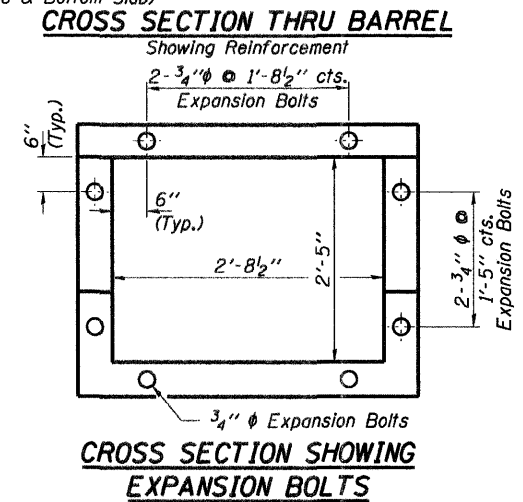
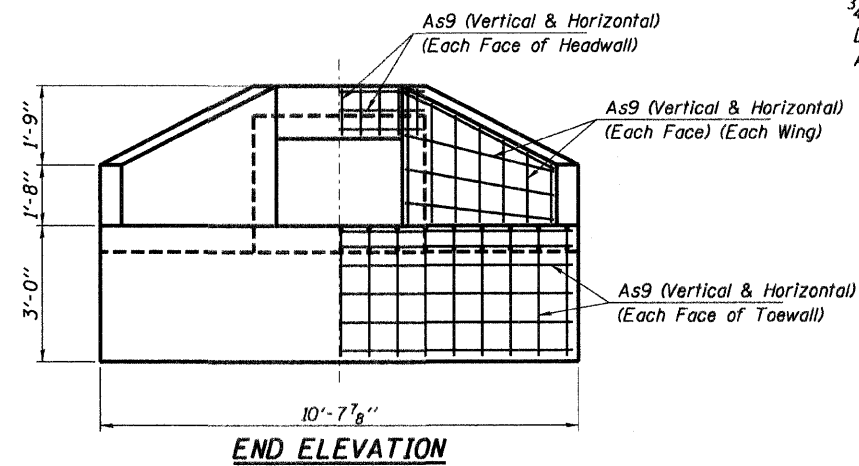
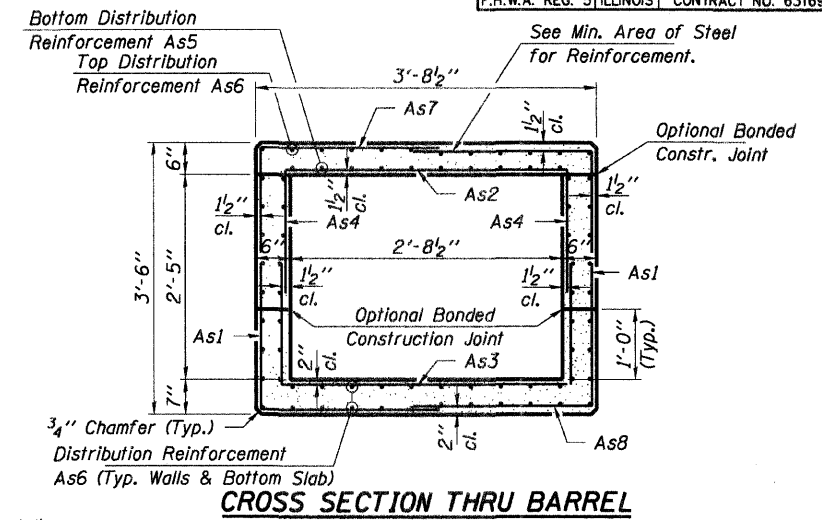
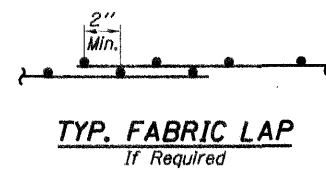
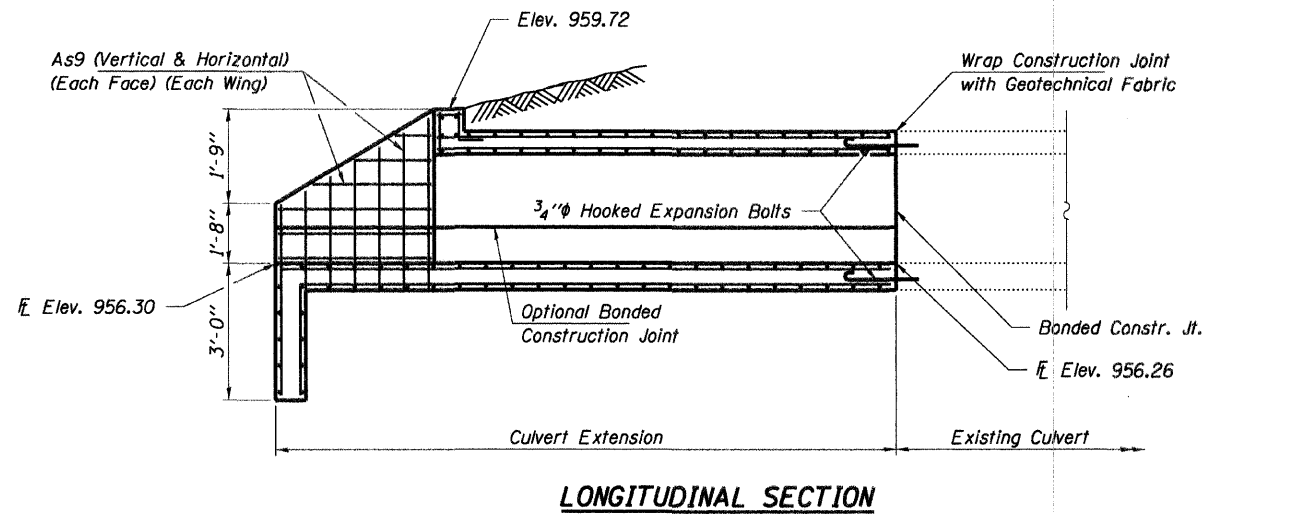


