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STATE OF KANSAS

FAS 70 BRIDGE REPLACEMENT

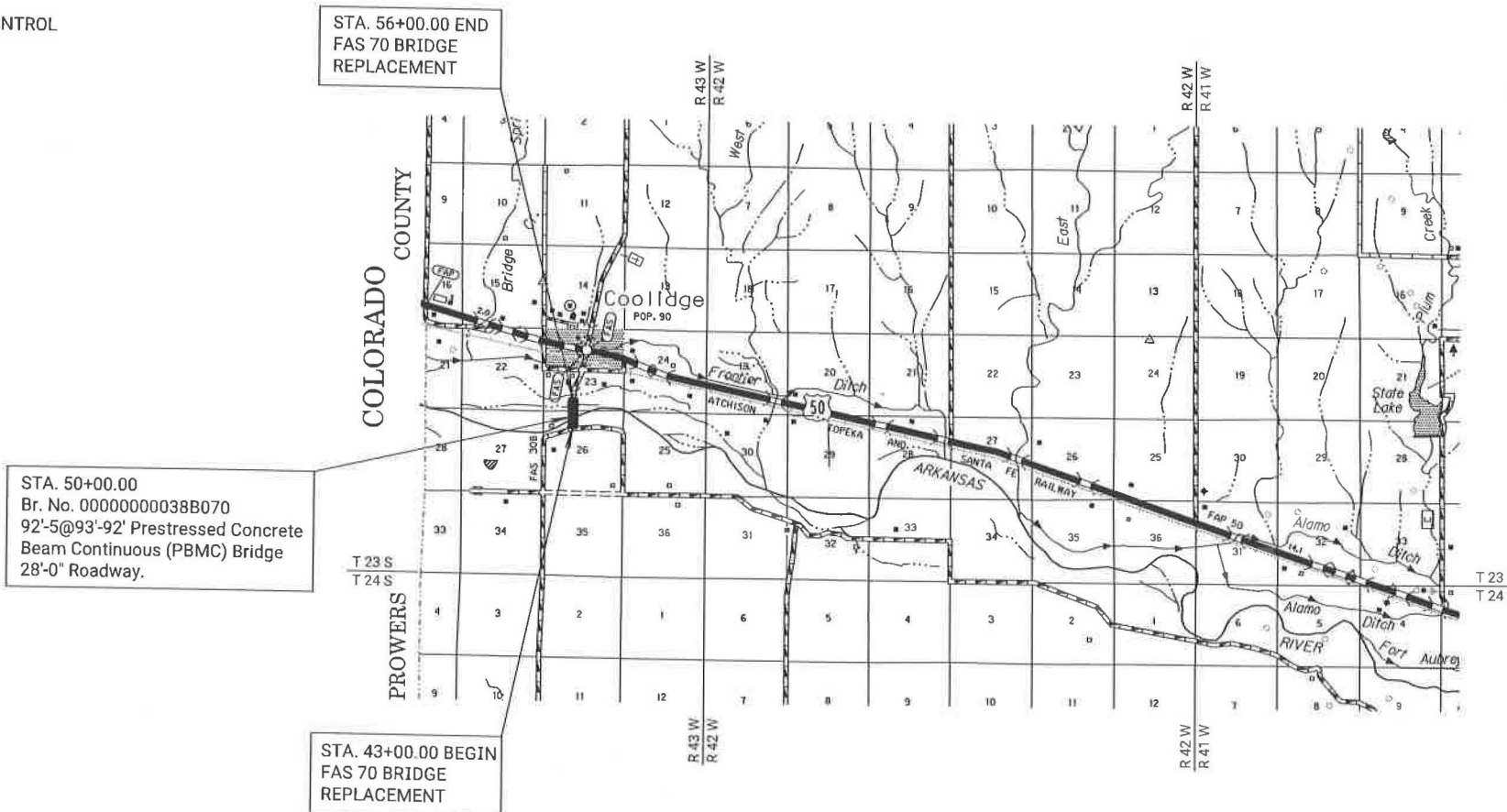
HAMILTON COUNTY

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	38 C-5206-01	2024	1	80

GRADING & SURFACING (ASPHALT)
BRIDGE
SEEDING



No Scale



This Project meets the requirements
for the VLVR Design Guide.

DESIGN DESIGNATION

AADT (2023)	310
AADT (2024)	340
V	55 mph

CONVENTIONAL SIGNS

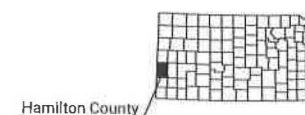
COUNTY LINE	CENTER LINE OF PROJECT
CITY LIMITS	TERRACE
STATE OR NATIONAL LINE	CULVERTS
TOWNSHIP, SECTION or GRANT LINE	DROP INLET & STORM SEWER
PROPERTY LINE	ACCESS CONTROL
HIGHWAY FENCE	POWER POLE
EXISTING FENCE	TELEPHONE POLE
GUARDRAIL	MARSH
CONSTRUCTION LIMITS	HEDGE
RIGHT OF WAY LINE	TREES
TRAVELED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

GROSS LENGTH OF PROJECT 1300.00 FT. (Includes Equations)

EXCEPTIONS NONE

NET LENGTH OF PROJECT	1300.00 FT.	0.246 MILES
NET LENGTH OF BRIDGES	652.00 FT.	0.123 MILES
NET LENGTH OF ROAD	648.00 FT.	0.123 MILES

Note: Traffic will be detoured around construction
using a shoofly detour. The Contractor shall
construct and maintain the shoofly detour.

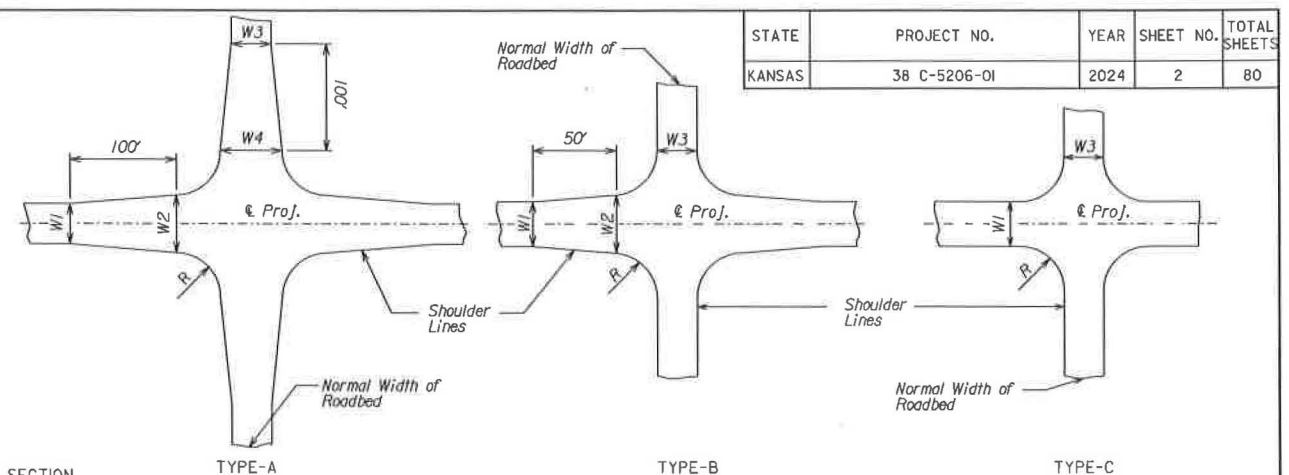


RECOM. FOR APPROVAL-DATE
Franklin W. Smith 6-20-24
LOCAL PUBLIC OFFICIAL

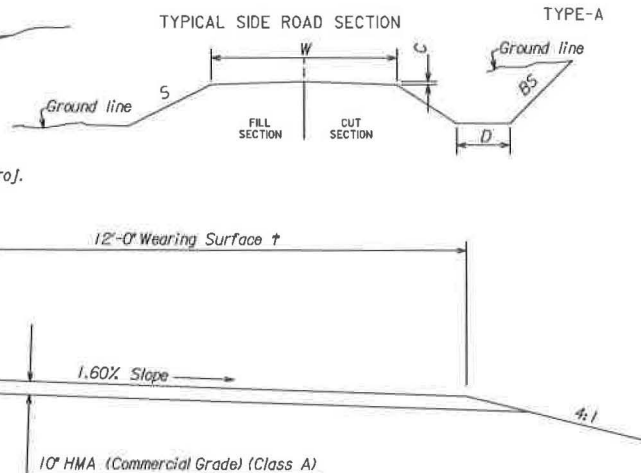


KIRKHAM
MICHAEL

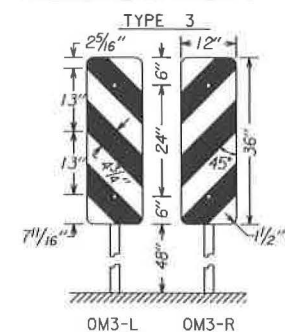
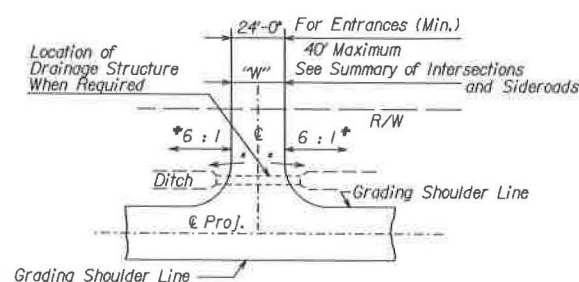
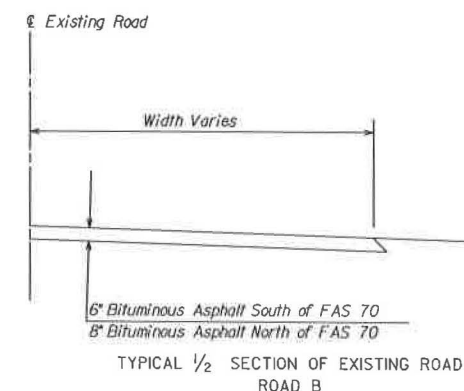
200 E. Iron Ave, Salina, Kansas 67401
(785) 376-6739 FAX (785) 472-3817



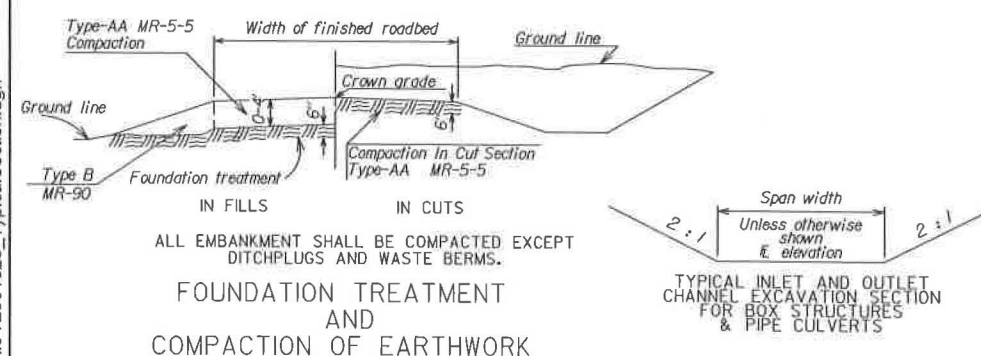
TYPE-B
TYPICAL INTERSECTION DETAILS

[illegible]

† Roadway Width	
Sta. to Sta.	Width
43+00.00 to 43+50.00	Existing to 24'
43+50.00 to 44+06.75	24'
44+06.75 to 46+00.00	24' to 28'
46+00.00 to 46+74.00	28'
53+26.00 to 54+00.00	28'
54+00.00 to 55+00.00	28' to 24'
55+00.00 to 55+50.00	24'
55+50.00 to 56+00.00	24' to Existing



SUMMARY OF OBJECT MARKERS AND SIGNS						
STATION	SIDE	TYPE OF STRUCT.	TYPE OF SIGN	OBJECT MARKER		REMARKS
				TYPE	NO.	
46+73.00	Lt.	Bridge		OM3-L	1	Ø
46+73.00	Rt.	Bridge		OM3-R	1	Ø
53+27.00	Lt.	Bridge		OM3-L	1	Ø
53+27.00	Rt.	Bridge		OM3-R	1	Ø
ØAs you face bridge end from approach					4	
•Back-to-Back (Sign(s) on Both Sides of Post)						



GENERAL NOTES

All signs shown on the plans, and other signs furnished and installed by the LPA with their own forces and funds will be installed in conformance with the Manual on Uniform Traffic Control Devices (latest edition).

LPA to furnish all easements and additional right of way (unless otherwise noted).

Public and private utility facilities will be adjusted by others as needed to fit the new construction unless noted otherwise on the plans or in the proposal.

Refer to KDOT Standard Drawing No. BR 100 for excavation limits for constructing box culverts.

All Sign, Fastener, and Post materials must meet the requirements of the latest edition of the KDOT Standard Specifications for State Road and Bridge Construction.

Install Object Markers Type OM3-(R)(L) at each corner of all span bridges and when indicated on the plans at box structures. Install with the inside edge of the marker in line with the inside clearance line of the structure.

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

KANSAS DEPARTMENT OF TRANSPORTATION

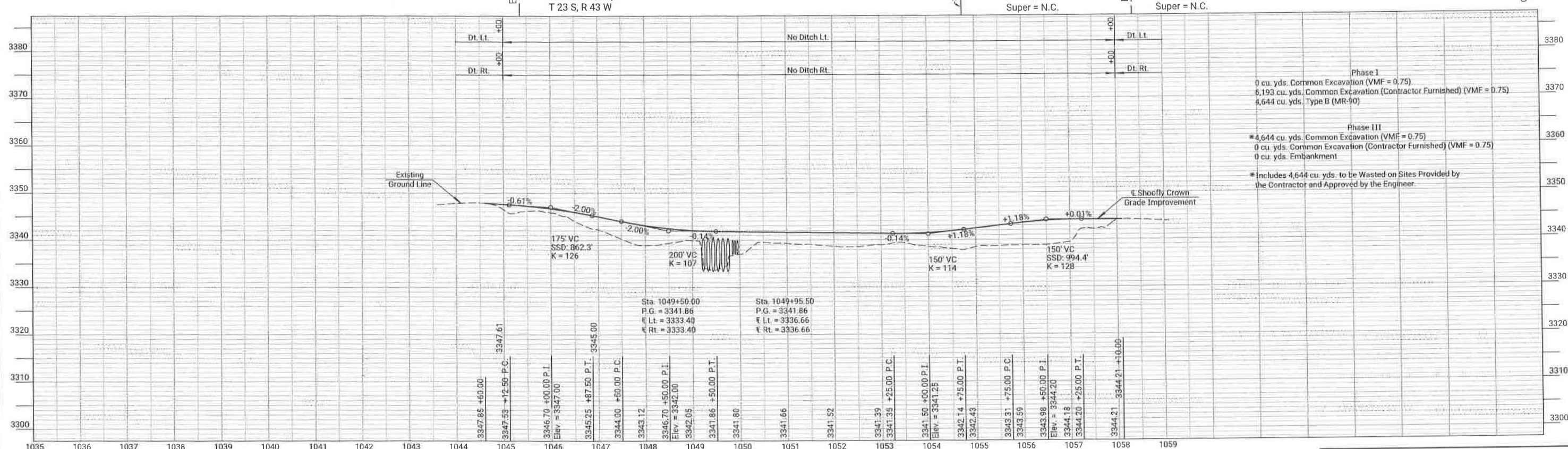
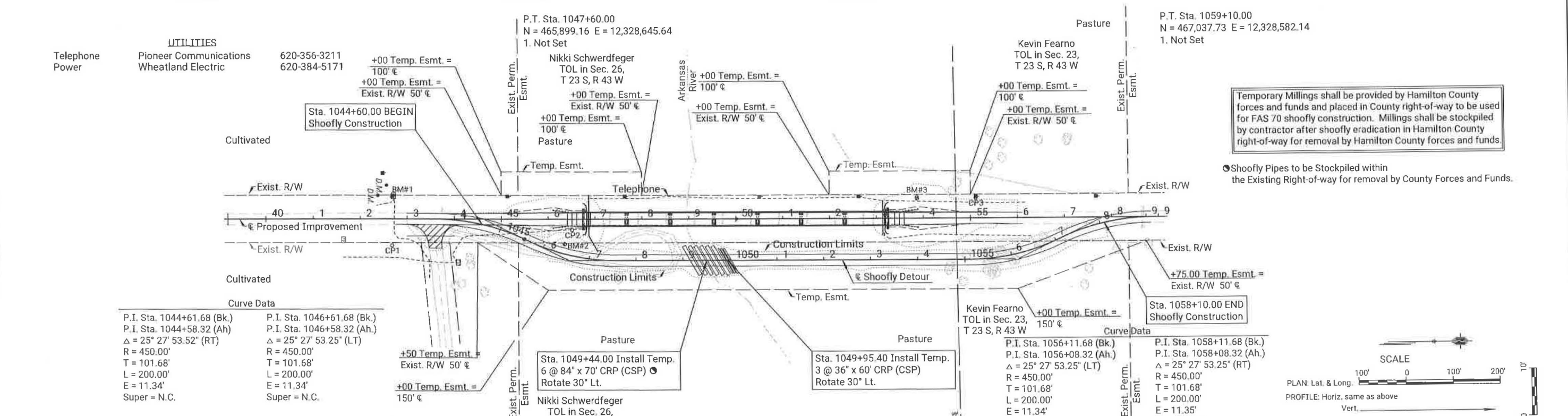
TYPICAL GRADING SECTION

LP907

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

DATE	
BY	
REFERENCES NOTED	
REFERENCES CHECKED	

P.C. Sta. 1043+60.00 N = 465,514.15 E = 12,328,549.98 1. Not Set	P.I. Sta. 1044+61.68 (Bk.) P.I. Sta. 1044+58.32 (Ah.) N = 465,615.80 E = 12,328,552.13 1. Not Set	P.R.C. Sta. 1045+60.00 N = 465,706.66 E = 12,328,597.78 1. Not Set	P.I. Sta. 1046+61.68 (Bk.) P.I. Sta. 1046+58.32 (Ah.) N = 465,797.51 E = 12,328,643.46 1. Not Set	P.C. Sta. 1055+10.00 N = 466,649.01 E = 12,328,661.39 1. Not Set	P.I. Sta. 1056+11.68 (Bk.) P.I. Sta. 1056+08.32 (Ah.) N = 466,750.67 E = 12,328,663.54 1. Not Set	P.R.C. Sta. 1057+10.00 N = 466,843.37 E = 12,328,621.77 1. Not Set	P.I. Sta. 1058+11.68 (Bk.) P.I. Sta. 1058+08.32 (Ah.) N = 466,936.07 E = 12,328,580.00 1. Not Set	STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
								KANSAS	38 C-5206-01	2024	5	80



Plotted by: b.wilkinson 26-JUN-2024 10:40
File: 2301820_Shoofly_PlanProfile.dgn

KANSAS DEPARTMENT OF TRANSPORTATION
PLAN AND PROFILE
(SHOOFLY)
STA. 1044+60.00 TO STA. 1059+10.00

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.

Plotted by: bwilkinson 26-JUN-2024 10:40
File: rd712.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	38 C-5206-01	2024	6	80

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.

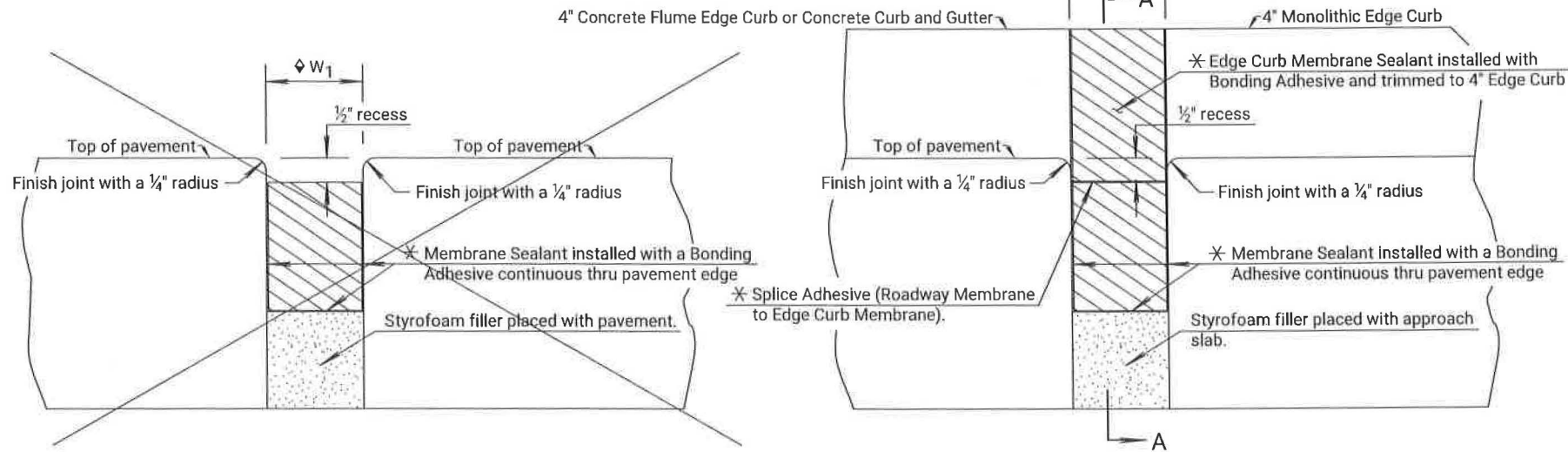
♦ PRESSURE RELIEF JOINT WIDTH DETAILS (W₁)

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

W₁ Average Ambient Temperature over previous 24 hours.

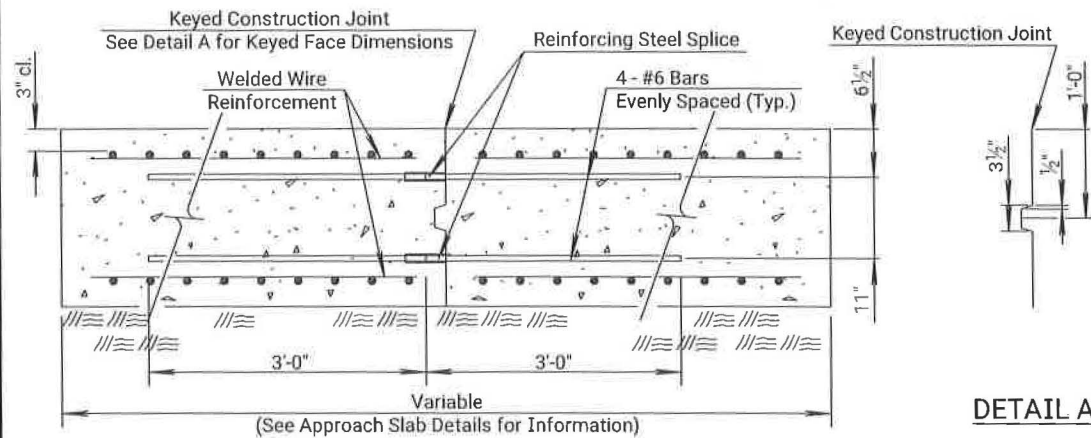
‡ EXPANSION JOINT WIDTH DETAILS (W₂)

See bridge construction layout sheet for details.

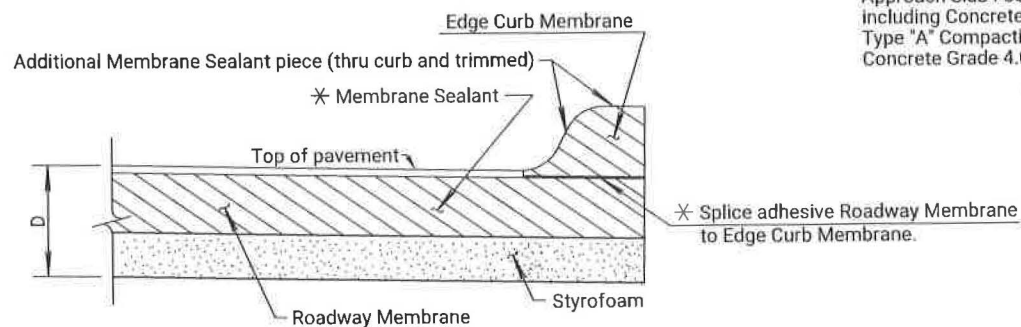


ELEVATION PRESSURE RELIEF JT.

ELEVATION EXPANSION JT.



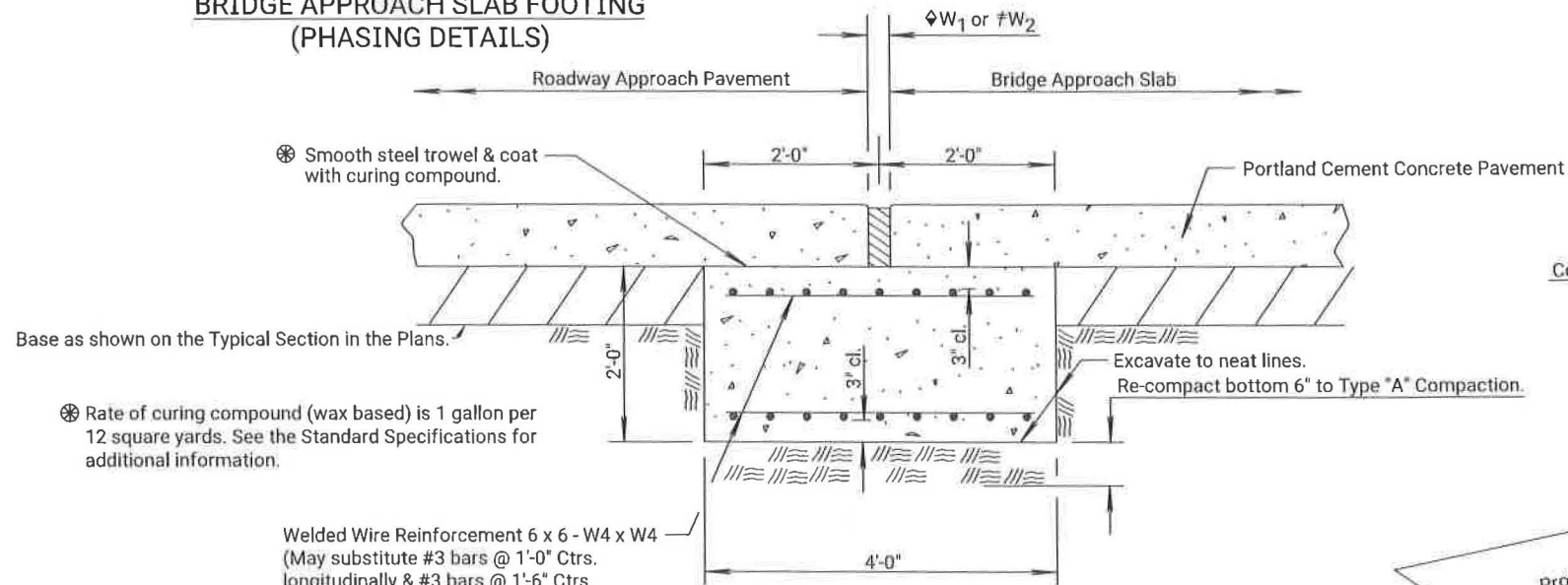
DETAIL A



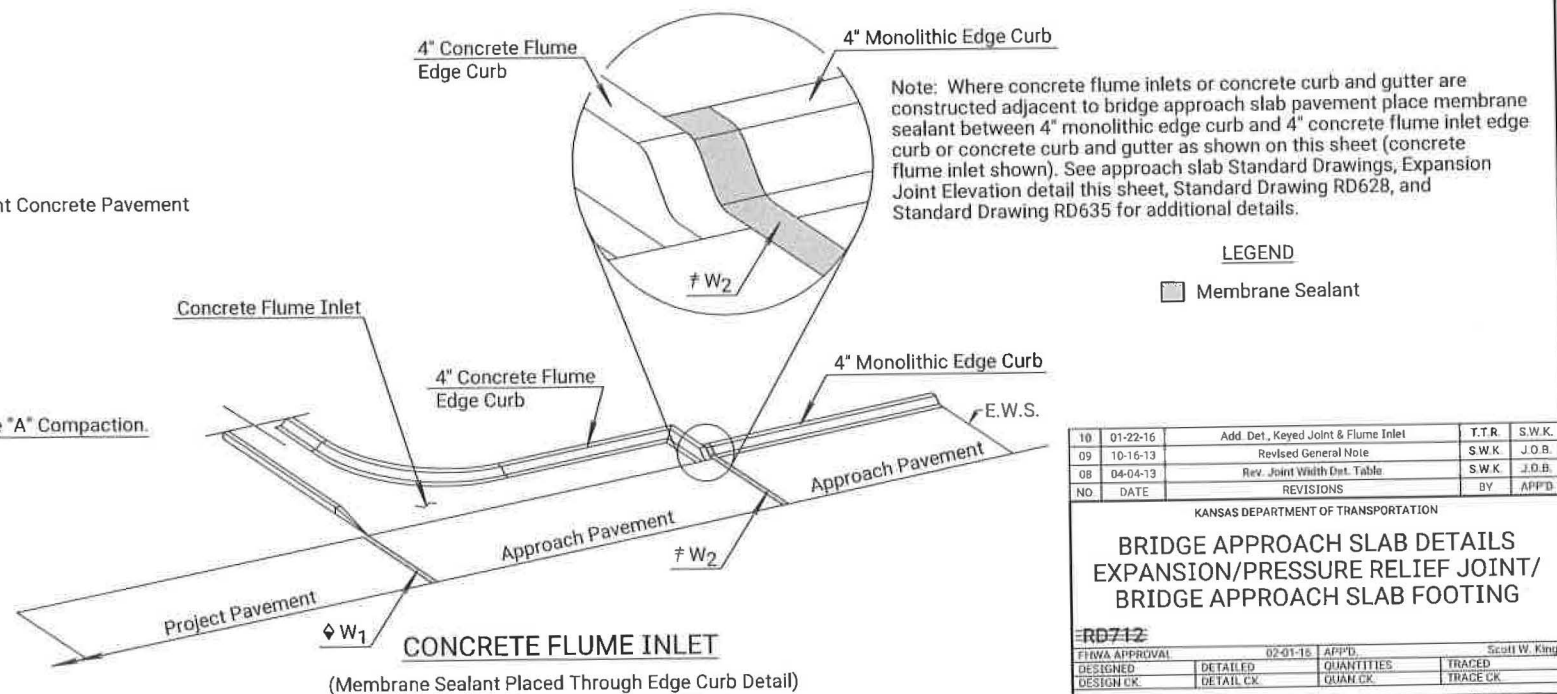
SECTION A-A

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

BRIDGE APPROACH SLAB FOOTING (PHASING DETAILS)



BRIDGE APPROACH SLAB FOOTING



LEGEND

Membrane Sealant

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

KANSAS DEPARTMENT OF TRANSPORTATION

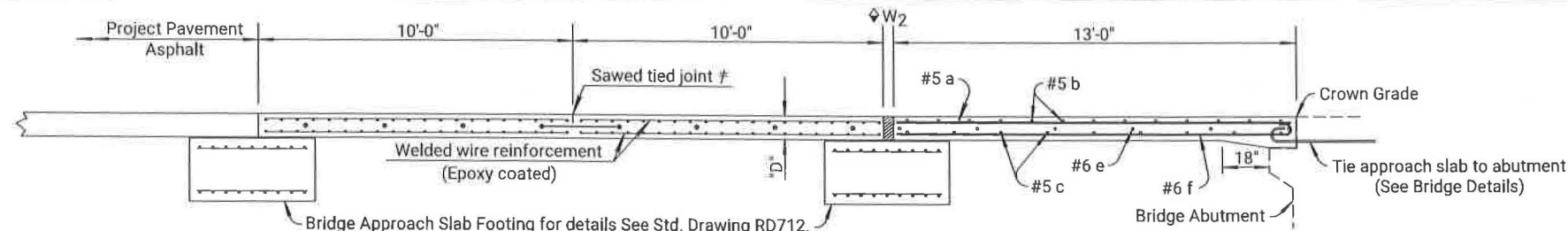
BRIDGE APPROACH SLAB DETAILS EXPANSION/PRESSURE RELIEF JOINT/ BRIDGE APPROACH SLAB FOOTING

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

Note to Designer: The designer shall be responsible for designating pavement thickness and computing reinforcing steel and concrete quantities and dimensions necessary to complete this sheet.

Plotted by : bwillkinson 26-JUN-2024 10:40
File : rd713.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	38 C-5206-01	2024	7	80



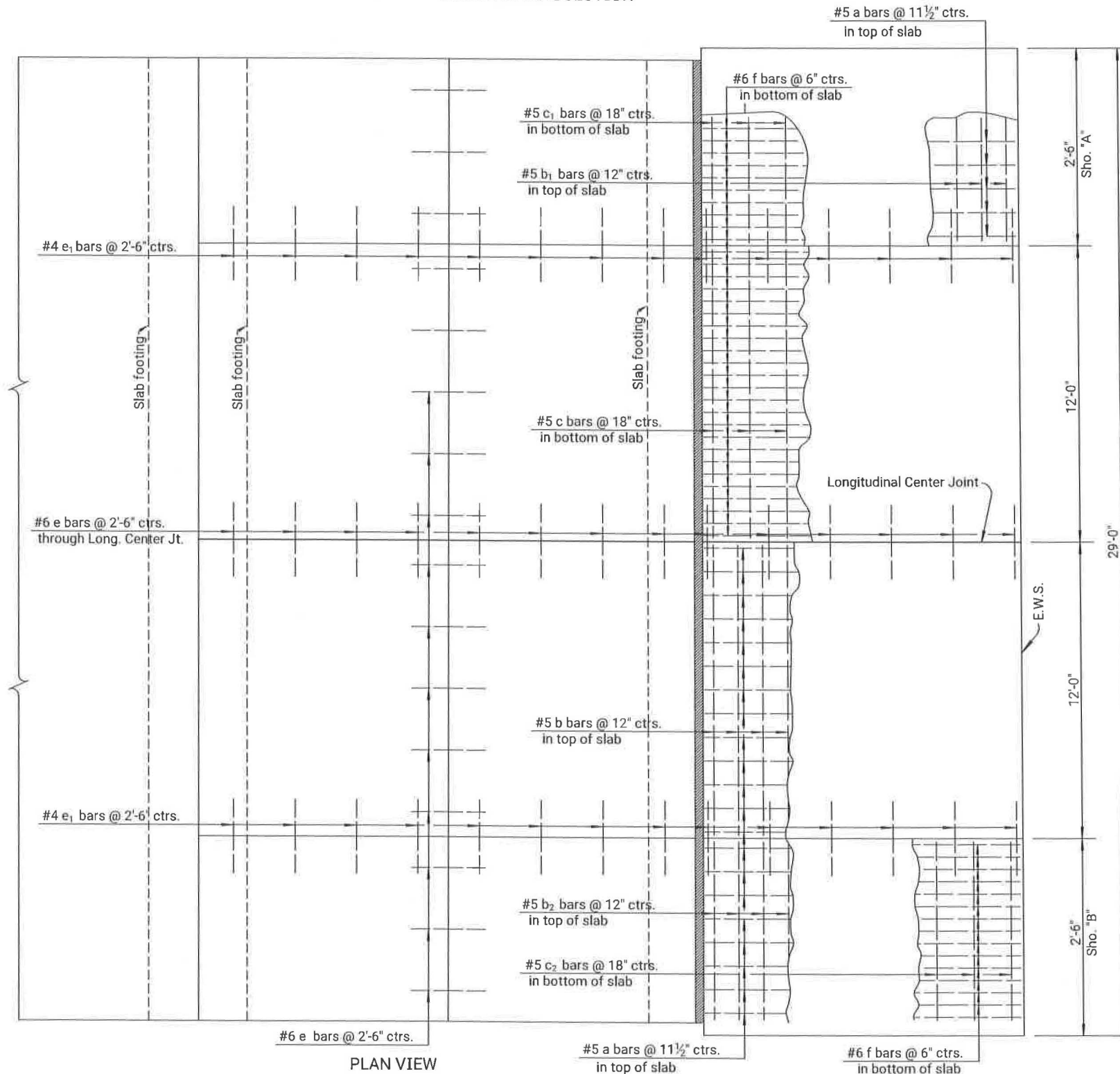
"D" Thickness = Thickness of Project Concrete Pavement (10" minimum).

LONGITUDINAL SECTION

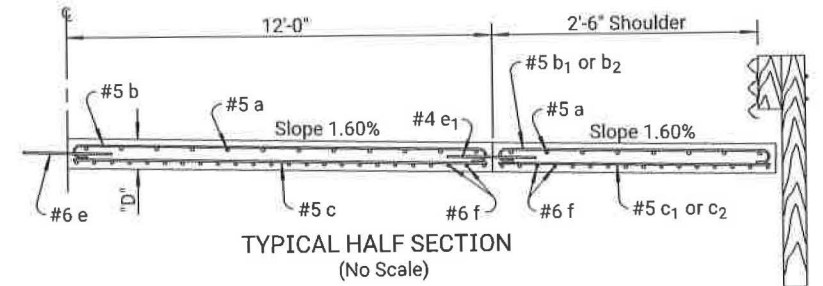
◆ W₁ and W₂ for Expansion/Pressure Relief Joint width and details See Standard Drawing RD712.
Contractor has the option of substituting a Tied Keyed Construction Joint.

GENERAL NOTE

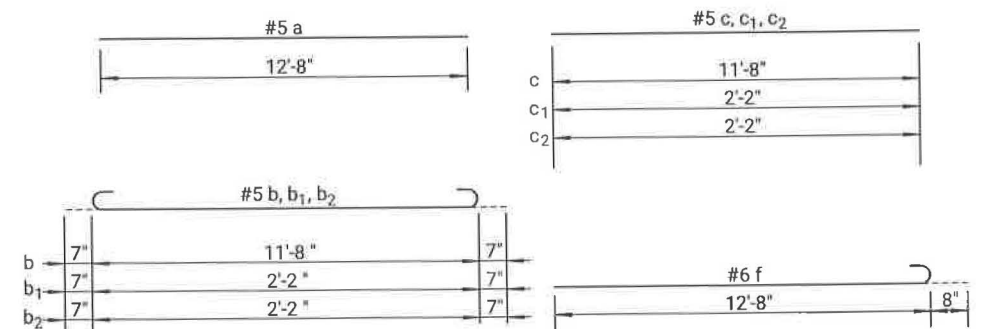
Special Concrete Bridge Approach shall be paid for as Sq. Yds. of Concrete Pavement (10" Unif.)(AE)(Br. App.) and includes all work and materials required to construct the approach slab as shown on this sheet.
All work and materials required for installation of expansion joints and pressure relief joints 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, welded wire reinforcement and edge curb.
Clearance from the face of concrete for all reinforcing steel shall be 2 inches.
Standard reinforcing bar hooks in accordance with the latest ACI specifications shall be used throughout.
The pressure relief joint shall be omitted when the concrete bridge approach pavement abuts asphalt pavement.



PLAN VIEW



TYPICAL HALF 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
32	26	13	13	18	9	9	26	28	58	
Size	#5	#5	#5	#5	#5	#5	#5	#6	#4	#6
Length	12'-8"	12'-10"	3'-4"	3'-4"	11'-8"	2'-2"	2'-2"	3'-0"	3'-0"	13'-4"
Reinforcing Steel (Grade 60) (Epoxy Coated)										2,450 lbs.
Concrete Pavement (10" Unif.)(AE)										104 Sq. Yds.
Expansion Jt. Membrane Sealant										28 Lin. Ft.

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

12	04-04-13	Rev. Exp./Pr. Relief Joint Dim.	S.W.K.	J.O.B.
11	09-09-09	Revised Reinforcing Steel listing	S.W.K.	J.O.B.
10	05-14-09	Revised pressure relief jt. material	S.W.K.	J.O.B.
NO.	DATE	REVISIONS	BY	APP'D
KANSAS DEPARTMENT OF TRANSPORTATION				
CONCRETE BRIDGE APPROACH PAVEMENT NORMAL APPROACH				
RD713				
DESIGNED	05-21-13	APP'D	James O. Brewer	
DETAIL	QUANTITIES	TRACED		
DESIGN CK	DETAIL CK	QUAN CK	TRACE CK	

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	38 C-5206-01	2024	8	80

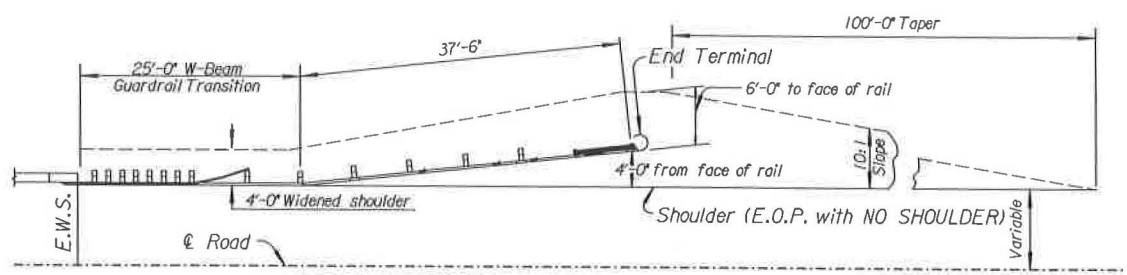
NOTE: Layouts 1, 2, 3, and 4 will be symmetric for any quadrant unless otherwise shown in the plans.

When using Rubrail, attach Std. Drawings No. RD611, RD616 and RD615 (parallel) or RD615A (flared).

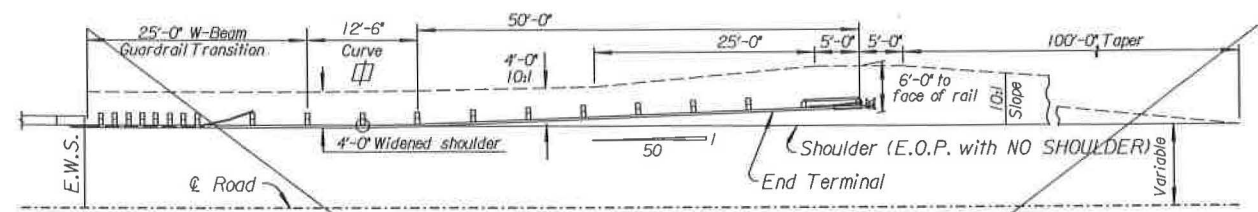
When using Thrie beam, attach Std. Drawings no. RD611 and RD608 or RD613.

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

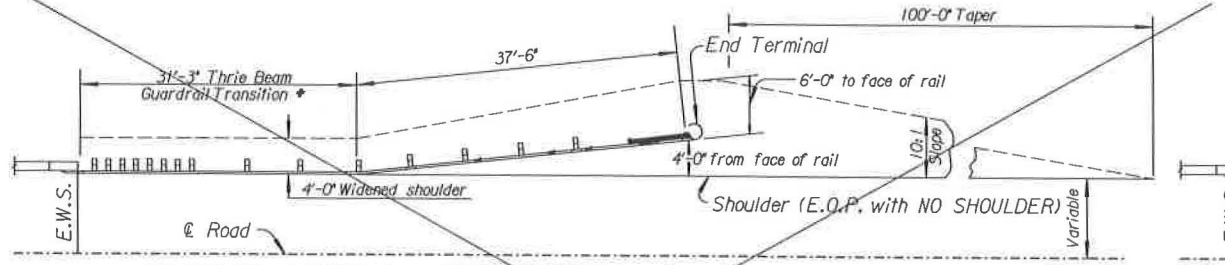
Radius = 625.08'



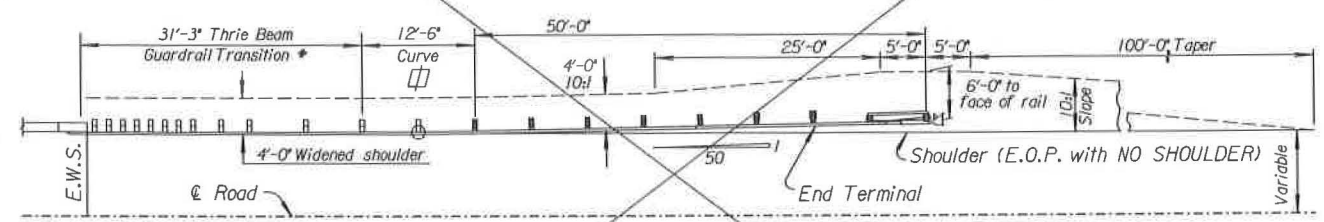
FLARED DESIGN - RUB RAIL (Layout 1)



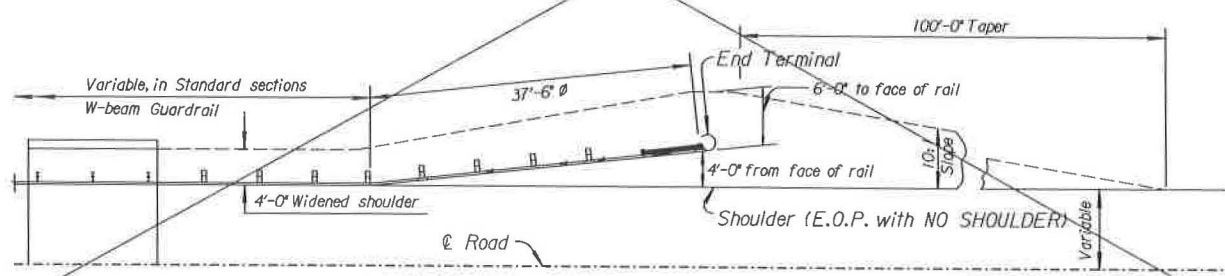
PARALLEL DESIGN - RUB RAIL (Layout 2)



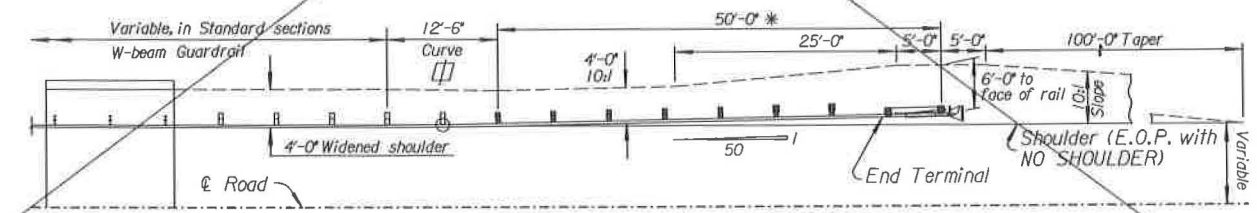
FLARED DESIGN - THRIE BEAM (Layout 3)



PARALLEL DESIGN - THRIE BEAM (Layout 4)



FLARED DESIGN (Layout 5)



PARALLEL DESIGN (Layout 6)

TYPICAL ALIGNMENT OF GUARDRAIL AT CULVERTS & BOX BRIDGES

ALLOWABLE END TERMINALS							
TYPE	Layout						Required Standard Drawing
	1	2	3	4	5	6	
SRT	X		X		X		RD606
FLEAT	X		X		X		RD606
SKT		X		X		X	RD606

SUMMARY OF STEEL PLATE GUARDRAIL											
Location (Quadrant)	Side	Layout		Additional Standard Sections Lin. Ft.	Total Pay Length Lin. Ft.	Layout 1 or 3		Layout 2, 4, or 6		Layout 5	
		No.	* Lin. Ft.			Gd. Rail End Term. (SRT) Alt. #1 Each	Gd. Rail End Term. (FLEAT) Alt. #2 Each	Gd. Rail. End Term. (SKT) Each	Gd. Rail End Term. (SRT) Alt. #1 Each	Gd. Rail End Term. (FLEAT) Alt. #2 Each	
Southwest	Lt.	1	25'-0"		25'-0"	1	1				
Southeast	Rt.	1	25'-0"		25'-0"	1	1				
Northwest	Lt.	1	25'-0"		25'-0"	1	1				
Northeast	Rt.	1	25'-0"		25'-0"	1	1				
TOTAL LENGTH					100'-0"	4	4				

*See Guardrail Auxiliary Details (RD606) for Measurement Details. Does Not Include End Terminal.

