. Any additional concrete required to construct the fillets will be subsidiary.

DIAPHRAGMS:

Use ASTM A709 Gr. 36 steel for all angles and bent plates for the diaphragms. All bolts, nuts, and washers for fasteners shall conform to the heavy hex structural requirements of ASTM F3125 Grade A325, Type I. Galvanize the bent plates, 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 all turned elements. Use the turn-of-the-nut tightening method. DTI's are not required. Install the diaphragms, as shown in the details, prior to placing any superstructure concrete. Submit shop drawings of the diaphragms to the Engineer for review and approval. The material, equipment, and labor necessary for the installation of the diaphragms, shall not be paid for directly, but shall be subsidiary to the bid item "Prestressed Concrete Beams".

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.

CONCRETE:

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

REINFORCING STEEL:

All reinforcing steel dimensions are to the centerline of bars unless otherwise noted. All reinforcing steel, except the spiral bars, shall conform to the requirements of ASTM A615, Grade 60. Spiral bars may meet the requirements of either ASTM A615 (Gr. 40 or 60) or AASHTO M 32, and are included in the bid item "Reinforcing Steel (Gr. 60)".

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

DECK PROTECTIVE SYSTEM:

Epoxy coat all reinforcing steel in the deck slab and rails.

CONCRETE PLACING SEQUENCE:

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

At the Contractor's option, the finishing machine may be set normal to the centerline of the structure; however, the concrete must be placed along the skew. This requires placing concrete ahead of the finishing machine; consequently, a set retarder may be advisable. Note both requirements on any alternate placing sequence.

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

CONSTRUCTION JOINTS:

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

BRIDGE DECK GROOVING:

After the bridge deck has cured, transversely groove the deck in accordance with KDOT Specifications. For phased construction groove each completed phase before opening to traffic. Align the grooves from each adjacent phase across the bridge deck without jogs or discontinuities. For skewed bridges all grooving will be perpendicular to the centerline of the bridge.

EXISTING STRUCTURE:

Plans of the existing structure are on file and available for inspection by qualified bidders at the Dodge City Engineering Services office, 100 Chaffin, P.O. Box 880, Dodge City, KS 67801.

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	ST-2306	2025	38	139

REMOVAL OF EXISTING STRUCTURE:

Removal of existing structure is included in the bid item, "Removal of Existing Structures", Lump Sum. The Contractor shall remove the existing bridge number 31-2-73.45 (019), consisting of a 28'-0" Roadway. 55'-77'-77'-55' reinforced concrete continuous haunched deck girder spans, concrete abutments, piers and portions of foundation elements (concrete filled shell pile). All materials removed from the existing structure shall become the property of the Contractor. Remove this material from the site.

DEMOLITION PLANS:

The removal of the existing bridge over the Arkansas River is considered 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.

BROKEN CONCRETE:

Waste the broken concrete from the existing bridge on sites provided by the Contractor and approved by the Engineer.

ANCHOR BOLTS:

Place the reinforcing bars below the bearing devices to clear the anchor bolts.

ANCHOR BOLTS:

Anchor bolts will adhere to KDOT Standard Specification Division 1600 (Grade 36) with the following exception. The threads may be rolled or cut.

PREFORMED ANCHOR BOLT HOLES:

Preform 3-inch diameter holes using only corrugated polyethylene tubing (Type C) at the locations shown. When temperatures are expected to go below freezing, seal the preformed holes or fill them with a propylene glycol-based antifreeze to prevent expansion damage. The holes will be free of water, antifreeze or foreign materials at the time of grouting the anchor bolts. The polyethylene tubing may remain in-place. Trim the tubing flush with the top of concrete. This work shall be subsidiary to Concrete Grade 4.0 (AE).

BEARING (STEEL REINFORCED ELASTOMERIC):

Elastomeric Bearing Device shall be factory bonded to the steel sole plate by a vulcanization process. The steel sole plate and swedge anchor bolt are subsidiary to the bid item, "Bearing (Steel Reinforced Elastomeric)" and shall be furnished by the bearing device fabricator.

BRIDGE HANDRAIL (SPECIAL):

Contractor to coordinate with the City of Dodge City and the city's fabricator for the materials and fabrication of the "Bridge Handrail (Special)". Contractor only responsible for the installation of the anchor bolts and the installation/erection of "Bridge Handrail (Special)".

FENCE (TUBULAR STEEL):

Contractor to coordinate with the City of Dodge City and the city's fabricator for the materials and fabrication of the "Fence (Tubular Steel)". Contractor only responsible for the installation of the anchor bolts and the installation/erection of "Fence (Tubular Steel)".

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2				
1				
NO.	DATE	REVISIONS	BY	APP'D
KANSAS DEPARTMENT OF TRANSPORTATION				
Br. No. 406950290803B01			© STA. 100+00.00	
GENERAL NOTES				
N. Bd. 14th Ave. Over Arkansas River				
PROJECT NO. ST-2306			FORD COUNTY	
SHEET NO.	OF	SCALE	APP'D	
DESIGNED		DETAILED	QUANTITIES	CADD
DESIGN CK.		DETAIL CK.	QUAN. CK.	CADD CK.

Office Location
P.I. @ N. Bd. Lanes Sta. 104+00.00 (No Curve)
Δ = 00°12'53" (Lt.)
N 362,551.222 E 14,394,072.019
1. Not Set

HORIZONTAL CONTROL POINT NO. 102
@ N. Bd. Lanes 102+90.70, 36.66' Rt.
N 362,441.341 E 14,394,106.930
1. Set ½" Rebar w/ blue PEC cap in grass
2. Traffic Way of Northbound 14th Avenue
3. Southwest corner of USGS gauging station base
4. Northeast corner of concrete riprap

37' W
8.4' NNE
10.5 SSW

Office Location
P.I. @ N. Bd. Lanes Sta. 108+00.00 (No Curve)
Δ = 00°12'53" (Rt.)
N 362,951.192 E 14,394,076.913
1. Not Set

HORIZONTAL CONTROL POINT NO. 103
@ N. Bd. 14th Lanes 108+38.18, 24.64' Rt.
N 362,988.976 E 14,394,102.162
1. Set ½" Rebar w/ blue PEC cap in grass
2. Traffic way of 14th Avenue
3. Traffic way of Pheasant street going west
4. Northeast Corner of light pole base

36' W
30' N
43.1' S

Office Location
P.O.T. @ N. Bd. Lanes Sta. 111+00.00
N 363,251.154 E 14,394,081.709
1. Not Set

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	ST-2306	2025	39	139

Curve Data
P.I. Sta. 94+57.78 (Bk.) =
P.I. Sta. 94+57.75 (Ahd.)
Δ = 02°23'22" (LT)
R = 4,600.00'
T = 95.94'
L = 191.85'
E = 1.00'
Superelevation = N.C.

Z J Crotts Investments LLC
Tract 22, Sunset Tracts,
less Flood Control

Sta. 100+00.00 Const,
Br. No. 406950290803B01
43'-57'-7@60'-57'-43' Prestressed Concrete Beam Spans (P BMC)
28'-0" Roadway, Skew 00°00'00"

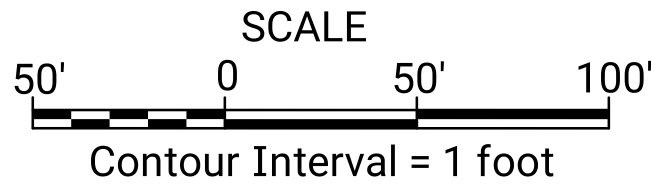
Sta. 100+00.00, Remove
Br. No. 406950290803001
43'-57'-7@60'-57'-43' Reinf. Deck Girder, Haunched (RDGH)
28'-0" Roadway, Skew 00°00'00"

Curve Data
P.I. Sta. 92+65.94 (Bk.) =
P.I. Sta. 92+65.91 (Ahd.)
Δ = 02°23'22" (RT)
R = 4,600.00'
T = 95.94'
L = 191.85'
E = 1.00'
Superelevation = N.C.

Utility Owners

Telephone	United Telephone
Telephone	AT&T
Telephone	Cox Communications
Fiber Optic	Zayo Group
Gas	Black Hills Energy
Water/Sewer	City of Dodge City
Power	Victory Electric

All piles at Abutments and Piers
are to remain in place.



3				
2				
1				
NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION
Br. No. 406950290803B01 @ STA. 100+00.00

CONTOUR MAP

N. Bd. 14th Ave. Over Arkansas River
PROJECT NO. ST-2306 FORD COUNTY

SHEET NO.	OF	SCALE	APP'D
DESIGNED		DETAILED	QUANTITIES
DESIGN CK.		DETAIL CK.	QUAN. CK.
			CADD CK.

B.M. #10 Set Square cut on center of west side of a storm inlet.
13.04' Rt. of @ N. Bd. Lanes Sta. 86+78.85 Elev. = 2,487.06

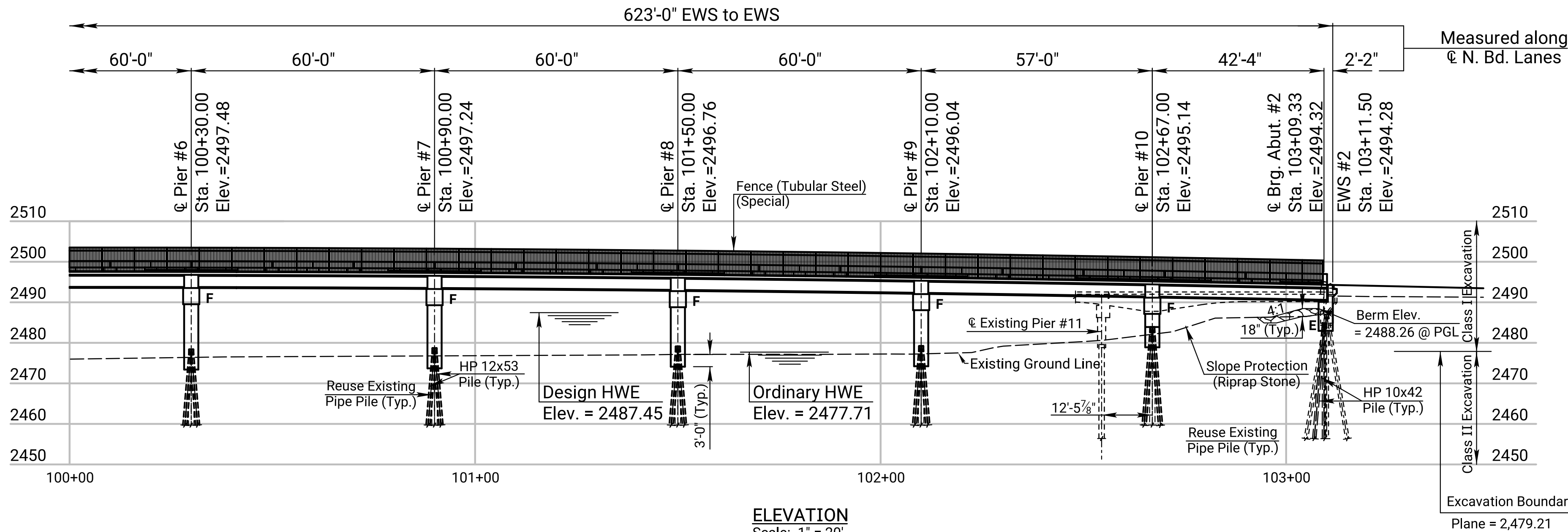
B.M. #11 Found square cut on South end of Northbound Lane of 14th Ave. Bridge.
22.25 Lt. of @ N. Bd. Lanes Sta. 96+91.31 Elev. = 2,494.00

B.M. #12 Found bolt in concrete on North end of Northbound Lane of 14th Ave. Bridge
22.82' Lt. of @ N. Bd. Avenue Sta. 103+09.90 Elev. = 2494.07

Plotted By: Riley Standish
File: ST2306bbr003.dgn
Plot Date: 8-JUL-2025 16:28

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	ST-2306	2025	41	139

E = Expansion
F = Fixed

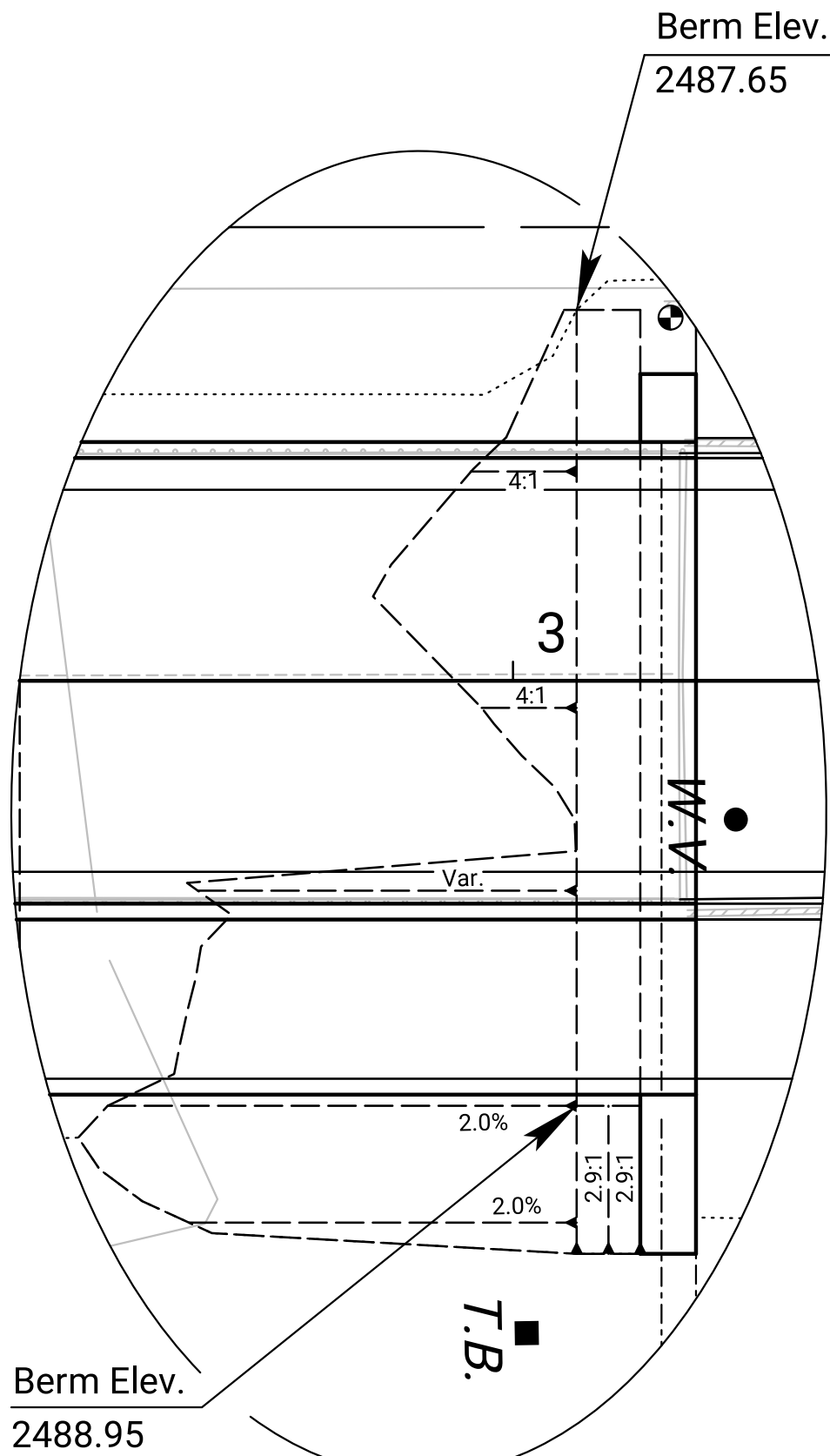


ELEVATION
Scale: 1" = 20'
43'-57'-7"@60'-57'-43' Reinforced Concrete Box Girders (RBGC) (Existing)
43'-57'-7"@60'-57'-43' Prestressed Concrete Beam Spans (PBMC) (Proposed)
Pile Bent Abutments, Pile Bent Piers
28'-0" Roadway, Skew 00.00°

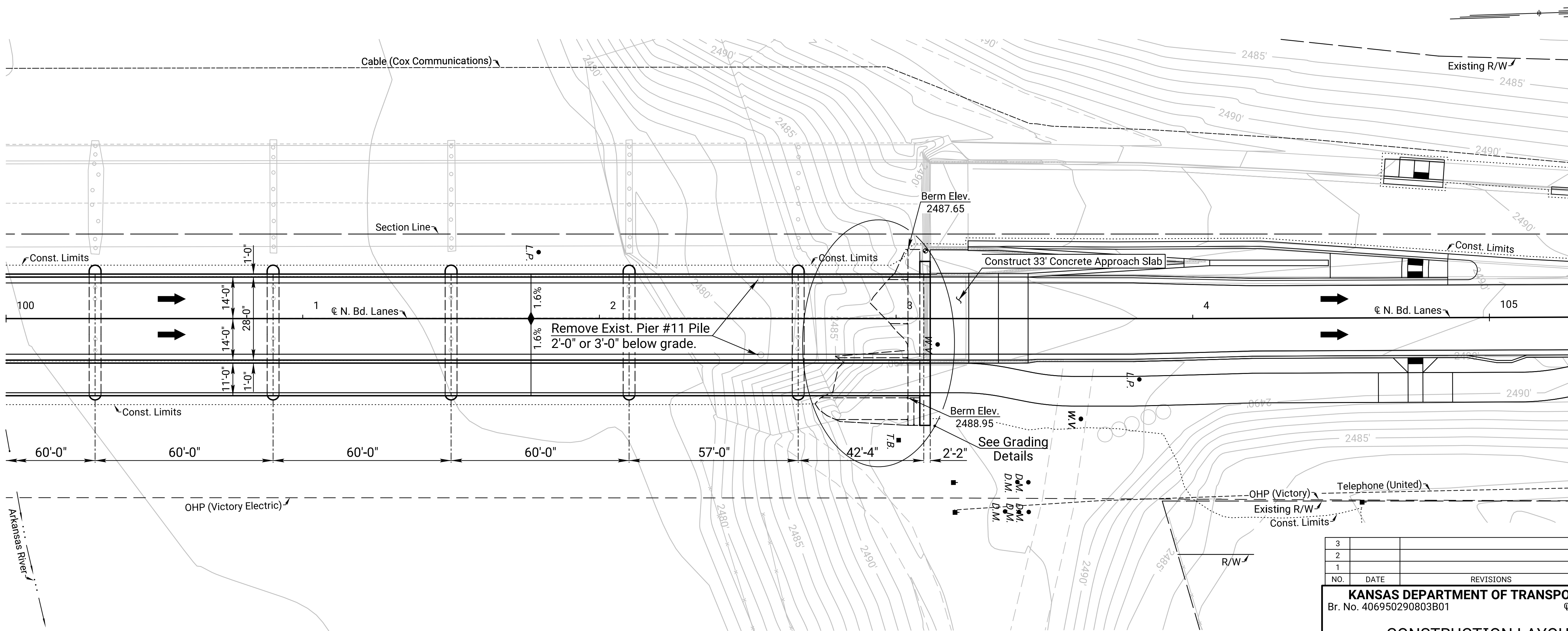
B.M. #12 Found bolt in concrete on North end of Northbound Lane of 14th Ave. Bridge
22.82' Lt. of @ N. Bd. Avenue Sta. 103+09.90 Elev. = 2494.07

EXPANSION JOINT WIDTH DETAILS (W2)							
Temp. (F°)	40°	50°	60°	70°	80°	90°	100°
Formed Concrete Opening Size (in)Δ	2 5/8"	2 7/8"	2 7/8"	2 3/4"	2 3/4"	2 3/4"	2 3/4"

The temperatures in the table are the average ambient temperature over the last 24 hours.



GRADING DETAILS



NOTE: Existing piles to remain and be used in new abutments and piers at all locations

PLAN
Scale: 1" = 20'

The elevations shown are referenced to the NAVD88 Vertical Datum

Contour Interval = 1 foot

3					
2					
1					
NO.	DATE	REVISIONS	BY	APP'D	

KANSAS DEPARTMENT OF TRANSPORTATION
Br. No. 406950290803B01 © STA. 100+00.00

CONSTRUCTION LAYOUT 2

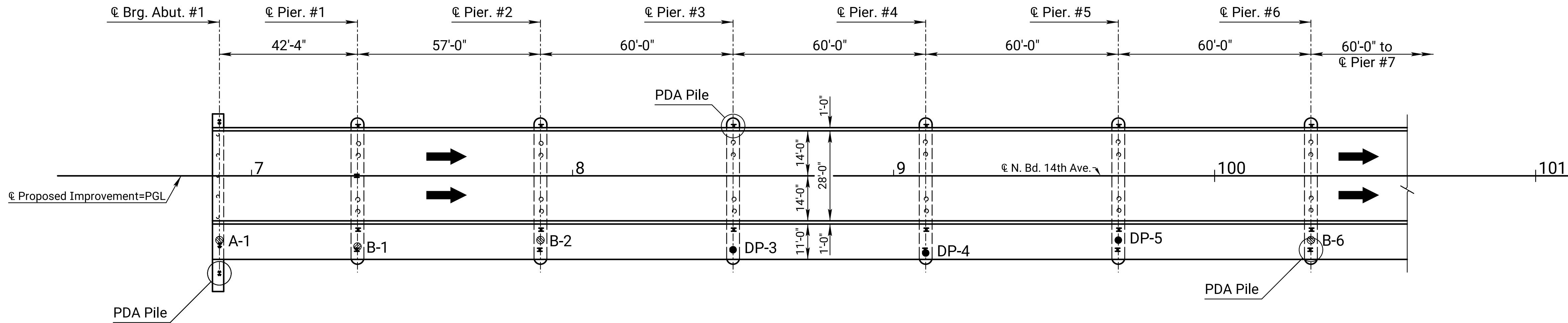
N. Bd. 14th Ave. Over Arkansas River
PROJECT NO. ST-2306 FORD COUNTY

SHEET NO.	OF	SCALE	APP'D
DESIGNED	QUANTITIES	CADD	
DESIGN CK.	DETAIL CK.	QUAN. CK.	CADD CK.

Plotted By: Riley Standish
File: ST2306bbr005.dgn
Plot Date: 8-JUL-2025 16:29

Utility Owners
Telephone United Telephone
Telephone Cox Communications
Power Victory Electric

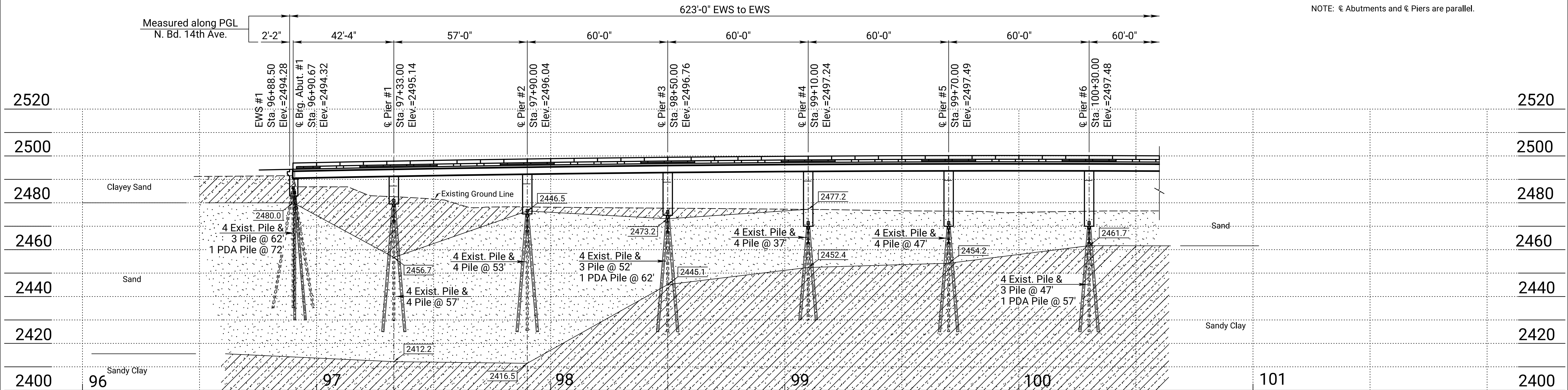
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	ST-2306	2025	42	139



Piling: Once sufficient resistance is achieved, driving must cease to avoid damage to the pile. Final pile tip elevations should be determined in the field based on recommendations provided through the use of the Pile Driving Analyzer.

Test Pile (Special): Drive the test pile special at the locations directed by the Engineer/Geologist or as shown on the plans. Use Pile Driving Analyzer (PDA) equipment and methods compliant with KDOT Specifications. The test piling shall remain in place as permanent piling. Drive the test pile special piling to the resistance value of the Strength I load divided by Phi shown on the plans.

NOTE:  Abutments and  Piers are parallel.



STANDARD		GEOLOGIC		SYMBOLS	
	Clay or Underclay		Caliche		Weathered Shale
	Silty Clay		Silty Clayey Shale		Sandstone
	Silt		Limy Shale		Shaly Sandstone
	Sand		Black or Fissile Shale		Gypsum bed
	Gravel		Sandy Shale		Dolomite
	Boulders		Gypsiferous Shale		Cross-bedded Sandstone
			Limestone		Mortar bed
			Cherty Limestone		Coal
			Shaly Limestone		Siltstone
			Bentonite		Chalk
			Weathered or Broken Limestone		Wavy limestone
			Loess		Chalky limestone

SOUNDINGS

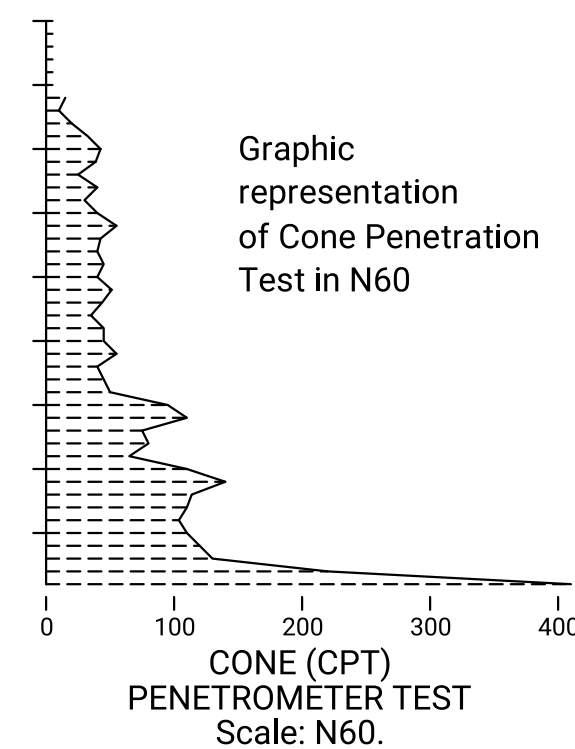
- Core drill
- Power auger
- Hand tools
- Cone (CPT) penetrometer
- Drive Point
- Shelby tube

Water level

000.0 Elevation interpolated or from adjacent soundings
000.0 Actual sounding elevation

UNCONFINED COMPRESSION TEST
Elevation Tons/sq. ft.

STANDARD PENETRATION TEST
Elevation Blows/ft.



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.

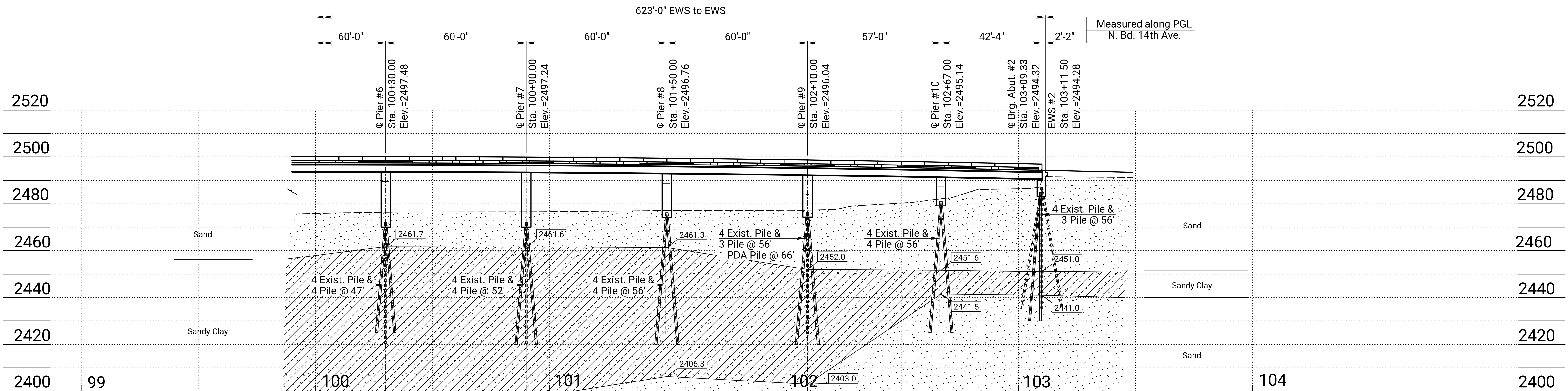
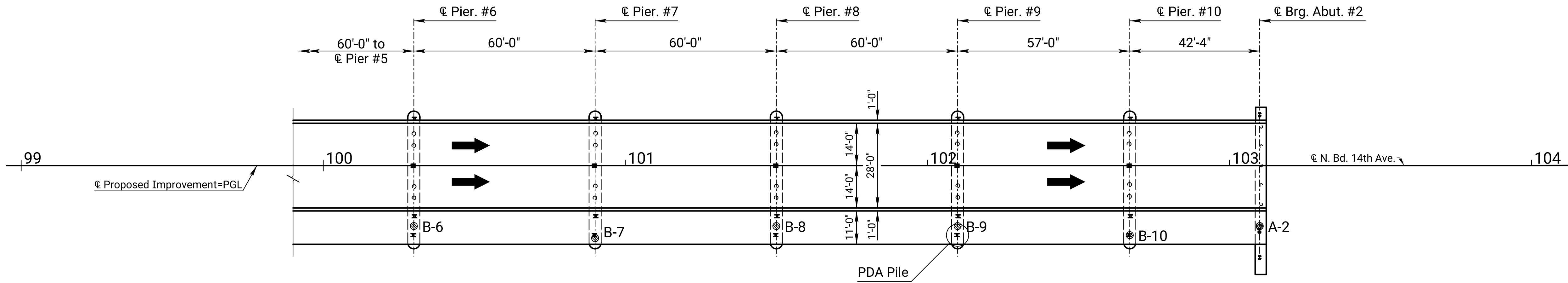
SCALE: 1" = 20' Horiz. 1" = 20' Vert.

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2					
1					
NO.	DATE	REVISIONS	BY	APP'D	
KANSAS DEPARTMENT OF TRANSPORTATION					
Br. No. 406950290803B01					
ENGINEERING GEOLOGY 1					
N. Bd. 14th Ave. Over Arkansas River					
PROJECT NO. ST-2306			FORD COUNTY		
SHEET NO.	OF	SCALE	APP'D	QUANTITIES	CADD
DESIGNED		DETAILED		QUAN. CK.	CADD CK.
DESIGN CK.		DETAIL CK.			

The elevations shown are referenced to the NAVD88 Vertical Datum

Plotted By: Riley Standish
File: ST2306bbr010.dgn
Plot Date: 8-JUL-2025 16:30

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	ST-2306	2025	43	139



Plotted By: Riley Standish
File: ST2306bbr011.dgn
Plot Date: 8-JUL-2025 16:30

	Clay or Underclay		Caliche		Weathered Shale		Limestone		Mortar bed
	Silty Clay		Silty Clayey Shale		Sandstone		Cherty Limestone		Coal
	Silt		Limy Shale		Shaly Sandstone		Shaly Limestone		Siltstone
	Sand		Black or Fissile Shale		Gypsum bed		Bentonite		Chalk
	Gravel		Sandy Shale		Dolomite		Weathered or Broken Limestone		Wavy limestone
	Boulders		Gypsiferous Shale		Cross-bedded Sandstone		Loess		Chalky limestone

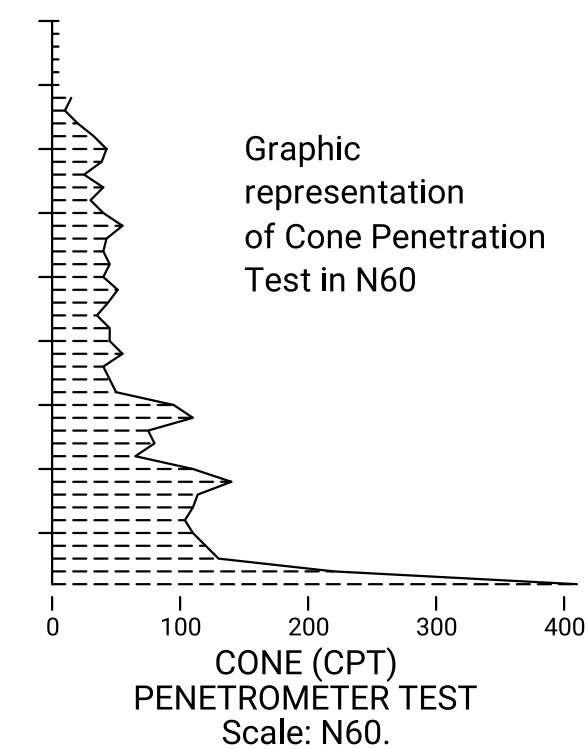
SOUNDINGS

- Core drill
- Power auger
- Hand tools
- Cone (CPT) penetrometer
- Drive Point
- Shelby tube

Water level

000.0 Elevation interpolated or from adjacent soundings
000.0 Actual sounding elevation

UNCONFINED COMPRESSION TEST
Elevation Tons/sq. ft.
Elevation Blows/ft.
STANDARD PENETROMETER TEST



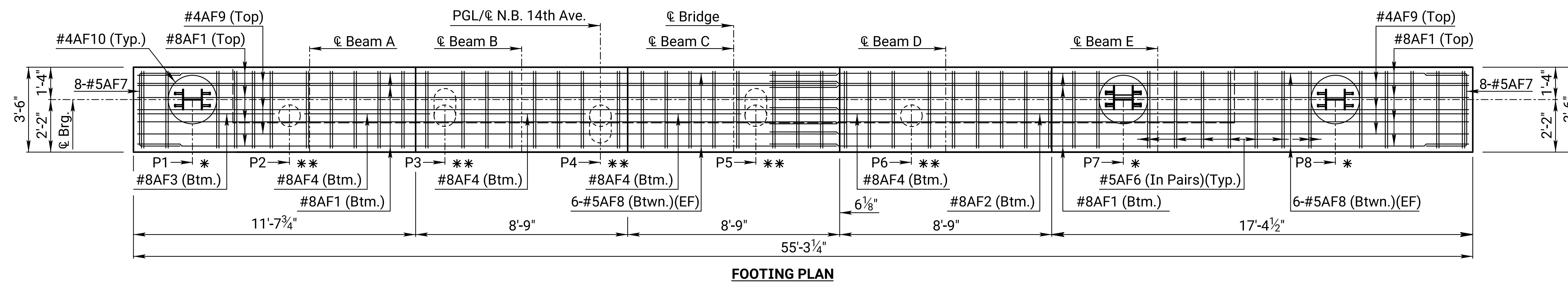
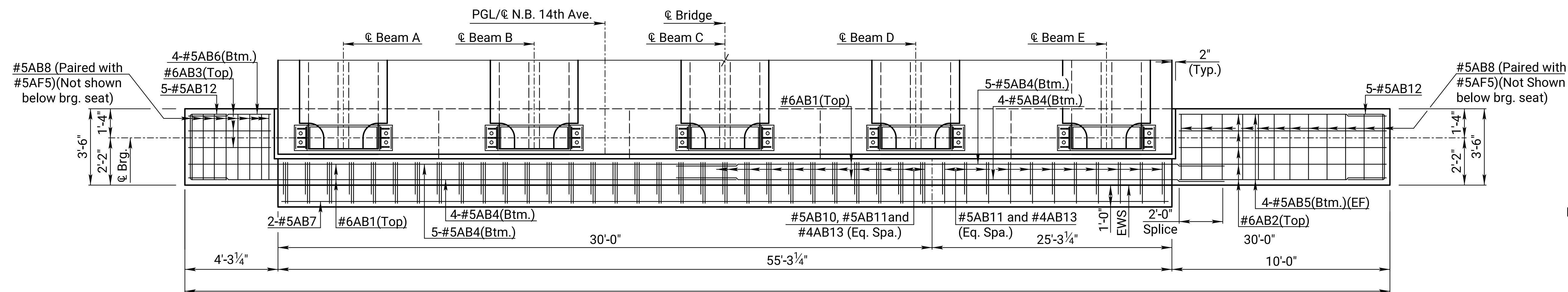
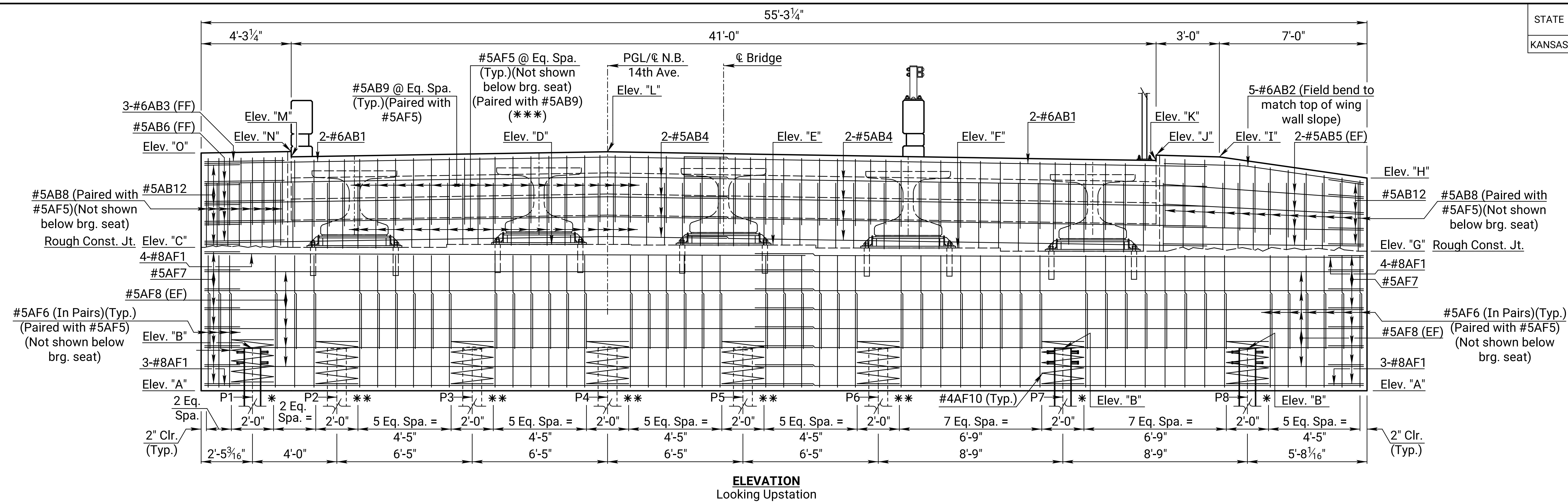
NOTE: Soundings shown on these plans are taken from notes obtained in the field and represent the best information available. Logs of these soundings are provided with the bid documents.

SCALE: 1"= 20' Horiz. 1"= 20' Vert.

3					
2					
1					
NO.	DATE	REVISIONS	BY	APP'D	
KANSAS DEPARTMENT OF TRANSPORTATION					
Br. No. 406950290803B01					
ENGINEERING GEOLOGY 2					
N. Bd. 14th Ave. Over Arkansas River					
PROJECT NO. ST-2306					
FORD COUNTY					
SHEET NO.	OF	SCALE	APP'D	DESIGNED	QUANTITIES
DESIGN CK.		DETAIL CK.	QUAN. CK.	CADD	CADD CK.

The elevations shown are referenced to the NAVD88 Vertical Datum

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	ST-2306	2025	44	139



Notes: Unless otherwise shown, all dimensions and elevations are along @ Abutment.

Abutment 1 shown, Abutment 2 flipped and reversed.

See next sheet for Typical Sections and additional details.

** If necessary, all Exist. Pile will be cut to match Elev. of Prop. pile (2485.00)

*** Ensure 2 inches of clearance is maintained between #5AF5 bars and Exist. Pile.

3				
2				
1				
NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION
 Br. No. 406950290803B01 @ STA. 100+00.00

ABUTMENT DETAILS

N. Bd. 14th Ave. Over Arkansas River

PROJECT NO. ST-2306 FORD COUNTY

SHEET NO.	OF	SCALE	APP'D	
DESIGNED		DETAILED	QUANTITIES	CADD
DESIGN CK.		DETAIL CK.	QUAN. CK.	CADD CK.

LOCATION	TABLE OF ELEVATIONS														
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
ABUTMENT #1	2483.00	2485.00	2489.68	2489.82	2489.79	2489.65	2489.50	2492.35	2493.64	2493.99	2493.91	2494.32	2494.08	2494.37	2494.3
ABUTMENT #2	2483.00	2485.00	2489.68	2489.82	2489.79	2489.65	2489.50	2492.35	2493.64	2493.99	2493.91	2494.32	2494.08	2494.37	2494.3

Plotted By: Riley Standish	Plot Location:
File: ST2306bbr020.dgn	
Plot Date: 8-JUL-2025 16:30	

LEGEND

EF = Each Face

FF = Far Face

NF = Near Face

Btwn. = Between

Btm. = Bottom

* = Proposed HP-10x42

Steel H-Pile

** = Existing 10³/₄" Dia. Steel,
 Conc. Filled Shell Pile

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	ST-2306	2025	46	139

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.

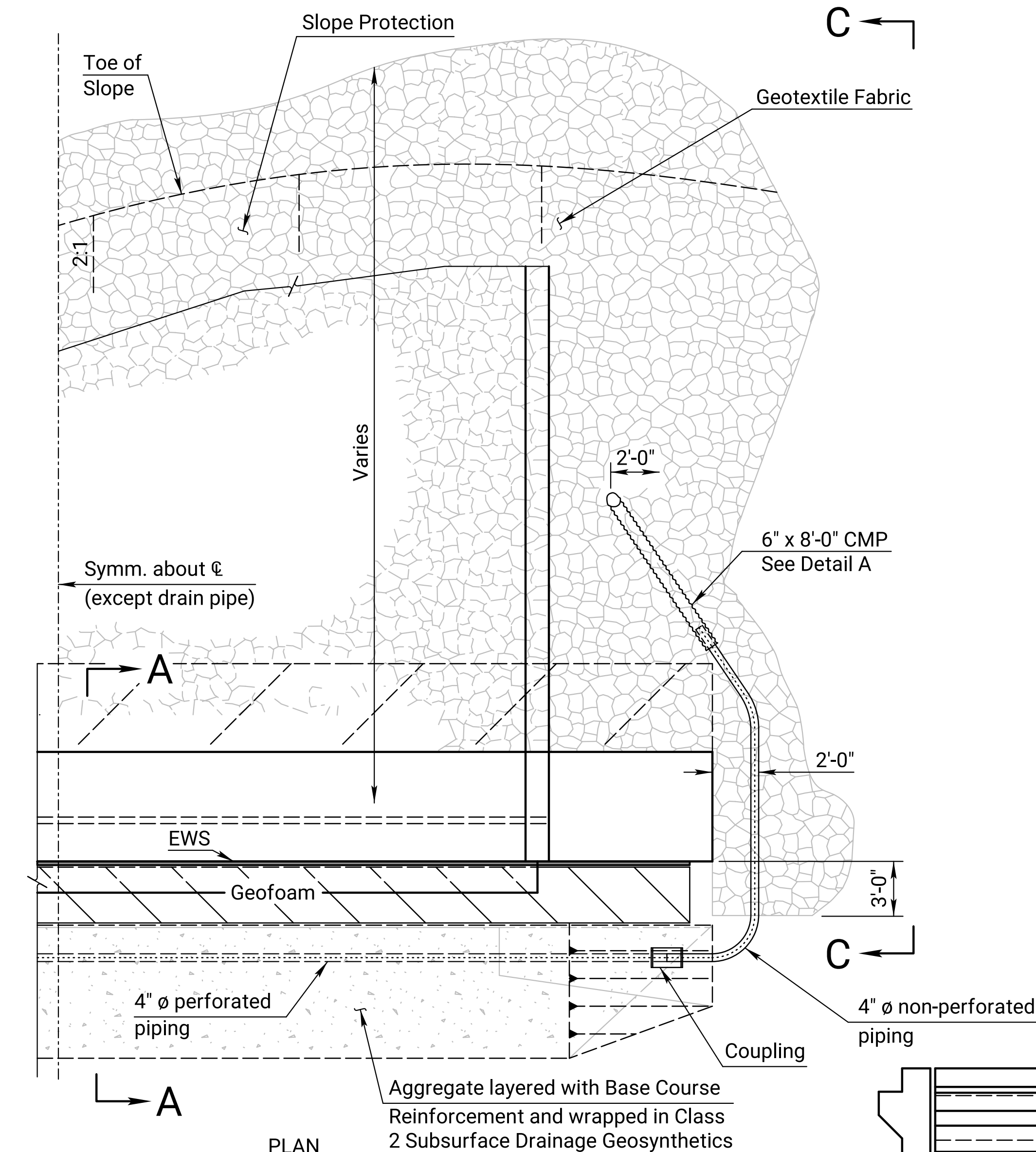
BRIDGE BACKWALL PROTECTION SYSTEM: Apply a non coal-tar Bridge Backwall Protection System to the approach side of the abutments and the wings in accordance with KDOT Specifications and the manufacturer's recommendations. Cover the abutments and wings to the limits shown on the details. Repair any damage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

Compact the abutment backfill. See the KDOT Specifications.

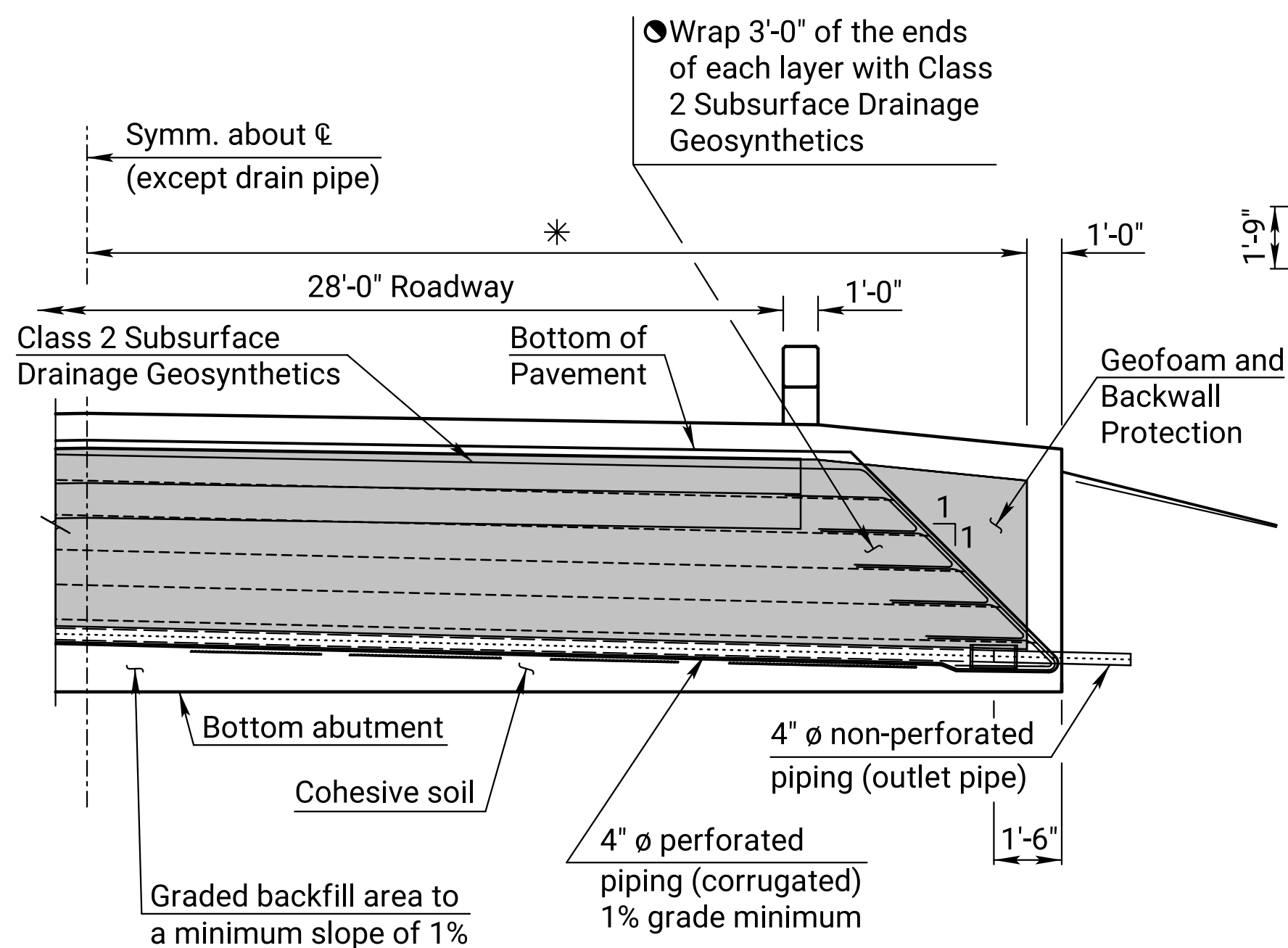
Perforated pipe and non-perforated outlet pipe shall be corrugated polyethylene tubing conforming to the KDOT Specifications.

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 $PI \geq 13$.



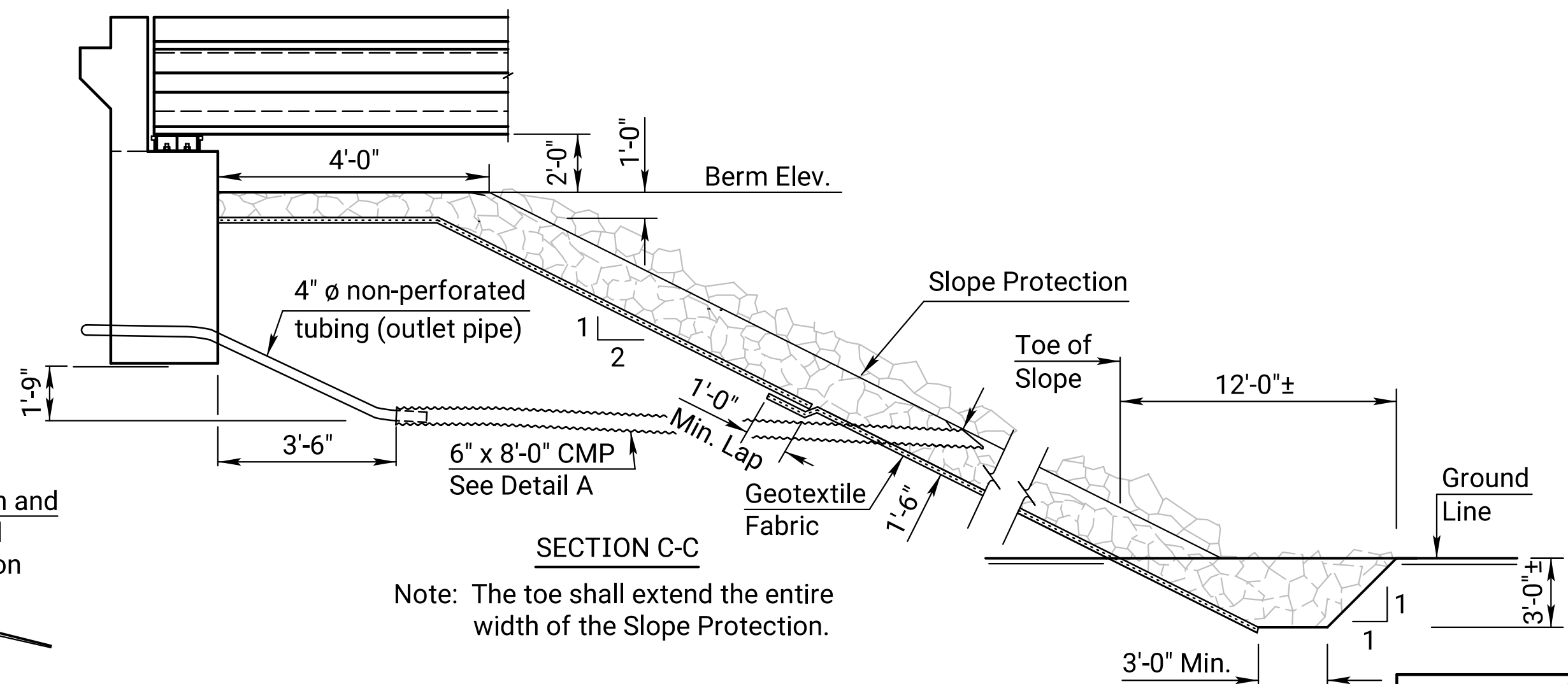
PLAN



ELEVATION

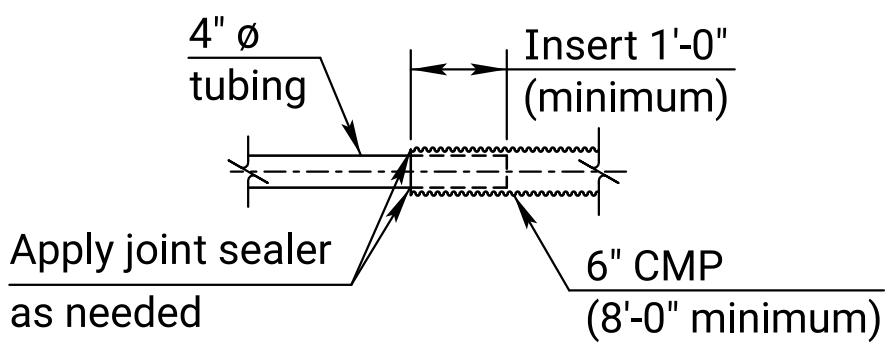
* Limits of Bridge Backwall Protection System & Geofoam

- Use if material cannot be shaped and compacted per plan.



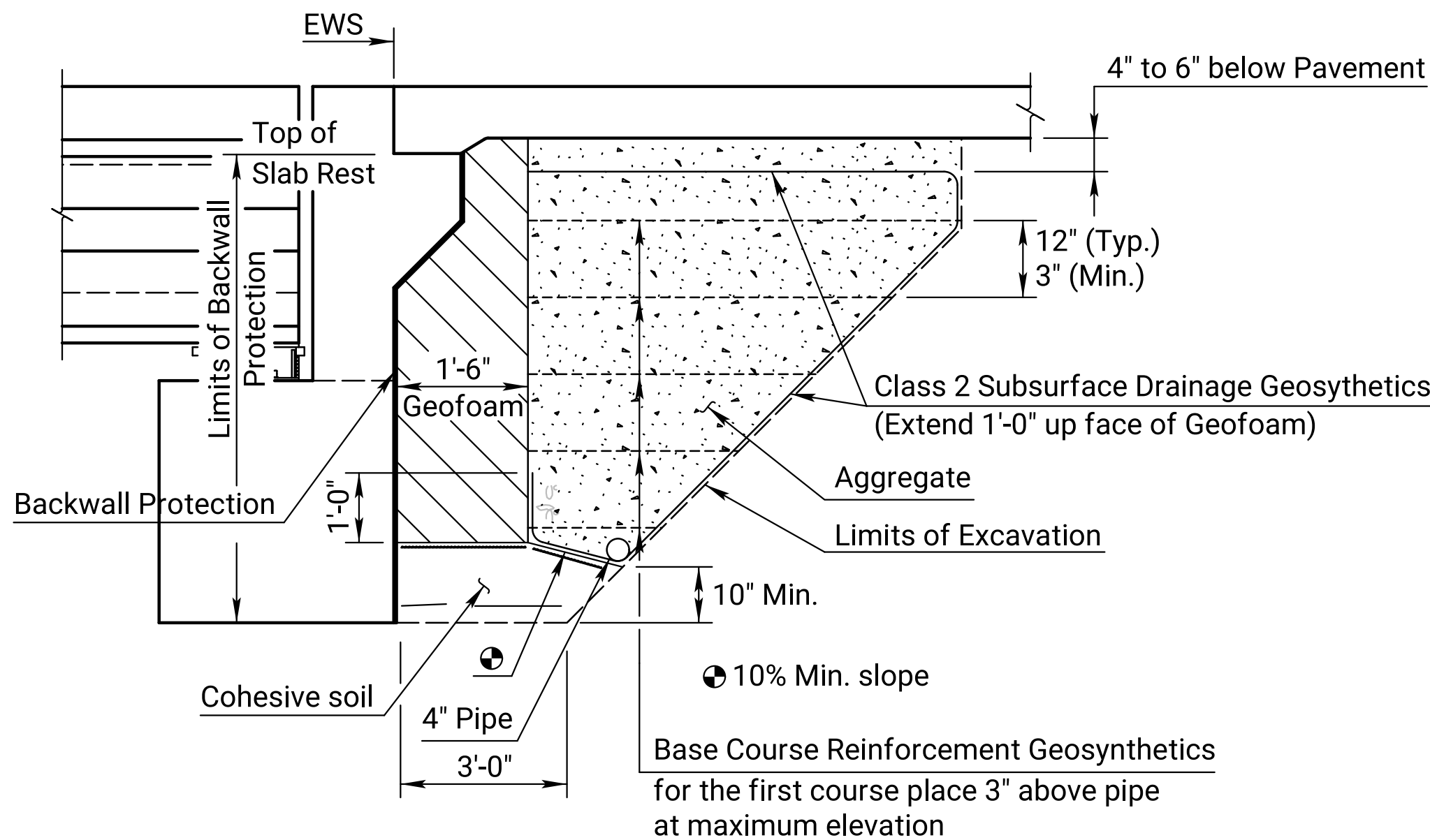
SECTION C-

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.

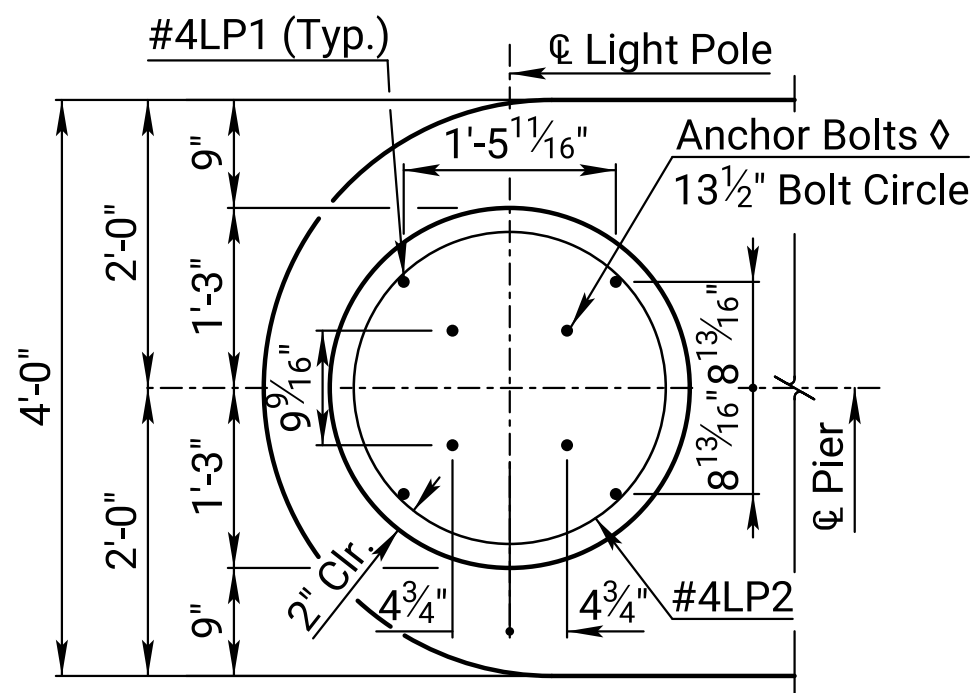


SECTION A-A
(Abutment Aggregate Drain)
Taken at C

SUMMARY OF QUANTITIES (2 Abutments)		
Abutment Aggregate Drain	220	Cu. Yds.
Bridge Backwall Protection System	125	Sq. Yds.
Items subsidiary to Abutment Aggregate Drain		
4" ø Perforated Pipe	108	Lin. Ft.
4" ø Outlet Pipe	26	Lin. Ft.
6" ø CMP	138	Lin. Ft.
Geosynthetics (Class 2 Subsurface Drainage)	258	Sq. Yds.
Geosynthetics (Base Course Reinforcement)	564	Sq. Yds.
Geofoam	52	Cu. Yds.
Items subsidiary to Slope Protection		
Geotextile Fabric	619	Sq. Yds.

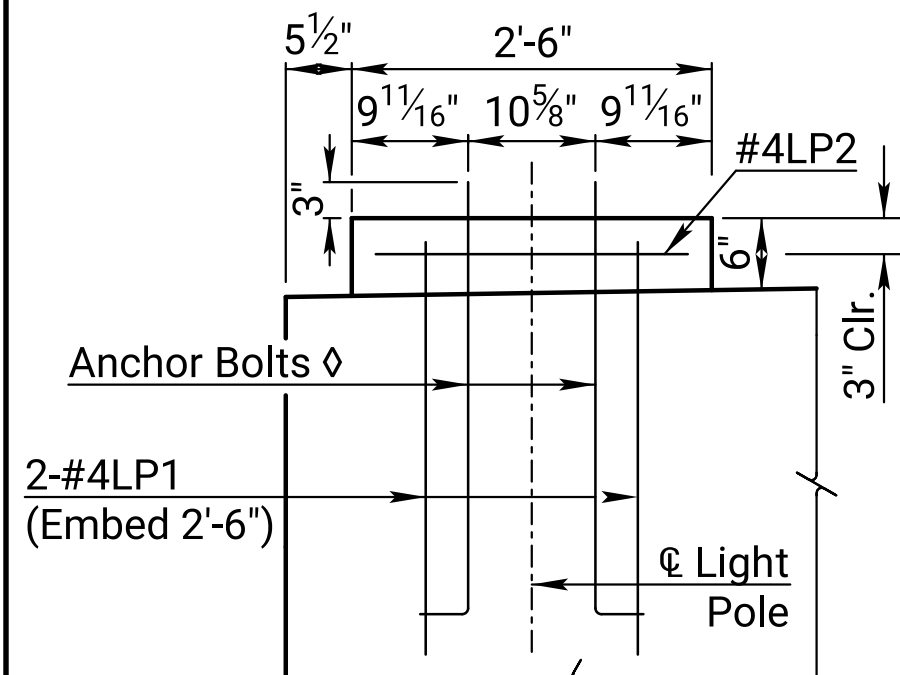
3				
2				
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NO.	DATE	REVISIONS	BY	APP'D
KANSAS DEPARTMENT OF TRANSPORTATION Br. No. 406950290803B01 € STA. 100+00.00				
ABUTMENT AGGREGATE DRAIN				
N. Bd. 14th Ave. Over Arkansas River PROJECT NO. ST-2306 FORD COUNTY				
SHEET NO.	OF	SCALE	APP'D	
DESIGNED		DETAILED	QUANTITIES	CADD
DESIGN CK.		DETAIL CK.	QUAN. CK.	CADD CK.

♦ See Sh. 74 for
Anchor Bolt Details

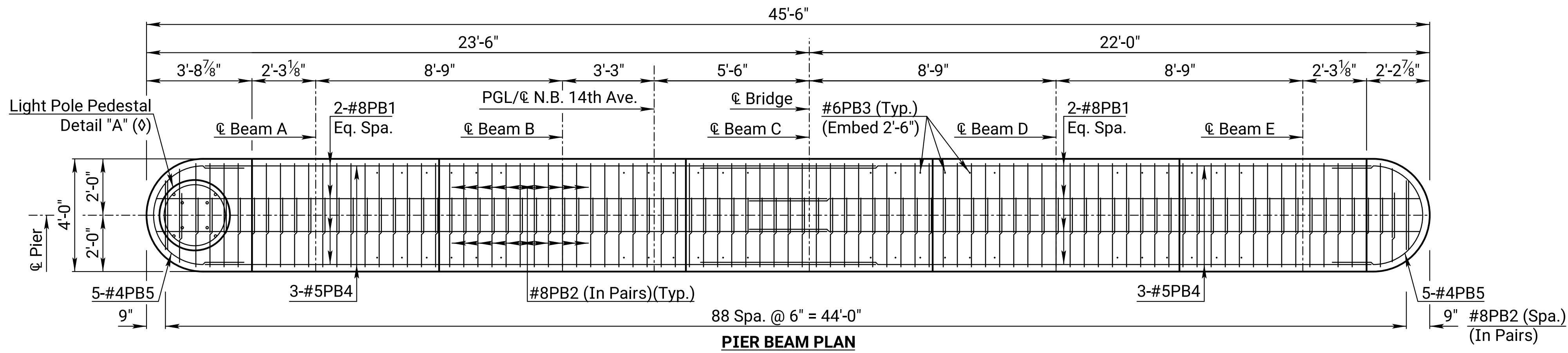


DETAIL "A"

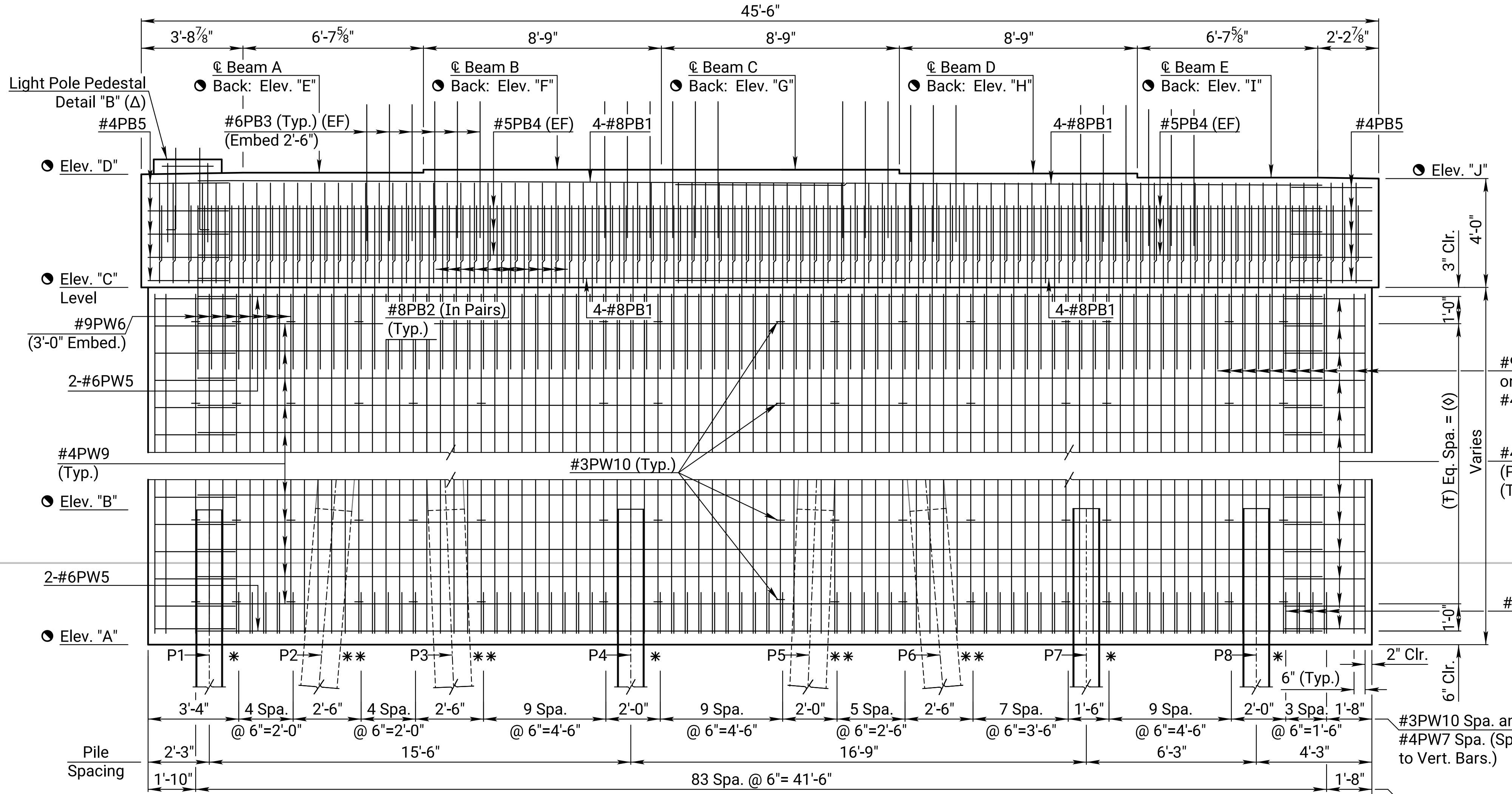
Light Pole Pedestals only constructed on Pier #2, #4, #6, #8 and #10



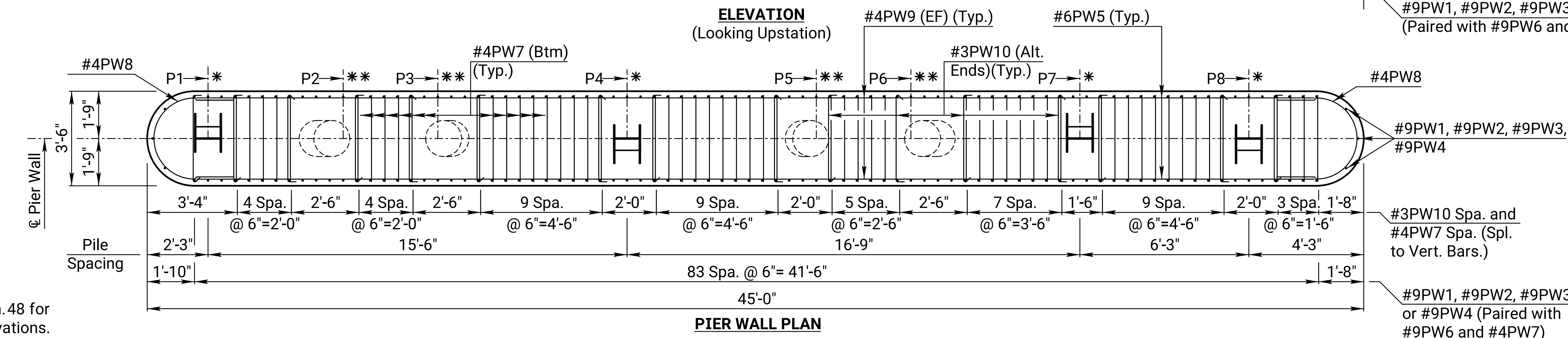
DETAIL "B"



PIER BEAM PLAN

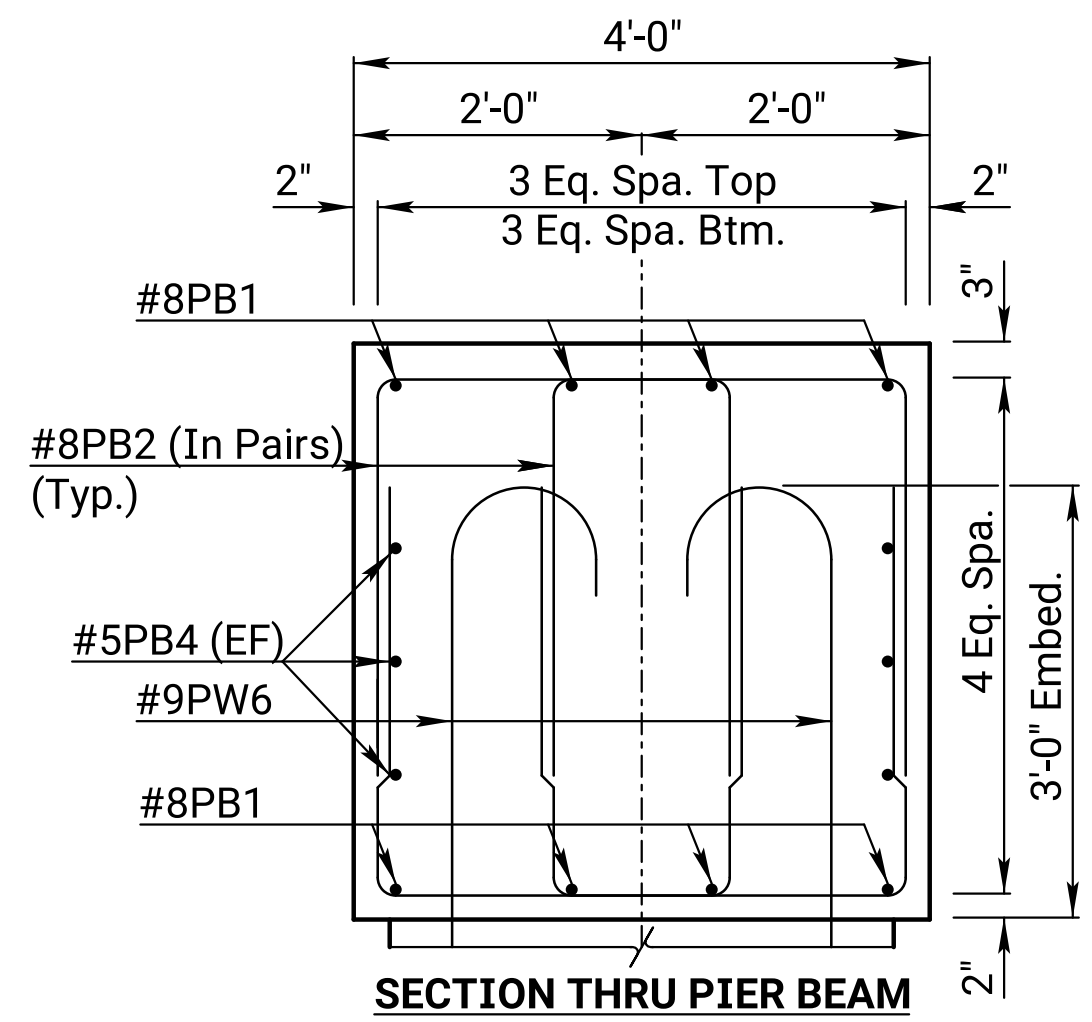


ELEVATION
(Looking Upstation)

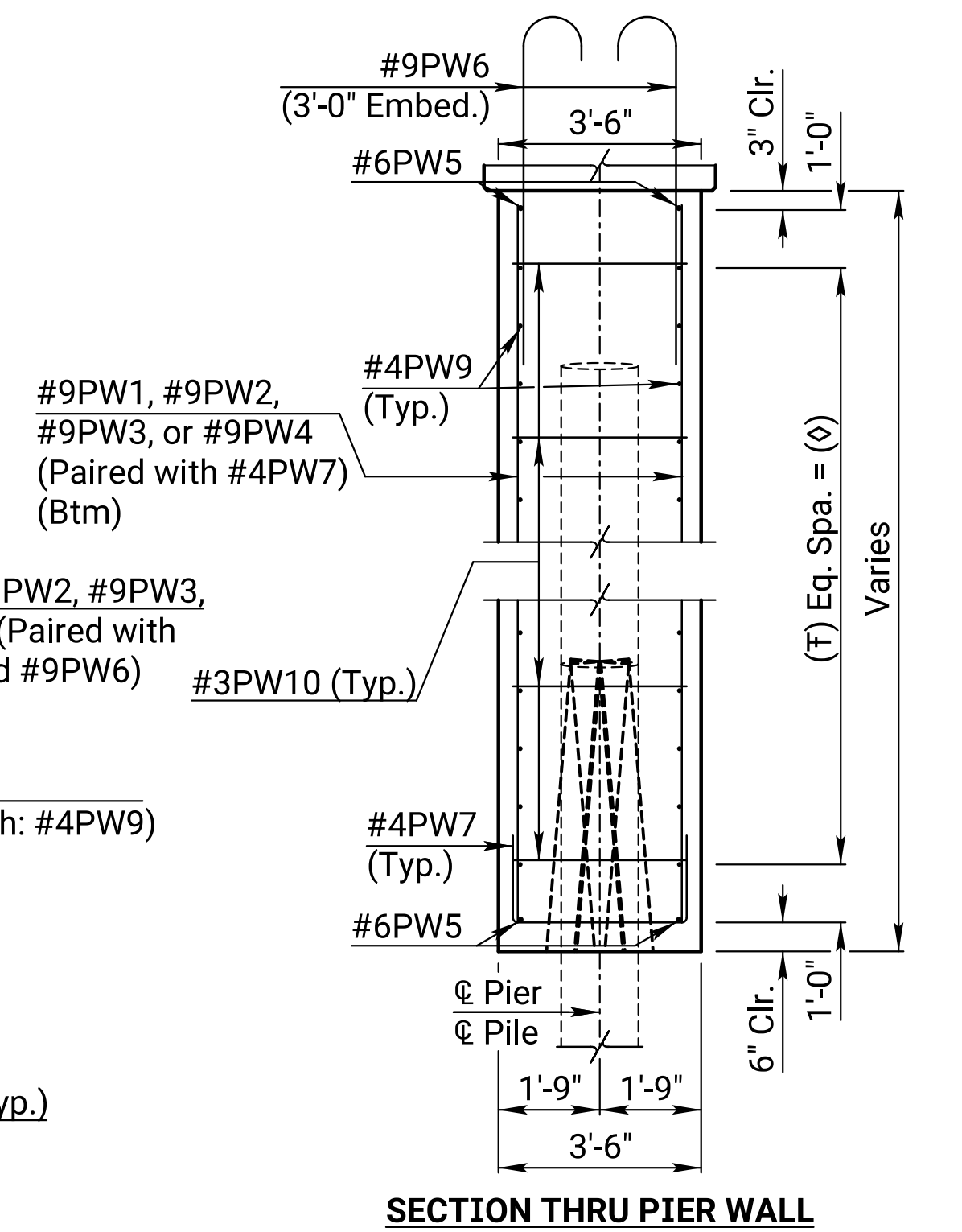


PIER WALL PLAN

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	ST-2306	2025	47	139



SECTION THRU PIER BEAM



SECTION THRU PIER WALL

LEGEND

- EF = Each Face
- FF = Far Face
- NF = Near Face
- * = Proposed HP-12x53 Steel H-Pile
- ** = Existing 10 3/4" Dia. Steel, Conc. Filled Shell Pile (All Exist. Pile will be cut to match Elev. of Prop. pile (Elev. B))

NO.	DATE	REVISIONS	BY	APP'D
3				
2				
1				

KANSAS DEPARTMENT OF TRANSPORTATION
Br. No. 406950290803B01

PIER DETAILS

PROJECT NO. ST-2306				FORD COUNTY	
SHEET NO. OF SCALE				APP'D	
DESIGNED				QUANTITIES	
DESIGN CK.				CADD CK.	

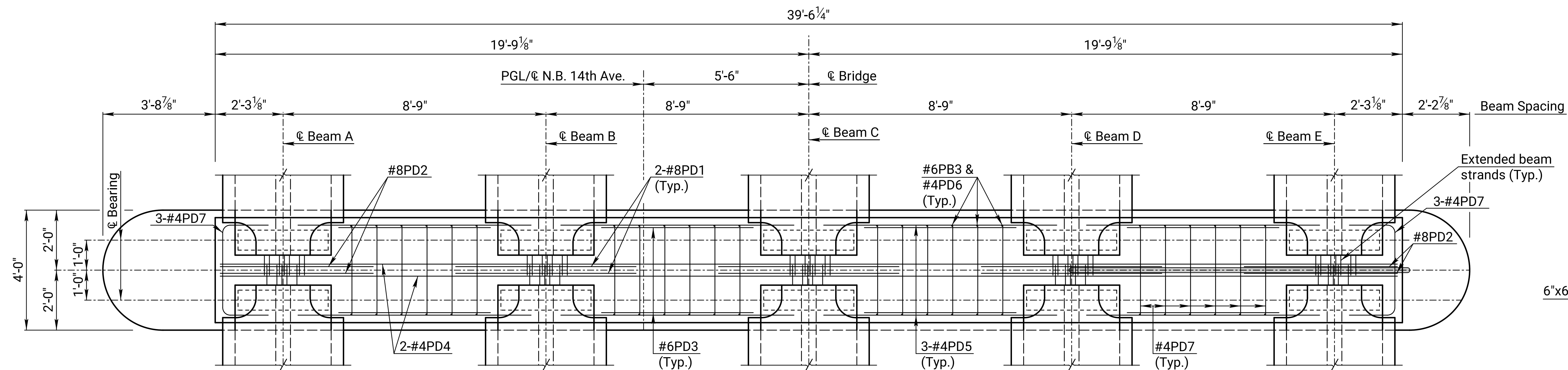
Plotted By: Katie Romero
File: ST2306bbr030.dgn
Plot Date: 10-JUL-2025 13:33

Transverse Bar Spa.		
Pier	(F)	(O)
1	5	6'-6"
2	10	11'-9"
3	12	13'-9"
4	16	18'-0"
5	16	18'-0"
6	16	18'-0"
7	16	18'-0"
8	12	13'-9"
9	10	11'-9"
10	5	6'-6"

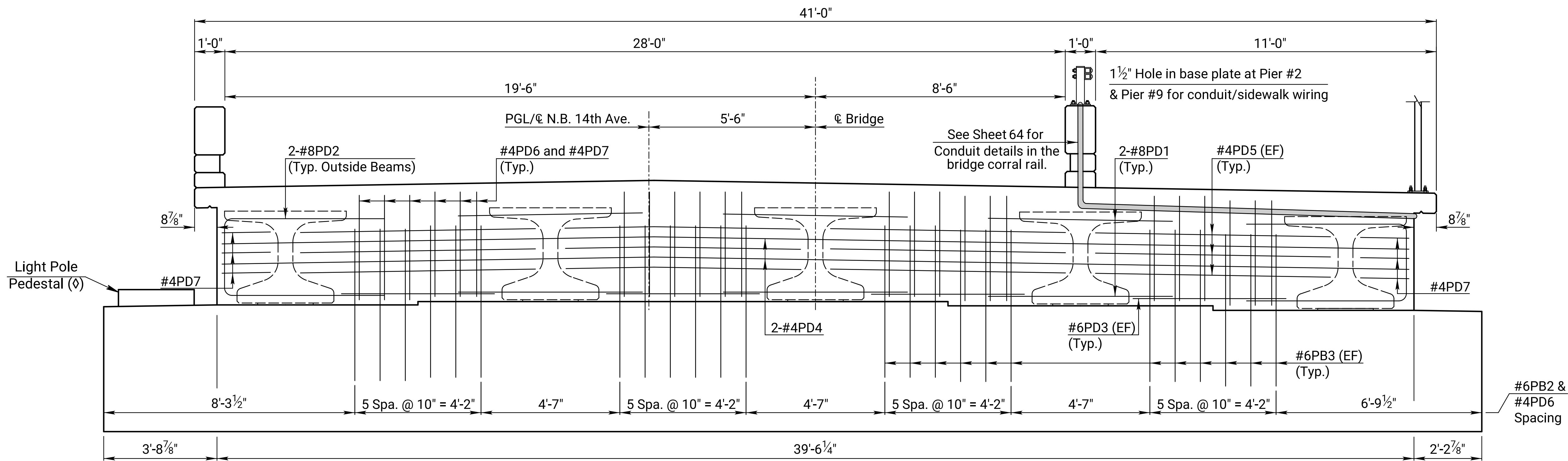
Light Pole Locations		
Pier	STA	
2	97+90.00	Lt
4	99+10.00	Lt
6	100+30.00	Lt
8	101+50.00	Lt
10	102+67.00	Lt

● Note: See Sh. 48 for
Table of Elevations.

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	ST-2306	2025	48	139



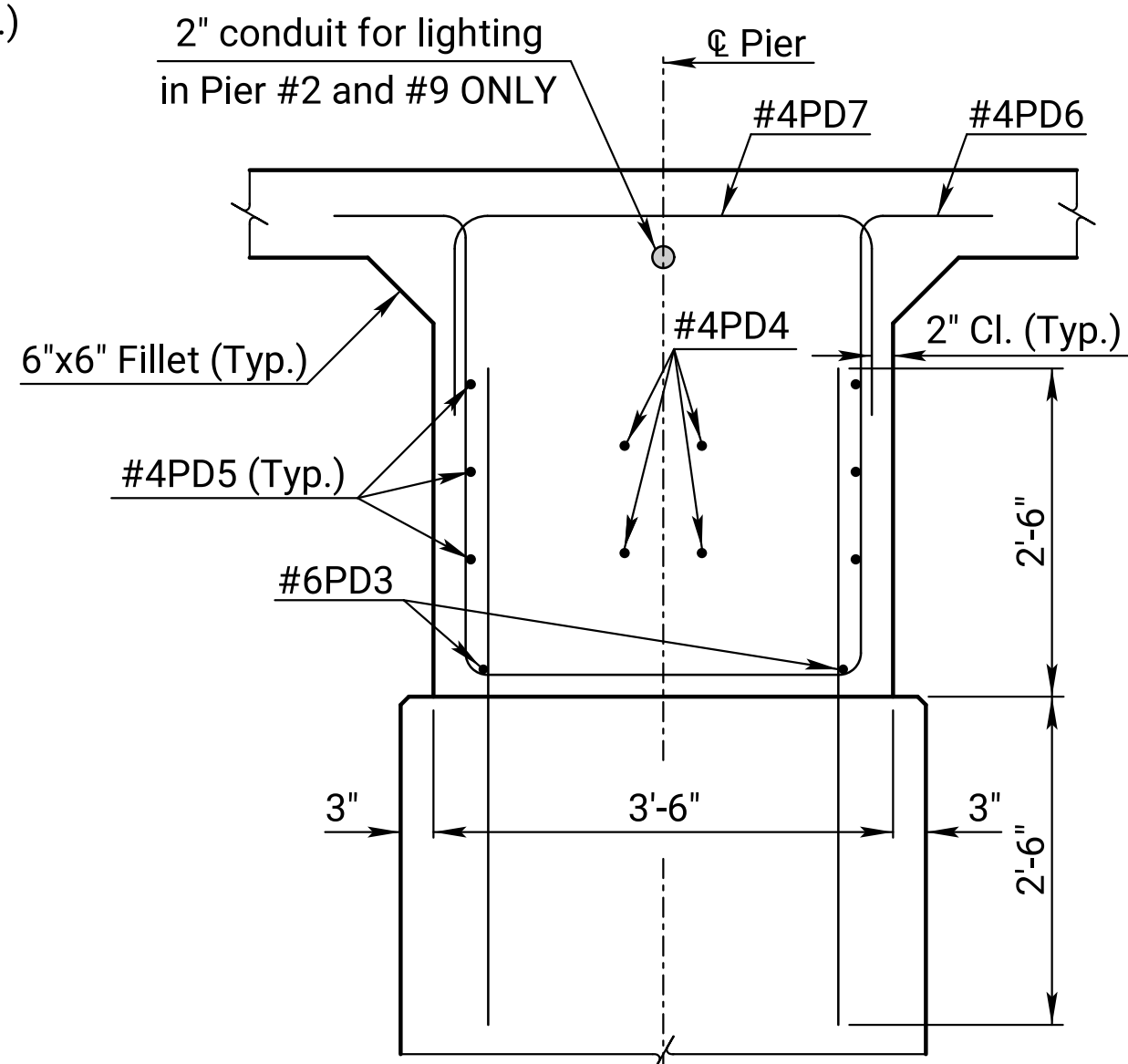
PLAN



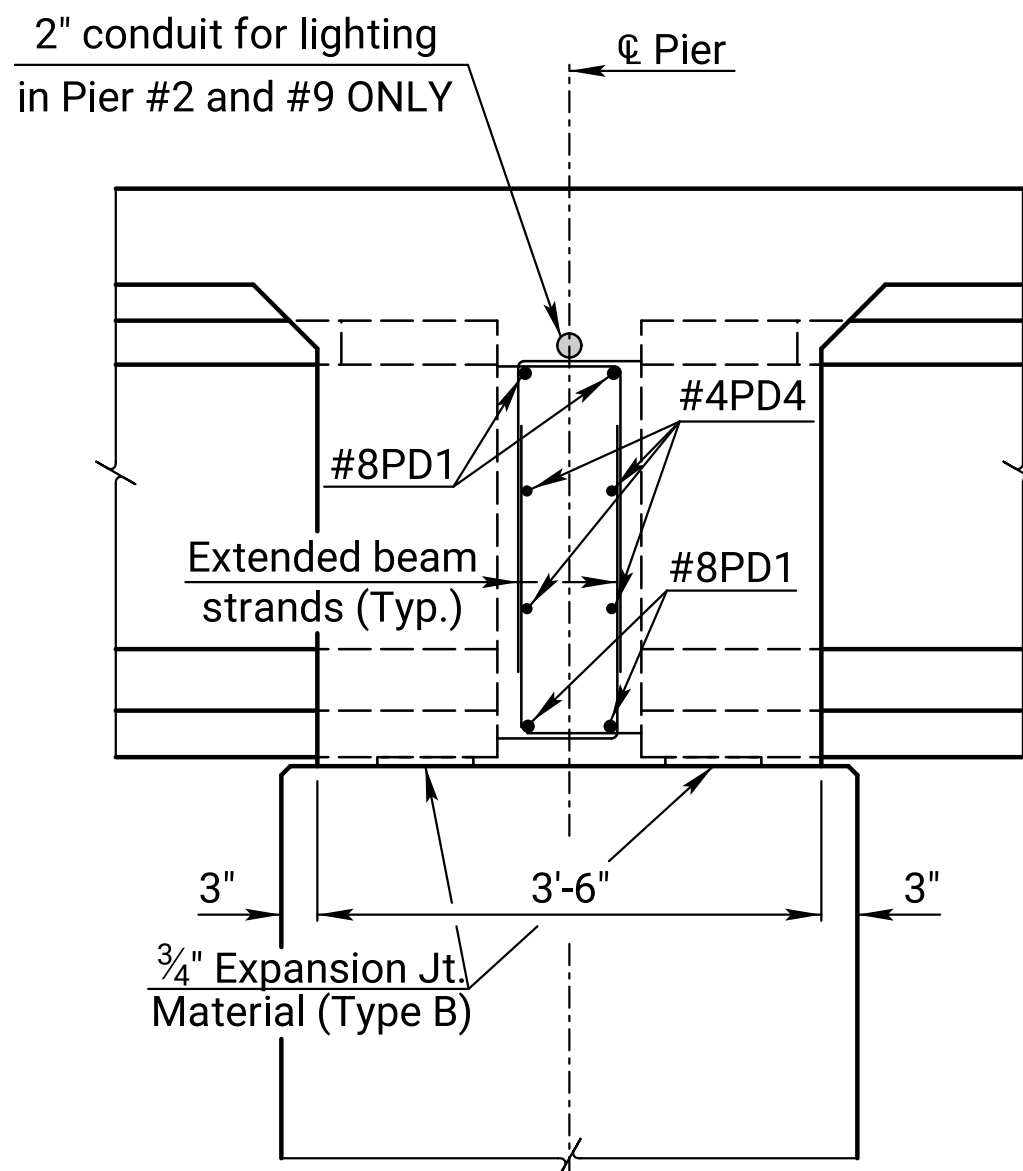
ELEVATION
(Looking Upstation)

LOCATION	TABLE OF ELEVATIONS									
	A	B	C	D	E	F	G	H	I	J
PIER #1	2479.53	2484.53	2486.78	2490.92	2490.96	2491.10	2491.06	2490.92	2490.78	2490.74
PIER #2	2475.19	2480.19	2487.69	2491.82	2491.87	2492.01	2491.97	2491.83	2491.69	2491.65
PIER #3	2473.91	2478.91	2488.41	2492.54	2492.59	2492.73	2492.69	2492.55	2492.41	2492.37
PIER #4	2470.14	2475.14	2488.89	2493.02	2493.07	2493.21	2493.17	2493.03	2492.89	2492.85
PIER #5	2470.38	2475.38	2489.13	2493.26	2493.31	2493.45	2493.41	2493.27	2493.13	2493.09
PIER #6	2470.38	2475.38	2489.13	2493.26	2493.31	2493.45	2493.41	2493.27	2493.13	2493.09
PIER #7	2470.14	2475.14	2488.89	2493.02	2493.07	2493.21	2493.17	2493.03	2492.89	2492.85
PIER #8	2473.91	2478.91	2488.41	2492.54	2492.59	2492.73	2492.69	2492.55	2492.41	2492.37
PIER #9	2475.19	2480.19	2487.69	2491.82	2491.87	2492.01	2491.97	2491.83	2491.69	2491.65
PIER #10	2479.53	2484.53	2486.78	2490.92	2490.96	2491.10	2491.06	2490.92	2490.78	2490.74

Note:
The Contractor shall install 2" conduit according to the details on this sheet at Pier 2 and Pier 9. Coordinate with the Owner's Electrician before beginning the work. Labor, materials, and incidentals required to complete the work will be paid for with the bid item "Electric System, (Lump Sum)."



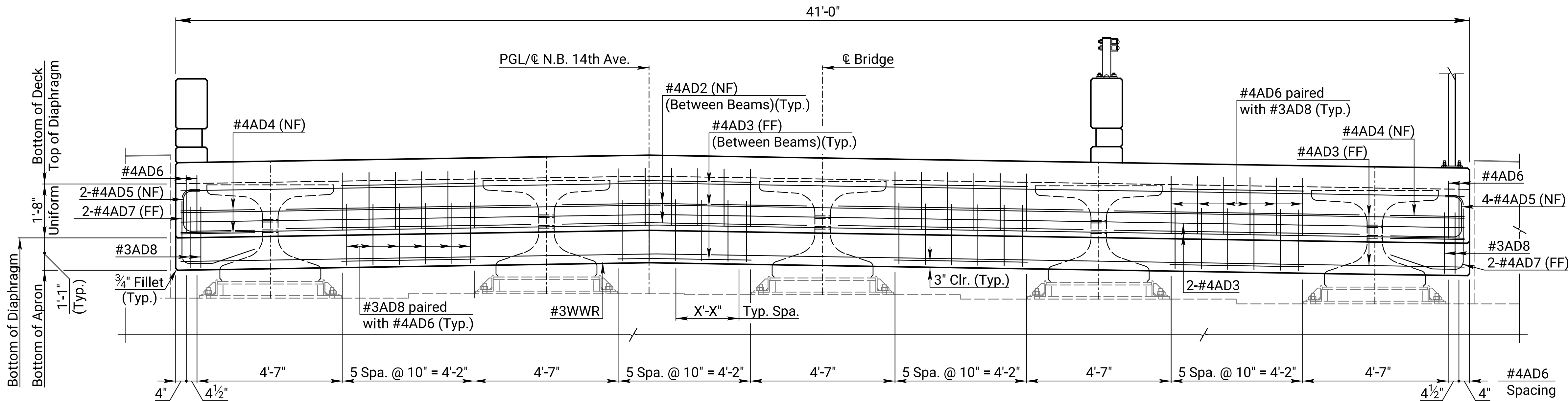
PIER DIAPHRAGM SECTION
(Between Beams)



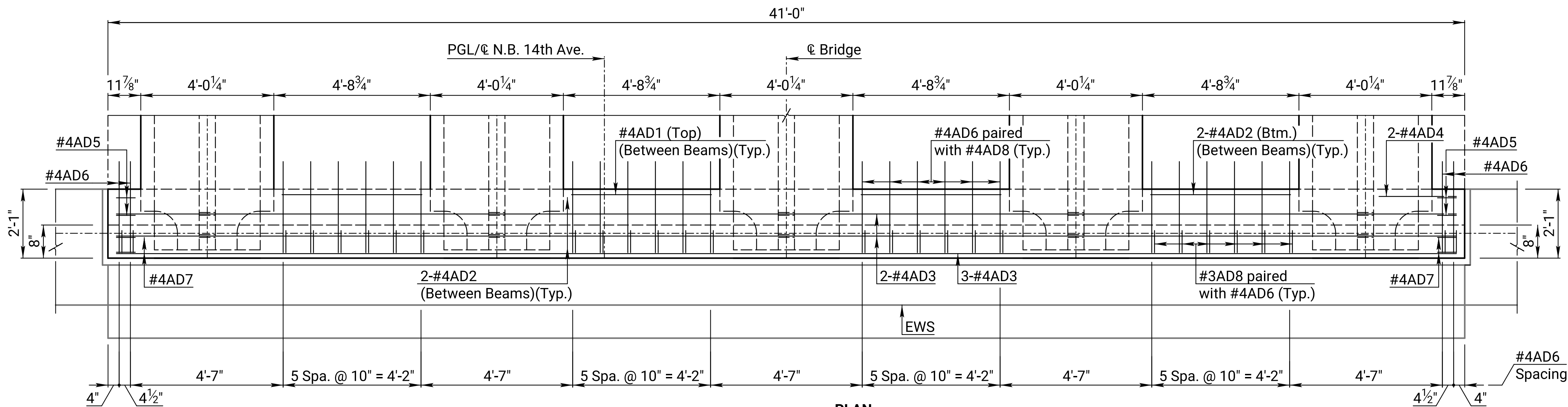
PIER DIAPHRAGM SECTION (At Beams)

3				
2				
1				
NO.	DATE	REVISIONS	BY	APP'D
KANSAS DEPARTMENT OF TRANSPORTATION Br. No. 406950290803B01 ¢ STA. 100+00.00				
PIER DIAPHRAGM DETAILS				
N. Bd. 14th Ave. Over Arkansas River				
PROJECT NO. ST-2306			FORD COUNTY	
SHEET NO.	OF	SCALE	APP'D	
DESIGNED		DETAILED	QUANTITIES	CADD
DESIGN CK.		DETAIL CK.	QUAN. CK.	CADD CK.

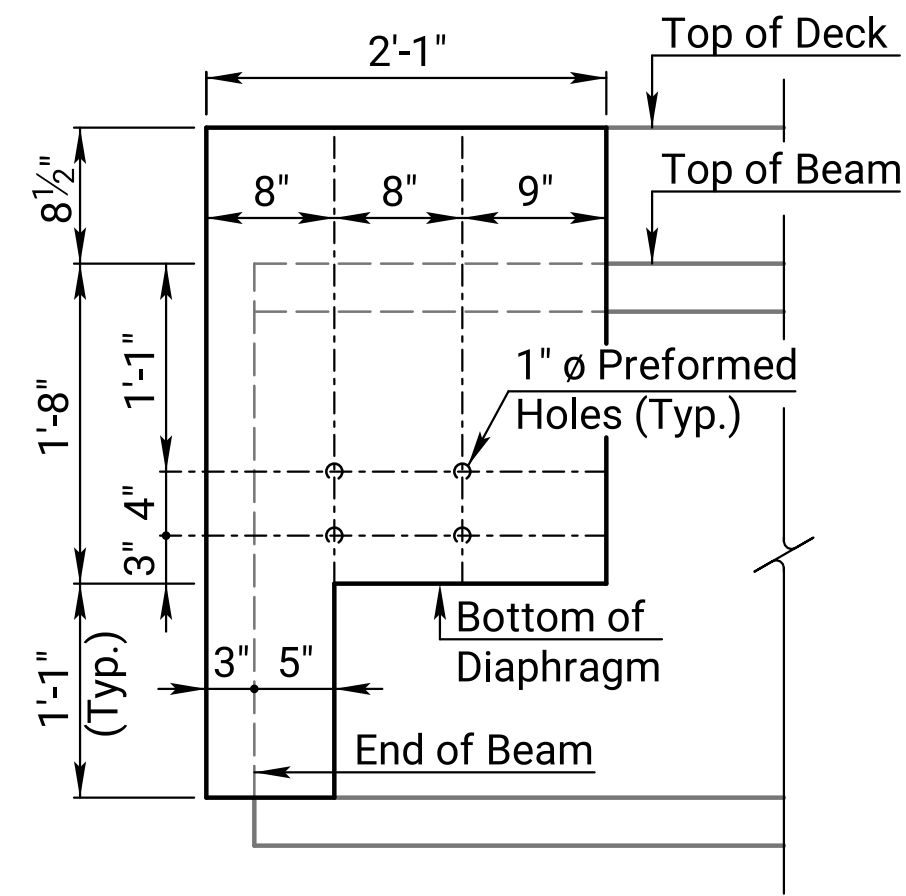
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	ST-2306	2025	49	139



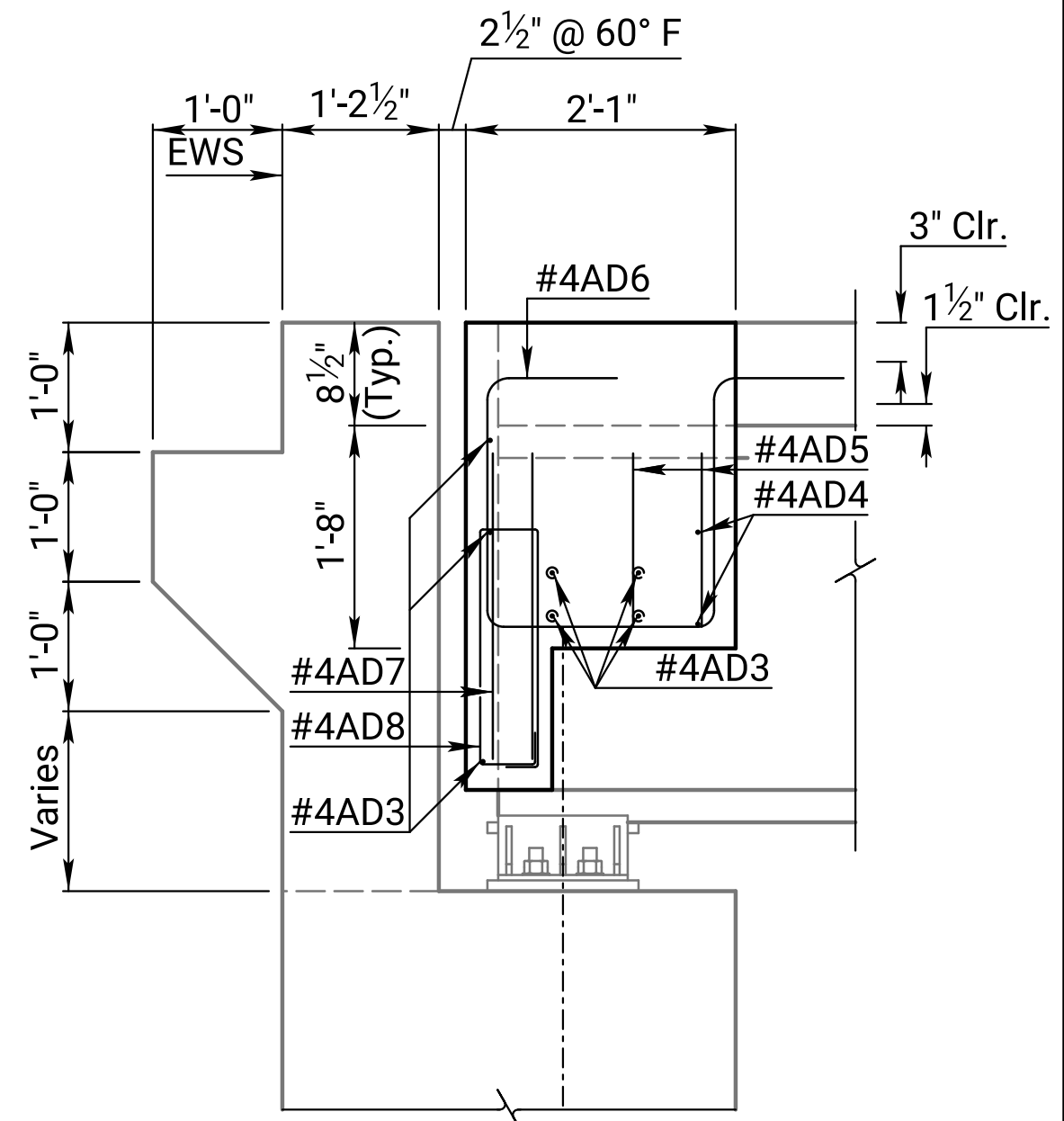
ELEVATION
Looking Upstation



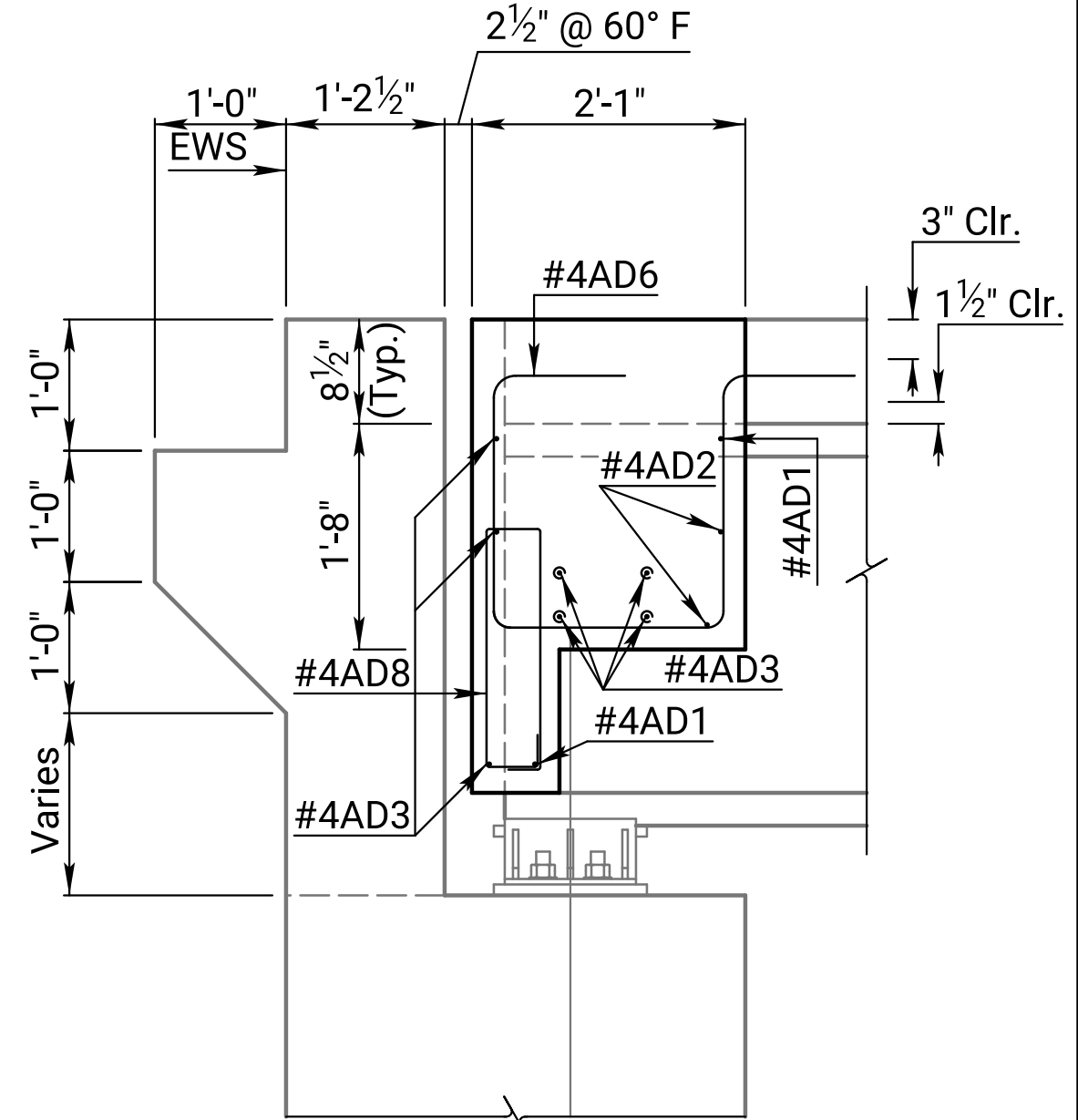
PLAN
Bottom Steel not shown for clarity



PREFORMED HOLE DETAILS



TYPICAL SECTION
(At Ends of Deck)



TYPICAL SECTION
(Between Beams)

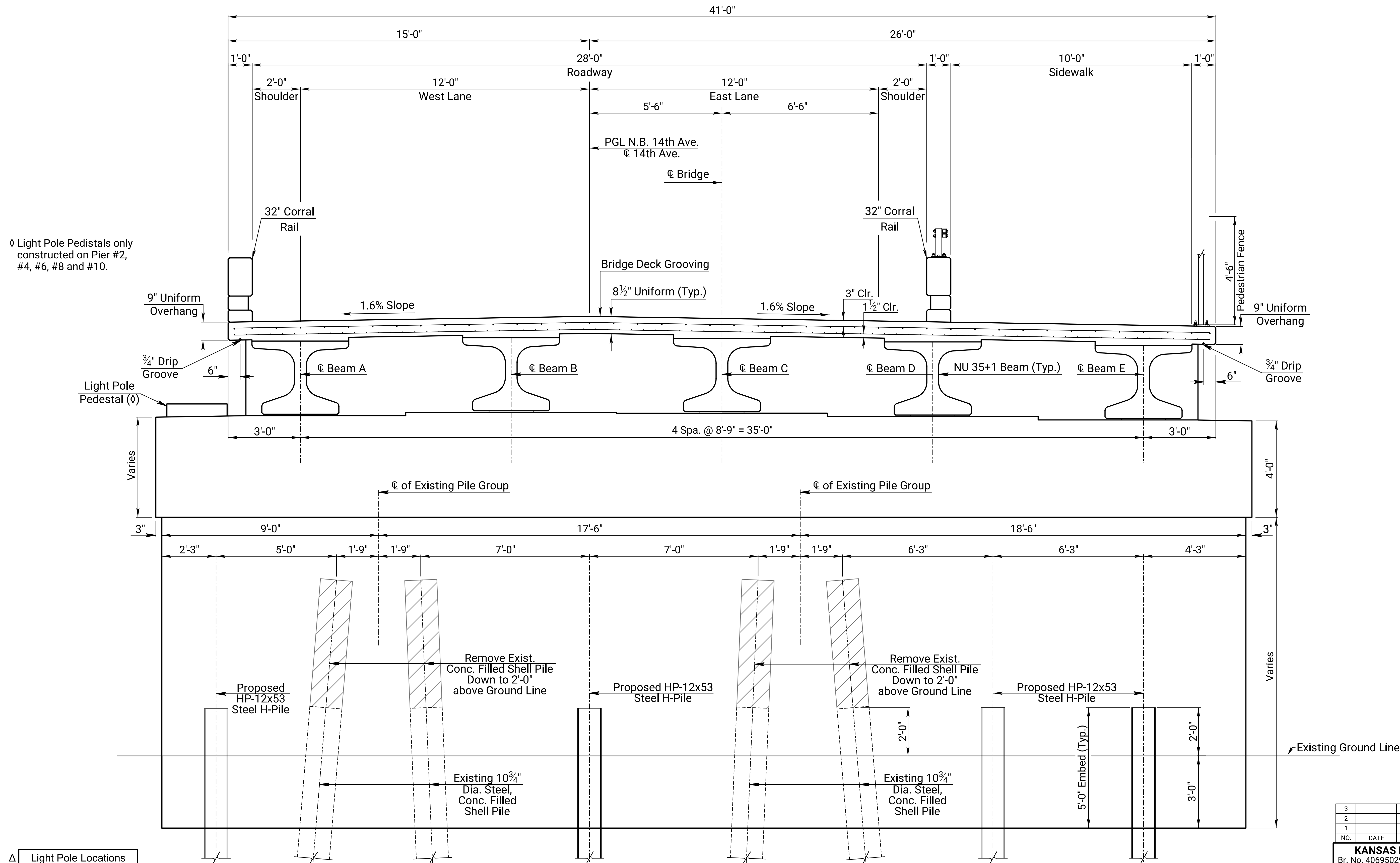
Notes: Unless otherwise shown, all dimensions and elevations are along centerline of abutment.

Abutment 1 shown, Abutment 2 flipped and reversed.

Plotted By: Riley Standish
File: ST2306bbr032.dgn
Plot Date: 8-JUL-2025 16:32

3					
2					
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NO.	DATE	REVISIONS	BY	APP'D	
KANSAS DEPARTMENT OF TRANSPORTATION					
Br. No. 406950290803B01					
© STA. 100+00.00					
ABUTMENT DIAPHRAGMS DETAILS					
N. Bd. 14th Ave. Over Arkansas River					
PROJECT NO. ST-2306					
FORD COUNTY					
SHEET NO.	OF	SCALE	APP'D		
DESIGNED	CK.	DETAILED	QUANTITIES	CADD	
DESIGN CK.	DETAIL CK.	QUAN. CK.	CADD CK.		

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	ST-2306	2025	50	139



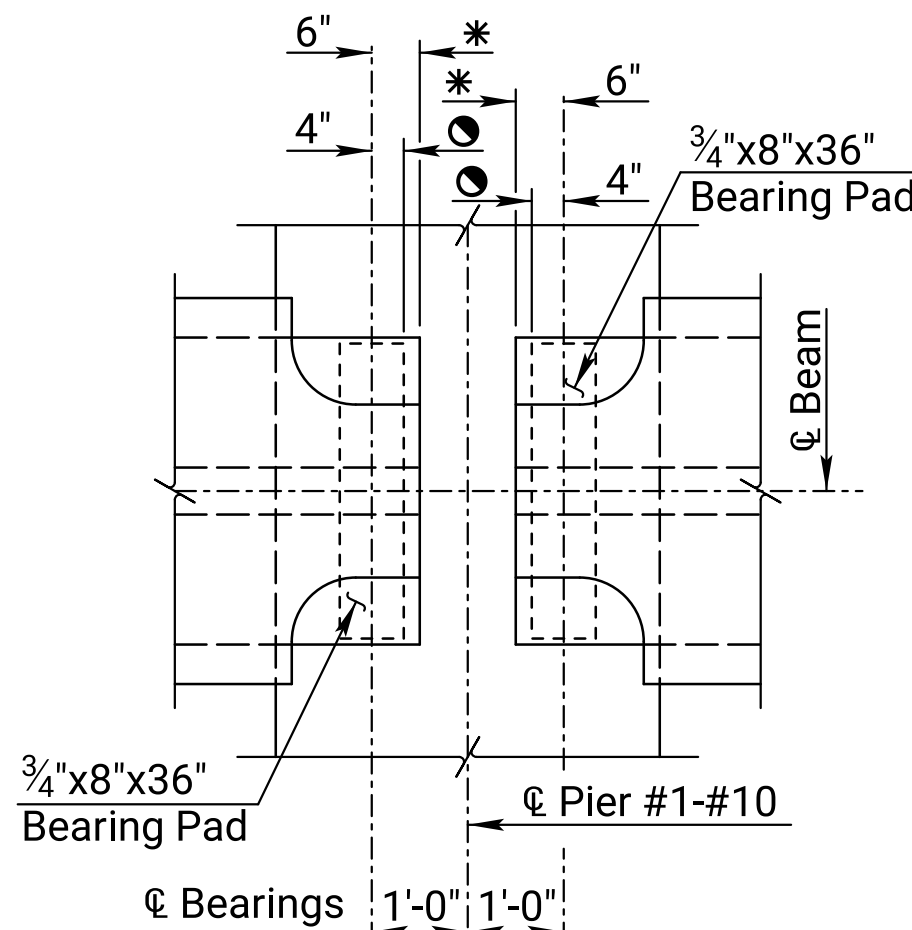
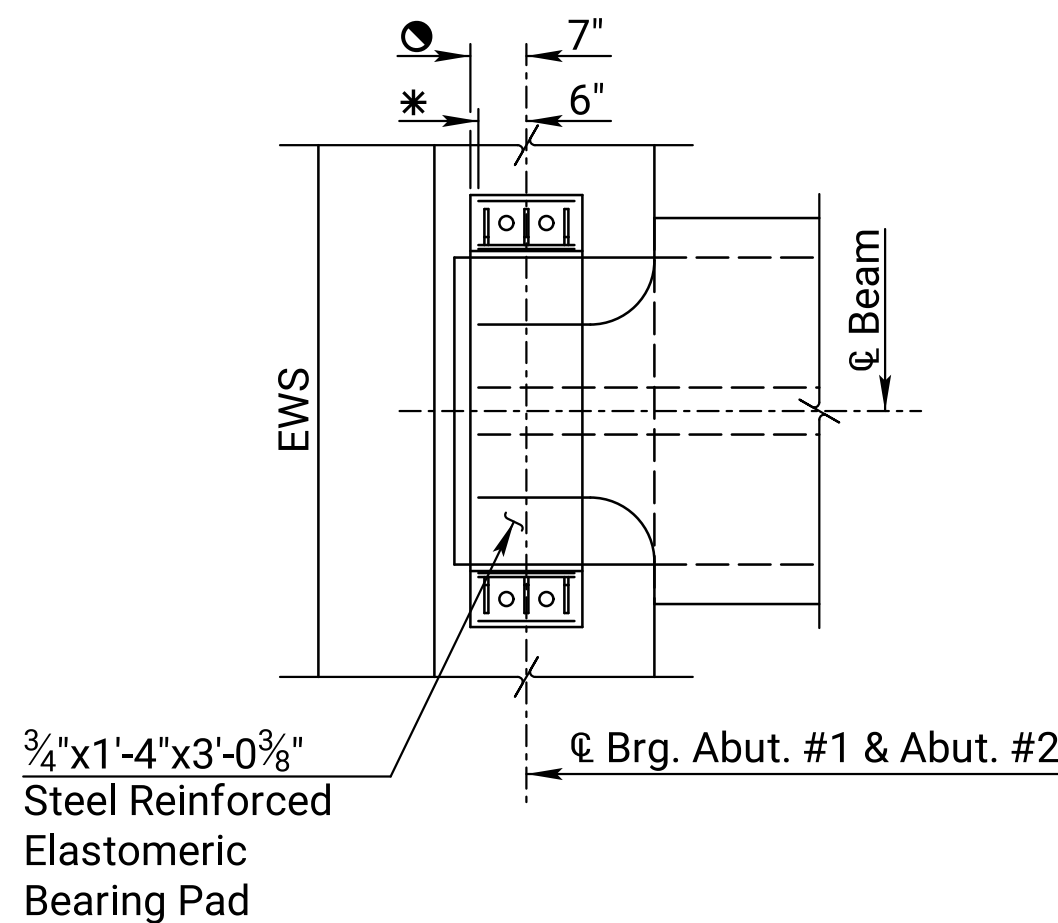
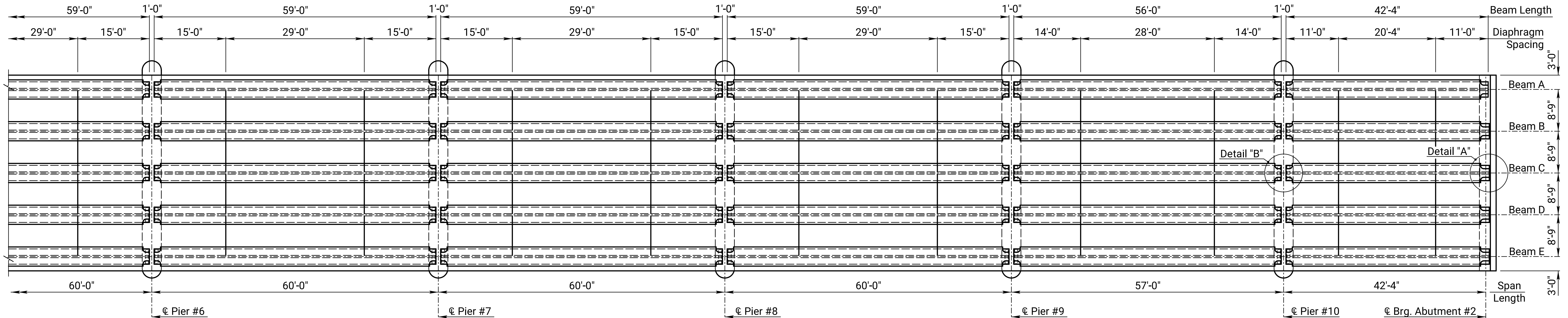
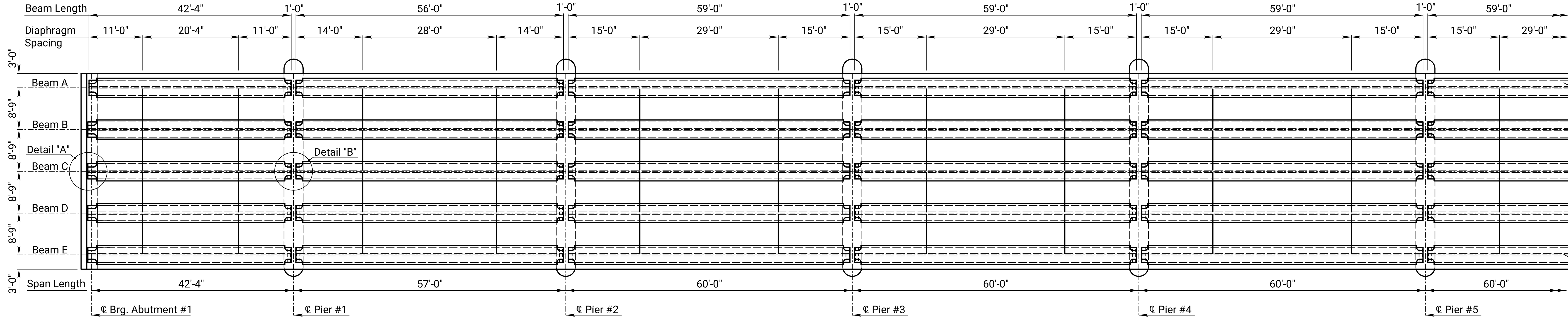
Δ	Light Pole Locations		
Pier	STA		
2	97+90.00	Lt	
4	99+10.00	Lt	
6	100+30.00	Lt	
8	101+50.00	Lt	
10	102+67.00	Lt	

TYPICAL SECTION
(Looking Upstation)

3					
2					
1					
NO.	DATE	REVISIONS	BY	APP'D	
KANSAS DEPARTMENT OF TRANSPORTATION					
Br. No. 406950290803B01					
© STA. 100+00.00					
PIER TYPICAL SECTION					
N. Bd. 14th Ave. Over Arkansas River					
PROJECT NO. ST-2306			FORD COUNTY		
SHEET NO.	OF	SCALE	APP'D		
DESIGNED		DETAILED	QUANTITIES	CADD	
DESIGN CK.		DETAIL CK.	QUAN. CK.	CADD CK.	