F.A.U. ROUTE	MUNICIPAL SECTION	COUNTY	TOTAL SHEET SHITS	NO.
033	08-00109-00-RS	McHENRY	32	8
CUVERT DETAILS				
F.H.W.A. REG. 5 ILLINOIS CONTRACT NO. 63169				



Note: Expansion bolts shall be 3/4" hooked bolts. Hooked bolts shall extend a minimum of 9" into new concrete.

**GENERAL NOTES**

- The minimum concrete strength shall be 3,500 psi.
- Reinforcement bars shall conform to the requirements of ASTM A 706 Grade 60 (IL Modified). See Special Provisions.
- All construction joints shall be bonded.
- Box culvert shall be constructed in accordance with Article 540 of the Standard Specifications.
- Precast Concrete Box Culvert is allowed at contractor's expense.

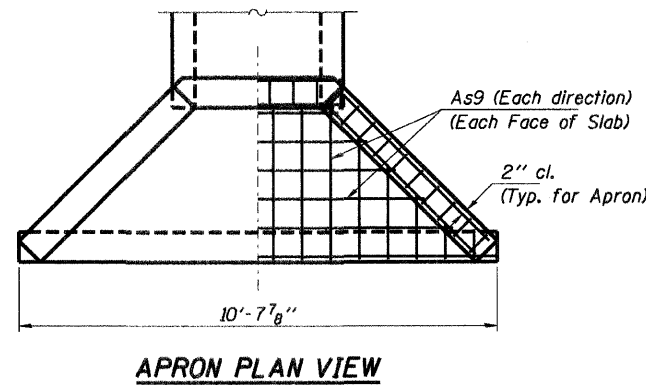
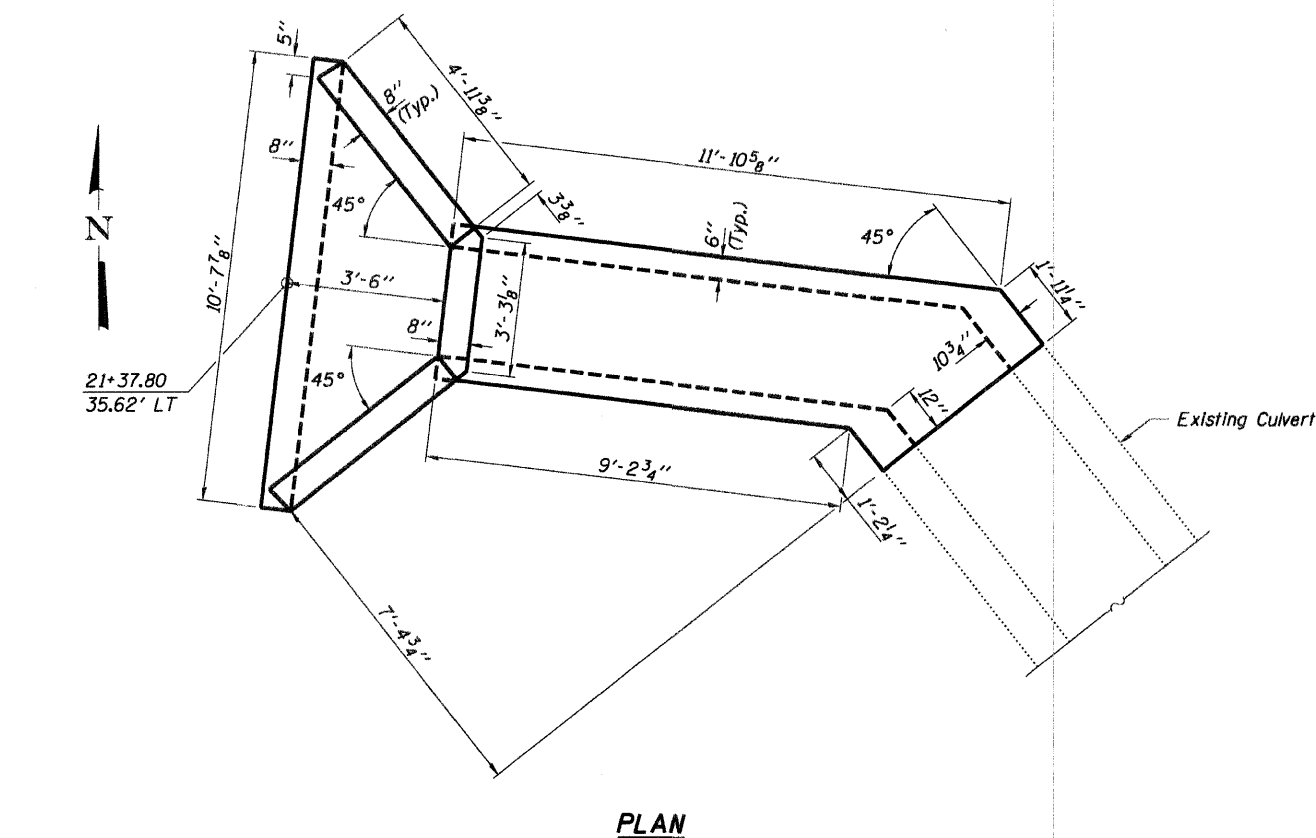
**REQUIRED STEEL AREAS (in<sup>2</sup>/ft.)**

As1 = 0.27	As5 = 0.31	As9 = 0.20
As2 = 0.37	As6 = 0.20	
As3 = 0.37	As7 = 0.20	
As4 = 0.27	As8 = 0.20	

**TOTAL BILL OF MATERIAL**

ITEM	UNIT	TOTAL
Concrete Box Culverts	Cu. Yd.	5.6

