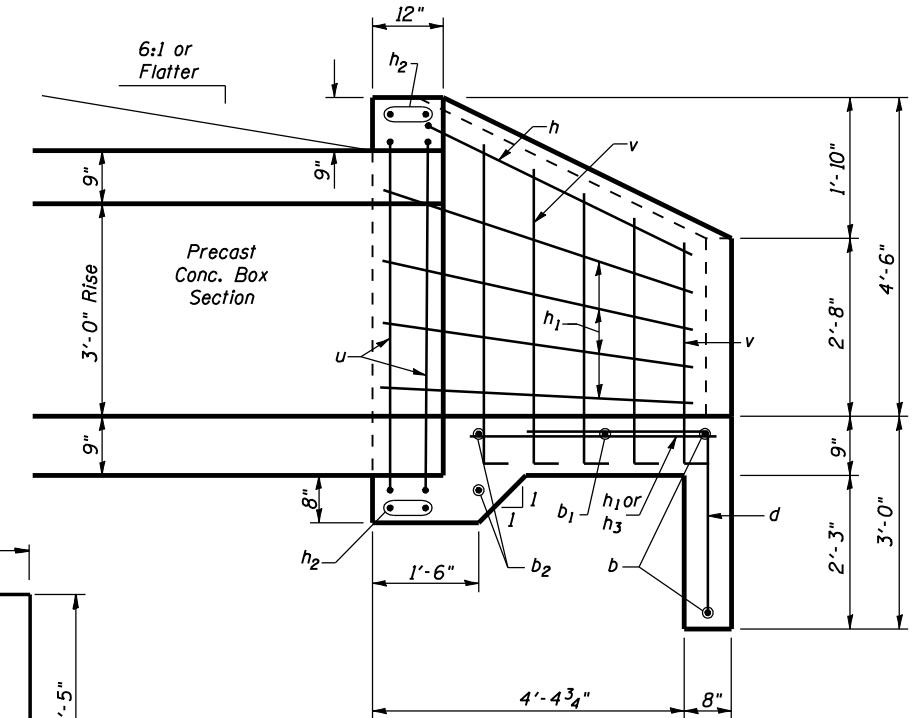
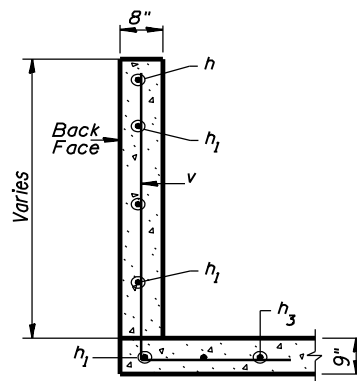


14- #4 d bars @ 1'-6" cts.  
**END ELEVATION**

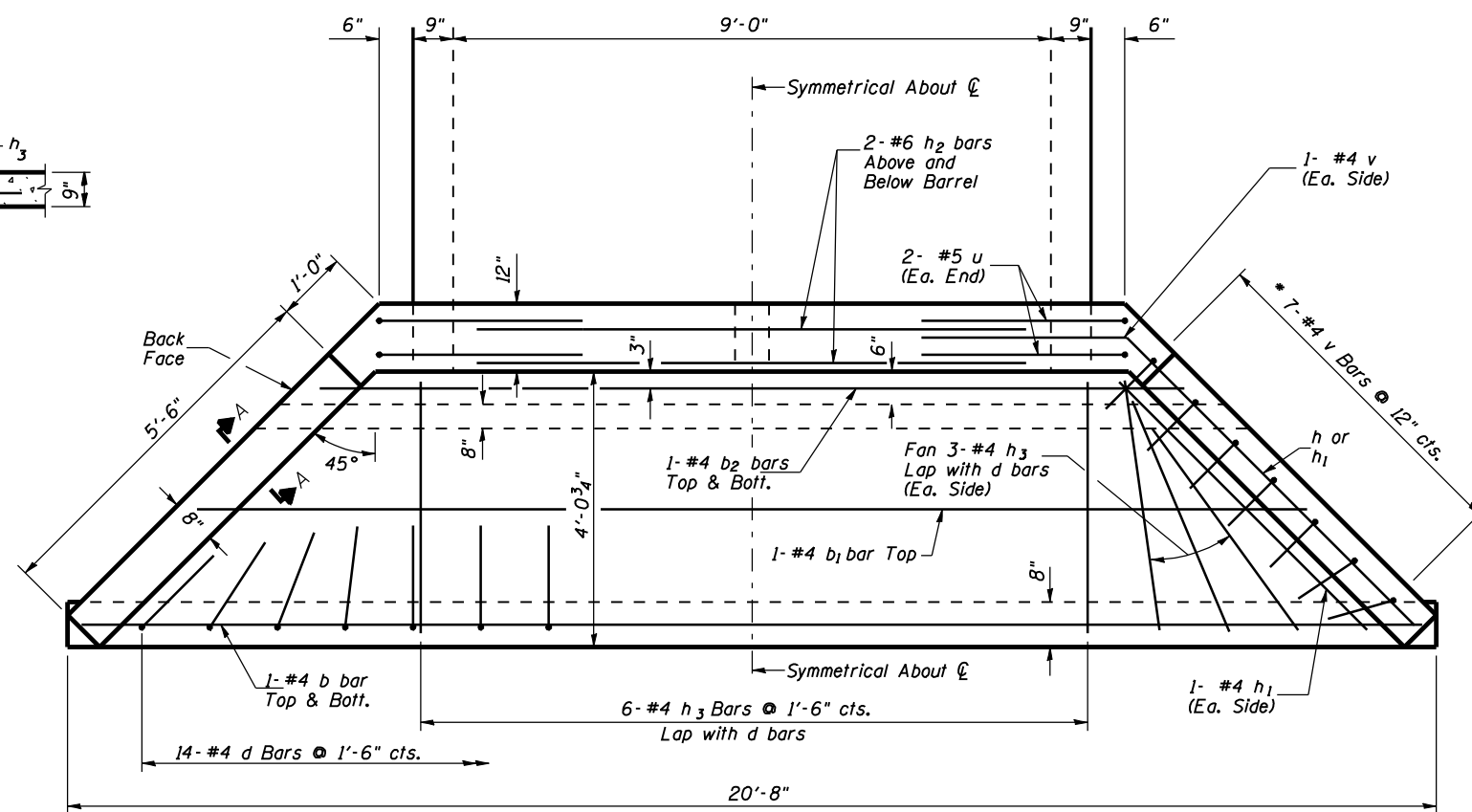
**MIN BAR LAP**  
 #5 = 1'-8"