Plotted By: Riley Standish
File: ST2306bbr033.dgn
Plot Date: 8-JUL-2025 16:33

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	ST-2306	2025	51	139



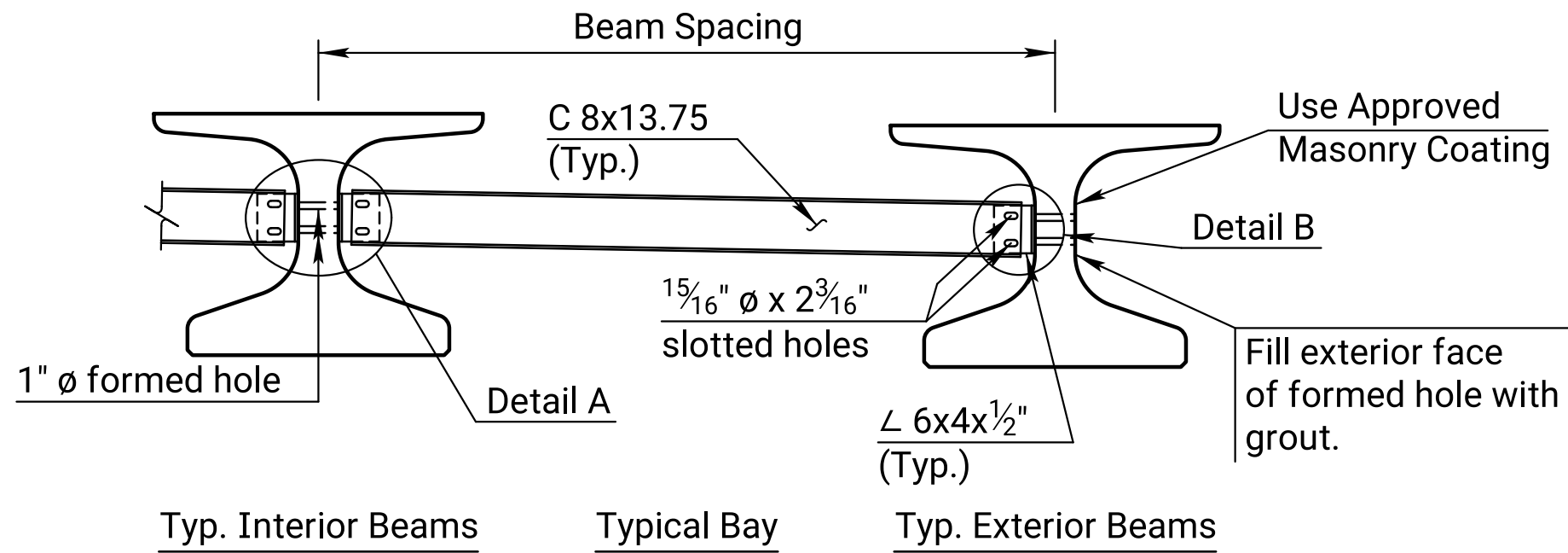
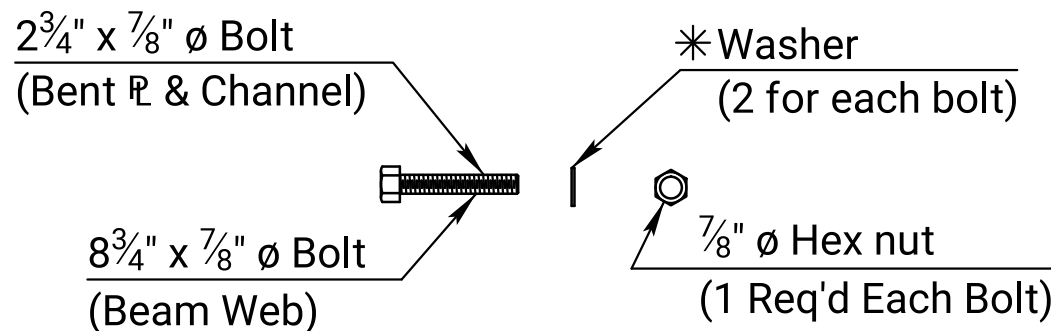
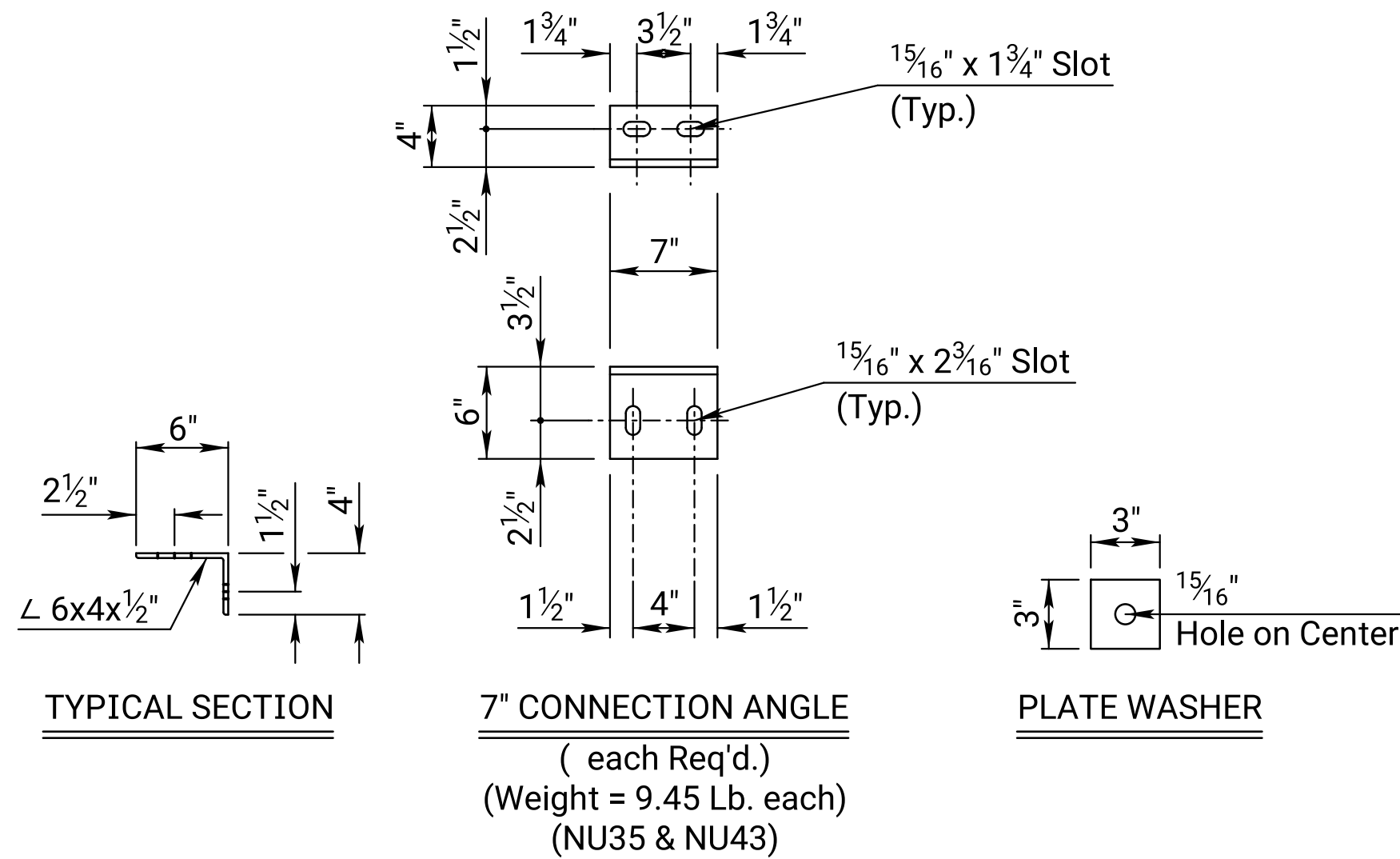
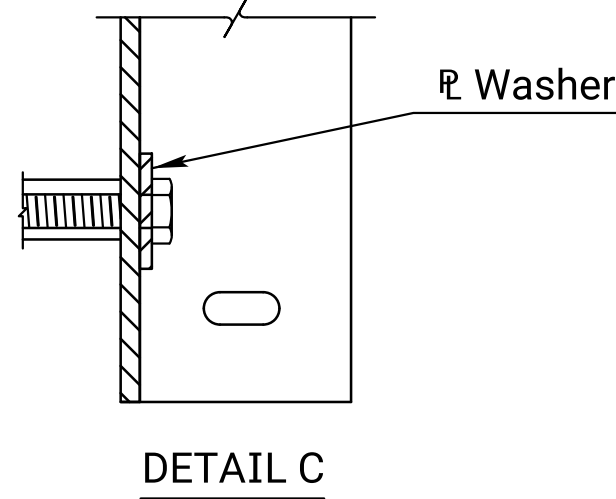
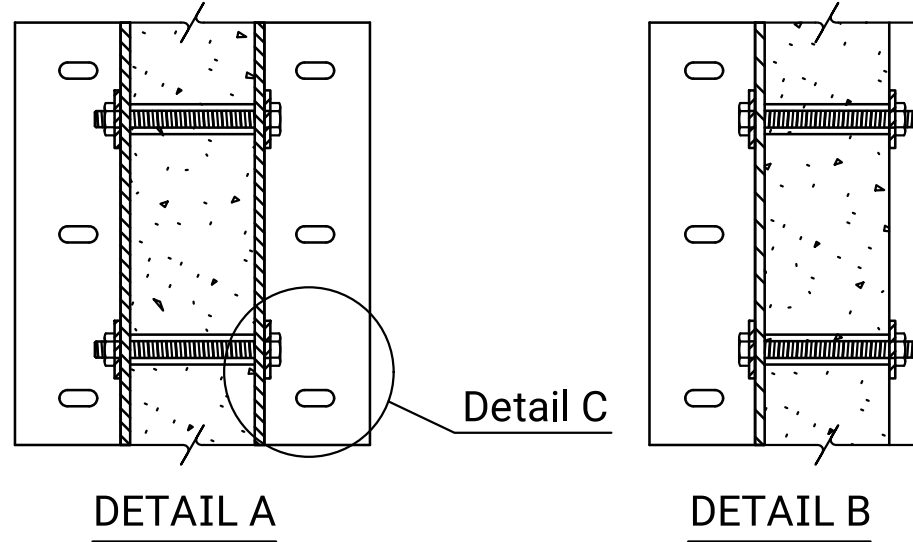
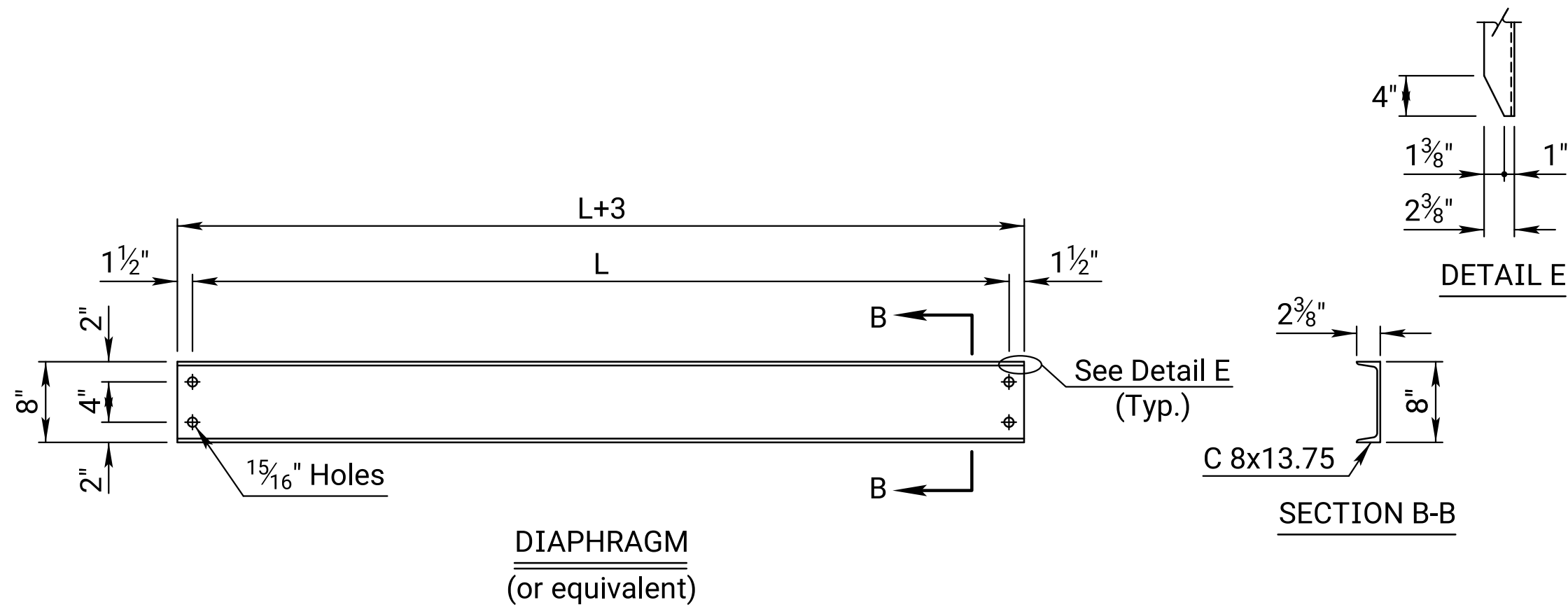
* End of Beam
● Edge of Bearing Pad

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2					
1					
NO.	DATE	REVISIONS	BY	APP'D	
KANSAS DEPARTMENT OF TRANSPORTATION					
Br. No. 406950290803B01					
© STA. 100+00.00					
FRAMING PLAN					
N. Bd. 14th Ave. Over Arkansas River					
PROJECT NO. ST-2306			FORD COUNTY		
SHEET NO.	OF	SCALE	APP'D		
DESIGNED		DETAILED	QUANTITIES	CADD	
DESIGN CK.		DETAIL CK.	QUAN. CK.	CADD CK.	

Plotted By: Riley Standish
File: ST2306bbr040.dgn
Plot Date: 8-JUL-2025 16:33

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	ST-2306	2025	52	139

DIAPHRAGMS: Use ASTM A709 Gr. 36 steel for all angles and bent plates for 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 $\frac{5}{16}$ " 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 diaphragms, as shown in the details, prior to placing any superstructure concrete. Submit shop drawings of the diaphragms to the KDOT Bridge Section for review and approval. The material, equipment, and labor necessary for the installation of the diaphragms, including filling the bolt holes, shall not be paid for directly, but shall be subsidiary to the bid item "Prestressed Concrete Beams".



Plotted By: Riley Standish
File: ST2306bbr045.dgn
Plot Date: 8-JUL-2025 16:33

3				
2				
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NO.	DATE	REVISIONS	BY	APP'D
KANSAS DEPARTMENT OF TRANSPORTATION Br. No. 406950290803B01				
DIAPHRAGM DETAILS FOR NU BEAMS				
N. Bd. 14th Ave. Over Arkansas River				
PROJECT NO. ST-2306			FORD COUNTY	
SHEET NO.	OF	SCALE	APP'D	
DESIGNED CK.		DETAILED	QUANTITIES	CADD
DESIGN CK.		DETAIL CK.	QUAN. CK.	CADD CK.

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	ST-2306	2025	54	139

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 KDOT Materials Section shall approve the mix design. Unless otherwise shown on the plans, $f'c = 8,000$ psi and $f'c$ at release = 6,000 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 scarlfying 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.

† Remove lifting device within $\frac{1}{2}$ " 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.

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1				
NO.	DATE	REVISIONS	BY	APP'D
KANSAS DEPARTMENT OF TRANSPORTATION				
Br. No. 406950290803B01			© STA. 100+00.00	
PRESTRESSED BEAM DETAILS (NU35+1)				
N. Bd. 14th Ave. Over Arkansas River				
PROJECT NO. ST-2306			FORD COUNTY	
SHEET NO.	OF	SCALE	APP'D	
DESIGNED		DETAILED	QUANTITIES	CADD
DESIGN CK.		DETAIL CK.	QUAN. CK.	CADD CK.

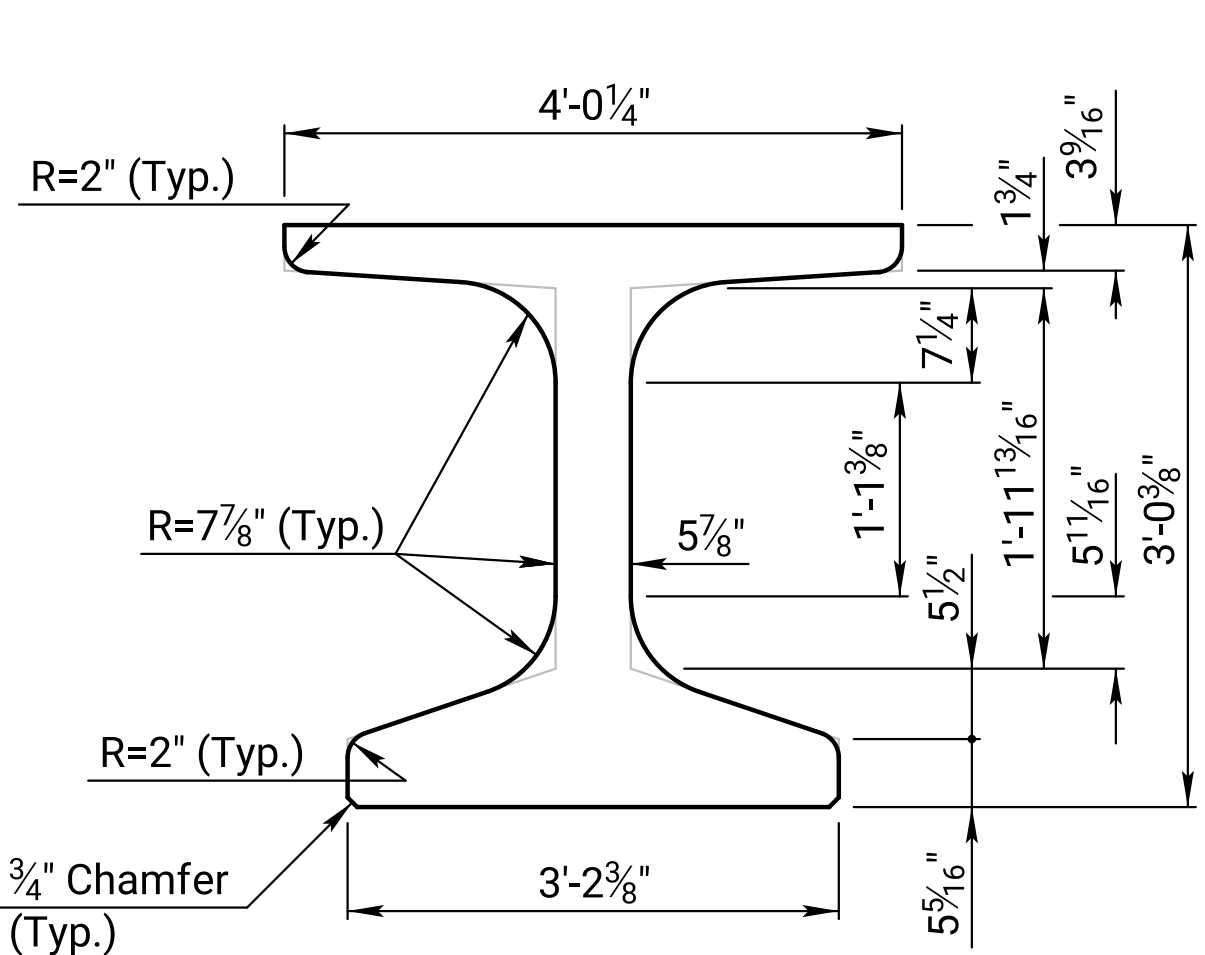
Note: Stud welding will be in accordance with the latest edition of AWS D1.1.

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".

⌘ Use $\frac{3}{4}$ " ⌘ when field welding will occur, otherwise use $\frac{1}{2}$ " ⌘.



TYPE NU35+1

Area	696.5 in. ²
IcG	127,937 in. ⁴
Y Bot	17.49 in.
Vol./Surf. Area	3.30 in.
Wt./Ft.	725 lbs

Plug exterior face of formed hole with grout.

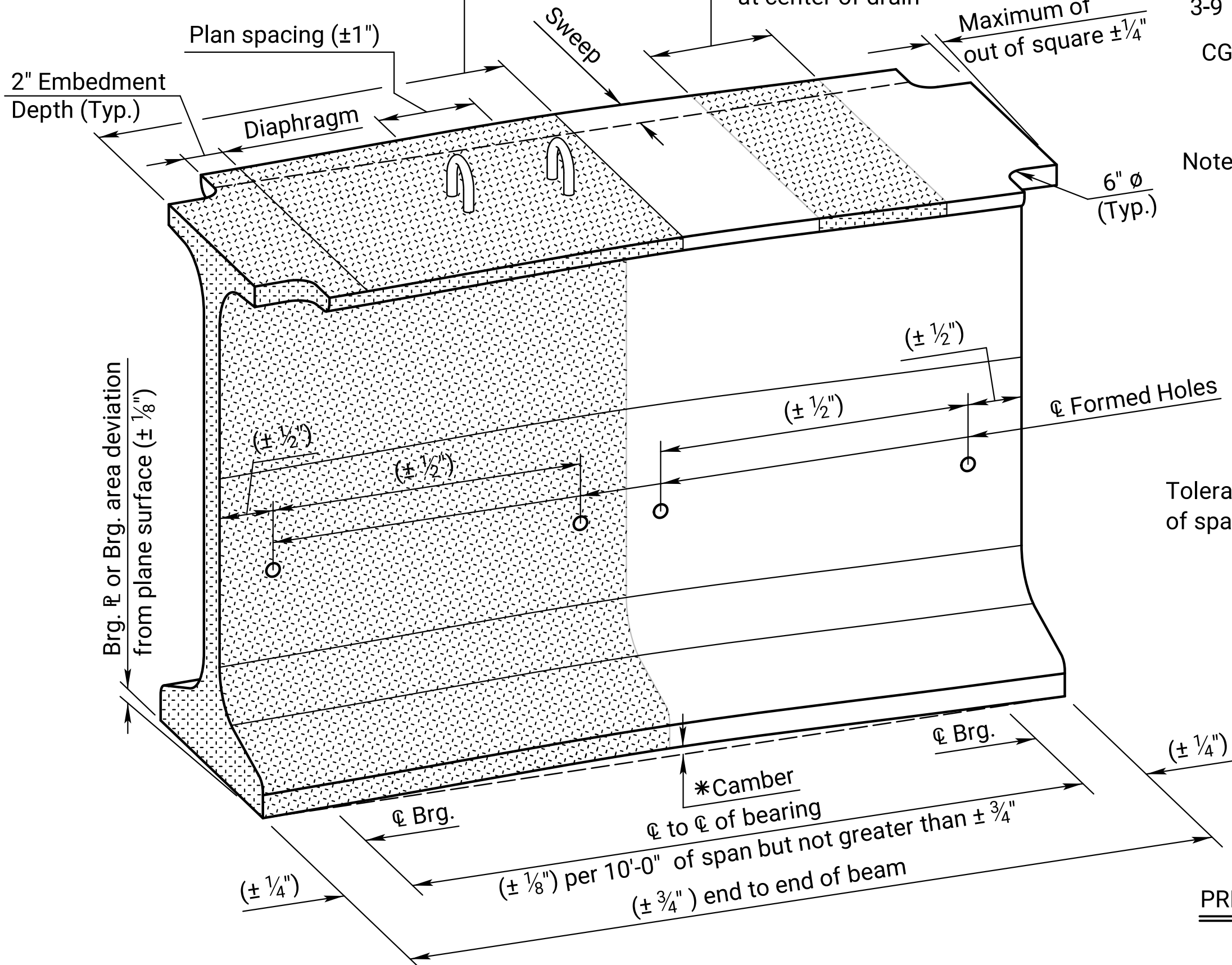
Coat exterior face of exterior beam with masonry coating

DETAIL OF FORMED HOLE(S)
(See Beam Detail sheet for locations)

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

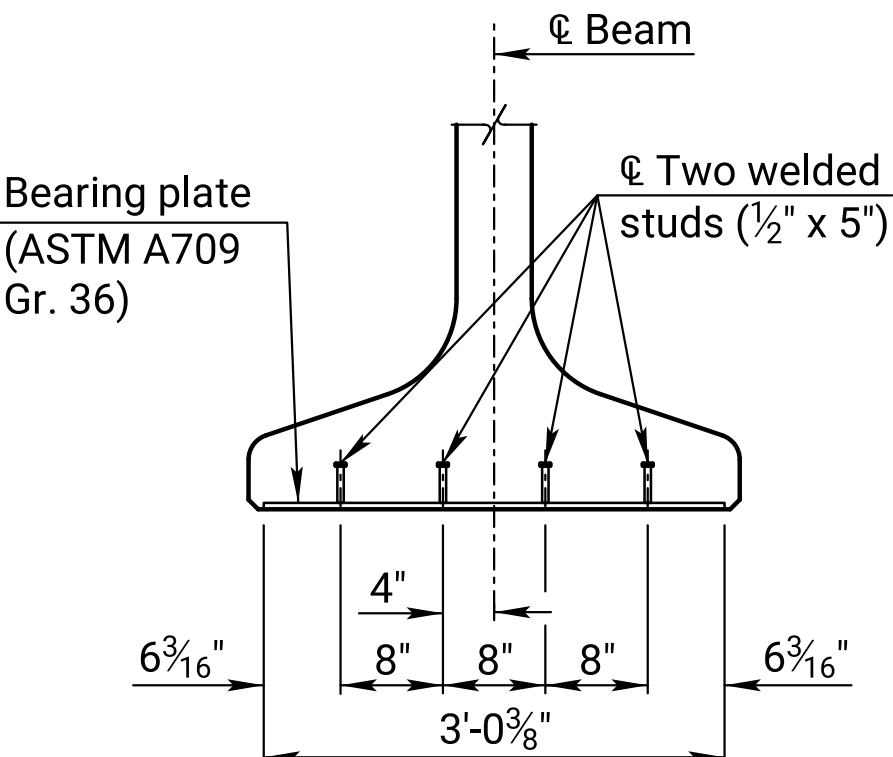
● Two Beam Depths

● One Beam Depth at center of drain

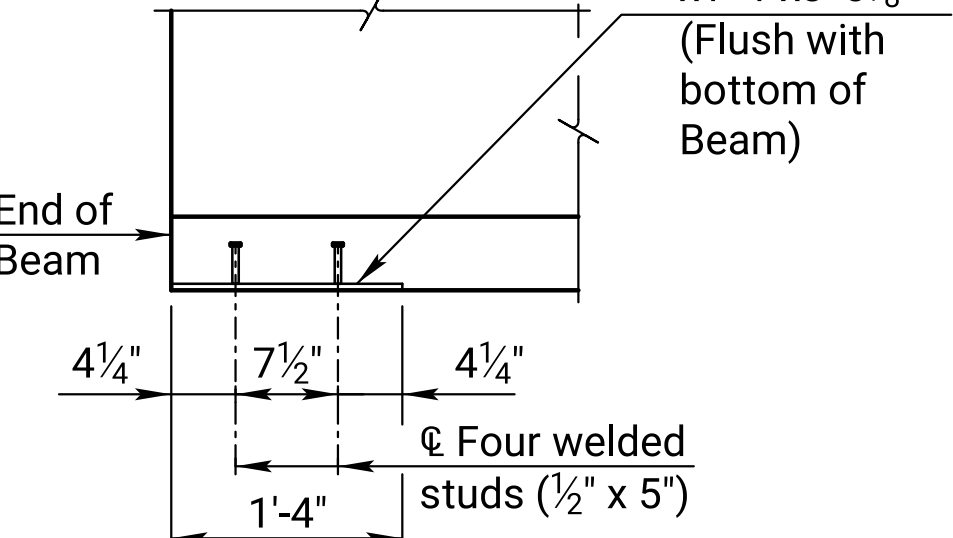


Tolerance for sweep is $\frac{1}{8}$ " per 10'-0" of span but not greater than 1".

PRESTRESSED BEAM FABRICATION TOLERANCES

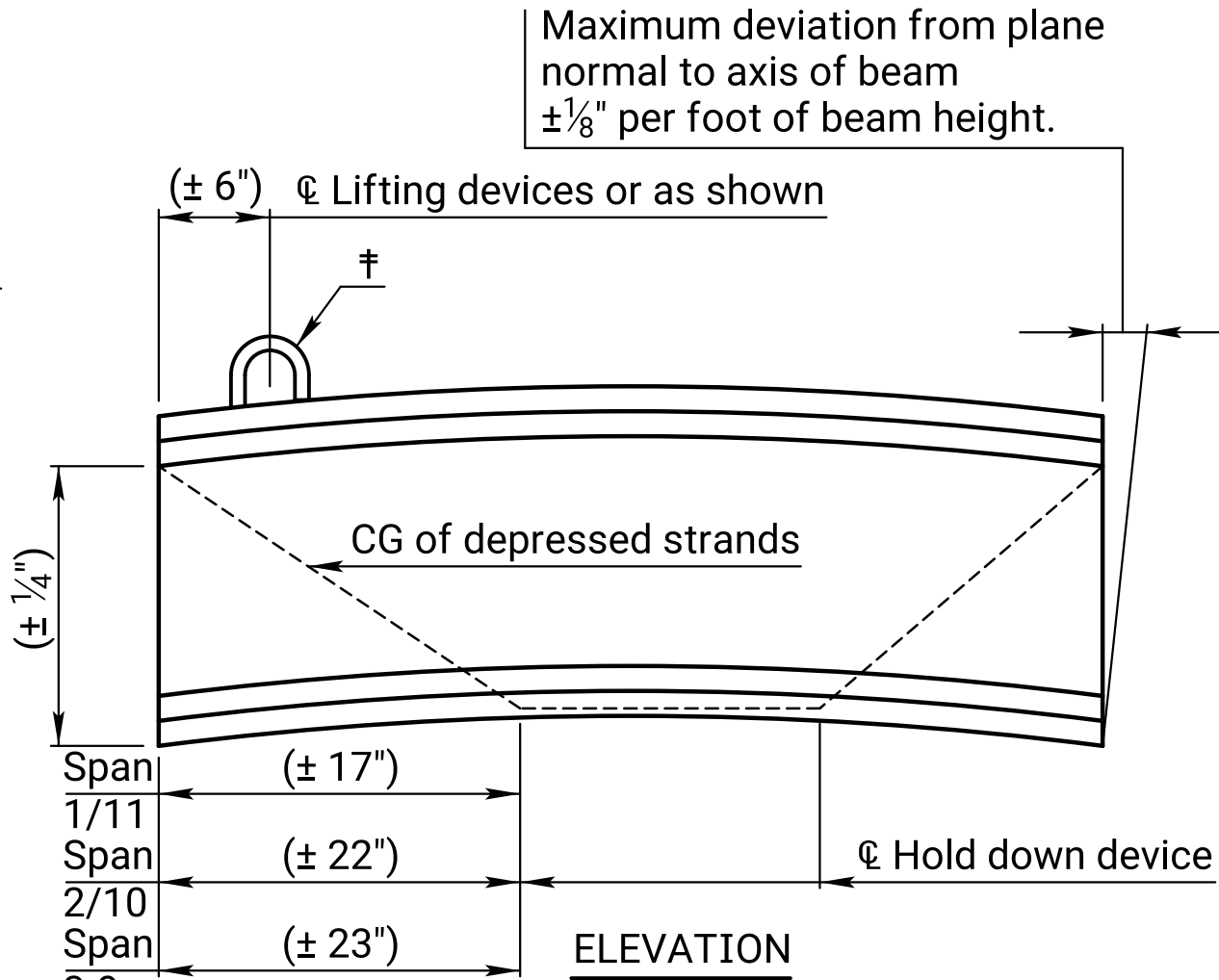


End View



Side View

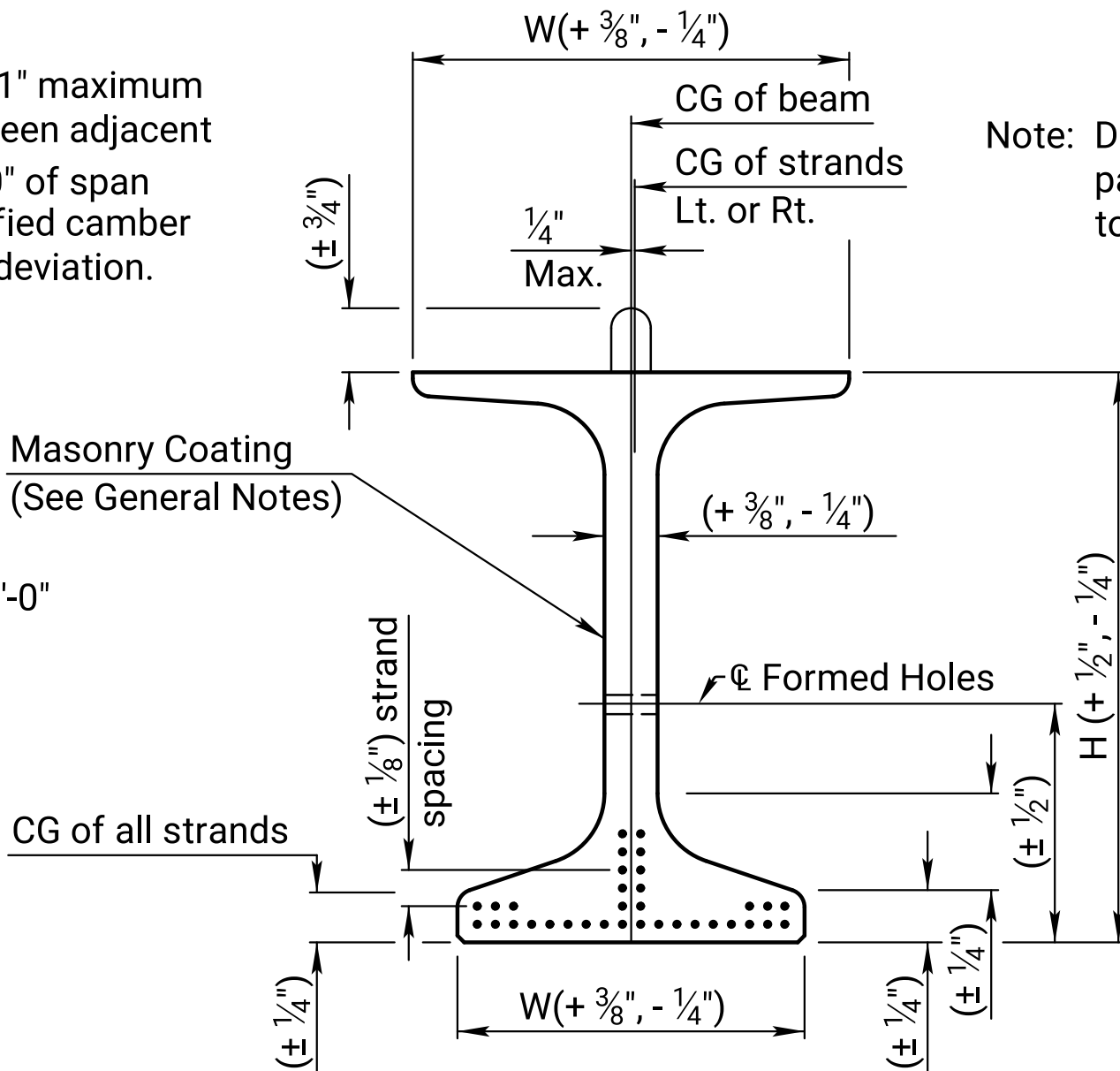
BEARING PLATE DETAILS



ELEVATION

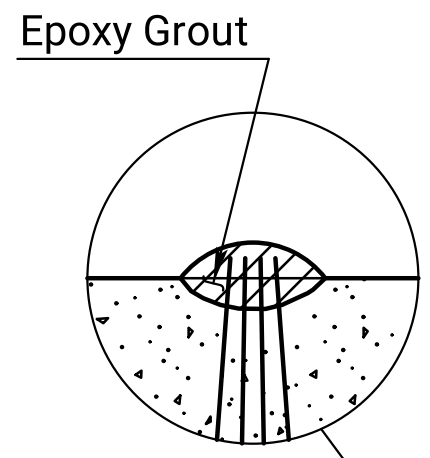
CG = Center of Gravity

Note: Tolerance for camber is 1" maximum variation in camber between adjacent beams; and $\pm \frac{1}{8}$ " per 10'-0" of span deviation from the specified camber but not greater than ± 1 " deviation.



TYPICAL SECTION

Note: Dimensions shown in parentheses are tolerances only.



LIFTING DEVICE

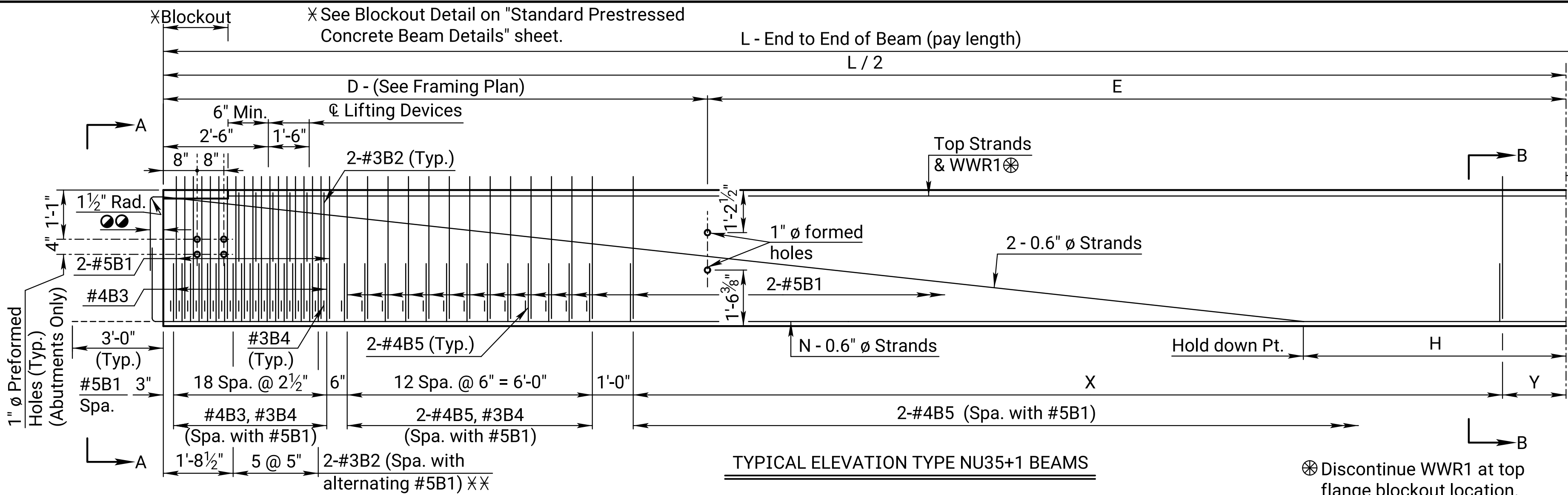
(Two required at each end)
(Fabricator to verify)

* Prior to shipping, the camber shall be no greater than the design camber + $\frac{1}{2}$ ". 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.

Plotted By: Riley Standish
File: ST2306bbr050.dgn
Plot Date: 8-JUL-2025 16:34

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	ST-2306	2025	55	139



	L	D	E	H	N	X	Y
Spans 1 & 11	42'-4"	11'-0"	10'-2"	1'-0"	10	9 Spa. @ 1'-0" = 9'-0"	8"
Spans 2 & 10	56'-0"	14'-0"	14'-0"	3'-0"	14	17 Spa. @ 1'-0" = 17'-0"	6"
Spans 3 - 9	59'-0"	15'-0"	14'-6"	4'-6"	14	19 Spa. @ 1'-0" = 19'-0"	0"

+ 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

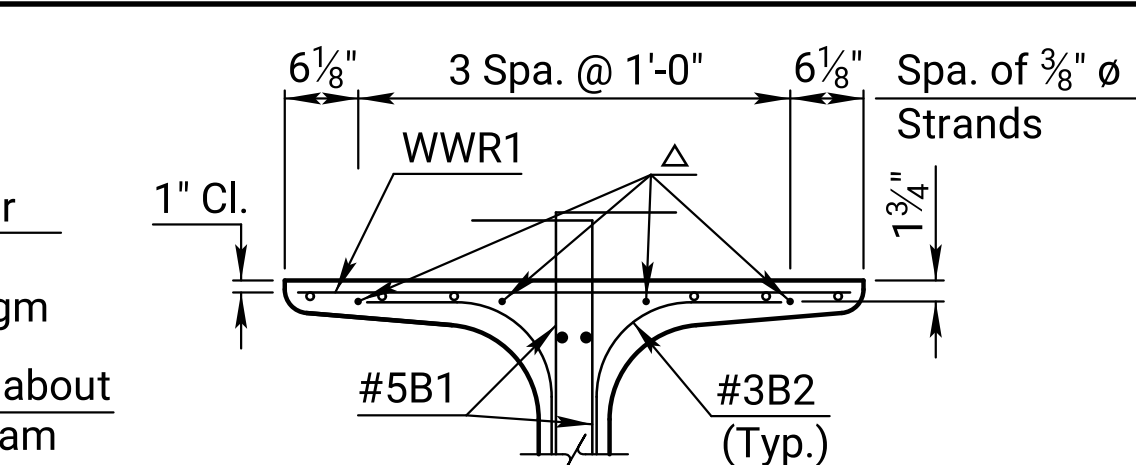
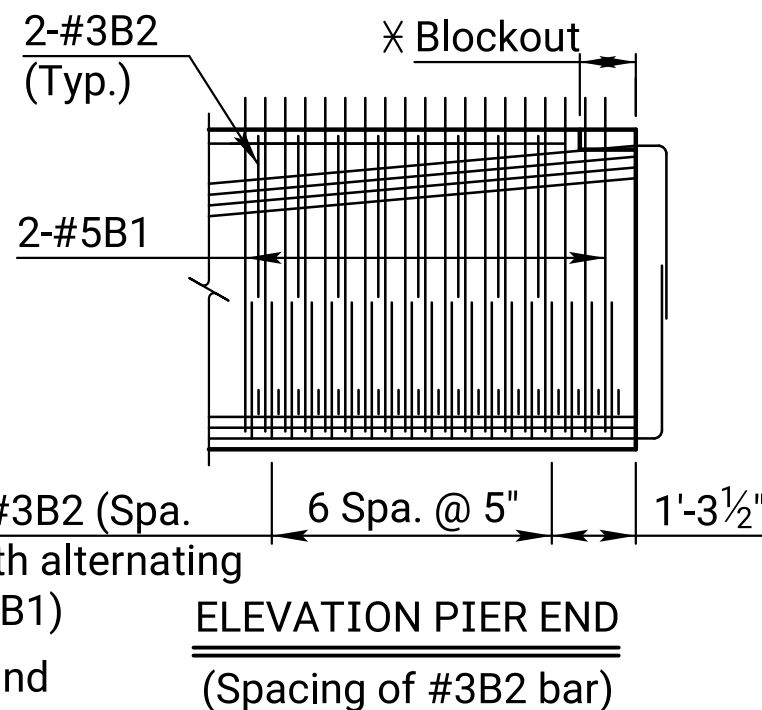
† If Welded Wire Reinforcement (WWR) is used in-lieu of reinforcing steel bars shown on this sheet, the spacing of wires for the WWR shall be equal to or less than the vertical bars shown in the typical beam section above. The equivalent As for the WWR shall be equal to or greater than typical beam section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

×× Spacing of #3B2 bar @ Abutment End.

NOTE: Extend 6 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 7 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 2 strands at 4.63 kips per strand = 9.25 kips total for beams in spans 1 & 11 and 4.86 kips per strand = 9.71 kips total for the beams in spans 2-10.

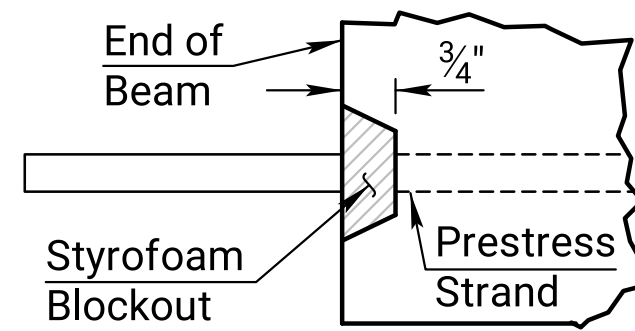


†† TOP FLANGE DETAIL

△ 3/8" 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.

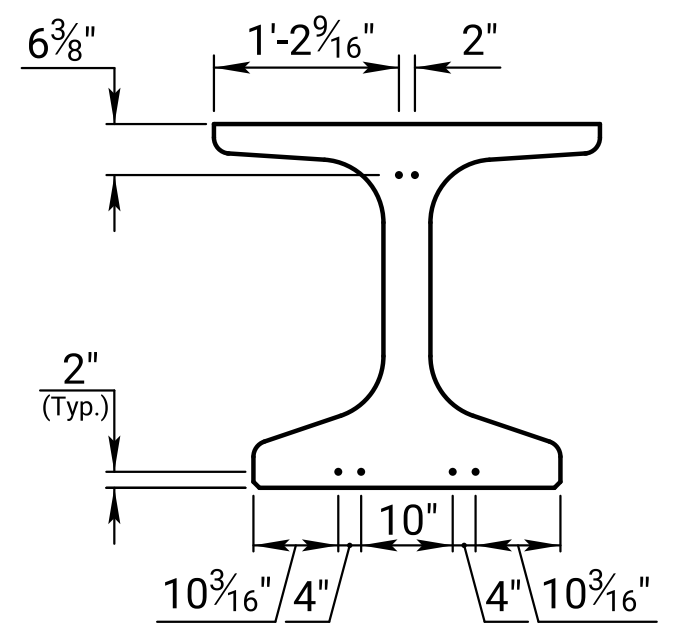
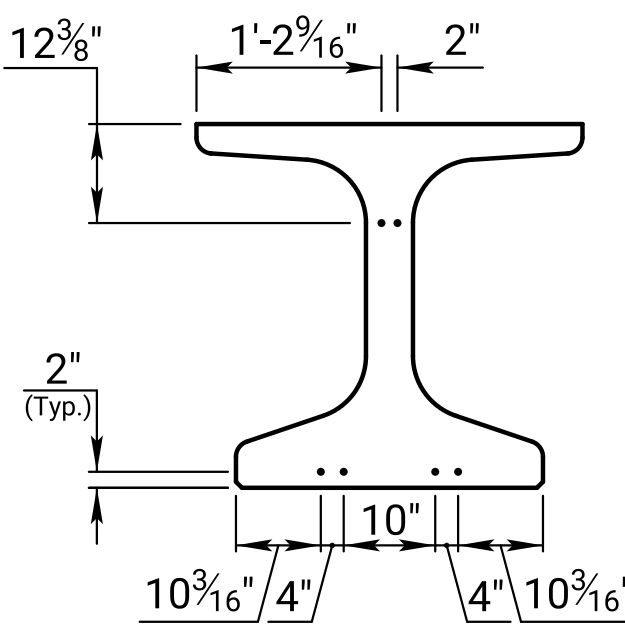
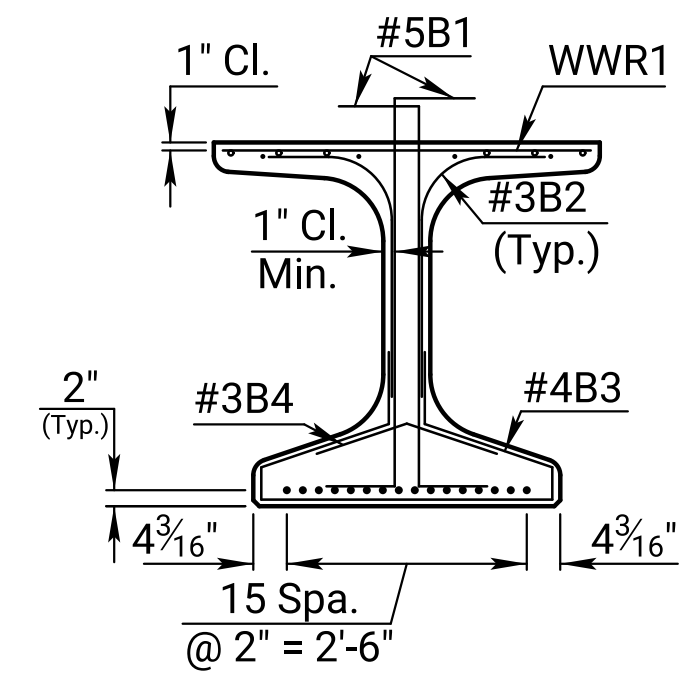
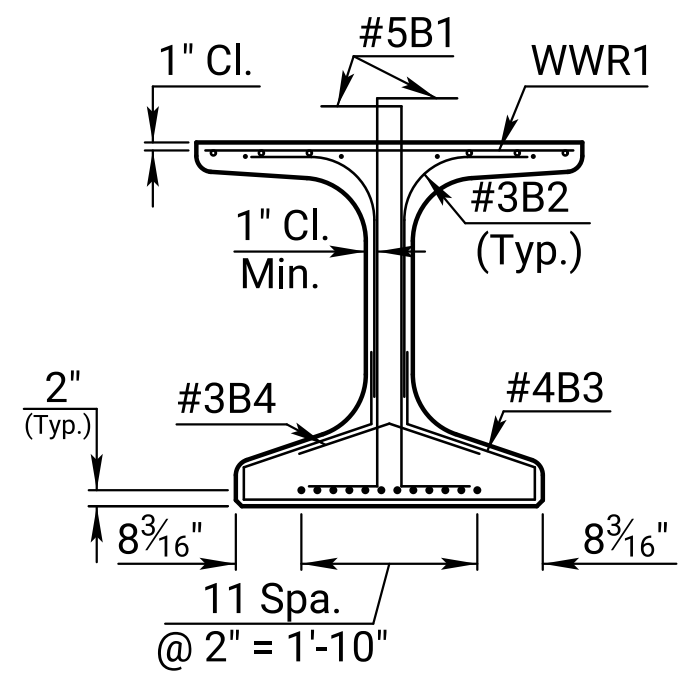
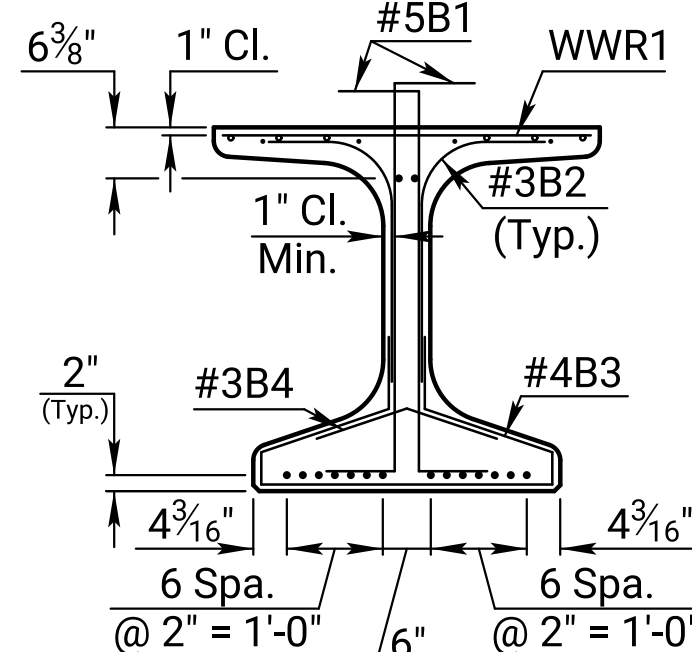
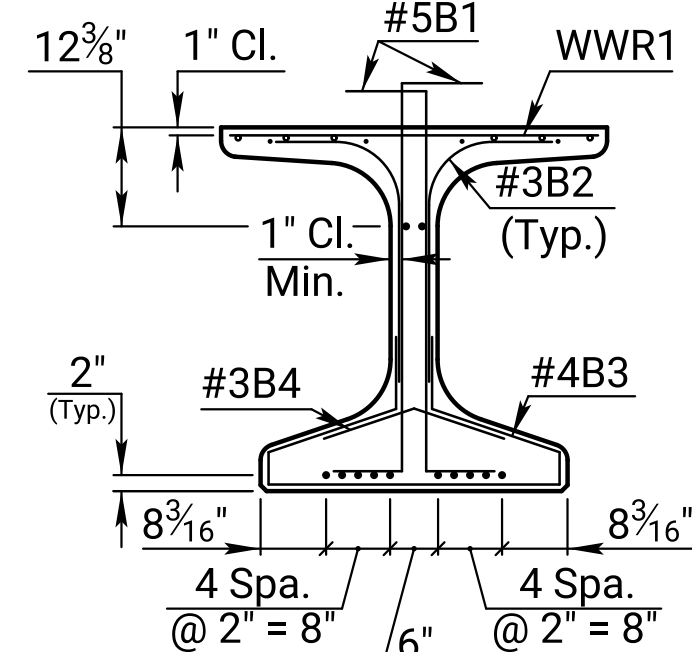
†† Check flange for Overhang Bracket loads where applicable.

*** PROCEDURE FOR SEALING PRESTRESS BEAM ENDS

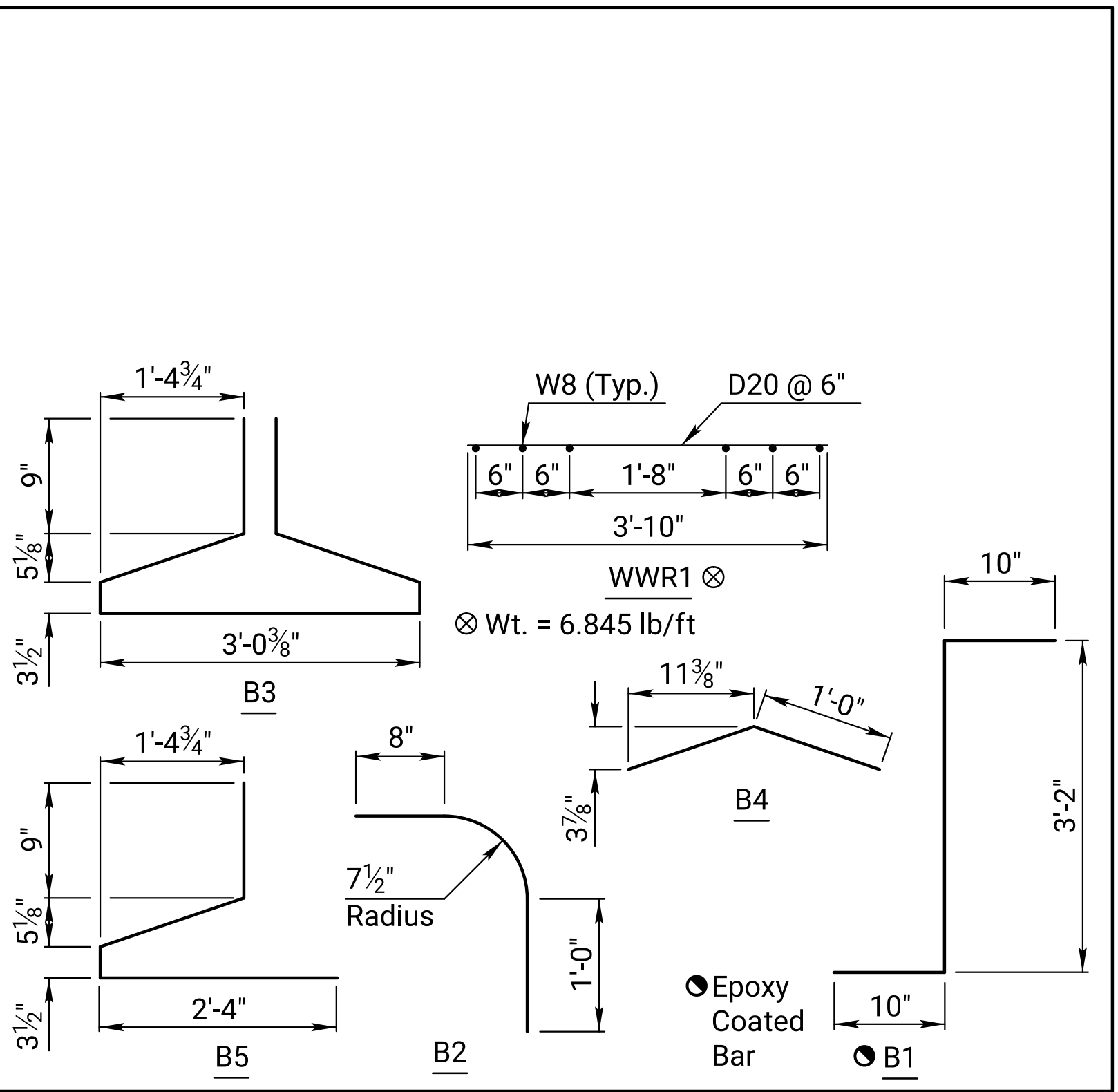


1. Cut strands 9" from the end of the beam.
2. Remove Styrofoam blockout.
3. Cut strands 1/2" deep in blockout with angle grinder.
4. Clean affected area.
5. Fill blockout area with approved epoxy grout.
6. After the grout has cured, according to the manufacturer's recommendation, grind entire face of beam to provide a smooth surface.
7. After waiting 28 days, clean the entire surface of beam end and apply an approved (epoxy-epoxy) Substructure Waterproofing Membrane.

*** Only for exposed Prestress Beam ends with all strands removed at expansion joints.



BILL OF REINFORCING STEEL							
42'-4" Beam (1 Listed-10 Req'd.) (Spans 1 and 11)							
Straight bars				Bent bars			
Mark	No.	Size	Length	Mark	No.	Size	Length
				B2	24	#3	2'-8"
				B4	64	#3	2'-0"
				B3	38	#4	7'-8"
				B5	92	#4	4'-8"
				⊙ B1	168	#5	4'-10"
56'-0" Beam (1 Listed-10 Req'd.) (Spans 2 and 10)							
Straight bars				Bent bars			
Mark	No.	Size	Length	Mark	No.	Size	Length
				B2	24	#3	2'-8"
				B4	64	#3	2'-0"
				B3	38	#4	7'-8"
				B5	124	#4	4'-8"
				⊙ B1	200	#5	4'-10"
59'-0" Beam (1 Listed-35 Req'd.) (Spans 3 - 9)							
Straight bars				Bent bars			
Mark	No.	Size	Length	Mark	No.	Size	Length
				B2	24	#3	2'-8"
				B4	64	#3	2'-0"
				B3	38	#4	7'-8"
				B5	130	#4	4'-8"
				⊙ B1	206	#5	4'-10"



BILL OF MATERIAL		
Item	Unit	Quantity
Prestressed Concrete Beams (NU35+1) Spans 1 & 11 (42'-4")	Lin.Ft.	423.33
Prestressed Concrete Beams (NU35+1) Spans 2 & 10 (56'-0")	Lin.Ft.	560.00
Prestressed Concrete Beams (NU35+1) Spans 3-9 (59'-0")	Lin.Ft.	2,065.00
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= 8000 PSI) (per 42'-4" beam)	Cu.Yds.	7.6
Beam concrete (f'c= 8000 PSI) (per 56'-0" beam)	Cu.Yds.	10.0
Beam concrete (f'c= 8000 PSI) (per 59'-0" beam)	Cu.Yds.	10.6
Approx. Wt. per 42'-4" beam	Tons	15.3
Approx. Wt. per 56'-0" beam	Tons	20.3
Approx. Wt. per 59'-0" beam	Tons	21.4
0.6" ⌀ Prestressing strand (270 KSI low relaxation fy= 243 KSI)	Lin.Ft.	48,906
Epoxy reinforcing steel (fy=60,000 PSI)	Lbs.	54,898
Reinforcing steel (fy=60,000 PSI)	Lbs.	35,591
Welded Wire Reinforcement (fy=70,000 PSI)	Lbs.	20,033
Elastomeric Brg. pads (3/4"x8"x3'-0")	Each	100
1" Formed Holes	Each	260
Lifting devices	Each	220
Bearing plates (8x 1'-4" x 3'-0 3/8")	Each	110
Substructure Waterproofing Membrane	Sq. Yds.	118

☆ Use 3/4" ⌀ when field welding will occur, otherwise use 1/2" ⌀.

3				
2				
1				
NO.	DATE	REVISIONS	BY	APP'D
KANSAS DEPARTMENT OF TRANSPORTATION				
Br. No. 406950290803B01			¢ STA. 100+00.00	
PRESTRESSED BEAM DETAILS (NU35+1)				
N. Bd. 14th Ave. Over Arkansas River				
PROJECT NO. ST-2306			FORD COUNTY	
SHEET NO.	OF	SCALE	APP'D	
DESIGNED		DETAILED	QUANTITIES	CADD
DESIGN CK.		DETAIL CK.	QUAN. CK.	CADD CK.

Plotted By: Riley Standish
File: ST2306bbr051.dgn
Plot Date: 8-JUL-2025 16:34

Plotted By: Riley Standish

File: ST2306bbr055.dgn

Plot Date: 8-JUL-2025 16:35

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	ST-2306	2025	56	139

	# TOP OF BRIDGE DECK ELEVATION																																
	Slab Edge Lt.				€ Girder A				€ Girder B				Profile Grade Line				€ Girder C				€ Girder D				€ Girder E				Slab Edge Lt.				
	Tenth Point	Sta.	X-Slope	Offset	Elev.	Sta.	X-Slope	Offset	Elev.	Sta.	X-Slope	Offset	Elev.	Sta.	X-Slope	Offset	Elev.	Sta.	X-Slope	Offset	Elev.	Sta.	X-Slope	Offset	Elev.	Sta.	X-Slope	Offset	Elev.	Sta.	X-Slope	Offset	Elev.
EWS 1	-	96+88.50	1.60%	15.00	2494.04	96+88.50	1.60%	12.00	2494.09	96+88.50	1.60%	3.25	2494.23	96+88.50	1.60%	0.00	2494.28	96+88.50	1.60%	-5.50	2494.19	96+88.50	1.60%	-14.25	2494.05	96+88.50	1.60%	-23.00	2493.91	96+88.50	1.60%	-26.00	2493.86
€ Brg. Abut. #1	1.00	96+90.67	1.60%	15.00	2494.08	96+90.67	1.60%	12.00	2494.13	96+90.67	1.60%	3.25	2494.27	96+90.67	1.60%	0.00	2494.32	96+90.67	1.60%	-5.50	2494.23	96+90.67	1.60%	-14.25	2494.09	96+90.67	1.60%	-23.00	2493.95	96+90.67	1.60%	-26.00	2493.91
	1.10	96+94.90	1.60%	15.00	2494.17	96+94.90	1.60%	12.00	2494.22	96+94.90	1.60%	3.25	2494.36	96+94.90	1.60%	0.00	2494.41	96+94.90	1.60%	-5.50	2494.32	96+94.90	1.60%	-14.25	2494.18	96+94.90	1.60%	-23.00	2494.04	96+94.90	1.60%	-26.00	2493.99
	1.20	96+99.13	1.60%	15.00	2494.26	96+99.13	1.60%	12.00	2494.30	96+99.13	1.60%	3.25	2494.44	96+99.13	1.60%	0.00	2494.50	96+99.13	1.60%	-5.50	2494.41	96+99.13	1.60%	-14.25	2494.27	96+99.13	1.60%	-23.00	2494.13	96+99.13	1.60%	-26.00	2494.08
	1.30	97+03.37	1.60%	15.00	2494.34	97+03.37	1.60%	12.00	2494.39	97+03.37	1.60%	3.25	2494.53	97+03.37	1.60%	0.00	2494.58	97+03.37	1.60%	-5.50	2494.49	97+03.37	1.60%	-14.25	2494.35	97+03.37	1.60%	-23.00	2494.21	97+03.37	1.60%	-26.00	2494.16
	1.40	97+07.60	1.60%	15.00	2494.42	97+07.60	1.60%	12.00	2494.47	97+07.60	1.60%	3.25	2494.61	97+07.60	1.60%	0.00	2494.66	97+07.60	1.60%	-5.50	2494.57	97+07.60	1.60%	-14.25	2494.43	97+07.60	1.60%	-23.00	2494.29	97+07.60	1.60%	-26.00	2494.25
	1.50	97+11.83	1.60%	15.00	2494.50	97+11.83	1.60%	12.00	2494.55	97+11.83	1.60%	3.25	2494.69	97+11.83	1.60%	0.00	2494.74	97+11.83	1.60%	-5.50	2494.66	97+11.83	1.60%	-14.25	2494.52	97+11.83	1.60%	-23.00	2494.38	97+11.83	1.60%	-26.00	2494.33
	1.60	97+16.07	1.60%	15.00	2494.59	97+16.07	1.60%	12.00	2494.63	97+16.07	1.60%	3.25	2494.77	97+16.07	1.60%	0.00	2494.83	97+16.07	1.60%	-5.50	2494.74	97+16.07	1.60%	-14.25	2494.60	97+16.07	1.60%	-23.00	2494.46	97+16.07	1.60%	-26.00	2494.41
	1.70	97+20.30	1.60%	15.00	2494.66	97+20.30	1.60%	12.00	2494.71	97+20.30	1.60%	3.25	2494.85	97+20.30	1.60%	0.00	2494.90	97+20.30	1.60%	-5.50	2494.82	97+20.30	1.60%	-14.25	2494.68	97+20.30	1.60%	-23.00	2494.54	97+20.30	1.60%	-26.00	2494.49
	1.80	97+24.53	1.60%	15.00	2494.74	97+24.53	1.60%	12.00	2494.79	97+24.53	1.60%	3.25	2494.93	97+24.53	1.60%	0.00	2494.98	97+24.53	1.60%	-5.50	2494.90	97+24.53	1.60%	-14.25	2494.76	97+24.53	1.60%	-23.00	2494.62	97+24.53	1.60%	-26.00	2494.57
	1.90	97+28.77	1.60%	15.00	2494.82	97+28.77	1.60%	12.00	2494.87	97+28.77	1.60%	3.25	2495.01	97+28.77	1.60%	0.00	2495.06	97+28.77	1.60%	-5.50	2494.97	97+28.77	1.60%	-14.25	2494.83	97+28.77	1.60%	-23.00	2494.69	97+28.77	1.60%	-26.00	2494.64
	€ Back Brg. Pier #1	-	97+32.00	1.60%	15.00	2494.88	97+32.00	1.60%	12.00	2494.93	97+32.00	1.60%	3.25	2495.07	97+32.00	1.60%	0.00	2495.12	97+32.00	1.60%	-5.50	2495.03	97+32.00	1.60%	-14.25	2494.89	97+32.00	1.60%	-23.00	2494.75	97+32.00	1.60%	-26.00
€ Pier #1	2.00	97+33.00	1.60%	15.00	2494.90	97+33.00	1.60%	12.00	2494.94	97+33.00	1.60%	3.25	2495.08	97+33.00	1.60%	0.00	2495.14	97+33.00	1.60%	-5.50	2495.05	97+33.00	1.60%	-14.25	2494.91	97+33.00	1.60%	-23.00	2494.77	97+33.00	1.60%	-26.00	2494.72
€ Ahead Brg. Pier #1	-	97+34.00	1.60%	15.00	2494.91	97+34.00	1.60%	12.00	2494.96	97+34.00	1.60%	3.25	2495.10	97+34.00	1.60%	0.00	2495.15	97+34.00	1.60%	-5.50	2495.07	97+34.00	1.60%	-14.25	2494.93	97+34.00	1.60%	-23.00	2494.79	97+34.00	1.60%	-26.00	2494.74
	2.10	97+38.70	1.60%	15.00	2495.00	97+38.70	1.60%	12.00	2495.04	97+38.70	1.60%	3.25	2495.18	97+38.70	1.60%	0.00	2495.24	97+38.70	1.60%	-5.50	2495.15	97+38.70	1.60%	-14.25	2495.01	97+38.70	1.60%	-23.00	2494.87	97+38.70	1.60%	-26.00	2494.82
	2.20	97+44.40	1.60%	15.00	2495.09	97+44.40	1.60%	12.00	2495.14	97+44.40	1.60%	3.25	2495.28	97+44.40	1.60%	0.00	2495.33	97+44.40	1.60%	-5.50	2495.25	97+44.40	1.60%	-14.25	2495.11	97+44.40	1.60%	-23.00	2494.97	97+44.40	1.60%	-26.00	2494.92
	2.30	97+50.10	1.60%	15.00	2495.19	97+50.10	1.60%	12.00	2495.24	97+50.10	1.60%	3.25	2495.38	97+50.10	1.60%	0.00	2495.43	97+50.10	1.60%	-5.50	2495.34	97+50.10	1.60%	-14.25	2495.20	97+50.10	1.60%	-23.00	2495.06	97+50.10	1.60%	-26.00	2495.01
	2.40	97+55.80	1.60%	15.00	2495.28	97+55.80	1.60%	12.00	2495.33	97+55.80	1.60%	3.25	2495.47	97+55.80	1.60%	0.00	2495.52	97+55.80	1.60%	-5.50	2495.44	97+55.80	1.60%	-14.25	2495.30	97+55.80	1.60%	-23.00	2495.16	97+55.80	1.60%	-26.00	2495.11
	2.50	97+61.50	1.60%	15.00	2495.38	97+61.50	1.60%	12.00	2495.42	97+61.50	1.60%	3.25	2495.56	97+61.50	1.60%	0.00	2495.62	97+61.50	1.60%	-5.50	2495.53	97+61.50	1.60%	-14.25	2495.39	97+61.50	1.60%	-23.00	2495.25	97+61.50	1.60%	-26.00	2495.20
	2.60	97+67.20	1.60%	15.00	2495.47	97+67.20	1.60%	12.00	2495.51	97+67.20	1.60%	3.25	2495.65	97+67.20	1.60%	0.00	2495.71	97+67.20	1.60%	-5.50	2495.62	97+67.20	1.60%	-14.25	2495.48	97+67.20	1.60%	-23.00	2495.34	97+67.20	1.60%	-26.00	2495.29
	2.70	97+72.90	1.60%	15.00	2495.55	97+72.90	1.60%	12.00	2495.60	97+72.90	1.60%	3.25	2495.74	97+72.90	1.60%	0.00	2495.79	97+72.90	1.60%	-5.50	2495.71	97+72.90	1.60%	-14.25	2495.57	97+72.90	1.60%	-23.00	2495.43	97+72.90	1.60%	-26.00	2495.38
	2.80	97+78.60	1.60%	15.00	2495.64	97+78.60	1.60%	12.00	2495.69	97+78.60	1.60%	3.25	2495.83	97+78.60	1.60%	0.00	2495.88	97+78.60	1.60%	-5.50	2495.79	97+78.60	1.60%	-14.25	2495.65	97+78.60	1.60%	-23.00	2495.51	97+78.60	1.60%	-26.00	2495.46
	2.90	97+84.30	1.60%	15.00	2495.72	97+84.30	1.60%	12.00	2495.77	97+84.30	1.60%	3.25	2495.91	97+84.30	1.60%	0.00	2495.96	97+84.30	1.60%	-5.50	2495.87	97+84.30	1.60%	-14.25	2495.73	97+84.30	1.60%	-23.00	2495.59	97+84.30	1.60%	-26.00	2495.55
	€ Back Brg. Pier #2	-	97+89.00	1.60%	15.00	2495.79	97+89.00	1.60%	12.00	2495.84	97+89.00	1.60%	3.25	2495.98	97+89.00	1.60%	0.00	2496.03	97+89.00	1.60%	-5.50	2495.94	97+89.00	1.60%	-14.25	2495.80	97+89.00	1.60%	-23.00	2495.66	97+89.00	1.60%	-26.00
€ Pier #2	3.00	97+90.00	1.60%	15.00	2495.80	97+90.00	1.60%	12.00	2495.85	97+90.00	1.60%	3.25	2495.99	97+90.00	1.60%	0.00	2496.04	97+90.00	1.60%	-5.50	2495.95	97+90.00	1.60%	-14.25	2495.81	97+90.00	1.60%	-23.00	2495.67	97+90.00	1.60%	-26.00	2495.63
€ Ahead Brg. Pier #2	-	97+91.00	1.60%	15.00	2495.82	97+91.00	1.60%	12.00	2495.86	97+91.00	1.60%	3.25	2496.00	97+91.00	1.60%	0.00	2496.06	97+91.00	1.60%	-5.50	2495.97	97+91.00	1.60%	-14.25	2495.83	97+91.00	1.60%	-23.00	2495.69	97+91.00	1.60%	-26.00	2495.64
	3.10	97+96.00	1.60%	15.00	2495.89	97+96.00	1.60%	12.00	2495.93	97+96.00	1.60%	3.25	2496.07	97+96.00	1.60%	0.00	2496.13	97+96.00	1.60%	-5.50	2496.04</												

Plotted By: Riley Standish

File: ST2306bbr056.dgn

Plot Date: 8-JUL-2025 16:35

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	ST-2306	2025	57	139

	Tenth Point	‡ TOP OF BRIDGE DECK ELEVATION																															
		Slab Edge Lt.				€ Girder A				€ Girder B				Profile Grade Line				€ Girder C				€ Girder D				€ Girder E				Slab Edge Lt.			
		Sta.	X-Slope	Offset	Elev.	Sta.	X-Slope	Offset	Elev.	Sta.	X-Slope	Offset	Elev.	Sta.	X-Slope	Offset	Elev.	Sta.	X-Slope	Offset	Elev.	Sta.	X-Slope	Offset	Elev.	Sta.	X-Slope	Offset	Elev.	Sta.	X-Slope	Offset	Elev.
€ Pier #4	5.00	99+10.00	1.60%	15.00	2497.00	99+10.00	1.60%	12.00	2497.05	99+10.00	1.60%	3.25	2497.19	99+10.00	1.60%	0.00	2497.24	99+10.00	1.60%	-5.50	2497.15	99+10.00	1.60%	-14.25	2497.01	99+10.00	1.60%	-23.00	2496.87	99+10.00	1.60%	-26.00	2496.83
€ Ahead Brg. Pier #4	-	99+11.00	1.60%	15.00	2497.01	99+11.00	1.60%	12.00	2497.06	99+11.00	1.60%	3.25	2497.20	99+11.00	1.60%	0.00	2497.25	99+11.00	1.60%	-5.50	2497.16	99+11.00	1.60%	-14.25	2497.02	99+11.00	1.60%	-23.00	2496.88	99+11.00	1.60%	-26.00	2496.83
	5.10	99+16.00	1.60%	15.00	2497.04	99+16.00	1.60%	12.00	2497.09	99+16.00	1.60%	3.25	2497.23	99+16.00	1.60%	0.00	2497.28	99+16.00	1.60%	-5.50	2497.19	99+16.00	1.60%	-14.25	2497.05	99+16.00	1.60%	-23.00	2496.91	99+16.00	1.60%	-26.00	2496.86
	5.20	99+22.00	1.60%	15.00	2497.07	99+22.00	1.60%	12.00	2497.12	99+22.00	1.60%	3.25	2497.26	99+22.00	1.60%	0.00	2497.31	99+22.00	1.60%	-5.50	2497.22	99+22.00	1.60%	-14.25	2497.08	99+22.00	1.60%	-23.00	2496.94	99+22.00	1.60%	-26.00	2496.89
	5.30	99+28.00	1.60%	15.00	2497.10	99+28.00	1.60%	12.00	2497.15	99+28.00	1.60%	3.25	2497.29	99+28.00	1.60%	0.00	2497.34	99+28.00	1.60%	-5.50	2497.25	99+28.00	1.60%	-14.25	2497.11	99+28.00	1.60%	-23.00	2496.97	99+28.00	1.60%	-26.00	2496.92
	5.40	99+34.00	1.60%	15.00	2497.13	99+34.00	1.60%	12.00	2497.18	99+34.00	1.60%	3.25	2497.32	99+34.00	1.60%	0.00	2497.37	99+34.00	1.60%	-5.50	2497.28	99+34.00	1.60%	-14.25	2497.14	99+34.00	1.60%	-23.00	2497.00	99+34.00	1.60%	-26.00	2496.95
	5.50	99+40.00	1.60%	15.00	2497.15	99+40.00	1.60%	12.00	2497.20	99+40.00	1.60%	3.25	2497.34	99+40.00	1.60%	0.00	2497.39	99+40.00	1.60%	-5.50	2497.30	99+40.00	1.60%	-14.25	2497.16	99+40.00	1.60%	-23.00	2497.02	99+40.00	1.60%	-26.00	2496.98
	5.60	99+46.00	1.60%	15.00	2497.18	99+46.00	1.60%	12.00	2497.22	99+46.00	1.60%	3.25	2497.36	99+46.00	1.60%	0.00	2497.42	99+46.00	1.60%	-5.50	2497.33	99+46.00	1.60%	-14.25	2497.19	99+46.00	1.60%	-23.00	2497.05	99+46.00	1.60%	-26.00	2497.00
	5.70	99+52.00	1.60%	15.00	2497.20	99+52.00	1.60%	12.00	2497.24	99+52.00	1.60%	3.25	2497.38	99+52.00	1.60%	0.00	2497.44	99+52.00	1.60%	-5.50	2497.35	99+52.00	1.60%	-14.25	2497.21	99+52.00	1.60%	-23.00	2497.07	99+52.00	1.60%	-26.00	2497.02
	5.80	99+58.00	1.60%	15.00	2497.21	99+58.00	1.60%	12.00	2497.26	99+58.00	1.60%	3.25	2497.40	99+58.00	1.60%	0.00	2497.45	99+58.00	1.60%	-5.50	2497.37	99+58.00	1.60%	-14.25	2497.23	99+58.00	1.60%	-23.00	2497.09	99+58.00	1.60%	-26.00	2497.04
	5.90	99+64.00	1.60%	15.00	2497.23	99+64.00	1.60%	12.00	2497.28	99+64.00	1.60%	3.25	2497.42	99+64.00	1.60%	0.00	2497.47	99+64.00	1.60%	-5.50	2497.38	99+64.00	1.60%	-14.25	2497.24	99+64.00	1.60%	-23.00	2497.10	99+64.00	1.60%	-26.00	2497.05
	€ Back Brg. Pier #5	-	99+69.00	1.60%	15.00	2497.24	99+69.00	1.60%	12.00	2497.29	99+69.00	1.60%	3.25	2497.43	99+69.00	1.60%	0.00	2497.48	99+69.00	1.60%	-5.50	2497.39	99+69.00	1.60%	-14.25	2497.25	99+69.00	1.60%	-23.00	2497.11	99+69.00	1.60%	-26.00
€ Pier #5	6.00	99+70.00	1.60%	15.00	2497.24	99+70.00	1.60%	12.00	2497.29	99+70.00	1.60%	3.25	2497.43	99+70.00	1.60%	0.00	2497.48	99+70.00	1.60%	-5.50	2497.39	99+70.00	1.60%	-14.25	2497.25	99+70.00	1.60%	-23.00	2497.11	99+70.00	1.60%	-26.00	2497.07
€ Ahead Brg. Pier #5	-	99+71.00	1.60%	15.00	2497.24	99+71.00	1.60%	12.00	2497.29	99+71.00	1.60%	3.25	2497.43	99+71.00	1.60%	0.00	2497.48	99+71.00	1.60%	-5.50	2497.40	99+71.00	1.60%	-14.25	2497.26	99+71.00	1.60%	-23.00	2497.12	99+71.00	1.60%	-26.00	2497.07
	6.10	99+76.00	1.60%	15.00	2497.25	99+76.00	1.60%	12.00	2497.30	99+76.00	1.60%	3.25	2497.44	99+76.00	1.60%	0.00	2497.49	99+76.00	1.60%	-5.50	2497.41	99+76.00	1.60%	-14.25	2497.27	99+76.00	1.60%	-23.00	2497.13	99+76.00	1.60%	-26.00	2497.08
	6.20	99+82.00	1.60%	15.00	2497.26	99+82.00	1.60%	12.00	2497.31	99+82.00	1.60%	3.25	2497.45	99+82.00	1.60%	0.00	2497.50	99+82.00	1.60%	-5.50	2497.41	99+82.00	1.60%	-14.25	2497.27	99+82.00	1.60%	-23.00	2497.13	99+82.00	1.60%	-26.00	2497.09
	6.30	99+88.00	1.60%	15.00	2497.27	99+88.00	1.60%	12.00	2497.32	99+88.00	1.60%	3.25	2497.46	99+88.00	1.60%	0.00	2497.51	99+88.00	1.60%	-5.50	2497.42	99+88.00	1.60%	-14.25	2497.28	99+88.00	1.60%	-23.00	2497.14	99+88.00	1.60%	-26.00	2497.09
	6.40	99+94.00	1.60%	15.00	2497.27	99+94.00	1.60%	12.00	2497.32	99+94.00	1.60%	3.25	2497.46	99+94.00	1.60%	0.00	2497.51	99+94.00	1.60%	-5.50	2497.42	99+94.00	1.60%	-14.25	2497.28	99+94.00	1.60%	-23.00	2497.14	99+94.00	1.60%	-26.00	2497.10
	6.50	100+00.00	1.60%	15.00	2497.27	100+00.00	1.60%	12.00	2497.32	100+00.00	1.60%	3.25	2497.46	100+00.00	1.60%	0.00	2497.51	100+00.00	1.60%	-5.50	2497.42	100+00.00	1.60%	-14.25	2497.28	100+00.00	1.60%	-23.00	2497.14	100+00.00	1.60%	-26.00	2497.10
	6.60	100+06.00	1.60%	15.00	2497.27	100+06.00	1.60%	12.00	2497.32	100+06.00	1.60%	3.25	2497.46	100+06.00	1.60%	0.00	2497.51	100+06.00	1.60%	-5.50	2497.42	100+06.00	1.60%	-14.25	2497.28	100+06.00	1.60%	-23.00	2497.14	100+06.00	1.60%	-26.00	2497.10
	6.70	100+12.00	1.60%	15.00	2497.27	100+12.00	1.60%	12.00	2497.32	100+12.00	1.60%	3.25	2497.46	100+12.00	1.60%	0.00	2497.51	100+12.00	1.60%	-5.50	2497.42	100+12.00	1.60%	-14.25	2497.28	100+12.00	1.60%	-23.00	2497.14	100+12.00	1.60%	-26.00	2497.09
	6.80	100+18.00	1.60%	15.00	2497.26	100+18.00	1.60%	12.00	2497.31	100+18.00	1.60%	3.25	2497.45	100+18.00	1.60%	0.00	2497.50	100+18.00	1.60%	-5.50	2497.41	100+18.00	1.60%	-14.25	2497.27	100+18.00	1.60%	-23.00	2497.13	100+18.00	1.60%	-26.00	2497.09
	6.90	100+24.00	1.60%	15.00	2497.25	100+24.00	1.60%	12.00	2497.30	100+24.00	1.60%	3.25	2497.44	100+24.00	1.60%	0.00	2497.49	100+24.00	1.60%	-5.50	2497.41	100+24.00	1.60%	-14.25	2497.27	100+24.00	1.60%	-23.00	2497.13	100+24.00	1.60%	-26.00	2497.08
	€ Back Brg. Pier #6	-	100+29.00	1.60%	15.00	2497.24	100+29.00	1.60%	12.00	2497.29	100+29.00	1.60%	3.25	2497.43	100+29.00	1.60%	0.00	2497.48	100+29.00	1.60%	-5.50	2497.40	100+29.00	1.60%	-14.25	2497.26	100+29.00	1.60%	-23.00	2497.12	100+29.00	1.60%	-26.00
€ Pier #6	7.00	100+30.00	1.60%	15.00	2497.24	100+30.00	1.60%	12.00	2497.29	100+30.00	1.60%	3.25	2497.43	100+30.00	1.60%	0.00	2497.48	100+30.00	1.60%	-5.50	2497.39	100+30.00	1.60%	-14.25	2497.25	100+30.00	1.60%	-23.00	2497.11	100+30.00	1.60%	-26.00	2497.07
€ Ahead Brg. Pier #6	-	100+31.00	1.60%	15.00	2497.24	100+31.00	1.60%	12.00	2497.29	100+31.00	1.60%	3.25	2497.43	100+31.00	1.60%	0.00	2497.48	100+31.00	1.60%	-5.50	2497.39	100+31.00	1.60%	-14.25	2497.25	100+31.00	1.60%	-23.00	2497.11	100+31.00	1.60%	-26.00	2497.06
	7.10	100+36.00	1.60%	15.00	2497.23	100+36.00	1.60%	12.00	2497.28	100+36.00	1.60%	3.25	2497.42	100+3																			

Plotted By: Riley Standish

File: ST2306bbr057.dgn

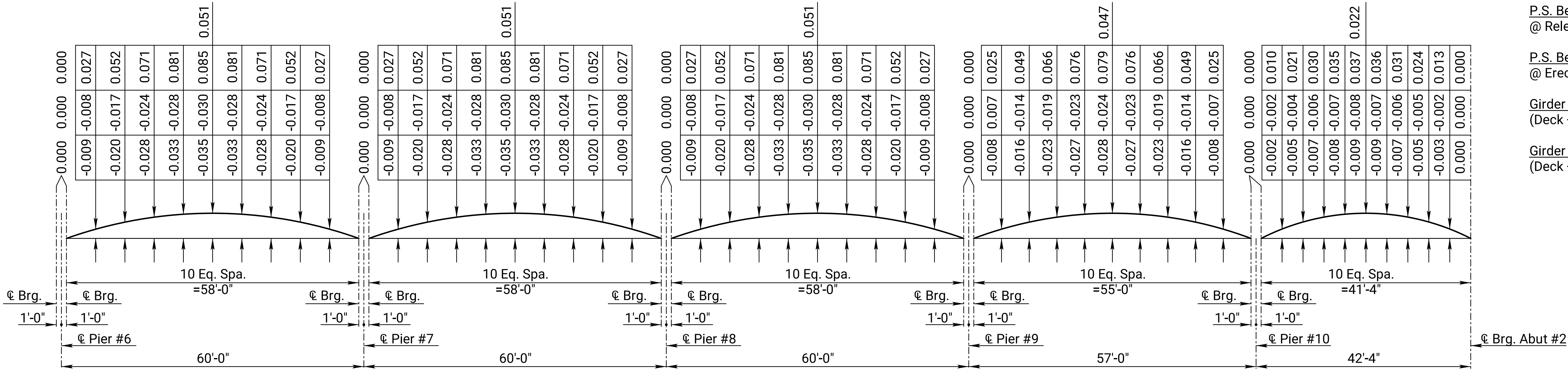
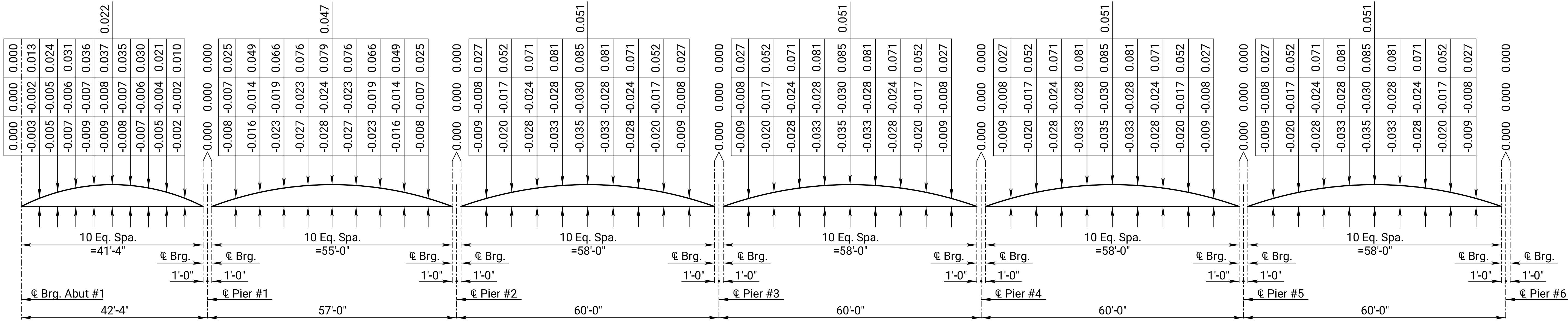
Plot Date: 8-JUL-2025 16:36

Plot Location:

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	ST-2306	2025	58	139

	† TOP OF BRIDGE DECK ELEVATION																																
	Tenth Point	Slab Edge Lt.				€ Girder A				€ Girder B				Profile Grade Line				€ Girder C				€ Girder D				€ Girder E				Slab Edge Lt.			
		Sta.	X-Slope	Offset	Elev.	Sta.	X-Slope	Offset	Elev.	Sta.	X-Slope	Offset	Elev.	Sta.	X-Slope	Offset	Elev.	Sta.	X-Slope	Offset	Elev.	Sta.	X-Slope	Offset	Elev.	Sta.	X-Slope	Offset	Elev.				
€ Pier #8	9.00	101+50.00	1.60%	15.00	2496.52	101+50.00	1.60%	12.00	2496.57	101+50.00	1.60%	3.25	2496.71	101+50.00	1.60%	0.00	2496.76	101+50.00	1.60%	-5.50	2496.67	101+50.00	1.60%	-14.25	2496.53	101+50.00	1.60%	-23.00	2496.39	101+50.00	1.60%	-26.00	2496.35
€ Ahead Brg. Pier #8	-	101+51.00	1.60%	15.00	2496.51	101+51.00	1.60%	12.00	2496.56	101+51.00	1.60%	3.25	2496.70	101+51.00	1.60%	0.00	2496.75	101+51.00	1.60%	-5.50	2496.66	101+51.00	1.60%	-14.25	2496.52	101+51.00	1.60%	-23.00	2496.38	101+51.00	1.60%	-26.00	2496.34
	9.10	101+56.00	1.60%	15.00	2496.46	101+56.00	1.60%	12.00	2496.51	101+56.00	1.60%	3.25	2496.65	101+56.00	1.60%	0.00	2496.70	101+56.00	1.60%	-5.50	2496.61	101+56.00	1.60%	-14.25	2496.47	101+56.00	1.60%	-23.00	2496.33	101+56.00	1.60%	-26.00	2496.29
	9.20	101+62.00	1.60%	15.00	2496.40	101+62.00	1.60%	12.00	2496.45	101+62.00	1.60%	3.25	2496.59	101+62.00	1.60%	0.00	2496.64	101+62.00	1.60%	-5.50	2496.55	101+62.00	1.60%	-14.25	2496.41	101+62.00	1.60%	-23.00	2496.27	101+62.00	1.60%	-26.00	2496.22
	9.30	101+68.00	1.60%	15.00	2496.33	101+68.00	1.60%	12.00	2496.38	101+68.00	1.60%	3.25	2496.52	101+68.00	1.60%	0.00	2496.57	101+68.00	1.60%	-5.50	2496.48	101+68.00	1.60%	-14.25	2496.34	101+68.00	1.60%	-23.00	2496.20	101+68.00	1.60%	-26.00	2496.16
	9.40	101+74.00	1.60%	15.00	2496.26	101+74.00	1.60%	12.00	2496.31	101+74.00	1.60%	3.25	2496.45	101+74.00	1.60%	0.00	2496.50	101+74.00	1.60%	-5.50	2496.42	101+74.00	1.60%	-14.25	2496.28	101+74.00	1.60%	-23.00	2496.14	101+74.00	1.60%	-26.00	2496.09
	9.50	101+80.00	1.60%	15.00	2496.19	101+80.00	1.60%	12.00	2496.24	101+80.00	1.60%	3.25	2496.38	101+80.00	1.60%	0.00	2496.43	101+80.00	1.60%	-5.50	2496.34	101+80.00	1.60%	-14.25	2496.20	101+80.00	1.60%	-23.00	2496.06	101+80.00	1.60%	-26.00	2496.02
	9.60	101+86.00	1.60%	15.00	2496.12	101+86.00	1.60%	12.00	2496.17	101+86.00	1.60%	3.25	2496.31	101+86.00	1.60%	0.00	2496.36	101+86.00	1.60%	-5.50	2496.27	101+86.00	1.60%	-14.25	2496.13	101+86.00	1.60%	-23.00	2495.99	101+86.00	1.60%	-26.00	2495.94
	9.70	101+92.00	1.60%	15.00	2496.04	101+92.00	1.60%	12.00	2496.09	101+92.00	1.60%	3.25	2496.23	101+92.00	1.60%	0.00	2496.28	101+92.00	1.60%	-5.50	2496.20	101+92.00	1.60%	-14.25	2496.06	101+92.00	1.60%	-23.00	2495.92	101+92.00	1.60%	-26.00	2495.87
	9.80	101+98.00	1.60%	15.00	2495.97	101+98.00	1.60%	12.00	2496.01	101+98.00	1.60%	3.25	2496.15	101+98.00	1.60%	0.00	2496.21	101+98.00	1.60%	-5.50	2496.12	101+98.00	1.60%	-14.25	2495.98	101+98.00	1.60%	-23.00	2495.84	101+98.00	1.60%	-26.00	2495.79
	9.90	102+04.00	1.60%	15.00	2495.89	102+04.00	1.60%	12.00	2495.93	102+04.00	1.60%	3.25	2496.07	102+04.00	1.60%	0.00	2496.13	102+04.00	1.60%	-5.50	2496.04	102+04.00	1.60%	-14.25	2495.90	102+04.00	1.60%	-23.00	2495.76	102+04.00	1.60%	-26.00	2495.71
€ Back Brg. Pier #9	-	102+09.00	1.60%	15.00	2495.82	102+09.00	1.60%	12.00	2495.86	102+09.00	1.60%	3.25	2496.00	102+09.00	1.60%	0.00	2496.06	102+09.00	1.60%	-5.50	2495.97	102+09.00	1.60%	-14.25	2495.83	102+09.00	1.60%	-23.00	2495.69	102+09.00	1.60%	-26.00	2495.64
€ Pier #9	10.00	102+10.00	1.60%	15.00	2495.80	102+10.00	1.60%	12.00	2495.85	102+10.00	1.60%	3.25	2495.99	102+10.00	1.60%	0.00	2496.04	102+10.00	1.60%	-5.50	2495.95	102+10.00	1.60%	-14.25	2495.81	102+10.00	1.60%	-23.00	2495.67	102+10.00	1.60%	-26.00	2495.63
€ Ahead Brg. Pier #9	-	102+11.00	1.60%	15.00	2495.79	102+11.00	1.60%	12.00	2495.84	102+11.00	1.60%	3.25	2495.98	102+11.00	1.60%	0.00	2496.03	102+11.00	1.60%	-5.50	2495.94	102+11.00	1.60%	-14.25	2495.80	102+11.00	1.60%	-23.00	2495.66	102+11.00	1.60%	-26.00	2495.61
	10.10	102+15.70	1.60%	15.00	2495.72	102+15.70	1.60%	12.00	2495.77	102+15.70	1.60%	3.25	2495.91	102+15.70	1.60%	0.00	2495.96	102+15.70	1.60%	-5.50	2495.87	102+15.70	1.60%	-14.25	2495.73	102+15.70	1.60%	-23.00	2495.59	102+15.70	1.60%	-26.00	2495.55
	10.20	102+21.40	1.60%	15.00	2495.64	102+21.40	1.60%	12.00	2495.69	102+21.40	1.60%	3.25	2495.83	102+21.40	1.60%	0.00	2495.88	102+21.40	1.60%	-5.50	2495.79	102+21.40	1.60%	-14.25	2495.65	102+21.40	1.60%	-23.00	2495.51	102+21.40	1.60%	-26.00	2495.46
	10.30	102+27.10	1.60%	15.00	2495.55	102+27.10	1.60%	12.00	2495.60	102+27.10	1.60%	3.25	2495.74	102+27.10	1.60%	0.00	2495.79	102+27.10	1.60%	-5.50	2495.71	102+27.10	1.60%	-14.25	2495.57	102+27.10	1.60%	-23.00	2495.43	102+27.10	1.60%	-26.00	2495.38
	10.40	102+32.80	1.60%	15.00	2495.47	102+32.80	1.60%	12.00	2495.51	102+32.80	1.60%	3.25	2495.65	102+32.80	1.60%	0.00	2495.71	102+32.80	1.60%	-5.50	2495.62	102+32.80	1.60%	-14.25	2495.48	102+32.80	1.60%	-23.00	2495.34	102+32.80	1.60%	-26.00	2495.29
	10.50	102+38.50	1.60%	15.00	2495.38	102+38.50	1.60%	12.00	2495.42	102+38.50	1.60%	3.25	2495.56	102+38.50	1.60%	0.00	2495.62	102+38.50	1.60%	-5.50	2495.53	102+38.50	1.60%	-14.25	2495.39	102+38.50	1.60%	-23.00	2495.25	102+38.50	1.60%	-26.00	2495.20
	10.60	102+44.20	1.60%	15.00	2495.28	102+44.20	1.60%	12.00	2495.33	102+44.20	1.60%	3.25	2495.47	102+44.20	1.60%	0.00	2495.52	102+44.20	1.60%	-5.50	2495.44	102+44.20	1.60%	-14.25	2495.30	102+44.20	1.60%	-23.00	2495.16	102+44.20	1.60%	-26.00	2495.11
	10.70	102+49.90	1.60%	15.00	2495.19	102+49.90	1.60%	12.00	2495.24	102+49.90	1.60%	3.25	2495.38	102+49.90	1.60%	0.00	2495.43	102+49.90	1.60%	-5.50	2495.34	102+49.90	1.60%	-14.25	2495.20	102+49.90	1.60%	-23.00	2495.06	102+49.90	1.60%	-26.00	2495.01
	10.80	102+55.60	1.60%	15.00	2495.09	102+55.60	1.60%	12.00	2495.14	102+55.60	1.60%	3.25	2495.28	102+55.60	1.60%	0.00	2495.33	102+55.60	1.60%	-5.50	2495.25	102+55.60	1.60%	-14.25	2495.11	102+55.60	1.60%	-23.00	2494.97	102+55.60	1.60%	-26.00	2494.92
	10.90	102+61.30	1.60%	15.00	2495.00	102+61.30	1.60%	12.00	2495.04	102+61.30	1.60%	3.25	2495.18	102+61.30	1.60%	0.00	2495.24	102+61.30	1.60%	-5.50	2495.15	102+61.30	1.60%	-14.25	2495.01	102+61.30	1.60%	-23.00	2494.87	102+61.30	1.60%	-26.00	2494.82
€ Back Brg. Pier #10	-	102+66.00	1.60%	15.00	2494.91	102+66.00	1.60%	12.00	2494.96	102+66.00	1.60%	3.25	2495.10	102+66.00	1.60%	0.00	2495.15	102+66.00	1.60%	-5.50	2495.07	102+66.00	1.60%	-14.25	2494.93	102+66.00	1.60%	-23.00	2494.79	102+66.00	1.60%	-26.00	2494.74
€ Pier #10	11.00	102+67.00	1.60%	15.00	2494.90	102+67.00	1.60%	12.00	2494.94	102+67.00	1.60%	3.25	2495.08	102+67.00	1.60%	0.00	2495.14	102+67.00	1.60%	-5.50	2495.05	102+67.00	1.60%	-14.25	2494.91	102+67.00	1.60%	-23.00	2494.77	102+67.00	1.60%	-26.00	2494.72
€ Ahead Brg. Pier #10	-	102+68.00	1.60%	15.00	2494.88	102+68.00	1.60%	12.00	2494.93	102+68.00	1.60%	3.25	2495.07	102+68.00	1.60%	0.00	2495.12	102+68.00	1.60%	-5.50	2495.03	102+68.00	1.60%	-14.25	2494.89	102+68.00	1.60%	-23.00	2494.75	102+68.00	1.60%	-26.00	2494.70
	11.10	102+71.23	1.60%	15.00	2494.82	102+71.23	1.60%	12.00	2494.87	102+71.23	1.60%	3.25	2495.01	102+71.23	1.60%	0.00	2495.06	102+71.23	1.60%	-5.50	2494.97	102+71.23	1.60%	-14.25	2494.83	102+71.23	1.60%	-23.00	2494.69	102+71.23	1.60%	-26.00	2494.64
	11.20	102+75.47	1.60%	15.00	2494.74	102+75.47	1.60%	12.00	2494.79	102+75.47	1.60%	3.25	2494.93	102+75.47	1.60%	0.00	2494.98	102+75.47	1.60%	-5.50	2494.90	102+75.47	1.60%	-14.25	2494.76	102+75.47	1.60%	-23.00	2494.62	102			

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	ST-2306	2025	59	139

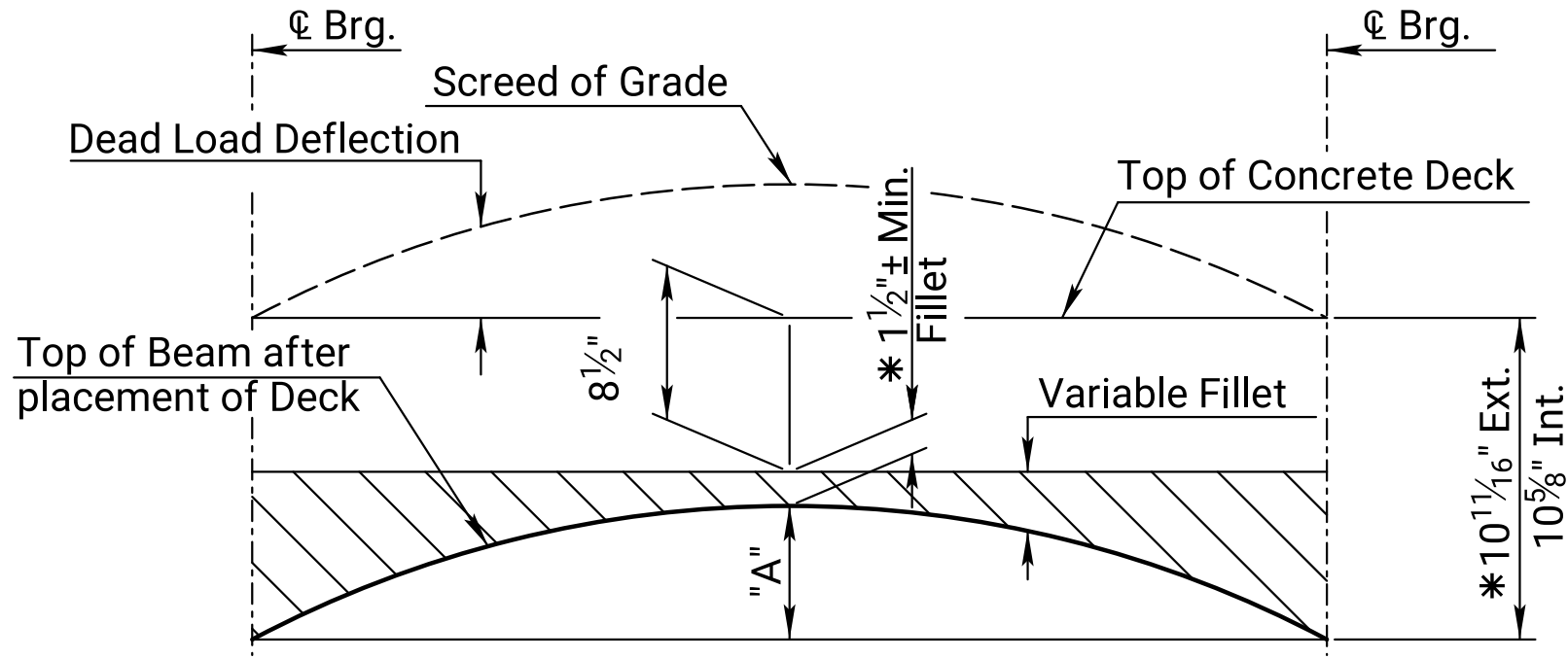


P.S. Beam Camber
@ Release

P.S. Beam Camber
@ Erection (50 Days)

Girder A & E Dead Load Deflection
(Deck + Rail + Fillet)

Girder B - D Dead Load Deflection
(Deck + Rail + Fillet)



CAMBER DIAGRAM SHOWING VARIABLE FILLET THICKNESS

Dimensions shown are along ϕ of the Beam

* Dimension "A" = (Camber @ 50 days) - Dead Load Deflection (Deck + Rail + Fillet)
Total Thickness @ ϕ Brg. = (Dimension "A") + (Total Deck Thickness) + (Fillet)

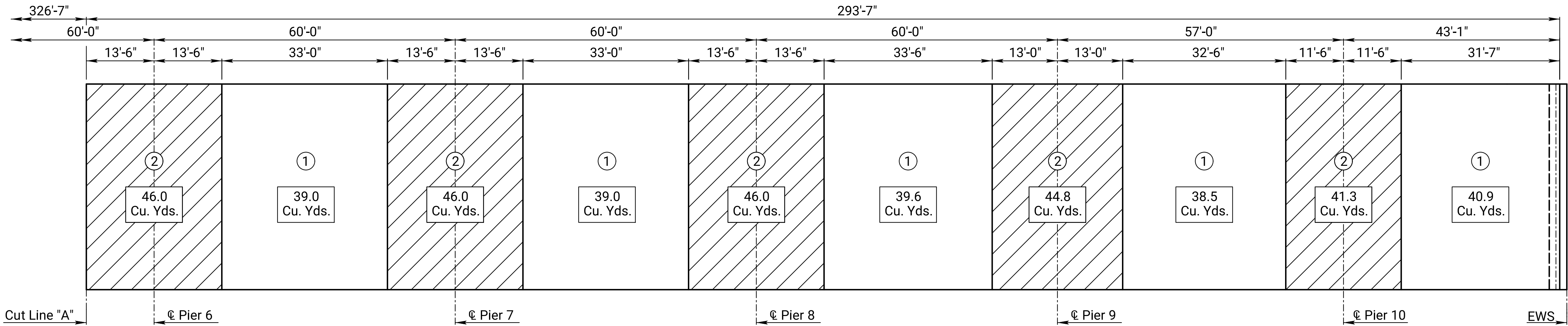
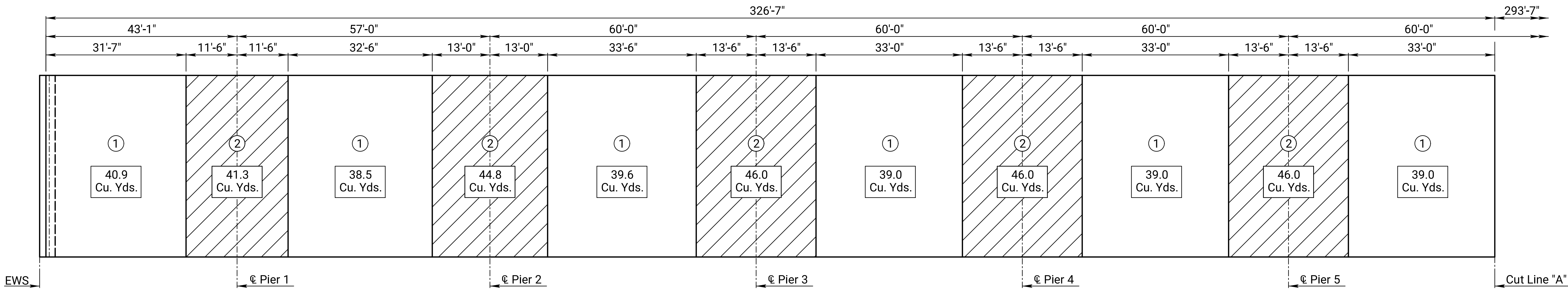
CAMBER: Construct the finished deck to plan grade by varying the depth of the fillet over the beam to provide for prestress camber, concrete dead load deflection and, if necessary, vertical curvature. After the prestressed beams are erected measure the camber in the field by taking a profile of each 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 8½ inches. 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.

The theoretical amount of concrete required for the fillets is 65.7 C.Y. This amount of concrete is included in the Summary of Quantities. Any additional concrete required to construct the fillets will be subsidiary.

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NO.	DATE	REVISIONS	BY	APP'D	
KANSAS DEPARTMENT OF TRANSPORTATION Br. No. 406950290803B01					
BEAM CAMBER & DEAD LOAD DEFLECTION					
N. Bd. 14th Ave. Over Arkansas River					
PROJECT NO. ST-2306			FORD COUNTY		
SHEET NO.	OF	SCALE	APP'D		
DESIGNED	CK.	DETAILED	QUANTITIES	CADD	
DESIGN	CK.	DETAIL	QUAN. CK.	CADD CK.	

Plotted By: Riley Standish
File: ST2306bbr060.dgn
Plot Date: 8-JUL-2025 16:36

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	ST-2306	2025	60	139



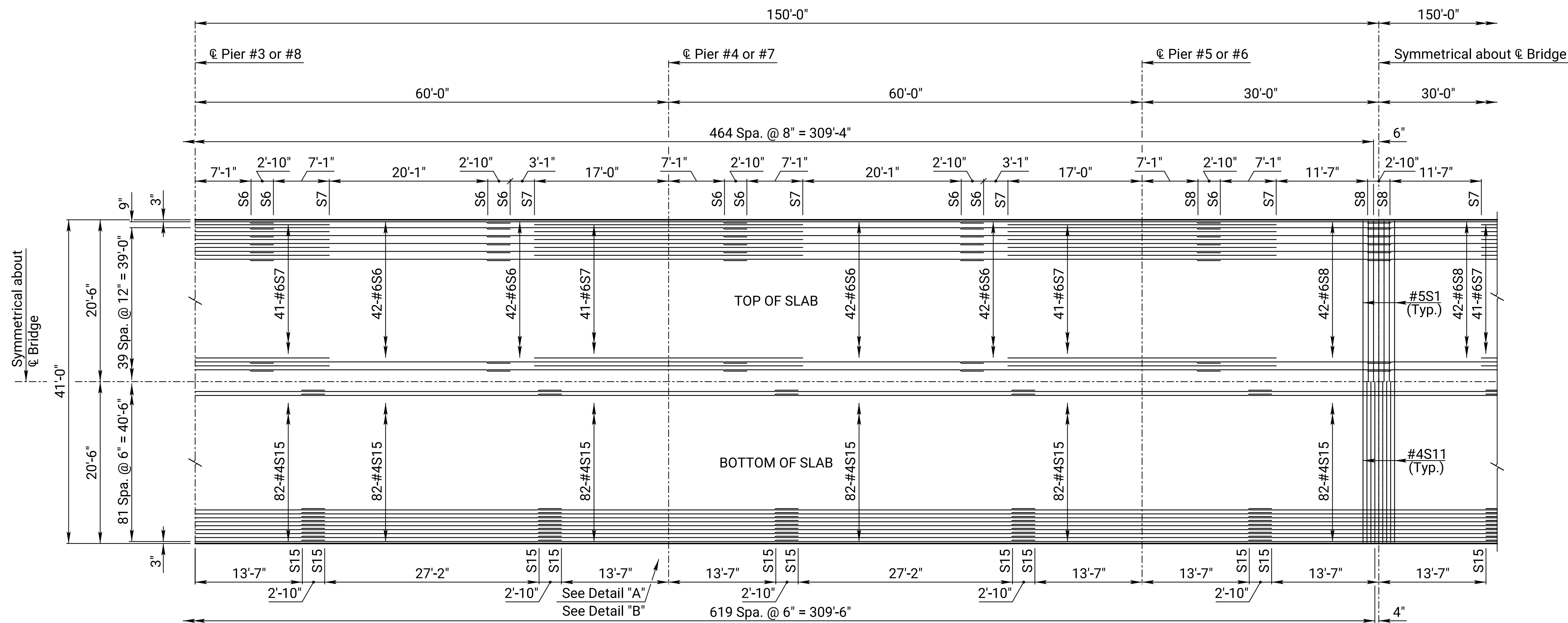
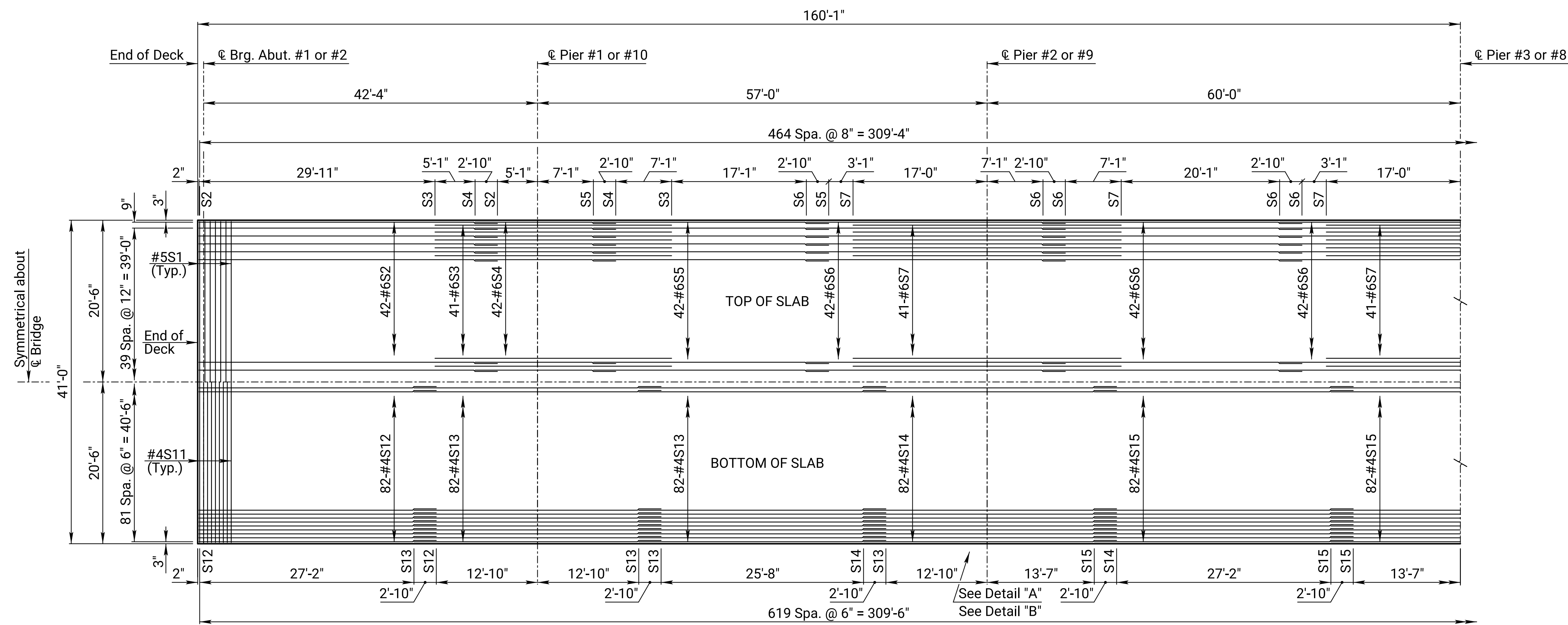
CONCRETE PLACING SEQUENCE: Segmental, combined or continuous pours are allowed by an approved alternate placing sequence. Any discontinuous pour must stop at a construction joint short of a pier.

