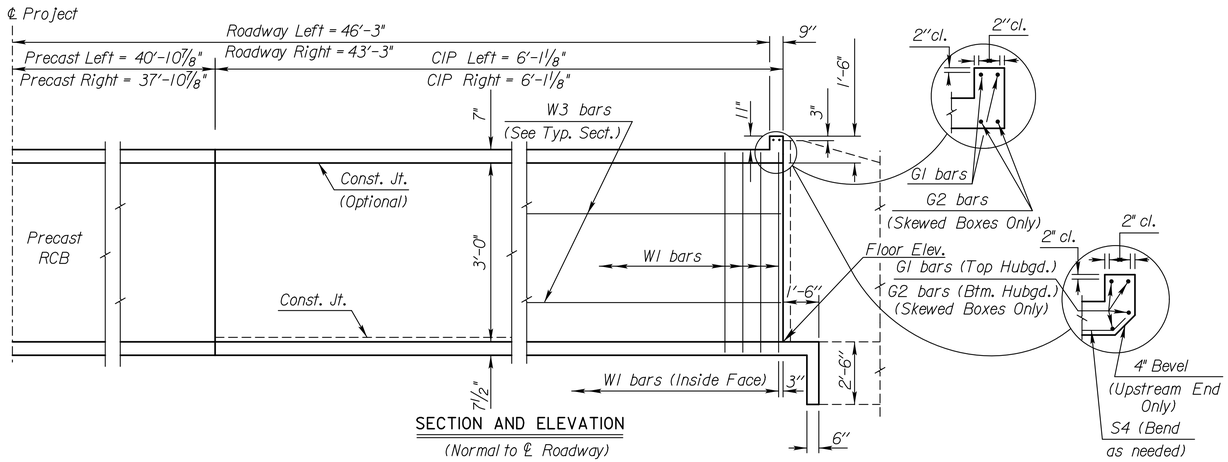
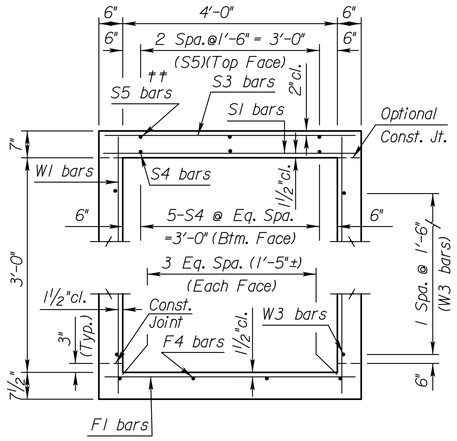
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	472-84915	2013	36	83



SECTION AND ELEVATION

(Normal to ℄ Roadway)

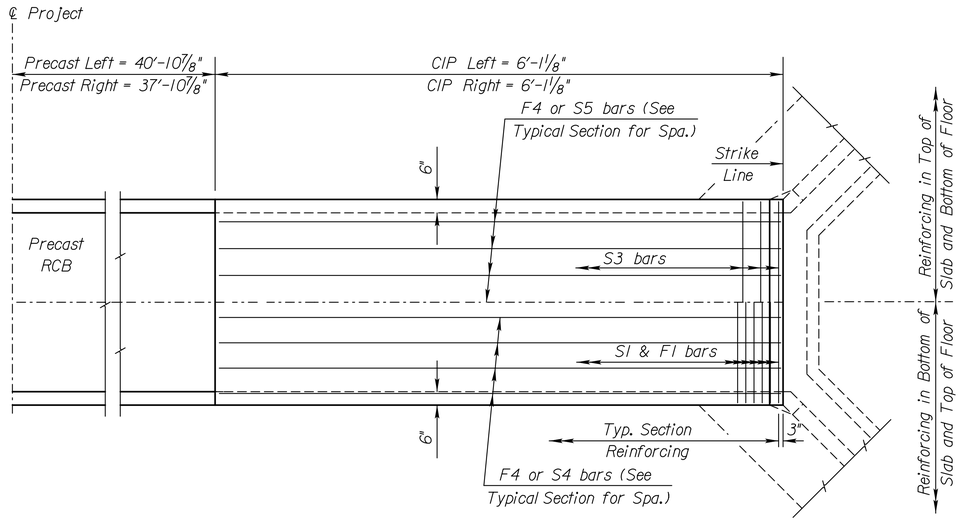


TYPICAL SECTION

Note:
S3 bars omitted unless grade box or slab thickness is greater than or equal to 12".

†† Omit S5 bars when S3 bars are omitted

See Standard No. RD 080 for additional details.