12	02-21-19	Updated per Road Memo 18-02	WFL	MJS
11	10-30-17	Removed X-Lite	WFL	MJS
10	01-06-15	Added X-Lite, Removed ET-PLUS	TLS	RJS
9	11-9-05	Added length for Thrie Beam transition	REA	RJS
REVISIONS			BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION

TYPICAL ALIGNMENT OF GUARDRAIL INSTALLATIONS

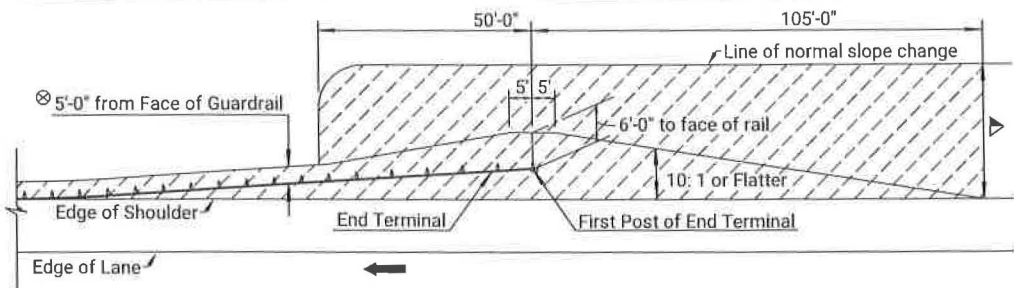
LP620

FIWA APPROVAL	DESIGNED	DETAILED	TLS	QUANTITIES	APP'D.	MJS
DESIGN CK.	DETAIL CK.	RJS	LOAN CK.	TRACE CK.		

Note to Designer - Design guardrail installations using guidance shown on KDOT's 'Guardrail Typical Alignments' Standard Drawings. 'Flared' guardrail installations are preferred over 'Parallel' or 'Zero Flare' installations. Where 'Flared' or 'Parallel' installations are used, the flare rate of the guardrail end terminal typically matches the flare rate of the remaining guardrail installation. For 'Zero Flare' installations, 'Parallel' guardrail end terminals should be designed using typical flare rates of 50:1 or flatter for the length of the end terminal. However, while 50:1 or flatter flare rates are typical for 'Parallel' guardrail end terminals, these end terminals may be flared as steep as 26:1 or flatter in order to offset the end terminal head as far from the edge of the through traveled lane as practicable.

GUARDRAIL CLEAR AREA

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



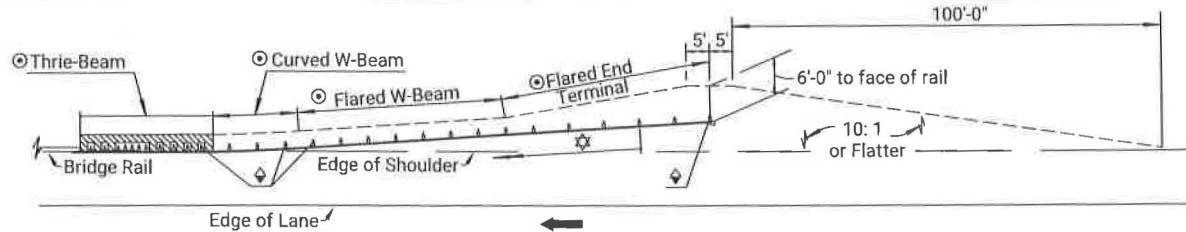
Keep Area Free of Stockpiled Material, Equipment, or Other Obstacles, Such as Temporary Signs, Regardless of Crash Worthiness. This Clear Area Extends 105 Feet in Advance of and 50 Feet behind the First Post of the Guardrail End Terminal and Then, in Order to Maintain Full Post Spacing, Continues 5 Feet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

▲ Normal Project Side Slope.

⊗ Deflection Distance for Normal Post Spacing

FLARED GUARDRAIL DETAIL

Applies to CGS AND MGS (MGS Shown)



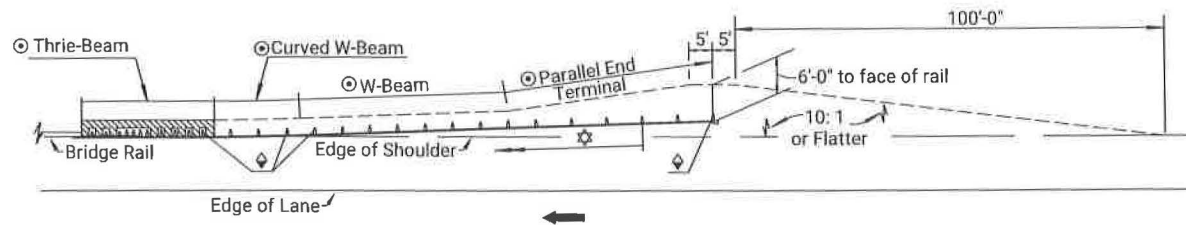
⊙ See Guardrail Layout Sheets for Details

◆ On Guardrail Layout Sheets, Show Station AND Offset from the Roadway Alignment to the Face of Post at these Locations.

☆ Length of Need (Begins at Post 3)

PARALLEL GUARDRAIL DETAIL

Applies to CGS AND MGS (MGS Shown)



GENERAL NOTES

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

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

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

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

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

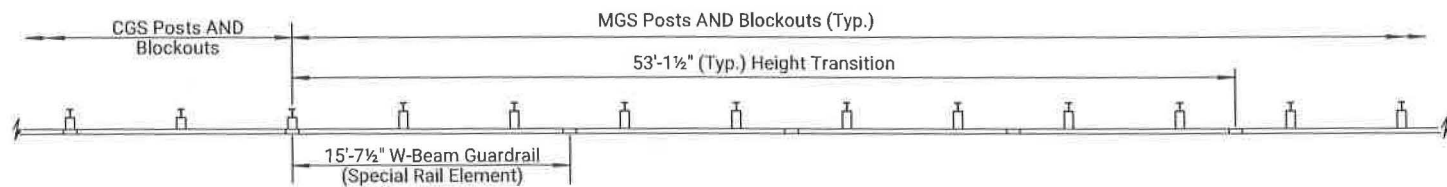
Lap w-beam and thrie-beam guardrail splices, in the direction of permanent traffic, even where temporary traffic may be carried in the opposite direction of the final traffic configuration. Lap end terminal splices per the Manufacturer's Installation Manual in the direction of permanent traffic, even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

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

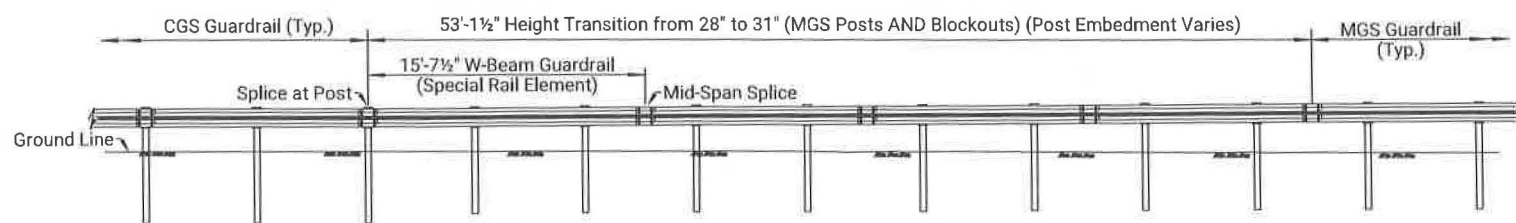
Where pavement with a thickness less than or equal to 8" is encountered during installation, use the details shown on KDOT's 'Guardrail Post Details' Standard Drawings to provide openings in the pavement for the guardrail posts. Where pavement with a thickness greater than 8" or geologic rock is encountered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

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

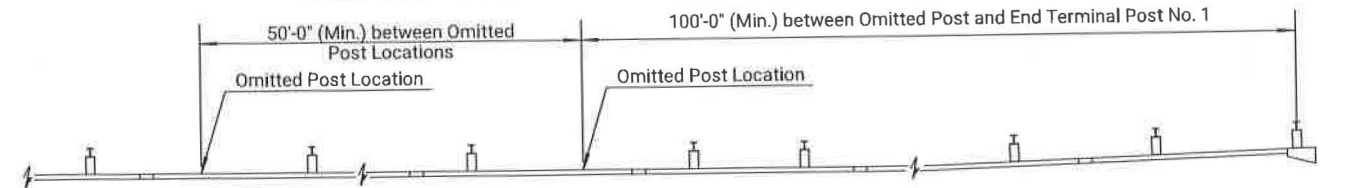
All work and materials required for guardrail end terminal installations are paid for under the bid item for the selected guardrail end terminal. See the table on this sheet for the appropriate end terminal bid item information.



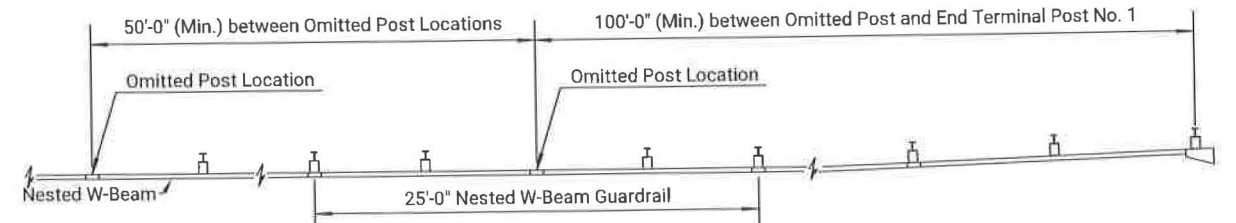
CGS TO MGS TRANSITION DETAILS (PLAN)



CGS TO MGS TRANSITION DETAILS (ELEVATION)



MGS OMITTED POST DETAIL



CGS OMITTED POST DETAIL

MIDWEST GUARDRAIL SYSTEM (MGS) END TERMINALS

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

CONVENTIONAL GUARDRAIL SYSTEM (CGS) END TERMINALS

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

NO	DATE	REVISIONS	BY	APP'D
02	09-05-18	ADD OMITTED POST AND TRANS DETAILS	ALR	T.T.R.
01	06-05-18	INITIAL RELEASE	ALR	T.T.R.

GUARDRAIL AUXILIARY DETAILS

RD606

DESIGNED	DETAIL CK	QUANT CK	TRACED

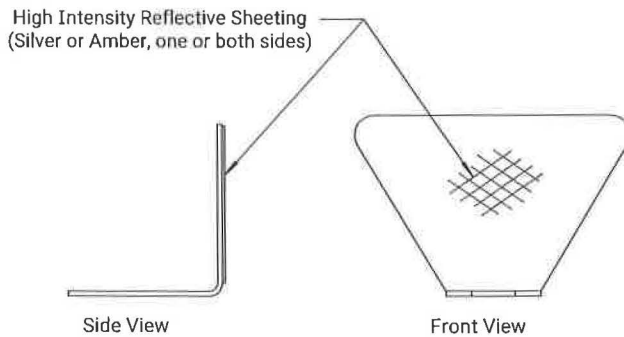
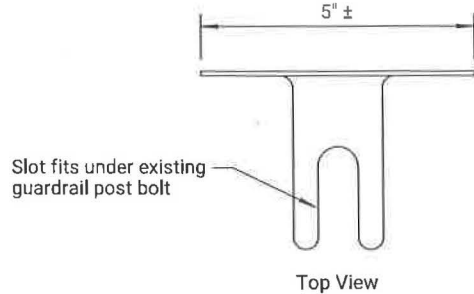
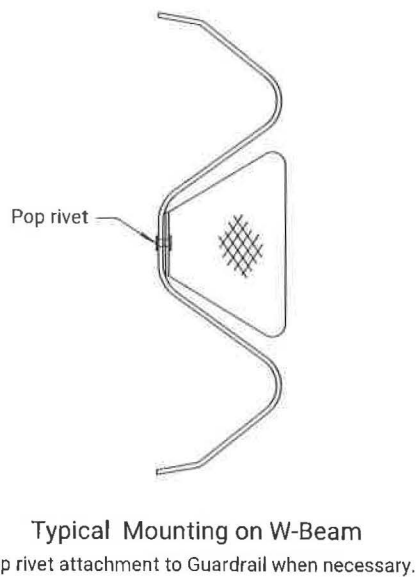
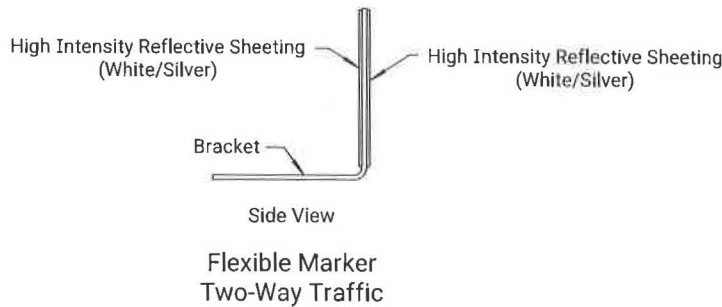
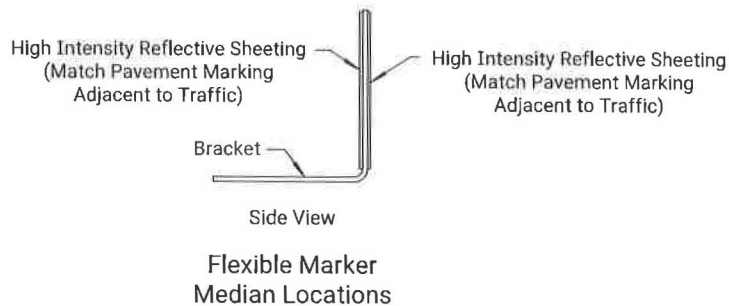
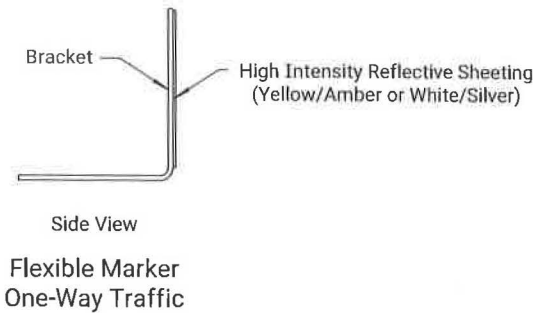
Sh. No. 9

26-JUN-2024 10:41

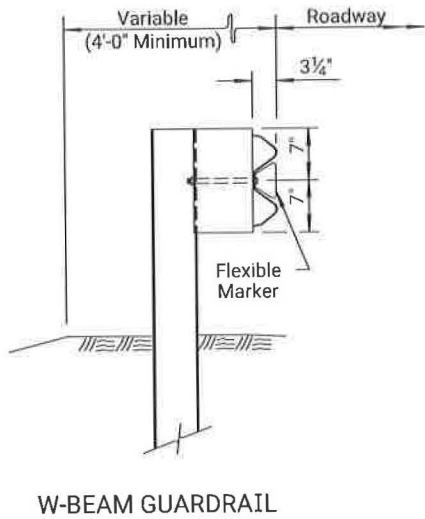
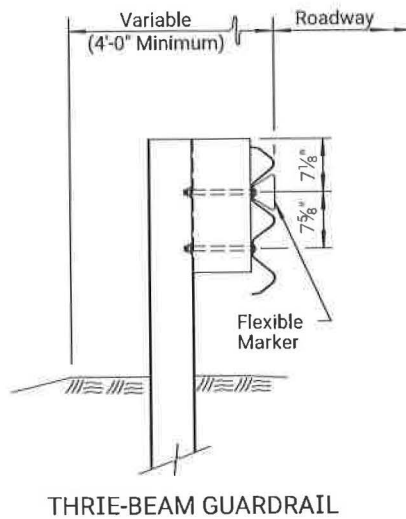
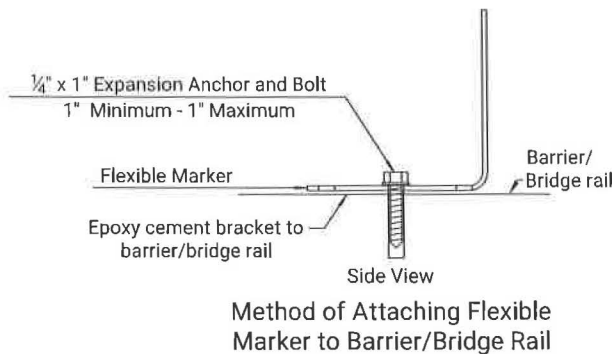
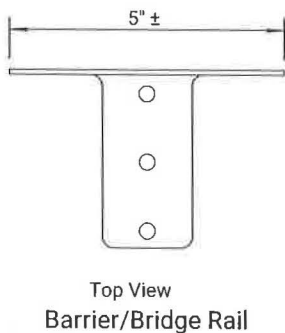
Plotted by: bwilkinson

File: rd606.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	38 C-5206-01	2024	10	80



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



GENERAL NOTES

Install flexible markers on a post behind the guardrail bolt head on the traffic side of guardrail installations at a spacing not to exceed 25'. No marker is installed between the head and post #5 when the guardrail is terminated with a crashworthy end terminal.

Install flexible markers on the top of bridge rails at a spacing not to exceed 50', except for long bridges (greater than 200' long), where spacing may be increased to 100'.

Install flexible markers on the top of concrete safety barrier at a spacing not to exceed 100', except for barrier along a horizontal curve or along ramps and ramp tapers, where spacing is not to exceed 50'.

Where the height of the bridge rail or concrete barrier is greater than 32", mount the flexible markers on the side of the barrier at a height of 32" as shown on this sheet.

For guardrail, bridge rail, or concrete safety barrier located on two-way roadways, use flexible markers with white/silver high intensity reflective sheeting on both sides.

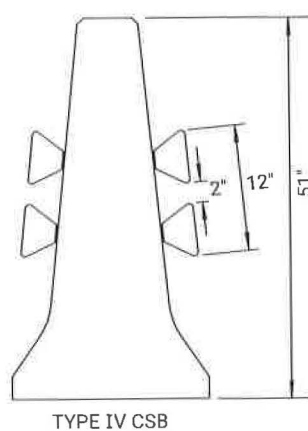
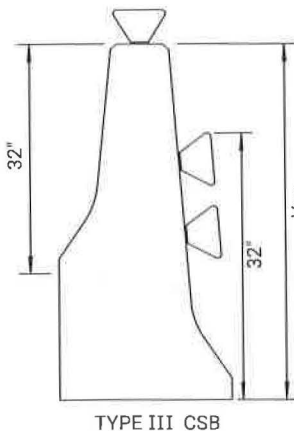
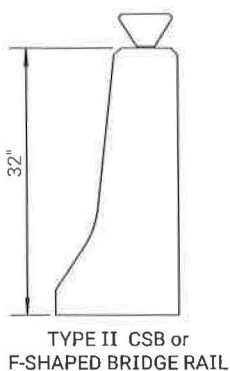
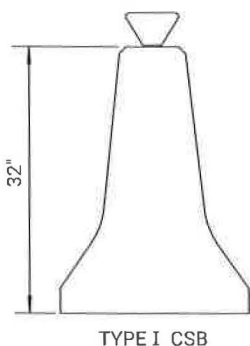
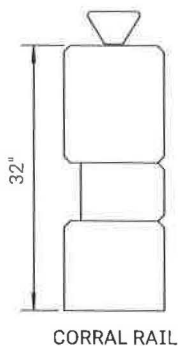
For guardrail located on one-way or divided roadways, use flexible markers with reflective sheeting installed on the approach traffic side of the bracket only. For bridge rail or concrete safety barrier located on the outside edge of one-way or divided roadways, use flexible markers with reflective sheeting installed on the approach traffic side of the bracket only. For bridge rail or concrete safety barrier located in the median, use flexible markers with reflective sheeting installed on both sides of the bracket. Match the color of the marker (yellow/amber or white/silver) to the color of the pavement marking adjacent to the traffic lane.

Use High Impact Polycarbonate Flexible Guardrail Marker with High Intensity Reflective Sheet or an approved equivalent, see Standard Specifications.

Use zinc or cadmium plated fasteners that comply with Standard Specifications.

Work and materials required for installation of markers on guardrail, bridge rail, or concrete safety barrier are subsidiary to other bid items in the contract.

Install flexible markers for the final (permanent) traffic configuration.



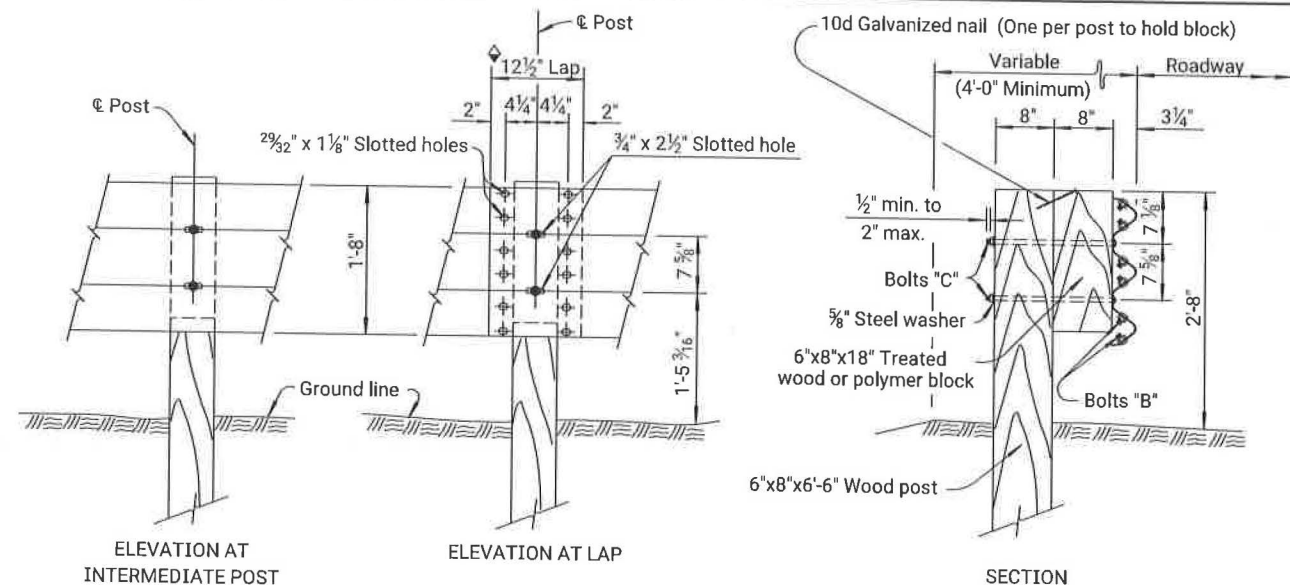
TYPICAL BARRIER/BRIDGE RAIL MOUNTING DETAILS

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

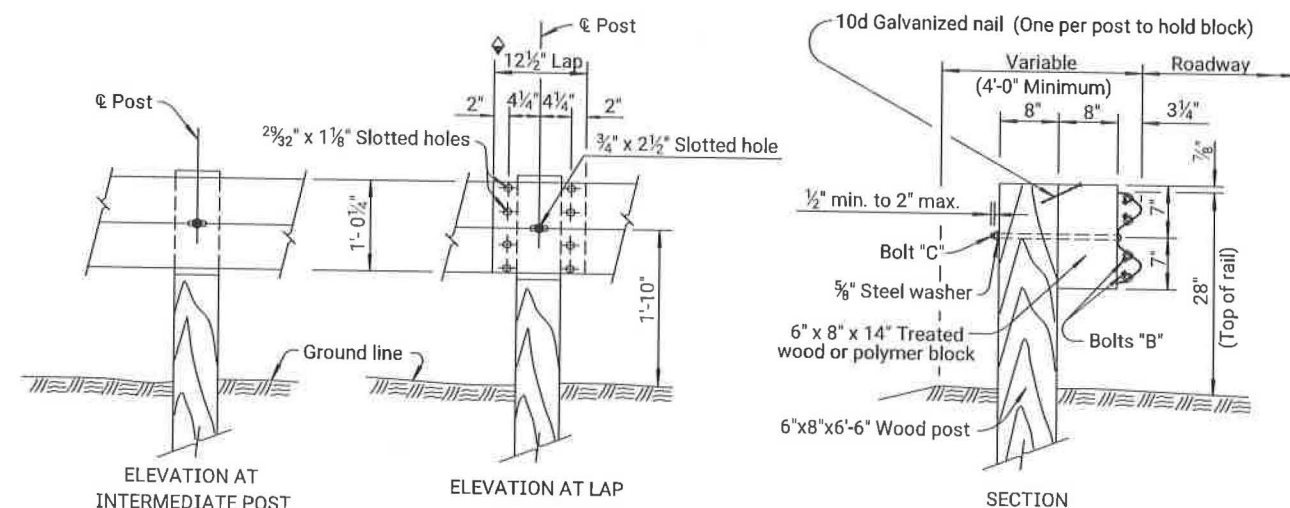
KANSAS DEPARTMENT OF TRANSPORTATION				
MARKER DETAILS FOR GUARDRAIL, BARRIER, AND BRIDGE RAILS				
RD610				
DESIGNED	03-15-18	APPD.	Scott W. King	
DESIGN CK	DETAIL CK	QUANTITIES	TRACED	TRACED CK

Notes to Designer: For posts installed in pavement thicker than 8" or posts installed in rock formations refer to AASHTO's Roadside Design Guide for details then revise this drawing and all supporting drawings appropriately.

Plotted by : bwillkinson 26-JUN-2024 10:41
File : rd611.dgn



THRIE BEAM POST DETAILS



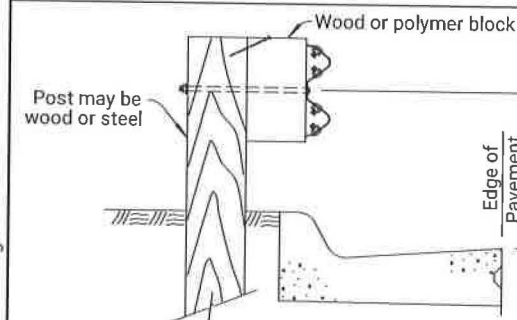
W-BEAM POST DETAILS

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

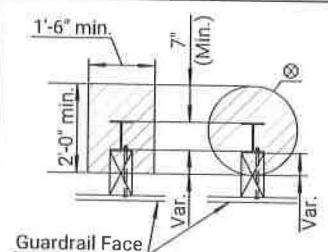
WOOD POSTS

GENERAL NOTES (Wood Posts)

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



DETAIL OF PLACEMENT AT CURB

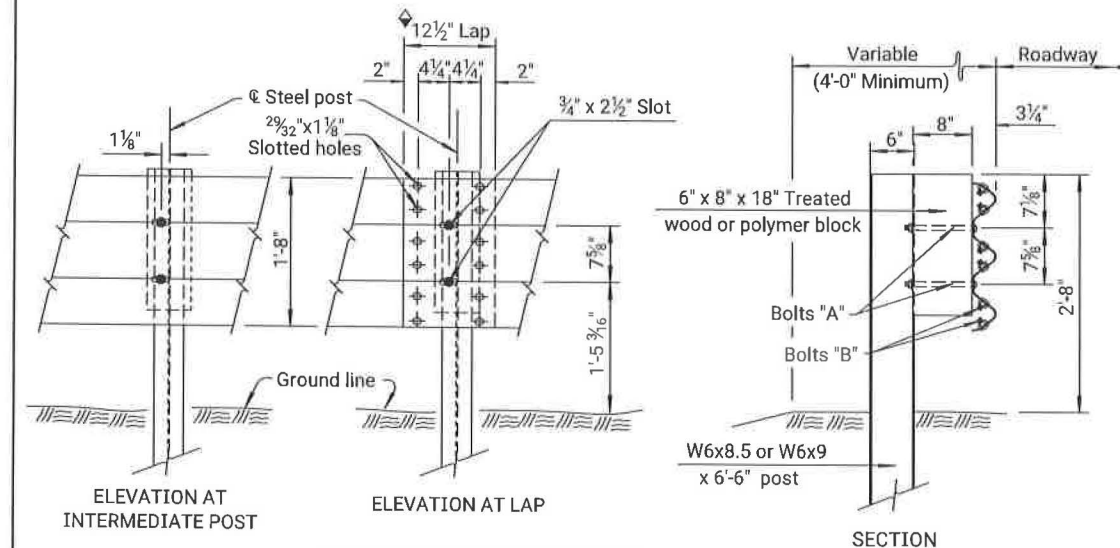


POSTS IN PAVEMENT PLAN
(ALTERNATE GEOMETRIES)
Applies to All Wood and All Steel Posts
(Steel Posts Shown)

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

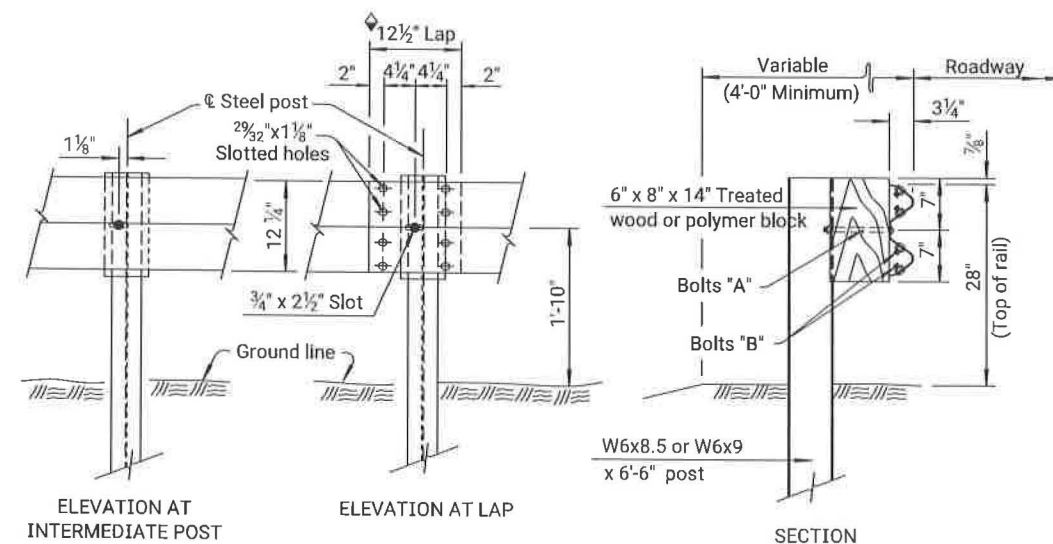
Note: Low Strength Grout must have a 28-day compressive strength of 120 psi or less. All work and materials related to posts in pavement are subsidiary to other guardrail bid items. Rectangular geometry shown in Posts in Pavement detail. Circular geometry, as shown on this sheet, may be used at the Contractor's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

BOLT SIZE SCHEDULE	
Bolt	L
A	8 1/2"
B	1 1/4"
C	18"



THRIE BEAM POST DETAILS

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

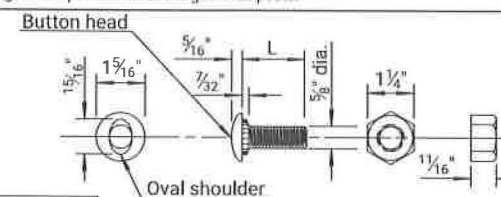


W-BEAM POST DETAILS

STEEL POSTS

GENERAL NOTES (Steel Posts)

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



BOLT & NUT DETAILS

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

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

KANSAS DEPARTMENT OF TRANSPORTATION

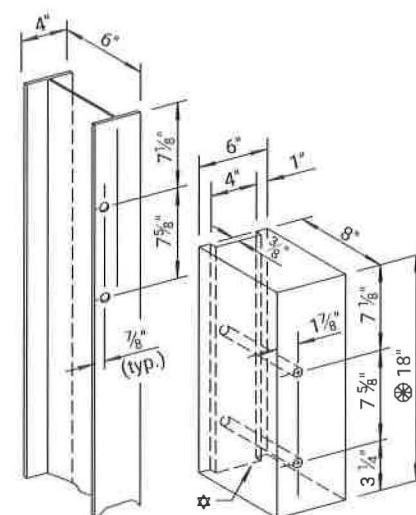
GUARDRAIL POST DETAILS

RD611

DESIGNED	DETAILS	QUANTITIES	TRACED
CK	CK	CK	CK

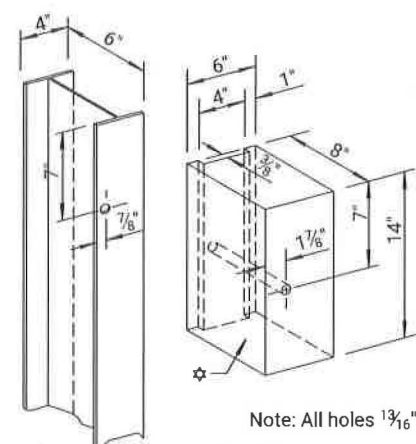
KDOT Graphics Certified 04-23-2024 Sh. No. 11

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



Note: All holes 1 3/16" dia.

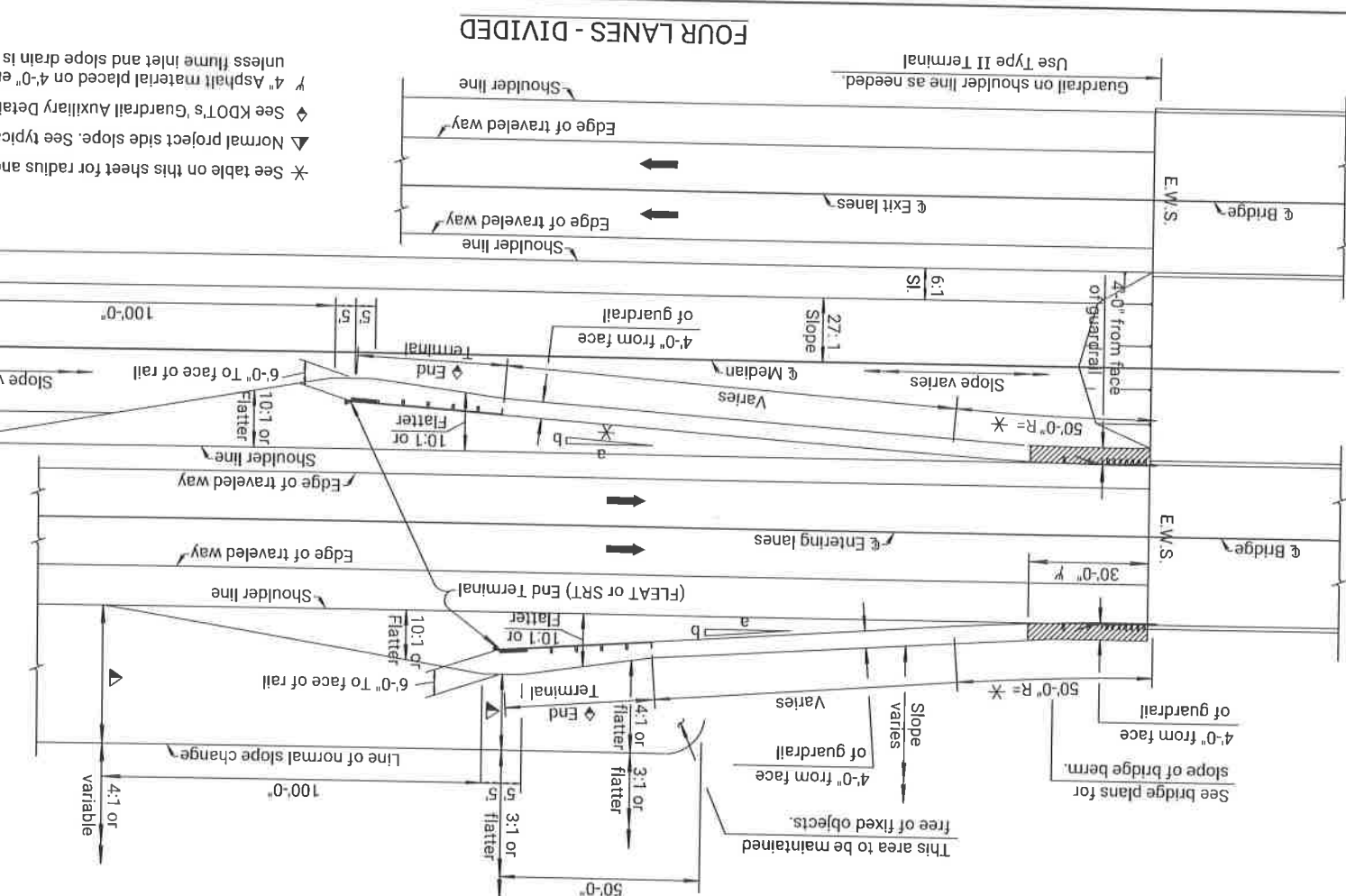
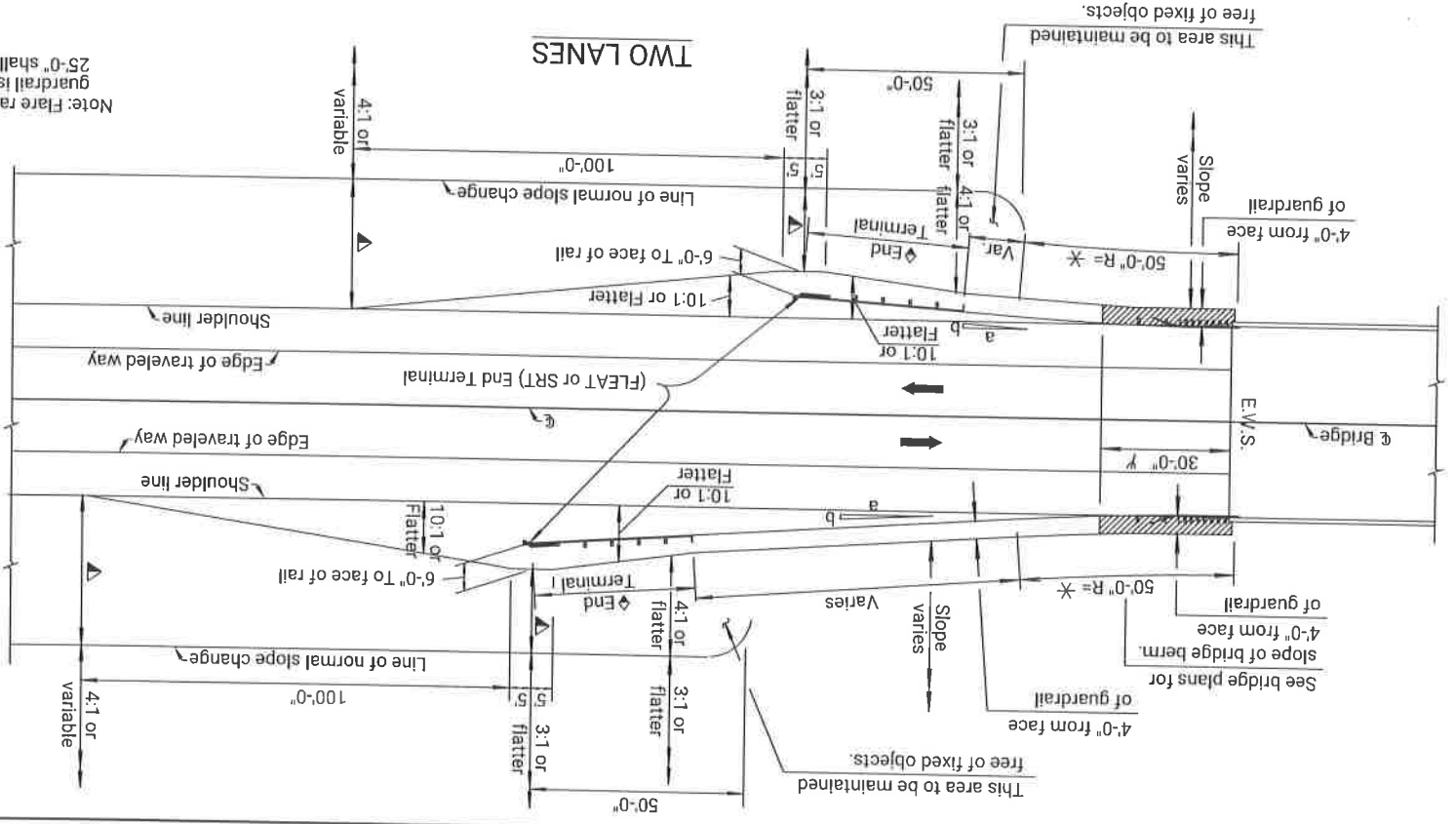
THRIE BEAM HOLE PUNCHING DETAILS



Note: All holes 1 3/16" dia.

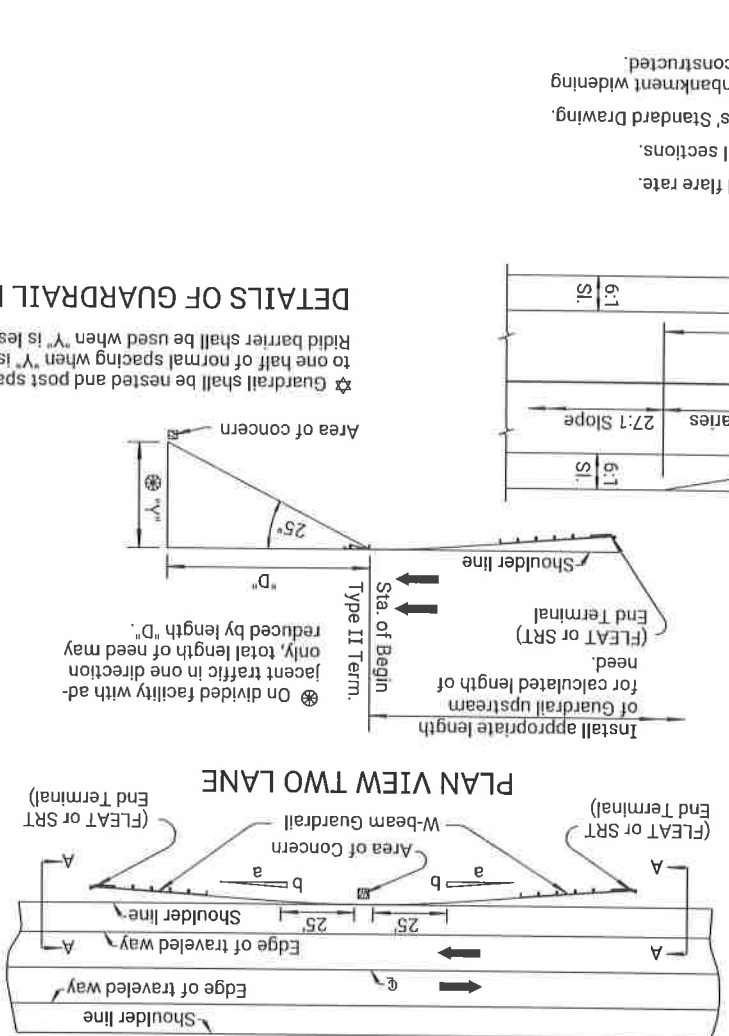
"W" BEAM HOLE PUNCHING DETAILS

Notes to Designer: Guardrail length of need shall be determined in accordance with the AASHTO Roadside Design Guide using $L_1 = 25'$ for flare rate of a/b and $L_2 = 12.5'$ for flare rate of $2a/b$ for a typical installation as shown on this sheet. This sheet shall be used when the flared guardrail design for typical layout shown (FLEAT or SRT) is selected. Material for asphalt widening shall be included in the plan quantities.

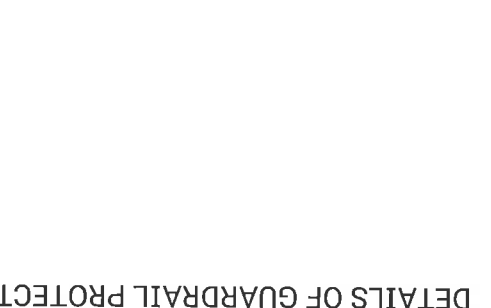


- * See table on this sheet for radius and flare rate.
- ▲ Normal project side slope. See typical sections.
- ◆ See KDOT's 'Guardrail Auxiliary Details' Standard Drawing.
- ▽ Unless flume inlet and slope drain is constructed.

DESIGN PARAMETERS				
Design Speed (mph)	Flare Rate (a:b)	Radius (R)	Flare Rate (2a:b)	Radius (R)
40	15:1	375.55	30:1	375.14
45	11:1	275.76	26:1	325.16
50	12:1	300.69	24:1	300.17
55	14:1	350.59	20:1	262.70
60	16:1	400.50	18:1	225.23
70	20:1	500.00	15:1	200.26

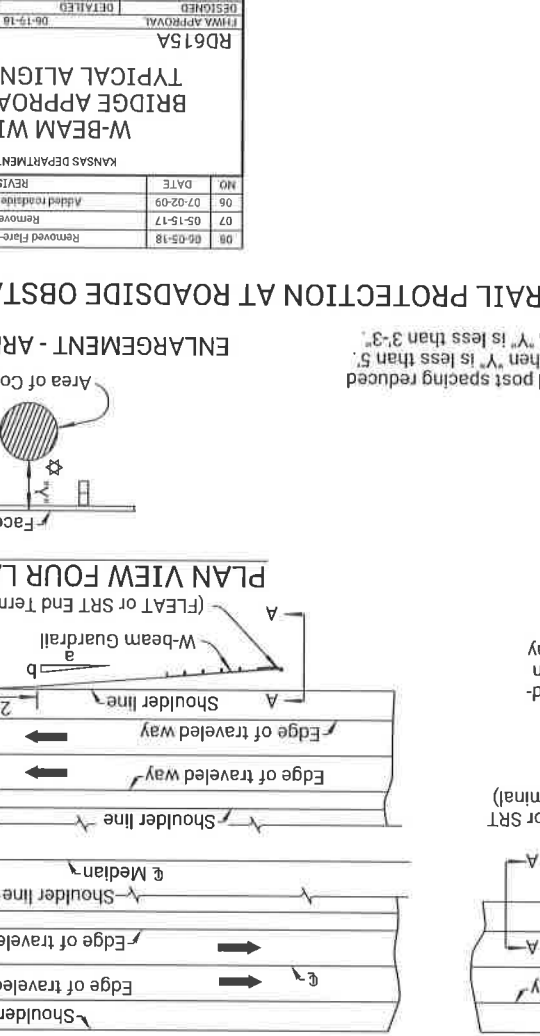


☆ Guardrail shall be nested and post spacing reduced to one half of normal spacing when "Y" is less than 5'. Rigid barrier shall be used when "Y" is less than 3'-3".



ALTERNATE TREATMENT - TWO LANES

Flare Rate = 2a:b



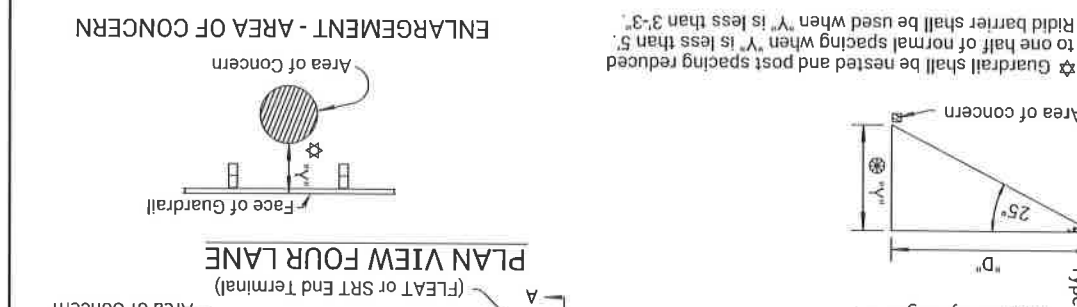
GENERAL NOTE				
STATE	KANSAS	PROJECT NO.	38 C-5206-01	
YEAR	2024			
SHEET NO.	12			
TOTAL SHEETS	80			

For guardrail and rubrail sections, details, and general notes see KDOT's 'W-Beam with Rubrail Bridge Approach Transition Details' Standard Drawings. For post details see KDOT's 'Guardrail Post Details' Standard Drawings. The ratio of a:b may be specified as zero for long runs of guardrail in high fill areas. Widening, slopes & transition for Four Lane will be similar to that shown on two lane detail.