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

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NO.	DATE	REVISIONS	BY	APP'D	
KANSAS DEPARTMENT OF TRANSPORTATION					
Br. No. 406950290803B01					
© STA. 100+00.00					
CONCRETE PLACING SEQUENCE					
N. Bd. 14th Ave. Over Arkansas River					
PROJECT NO. ST-2306			FORD COUNTY		
SHEET NO.	OF	SCALE	APP'D		
DESIGNED		DETAILED	QUANTITIES	CADD	
DESIGN CK.		DETAIL CK.	QUAN. CK.	CADD CK.	

Plotted By: Riley Standish
File: ST2306bbr061.dgn
Plot Date: 8-JUL-2025 16:37

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	ST-2306	2025	61	139



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NO.	DATE	REVISIONS	BY	APP'D

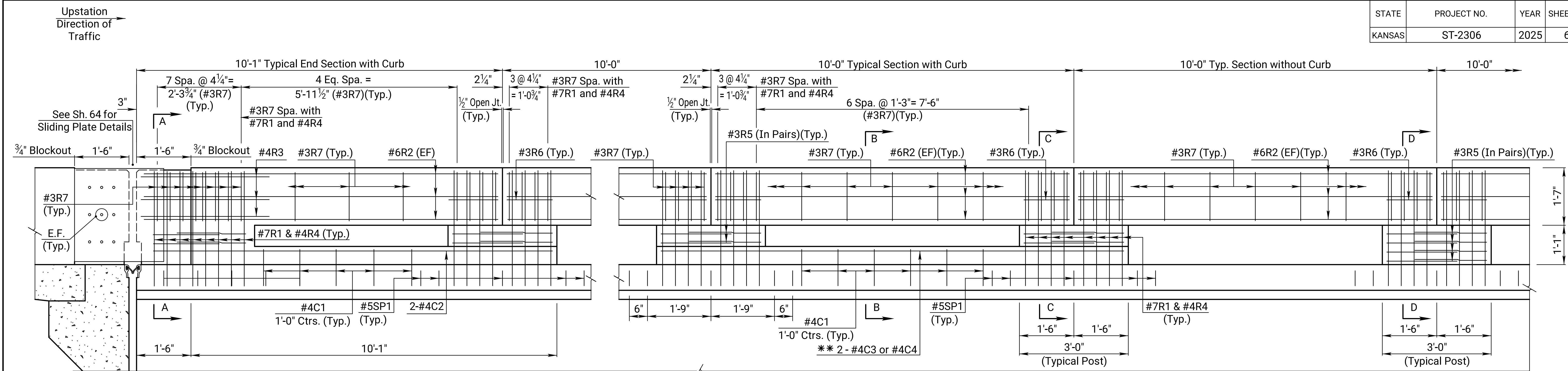
KANSAS DEPARTMENT OF TRANSPORTATION
 Br. No. 406950290803B01 @ STA. 100+00.00

SLAB PLAN

N. Bd. 14th Ave. Over Arkansas River	
PROJECT NO. ST-2306	FORD COUNTY

SHEET NO.	OF	SCALE	APP'D	
DESIGNED		DETAILED	QUANTITIES	CADD
DESIGN CK.		DETAIL CK.	QUAN. CK.	CADD CK.

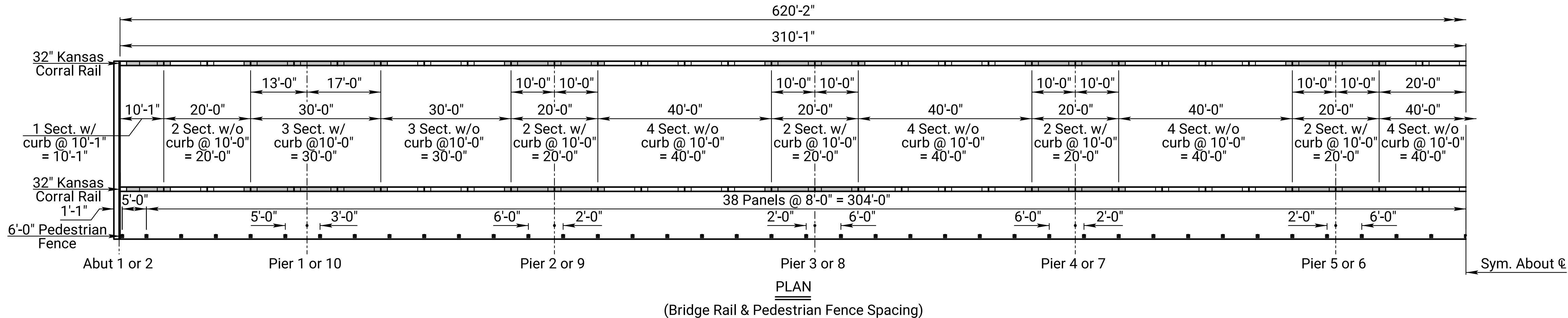
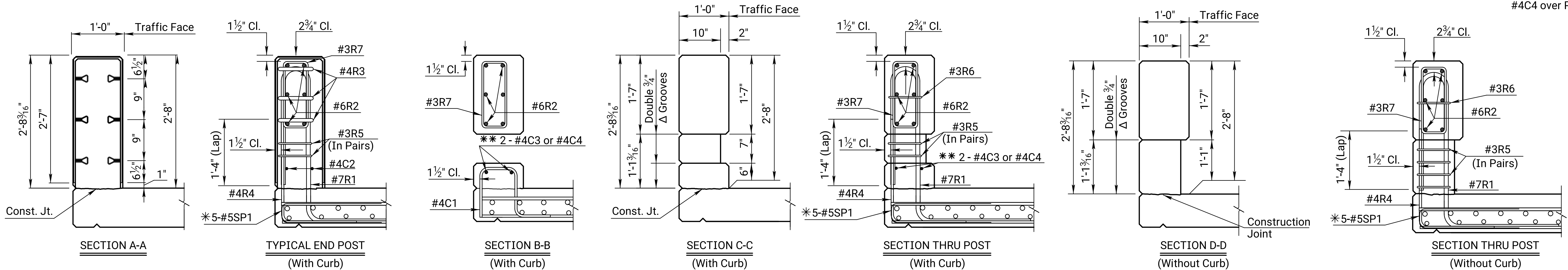
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	ST-2306	2025	63	139



PARTIAL ELEVATION
(Along Traffic Face)

* Note:
The hook may be canted
to provide clearance
and/or fit between
reinforcing.

** #4C3 over Piers 1 / 10
#4C4 over Piers 2 - 9

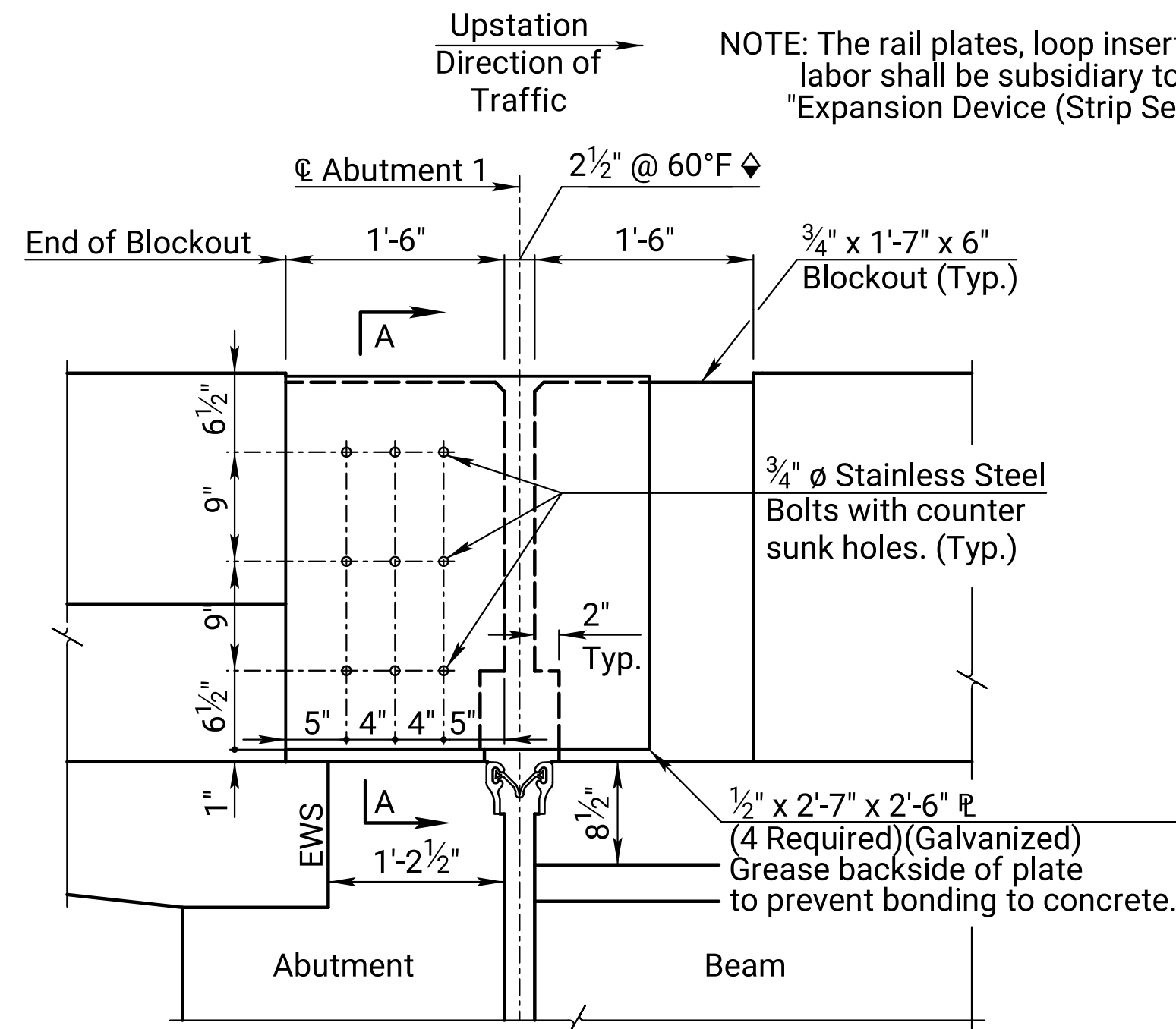
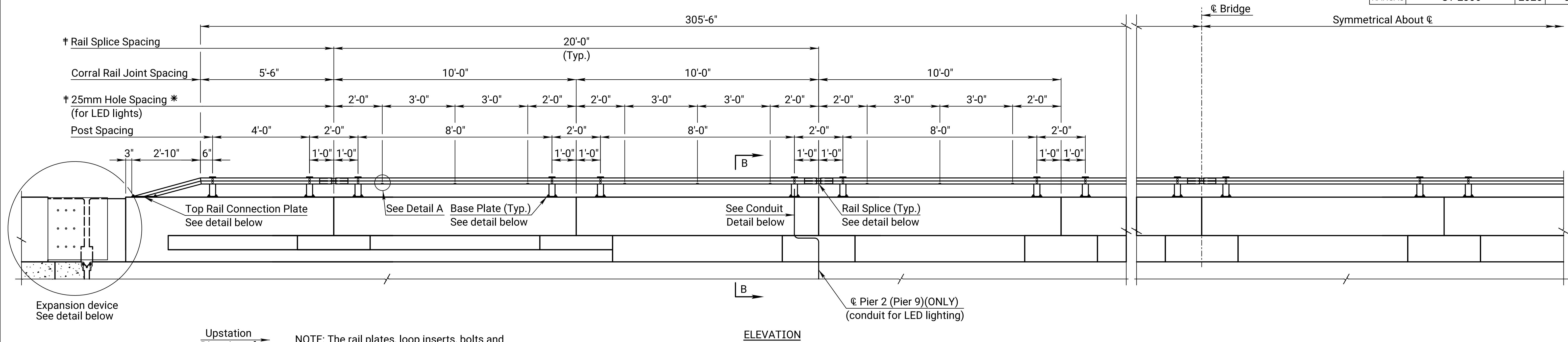


Note: Abutment 2 rail plates will be mirrored across EWS2. The plates will anchor in the bridge rail, and slide over the approach rail.

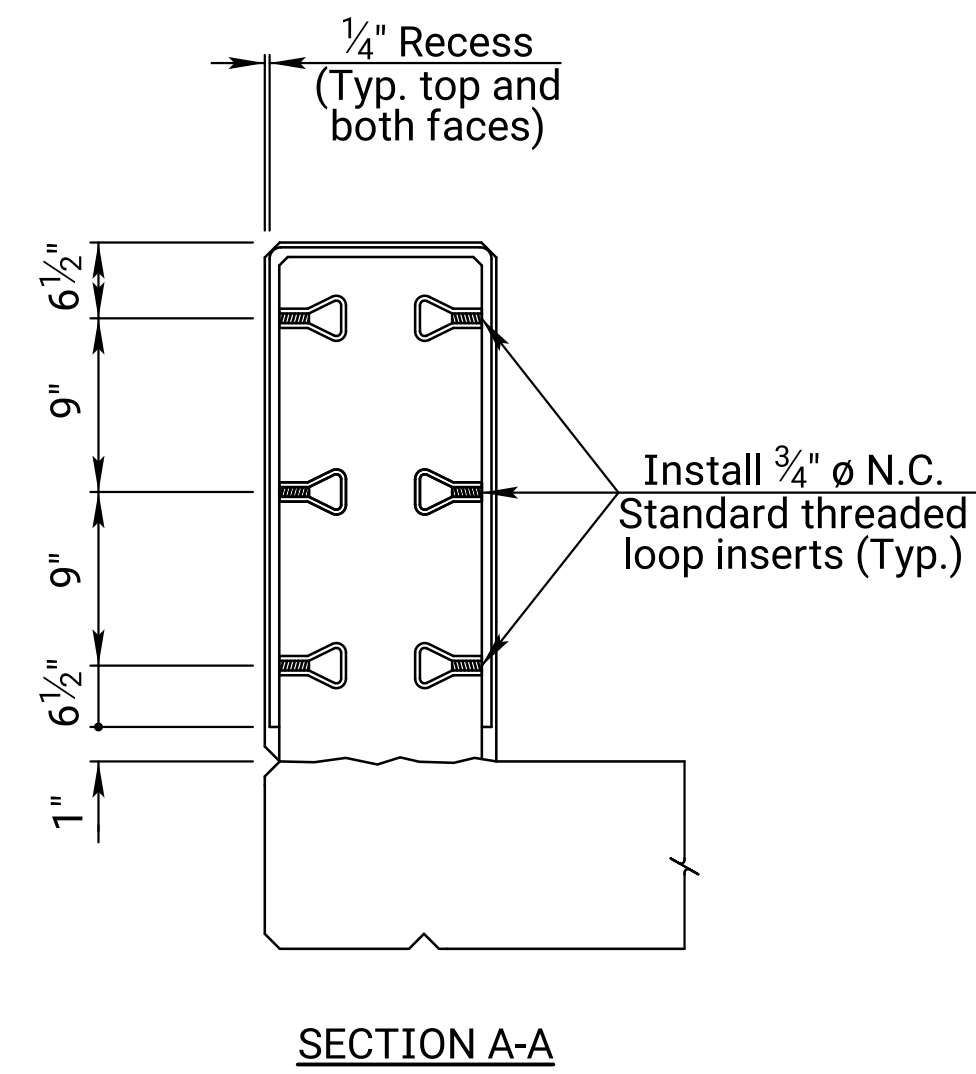
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NO.	DATE	REVISIONS	BY	APP'D	
KANSAS DEPARTMENT OF TRANSPORTATION					
Br. No. 406950290803B01					
© STA. 100+00.00					
32" KANSAS CORRAL RAIL (With Curb)					
N. Bd. 14th Ave. Over Arkansas River					
PROJECT NO. ST-2306					
FORD COUNTY					
SHEET NO.	OF	SCALE	APP'D		
DESIGNED		DETAILED	QUANTITIES	CADD	
DESIGN CK.		DETAIL CK.	QUAN. CK.	CADD CK.	

Plotted By: Riley Standish
File: ST2306bbr161.dgn
Plot Date: 8-JUL-2025 16:38

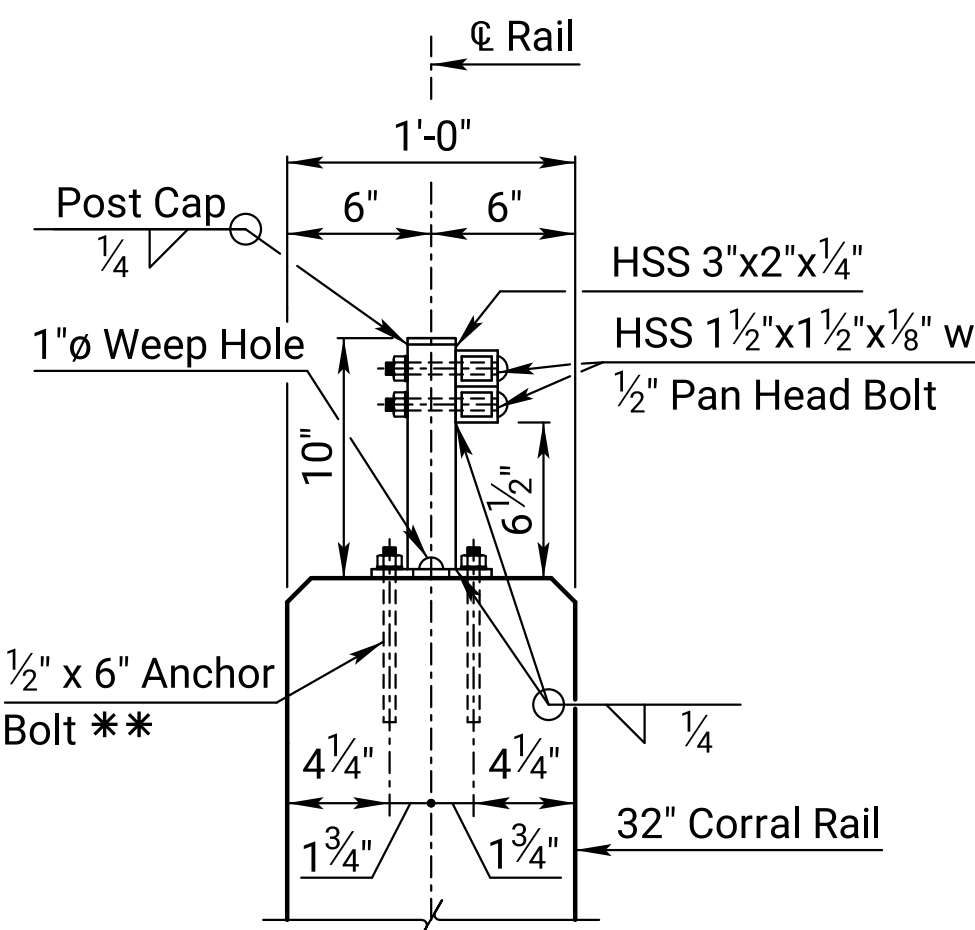
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	ST-2306	2025	64	139



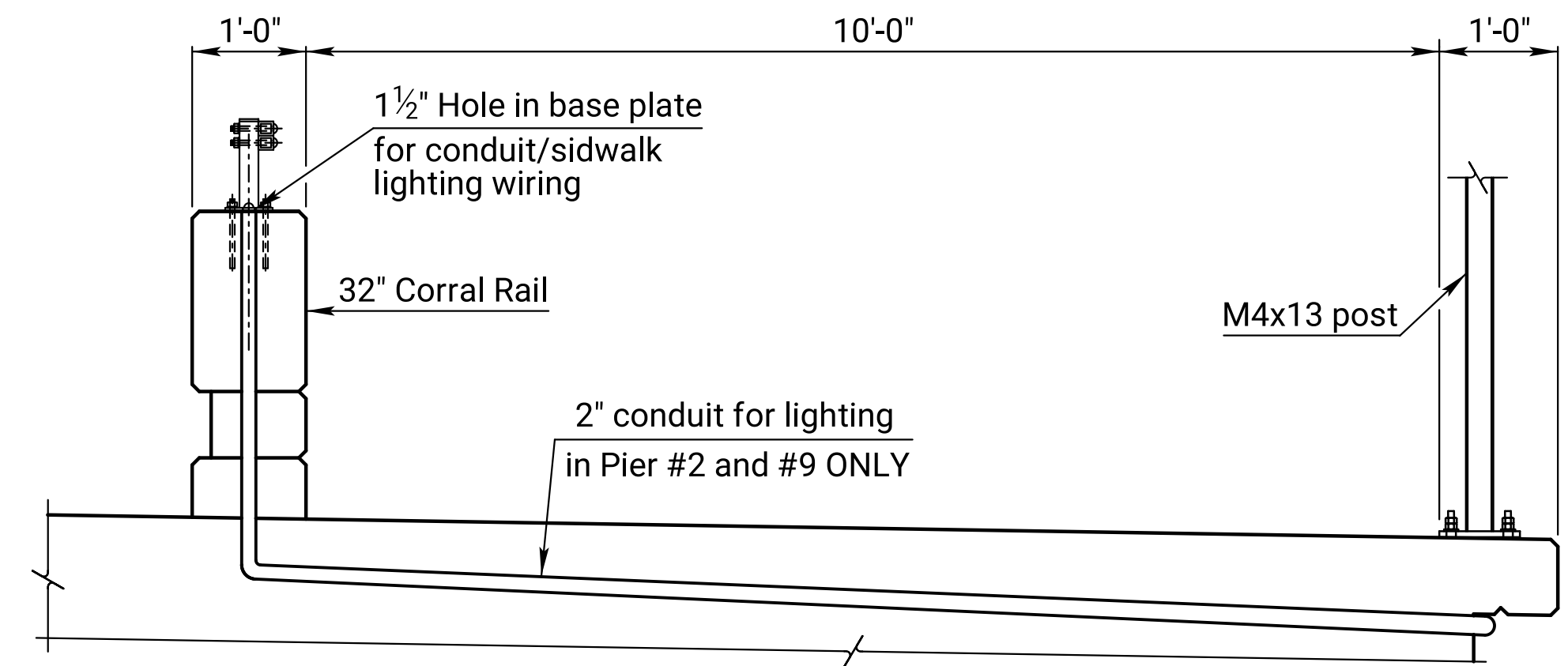
ELEVATION OF BRIDGE RAIL AT EXPANSION DEVICE
(Abutment 1 Shown, Abutment 2 Plates are mounted
in Deck Side of Bridge Rail)



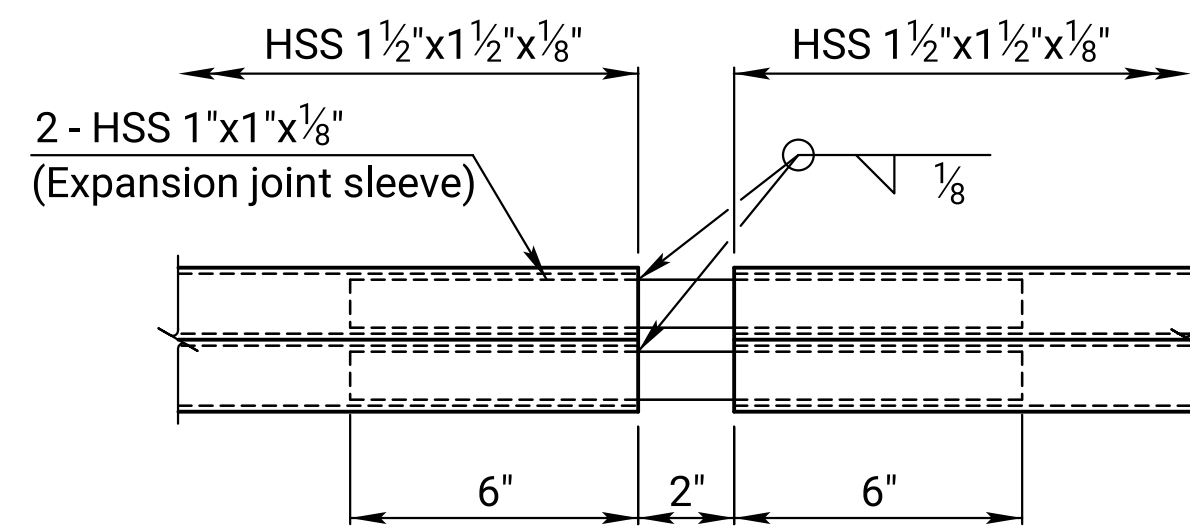
SECTION A-A



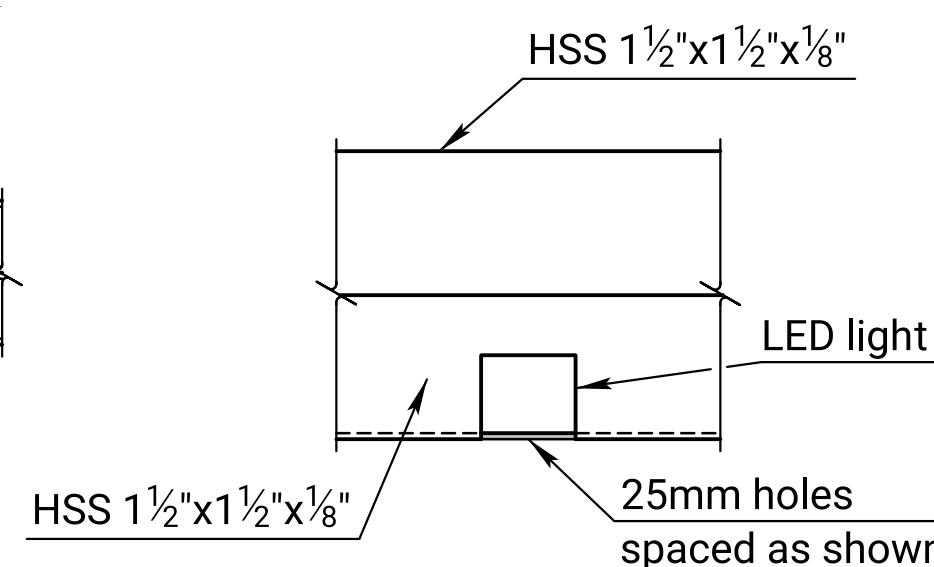
† SECTION B-B
(124 Posts Req.)



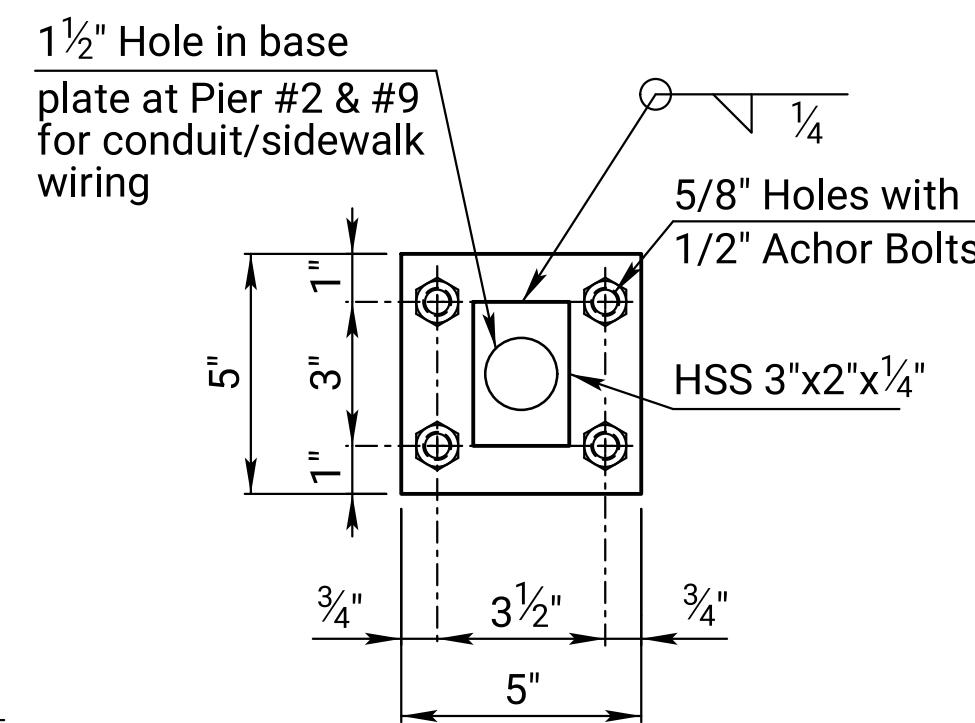
CONDUIT DETAIL
(Pier 2 & Pier 9 only)



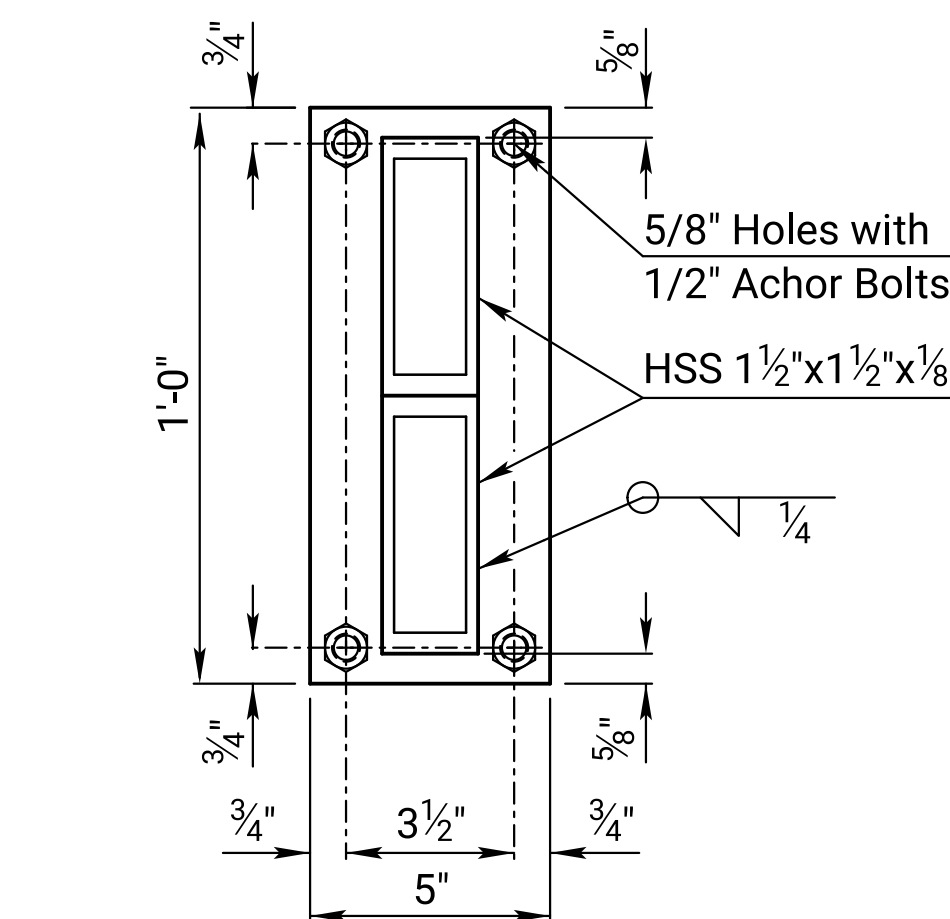
† RAIL SPLICE DETAILS
(31 Req.)



† DETAIL A
(holes for LED light installation)



† BASE PLATE DETAIL
(124 Req.)



† TOP RAIL CONNECTION PLATE DETAIL
(2 Req.)

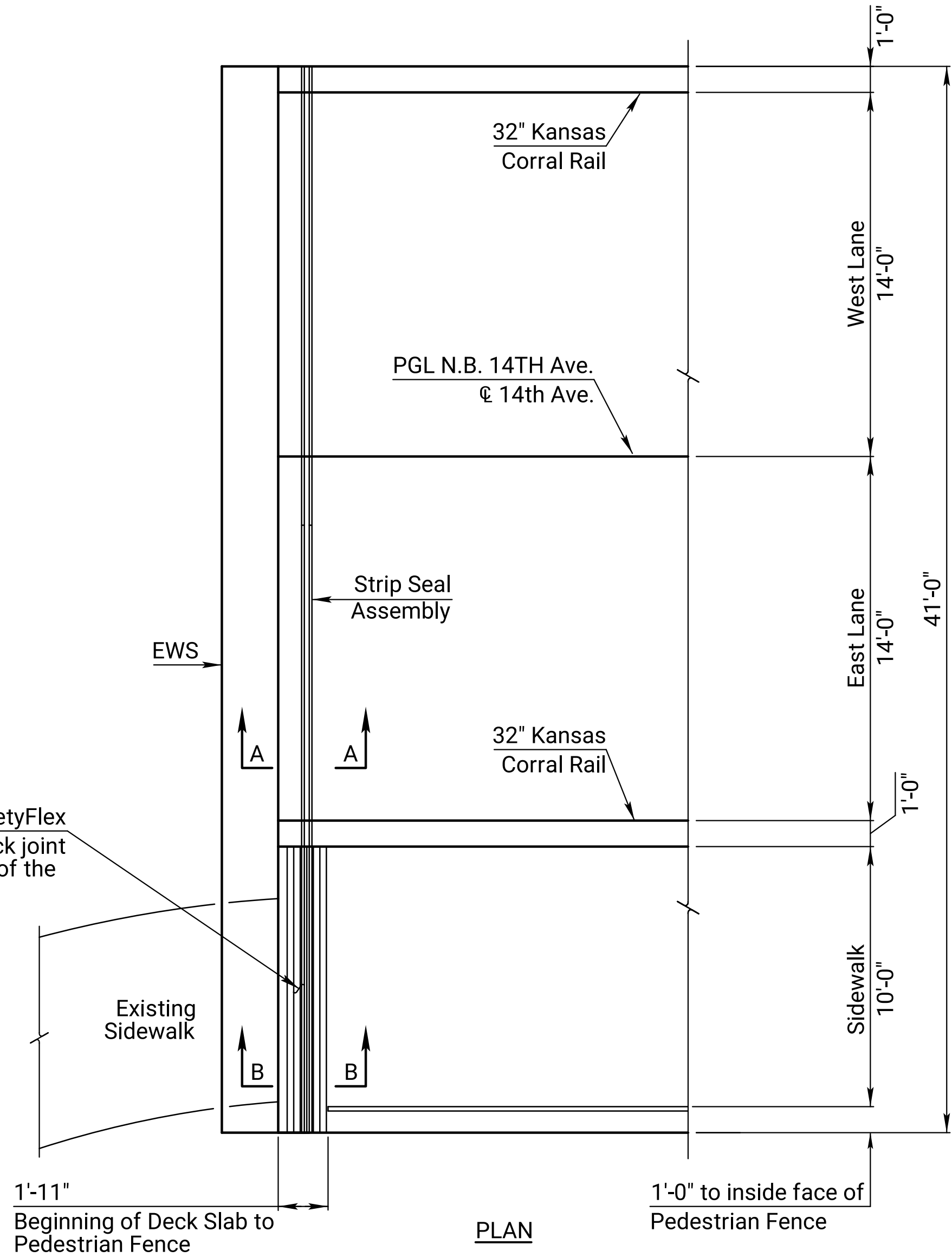
† For Reference Only. Owner is having "Bridge Handrail (Special)" and the "Fence (Tubular Steel)" fabricated separately from the bridge bid. The Bridge Contractor will only be responsible for installation of "Bridge Handrail (Special)" and the "Fence (Tubular Steel)".

- †† Contractor shall submit method of installing anchors if the anchors are not cast in place.
- * Fabricator shall drill LED holes with 25mm bit. A substitution of 1" drill bit is not allowed.
- ♦ For temp. gap adjustments see table on sheet 65 "EXPANSION JOINT STRIP SEAL ASSEMBLY DETAILS"

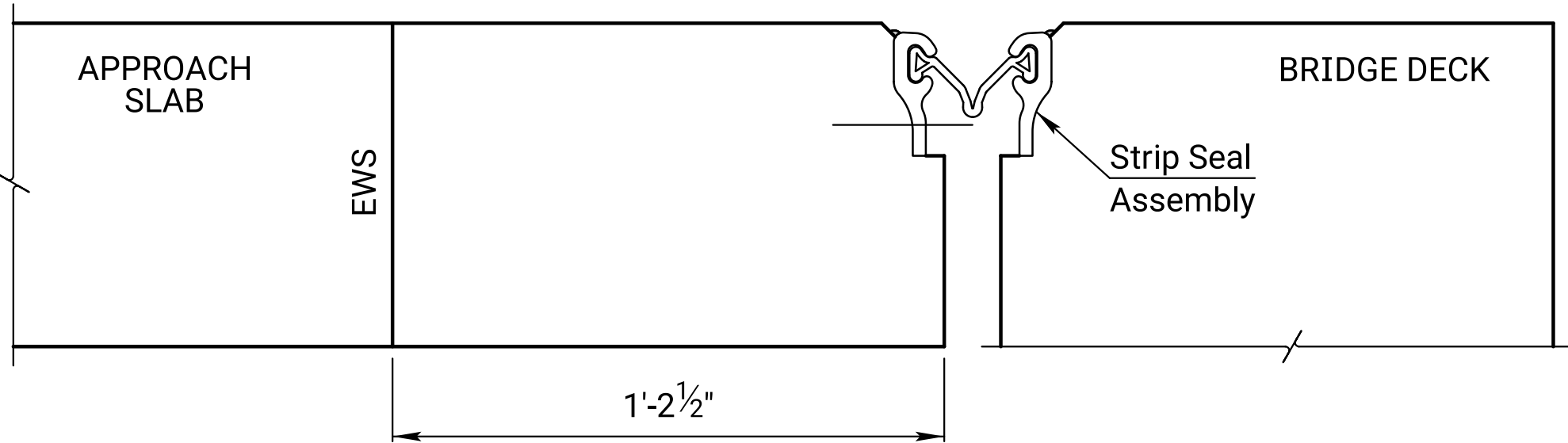
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NO.	DATE	REVISIONS	BY	APP'D	
KANSAS DEPARTMENT OF TRANSPORTATION					
Br. No. 406950290803B01					
CORRAL HANDRAIL/ EXPANSION DEVICE DETAILS					
N. Bd. 14th Ave. Over Arkansas River					
PROJECT NO. ST-2306					
FORD COUNTY					
SHEET NO.	OF	SCALE	APP'D	QUANTITIES	CADD
DESIGNED		DETAILED		QUAN. CK.	CADD CK.
DESIGN CK.		DETAIL CK.			

Plotted By: Riley Standish
File: ST2306bbr162.dgn
Plot Date: 8-JUL-2025 16:38

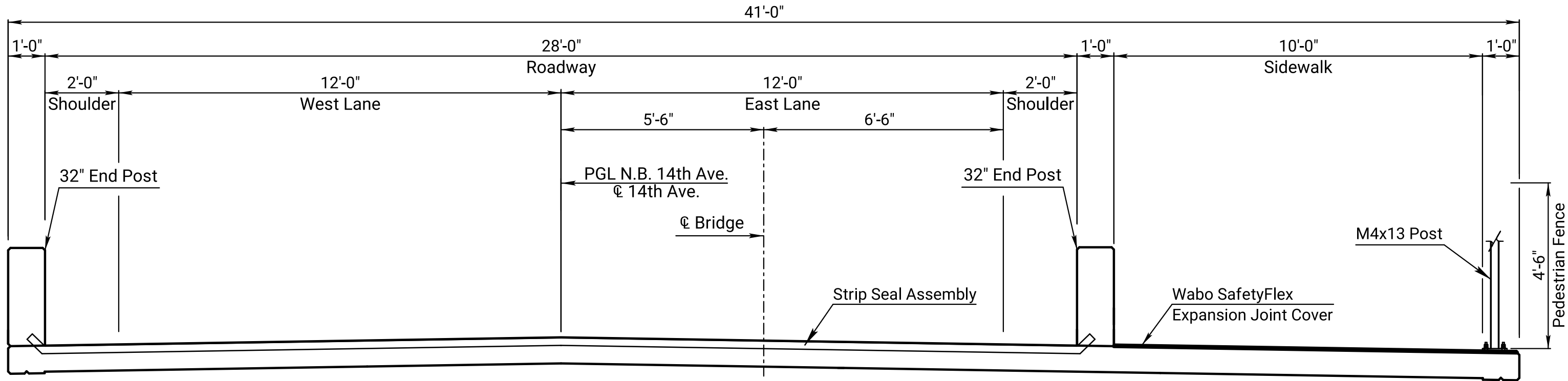
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	ST-2306	2025	66	139



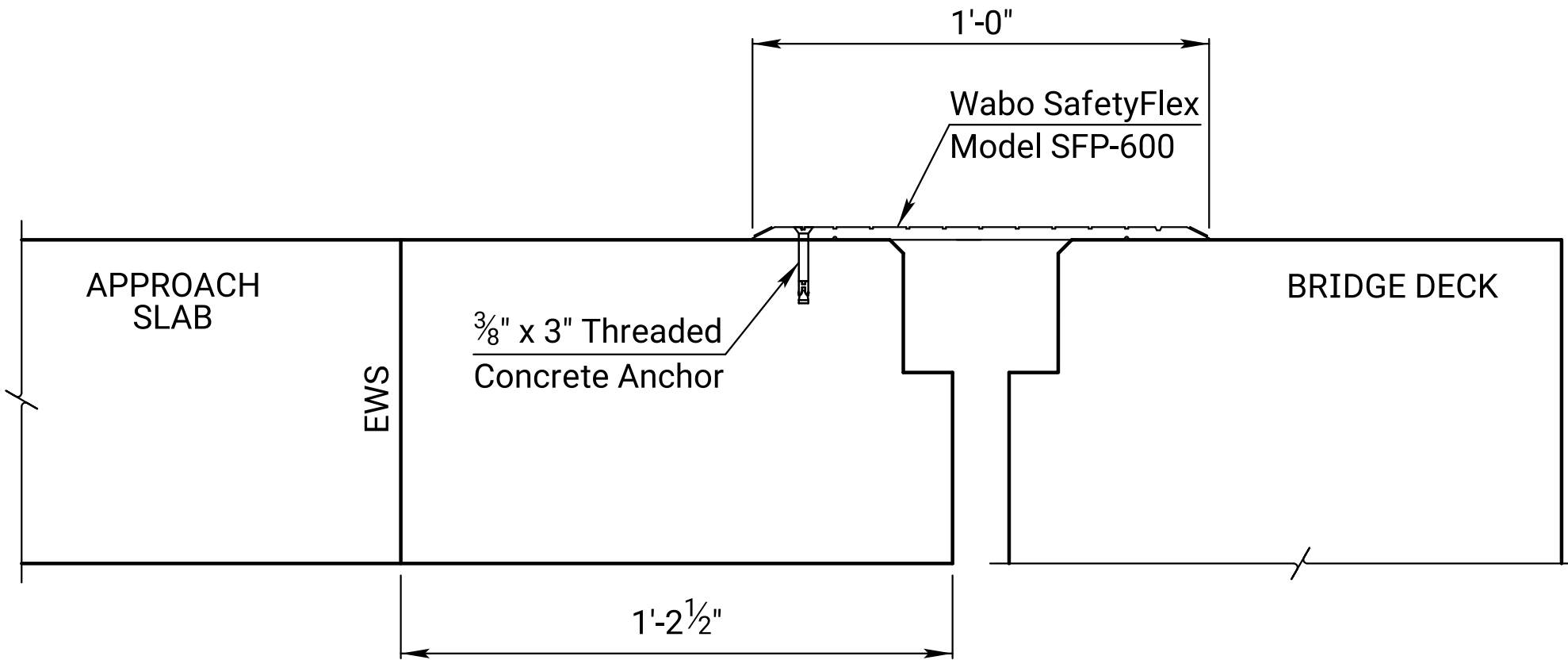
PLAN



SECTION A-A
Strip Seal Across
Roadway



TYPICAL SECTION



SECTION B-B
Wabo SafetyFlex
Expansion Joint Cover

Note: The Wabo SafetyFlex, and the labor and materials necessary for installation shall be subsidiary to the bid item "Strip Seal Assembly"

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NO.	DATE	REVISIONS	BY	APP'D	
KANSAS DEPARTMENT OF TRANSPORTATION Br. No. 406950290803B01 © STA. 100+00.00					
EXPANSION JOINT SAFETY COVER DETAILS					
N. Bd. 14th Ave. Over Arkansas River					
PROJECT NO. ST-2306			FORD COUNTY		
SHEET NO.	OF	SCALE	APP'D		
DESIGNED	CK.	DETAILED	QUANTITIES	CADD	
DESIGN CK.		DETAIL CK.	QUAN. CK.	CADD CK.	

Plotted By: Riley Standish
File: ST2306bbr027.dgn
Plot Date: 8-JUL-2025 16:39

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	ST-2306	2025	67	139

GENERAL NOTES

FENCE (TUBULAR STEEL)(SPECIAL): The tubular steel fence on the sidewalk shall be bid per feet as per bid item, "Fence (Tubular Steel)(Special)". This item shall include the furnishing of all material, fabrication of all parts, welding, and all of the equipment and labor required to erect the fence in accordance with these plans and specifications. All parts shall be hot-dip galvanized after fabrication and all welds shall be free of slag holes prior to galvanization. Galvanization shall conform with the latest ASTM Specification and the applicable Standard Specifications.

All components of this fence shall be black in color after erection.

POST, RAIL AND PICKETS: The Contractor shall use structural steel tubing for post, rails and pickets as shown in the details. Structural steel tubing shall meet the requirements of ASTM 500, Class B. All structural tubing shall be hot-dip galvanized and black powder coated after fabrication. Fabricator may submit for approval a substitute coating for the fence components.

STRUCTURAL STEEL: All plates and shapes shall conform to ASTM A36.

NUTS and PLATE WASHERS: $\frac{5}{8}$ " nuts and plate washers shall meet the requirements of ASTM A325.

MEASUREMENT: Measurement for the bid item "Fence (Tubular Steel) (Special)" shall be the total linear feet from center to center of post. All Special Fabricated Panels at expansion joint and abutments shall be subsidiary to "Fence (Tubular Steel) (Special)".

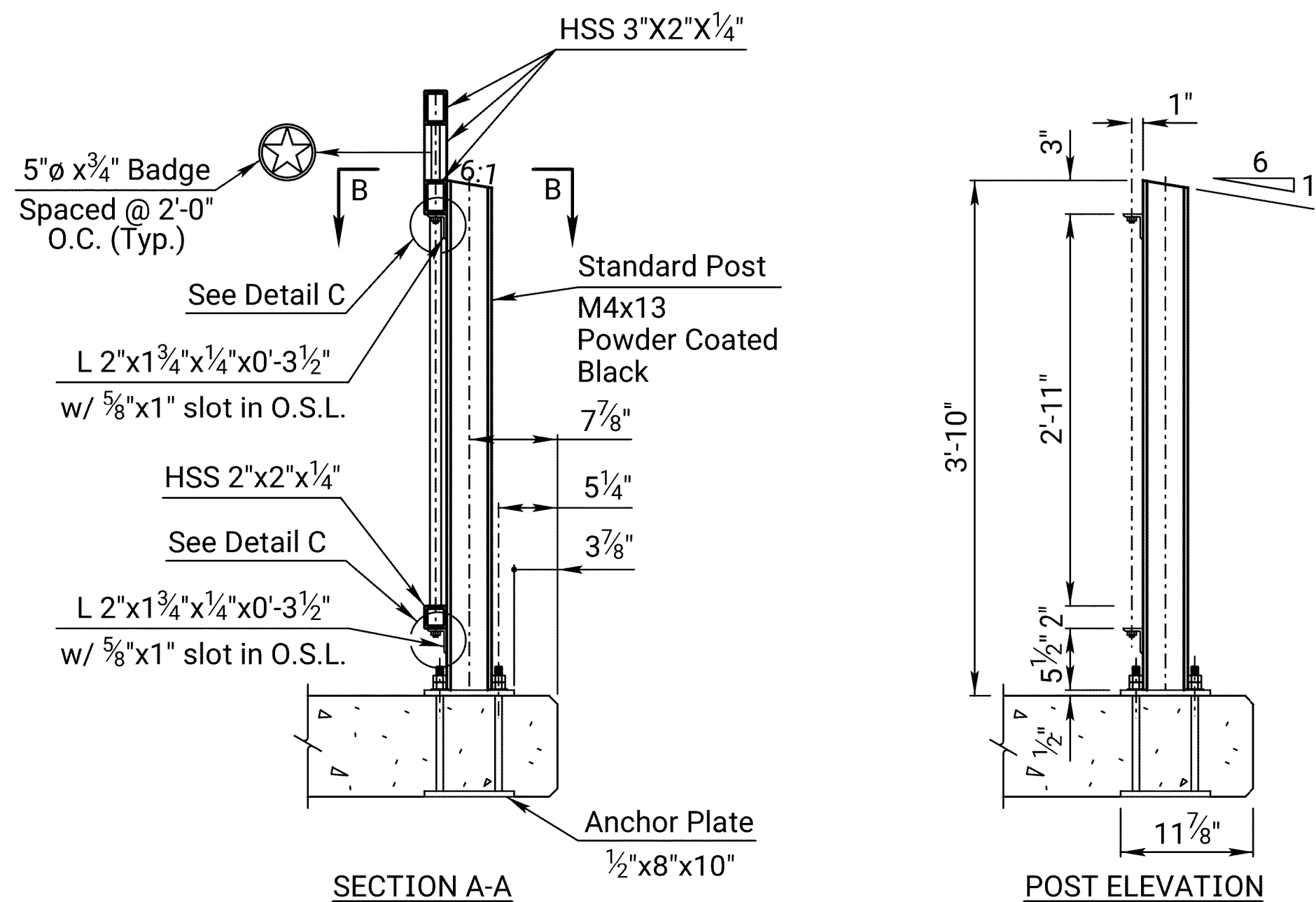
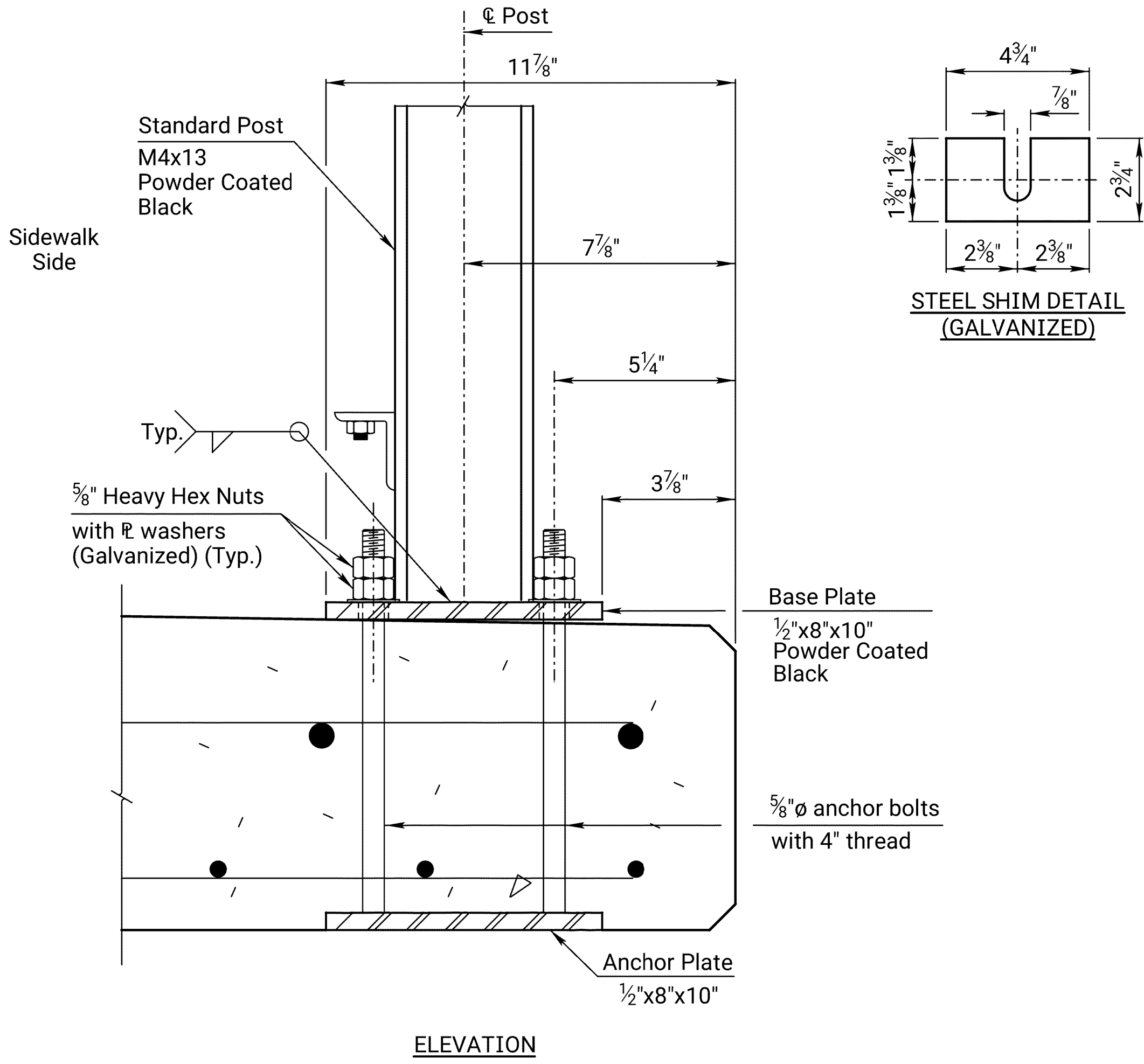
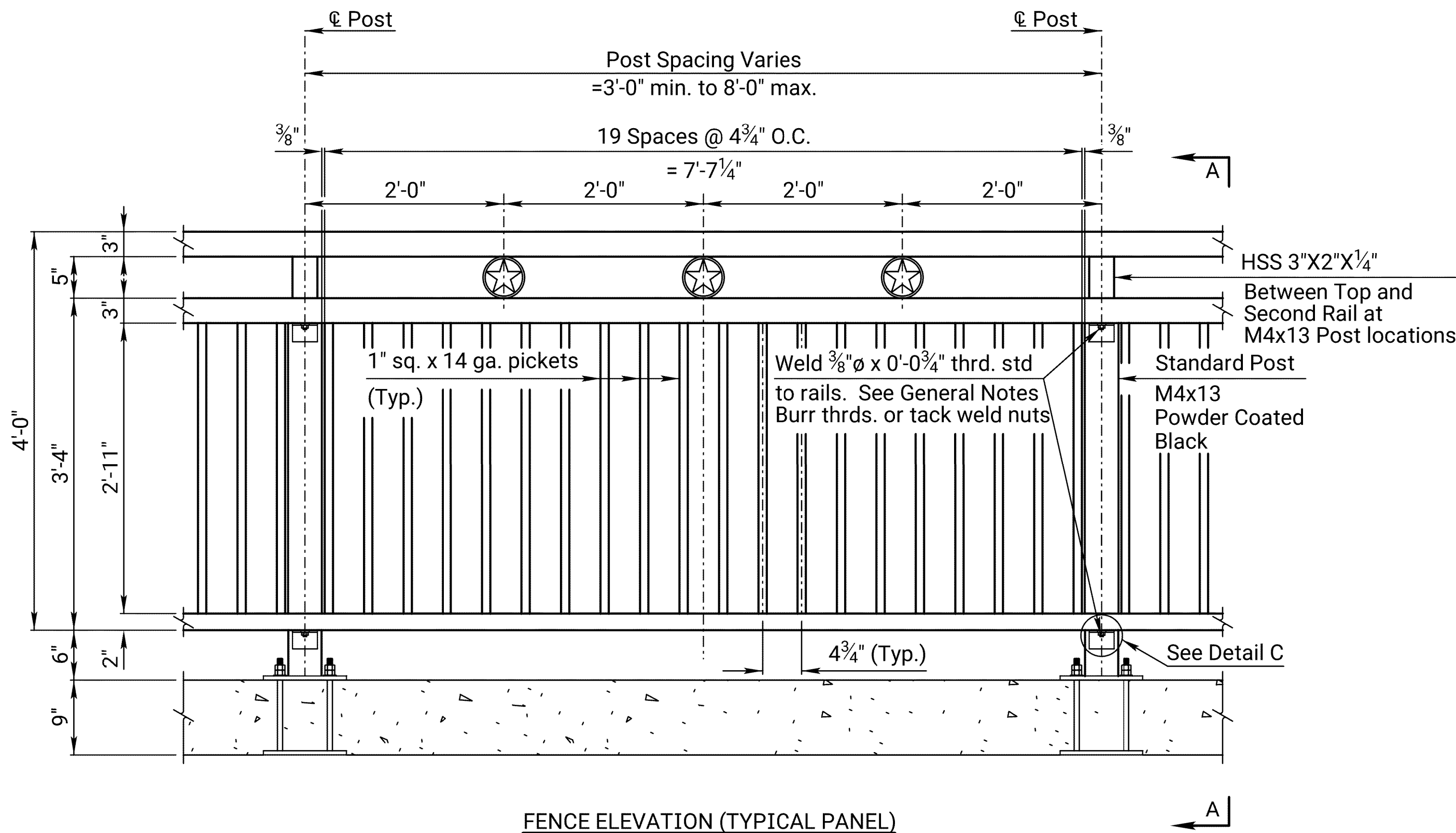
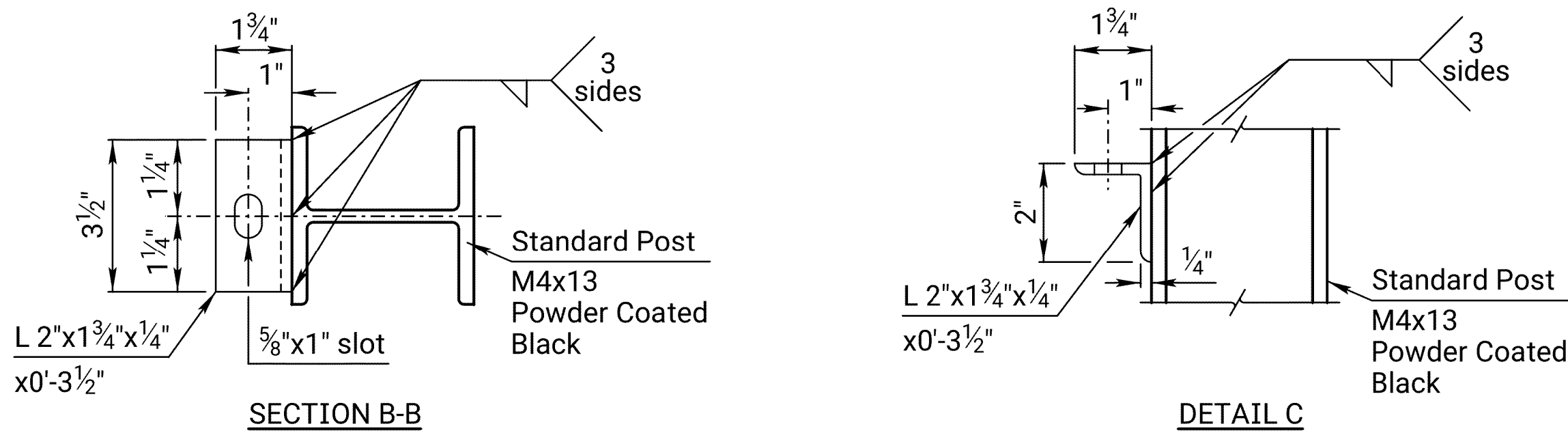
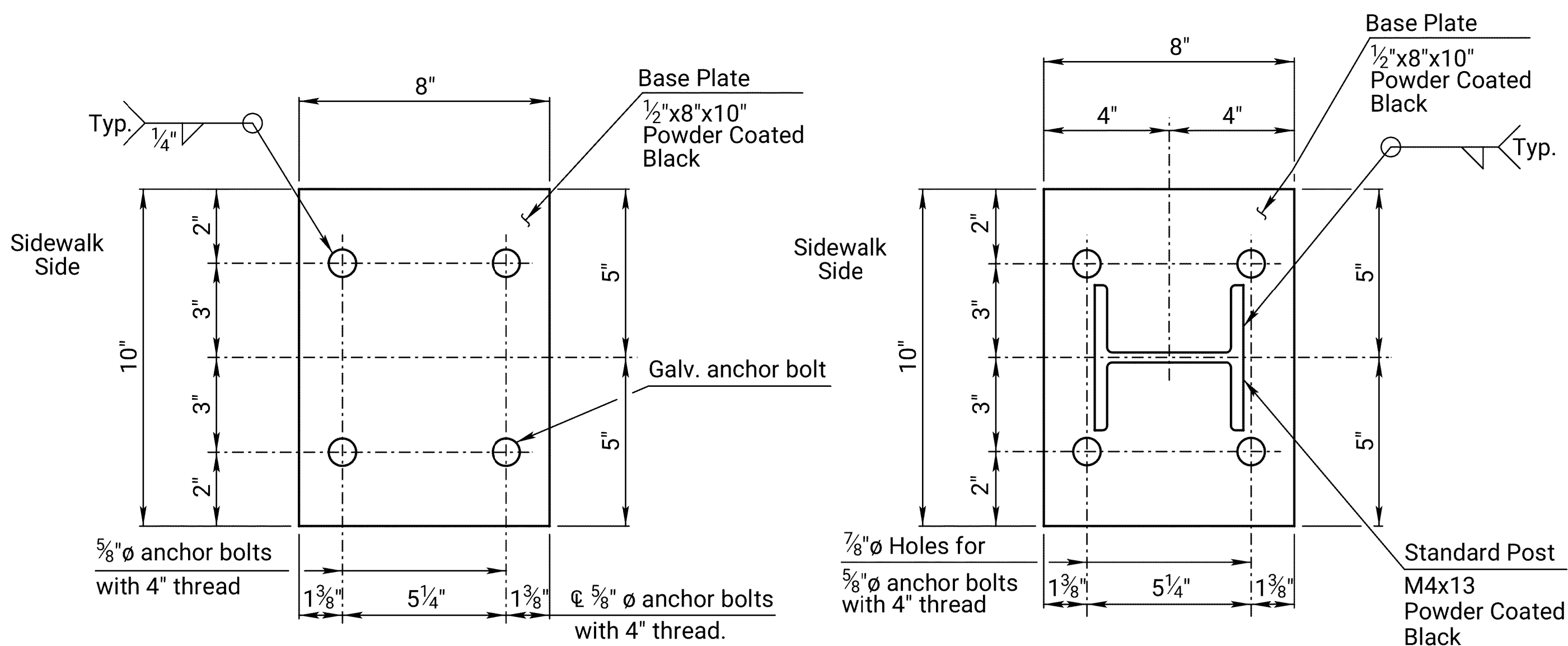
SHOP DRAWINGS: Approval of shop drawings and materials is required before installation begins.

SUMMARY OF QUANTITIES (For Information Only)	
Item	Number
M4x13	79
$\frac{1}{2}$ " Base R's	79
$\frac{1}{2}$ " Anchor R's	79
$\frac{5}{8}$ " Threaded Rods	316
$\frac{5}{8}$ " Heavy Hex Nuts	632
R Washers	316

*** FOR REFERENCE ONLY ***

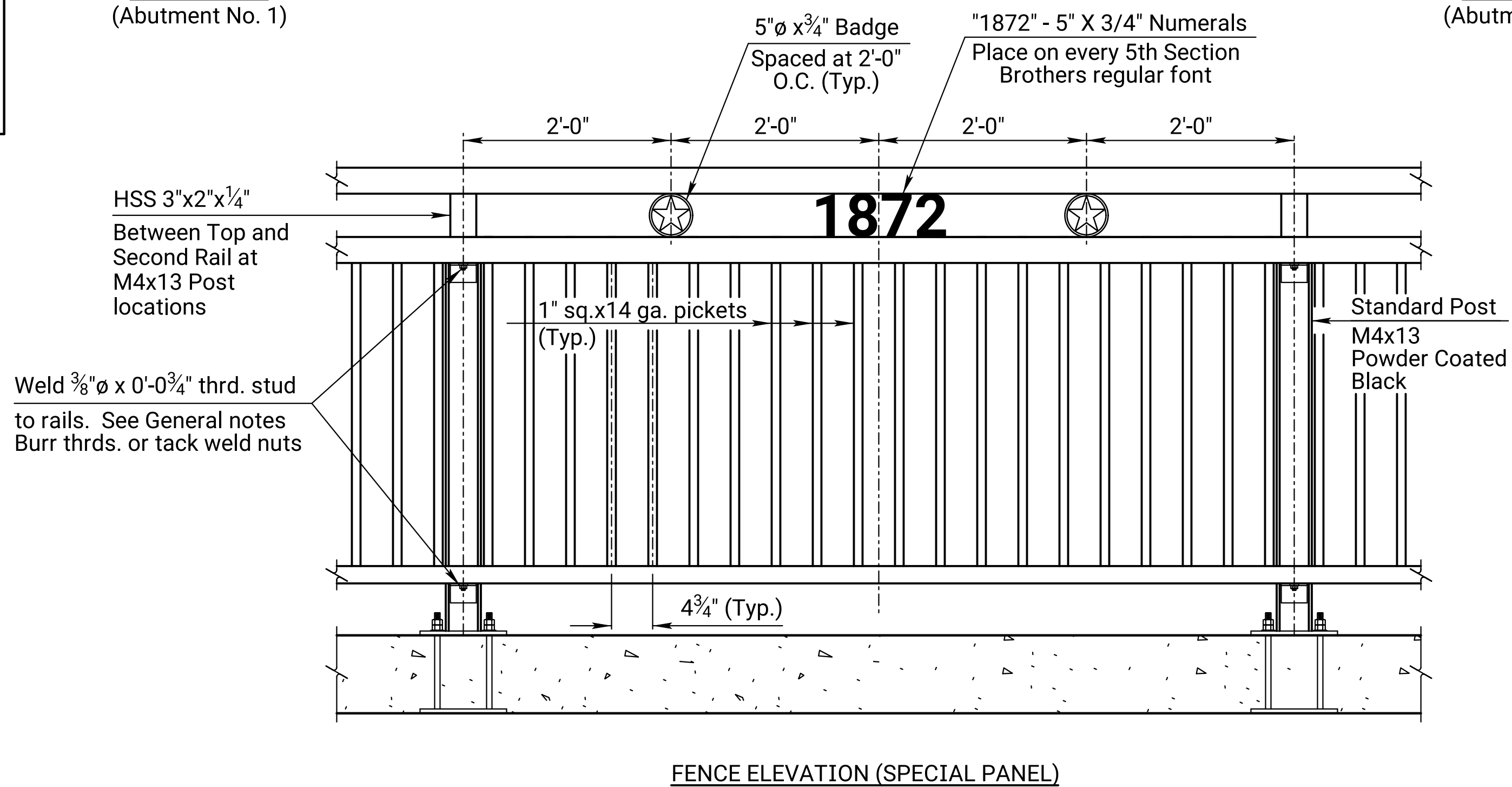
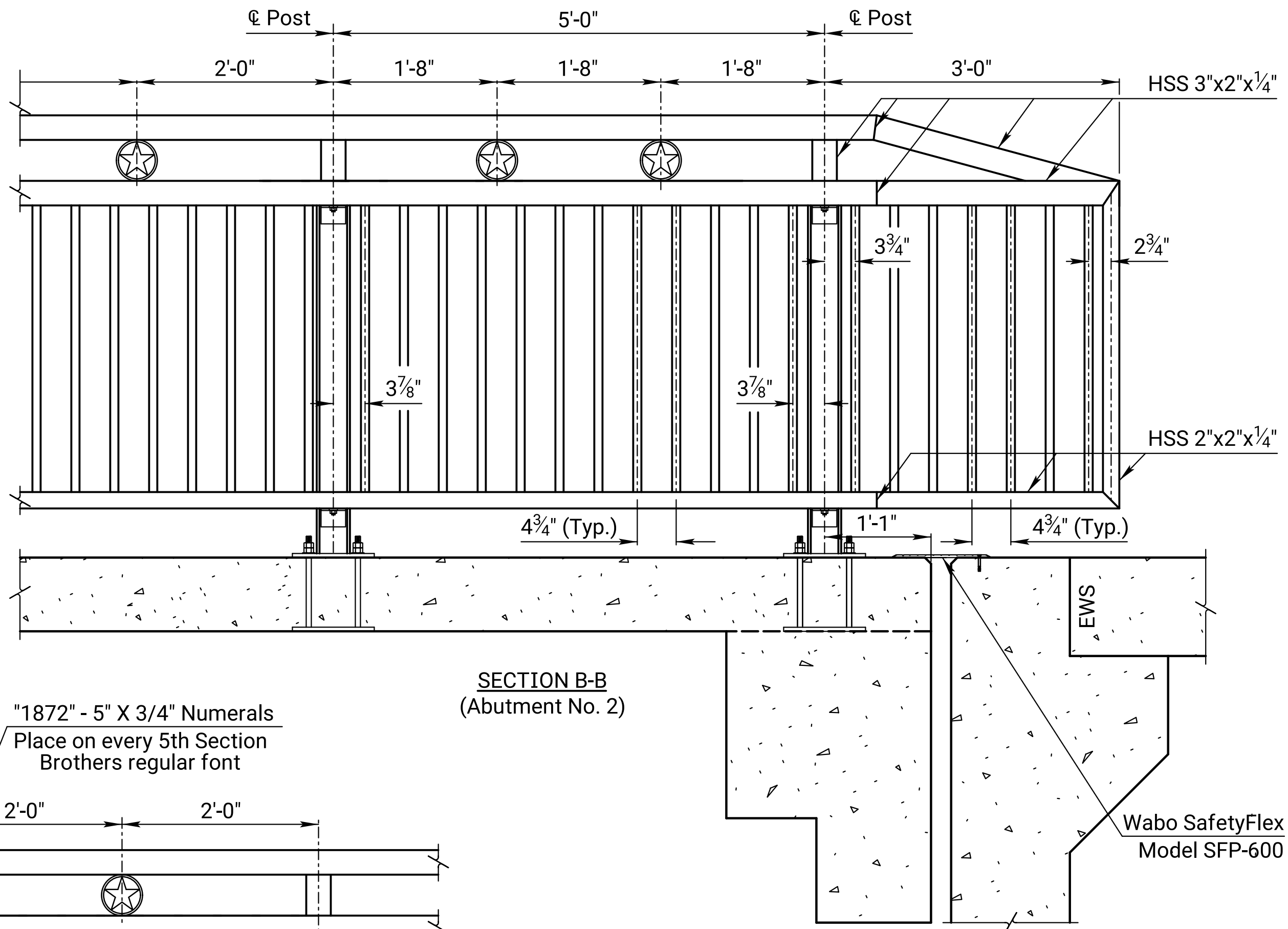
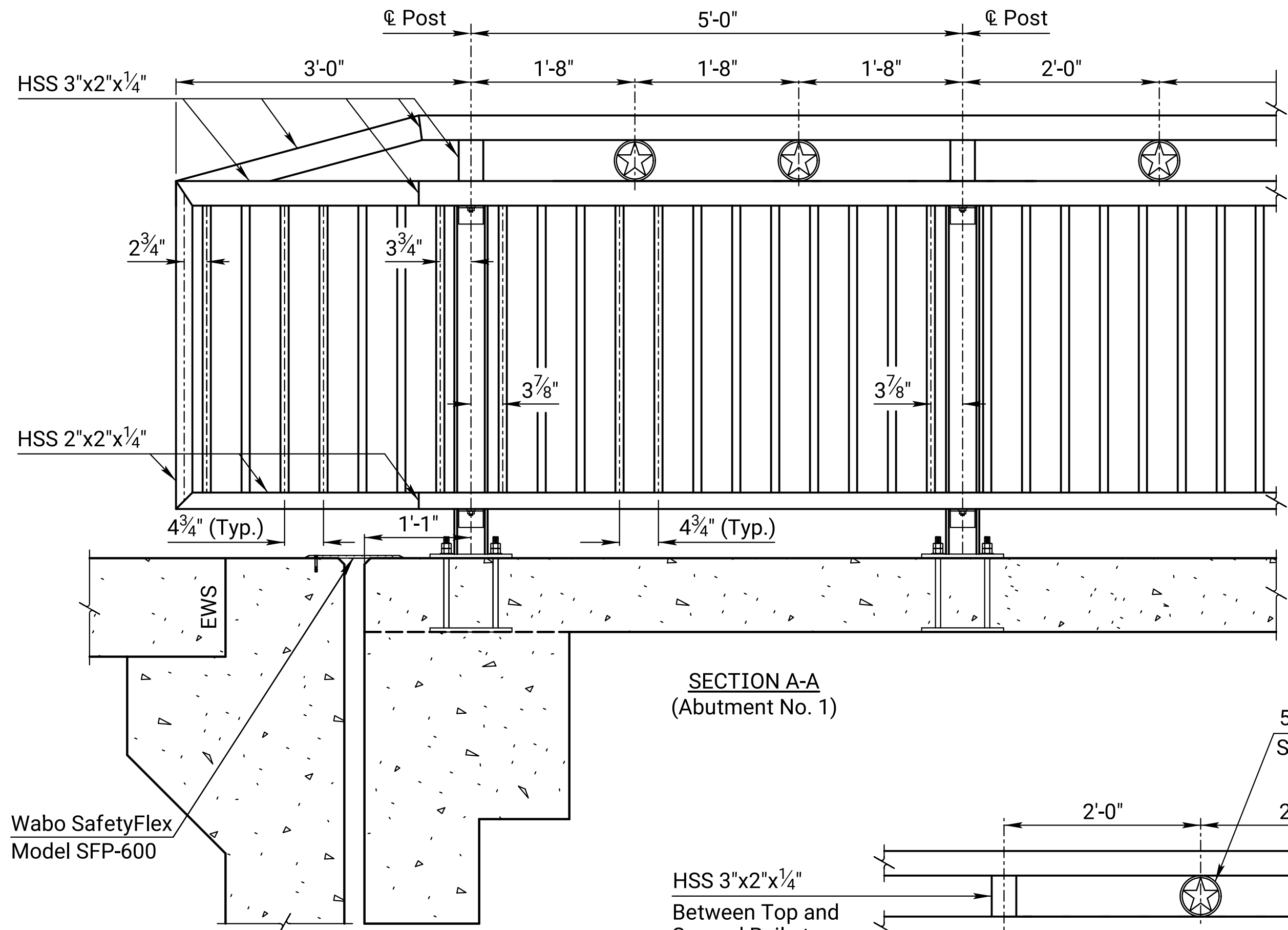
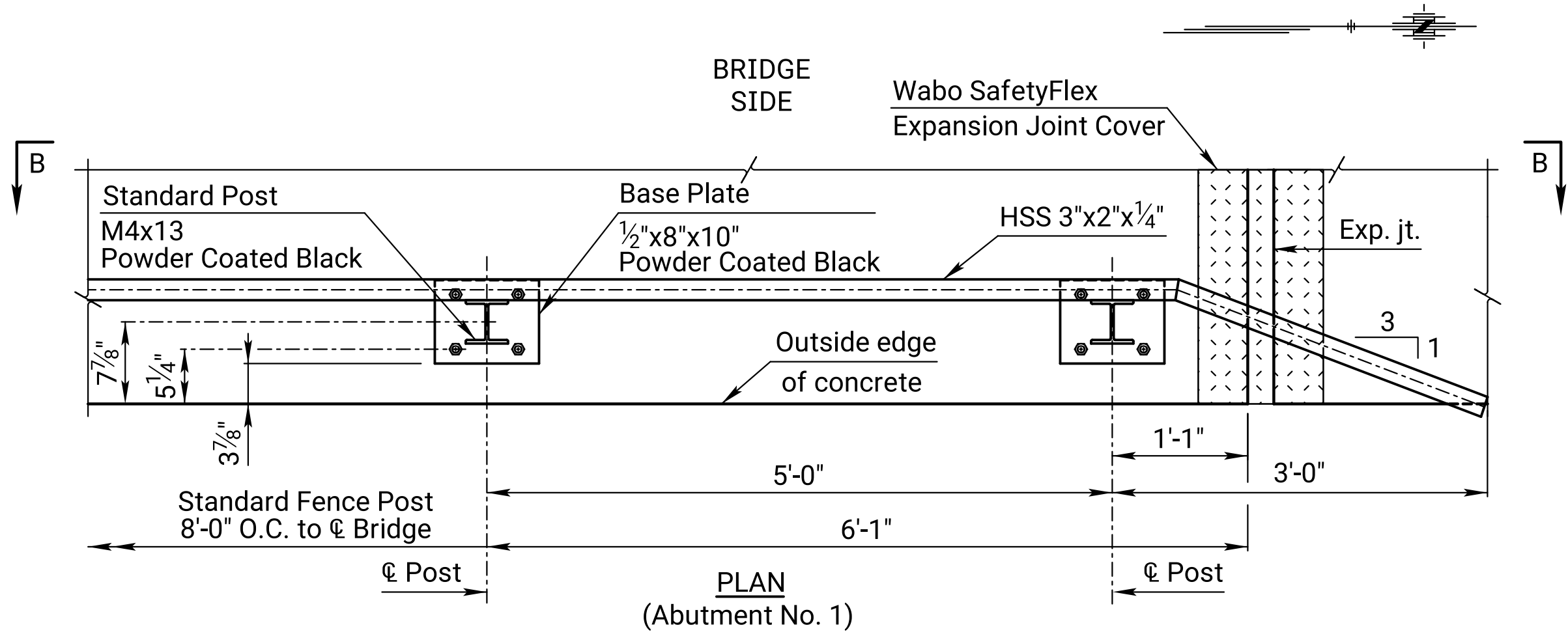
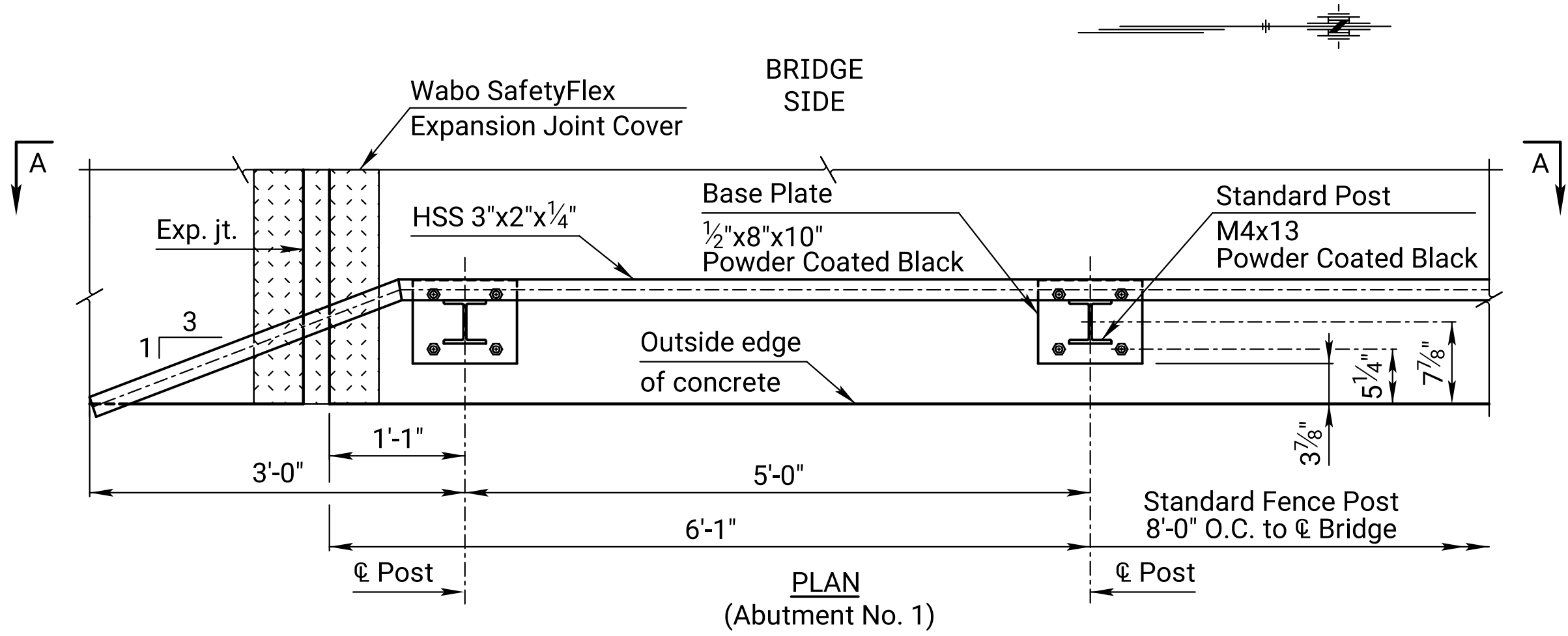
Owner is having "Bridge Handrail (Special)" and the "Fence (Tubular Steel)" fabricated separately from the bridge bid. The Bridge Contractor will only be responsible for installation for "Bridge Handrail (Special)" and the "Fence (Tubular Steel)".

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NO.	DATE	REVISIONS	BY	APP'D
KANSAS DEPARTMENT OF TRANSPORTATION Br. No. 406950290803B01				
PEDESTRIAN FENCE DETAILS				
N. Bd. 14th Ave. Over Arkansas River				
PROJECT NO. ST-2306		FORD COUNTY		
SHEET NO.	OF	SCALE	APP'D	
DESIGNED		DETAILED	QUANTITIES	CADD
DESIGN CK.		DETAIL CK.	QUAN. CK.	CADD CK.



Plotted By: Katie Romero
File: ST2306bbr170.dgn
Plot Date: 9-JUL-2025 10:07

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	ST-2306	2025	68	139



*** FOR REFERENCE ONLY ***

Owner is having "Bridge Handrail (Special)" and the "Fence (Tubular Steel)" fabricated separately from the bridge bid. The Bridge Contractor will only be responsible for installation for "Bridge Handrail (Special)" and the "Fence (Tubular Steel)".

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NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION				
Br. No. 406950290803B01				
PEDESTRIAN FENCE DETAILS				
N. Bd. 14th Ave. Over Arkansas River				
PROJECT NO. ST-2306				
FORD COUNTY				
SHEET NO.	OF	SCALE	APP'D	
DESIGNED		DETAILED	QUANTITIES	CADD
DESIGN CK.		DETAIL CK.	QUAN. CK.	CADD CK.

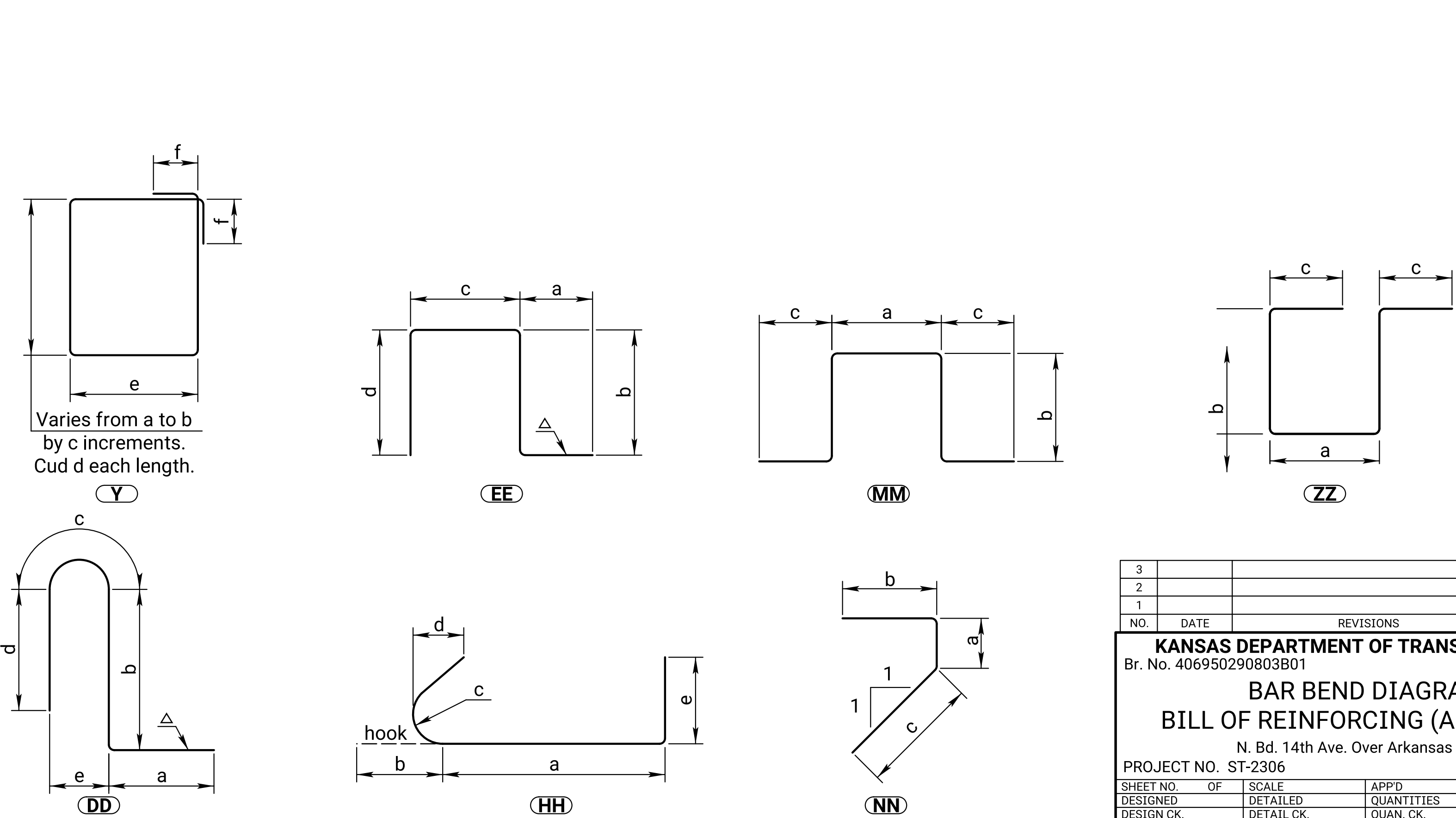
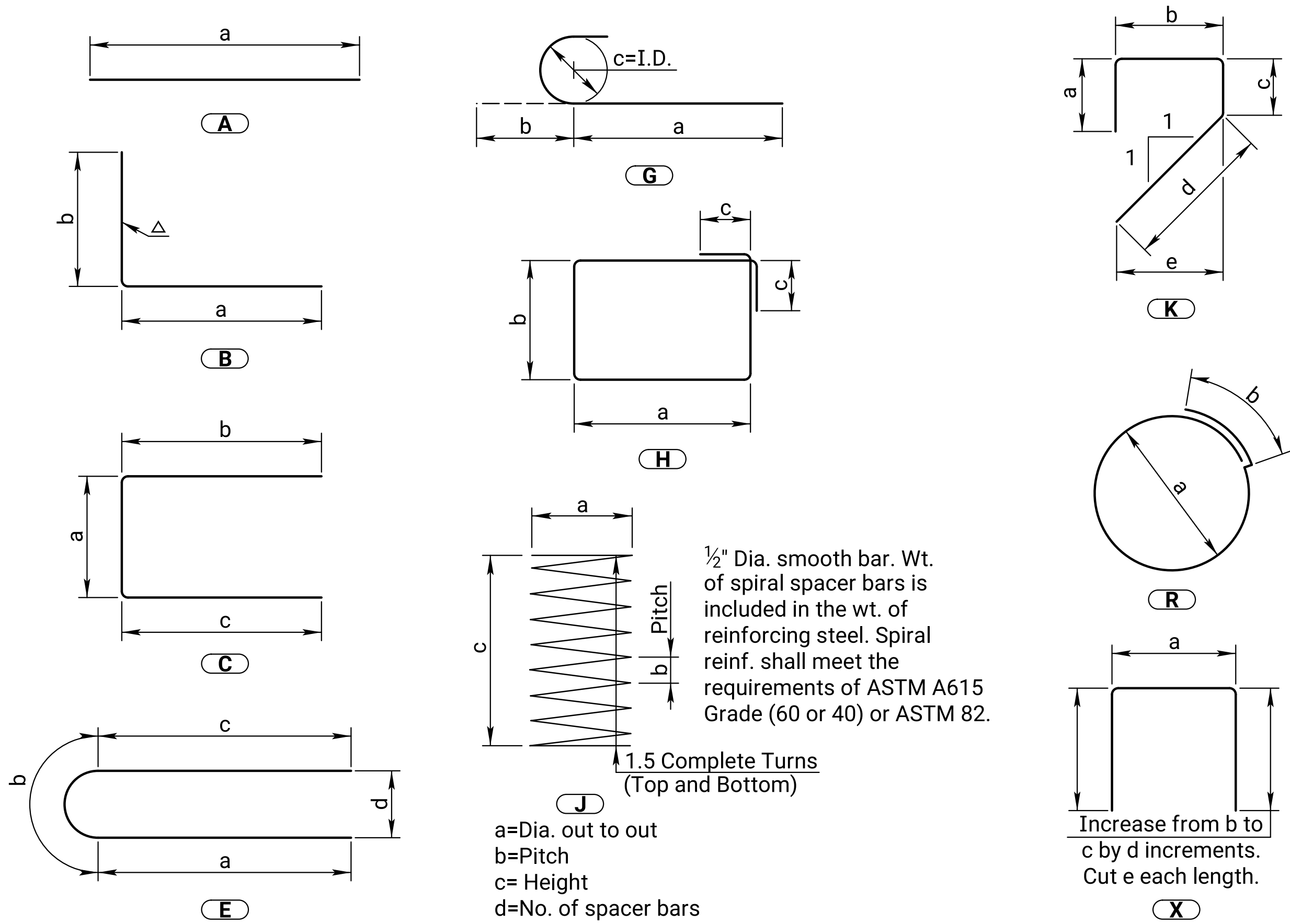
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File: ST2306bbr175.dgn
Plot Date: 9-JUL-2025 10:09

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	ST-2306	2025	69	139

BILL OF REINFORCING STEEL ABUTMENT 1												
DESIGN MARK	BENDING MARK	SIZE	NUMBER	LENGTH	DIMENSIONS							
					a	b	c	d	e	f	g	
Substructure Epoxy Coated	AB1	A	6	4	24'-9"	24'-9"						
	AB2	A	6	5	9'-6"	9'-6"						
	AB3	A	6	3	3'-9"	3'-9"						
	AB4	A	5	18	24'-9"	24'-9"						
	AB5	A	5	8	9'-6"	9'-6"						
	AB6	A	5	4	3'-9"	3'-9"						
	AB7	A	5	2	40'-8"	40'-8"						
	AB8	C	5	20	9'-4"	3'-0"	3'-2"					
	AB9	A	5	100	3'-2"							
	AB10	G	5	30	4'-0"	3'-2"	10"	5"				
	AB11	K	5	41	6'-7"	1'-4"	1'-11"	9"	2'-5"	1'-9"		
	AB12	C	5	10	6'-0"	3'-0"	1'-6"					
	AB13	K	4	41	5'-8"	2'-4"	11"	5"	2'-0"	1'-6"		
	AD1	A	4	8	4'-2"							
Substructure Non-Epoxy	AD2	A	4	8	7'-9"							
	AD3	A	4	7	40'-8"							
	AD4	A	4	4	2'-4"							
	AD5	C	4	4	4'-0"	1'-3"	2'-3"	6"				
	AD6	ZZ	4	28	7'-7"	1'-9"	1'-11"	1'-0"				
	AD7	C	4	4	5'-1"	2'-4"	2'-3"	6"				
	AD8	H	4	28	5'-0"	1'-10"	5"	3"				
	AF1	A	8	14	28'-6"	28'-6"						
	AF2	A	8	1	22'-4"	22'-4"	6"	2'-0"				
	AF3	A	8	1	5'-7"	5'-7"						
	AF4	A	8	4	5'-2"	5'-2"						
	AF5	A	5	140	9'-8"	9'-8"						
	AF6	C	5	104	11'-11"	3'-1"	4'-5"					
	AF7	C	5	16	6'-0"	3'-0"	1'-6"					
	AF8	A	5	24	28'-6"	28'-6"						
	AF9	A	4	6	28'-6"	28'-6"						
	AF10	J	4	8	19'-0"	2'-0"	6"	2'-0"				

BILL OF REINFORCING STEEL ABUTMENT 2												
DESIGN MARK	BENDING MARK	SIZE	NUMBER	LENGTH	DIMENSIONS							
					a	b	c	d	e	f	g	
Substructure Epoxy Coated	AB1	A	6	4	24'-9"	24'-9"						
	AB2	A	6	5	9'-6"	9'-6"						
	AB3	A	6	3	3'-9"	3'-9"						
	AB4	A	5	18	24'-9"	24'-9"						
	AB5	A	5	8	9'-6"	9'-6"						
	AB6	A	5	4	3'-9"	3'-9"						
	AB7	A	5	2	40'-8"	40'-8"						
	AB8	C	5	20	9'-4"	3'-0"	3'-2"					
	AB9	A	5	100	3'-2"							
	AB10	G	5	30	4'-0"	3'-2"	10"	5"				
	AB11	K	5	41	6'-7"	1'-4"	1'-11"	9"	2'-5"	1'-9"		
	AB12	C	5	10	6'-0"	3'-0"	1'-6"					
	AB13	K	4	41	5'-8"	2'-4"	11"	5"	2'-0"	1'-6"		
	AD1	A	4	8	4'-2"							
Substructure Non-Epoxy	AD2	A	4	8	7'-9"							
	AD3	A	4	7	40'-8"							
	AD4	A	4	4	2'-4"							
	AD5	C	4	4	4'-0"	1'-3"	2'-3"	6"				
	AD6	ZZ	4	28	7'-7"	1'-9"	1'-11"	1'-0"				
	AD7	C	4	4	5'-1"	2'-4"	2'-3"	6"				
	AD8	H	4	28	5'-0"	1'-10"	5"	3"				
	AF1	A	8	14	28'-6"	28'-6"						
	AF2	A	8	1	22'-4"	22'-4"						
	AF3	A	8	1	5'-7"	5'-7"						
	AF4	A	8	4	5'-2"	5'-2"						
	AF5	A	5	140	9'-8"	9'-8"						
	AF6	C	5	104	11'-11"	3'-1"	4'-5"					
	AF7	C	5	16	6'-0"	3'-0"	1'-6"					
	AF8	A	5	24	28'-6"	28'-6"						
	AF9	A	4	6	28'-6"	28'-6"						
	AF10	J	4	8	19'-0"	2'-0"	6"	2'-0"				

Plotted By: Riley Standish
File: ST2306bbr190.dgn
Plot Date: 8-JUL-2025 16:40



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1					
NO.	DATE	REVISIONS	BY	APP'D	
KANSAS DEPARTMENT OF TRANSPORTATION Br. No. 406950290803B01					
€ STA. 100+00.00					
BAR BEND DIAGRAM BILL OF REINFORCING (ABUT 1 & 2)					
N. Bd. 14th Ave. Over Arkansas River					
PROJECT NO. ST-2306 FORD COUNTY					
SHEET NO.	OF	SCALE	APP'D		
DESIGNED	CK.	DETAILED	QUANTITIES	CADD	
DESIGN CK.		DETAIL CK.	QUAN. CK.	CADD CK.	

Plotted By: Katie Romero

Plot Location:

File: ST2306bbr191.dgn

Plot Date: 10-JUL-2025 14:52

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	ST-2306	2025	70	139

BILL OF REINFORCING STEEL PIERS												
	DESIGN MARK	BENDING MARK	SIZE	NUMBER	LENGTH	DIMENSIONS						
						a	b	c	d	e	f	g
Superstructure Epoxy Coated	PB3	A	6	480	5'-0"	5'-0"						
	PD1	A	8	120	6'-1"	6'-1"						
	PD2	C	8	40	13'-0"	2'-6"	5'-3"	5'-3"				
	PD3	A	6	80	5'-0"	5'-0"						
	PD4	A	4	40	39'-2"	39'-2"						
	PD5	A	4	240	7'-9"	7'-9"						
	PD6	MM	4	240	12'-0"	3'-0"	3'-6"	1'-0"				
Substructure Non-Epoxy	PD7	C	4	300	6'-2"	3'-0"	1'-7"	1'-7"				
	PB1	A	8	160	23'-9"	23'-9"						
	PB2	C	8	3,560	8'-0"	2'-6"	2'-9"	2'-9"				
	PB4	A	5	60	41'-4"	41'-4"						
	PB5	E	4	100	8'-6"	1'-6"	5'-6"	1'-6"	3'-6"			
	PW1	A	9	348	6'-6"	6'-6"						
	PW2	A	9	348	11'-9"	11'-9"						
	PW3	A	9	348	13'-9"	13'-9"						
	PW4	A	9	696	18'-0"	18'-0"						
	PW5	A	6	40	41'-6"	41'-6"						
	PW6	E	9	1680	7'-0"	5'-0"	1'-6"	0'-6"	1'-0"			
	PW7	C	4	580	6'-0"	3'-0"	1'-6"	1'-6"				
	PW8	E	4	296	7'-8"	1'-6"	4'-8"	1'-6"	3'-0"			
	PW9	A	4	256	41'-4"	41'-4"						
	PW10	HH	3	1120	3'-10"	3'-1"	5"	1"	3"	4"		

BILL OF REINFORCING STEEL TOP SLAB												
	DESIGN MARK	BENDING MARK	SIZE	NUMBER	LENGTH	DIMENSIONS						
						a	b	c	d	e	f	g
Superstructure Epoxy Coated	S1	A	5	931	40'-6"	40'-6"						
	S2	A	6	84	37'-10"	37'-10"						
	S3	A	6	82	30'-0"	30'-0"						
	S4	A	6	84	17'-10"	17'-10"						
	S5	A	6	84	29'-10"	29'-10"						
	S6	A	6	588	32'-10"	32'-10"						
	S7	A	6	328	34'-0"	34'-0"						
	S8	A	6	84	24'-4"	24'-4"						

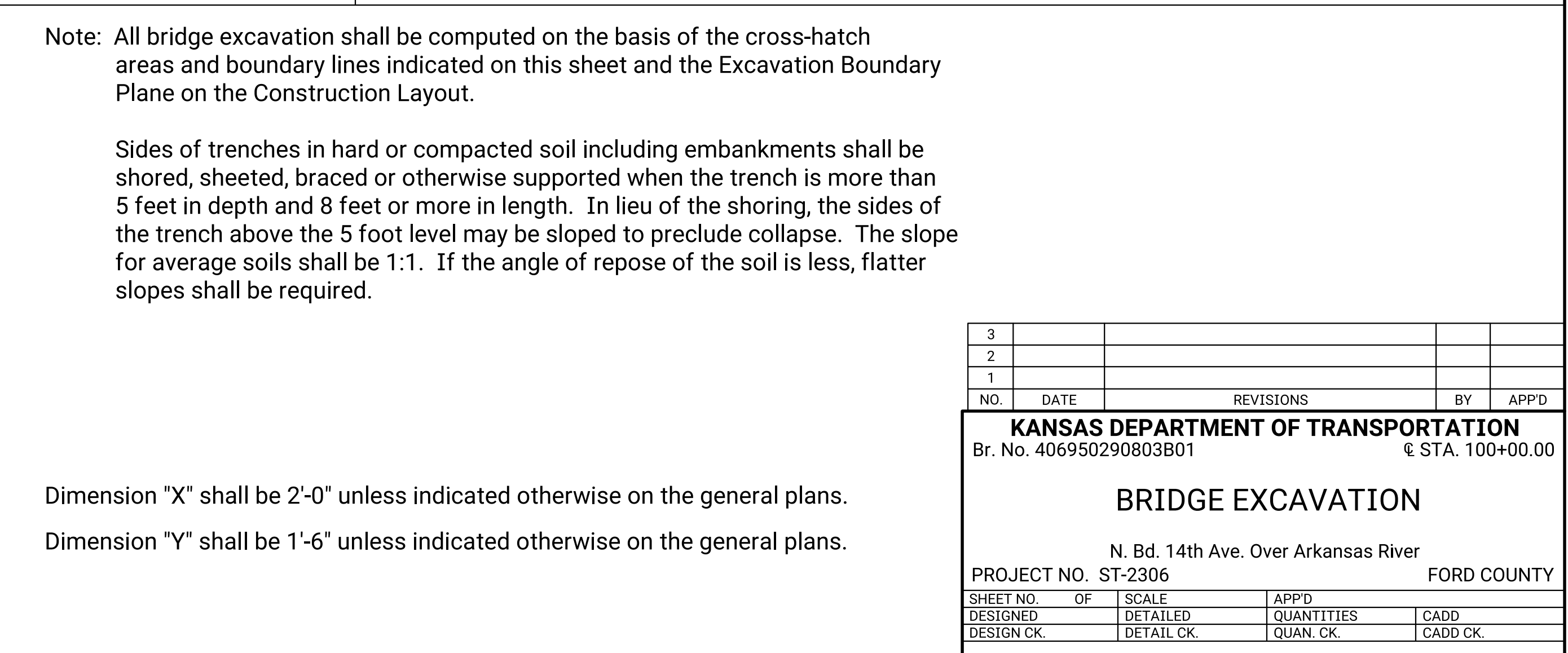
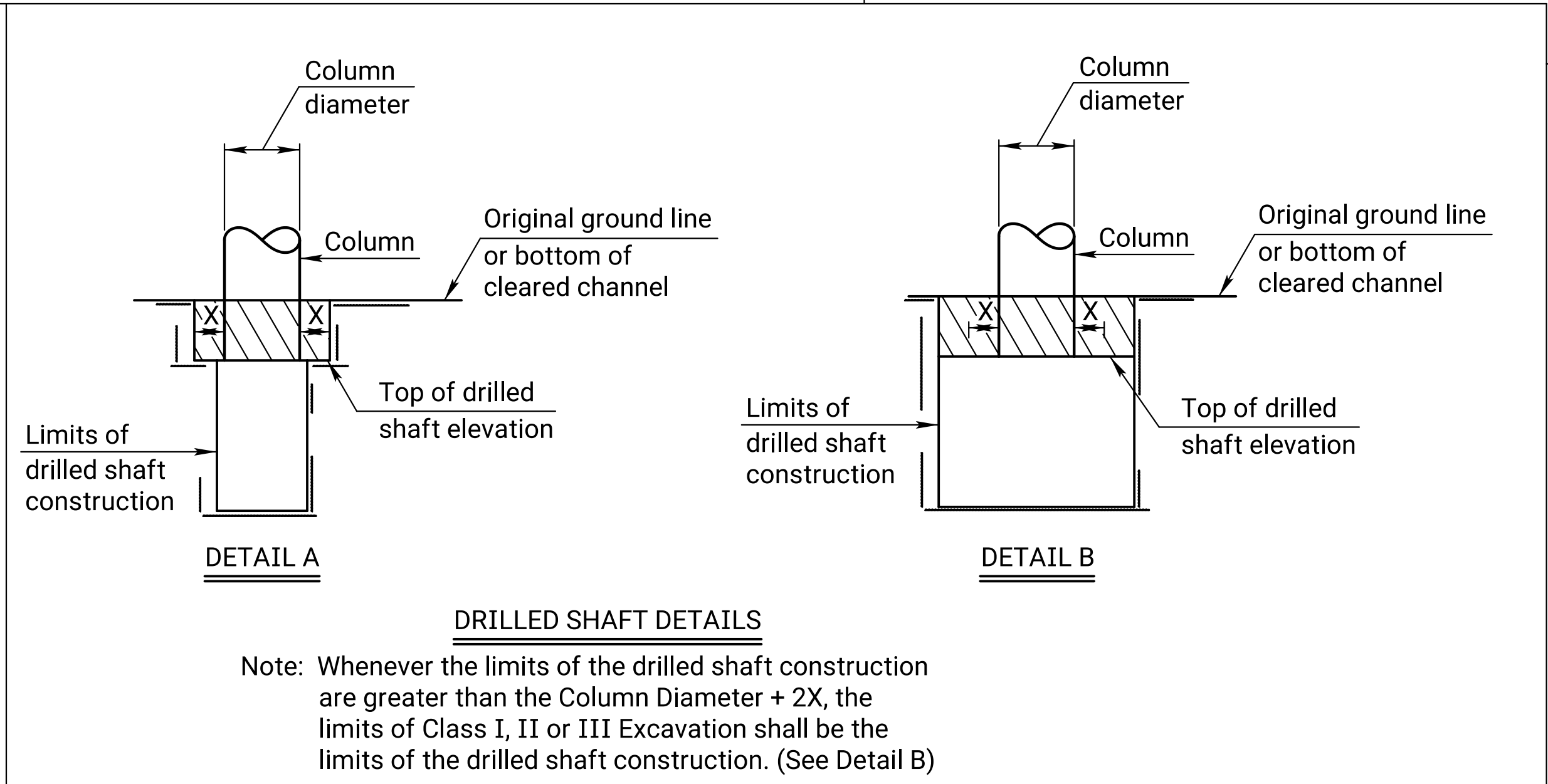
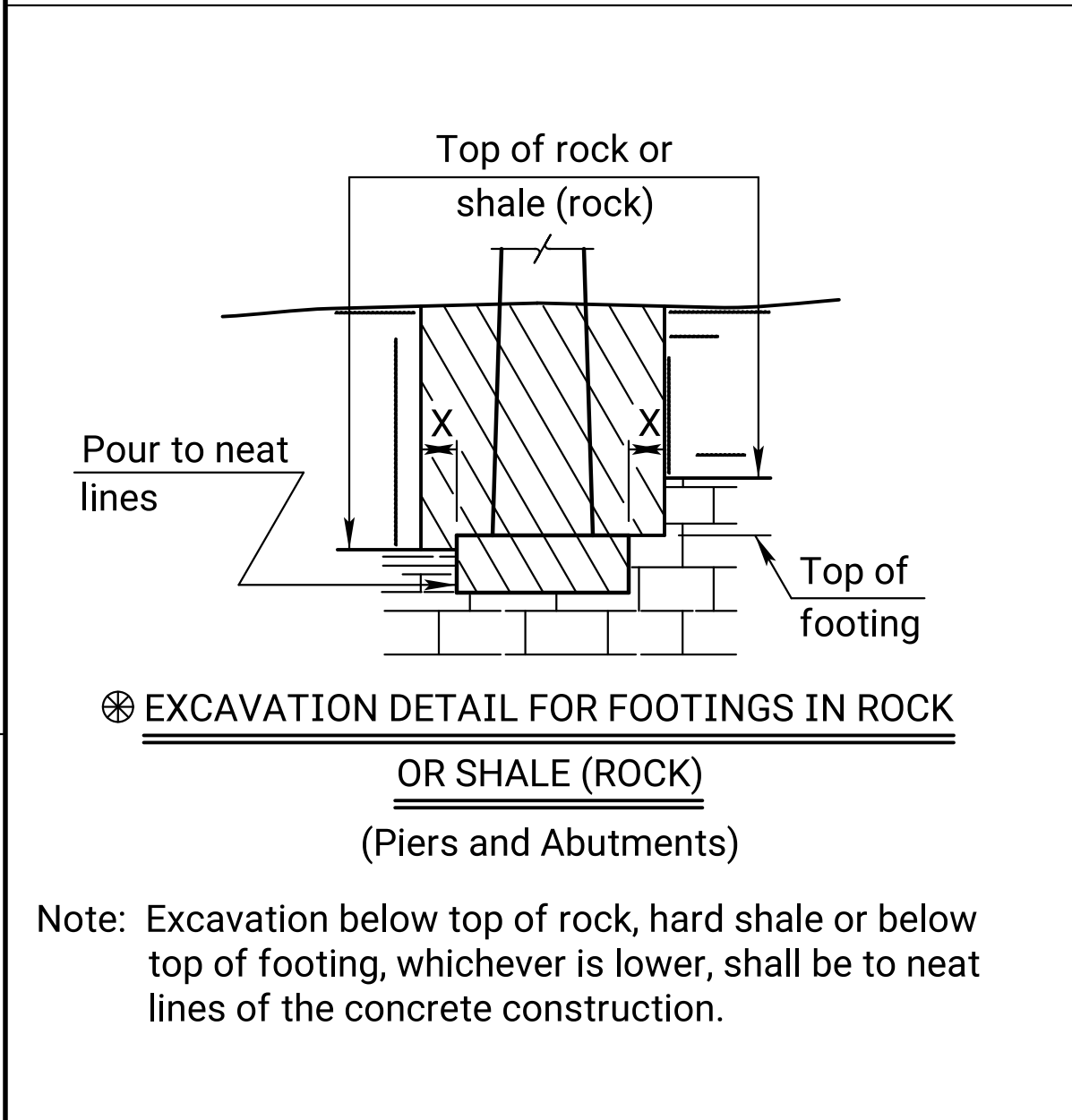
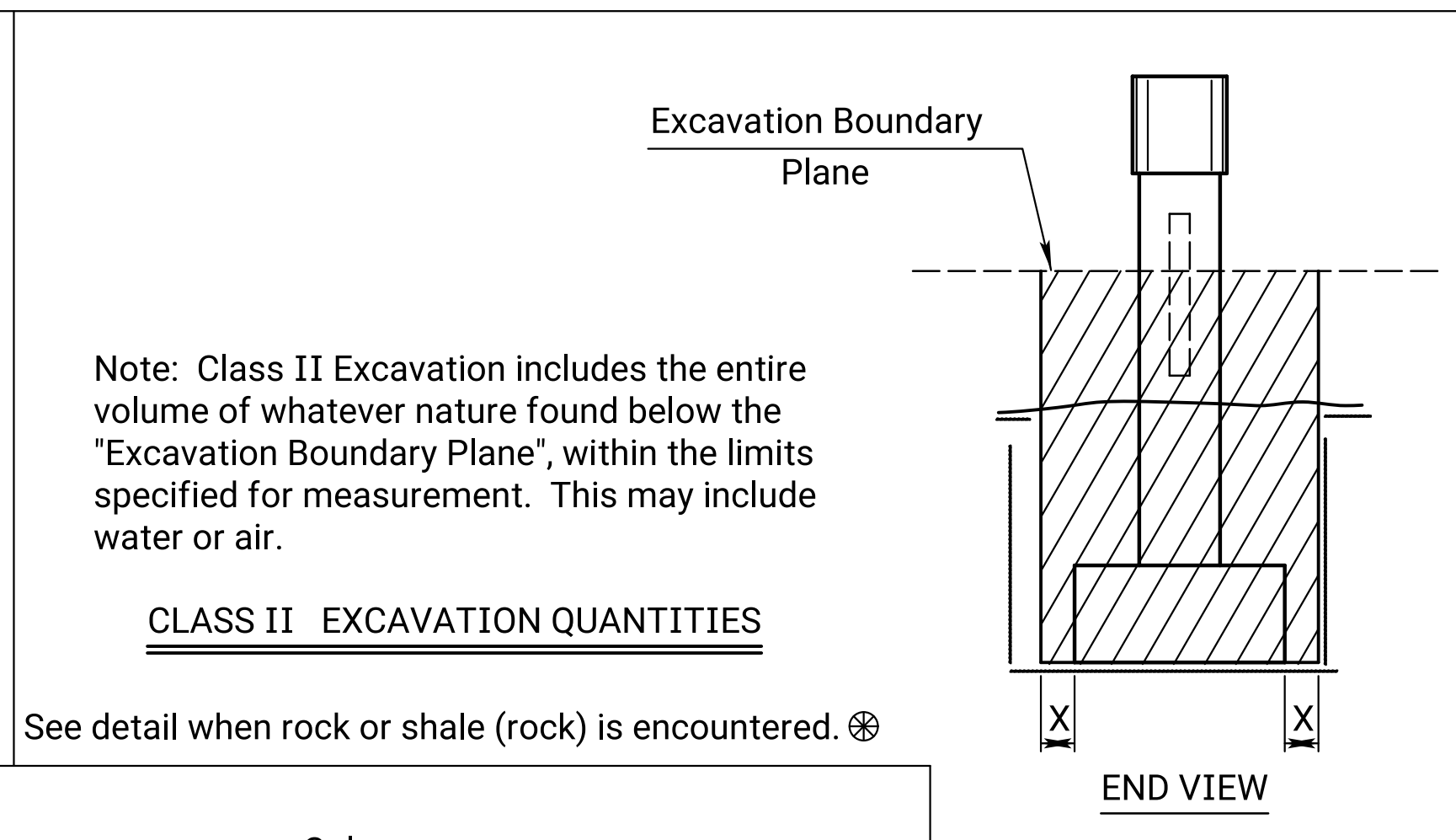
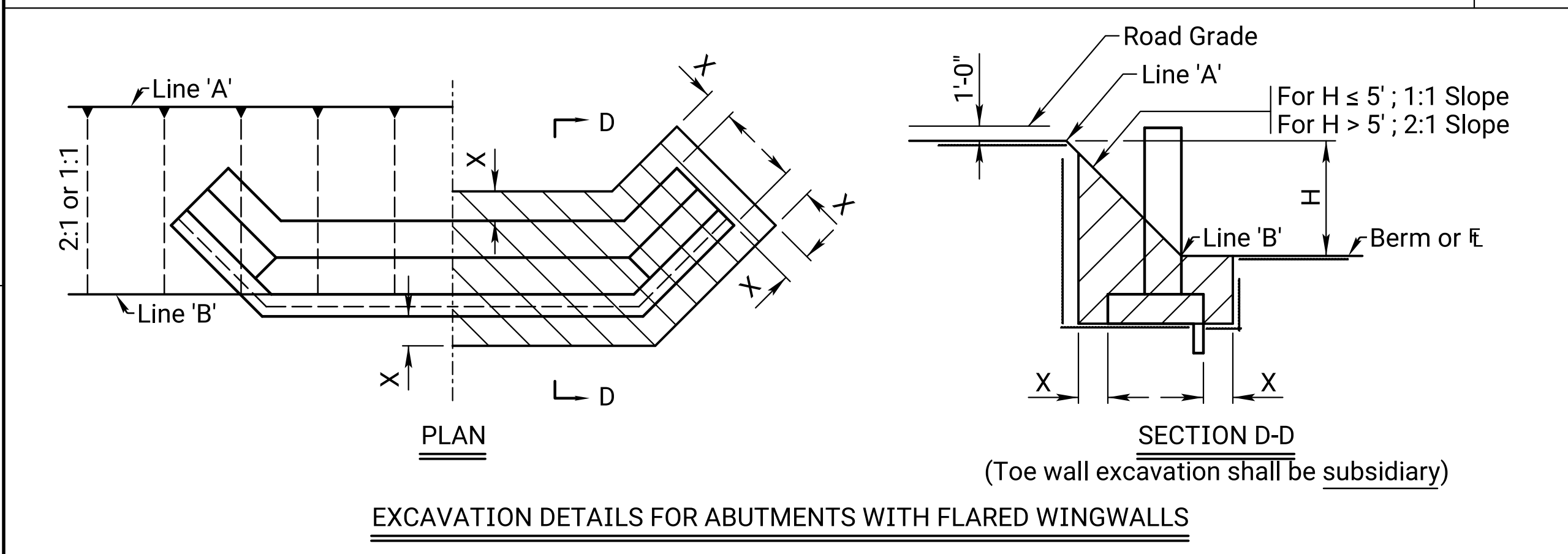
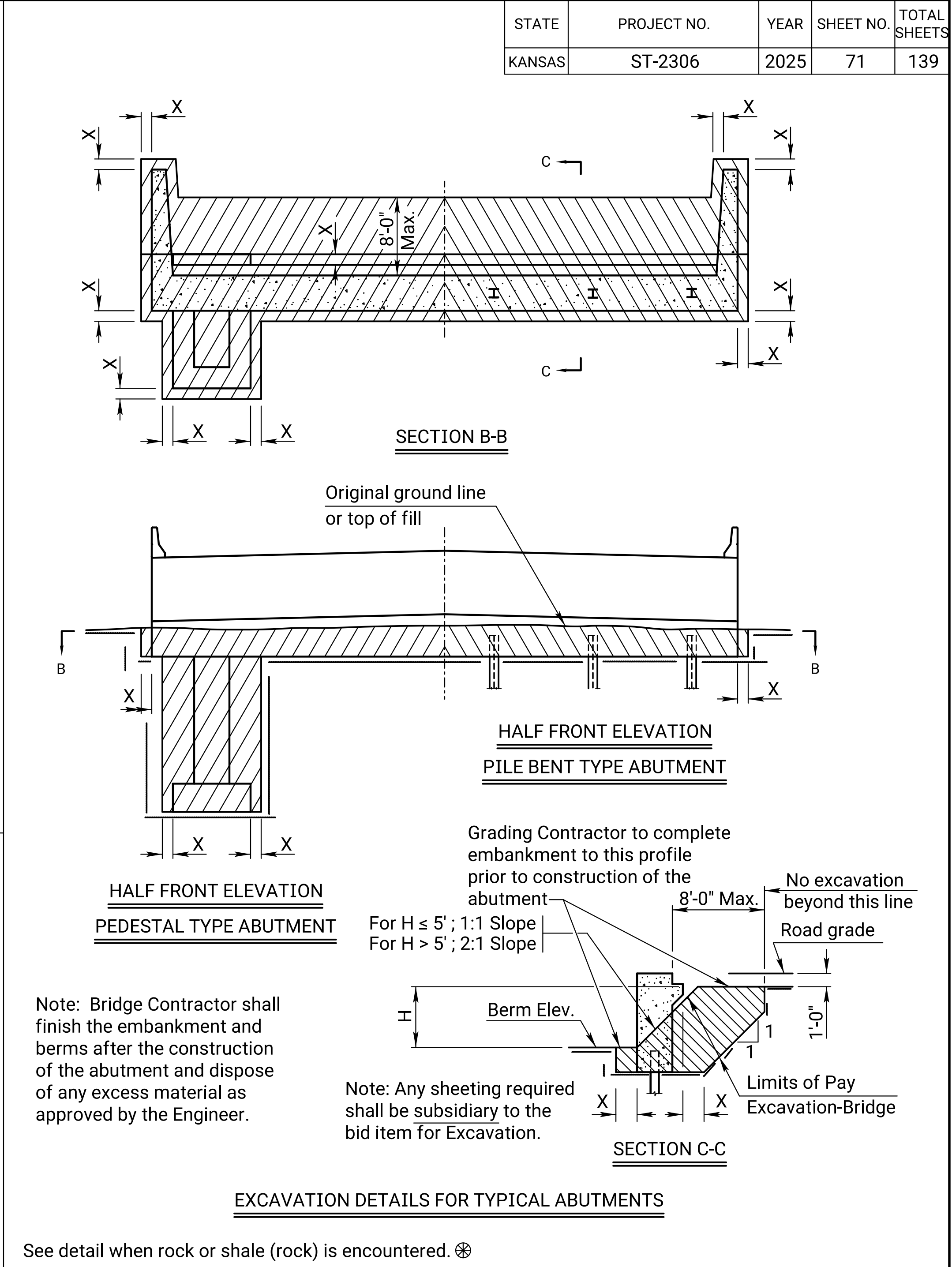
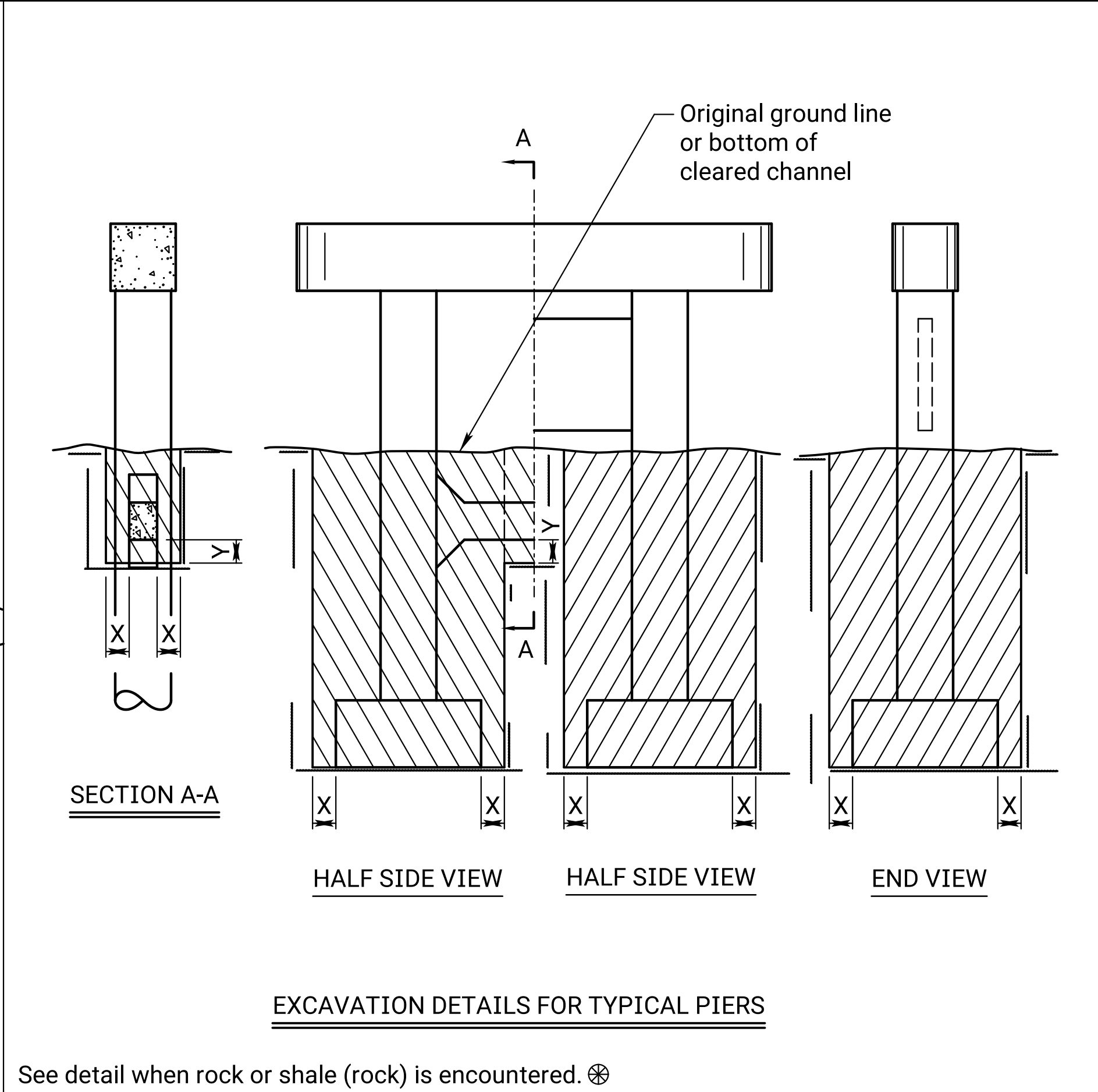
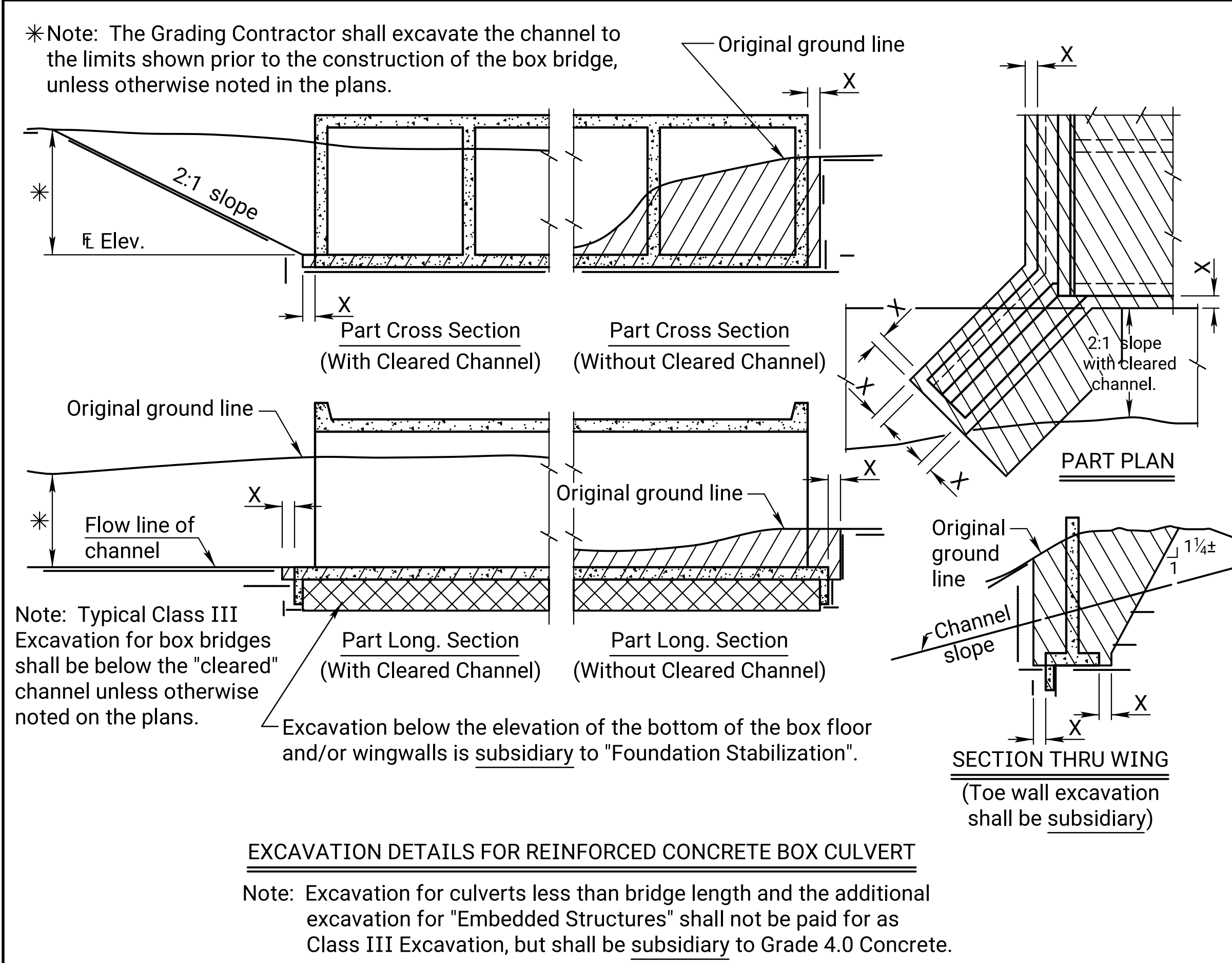
BILL OF REINFORCING STEEL BOTTOM SLAB												
	DESIGN MARK	BENDING MARK	SIZE	NUMBER	LENGTH	DIMENSIONS						
						a	b	c	d	e	f	g
Superstructure Epoxy Coated	S11	A	4	1241	40'-6"	40'-6"						
	S12	A	4	164	30'-1"	30'-1"						
	S13	A	4	328	31'-4"	31'-4"						
	S14	A	4	164	32'-1"	32'-1"						
	S15	A	4	1066	32'-10"	32'-10"						

BILL OF REINFORCING STEEL 32" KS CORRAL RAIL												
	DESIGN MARK	BENDING MARK	SIZE	NUMBER	LENGTH	DIMENSIONS						
						a	b	c	d	e	f	g
Superstructure Epoxy Coated	R1	DD	7	1008	7'-6"	2'-0"	2'-4"	11"	2'-3"	7"		
	R2	A	6	744	9'-6"	9'-6"						
	R3	C	4	12	7'-7"	7"	3'-6"					
	R4	B	4	1008	3'-11"	1'-10"	2'-1"					
	R5	C	3	720	4'-6"	8"	1'-11"					
	R6	H	3	244	4'-6"	1'-3"	8"	4"				
	R7	H	3	1024	4'-4"	1'-4"	6"	4"				
	C1	EE	4	276	3'-3"	8"	11"	9"	11"			
	C2	A	4	8	9'-8"	9'-8"						
	C3	A	4	8	32'-8"	32'-8"						
	C4	A	4	32	22'-8"	22'-8"						
	SP1	C	5	630	4'-4"	4"	2'-0"					

BILL OF REINFORCING STEEL LIGHT POLE PEDESTAL												
	DESIGN MARK	BENDING MARK	SIZE	NUMBER	LENGTH	DIMENSIONS						
						a	b	c	d	e	f	g
Epoxy Coated	LP1	A	4	20	2'-11"	2'-11"						
	LP2	R	4	5	7'-4"	2'-2"	0'-6"					

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1					
NO.	DATE	REVISIONS	BY	APP'D	
KANSAS DEPARTMENT OF TRANSPORTATION Br. No. 406950290803B01© STA. 100+00.00					
BILL OF REINFORCING (PIERS, SLAB, RAILS, LIGHT POLES)					
N. Bd. 14th Ave. Over Arkansas River					
PROJECT NO. ST-2306			FORD COUNTY		
SHEET NO.	OF	SCALE	APP'D		
DESIGNED		DETAILED	QUANTITIES	CADD	
DESIGN CK.		DETAIL CK.	QUAN. CK.	CADD CK.	

