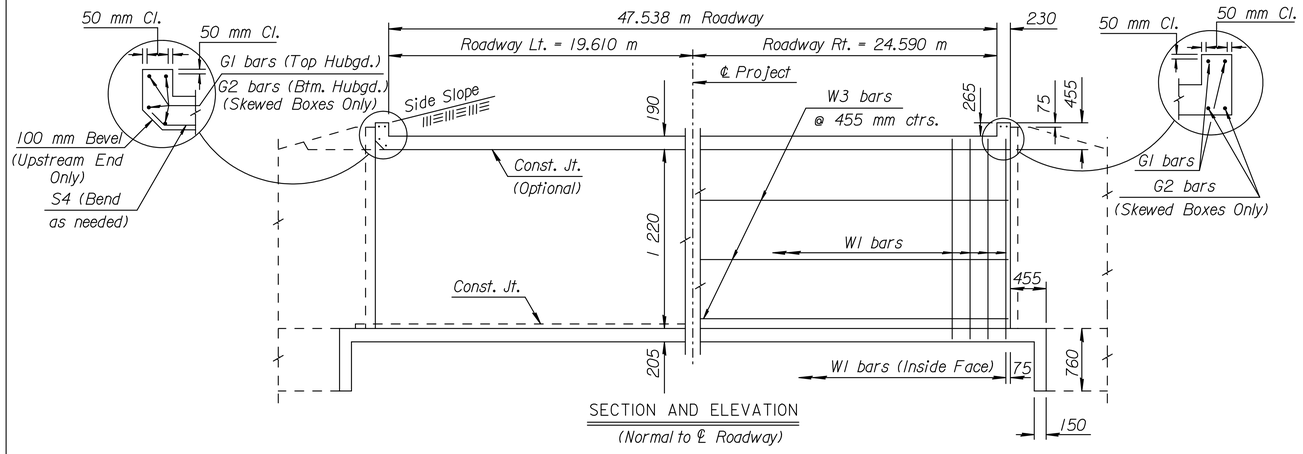
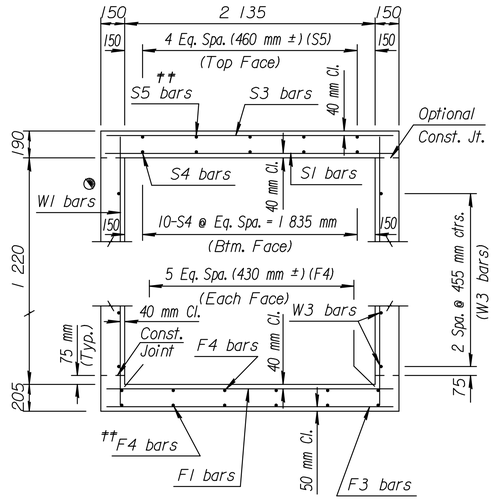
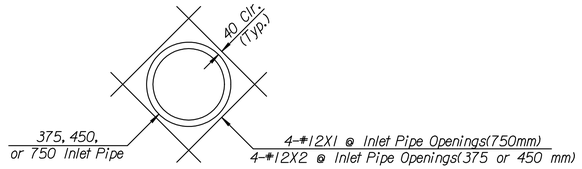
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	54-87 K-6657-01	2002	426	1122



SECTION AND ELEVATION
(Normal to ℄ Roadway)



