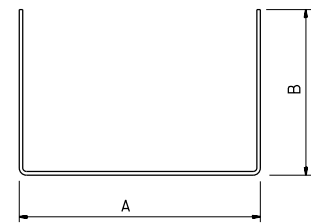
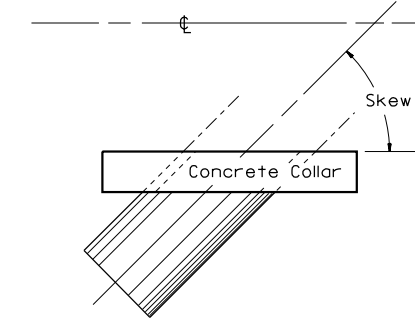
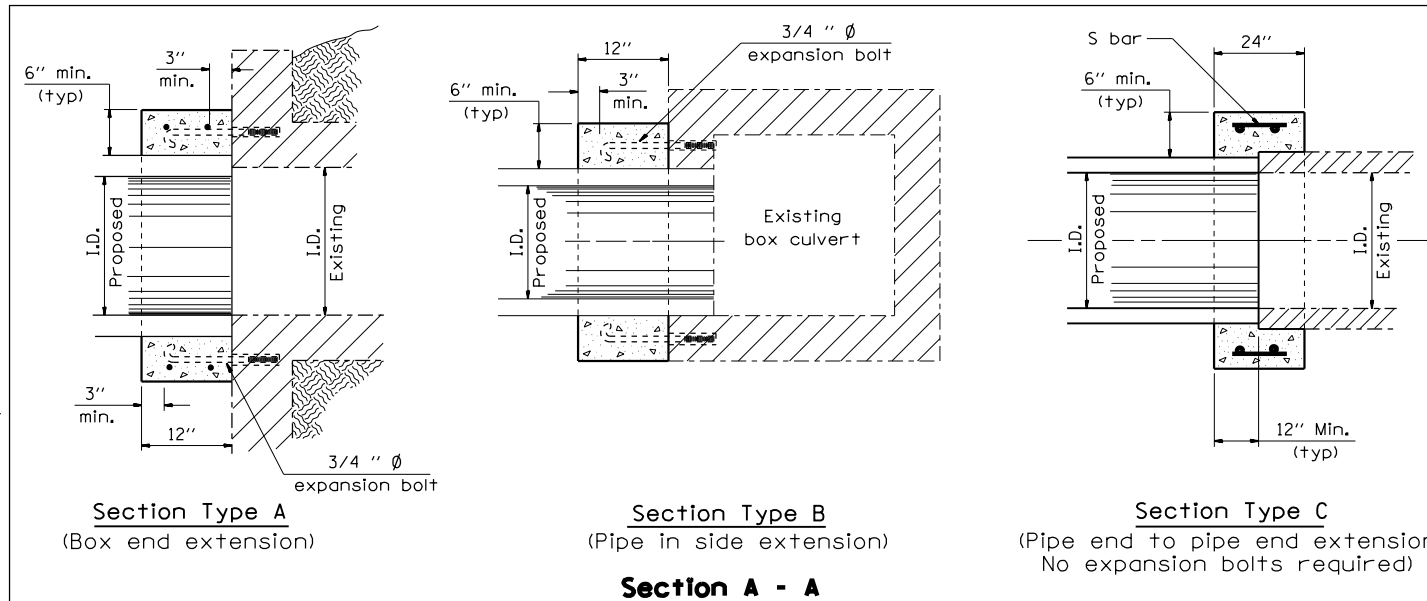
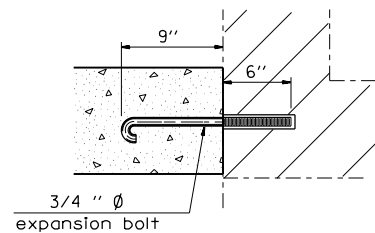


PIPE CULVERT EXTENSION COLLAR



#4 U - bar

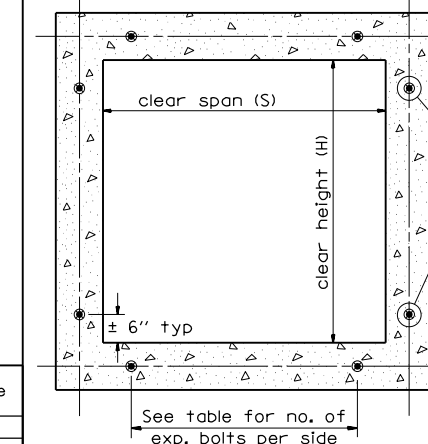


Expansion Bolt Detail

Notes:

- Expansion bolts shall consist of self drilling expansion shields and 3/4" diameter hooked bolts. Hooked bolts shall extend a minimum of 9" into new concrete. Minimum Certified Proof Load - 4,080 lbs.
- Use minimum of 1 (one) expansion bolt at each corner.

BOX CULVERT POURED IN PLACE EXTENSION



Section Thru Barrel

EXPANSION BOLTS REQUIRED FOR CULVERT EXTENSIONS

H or S	No. Expansion Bolts Req'd. Per Side			
	Extension ≤ 15ft		Extension > 15ft	
	No.	Spacing	No.	Spacing
24"	*	*	*	*
30"	2	18"	2	18"
36"	2	24"	2	24"
48"	3	18"	3	18"
60"	4	16"	3	24"
72"	5	15"	4	20"
84"	5	18"	4	24"
96"	6	17"	5	21"
108"	6	19"	5	24"
120"	7	18"	6	21"
132"	8	17"	6	24"
144"	8	19"	7	22"

Note: Number of expansion bolts in table based on non-skewed culverts.

* Use minimum 1 (one) expansion bolt in each corner.

IL 123

Station	Section Type	Skew	Existing Culvert Size	Proposed Culvert		Collar		Reinforcement Bars								Expansion Bolts 3/4"	Class SI Concrete Collar yd ³		
				I.D.	O.D.	Height	Width	S bar		U bar		lb							
								No.	Size	Length	No.	Size	A	B	Lap	Length	lb	Each	
368+50.00 L	A	0°	2'x2'	30"	37"	49"	49"	8	4	8"	8	4	3'-7"	2'-2"	8"	15'-10"	46	8	0.75
368+50.00 R	A	0°	2'x2'	30"	37"	49"	49"	8	4	8"	8	4	3'-7"	2'-2"	8"	15'-10"	46	8	0.75
Total																	92	16	1.5

FILE NAME =	USER NAME = sparksgw	DESIGNED - RLD	REVISED -
ei:\pw\work\p\id\dot\sparksgw\10365122\0672064-sht-details.dgn		DRAWN - CAD	REVISED -
Default COLLAR.DGN	PLOT SCALE = 40.0000' / in.	CHECKED - RLD	REVISED -
	PLOT DATE = Dec-13-2013 09:21:58AM	DATE - 10/06/99	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

CONCRETE COLLAR AND
CULVERT EXTENSION DETAILS

SCALE: SHEET 1 OF 1 SHEETS STA. TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
VAR	DE MISC 2014	*	22	10
ILLINOIS FED. AID PROJECT			CONTRACT NO. 72G64	