Plotted By: Riley Standish
File: ST2306bbr200.dgn
Plot Date: 8-JUL-2025 16:41

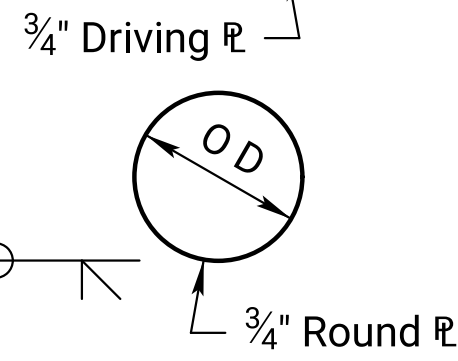


OD	10¾"	T. = ‡
OD	12¾"	T. = ‡
OD	14"	T. = ‡

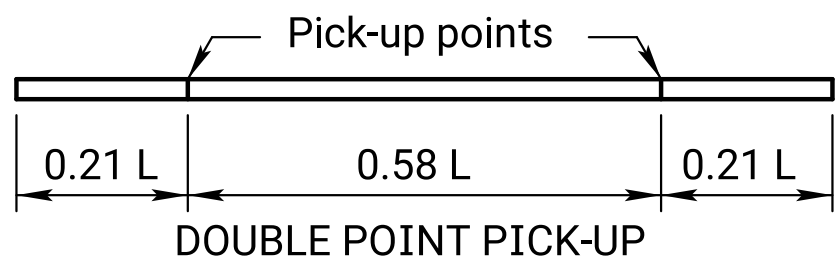
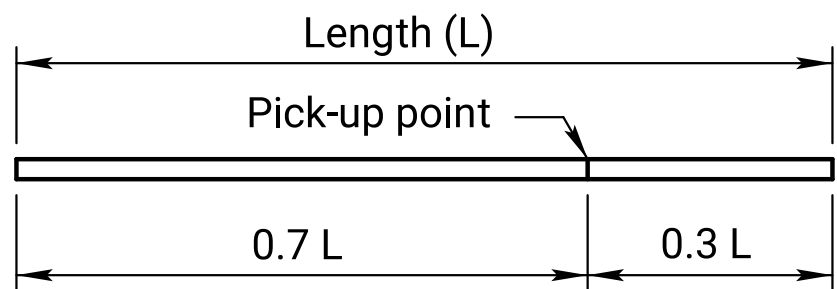
‡ See the Geology Report or "Summary of Quantities" for Pipe Pile wall thickness

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.



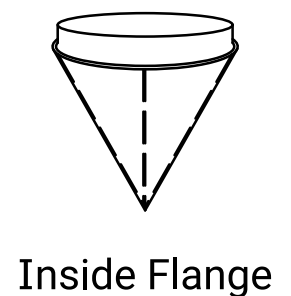
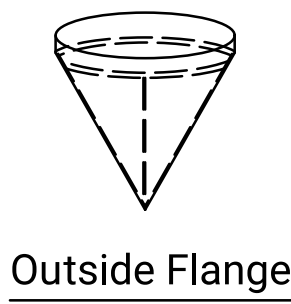
PLAIN ROUND
CAST-IN-PLACE CONCRETE PILES



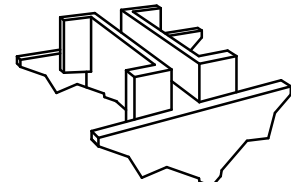
PICK-UP POINTS FOR PRESTRESSED PILING

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.

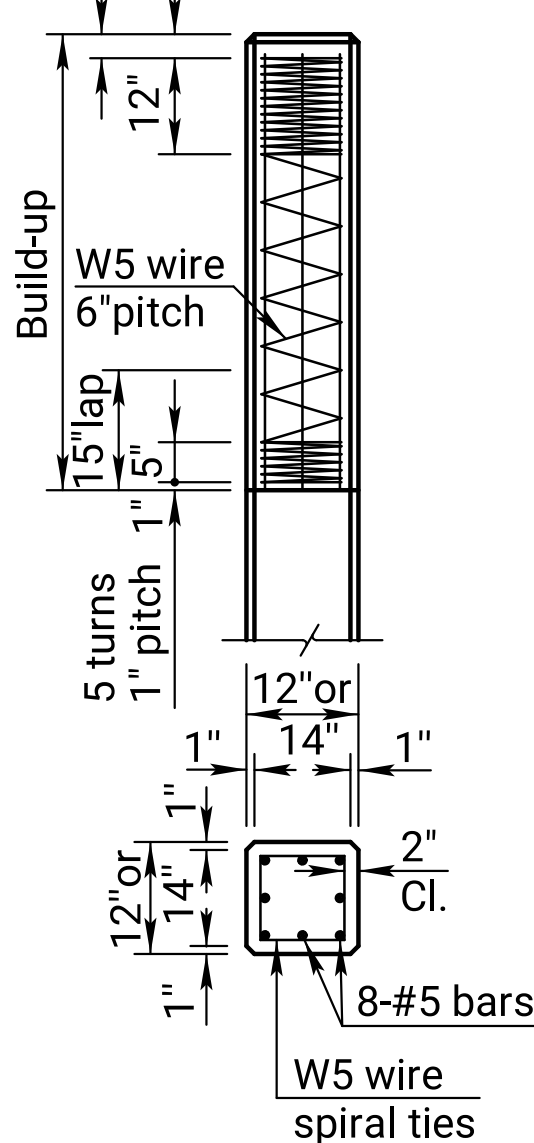
Lay full penetration root weld from beveled side of splice.

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.

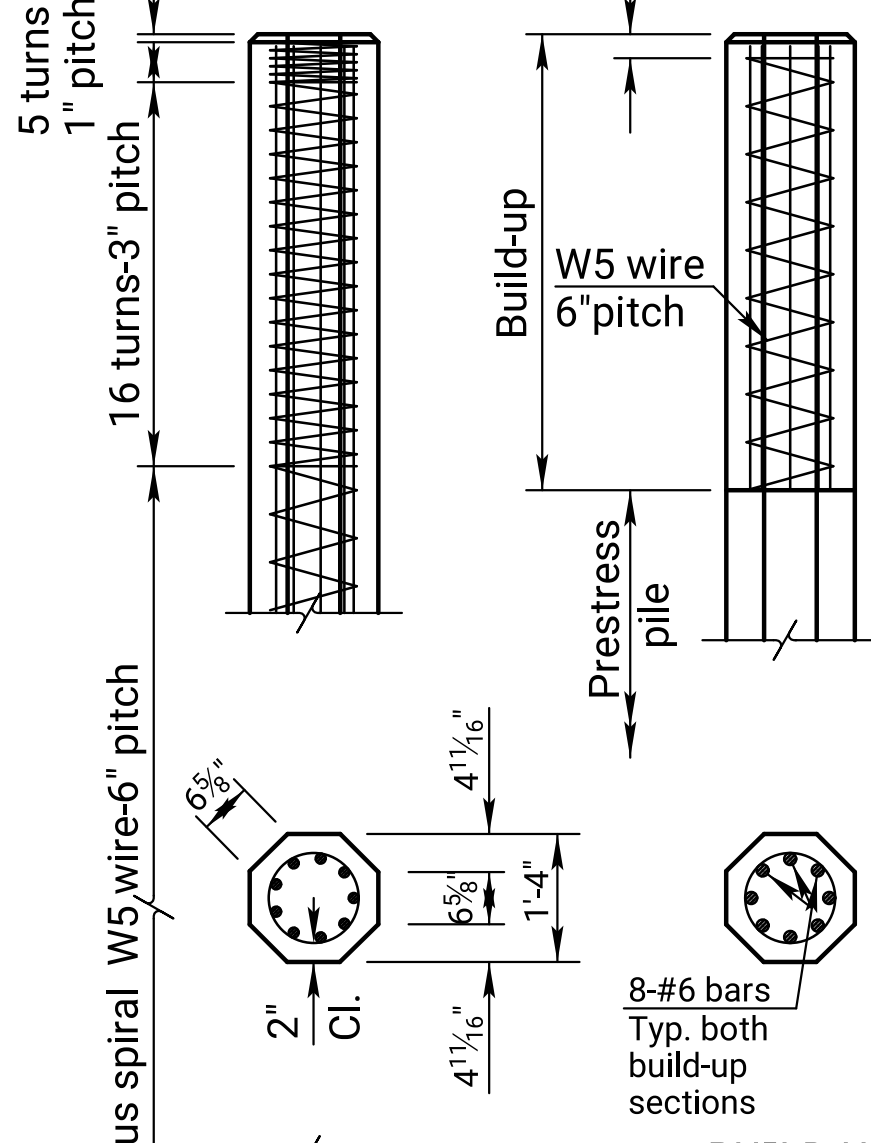
Verify that enough filler metal has been correctly placed in all weld locations to obtain a flush or convex surface with no concavity produced upon completion of the final welds.

Note: If additional driving is required, use 1" pitch as shown.



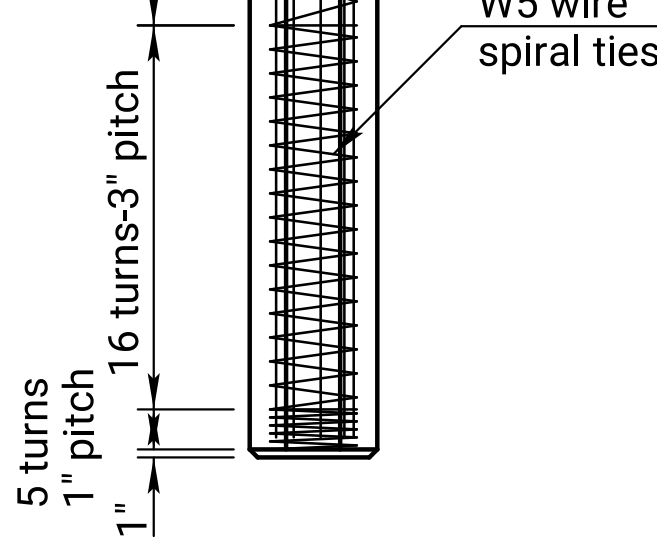
BUILD UP SECTION

8 - ¾" Ø 270K strands @ 16,000 Lbs. each
12" x 12" piles
8 - ½" Ø 270K strands @ 22,700 Lbs. each
14" x 14" piles



BUILD-UP
WITHOUT DRIVING

9 - ½" Ø 270K strands @ 24,800 Lbs. each



16" PRESTRESSED
CONCRETE PILES

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

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.

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

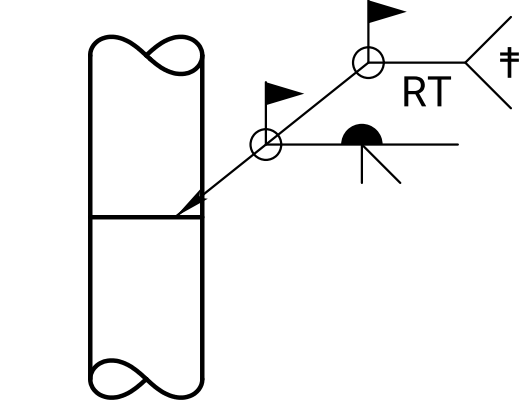
For integral pile bent abutments and piers, if a pile splice is required, do not locate the pile splice within a region extending 2'-0" above and 10'-0" below the bottom of the concrete web wall. For abutments, locate the pile splice at least 10'-0" below top of fill.

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.

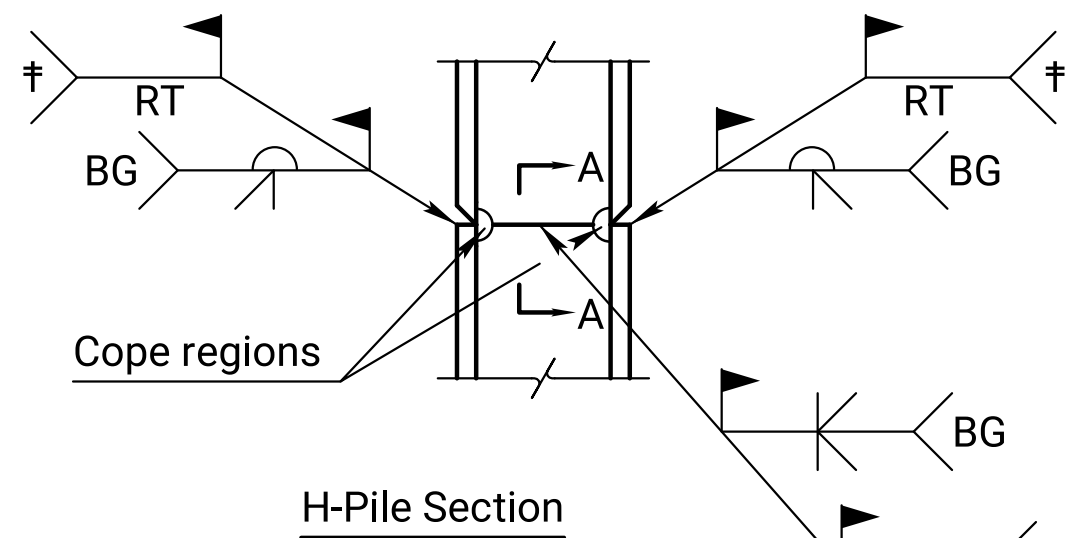
‡ For integral pile bent abutments and piers, if a splice is located within the regions described above, then the Contractor will test the welds by Radiograph (RT) test methods. Repair and retest any welds not passing the test(s). Each weld tested will have written confirmation of results. Report these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

* Minimum as required by welding process.

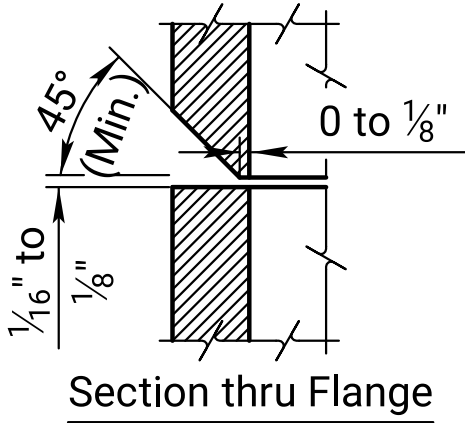
BG = Backgouge



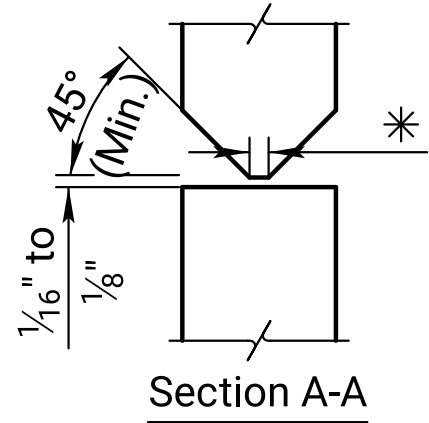
Pipe Section



H-Pile Section



Section thru Flange



Section A-A
(Thru web)

PILE SPLICE DETAILS

GENERAL NOTES

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	ST-2306	2025	72	139

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.

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NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION
Br. No. 406950290803B01 © STA. 100+00.00

STANDARD PILE DETAILS

PROJECT NO. ST-2306				FORD COUNTY	
SHEET NO.	OF	SCALE	APP'D	QUANTITIES	CADD
DESIGNED		DETAILED		QUAN. CK.	CADD CK.
DESIGN CK.		DETAIL CK.			

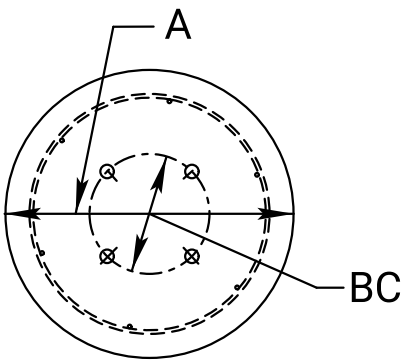
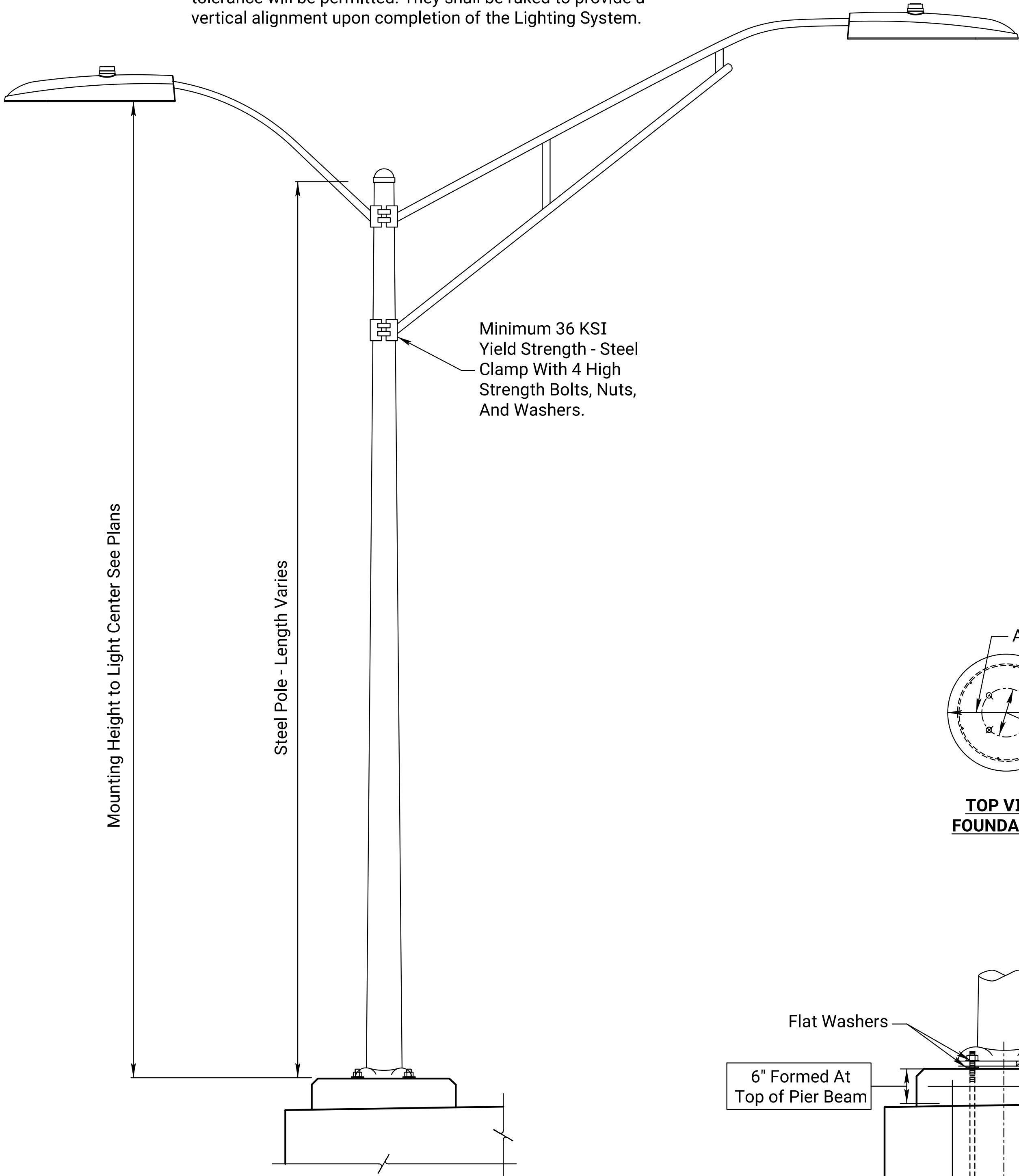
Plot Location:

Plotted By: Riley Standish
File: ST2306bbr210.dgn
Plot Date: 8-JUL-2025 16:41

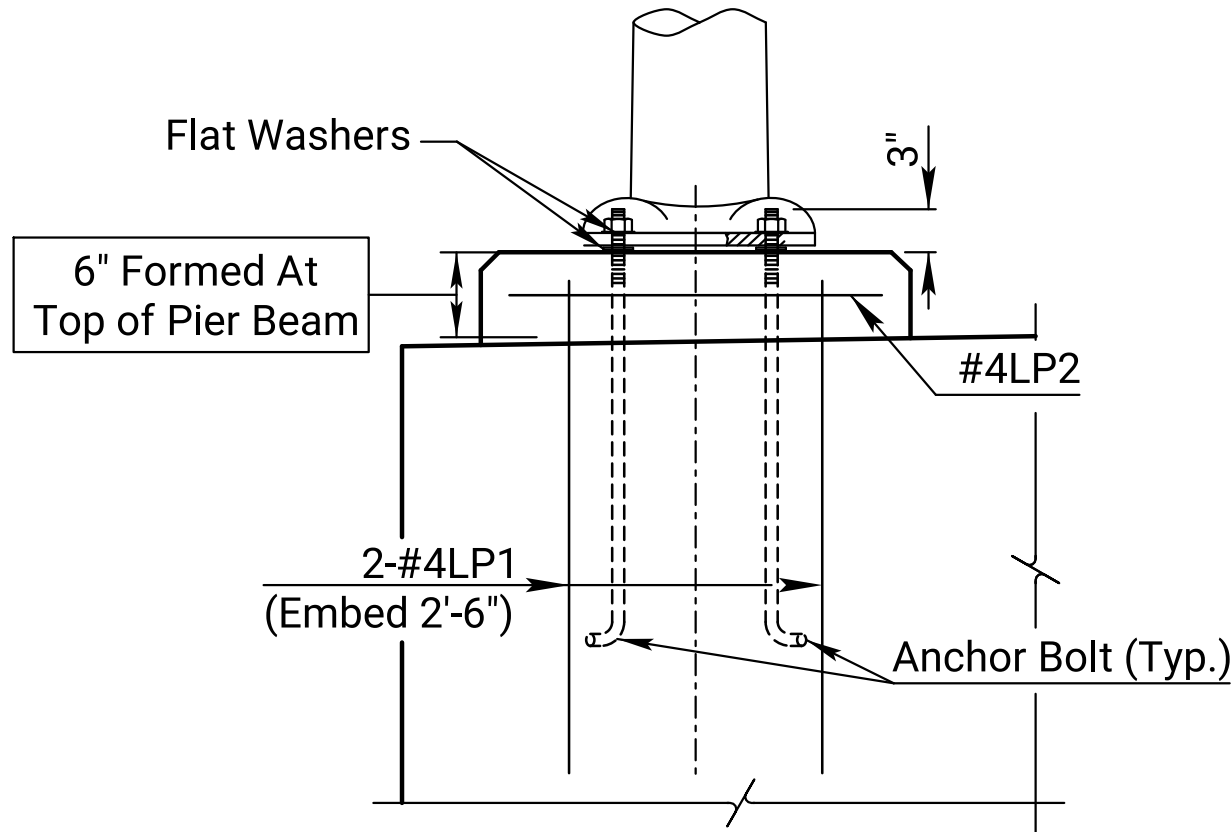
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	ST-2306	2025	74	139

MOUNTING HEIGHT	BC	A	B	C
40'	1'-1.5"	2'-6"	8 - #9	2'-0"

NOTE: Single member luminaire arms are 6 and 8 ft. in length. Truss arms are 10, 12, or 15 ft. in length. These are determined in the design and shall be shown in the plans and/or on the TE209 CONSTRUCTION QUANTITIES. All luminaires shall be supported with light centers up to 55 ft. above grade. The careful alignment and grading of pole is essential and no perceptible tolerance will be permitted. They shall be raked to provide a vertical alignment upon completion of the Lighting System.

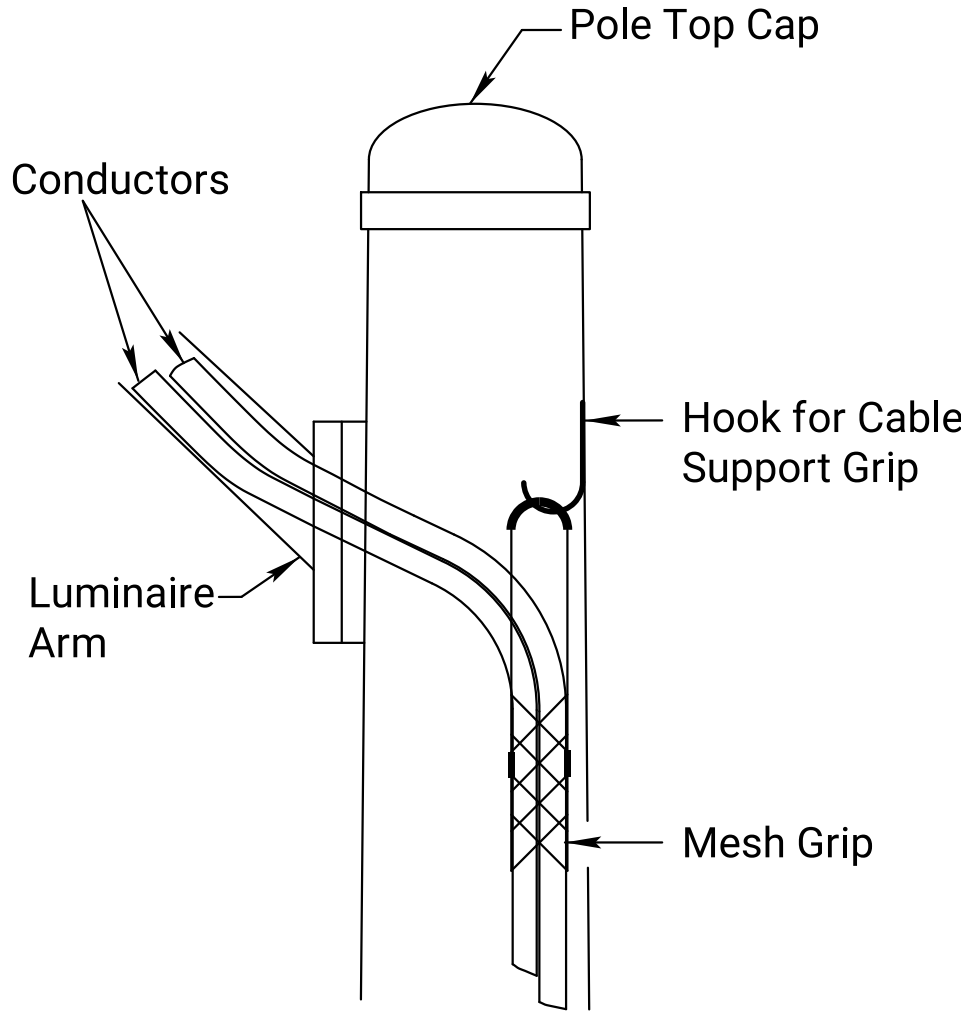


TOP VIEW
FOUNDATION



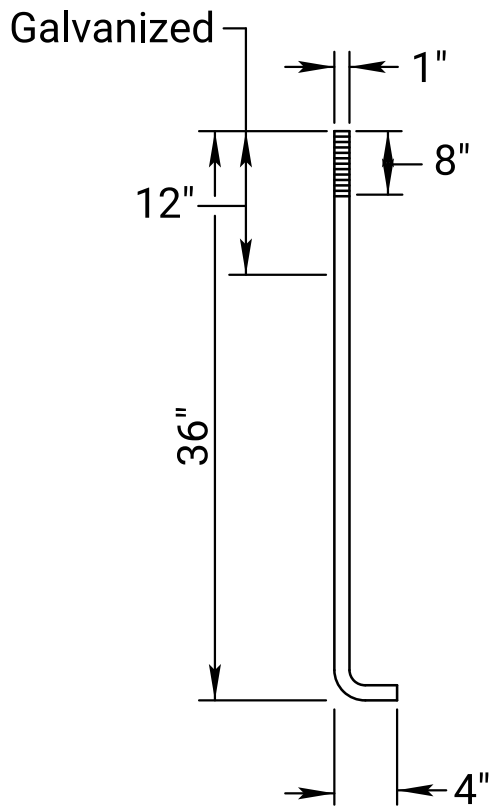
All Splices to be Made in Frangible Base

FOUNDATION
DETAIL



CABLE SUPPORT
GRIP

NOTE: The cable support grip shall be installed on the hook supplied within the light pole as shown above.



ANCHOR BOLT

NOTE: Contractor shall install the anchors bolts (provided by Victory Electric) in the pier caps. Victory Electric will supply and install the street lighting poles.

3					
2					
1					
NO.	DATE	REVISIONS	BY	APP'D	
KANSAS DEPARTMENT OF TRANSPORTATION					
Br. No. 406950290803B01					
© STA. 100+00.00					
BRIDGE LIGHTING SYSTEM					
N. Bd. 14th Ave. Over Arkansas River					
PROJECT NO. ST-2306			FORD COUNTY		
SHEET NO.	OF	SCALE	APP'D		
DESIGNED		DETAILED	QUANTITIES	CADD	
DESIGN CK.		DETAIL CK.	QUAN. CK.	CADD CK.	

Plotted By: Riley Standish	Plot Location:
File: ST2306bbr300.dgn	
Plot Date: 8-JUL-2025 16:42	

CONCRETE PAVEMENT AND CRUSHED STONE SUBGRADE									
ROADWAY	STATION TO STATION		MEDIAN		BRIDGE APPROACH	DRIVING LANES	SUBGRADE		REMARKS
			CONCRETE PAVT. (4" UNIFORM) (AE) (PLAIN) (SQ. YDS.)	CONCRETE PAVT. (12" UNIFORM) (AE) (PLAIN) (SQ. YDS.)	CONCRETE PAVT. (10" UNIFORM) (AE) (BR APP) (SQ. YDS.)	CONCRETE PAVT. (9" UNIFORM) (AE) (NRDJ) (SQ. YDS.)	CRUSHED STONE SUBGRADE (8") (SQ. YDS.)	GEOSYNTHETIC REINFORCEMENT (FOR BASE) (SQ. YDS.)	
€ N. Bd. Lanes	92+75.00	94+08.00				411.1	472.1	472.1	
€ N. Bd. Lanes	94+08.00	96+55.50	133.1	81.1		617.3	848.5	848.5	
€ N. Bd. Lanes	96+55.50	96+88.50	25.8	7.4	110.8		127.9	127.9	
Bridge No. 406950290803B01									
€ N. Bd. Lanes	103+11.50	103+44.50	28.3	7.4	110.8		128.0	128.0	
€ N. Bd. Lanes	103+44.50	104+86.00	46.3	84.7		358.2	532.5	532.5	
€ N. Bd. Lanes	104+86.00	105+90.00				332.0	389.7	389.7	
TOTAL			233.5	180.6	221.6	1,718.6	2,498.7	2,498.7	

SELECT SOIL					
ROADWAY	STATION TO STATION		SIDE	QUANTITY (CU. YDS.)	REMARKS
€ N. Bd. Lanes	90+90	96+89	Rt.	524.8	
€ N. Bd. Lanes	103+12	106+57	Rt.	176.2	
€ N. Bd. Lanes	104+85	105+40	Lt.	5.7	
TOTAL				706.7	

CONCRETE PAVEMENT (ENTRANCES)			
STATION	SIDE	CONCRETE PAVT. (7" UNIFORM) (AE) (PLAIN) (SQ. YDS.)	REMARKS
€ N. Bd. Lanes 106+21.90	Rt.	107.9	
TOTAL		107.9	

EARTHWORK														
STATION TO STATION		ROADWAY	EXCAVATION						COMPACTION		THRU CUTS NOT SUBGRADED		REMARKS	
			COMMON		ROCK (PAVEMENT REMOVAL)		CONTRACTOR FURNISHED	MATERIAL TO BE WASTED ‡		TYPE AA MR-3-3	TYPE A MR-3-3	COMMON EXCAVATION		TYPE AA MR-3-3
								COMMON	ROCK (PAVEMENT REMOVAL)					
			CU. YDS	VMF	CU. YDS	VMF	CU. YDS	CU. YDS	CU. YDS	CU. YDS	CU. YDS	CU. YDS		CU. YDS
Phase 1														
Sta. 90+90.00	Sta. 100+00.00	€ N. Bd. Lanes	262	0.83	239	1.00	2665		239	100	2329	204	204	
Sta. 100+00.00	Sta. 106+56.63	€ N. Bd. Lanes	174	0.83	142	1.00	721		142	100	643	66	66	
Phase 2														
Sta. 90+90.00	Sta. 100+00.00	€ N. Bd. Lanes	118	0.83	99	1.00		53	99	37	17	113	113	
Sta. 100+00.00	Sta. 106+56.63	€ N. Bd. Lanes	71	0.83	71	1.00			71	43	16	58	58	
TOTAL			625		551		3,386	53	551	280	3,005	441	441	

‡ To be wasted on sites provided by the Contractor - See General Note

RECAPITULATION OF BRIDGE QUANTITIES		
BRIDGE NUMBER	STATION	SEE SHEET NO.
Br. No. 406950290803B01	100+00.00	37

BRIDGE APPROACH SLAB FOOTING		
ROADWAY	VOLUME (CU. YDS.)	REMARKS
Bridge No. 406950290803B01		
Abutment #1 Approach Slab	17.9	
Abutment #2 Approach Slab	17.9	
TOTAL	35.8	

COMBINED CURB & GUTTER (AE)					
ROADWAY	STATION TO STATION		SIDE	LINEAR FEET	REMARKS
				TYPE I	
€ N. Bd. Lanes	92+75.00	96+55.50	Rt.	381.3	
€ N. Bd. Lanes	94+08.00	96+47.50	Lt.	239.1	
€ N. Bd. Lanes	94+73.93	94+94.89	Lt.	20.8	
€ N. Bd. Lanes	94+77.77	94+86.82	Lt.	9.0	
€ N. Bd. Lanes	95+90.00	96+54.32	Lt.	64.3	
€ N. Bd. Lanes	103+44.50	105+90.00	Rt.	246.0	
€ N. Bd. Lanes	103+43.94	104+86.05	Lt.	142.2	
€ N. Bd. Lanes	103+52.50	104+86.00	Lt.	133.5	
€ N. Bd. Lanes	104+64.58	104+84.53	Lt.	20.0	
€ N. Bd. Lanes	105+21.11	105+41.11	Lt.	20.0	
TOTAL				1,276.2	

CONCRETE SAFETY BARRIER							
ROADWAY	STATION TO STATION		SIDE	LINEAR FEET			REMARKS
				SPECIAL 32"	TYPE II	TYPE II SPECIAL	
€ N. Bd. Lanes	95+59.77	96+08.44	Lt.			57.4	
€ N. Bd. Lanes	96+08.44	96+76.04	Lt.		67.7		
€ N. Bd. Lanes	96+08.44	96+88.50	Lt.		80.2		
€ N. Bd. Lanes	96+55.50	96+88.50	Rt.	33.0			
€ N. Bd. Lanes	103+11.50	103+44.50	Rt.	33.0			
€ N. Bd. Lanes	103+11.50	103+97.05	Lt.		85.7		
€ N. Bd. Lanes	103+24.27	103+97.05	Lt.		72.9		
€ N. Bd. Lanes	103+97.05	104+45.79	Lt.			57.4	
TOTAL				66.0	306.5	114.8	

SIDEWALK RAMP				
ROADWAY	STATION	SIDE	QUANTITY (SQ. YDS.)	REMARKS
€ N. Bd. Lanes	94+82.25	Lt.	11.3	
€ N. Bd. Lanes	94+82.29	Lt.	7.9	
€ N. Bd. Lanes	94+82.29	Rt.	5.6	
€ N. Bd. Lanes	104+75.00	Lt.	5.6	
€ N. Bd. Lanes	104+75.00	Rt.	6.3	
€ N. Bd. Lanes	104+77.11	Lt.	11.3	
TOTAL			48.0	

REMOVAL OF EXISTING STRUCTURES			
(FOR INFORMATION ONLY)			
ROADWAY	STATION	SIDE	ITEM
€ N. Bd. Lanes	90+96	Rt.	Exist. End Section & 24" x 2' CMP
€ N. Bd. Lanes	92+04	Rt.	Exist. End Section
€ N. Bd. Lanes	95+95	Rt.	Exist. End Section
€ N. Bd. Lanes	95+96 to 96+89	Lt.	Exist. Barrier Retaining Wall (221')
€ N. Bd. Lanes	96+01	Rt.	Exist. End Section
€ N. Bd. Lanes	96+07	Rt.	Exist. End Section
€ N. Bd. Lanes	96+25 to 96+76	Lt.	Exist. Barrier Retaining Wall (51')
€ N. Bd. Lanes	100+00	Lt. & Rt.	Exist. Br. No. 406950290803001
€ N. Bd. Lanes	103+11 to 104+04	Lt.	Exist. Barrier Retaining Wall (94')
€ N. Bd. Lanes	103+24 to 103+75	Lt.	Exist. Barrier Retaining Wall (51')
€ N. Bd. Lanes	103+96	Rt.	Exist. Fence

Note: The list shown for "Removal of Existing Structures" may not be complete. Payment for structuresor obstructions not listed, but whos removal is required by construction as determined by the Enginner,shall not be paid for directly, but shall be included in the bid item "Removal of Existing Structures."

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	ST-2306	2025	76	139

RECAPITULATION OF ROAD QUANTITIES		
ITEM	QUANTITY	UNIT
Contractor Construction Staking	1	Lump Sum
Field Office & Labortatory (Type A)	1	Each
Foundation Stabilization (Set Price)	1	Cu. Yds.
Mobilization	1	Lump Sum
Removal of Existing Structures	1	Lump Sum
Clearing and Grubbing	1	Lump Sum
Common Excavation	1,066	Cu. Yds.
Common Excavation (Contractor Furnished)	3,386	Cu. Yds.
Rock Excavation	551	Cu. Yds.
Compaction of Earthwork (Type AA) (MR-3-3)	721	Cu. Yds.
Compaction of Earthwork (Type A) (MR-3-3)	3,005	Cu. Yds.
Water (Grading) (Set Price)	1	M. Gal.
Select Soil (Contractor Furnished)	707	Cu. Yds.
Cross Road Pipe (36")	60	Lin. Ft.
End Section (18") (RC)	1	Each
End Section (24") (RC)	2	Each
End Section (36")	3	Each
End Section (36") (RC)	1	Each
Entrance Pipe (24") (RCP)	68	Lin. Ft.
Inlet (Type 22 Curb)	2	Each
Manhole (Reinforced Concrete)	3	Each
Curb and Gutter, Combined (AE)	1,276	Lin. Ft.
Storm Sewer (18") (RCP)	58	Lin. Ft.
Storm Sewer (30") (RCP)	102	Lin. Ft.
Storm Sewer (36") (RCP)	268	Lin. Ft.
Sidewalk Construction (6") (AE)	764	Sq. Yds.
Sidewalk Ramp	48	Sq. Yds.
Concrete Safety Barrier (Special) (32")	66	Lin. Ft.
Concrete Safety Barrier (Type II)	307	Lin. Ft.
Concrete Safety Barrier (Type II) (Special)	115	Lin. Ft.
Concrete Safety Barrier (Type F3) (Temporary)	1,900	Lin. Ft.
Concrete Safety Barrier (Type F3) (Temporary - Relocate)	425	Lin. Ft.
Mowing	0.3	PMPS
Concrete Pavement (4" Uniform)(AE)(PLAIN)	234	Sq. Yds.
Concrete Pavement (7" Uniform)(AE)(PLAIN)	108	Sq. Yds.
Concrete Pavement (9" Uniform)(AE)(NRDJ)	1,719	Sq. Yds.
Concrete Pavement (10" Uniform)(AE)(BR APP)	222	Sq. Yds.
Concrete Pavement (12" Uniform)(AE)(PLAIN)	181	Sq. Yds.
Bridge Approach Slab Footing	35.8	Cu. Yds.
Quality Control Testing (PCCP)	2,242	Sq. Yds.
Concrete Core (Set Price)	1	Each
Crushed Stone Subgrade (8")	2,499	Sq. Yds.
Geosynthetic Reinforcement (for Base)	2,499	Sq. Yds.
Water (Crushed Stone Subgrade) (Set Price)	1	M. Gal.

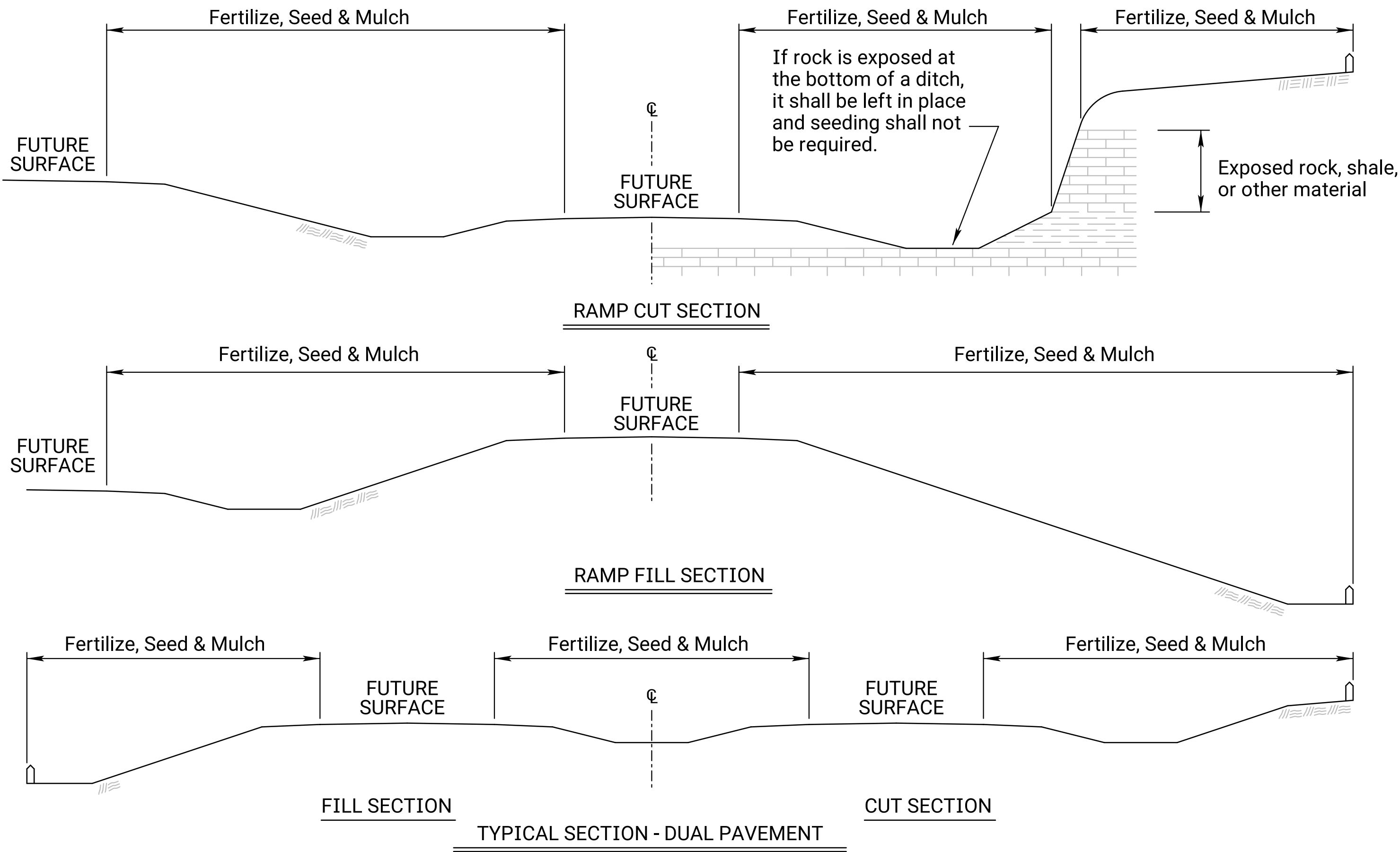
See Sh. No. 25 for Schedule of Inlets
See Sh. No. 75 for Summary of Drainage Structures
See Sh. No. 77 for Recapitulation of Temporary Erosion and Pollution Control Quantities
See Sh. No. 88 for Recapitulation of Seeding Quantities
See Sh. No. 90 for Recapitulation of Lighting Quantities
See Sh. No. 97 for Recapitulation of Signing and Delineation Quantities
See Sh. No. 108 for Recapitulation of Pavement Marking Quantities
See Sh. No. 122 for Recapitulation of Traffic Control Quantities
See Sh. No. 123 for Summary of TCSB Quantities

MOWING				
ROADWAY	STATION TO STATION		SIDE	QUANTITY (PMPS)
€ N. Bd. Lanes	90+90	106+57	Rt.	0.3
TOTAL				0.3

CONCRETE SIDEWALK (6") (AE)						
ROADWAY	STATION TO STATION		SIDE	WIDTH (FT.)	QUANTITY (SQ. YDS.)	REMARKS
€ N. Bd. Lanes	92+75.00	93+05.00	Rt.	Var.	26.1	
€ N. Bd. Lanes	93+05.00	96+88.50	Rt.	10.0	427.8	
€ N. Bd. Lanes	94+89.74	94+94.81	Lt.	Var.	3.2	
€ N. Bd. Lanes	103+11.50	105+60.00	Rt.	10.0	277.0	
€ N. Bd. Lanes	104+65.04	104+70.05	Lt.	Var.	3.3	
€ N. Bd. Lanes	105+60.00	105+90.00	Rt.	Var.	26.2	
TOTAL					763.6	

02	01-14-08	Rem. Drainage Structure summary	S.W.K.	J.O.B.	
01	01-09-91	Detailed on CADD	R.J.S.	J.O.B.	
NO.	DATE	REVISIONS	BY	APPD	
KANSAS DEPARTMENT OF TRANSPORTATION					
SUMMARY OF QUANTITIES					
RD050					
FHWA APPROVAL		05-28-08	APPD.	James O. Brewer	
DESIGNED	DETAILED	QUANTITIES	TRACED	B.N.B.	
DESIGN CK.	DETAIL CK.	QUAN.CK.	TRACE CK.	S.W.K.	

Plotted by : Riley Standish
File : ST2306eec-852A.dgn
8-JUL-2025 16:44



FERTILIZER: A ratio and application rate that equals or exceeds the required minimum rate per acre of N, P₂O₅, K₂O listed in Summary of Quantities will be acceptable.

- * - N = Nitrogen Rate of Application
- ** - P₂O₅ = Phosphorous Rate of Application
- *** - K₂O = 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:

1¼ - 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
CLT	SL/CH	CLT	SL/CH		
	65		0.91	Temporary Fertilizer (15-30-15)	60
				Temporary Seed (Ryegrass-Annual)	LB
	48.8		0.91	Soil Erosion Mix	45
				Erosion Control (Class 1, Type D)	4,161
				Erosion Control (Class 2, Type E)	267
				Sediment Removal (Set Price)	1
				Synthetic Sediment Barrier	LF
				Temporary Berm (Set Price)	1
				Temporary Ditch Check (Rock)	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")	250
				Filter Sock (8")	10
				Filter Sock (12")	LF
				Filter Sock (18")	195
				Geotextile (Erosion Control)	SQ YD
				Silt Fence	165
				SWPPP Design †	Lump Sum
				SWPPP Inspection †	EACH
				Water Polution Control Manager †	EACH
900 lbs / acre				Mulch Tacking Slurry	LB
2 tons / acre				Mulching	TON
				Water (Erosion Control) (Set Price)	1
					MGAL

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

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

Regreen and Quick Guard are the approved sterile wheatgrass products.

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

***** List size of material.

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

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

SOIL EROSION MIX		
PLS RATE	NAME	QTY (lb)
1	Blue Grama Grass Seed (Lovington)	0.90
24.5	Buffalograss Seed (Treated)	22.05
1	Sand Dropseed Grass Seed	0.90
6.3	Side Oats Grama Grass Seed (El Reno)	5.67
10	Sterile Wheatgrass (Regreen/Quick Guard)	9.00
6	Western Wheatgrass Seed (Barton)	5.40
48.8	Total (lb)	43.9

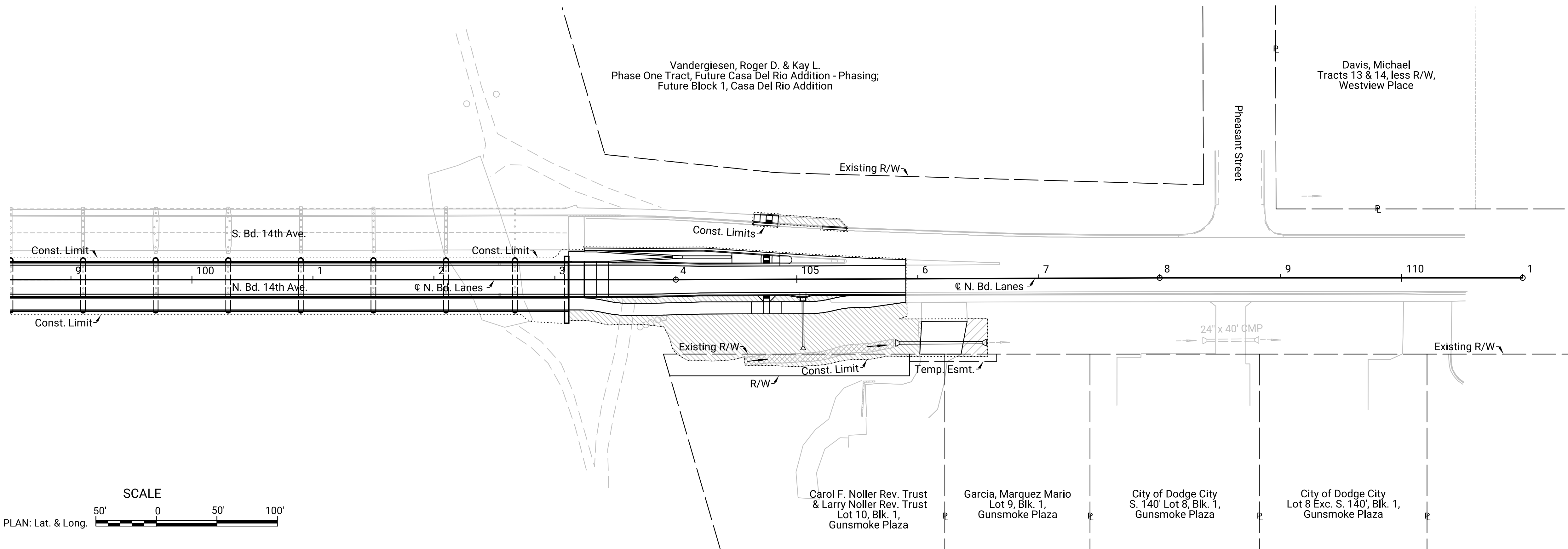
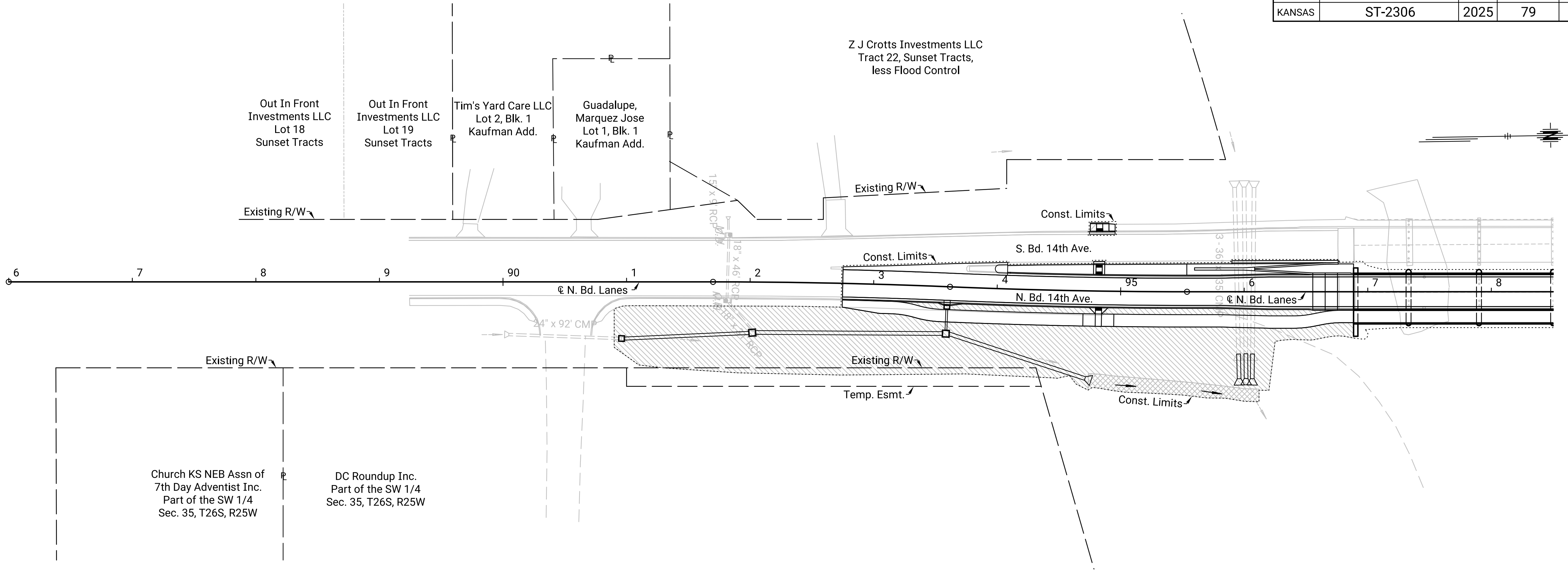
The Soil Erosion Mix is to be placed under the Class 1 and/or Class 2 erosion control material.

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

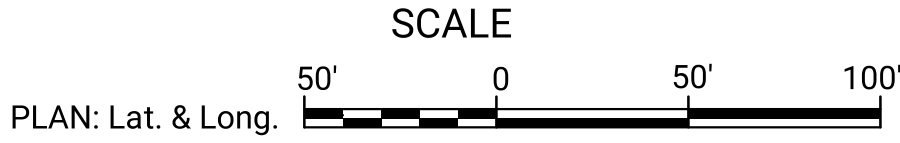
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	ST-2306	2025	77	139

03	08-03-20	Added Note	M.R.D.	M.L.
02	12-01-17	Revised Standard	M.R.D.	S.H.S.
01	06-01-17	Revised Standard	M.R.D.	S.H.S.
NO.	DATE	REVISIONS	BY	APPD
KANSAS DEPARTMENT OF TRANSPORTATION				
TEMPORARY EROSION AND POLLUTION CONTROL				
LA852A				
FHWA APPROVAL		01-26-18	APPD.	Scott H. Shields
DESIGNED	M.R.D.	DETAILED	M.R.D.	QUANTITIES
DESIGN CK.	S.H.S.	DETAIL CK.	S.H.S.	QUAN.CK.
		TRACED		TRACE CK.

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	ST-2306	2025	79	139



LEGEND	
	Class I Erosion Control
	Class II Erosion Control

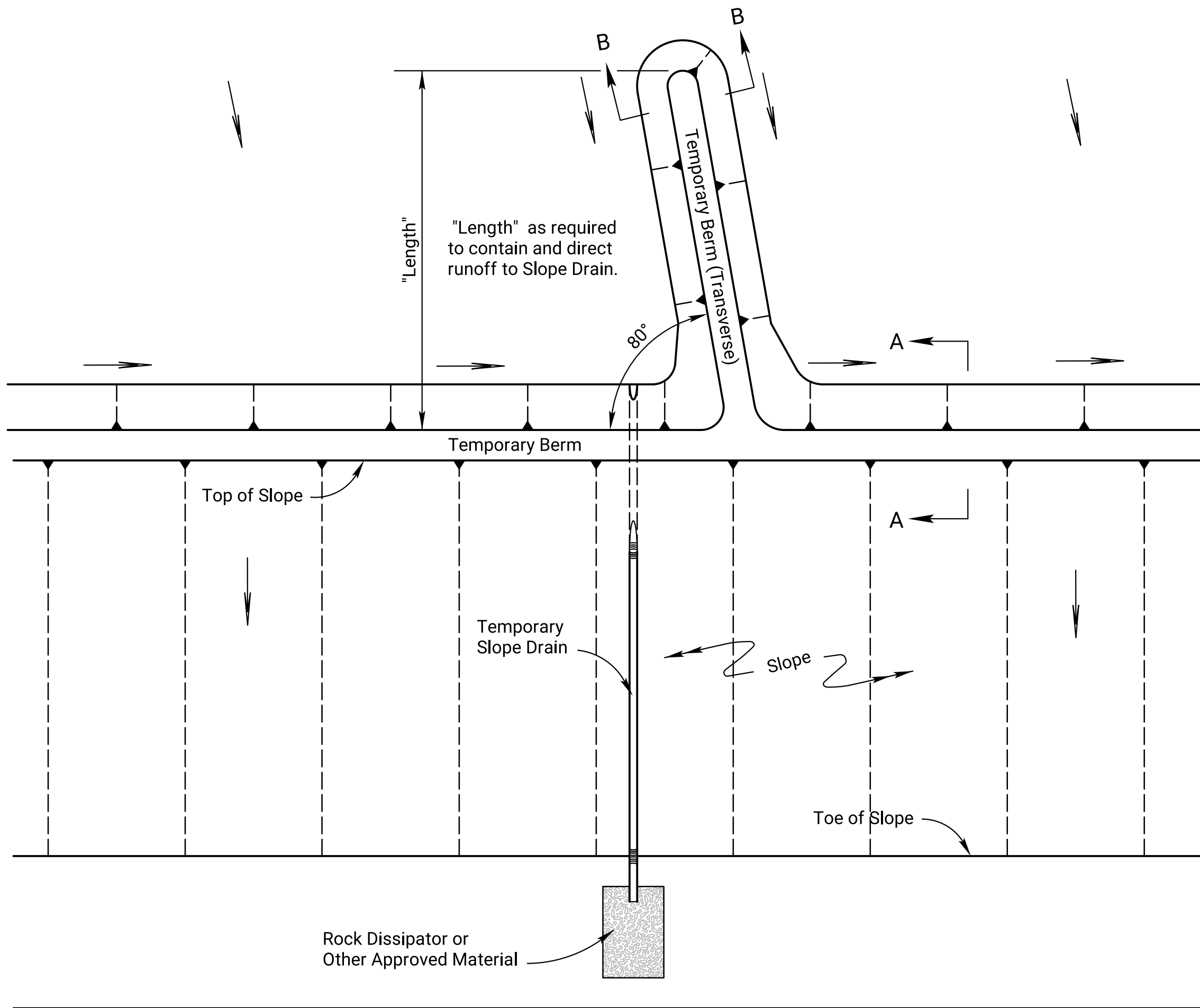


KANSAS DEPARTMENT OF TRANSPORTATION

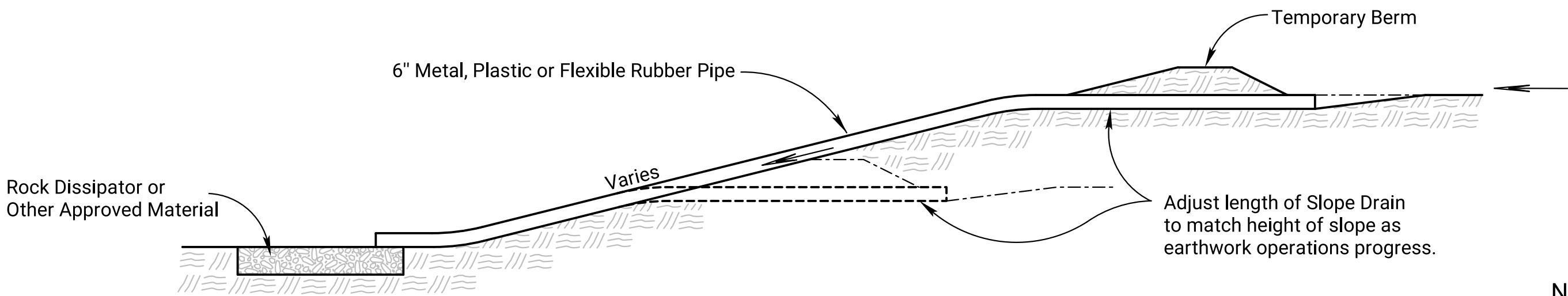
PROPOSED FINAL EROSION
CONTROL PLAN

STA. 90+90 TO STA. 106+56.63

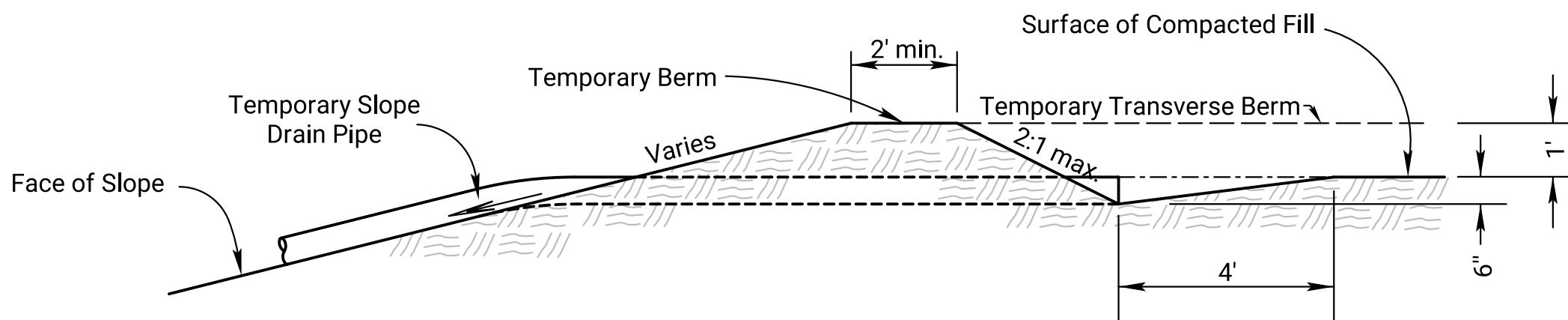
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	ST-2306	2025	80	139



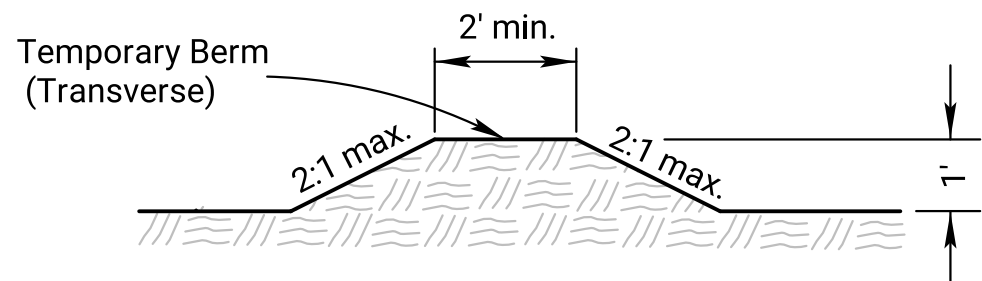
TYPICAL PLAN VIEW OF
TEMPORARY BERM AND
TEMPORARY SLOPE DRAIN
NO SCALE



TYPICAL PROFILE OF TEMPORARY SLOPE DRAIN
NO SCALE

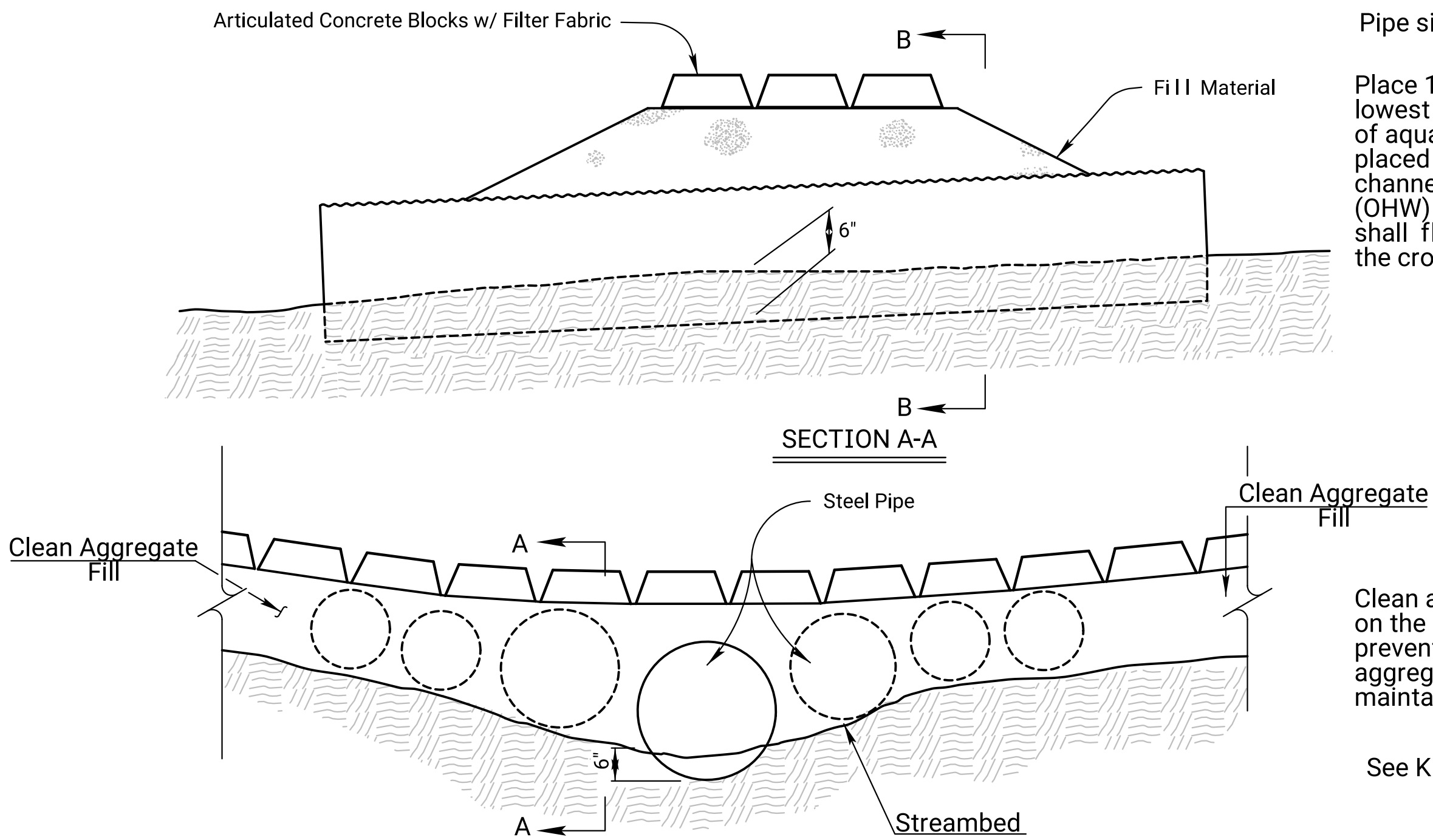


SECTION A-A
NO SCALE



SECTION B-B
NO SCALE

TYPICAL PROFILE OF TEMPORARY BERM
NO SCALE



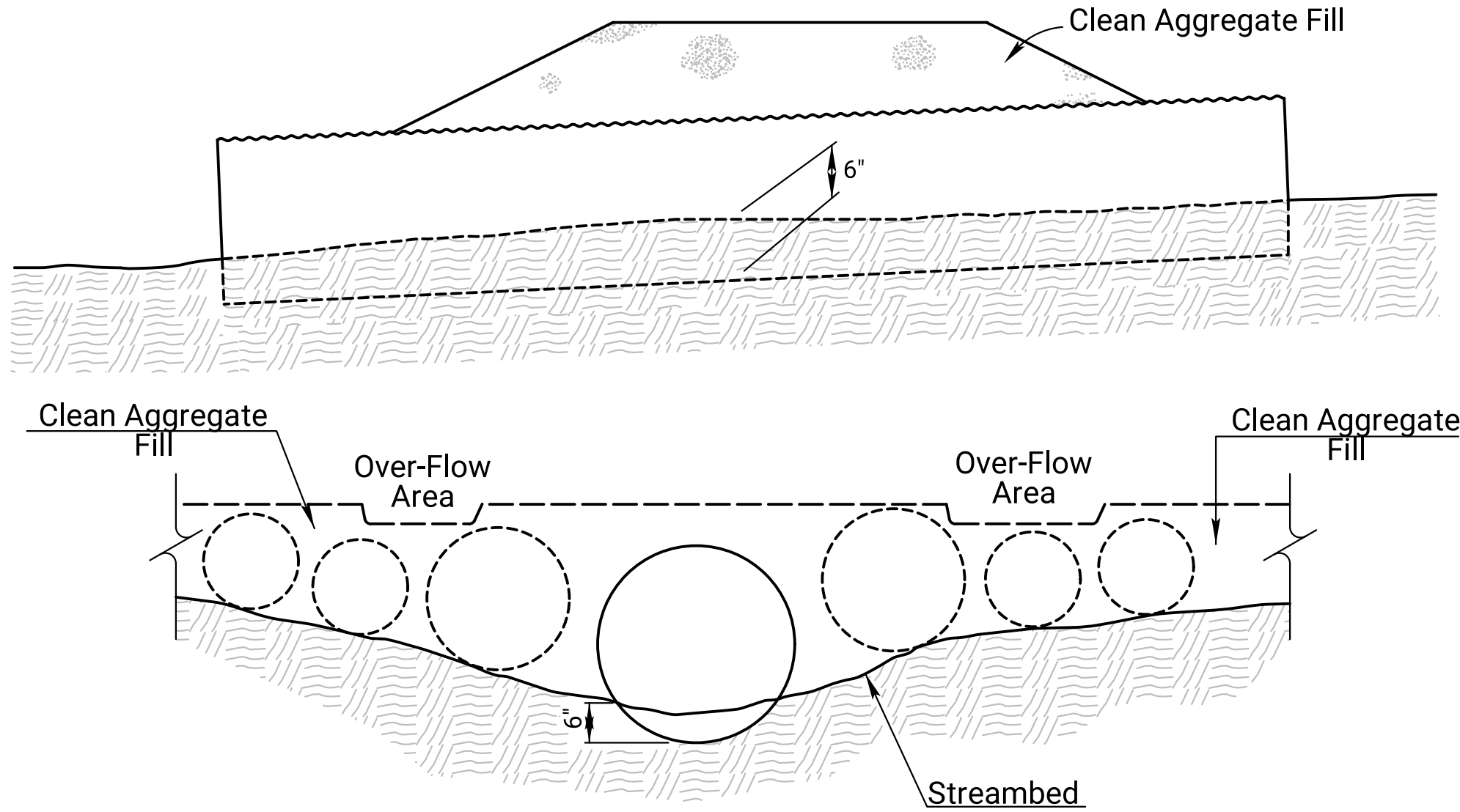
TEMPORARY STREAM CROSSING (ARTICULATED CONCRETE BLOCKS)
NO SCALE

Pipe size may vary.

Place 1 pipe buried 6" into stream bottom, in the lowest point of the channel to allow the passage of aquatic organisms, with additional pipes placed along the remainder of the stream channel bottom such that ordinary high water (OHW) flows designated in the Contract Documents shall flow through the pipes without overtopping the crossing.

Clean aggregate fill will extend a minimum of 50' on the entrance and exit side of the crossing to prevent tracking. The aggregate shall be clean aggregate and a minimum of 6" thick and will be maintained through the use of the crossing.

See KDOT Specifications for more information.



SECTION B-B
TEMPORARY STREAM CROSSING (AGGREGATE)
NO SCALE

Pipe size may vary.

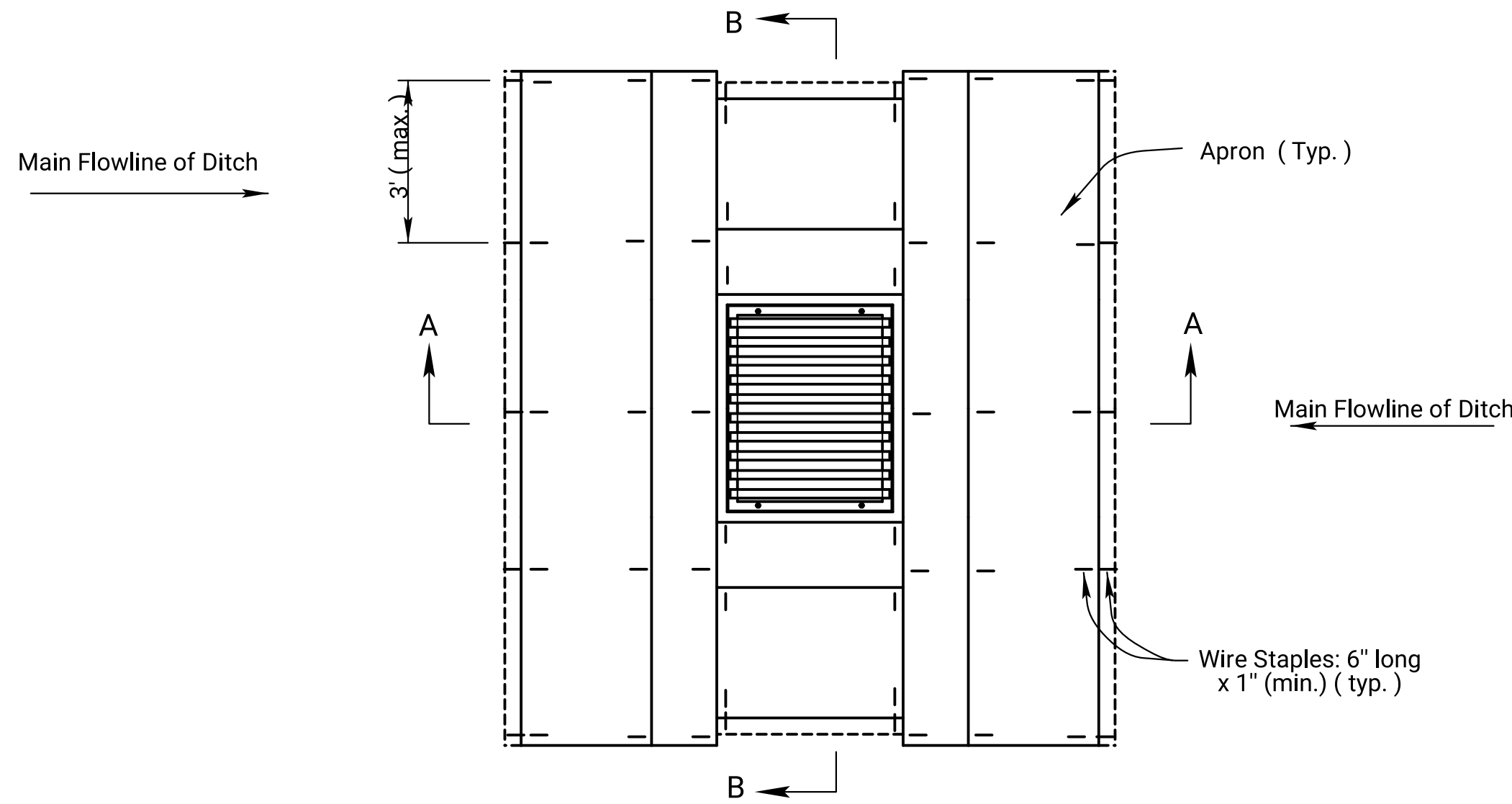
Place 1 pipe buried 6" into stream bottom, in the lowest point of the channel to allow the passage of aquatic organisms, with additional pipes placed along the remainder of the stream channel bottom such that ordinary high water (OHW) flows designated in the Contract Documents shall flow through the pipes without overtopping the crossing.

Clean aggregate fill will extend a minimum of 50' on the entrance and exit side of the crossing to prevent tracking. The aggregate shall be clean aggregate and a minimum of 6" thick and will be maintained through the use of the crossing.

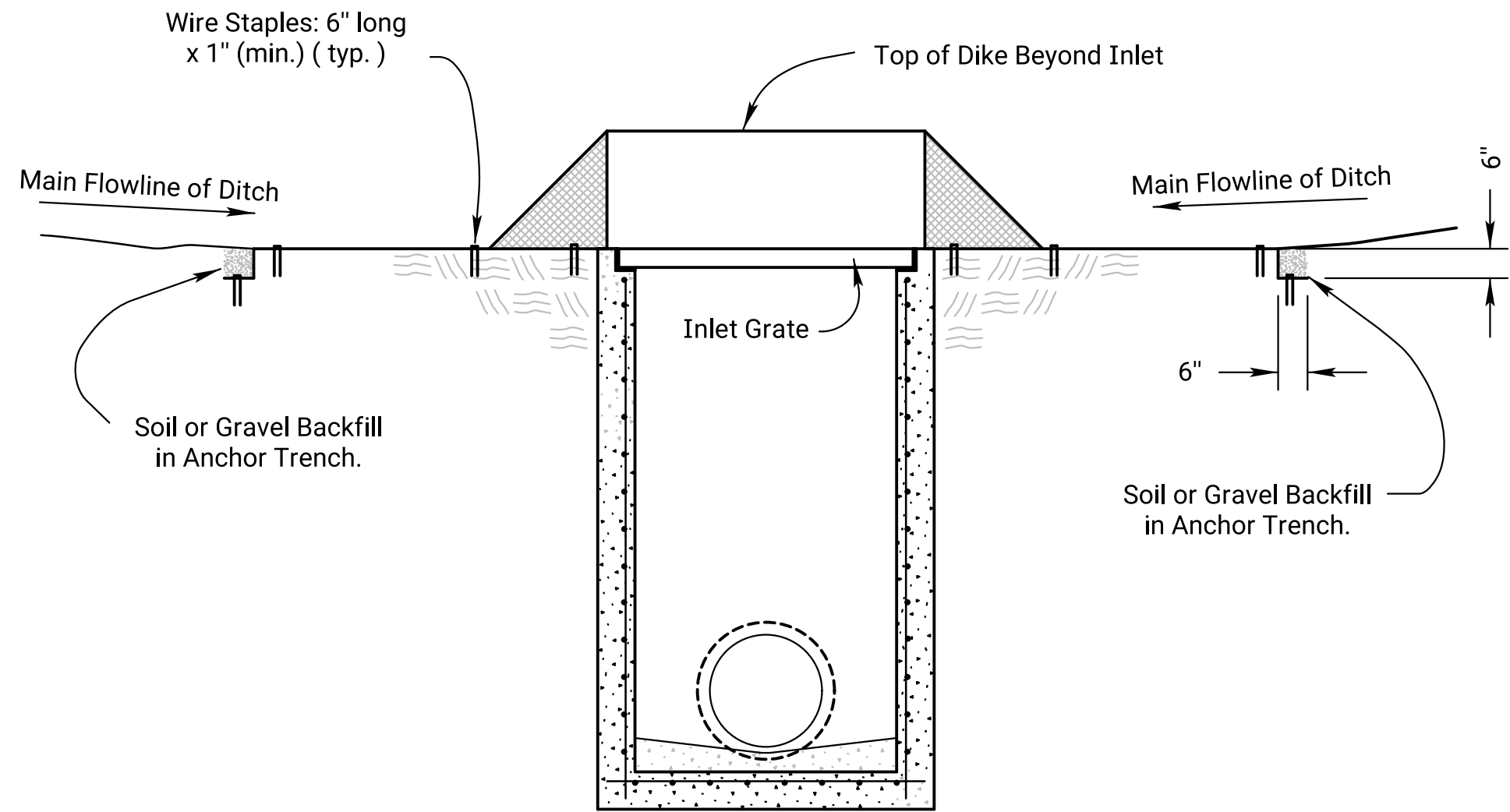
See KDOT Specifications for more information.

NO.	DATE	REVISIONS	BY	APPD
03	01-21-22	Temp Stream Crossing - Clean Aggregate Fill Note Added	M.R.D.	M.L.
02	08-24-21	Temp Stream Crossing - Clean Aggregate Fill Note Added	M.R.D.	M.L.
01	06-11-13	Revised Standard	M.R.M.	S.H.S.
KANSAS DEPARTMENT OF TRANSPORTATION				
TEMPORARY EROSION AND POLLUTION CONTROL				
TEMPORARY SLOPE DRAIN, TEMPORARY STREAM CROSSING (AGGREGATE)				
LA852B				
FHWA APPROVAL		01-21-22	APPD.	Mervin Lare
DESIGNED	DETAILED	QUANTITIES	TRACED	
DESIGN CK.	DETAIL CK.	QUAN. CK.	TRACE CK.	

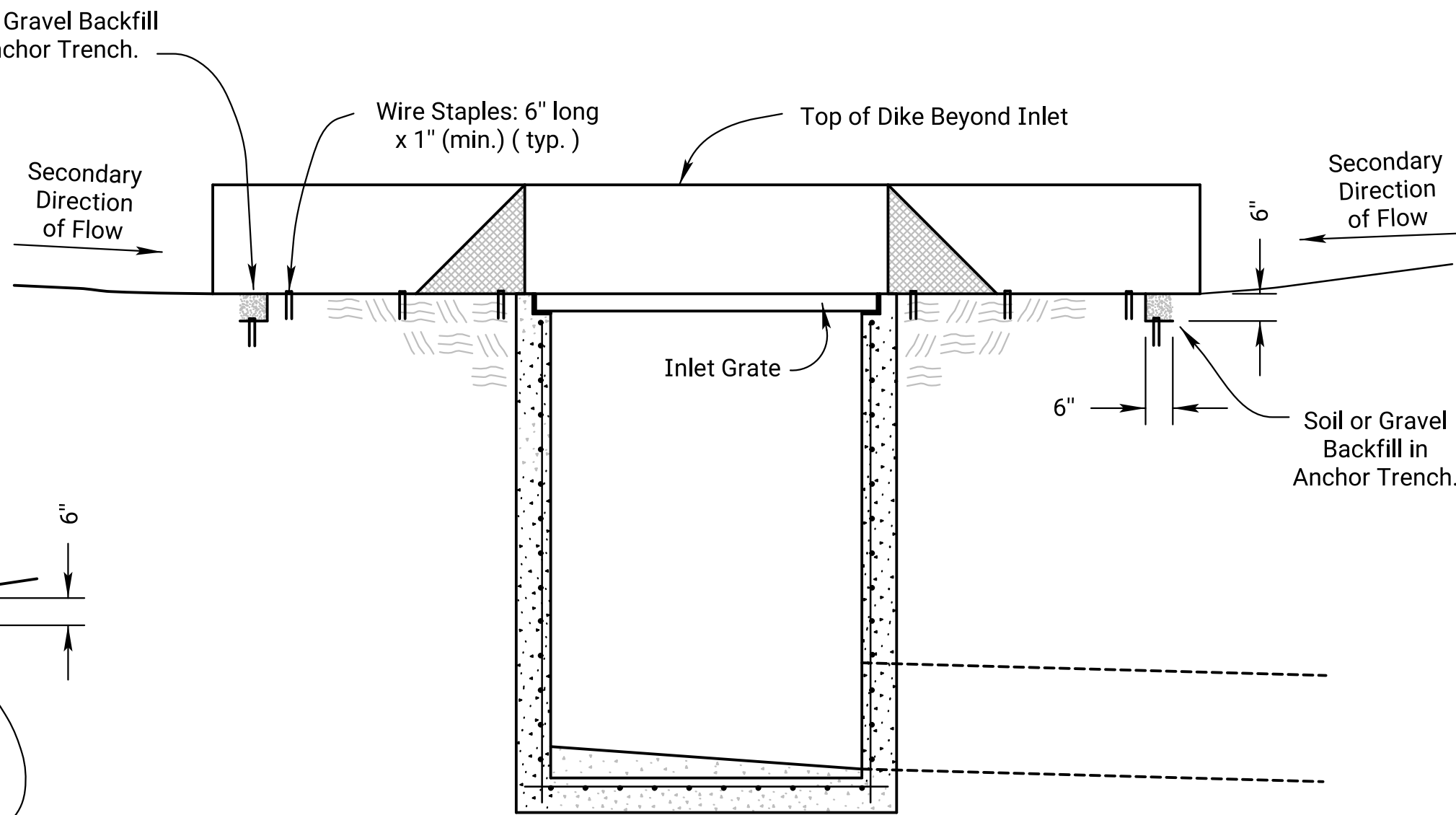
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	ST-2306	2025	81	139



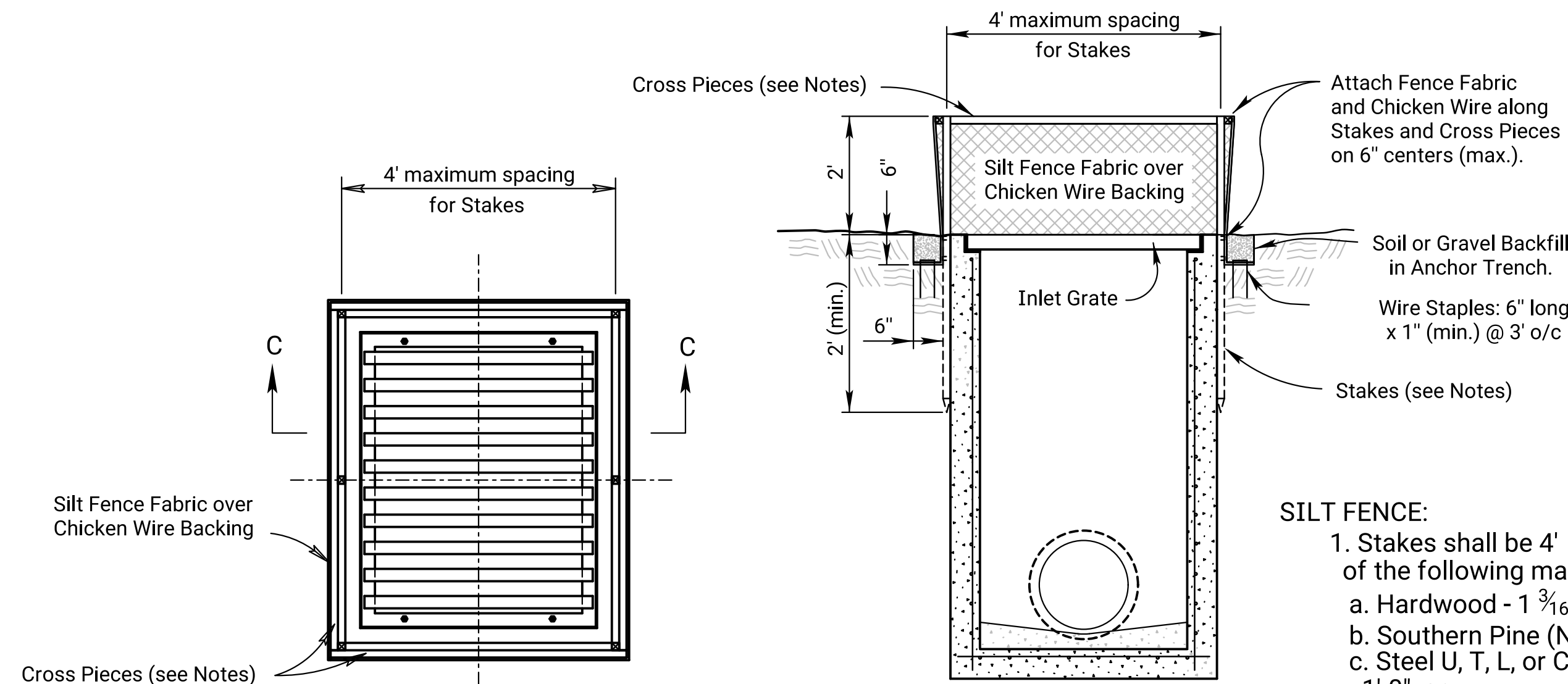
PLAN
TEMPORARY I NLET SEDI MENT BARRI ER
(TRI ANGULAR SI LT DI KE METHOD)
NO SCALE



SECTION A - A



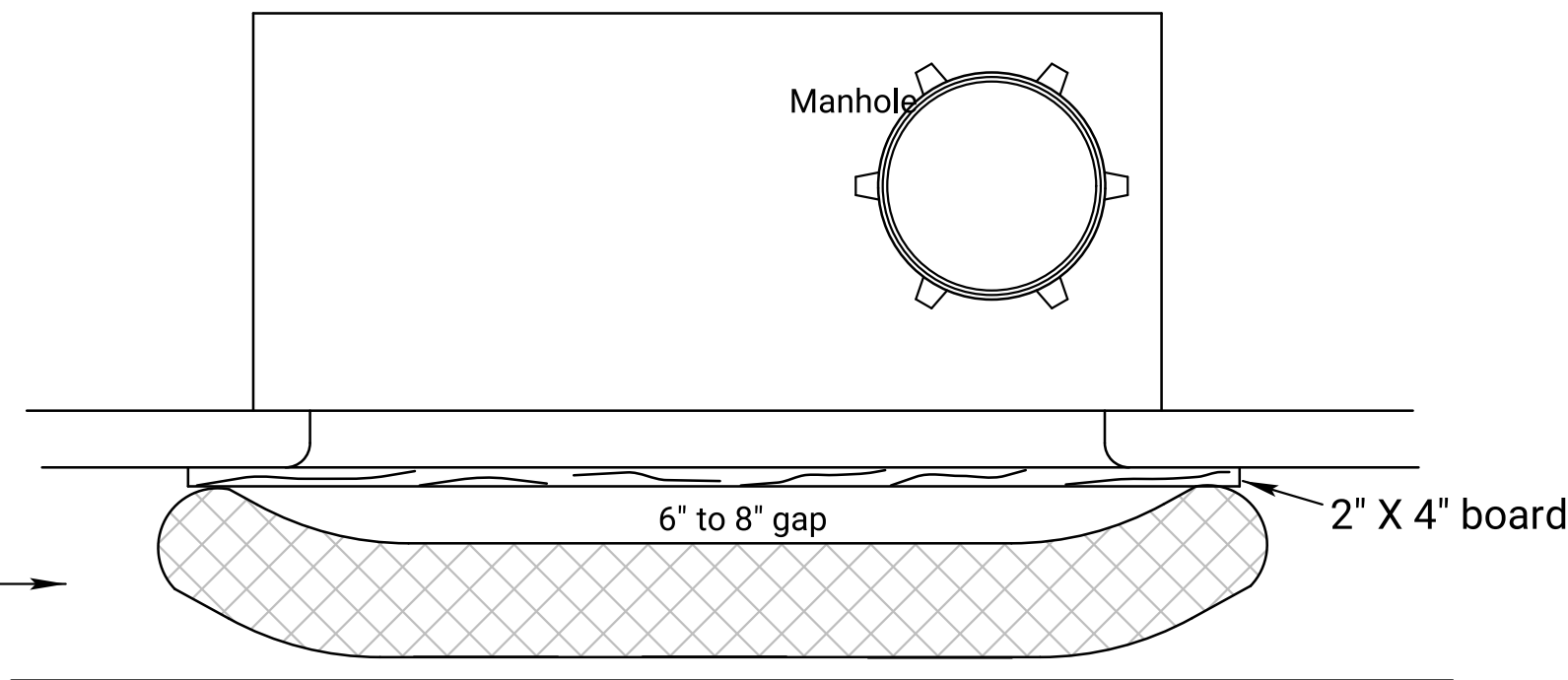
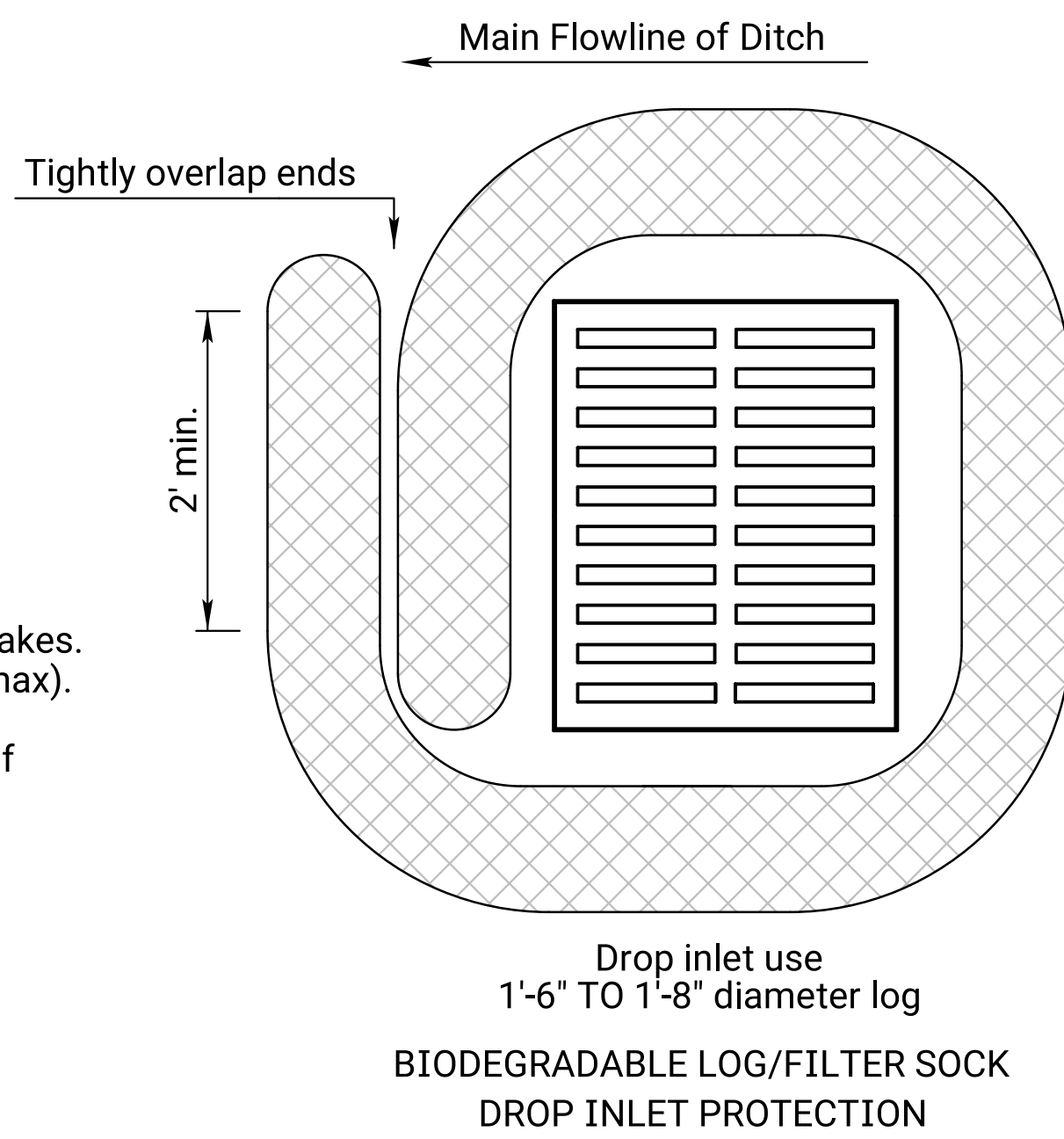
SECTION B - B



PLAN
TEMPORARY I NLET SEDI MENT BARRI ER
(SI LT FENCE METHOD)
NO SCALE

- 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. Cross pieces shall be of same material as stakes.
 3. Attach fence fabric securely on 6" centers (max).
 4. Use of high flow material is acceptable.
 5. Refer to plan sheets to estimate the length of silt fence required.

Bags = synthetic net (3mm mesh) or burlap bags
Rock = approximately 1" to 2" diameter



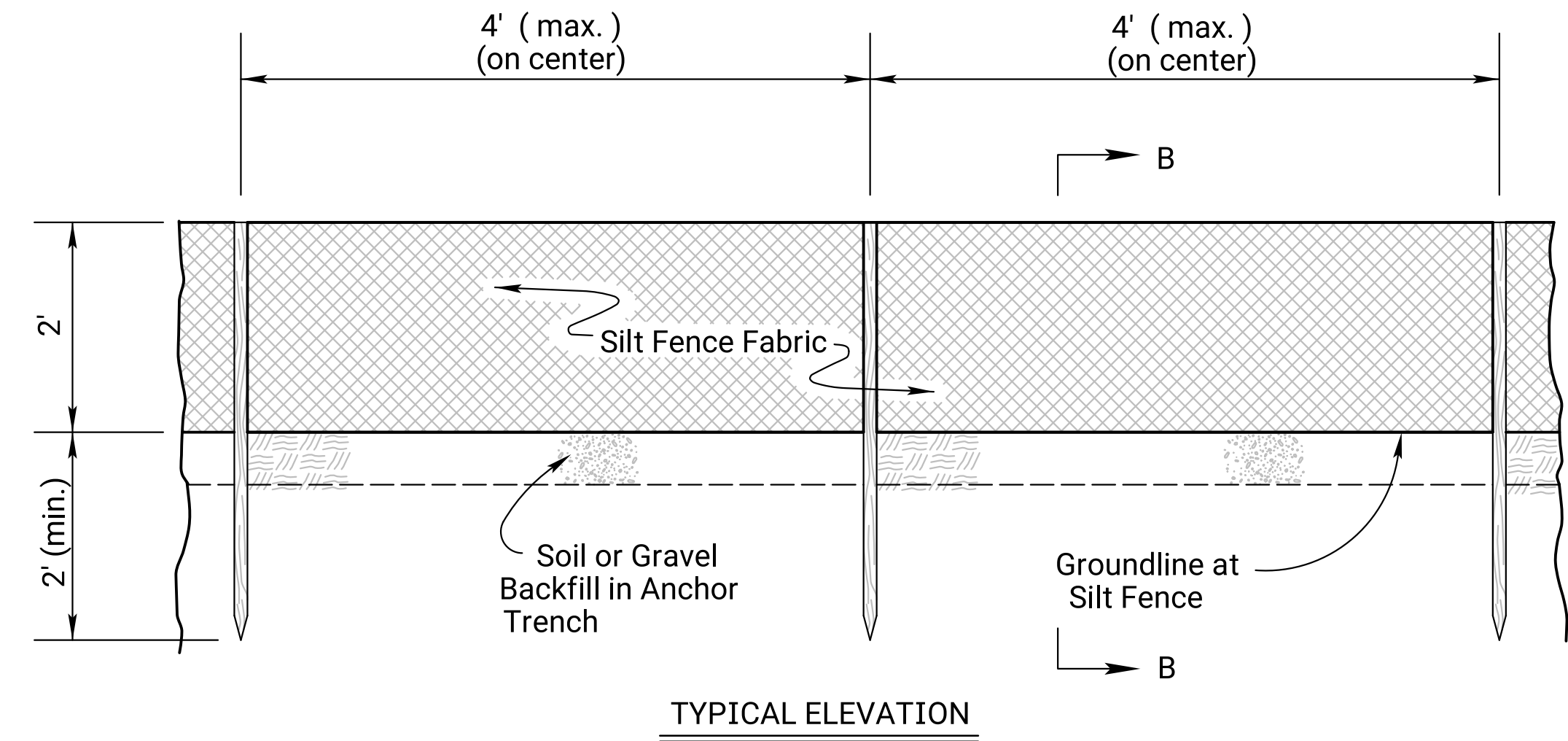
CURB INLET PROTECTION

1. If multiple gravel bags are required, place them in such a way that no gaps are evident.
2. Height of bags (8" minimum diameter) must not be above top of curb.
3. Alternative products may be used other than gravel bags such as the "Gutter Buddy". Products must be approved by the Engineer.
4. Curb inlet protection will be measured and paid for as Filter Sock.

Material Requirements	
Use 100% shredded mulch or other non-compost biodegradable material as fill for logs.	
No compost or fines.	
No hay or straw.	
Do not use material which prohibits water infiltration.	
Log Mesh: Use mesh with 1/4" openings or larger. Mesh must allow water infiltration but also hold fill material in place.	

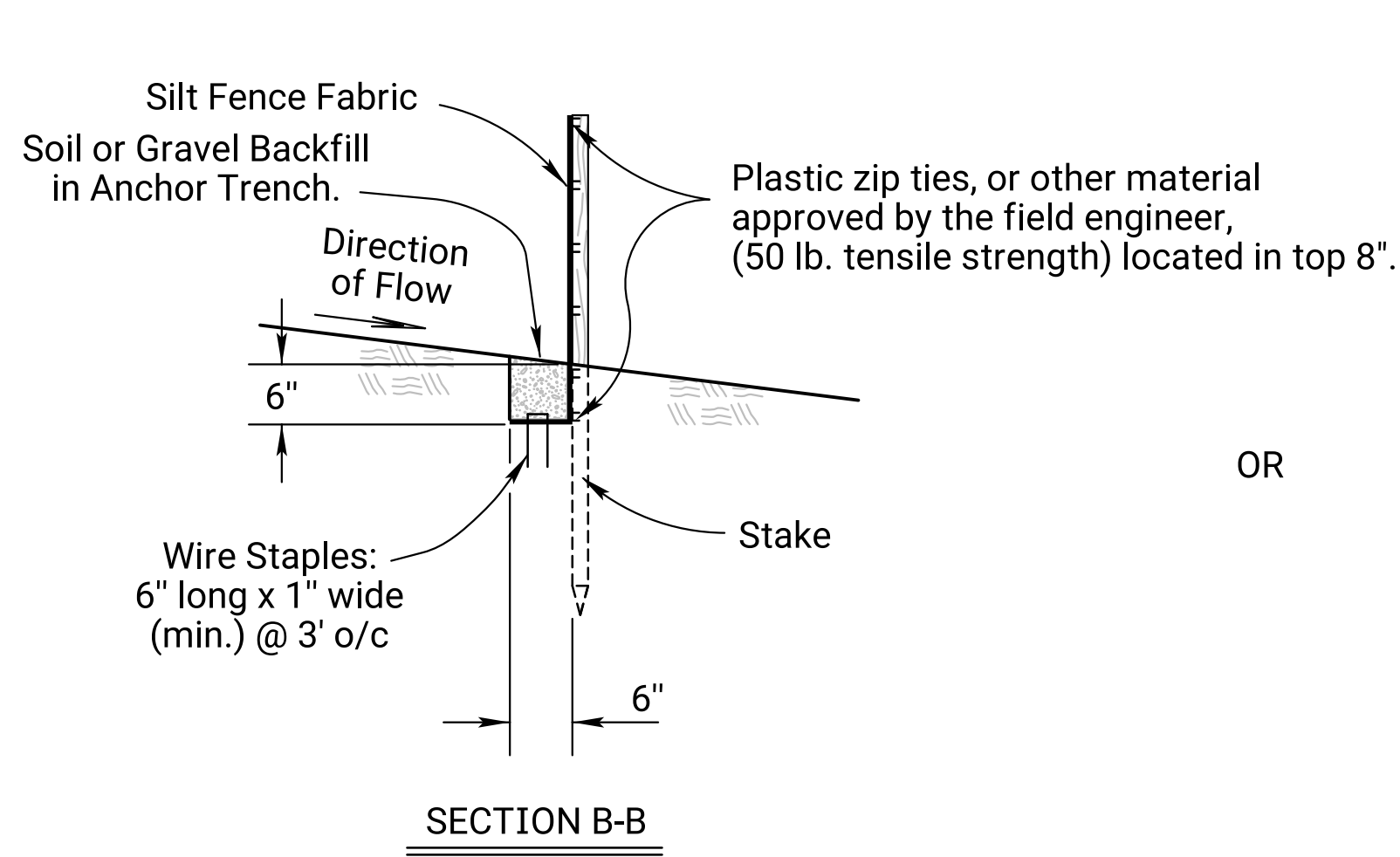
03	09-26-19	Changed Direction of Main Flowline of Ditch Arrow	M.R.D.	S.H.S.
02	03-10-15	Revised Standard	R.A.	S.H.S.
01	06-01-13	Revised Standard	M.R.M.	S.H.S.
NO.	DATE	REVISIONS	BY	APPD
KANSAS DEPARTMENT OF TRANSPORTATION				
TEMPORARY EROSION AND POLLUTION CONTROL, TEMPORARY INLET SEDIMENT BARRIER (SILT FENCE) TEMP. INLET SEDIMENT BARRIER (T.S.D.) LA852C				
FHWA APPROVAL		03-10-15	APPD.	Scott H. Shields
DESIGNED	R.A.	DETAILED	R.A.	QUANTITIES
DESIGN CK.	S.H.S.	DETAIL CK.	S.H.S.	QUAN.CK.
		TRACED		TRACE CK.