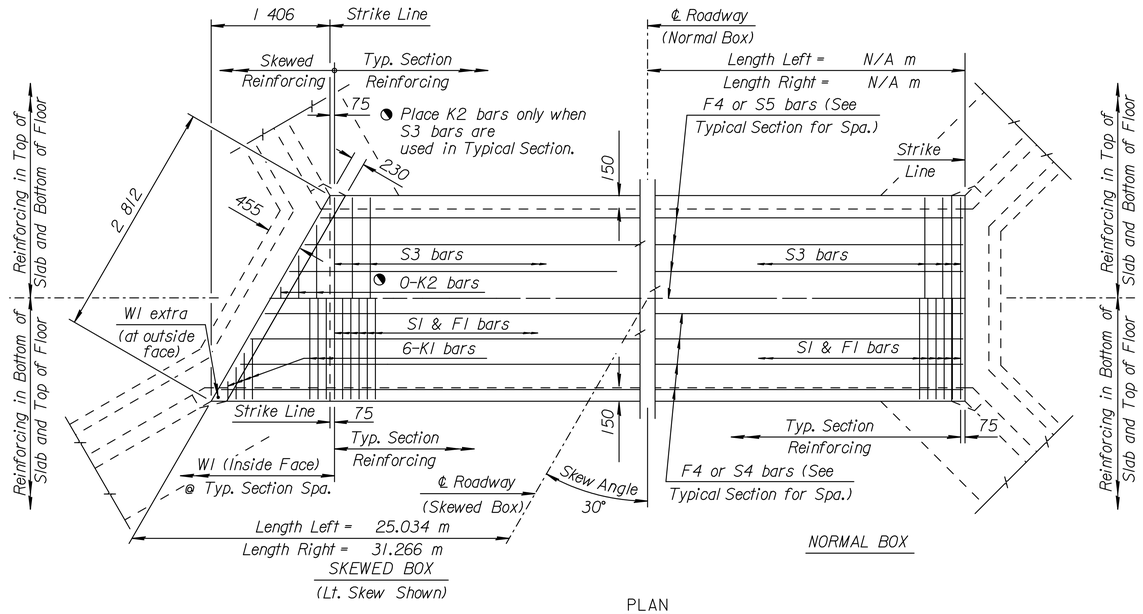
TYPICAL SECTION



PIPE OPENING DETAILS

See Sheet 423 for X2 reinforcing listing.

INLET PIPES INTO BOX			
Station	Pipe Size (mm)	℄	Offset
4+157.703	375	400.441	17.275 m Lt.
4+159.695	750	400.154	16.429 m Lt.
4+132.499	450	400.471	16.171 m Rt.
4+134.881	375	400.537	16.500 m Rt.



PLAN

CULVERT SUMMARY										Concrete			Reinf. Steel (Gr. 420)		
Flow Line Elev. Lt. (m)	Flow Line Elev. Rt. (m)	Crown Gr. Elev. (m)	Design Fill Ht. (m)	Skew	Left Wings	Right Wings	Scour Apron	Soil Saver	Granular Backfill	Barrel (m^3)	Wings & Apron (m^3)	Total (m^3)	Barrel (kg)	Wings & Apron (kg)	Total (kg)
399.907	400.035	402.672	1.53	30°	Flared	Flared	Yes	No	No	75.10	12.48	87.58	4278	450.8	4728.8

*See Bending Diagram

BAR SCHEDULE																													
F1								F3				F4				S1								S3				S4			S5		
Size	Spa.	No.	Length	Size	Spa.	No.	Length	Size	Spa.	No.	Length	Size	No.	Length	Size	Spa.	No.	Length	Size	Spa.	No.	Length	Size	Spa.	No.	Length	Size	No.	Length	Size	No.	Length
15	165	333	2 335									12	30	11 560	15	165	333	2 335									12	25	11 560			

K1				K2				W1								W3			X1				G1			G2			X2			
Size	Spa.	No.	Length	Size	Spa.	No.	Length	Size	Spa.	No.	Length	Size	Spa.	No.	Length	Size	No.	Length	Size	Spa.	No.	Length	Size	No.	Length	Size	No.	Length	Size	Spa.	No.	Length
15	165	24	*					12	230	492	1 525					12	30	11 560	12	--	4	1370	15	4	2 700	20	4	2 700.	12	--	12	760

Minimum Splice Lengths	
#12	405
#15	510
#20	610

SUMMARY OF QUANTITIES		
Class AAA Concrete	87.6	m^3
Class AAA Concrete (AE)	--	m^3
Reinforcing Steel (Gr. 420)	4730	kg
Reinforcing Steel (Epoxy Coated)	--	kg
Class III Excavation	--	m^3
Foundation Stabilization (Set)	1	m^3
Concrete for Seal Course (Set)	1	m^3
Granular Backfill (Wingwalls) (Set)	--	m^3

See RCB Auxillary Details for Optional Splice.
Note:
S3 bars omitted unless grade box or slab thickness is greater than or equal to 305 mm.