KANSAS DEPARTMENT OF TRANSPORTATION				
NO.	DATE	REVISIONS	BY	APPD.
08	06-05-18	Removed Flare-beyond-the-flare	A.L.R.	T.T.R.
07	05-15-17	Removed X-LITE	A.L.R.	S.W.K.
06	07-02-09	Added readable obstacle details	S.W.K.	J.O.B.
DESIGNED	CK	DETAILS	CK	TRACED
QUANTITIES	CK	QUANTITIES	CK	TRACED
APPROVAL	08-19-18	APPROVAL	Scott W. King	

RD615A
W-BEAM WITH RUBRAIL
BRIDGE APPROACH TRANSITION
TYPICAL ALIGNMENTS (FLARED)

DETAILS OF GUARDRAIL PROTECTION AT ROADSIDE OBSTACLE



Note to Designer:
KDOT Pipe Policy provides guidance in identifying the prohibited and/or restricted uses of CSP, ACSP, PEP, PVC/P, PPP SRPE, 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.

Type	 X-View  PFP  SRPE  CSP  ACSP  CAP  RCP
Mainline	
Side Road	
Entrance	
Under M/L	
Storm Sewer	
 ALLOWABLE LOCATION	

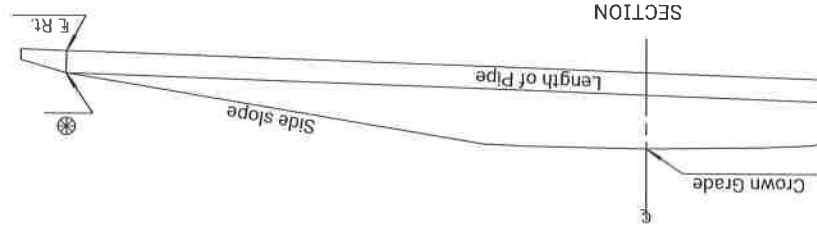
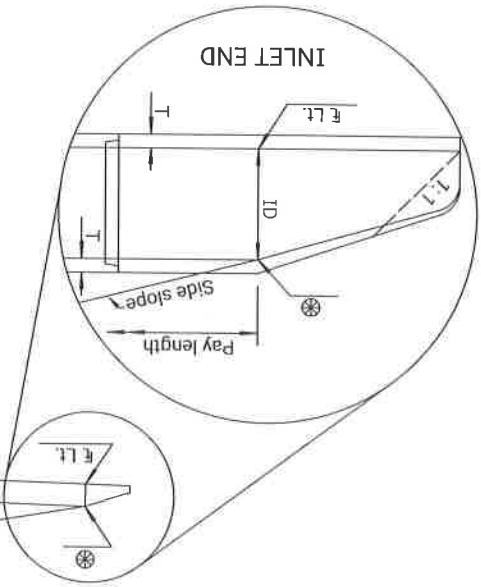
☆ When inside diameter of pipe is 36" or less,
 Unless otherwise specified in the plans, some pipe types may not be allowed at a location if the fill height exceeds the maximum allowable or is less than the minimum allowable cover.

☐ When inside diameter of pipe is 60" or less,
 ☐ For inside diameter $\geq 30"$

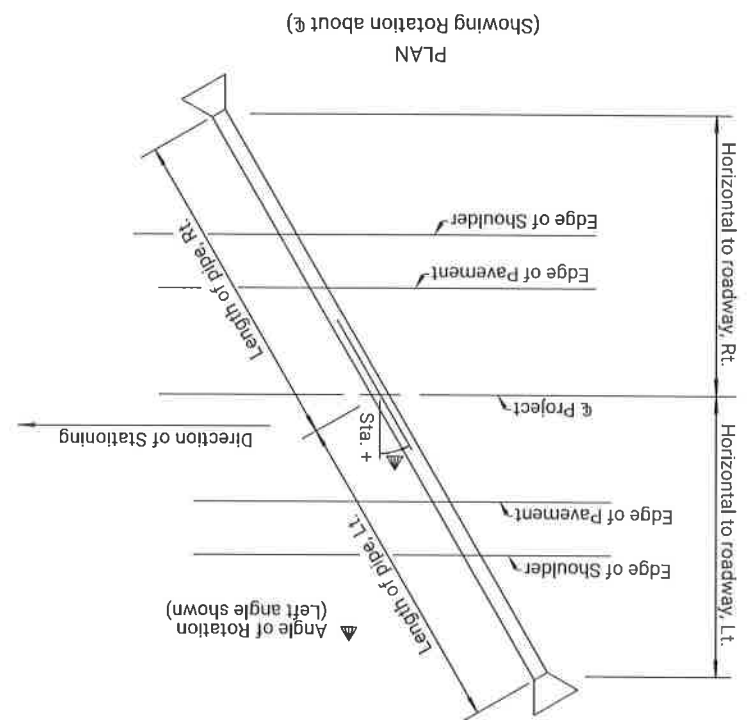
Type	ALLOWABLE END SECTIONS
PVCP	CS
FEP	ACS
PPP	CA
SRPE	RC
RCP	
ACSP	
CAP	
CSP	

Provide End Sections of the same material
and coating type as the pipe.

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



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

[illegible]

STATE	PROJECT NO.	38 C-5206-01	2024	15	80
			YEAR	SHEET NO.	TOTAL SHEETS

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

KANSAS DEPARTMENT OF TRANSPORTATION

SUMMARY OF PIPE CULVERTS

RD659	FDMA APPROVAL	06-05-22	APP'D	SCOTT W. KING
DESIGNED	DETAIL CK	QUANTITIES	TRACE CK	

SUMMARY of PIPE CULVERTS

STATE	PROJECT NO.	38 C-5206-01	2024	16	TOTAL SHEETS	80
INDEX TO BRIDGE DRAWINGS Sheet No. 16-17 General Notes and Quantities 18 Contour Map 19-20 Construction Layout 21-22 Engineering Geology 23-25 Abutment Details 26-28 Pier Details 29-33 Superstructure Details 34 Handrail Details 35 Bill of Reinforcing Steel and Bending Diagrams 39 Bridge Plaque Details						
Standards						
36	Bridge Excavation					
37	Standard Pile Details					
38	Supports and Spacers for Reinforcing Steel					

Item	Location		Reinforcing Steel		Concrete		SUMMARY OF QUANTITIES	
	Class I	Cu. Yds.	Class II	(Grade 4.0) (AE) (SW)	Cu. Yds.	(Grade 60) (Epoxy Coated)	(Grade 60) (Grade 60)	Lbs.
Abutment No. 1	78	156	63.2	63.2	19.8	2,660	388	6
Pier No. 1	11	156	63.2	63.2	19.8	2,660	388	6
Pier No. 2	24	150	63.2	63.2	19.8	2,660	388	6
Pier No. 3	148	148	63.2	63.2	19.8	2,660	388	6
Pier No. 4	33	148	63.2	63.2	19.8	2,660	388	6
Pier No. 5	23	152	63.2	63.2	19.8	2,660	388	6
Pier No. 6	159	159	63.2	63.2	19.8	2,660	388	6
Abutment No. 2	79	159	63.2	63.2	19.8	2,660	388	6
Substr. Total								
Superstr. Total								
Total								

GENERAL NOTES

Only steel pile HP12X53 shall be used on this project.

CONCRETE PLACING SEQUENCE: The sequence of placing concrete

in the slab and curbs shall be as shown, or the Contractor may submit an alternate placing sequence for review. Submit the alternate placing sequence to the Engineer at the Preconstruction Conference. Include the proposed rate of concrete placement in C/y/h; the plant

capacity, placement direction, construction joint location, a description of the equipment used in placing the concrete, proposed admixtures, and the quantity of concrete in each placing segment. Any additional cost for the Contractor's alternate plan of placing concrete, including admixtures, shall be at the Contractor's expense and shall be considered subsidiary to the bid item, "Concrete (Grade 4.0)(AE)(SW)". Approval of the Contractor's alternate sequence is required prior to placement of concrete in the deck.

CONSTRUCTION LOADS: Limited traffic is permitted on the new sub-deck, one-course deck or any concrete overlay during the curing period, keep any exposed deck wet

710 Tables 710-1 & 710-2 for additional information.

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

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

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

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.

CONSTRUCTION SPECIFICATIONS: Kansas Department of Transportation, Standard Specifications for Road and Bridge Construction, 2015 Version, and Special Provisions.

LOPE PROTECTION (Riprap Stone): Place Slope Protection (Riprap Stone) to the limits and thickness shown on the plans or as directed by the Engineer. Use Riprap Stone Classified as Light 200 Pounds. Place a 10 foot wide mat of geotextile under the slope protection on the berm and berm slopes and centered on the drip lines of the slab. The geotextile shall not be paid for directly, but shall be considered subsidiary to the bid item "Slope Protection (Riprap Stone)".

REINFORCING STEEL: All reinforcing steel dimensions are to the

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

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 including haunch shall be 9 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 the concrete required for fillets is 35.6 C.Y. This amount of concrete is included in the Summary of Quantities. Any additional concrete required to construct the fillets will be subsidiary.

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 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 County. "Category 2" falsework inspection is not paid for directly, but is subsidiary to other bid items.

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

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

BRIDGE EXCAVATION: Elevation 3337.60 shall designate the Excavation Boundary Plane of Class I and Class II Excavation, Class I above the plane, Class II below the plane. See the Bridge Excavation sheet for the limits of pay excavation.

BACKFILL COMPACTION: Compact backfill at the abutments.

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.

CONTRACTOR FURNISHED PDA: Use the Pile Driving Analyzer equipment at the locations shown on the Construction Layout. Use Pile Driving Analyzer equipment and methods compliant with KDOT Special Provisions. The piling shall remain in place as permanent piling. Drive the piling to the resistance value of 123 tons at the Abutments and 125 tons at the Piers (Strength I divided by Phi).

CONCRETE: Superstructure concrete is bid as Concrete (Grade 4.0)(AE/SW). Substructure concrete is bid as all concrete with a ¾" 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.

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 joags or discontinuities. For skewed bridges all grooving will be perpendicular to the centerline of the bridge.

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

BRIDGE BACKWALL PROTECTION SYSTEM: Apply a 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, not including the top of the pavement rest. Prior to backfilling, repair any damage done to the system at no extra cost to the County.

ABUTMENT STRIP DRAIN: See the General Notes on the "Abutment Strip Drain" sheet.

PIER BEAM CONSTRUCTION: Cure the columns as required by the KDOT Specifications before beginning the pier beam construction (placing resteel or formwork). Do not drill and grout bolts or other devices into the columns used for falsework support unless approved by the Engineer. Cure the columns as required by the KDOT Specifications before placing pier beam concrete. Do not remove falsework used to support the pier beam until the pier beam concrete has cured as required by the KDOT Specifications. Do not set 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.

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 Bureau of Materials and Research for approval.

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 ($\pm \frac{1}{4}$ ").

REMOVAL OF EXISTING STRUCTURE: Removal of existing structure is included in the bid item, "Removal of Existing Structures", Lump Sum. The Contractor is to salvage the guardrail from the existing bridge and place on the county R/W for county to remove. All materials removed from the existing structure shall become the property of the Contractor. Remove all other material from the site.

GENERAL NOTES

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	38 C-5206-01	2024	17	80

NO.	DATE	REVISIONS	BY	APP'D
1	04/29/10	ADDED RATING TABLES	JPJ	KFH
2	08/2/12	ADDED NOT3135 & NOT3145	JPJ	TLF
3	2/12/14	Added Benchmark	JPJ	CER
4	4/7/14	Current Release	JPJ	CER
5	2/4/15	Modified Par 2015 Specification	JPJ	CER
6	10/19/15	Added Asbestos NOT8221 Option	JPJ	CER

KANSAS DEPARTMENT OF TRANSPORTATION

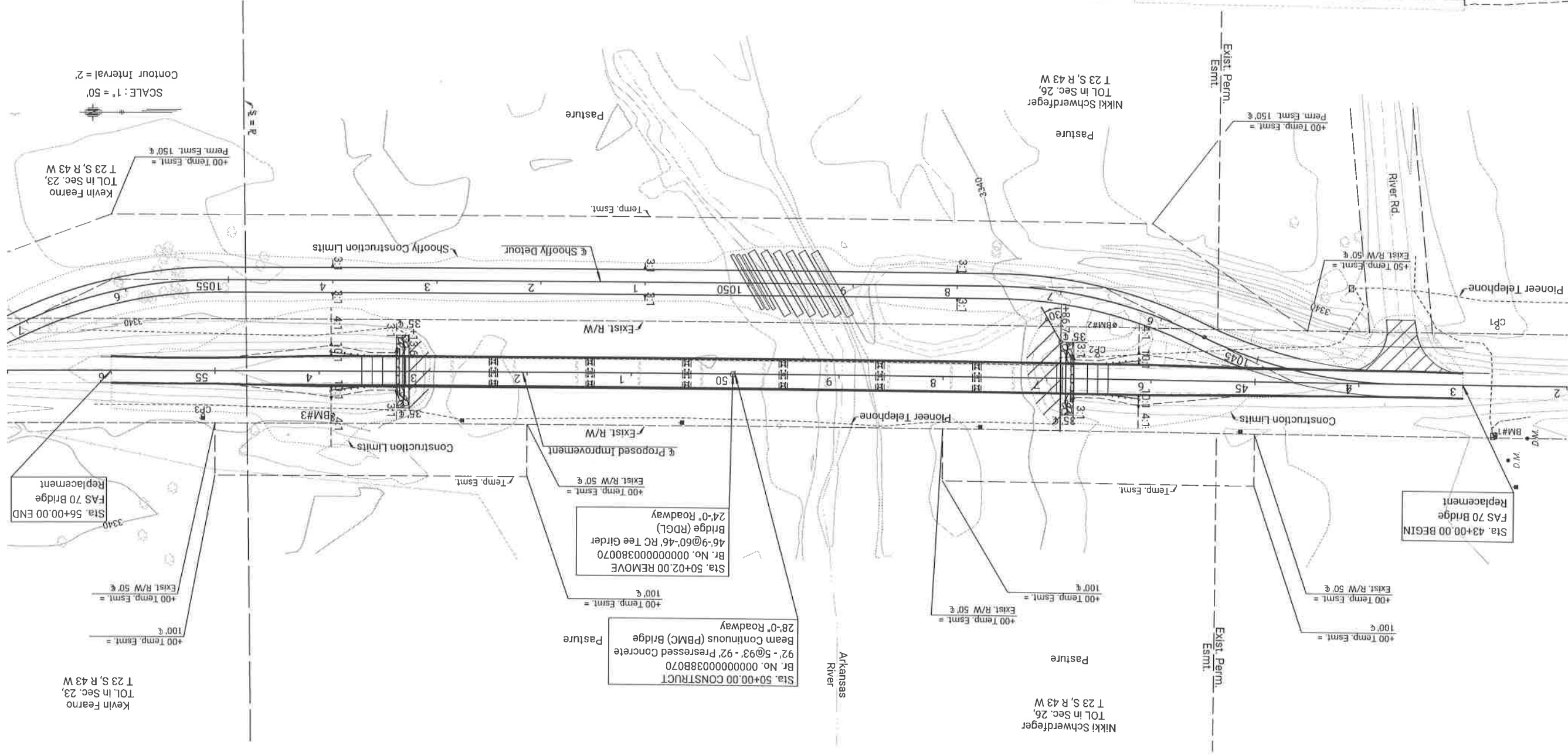
GENERAL NOTES

SHEET NO. OF SCALE
DESIGNED DETAIL CD
DESIGN CK. DETAIL CK. QUANT. CK. CAD CK.

CP #1
N = 465,420.52 E = 12,328,603.70
1. Set 5/8" Rebar
2. Lone Wooden Fc. Post 51.5' N
3. App. 4" of N-S Rd. 57.1' W
4. S. End of Ex. Bridge 418.4' N

CP #2
N = 465,804.99 E = 12,328,578.85
1. Set 5/8" Rebar Flush
2. App. 4" of N-S Rd.
3. Lone Wooden Fc. Post
4. Delinicator at SE End. of Ex. Bridge
23.0' SW
24.7' W
25.7' NW

CP #3
N = 466,666.09 E = 12,328,531.27
1. Set 5/8" Rebar Flush
2. E. Face of PP
3. App. E of N-S Rd.
4. N. End of Ex. Bridge
192.4'S



KANSAS	38 C-5206-01	2024	18	80
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS

NO.	DATE	REVISIONS	BY	APPD.

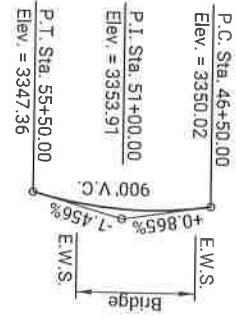
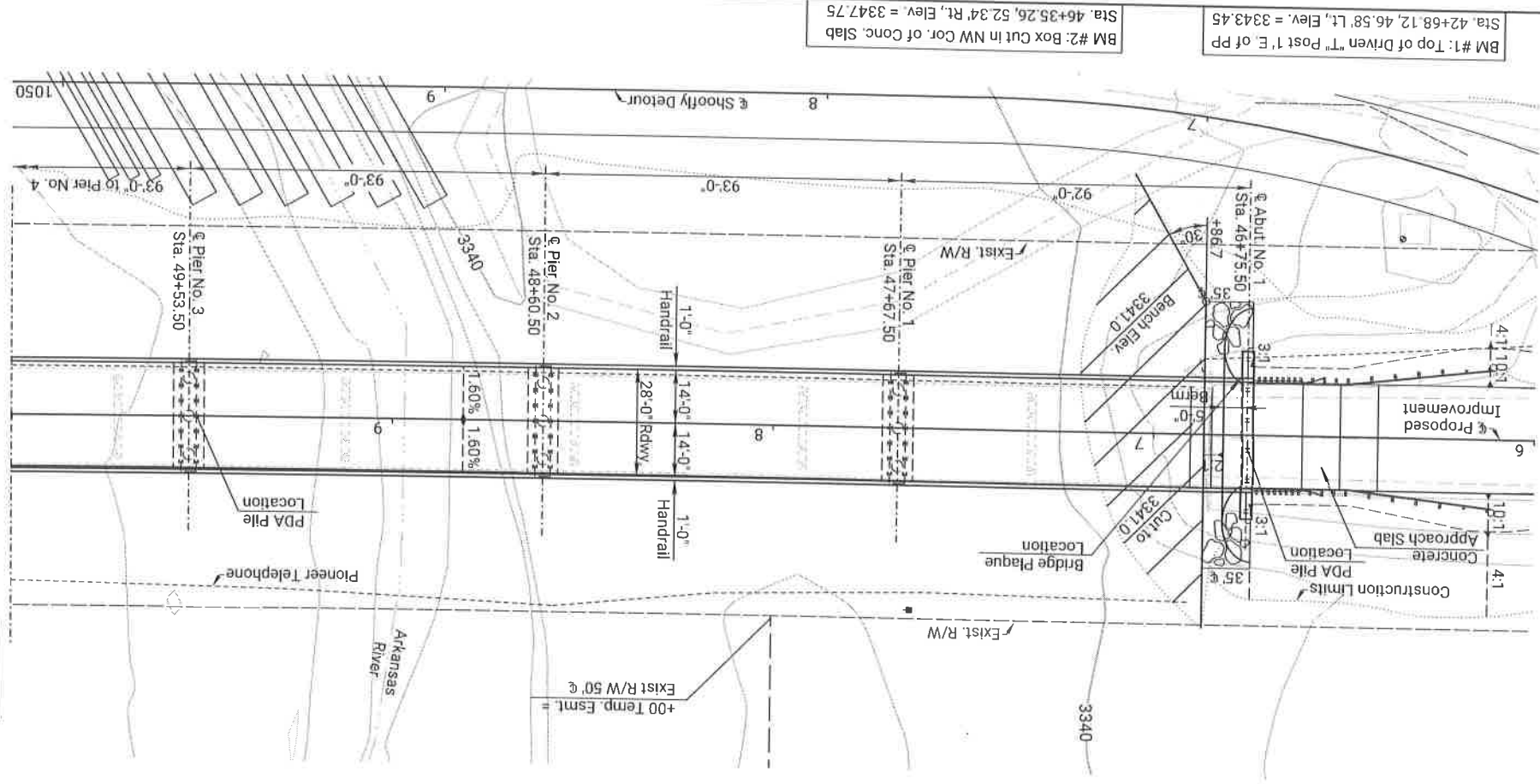
Br. No. 00000000038B070
KANSAS DEPARTMENT OF TRANSPORTATION
Sta. 50+00.00

BM #3: Top of Driven "T" Post 1' E. of Sign Post
Sta. 53+86.79, 41.91' Lt., Elev. = 3341.94

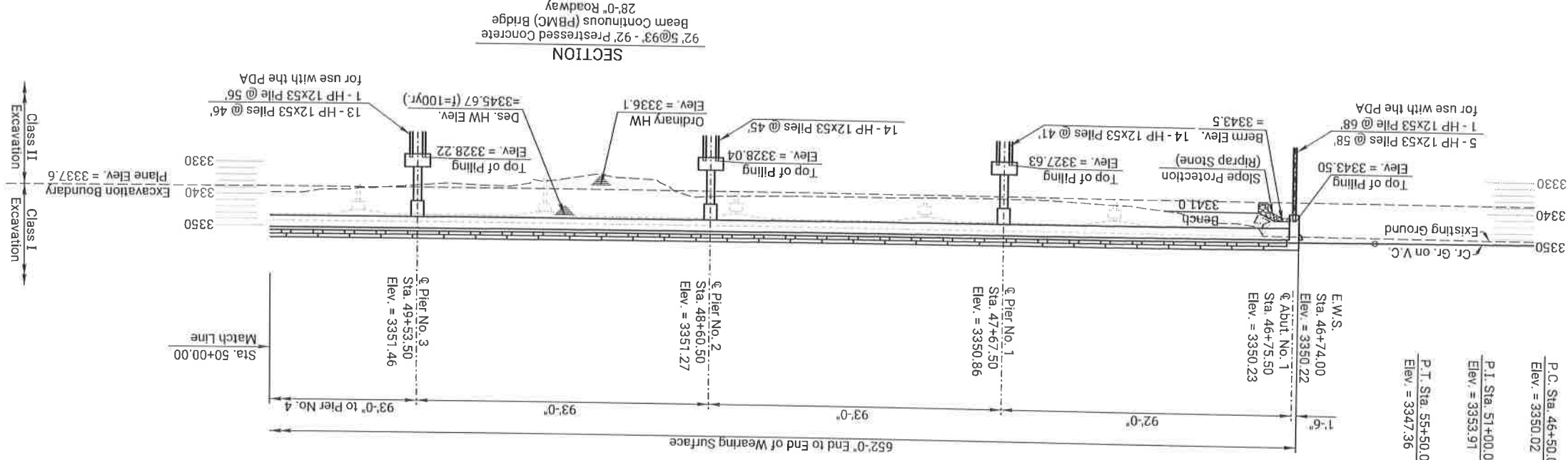
BM #2: Box Cut in NW Cor. of Conc. Slab
Sta. 46+35.26, 52.34' Rt., Elev. = 3347.75

BM #1: Top of Driven "T" Post 1' E. of PP
Sta. 42+68.12, 46.58' Lt., Elev. = 3343.45

EXISTING WATERWAY OPENING SKETCH
Existing Effective Waterway Opening = 4,344 sq. ft.



SECTION



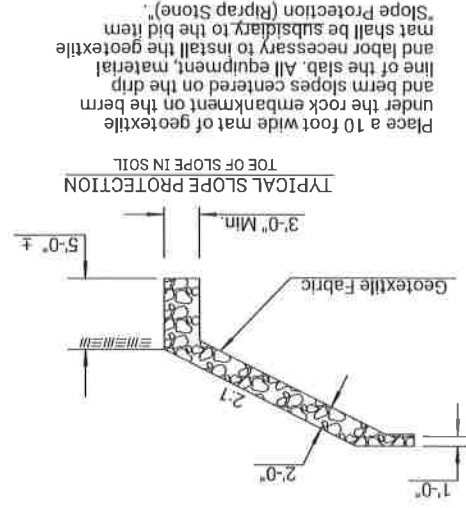
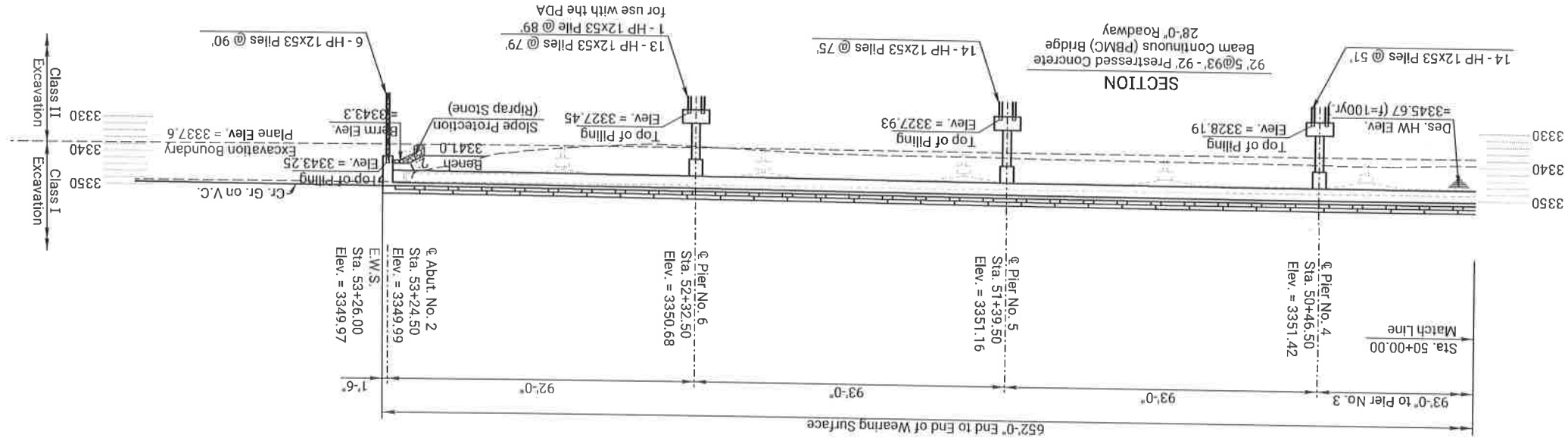
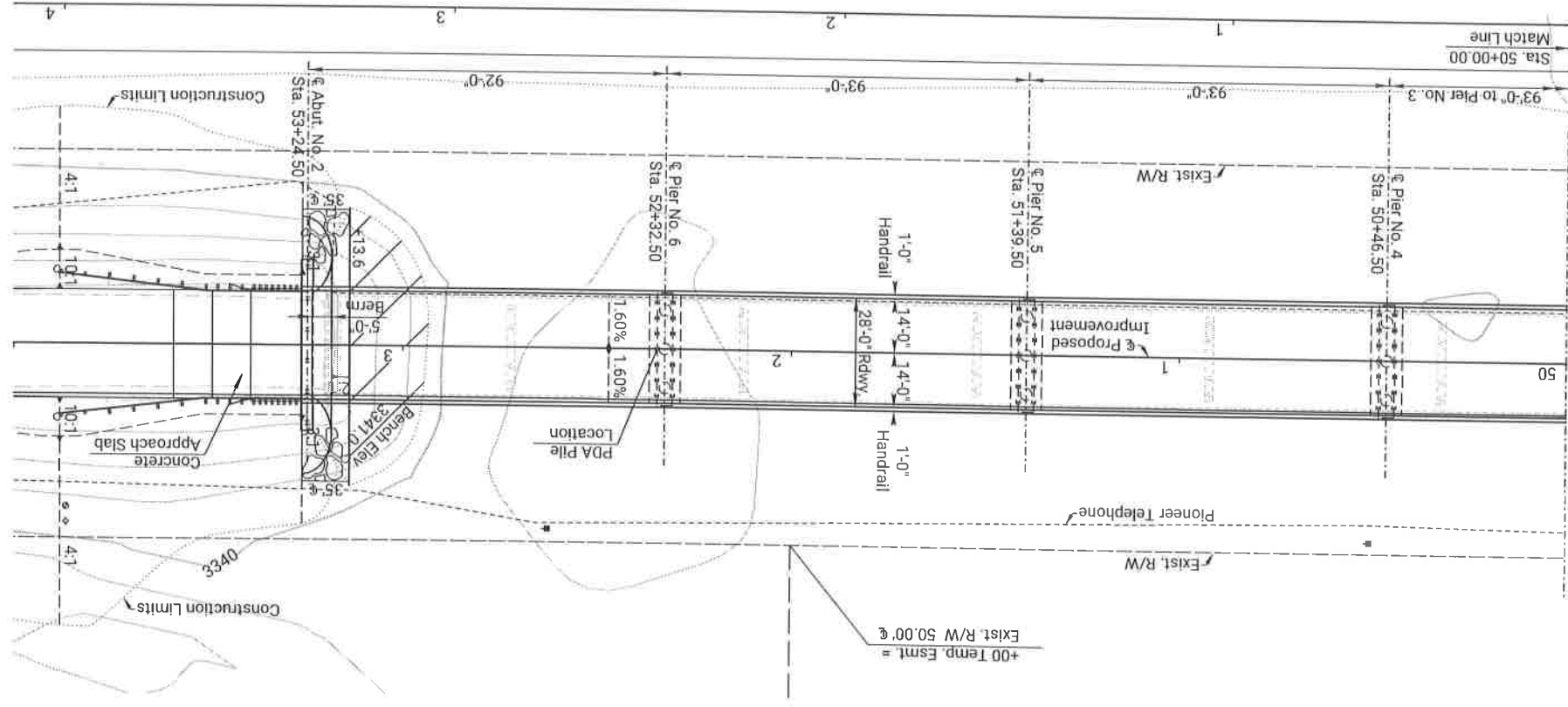
EXPANSION JOINT WIDTH DETAILS (W2)	
ψ Temperature (F°)	
40°	2½"
50°	2¾"
60°	2⅞"
70°	3"
80°	3¼"
90°	3½"

^a Average Ambient Temperature over previous 24 hours.

NO	DATE	REVISIONS	BY	APP'D
KANSAS DEPARTMENT OF TRANSPORTATION				
BR. No. 00000000038BB070				
Sta. 50+00.00				
CONSTRUCTION LAYOUT				
SHEET 1 of 2				
FAS 70 Bridge Replacement				
Hamilton County				
DESIGNED	DETAILS	QUANTITIES	CADD	
DESIGNED CK	DETAIL CK	QUANT CK	CADD CK	

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	38 C-5206-01	2024	19	80

Drainage Area	Sq. MI.	25.019
Design Frequency	yr.	100
Design Discharge @ (Q100)	cfs	94,000
Design Velocity @ (Q100)	fps	9.2
Design High Water Elevation	ft.	3345.67
Overtopping Elevation (Sta. 59+10.00)	ft.	3343.64
Overtopping Discharge	cfs	29,800
Discharge @ (Q100)	cfs	25
Backwater @ (Q100)	ft.	0.0
Backwater Elevation @ (Q100)	ft.	3345.92
Historic Highwater Elevation	ft.	Unknown
Ordinary Highwater Elevation	ft.	3336.10
Total Waterway Provided	Sq. Ft.	4,868
Design Waterway Provided	Sq. Ft.	4,079
Estimated Ordinary Highwater Discharge	cfs	200



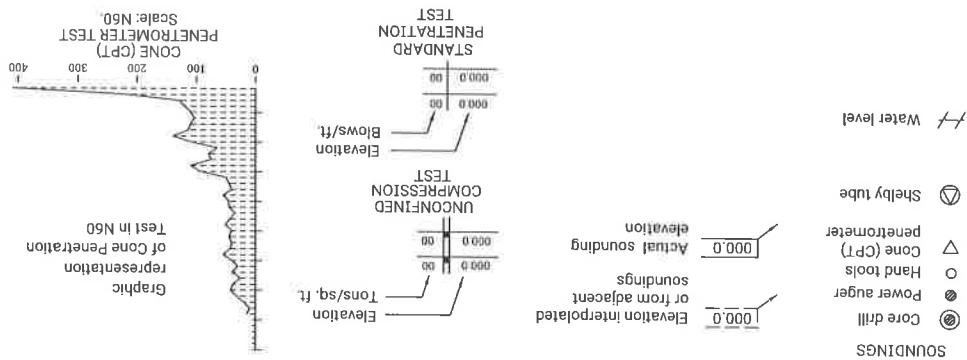
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	38 C-5206-01	2024	20	80

NO	DATE	REVISIONS	BY	APP'D

Br. No. 000000000038B070
Sta. 50+00.00

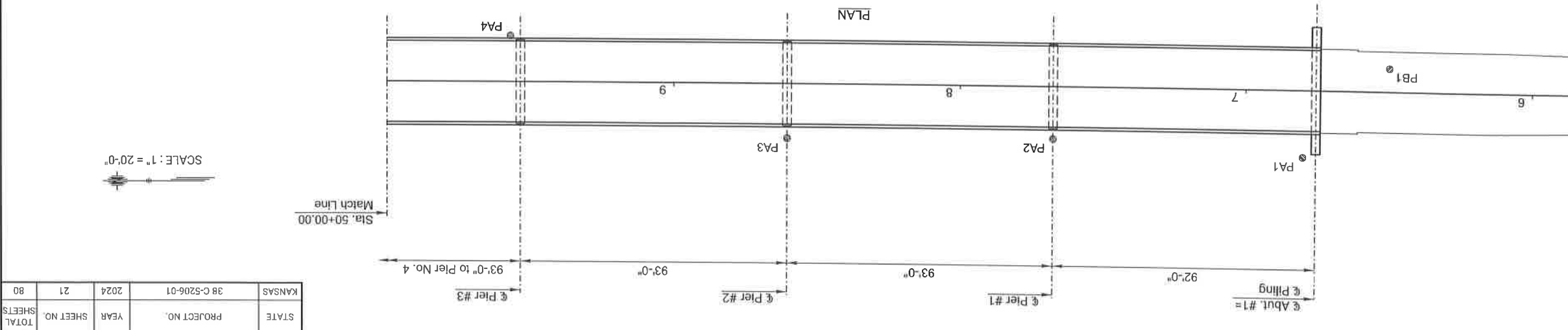
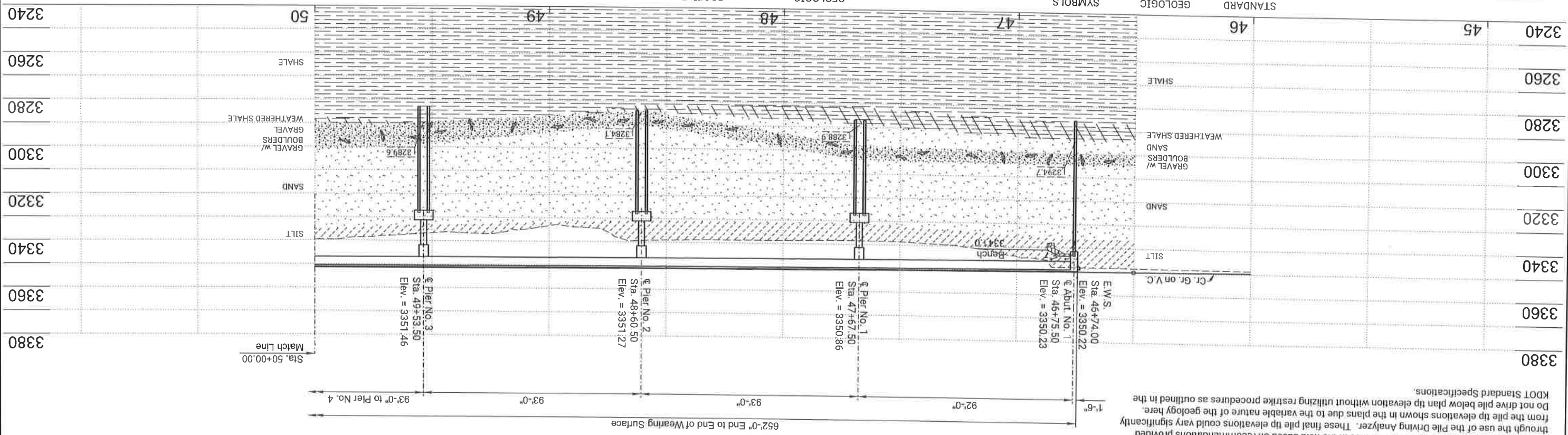
SCALE : 1" = 20'-0"
Contour Interval = 2'

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



NO.	DATE	REVISIONS	BY	APPD.

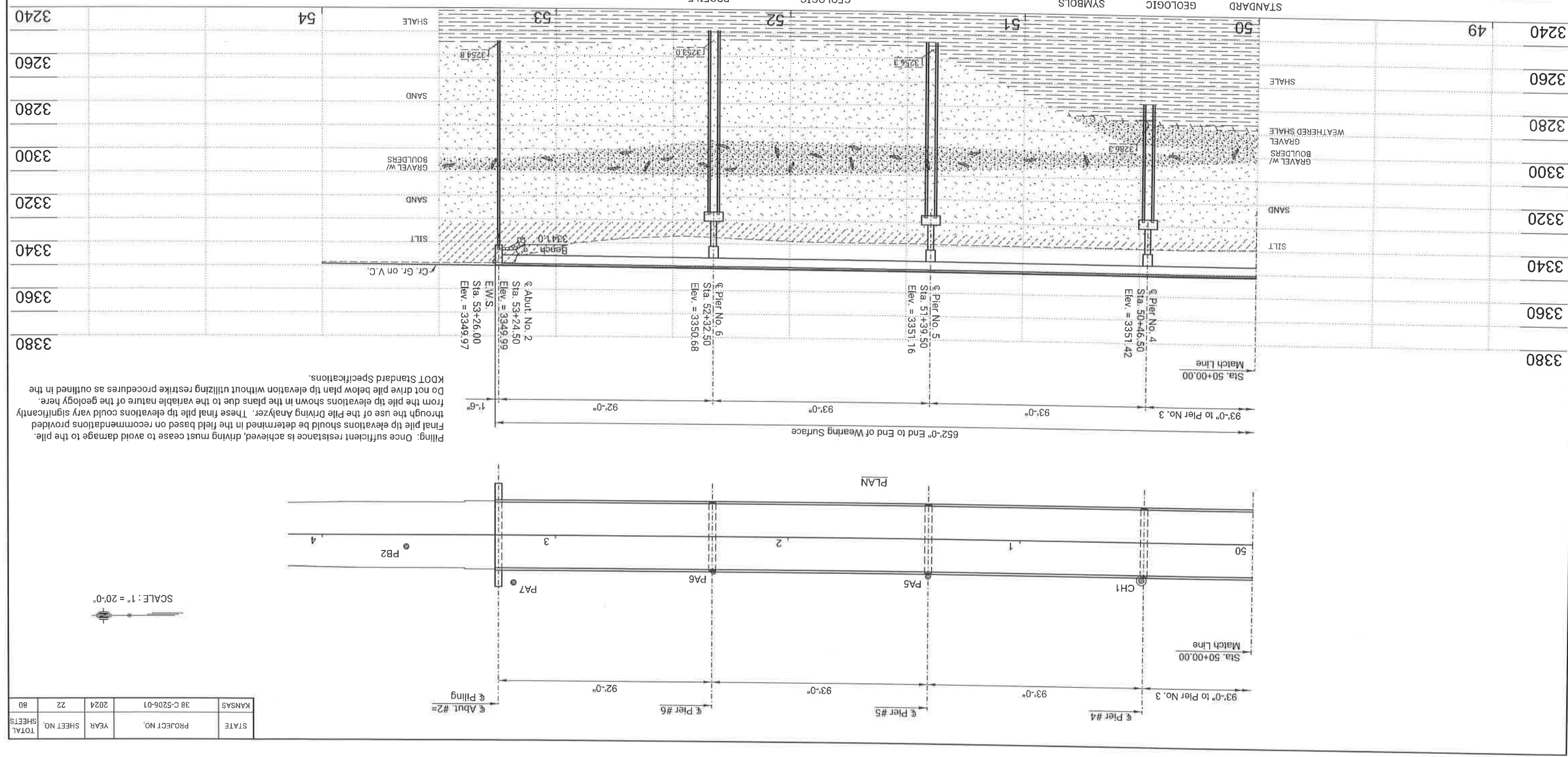
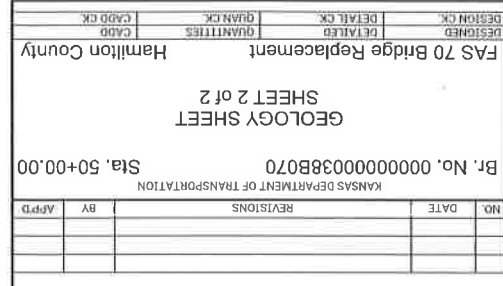
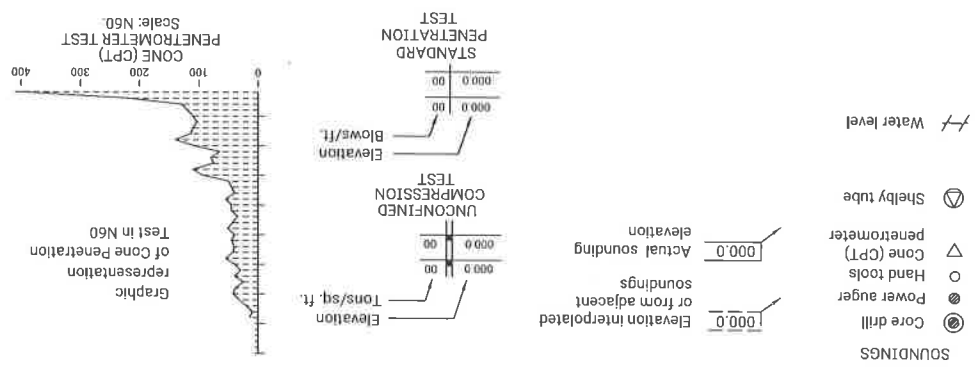
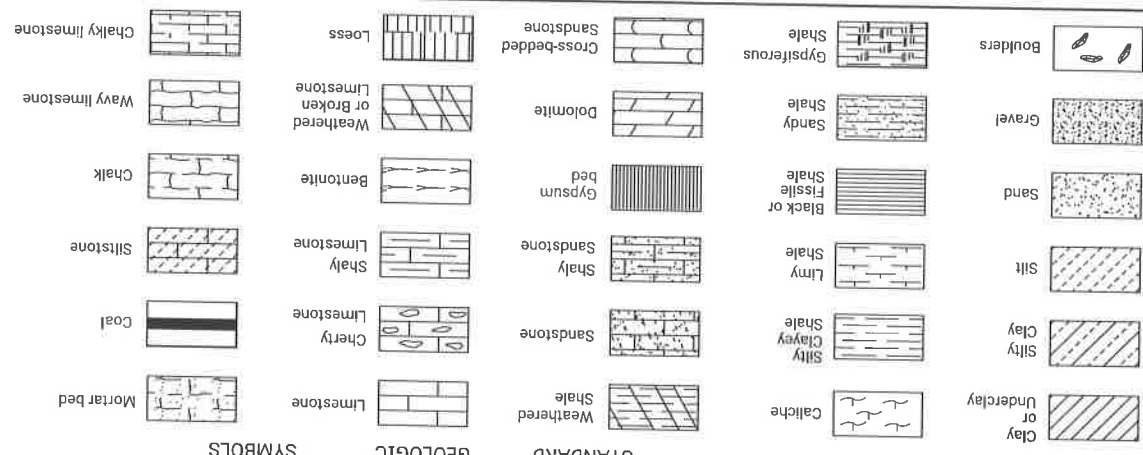
DESIGNED CK. DETAIL CK. QUANTITY CK. CADD CK.
FAS 70 Bridge Replacement
Hamilton County
GEOLOGY SHEET
SHEET 1 of 2
BR. No. 00000000038B070
Sta. 50+00.00

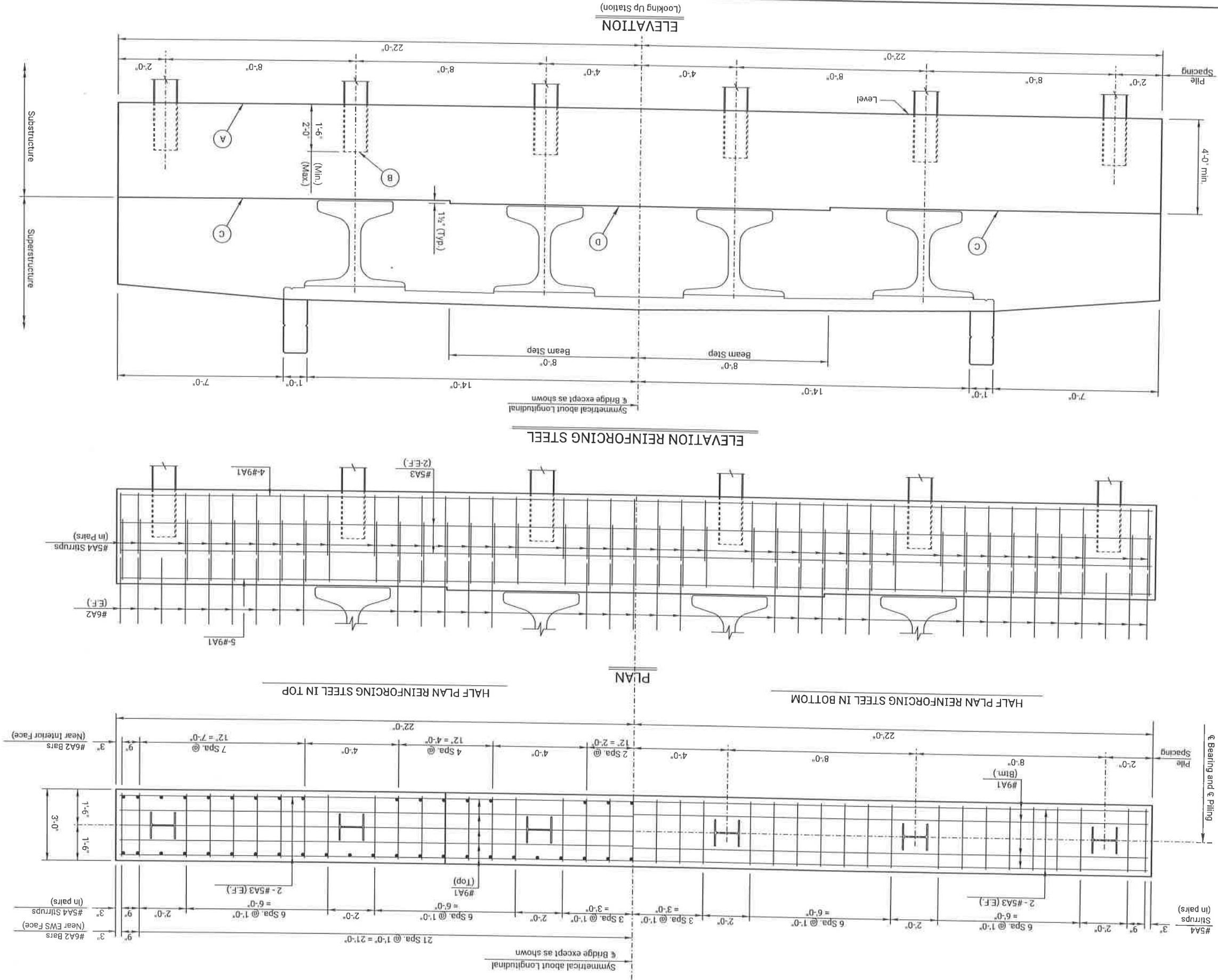


STATE	KANSAS
PROJECT NO.	38 C-5206-01
YEAR	2024
SHEET NO.	21
TOTAL SHEETS	80

NOTE: Soundings shown on these plans are taken from notes obtained in the field and represent the best information available. Logs of these soundings are provided with the bid documents, or are available from the Kansas Department of Transportation in Topoka for inspection by interested and qualified bidders.