Plotted by : Riley Standish 8-JUL-2025 16:46
File : ST2306eec-852D.dgn



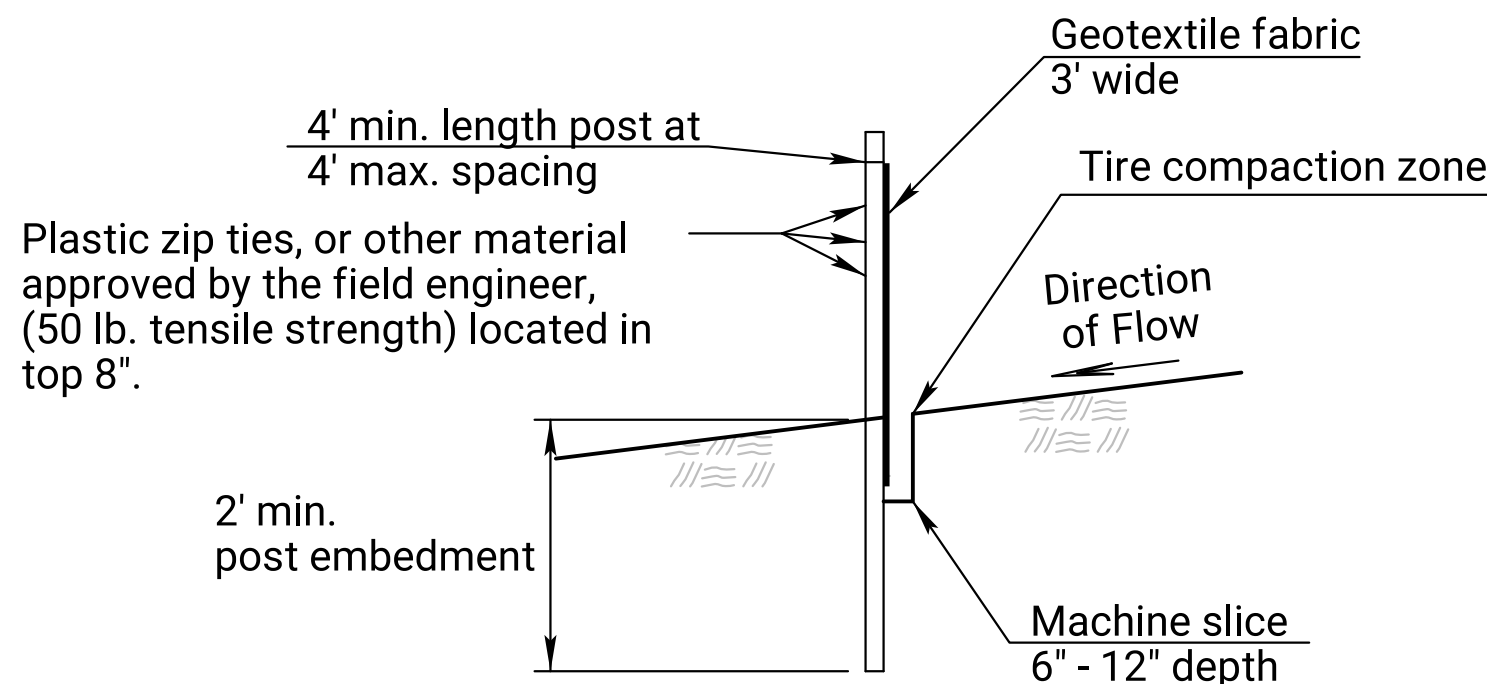
TYPICAL ELEVATION

SILT FENCE BARRIER
NO SCALE

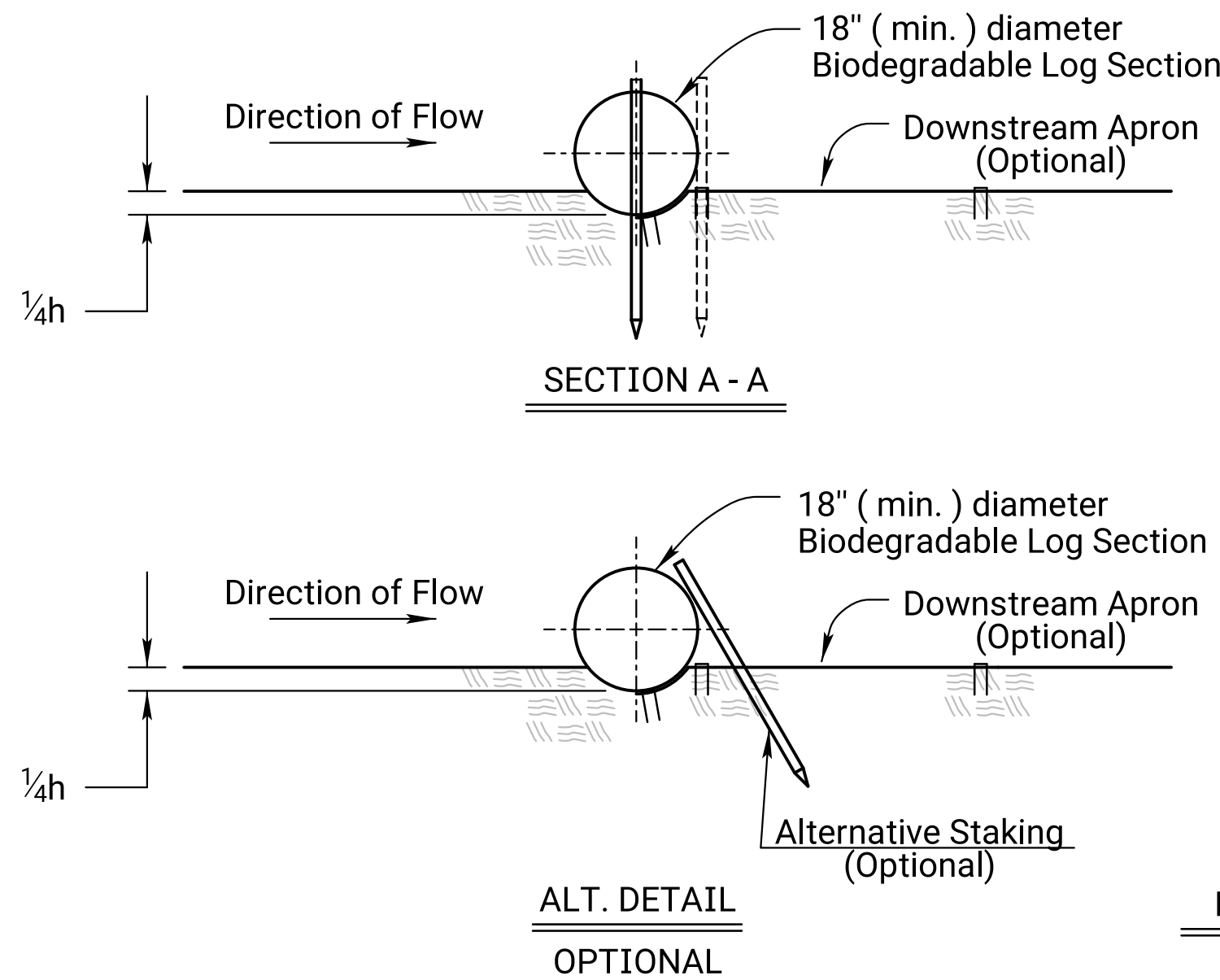


SECTION B-B

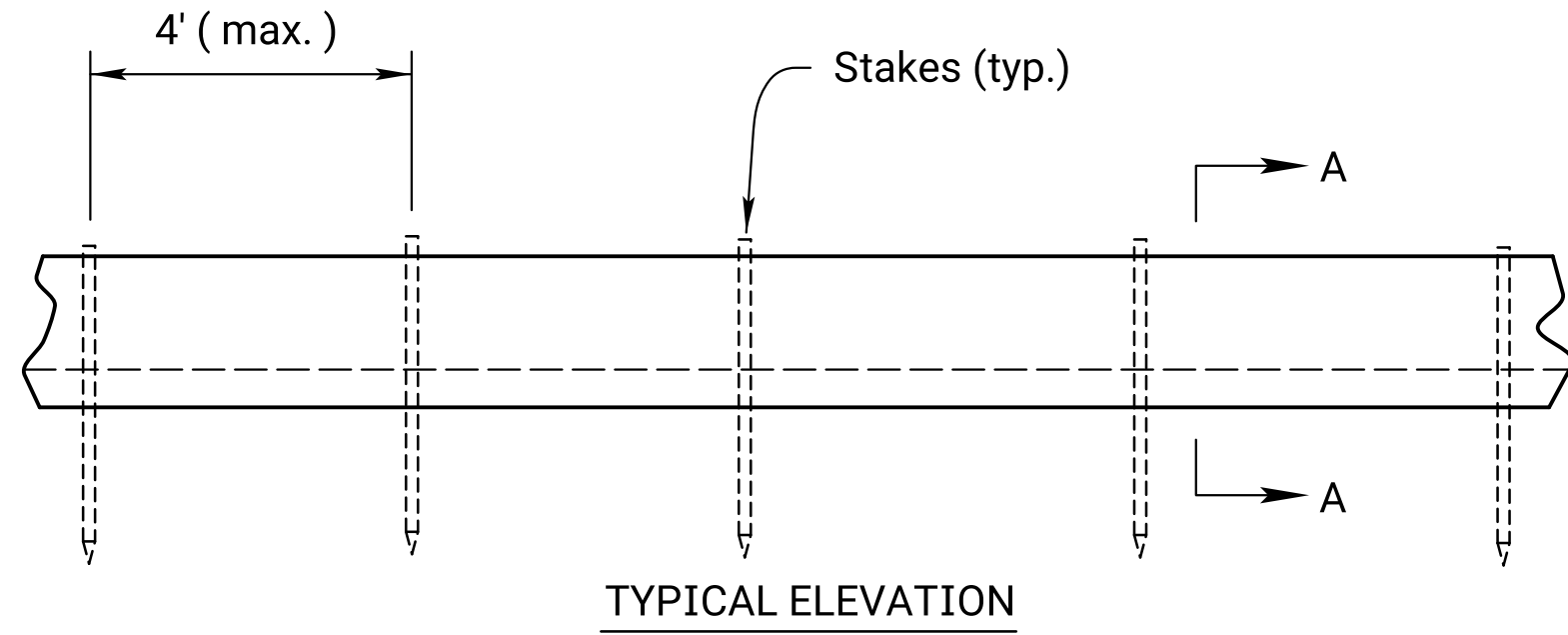
OR



SECTION B-B



ALT. DETAIL
OPTIONAL



TYPICAL ELEVATION

BIODEGRADABLE LOG SLOPE INTERRUPTIONS
OR Filter Sock

INSTALLATION NOTES

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

BIODEGRADABLE LOG OR FILTER SOCK

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

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.

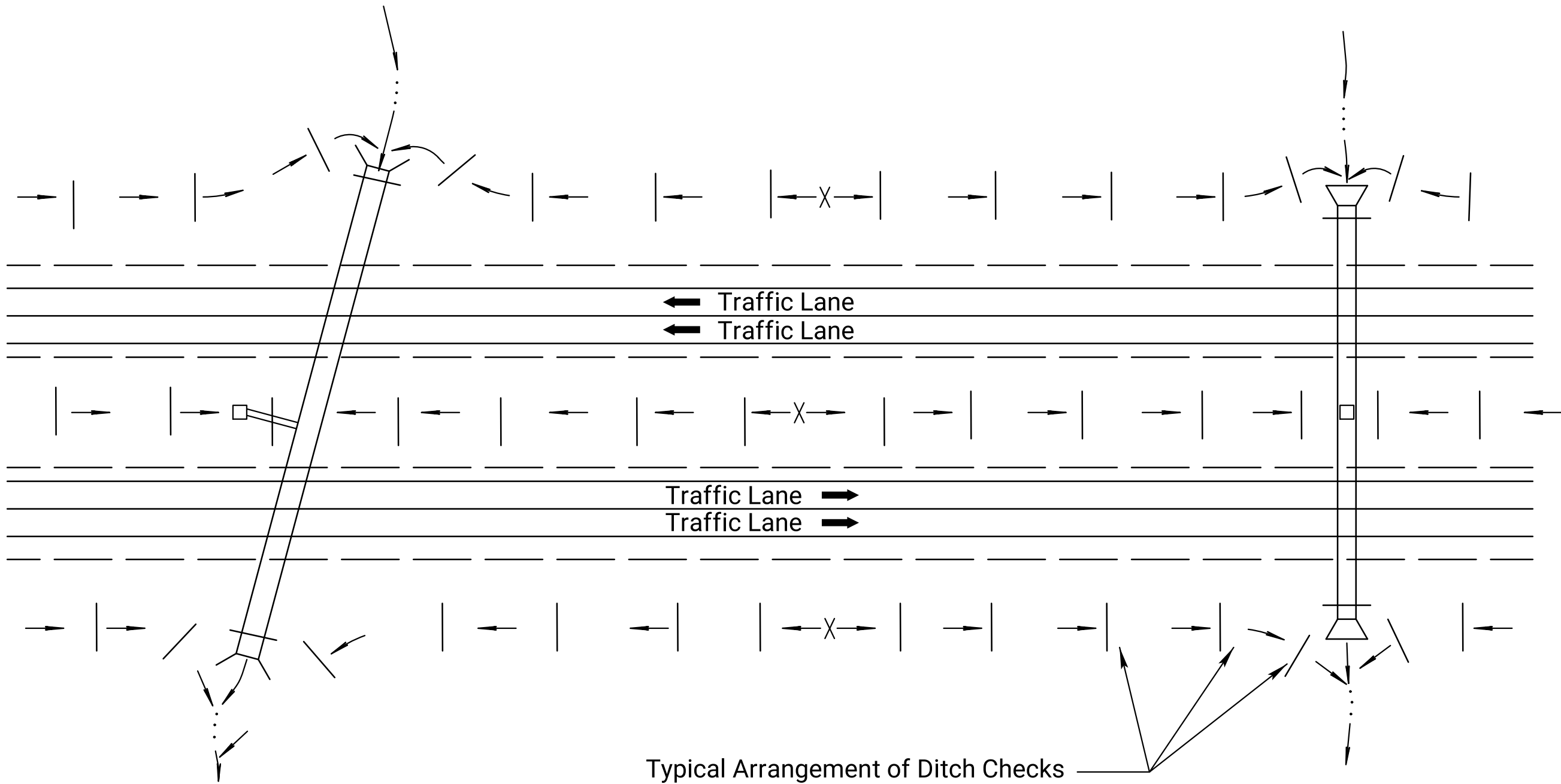
BIODEGRADABLE LOG MATERIAL		
	LOW FLOW	HIGH FLOW
9"	Straw/Compost	Excelsior / Wood Chips / Coconut Fiber
12"	Straw/Compost	Excelsior / Wood Chips / Coconut Fiber
18"-20"	Straw/Compost	Excelsior / Wood Chips / Coconut Fiber

GENERAL NOTES

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

03	06-28-16	Revised Standard		R.A.	S.H.S.
02	03-01-15	Revised Standard		R.A.	S.H.S.
01	06-01-13	Revised Standard		M.R.M.	S.H.S.
NO.	DATE	REVISIONS		BY	APP'D
KANSAS DEPARTMENT OF TRANSPORTATION					
TEMPORARY EROSION AND					
POLLUTION CONTROL					
SLOPE INTERRUPTIONS					
BIODEGRADABLE LOG / SILT FENCE					
LA852D					
FHWA APPROVAL		09-14-16		APP'D.	
DESIGNED		S.H.S.	DETAILED	R.A.	QUANTITIES
DESIGN CK.		S.H.S.	DETAIL CK.		TRACED
				QUAN.CK.	TRACE CK.

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	ST-2306	2025	83	139



TYPICAL DITCH CHECK LAYOUT PLAN
NO SCALE

20" BIOLOG CHECK SPACING	
DITCH @ SLOPE (%)	SPACING INTERVAL (FEET)
1.0	125
2.0	60
3.0	40
4.0	30
5.0	25
NOTE: Use this spacing for all except Rock Ditch Checks.	

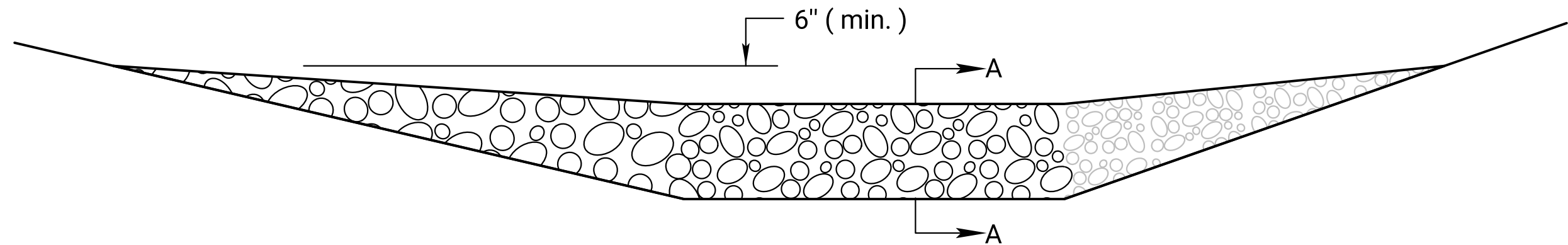
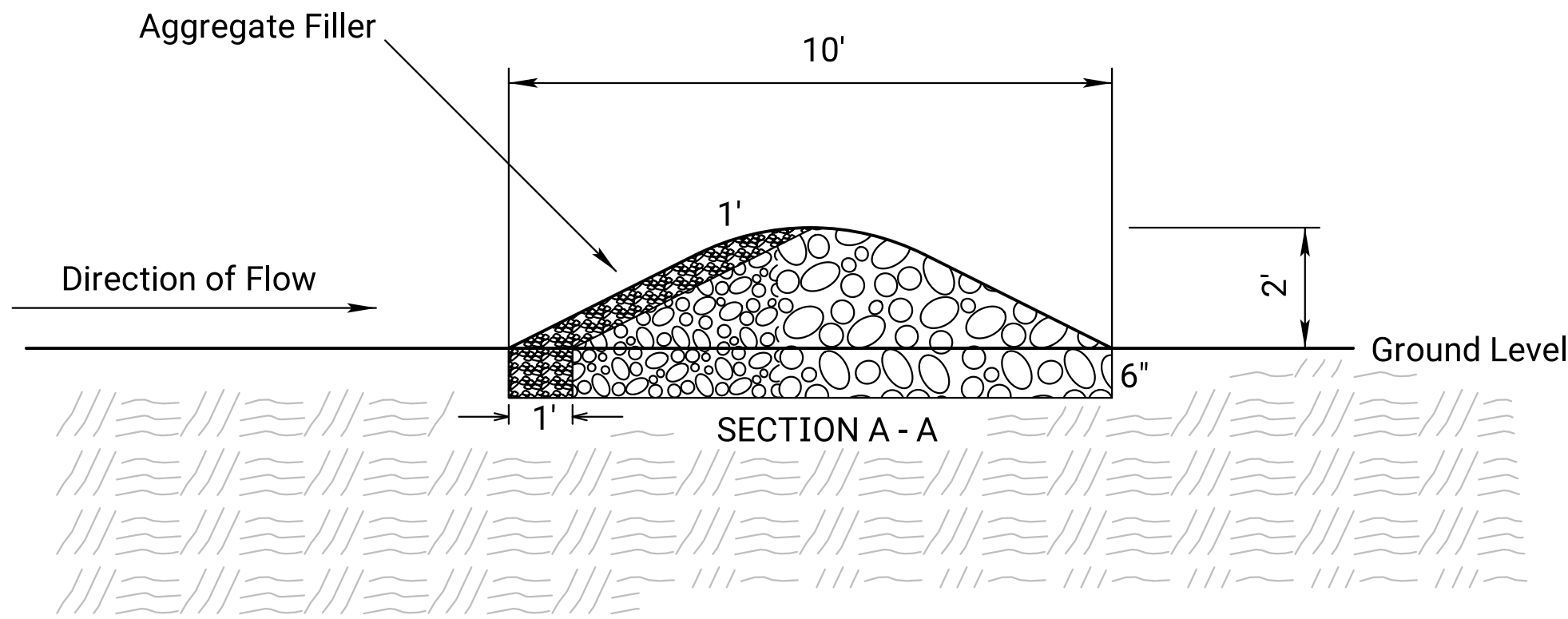
18" FILTER SOCK CHECK SPACING	
DITCH @ SLOPE (%)	SPACING INTERVAL (FEET)
1.0	110
2.0	55
3.0	35
4.0	25
5.0	20
NOTE: Use this spacing for all except Rock Ditch Checks.	

GENERAL NOTES

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

03	08-10-16	Revised Standard			R.A.A.	S.H.S.
02	06-28-16	Revised Standard			R.A.A.	S.H.S.
01	06-01-13	Revised Standard			M.R.M.	S.H.S.
NO.	DATE	REVISIONS			BY	APP'D
KANSAS DEPARTMENT OF TRANSPORTATION						
TEMPORARY EROSION AND POLLUTION CONTROL DITCH CHECKS						
LA852E						
FHWA APPROVAL		09-14-16		APP'D.		Scott H. Shields
DESIGNED	S.H.S.	DETAILED	R.A.A.	QUANTITIES	TRACED	R.A.A.
DESIGN CK.	S.H.S.	DETAIL CK.	S.H.S.	QUAN.CK.	TRACE CK.	S.H.S.

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	ST-2306	2025	84	139



TYPICAL ELEVATION

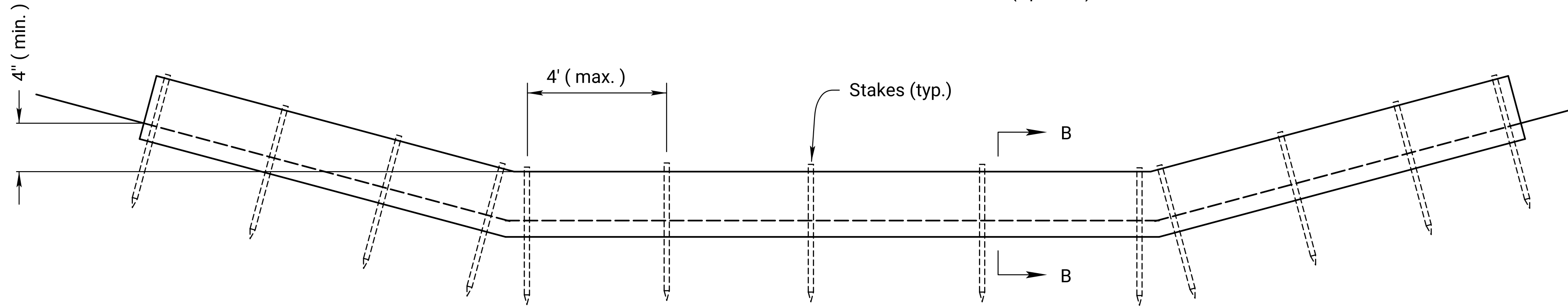
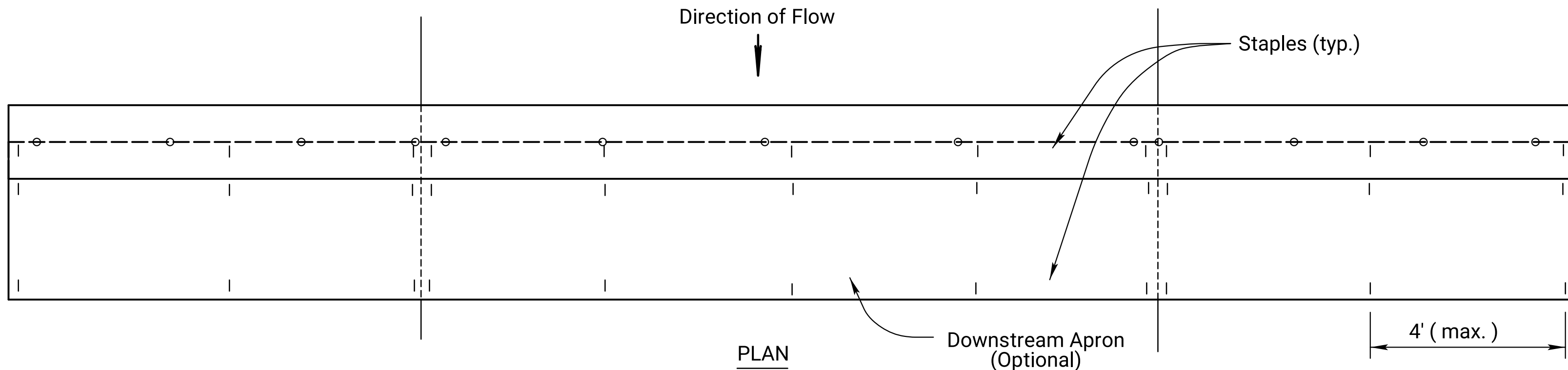
ROCK DITCH CHECK

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

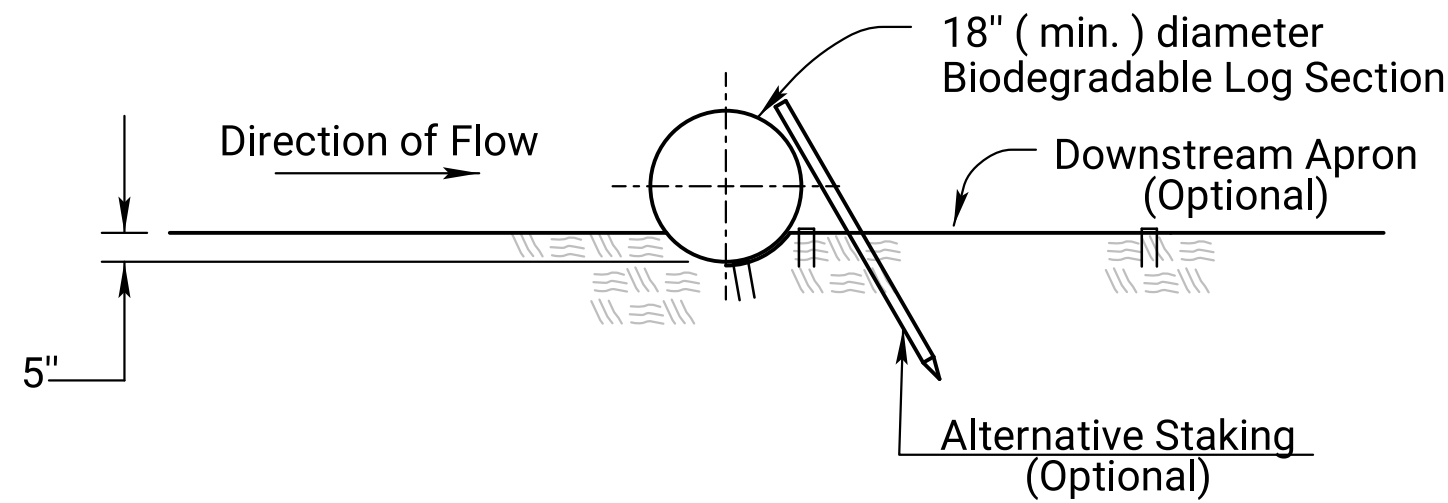
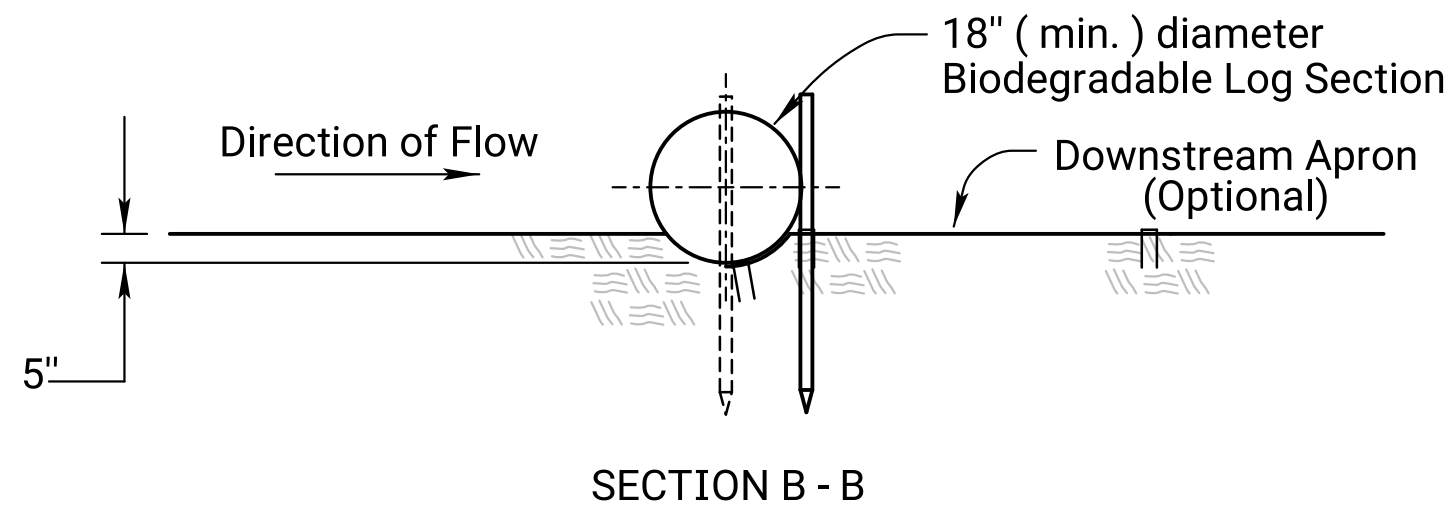
1. Rock shall be clean aggregate, D50-6" and aggregate filler.
2. Place rock in such manner that water will flow over, not around ditch check.
3. Do not use rock ditch checks in clear zone.
4. Excavation: The ditch area shall be reshaped to fill any eroded areas. Prior to placement of the rock, the ditch 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.



TYPICAL ELEVATION

BIODEGRADABLE LOG DITCH CHECK

OR Filter Sock Ditch Check
NO SCALE



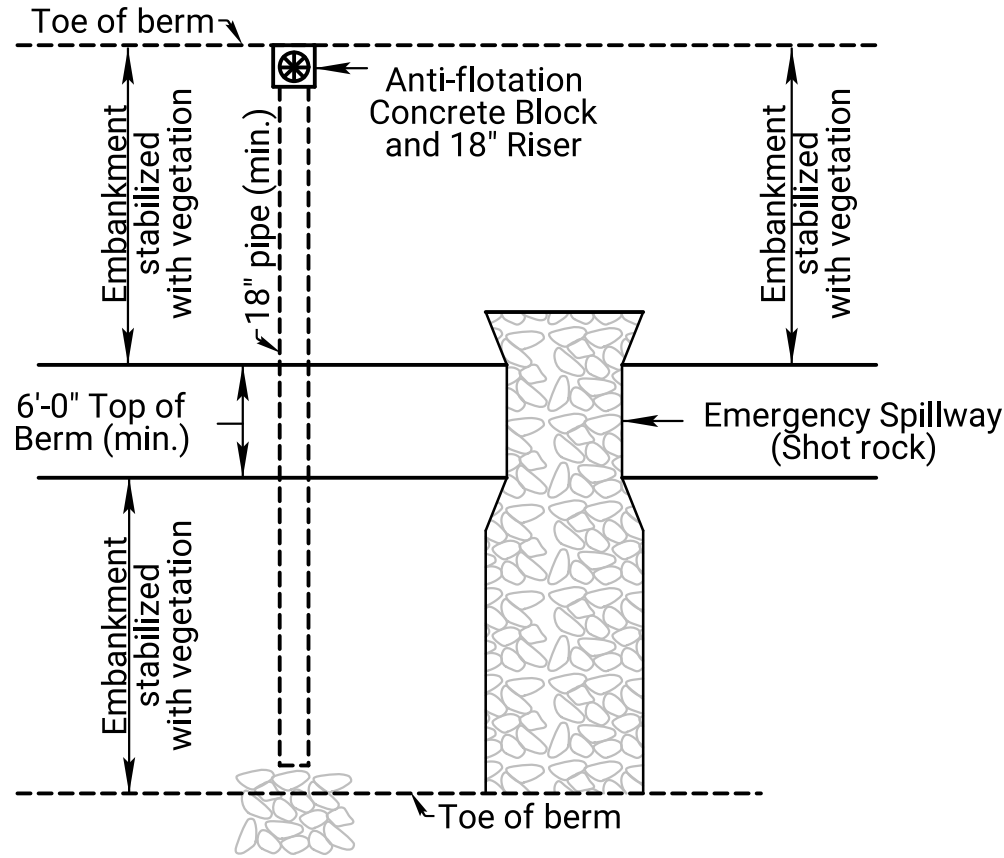
ALT. DETAIL
OPTIONAL

BIODEGRADABLE LOG DITCH CHECK NOTES

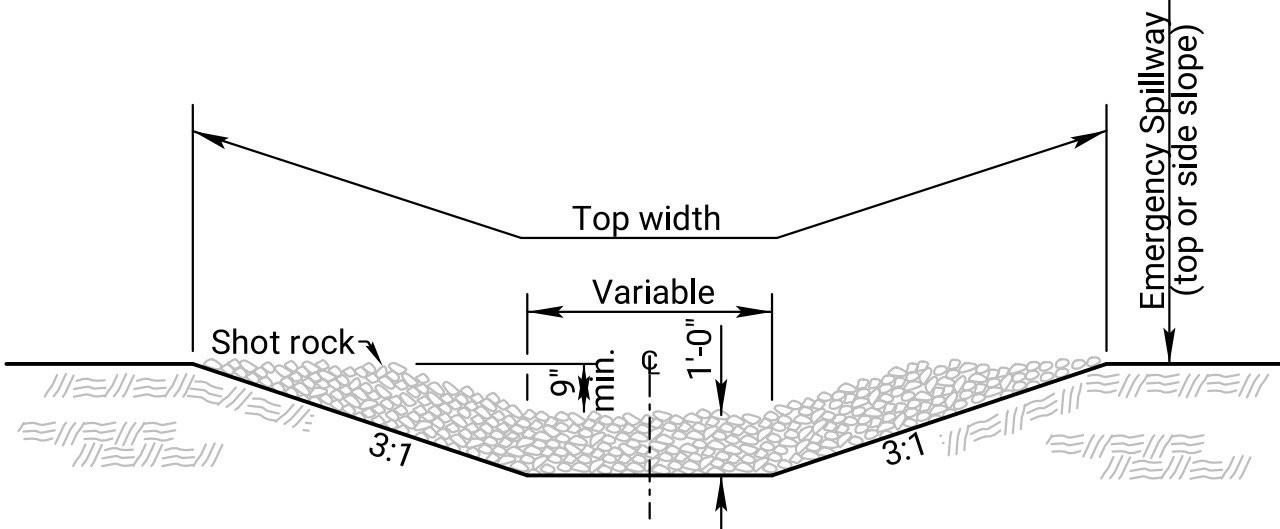
1. Use as many biodegradable log sections as necessary to ensure water does not flow around end of ditch check.
2. Overlap sections a minimum of 18".
3. Stakes shall be wood or steel according to Section 2114 of the Standard Specifications. Length of stakes shall be a minimum of 2 x the diameter of the 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.

03	11-19-20	Revised Standard	M.R.D.	M.L.		
02	08-10-16	Revised Standard	R.A.A.	S.H.S.		
01	10-21-15	Revised Standard	R.A.A.	S.H.S.		
NO.	DATE	REVISIONS	BY	APP'D		
KANSAS DEPARTMENT OF TRANSPORTATION TEMPORARY EROSION AND POLLUTION CONTROL ROCK DITCH CHECKS BIODEGRADABLE LOG DITCH CHECKS LA852G						
FHWA APPROVAL		11-19-20	APP'D.	Mervin Lare		
DESIGNED	M.L.	DETAILED	D.K.	QUANTITIES	TRACED	R.A.A.
DESIGN CK.	M.L.	DETAIL CK.	M.L.	QUAN. CK.	TRACE CK.	R.A.A.

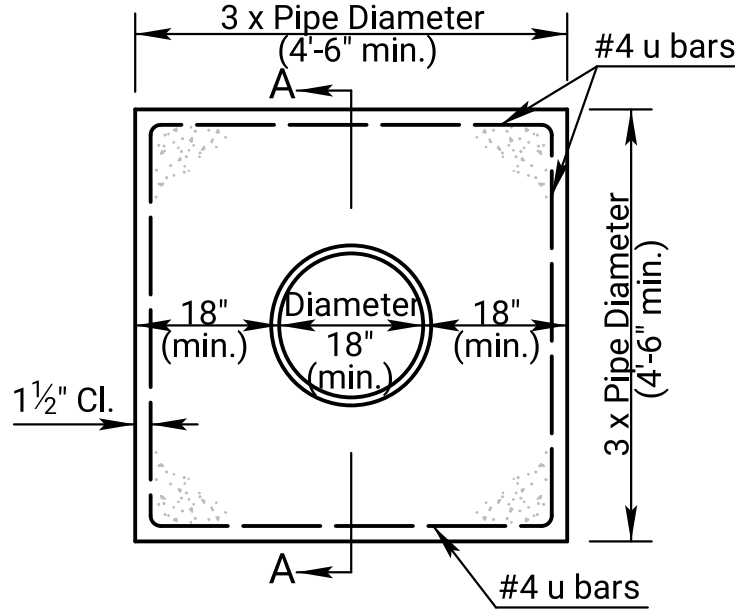
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	ST-2306	2025	85	139



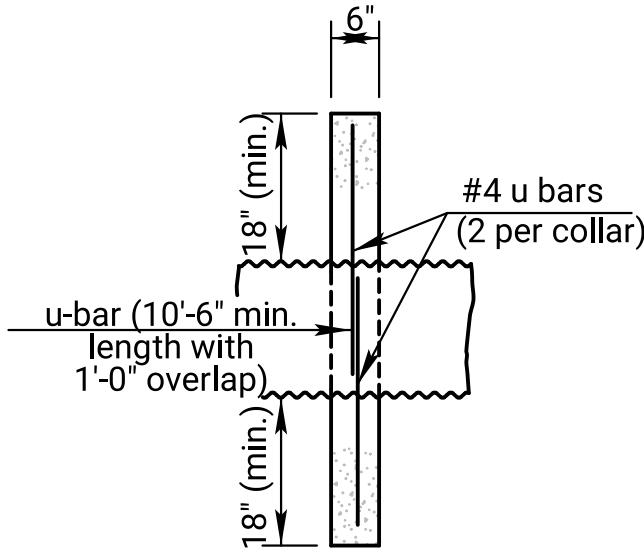
SEDIMENT STORAGE BASIN (PLAN)



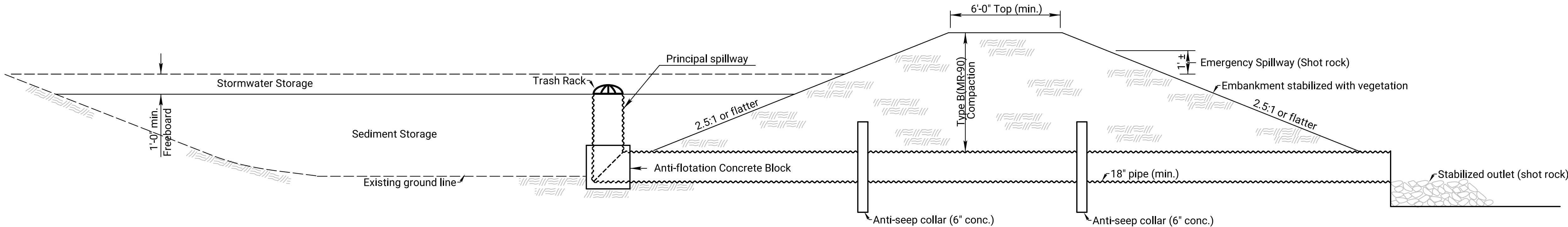
CROSS SECTION (EMERGENCY SPILLWAY)



CONCRETE ANTI-SEEP COLLAR



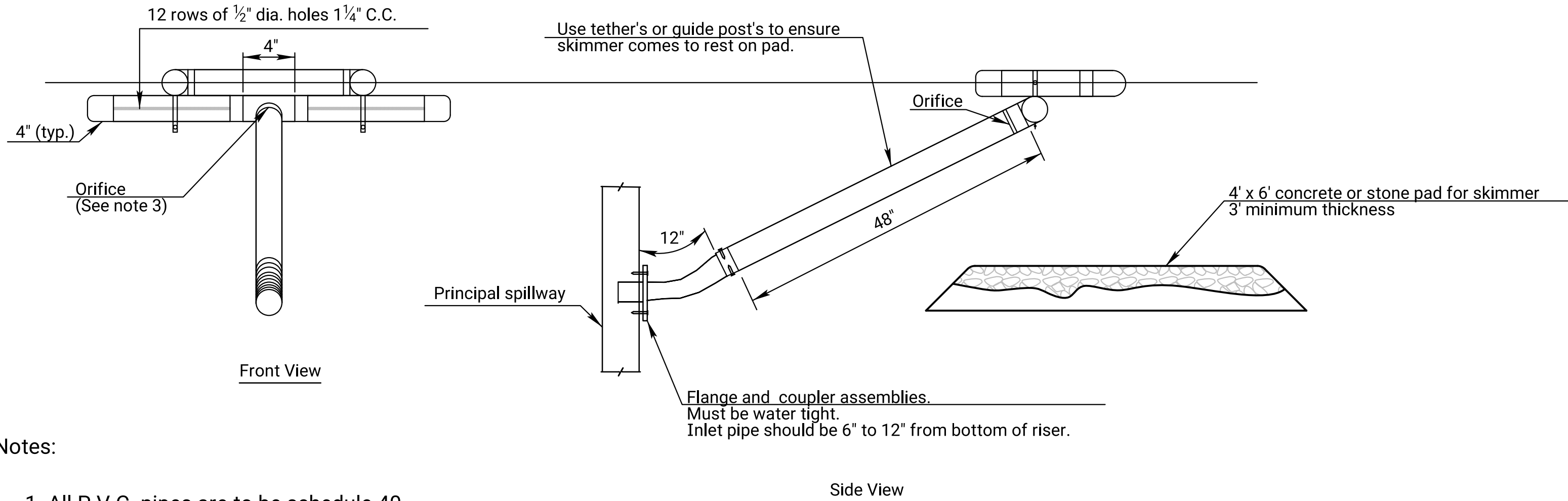
SECTION A-A



SEDIMENT STORAGE BASIN (ELEVATION)

NOTES:

- 1) Temporary Sediment Basins shall be constructed at locations as directed by the Engineer or as approved in the SWPPP Schedule. All work and materials necessary, including but not limited to, the fill material, compaction, drainage pipes, aggregates and all other incidentals necessary to construct the basin, shall be paid as "Temporary Sediment Basin".
- 2) Lengths and top dimensions shall be determined in the field by the Engineer.
- 3) Skimmer dewatering device required and must be used regardless the size of the drainage area.



Notes:

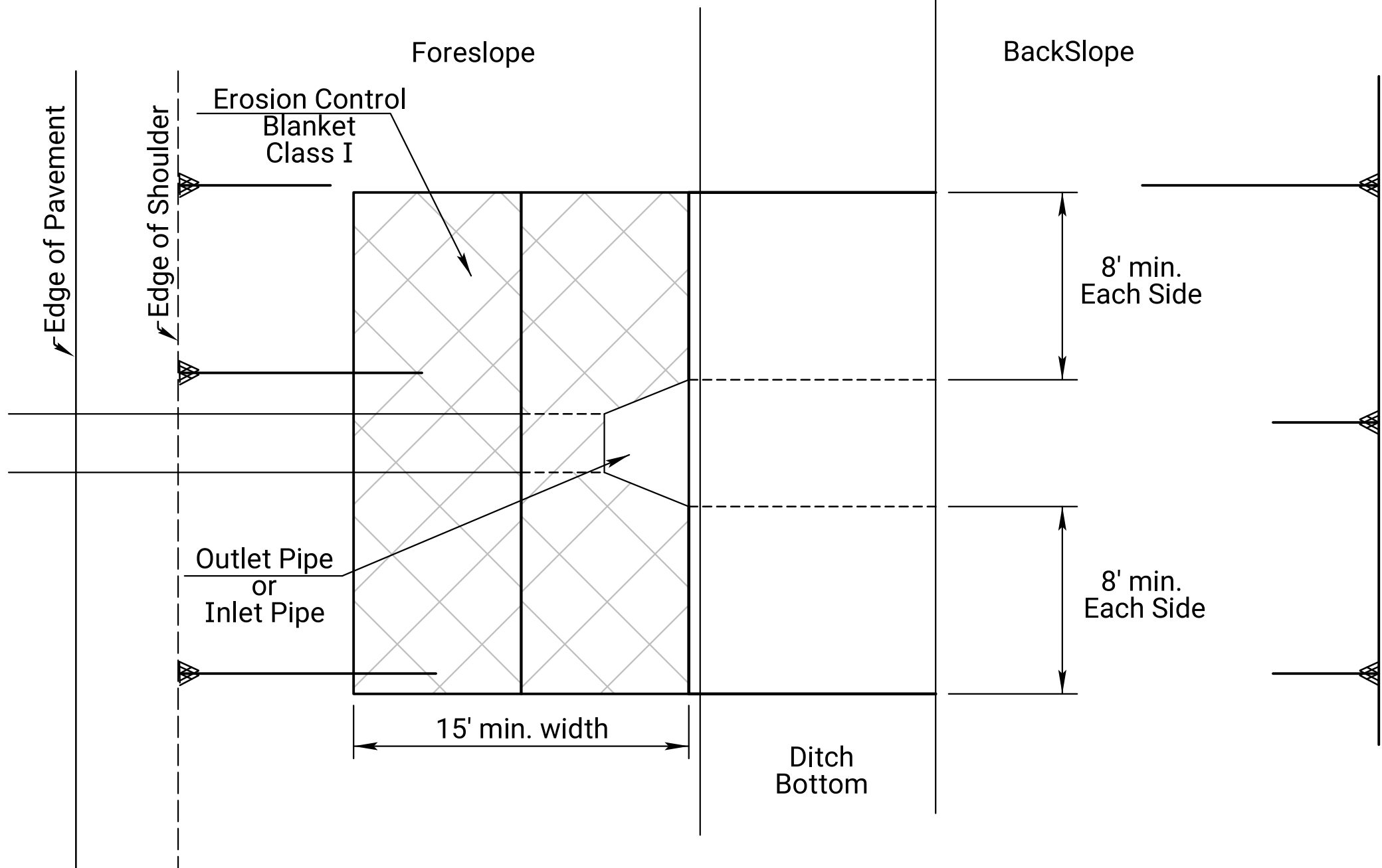
1. All P.V.C. pipes are to be schedule 40.
2. HDPE flexible drain pipes is to be attached to the pond outlet structure with water-tight connections.
3. The orifice shall be sized of to provide drawdown time to 2 to 5 days and approved by the engineer.
4. Other skimmer designs maybe used that dewater from the surface at a controlled rate. The design must be approved by the engineer.

SKIMMER DEWATERING DEVICE

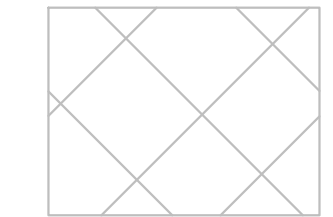
SEDIMENT STORAGE BASIN LOCATIONS		
STATION TO STATION	SIDE	REQUIRED STORAGE CAPACITY

02	09-03-13	Added Skimmer Dewatering Device		M.R.M.	S.H.S.
01	07-17-13	Revised Standard		M.R.M.	S.H.S.
NO.	DATE	REVISIONS		BY	APP'D
KANSAS DEPARTMENT OF TRANSPORTATION					
TEMPORARY EROSION AND POLLUTION CONTROL SEDIMENT STORAGE BASIN					
LA852H					
FHWA APPROVAL		09-24-13		APP'D.	
DESIGNED	B.B.	DETAILED	B.B.	QUANTITIES	TRACED
DESIGN CK.	S.H.S.	DETAIL CK.	S.H.S.	QUAN.CK.	TRACE CK.

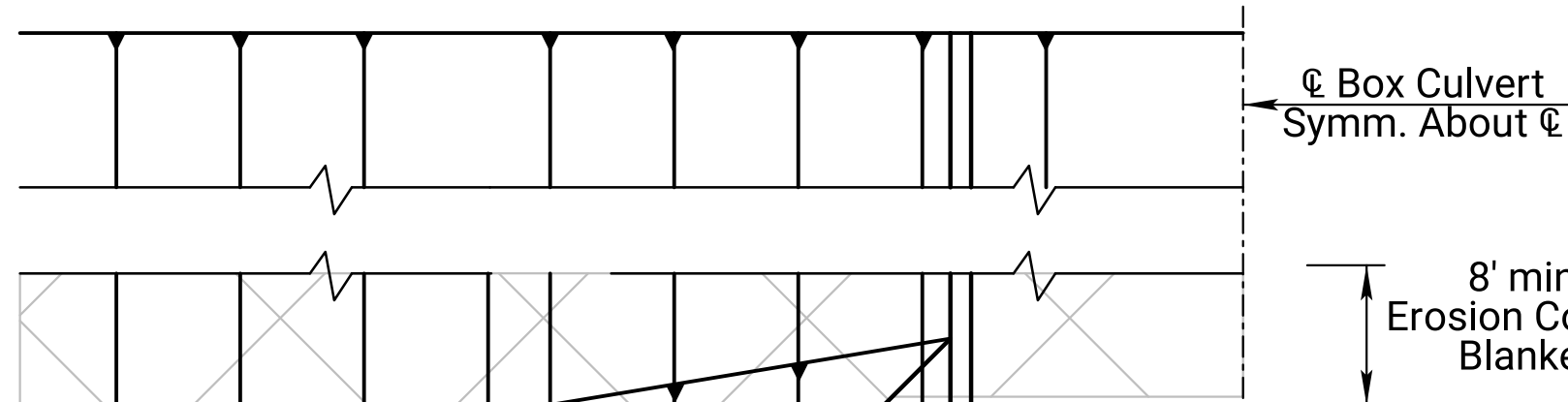
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	ST-2306	2025	86	139



PARTIAL PLAN PIPE



Limits of Erosion Control Blanket



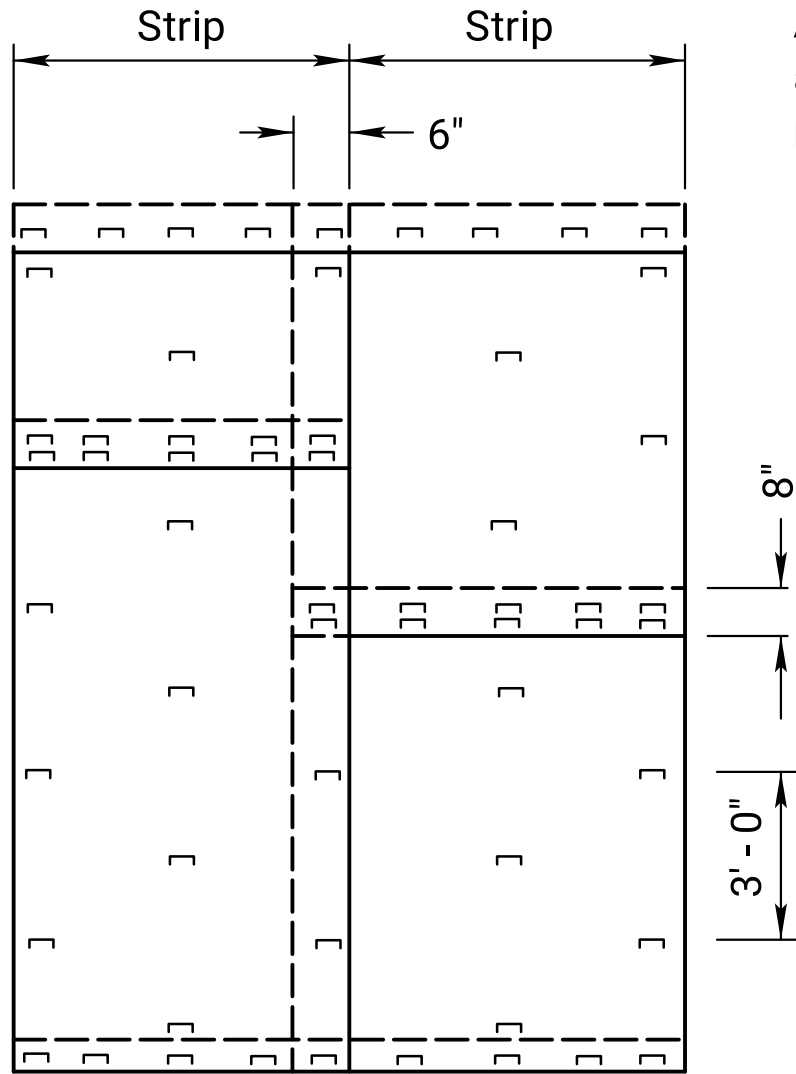
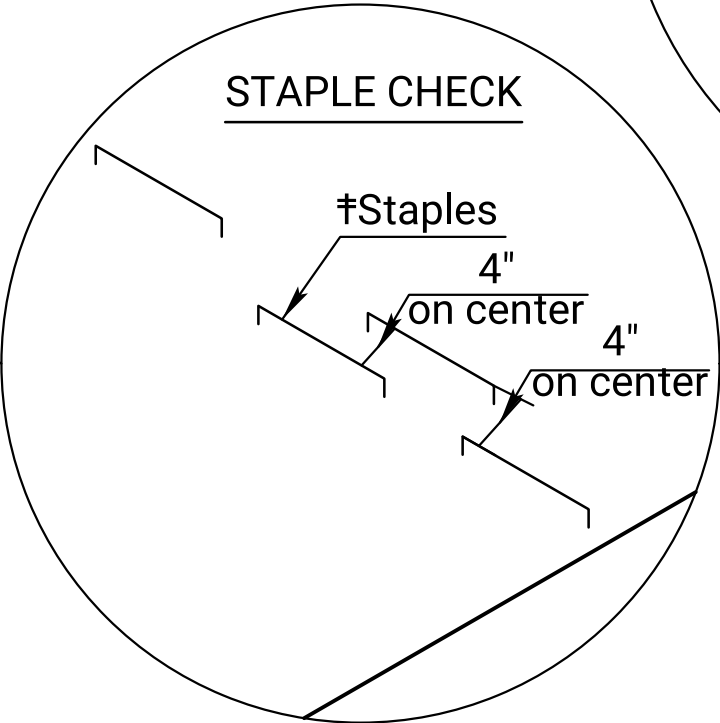
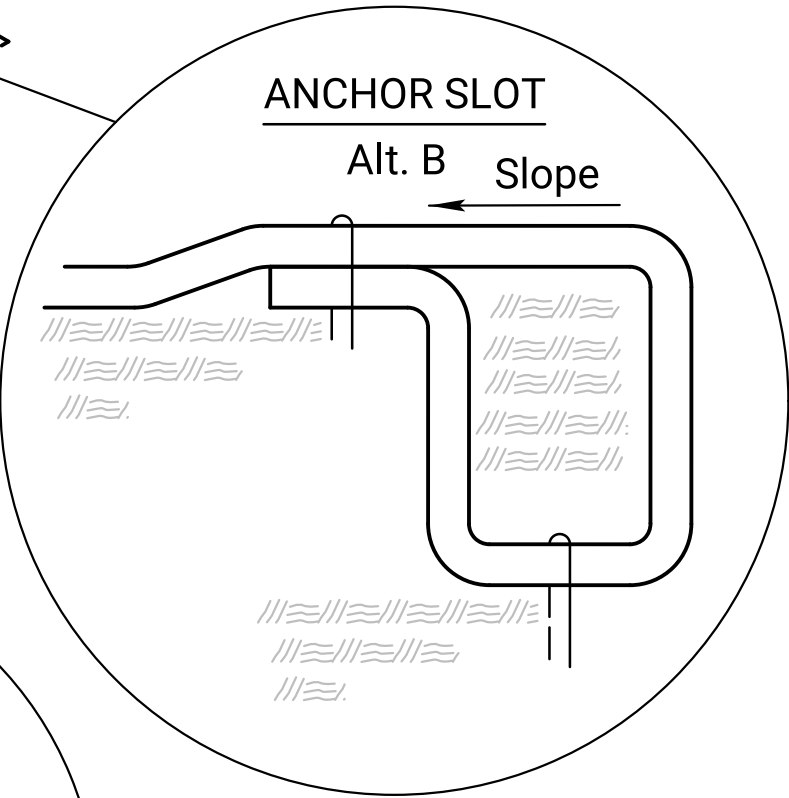
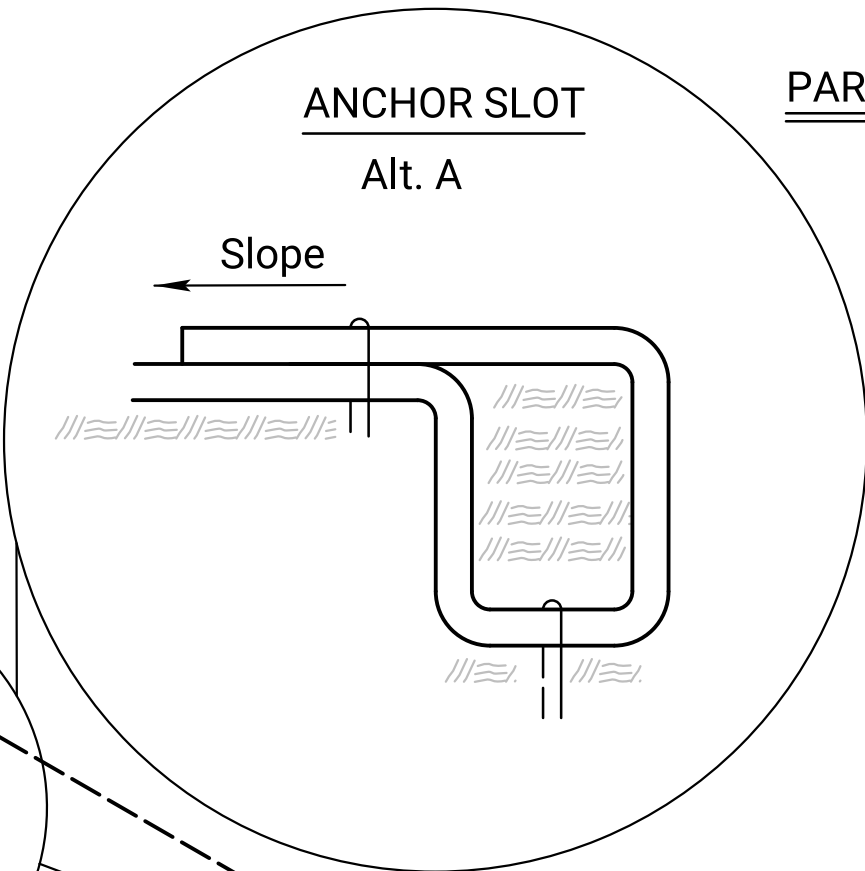
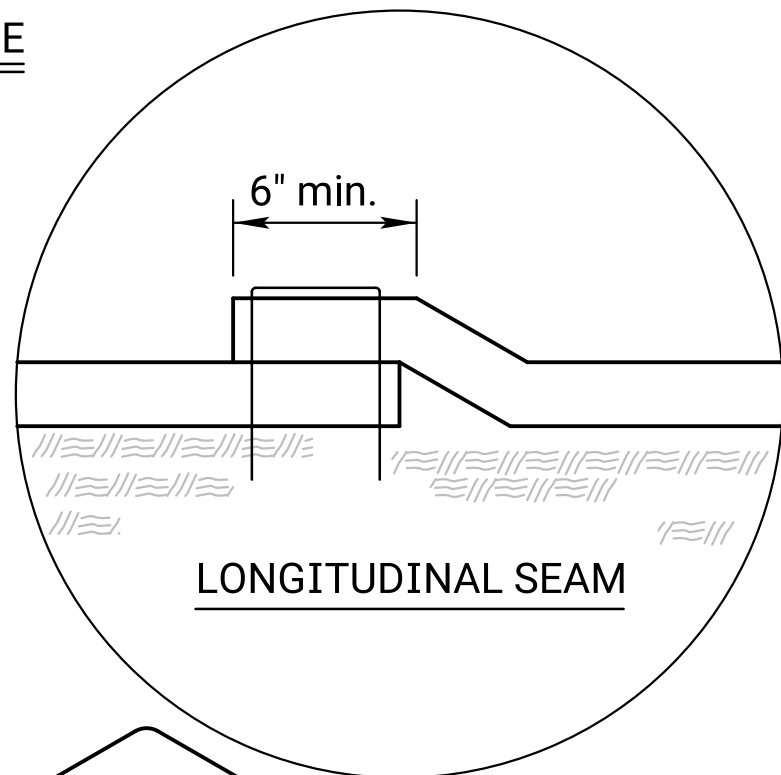
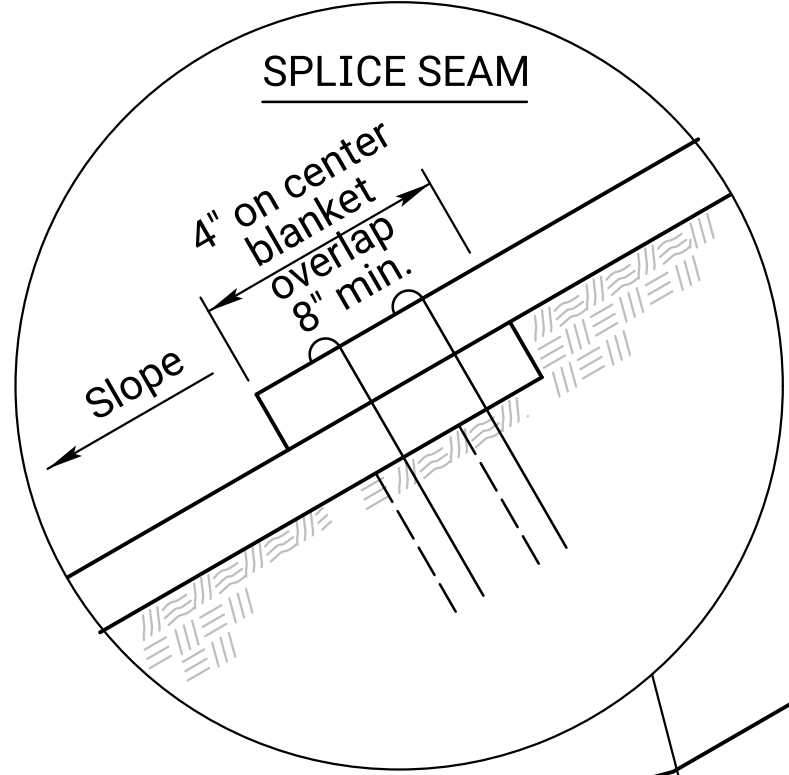
PARTIAL PLAN BOX CULVERT

INSTALLATION DETAILS FOR EROSION CONTROL CLASS 1

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

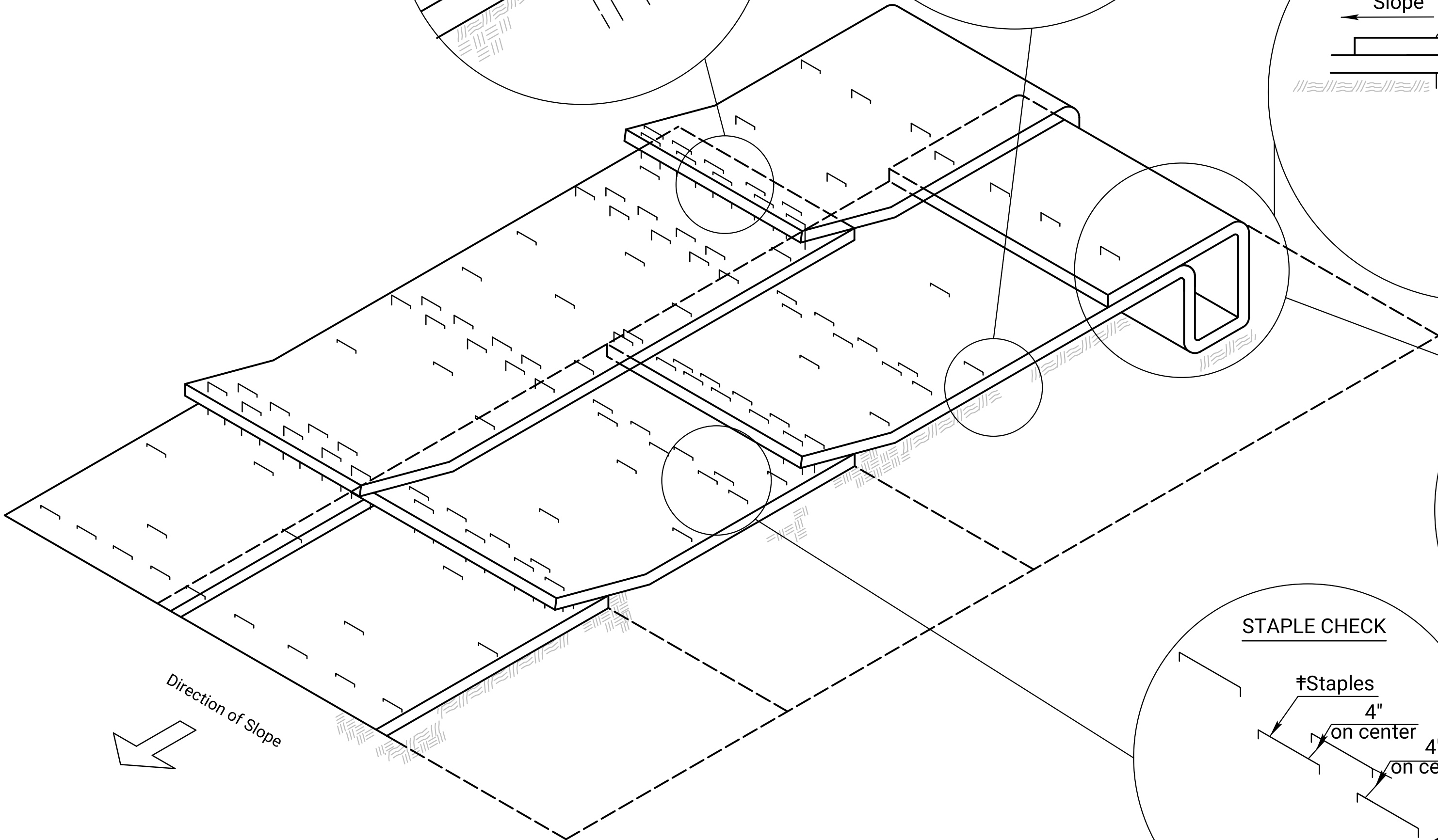
- ANCHOR SLOTS: The top of the blanket should be "slotted in" at the top of the slope and anchored in place with anchors 6 inches apart. The slots should be 6 inches wide x 6 inches deep with the blanket anchored in the bottom of the slot, then backfilled, tamped and seeded.
- LONGITUDINAL SEAMS: The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

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



PLAN VIEW - ANCHORING DIAGRAM

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



ISOMETRIC VIEW

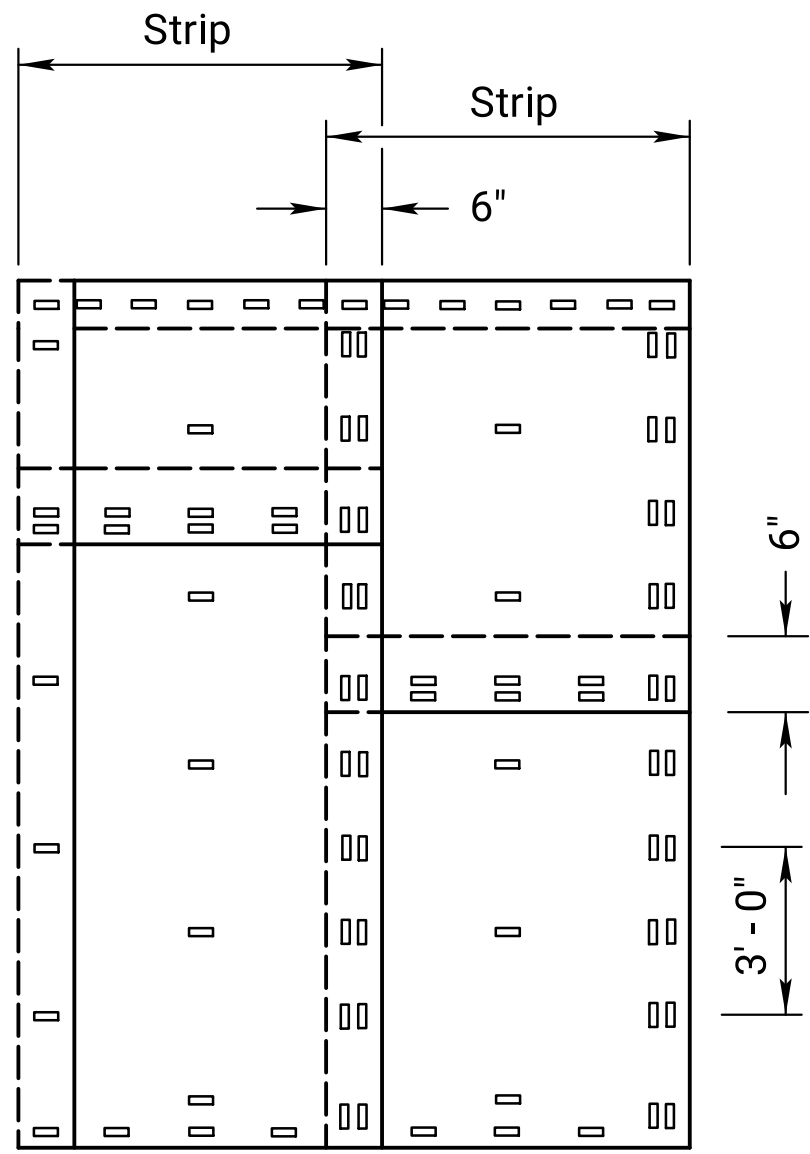
KANSAS DEPARTMENT OF TRANSPORTATION					
INSTALLATION DETAIL EROSION CONTROL CLASS 1 SLOPE PROTECTION					
LA855					
FHWA APPROVAL		03-10-15		APPD.	
DESIGNED	R.A.A.	DETAILED	R.A.A.	QUANTITIES	TRACED
DESIGN CK.	DETAIL CK.	QUAN. CK.	TRACE CK.	R.A.A.	

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	ST-2306	2025	87	139

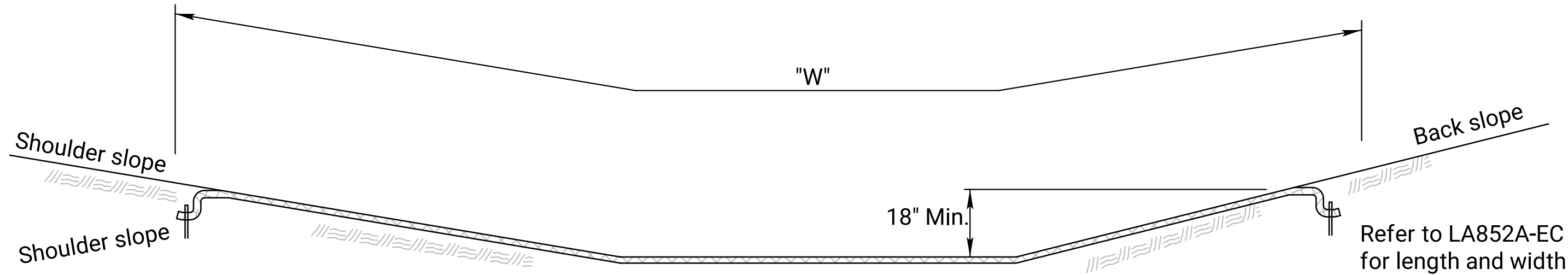
INSTALLATION DETAILS FOR EROSION CONTROL CLASS 2

Erosion Control Mats shall be laid loosely in the direction of the flow, with the first course at the centerline of channel, where applicable. In order for the mat to be in contact with the soil, lay the mat loosely, avoiding stretching.

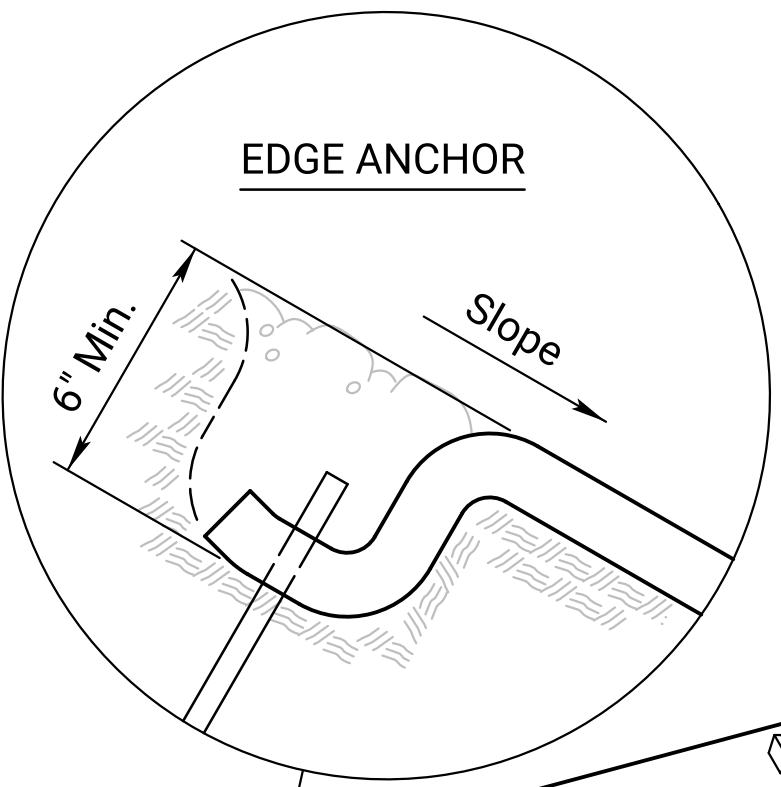
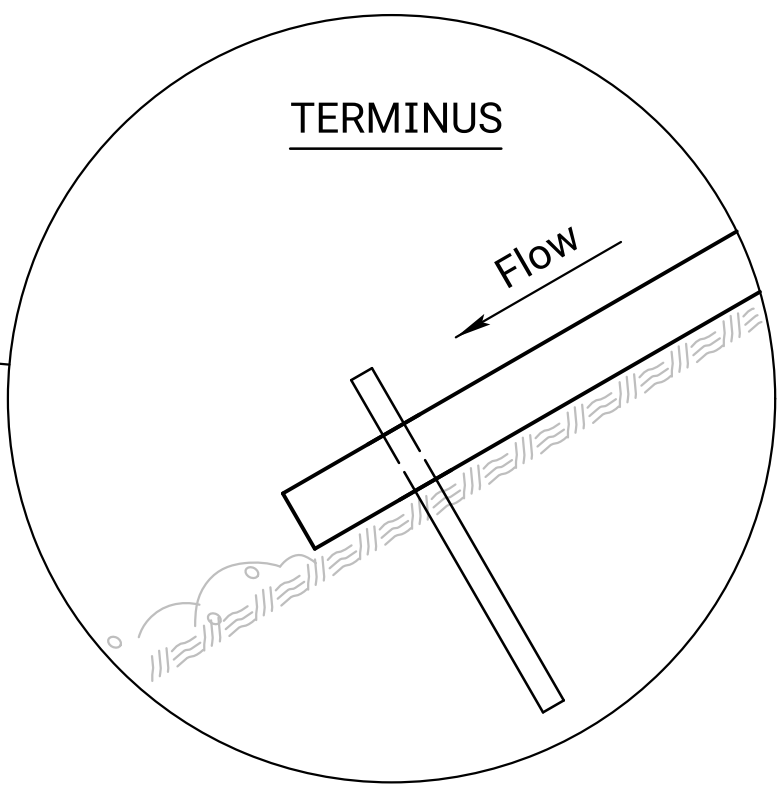
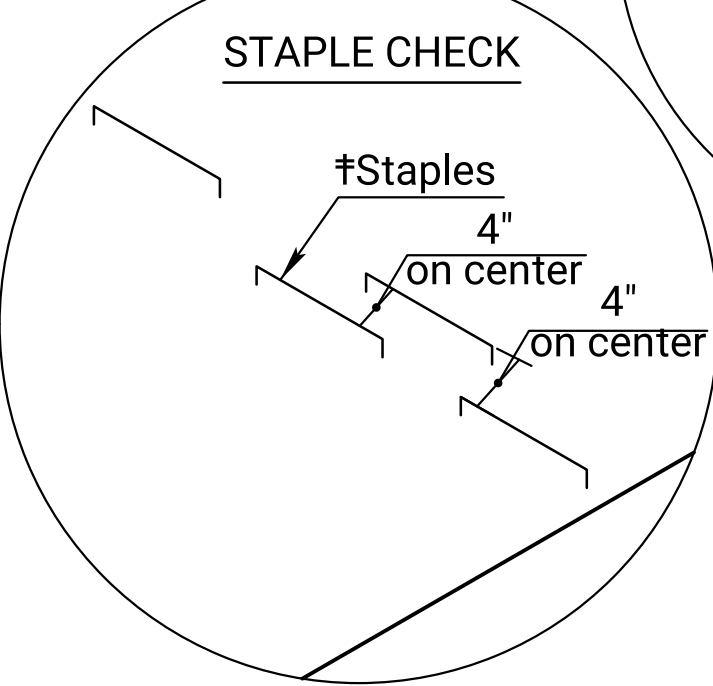
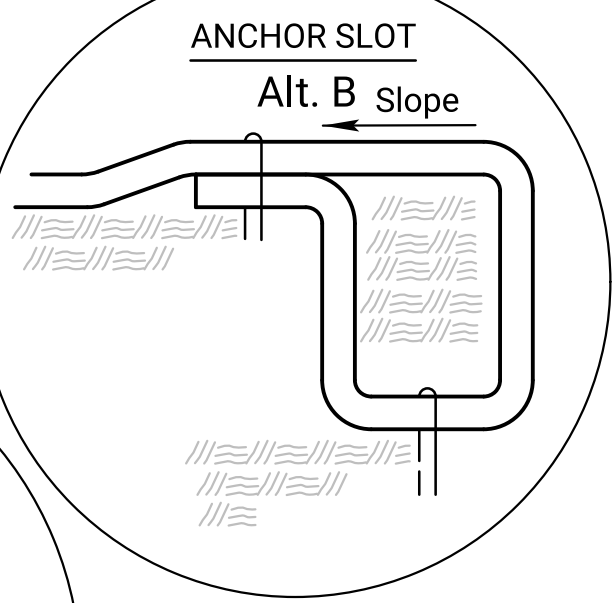
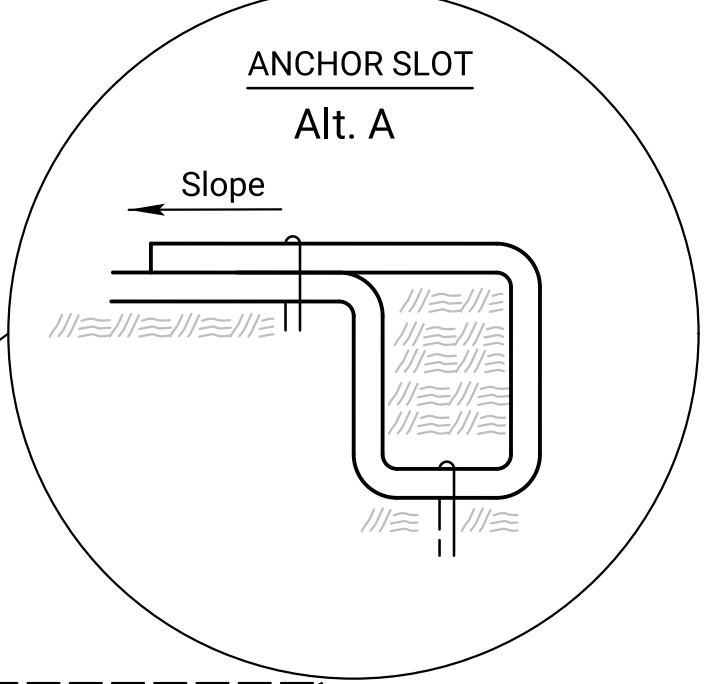
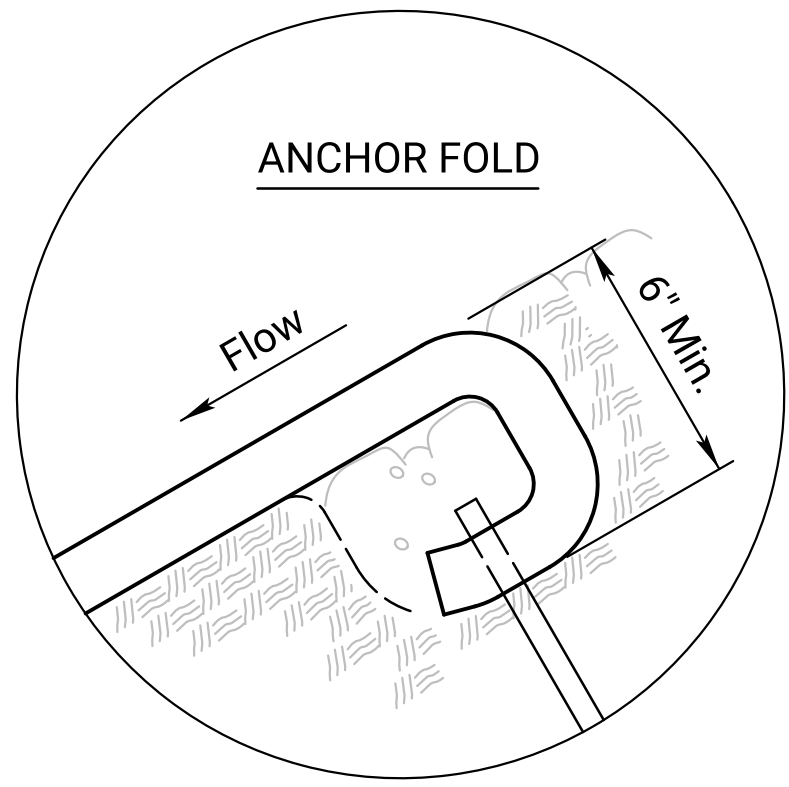
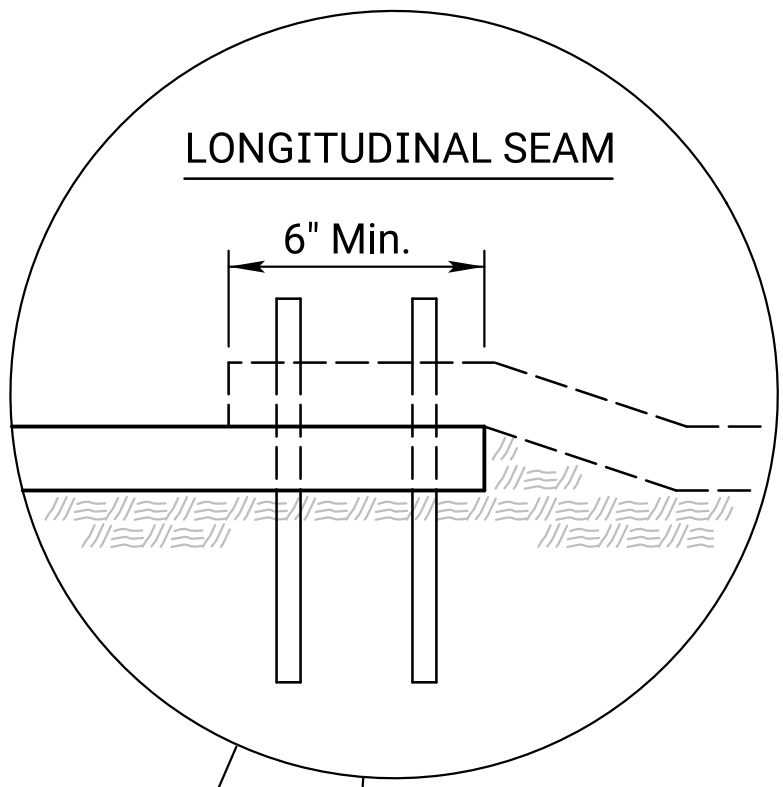
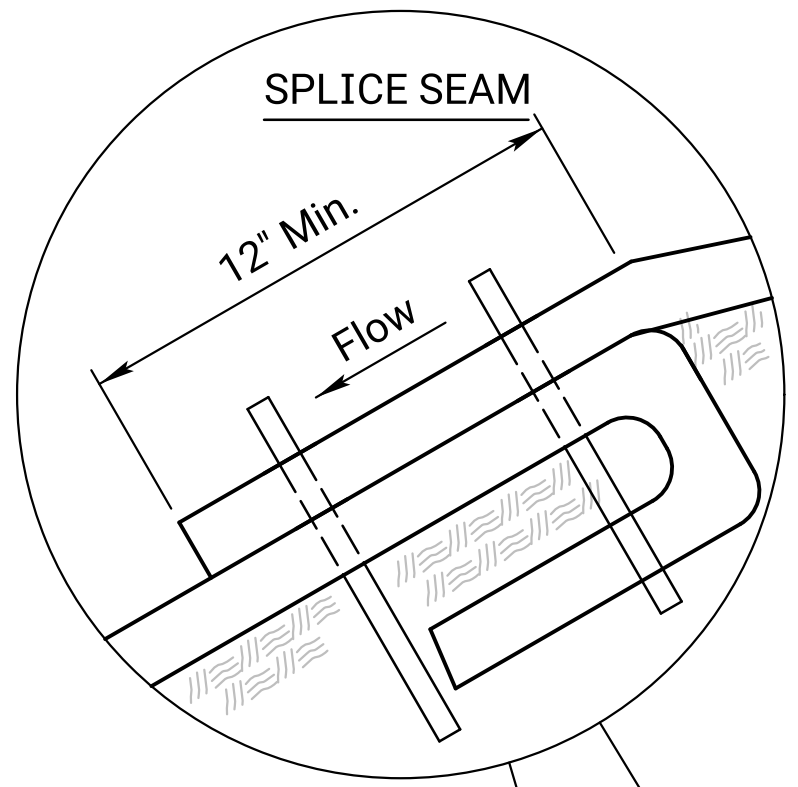
- ANCHOR FOLD: The top of the mat should be folded under, buried and secured with approved anchors placed 6 inches apart. The top edge of the mat should be buried in a slot, 6 inches wide x 6 inches deep; anchored in the bottom of the slot, backfilled, and the mat folded over the top as shown in detail.
- LONGITUDINAL SEAMS: The adjacent edges of the mat should overlap a minimum of 6 inches, with anchors catching the edges of both mats.
- SPLICE SEAM: When splices are necessary, overlap end a minimum of 12 inches in direction of water flow. Stagger splice seams.
- STAPLE CHECK: †Establish Staples in 2 rows 4" on center apart. Staple Checks - shall be 30' apart.
- EDGE ANCHOR: Lay outside edge of mat into trench at top of side slope. Anchor at 3 foot intervals along trench.
- TERMINUS: The bottom edge of the mat shall be anchored in place with anchors spaced at 9 inch intervals along the terminating edge.
- TYPICAL ANCHORS: Anchor design shall be as recommended by the manufacturer.



PLAN VIEW - ANCHORING DIAGRAM



CROSS SECTION (Ditch Lining)

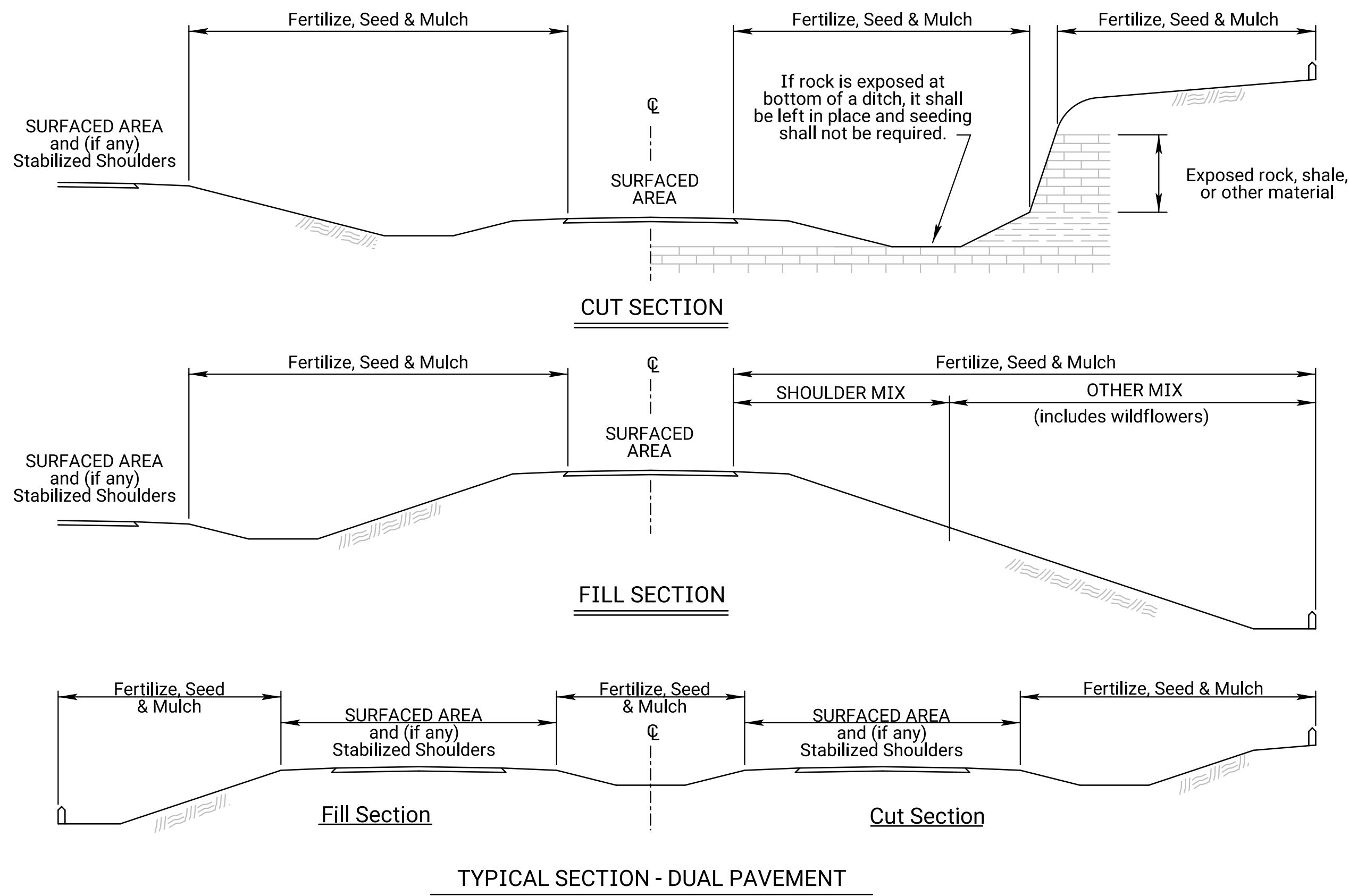


Direction of Water Flow

ISOMETRIC VIEW

04	09-25-15	Modified Staple Check	R.A.A.	S.H.S.
03	09-15-14	Revised Standard	R.A.A.	S.H.S.
02	03-01-13	Revised Standard	M.R.M.	S.H.S.
NO.	DATE	REVISIONS	BY	APPD
KANSAS DEPARTMENT OF TRANSPORTATION				
INSTALLATION DETAIL EROSION CONTROL CLASS 2 FLEXIBLE CHANNEL LINER				
LA856				
FHWA APPROVAL				
DESIGNED	R.A.A.	DETAILED	R.A.A.	QUANTITIES
DESIGN CK.	S.H.S.	DETAIL CK.	S.H.S.	QUAN.CK.
11-02-15			APPD.	Scott H. Shields
TRACED			R.A.A.	S.H.S.
TRACE CK.			BY	APPD

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	ST-2306	2025	88	139



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.	

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, P₂O₅, K₂O 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:

1 $\frac{3}{4}$ - 2 $\frac{1}{4}$ Tons per Acre = 1 $\frac{1}{2}$ " loose depth spread uniformly over acre.

Agricultural products, such as native prairie hay, used for mulching and erosion control practices, excluding wood based mulch, shall meet the North American Weed Free Forage Standards.

Other vegetative mulches are acceptable only with the Engineer's concurrence.

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

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.

When seeding is less than 1 acre, temporary and permanent seeding shall be combined and seeded at the same time.

There is no seasonal restriction when seeding projects less than one acre.

SUMMARY OF SEEDING QUANTITIES

P.L.S. RATE/ACRE				ACRES				BID ITEM	QUANTITY	UNIT
SHLDR	OTHER			SHLDR	OTHER					
								This project is entirely blanketed and seeded with the Soil Erosion Mix, eliminating the need for permanent seeding operations. See sheet LA852A.		
								Mulching*		

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 $\frac{1}{8}$ " - $\frac{1}{4}$ ". Place the wildflower seed in a separate seed box and drill (cover) seed $\frac{1}{16}$ " 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.

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.

01	11-25-20	Updated Seeding / Sodding Periods Charts	M.R.D.	M.L.
02	08-03-20	Revised Standard	M.R.D.	S.H.S.
NO.	DATE	REVISIONS	BY	APP'D
KANSAS DEPARTMENT OF TRANSPORTATION PERMANENT SEEDING SUMMARY OF SEEDING QUANTITIES LA850				
FHWA APPROVAL		05-06-19	APP'D.	Mervin Lare
DESIGNED	DETAILED	QUANTITIES	TRACED	
DESIGN CK.	DETAIL CK.	QUAN.CK.	TRACE CK.	

Plotted by : Riley Standish
File : ST2306Iss-209.dgn
8-JUL-2025 16:49

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	ST-2306	2025	90	139

ID NO	SUMMARY OF ELECTRIC LIGHTING SYSTEM QUANTITIES (HARDWARE)		
	Item	Unit	Quantity
	Solid State Photo Cell	Each	
	Controller	Each	
	Junction Box	Each	10
	Cable Support Grip	Each	
	Expansion Joint	Each	As Required
	Breakaway Connectors	Each	15
	600 Volt 2/C Secondary Cable with Ground Wire (CIC) #4 AWG	Lin Ft	
	600 Volt 2/C Secondary Cable with Ground Wire (CIC) #6 AWG	Lin Ft	
	600 Volt 2/C Secondary Cable with Ground Wire (CIC) #8 AWG	Lin Ft	
	600 Volt 2/C Secondary Cable with Ground Wire (CIC) #10 AWG	Lin Ft	
	600 Volt 1/C Secondary Cable with Ground Wire ____ AWG	Lin Ft	
	600 Volt 1/C Secondary Cable #10 AWG	Lin Ft	
	Groundwire, #6 AWG Solid Bare Copper	Lin Ft	
	1.5' Metallic Conduit	Lin Ft	220
	2" Metallic Conduit	Lin Ft	625
	3" Metallic Conduit	Lin Ft	
	2" Schedule 40 Conduit	Lin Ft	
	2" Schedule 80 Conduit	Lin Ft	
	3" Schedule 80 Conduit	Lin Ft	
	3" 90 Degree Sch 40 PVC Conduit Bends 24" Radius	Each	
	1" 90 Degree Sch 40 PVC Conduit Bends 24" Radius	Each	
	3⁄8" X 3" Wedge Type Anchor Bolts	Each	282
	2" Conduit Clamps w/ Clamp Backs	Each	141
	Ground Rods with Clamps 3⁄4" X 20'	Each	

ID NO	SUMMARY OF ELECTRIC LIGHTING SYSTEM QUANTITIES (LIGHT POLES)		
	Item	Unit	Quantity
	40' Mounting Height Light Pole with 8'/15' Luminaire Arm and Frangible Base	Each	5*
	40' Mounting Height Light Pole with 15' Luminaire Arm and Frangible Base	Each	1*
	40' LED Luminaire (See Basis of Design) - 250W HPS equivalent	Each	11*
	Post-top LED Luminaire on 14' Pole	Each	
	Post-top LED Luminaire (See Basis of Design) - 100W HPS equivalent	Each	
	Remove/Reset Existing Light Pole	Each	3*

* To Be Provided/Installed/Completed by Victory Electric

ID NO	SUMMARY OF ELECTRIC LIGHTING SYSTEM QUANTITIES (MISCELLANEOUS ITEMS)		
	Item	Unit	Quantity
	Boring	Lin Ft	
	Trench and Backfill	Lin Ft	155
	Removal of Concrete Base	Each	

BID ITEM		
Item	Unit	Quantity
Electric Lighting System	L.S.	Lump Sum
High Mast Light Tower (100')(48" Concrete Base)	Each	
High Mast Light Tower (110')(48" Concrete Base)	Each	
High Mast Light Tower (120')(48" Concrete Base)	Each	
High Mast Light Tower (100')	Each	
High Mast Light Tower (110')	Each	
High Mast Light Tower (120')	Each	

BASIS OF DESIGN (ADDITIONAL CRITERIA)		
⚡	Designed Lumens	12,746
	Maximum Wattage	250
	Distribution Type	Type 3R
	Other	

NOTES:

1.

Linear quantities are approximate and included for information only. The contractor shall conduct all work, furnish and install all lighting equipment necessary, including towers, concrete bases for towers, anchor bolts, luminaires, lamps, wiring, conduit, conduit fittings, supports, interconnections, ground rods, and all incidentals necessary for the complete installation within the limits shown on the plans. To insure complete and satisfactory operation of the Electric Lighting System whether specifically mentioned or not.
2.

Items not specifically called out are subsidiary to other bid items.

03	05-25-23	Added boring		J.A.P.	S.M.P.
02	03-17-21	High mast footing to 48"/ground rod		J.A.P.	C.P.A.
01	04-28-20	Add 55' pole/change footing size		J.A.P.	C.P.A.
NO.	DATE	REVISIONS		BY	APP'D
KANSAS DEPARTMENT OF TRANSPORTATION					
CONSTRUCTION QUANTITIES ELECTRIC LIGHTING SYSTEMS					
TE209					
FHWA APPROVAL		07-07-23		APP'D. Sara M. Peters	
DESIGNED	J.A.P.	DETAILED	J.A.P.	QUANTITIES	TRACED
DESIGN CK.	S.M.P.	DETAIL CK.	S.M.P.	QUAN.CK.	TRACE CK.

Plotted by : Riley Standish
File : ST2306pss-402.dgn
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STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
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SYMBOL KEY

	REMOVE SIGN
	REMOVE POST
	REMOVE FOOTING
	REMOVE SIGN & POST
	REMOVE POST & FOOTING
	REMOVE SIGN, POST, & FOOTING
	MOUNT ON WOOD POST IN CONCRETE FOOTING
	MOUNT ON WOOD POST IN SOIL
	MOUNT ON STEEL BEAM BREAKAWAY POST
	MOUNT ON STEEL U-POST
	MOUNT ON PSST POST
	MOUNT ON EXISTING POST
	MOUNT ON VERTICAL SUPPORT
	SHOULDER MOUNTED INSTALLATION
	OFFSET MOUNTED INSTALLATION
	EXISTING SIGN
	EXISTING SIGN TO BE OVERLAID
	SIGN IS NOT PART OF PROJECT
	TYPE 'A' DELINEATOR (RIGID)
	TYPE 'A' DELINEATOR (RIGID) (BK-BK)
	TYPE 'B' DELINEATOR (RIGID)
	TYPE 'A' DELINEATOR (FLEXIBLE)
	TYPE 'A' DELINEATOR (FLEXIBLE) (BK-BK)
	TYPE 'B' DELINEATOR (FLEXIBLE)
	TYPE 2 OBJECT MARKER
	TYPE 3 OBJECT MARKER
	TYPE 3 OBJECT MARKER (BK-BK)

GENERAL NOTES

In order to expedite the completion of the project for traffic service, the signing and delineator work shall be sequenced with any other contract work such that the phases of construction may proceed and be completed at the same time.

New signs erected on the project which are in conflict with existing signing are to be completely covered until the existing signs are removed or the new signing is applicable. The existing signs that are being replaced, removed, or do not follow the current MUTCD signing standards are to be removed when the project is completed or as determined by the Engineer.

The Contractor shall exercise caution at all times when installing sign supports in and around areas where utilities exist, either underground or overhead, and will be held responsible for any damage incurred to the system. The installation of sign supports shall include the excavation, drilling, or driving the support footing and the erection of the sign support. The contractor shall exercise caution when working around any existing signs that are to remain and will be held responsible for any damage to the signs, supports, or footings. The Contractor shall exercise care when working around shrubbery while removing or installing signs or sign supports.

An existing sign post installation shall be plumb and the compaction of the backfill soil shall comply with the specifications after the removal and resetting of a sign, the removal and replacement of a sign, or the installation of a new sign.

The Contractor shall provide mounting bolts that are of a length that does not extend more than a nominal 1 inch beyond the sign post. The Contractor shall not make any field modifications to the mounting bolt prior to or after the sign is installed.

The materials and fabrication for signing and delineation work shall conform to the Standard Specifications for State Road and Bridge Construction (2015 edition) and Special Provisions.

INDEX OF SHEETS

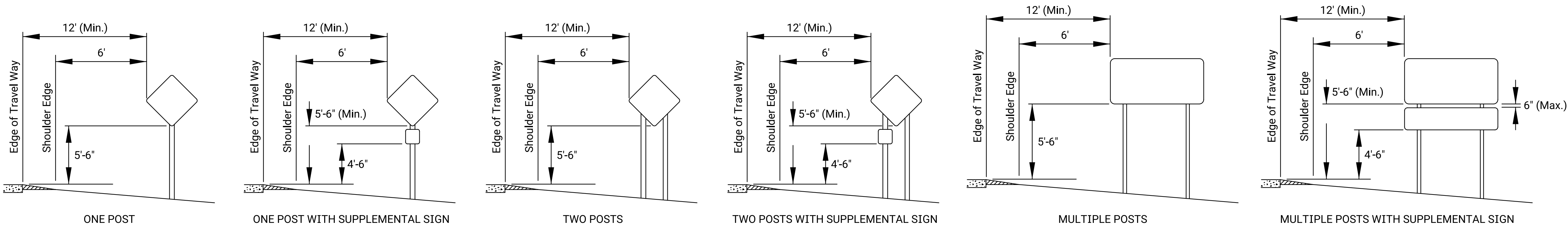
91	SIGNING INDEX, SYMBOLS, & GENERAL NOTES POST SPACING & SIGN ANGLE DETAILS
92	HEIGHT & LATERAL DISTANCE FOR ERECTION POSITIONING, DESIGN, & MOUNTING OF DELINEATORS POSITIONING, DESIGN, & MOUNTING FOR OBJECT MARKERS (TYPE 2 & 3) POSITIONING FOR CHEVRON (W1-8) SIGNS
93	PLAN SHEETS (INSTALLATIONS)
94	PLAN SHEETS (REMOVALS)
95	QUANTITIES SHEETS (INSTALLATIONS) QUANTITIES SHEET (DELINEATORS & OBJECT MARKERS)
96	SUMMARY SHEET (INSTALLATIONS & REMOVALS) SUMMARY SHEET (REMOVAL & RESET)
97	RECAPITULATION SHEET
98-99	STANDARD STRUCTURAL SIGN SUPPORTS (WOOD & STEEL POSTS)
100	MOUNTING OF SIGNS ON WOOD POSTS MOUNTING OF FLAT SHEET SIGNS ON STEEL I-BEAM POSTS MOUNTING OF REINFORCED PANEL SIGNS ON I-BEAM POSTS
101-102	DETAILS FOR FLAT SHEET SIGN BLANKS DETAILS FOR PROCESSED SIGNS DETAILS FOR REINFORCED PANELS DETAILS FOR GUIDE SIGN LEGEND DETAILS FOR GUIDE SIGNS
103	DETAILED SIGN SPECIFICATIONS

02	10-01-19	Changed symbol, notes, & index	D.D.G.	E.W.N.
01	07-23-10	Changed General Notes and Spec Book Date	D.D.G.	D.B.
NO.	DATE	REVISIONS	BY	APPD
KANSAS DEPARTMENT OF TRANSPORTATION				
SIGNING SYMBOL KEY GENERAL NOTES AND INDEX				
TE402			07-01-03	
FHWA APPROVAL		10-01-19	APPD.	Steven A. Buckley
DESIGNED	D.D.G.	DETAILED	W.S.B.	QUANTITIES
DESIGN CK.	S.A.B.	DETAIL CK.	D.D.G.	QUAN.CK.
		TRACED		
		TRACE CK.		

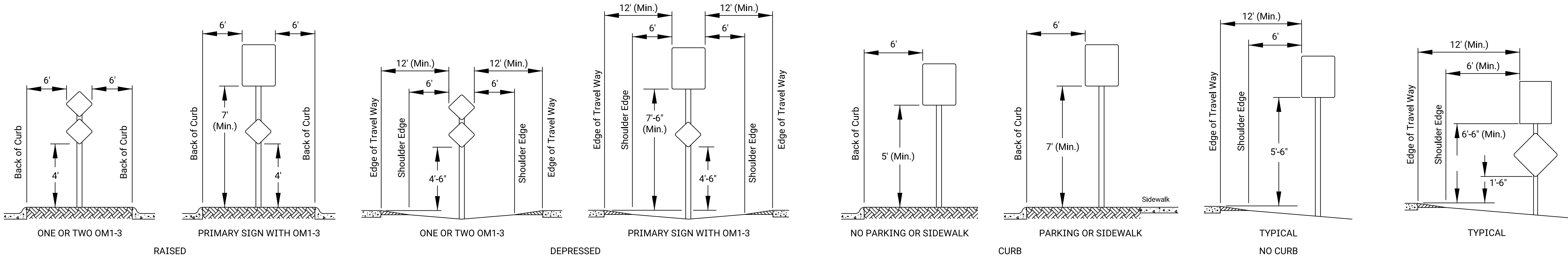
Plotted by : Riley Standish
File : ST2306pss-407.dgn

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STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	ST-2306	2025	92	139



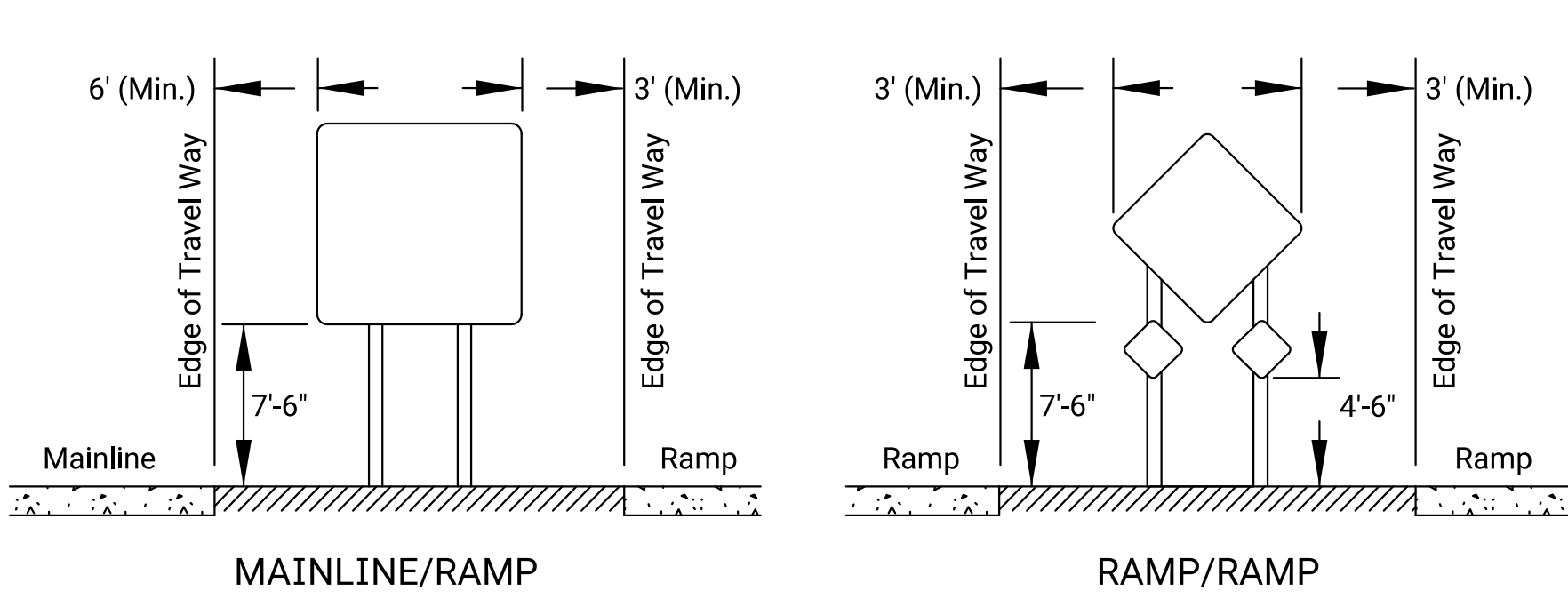
CONVENTIONAL HIGHWAY AND SIDE ROADS



MEDIANS AND ISLANDS

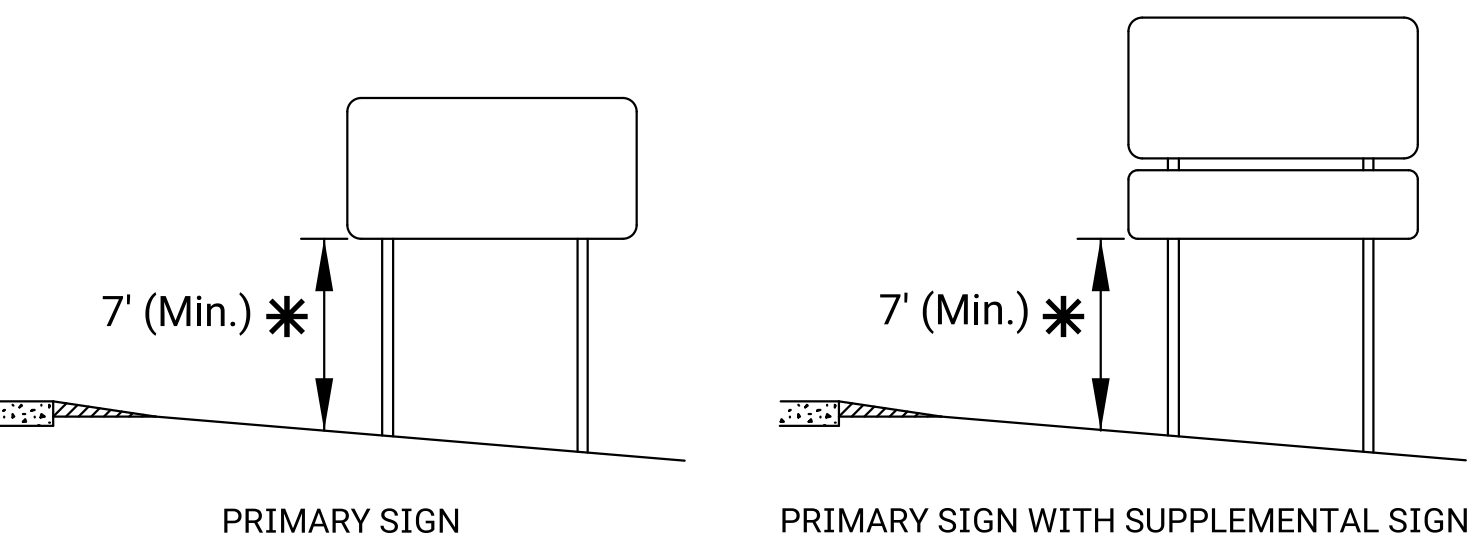
URBAN ROADWAYS

ADOPT A HIGHWAY



HIGHWAY GORES

REFERENCE MARKERS



GROUND CLEARANCE FOR STEEL BEAM POSTS

NOTES

The "Edge of Travel Way" is the edge line or the edge of the driving lane.

The outer edge of the sign shall not extend beyond the right of way line.

A minimum lateral clearance of 6' from pavement edge may be used where lateral offsets are limited.

In business, commercial, or residential districts where with limited lateral offsets, a minimum lateral clearance of 2' with a 7'-6" minimum mounting height may be used.

When signs are behind guardrail, the near edge of the sign shall not extend beyond the back side of the guardrail and the nearest sign post shall be a minimum of 5' from the face of the guardrail. Shoulder mounted signs shall not be located between 100' in advance of and 50' beyond the nose of the guardrail.

When the median or island is too narrow for the typical lateral placement, the sign may be placed a minimum of 2' from the back of the curb. In no case shall the sign edge extend beyond the back edge of the curb.

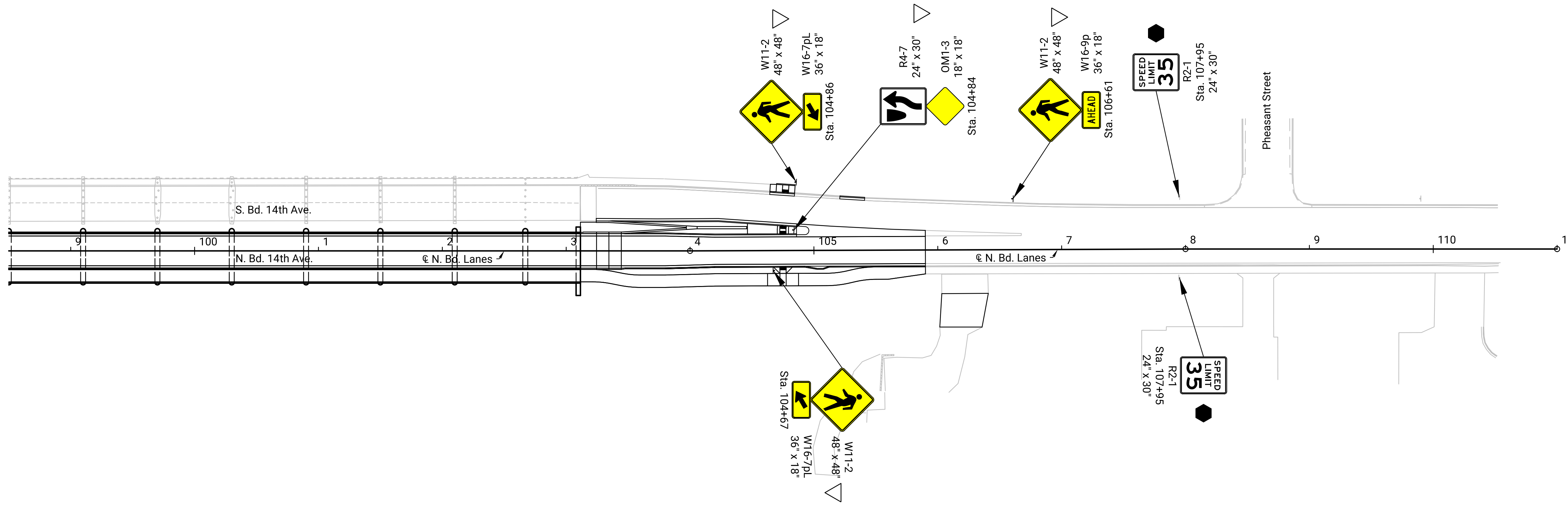
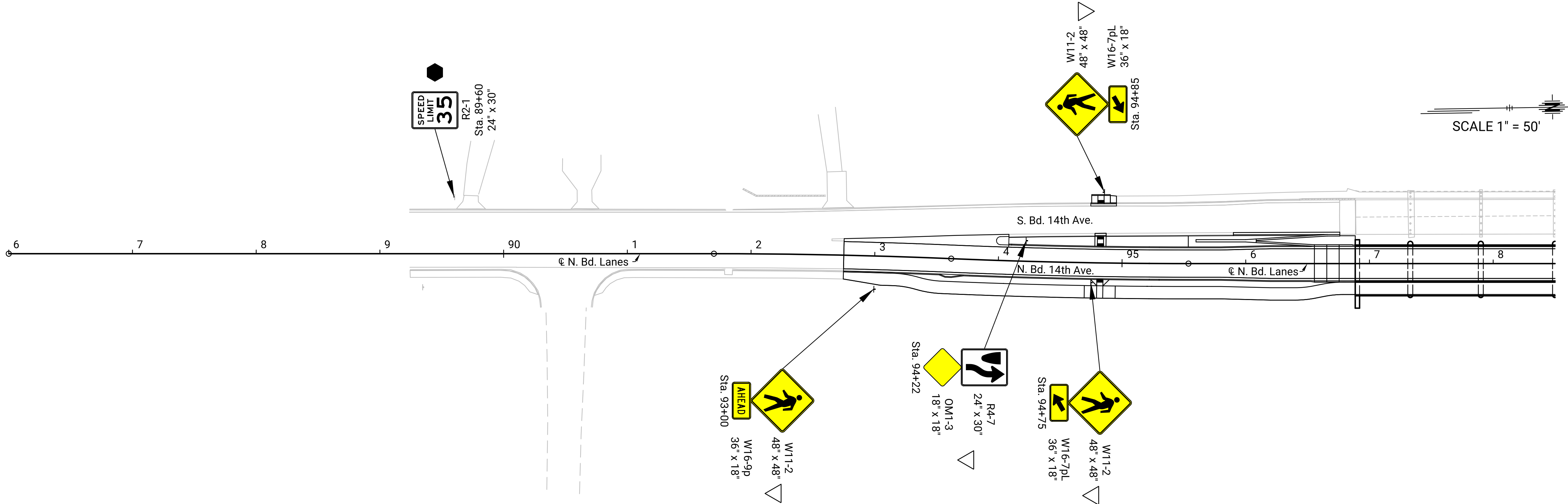
The gore sign shall be installed in the paved gore area. The edges of the gore sign shall not extend beyond the shoulder edge. The minimum distance from the centerline of the posts to the back of the paved gore area is 2'.

Signs may be moved laterally or longitudinally if it will improve visibility of the sign or other signs or if it will protect the sign more. The maximum allowable longitudinal adjustment is 100', with the exception of the reference marker which is 50'.

The minimum spacing between signs, excluding reference markers is 100'.

NO.	DATE	REVISIONS	BY	APP'D
KANSAS DEPARTMENT OF TRANSPORTATION				
MOUNTING HEIGHT & LATERAL OFFSET				
FOR CONVENTIONAL HIGHWAYS,				
SIDE ROADS, MEDIANS, ISLANDS,				
GORES, AND URBAN ROADWAYS				
TE407			10-01-19	
FHWA APPROVAL		10-01-19	APP'D.	Eric W. Nichol
DESIGNED	D.D.G.	DETAILED	D.D.G.	QUANTITIES
DESIGN CK.	E.W.N.	DETAIL CK.	E.W.N.	QUAN.CK.
TRACED				TRACE CK.