Note:
F3 bars omitted unless floor thickness is greater than or equal to 305 mm.

†† Omit S5 bars when S3 bars are omitted and omit the bottom layer of F4 bars when F3 bars are omitted.

Varies from 2 180 mm
to 755 mm by
285 mm Increments

K1
(Cut 4 each length)

BENDING DIAGRAM

All Dimensions are out to out of bars.

RECORD DRAWING

GENERAL NOTES

DESIGN SPECIFICATION: AASHTO Specifications, 1983 Edition
DESIGN LOADING: MS18-44
UNIT STRESSES: Class AAA Concrete f'c = 28 MPa
Reinforcing Steel fy = 420 MPa

FILL HEIGHT: Unless otherwise noted, the Design Fill Height is measured from the riding surface at the culvert and includes the surfacing.

CONSTRUCTION: R.C.B.'s shown are for cast-in-place construction. The Contractor has the option of constructing either cast-in-place or precast R.C.B.'s. Payment for the structure will be the same regardless of which option is used for construction. See Sheet No. 432 for Precast Concrete Box Culvert Details.

CONCRETE: Use concrete conforming to Class AAA Concrete. Bevel all exposed edges with a 20 mm triangular molding. Where Class AAA(AE) is specified, place this concrete in the top slab above the Construction Joint.

REINFORCING: Use reinforcing steel conforming to ASTM A615M, Grade 420. All dimensions relative to reinforcing steel are to the centerline of the bar unless otherwise noted.

EXCAVATION: Excavation for culverts less than bridge length shall not be paid for directly but shall be subsidiary to Class AAA Concrete. Excavation for RCB bridges shall be paid for as Class III Excavation.

SEAL COURSE: The Engineer may require a seal course. The seal course shall be unreinforced Concrete(Commercial Grade) with a minimum depth of 75 mm or as determined by the Engineer. Concrete for the seal course shall be paid for at the unit price set for Concrete for Seal Course.

FOUNDATION STABILIZATION: The Engineer may require Foundation Stabilization. The Engineer shall determine the depth of Foundation Stabilization. Foundation Stabilization shall be paid for at the unit price set for Foundation Stabilization. See the "Auxiliary Details" sheet.

QUANTITIES: The quantities shown in the Culvert Summary include apron and/or soil saver quantities when they are required by the plans. Payment for additional quantities that result from including a seal course and/or a floating apron, as a change in the original plans, shall be made at the unit price bid for the various items involved.

GRANULAR BACKFILL (WINGWALLS): The Engineer may require special backfill procedures. See the "Auxiliary Details" sheet.

STRIKE LINE: Construct the wingwalls and that portion of the RCB outside the Strike Line level. Construct the wingwall footings with the culvert floor. See the wingwall detail sheets.

NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION
Sta. 4+146.000
2.1 x 1.22 m RCB (37°ROT. RT.)
(30°SKEW HEADWALL)

BR211 1.7

FHWA APPROVAL		6-5-91	APP'D	KENNETH F. HURST
DESIGNED	DETAILED		QUANTITIES	TRACED
DESIGN CK.	DETAIL CK.		QUAN.CK.	TRACE CK.

ORIG. FROM BR.NO.	PROJ.	CO.
DESIGN	DATE	CHECK DATE
DETAIL	DATE	DATE
QUANTITIES	DATE	DATE
TRACING	DATE	DATE
RETRACED	DATE	DATE

Plotted By: ras Scale 1:1000
I:/1997/97362/As-Builts/dgn's/Vol 2/Sh 426-KDOT_Std-4146.dgn Last Rev: 8-29-07 By: gdr