PLAN

CULVERT SUMMARY

⧗ For design purposes ONLY. Do NOT use for Construction

◔ includes any welded wire fabric

	Floor Elev.	Crown Gr. Elev.	⧗ Design Fill Ht.	Skew	Wings	Scour Apron	Soil Saver	Concrete: Barrel (Cu.Yds.)	Concrete: Wings (Cu.Yds.)	Concrete: Total (Cu.Yds.)	Reinf. Steel (Gr. 60): Barrel (Lbs.)	Reinf. Steel (Gr. 60): ◔ Wings (Lbs.)	Reinf. Steel (Gr. 60): Total (Lbs.)	LRFR RATING FACTORS: HL-93 Loading: Inventory	LRFR RATING FACTORS: HL-93 Loading: Operating
Ext.Lt.	1340.54	1341.29	0	0	Flared	No	No	2.16	3.36	5.52	269	430	699	1.85	2.39
Ext.Rt.	1340.27				Flared			2.16	3.36	5.52	269	430	699		

BAR SCHEDULE

	F1 Size	F1 Spa.	F1 No.	F1 Length								F4 Size	F4 No.	F4 Length	S1 Size	S1 Spa.	S1 No.	S1 Length					S3 Size	S3 Spa.	S3 No.	S3 Length	S4 Size	S4 No.	S4 Length	S5 Size	S5 No.	S5 Length
Ext.Lt.	5	5 1/2"	16	4'-8"	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4	4	5'-11"	5	5 1/2"	16	4'-8"					N/A	N/A	N/A	N/A	5	5	5'-11"	4	N/A	N/A
Ext.Rt.	5	5 1/2"	16	4'-8"	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4	4	5'-11"	5	5 1/2"	16	4'-8"					N/A	N/A	N/A	N/A	5	5	5'-11"	4	N/A	N/A

	K1 Size	K1 Spa.	K1 No.	K1 Length	K2 Size	K2 Spa.	K2 No.	K2 Length	W1 Size	W1 Spa.	W1 No.	W1 Length	W3 Size	W3 No.	W3 Length	G1 Size	G1 Spa.	G1 No.	G1 Length	G2 Size	G2 No.	G2 Length				
Ext.Lt.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4	9"	16	3'-10"	4	4	5'-11"	5	2	4'-8"	N/A	N/A	N/A					
Ext.Rt.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4	9"	16	3'-10"	4	4	5'-11"	5	2	4'-8"	N/A	N/A	N/A					

** For Information Only

Minimum Splice Lengths	
#4	1'-5"
#5	1'-9"

SUMMARY OF QUANTITIES **

Concrete (Grade 4.0)	11.1 C.Y.
Concrete (Grade 4.0)(AE)	0.0 C.Y.
Bridge Backwall Protection System (Subsidiary)	S.Y.
Reinforcing Steel (Gr. 60)	1400 Lbs.
Reinforcing Steel (Gr. 60)(Epoxy Coated)	0 Lbs.
Class III Excavation	C.Y.
Foundation Stabilization	0 C.Y.
Concrete for Seal Course (Set)	1 C.Y.
Granular Backfill (Wingwalls)	10 C.Y.

GENERAL NOTES

DESIGN SPECIFICATION: AASHTO LRFD Spec., 2007 Ed., 2009 Int.
DESIGN LOADING: HL93
UNIT STRESSES: Grade 4.0 Concrete f'c = 4,000 p.s.i.
Reinforcing Steel fy = 60,000 p.s.i.

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

CONCRETE: Use concrete conforming to Grade 4.0 Concrete. Bevel all exposed edges with a ¾" triangular molding. Where Grade 4.0(AE) is specified, place this concrete in the top slab above the Construction Joint.

REINFORCING: Use reinforcing steel conforming to ASTM A615, Grade 60. 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 Grade 4.0 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 3 inches 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 Foundation Stabilization quantity has been calculated to the limits shown on the "RCB Auxiliary Details" sheet. The depth may be increased by the Engineer. The Contractor may underrun Foundation Stabilization under the barrel if founded on firm material and with the Engineer's approval. Use Foundation Stabilization on all wingwalls unless founded on rock or granular material.

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): 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.

BRIDGE BACKWALL PROTECTION SYSTEM: For structures with two foot of fill or less that have this bid item in the Summary of Quantities. See the "Auxiliary Details" sheet.

NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION

135th Street Sta. 226+05

SINGLE 4 ft x 3 ft RCB

~~BR 1.4.3 P~~ Sedgwick Co.

FHWA APPROVAL		10-20-10	APP'D	Terry L. Fleck
DESIGNED	DETAILED		QUANTITIES	CADD
DESIGN CK.	DETAIL CK.		QUAN. CK.	CADD CK.

SYSTEM PART	VERSION/ID
CADD V8A	12/6/2000
DATABASE	4/25/2012
RCB PROGRAM	7.1.12
KBOX MODEL ID	39
CELL LIBRARY	1/9/2012

06

Plotted By: mlb
Plot Location:
File: I:\2010\0028\Bridge\LRFD Boxes\2013-04-15_1028I_I-4x3IBoxI.dgn
Plot Date: 18-APR-2013 16:17