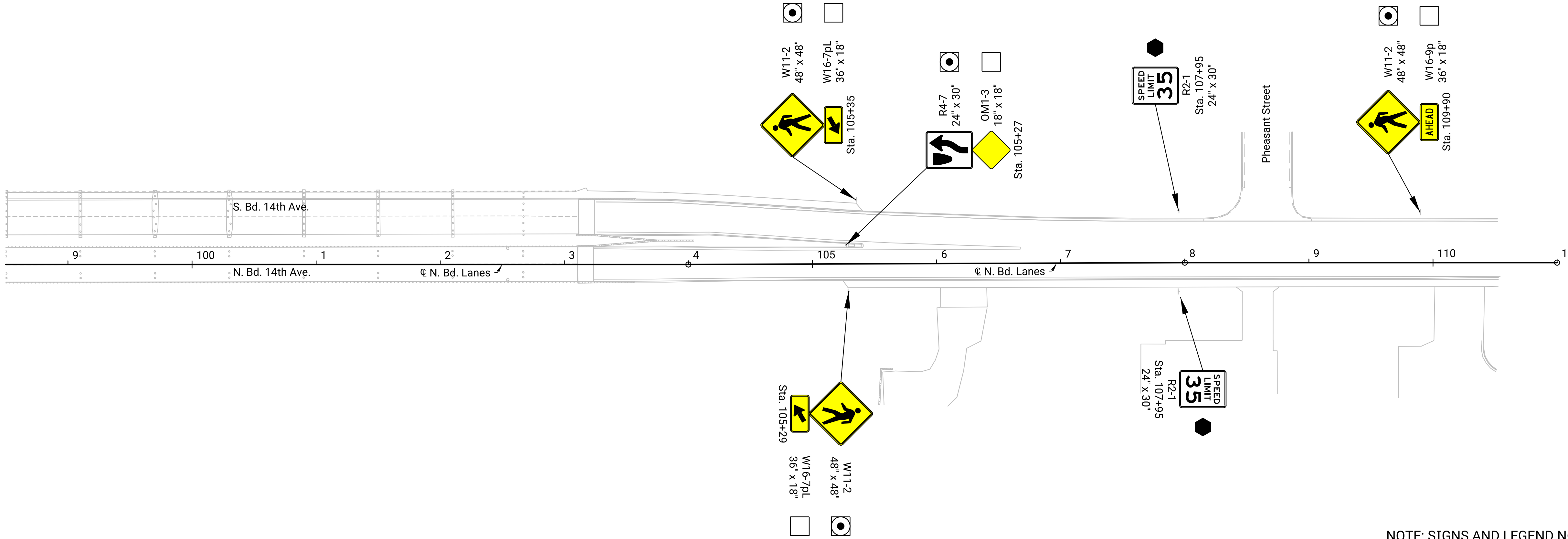
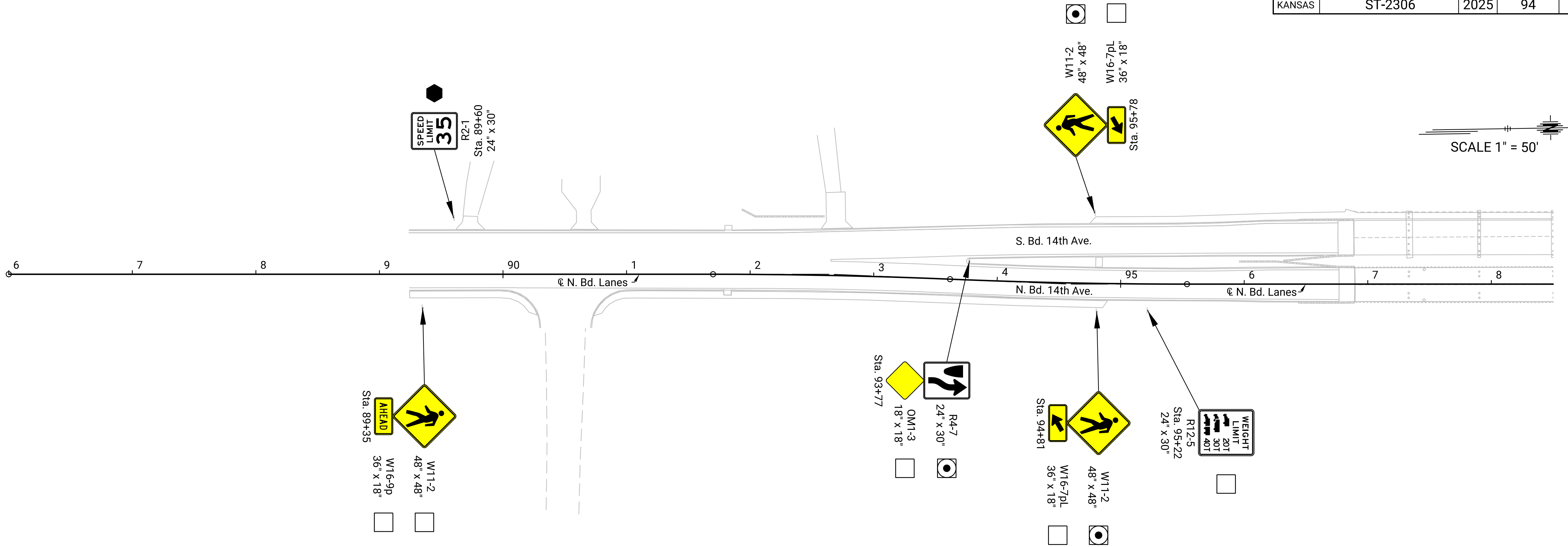
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
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NOTE: SIGNS AND LEGEND NOT TO SCALE

KANSAS DEPARTMENT OF TRANSPORTATION
SIGNING PLAN
STA. 86+00 TO STA. 111+00

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NOTE: SIGNS AND LEGEND NOT TO SCALE

KANSAS DEPARTMENT OF TRANSPORTATION
SIGN REMOVAL PLAN
STA. 86+00 TO STA. 111+00

QUANTITIES SHEET	STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
	KANSAS	ST-2306	2025	95	139

SIGNS, POSTS, & FOOTINGS TO BE INSTALLED ON PROJECT

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	ST-2306	2025	95	139

[illegible]

CENTERLINE LOCATION
L or LL - Left of Centerline
R or RR - Right of Centerline
C - On the Centerline

INSTALL POSITION

S - Shoulder Mount	M - Median Mount
O - Offset Mount	OH - Overhead Mount
G - Gore Mount	

NOTE: See standard plan sheet TE590
for detailed specifications.

02	10-01-19	Added Tapered Tube. Removed Couplers.	D.D.G.	E.W.N.
01	07-23-10	Added Coupler and Coupler/Footing Quantity	D.D.G.	D.B.
NO.	DATE	REVISIONS	BY	APP'D

FHWA APPROVAL		10-01-19		APP'D. Steven A. Buckley	
DESIGNED	D.D.G.	DETAILED	K.S.	QUANTITIES	TRACED D.B.
DESIGN CK.	S.A.B.	DETAIL CK.	D.D.G.	QUAN.CK.	TRACE CK.

TE430

07-01-03

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File : ST2306pqt-439.dgn

8-JUL-2025 16:51

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	ST-2306	2025	96	139

SUMMARY OF QUANTITIES

SIGNS		
TYPE	NUMBER	SQUARE FEET
FLAT SHEET	16	76.50
REINFORCED PANEL		
OVERLAY		

DELINEATORS				
TYPE	FLEXIBLE DELINEATOR		RIGID DELINEATOR	
	TYPE I ANCHOR	TYPE III ANCHOR	"U" POST	BRACKET MOUNT
TYPE 'A' WHITE				
TYPE 'A' YELLOW				
TYPE 'B' WHITE				
TYPE 'B' YELLOW				
TYPE 'A' WHITE (BACK TO BACK)				
TYPE 'A' YELLOW (BACK TO BACK)				

OBJECT MARKERS			
TYPE			NUMBER
TYPE 2 ("U" POST)			
TYPE 3 ("U" POST)			
INFORMATION ONLY	OM3-L		
	OM3-R		
	OM3-C		
TYPE 3 ("U" POST) (BACK TO BACK)			

NUMBER & LENGTHS OF POSTS & ALUMINUM BEAMS (INFORMATION ONLY)																
LENGTH OF POST OR BEAM	4" x 6" POST			312.25 ALUMINUM BEAM	"U" POST		GALVANIZED STEEL BEAM POST						PERFORATED SQUARE STEEL TUBE (PSST)			
	WOOD		STEEL				W6x9		W10x12		W10x22					
	FLAT SHEET SIGN	REINFORCED PANEL SIGN	STRUCTURAL TUBING		2 LBS/FT	3 LBS/FT	A36 STEEL	A572 STEEL (ALT)	A36 STEEL	A572 STEEL (ALT)	A36 STEEL	A572 STEEL (ALT)	1-3/4"	2"	2-1/4"	2-1/2"
	2.1' - 4'															
4.1' - 6'																
6.1' - 8'																
8.1' - 10'														2		
10.1' - 12'																
12.1' - 14'																
14.1' - 16'													6			
16.1' - 18'																
18.1' - 20'																
20.1' - 22'																
22.1' - 24'																
24.1' - 26'																
26.1' - 28'																
28.1' - 30'																
30.1' - 32'																

POSTS AND ALUMINUM BEAMS																
	4" x 6" POST			312.25 ALUMINUM BEAM	"U" POST		GALVANIZED STEEL BEAM POST						PERFORATED SQUARE STEEL TUBE (PSST)			
	WOOD		STEEL				W6x9		W10x12		W10x22					
	FLAT SHEET SIGN	REINFORCED PANEL SIGN	STRUCTURAL TUBING		2 LBS/FT	3 LBS/FT	A36 STEEL	A572 STEEL (ALT)	A36 STEEL	A572 STEEL (ALT)	A36 STEEL	A572 STEEL (ALT)	1-3/4"	2"	2-1/4"	2-1/2"
NUMBER													8			
FEET													116			

POST FOOTINGS AND BRACKETS											
	CONCRETE FOOTING (DIA.)					PERFORATED SQUARE STEEL					
	WOOD	A36 STEEL		A572 STEEL (ALT)		TUBE FOOTING				BRACKET	
		18"	24"	30"	24"	30"	1-3/4"	2"	2-1/4"	2-1/2"	1-3/4"
NUMBER						8					
FEET											

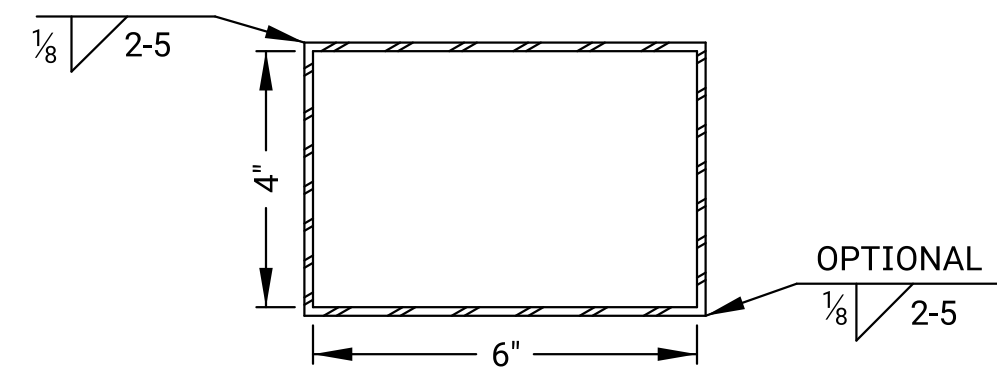
BASE PLATES AND STUB POSTS						
	W6x9		W10x12		W10x22	
	A36 STEEL	A572 STEEL (ALT)	A36 STEEL	A572 STEEL (ALT)	A36 STEEL	A572 STEEL (ALT)
BREAKAWAY BASES						
BASE PLATE (TOP)						
STUB POST WITH BASE PLATE						
NON-BREAKAWAY BASES						
BASE PLATE						

REMOVALS	
TYPE	NUMBER
SIGNS	17
POSTS	7
FOOTINGS	7
SIGN STRUCTURES	

SIGN STRUCTURES				
TYPE	NEW	MODIFIED	REMOVE AND RESET	RESET
OVERHEAD STRUCTURE				
CANTILEVER STRUCTURE				
BUTTERFLY STRUCTURE				
BRIDGE MOUNT ATTACHMENT				
MAST ARM SIGN SUPPORT				
SINGLE TAPERED TUBE SIGN SUPPORT				

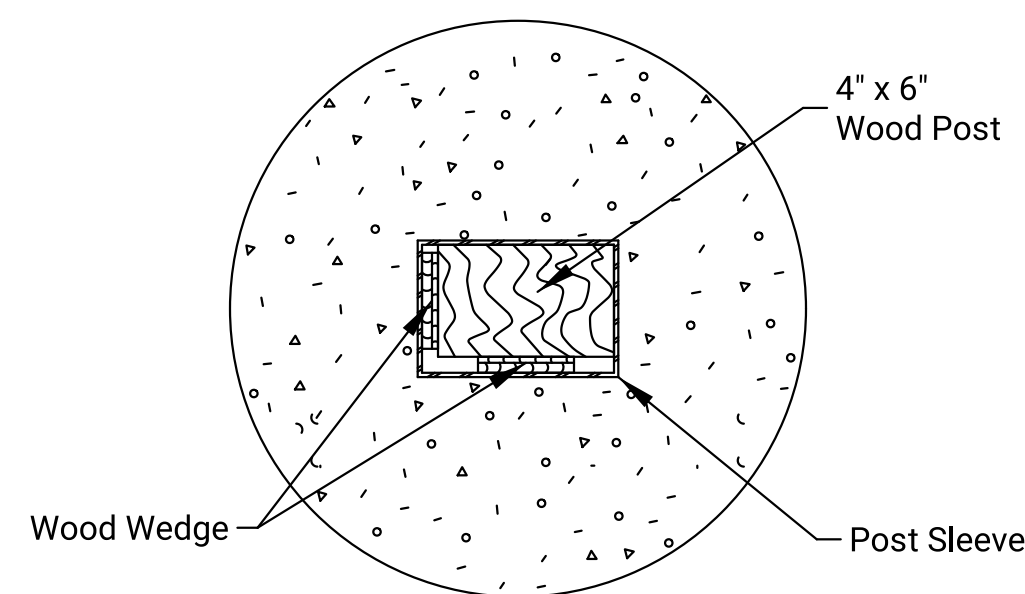
02	10-01-19	Revised Tables				D.D.G.	E.W.N.
01	07-23-10	Revised Tables				D.D.G.	D.B.
NO.	DATE	REVISIONS				BY	APP'D
KANSAS DEPARTMENT OF TRANSPORTATION							
SUMMARY OF QUANTITIES FOR INSTALLATIONS AND REMOVALS							
TE439				07-01-03			
FHWA APPROVAL		10-01-19		APP'D.		Steven A. Buckley	
DESIGNED	D.D.G.	DETAILED	K.D.S.	QUANTITIES		TRACED	
DESIGN CK.	S.A.B.	DETAIL CK.	D.D.G.	QUAN.CK.		TRACE CK.	

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	ST-2306	2025	98	139

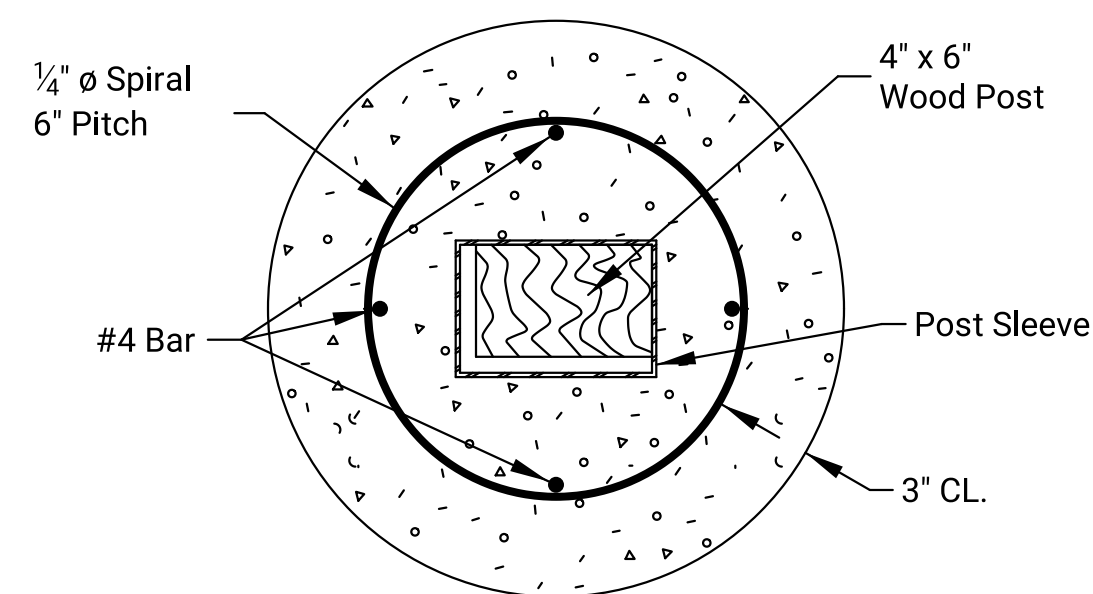


NOTE: Dimensions are to inside of post sleeve.

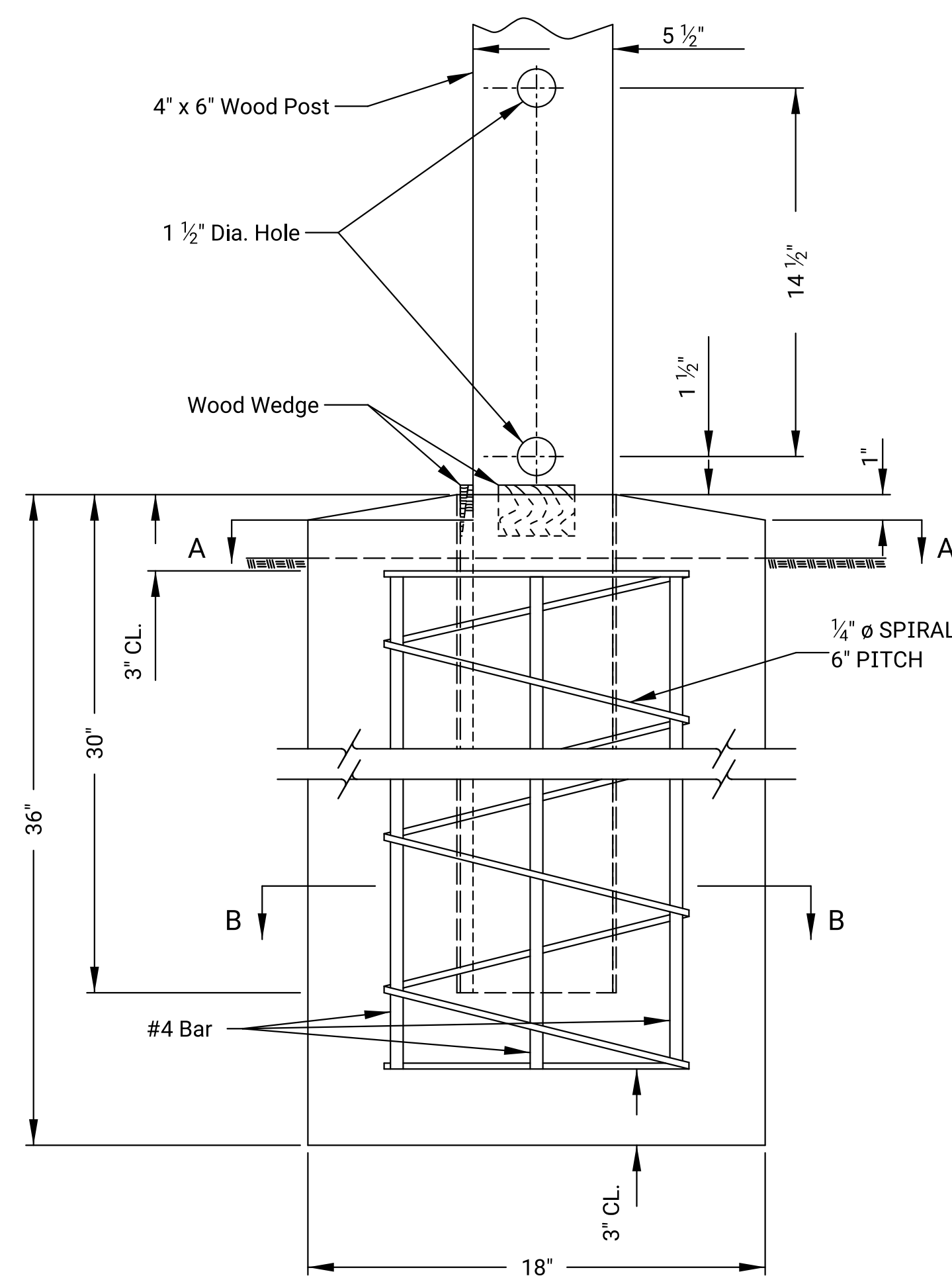
POST SLEEVE



SECTION A-A

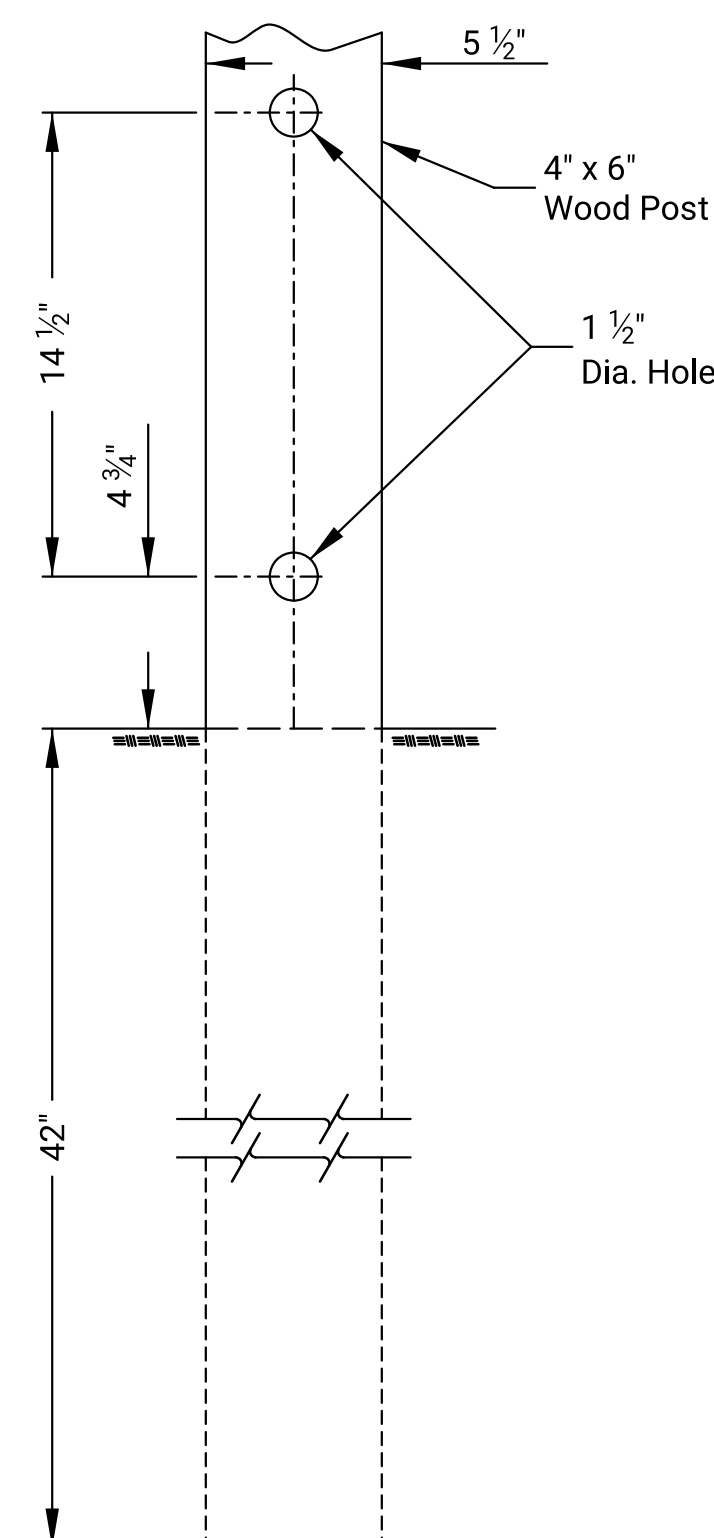


SECTION B-B



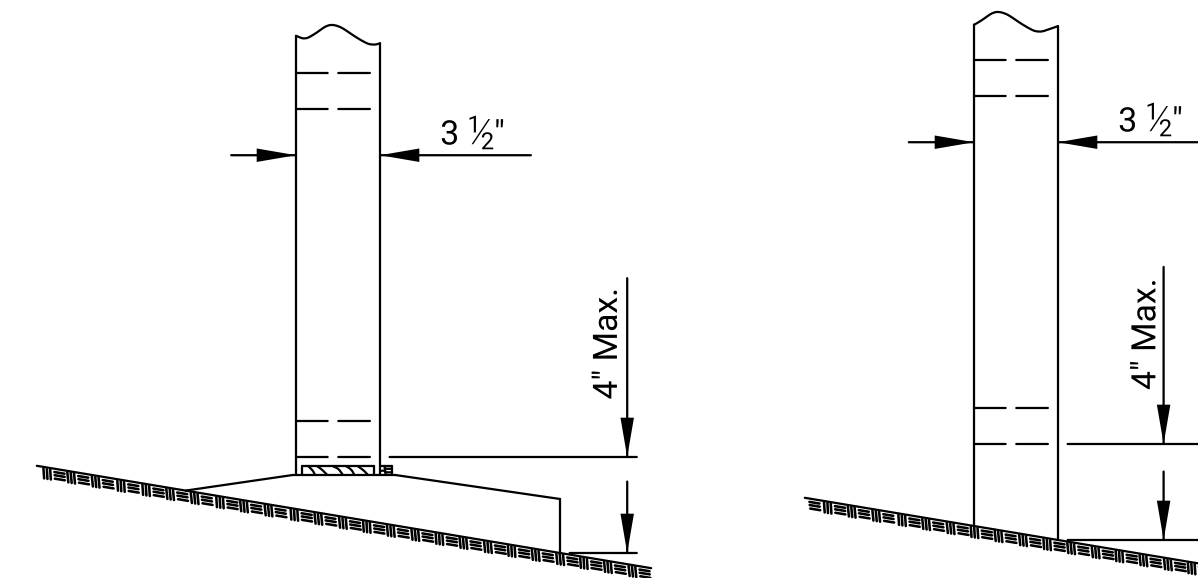
SIDE ELEVATION

WOOD POST IN CONCRETE FOOTING



SIDE ELEVATION

WOOD POST IN SOIL

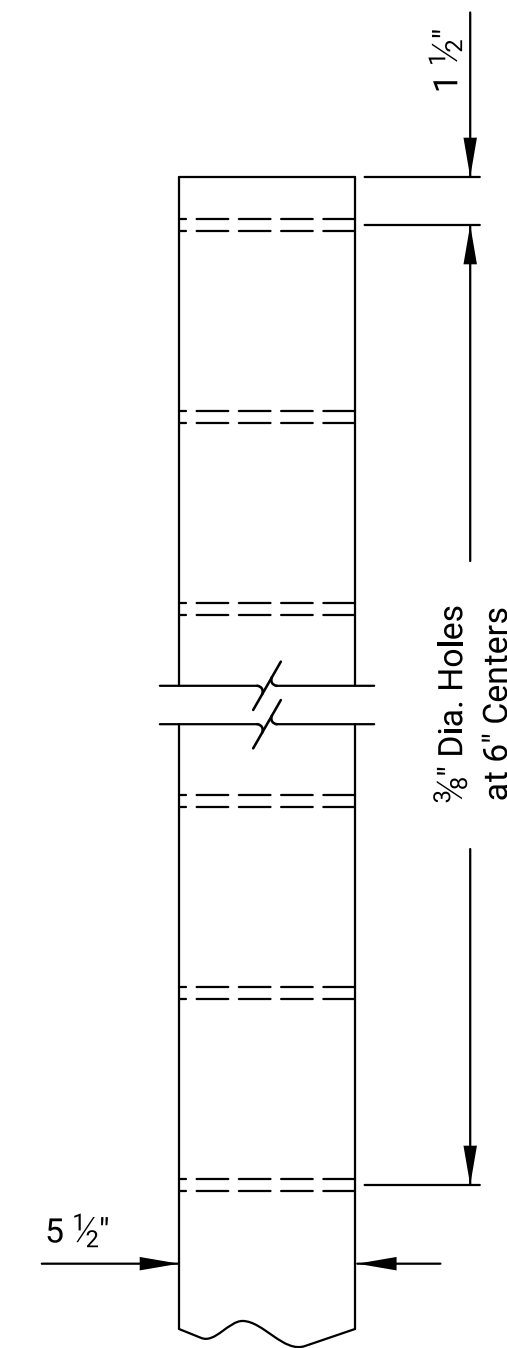


FRONT ELEVATION
CONCRETE FOOTING

FRONT ELEVATION
SOIL

NOTE TO THE ENGINEER:
The intent of the "AASHTO Roadside Design Guide" and these plans is to have a 4" or less projection above the finished ground line after impact.

BREAKAWAY CLEARANCE



SIGN POST

SIGN MOUNTING HOLES

GENERAL NOTES

The post sleeve shall be formed from 10 gauge sheet steel to meet the requirements of ASTM A653 and zinc coated to meet the requirements of coating designation A123. If galvanized sheet steel is used, no other galvanization is required. It is permissible to close the bottom of the sleeve with a metal plate. Basis of acceptance shall be visual inspection of the finished sleeve and determination of zinc thickness by magnetic gage.

All sign mounting holes in the wood posts shall be drilled prior to treating.

Breakaway holes, field drilled sign mounting holes, and field cuts shall be treated in accordance with the preservative treatment specifications.

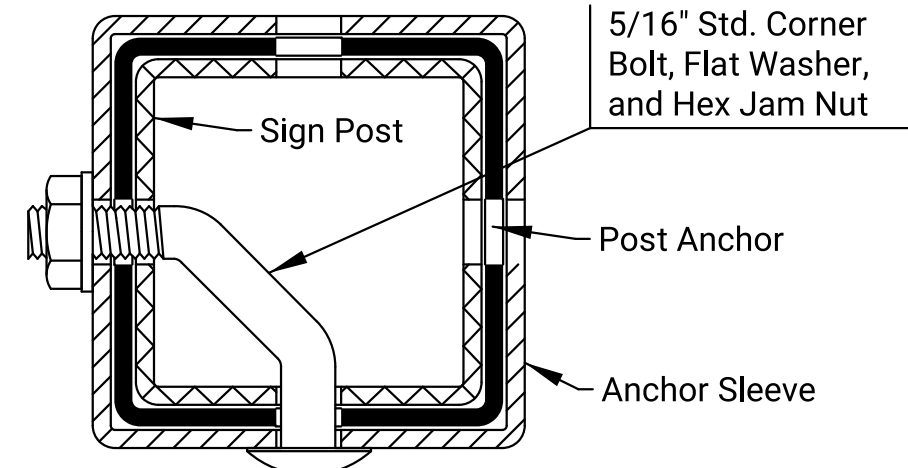
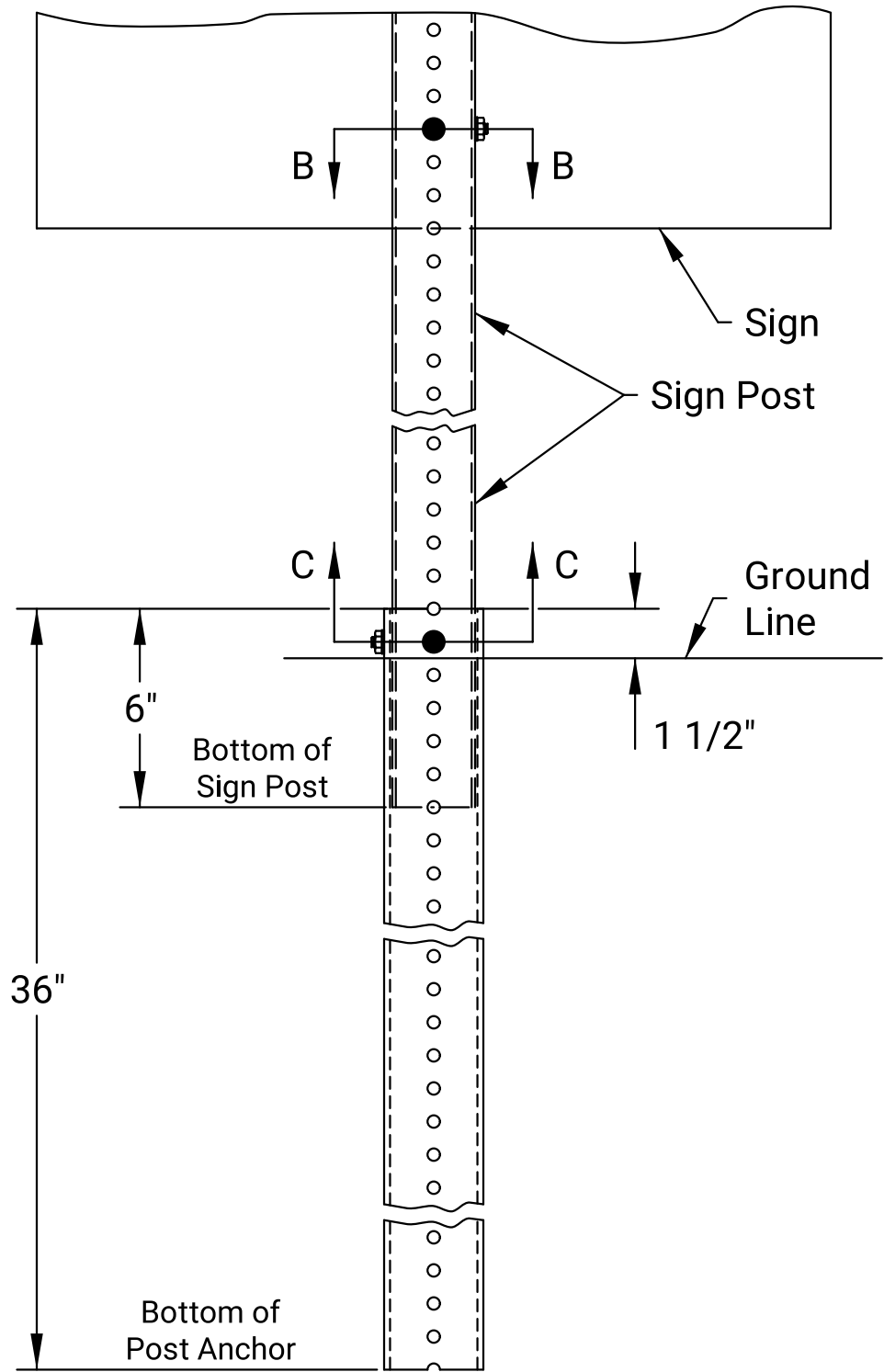
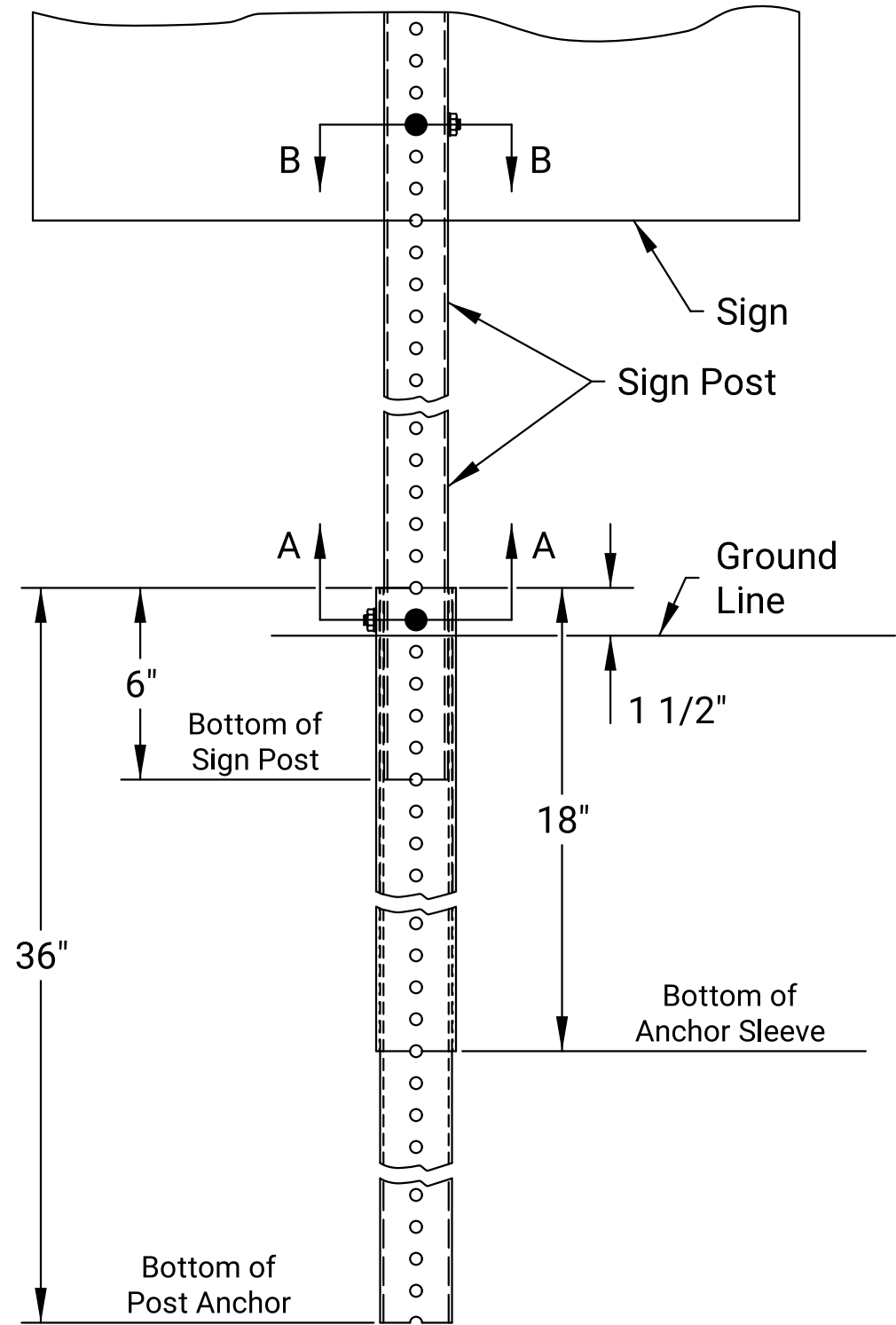
Prior to sealing the opening between the wood post and the top of the concrete footing, secure the post by placing 3" wide by 2" long wood wedges into the opening on two adjacent sides of the post. The wedges are be flush with up to a maximum of $\frac{3}{8}$ " sticking up above the top of the footing.

Commercial grade concrete may be substituted for sign support footings.

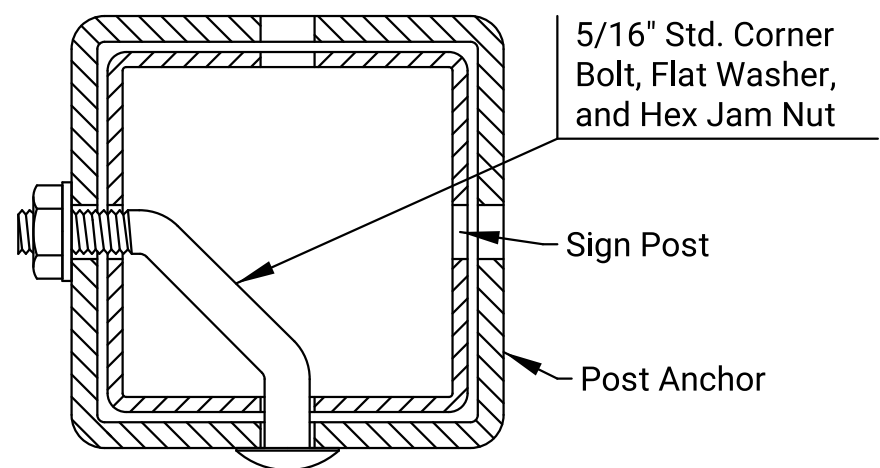
All dimensions in inches unless otherwise noted.

01	10-01-19	Change details and note					D.D.G.	E.W.N.	
NO.	DATE	REVISIONS					BY	APP'D	
KANSAS DEPARTMENT OF TRANSPORTATION									
DETAILS FOR WOOD POSTS									
TE460					07-01-03				
FHWA APPROVAL		10-01-19		APP'D.		Steven A. Buckley			
DESIGNED	D.D.G.	DETAILED	A.A.D.	QUANTITIES		TRACED			
DESIGN CK.	S.A.B.	DETAIL CK.	D.D.G.	QUAN.CK.		TRACE CK.			

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	ST-2306	2025	99	139



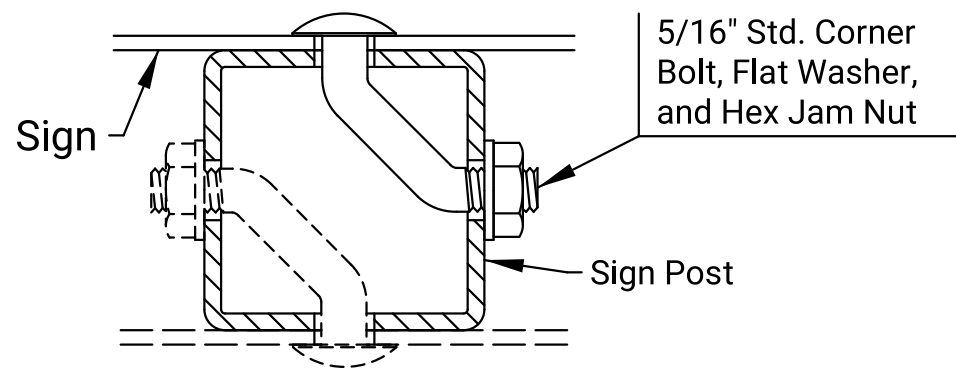
SECTION A-A



SECTION C-C

1 3/4", 2", OR 2 1/4" PSST SIGN POST

2 1/2" PSST SIGN POST



SECTION B-B

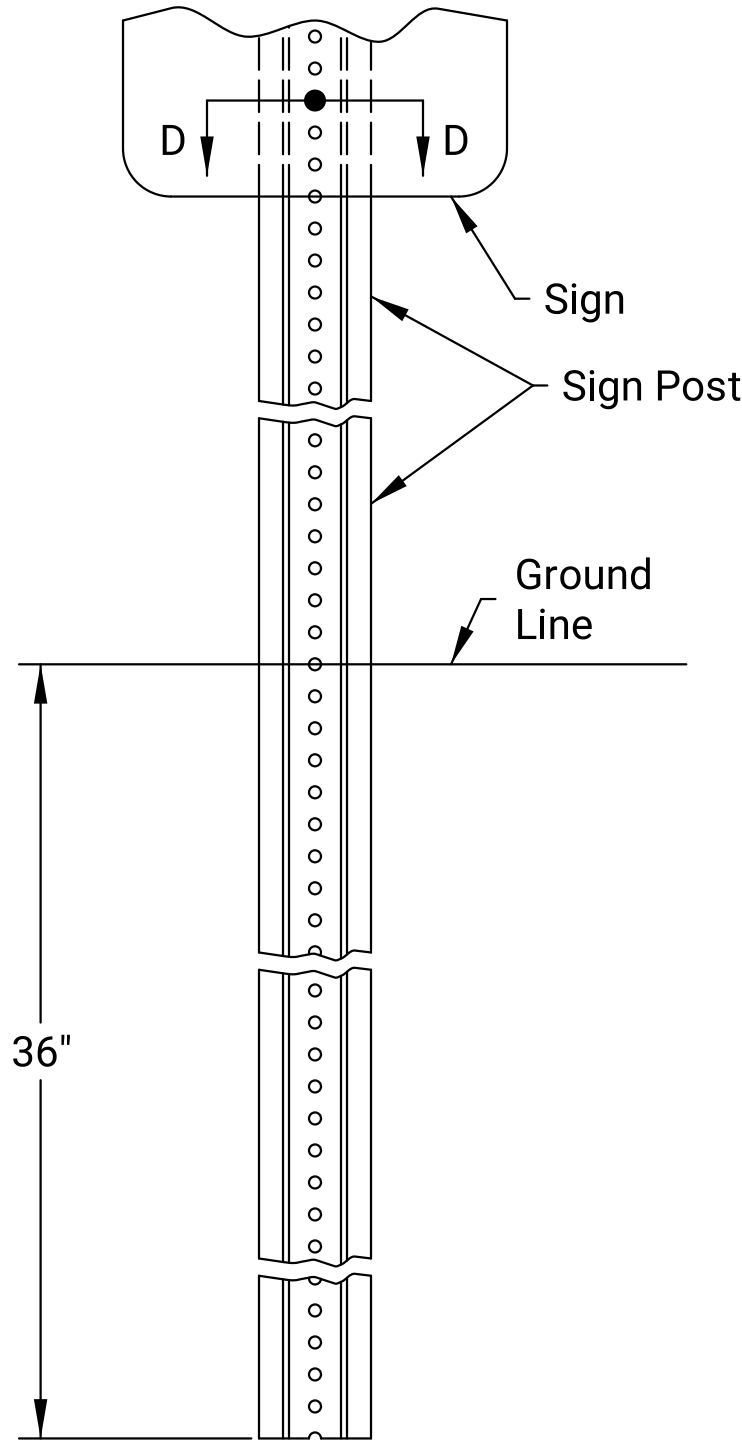
MATERIALS TABLE FOR SIGN POST AND FOOTING		
SIGN POST 12 GA. OR 14 GA.	FOOTING	
	POST ANCHOR	ANCHOR SLEEVE
1 3/4" X 1 3/4"	2" X 2" X 12 GA.	2 1/4" X 2 1/4" X 12 GA.
2" X 2"	2 1/4" X 2 1/4" X 12 GA.	2 1/2" X 2 1/2" X 12 GA.
2 1/4" X 2 1/4"	2 1/2" X 2 1/2" X 12 GA.	3" X 3" X 7 GA.
2 1/2" X 2 1/2"	3" X 3" X 7 GA.	Not Required

NOTE: 14 ga. posts must meet a certified minimum yield strength of 60,000 p.s.i.

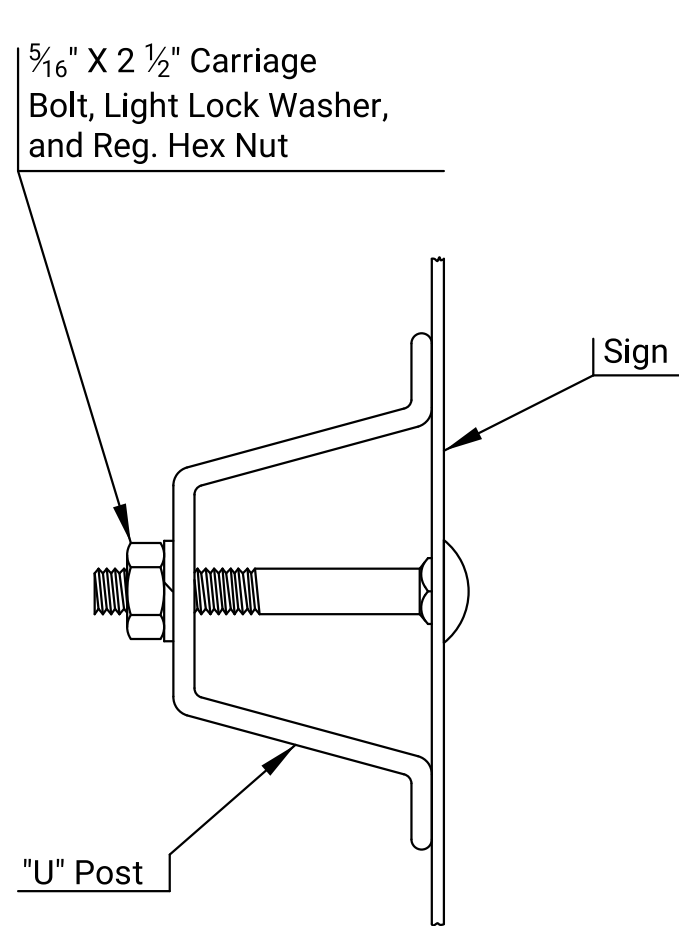
INSTALLATION PROCEDURES

1. Plumb and drive post anchor into the ground 18", if anchor sleeve is required, or to the specified height above the ground line.
2. Install anchor sleeve (if required) on the post anchor and align the first holes above the ground line. Plumb and drive post anchor with anchor sleeve into the ground to the specified height above the ground line.
3. Install sign post into the post anchor.

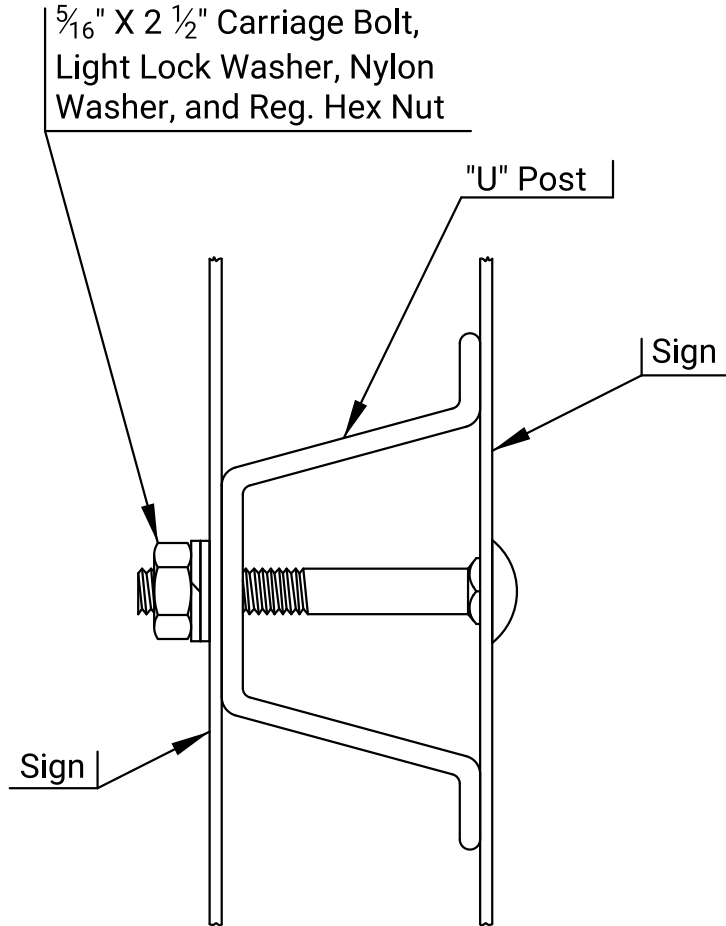
PERFORATED SQUARE STEEL TUBE POST (PSST)



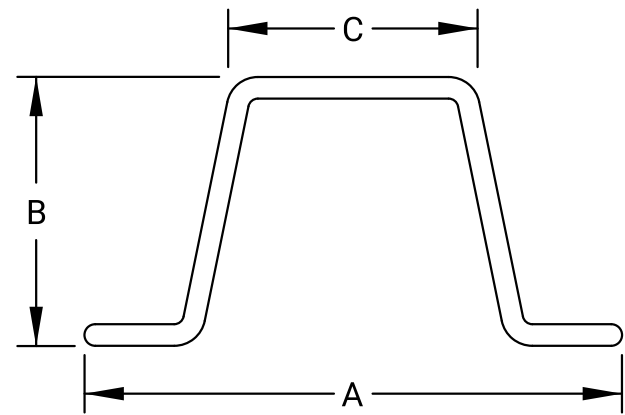
TYPICAL



SECTION D-D
(TYPICAL)



SECTION D-D
(BACK TO BACK)



DIM.	2 LBS/FT	3 LBS/FT
A	3 1/8 "	3 1/2 "
B	1 17/32 "	1 3/4 "
C	1 1/4 "	1 5/8 "

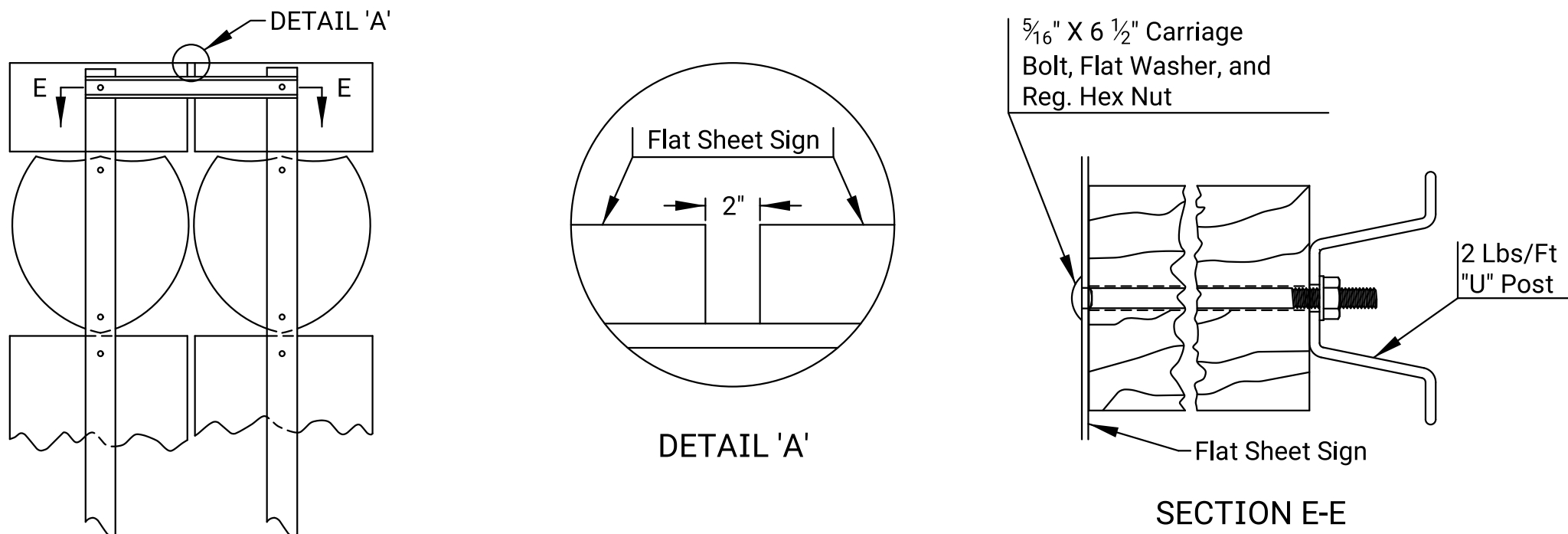
(Dimensions are nominal)

"U" POST

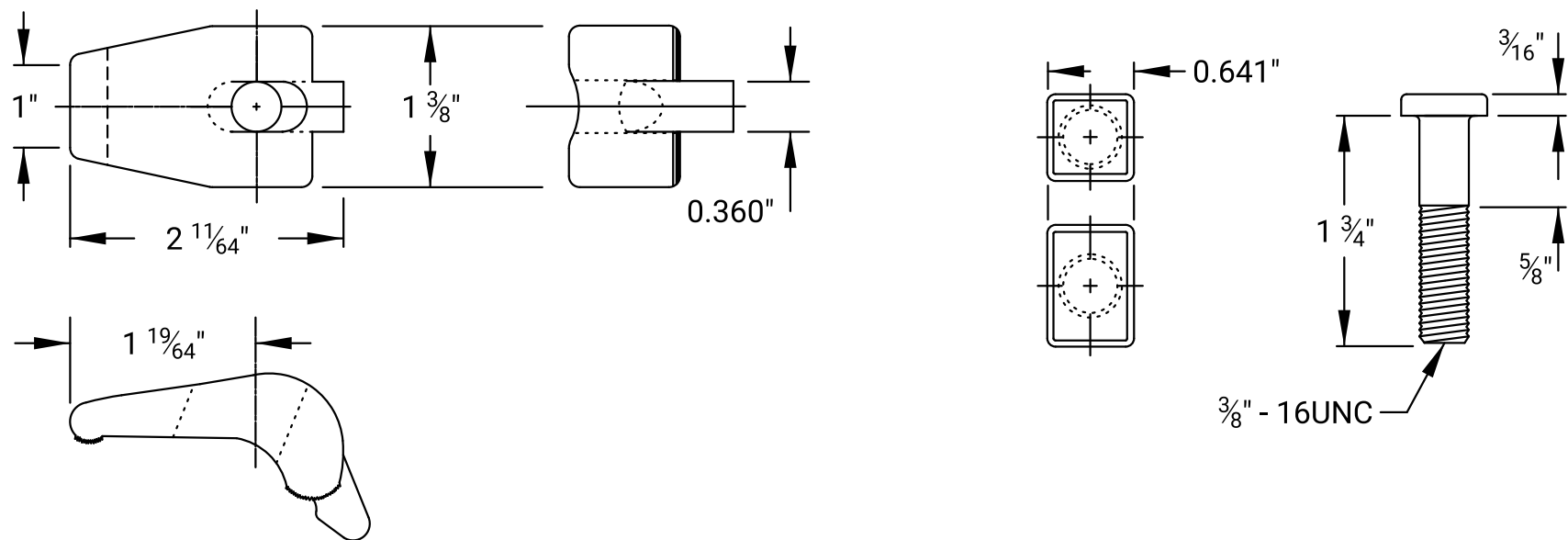
STEEL "U" POST

NO.	DATE	REVISIONS	BY	APP'D
KANSAS DEPARTMENT OF TRANSPORTATION				
DETAILS FOR PERFORATED SQUARE STEEL TUBE POSTS (PSST) AND STEEL "U" POSTS				
TE466			10-01-19	
FHWA APPROVAL		10-01-19	APP'D.	Eric W. Nichol
DESIGNED	D.D.G.	DETAILED	D.D.G.	QUANTITIES
DESIGN CK.	E.W.N.	DETAIL CK.	E.W.N.	QUAN. CK.
		TRACED		TRACE CK.

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	ST-2306	2025	100	139



ROUTE MARKER ASSEMBLIES ATTACHMENT



ALUMINUM POST CLIP AND POST CLIP BOLT

NOTES:
The top of the post shall not extend above the top of the sign.

When signs are mounted back to back, the signs shall be mounted at their prescribed height. In general installations, the bottom holes of the signs should be aligned. In order to prevent having to drill holes in the signs or posts, the sign on the back should be raised and positioned such that the holes are aligned. When a sign is mounted on the back of the R1-1 (Stop) sign, that sign is to be centered vertically on the R1-1 sign. When a sign is mounted on the back of the R1-2 (Yield) sign, the top holes of the signs should be aligned.

The primary sign and supplemental sign are to be mounted at their prescribed height, but under no circumstances shall the signs overlap each other. If the primary sign cannot be mounted without overlapping, then it shall be raised above the supplemental sign.

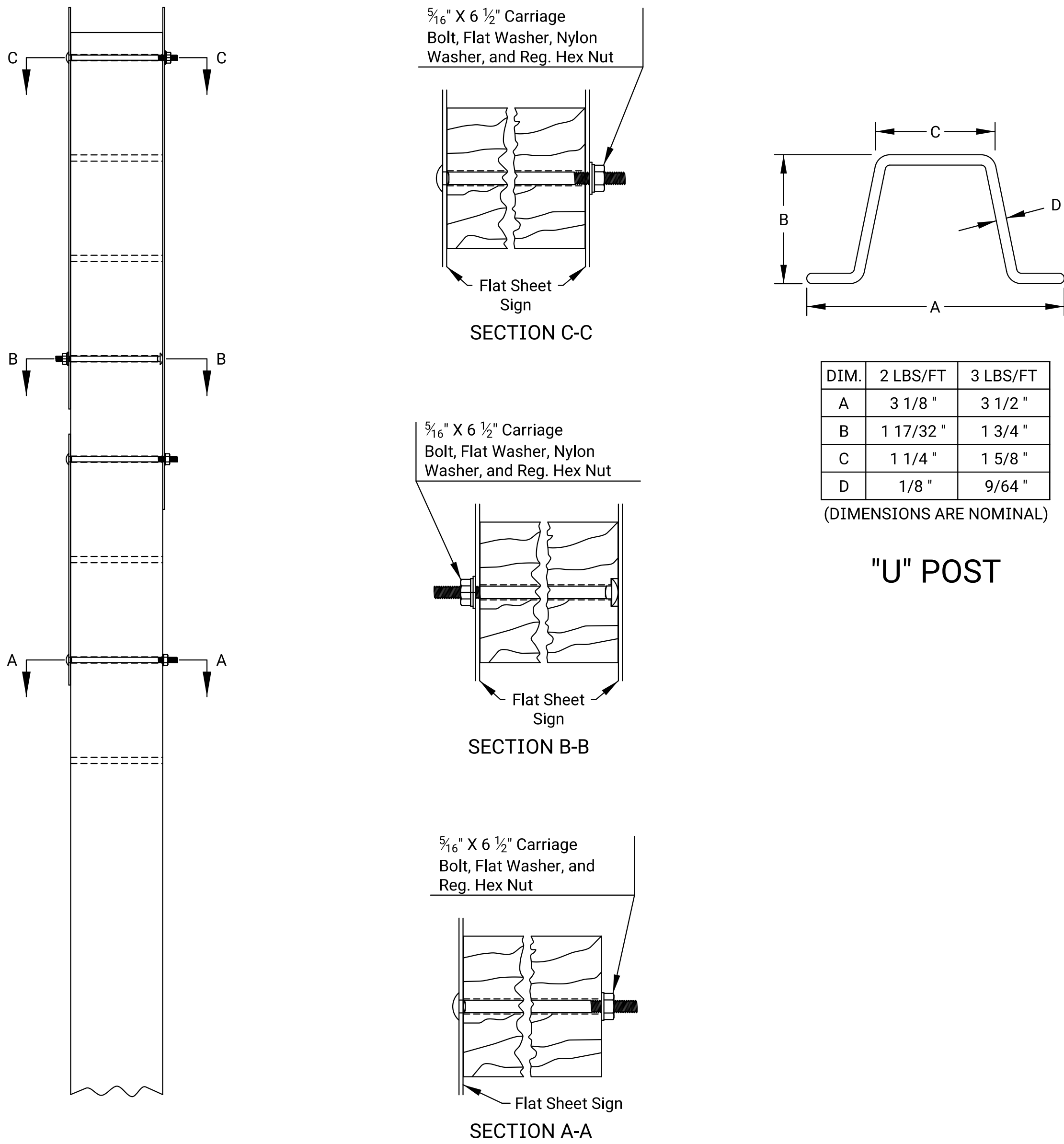
Any additional mounting holes, either through the sign or post, shall be drilled by the contractor. All holes drilled in the post shall be treated with a perservative. All holes drilled in the sign shall be free of any defects and the sheeting around the hole shall not be damaged.

A nylon washer shall be placed against the sheeting when a nut is to be tightened against the sign face.

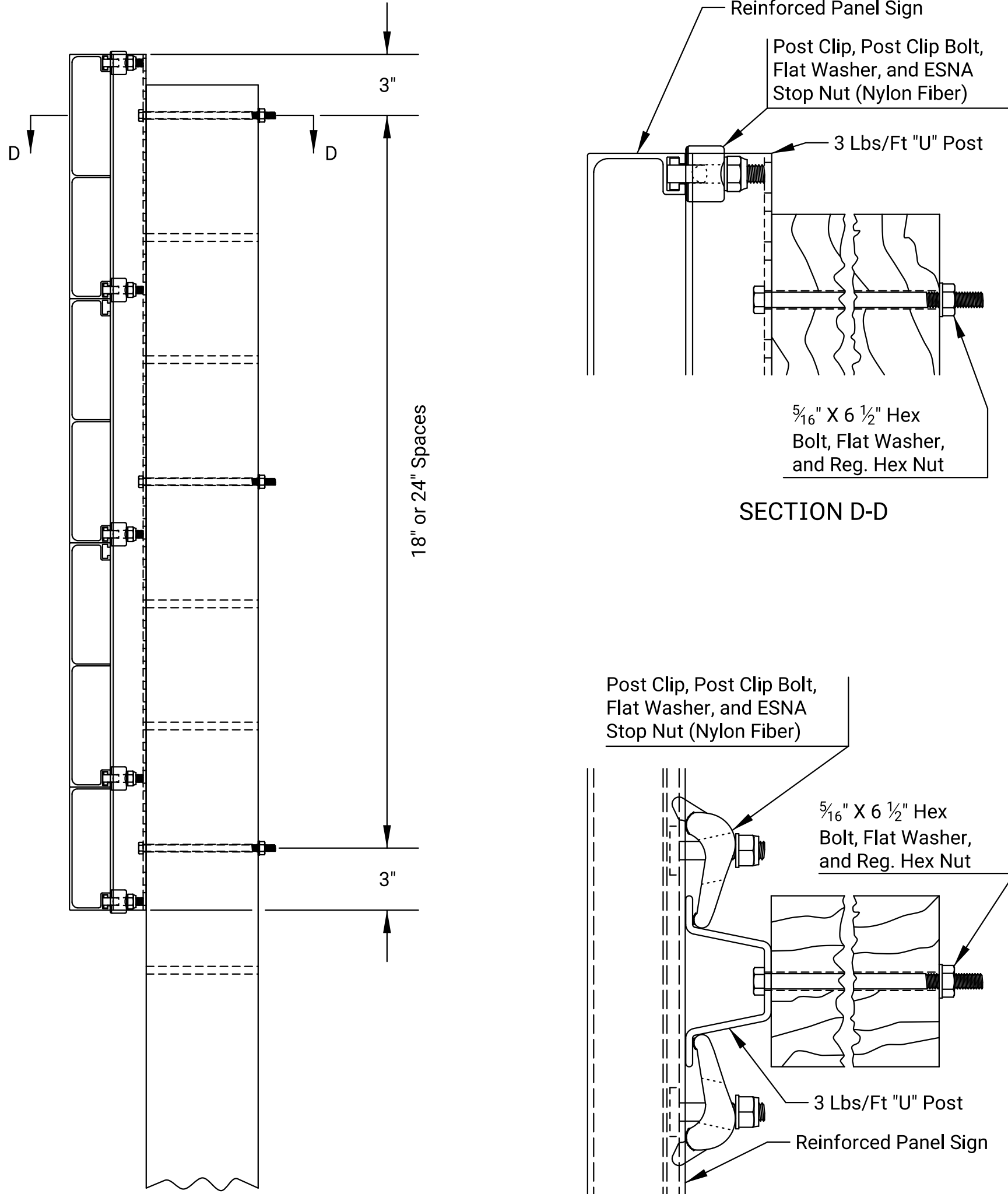
The 3 lb/ft steel "U" post used for reinforced panel sign installations is to be included in the bid item 'SIGN POST (4" x 6" WOOD) (REINFORCED PANEL SIGN)'.

When the 2 lb/ft steel "U" post is used for the route marker assemblies attachment, it shall be subsidiary to the bid item 'SIGN POST (4" x 6" WOOD) (FLAT SHEET SIGN)'.

The aluminum post clip bolt may have a rectangular head if the smaller dimension is equal to the square head dimension.



TYPICAL MOUNTING OF FLAT SHEET SIGNS

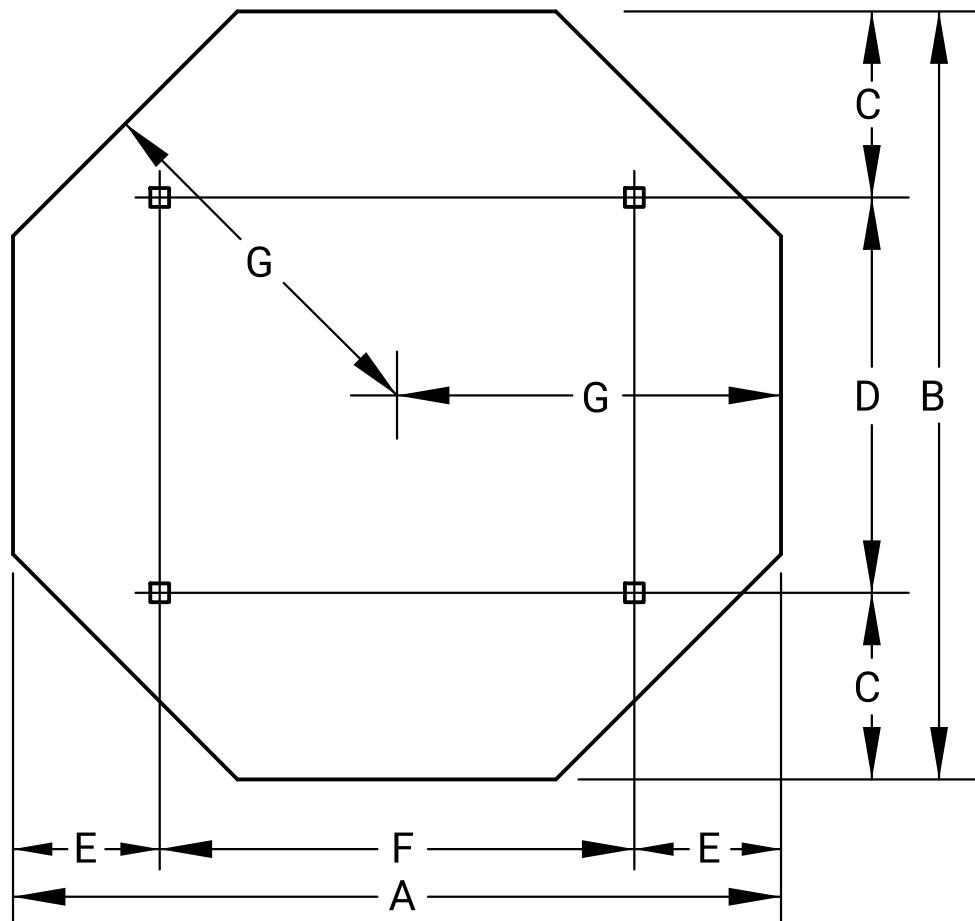


TYPICAL MOUNTING OF REINFORCED PANEL SIGNS

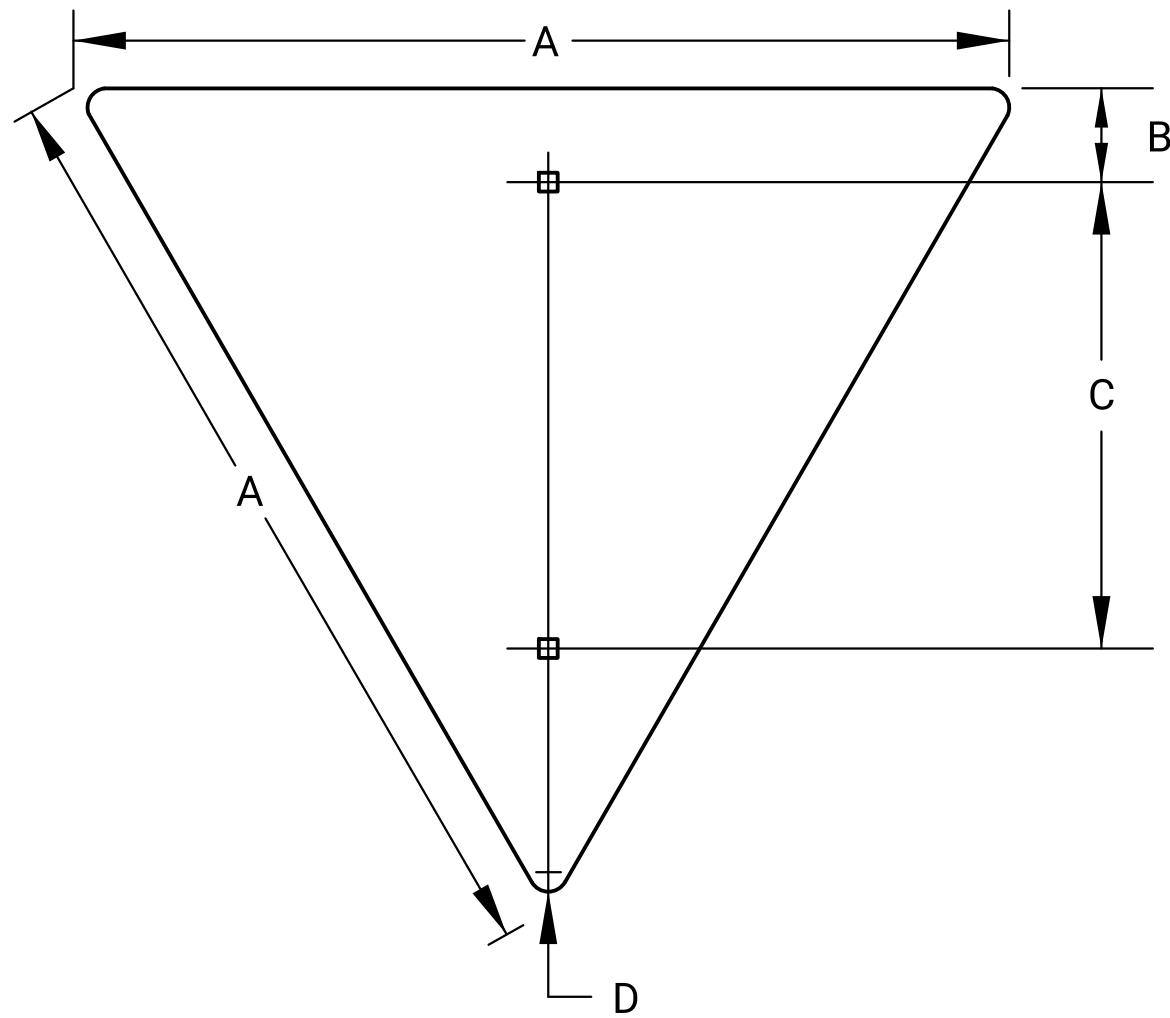
All dimensions are in inches

01	10-01-19	Revised drawings and notes	D.D.G.	E.W.N.	
NO.	DATE	REVISIONS	BY	APP'D	
KANSAS DEPARTMENT OF TRANSPORTATION					
DETAILS FOR MOUNTING SIGNS ON WOOD POST FLAT SHEET AND REINFORCED PANEL					
TE481			07-01-03		
FHWA APPROVAL			10-01-19	APP'D.	Steven A. Buckley
DESIGNED	D.D.G.	DETAILED	A.A.D.	QUANTITIES	TRACED
DESIGN CK.	S.A.B.	DETAIL CK.	D.D.G.	QUAN.CK.	TRACE CK.

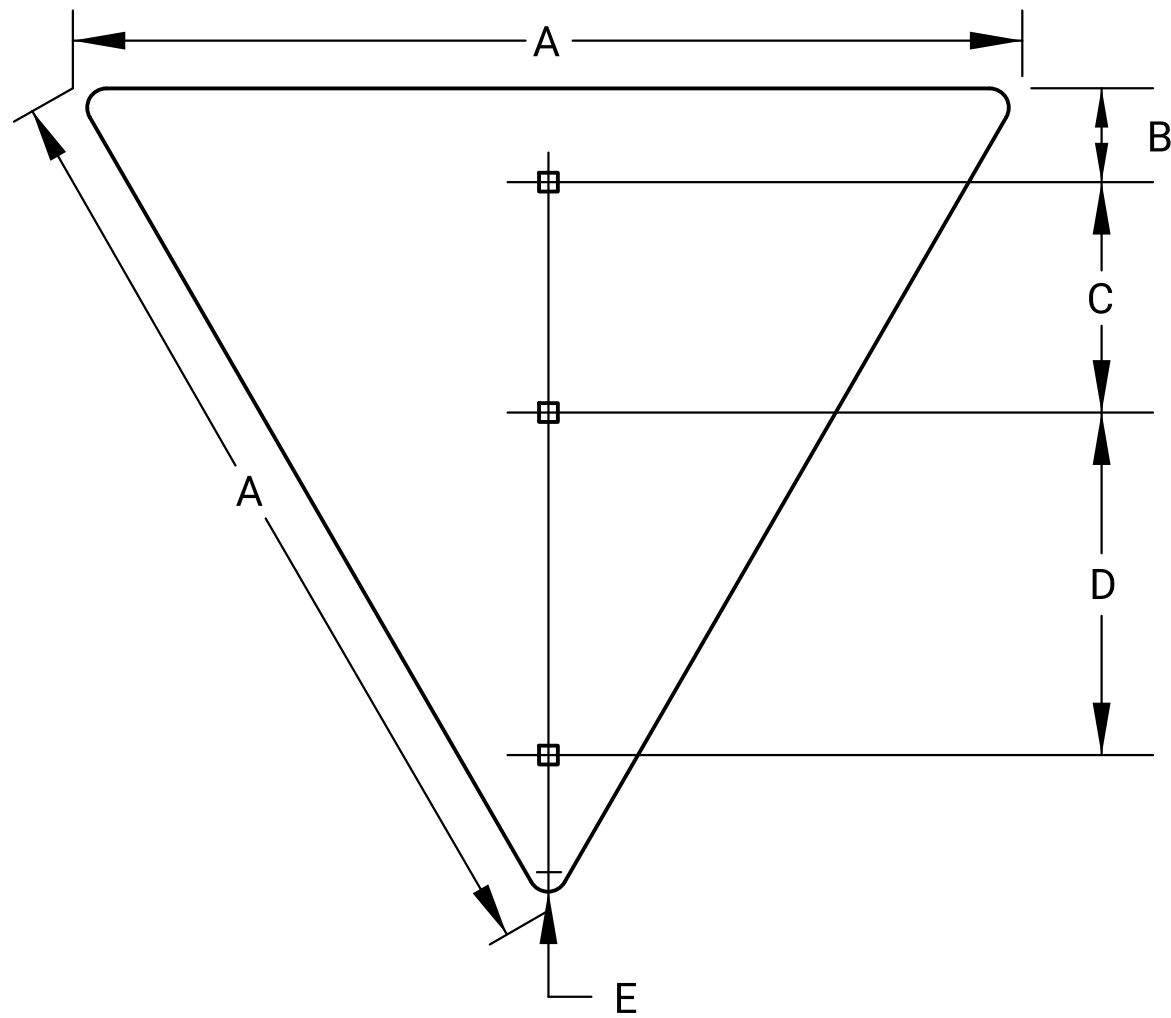
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	ST-2306	2025	101	139



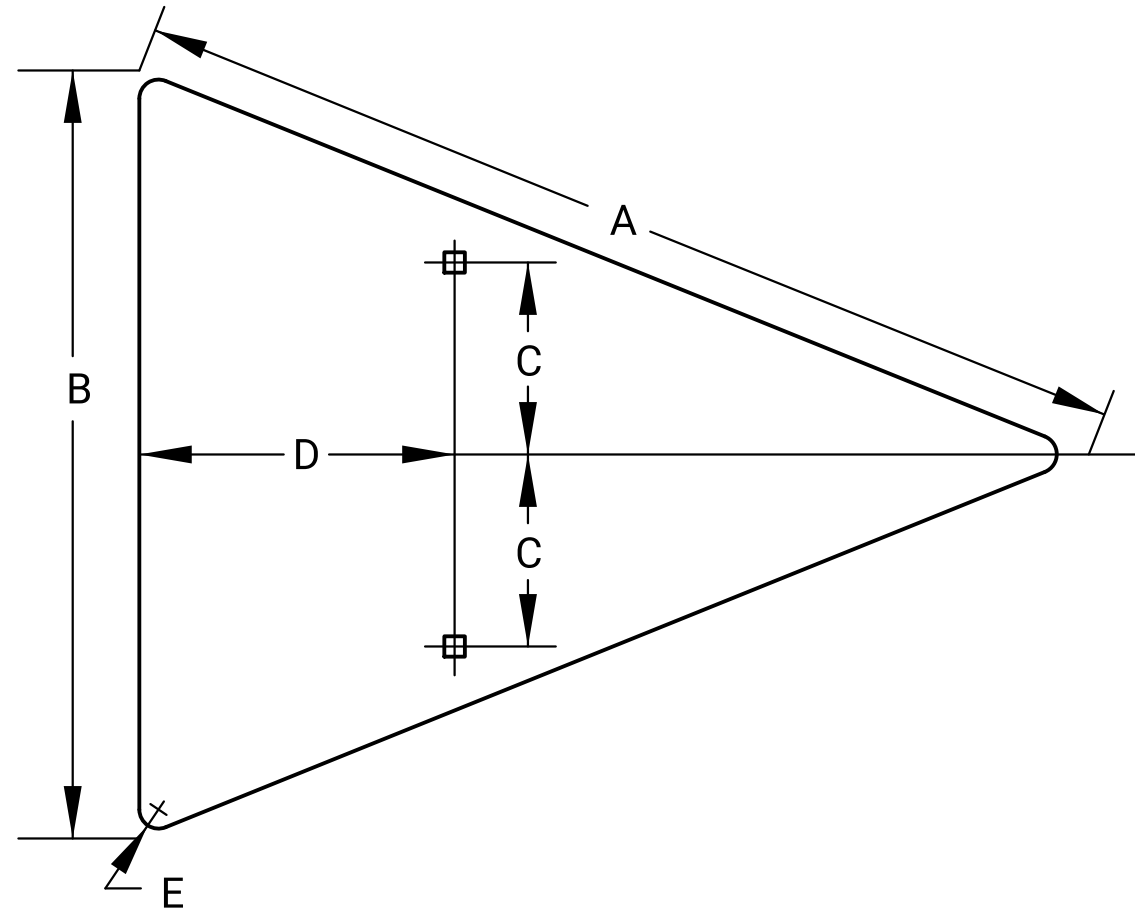
SIGN SIZE	A	B	C	D	E	F	G	T	AREA
48 X 48	48	48	12	24	9	30	24	0.100	13.25



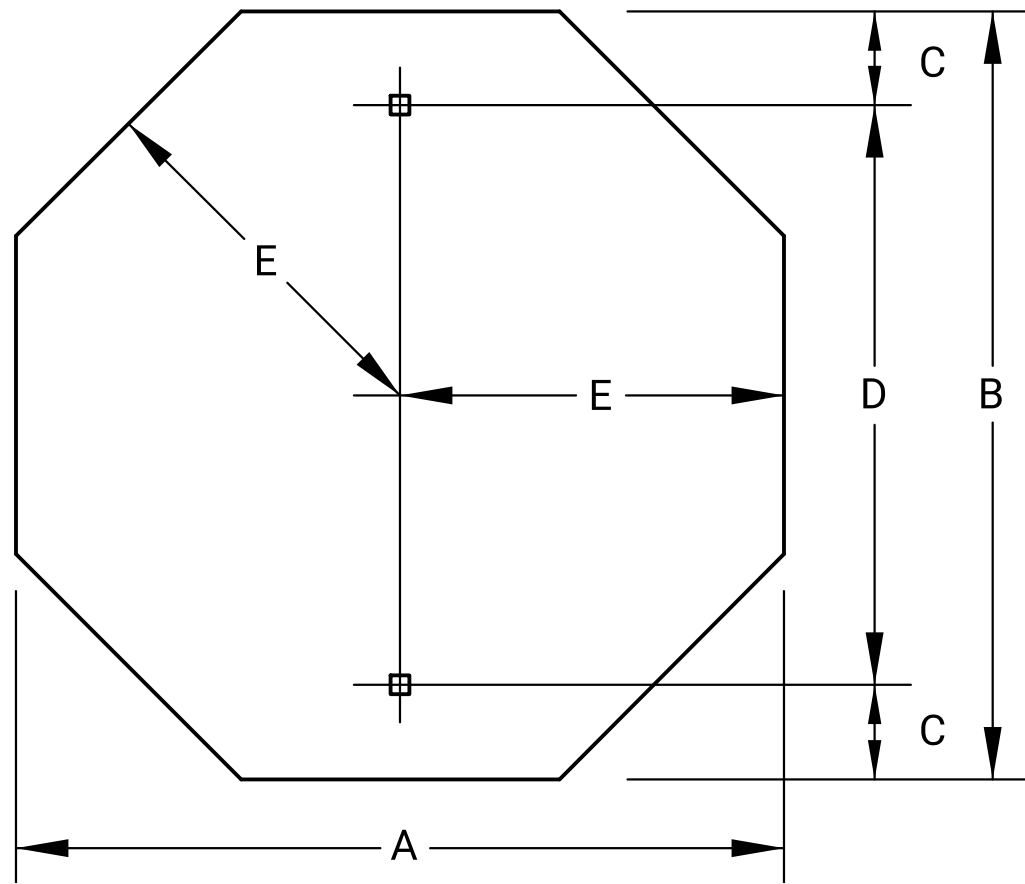
SIGN SIZE	A	B	C	D	T	AREA
36 X 36	36	3	18	2	0.080	3.90



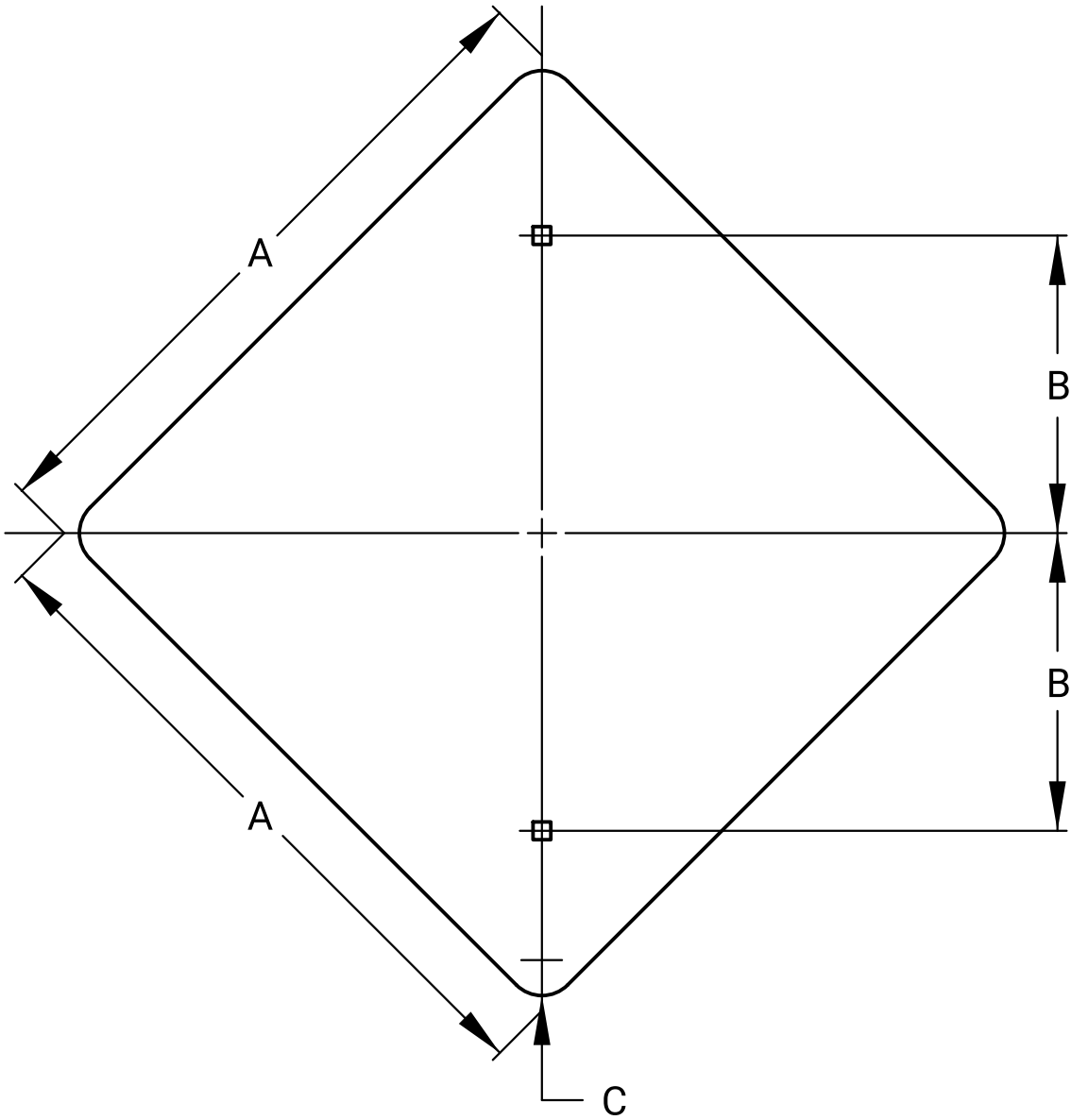
SIGN SIZE	A	B	C	D	E	T	AREA
48 X 48	48	3	12	18	3	0.080	6.93
60 X 60	60	3	18	18	4	0.100	10.83



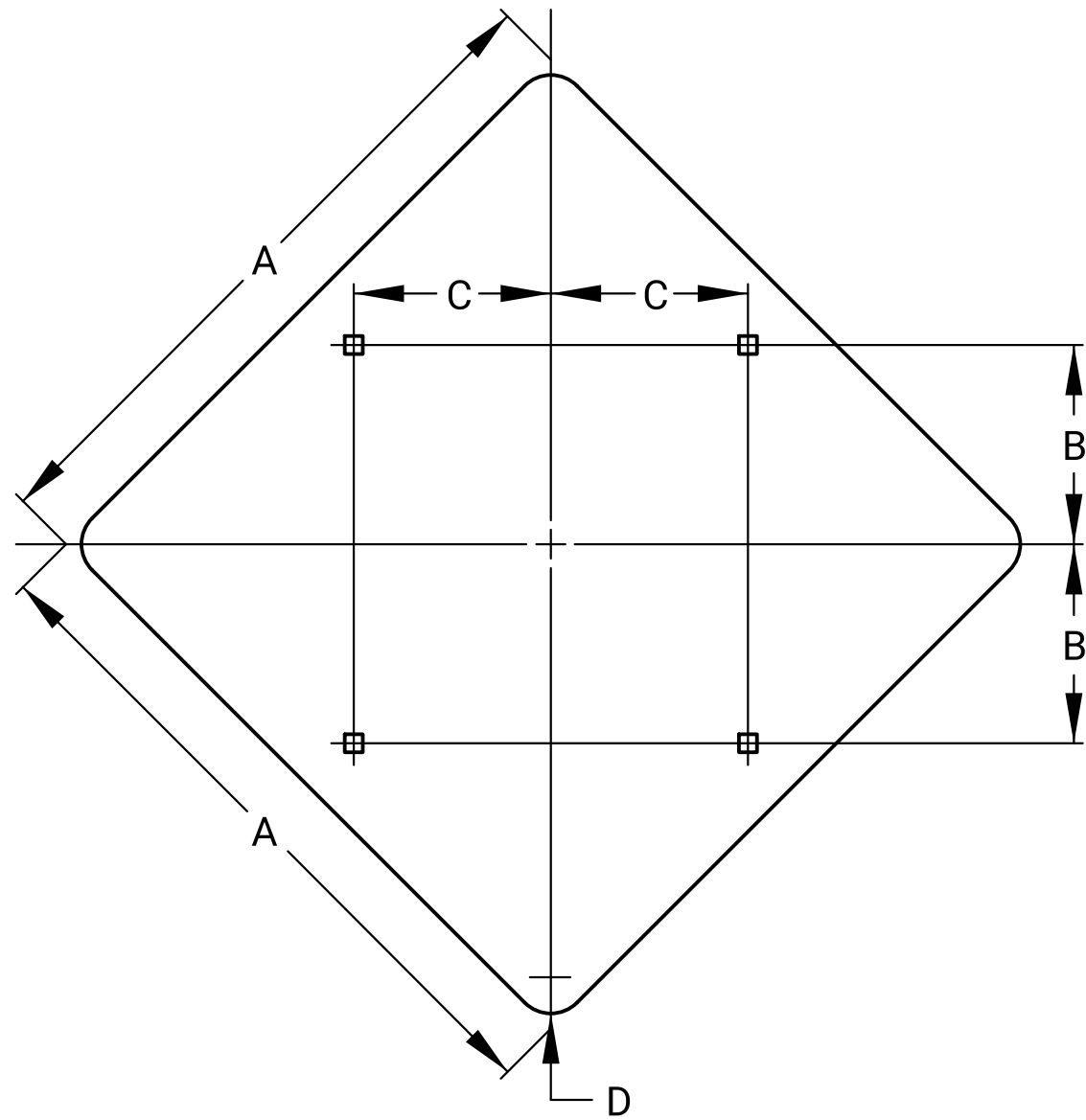
SIGN SIZE	A	B	C	D	E	T	AREA
48 X 36	48	36	9	14 3/4	2 1/4	0.125	5.56



SIGN SIZE	A	B	C	D	E	T	AREA
30 X 30	30	30	3	24	15	0.080	5.18
36 X 36	36	36	6	24	18	0.080	7.46



SIGN SIZE	A	B	C	T	AREA
18 X 18	18	6	1 1/2	0.080	2.25
24 X 24	24	12	1 1/2	0.080	4.00
30 X 30	30	12	1 7/8	0.080	6.25
36 X 36	36	18	2 1/4	0.080	9.00



SIGN SIZE	A	B	C	D	T	AREA
48 X 48	48	12	15	3	0.100	16.00

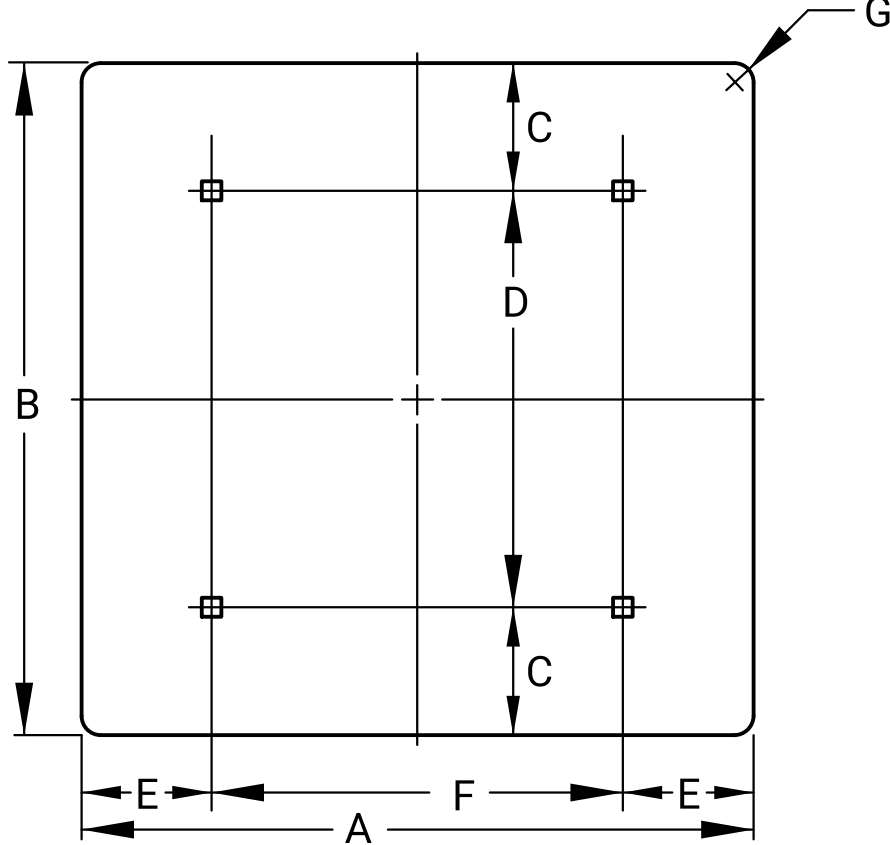
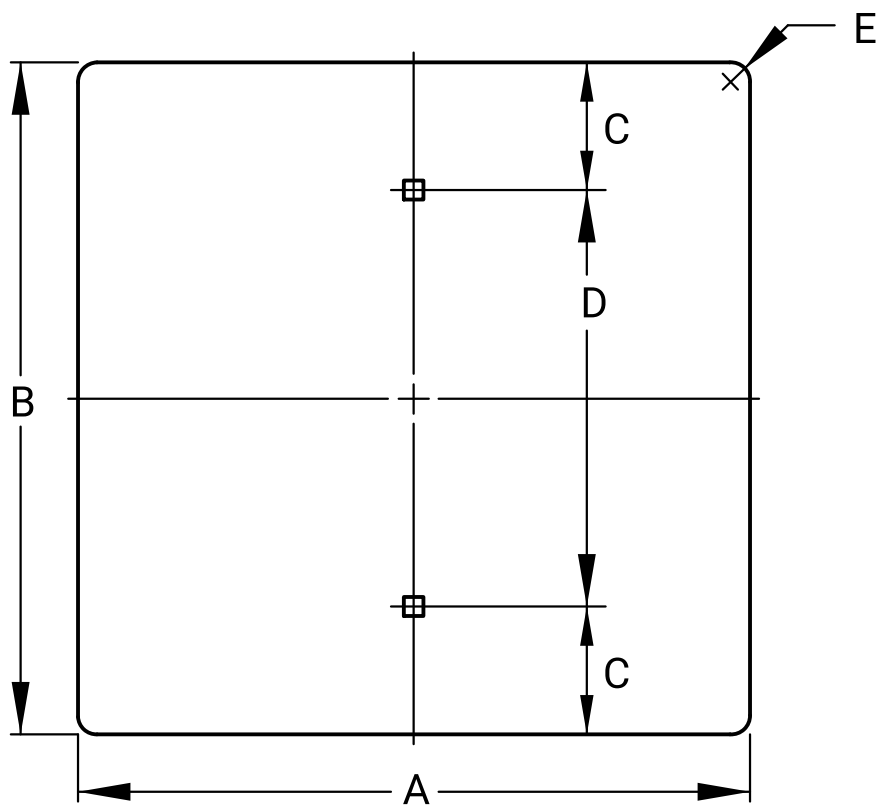
NOTE:
All holes are 3/8 " square unless
otherwise noted.

The dimension "t" is the thickness
of the aluminum blank.

① Center hole is required.

All dimensions are in inches.

01	10-01-19	Update sign blank details and dimensions	D.D.G.	E.W.N.	
NO.	DATE	REVISIONS	BY	APPD	
KANSAS DEPARTMENT OF TRANSPORTATION					
SIGN BLANK DETAILS FOR FLAT SHEET SIGNS					
TE503			07-01-03		
FHWA APPROVAL		10-01-19 APPD.		Steven A. Buckley	
DESIGNED	D.D.G.	DETAILED	A.A.D.	QUANTITIES	TRACED
DESIGN CK.	S.A.B.	DETAIL CK.	D.D.G.	QUAN.CK.	TRACE CK.



	SIGN SIZE	A	B	C	D	E	T	AREA
①	3 X 8	3	8	1	6	$\frac{3}{8}$	0.040	0.17
①	6 X 12	6	12	3	6	$\frac{3}{8}$	0.063	0.50
	12 X 6	12	6	$1\frac{1}{2}$	3	$\frac{3}{4}$	0.063	0.50
	12 X 9	12	9	$1\frac{1}{2}$	6	$1\frac{1}{2}$	0.063	0.75
	12 X 18	12	18	3	12	$1\frac{1}{2}$	0.063	1.50
	12 X 24	12	24	3	18	$1\frac{1}{2}$	0.080	2.00
	12 X 36	12	36	6	24	$1\frac{1}{2}$	0.080	3.00
	12 X 48	12	48	6	36	$1\frac{1}{2}$	0.080	4.00
	18 X 6	18	6	$1\frac{1}{2}$	3	$1\frac{1}{2}$	0.063	0.75
	18 X 18	18	18	3	12	$1\frac{1}{2}$	0.063	2.25
	18 X 30	18	24	3	24	$1\frac{1}{2}$	0.080	3.75
	18 X 36	18	24	6	24	$1\frac{1}{2}$	0.080	4.50
	18 X 42	18	24	6	30	$1\frac{1}{2}$	0.080	5.25
	18 X 48	18	24	6	36	$1\frac{1}{2}$	0.080	6.00
	21 X 15	21	15	$1\frac{1}{2}$	12	$1\frac{1}{2}$	0.080	2.19
	24 X 6	24	6	$1\frac{1}{2}$	3	$1\frac{1}{2}$	0.080	1.00
	24 X 12	24	12	3	6	$1\frac{1}{2}$	0.080	2.00
	24 X 18	24	18	3	12	$1\frac{1}{2}$	0.080	3.00
	24 X 24	24	24	3	18	$1\frac{1}{2}$	0.080	4.00
	24 X 30	24	30	3	24	$1\frac{1}{2}$	0.080	5.00
	24 X 36	24	36	6	24	$1\frac{1}{2}$	0.080	6.00
	30 X 12	30	12	3	6	$1\frac{7}{8}$	0.080	2.50
	30 X 15	30	15	$1\frac{1}{2}$	12	$1\frac{7}{8}$	0.080	3.13
	30 X 18	30	18	3	12	$1\frac{7}{8}$	0.080	3.75
	30 X 21	30	21	$1\frac{1}{2}$	18	$1\frac{1}{2}$	0.080	4.38
	30 X 24	30	24	3	18	$1\frac{7}{8}$	0.080	5.00
	30 X 30	30	30	3	24	$1\frac{7}{8}$	0.080	6.25
	30 X 36	30	36	6	24	$1\frac{7}{8}$	0.080	7.50
	36 X 12	36	12	3	6	$1\frac{1}{2}$	0.080	3.00
	36 X 18	36	18	3	12	$1\frac{1}{2}$	0.080	4.50
	36 X 24	36	24	3	18	$1\frac{1}{2}$	0.080	6.00
	36 X 30	36	30	3	24	$2\frac{1}{4}$	0.080	7.50
	36 X 36	36	36	6	24	$2\frac{1}{4}$	0.080	9.00
③	45 X 36	45	36	3	30	$2\frac{1}{4}$	0.100	11.25

	SIGN SIZE	A	B	C	D	E	F	G	T	AREA
	36 X 12	36	12	3	6	3	30	$1\frac{1}{2}$	0.080	3.00
	36 X 30	36	30	3	24	3	30	$2\frac{1}{4}$	0.080	7.50
	36 X 48	36	48	9	30	6	24	0	0.100	12.00
	36 X 60	36	60	12	36	6	24	0	0.100	15.00
②	36 X 72	36	72	6	60	6	24	0	0.100	18.00
	42 X 12	48	12	3	6	6	30	$1\frac{1}{2}$	0.080	3.50
	42 X 18	48	18	3	12	6	30	$1\frac{1}{2}$	0.080	5.25
	42 X 24	48	24	6	12	6	30	$1\frac{7}{8}$	0.080	7.00
	42 X 36	48	36	6	24	6	30	0	0.100	10.50
	48 X 12	48	12	3	6	9	30	$1\frac{1}{2}$	0.080	4.00
	48 X 18	48	18	3	12	9	30	$1\frac{1}{2}$	0.080	6.00
	48 X 24	48	24	6	12	9	30	$1\frac{7}{8}$	0.080	8.00
	48 X 30	48	30	6	18	9	30	0	0.100	10.00
	48 X 36	48	36	6	24	9	30	0	0.100	12.00
	48 X 42	48	42	6	30	9	30	0	0.100	14.00
	48 X 48	48	48	9	30	9	30	0	0.100	16.00
	48 X 60	48	60	12	36	9	30	0	0.100	20.00
②	48 X 72	48	72	6	60	9	30	0	0.100	24.00
②	48 X 96	48	96	12	72	9	30	0	0.100	32.00
	60 X 12	60	12	3	6	12	36	0	0.100	5.00

SIGN SIZE	A	B	C	D	E	F	G	T	AREA
60 X 18	60	18	3	12	12	36	0	0.100	7.50
60 X 24	60	24	6	12	12	36	0	0.100	10.00
60 X 30	60	30	6	18	12	36	0	0.100	12.50
60 X 36	60	36	6	24	12	36	0	0.100	15.00
60 X 42	60	42	6	30	12	36	0	0.100	17.50
60 X 48	60	48	9	30	12	36	0	0.100	20.00
72 X 12	72	12	3	6	15	42	0	0.100	6.00
72 X 18	72	18	3	12	15	42	0	0.100	9.00
72 X 24	72	24	6	12	15	42	0	0.100	12.00
72 X 30	72	30	6	18	15	36	0	0.100	15.00
72 X 36	72	36	6	24	15	42	0	0.100	18.00
72 X 42	72	42	6	30	15	42	0	0.100	21.00
72 X 48	72	48	9	30	15	42	0	0.100	24.00
84 X 12	84	18	3	6	18	48	0	0.100	7.00
84 X 18	84	18	3	12	18	48	0	0.100	10.50
84 X 24	84	24	6	12	18	48	0	0.100	14.00
84 X 30	84	30	6	18	18	48	0	0.100	17.50
84 X 36	84	36	6	24	18	48	0	0.100	21.00
84 X 42	84	42	6	30	18	48	0	0.100	24.50
84 X 48	84	48	9	30	18	48	0	0.100	28.00

NOTE:
All holes are $\frac{3}{8}$ " square, unless otherwise noted.

The dimension "T" is the thickness of the aluminum blank.

- ① Holes shall be $\frac{5}{16}$ " diameter.
- ② Dimension "D" requires a center hole.
- ③ Additional hole 12" below top hole.

All dimensions are in inches.

01	10-01-19	Updated sign blank details and dimenstons			D.D.G. E.W.N.
NO.	DATE	REVISIONS			BY APP'D
KANSAS DEPARTMENT OF TRANSPORTATION					
SIGN BLANK DETAILS FOR FLAT SHEET SIGNS					
TE506				07-01-03	
FHWA APPROVAL		10-01-19	APP'D.		Steven A. Buckley
DESIGNED	D.D.G.	DETAILED	A.A.D.	QUANTITIES	TRACED
DESIGN CK.	S.A.B.	DETAIL CK.	D.D.G.	QUAN.CK.	TRACE CK.

Plotted by : Riley Standish
File : ST2306pss-590.dgn
8-JUL-2025 16:54

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	ST-2306	2025	103	139

DETAILED SPECIFICATIONS FOR FLAT SHEET SIGNS AND OVERLAY PANELS

All new flat sheet sign blanks shall be of the fabrication and thickness shown on the flat sheet blank detail sheets, unless other details are shown in the plans.

Flat sheet blanks shall be used for signs that are less than or equal to 7'-0" in length and/or less than or equal to 4'-0" in height, unless other details are shown in the plans. Flat sheet blanks shall also be used for signs that are 4'-0" in length and less than or equal to 8'-0" in height, unless other details are shown in the plans.

The design details for signs (color, letter height, and letter series) shall be as shown in the FHWA Standard Highway Signs and Markings book (2004 edition and supplements), unless other details are shown in the plans.

All sign faces shall be covered with Type IV high intensity retroreflective sheeting, unless otherwise noted in the plans.

The sheeting used for the direct applied legend and borders shall be Type IV high intensity retroreflective sheeting, unless otherwise noted in the plans.

The school warning signs, the "SCHOOL" portion of the S5-1 sign, S4-3p plaque, and any supplemental plaques used with these warning signs shall have a fluorescent yellow-green background, unless otherwise noted in the plans.

The type of adhesive used for retroreflective sheeting or lettering film shall be heat activated or pressure sensitive.

DETAILED SPECIFICATIONS FOR REINFORCED PANEL SIGNS

All new reinforced sign panels shall be of the fabrication and thickness shown on the reinforced panel detail sheets. If extrusheet fabricated sign panels are used, they shall be of the length, width and in the position shown. If extrusheet fabricated panel dimensions are not shown, a line of legend should be placed entirely on one panel. If extruded fabricated sign panels are used, either 1'-0" or 6" panels shall be used. The 6" panels shall be used only at the top or bottom of signs.

Reinforced panels shall be used for signs that are greater than 7'-0" in length or greater than 4'-0" in height, unless other details are shown in the plans.

All sign faces shall be covered with Type IV high intensity retroreflective sheeting, unless otherwise noted in the plans.

The sheeting used for the direct applied legend and borders shall be Type IV high intensity retroreflective sheeting, unless otherwise noted in the plans.

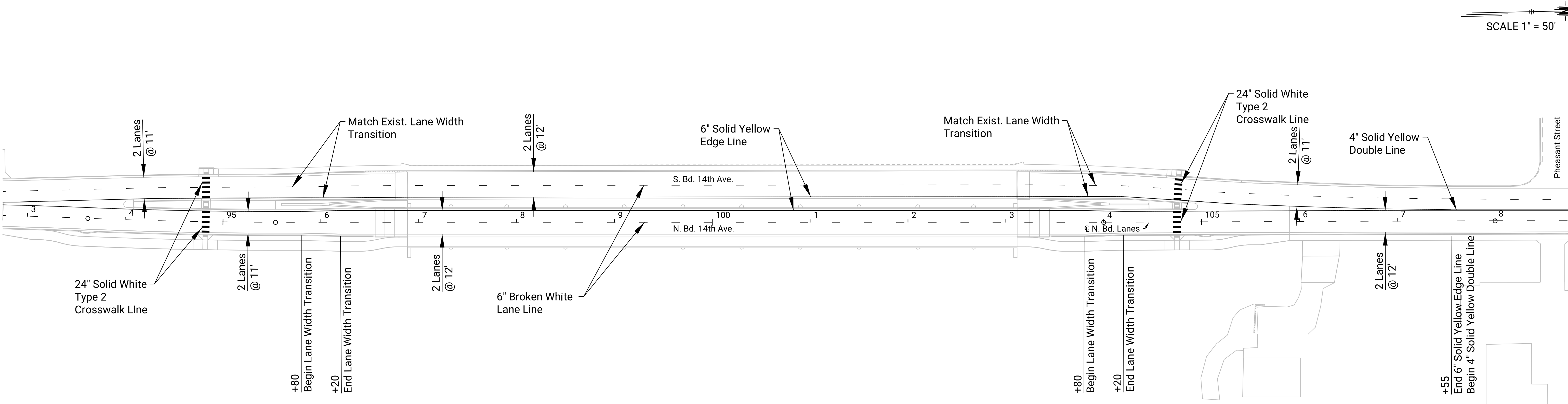
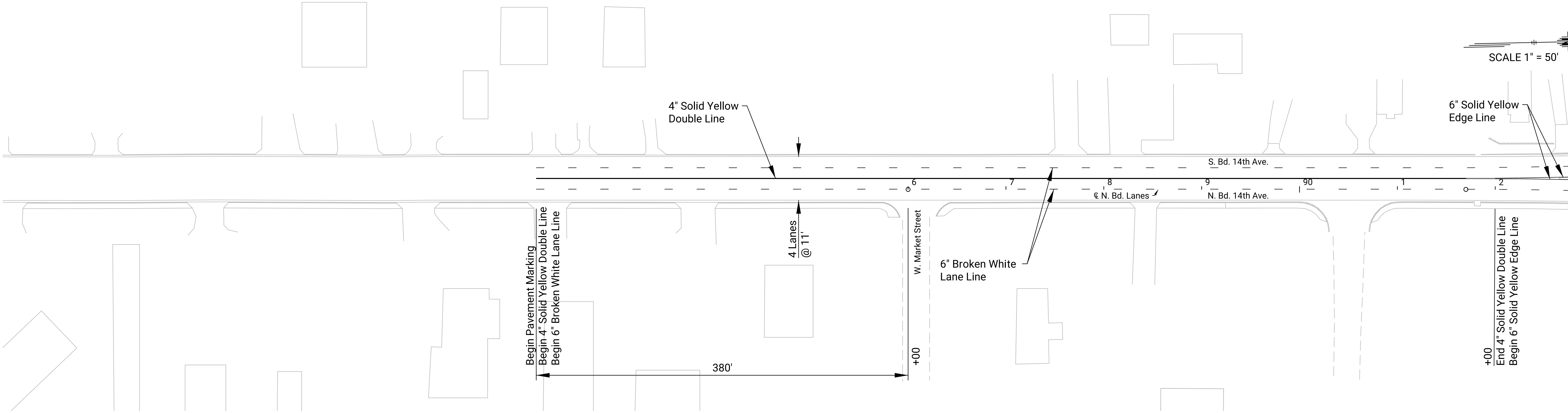
The type of adhesive used for retroreflective sheeting or lettering film shall be heat activated or pressure sensitive.

Letters and numbers on reinforced panel signs are modified Series "E" unless otherwise shown.

Spacing table dimensions are in inches.

02	10-01-19	Changed notes	D.D.G.	E.W.N.	
01	07-23-10	Changed Notes and Sheetting Type	D.D.G.	D.B.	
NO.	DATE	REVISIONS	BY	APPD	
KANSAS DEPARTMENT OF TRANSPORTATION					
DETAILS SPECIFICATIONS FOR REINFORCED SIGN PANELS AND FLAT SHEET SIGNS					
TE590			07-01-03		
FHWA APPROVAL		10-01-19	APPD.		Steven A. Buckley
DESIGNED	D.D.G.	DETAILED	K.D.S.	QUANTITIES	TRACED
DESIGN CK.	S.A.B.	DETAIL CK.	D.D.G.	QUAN.CK.	TRACE CK.