**HALF SIDE ELEVATION**  
 \* Bend or Cut to Fit



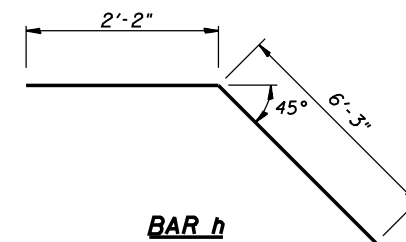
**SECTION A-A**



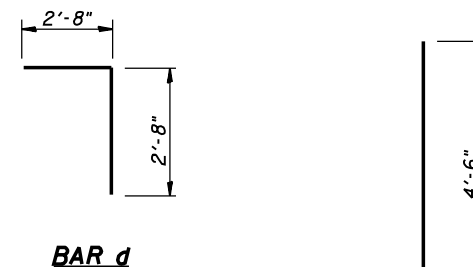
**PLAN**

**DESIGN STRESSES**  
 $f_y = 60,000 \text{ psi}$   
 $f'_c = 3,500 \text{ psi}$

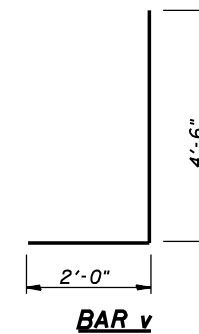
**BAR u**



**BAR h**  
 Bend to Fit



**BAR d**



**BAR v**

**BILL OF MATERIAL ONE HEADWALL**

BAR	NO.	SIZE	LENGTH	SHAPE
b	2	#4	20'-2"	—
b1	1	#4	16'-10"	—
b2	2	#4	13'-6"	—
d	14	#4	5'-4"	└
h	2	#4	8'-5"	└
h1	10	#4	6'-0"	—
h2	4	#6	8'-6"	—
h3	12	#4	3'-8"	—
u	4	#5	12'-5"	└
v	16	#4	6'-6"	└
Item		Unit	Quantity	
Concrete Box Culverts		Cu. Yd.	5.1	
Reinforcement Bars		Lbs.	360	
Box Culvert End Sections		Each	2	

**NOTES**

Exposed edges shall be beveled  $\frac{3}{4}$ ".  
 Reinforcement Bars shall conform to the requirements of AASHTO M-31 or M322, Grade 60.  
 For backfilling and embankment, See Standard Specifications.  
 Bars indicated thus 12x4-#5 etc. indicates 12 lines of bars with 4 lengths per line.  
 Precast substitution not allowed.

**CAST-IN-PLACE  
 END SECTION DETAILS FOR  
 9'X3' BOX CULVERT  
 FAP RTE 315  
 LT STATION 1031+45**

HUTCHISON ENGINEERING, INC.  
 JACKSONVILLE, ILLINOIS

Date: January 31, 2006