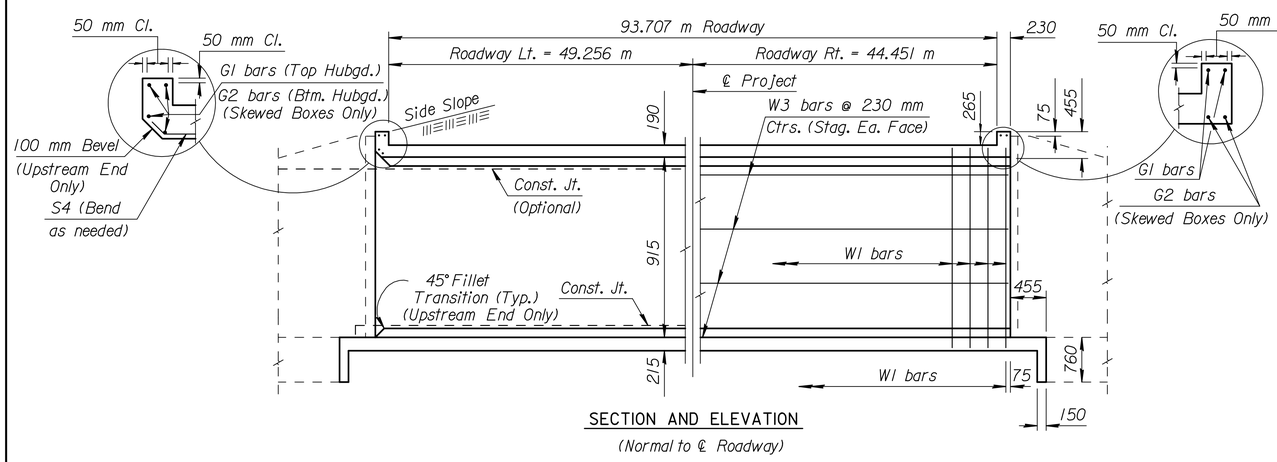
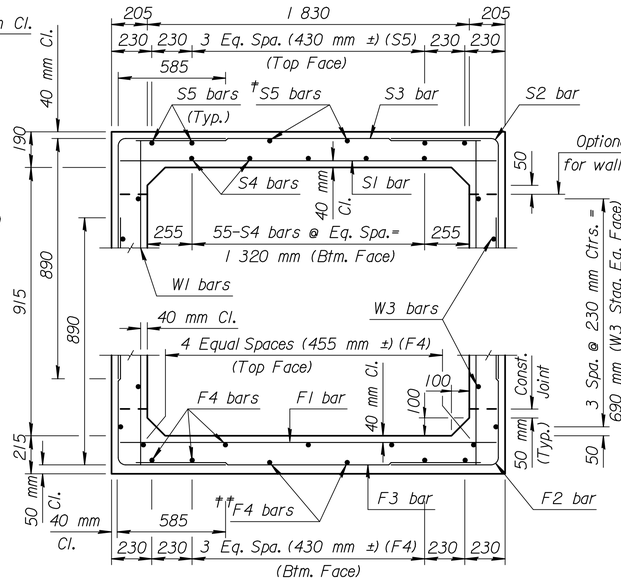
FHWA REGION NO.	STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
7	KANSAS	54-87 K-6657-01	2002	398	1122



SECTION AND ELEVATION

(Normal to ℄ Roadway)



TYPICAL SECTION

† Omit when S3 bar is omitted

†† Omit when F3 bars are omitted.

Note:
If the C.I.P. Retaining Wall Alternate is constructed, the Contractor must overexcavate to Elevation 400.0 and place compacted backfill prior to constructing the R.F.B. Floor. This work shall be subsidiary to the bid item "C.I.P. Retaining Walls".
See Sheet No. 238 and 307 for additional details.

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.