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

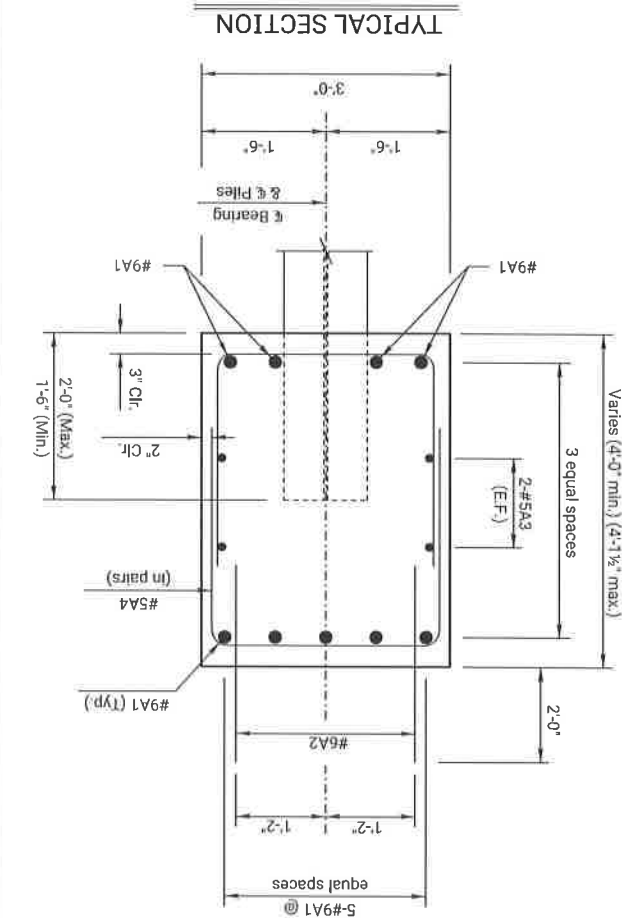




Project No. FAS 70 Bridge
Hamilton County
ABUTMENT BEAM DETAILS
HAMILTON COUNTY FAS 70
Sta. 50+00.00
Br. No. 0000000038B070

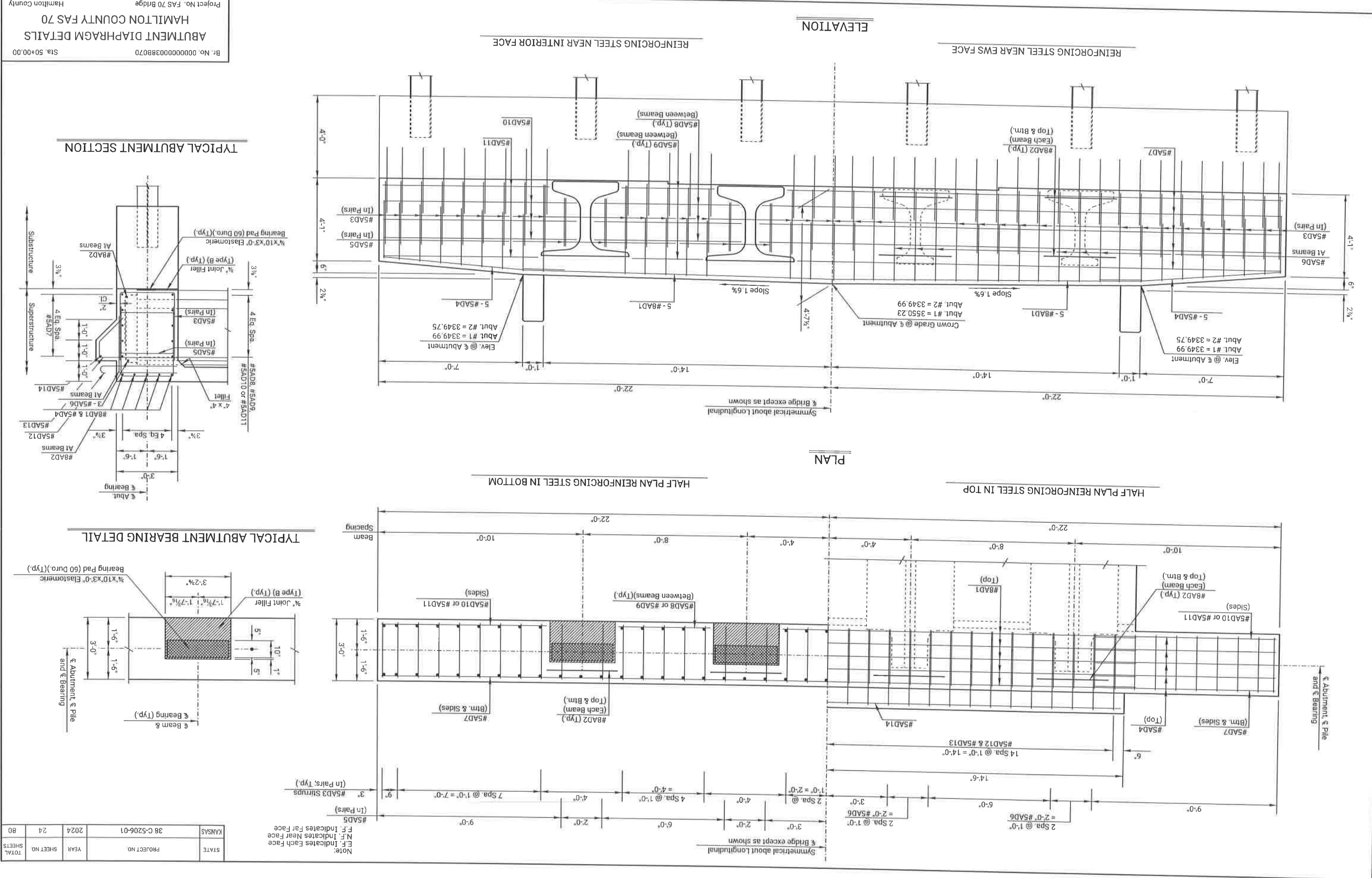
TABLE OF ELEVATIONS		
Location		Elevation
A	Abut. #1	3341.50
B	Abut. #2	3341.25
C		3343.25
D		3345.50
		3345.25
		3345.38

Note:
Top of Piling elevations shown
are based on Max. pile embedment



STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	38 C-5206-01	2024	23	80

Br. No. 00000000388070
Project No. FAS 70 Bridge
HAMILTON COUNTY FAS 70
ABUTMENT DIAPHRAGM DETAILS
Sta. 50+00.00
Hamilton County



STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	38 C-5206-01	2024	25	80

GENERAL NOTES

tractor shall excavate to the limits shown the bottom of the backfill area, place the pipe, the outlet pipe, the CMP, and the backfill.

ABUTMENT STRIP DRAIN: The Bridge Contractor shall excavate to the limits shown on the Bridge Excavation sheet, grade the bottom of the backfill area, place the strip drain, and place the perforated pipe, the CMP, and the backfill.

Place perforated pipe next to the strip drain. Use non-perforated pipe outside the limits of the strip drain. Enclose the perforated pipe with the extension of the filter fabric.

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 a 1/4" galvanized mesh screen to prevent the entrance of rodents. Seal the joint between the outlet pipe and the end section with a joint sealer.

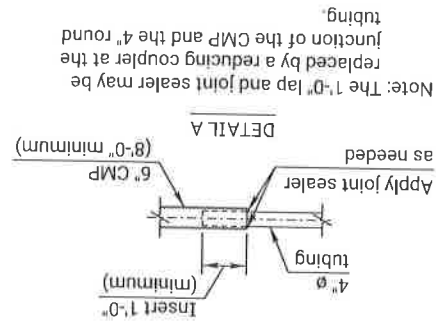
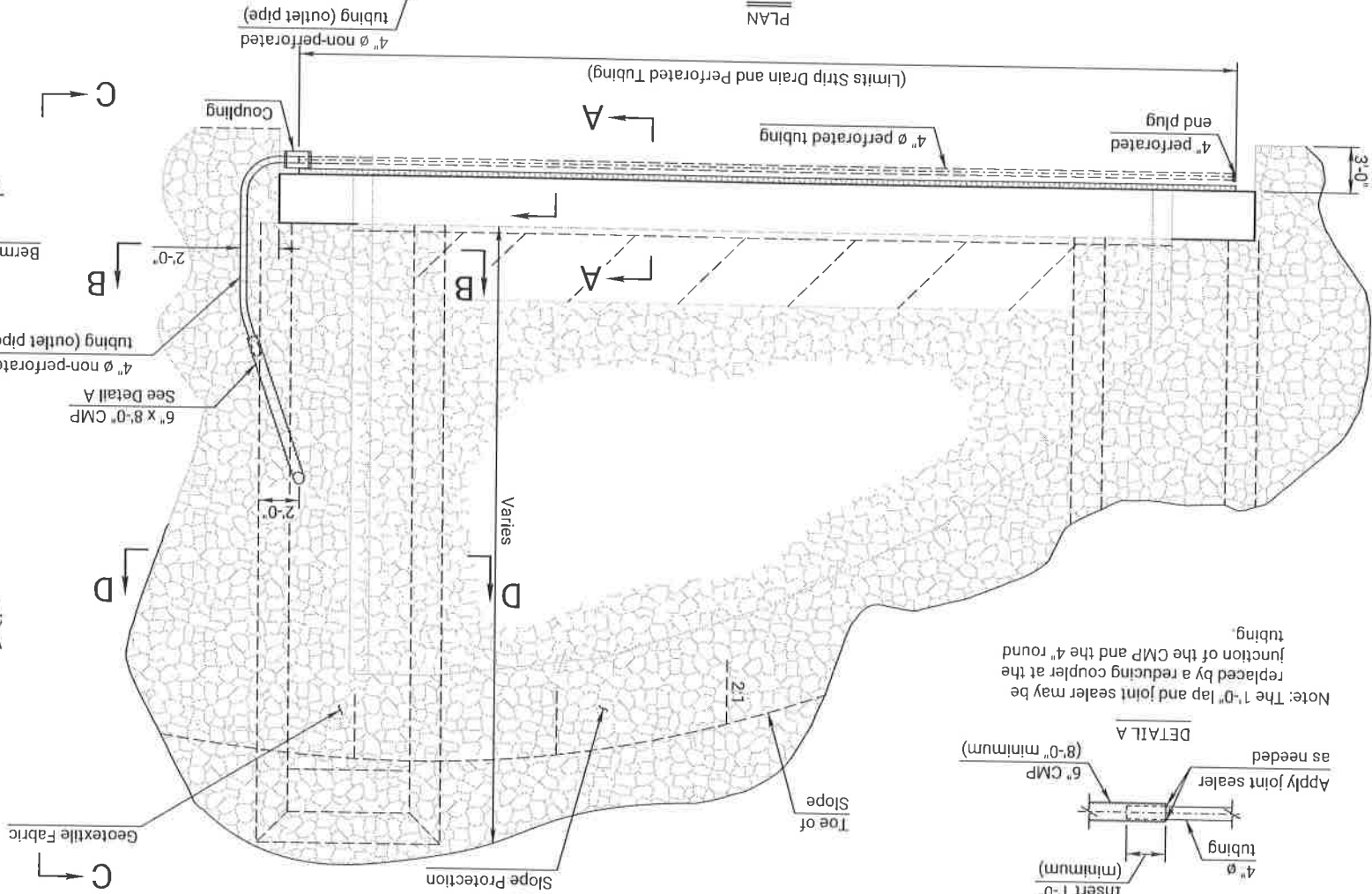
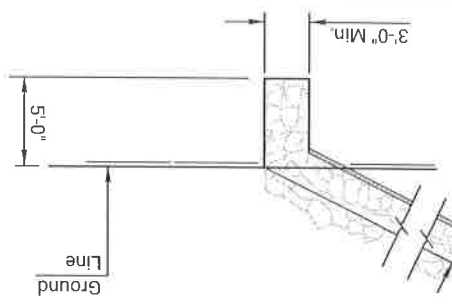
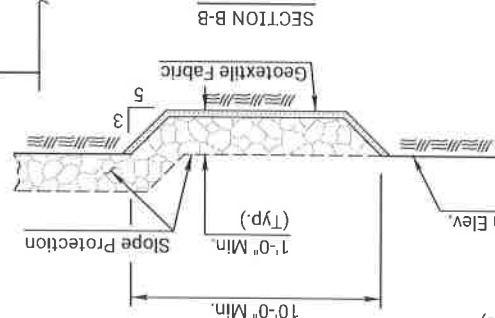
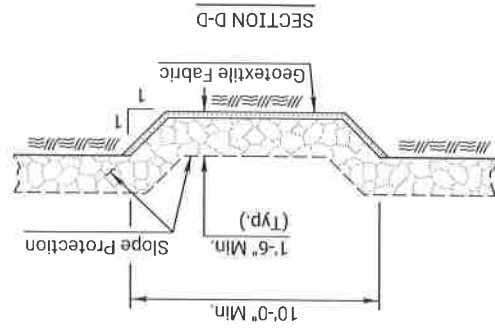
er

Place the outlet pipe on the downstream side of structures over streams and as shown or noted on other crossings (See the "Construction Layout" sheet).

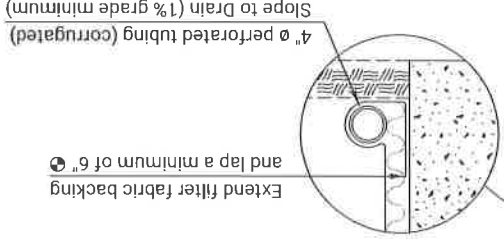
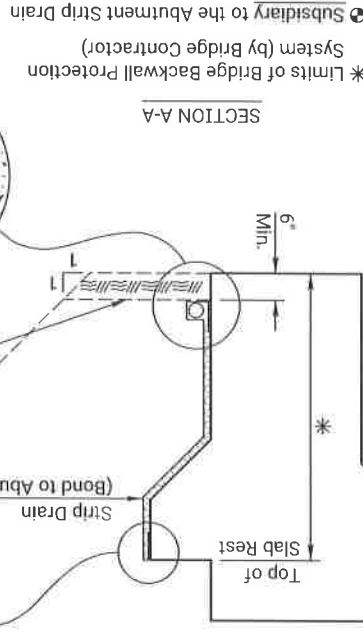
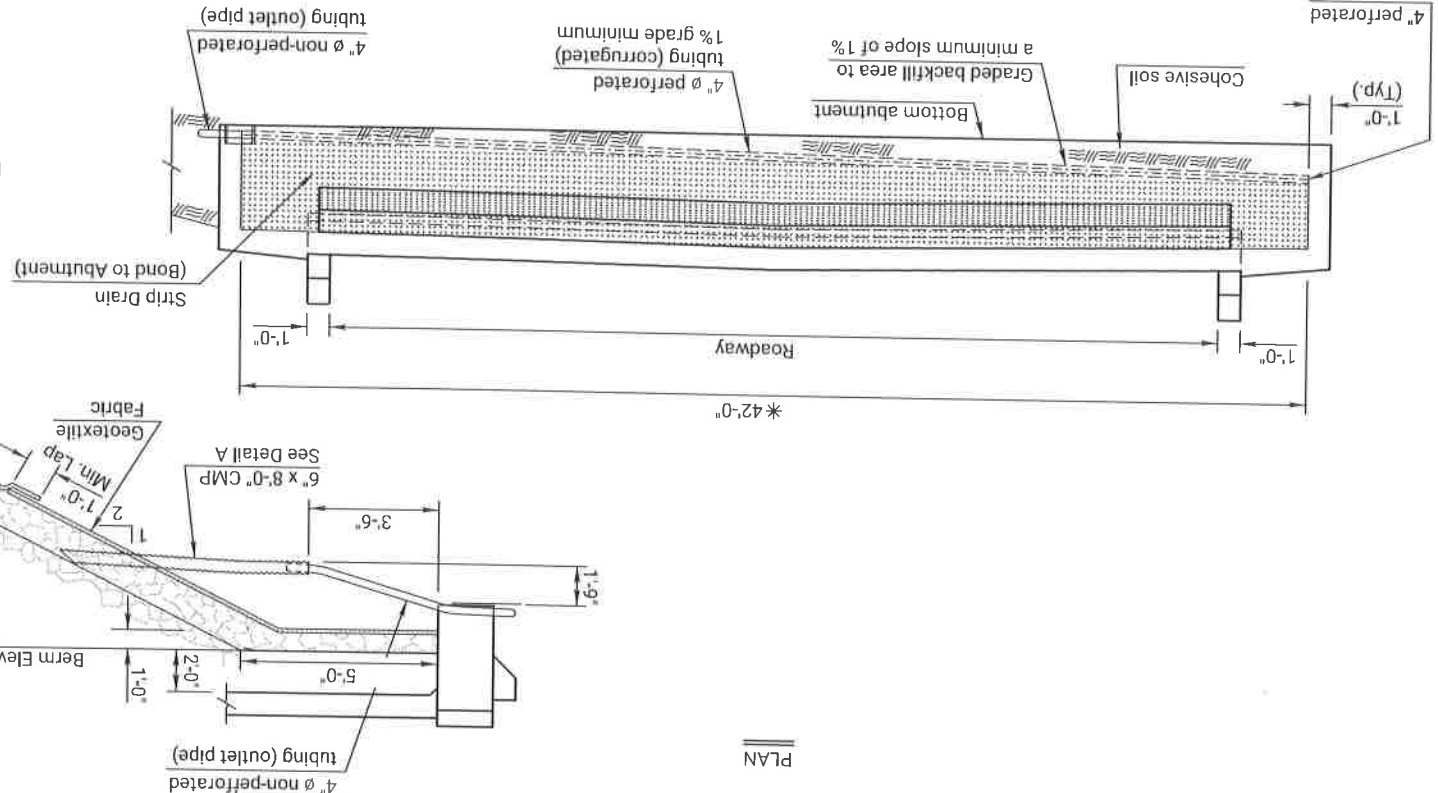
COHESIVE SOILS: Grade the bottom surface of the excavated area to drain as shown.

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 ≥ 13 .

prior to placement and compaction so that the $PI \geq 13$.



Note: The 1" lap and joint sealer may be replaced by a reducing coupler at the junction of the CMP and the 4" round tubing.



SUMMARY OF QUANTITIES (2 Abutments)	
62 Sq. Yds.	Abutment Strip Drain
74 Sq. Yds.	Bridge Backwall Protection System
Items subsidiary to Strip Drain	
84 Lin. Ft.	4" ø Perforated Pipe
20 Lin. Ft.	4" ø Outlet Pipe
16 Lin. Ft.	6" ø CMP
Items subsidiary to Slope Protection	
54 Sq. Yds.	Geotextile Fabric

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

NO	DATE	REVISIONS	APPD
04	02-17-14	Added benchmark	J.P.J. C.E.R.
05	04-07-14	Current Release	J.P.J. C.E.R.
08	09-21-22	Added cohesive soils note	M.L.L. M.A.H.

KANSAS DEPARTMENT OF TRANSPORTATION

Br. No. 000000000388B070 Sta. 50+00.00

ABUTMENT STRIP DRAIN
(Stream, Drip-Line)

Proj. FAS 70 Bridge Hamilton Co.

DESIGN CK	DETAIL CK	QUANTITIES	LAB	CADD CK	B.A.T.
CEGISHND	DETAILED	LAB	QUANTITIES	CADD CK	B.A.T.

STATE	PROJECT NO	YEAR	SHEET NO	TOTAL SHEETS
KANSAS	38 C-S206-01	2024	26	80

LEGEND

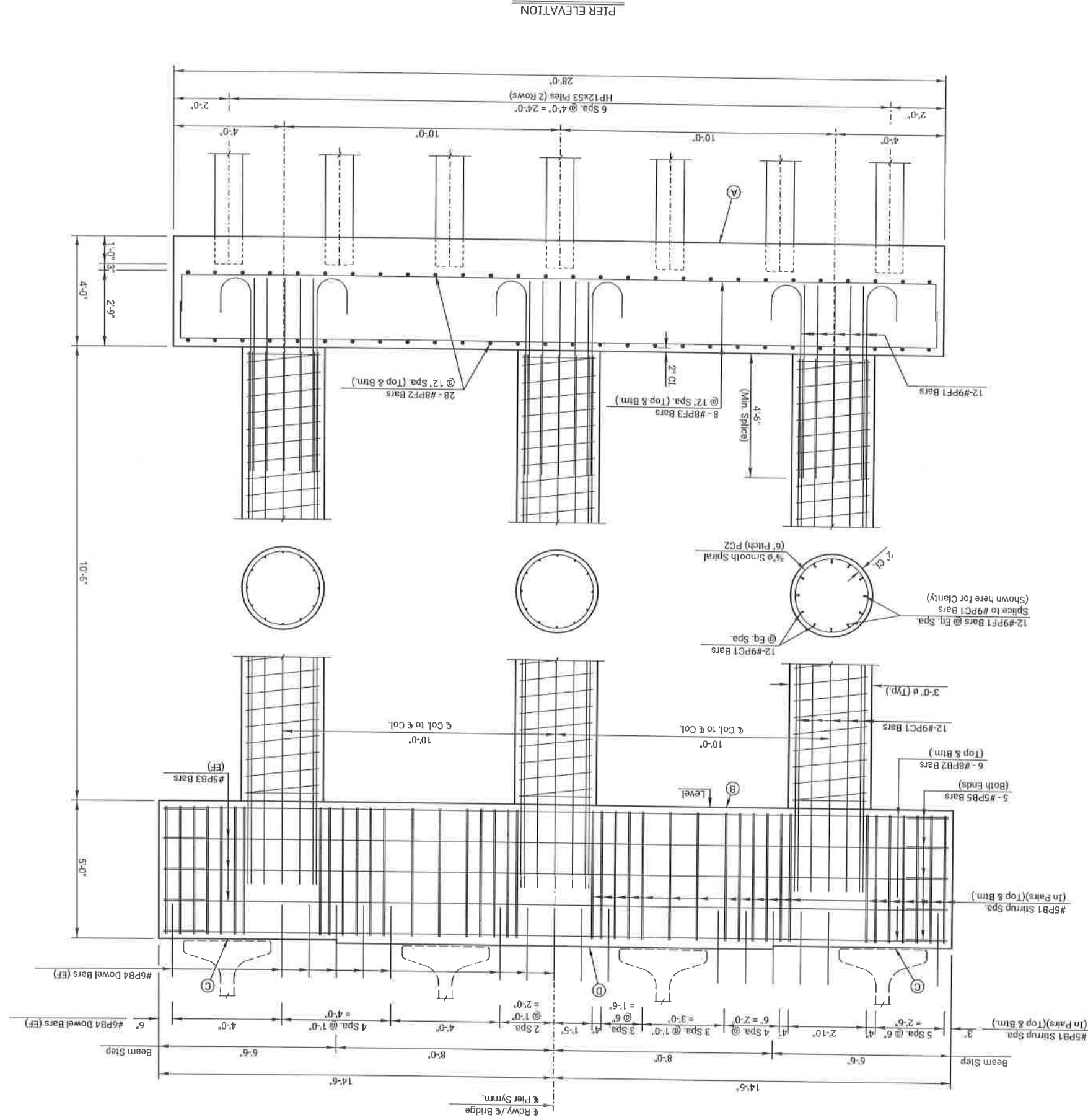
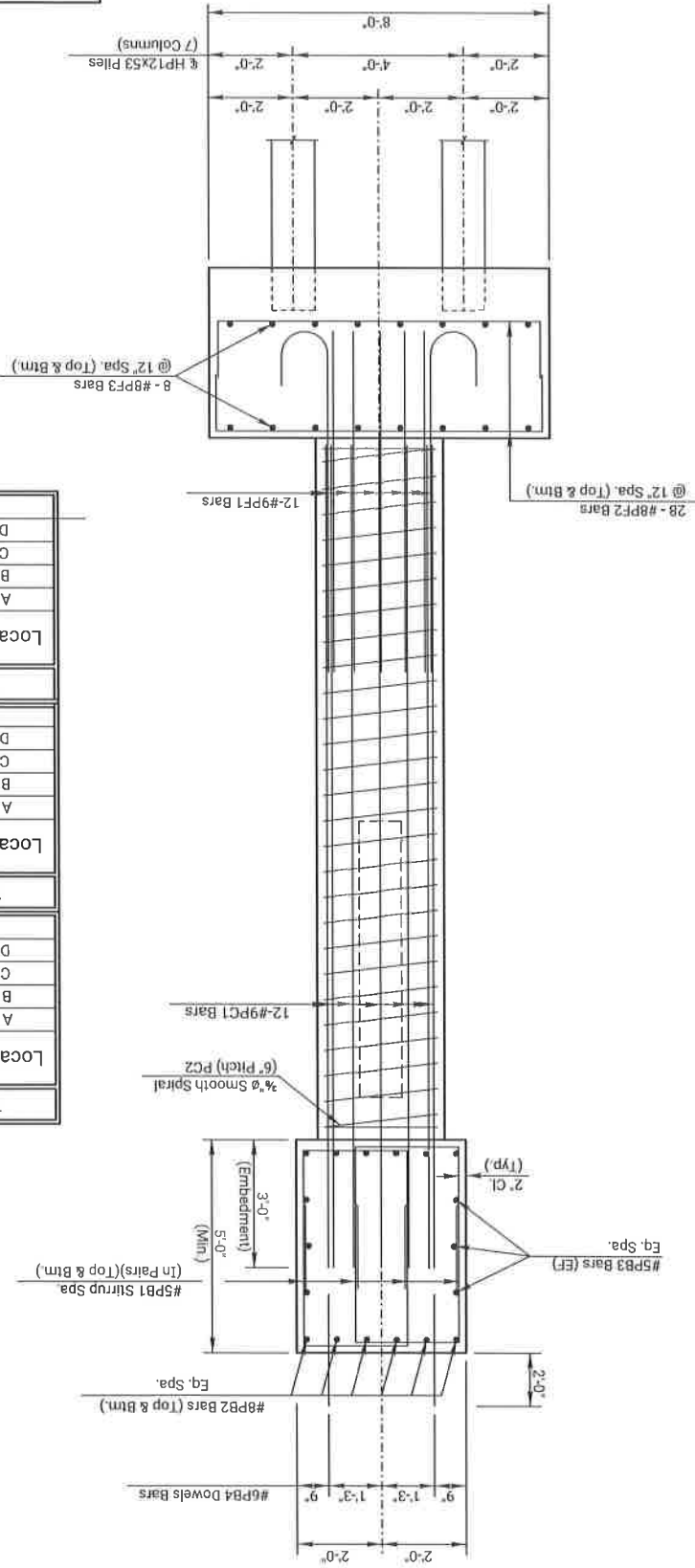
EF Indicates Each Face
NF Indicates Near Face
FF Indicates Far Face

TABLE OF ELEVATIONS

Location	Elevation	Pier No. 1	Pier No. 2
		A	3326.63 3327.04
		B	3341.13 3341.54
		C	3346.13 3346.54
		D	3346.25 3346.66

TABLE OF ELEVATIONS	
Location	Elevation
	Pier No. 3 Pier No. 4
A	3327.22
B	3341.72
C	3346.69
D	3346.85
	3346.82

TABLE OF ELEVATIONS		
Location	Pier No. 5	Elevation
		Pier No. 6
A	3326.93	3326.45
B	3341.43	3340.95
C	3346.43	3345.95
D	3346.56	3346.08



PIER ELEVATION

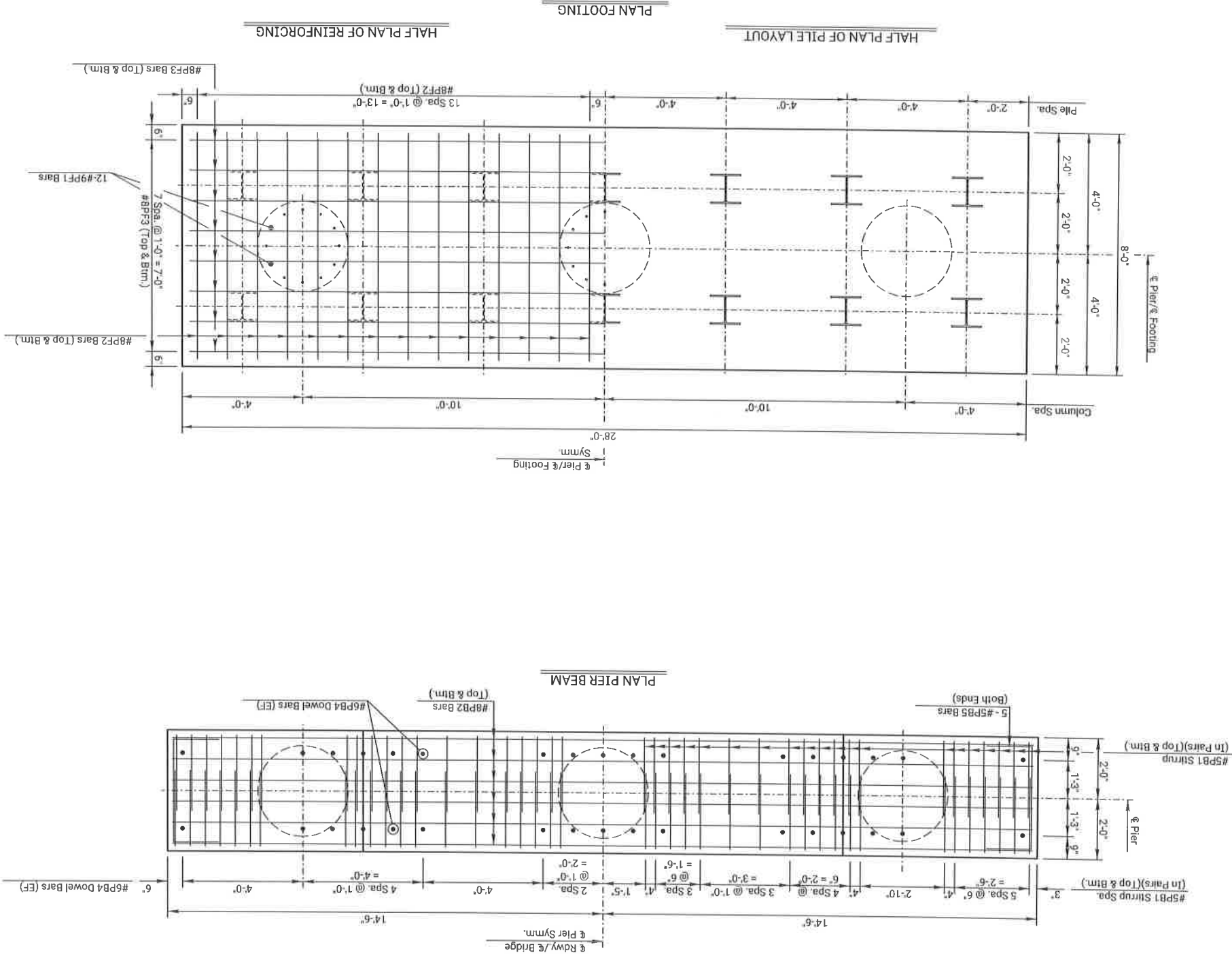
TYPICAL SECTION

BR. No. 000000000388070
Sta. 50+00.00

PIER DETAILS

HAMILTON COUNTY FAS 70

Project No. FAS 70 Bridge
Hamilton County



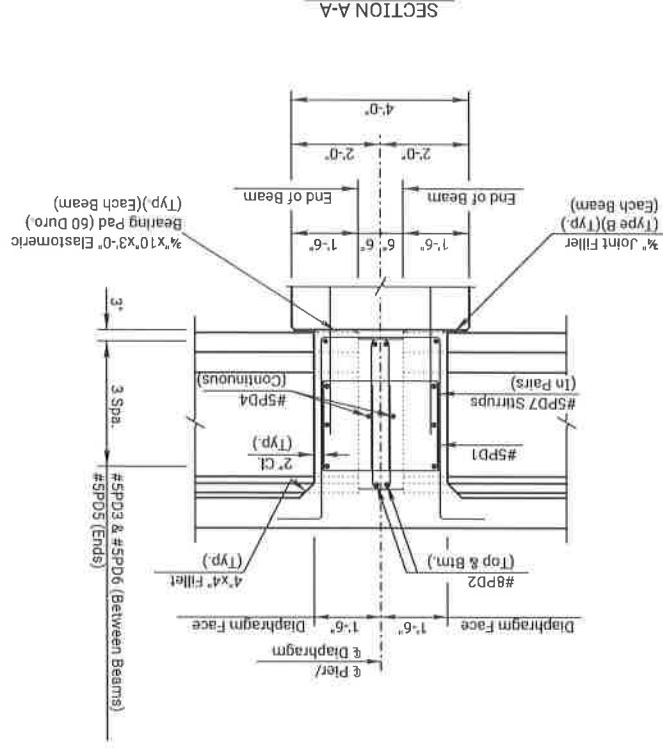
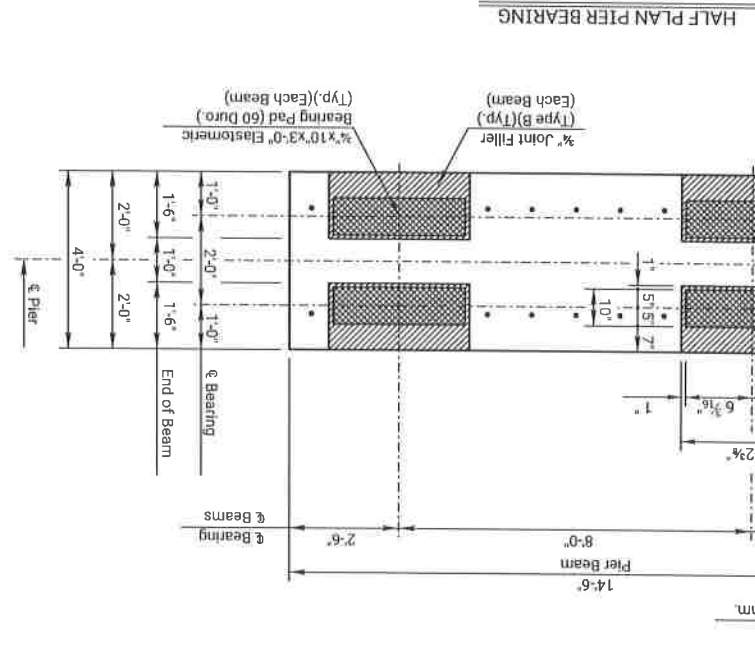
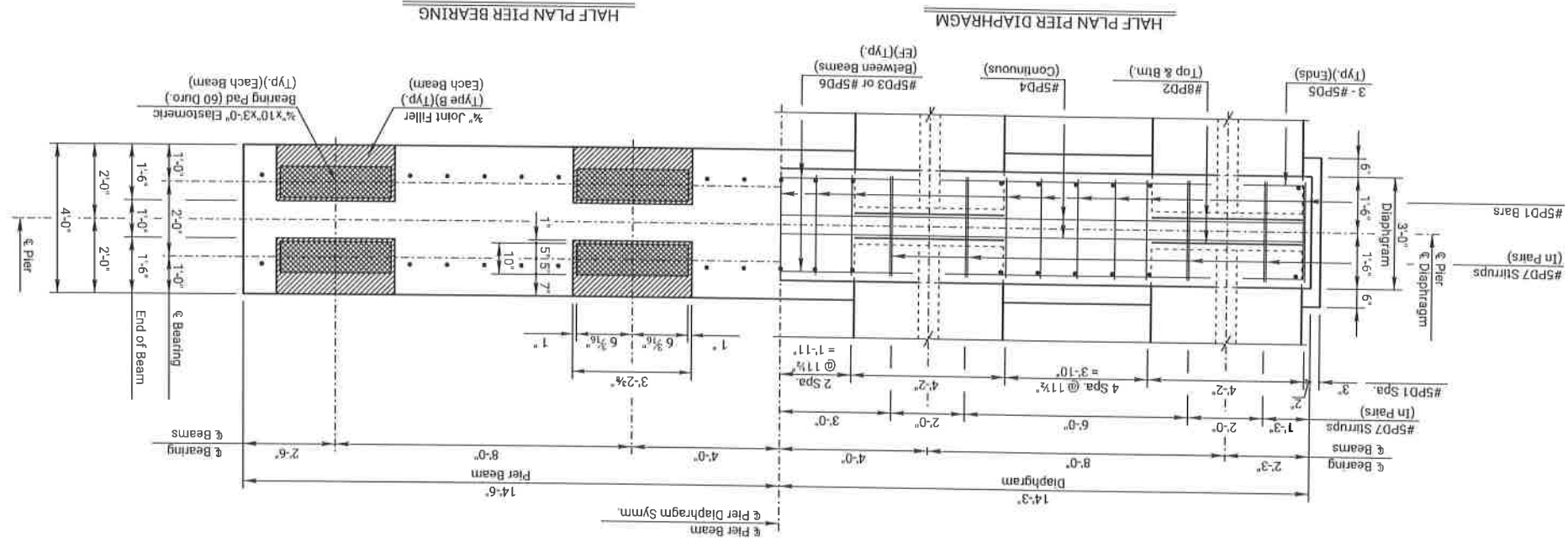
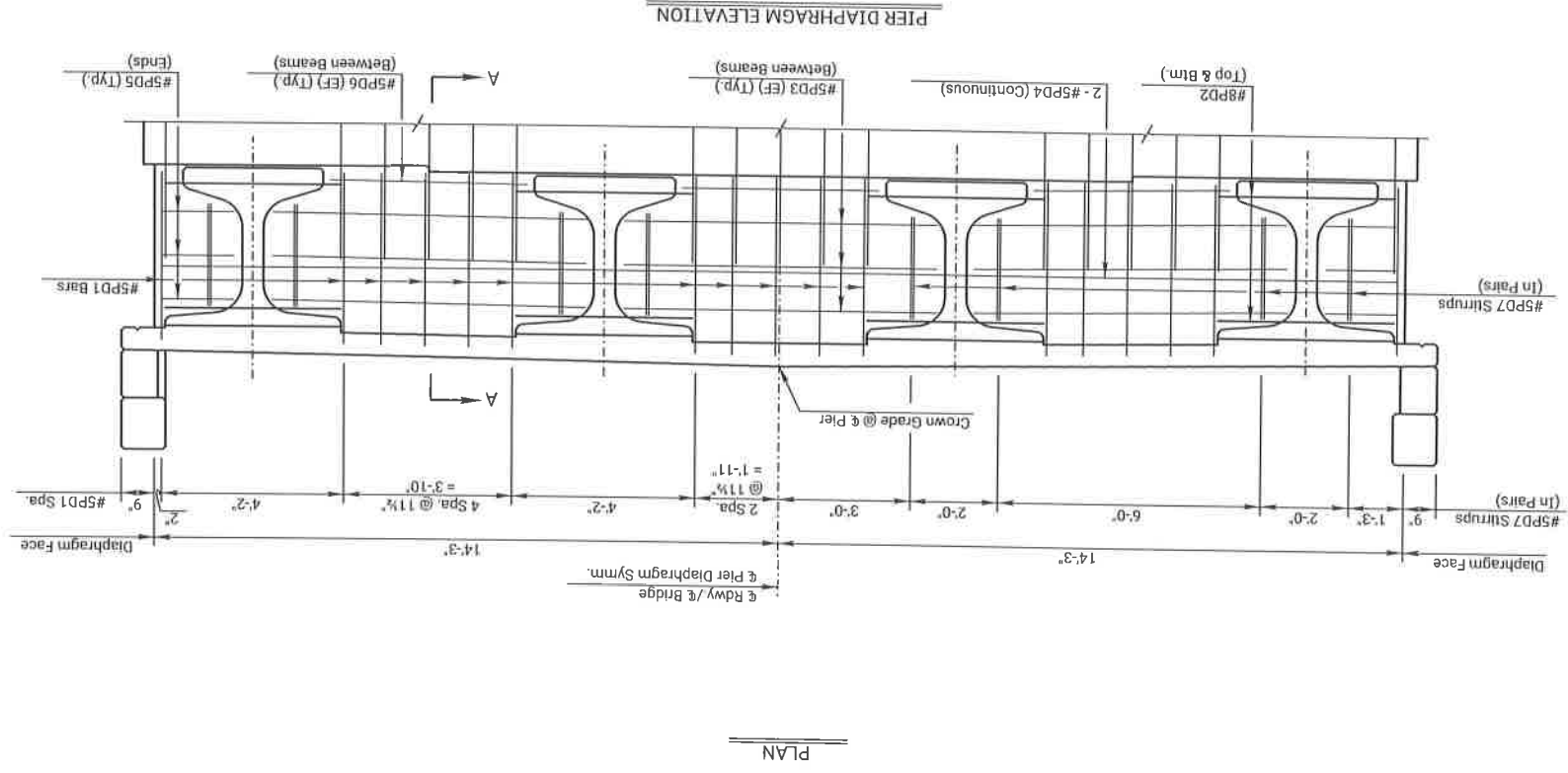
LEGEND

EF Indicates Each Face

NF Indicates Near Face

FF Indicates Far Face

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	38 C-5206-01	2024	27	80



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

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	38 C-5206-01	2024	28	80

PIER DIAPHRAGM DETAILS
HAMILTON COUNTY FAS 70
Sta. 50+00.00
Br. No. 00000000038B070
Project No. FAS 70 Bridge
Hamilton County

BILL OF REINFORCING STEEL									
92'-0" Beam (1 Listed-28 Req'd.)									
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	170	#4	4'-8"	
					● B1	246	#5	5'-6"	

+ WELDED WIRE REINFORCEMENT EQUIVALENT STEEL AS	
Size	3" 6" 9" 12" 15" 18"
#3	0.440 0.220 0.147 0.100 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

At 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.

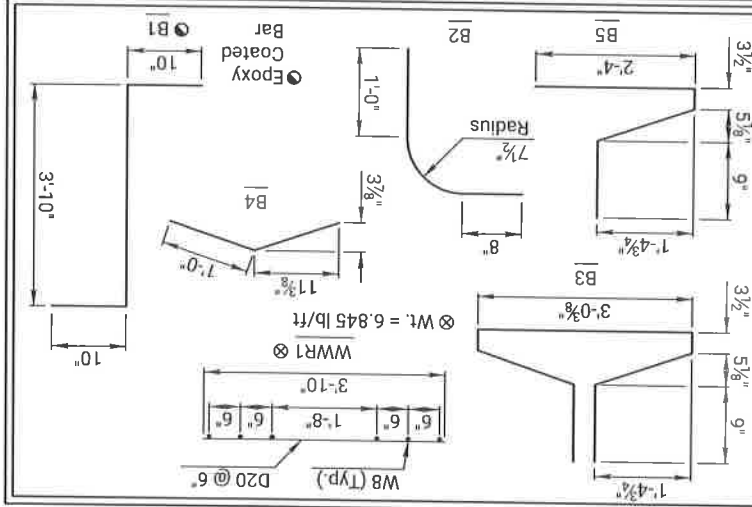
equal to or greater than typical beam section above.

spacing of #3B2 bar @ Abutment End.

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

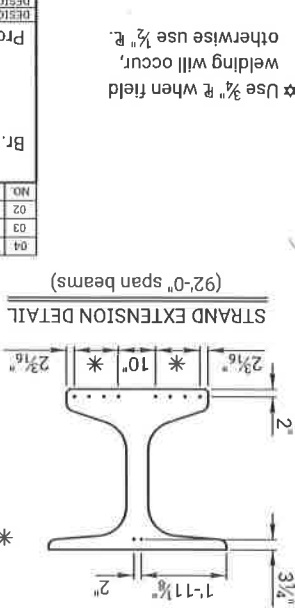
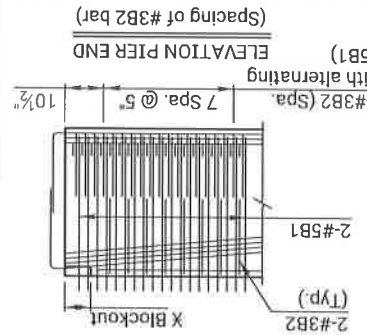
NOTE: During transportation and construction only, support beams on bearing points a maximum of 8 feet from the beam end. The Fabricator shall show the proposed support locations on the shop drawings.

NOTE: The hold down force at the harp points for 6 strands at 4.1 kips per strand = 24.6 kips total.