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	ST-2306	2025	104	139

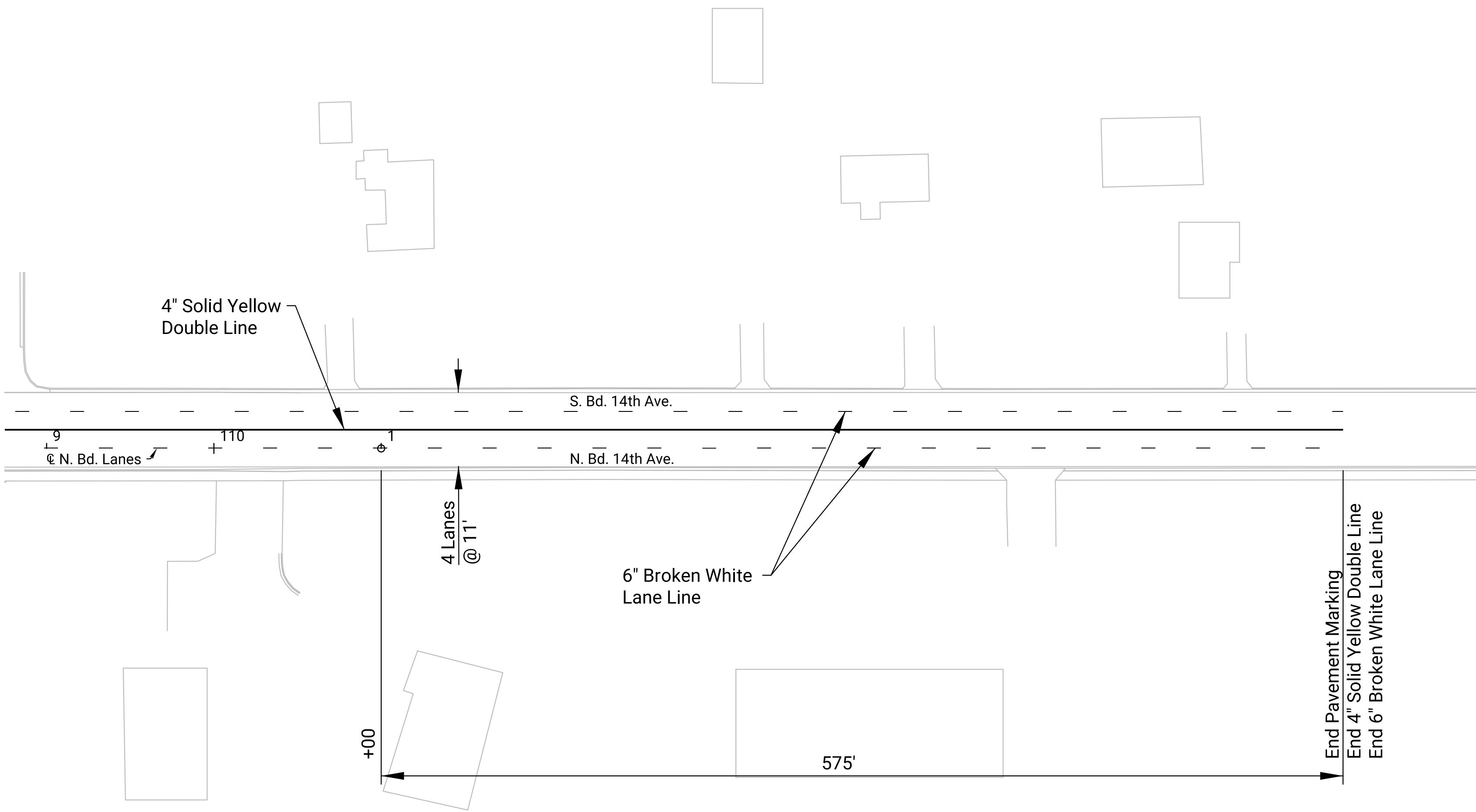
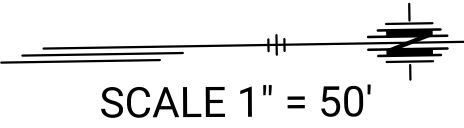


KANSAS DEPARTMENT OF TRANSPORTATION

PAVEMENT MARKING

STA. 86+00 TO STA. 109+00

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	ST-2306	2025	105	139

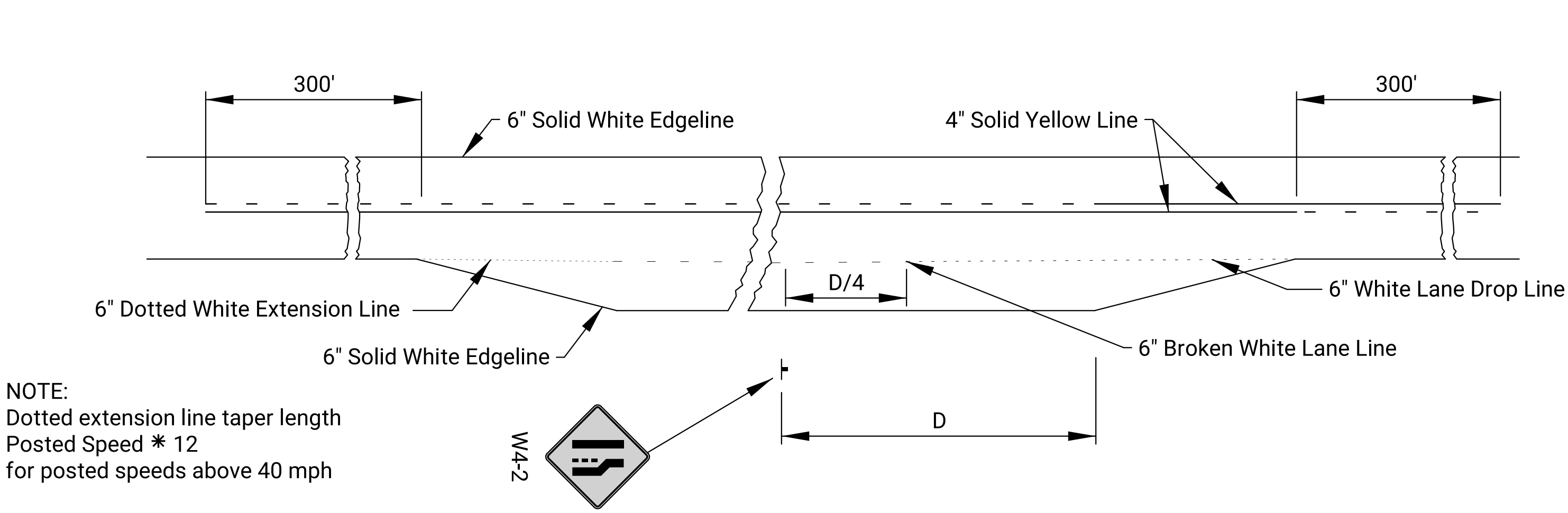


KANSAS DEPARTMENT OF TRANSPORTATION

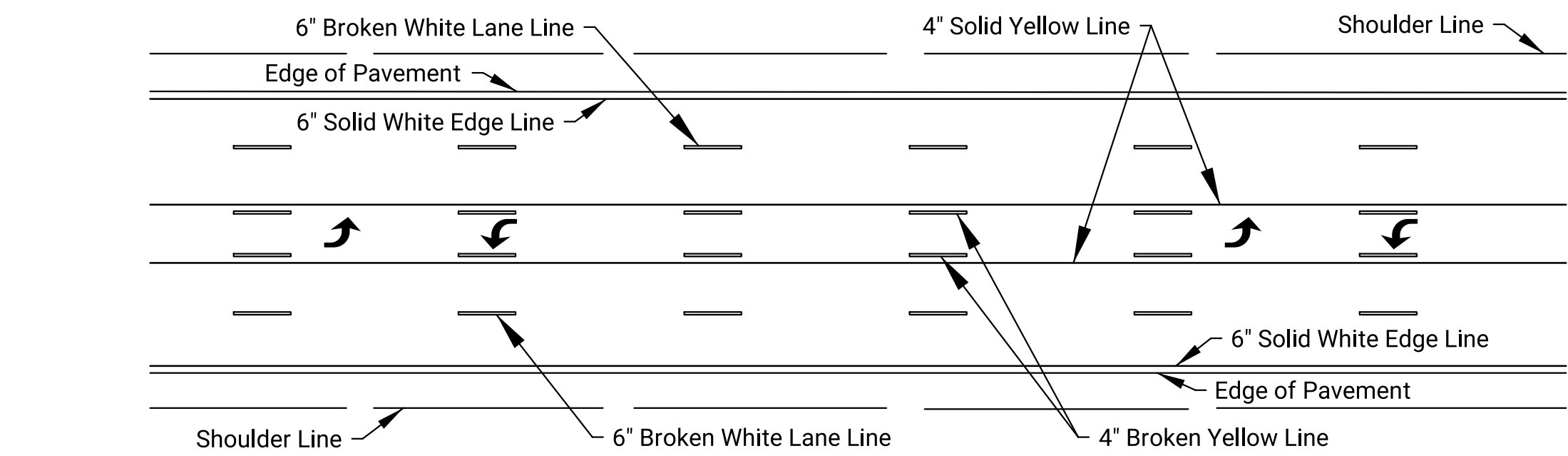
PAVEMENT MARKING

STA. 109+00 TO STA. 111+00

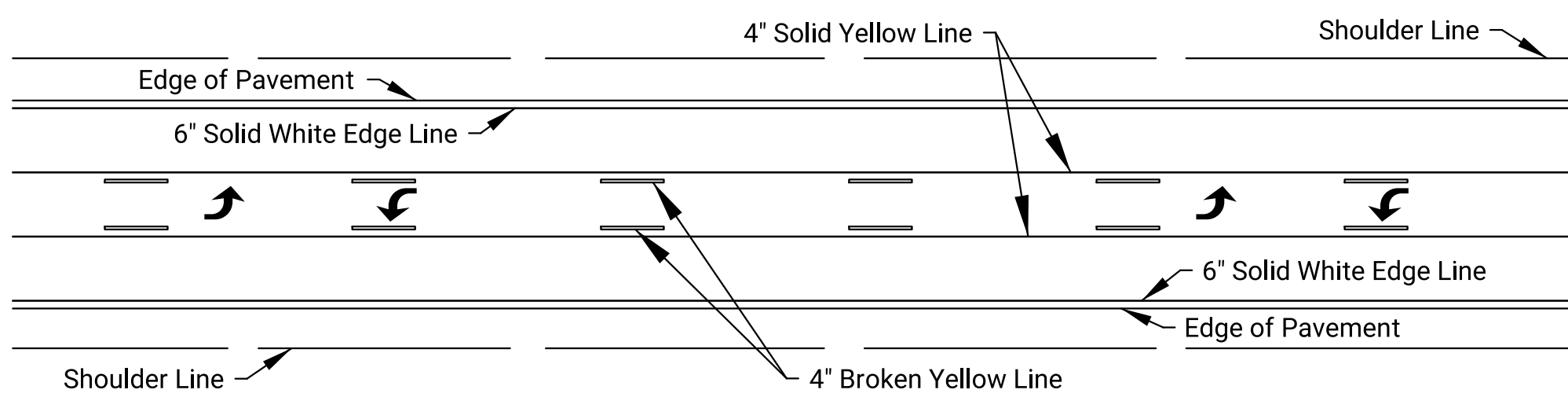
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	ST-2306	2025	106	139



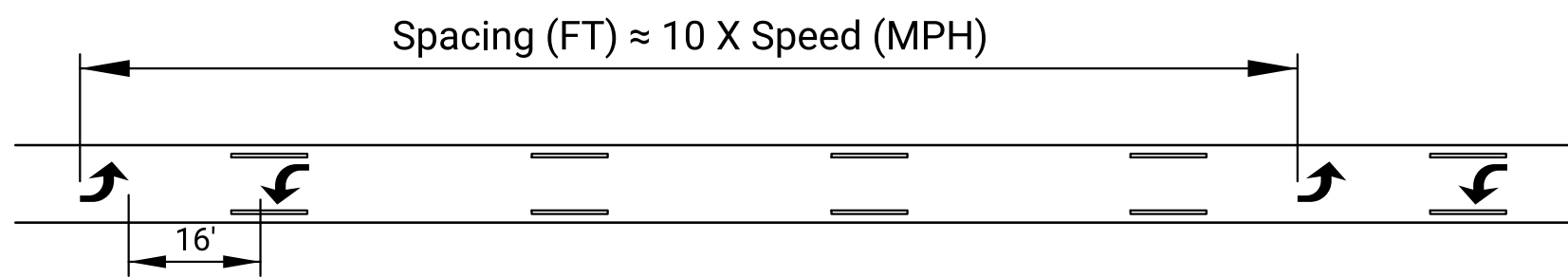
TYPICAL MARKING FOR AUXILIARY PASSING LANE



TWO-WAY LEFT TURN DETAIL FOR FIVE LANE ROADWAY

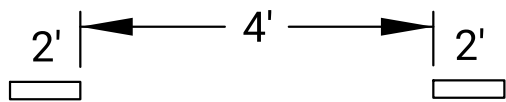


TWO-WAY LEFT TURN DETAIL FOR THREE LANE ROADWAY

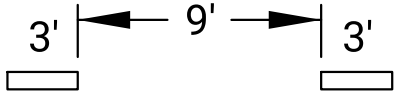


TWO-WAY LEFT TURN ARROW SPACING DETAIL

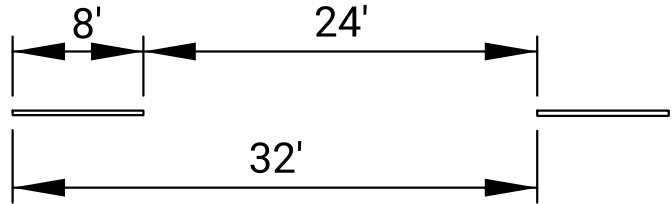
NOTE:
If arrows are used space the arrows as shown in the spacing detail.



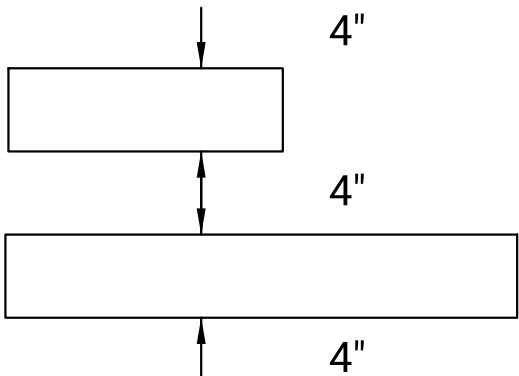
TYPICAL SPACING FOR DOTTED EXTENSION LINES, UNLESS OTHERWISE NOTED ON PLANS.



TYPICAL SPACING FOR LANE DROP, UNLESS OTHERWISE NOTED ON PLANS.



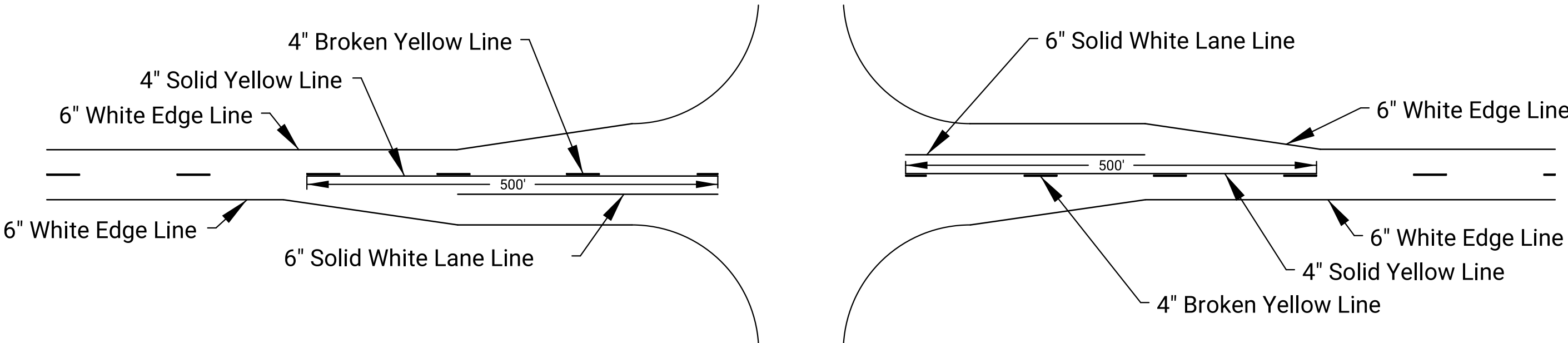
TYPICAL SPACING FOR BROKEN LINES, UNLESS OTHERWISE NOTED ON PLANS



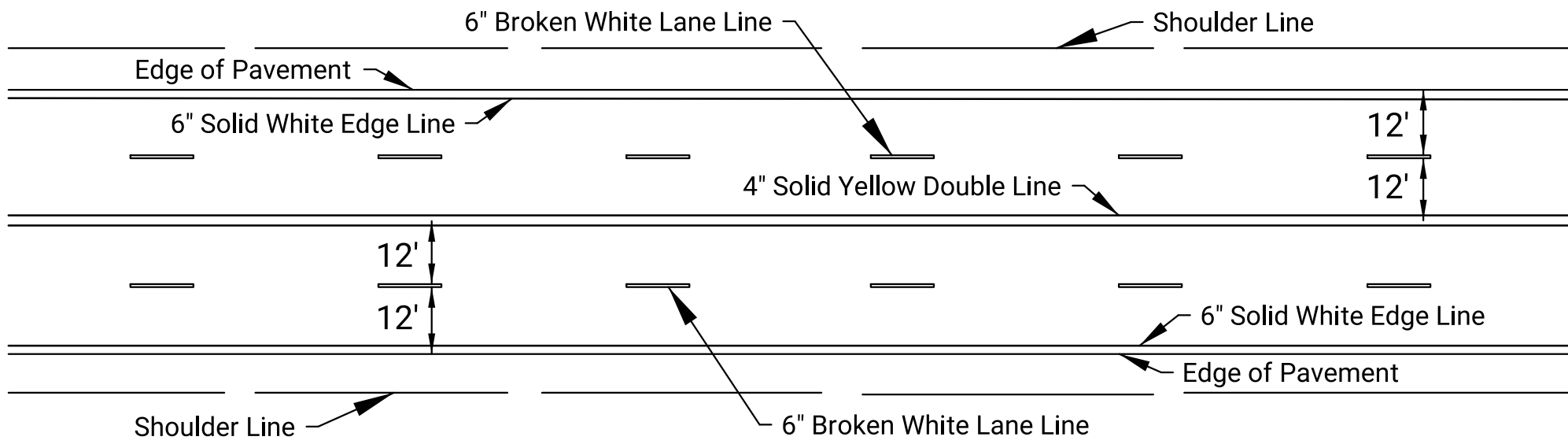
TYPICAL SPACING FOR NO PASSING LINES, UNLESS OTHERWISE NOTED ON PLANS

NOTE:
All pavement markings shall be broken at cross roads.

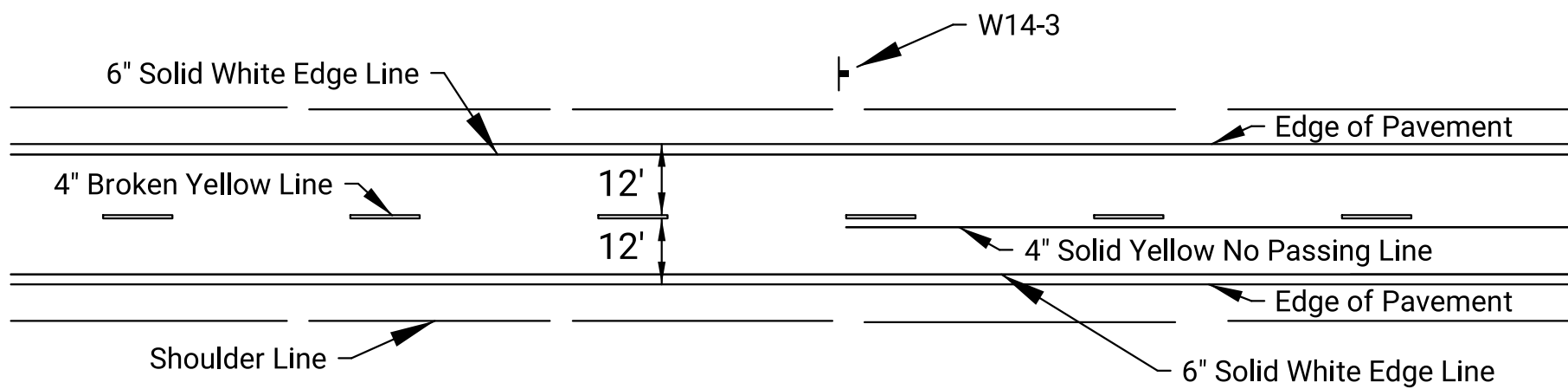
For highway junctions the no passing zone will extend 1000' from intersection.



TYPICAL ROAD JUNCTION MARKINGS WITH BYPASS LANES



TYPICAL MARKINGS FOR FOUR LANE ROADWAY



TYPICAL TWO LANE MARKINGS

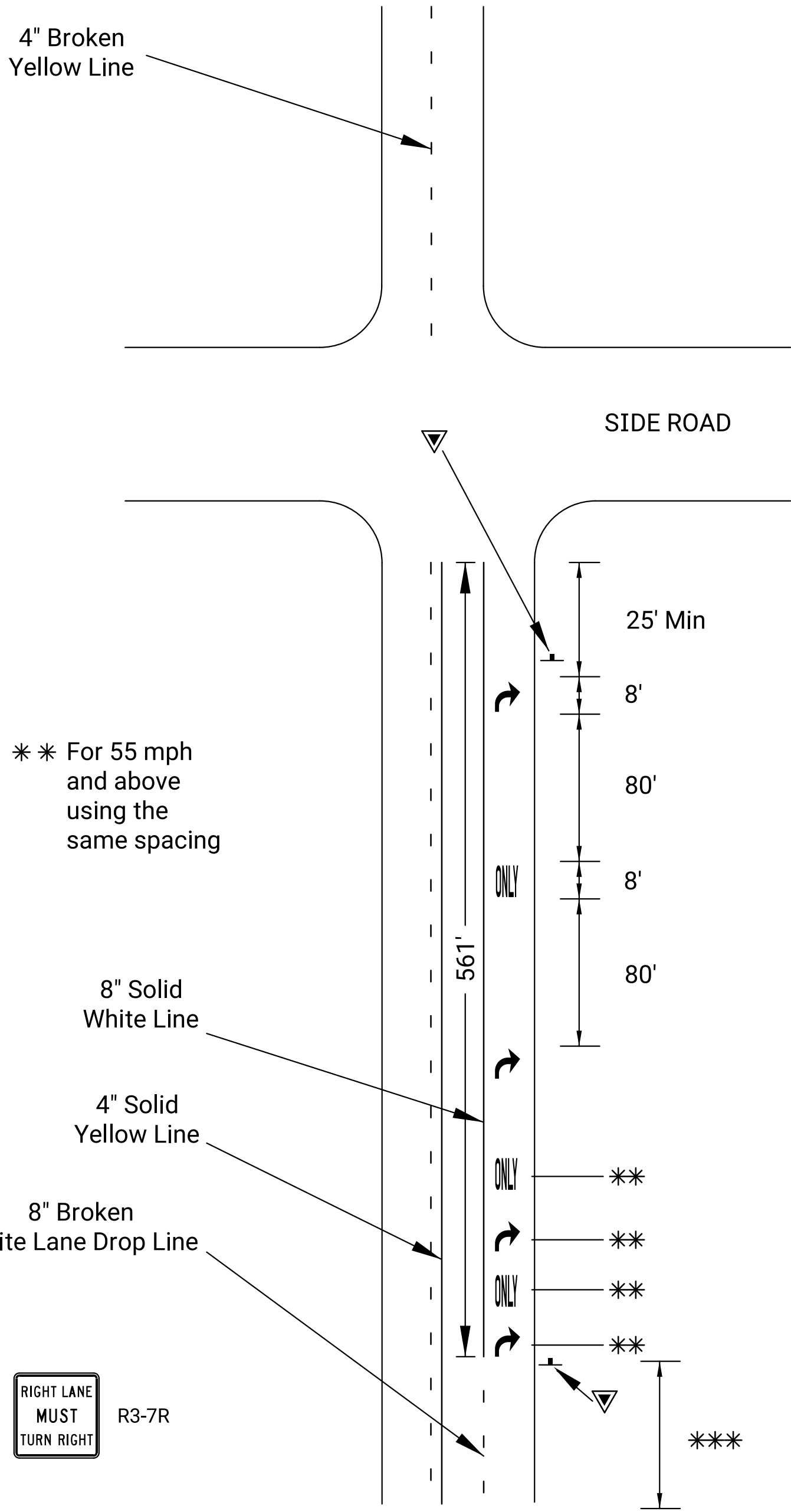
NOTE:
Longitudinal pavement marking lines shall be offset a minimum of 2" from longitudinal pavement joints.

On non I, US, and K routes, 4" edge lines may be installed. 6" edge lines are not required on non I, US, and K routes.

KANSAS DEPARTMENT OF TRANSPORTATION					
TYPICAL PAVEMENT MARKING DETAILS FOR UNDIVIDED ROADWAYS					
TE308					
FHWA APPROVAL					
DESIGNED	J.F.F.	DETAILED	J.F.F.	QUANTITIES	TRACED
DESIGN CK.	B.D.G.	DETAIL CK.	B.D.G.	QUAN. CK.	TRACE CK.

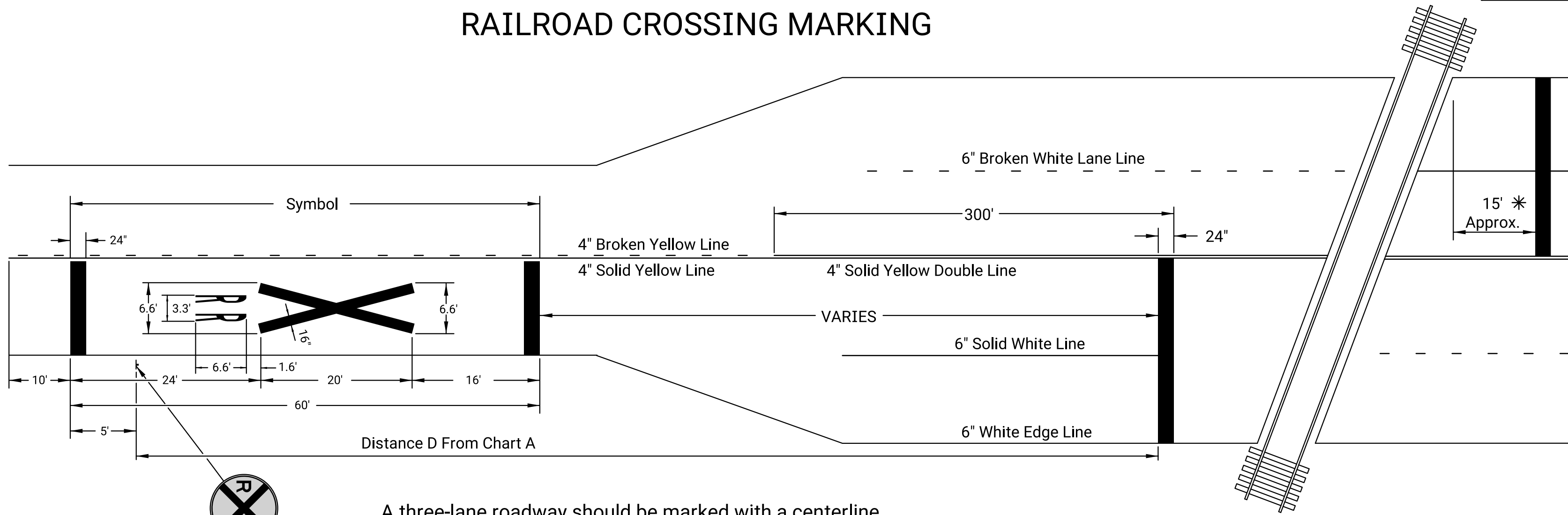
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	ST-2306	2025	107	139

TYPICAL SIGNING AND MARKING
FOR RIGHT LANE MUST TURN RIGHT



*** The lane drop markings length is a minimum of 100' and a maximum of 250' prior to the 8" solid white line

RAILROAD CROSSING MARKING



A three-lane roadway should be marked with a centerline
For two-lane approach operation on the approach to a crossing.
On multi-lane roads the transverse bands should extend across all approach lanes, and individual R X R symbols should be used in each approach lane.
Refer to standard alphabet for highway signs and markings for R X R symbols details.

*Stop line 8' from near edge of gate or cantilever, if present.

NOTE:
On non I, US, and K routes, 4" edge lines may be installed.
6" edge lines are not required on non I, US, and K routes.

CHART "A"

SPEED MPH	DISTANCE D (feet)
75	850
70	750
65	650
60	550
55	450
50	375
45	300
40	225
35	150
30	(X)
25	(X)
20	(X)

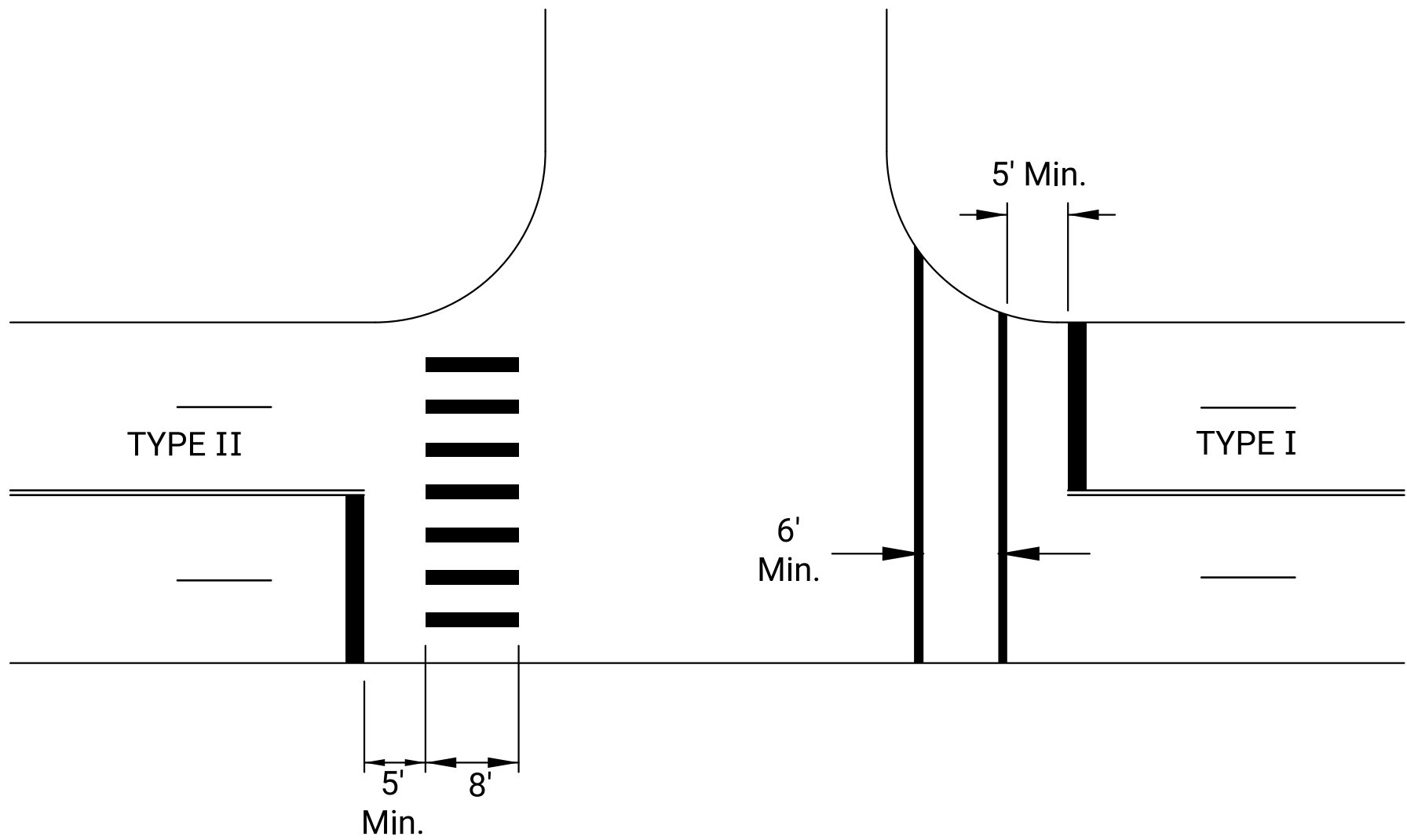
All distances are minimum.

(X) Placement location is dependent on site conditions and other signing to provide adequate advance warning to the driver

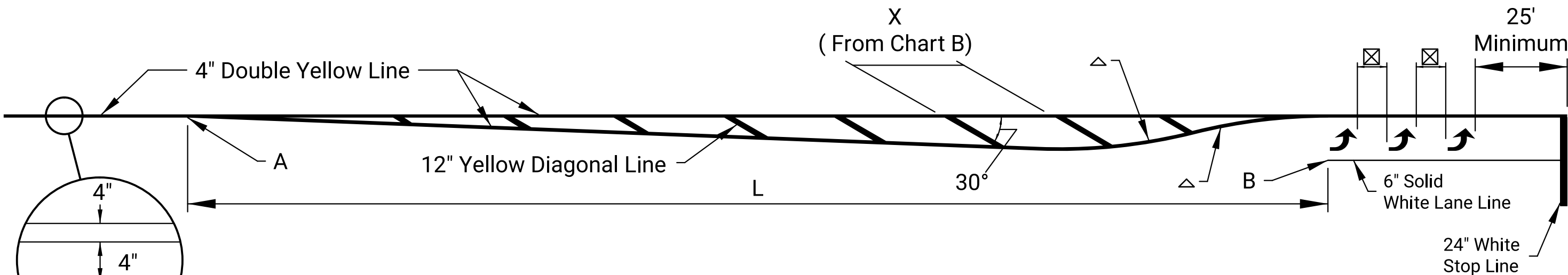
TYPICAL CROSSWALKS

TYPE I: Crosswalk lines shall be 12" solid white lines. They shall be spaced a minimum of 6' apart from inside edge to inside edge.
TYPE II: These lines should be solid white 24" wide placed parallel to the direction of traffic flow. The line placement is determined by lane line, center line, and wheel path in such a manner as to minimize traffic wear. The crosswalk width should be not less than 8'. The transverse crosswalk lines may be added.

When required, stop lines shall be installed a minimum of 5' from crosswalks.



TYPICAL
APPROACH TAPER DETAIL



The approach taper length from Point A to Point B is to be determined using Chart C. Values for L were calculated using the equations below and increased to the next higher 5 mph increment.

- SPEEDS < 45 MPH $L = \frac{W * S^2}{60}$
- SPEEDS = 45 MPH $L = W * S$

If arrows are used and unless otherwise specified the space between lines should be at least four times the height of the characters for low speed roads but not more than ten times the height of the characters, under any conditions.

For speeds less than or equal to 40 mph, R=150'.
for speeds greater than or equal to 45 mph, R=300'.

CHART "B"

APPROACH SPEED	X
20 MPH	20'
25 MPH	25'
30 MPH	30'
35 MPH	35'
40 MPH	40'
45 MPH	45'
50 MPH	50'
55 MPH	55'
60 MPH	60'
65 MPH	65'
70 MPH	70'

CHART "C"

APPROACH SPEED	L
20 MPH	80'
25 MPH	125'
30 MPH	180'
35 MPH	245'
40 MPH	320'
45 MPH	540'
50 MPH	600'
55 MPH	660'
60 MPH	720'
65 MPH	780'
70 MPH	840'

03	05-25-12	Updated Chart B and Lane Drop Lines	B.A.H.	B.D.G.
02	10-20-06	RR Xing Symbol Changed from 18" to 16"	T.L.H.	B.D.G.
01	09-20-05	Added 4" Solid Yellow Double Line to RRxing	J.F.F.	B.D.G.
NO.	DATE	REVISIONS	BY	APPD

KANSAS DEPARTMENT OF TRANSPORTATION				
TYPICAL MISCELLANEOUS PAVEMENT MARKING DETAIL SHEET				
TE309				
FHWA APPROVAL		07-26-05 APPD.		Brian D. Gower
DESIGNED	J.F.F.	DETAILED	J.F.F.	QUANTITIES
DESIGN CK.	B.D.G.	DETAIL CK.	B.D.G.	QUAN.CK.

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	ST-2306	2025	109	139

TRAFFIC HANDLING AND CONSTRUCTION SEQUENCE			
PHASE	MAJOR CONSTRUCTION ITEMS	HANDLING OF TRAFFIC	REMARKS
1	Construct Br. No. 406950290803B01 (Northbound 14th Avenue over Arkansas River) Construct N. Bd. Outside Lane and Inside Lane (Partial Construction) Sta. 92+75 to Sta. 96+88.50 and Sta. 103+11.50 to Sta. 105+90.	14th Avenue: Two-Way, One-Lane Traffic on existing Southbound bridge and lanes.	Contractor to maintain access to local residents and businesses throughout construction. Contractor to provide 2 weeks (minimum) advance notice to Engineer prior to closure.
2	Construct N. Bd. Inside Lane (Partial Construction) Sta. 92+75 to Sta. 96+88.50 and Sta. 103+11.50 to Sta. 105+90.	14th Avenue: One-Way, One-Lane Traffic using outside lanes on existing Southbound bridge and Proposed Northbound bridge.	Contractor to maintain access to local residents and businesses throughout construction. Contractor to provide 2 weeks (minimum) advance notice to Engineer prior to closure.
3	Final Pavement Marking, Signing, Sidewalks and Ramps, Seeding, and other miscellaneous items.	14th Avenue: 2-Lanes open to traffic as work is completed.	Contractor to maintain access to local residents and businesses throughout construction. Contractor to provide 2 weeks (minimum) advance notice to Engineer prior to closure. Lane closures with the use of flaggers will be permitted during daylight hours with the approval of the Engineer.

GENERAL NOTES

The sequence shown is intended as a guide for major items only. The Contractor shall be responsible for the coordination of all minor items. Variations to the sequence shown may be used as approved by the Engineer.

Regardless of the sequence used, traffic handling shall be essentially in accordance with that shown. Part of the work shown for a specific Phase may be accomplished in other Phases. Major work not constructed within the indicated Phase shall meet with the written approval of Engineer.

Traffic control for construction activities shall be in accordance with the Manual on Uniform Traffic Control Devices (MUTCD) for Streets and Highways (latest edition)

Additional signs, barricades, and any other traffic control devices not shown on the plans which may be deemed necessary by the Engineer for traffic control during construction will not be measured or paid for separately, but shall be Subsidiary to other items in the contract.

Temporary striping on new roadways being used to carry diverted traffic during construction shall be applied before placement of the final surface course. Prior to final opening, the surface course shall be placed covering the temporary striping.

The contractor shall provide all weather access drives to all properties adjacent to the project. All costs associated with providing access to adjacent properties during construction will not be measured or paid for separately, but shall be Subsidiary to other items in the contract.

Contractor shall maintain positive drainage throughout construction. Labor, tools, material, and equipment required for plugging, slope protection, and connections to maintain positive drainage during construction shall be Subsidiary to other items.

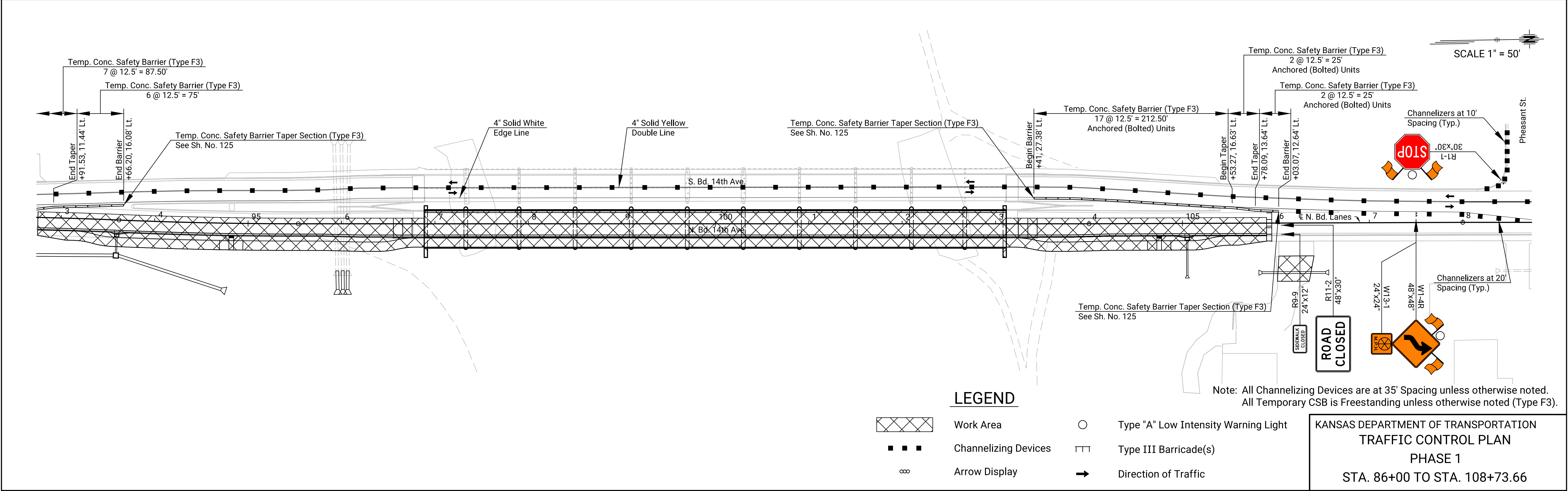
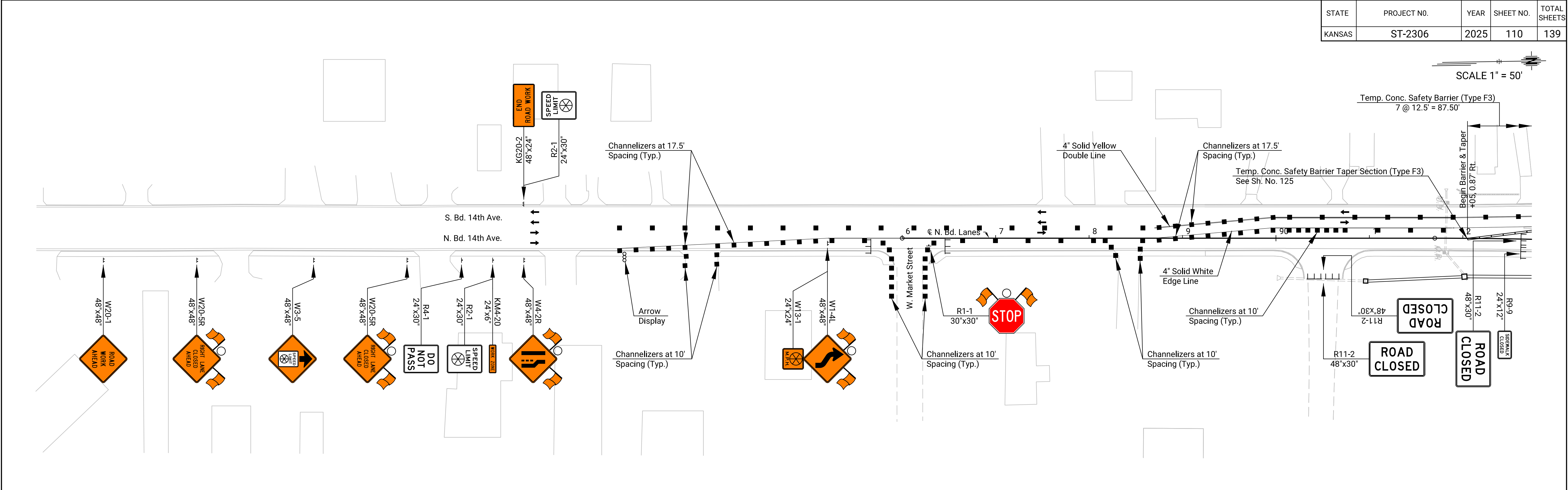
Existing signs and intersection control not shown on the plans shall remain in place or be relocated as directed by the Engineer.

Contractor may need to make provisions for Traffic Control modifications during the Dodge City Roundup Rodeo (last Friday in July to first Sunday in August) as directed by Engineer.

KANSAS DEPARTMENT OF TRANSPORTATION

TRAFFIC HANDLING AND
CONSTRUCTION SEQUENCE

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	ST-2306	2025	110	139



Work Area

Channelizing Devices

Arrow Display

Type "A" Low Intensity Warning Light

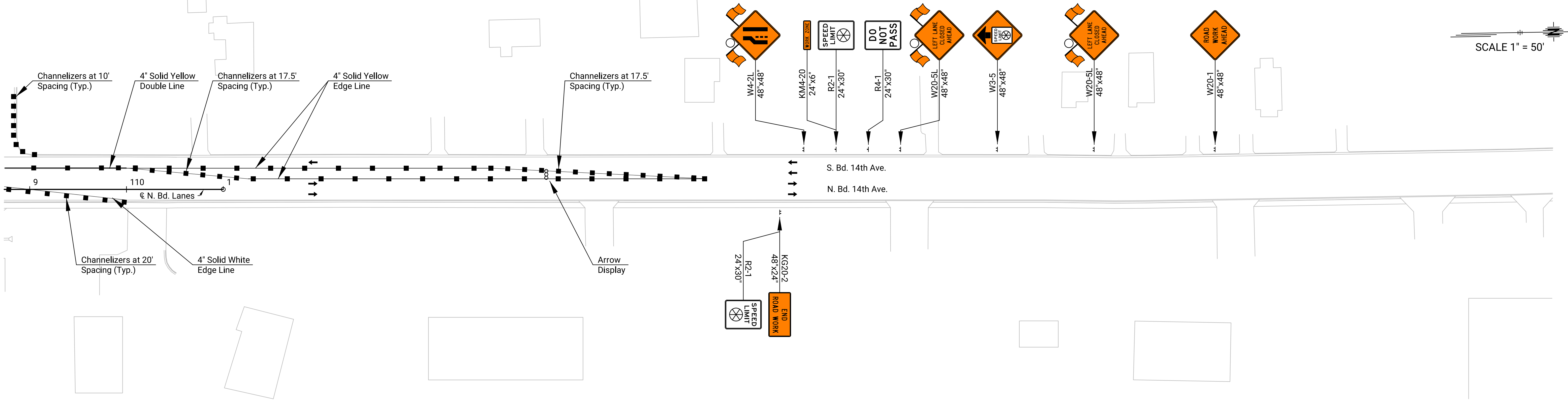
Type III Barricade(s)

Direction of Traffic

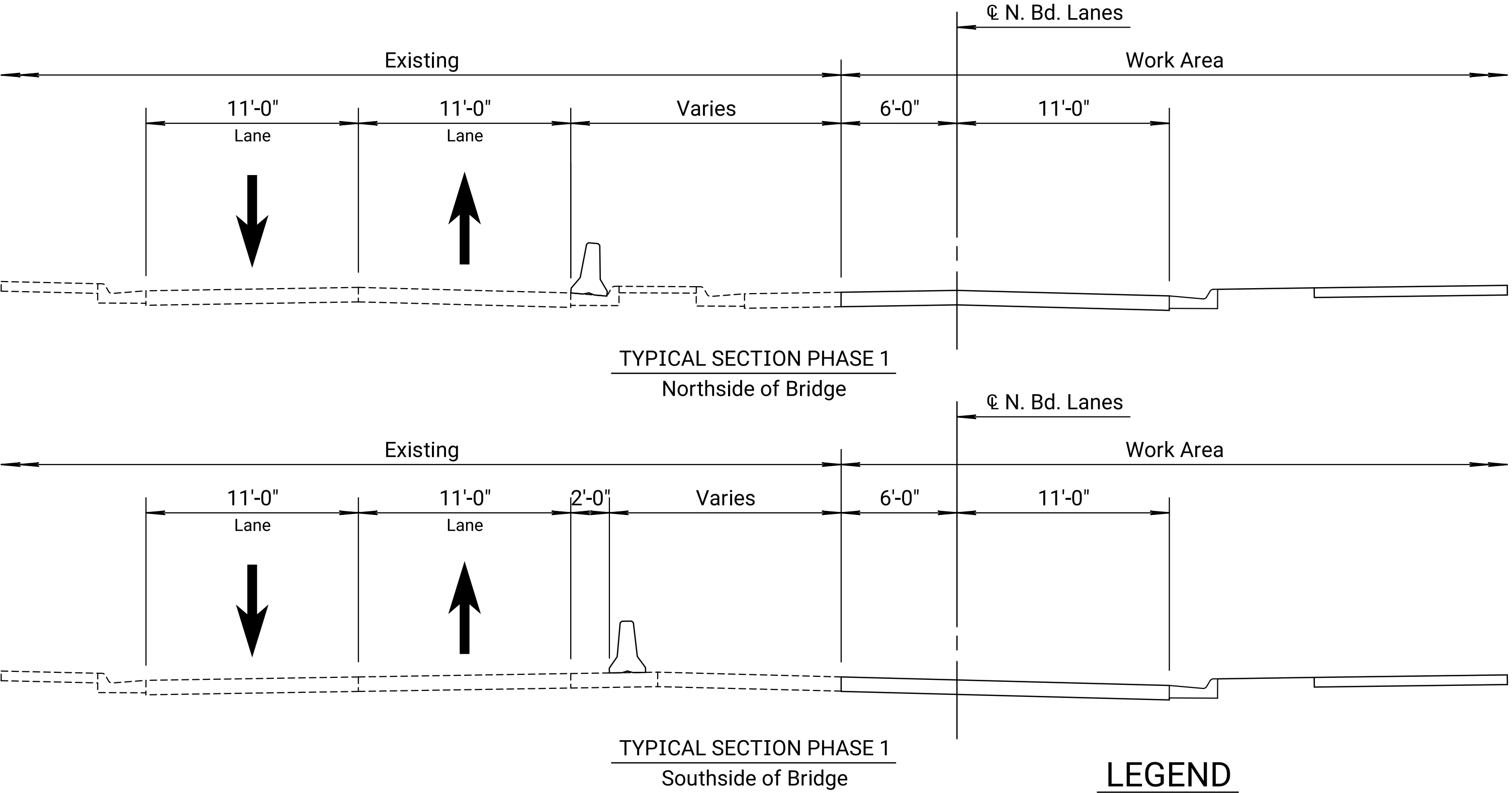
Note: All Channelizing Devices are at 35' Spacing unless otherwise noted.
All Temporary CSB is Freestanding unless otherwise noted (Type F3).

KANSAS DEPARTMENT OF TRANSPORTATION
TRAFFIC CONTROL PLAN
PHASE 1
STA. 86+00 TO STA. 108+73.66

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	ST-2306	2025	111	139



SCALE 1" = 50'



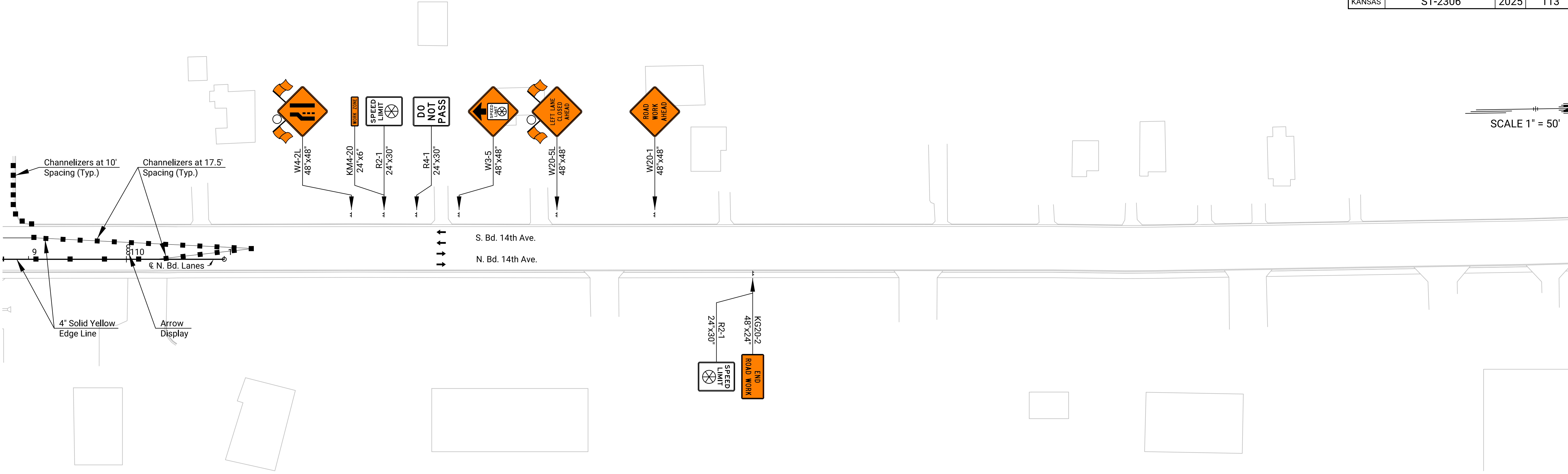
LEGEND

- | | | | |
|--|----------------------|--|--------------------------------------|
| | Work Area | | Type "A" Low Intensity Warning Light |
| | Channelizing Devices | | Type III Barricade(s) |
| | Arrow Display | | Direction of Traffic |

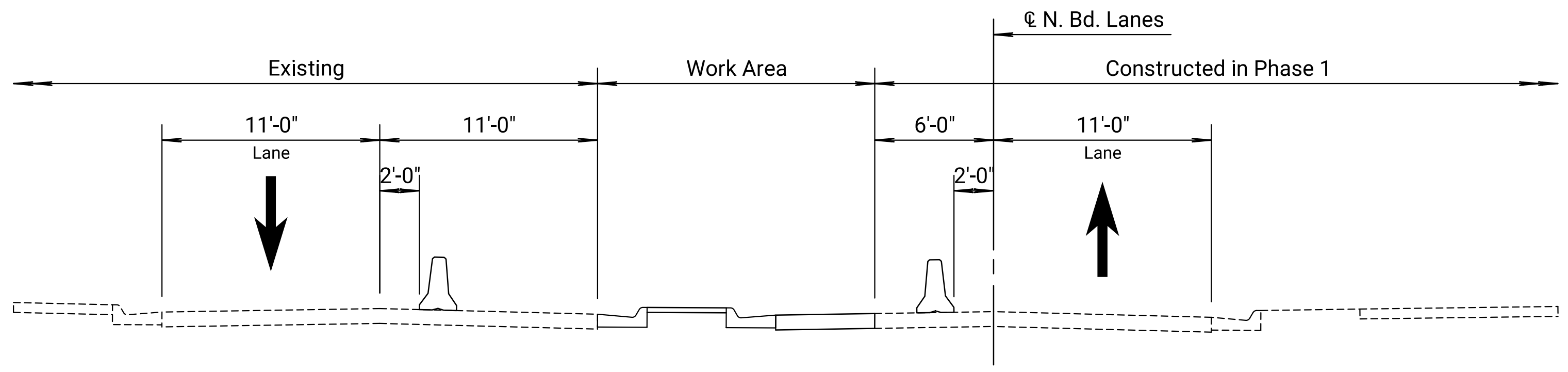
Note: All Channelizing Devices are at 35' Spacing unless otherwise noted.
All Temporary CSB is Freestanding unless otherwise noted (Type F3).

KANSAS DEPARTMENT OF TRANSPORTATION
TRAFFIC CONTROL PLAN
PHASE 1
STA. 108+73.66 TO STA. 111+00

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	ST-2306	2025	113	139



SCALE 1" = 50'



TYPICAL SECTION PHASE 2

LEGEND	
	Work Area
	Channelizing Devices
	Arrow Display
	Type "A" Low Intensity Warning Light
	Type III Barricade(s)
	Direction of Traffic

Note: All Channelizing Devices are at 35' Spacing unless otherwise noted.
All Temporary CSB is Freestanding unless otherwise noted (Type F3).

KANSAS DEPARTMENT OF TRANSPORTATION
TRAFFIC CONTROL PLAN
PHASE 2
STA. 108+73.66 TO STA. 111+00

Plotted by : Riley Standish
File : ST2306css-700.dgn
8-JUL-2025 16:58

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

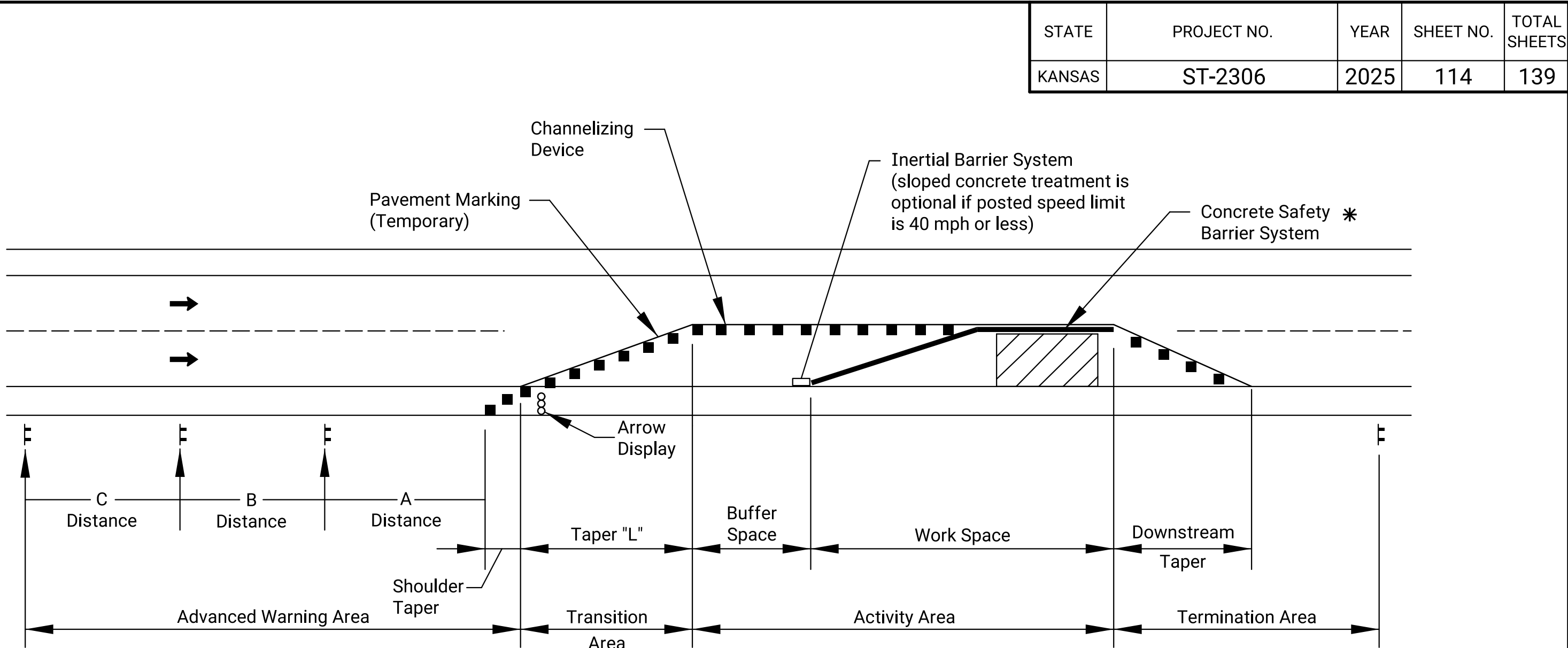
2) Minimum Lane Width: Lane widths shall be a minimum of 11' (measured between centerlines of pavement markings) or as shown on the plans, or as directed by the engineer. A lane width less than 11' may require restricted roadway width signing.

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

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

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

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



TYPICAL WORK ZONE COMPONENTS

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

Minimum advance warning sign spacing (in feet):

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

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

Taper Formulas:

$L = WS$ for speeds of 45 MPH or more
 $L = WS^2/60$ for speeds of 40 MPH or less

Where: L = Minimum length of taper in feet
 S = Numerical value of posted speed prior to work starting in MPH
 W = Width in offset feet

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

Channelizer Placement:

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

Buffer Space

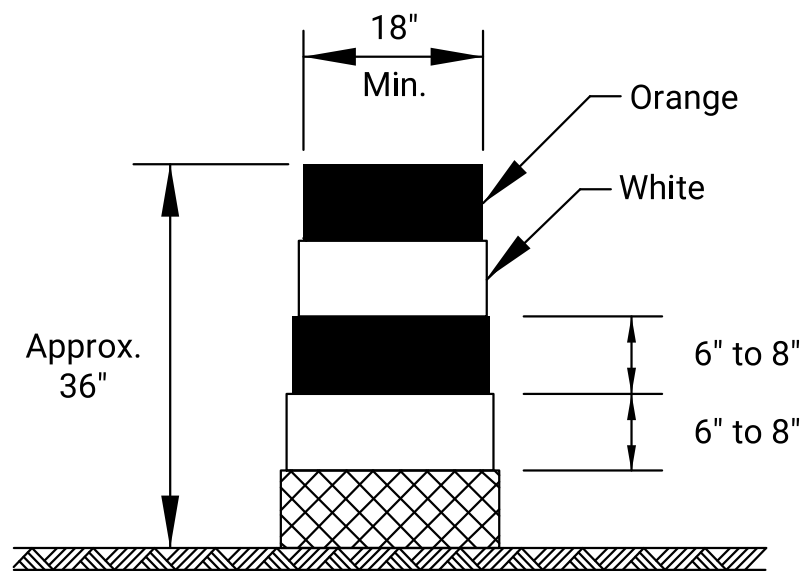
SPEED (MPH) ✱	20	25	30	35	40	45	50	55	60	65	70	75
LENGTH (ft)	115	155	200	250	305	360	425	495	570	645	730	820

✱ Posted speed prior to work starting

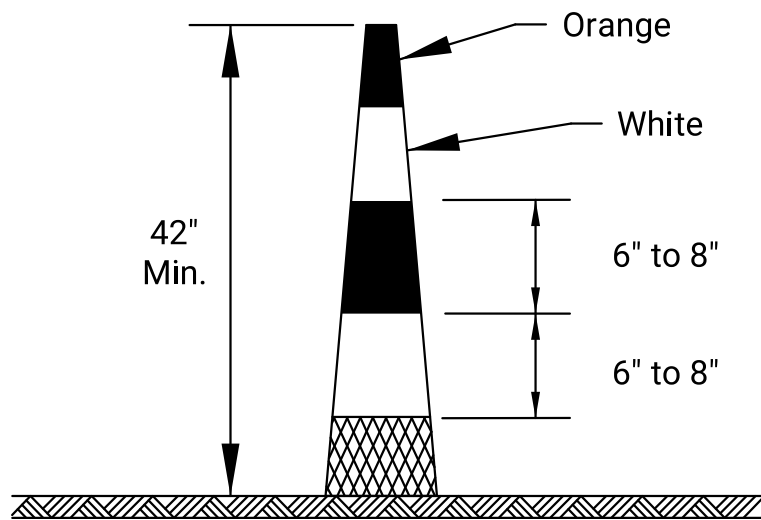
Neither work activity nor storage of equipment, vehicles, or material should occur in the buffer space. When a protection vehicle is placed in advance of the work space, only the space upstream of the vehicle constitutes the buffer space.

If temporary concrete safety barrier system is used to separate approaching traffic from the work space, the barrier system shall be considered part of the activity area. A full lane width should be available throughout the length of the buffer space. See typical work zone components above.

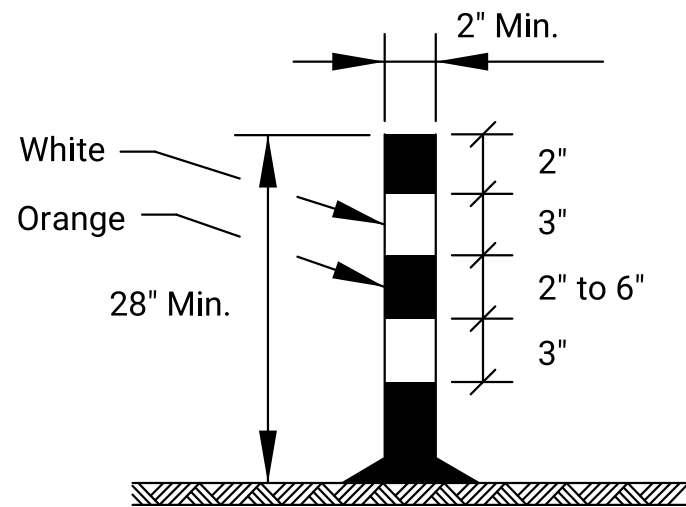
02	03-13-18	W8-15p usage changed to Shall	R.W.B.	E.K.G.	
01	08-18-15	Channelizer spacing info	R.W.B.	K.E.	
NO.	DATE	REVISIONS	BY	APPD	
KANSAS DEPARTMENT OF TRANSPORTATION					
TRAFFIC CONTROL GENERAL NOTES					
TE700					
FHWA APPROVAL			03-13-18 APPD.		Eric Kocher
DESIGNED	B.A.H.	DETAILED	R.W.B.	QUANTITIES	TRACED
DESIGN CK.		DETAIL CK.		QUAN.CK.	TRACE CK.



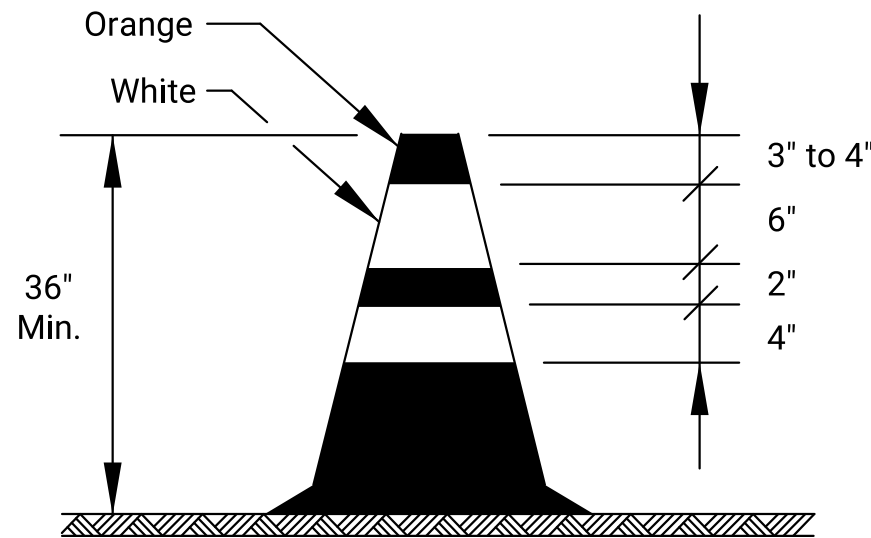
DRUM



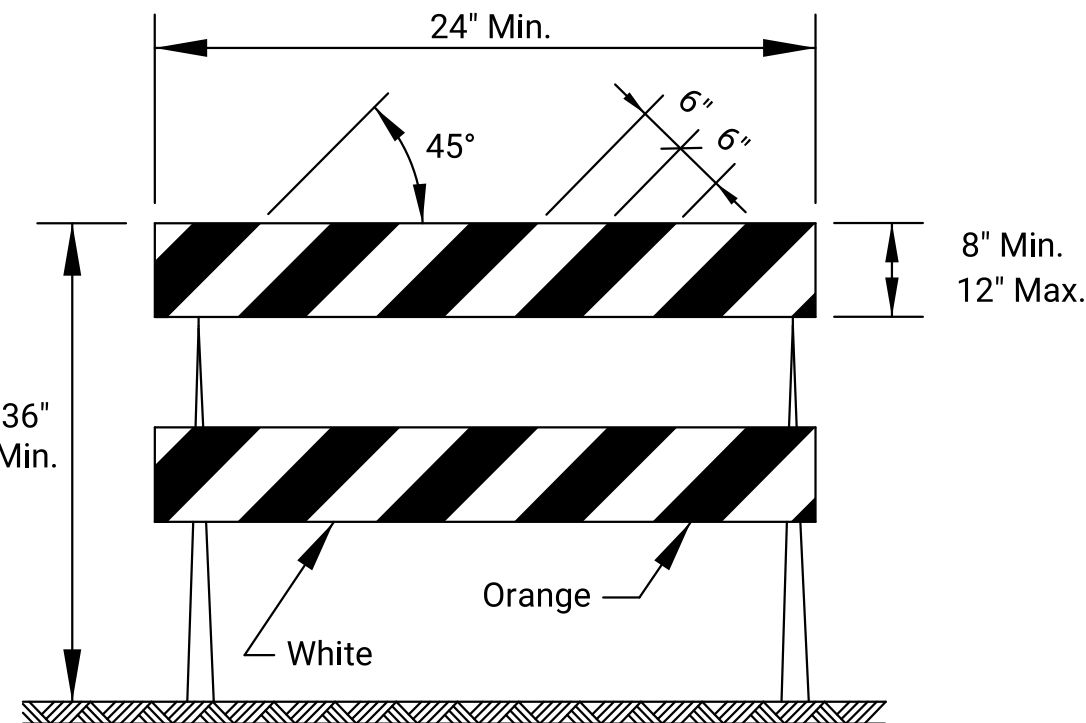
CONICAL
DELINEATOR



TUBULAR MARKER
Striping as shown for up to 42".

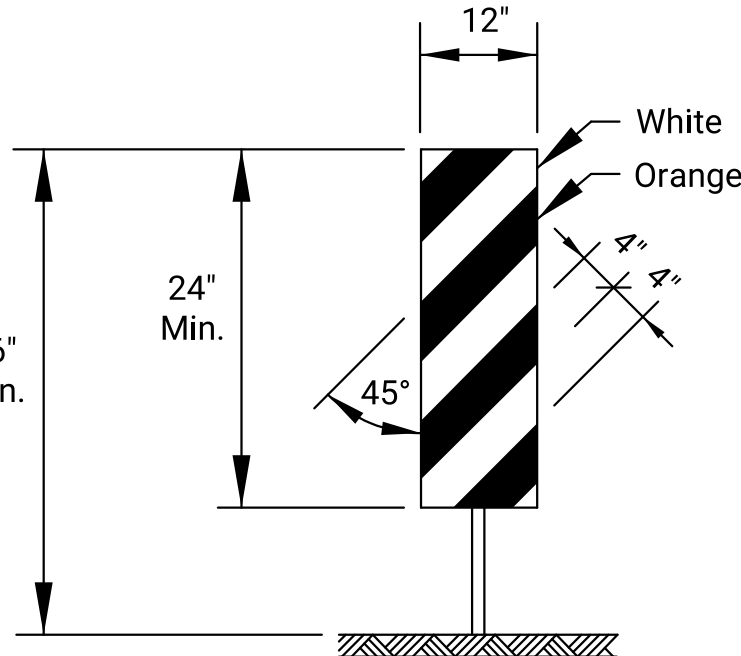


TRAFFIC CONE



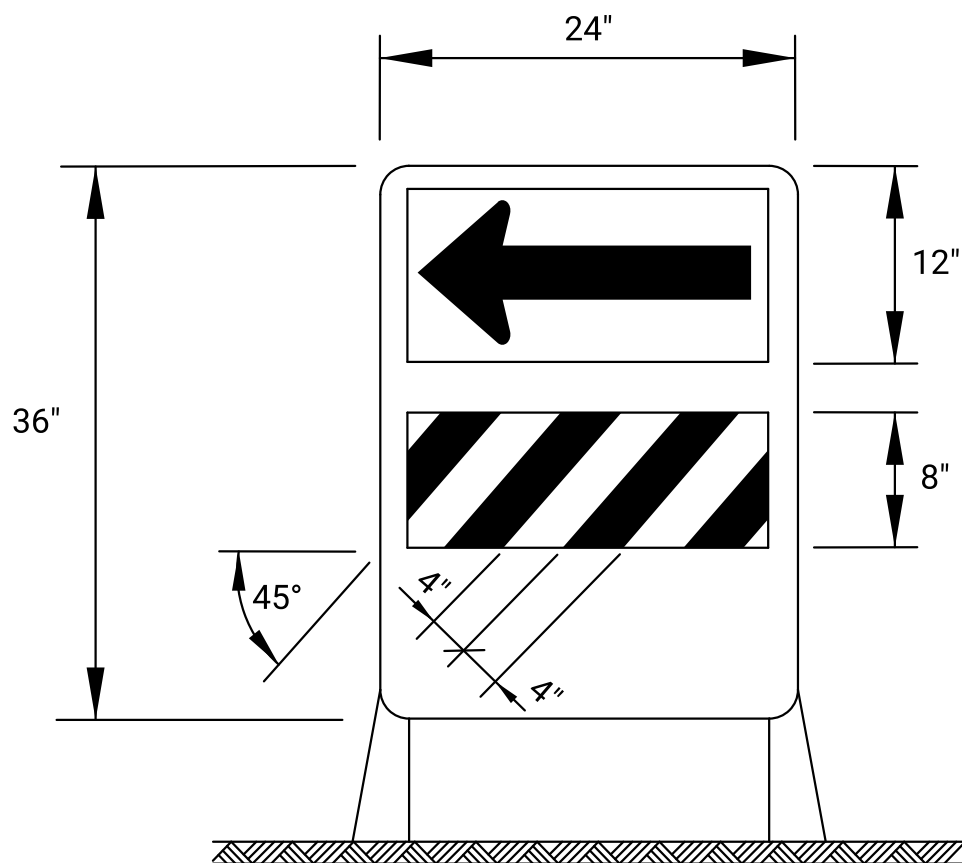
TYPE 2 BARRICADE

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



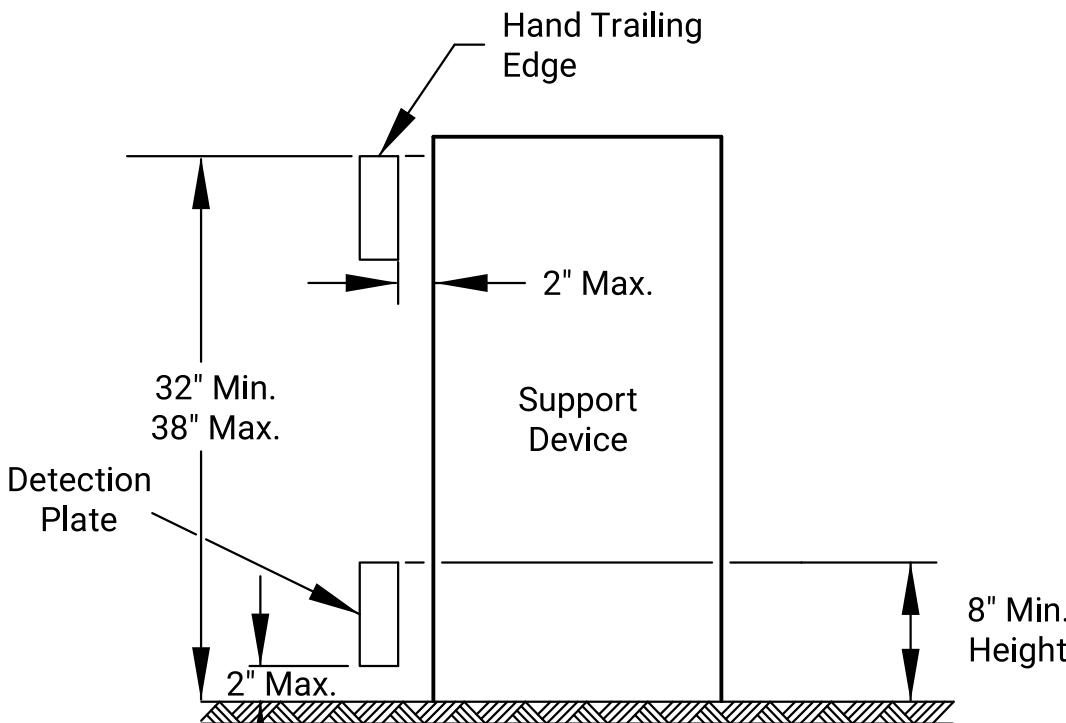
VERTICAL PANEL

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



DIRECTION INDICATOR BARRICADE

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



PEDESTRIAN CHANNELIZER

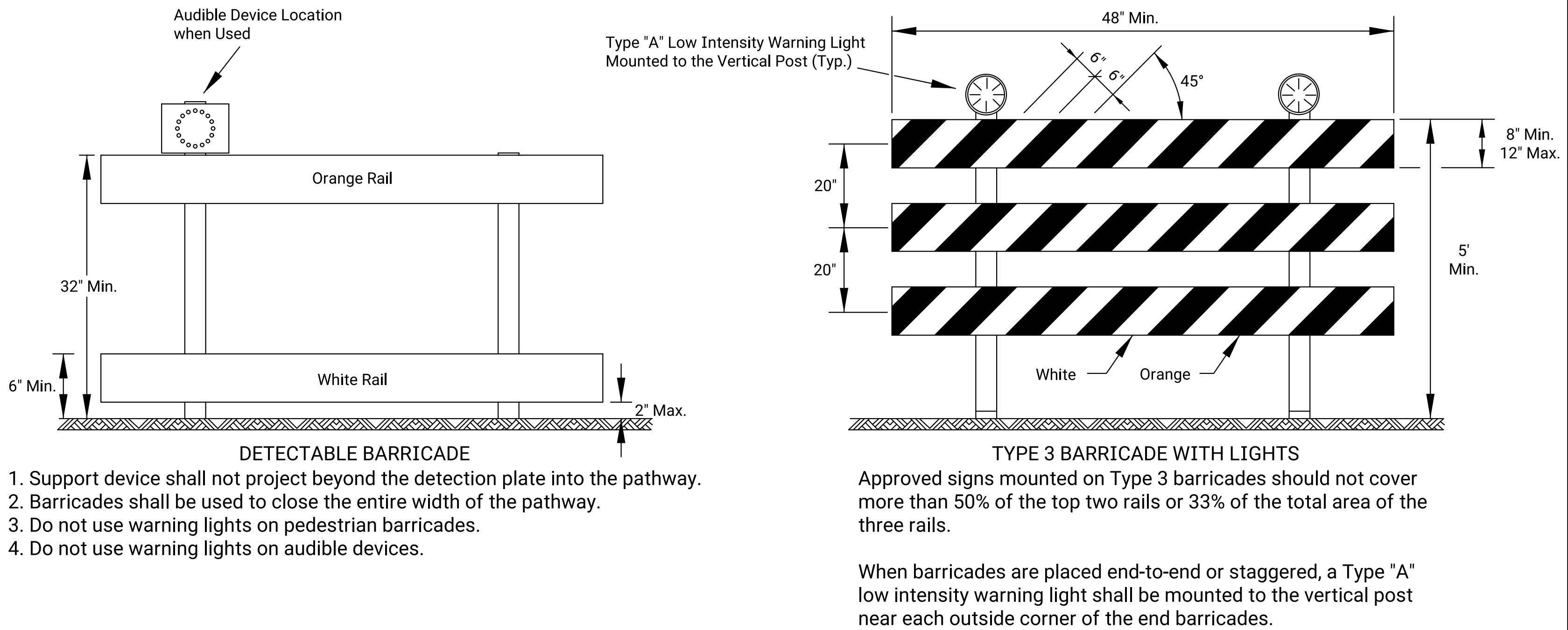
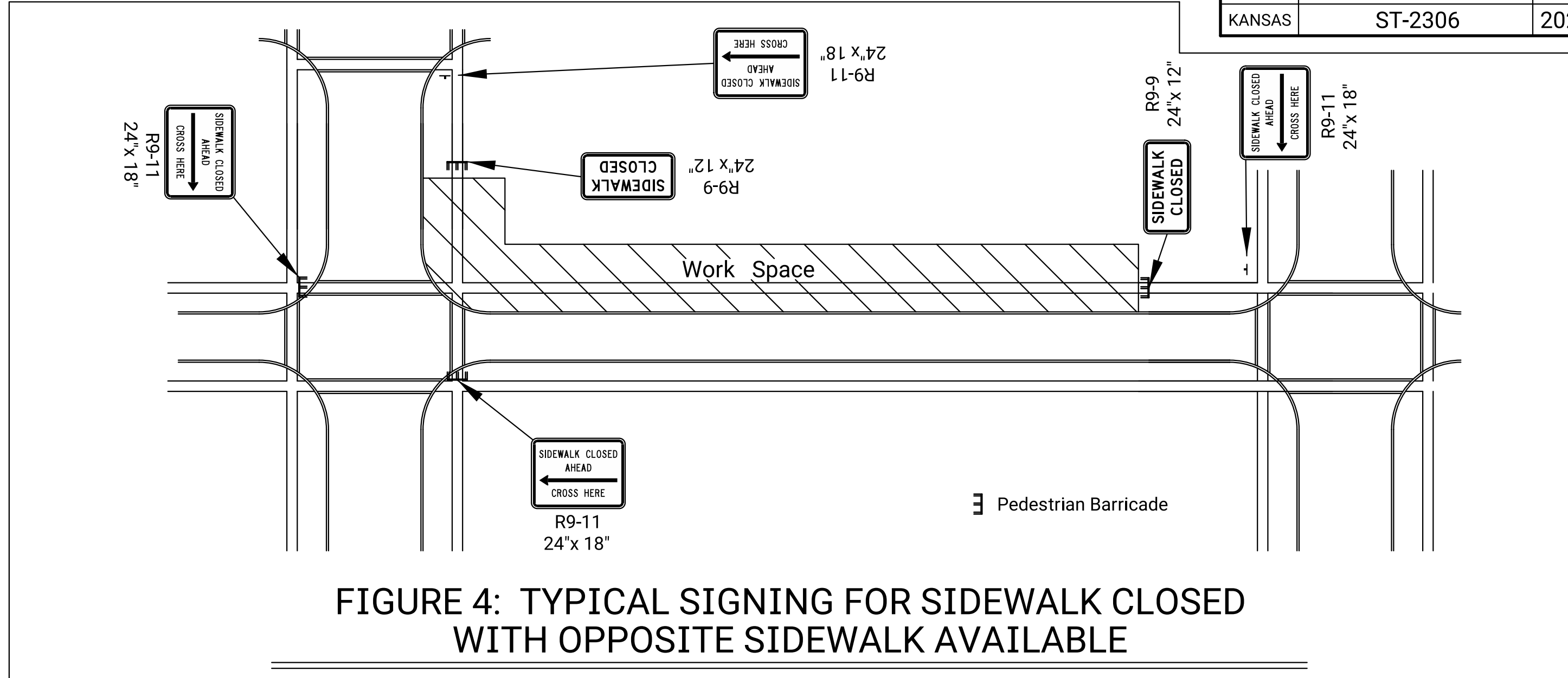
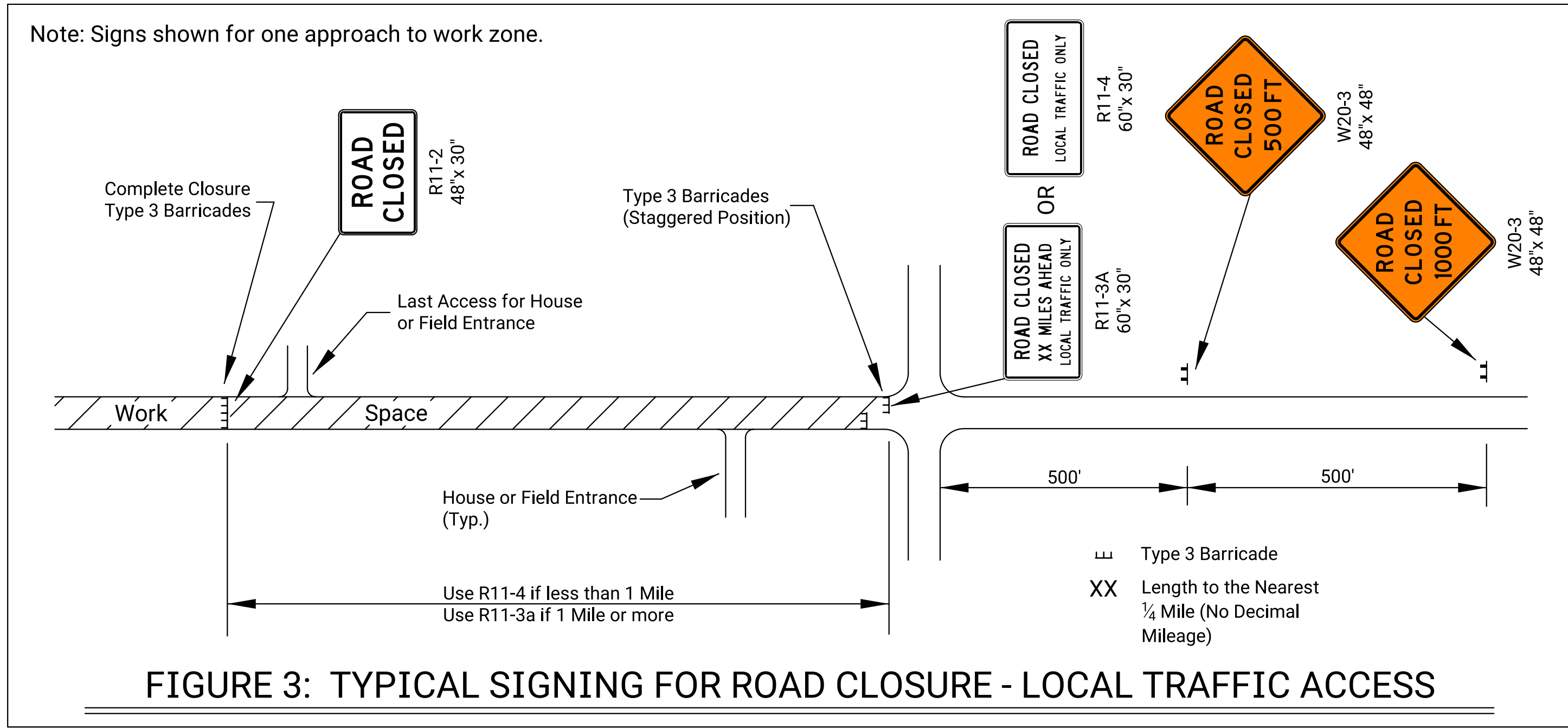
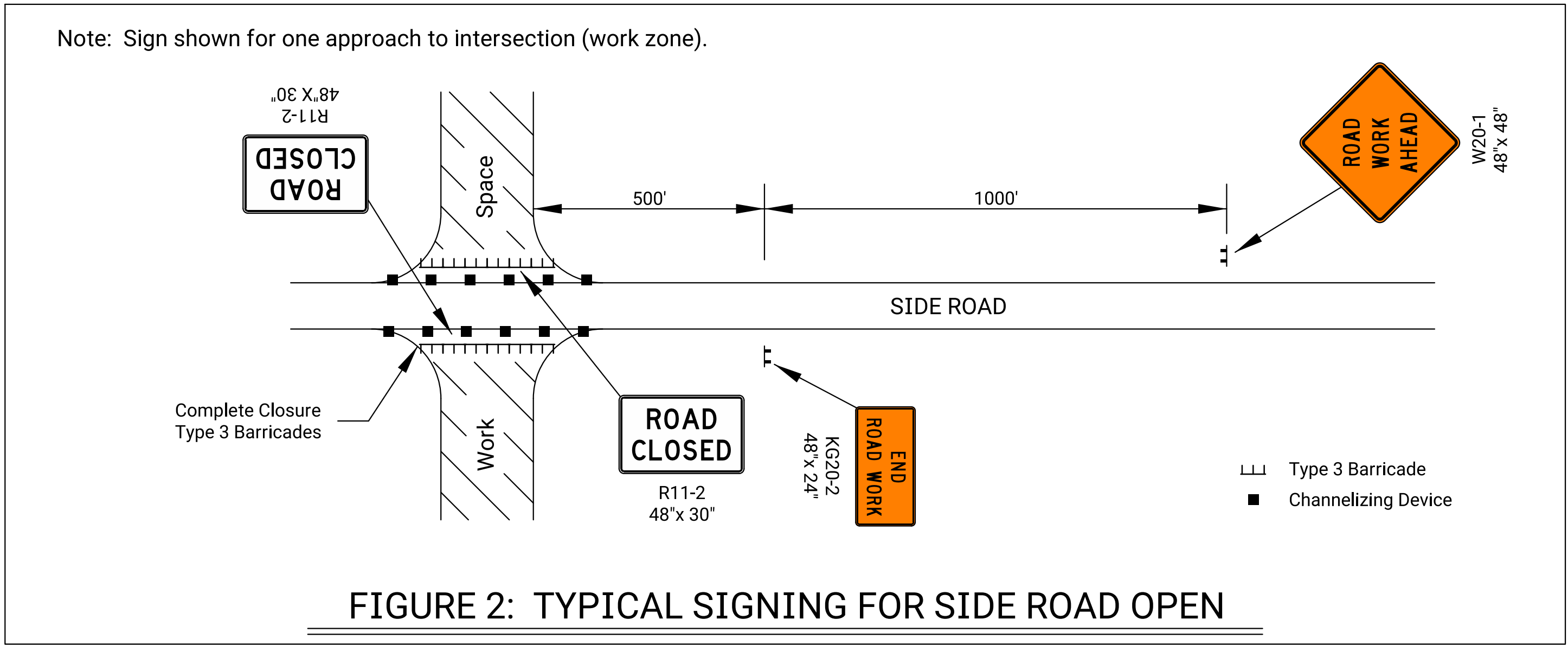
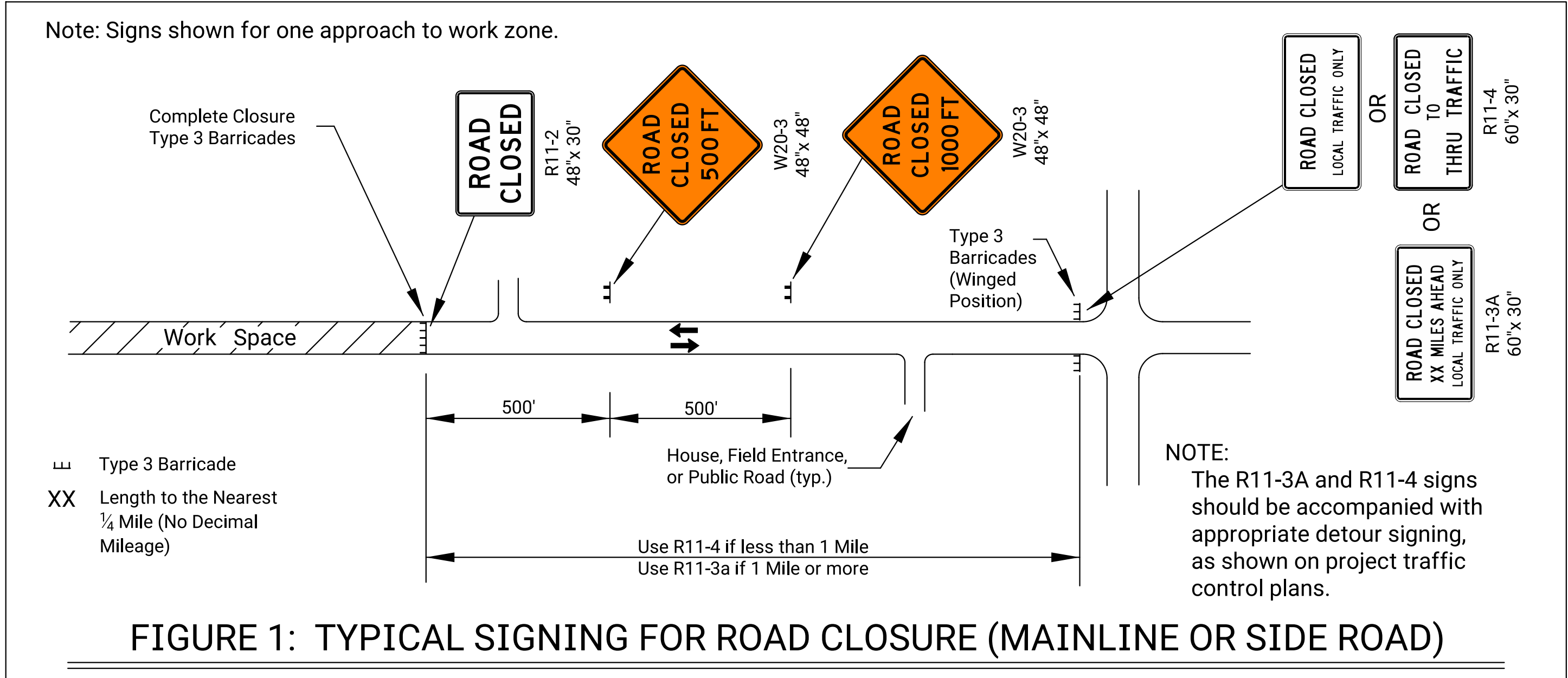
1. Support device shall not project beyond the detection plate into the pathway.
2. Hand trailing edges and detection plates are optional for continuous walls.
3. Interconnect pedestrian channelizers to prevent displacement and to provide continuous guidance through or around work.
4. Alternate pathways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

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

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

NO.	DATE	REVISIONS	BY	APP'D	
KANSAS DEPARTMENT OF TRANSPORTATION					
TRAFFIC CONTROL CHANNELIZING DEVICES					
TE702					
FHWA APPROVAL		06-01-15		APPD.	
DESIGNED	L.E.R.	DETAILED	R.W.B.	QUANTITIES	TRACED
DESIGN CK.		DETAIL CK.		QUAN.CK.	TRACE CK.

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	ST-2306	2025	116	139



ROAD CLOSED GENERAL NOTES

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

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

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

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

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

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

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	ST-2306	2025	117	139

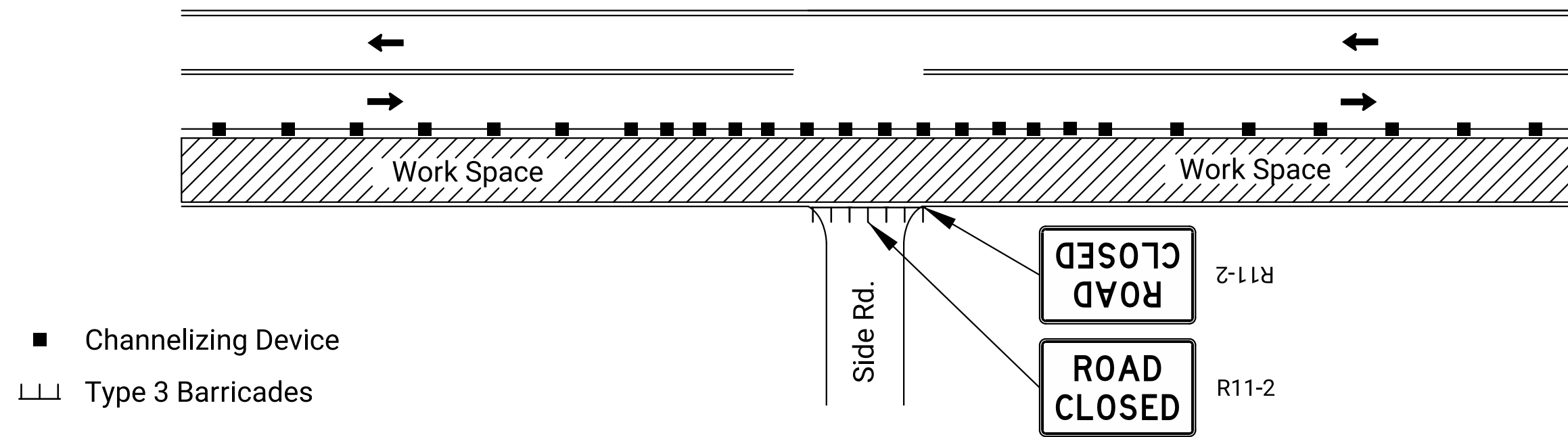


FIGURE 1: SIDE ROAD OR ENTRANCE CLOSED THROUGH WORK AREA

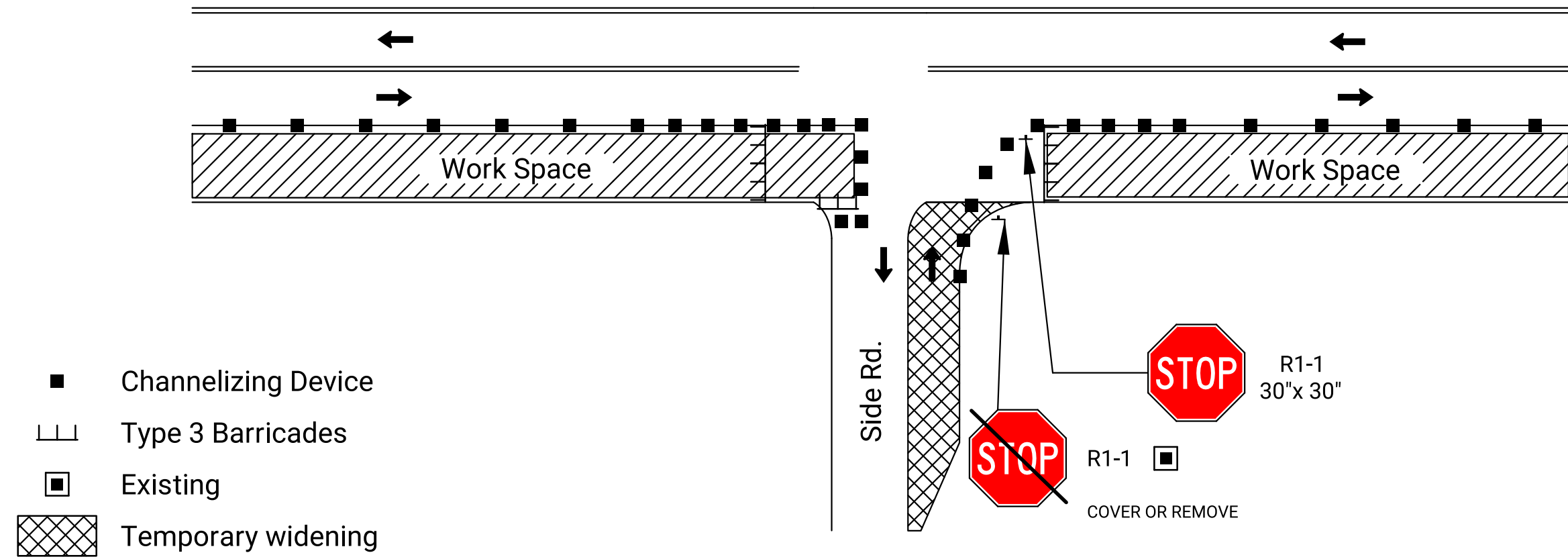


FIGURE 4: SIDE ROAD OR ENTRANCE CONSTRUCTED HALF AT A TIME:
TWO WAY TRAFFIC REQUIRED

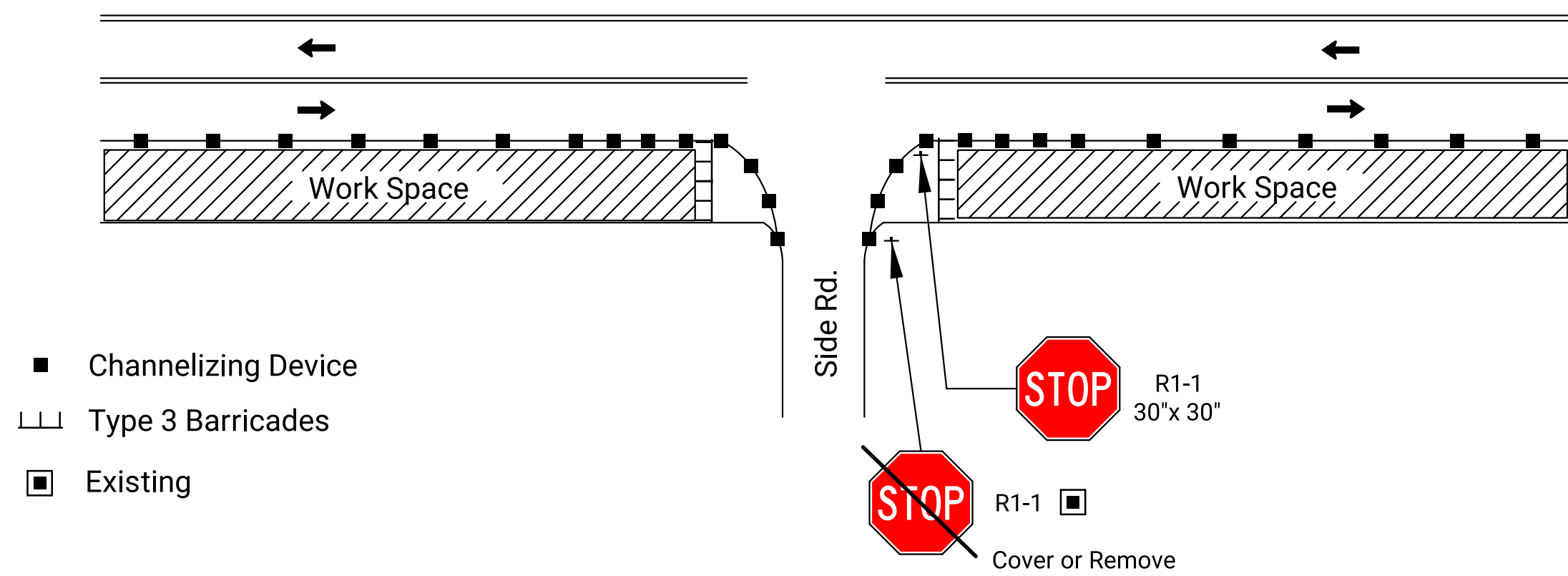


FIGURE 2: SIDE ROAD OR ENTRANCE OPEN THROUGH WORK AREA

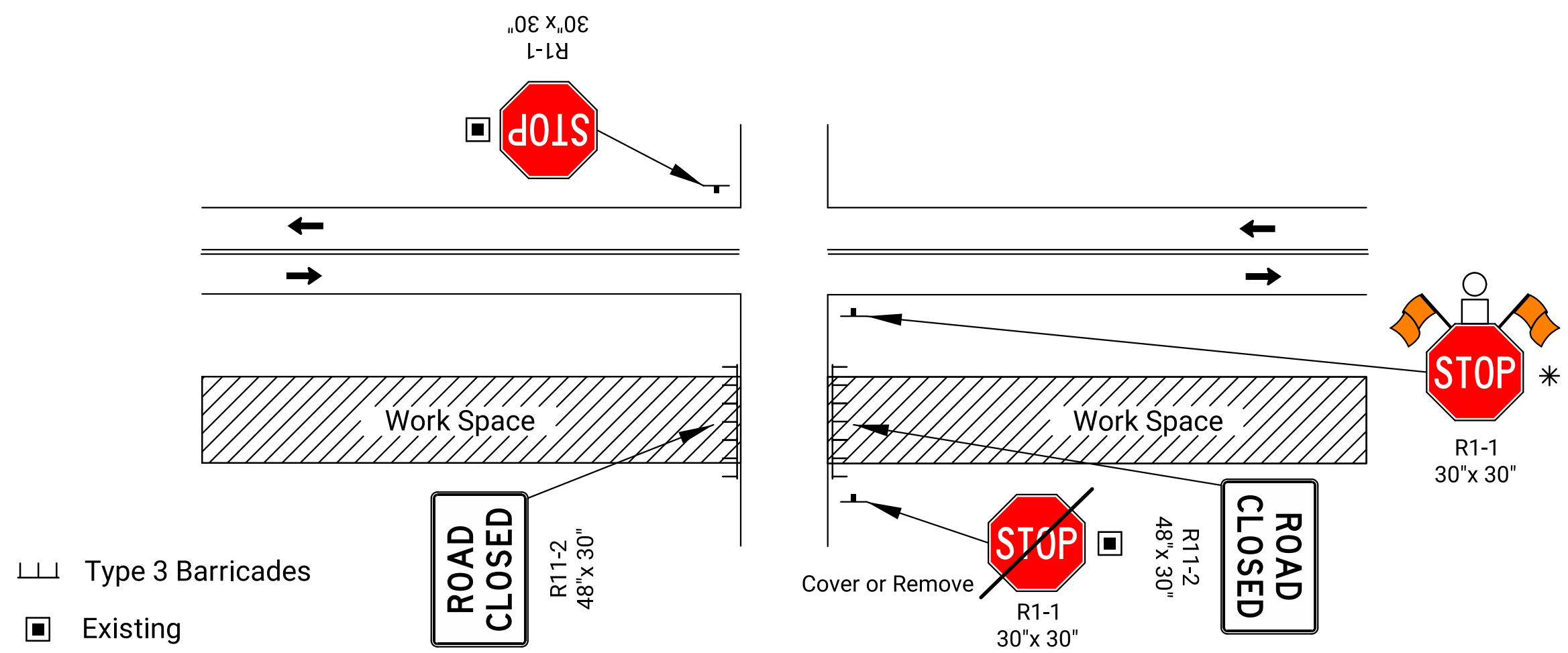


FIGURE 5: SIDE ROAD OPEN THROUGH WORK AREA ON DIVIDED ROADWAY

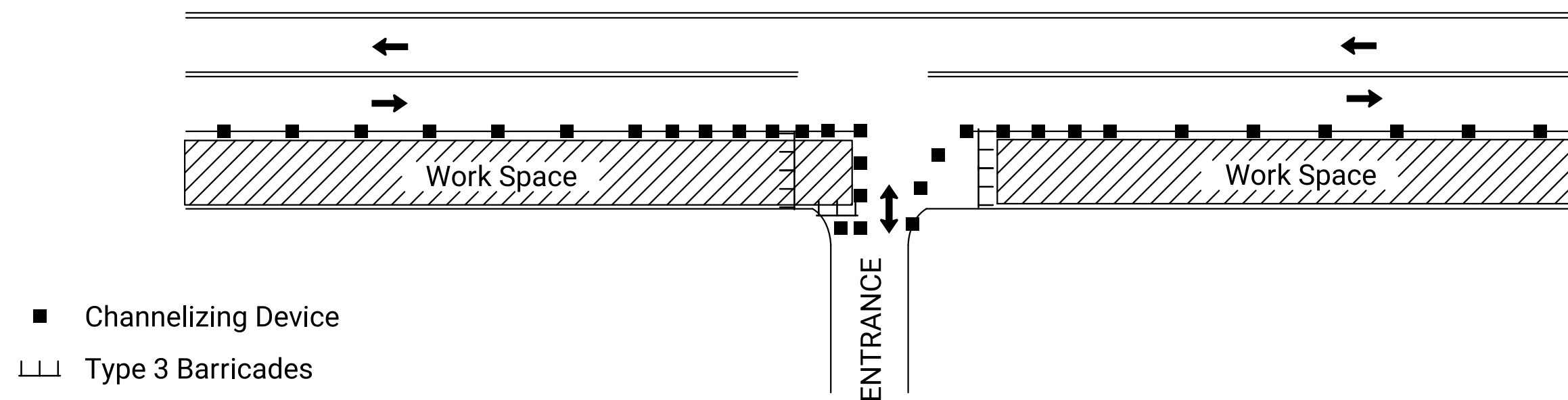


FIGURE 3: LOW VOLUME ENTRANCE CONSTRUCTED HALF AT A TIME

Note: Consider large vehicles making right turns into and out of entrance
and use figure 4 as needed

KANSAS DEPARTMENT OF TRANSPORTATION				
TRAFFIC CONTROL ACCESS THROUGH THE WORK AREA				
TE705				
DESIGNED	R.W.B.	APP'D.	Kristina Ericksen	
DETAIL	CK.	QUANTITIES	TRACED	
DESIGN CK.	DETAIL CK.	QUAN. CK.	TRACE CK.	

SIGN LAYOUT INFORMATION



KG20-2

Std. Size
Expwy/Freeway

6" C
48"x 24"



KG20-5

Std. Size
Expwy/Freeway

6" C
48"x 24"

WORK ZONE

KM4-20

Std. Size
3" C
24"x 6"

Expwy/Freeway
6" C
48"x 12"



W7-3a

Mileage to be Determined
by the Engineer.



W8-17

Std. Size
Expwy/Freeway
48"x 48"



W8-15

Std. Size
Expwy/Freeway

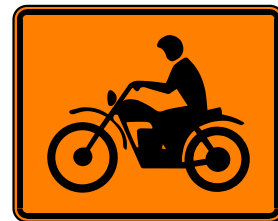
8" D
48"x 48"



W8-7

Std. Size
Expwy/Freeway

8" D
48"x 48"



W8-15p

Std. Size
Expwy/Freeway

30"x 24"



W8-11

Std. Size
Expwy/Freeway
8" D
48"x 48"



W8-17P
(Optional)

Std. Size
Expwy/Freeway
30"x 24"



SP-01
(Special Sign)

Std. Size
6" C

Expwy/Freeway
10" D

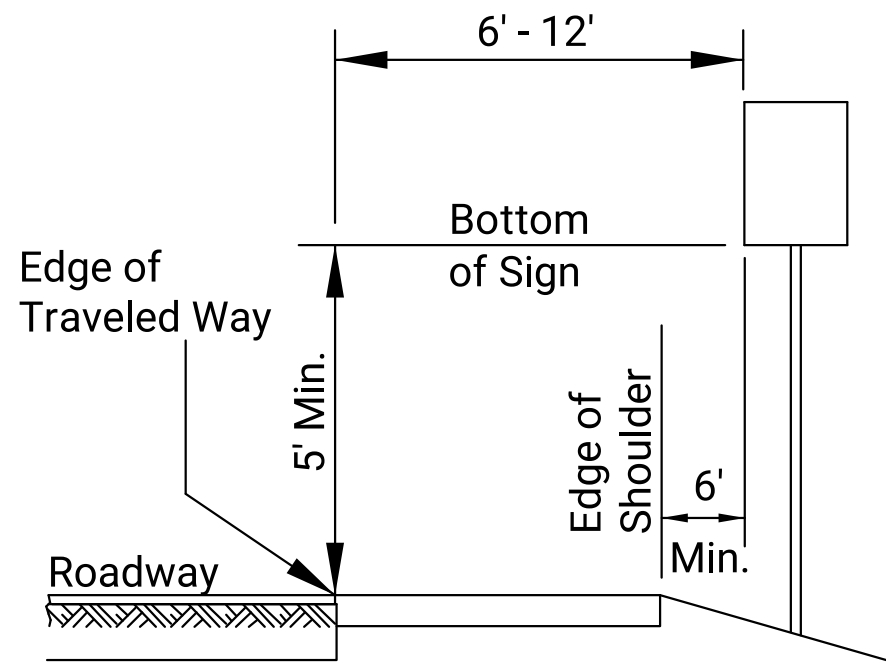


SP-02
(Special Sign)

Std. Size
Uppercase: 6" C
Lowercase: 4.5" C

Expwy/Freeway
Uppercase: 10" D
Lowercase: 8" D

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

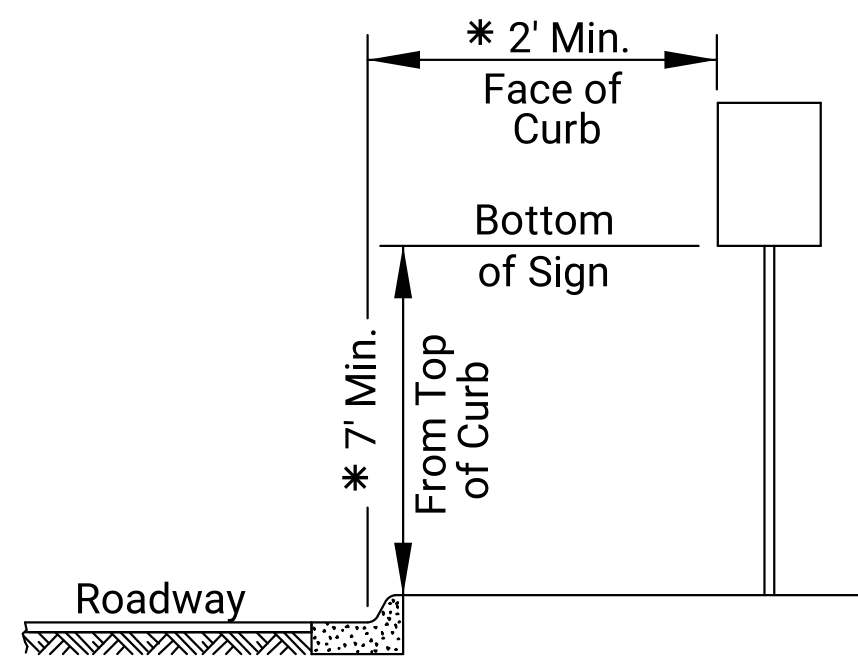


RURAL

1) Ground-mounted signs shall be mounted at a minimum height of 5' measured from the bottom of sign to the near edge of the pavement.

2) Large signs having an area exceeding 50 square feet installed on multiple breakaway posts shall be mounted a minimum of 7' above the ground.

3) The height of the secondary sign mounted below another sign may be 4' measured from the bottom of the sign to the near edge of the pavement. Signs shall not overlap each other.



URBAN

1) Signs shall be mounted at a minimum height of 7' measured from the bottom of sign to the near edge of the pavement.

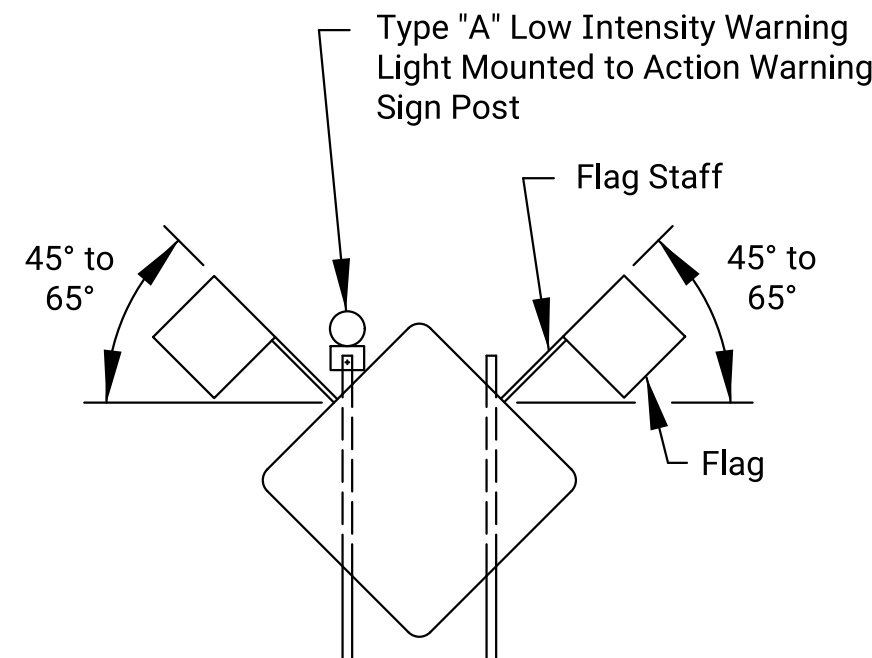
2) Neither portable nor permanent sign supports should be located on sidewalks or areas designated for pedestrian or bicycle traffic.

3) Signs mounted lower than 7' should not project more than 4" into pedestrian facilities.

4) The height from of the secondary sign mounted below another sign may be 6' measured from the bottom of sign to the near edge of the pavement. Signs shall not overlap each other.

5) Large signs having an area exceeding 50 square feet installed on multiple breakaway posts shall be mounted a minimum of 7' above the ground.

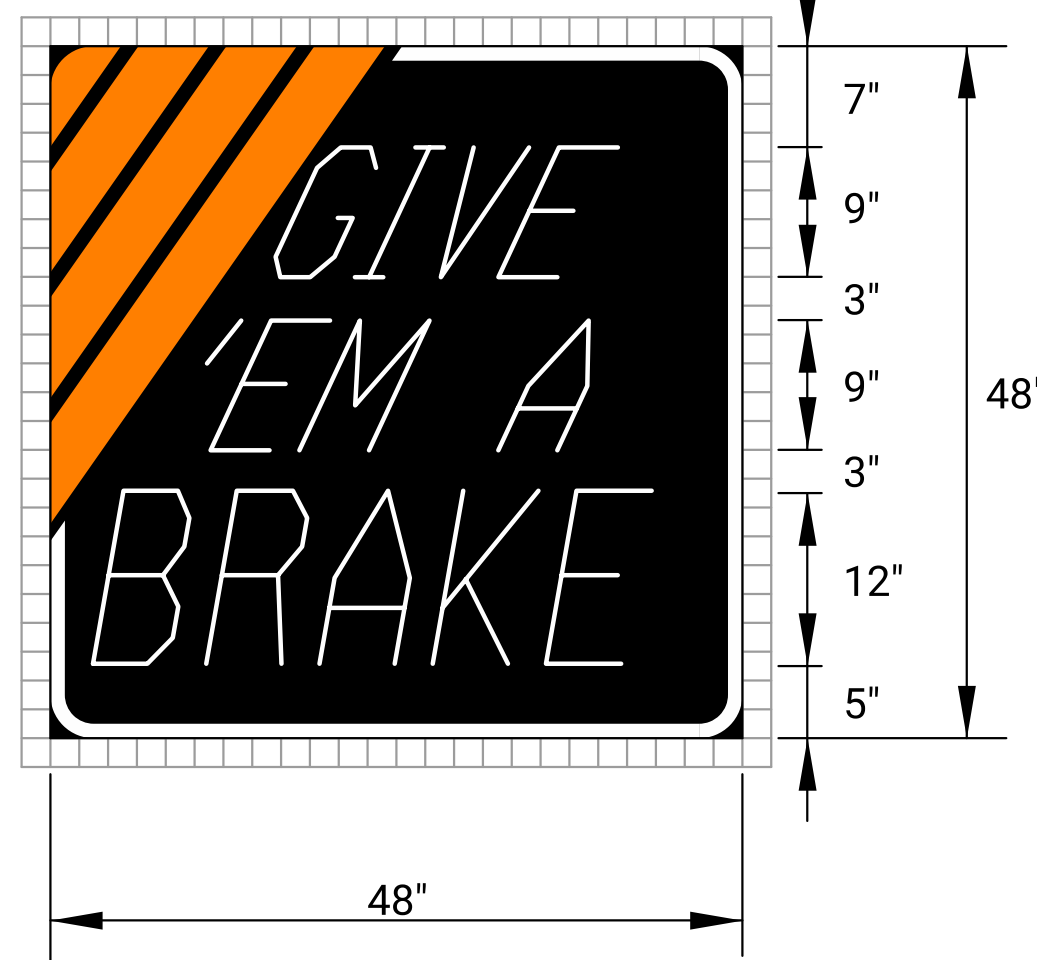
* 6) Pedestrian detour signing shall be a minimum of 2' measured from the top of the pedestrian pathway to the bottom of the sign and shall not protrude into the walkway nor shall it project beyond the back of curb.



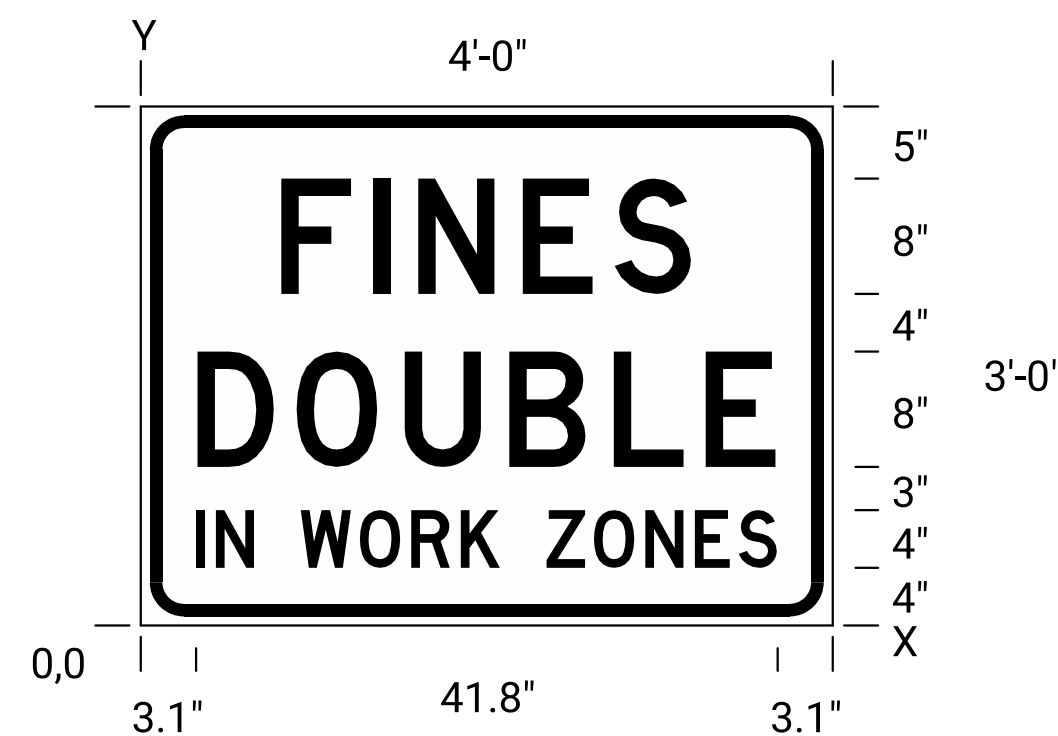
When the sign width is equal to or greater than 9', three or more wood posts may be used with a minimum of 4' between the centerline of each post. All signs less than 9' in width shall use a maximum of two wood posts.

In the case of hitting rock when driving posts

1. Shift the sign location. Do not violate minimum sign spacing.
2. With the engineer's approval, use acceptable alternative sign stands.