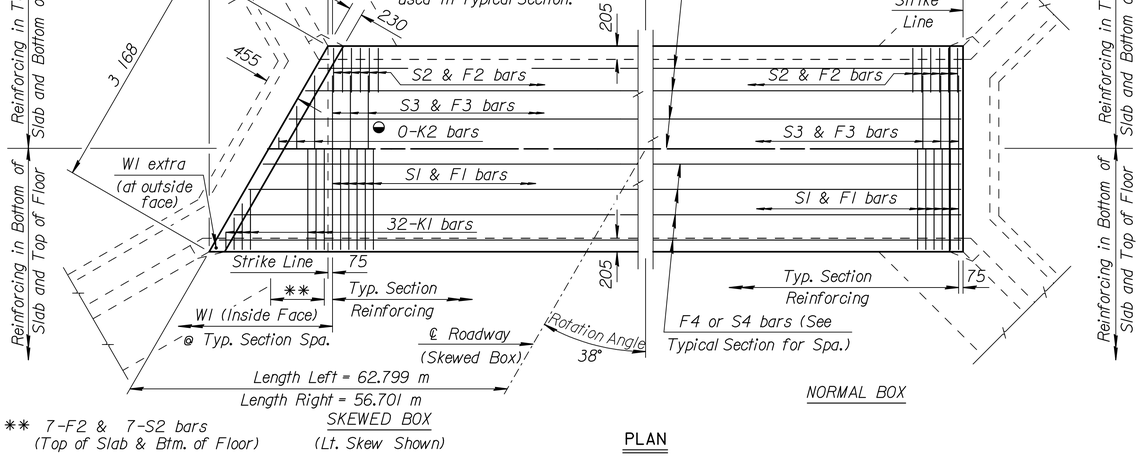
SEAL COURSE: The Engineer may require a seal course. The seal course shall be unreinforced Concrete(Commercial Grade) with a minimum depth of 75 mm or as determined by the Engineer. Concrete for the seal course shall be paid for at the unit price set for Concrete for Seal Course.

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.

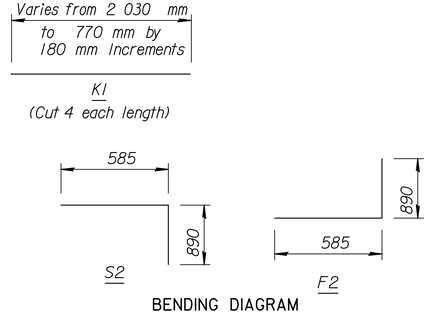


** 7-F2 & 7-S2 bars
(Top of Slab & Btm. of Floor)

SKEWED BOX
(Lt. Skew Shown)

PLAN

NORMAL BOX



BENDING DIAGRAM

All Dimensions are out to out of bars.

CULVERT SUMMARY

Flow Line Elev. Lt. (m)	Flow Line Elev. Rt. (m)	Crown Grade Elevation (m)	Design Fill Ht. (m)	Skew LT	Left Wings	Right Wings	Scour Apron	Soil Saver	Granular Backfill	Concrete			Reinf. Steel (Gr. 420)		
										Barrel (m^3)	Wings & Soil Saver (m^3)	Total (m^3)	Barrel (kg)	Wings & Soil Saver (kg)	Total (kg)
402.857	401.900	409.562	7.62	45	FLARED	FLARED	YES	YES	NO	156.0	11.2	167.2	13 294	400	13694

✱See Bending Diagram

BAR SCHEDULE

F1				F2 ✱				F3				F4			S1				S2 ✱				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	180	652	2 135	15	230	1034	1 475					12	99	11 220	15	180	652	2 135	15	230	1034	1 475					12	55	11 220	12	44	11 220

K1				K2				W1				W3				G1			G2												
Size	Spa.	No.	Length	Size	Spa.	No.	Length	Size	Spa.	No.	Length	Size	Spa.	No.	Length	Size	No.	Length	Size	Spa.	No.	Length	Size	Spa.	No.	Length	Size	No.	Length	Size	Spa.	No.	Length
15	180	32	✱				✱	12	355	678	1 220					12	88	11 220					15	4	3 030	20	4	3 030				

RECORD DRAWING

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

ADDENDUM #2:
16. Openings in the walls of the RCB shall be provided at locations where storm sewer pipes tie into the structure.

SUMMARY OF QUANTITIES

Class AAA Concrete	167.2	m^3
Class AAA Concrete (AE)	0.0	m^3
Reinforcing Steel (Gr. 420)	13 690	kg
Reinforcing Steel (Epoxy Coated)	N/A	kg
Class III Excavation		m^3
Foundation Stabilization (Set)	1	m^3
Concrete for Seal Course (Set)	1	m^3
Granular Backfill (Wingwalls) (Set)	1	m^3

NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION

Br. No. 54-87-(003) Sta. 15+407.000
1.830 m x 0.915 m RFB(38°ROT.LT.)
(45°SKEW HEADWALL)

BR 1.6.3 F S1 Sedgwick

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	CHECK
DESIGN	DATE	DATE
DETAIL	DATE	DATE
QUANTITIES	DATE	DATE
DETRACED	DATE	DATE

Plotted By: will Scale 1:1.000
I:\1997\97362\As-Builts\dgn's\Vol 2\Sh 398-KDOT_Std-15407.dgn Last Rev. 8-28-07 By: gdr