BILL OF MATERIAL		
Item	Unit	Quantity
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"		
Prestressed Concrete Beams (NU43) All Spans @ 92'-0")	Lin.Ft.	2,576
Approx. Wt. per 92'-0" beam		
Beam concrete (f'c=8,000 PSI) (per 92'-0" beam)	Cu Yds.	16.4
0.6" ø Prestressing strand (270 KSI low relaxation fy= 243 KSI)		
Epoxy reinforcing steel (fy=60,000 PSI)	Lbs.	25,310
Reinforcing steel (fy=60,000 PSI)	Lbs.	13,440
Welded Wire Reinforcement (fy=70,000 PSI)	Lbs.	17,570
Elastomeric Brg. pads (3/4"x8"x3'-0")	Each	56
1" Formed Holes	Each	168
Lifting devices	Each	112
Bearing plates (2x1'-4" x 3'-0"x3/8")	Each	56

* * TEMPORARY DIAPHRAGM SPAN REQUIREMENT	
SPAN	REQUIRED
≤ 80 ft.	1st & 3rd Quarter Points
80 - 120 ft.	All Quarter Points
≥ 120 ft.	Special Design



NO	DATE	REVISIONS	BY	APP'D
02	11-15-78	Add WWT to Bill of Material & W/lt	MLL	J.P.J.
03	03-14-79	Corrected shear bar	MLL	J.P.J.
04	01-22-72	Temporary Diaphragm label update	MLL	MAH

KANSAS DEPARTMENT OF TRANSPORTATION

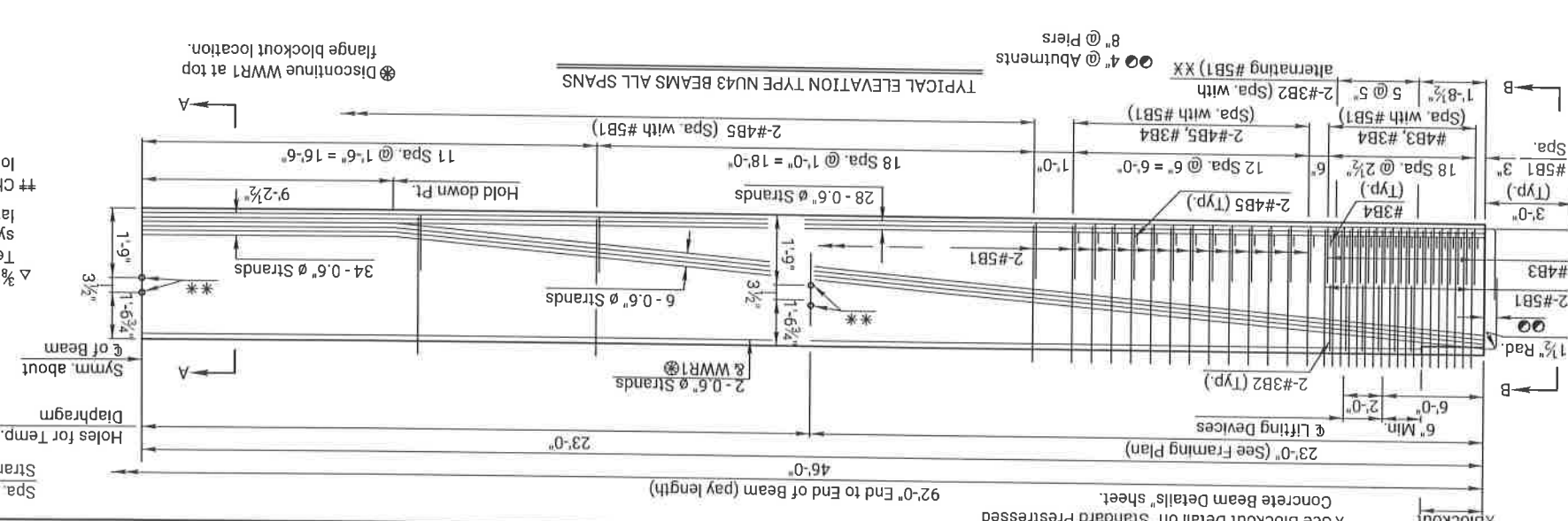
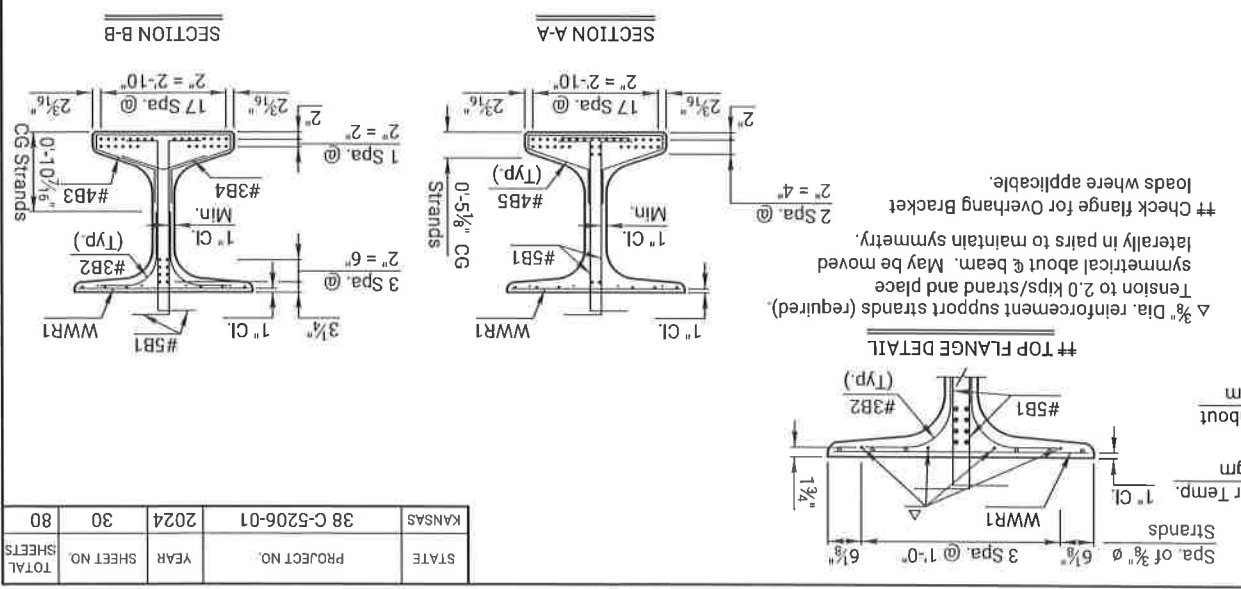
BR. No. 00000000038B070 Sta. 50+00.00

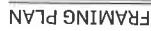
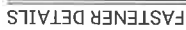
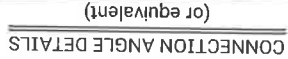
NU43 BEAM DETAILS

Proj. 38 C-526-01 Hamilton Co.

DESIGNED	DETAILED	MLL QUANTITIES	CADD	MLL
MLL	MLL	MLL	MLL	MLL

KANSAS	38 C-5206-01	2024	30	80
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS





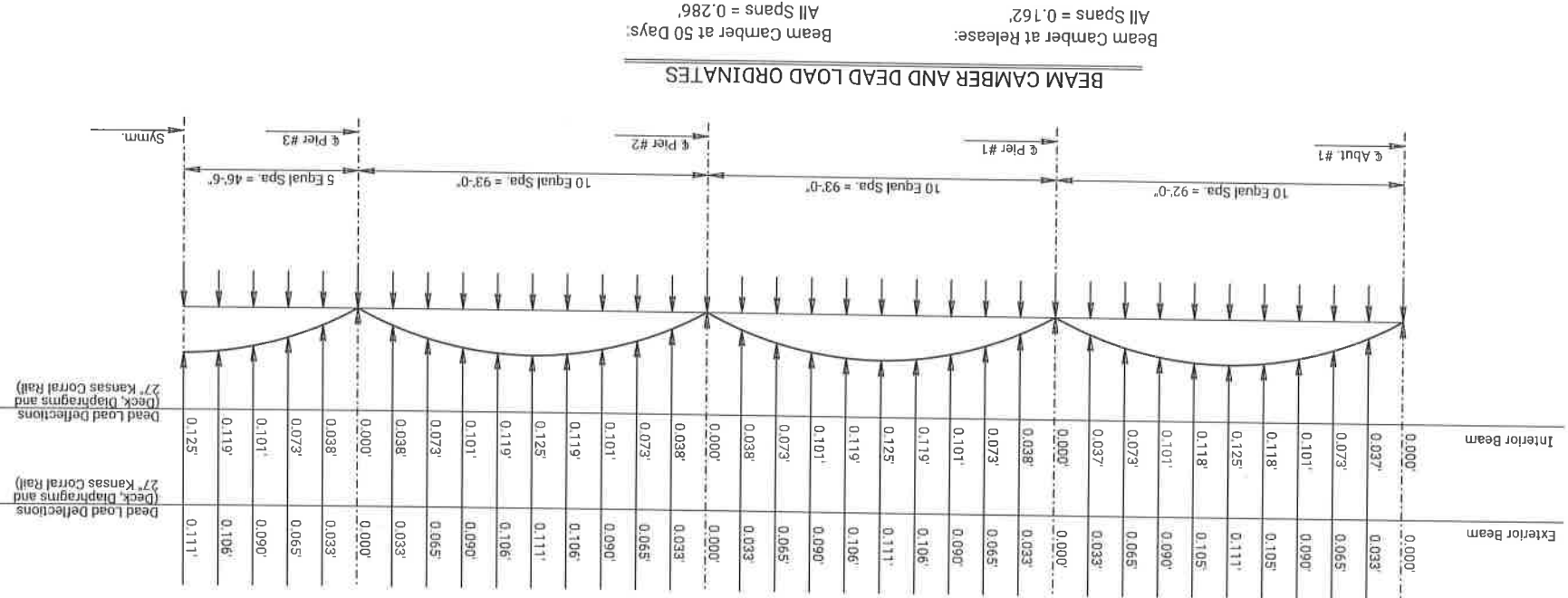
***TEMPORARY DIAPHRAGM SPAN REQUIREMENT	
SPAN	REQUIRED
≤ 80 ft.	1st & 3rd Quarter Points
80 - 120 ft.	All Quarter Points
≥ 120 ft.	Special Design

TEMPORARY DIAPHRAGMS: Use ASTM A709 Gr. 36 steel for all angles and bent plates for temporary diaphragms. All bolts, nuts, and washers 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 $\frac{3}{8}$ " plate washers over any slotted holes along with hardened washers under the turned elements. Use the turn-of-the-nut tightening method. DTT's are not required. Install all the temporary diaphragms, as shown in the details, prior to placing any superstructure concrete. Leave the temporary diaphragms in place until the concrete diaphragms and deck have cured. Remove the angles from the beams and fill the holes in the prestressed beams with an approved epoxy grout. The bent plate diaphragms, angles, nuts, bolts, and washers shall remain the property of the Contractor. Submit shop drawings of the temporary diaphragms to the KDOT Bridge Section for review and approval. The material, equipment, and labor necessary for the installation of the temporary diaphragms, including filling the bolt holes, shall not be paid for directly, but shall be subsidiary to the bid item "Prestressed Concrete Beams".

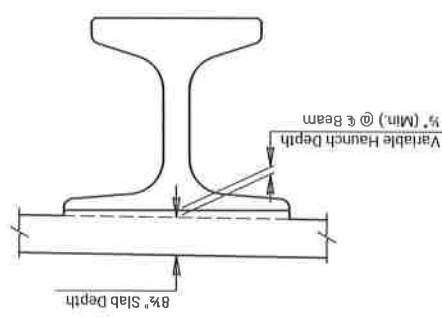
KANSAS	38 C-5206-01	2024	31	80
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS

KANSAS DEPARTMENT OF TRANSPORTATION			
03	01-27-22	Temporary Diagram table update	M.A.H.
02	02-05-19	Galvanizing clarification	J.P.J.
01	09-11-18	Current Release	J.P.J.
		REVISIONS	
			B.V.

000000000037B070	Sta. 50+00.00	TEMPORARY DIAPHRAGM DETAILS	NU GIRDERS
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CONCRETE HAUNCH DETAIL

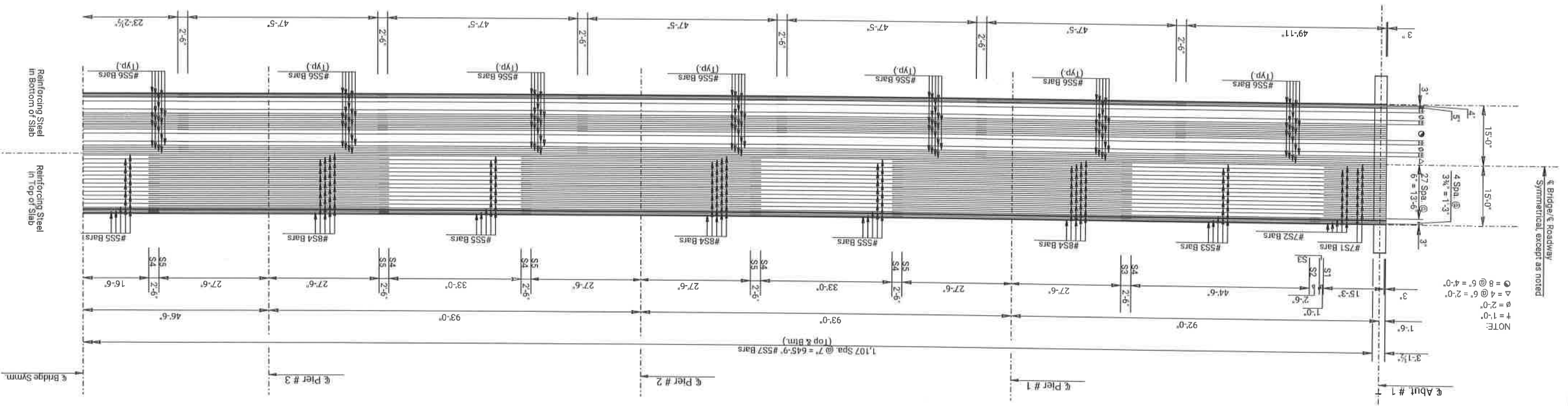


CAMBER:
Construct the finished deck to plan grade by varying the depth of the fillet over the beam to provide for prestress camber, concrete dead load deflection and, if necessary, vertical curvature. After the prestressed beams are erected, measure the camber in the field by taking a profile of each 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 including haunch shall be 9 inches. Prior to shipping, the camber shall be no greater than the design camber + 1/2". The design camber is equal to the 50 day camber shown in the plans.

The theoretical amount of the concrete required for fillets is 35.6 C.Y. This amount of concrete is included in the Summary of Quantities.

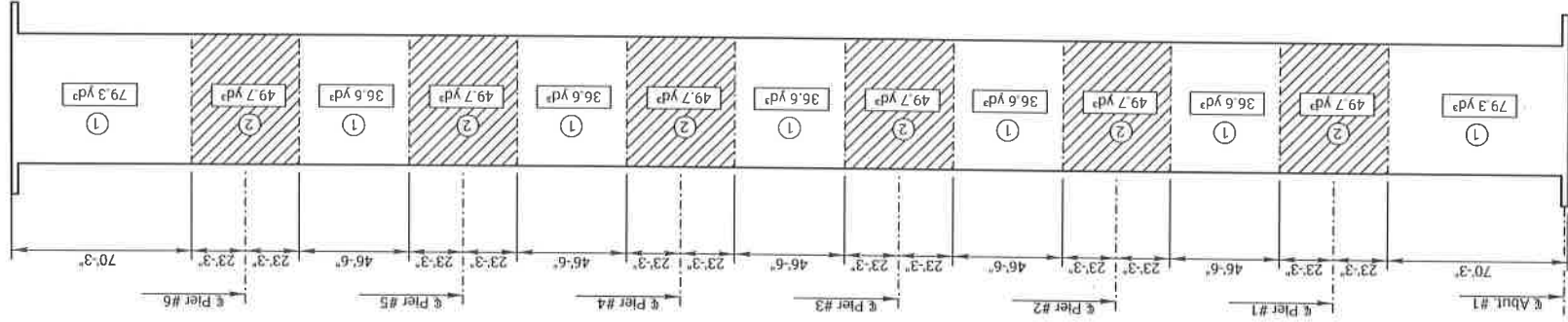
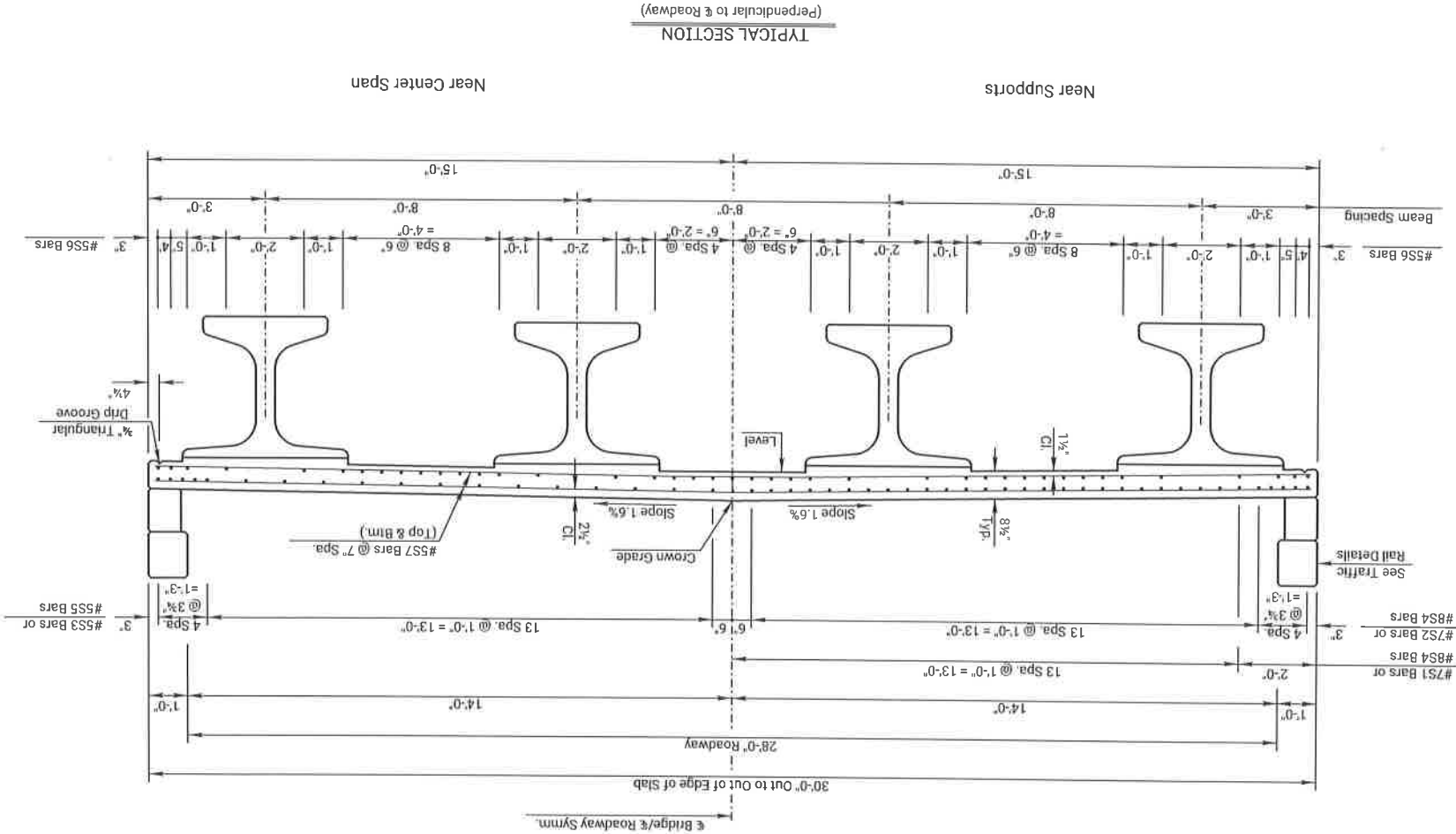
Any additional concrete required to construct the fillets will be subsidiary.

HALF PLAN



NOTE:
Δ = 8 @ 6' = 4'-0"
Δ = 4 @ 6' = 2'-0"
θ = 2'-0"
Δ = 1'-0"

STATE	KANSAS	PROJECT NO.	38 C-5206-01
YEAR	2024	SHEET NO.	32
TOTAL SHEETS	80		

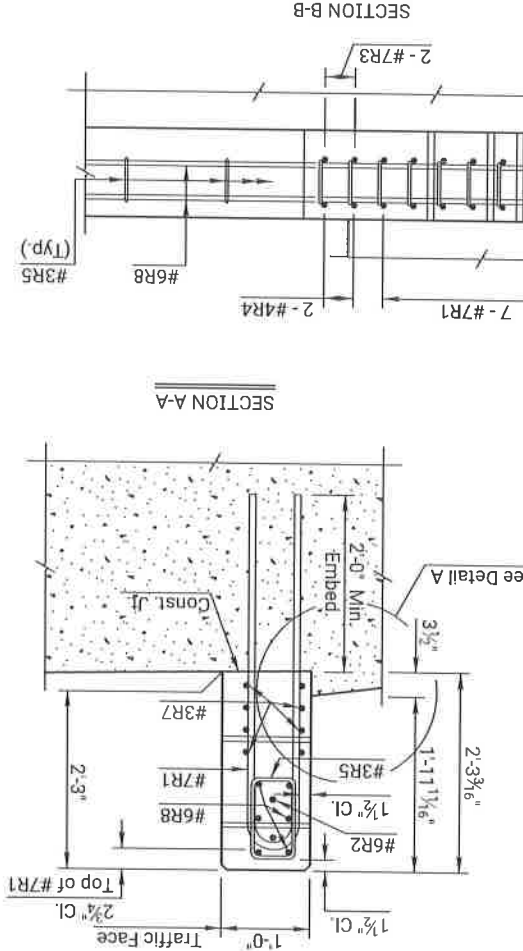
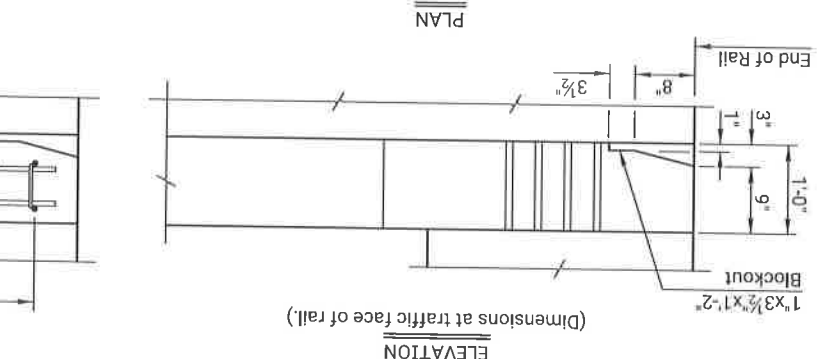
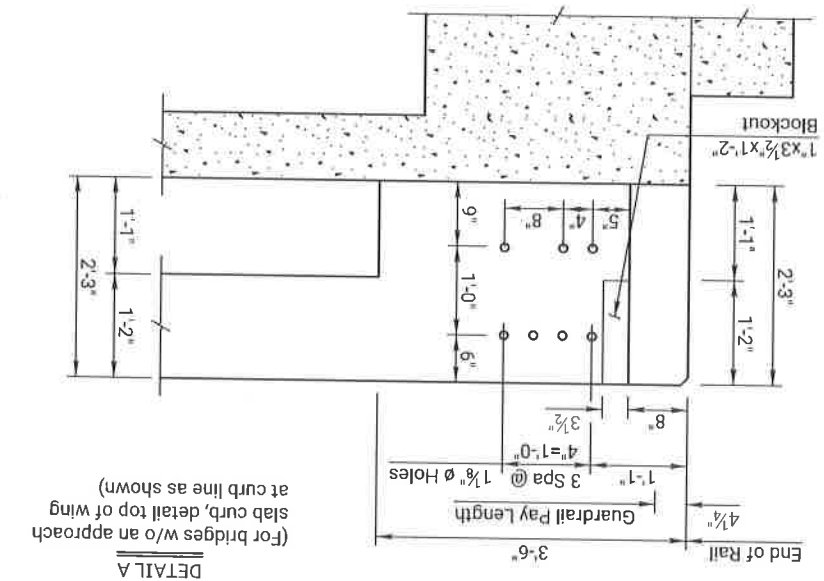
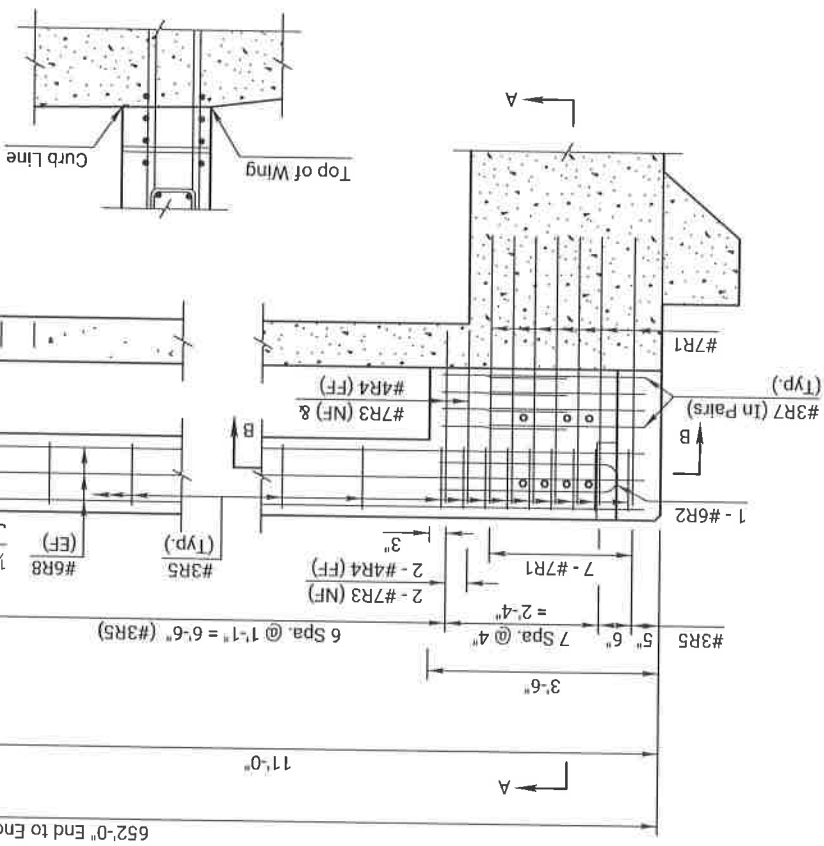
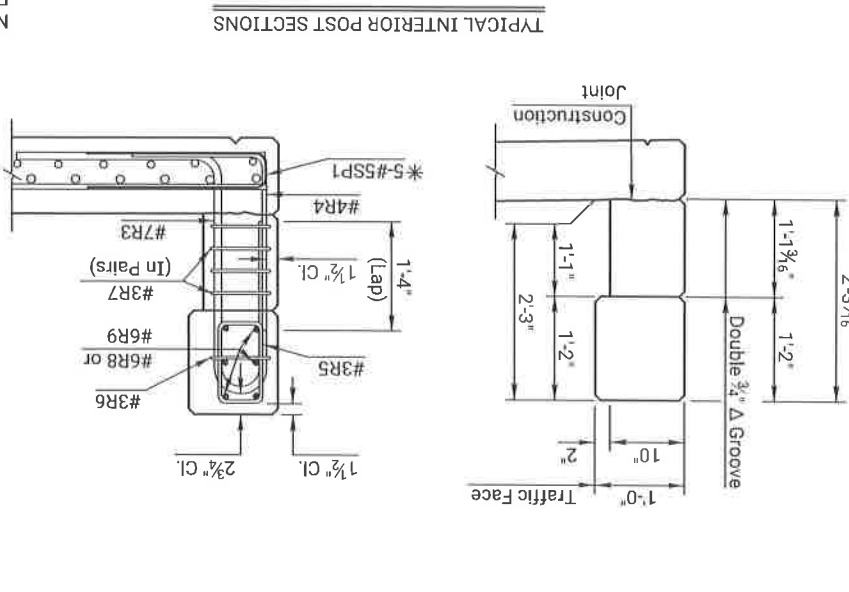
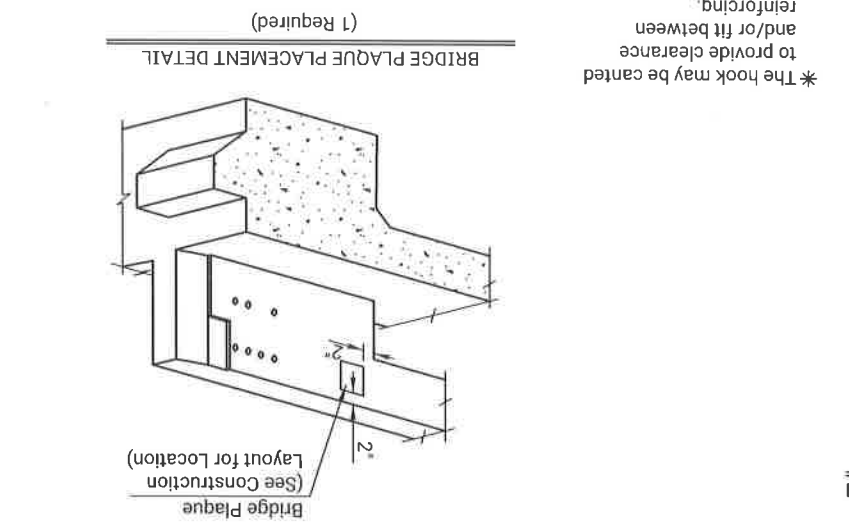
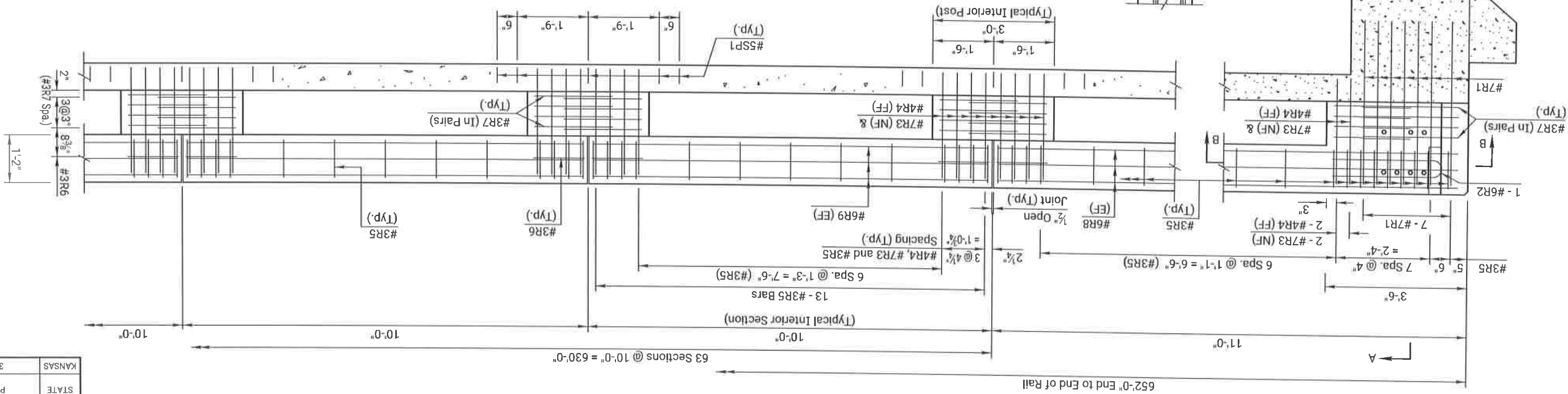


PLACING SEQUENCE: The Contractor will adhere to the placing direction/sequence shown on the plans. Changes will be accepted only if the Contractor's Engineer adjusts the deflection diagram so that the Contractor can adjust the fill depth accordingly. This revised diagram will be approved by the design Engineer prior to deck forming. If profile grinding decreases the clearance to the top mat of reinforcement to less than 2", a polymer overlay will be placed at no cost to the County.

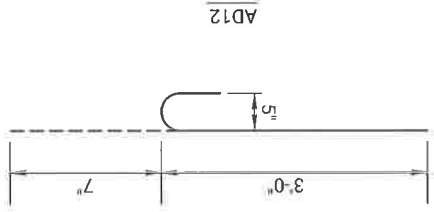
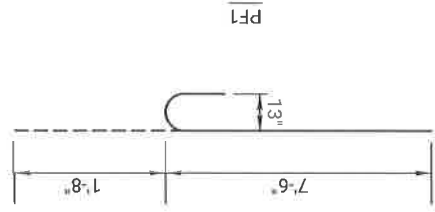
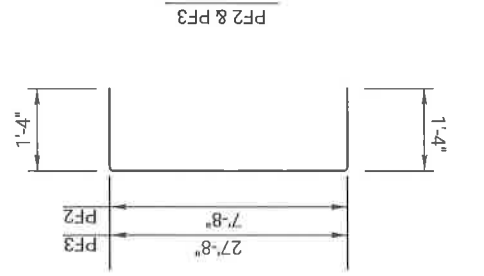
Place and hand vibrate all concrete for the pier diaphragms and the abutments above the construction joint to the bottom of the deck just prior to the normal paving train operations. Do this work in a manner to avoid a cold joint in either the abutments or in the diaphragms.

DESIGNED	DETAILS	QUANTITIES	CADD	Hamilton Co.
DESIGN CK	DETAIL CK	QUANTITY CK	CADD CK	
FAS 70 Bridge Replacement				
(Without Curb)				
27" KANSAS CORRAL RAIL				
(W-BEAM WITH RUBRAIL)				
Sta. 50+00.00				
KANSAS DEPARTMENT OF TRANSPORTATION				
Current Release				
02	12-03-21	Changed Bridge Number Plate detail	M.L.L.	M.A.H.
01	06-30-05	Current Release	BY	APPD
03				

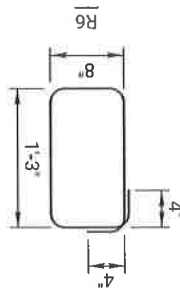
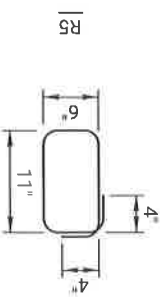
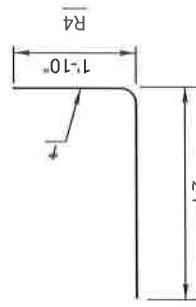
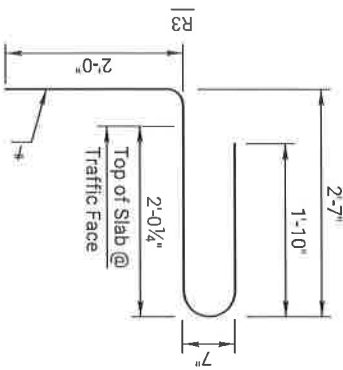
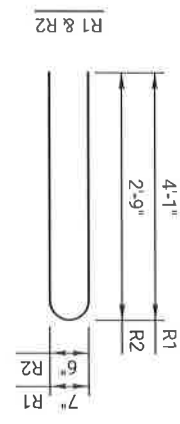
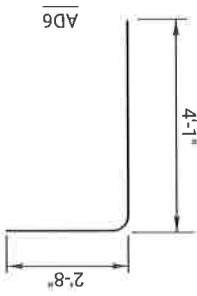
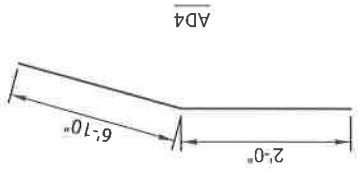
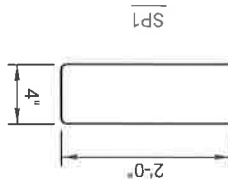
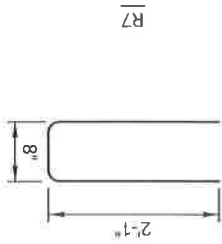
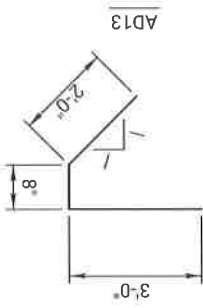
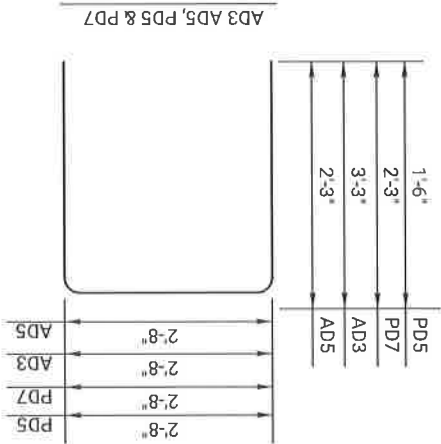
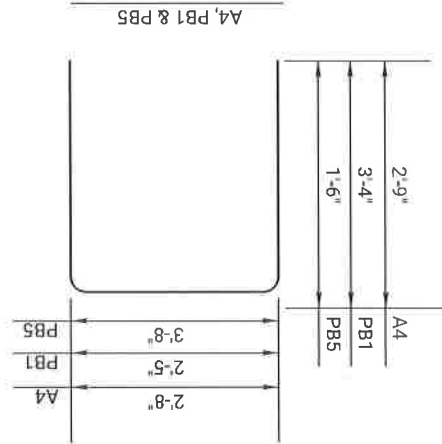
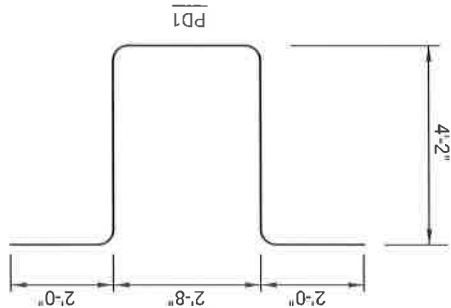
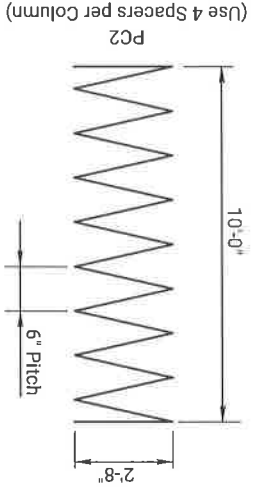
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	38-C-5206-01	2024	34	80



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



Weight of 4 spiral spacer bars per Column
are included in the weight of reinforcing steel.
Spiral reinforcing shall meet the requirements
of either ASTM A-615, Gr. 60, or A-82.



BILL OF REINFORCING STEEL											
Non-Epoxy Coated - (Gr. 60)											
Straight Bars						Bent Bars					
Mark	Size	Number	Length	Mark	Size	Number	Length	Mark	Size	Number	Length
A1	#9	18	43'-8"	PF1	#9	216	9'-2"				
PC1	#9	216	13'-6"	PF2	#8	336	10'-4"				
PB2	#8	72	28'-8"	PF3	#8	96	30'-4"				
A2	#6	156	4'-0"	A4	#5	156	8'-2"				
PB4	#6	204	4'-0"	PB1	#5	960	9'-1"				
				PB5	#5	60	6'-8"				
A3	#5	8	43'-8"	PC2	¾	18	⊗				
PB3	#5	36	28'-8"								
							</				

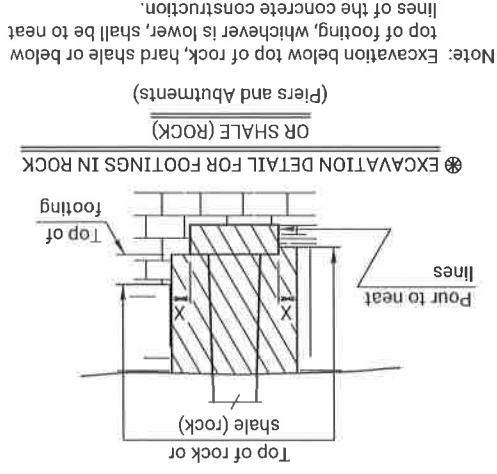
BIL OF REINFORCING STEEL											
Epoxy Coated (Gr. 60)											
Straight Bars						Bent Bars					
Mark	Size	Number	Length	Mark	Size	Number	Length	Mark	Size	Number	Length
AD1	#8	10	30'-0"	R1	#7	28	8'-5"				
AD2	#8	16	4'-0"	R3	#7	1032	6'-9"				
PD2	#8	96	4'-0"	R2	#6	4	5'-10"				
S4	#8	378	60'-0"								
S1	#7	54	15'-3"	AD12	#5	58	3'-7"				
S2	#7	72	18'-9"	AD13	#5	58	5'-8"				
R8	#6	24	10'-8"	AD4	#5	20	8'-10"				
R9	#6	756	9'-8"	AD5	#5	32	7'-2"				
				AD6	#5	24	6'-9"				
AD10	#5	12	9'-3"	PD1	#5	102	15'-0"				
AD14	#5	8	8'-0"	PD5	#5	36	5'-8"				
AD17	#5	2	28'-8"	PD7	#5	96	7'-2"				
AD7	#5	10	43'-8"	SP1	#5	640	4'-4"				
AD8	#5	18	7'-1"								
AD9	#5	12	4'-5"	R4	#4	1032	3'-11"				
PD3	#5	108	7'-1"								
PD4	#5	12	28'-2"	R5	#3	1710	3'-6"				
PD6	#5	36	4'-5"	R6	#3	256	4'-6"				
S3	#5	72	49'-6"	R7	#3	1056	4'-10"				
S5	#5	180	38'-0"								
S6	#5	533	52'-5"								
S7	#5	2216	29'-8"								
Superstructure											

* See Bending Diagrams

BENDING DIAGRAMS
All dimensions are out to out of bars.
Bend this leg to match the slope
of the roadway.

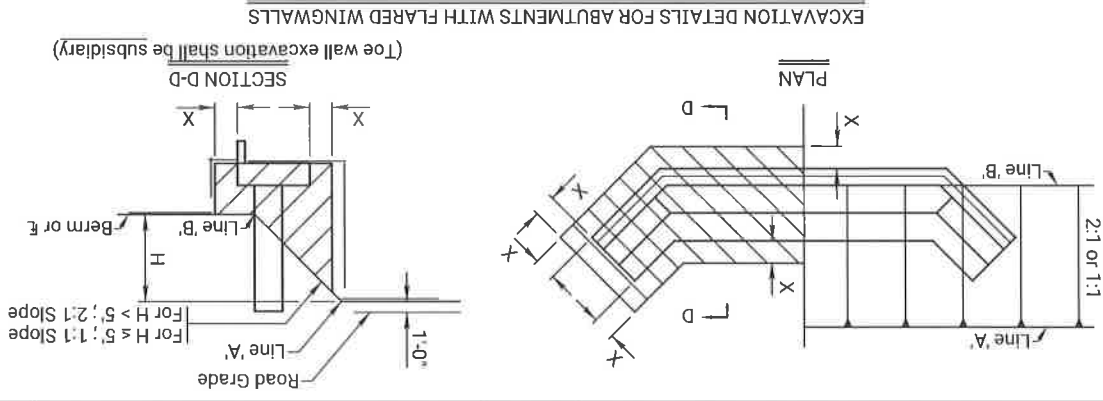
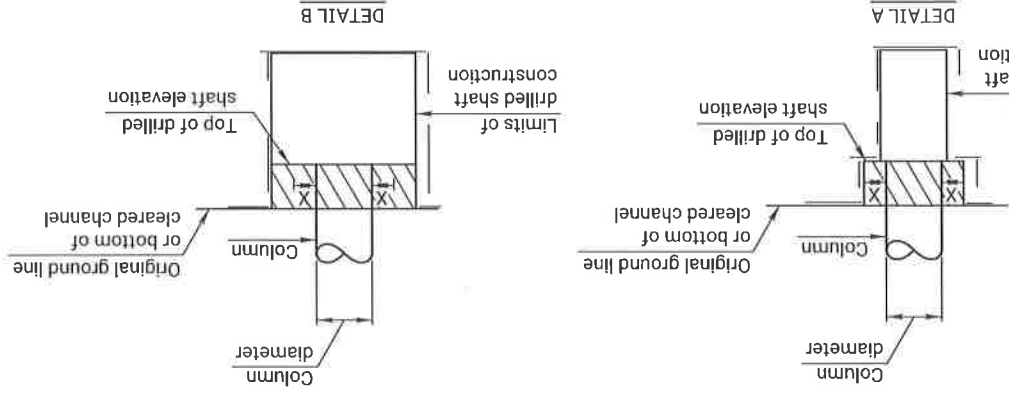
NO	DATE	REVISIONS	BY	APPD
03				
02				
01	06-30-05	Current Release		
KANSAS DEPARTMENT OF TRANSPORTATION				
Br. No. 00000000038B070				
Sta. 50+00.00				
BILL OF REINFORCING STEEL AND				
BENDING DIAGRAMS FOR				
27" KANSAS CORRAL RAIL				
(W-BEAM WITH RUBRAIL)				
Proj. FAS 70 Bridge Replacement				
Hamilton Co.				
DESIGNED				
DETAILS				
QUANTITIES				
CADD				
CADD CK				

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	38 C-5206-01	2024	35	80



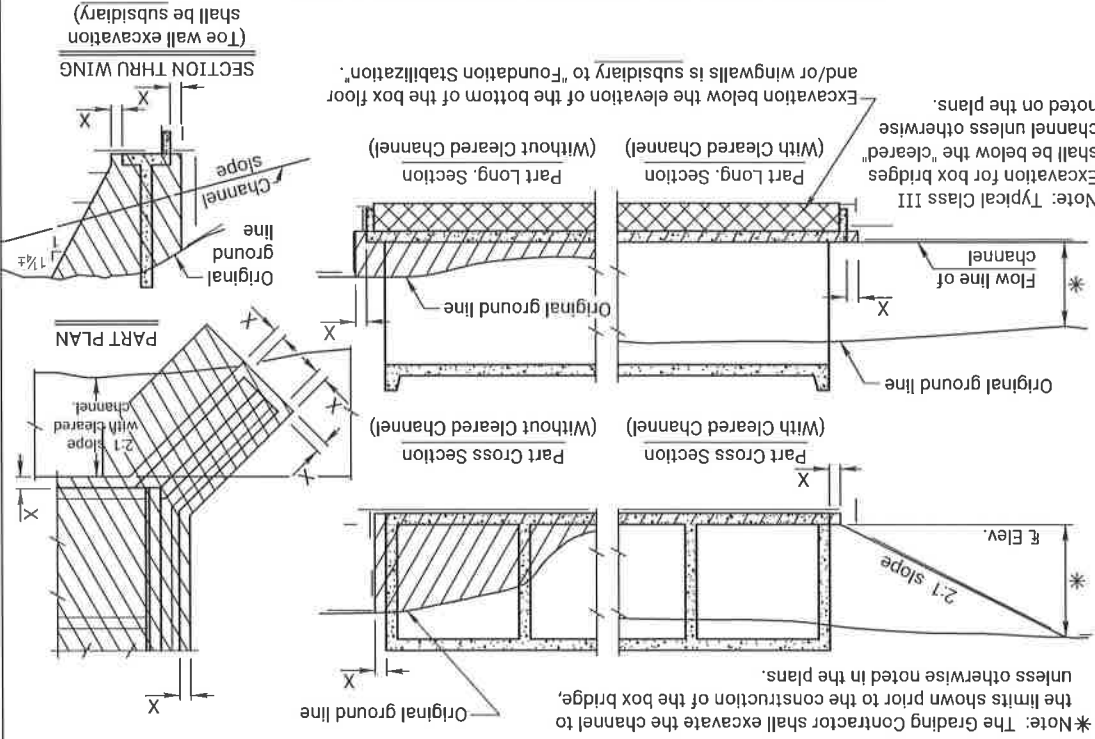
DRILLED SHAFT DETAILS

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

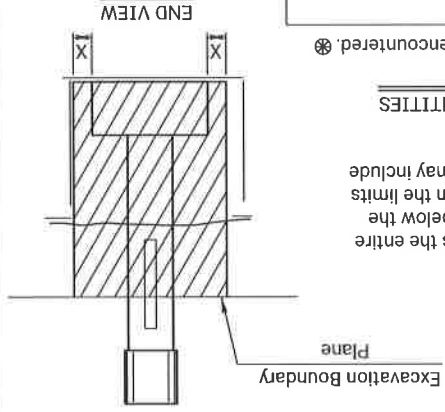


EXCAVATION DETAILS FOR REINFORCED CONCRETE BOX CULVERT

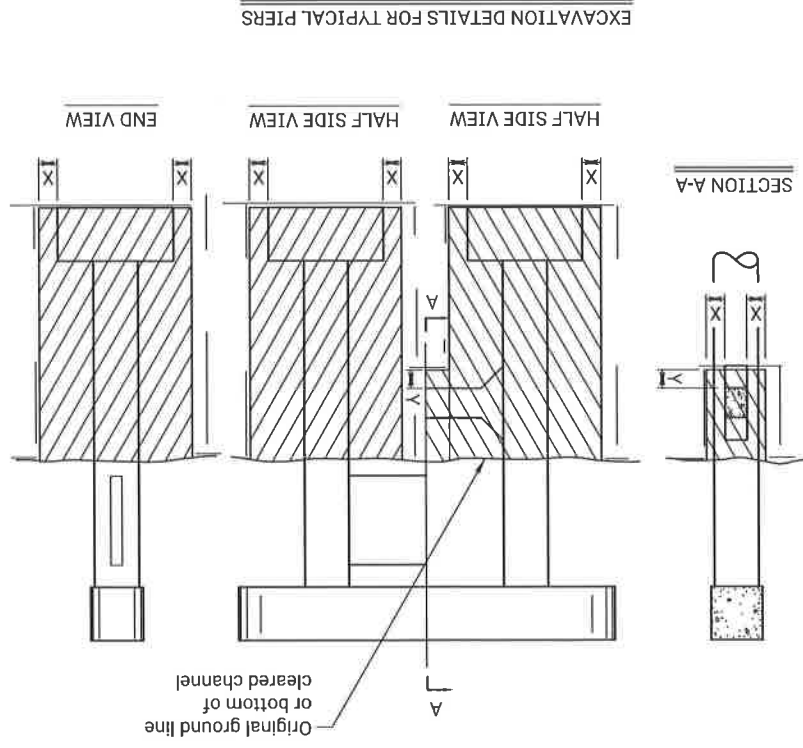
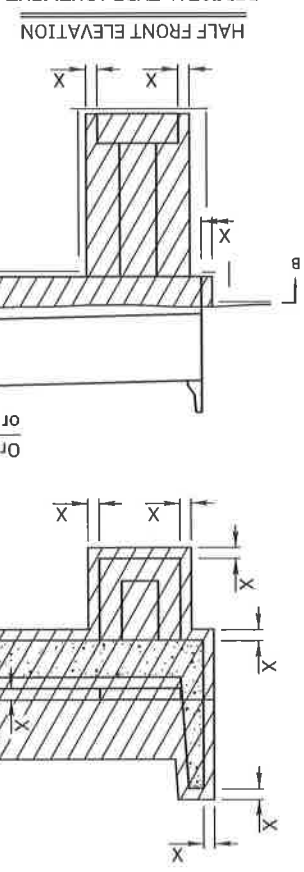
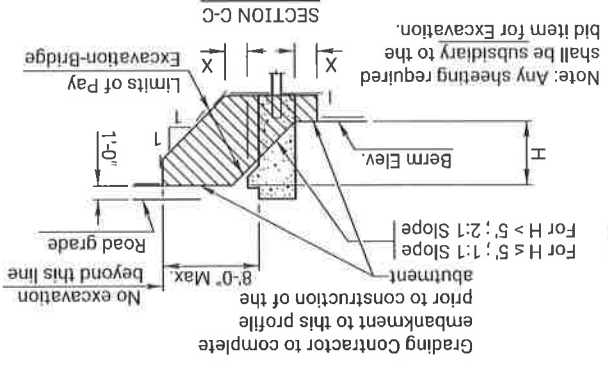
Note: Excavation for culverts less than bridge length and the additional excavation for "Embedded Structures" shall not be paid for as Class III Excavation, but shall be subsidiary to Grade 4.0 Concrete.



