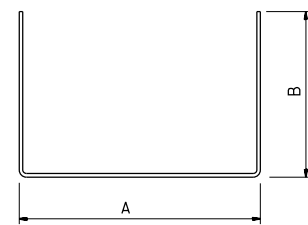
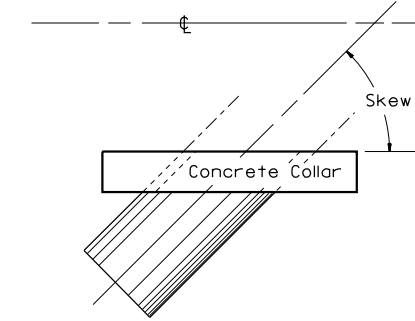
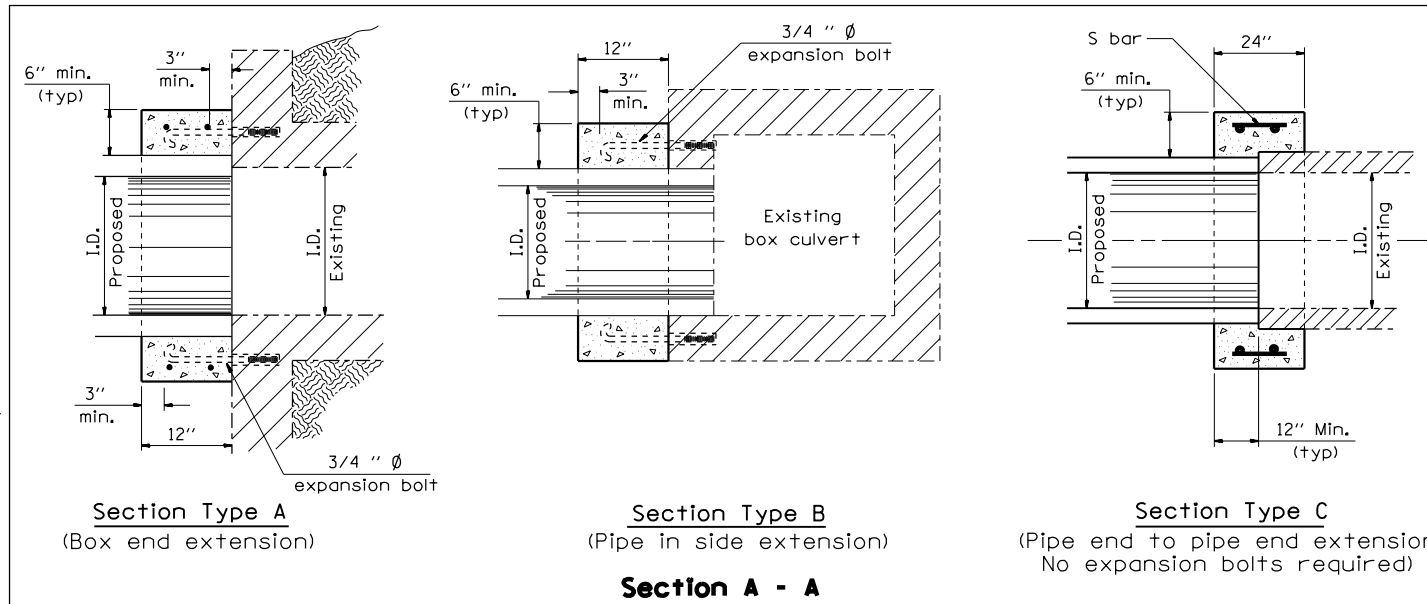
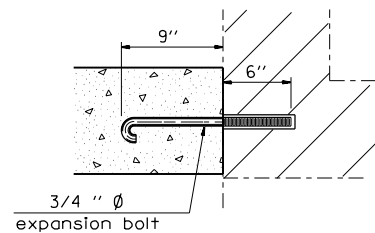


PIPE CULVERT EXTENSION COLLAR



#4 U - bar

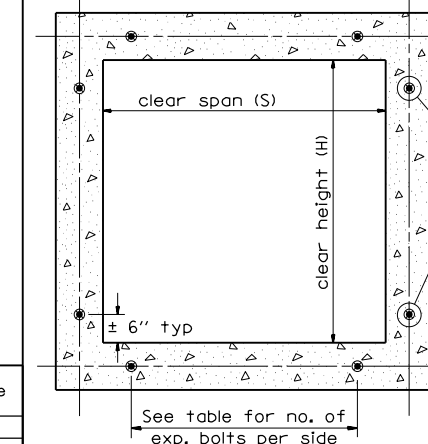


Expansion Bolt Detail

Notes:

- Expansion bolts shall consist of self drilling expansion shields and 3/4" Ø 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		No. Expansion Bolts Req'd. Per Side	
	Extension ≤ 15ft	Extension > 15ft	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.

Station	Section Type	Skew	Culvert		Collar		Reinforcement Bars										Expansion Bolts 3/4"	Class S1 Concrete Collar	
			Existing Size	Proposed Size	Height	Width	S bar		U bar				lb	Each	yd ³				
				I.D.	O.D.			No.	Size	Length	No.	Size				A	B	Lap	Length
708+99.36	A	0	2' X 2'	30"	37"	49"	49"	16	4	8"	16	4	3'-7"	2'-2"	8"	15'-10"	92	16	1.5
722+48.37	A	0	2' X 2'	30"	37"	49"	49"	16	4	8"	16	4	3'-7"	2'-2"	8"	15'-10"	92	16	1.5
Total																	32	3.0	

FILE NAME =	USER NAME = sparksgw	DESIGNED - RLD	REVISED -
et:\pw\work\p\id\sparksgw\10313593\0672\F72-sht-detail.dgn		DRAWN - CAD	REVISED -
	PLOT SCALE = 200.0000' / in.	CHECKED - RLD	REVISED -
	PLOT DATE = Oct-19-2012 01:00:43PM	DATE - 10/06/99	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

CONCRETE COLLAR AND
CULVERT EXTENSION DETAILS

SCALE: SHEET NO. 1 OF 1 SHEETS STA. TO STA.

F.A.P. RTE. 662	SECTION	COUNTY SANGAMON	TOTAL SHEETS 28	SHEET NO. 27
CONTRACT NO. 72F72				
FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT				