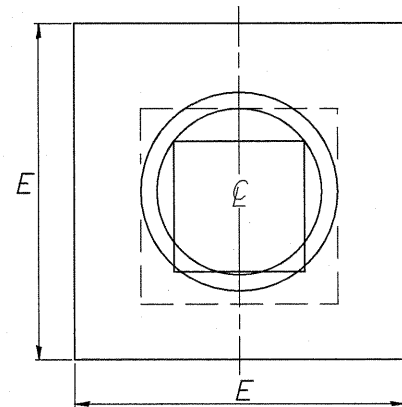
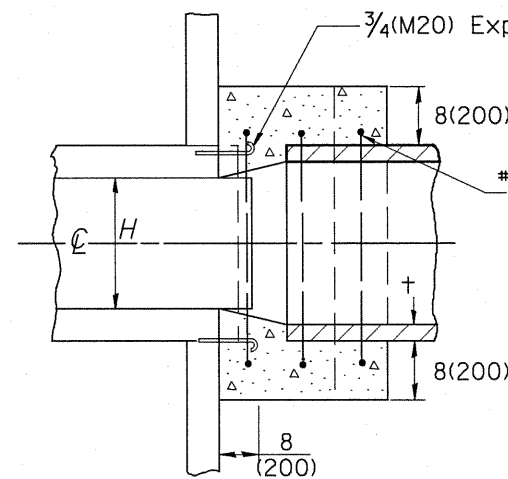


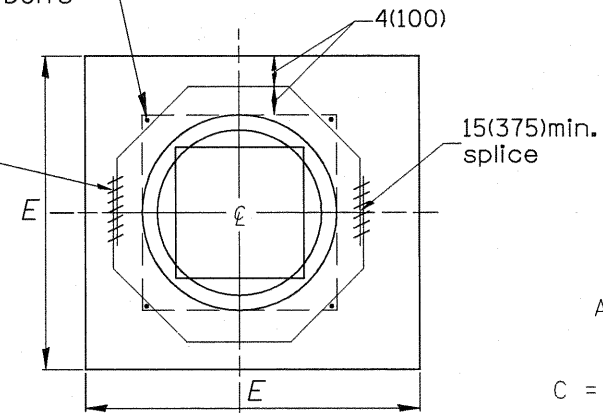
SECTION A-A



END VIEW



SECTION A-A



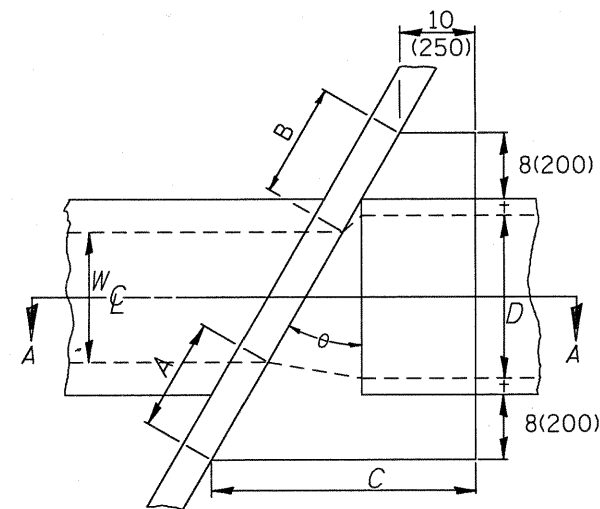
END VIEW

$$A = B = \frac{\frac{D - W}{2} + t + 8(200)}{\cos \theta}$$

$$C = \tan \theta [D + 2t + 16(410)] + 10(250)$$

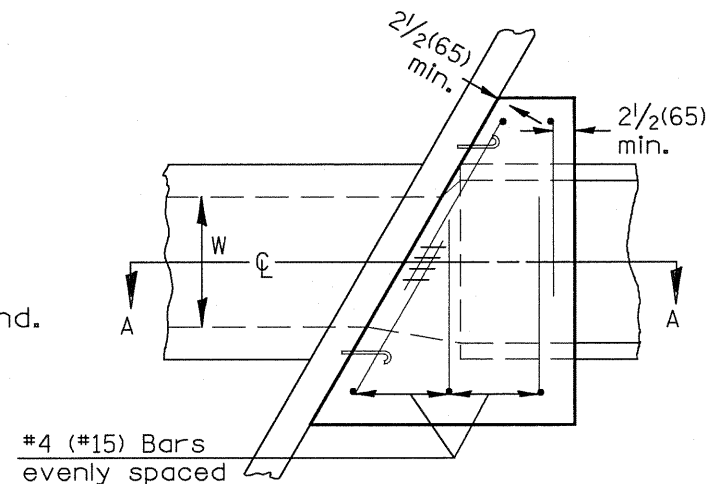
$$G = \frac{D + 2t + 8(200)}{2.4142 [\cos \theta]}$$

(Note: 'G' is based upon maximum skewed length)

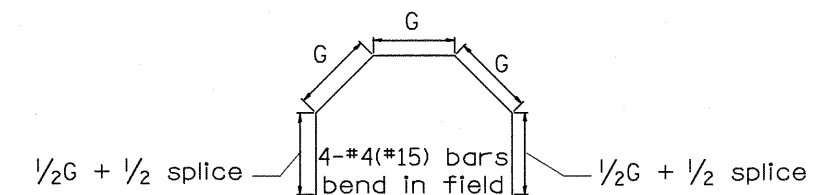


PLAN VIEW UP STREAM

NOTE:  
Dimensions are shown in Plan View of Up Stream End while Reinforcement is shown in plan view of Down Stream End.



PLAN VIEW DOWN STREAM



#### GENERAL NOTES

- The collar shall be constructed entirely of CLASS SI CONCRETE and in accordance with the applicable portions of section 503 of the Standard Specifications. Reinforcement bars shall conform to section 508.
- Expansion bolts shall consist of approved expansion anchors, and 3/4 (M20) hook bolts which conform to section 1006.09. These bolts shall extend at least 8(200) into the new concrete.

EXISTING BOX									EACH COLLAR					
									CONCRETE		REINFORCEMENT BARS			EXPAN. BOLTS
									CU. YD. (m <sup>3</sup> )	G	L	KG(LBS.)	EACH	
W	H	Θ	A	B	C	D	E	†						
2'	2'	13.95	18.5"	18.5"	24"	36"	60"	4"	0.7	22"	8'-7"	30	8	
2'	2'	11.70	18"	18"	20 <sup>3</sup> / <sub>4</sub> "	30"	53"	3.5"	0.8	19 <sup>1</sup> / <sub>4</sub> "	7'-8"	30	8	

#### QUANTITIES

CALC. BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
CHECKED BY: \_\_\_\_\_ DATE: \_\_\_\_\_

QUANTITY CALCULATIONS ARE ON FILE AT THE DISTRICT 4 OFFICE; BUREAU OF PROJECT IMPLEMENTATION; DOCUMENTATION SECTION

01-01-97	RENUM. J-11.03, NEW REVISION BOX, REVISED	T.P.
10-16-06	REVISD TO 2007 SPEC.	M.A.

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

SKewed PIPE CULVERT EXTENSION COLLAR (WITH END SECTION)

NOT TO SCALE

CADD STD. 542011-D4

All dimensions are in inches (millimeters) unless otherwise noted.

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
574	121-1	Fulton	31	29
CONTRACT NO. 68974				
FED. ROAD DIST. NO. [ILLINOIS] FED. AID PROJECT				