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



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



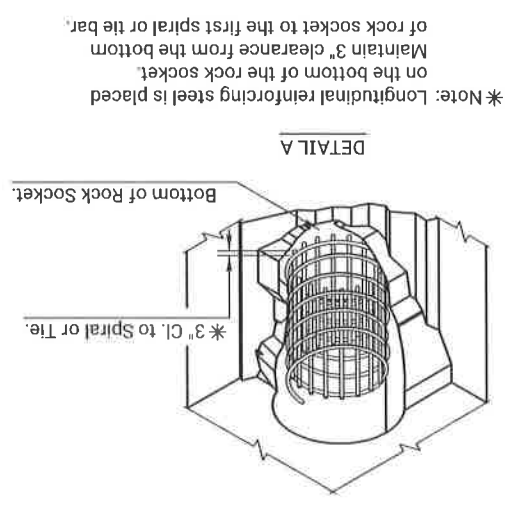
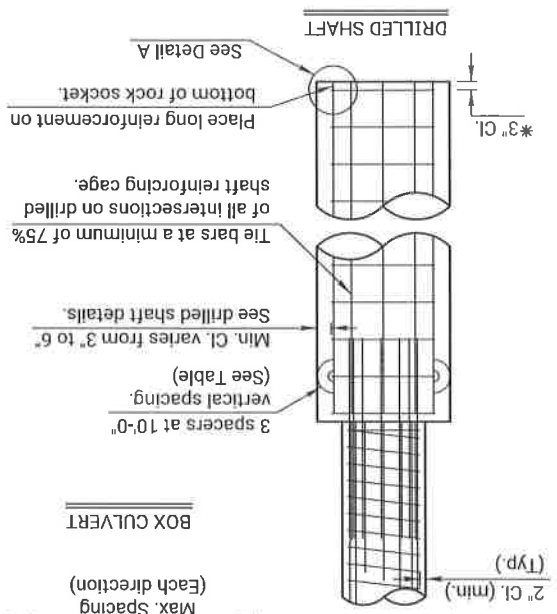
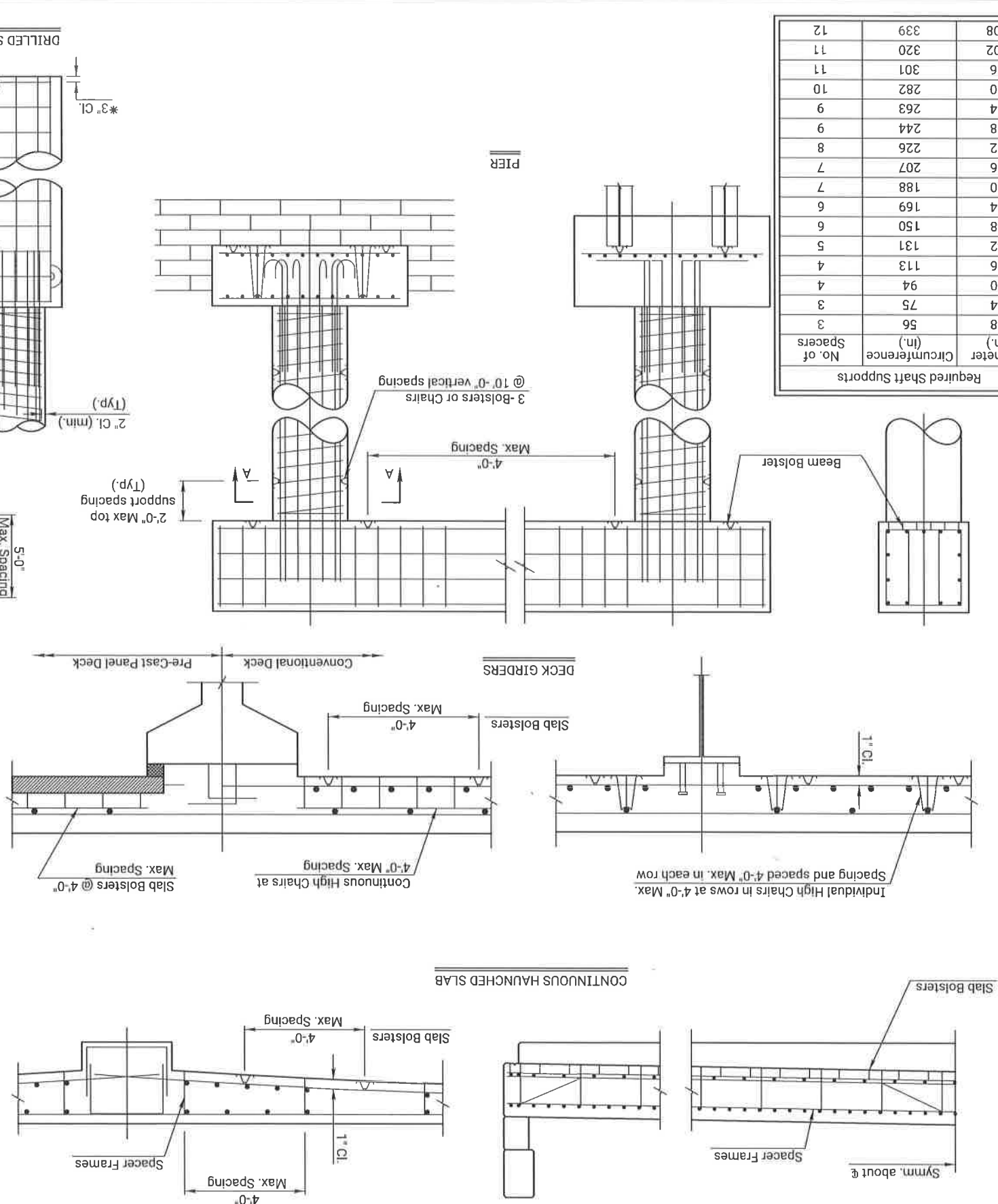
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	38 C-5206-01	2024	36	80

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

BRIDGE EXCAVATION
(LRFD)

[illegible]

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



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



KDOT Graphics Certified			
BR120	04-23-2024	SH. No. 38	
DESIGN CK	LRB	DETAIL CK	R.A.M.
DESIGNED	R.A.M.	QUANTITIES	R.A.M.
TRACED	R.A.M.		
Checked	Tony L. Fleck		
11-17-10	APPROV		
KANSAS DEPARTMENT OF TRANSPORTATION			
SUPPORTS AND SPACERS FOR REINFORCING STEEL			
NO	DATE	BY	APP'D
03	08-21-00	R.A.M.	K.F.H.
04	12-01-05	J.P.J.	K.F.H.
05	11-10-10	J.P.J.	T.L.F.
Column Bar Supports Required			
Drilled Shaft Signal Steel Placement			
Added Pre-Cast Panel Detail			
REVISIONS			

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

Use only the following types of bar supports:

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

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

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

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

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

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

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

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

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

GENERAL NOTES			
STATE	PROJECT NO.	YEAR	SHEET NO.
KANSAS	38 C-5206-01	2024	38
TOTAL SHEETS			80

BRIDGE PLAQUE

HL-93 LOADING

2025

XXXXXXXXXXXXXX

CONTRACTOR

KIRKHAM MICHAEL & ASSOCIATES, INC.

ENGINEERS

FRANKIE D. BURNS, SR.
SUPERINTENDENT OF RURAL OPERATIONS

JOHN R. SIMON
ANDY COLEMAN
MICHAEL W. LEWIS
KEITH A. PUCKETT
NIKKI SCHWERTDFFGER
FAS BRIDGE NO. 70

NOTES:
Furnish a rubbing of the Bridge Plaque to the Engineer for approval prior to casting.
Marker to be furnished and installed by the Contractor, subsidiary to the bid item "Concrete (Grade 4.0)(AE)(SW)" (1 Required).
Plate is to be black with bronze lettering and border.
The Contractor shall provide a shop drawing to the County and Engineer prior to ordering the marker.

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	38 C-5206-01	2024	39	80

BRIDGE PLAQUE DETAILS

REMOVAL OF EXISTING STRUCTURES		
STATION	SIDE	DESCRIPTION
50+02.00	€	Bridge No. 000000000380070
1049+50.00	€	6 @ 84' x 70' CRP (GSP) *
1049+95.50	€	3 @ 36' x 60' CRP (GSP) *
(For Information Only)		

* Shoorfly Pipes to be Stockpiled within the existing Right-of-way for removal by County Forces and Funds

BRIDGE APPROACH SLAB FOOTING		
Station	Length (ft.)	Cu. Yds.
46+41.00	28	8.3
46+61.00	28	8.3
53+39.00	28	8.3
53+59.00	28	8.3
TOTAL		
		33.2

CONCRETE PAVEMENT (10" UNIFORM) (AE) (BR APP)					
Station	Station	Length (ft.)	Width (ft.)	Sq. Yds.	Remarks
46+41.00	46+74.00	33	28	104.1	Bridge Approach
53+26.00	53+59.00	33	28	104.1	Bridge Approach
TOTAL					
				208	

EARTHWORK												
STATION TO STATION	EXCAVATION			NOT SUBGRADED THROUGH CUTS			* EMBANKMENT (CU YDS.)			▲PLACE SELECT SOIL		
	COMMON	ROCK	VMF	CONTR. FURN.	TYPE AA MR-5 MR-90	CU YDS.	COMM. TYPE AA	INITIAL SETTLE- MENT	CONSOL.	CU YDS.	CU YDS.	CU YDS.
	CU YDS.	CU YDS.	CU YDS.	CU YDS.	CU YDS.	CU YDS.	CU YDS.	CU YDS.	CU YDS.	CU YDS.	CU YDS.	CU YDS.
Phase I - 1044+60.00 to 1059+10.00				6.193		4,644						
Phase II - 43+00.00 to 56+00.00	689	0.75	318	1.00	1,284	191	1,289					
Phase III - 1044+60.00 to 1059+10.00	4,644	0.75										
TOTALS												
	5,333		318		7,477	191	5,933					

* Subsidiary (see General Note).

▲ See General note.

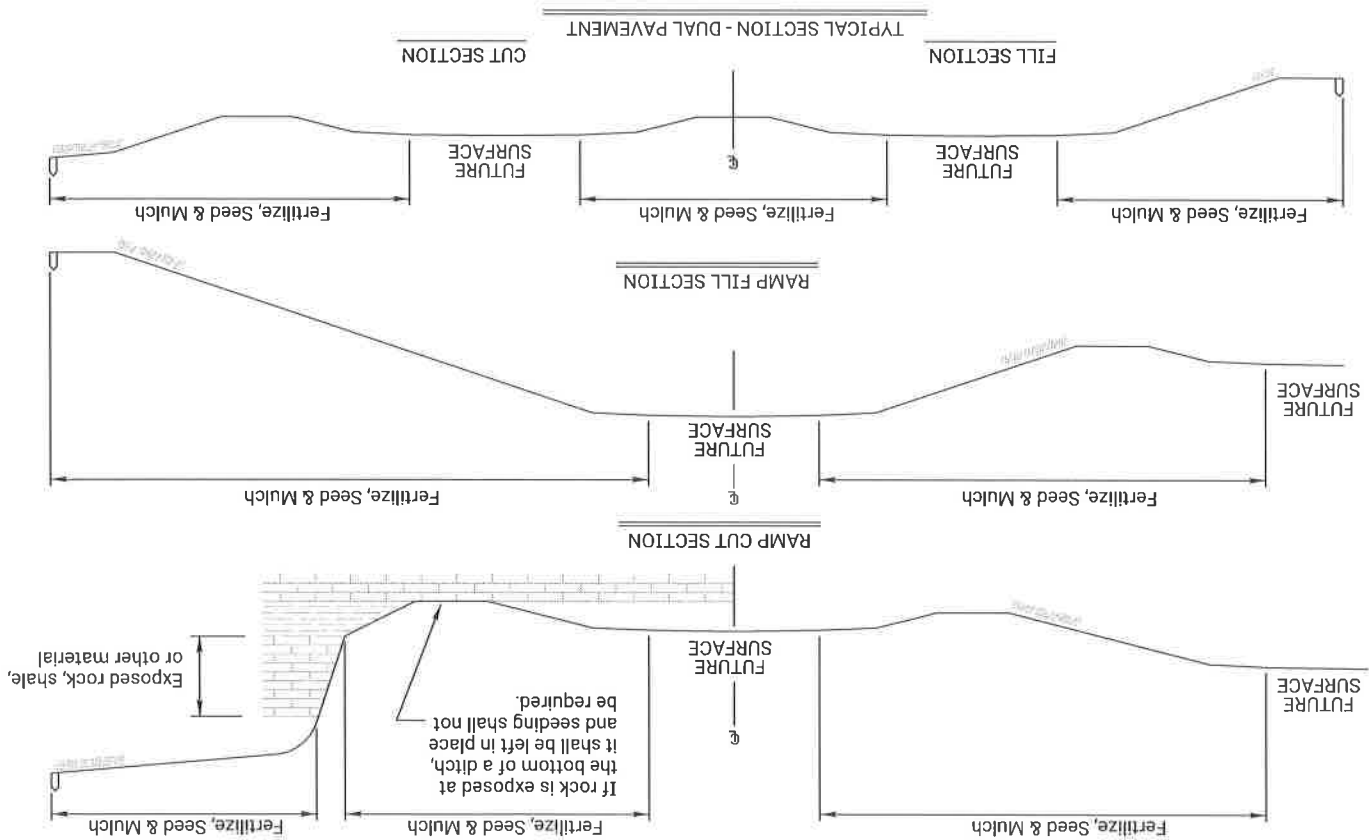
RECAPITULATION OF BRIDGE QUANTITIES				
BRIDGE NUMBER	STATION	50+00.00	SEE SHEET NO.	16
00000000038B070				
RECAPITULATION OF ROAD QUANTITIES				
ITEM	QUANTITY	UNIT		
Contractor Construction Staking	Lump Sum			
Field Office & Laboratory (Type A)	1	Each		
Foundation Stabilization (Set Price)	1	Cu. Yds.		
Mobilization	Lump Sum			
Removal of Existing Structures	Lump Sum			
Concrete for Seal Course (Set Price)	1	Cu. Yds.		
Cleaning and Grubbing	Lump Sum			
Common Excavation	5,333	Cu. Yds.		
Rock Excavation	318	Cu. Yds.		
Common Excavation (Contractor Furnished)	7,477	Cu. Yds.		
Compaction of Earthwork (Type B) (MR-90)	5,933	Cu. Yds.		
Compaction of Earthwork (Type A) (MR-5-5)	191	Cu. Yds.		
Water (Grading) (Set Price)	1	M. Gal.		
Temporary Surfacing Material (Aggregate) (Set Price)	1	Cu. Yds.		
Cross Road Pipe (36") (CSP)	180	Ln. Ft.		
Cross Road Pipe (84") (CSP)	420	Ln. Ft.		
Guardrail, Steel Plate	100	Ln. Ft.		
Guardrail End Terminal (SRT) Alt. #1	4	Each		
Guardrail End Terminal (FLTA1) Alt. #2	4	Each		
Concrete Pavement (10" Uniform) (AE) (Br. App.)	208	Sq. Yds.		
Bridge Approach Slab Footing	33.2	Cu. Yds.		
Curing Environment	Lump Sum			
Signing Object Marker (Type 3)	4	Each		

TOTAL SHEETS	80
STATE	KANSAS
PROJECT NO.	38-C-5206-01
YEAR	2024
SHEET NO.	40
	80

RECAPITULATION OF BRIDGE QUANTITIES				
BRIDGE NUMBER	STATION	50+00.00	SEE SHEET NO.	16
00000000038B070				
RECAPITULATION OF ROAD QUANTITIES				
ITEM	QUANTITY	UNIT		
Contractor Construction Staking	Lump Sum			
Field Office & Laboratory (Type A)	1	Each		
Foundation Stabilization (Set Price)	1	Cu. Yds.		
Mobilization	Lump Sum			
Removal of Existing Structures	Lump Sum			
Concrete for Seal Course (Set Price)	1	Cu. Yds.		
Cleaning and Grubbing	Lump Sum			
Common Excavation	5,333	Cu. Yds.		
Rock Excavation	318	Cu. Yds.		
Common Excavation (Contractor Furnished)	7,477	Cu. Yds.		
Compaction of Earthwork (Type B) (MR-90)	5,933	Cu. Yds.		
Compaction of Earthwork (Type A) (MR-5-5)	191	Cu. Yds.		
Water (Grading) (Set Price)	1	M. Gal.		
Temporary Surfacing Material (Aggregate) (Set Price)	1	Cu. Yds.		
Cross Road Pipe (36") (CSP)	180	Ln. Ft.		
Cross Road Pipe (84") (CSP)	420	Ln. Ft.		
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Guardrail End Terminal (SRT) Alt. #1	4	Each		
Guardrail End Terminal (FLTA1) Alt. #2	4	Each		
Concrete Pavement (10" Uniform) (AE) (Br. App.)	208	Sq. Yds.		
Bridge Approach Slab Footing	33.2	Cu. Yds.		
Curing Environment	Lump Sum			
Signing Object Marker (Type 3)	4	Each		

For Surfacing Quantities See Sheet No. 41
For Seeding Quantities See Sheet No. 53
For Temporary Erosion Control Quantities See Sheet No. 42
For Traffic Control Quantities See Sheet No. 62

SUMMARY OF QUANTITIES				
KANSAS DEPARTMENT OF TRANSPORTATION				
NO.	DATE	BY	APP'D.	
02	01-14-08	W. K.	J. O. B.	
01	01-09-91	R. J. S.	J. O. B.	
REVISIONS				
Detailed on CADD				
Revised Drainage Structure Elevation				
DESIGNED BY B. B.				
CHECKED BY B. B.				
DESIGN CK. DETAIL CK. QUANT. CK. TRACE CK. S. W. K.				
RD050				
05-26-08 APPROV. JAMES D. BREWER				



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
- ** - P_2O_5 = Phosphorous Rate of Application
- *** - K_2O = Potassium Rate of Application

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

GENERAL NOTES

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 in the plans. The rate of application per acre, thickness in place, for the mulching materials is generally as follows:

1 ½ - 2 ½ Tons per Acre = 1 ½" 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.

SOIL EROSION MIX		
PLS RATE	NAME	QTY (lb)
1	Seed (Blue Grama Grass) (Lowvinton)	0.8
24.5	Seed (Buffalo Grass) (Treated)	19.6
6.3	Seed (Side Oats Grama) (El Reno)	5
10	Seed (Sterile Wheatgrass)	8
6	Seed (Western Wheatgrass) (Barton)	4.8
47.8	Total (lb)	38.2

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

*** List size of material.

† 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.

Regreen and Quick Guard are the approved sterile wheatgrass products.

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

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.

SUMMARY OF SEEDING / EROSION CONTROL QUANTITIES									
P.L.S. RATE/ ACRE		ACRES		BID ITEM		QUANTITY		UNIT	
CLT	SL/CH	CLT	SL/CH						
150		1.4		Temporary Fertilizer (16 - 20 - 0)		210		LB	
20		0.6		Temporary Seed (Canada Wildrye)		12		LB	
45		0.6		Temporary Seed (Grain Oats)		27		LB	
45		0.6		Temporary Seed (Sterile Wheatgrass)		27		LB	
				Soil Erosion Mix		38.2		LB	
				Erosion Control (Class 1, Type C)		3701		SQ YD	
				Erosion Control (Class 2, Type Y)				SQ YD	
				Synthetic Sediment Barrier				CU YD	
				Temporary Berm (Set Price)				LB	
				Temporary Inlet Sediment Barrier				CU YD	
				Temporary Sediment Basin				CU YD	
				Temporary Slope Drain				LB	
				Temporary Stream Crossing				EACH	
				Biodegradable Log (9")				LB	
				Biodegradable Log (12")				LB	
				Biodegradable Log (20")				LB	
				Filter Sock (****)				LB	
				Geotextile (Erosion Control)				SQ YD	
				Silt Fence				LB	
				SWPPP Design ‡				LS	
				SWPPP Inspection ‡				EACH	
				Water Pollution Control Manager ‡				EACH	
				Mulch Tacking Slurry				LB	
900 lbs / acre				Mulching				TON	
2 tons / acre		0.6		Water (Erosion Control) (Set Price)				MGAL	

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	38 C-5206-01	2024	42	80

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

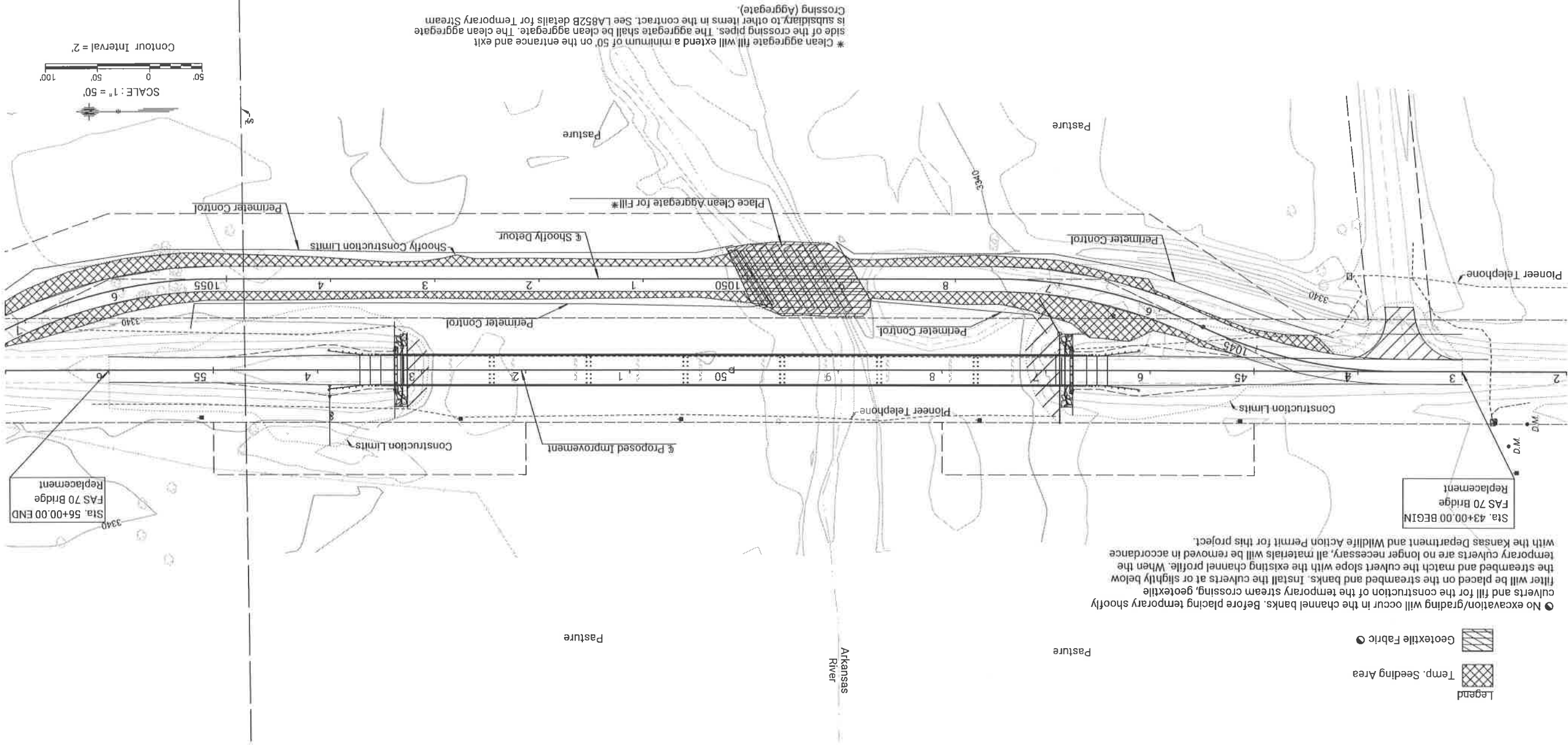
KANSAS DEPARTMENT OF TRANSPORTATION				
TEMPORARY EROSION AND POLLUTION CONTROL				
LA852A				
PRJW APPROVAL		01-29-18	APPD.	Scott L. Sanders
DESIGNED	M.R.D	DETAILED	M.R.D	QUANTITIES
DESIGNED	S.H.S	DETAILED	S.H.S	QUAN CK
				TRACE CK
Sh No. 42				

UTILITIES
Telephone
Power
Pioneer Communications 620-356-3211
Wheatland Electric 620-384-5171

KANSAS	PROJECT NO.	38 C-5206-01	YEAR	2024	SHEET NO.	43	TOTAL SHEETS	80
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● No excavation/grading will occur in the channel banks. Before placing temporary shoofly culverts and fill for the construction of the temporary stream crossing, geotextile filter will be placed on the streambed and banks. Install the culverts at or slightly below the streambed and match the culvert slope with the existing channel profile. When the temporary culverts are no longer necessary, all materials will be removed in accordance with the Kansas Department and Wildlife Action Permit for this project.

Legend
Temp. Seeding Area
Geotextile Fabric ●



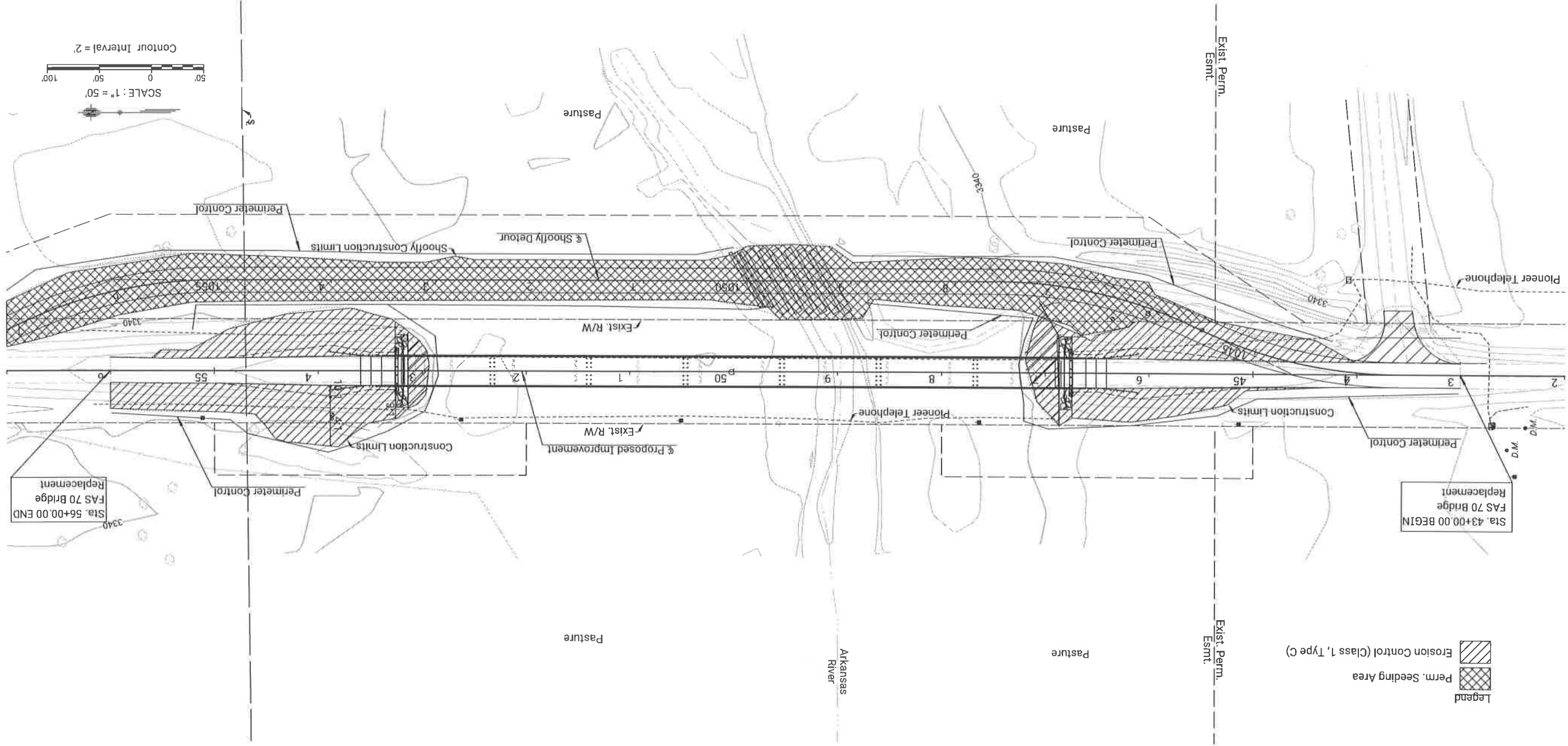
* Clean aggregate fill will extend a minimum of 50' on the entrance and exit side of the crossing pipes. The aggregate shall be clean aggregate. The clean aggregate is subsidiary to other items in the contract. See LA852B details for Temporary Stream Crossing (Aggregate).

SCALE : 1" = 50'
Contour Interval = 2'

Project No. FAS 70 Bridge
Hamilton County
PHASE 1
EROSION CONTROL

UTILITIES
Telephone
Power
Pioneer Communications 620-356-3211
Wheatland Electric 620-384-5171

Legend
Erosion Control (Class 1, Type C)
Perm. Seeding Area



KANSAS	PROJECT NO.	38 C-5206-01	2024	44	80
STATE	YEAR	SHEET NO.	TOTAL SHEETS		

Project No. FAS 70 Bridge
Hamilton County
EROSION CONTROL
PHASE 2 & 3
Sh. No. 44

EROSION CONTROL- CLASS 1, TYPE C				
STATION TO STATION	SIDE	LENGTH	WIDTH	SQ YARD
44+20.21 TO 47+15.86	LT	296'	18.8'	617
44+00.00 TO 47+15.86	RT	316'	28.5'	1001
52+94.14 TO 56+00.00	LT	306'	35.3'	1200
52+94.14 TO 56+00.00	RT	306'	26'	883
TOTAL EROSION CONTROL (CLASS 1, TYPE C) =				
3701 Sq. Yds.				

NO	DATE	REVISIONS	BY	APP'D

LA852A-EC

THWA APPROVAL

DESIGNED M R M

TRACED M R M

DESIGN CK SHS

THWA CK SHS

QUANTITIES

MRM

DETAIL CK SHS

QUANT CK SHS

LA852A-EC

SEEDING-SODDING

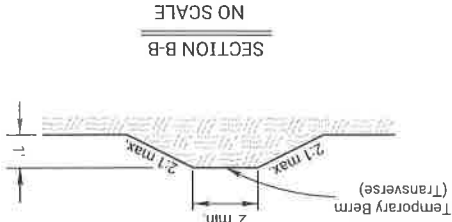
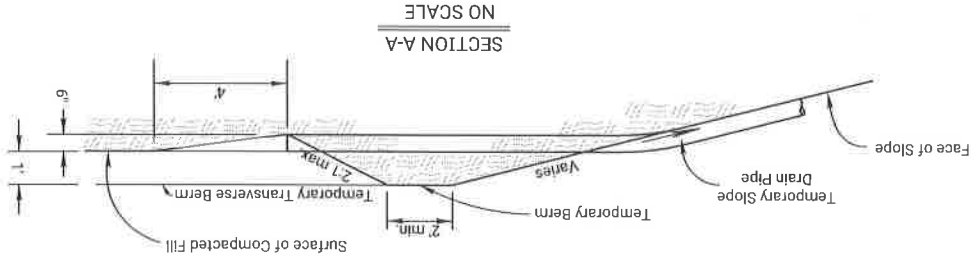
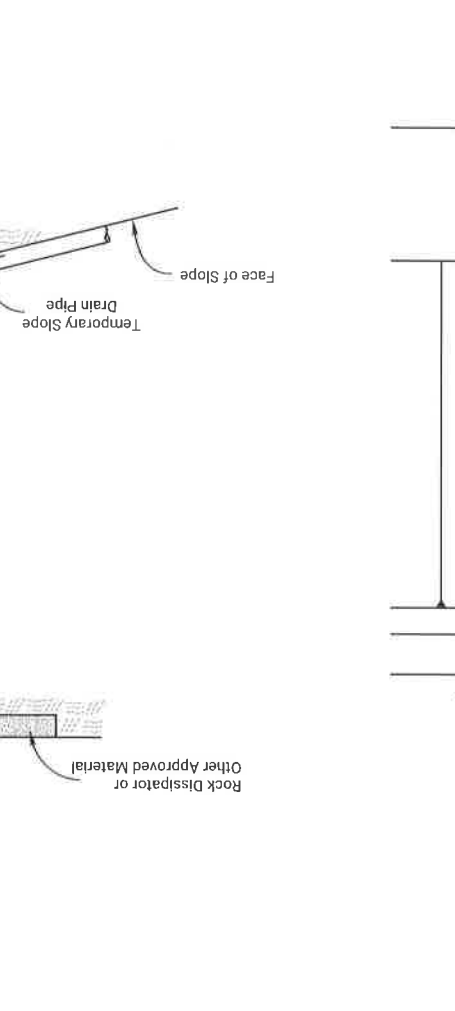
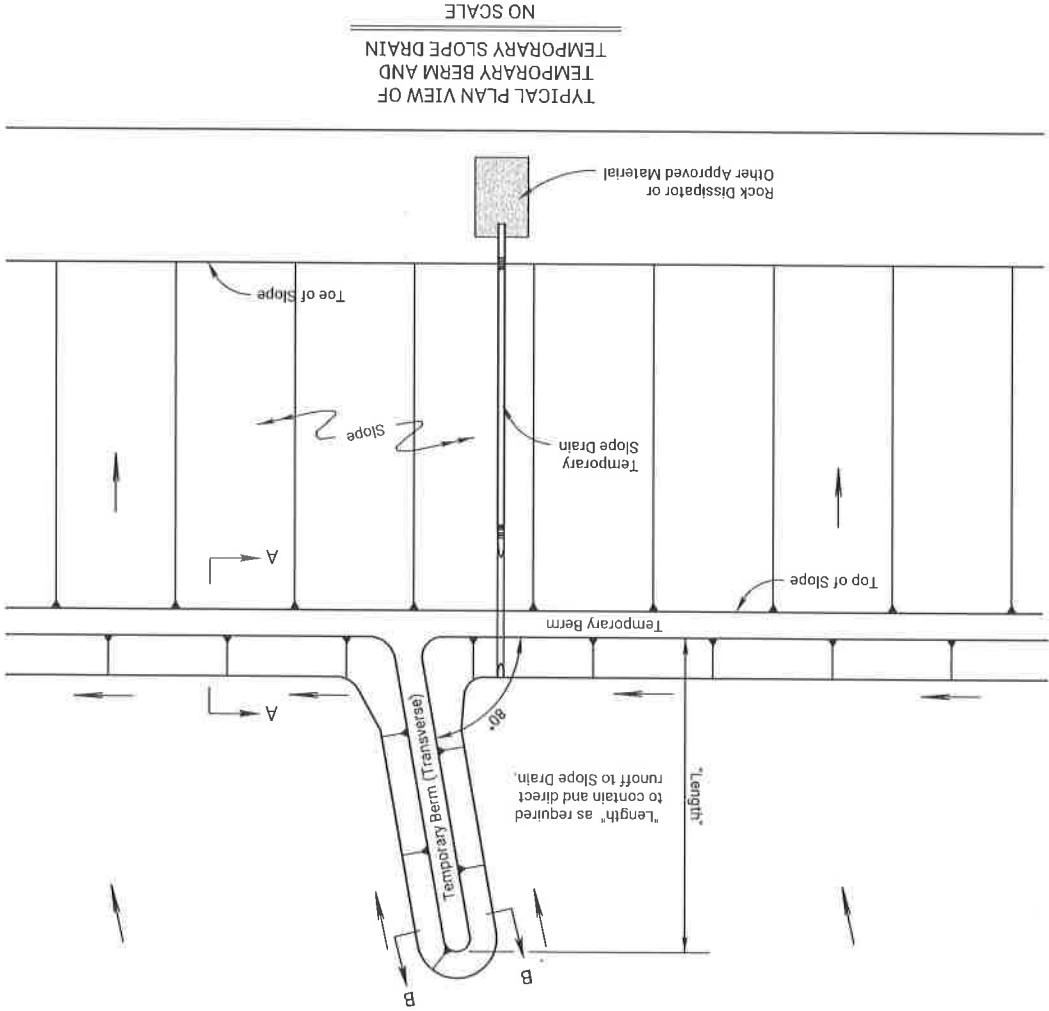
EROSION CONTROL

KANSAS DEPARTMENT OF TRANSPORTATION

Scott H. Shields

Sh No. 45

STATE	KANSAS	PROJECT NO.	38 C-5206-01	YEAR	2024	SHEET NO.	45	TOTAL SHEETS	80
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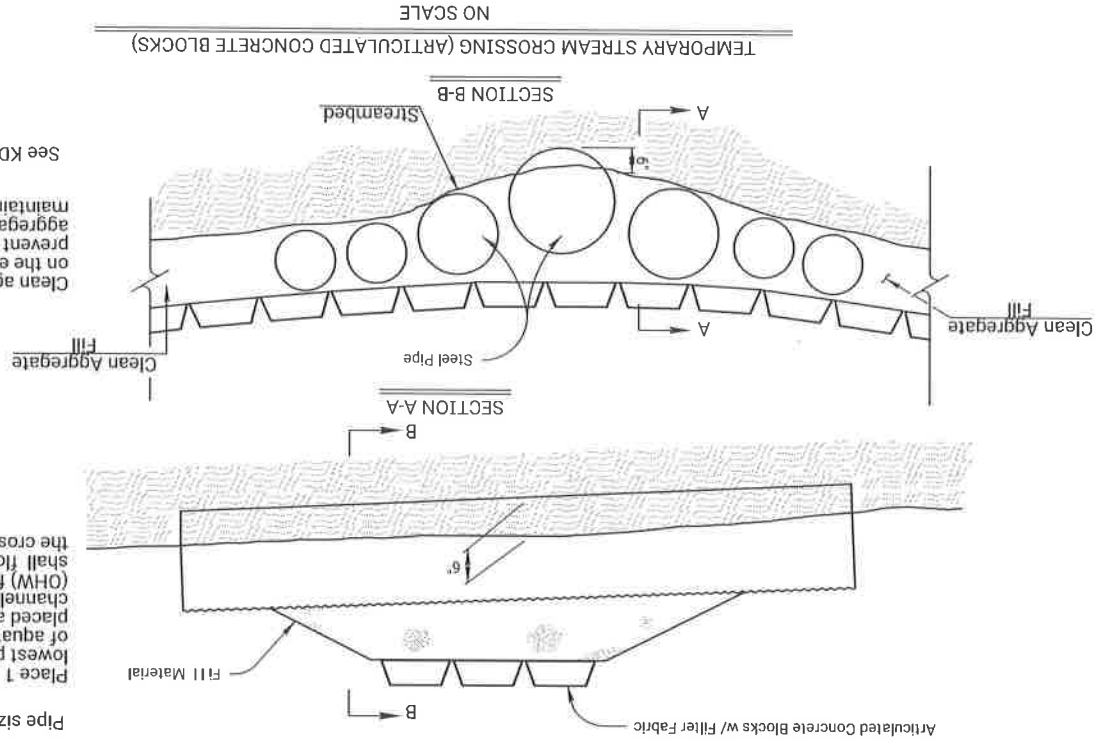


- NOTES:
- 1) Temporary Slope Drain and Temporary Berm may be used on either project foreslopes or project back slopes.
 - 2) Discharge of Slope Drains shall be into stabilized ditch or area, or into Sediment Basin.
 - 3) Pipe shall be secured in place as approved by Engineer.
 - 4) Temporary Berms under 2,000 feet shall be bid by Set Price.

KANSAS	PROJECT NO.	38 C-5206-01	2024	46	80
STATE	YEAR	SHEET NO.	TOTAL SHEETS		

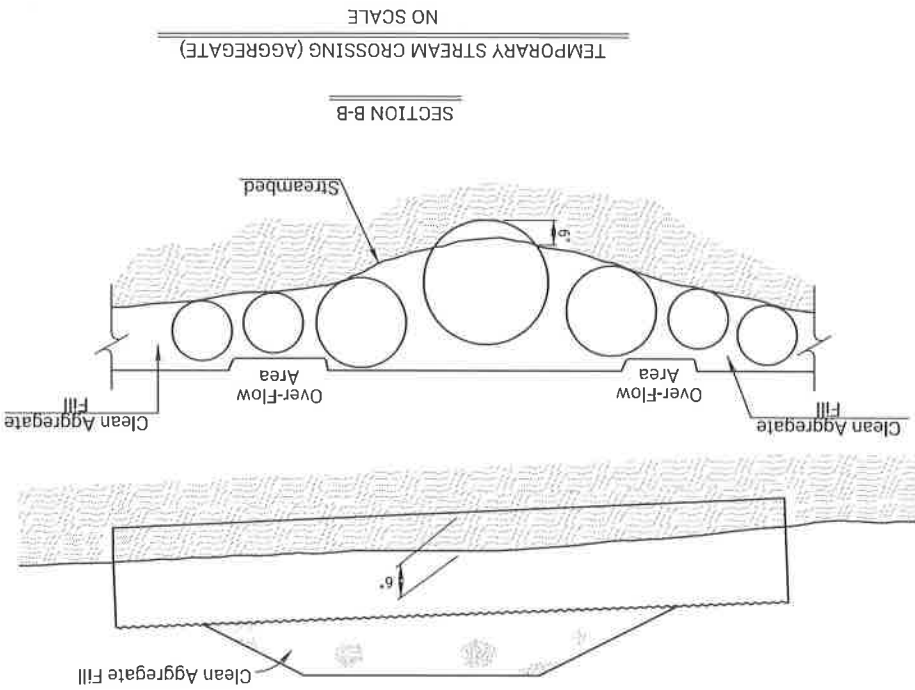
Pipe size may vary.

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.



See KDOT Specifications for more information.

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.



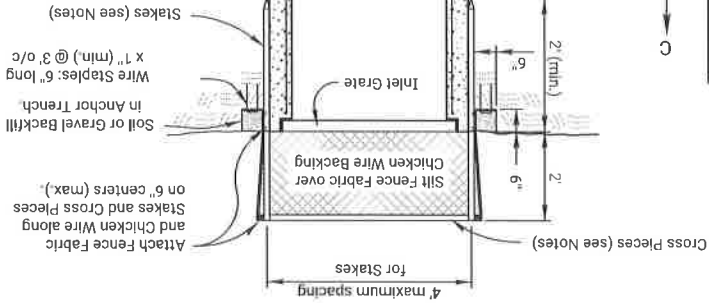
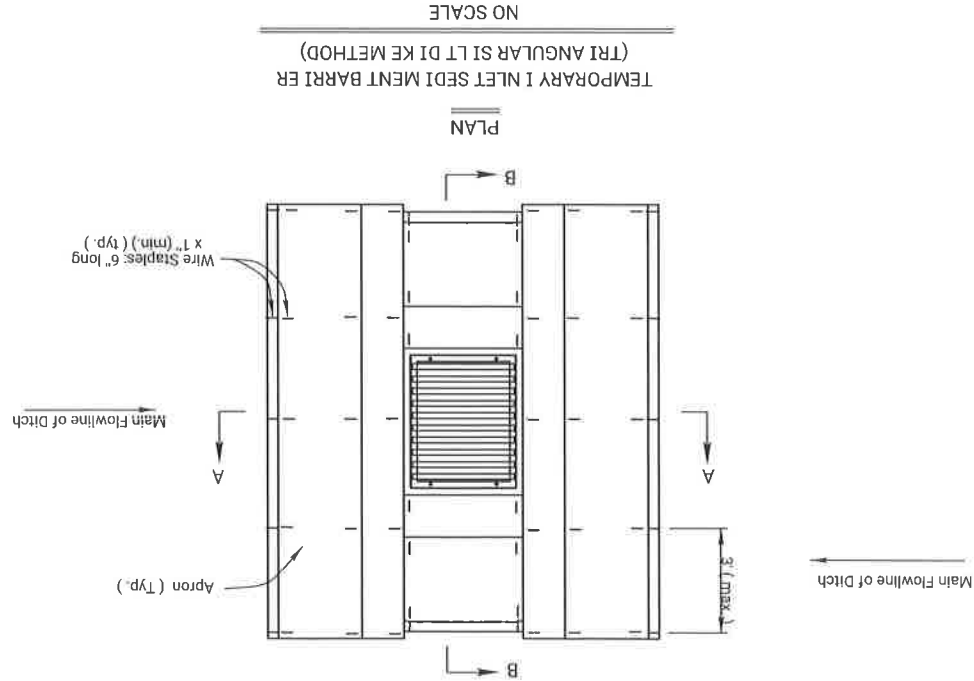
Pipe size may vary.

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.

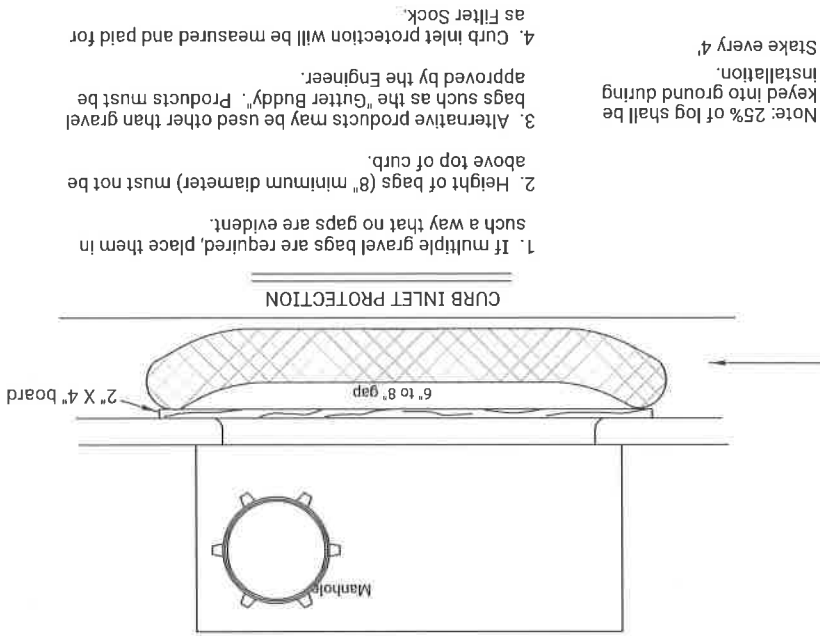
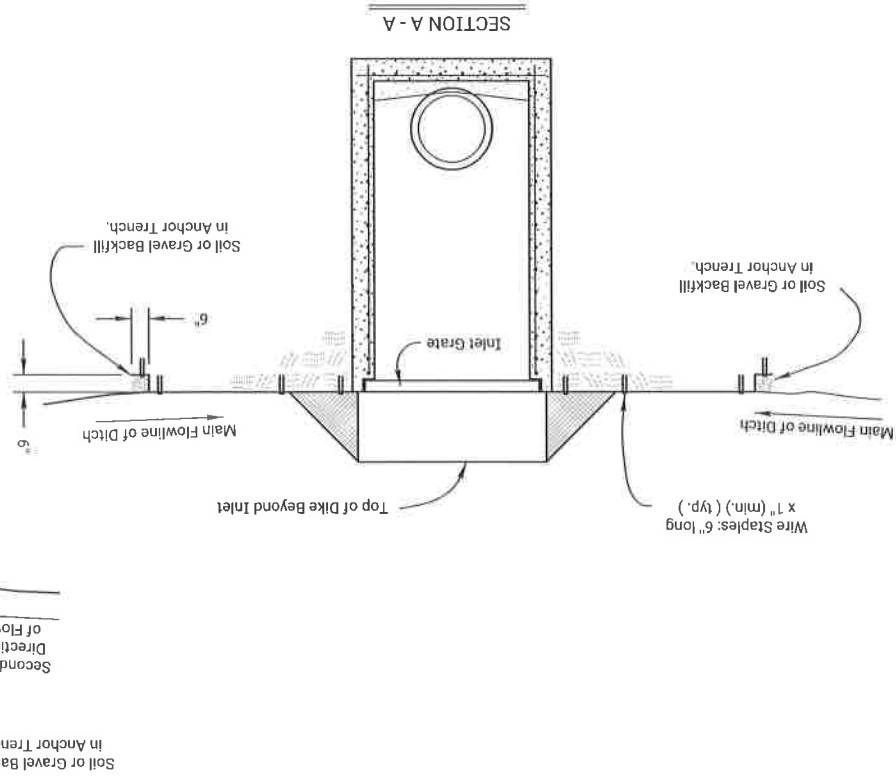
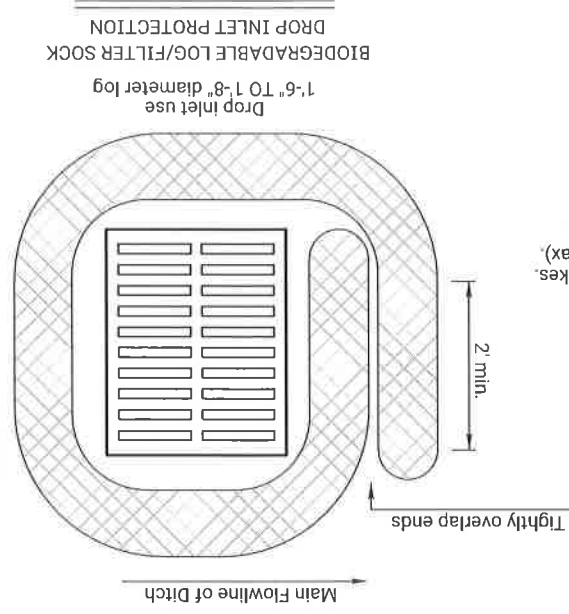
Clean aggregate fill will extend a minimum of 50' on the entrance and exit side of the crossing to prevent tracking. The aggregate shall be clean aggregate and a minimum of 6" thick and will be maintained through the use of the crossing.

See KDOT Specifications for more information.

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	06-11-19	Revised Standard	M.R.M.	S.H.S.
REVISIONS				
BY	DATE	REVISIONS	BY	DATE
APPRO				
KANSAS DEPARTMENT OF TRANSPORTATION				
TEMPORARY EROSION AND				
POLLUTION CONTROL				
TEMPORARY SLOPE DRAIN, TEMPORARY				
STREAM CROSSING (AGGREGATE)				
LA852B				
FHWA APPROVAL				
DESIGNED	01-21-23	APPRO	TRACED	MONTH 1.00
DETAIL CK				
QUANTITY				
DESIGN CK				
KDOT Graphics Certified				
04-23-2024				
SH. NO. 46				



- SILT FENCE:**
1. Stakes shall be 4' (min.) long and of one of the following materials:
 - a. Hardwood - 1 3/4" x 1 3/4",
 - 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.

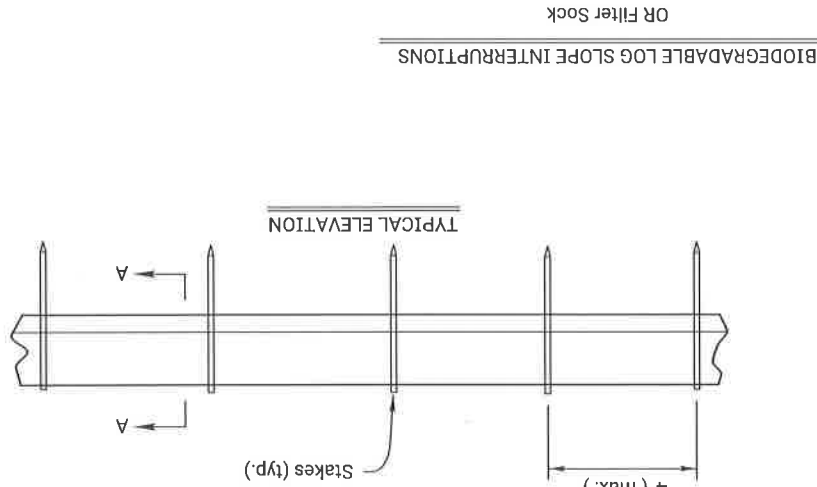
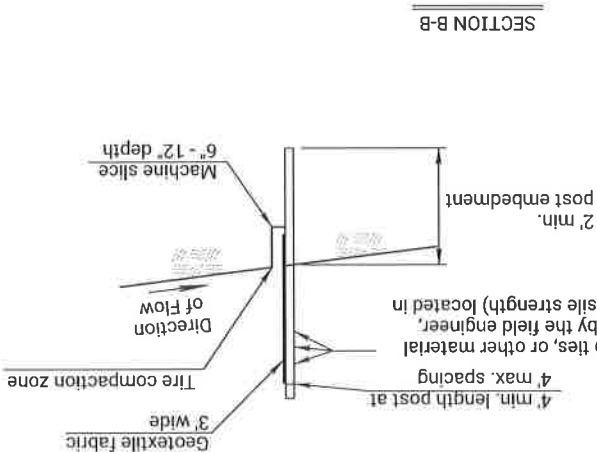
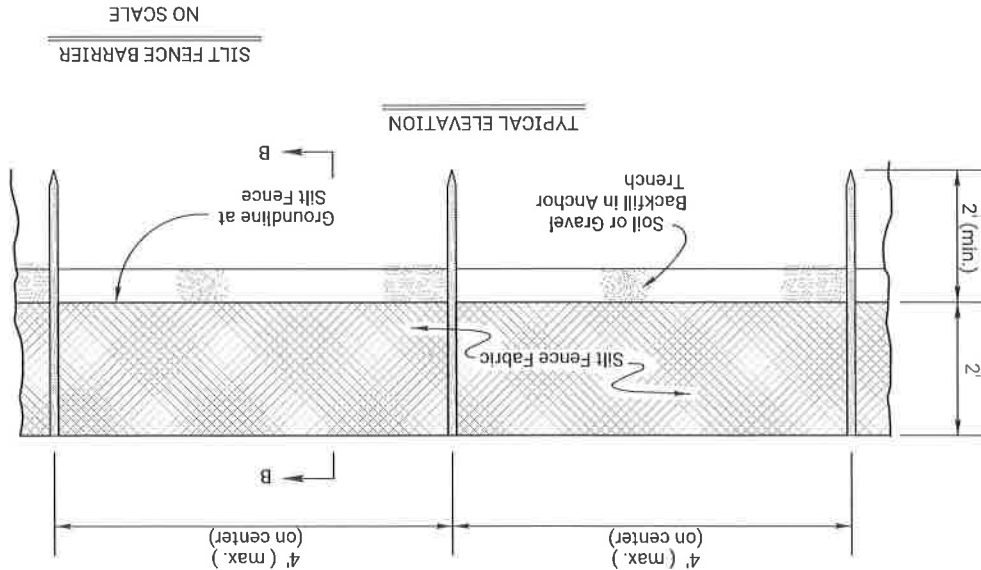
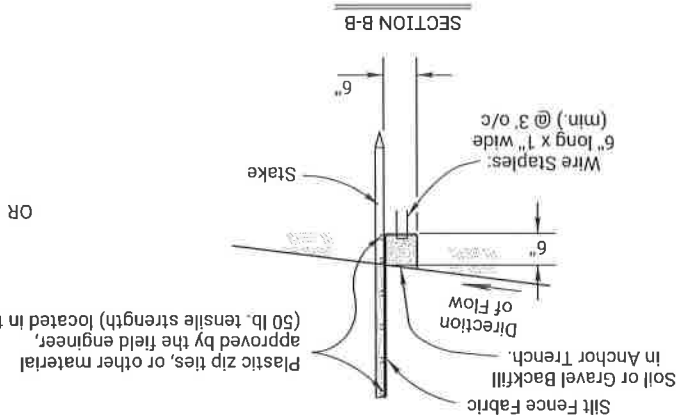
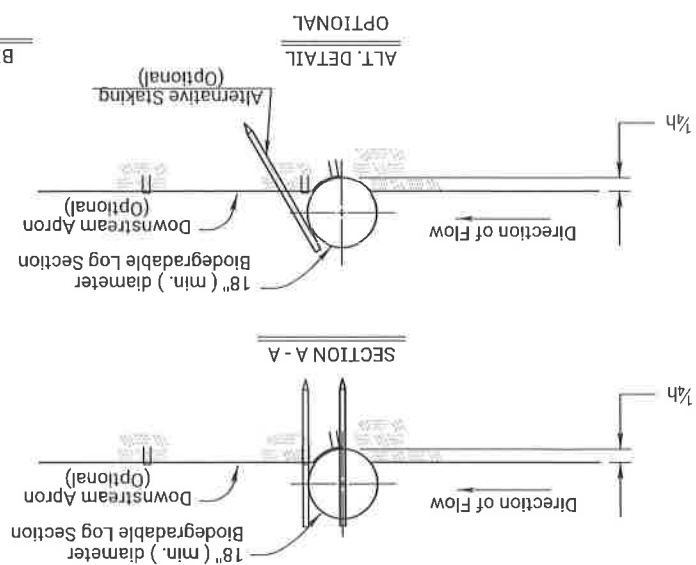


Material Requirements	
Use 100% shredded mulch or other non-compost biodegradable material as fill for logs.	
No compost or fines.	
No hay or straw.	
Do not use material which prohibits water infiltration.	
Log Mesh:	
Mesh must allow water infiltration but also hold fill material in place.	

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.

KANSAS DEPARTMENT OF TRANSPORTATION	
DESIGNED	SHS
TRACED	SHS
QUANTITIES	SHS
APPROVED	SHS
DATE	03-10-15
NO.	LA852C
TEMPORARY EROSION AND POLLUTION CONTROL, TEMPORARY INLET SEDIMENT BARRIER (T.S.D.)	
KDOT Graphics Certified	

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	38-C-5206-01	2024	47	80



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

GENERAL NOTES

Deviations should be approved by the Field Engineer.

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

Biodegradable Log Material		Silt Fence Fabric	
LOW FLOW	9"	Straw/Compost	Excelsior / Wood Chips / Coconut Fiber
HIGH FLOW	12"	Straw/Compost	Excelsior / Wood Chips / Coconut Fiber
18"-20"	Straw/Compost	Excelsior / Wood Chips / Coconut Fiber	Excelsior / Wood Chips / Coconut Fiber

1. Place biodegradable logs or filter sock tightly together minimum overlap of 18".
 2. Wood stakes shall be 2" x 2" (nom.).
 3. Refer to plan sheets to estimate length of biodegradable log and filter sock required.
 4. Each log or sock (except compost filter socks) should be keyed into the ground at a minimum of 25% of its height. Compost filter socks should be placed on smooth prepared ground with no gaps between the sock and soil.
 5. Length of stakes should be 2 times the height of the log at a minimum with minimum ground embedment equal to the height of the log / sock.
- With minimum ground embedment equal to the height of the log / sock.
4. Refer to plan sheets to estimate the length of silt fence required.
3. Use of high flow material is acceptable.
2. Alternate attachment methods may be approved by the Engineer on a performance basis.
- d. Synthetic - same strength as wood stakes.
- c. Steel U, T, L, or C Section - .95 lbs. per 1'-0", or
- b. Southern Pine (No. 2) - 2 3/8" x 2 3/8",
- a. Hardwood - 1 3/8" x 1 3/8",
1. Stakes shall be 4" (min.) long and of one of the following materials:

INSTALLATION NOTES

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	38-C-5206-01	2024	48	80

Biodegradable Log Material		Silt Fence Fabric	
LOW FLOW	9"	Straw/Compost	Excelsior / Wood Chips / Coconut Fiber
HIGH FLOW	12"	Straw/Compost	Excelsior / Wood Chips / Coconut Fiber
18"-20"	Straw/Compost	Excelsior / Wood Chips / Coconut Fiber	Excelsior / Wood Chips / Coconut Fiber

Biodegradable Log Material		Silt Fence Fabric	
LOW FLOW	9"	Straw/Compost	Excelsior / Wood Chips / Coconut Fiber
HIGH FLOW	12"	Straw/Compost	Excelsior / Wood Chips / Coconut Fiber
18"-20"	Straw/Compost	Excelsior / Wood Chips / Coconut Fiber	Excelsior / Wood Chips / Coconut Fiber

Biodegradable Log Material		Silt Fence Fabric	
LOW FLOW	9"	Straw/Compost	Excelsior / Wood Chips / Coconut Fiber
HIGH FLOW	12"	Straw/Compost	Excelsior / Wood Chips / Coconut Fiber
18"-20"	Straw/Compost	Excelsior / Wood Chips / Coconut Fiber	Excelsior / Wood Chips / Coconut Fiber

Biodegradable Log Material		Silt Fence Fabric	
LOW FLOW	9"	Straw/Compost	Excelsior / Wood Chips / Coconut Fiber
HIGH FLOW	12"	Straw/Compost	Excelsior / Wood Chips / Coconut Fiber
18"-20"	Straw/Compost	Excelsior / Wood Chips / Coconut Fiber	Excelsior / Wood Chips / Coconut Fiber

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LOW FLOW	9"	Straw/Compost	Excelsior / Wood Chips / Coconut Fiber
HIGH FLOW	12"	Straw/Compost	Excelsior / Wood Chips / Coconut Fiber
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Biodegradable Log Material		Silt Fence Fabric	
LOW FLOW	9"	Straw/Compost	Excelsior / Wood Chips / Coconut Fiber
HIGH FLOW	12"	Straw/Compost	Excelsior / Wood Chips / Coconut Fiber
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Biodegradable Log Material		Silt Fence Fabric	
LOW FLOW	9"	Straw/Compost	Excelsior / Wood Chips / Coconut Fiber
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Biodegradable Log Material		Silt Fence Fabric	
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Biodegradable Log Material		Silt Fence Fabric	
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Biodegradable Log Material		Silt Fence Fabric	
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Biodegradable Log Material		Silt Fence Fabric	
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LOW FLOW	9"	Straw/Compost	Excelsior / Wood Chips / Coconut Fiber
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18"-20"	Straw/Compost	Excelsior / Wood Chips / Coconut Fiber	Excelsior / Wood Chips / Coconut Fiber

Biodegradable Log Material		Silt Fence Fabric	
LOW FLOW	9"	Straw/Compost	Excelsior / Wood Chips / Coconut Fiber
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18"-20"	Straw/Compost	Excelsior / Wood Chips / Coconut Fiber	Excelsior / Wood Chips / Coconut Fiber

Biodegradable Log Material		Silt Fence Fabric	
LOW FLOW	9"	Straw/Compost	Excelsior / Wood Chips / Coconut Fiber
HIGH FLOW	12"	Straw/Compost	Excelsior / Wood Chips / Coconut Fiber
18"-20"	Straw/Compost	Excelsior / Wood Chips / Coconut Fiber	Excelsior / Wood Chips / Coconut Fiber

Biodegradable Log Material		Silt Fence Fabric	
LOW FLOW	9"	Straw/Compost	Excelsior / Wood Chips / Coconut Fiber
HIGH FLOW	12"	Straw/Compost	Excelsior / Wood Chips / Coconut Fiber
18"-20"	Straw/Compost	Excelsior / Wood Chips / Coconut Fiber	Excelsior / Wood Chips / Coconut Fiber

Biodegradable Log Material		Silt Fence Fabric	
LOW FLOW	9"	Straw/Compost	Excelsior / Wood Chips / Coconut Fiber
HIGH FLOW	12"	Straw/Compost	Excelsior / Wood Chips / Coconut Fiber
18"-20"	Straw/Compost	Excelsior / Wood Chips / Coconut Fiber	Excelsior / Wood Chips / Coconut Fiber

Biodegradable Log Material		Silt Fence Fabric	
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HIGH FLOW	12"	Straw/Compost	Excelsior / Wood Chips / Coconut Fiber
18"-20"	Straw/Compost	Excelsior / Wood Chips / Coconut Fiber	Excelsior / Wood Chips / Coconut Fiber

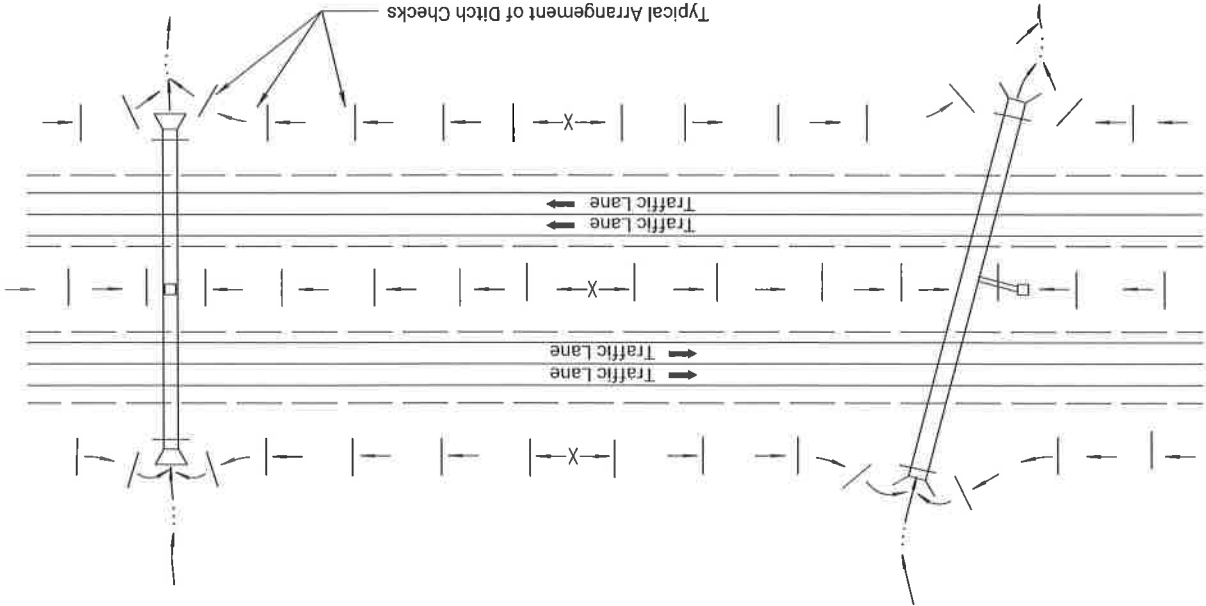
Biodegradable Log Material		Silt Fence Fabric	
LOW FLOW	9"	Straw/Compost	Excelsior / Wood Chips / Coconut Fiber
HIGH FLOW	12"	Straw/Compost	Excelsior / Wood Chips / Coconut Fiber
18"-20"	Straw/Compost	Excelsior / Wood Chips / Coconut Fiber	Excelsior / Wood Chips / Coconut Fiber

Biodegradable Log Material		Silt Fence Fabric	
LOW FLOW	9"	Straw/Compost	Excelsior / Wood Chips / Coconut Fiber
HIGH FLOW	12"	Straw/Compost	Excelsior / Wood Chips / Coconut Fiber
18"-20"	Straw/Compost	Excelsior / Wood Chips / Coconut Fiber	Excelsior / Wood Chips / Coconut Fiber

- 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.

GENERAL NOTES

TYPICAL DITCH CHECK LAYOUT PLAN
NO SCALE

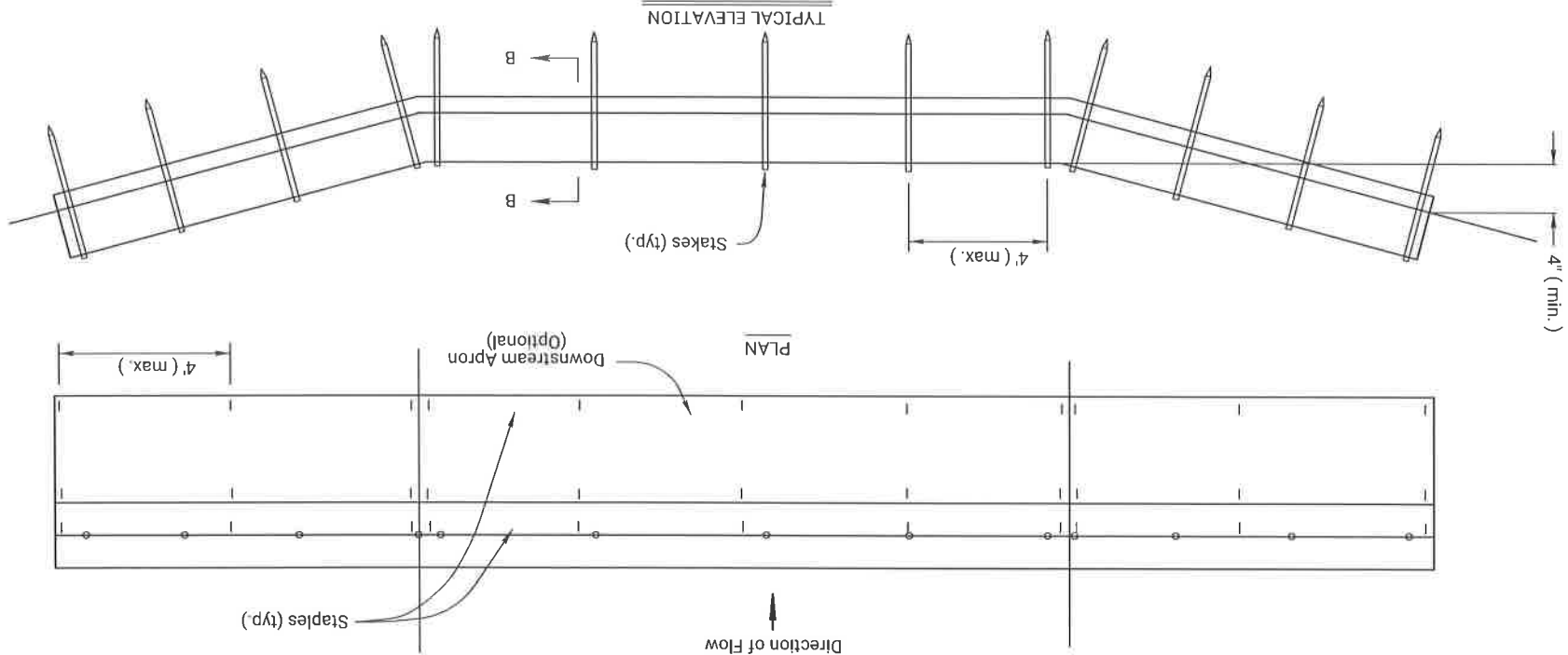


NOTE: Use this spacing for all except Rock Checks			
DITCH & SLOPE (%)		SPACING INTERVAL (FEET)	
20" BIOLLOG		CHECK SPACING	
1.0		125	
2.0		60	
3.0		40	
4.0		30	
5.0		25	

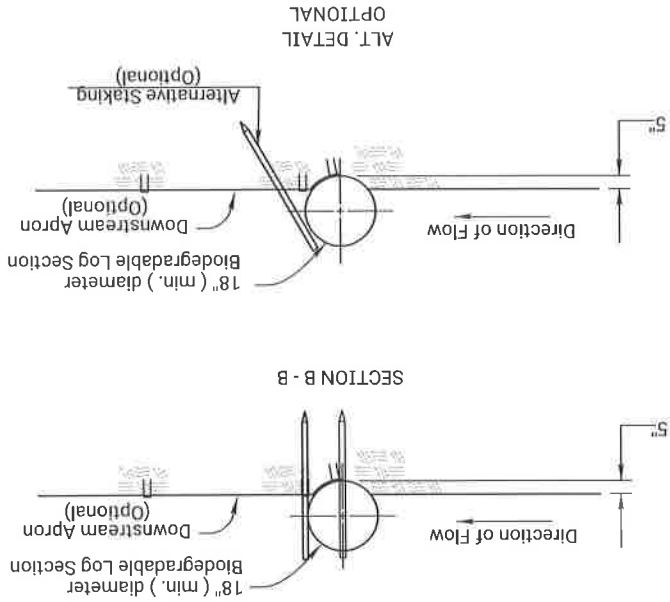
NOTE: Use this spacing for all except Rock Checks			
DITCH & SLOPE (%)		SPACING INTERVAL (FEET)	
18" FILTER SOCK		CHECK SPACING	
1.0		110	
2.0		55	
3.0		35	
4.0		25	
5.0		20	

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

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	38 C-5206-01	2024	49	80



BIODEGRADABLE LOG DITCH CHECK
OR Filter Sock Ditch Check
NO SCALE



ALT. DETAIL
OPTIONAL

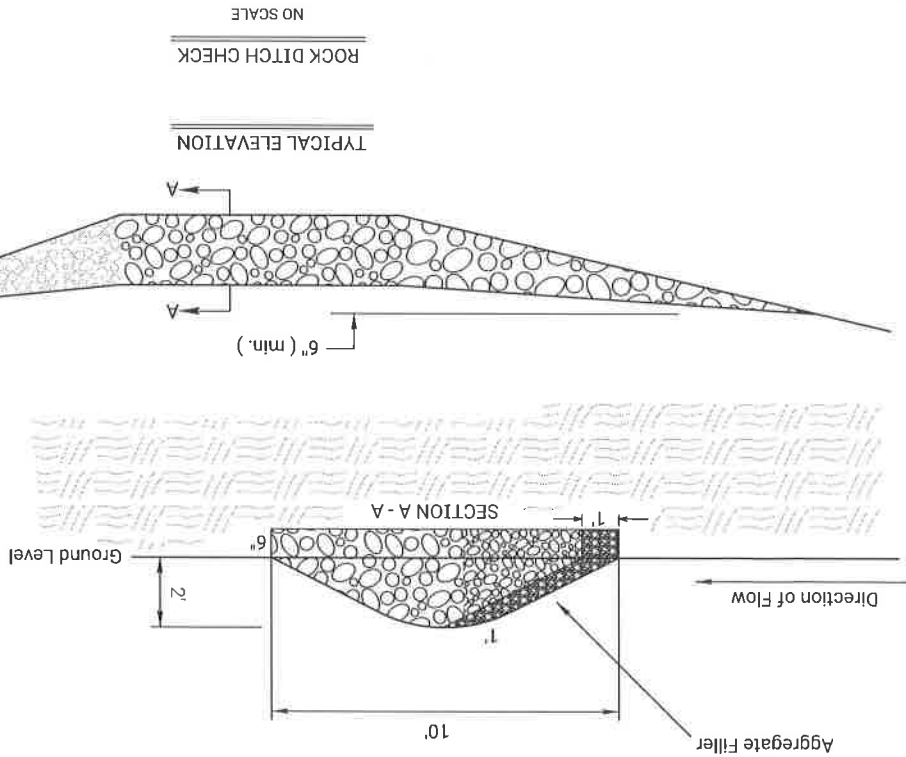
BIODEGRADABLE LOG DITCH CHECK NOTES

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.L.	M.R.D.	S.H.S.
02	08-16-16	Revised Standard	R.A.A.	R.A.A.	S.H.S.
01	10-21-15	Revised Standard	R.A.A.	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

DESIGNED	M.L. DETAIL CK	M.L. QUANT CK	TRACED	R.A.A.
APPROVED	11-19-20	11-19-20	APPROVED	R.A.A.
DATE	04-23-2024	SH. NO.	50	



ROCK DITCH CHECK
NO SCALE

TEMPORARY ROCK DITCH CHECK SPACING		
DITCH & SLOPE INTERVAL (FEET)	SPACING	Rock Ditch Checks only.
5.0	5.0	29
6.0	6.0	33
7.0	7.0	36
8.0	8.0	43
9.0	9.0	50
10.0	10.0	60

NOTE: Use this spacing for

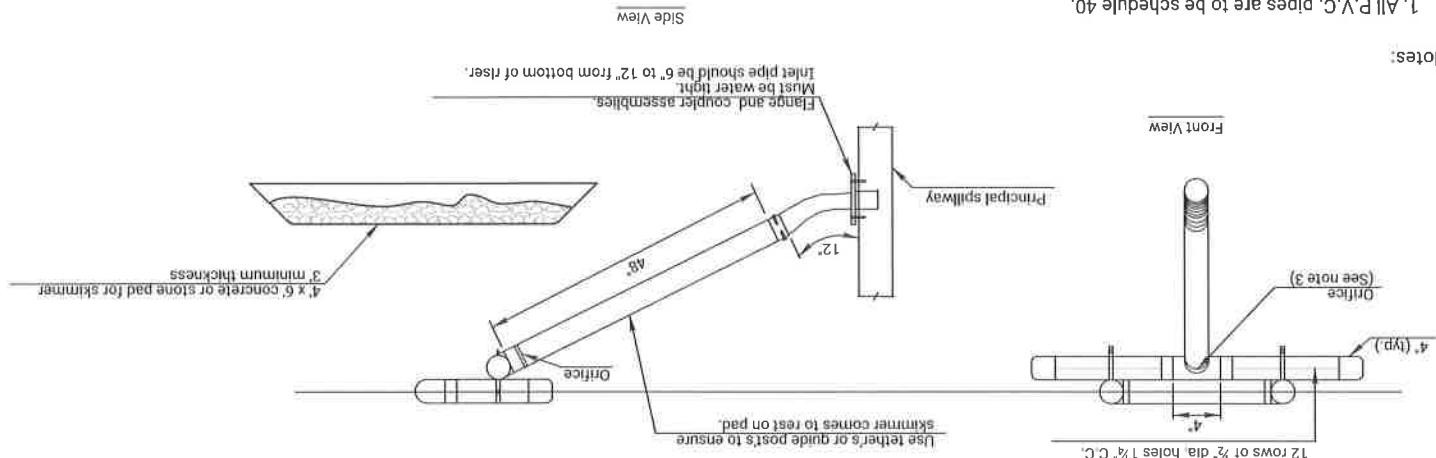
ROCK DITCH CHECK NOTES

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.

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	38 C-5206-01	2024	50	80

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 so to provide drawdown time to 2 to 5 days and approved by the engineer.
4. Other skimmer designs may be used that draw water from the surface at a controlled rate. The design must be approved by the engineer.

Notes:

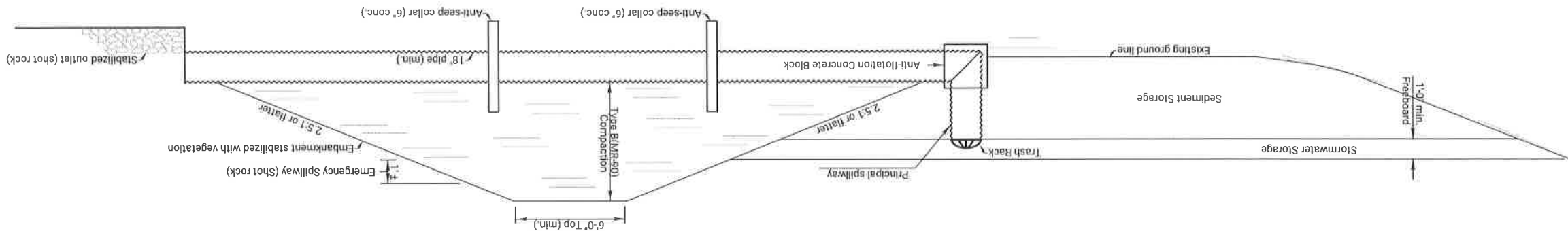


SKIMMER DEWATERING DEVICE

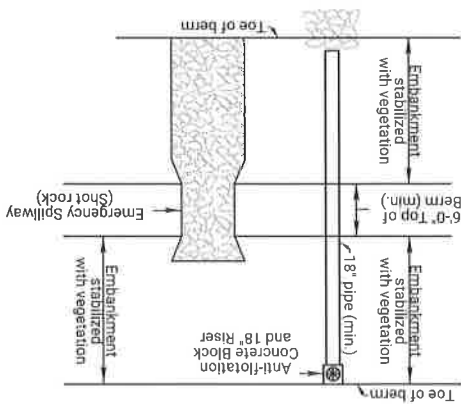
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02	09-03-13	Added Skimmer Flowwarning Device	M R M	S H S
01	07-17-13	Revised Standard	M R M	S H S
NO	DATE	REVISIONS	BY	APP'D
KANSAS DEPARTMENT OF TRANSPORTATION				
TEMPORARY EROSION AND POLLUTION CONTROL SEDIMENT STORAGE BASIN				
LA852H				
FHWA APPROVAL				
09-24-13 APP'D				
DESIGNED	S H S	DETAIL CK	S H S	QUANTITY
TRACED	S H S	THICK CK	S H S	
04-23-2024 SH No. 51				

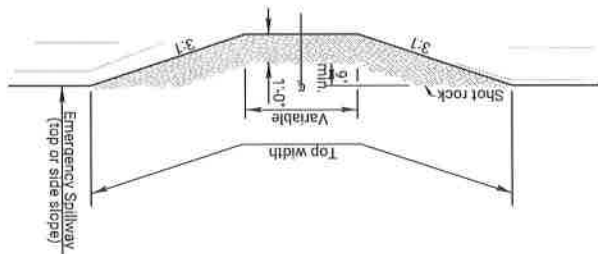
SEDIMENT STORAGE BASIN (ELEVATION)



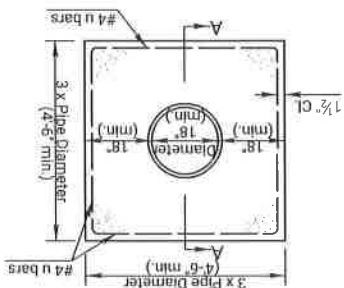
SEDIMENT STORAGE BASIN (PLAN)



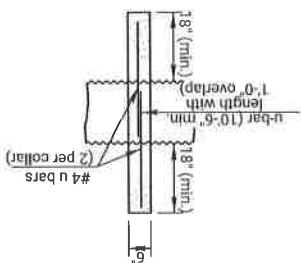
CROSS SECTION (EMERGENCY SPILLWAY)



CONCRETE ANTI-SLEEP COLLAR



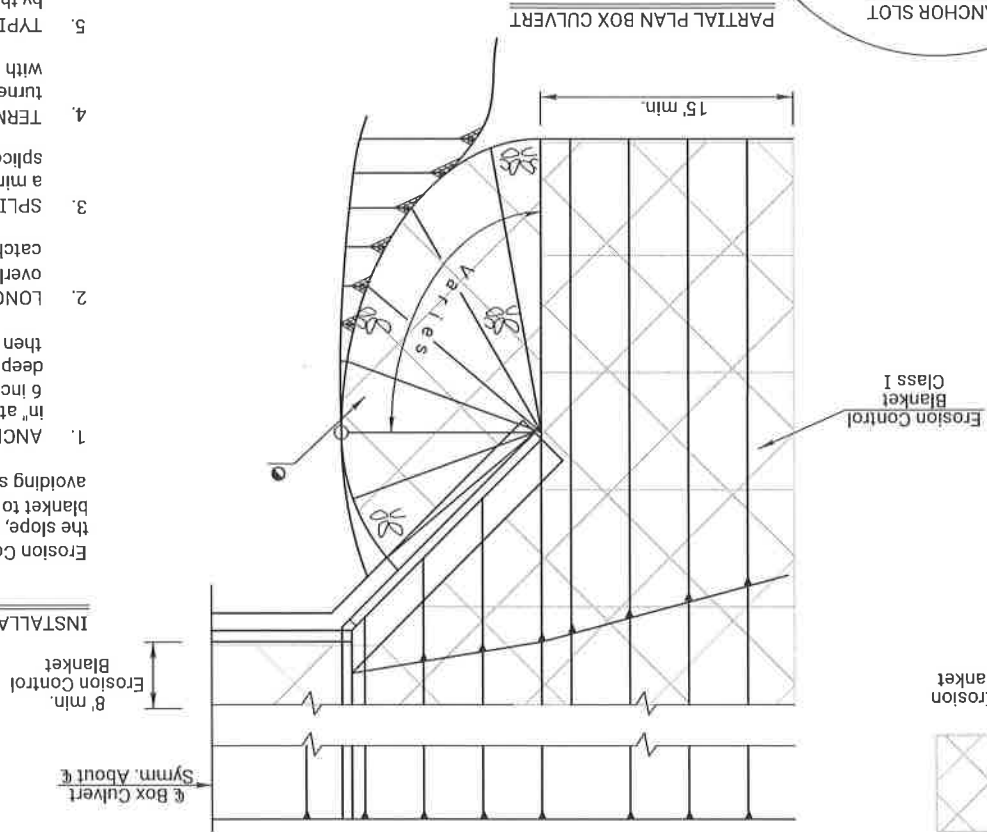
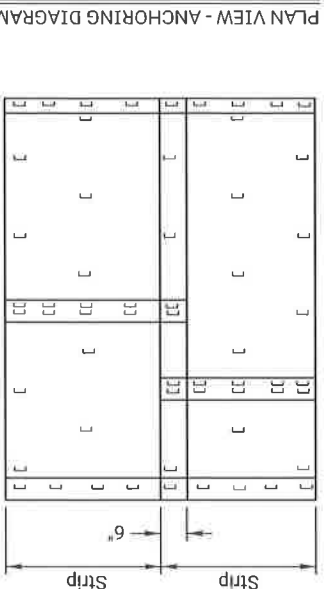
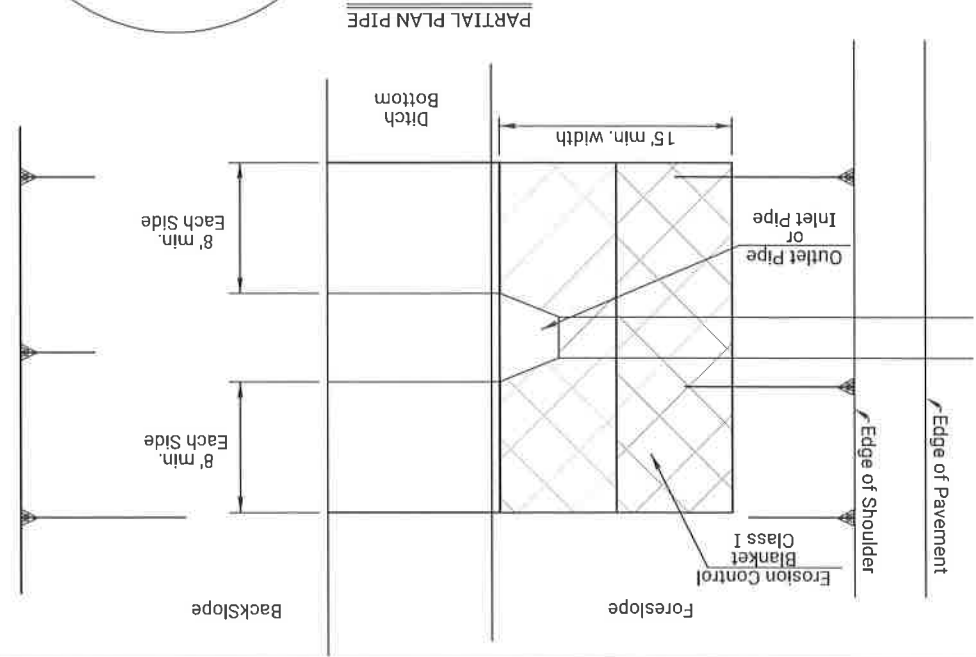
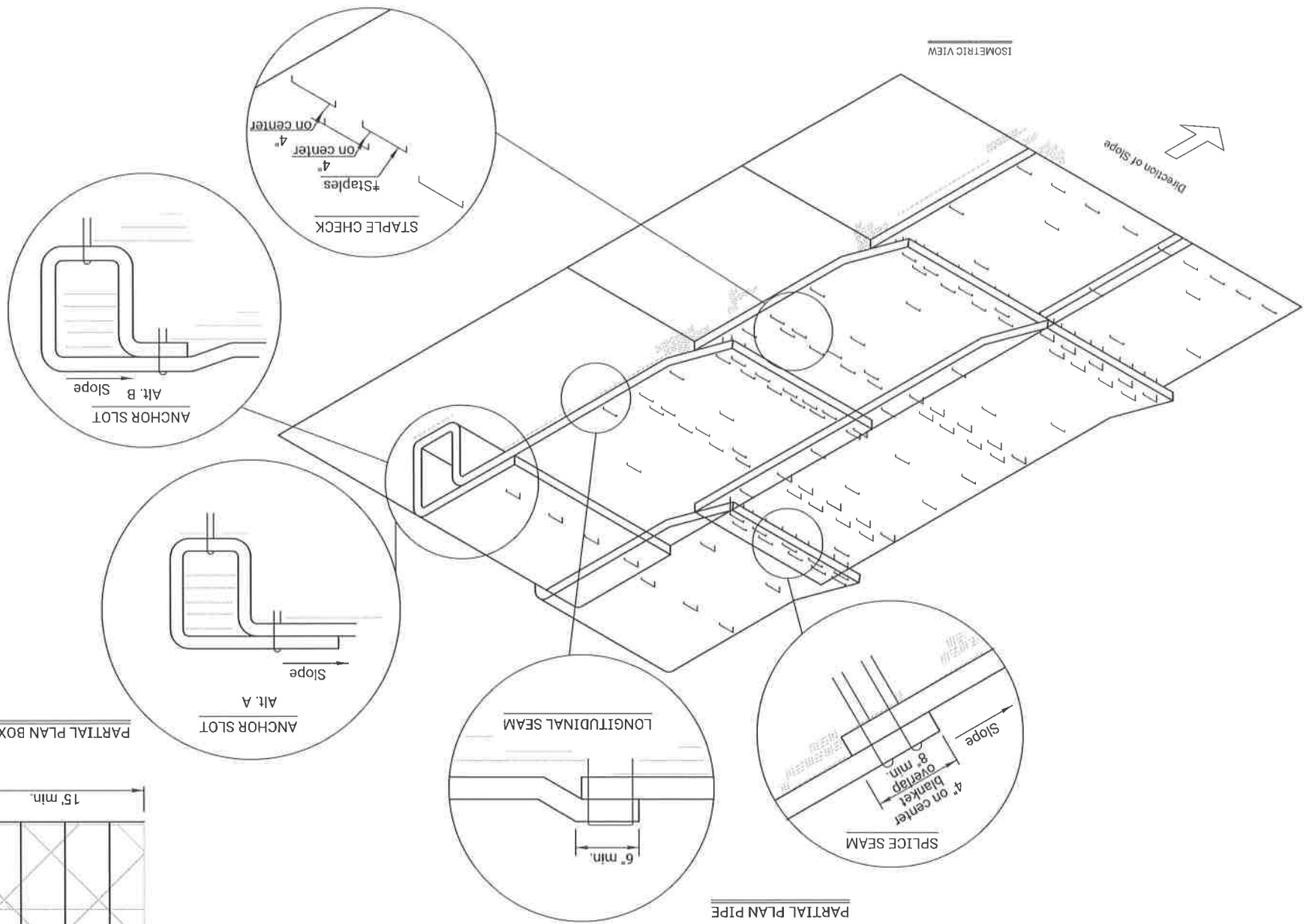
SECTION A-A



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.

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	38 C-5206-01	2024	51	80



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

1. 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.
2. LONGITUDINAL SEAMS: The edges of the blanket should overlap each other a minimum of 6 inches, with anchors catching the edges of both blankets.
3. SPLICE SEAM: When splices are necessary, overlap end a minimum of 8 inches in direction of water flow. Stagger splice seams.
4. 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.
5. TYPICAL ANCHORS: Anchor design shall be as recommended by the manufacturer.
6. STAPLE CHECK: Establish Staples in 2 rows 4" on center apart. Staple Checks - shall be 30" apart.
- 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.

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	38 C-5206-01	2024	52	80

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

INSTALLATION DETAIL
EROSION CONTROL CLASS 1
SLOPE PROTECTION

A855

DESIGNED	RAA	DETAILED	RAA	QUANTITIES	RAA	QUAN CK	RAA
DESIGN CK		DETAIL CK					

NATIVE WILDFLOWER MIX 1		QTY (lb)
PS RATE	NAME	
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	
	Total (lb)	

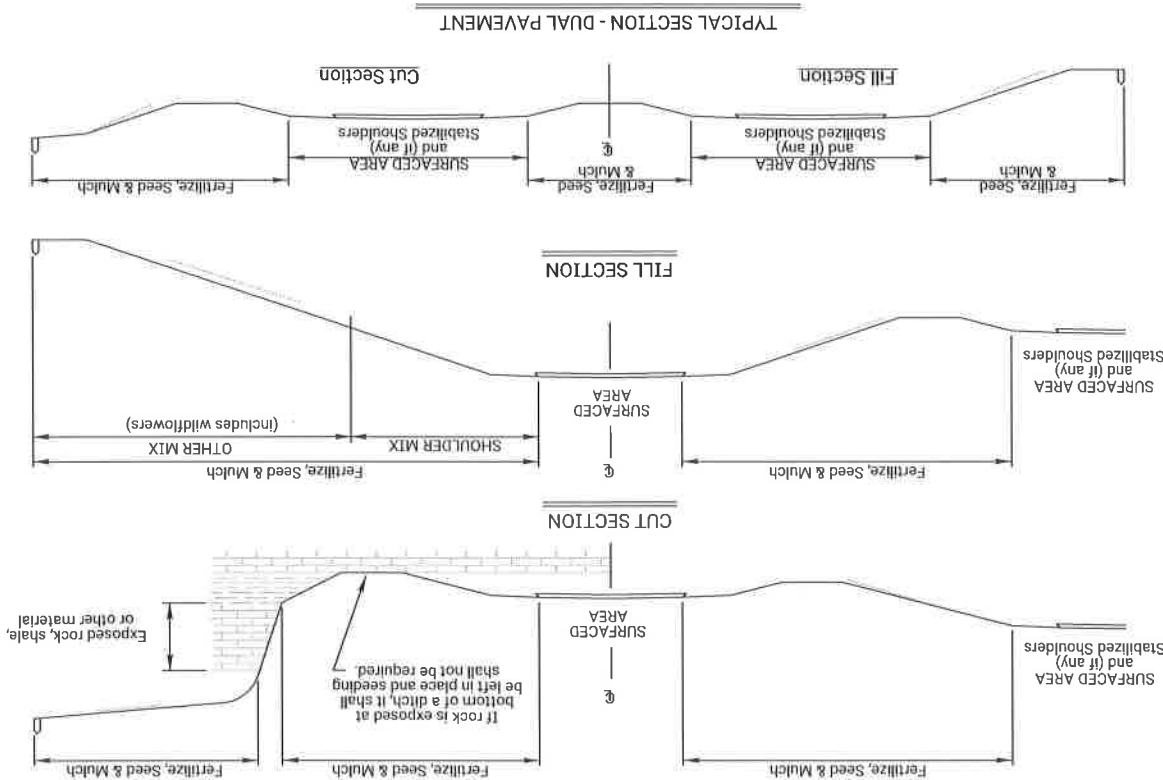
Package and deliver the wildflower seed separately from the grass seed mix. Package and deliver the Tall Drop Seed separately from the grass seed and the wildflower mix. Place the grass seed (except Tall Drop Seed) in the large seed box and drill (cover) seed $\frac{3}{4}$ " - $\frac{1}{4}$ ". Place the wildflower seed in a separate seed box and drill (cover) seed $\frac{1}{2}$ " maximum. Place the Tall Drop Seed in a separate seed box and place the seed (using the seed drill) on the soil surface.