Reinforcement bars shall be included in the cost of Concrete Box Culverts. 3/4" Expansion Bolts shall be included in the cost of Concrete Box Culverts. 6" of CA-6 shall be included in the cost of Concrete Box Culverts.



**LOADING HS 20-44**

**DESIGN STRESSES**

f'c = 3,500 psi  
fy = 60,000 psi (Reinf.)

**DESIGN SPECIFICATIONS**

2002 AASHTO and all applicable interims

I certify that to the best of my knowledge, information and belief, this bridge design is structurally adequate for the design loading shown on the plans. The design is an economical one for the style of structure and complies with requirements of the current "AASHTO LRFD Specifications."

*Steven W. McGinnis* 2/10/2009  
ILLINOIS STRUCTURAL NO. 081-6064



Expires 11-30-08

**HAMPTON, LENZINI & RENWICK, INC.**  
CIVIL & STRUCTURAL ENGINEERS  
LAND SURVEYORS

**HLR**

3085 STEVENSON DRIVE, SUITE 201  
SPRINGFIELD, ILLINOIS 62703  
(217) 548-3400

ELGIN • SPRINGFIELD

PROJECT NUMBER: 08-10-0187-1 DATE: 060507  
DESIGNED: S.M.S. CHECKED: S.W.M. DRAWN: D.T.M.

**CULVERT DETAILS**

**CITY OF WOODSTOCK**  
**SOUTH STREET**  
**McHENRY COUNTY**