KI-104a



KI-105a

Dimensions in inches

Spacings are to start of next letter

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

Notes:

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

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

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

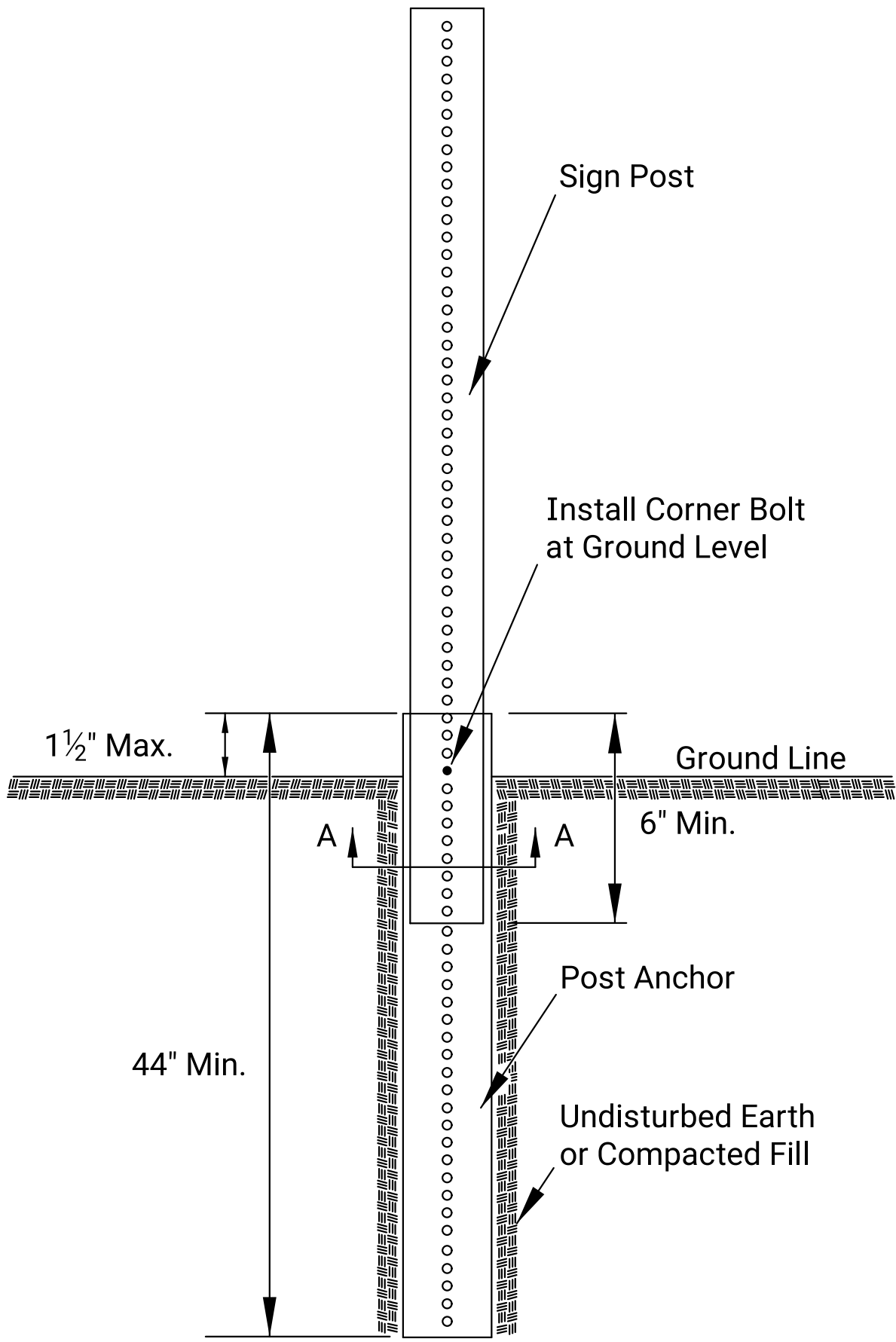
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	ST-2306	2025	118	139

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

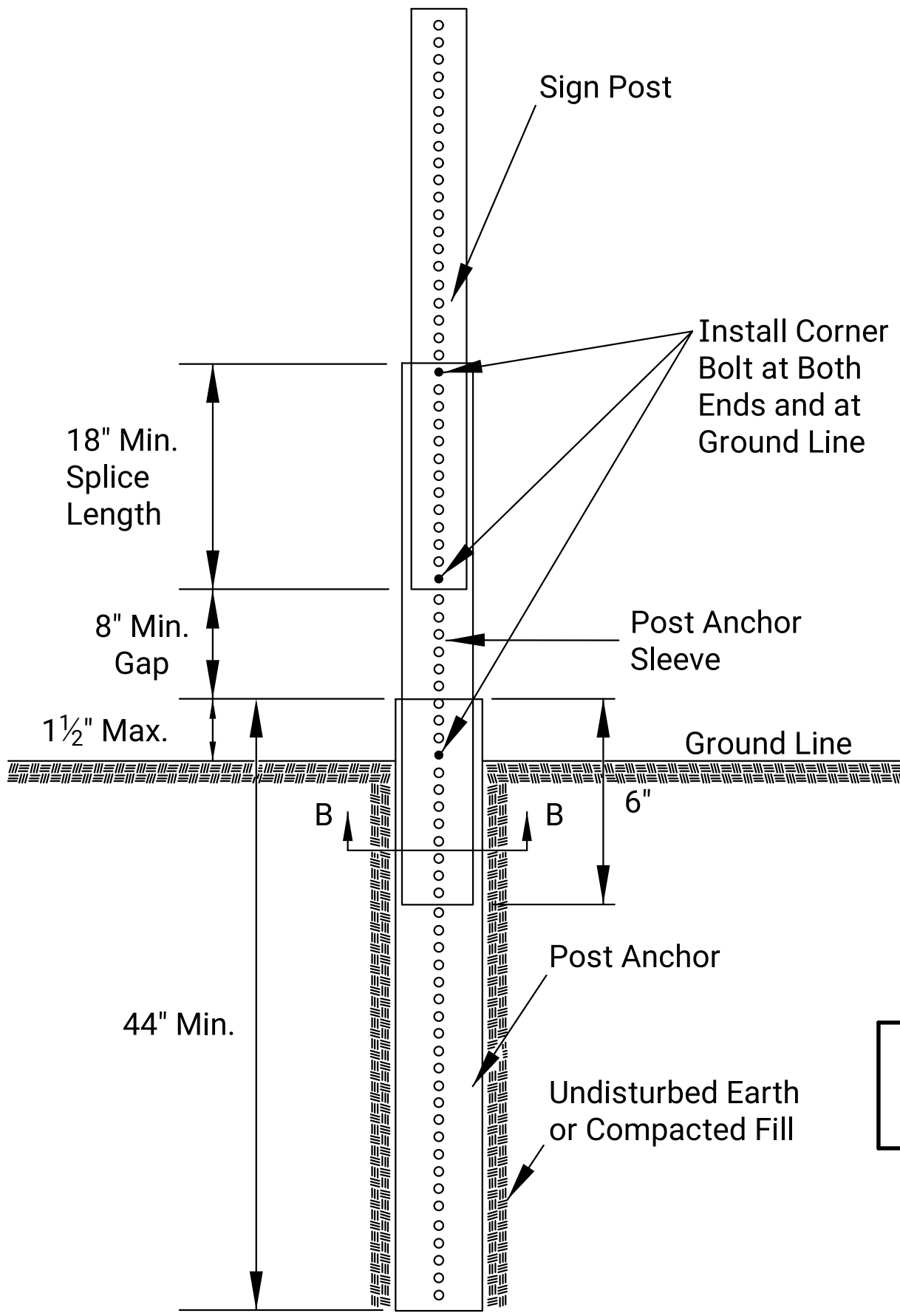
Sign Number	FINES DOUBLE
Width x Height	4'-0" x 3'-0"
Border Width	0.9"
Corner Radius	3.0"
Mounting	Ground
Background	Type: Reflective
	Color: White
Legend/Border	Type: Non-Reflective
	Color: Black

NO.	DATE	REVISIONS	BY	APP'D
KANSAS DEPARTMENT OF TRANSPORTATION				
TRAFFIC CONTROL SIGN INFORMATION				
TE710				
FHWA APPROVAL		06-01-15	APP'D.	Kristina Ericksen
DESIGNED	R.W.B.	DETAILED	R.W.B.	QUANTITIES
DESIGN CK.		DETAIL CK.		TRACE CK.

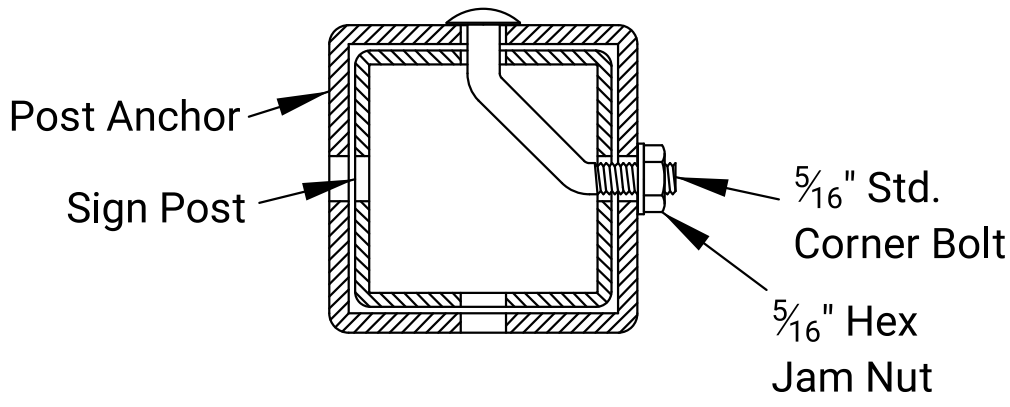
PERFORATED SQUARE STEEL TUBE (P.S.S.T.) POST SETUP



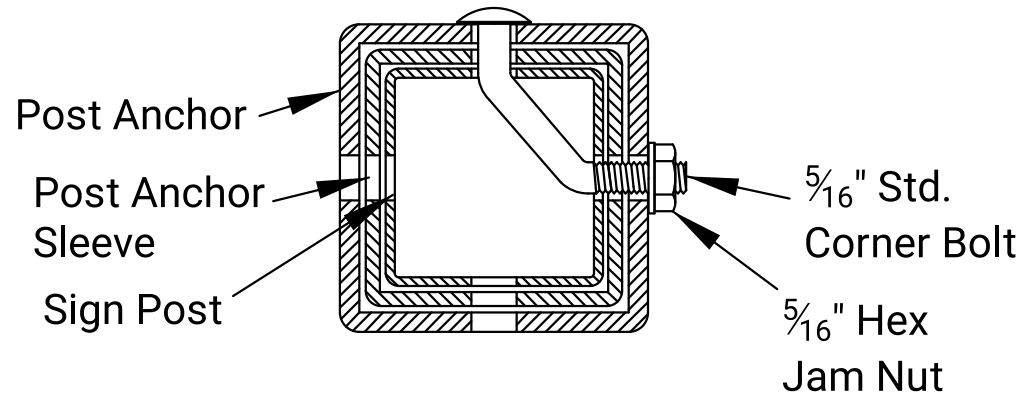
P.S.S.T. Detail



Telescoping P.S.S.T. Detail



Section A-A

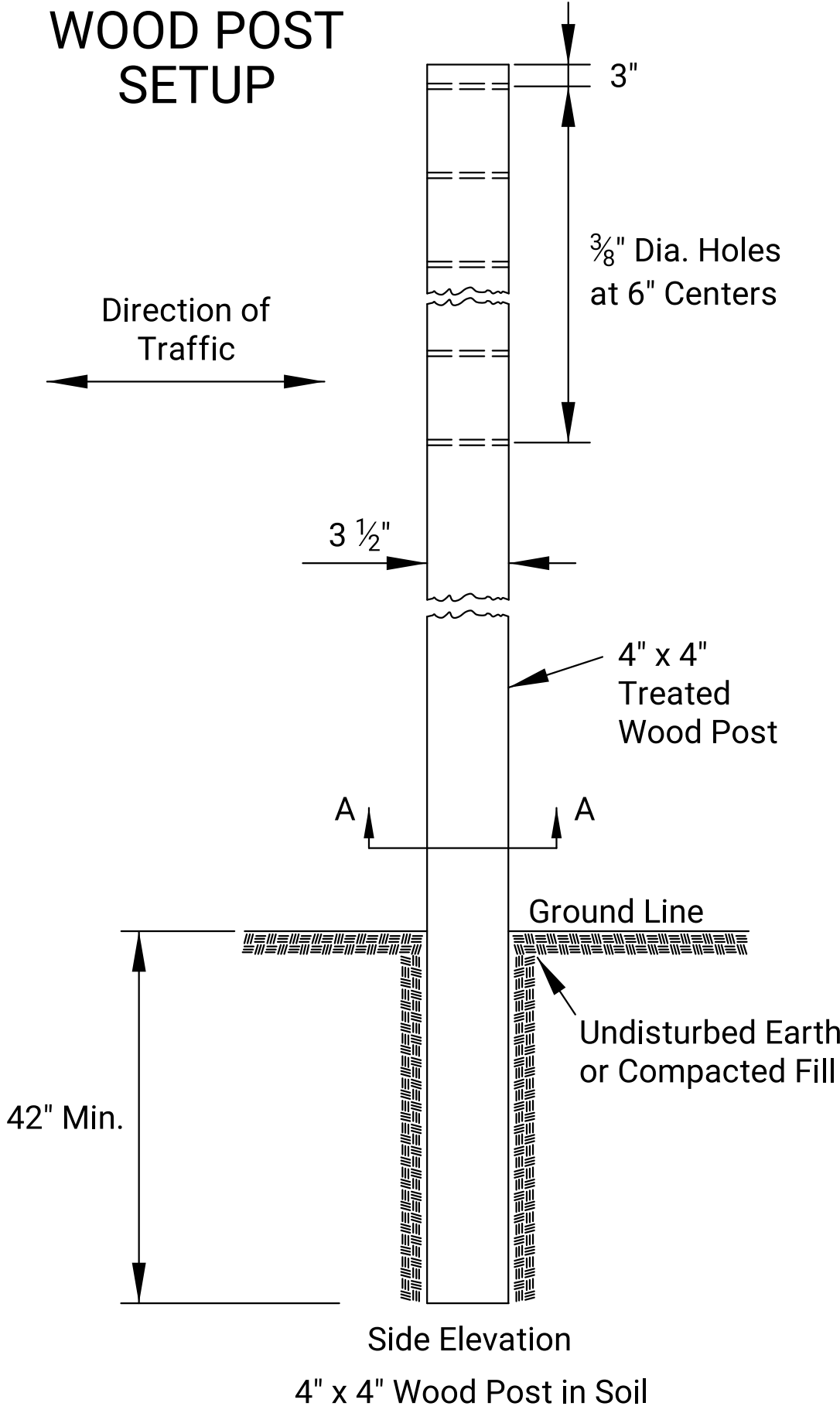


Section B-B

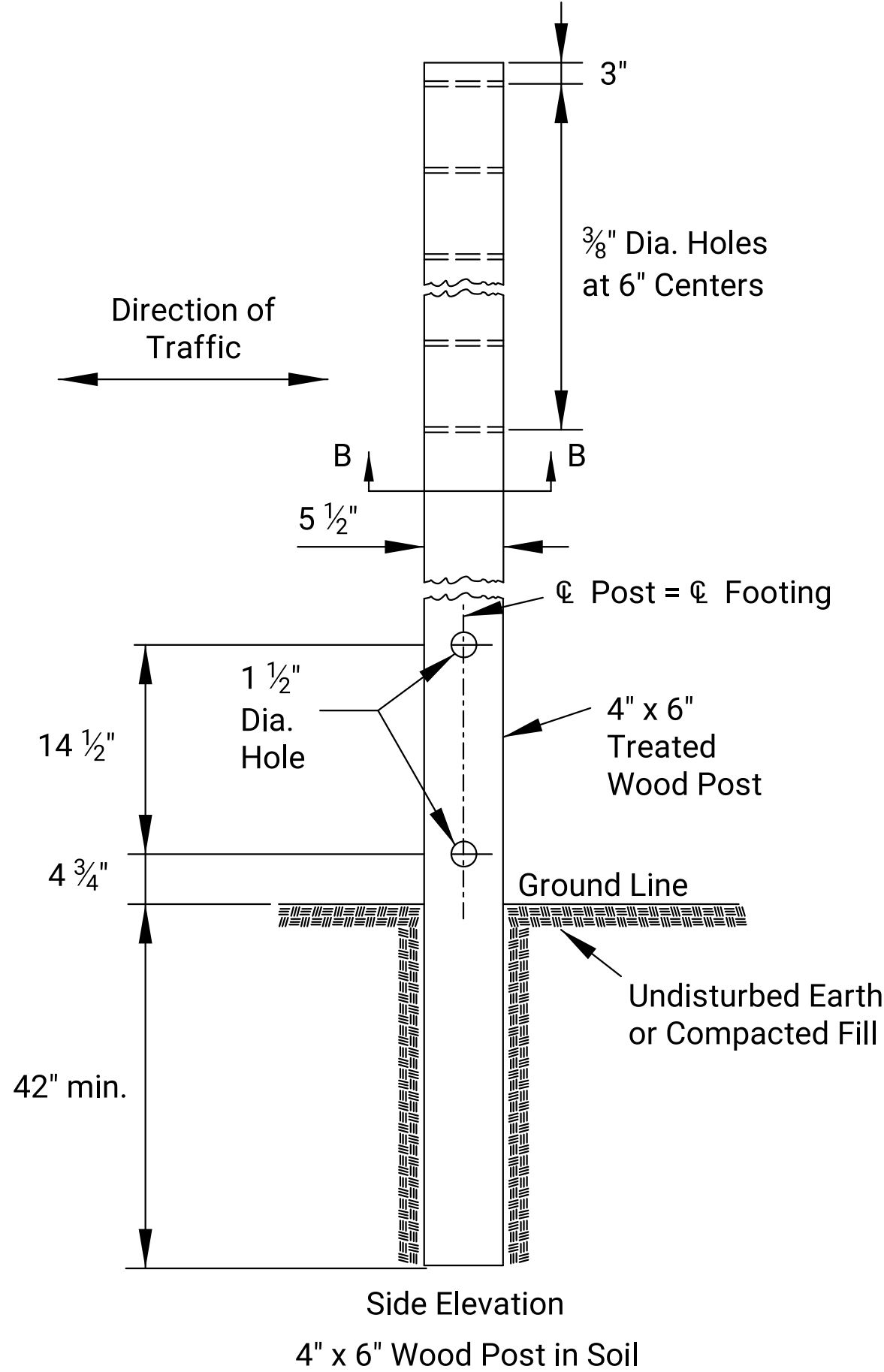
Details for 2", 2 1/4", or 2 1/2" sign posts

Place bolts in the same corner along each sign post.

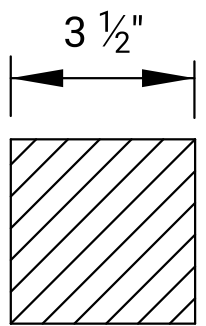
WOOD POST SETUP



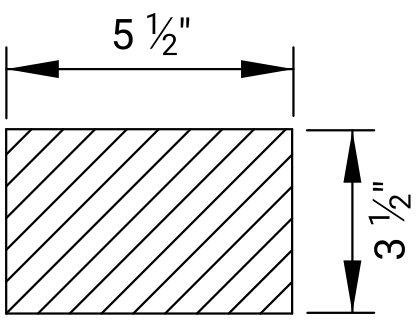
Side Elevation
4" x 4" Wood Post in Soil



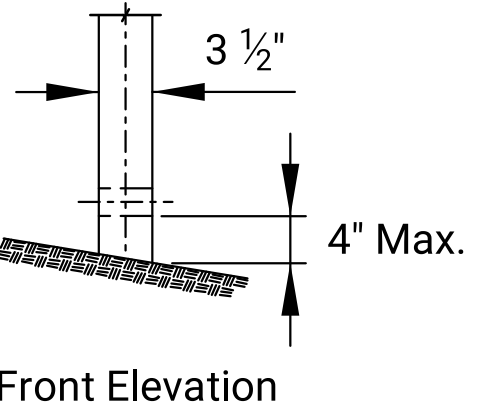
Side Elevation
4" x 6" Wood Post in Soil



Section A-A



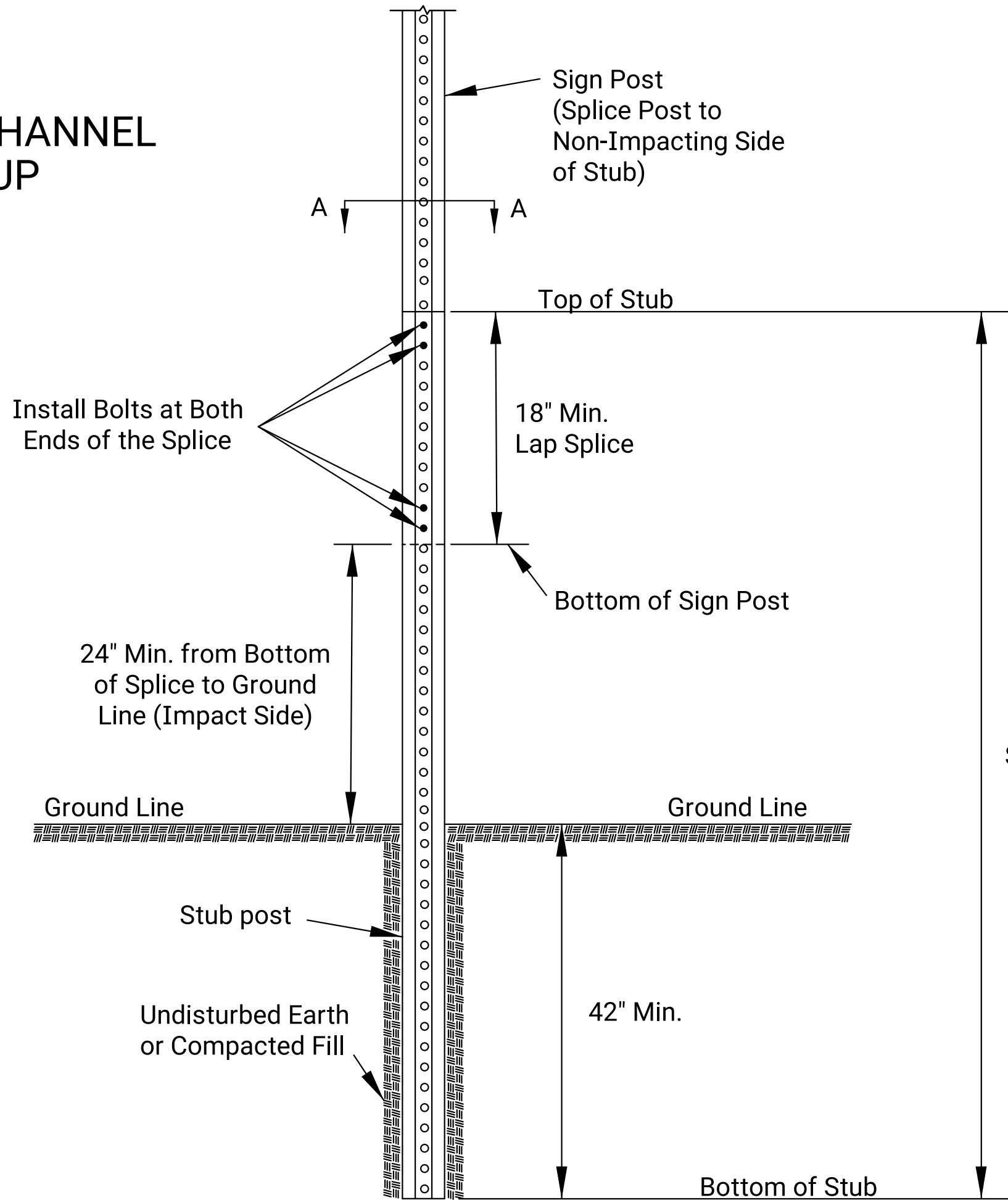
Section B-B



Front Elevation

See TE710 for Additional
Details and Requirements

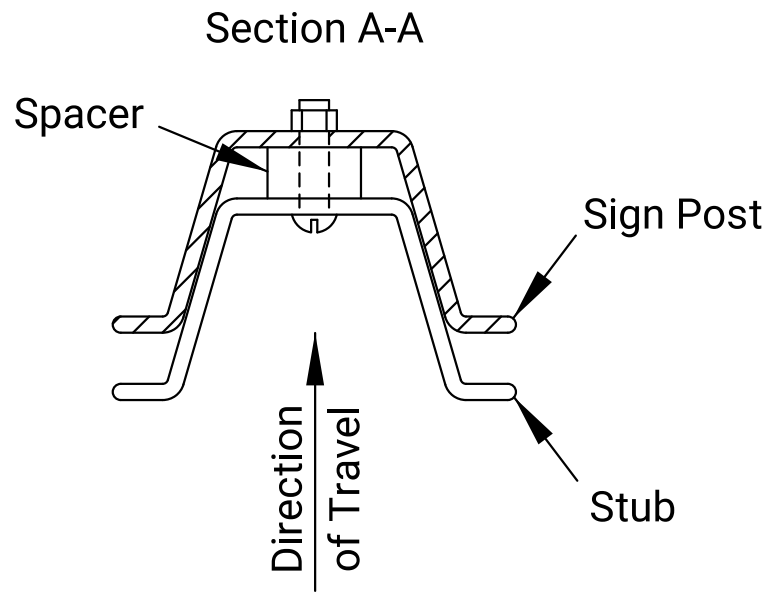
3 LB/F U-CHANNEL SETUP



Notes:

Place two bolts at both ends of the splice through the holes nearest the ends of the splice.

Use manufacturer recommended spacers over the bolts between the spliced pieces of U-Channel.



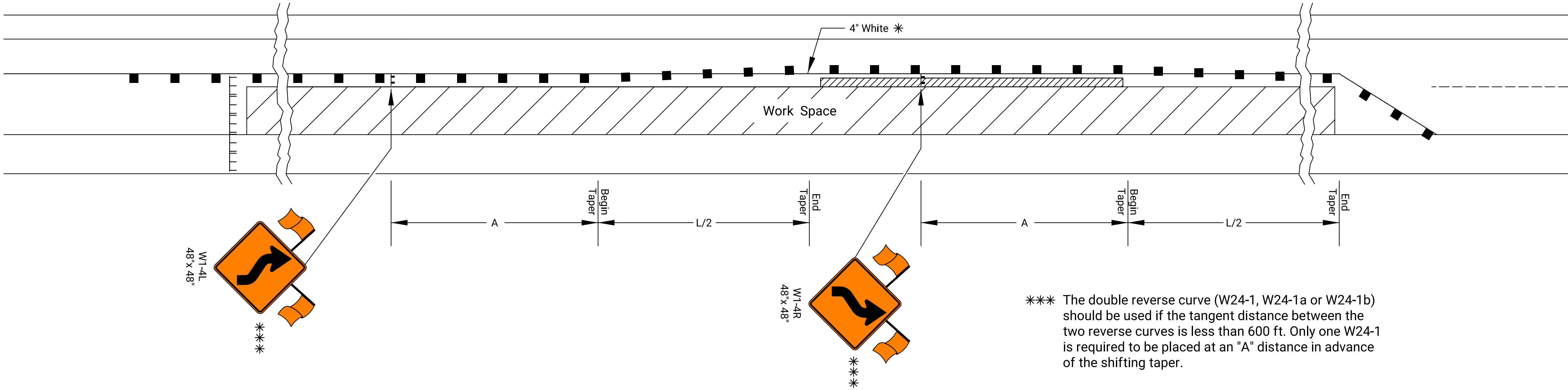
TRAFFIC CONTROL
SIGN POSTS

NO.	DATE	REVISIONS		BY	APP'D
KANSAS DEPARTMENT OF TRANSPORTATION					
TRAFFIC CONTROL SIGN POSTS					
TE712					
FHWA APPROVAL		06-01-15		APP'D. Kristina Ericksen	
DESIGNED	B.A.H.	DETAILED	R.W.B.	QUANTITIES	TRACED
DESIGN CK.		DETAIL CK.		QUAN.CK.	TRACE CK.

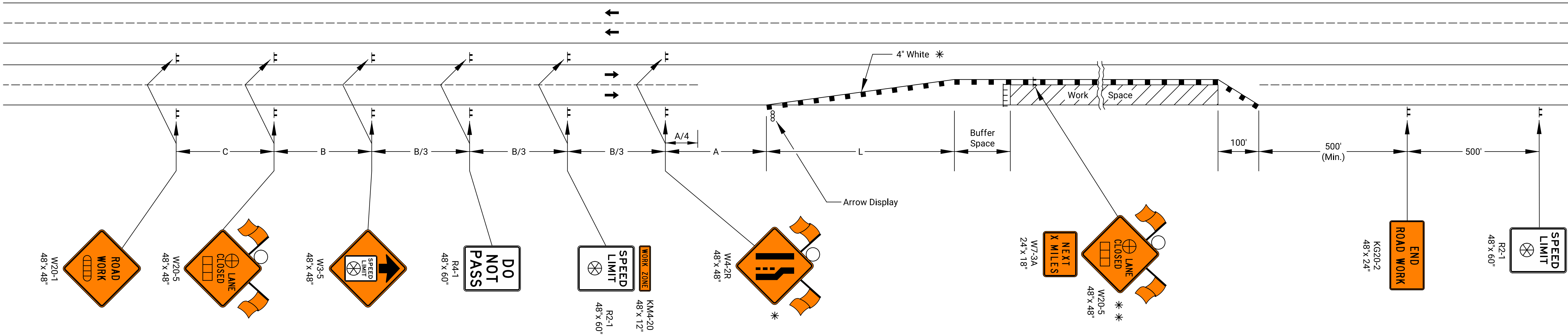
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	ST-2306	2025	120	139

SHIFTING TAPER DETAIL

Add signs and devices as shown for work inside a closed lane that extends near to (or into) the open traffic lane.



*** The double reverse curve (W24-1, W24-1a or W24-1b) should be used if the tangent distance between the two reverse curves is less than 600 ft. Only one W24-1 is required to be placed at an "A" distance in advance of the shifting taper.



- Type 3 Barricades
- X Length to the Nearest Whole Mile
- Channelizing Device
- Ahead, 1500 ft, or 1 mile
- Ahead, 1000 ft, 1500 ft, or ½ mile
- Right or Left
- Speed to be determined by the Engineer
- Type "A" Low Intensity Warning Light

* For left lane closures use W4-2L and yellow edge line along channelizing devices.

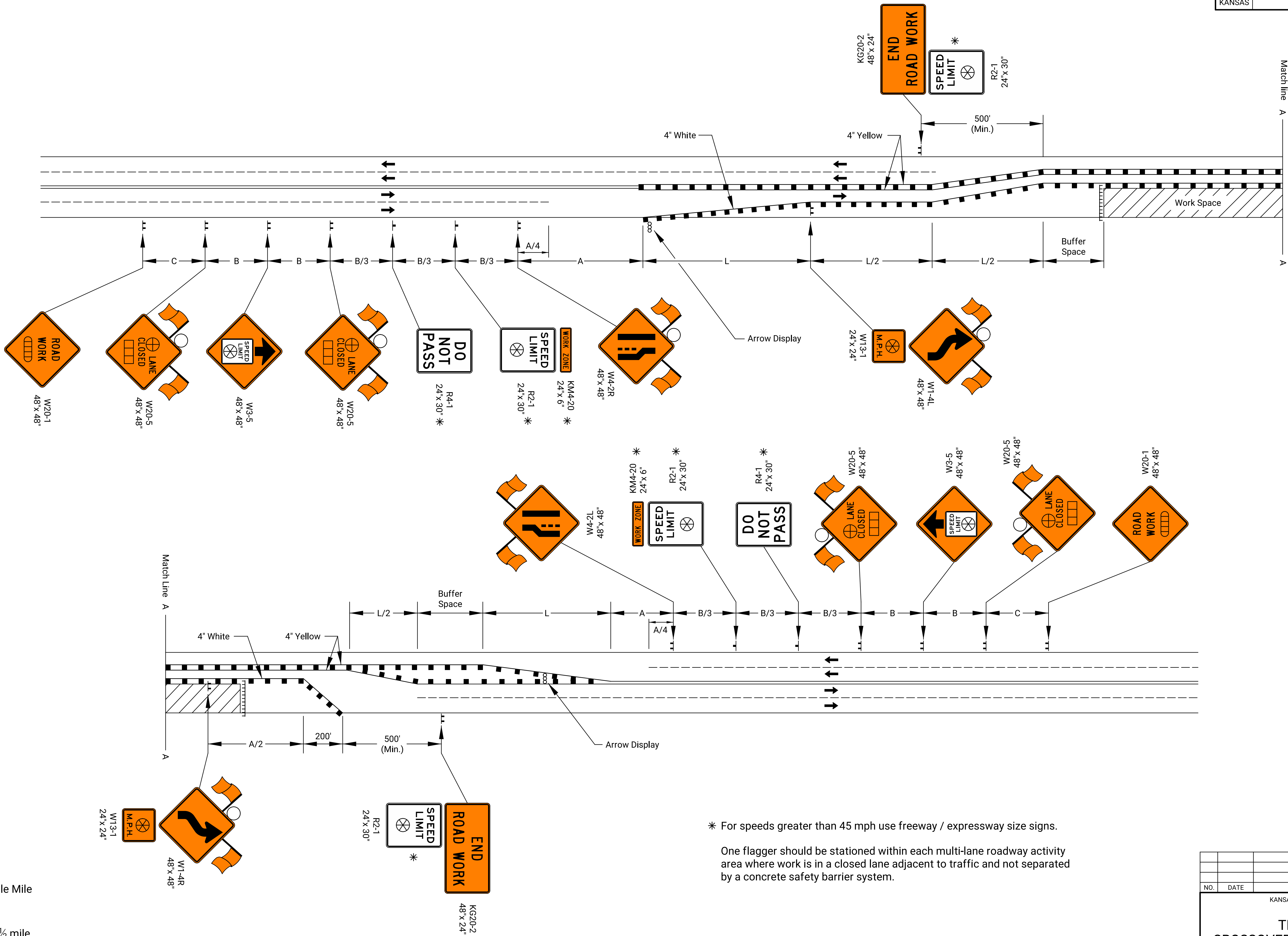
* * The W20-5 (Lane Closed) and W7-3A (Next X Miles) signs should be placed at 2 mile increments on a project of 4 miles or longer.

Left-side signs shall be omitted for a four-lane undivided highway.

One flagger should be stationed within each multi-lane roadway activity area where work is in a closed lane adjacent to traffic and not separated by a concrete safety barrier system.

01	03-13-18	W24-1 usage changed to Should	R.W.B.	E.G.K.	
NO.	DATE	REVISIONS	BY	APPD	
KANSAS DEPARTMENT OF TRANSPORTATION					
TRAFFIC CONTROL LANE CLOSURE ON MULTILANE HWY					
TE744					
FHWA APPROVAL			03-13-18 APPD.		Eric Kocher
DESIGNED	B.A.H.	DETAILED	R.W.B.	QUANTITIES	TRACED
DESIGN CK.		DETAIL CK.		QUAN.CK.	TRACE CK.

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	ST-2306	2025	121	139



* For speeds greater than 45 mph use freeway / expressway size signs.

One flagger should be stationed within each multi-lane roadway activity area where work is in a closed lane adjacent to traffic and not separated by a concrete safety barrier system.

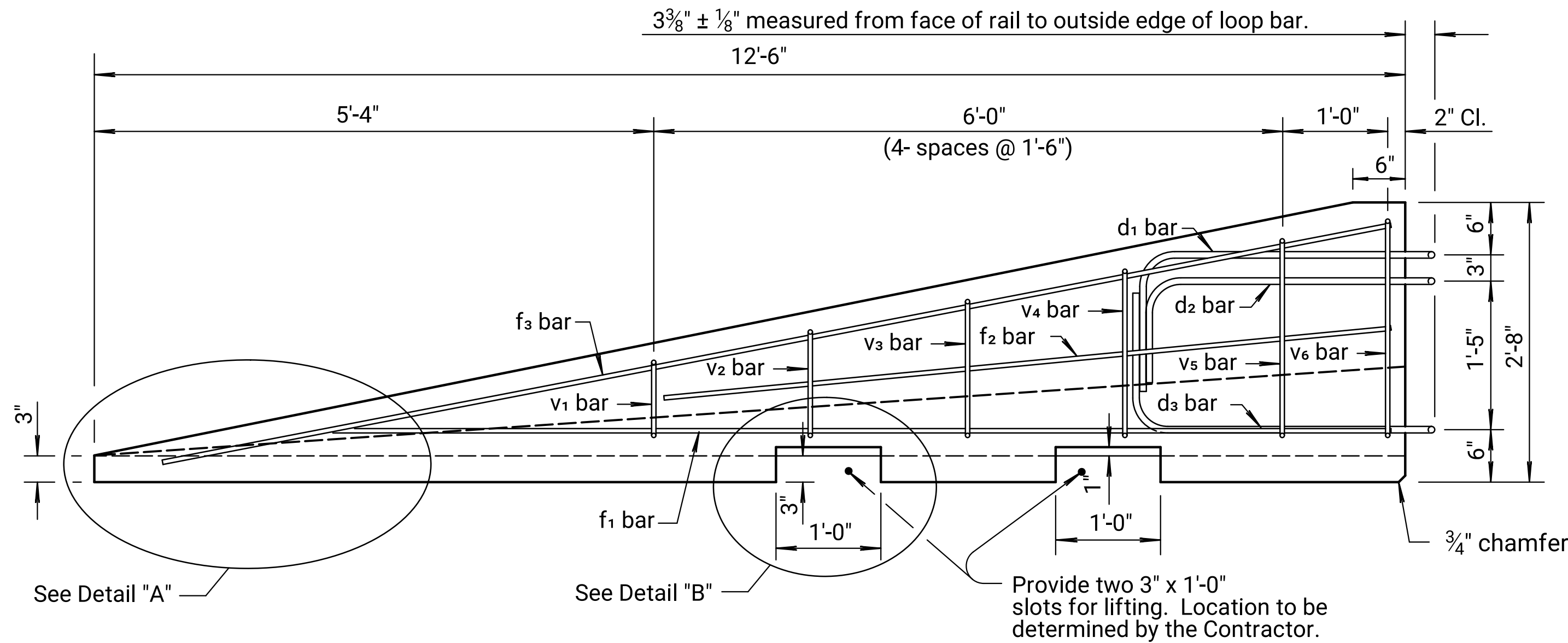
- Type 3 Barricades
- X Length to the Nearest Whole Mile
- Channelizing Device
- ▨ Ahead, 1500 ft, or 1 mile
- ▩ Ahead, 1000 ft, 1500 ft, or ½ mile
- ⊕ Right or Left
- ⊗ Speed to be determined by the Engineer
- Type "A" Low Intensity Warning Light

KANSAS DEPARTMENT OF TRANSPORTATION				TRAFFIC CONTROL CROSSOVER ON UNDIVIDED ROADWAY	
TE748				Kristina Ericksen	
DESIGNED	B.A.H.	DETAILED	R.W.B.	QUANTITIES	TRACED
DESIGN CK.		DETAIL CK.		QUAN. CK.	TRACE CK.

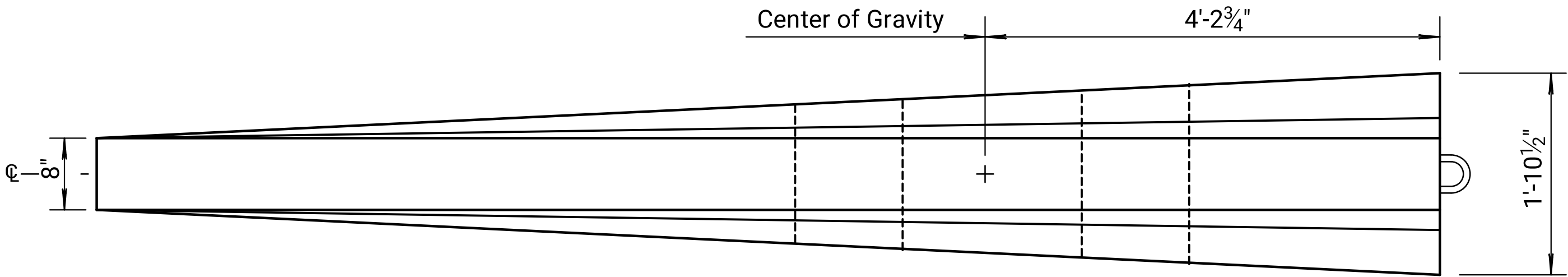
Plotted by : Riley.Standish
File : ST2306css-052.dgn
8-JUL-2025 17:01

01	02-11-15		Initial Release	K.E.K.	S.W.K.
NO.	DATE		REVISIONS	BY	APP'D
KANSAS DEPARTMENT OF TRANSPORTATION					
SUMMARY OF QUANTITIES TEMPORARY CONCRETE SAFETY BARRIER AND END TREATMENTS					
RD052					
FHWA APPROVAL		09-16-15	APP'D.	James O. Brewer	
DESIGNED	DETAILED	QUANTITIES	TRACED		
DESIGN CK.	DETAIL CK.	QUAN.CK.	TRACE CK.		

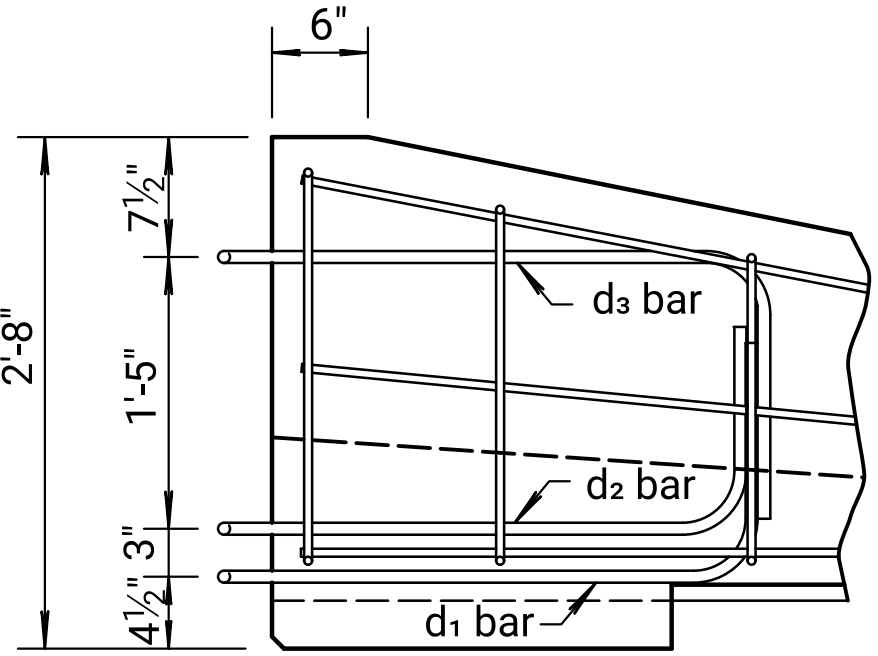
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	ST-2306	2025	125	139



ELEVATION (SECTION)
(For connection to left end of Barrier)



PLAN



ELEVATION (SECTION)
(For connection to right end of Barrier)

GENERAL NOTES:

MATERIAL: Use ASTM A615, Grade 60 reinforcing bars, except for the loop bars (d₁, d₂, and d₃). The loop bars (d₁, d₂, and d₃) shall be 3#4" smooth steel bars with a minimum yield of 60 ksi, a tensile strength of not less than 1.25 times the yield strength but a minimum of 80 ksi, a minimum 14% elongation in 8 inches, and passing a 180 degree bend test using a 3.5" D pin bend diameter. The loops shall be installed within 1#8" of the plan dimensions.

Use air-entrained concrete with f'c = 5,000 p.s.i.

SECTION: The section furnished must generally comply with dimensions shown. Requests for minor variations in section geometry and attachments may be submitted to the Engineer for approval.

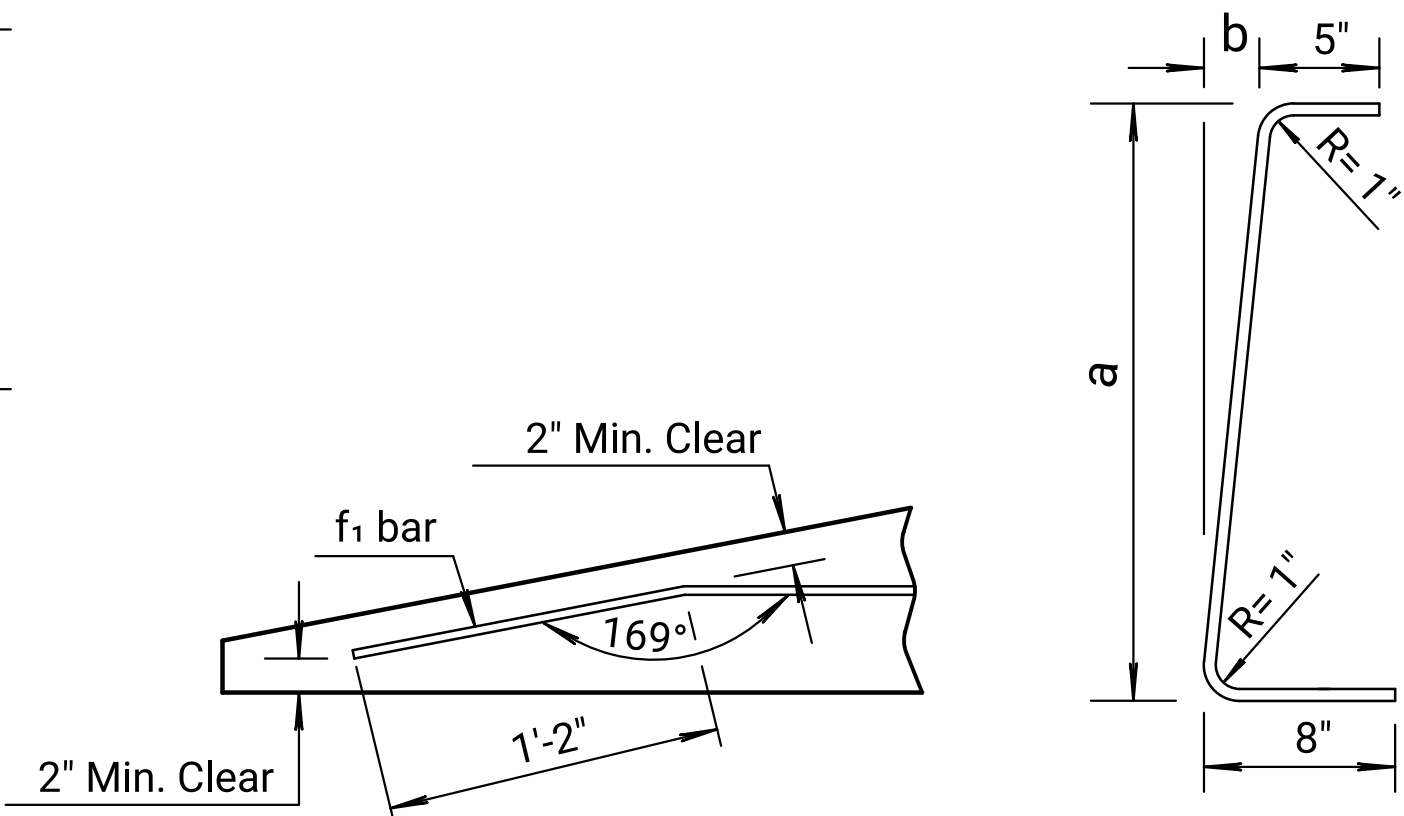
LIFTING SLOTS: Lifting slots shall be constructed where specified on the plans to facilitate the drainage of water after installation on the roadway.

TEMPORARY CONCRETE SAFETY BARRIER: One section of Taper Barrier shall be bid as one section of Type F3 Barrier. Type F3 barrier taper sections shall be used only for low speed (40 mph or less) applications or where a barrier terminates beyond the roadway clear zone. Where a barrier terminates within the clear zone of a high speed roadway, an appropriate impact attenuator shall be installed on the approach end. Furnishing and placing of all materials when required and all labor and equipment required to position the temporary barrier shall be included in the Contract unit price bid for "Concrete Safety Barrier (Type F3)(Temporary)". Any relocation of the barrier required for the project shall be paid in accordance with the Special Provisions under the bid item "Concrete Safety Barrier (Type F3)(Temporary-Relocate)". Unless otherwise noted on the Plans, the Temporary Concrete Safety Barrier shall become the property of the Contractor and shall be removed from the site upon acceptance of the completed project. Approximate weight of one unit equals 1.3 tons.

SURFACE PREPARATION: Barrier shall be placed on a paved surface. All loose dirt and sand shall be removed from the roadway surface just prior to placement of the barrier.

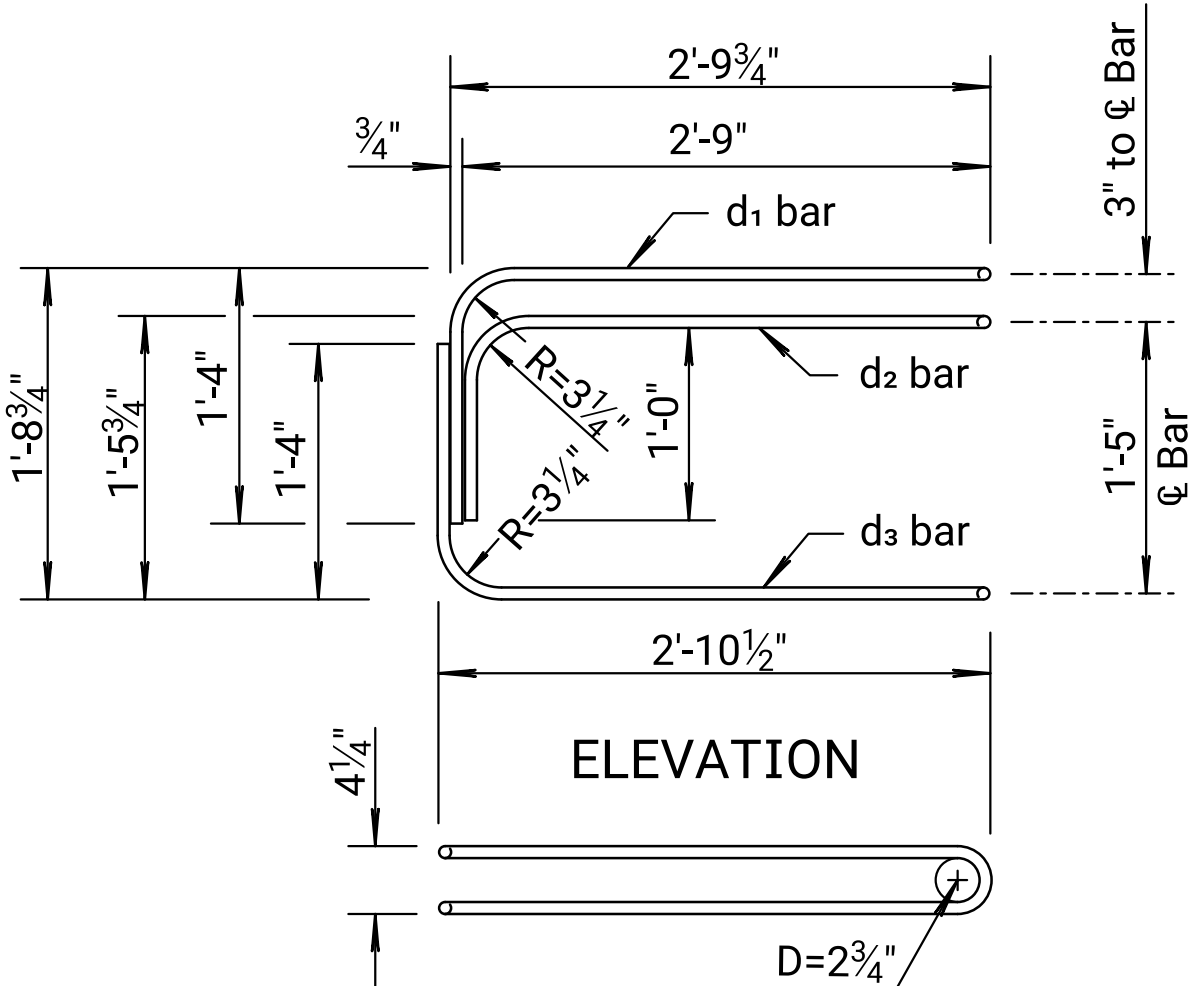
MARKING: Each barrier shall be permanently marked by stamping or forming into the barrier the following information:

- Type F3
- Manufacturer code (as specified by KDOT Bureau of Const. & Maint.)
- Date manufactured (month and year)



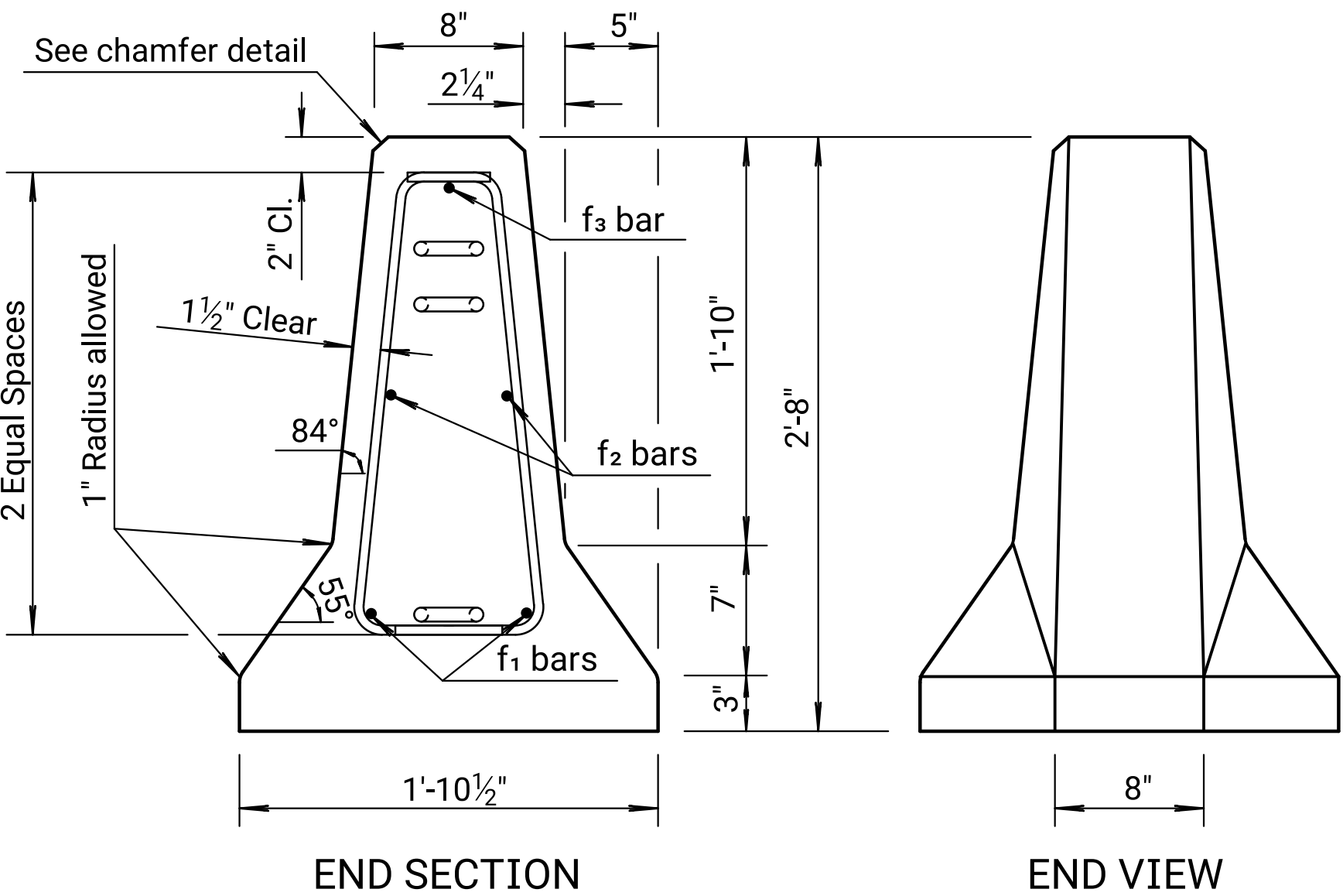
DETAIL "A" BENT BAR DETAIL

v bars
2 at each size required
for stirrup assembly



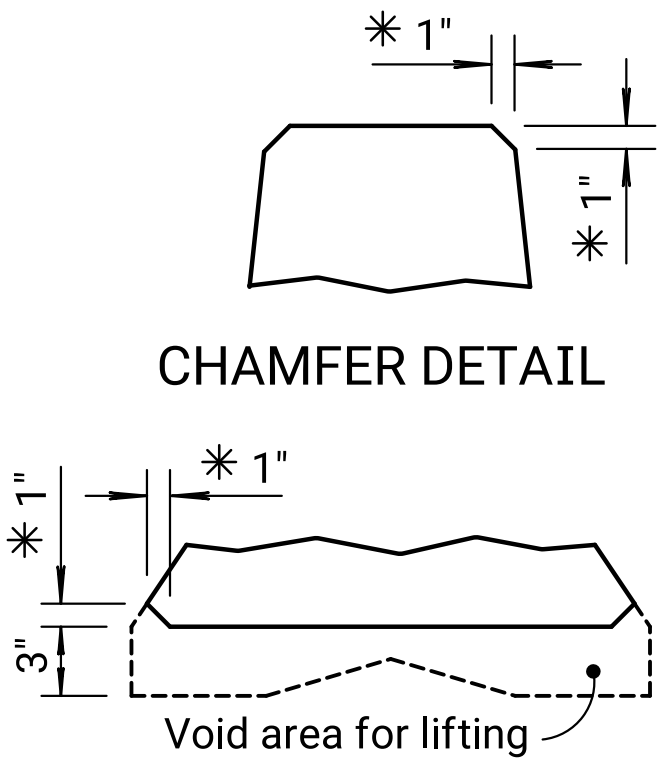
PLAN
LOOP BAR ASSEMBLY
(Left Barrier Connection shown, invert for other end)

Note: At no time shall the barriers be lifted, moved, etc. by use of the loop bars: d₁, d₂, or d₃.



END SECTION

END VIEW



DETAIL "B" LIFTING SLOT DETAIL
* 1" Chamfer to prevent spalling

Per 12'-6" Barrier Taper Section					
REINFORCING A615 Gr. 60					
Bar	Bar Size	Shape	No. of Bars	Length ft.	Weight lbs.
v ₁	#4	[	2	1'-11"	2.6
v ₂	#4	[	2	2'-2"	2.9
v ₃	#4	[	2	2'-6"	3.3
v ₄	#4	[	2	2'-9"	3.7
v ₅	#4	[	2	3'-2"	4.2
v ₆	#4	[	2	3'-4"	4.5
f ₁	#4	—	2	12'-0"	16.0
f ₂	#4	—	2	7'-6"	10.0
f ₃	#5	—	1	11'-9"	12.3
LOOP ASSEMBLY					
d ₁	#6	└─	1	8'-5"	12.6
d ₂	#6	└─	1	7'-7"	11.4
d ₃	#6	└─	1	8'-6"	12.8

Concrete Quantity = 0.6 C.Y.

01	01-10-07	Revised layout & notes	S.W.K.	J.O.B.
NO.	DATE	REVISIONS	BY	APPD
KANSAS DEPARTMENT OF TRANSPORTATION				
TEMPORARY CONCRETE SAFETY BARRIER TAPER SECTION TYPE F3				
RD622A				
FHWA APPROVAL 01-19-07 APPD. James O. Brewer				
DESIGNED	DETAILED	QUANTITIES	TRACED	B.N.B.
DESIGN CK.	DETAIL CK.	QUAN.CK.	TRACE CK.	S.W.K.

Note to Designer: For use on Haunched slab bridges, the Road Designer shall coordinate with the Bridge Designer for "corridor in the reinforcing steel layout to accommodate barrier anchoring". Road Designer shall coordinate barrier layout with Bridge Designer to accommodate for expansion during construction.

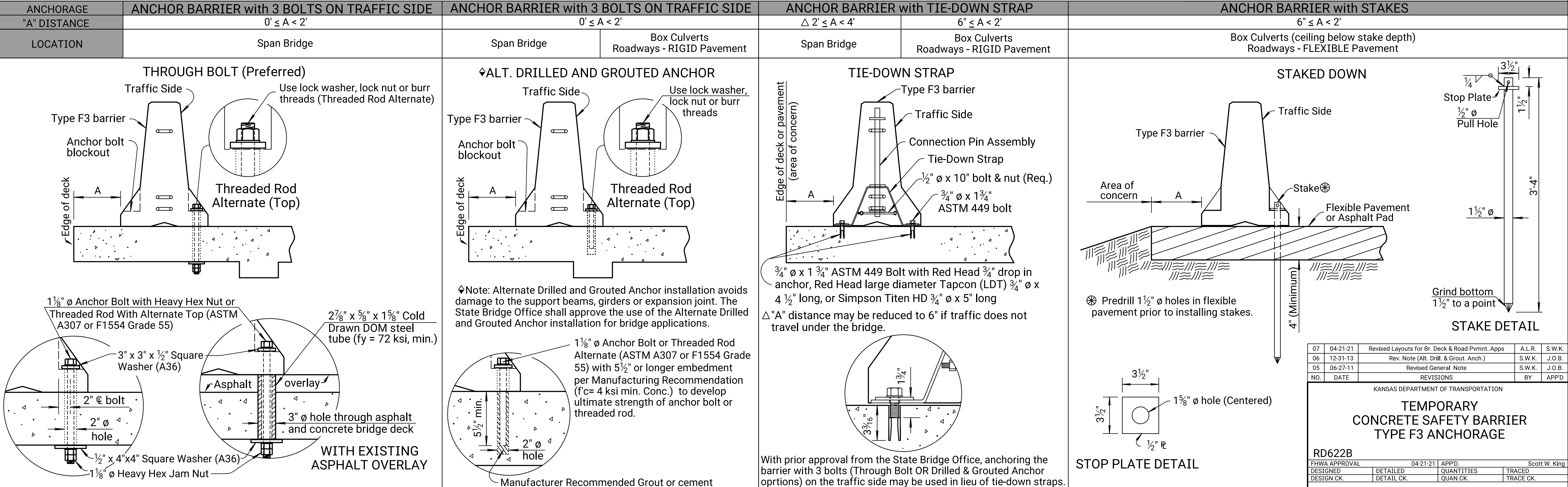
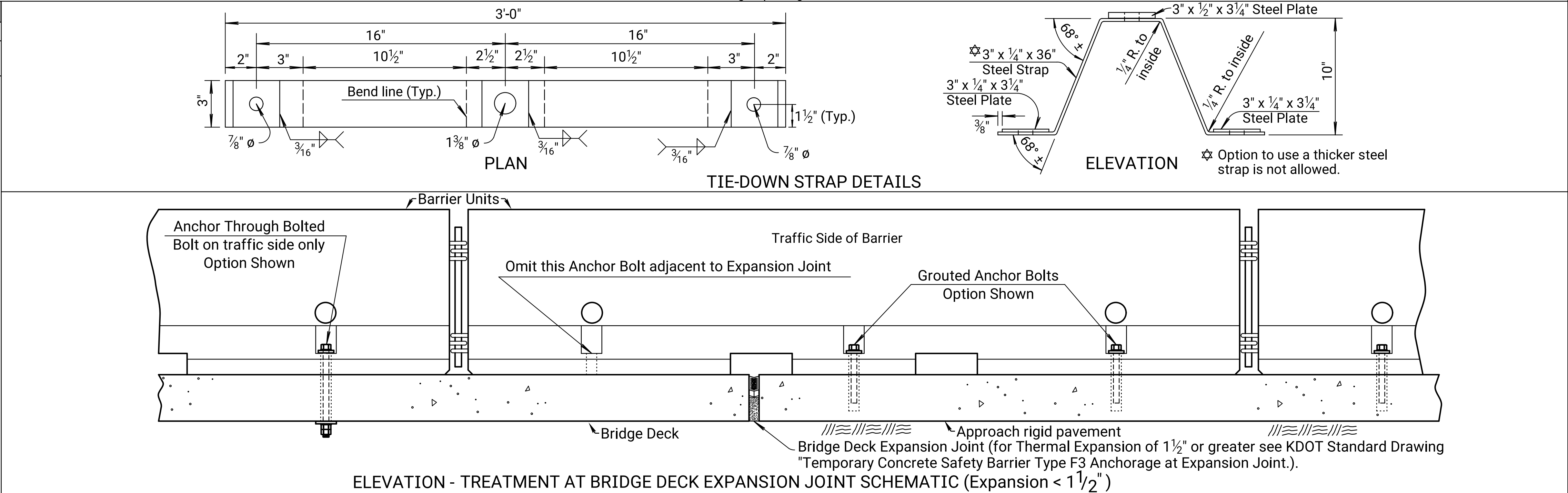
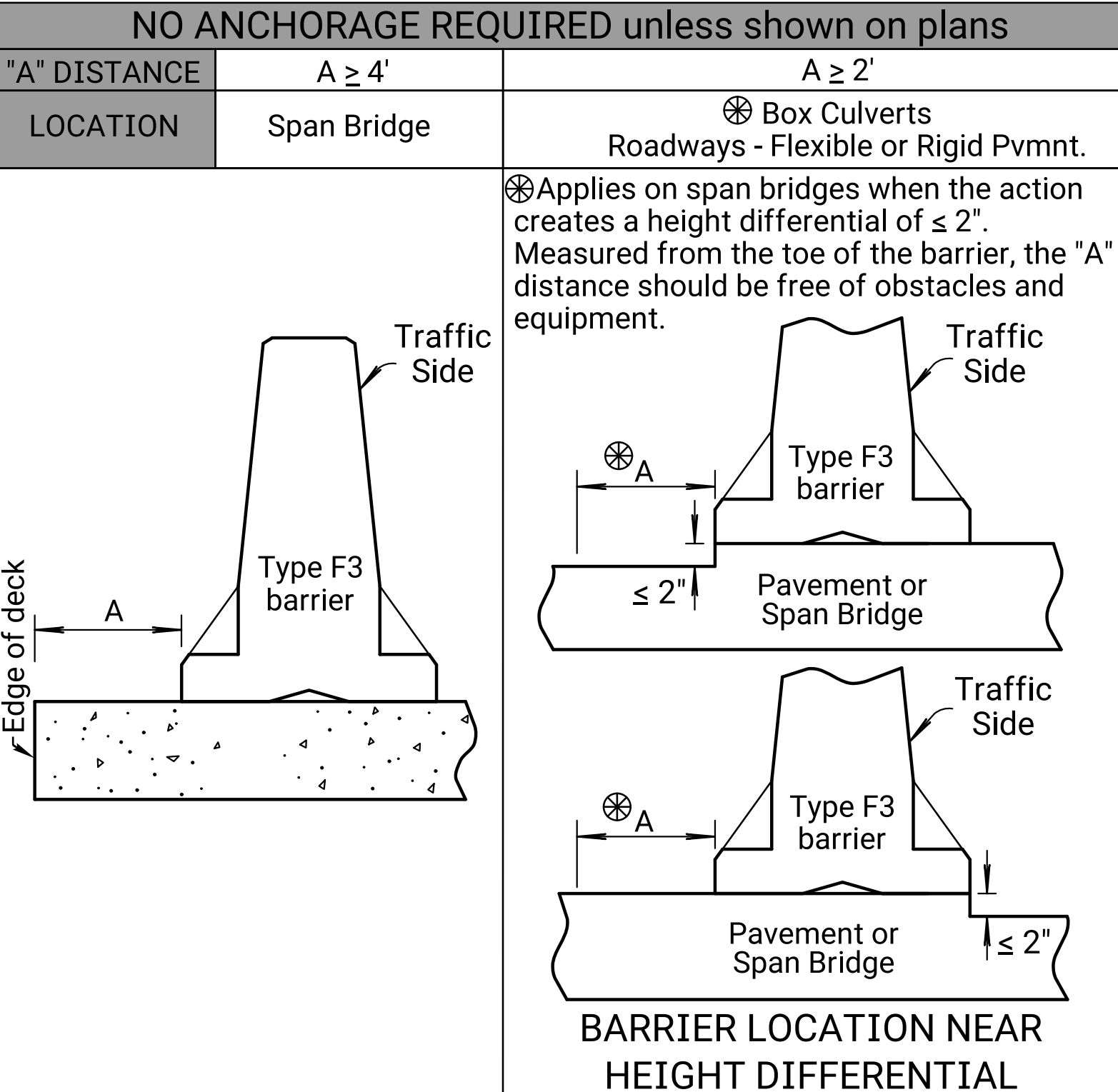
Plotted by : Riley Standish 8-JUL-2025 17:02
File : ST2306css-622b.dgn

GENERAL NOTES:
INSTALLATION: Holes into the pavement to anchor the concrete safety barrier may be drilled after positioning barrier. When anchoring with 3 bolts on traffic side, install barrier with through anchor bolt where possible, use grouted anchor bolts where through bolt can't be used. Do not drill into or otherwise damage support beams, girders, or expansion joints. All work & materials required for the installation of the anchors are subsidiary to the bid item "Concrete Safety Barrier".
UTILITIES & STRUCTURES (Stakes): Verify buried utilities & structures within stake depth. If conflicts between stake & buried elements exist, up to 2 stakes maximum in a single barrier may be omitted if adjacent barriers have 3 stakes each.

ANCHORAGE: Use galvanized grouted anchor bolts, through anchor bolts, nuts & washers that meet standard specifications. Install 3 anchor bolts or asphalt pins per barrier on the traffic side except on transition barrier as shown.
BARRIER REMOVAL: Completely remove all anchor systems. Remove grouted or drop-in anchor system by drilling the anchor with a core barrel 2x the diameter of the insert. Core to a depth equal to the installed depth & remove the core, prepare the hole by removing dust & debris. Fill hole with material that meets KDOT Pre-qualified "Non-shrink grouts for grouting anchor bolts & reinforcing into previously poured concrete". Follow the manufacturer's procedures for mixing, hole preparation & curing. To fill through bolt anchor or screw-in anchor system, remove & completely fill the hole using instructions for drop-in

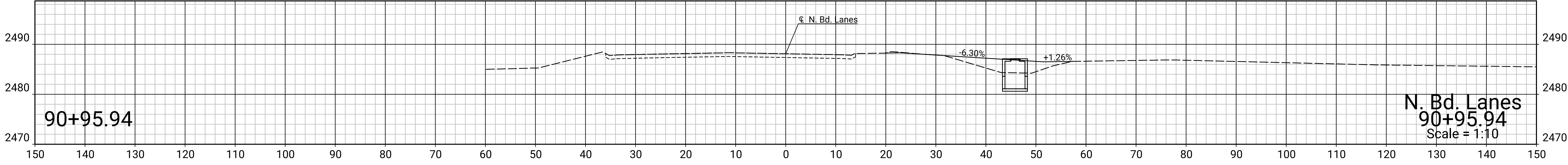
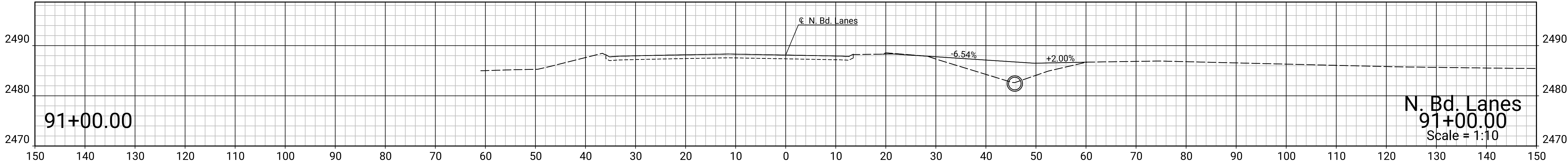
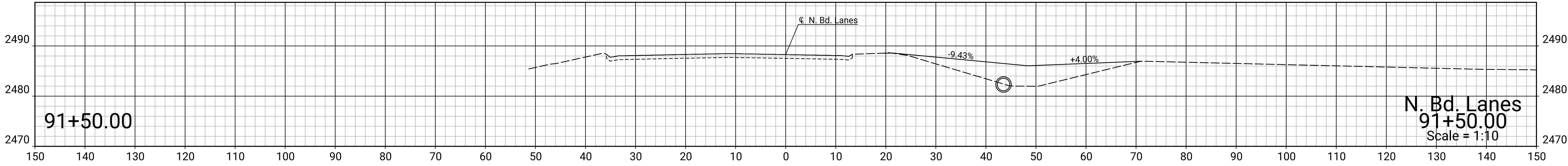
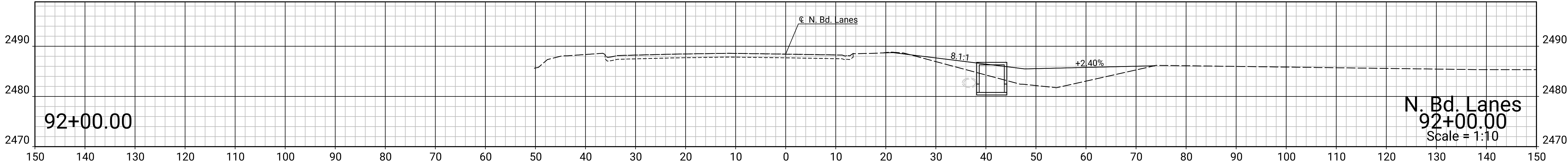
anchors except no coring is required.
For removed or relocated barrier on flexible pavement, fill stake holes completely with hot or cold asphalt patch material. Work & materials required to remove & patch anchor holes are subsidiary to the bid item "Concrete Safety Barrier".
TEMPORARY BARRIERS: Temporary Barriers shown in the details of this drawing are not allowed for permanent installations.
See KDOT Standard Drawing "Temporary Concrete Safety Barrier Type F3 Transition Layouts" for transition details between anchored & free-standing barriers. See KDOT Standard Drawing "Temporary Concrete Safety Barrier Type F3" for details & quantities not shown on this sheet.
SIGNING: For sign spacing, traffic control device details & reference notes, see Index of Sheets.

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	ST-2306	2025	126	139

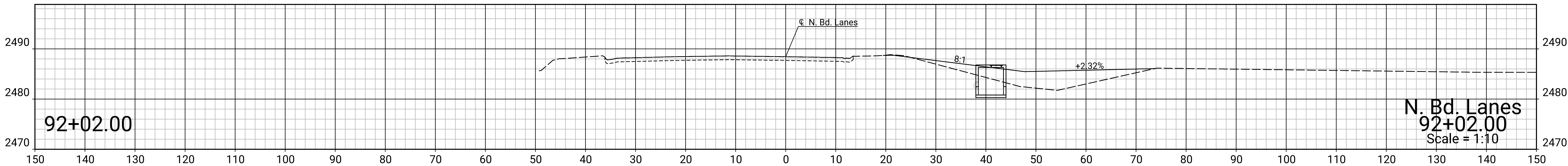
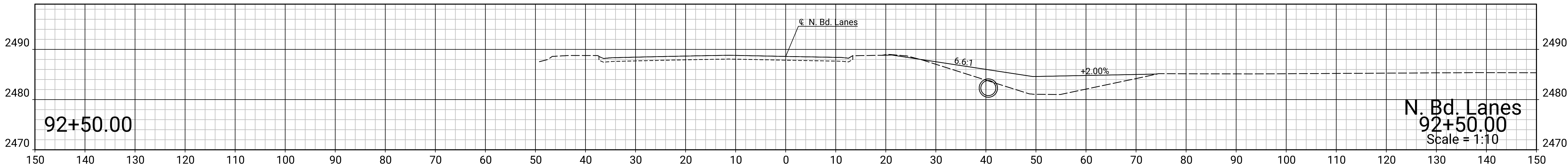
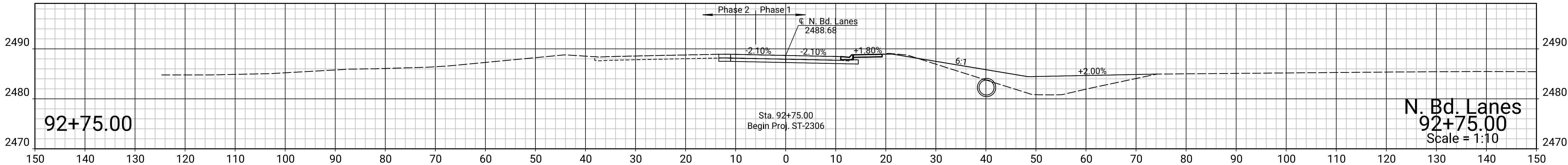
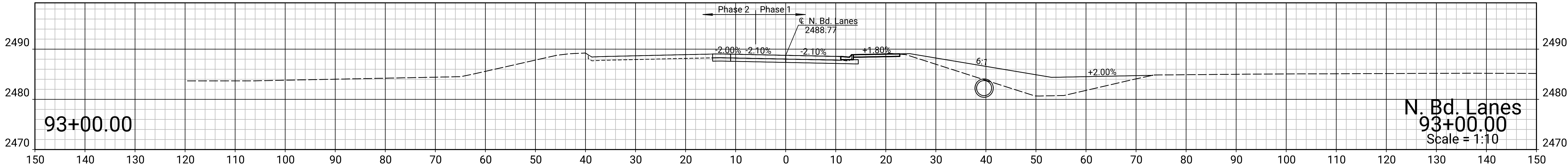
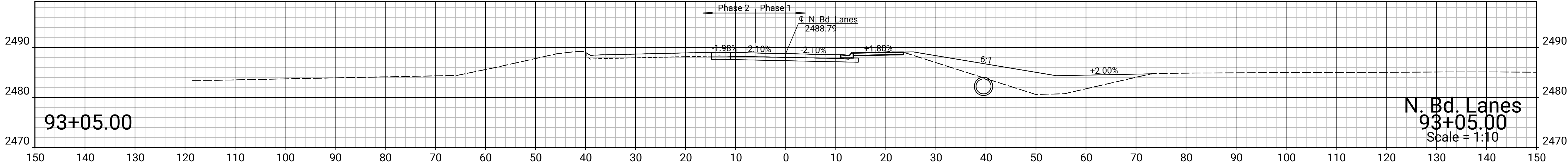


07	04-21-21	Revised Layouts for Br. Deck & Road Pvmnt. Apps	A.L.R.	S.W.K.
06	12-31-13	Rev. Note (Alt. Drill. & Grout. Anch.)	S.W.K.	J.O.B.
05	06-27-11	Revised General Note	S.W.K.	J.O.B.
NO.	DATE	REVISIONS	BY	APPD
KANSAS DEPARTMENT OF TRANSPORTATION				
TEMPORARY CONCRETE SAFETY BARRIER TYPE F3 ANCHORAGE				
RD622B				
FHWA APPROVAL 04-21-21 APPD. Scott W. King				
DESIGNED	DETAILED	QUANTITIES	TRACED	
DESIGN CK.	DETAIL CK.	QUAN. CK.	TRACE CK.	

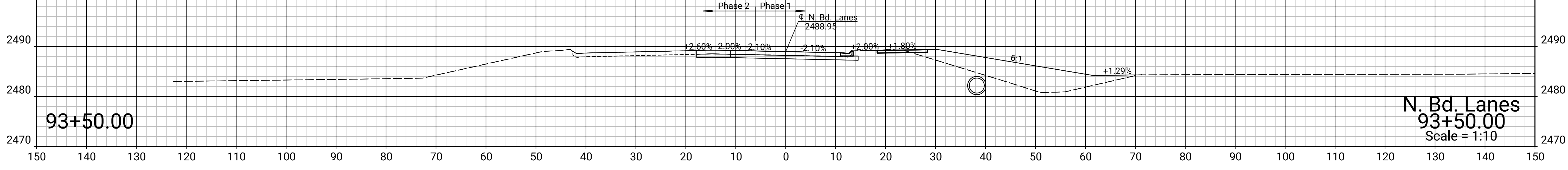
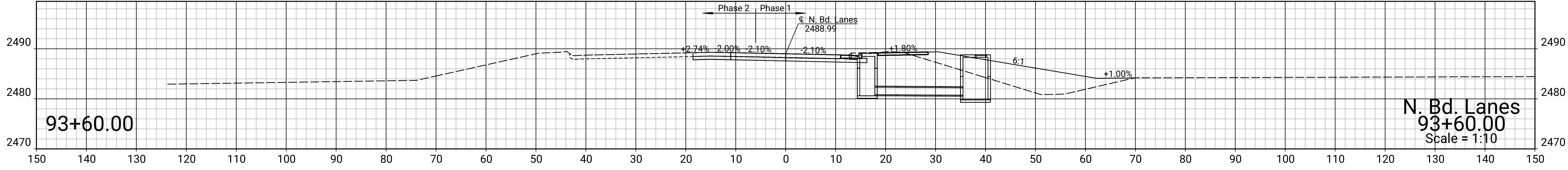
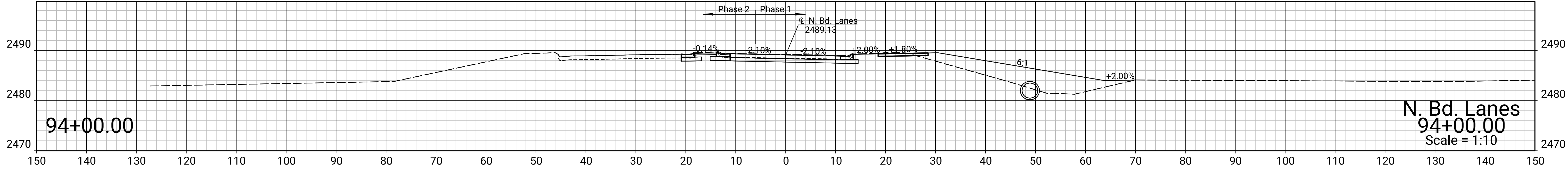
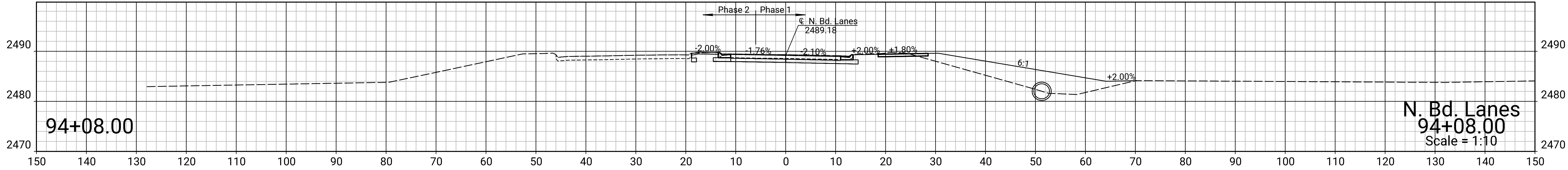
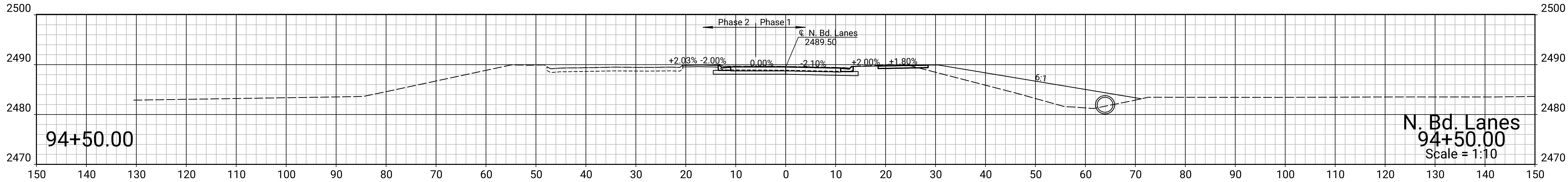
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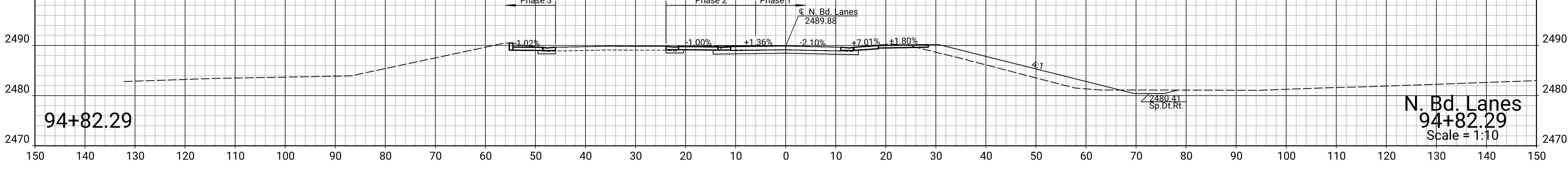
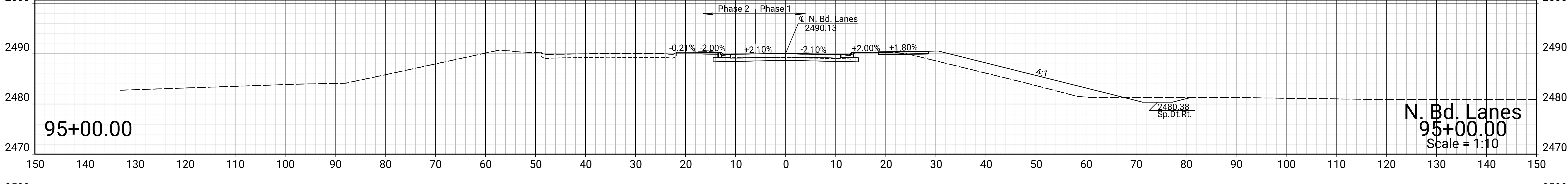
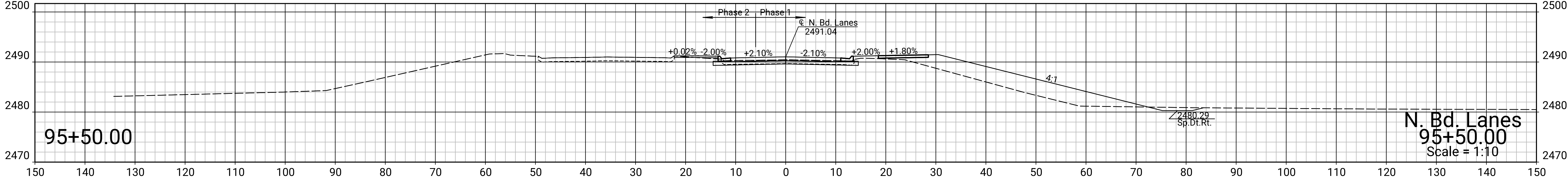
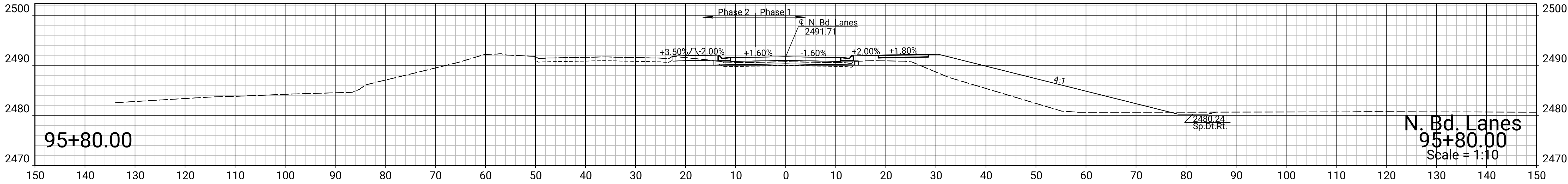
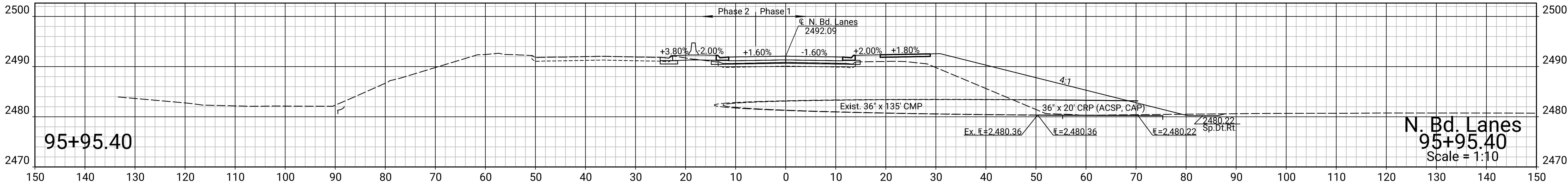
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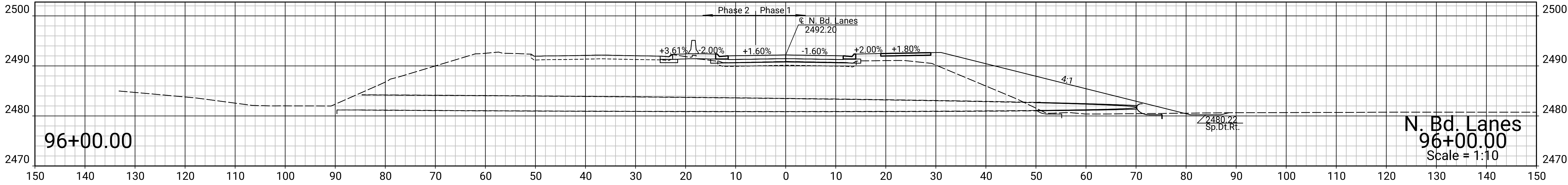
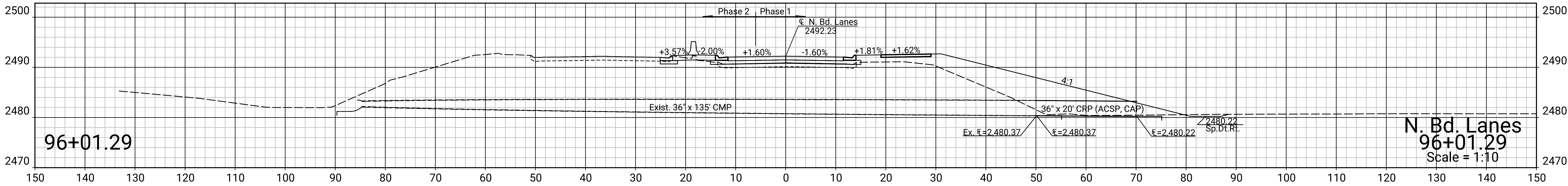
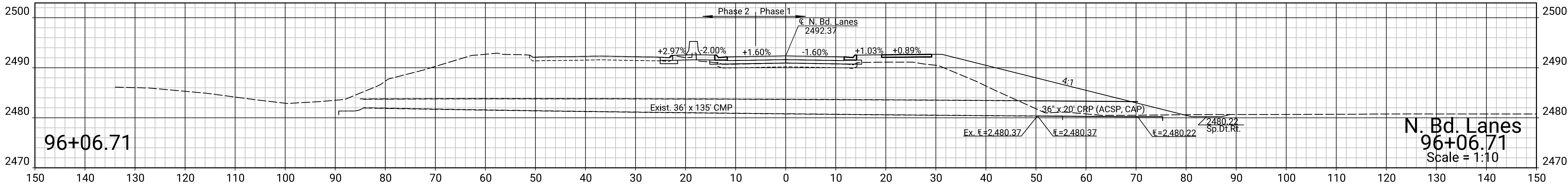
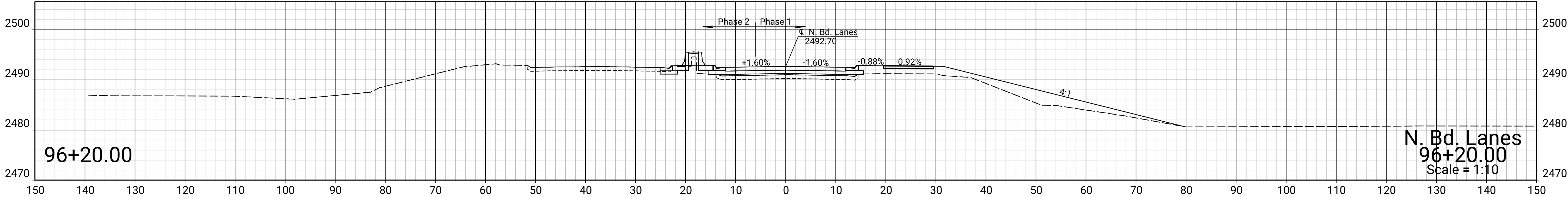
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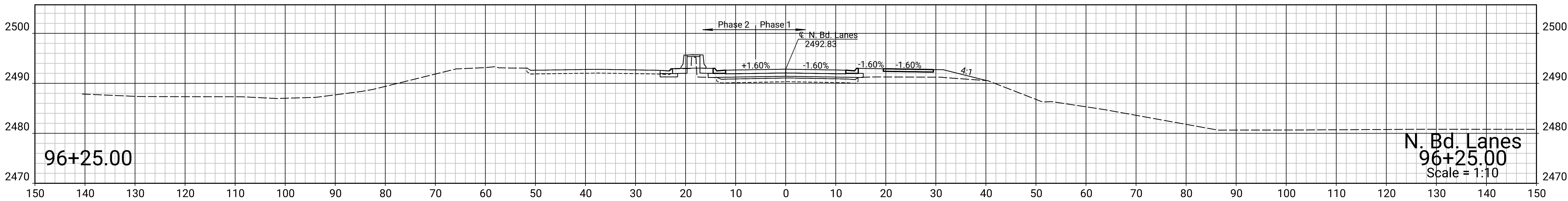
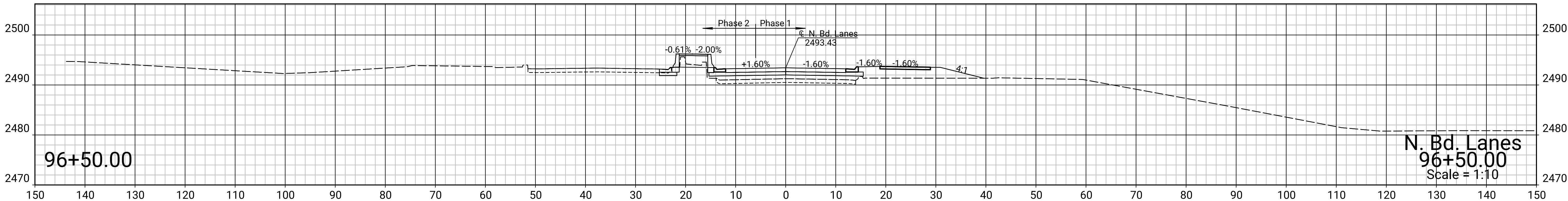
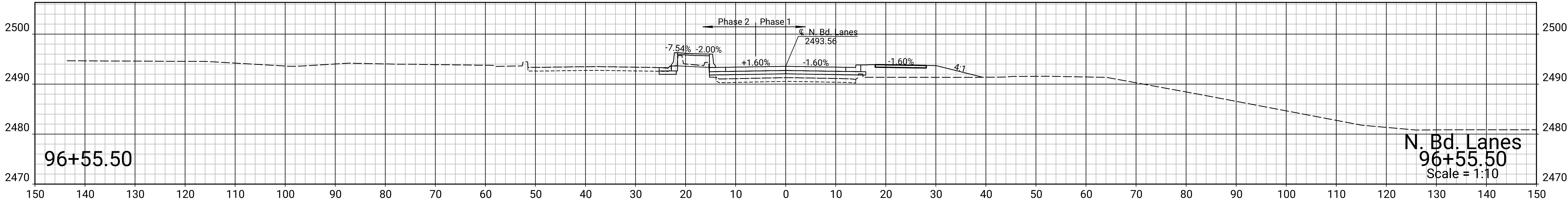
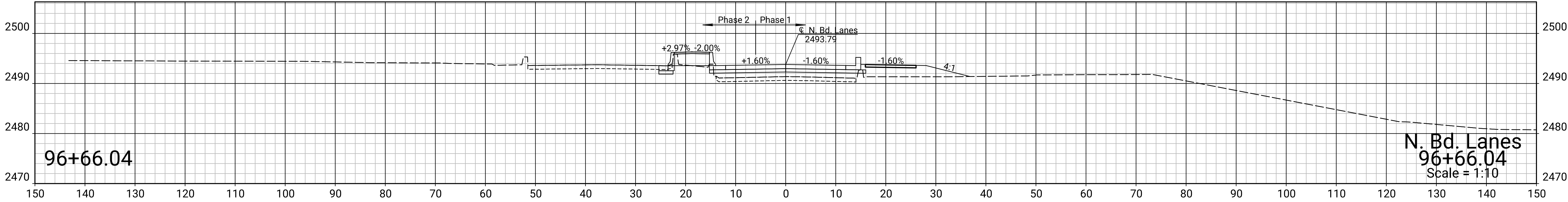
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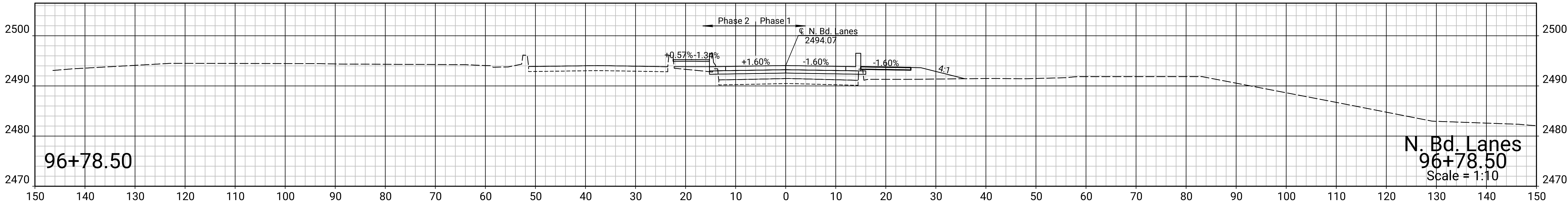
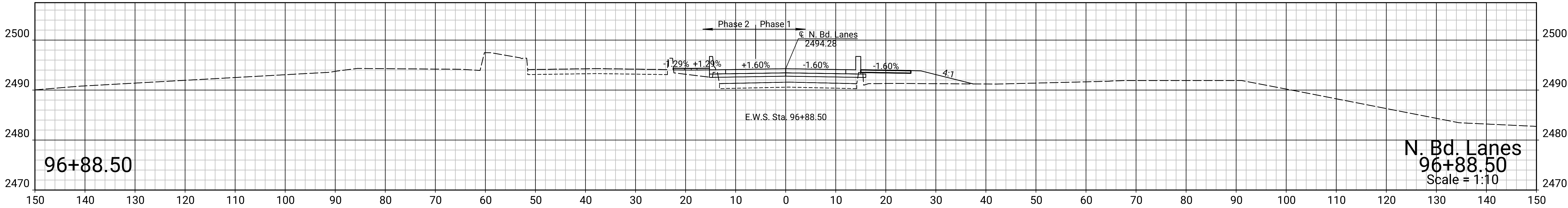
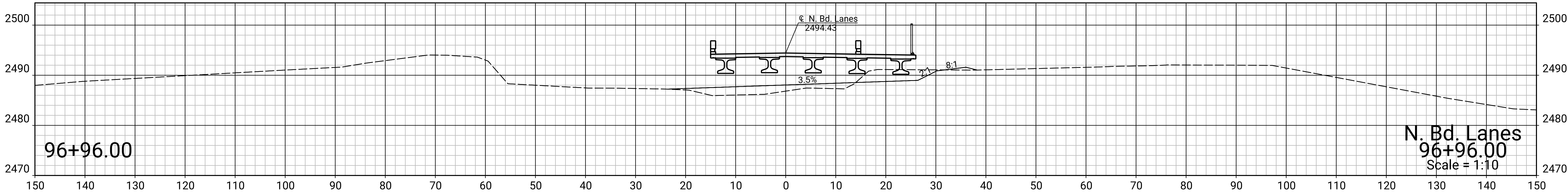
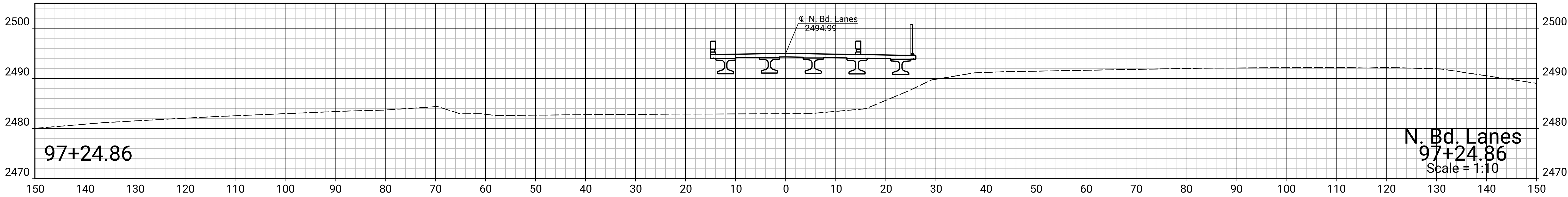
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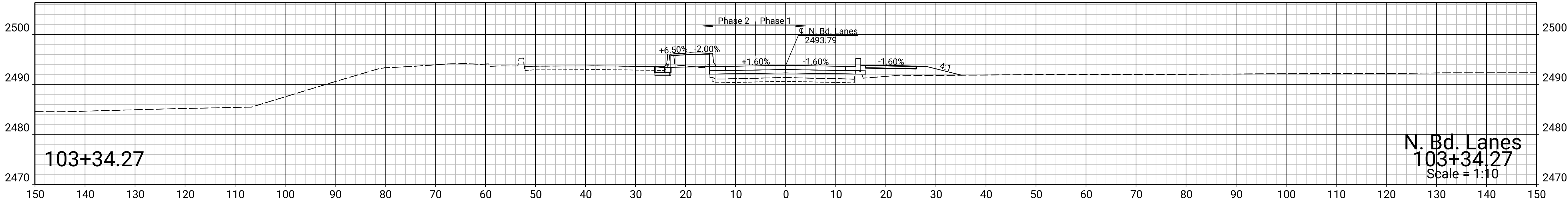
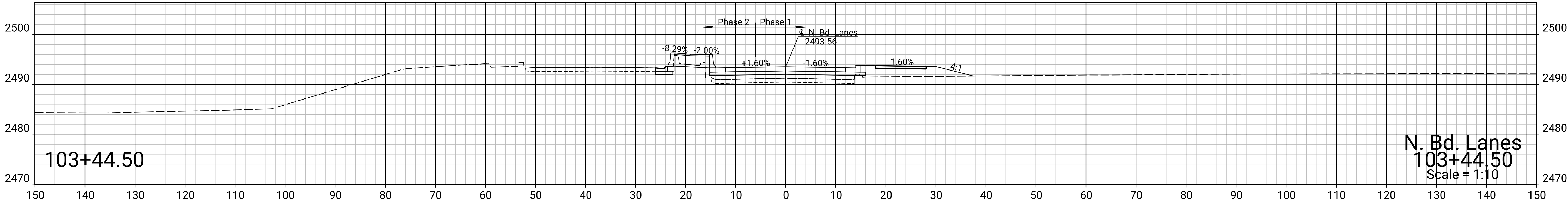
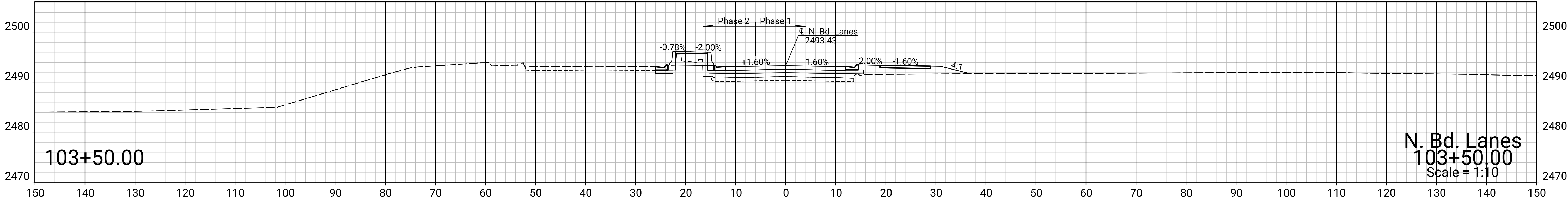
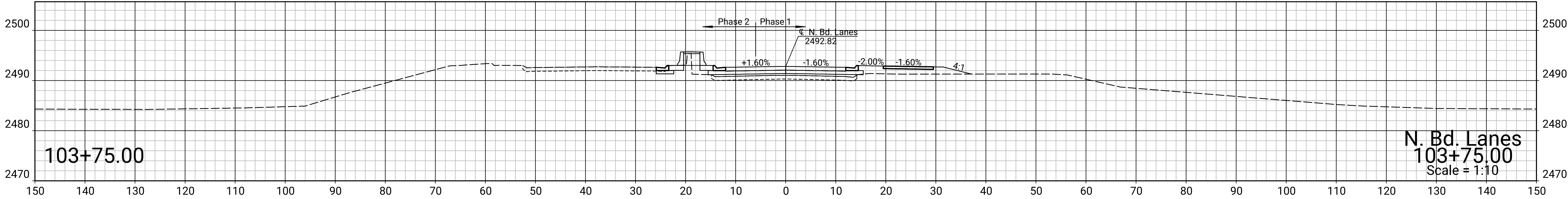
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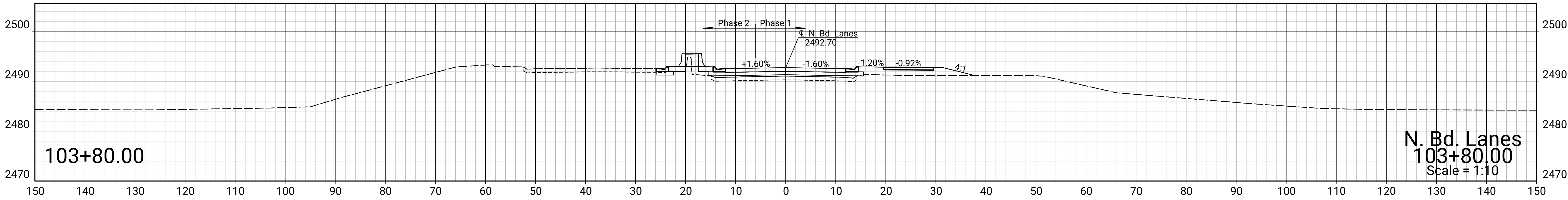
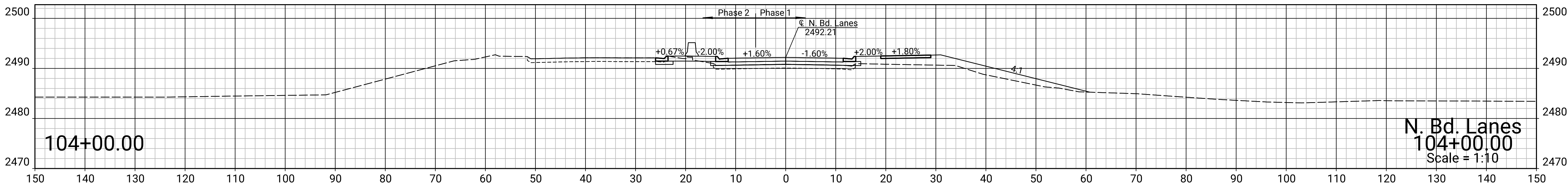
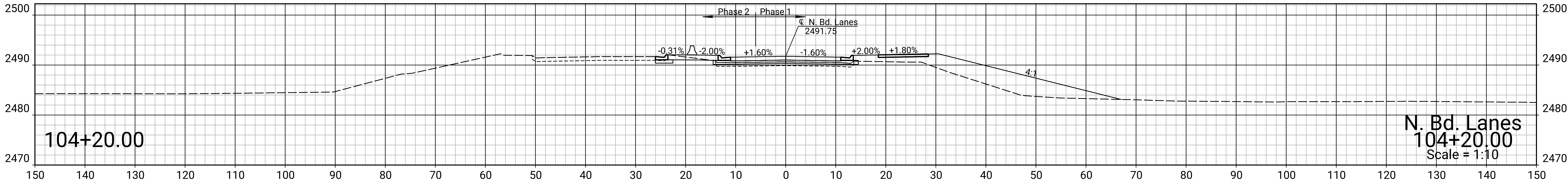
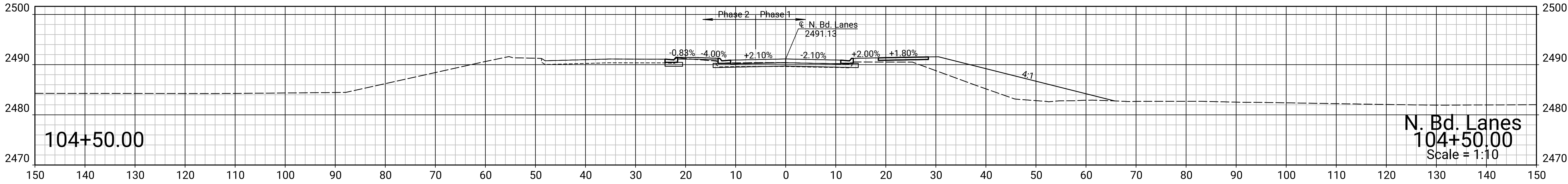
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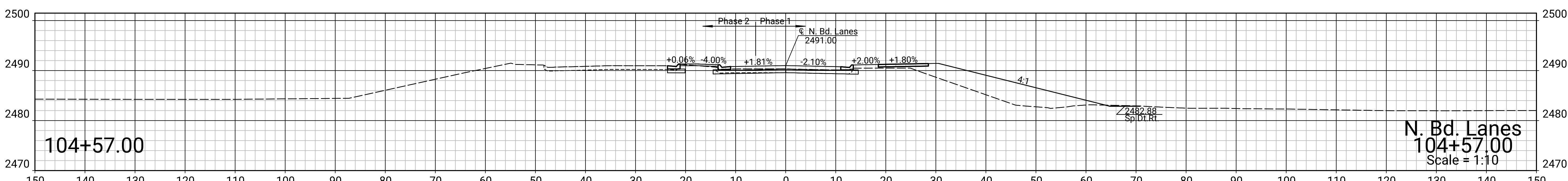
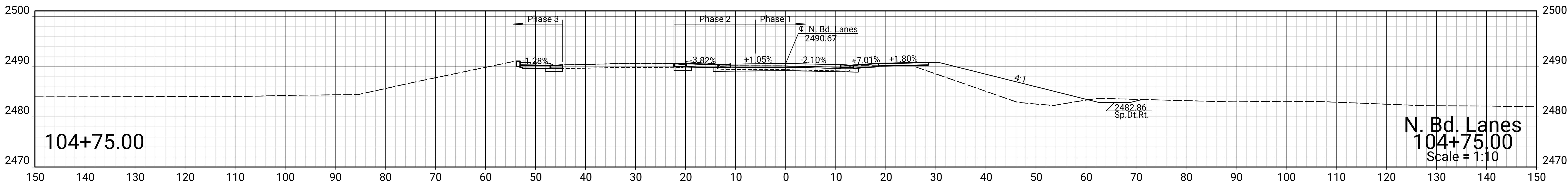
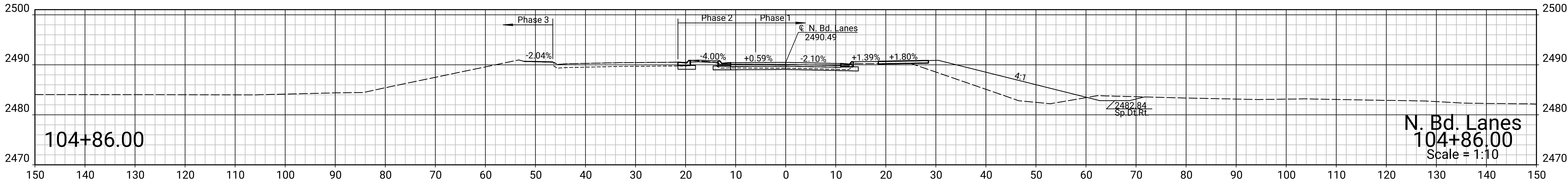
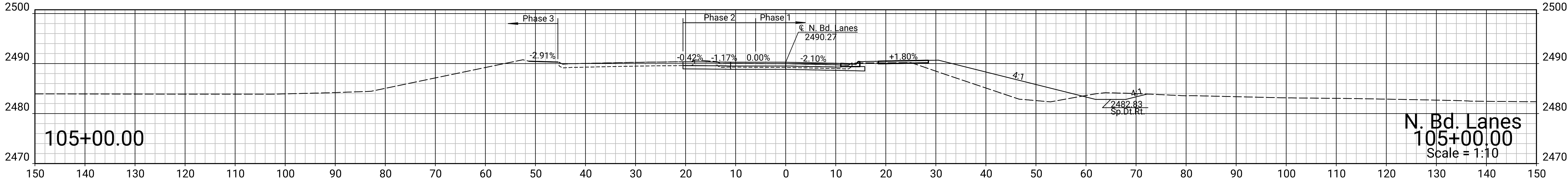
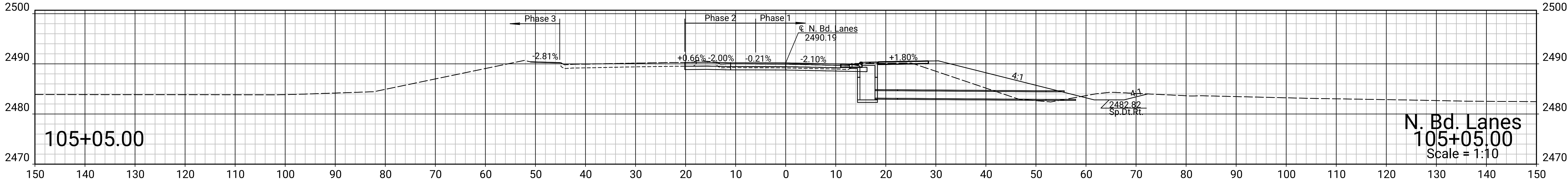
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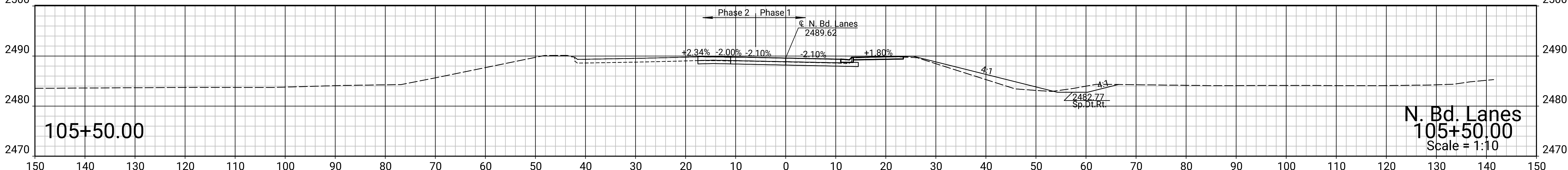
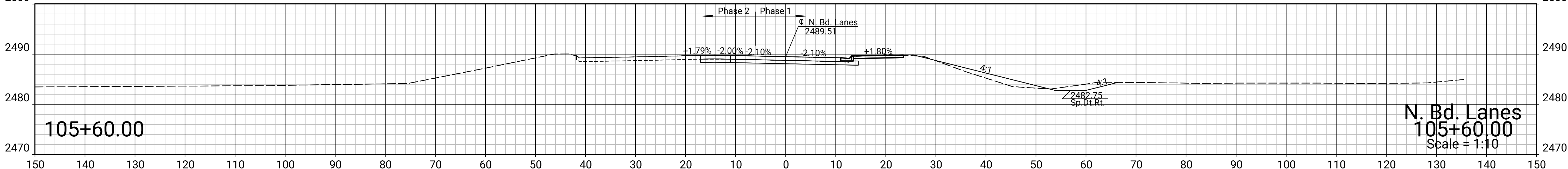
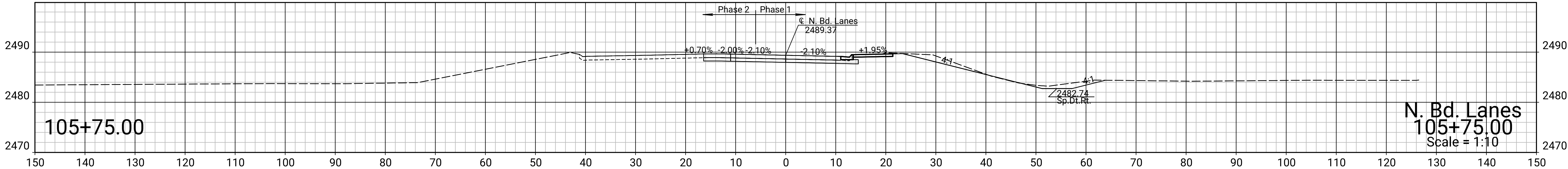
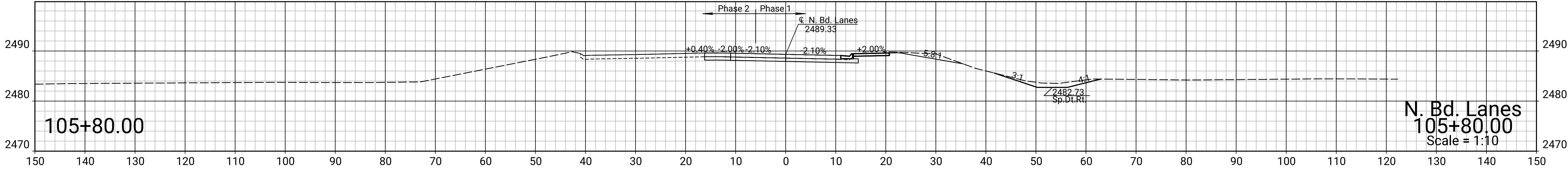
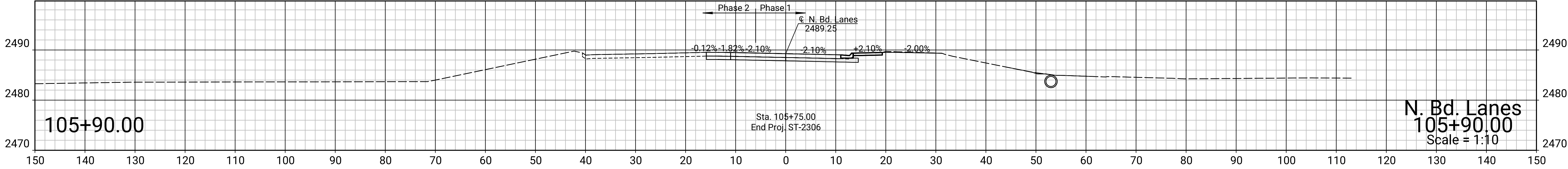
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STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	ST-2306	2025	138	139



STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	ST-2306	2025	139	139