OPTION: Broadcast Tall Drop Seed on the soil surface.

NATIVE WILDFLOWER MIX 2		QTY (lb)
NAME		
PS RATE		
White Prairie Clover	0.3	
Purple Prairie Clover	0.4	
Leadplant	0.4	
Blue Wild Indigo	1.0	
Common Evening Primrose	0.2	
Illinois Bundleflower	1.5	
Pitcher Sage	0.4	
Lemon Mint	0.3	
Western Yarrow	0.2	
Upright Prairie Coneflower	0.2	
Plains Coreopsis	0.2	
Maxmillian Sunflower	0.2	
Blanket Flower	1.0	
Black Sampson Coneflower	0.5	
Black Eyed Susan	0.3	
Butterfly Milkweed	0.3	
Total (lb)		0.39

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

GRASS & WILDFLOWER SEEDING SEASONS	
COOL SEASON GRASSES	February 15 thru April 20 August 15 thru September 30
WARM SEASON GRASSES & WILDFLOWERS	November 15 thru June 1
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.	



02	11-25-20	Updated Seeding / Sodding Periods Charts	M R D	M L
01	08-03-20	Revised Standards	M R D	S H S
NO	DATE	REVISIONS	BY	APP'D
KANSAS DEPARTMENT OF TRANSPORTATION				
PERMANENT SEEDING				
SUMMARY OF SEEDING QUANTITIES				
L8850				
FIRM APPROVAL				
05-06-19				
APP'D				
QUANTITIES				
TRACE CK				
REQUIRED				
DETAILED CK				
DETAILED CK				
TRACE CK				

[illegible]

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	38 C-5206-01	2024	53	80

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 growing may be omitted when requested by the owner.

However, operation in borrow areas where crops are growing on the plans are to be fertilized, seeded, and mulched.

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

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

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

$1\frac{1}{2}$ - $2\frac{1}{4}$ 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.

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.

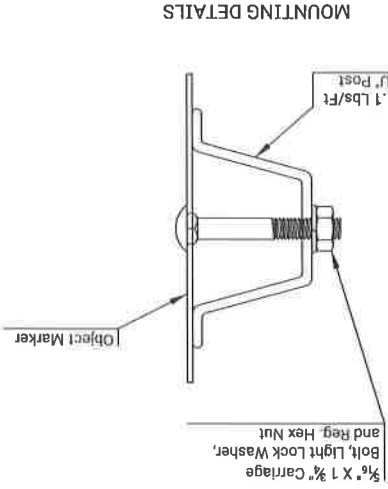
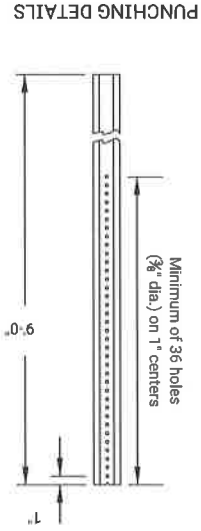
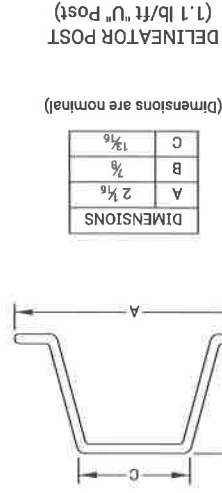
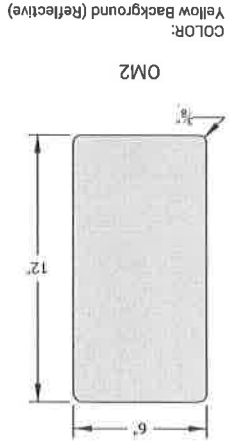
SHLR = Seeded with the shoulder mix. Typically 15 feet for 2-lane roads and 30 feet for 3-lane roads. Includes roadside, turf portions of shoulders, and turf portion of the median.

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

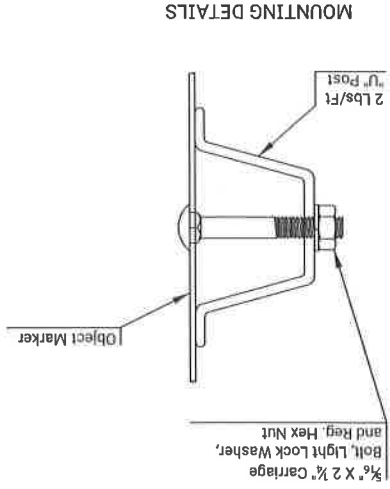
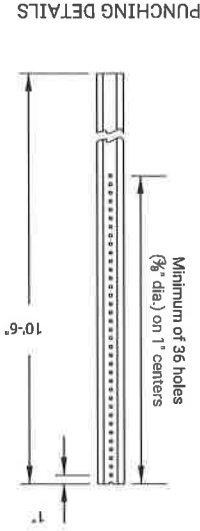
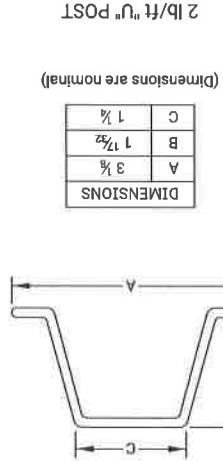
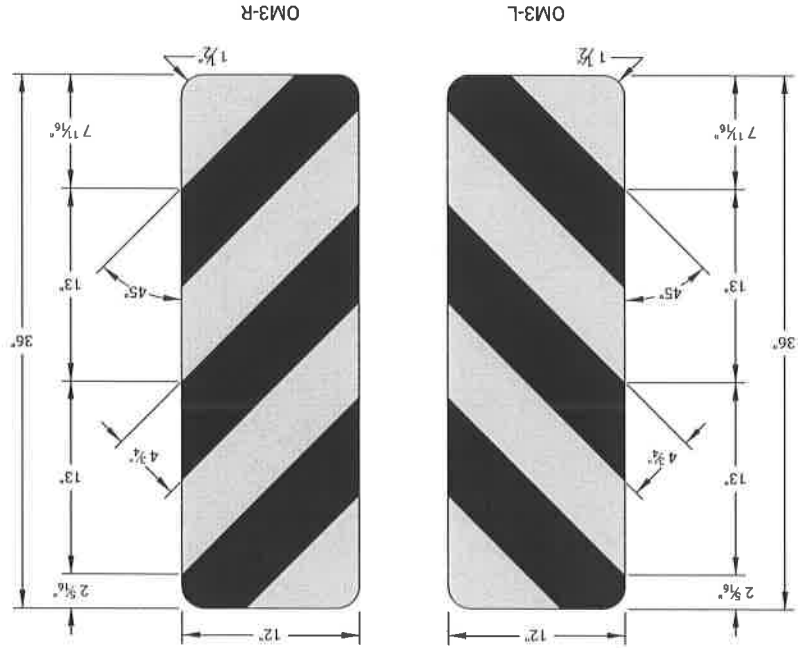
NOTE: Projects less than 1 acre shall be bid as "Seeding" by the lump sum. All disturbed areas shall be seeded, fertilized and mulched at the listed rate per acre. The acres are estimated.

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

* See A.852A 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.



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



TYPE 3 OBJECT MARKER

TYPE 2 OBJECT MARKER

GENERAL NOTE:
See flat sheet sign blank standard sheets for the 6" x 12" and
12" x 36" sign blank details.
The object markers shall be covered with Type XI High Intensity
yellow retroreflective sheeting.

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

NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION

DESIGN DETAILS
FOR OBJECT MARKERS
TYPE 2 AND TYPE 3

TE416

10-01-19

DESIGNED: E.W.N. DETAIL: E.W.N. QUANTITIES: E.W.N. TRACED: E.W.N. APPROVAL: E.W.N. NICKOL

SH. NO. 54

KANSAS	PROJECT NO.	38 C-5206-01	YEAR	2024	SHEET NO.	54	TOTAL SHEETS	80
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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.

SPEED (MPH) *	20	25	30	35	40	45	50	55	60	65	70	75	820
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.

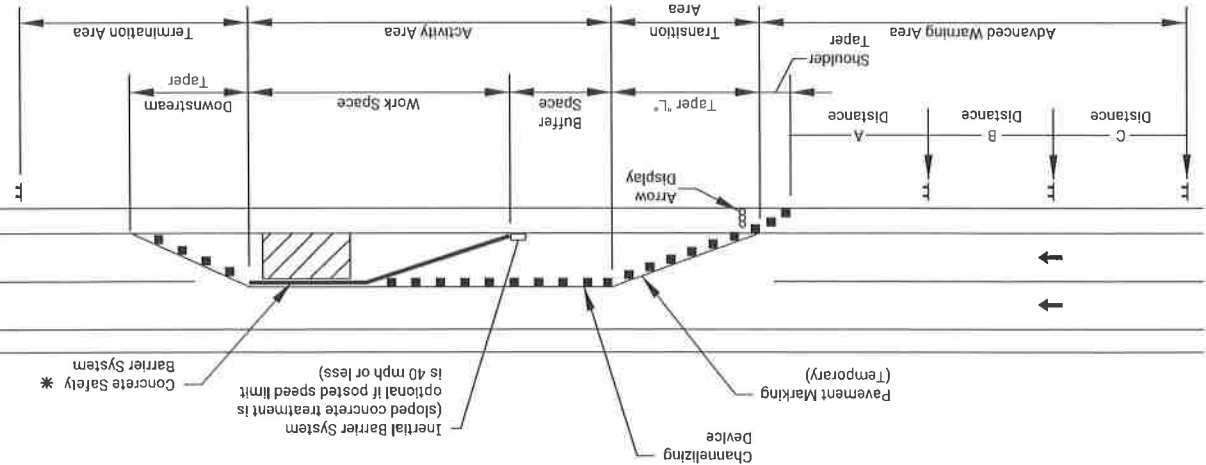
SPEED (MPH) *	A	B	C
URBAN (40 MPH OR LOWER)	100	100	100
URBAN (45 MPH OR HIGHER)	350	350	350
RURAL (55 MPH OR LOWER)	500	500	500
RURAL (60 MPH OR HIGHER)	750	750	750
EXPRESSWAY/FREEWAY	1000	1500	2640

Minimum advance warning sign spacing (in feet):

* 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.



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

TYPICAL WORK ZONE COMPONENTS

L = WS for speeds of 45 MPH or more
L = WS²/60 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.

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

KANSAS DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL

GENERAL NOTES

TE700

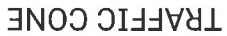
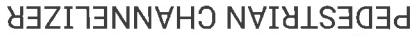
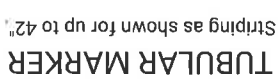
DESIGN CK
DETAIL CK
QUAN CK
TRACE CK

FWK AP-PROV
B.A.H. DETAIL
R.W.B. QUANTITIES
TRACE
E.K.G. KNOTS

SH. NO. 55

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	38 C-5206-01	2024	55	80

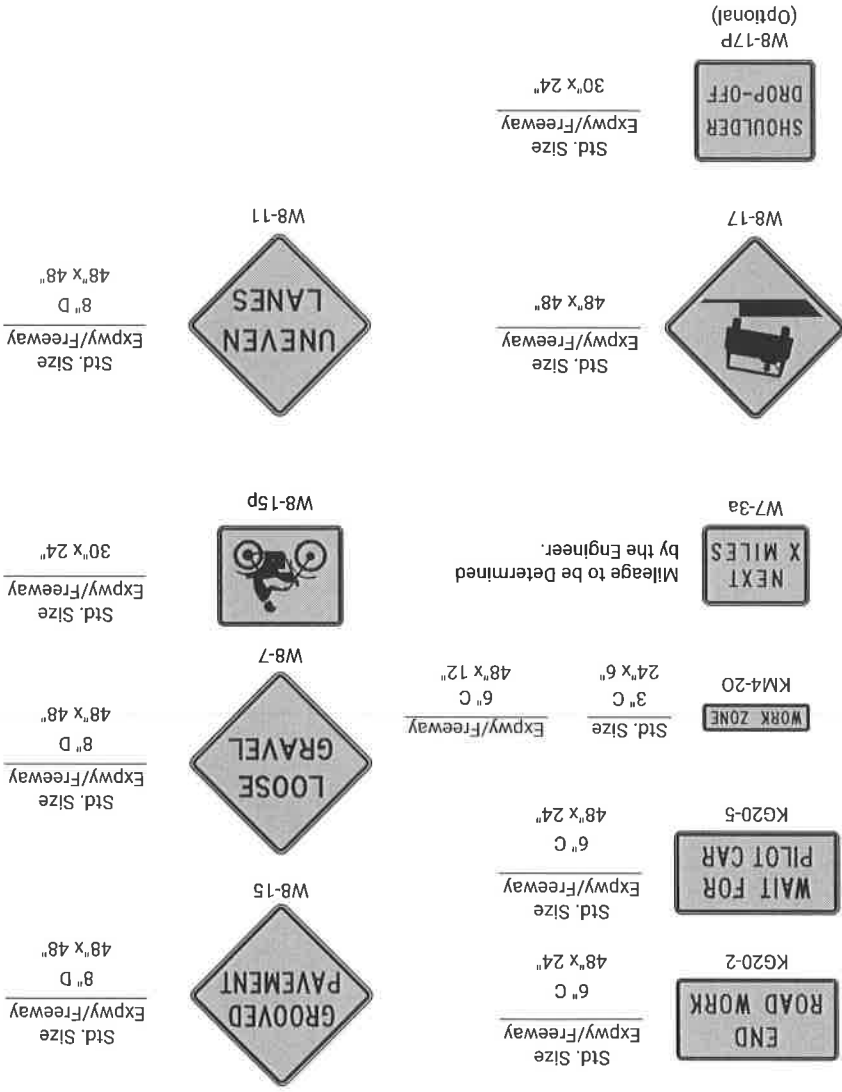
Item	Location	Portable										Fixed	
		Drums	Conical Delineators	Vertical Panels	Direction Indicator Barricade	Type 2 Barricade	Traffic Cones				Tubular Markers	Vertical Panels	
Cross		Yes	Yes	(2)	No	(2)	No	(2)	No		(3)	(3)	
		Yes	Yes	(2)	No	(2)	No	(4)	No		(3)	(3)	
Shovel		Yes	Yes	(2)	No	(2)	Yes	(4)	No		(3)	(3)	
Tangent		Yes	Yes	(2)	No	(2)	Yes	(4)	No		(3)	(3)	
Taper		Yes	Yes	(2)	No	(2)	Yes	(4)	No		(3)	(3)	
Reinforce		Yes	Yes	(1,2)	No	(4)	No		No		(3)	(3)	
Head Head		Yes	(1)	Yes	No	No	No		No		Yes	(3)	
Oblique		Yes	Yes	Yes	No	No	No		No		No	Yes	
Lead Device		Yes	Yes	(2)	No	No	Yes	(4)	No		Yes	Yes	
Gore		Yes	Yes	(2)	No	No	No	(4)	No		Yes	Yes	



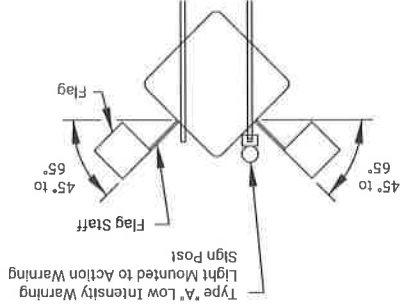
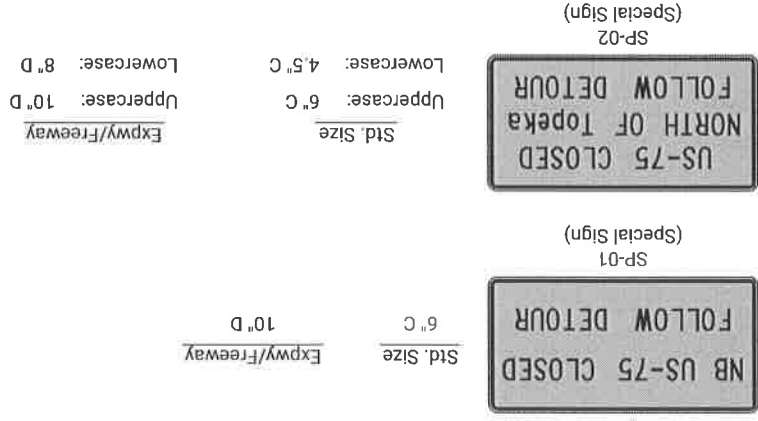
NO.	DATE

KANSAS	
STATE	

SIGN LAYOUT INFORMATION



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



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

2. Shift the sign location. Do not violate minimum sign spacing.

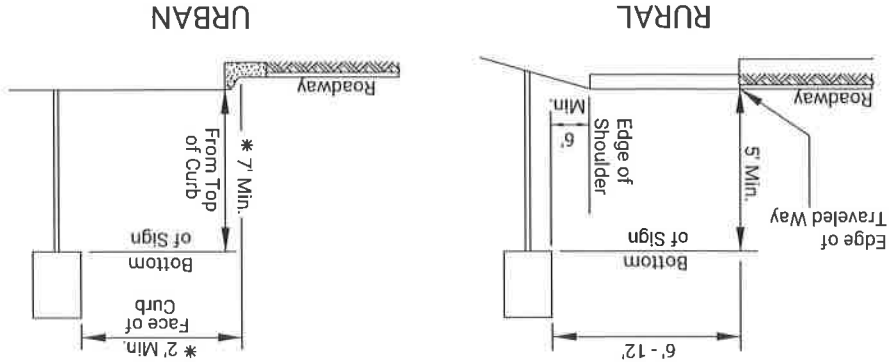
2. With the engineer's approval, use acceptable alternative sign standards.

* 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.

- (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.

(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.



Dimensions in inches		Letter spacings		HT	
23.0	F	I	N	E	S
9.7	6.4	3.2	7.3	6.4	5.4
D					
11.0	D	O	U	B	L
3.9	6.9	7.5	7.3	6.4	4.9
D					
4.0	I	N	W	O	R
3.1	1.6	2.7	3.2	4.3	3.8
41.8					

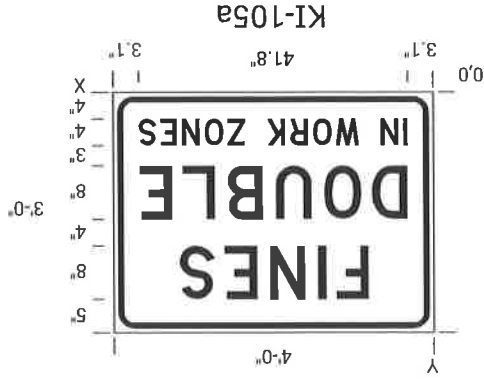
Notes:

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

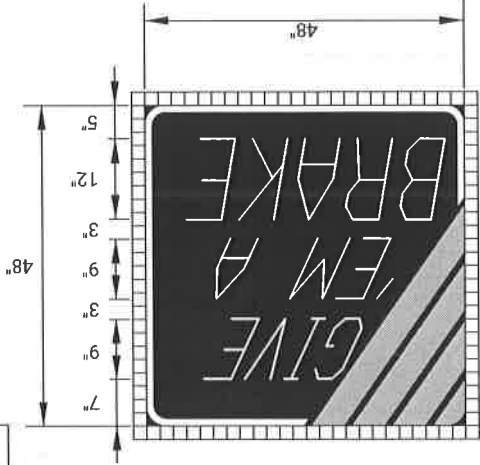
Install signs a minimum of 500' in advance of the road work ahead. May designate a more appropriate location if conditions dictate.

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

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
Legend/Border	Type: Non-Reflective
	Color: White
	Color: Black



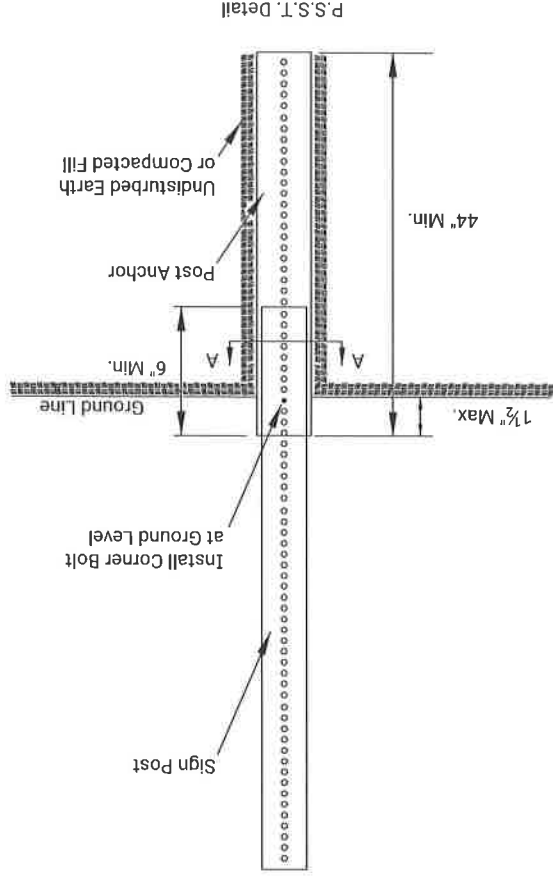
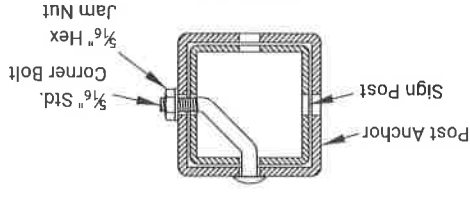
Sign Number	GIVE CM A BRAKE	
Width x Height	4'-0" x 4'-0"	
Border Width	1'-0"	
Corner Radius	4'-0"	
Stripe Width	3'-0"	
Mounting	Ground	
Background	Type: Non-Reflective	Color: Black
Legend/Border	Type: Reflective	Color: White
Legend Font	Dutch 801 Roman SWC	25 Degree Slant
Stripes	Type: Reflective	Color: Orange



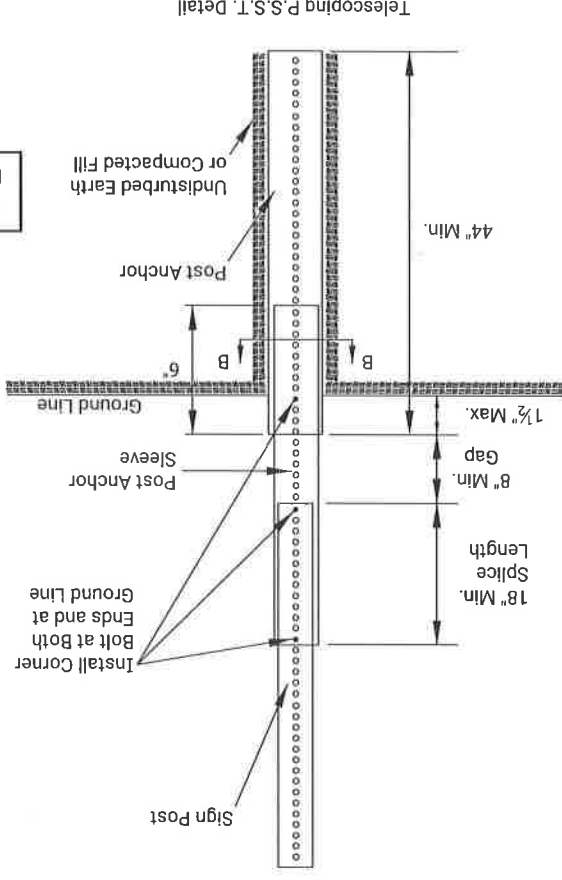
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	38 C-5206-01	2024	58	80

[illegible]

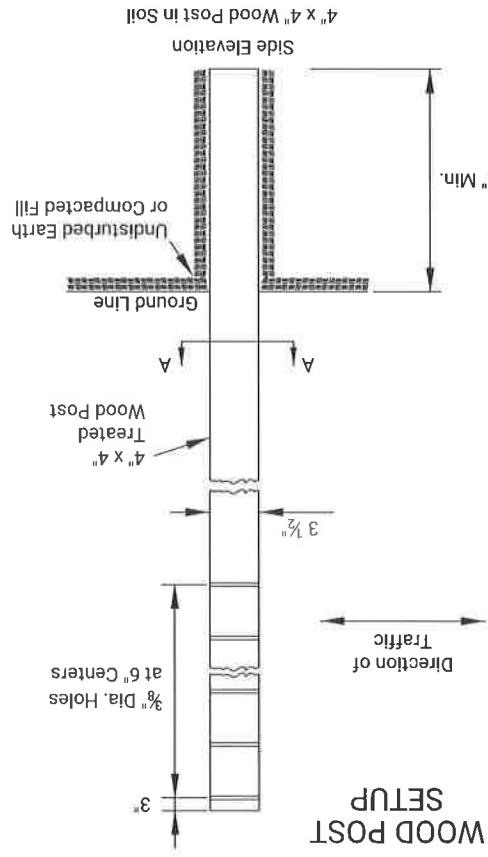
Details for 2", 2 1/4", or 2 1/2" sign posts



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

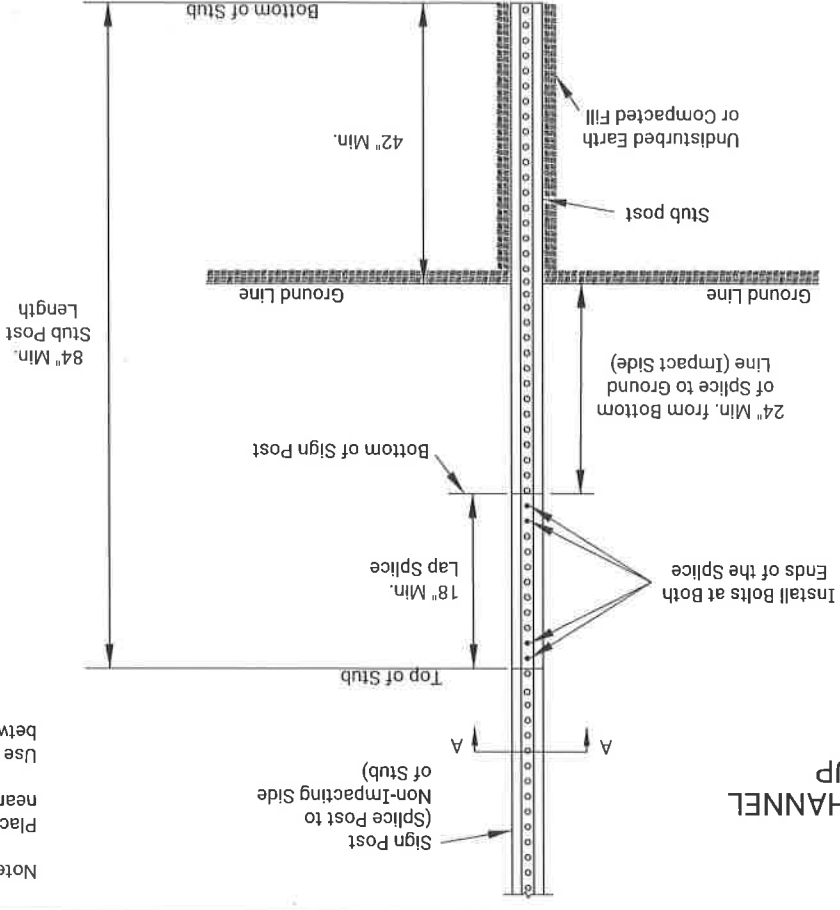


WOOD POST
SETUP



Personal
Statement

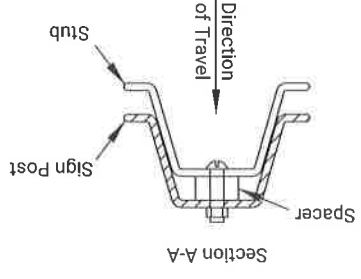
3 LB/F U-CHANNEL
SETUP



Notes:

Place two bolts at both ends of the splice through the holes nearest the ends of the splice.

Use manufacturer recommended spacers over the bolts between the spliced pieces of U-channel.

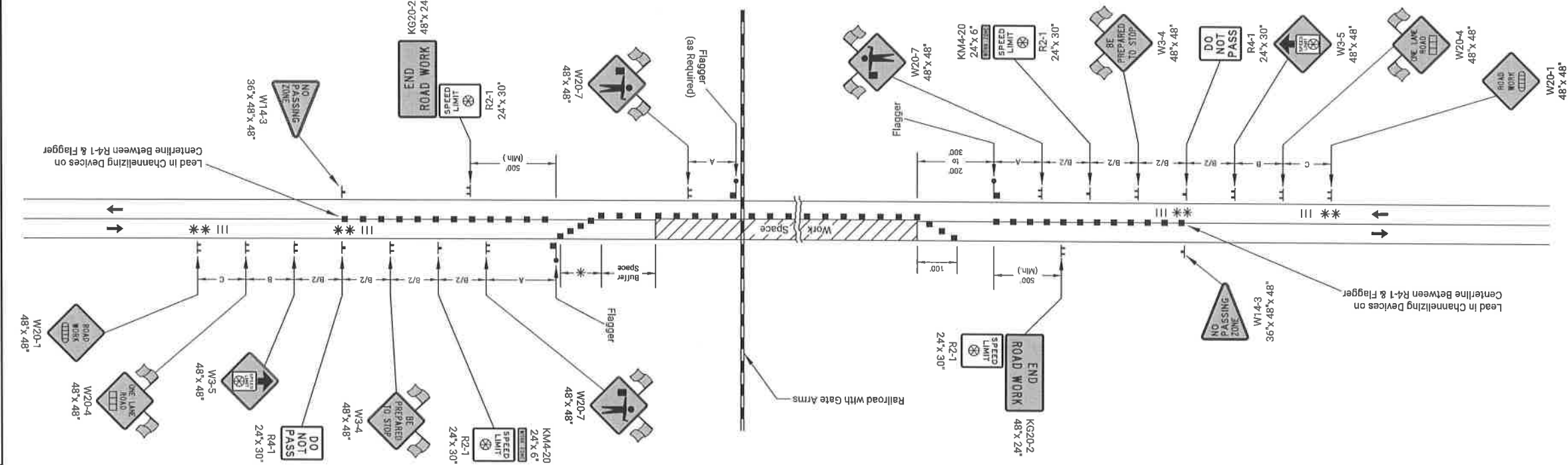
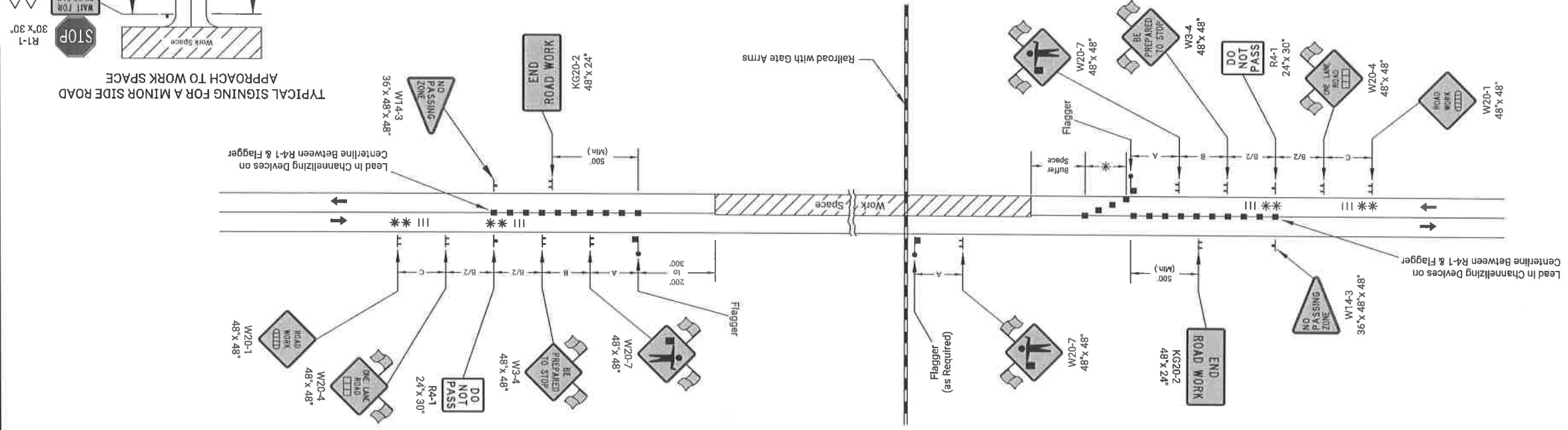


NO	DATE	REVISIONS	BY	APPD

KANSAS DEPARTMENT OF TRANSPORTATION	
TRAFFIC CONTROL	
SIGN POSTS	
TE712	
FWMA APPROVAL	APPRO
DESIGNED	QUANTITIES
BAH	R W B
DETAILED	APPRO
DETAIL CK	QUANT CK
DESIGN CK	TRACE CK
KANSAS DEPARTMENT OF TRANSPORTATION	
SP No	50
07-18-2022	

KANSAS	38 C-5206-01	2024	59	80
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS

- Channelizing Device
- ▬▬▬ Ahead, 1500 ft, or 1 Mile
- ⊗ Speed to be Determined by the Engineer
- Type "A" Low Intensity Warning Light
- ||| Temporary Portable Rumble Strips



FLAGGER

FLAGGER AND PILOT CAR

TYPICAL SIGNING FOR A MINOR SIDE ROAD APPROACH TO WORK SPACE

TYPICAL SIGNING FOR HIGHWAY OR MAJOR COLLECTOR APPROACH TO WORK SPACE

The KG20-5 sign shall be placed immediately in front of the existing stop sign, a minimum of 6' below the bottom of the stop sign. The sign should be removed or covered when there is no pilot car.

△ The KG20-5 (WAIT FOR PILOT CAR) sign shall be mounted on an approved portable support and not attached to the existing stop sign post.

△ (1R).
Not required on substantial maintenance projects

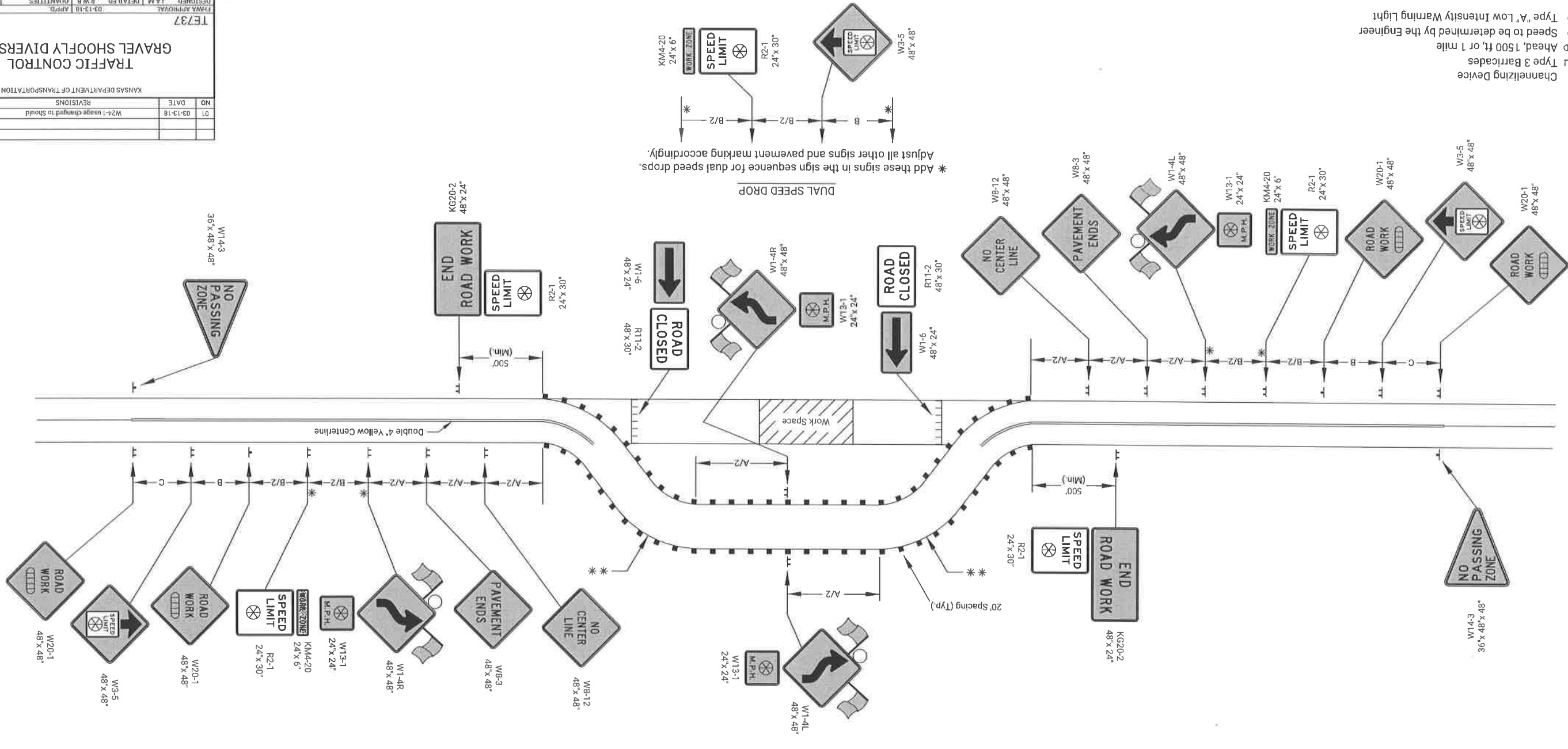
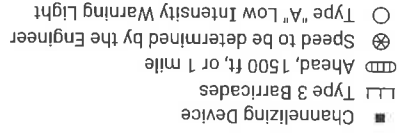
* Optional rumble strips may be placed: One set between the W20-1 and W20-4, and one set between the R4-1 and W3-4, on each approach.

* Minimum six (6) channelizers spaced at 20' intervals.

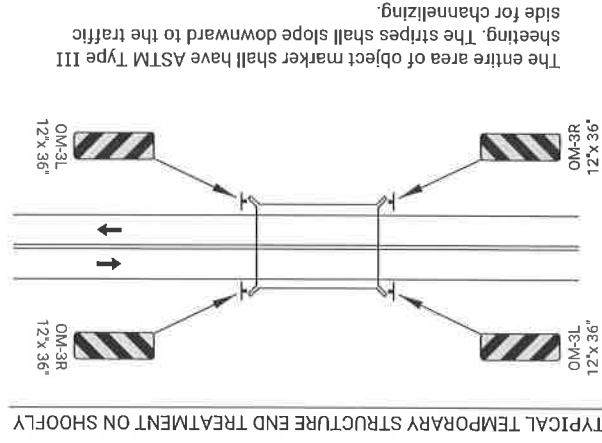
Notes:
Trucks hauling material to the project should STOP at the Flagger. After stopping, upon approval of the Engineer, trucks may be allowed to move around the Flagger.
Place a Flagger at all highway and major collector intersections and at-grade railroad intersections with lights and gates in the work space to control traffic crossing the tracks to the left of the gate arm. The need for a Flagger at minor side road intersections shall be determined by the Engineer. Place a W20-7 (Flagger symbol) sign on each side road that is controlled by a Flagger.
Existing signs shall not be covered or removed between Flagger stations.
Temporary rumble strips may be used in lieu of lead in channelizing devices when the roadway is less than or equal to 30' including paved shoulders. When extending circumstances exist, the Area Engineer may elect to eliminate both the lead in channelizers and the rumble strips.

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STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	38 C-5206-01	2024	60	80



One W24-1 should be used per approach where the tangent distance between two reverse curves is less than 600 ft. If used, use in place of the first W1-4 and eliminate the second.



The entire area of object marker shall have ASTM Type III sheeting. The stripes shall slope downward to the traffic side for channelizing.

Suggested Chevron Spacing	
Curve Radius	Max. Spacing
1'000' - 800'	100'
800' - 450'	80'
Less than 450'	60'

* * Black on orange 24" x 30" chevron signs (W1-8) shall be mounted back to back on the outside edge of shoofly curves with a radius of 100' or less at the spacing shown below. A minimum of 3 chevrons should be installed per curve.

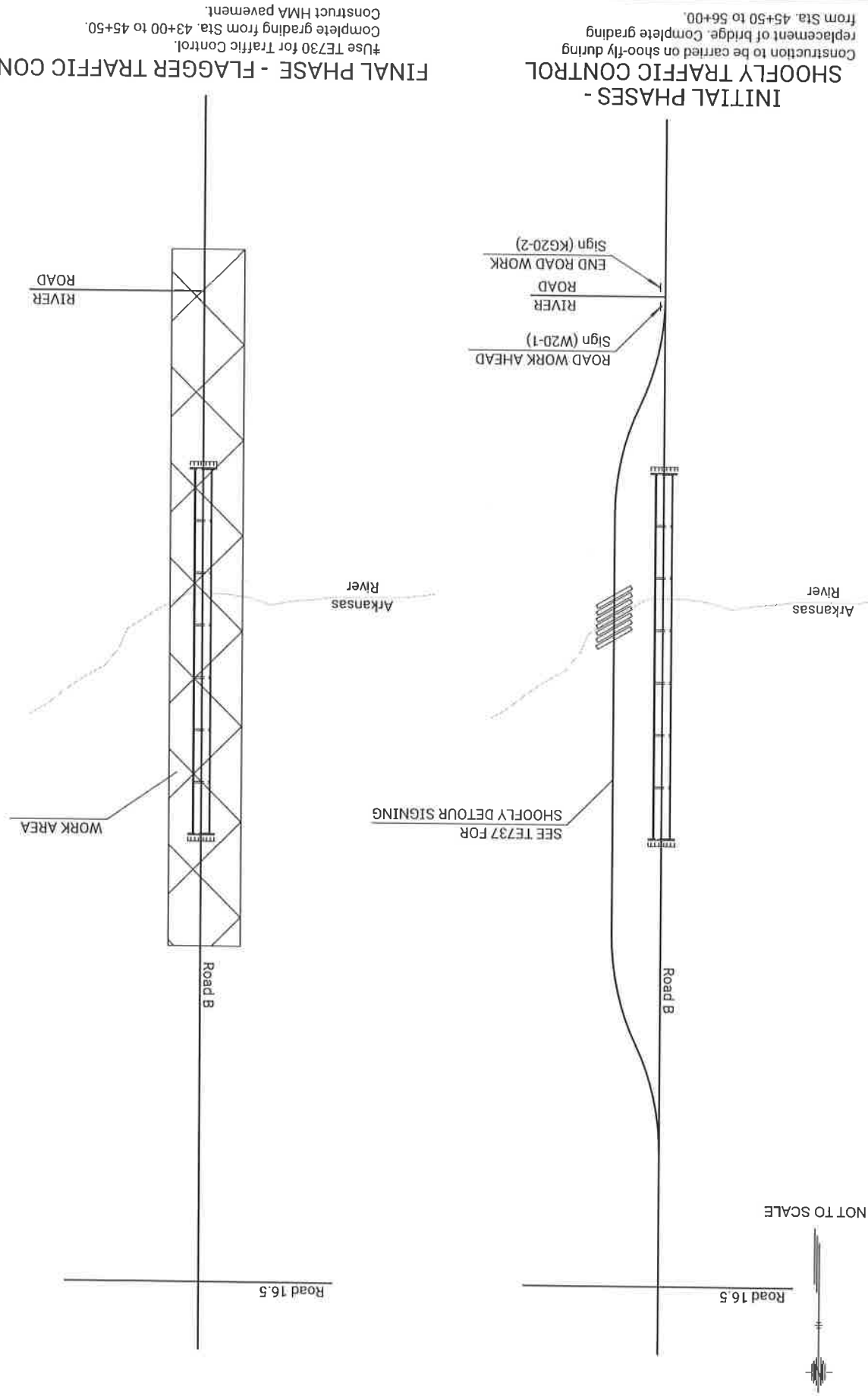
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	38 C-5206-01	2024	61	80

NO	DATE	REVISIONS	BY	APPD
01	03-13-18	W24-1 usage changed to Should	R W B	E G K

TRAFFIC CONTROL
GRAVEL SHOOLY DIVERSION

TE737

KDOT Graphics Certified 08-30-2023 Sh. No. 61



FINAL PHASE - FLAGGER TRAFFIC CONTROL
 ‡Use TE730 for Traffic Control.
 Complete grading from Sta. 43+00 to 45+50.
 Construct HMA pavement.

Barriades *		Channelizing Devices *	
Type 3 (4' to 12)	Pedestrian	Fixed	Portable
17			156

Work Zone Signs *			
Sign No.	Size - Sq Ft		
	0-9-25	9-26-16-75	16-26 & Over
W20-7		3	
W20-1		5	
W1-4L		2	
W1-4R		2	
W1-6	2		
W1-8	32		
W3-5		2	
W8-3		2	
W8-12		2	
W13-1	4		
W14-3	2		
KG20-2	3		
KG20-5	1		
KM4-20	2		
R2-1	4		
R11-2		2	
W20-4		2	
W3-4		2	
R4-1	2		

SUMMARY OF
TRAFFIC CONTROL DEVICES
(EACH PER DAY)

Work Zone Sign (Special)		
Sign No.	16.25 Sq.Ft. & Less	16.26 Sq.Ft. & Over

SUMMARY OF
TRAFFIC CONTROL DEVICES
(EACH)

All traffic control devices shall be placed in accordance with the applicable KDOT Traffic Control Standards. The Contractor shall provide all signs and other traffic control devices for proper traffic control of all construction activities. Quantities listed are estimates only. Contractor operations may require additional signs and traffic control devices, this will be Subsidary to the bid item *Traffic Control*.

SUMMARY OF
TRAFFIC CONTROL DEVICES
(FOR INFORMATION ONLY)

Recapitulation of Quantities		
Item	Quantity	Unit
Work Zone Signs (0 to 9.25 Sq.Ft.)		Each Per Day
Work Zone Signs (9.26 to 16.25 Sq.Ft.)		Each Per Day
Work Zone Signs (16.26 Sq.Ft. & Over)		Each Per Day
Work Zone Barricades (Type 3 - 4' to 12')		Each Per Day
Work Zone Barricades (Pedestrian)		Each Per Day
Channelizer (Fixed)		Each Per Day
Channelizer (Portable)		Each Per Day
Channelizer (Pedestrian)		Each Per Day
Work Zone Warning Light (Type "A" Low Intensity)		Each Per Day
Work Zone Warning Light (Red Type "B" High Intensity)		Each Per Day
Arrow Display		Each Per Day
Portable Changeable Message Sign		Each Per Day
Pavement Marking (Temporary)		
4" Solid (Type I)	98	Sta./Line
4" Solid (Type II)		Sta./Line
4" Broken (8.0') (Type I)		Sta./Line
4" Broken (8.0') (Type II)		Sta./Line
4" Broken (3.0') (Type I)		Sta./Line
4" Broken (3.0') (Type II)		Sta./Line
4" Dotted Extension (Type I)		Sta./Line
4" Dotted Extension (Type II)		Sta./Line
Solid (Line Masking Tape)		Sta./Line
Broken (Line Masking Tape)		Sta./Line
Symbol (Type I)		Each
Symbol (Type II)		Each
Flexible Raised Pavement Marker (4" Broken (8.0'))		Sta./Line
Flexible Raised Pavement Marker (4" Broken (3.0'))		Sta./Line
Pavement Marking Removal		Ln. Ft.
Work Zone Sign (Special) (16.25 Sq. Ft. & Less)		Each
Work Zone Sign (Special) (16.26 Sq. Ft. & More)		Each
Rigid Raised Pavement Marker (Type I)		Each
Rigid Raised Pavement Marker (Type II)		Each
Traffic Signal Installation (Temporary)		Lump Sum
Traffic Control (Initial Set Up)		Lump Sum
Traffic Control		Lump Sum
Flagger (Set Price)	1	Hour

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	38 C-5206-01	2024	62	80