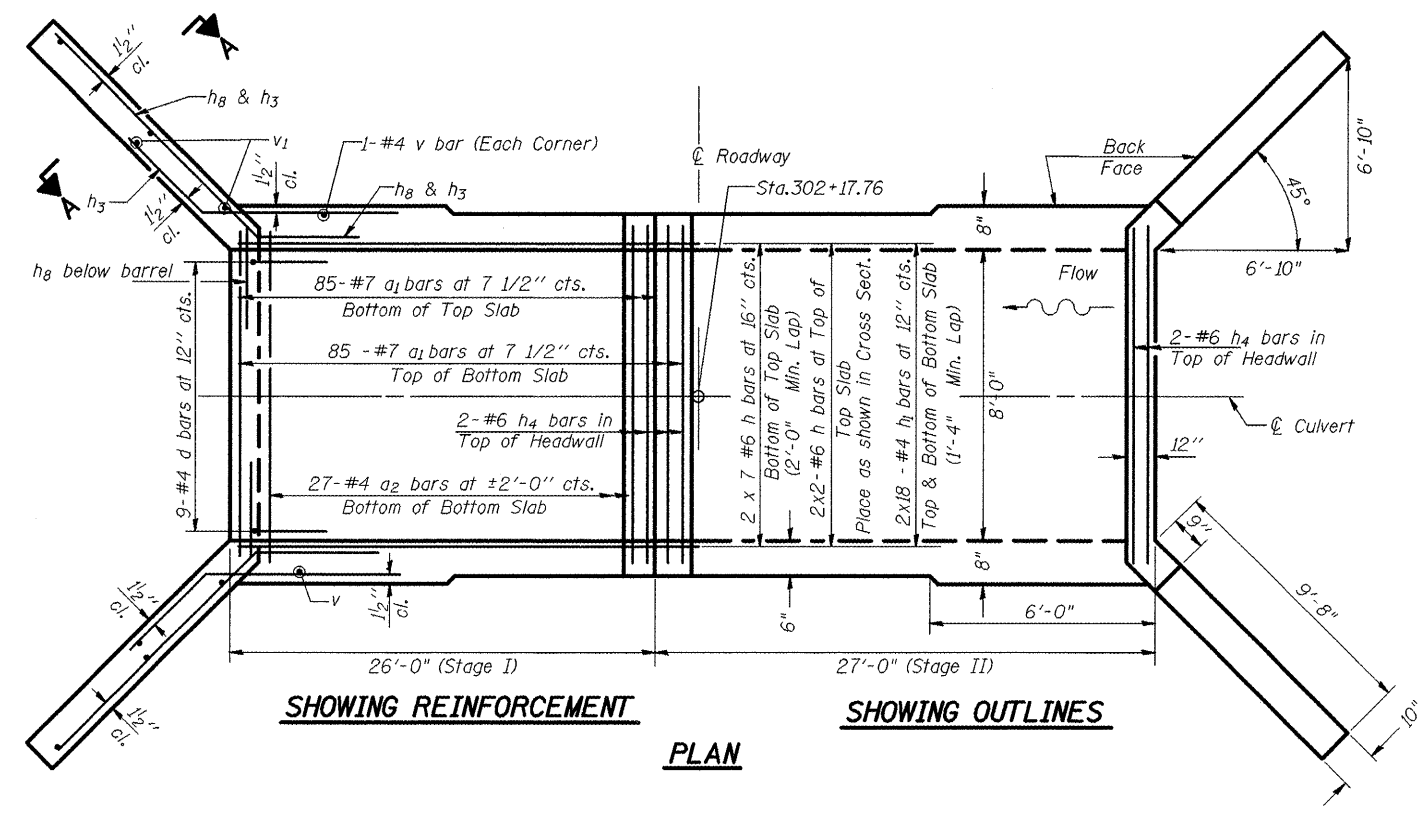
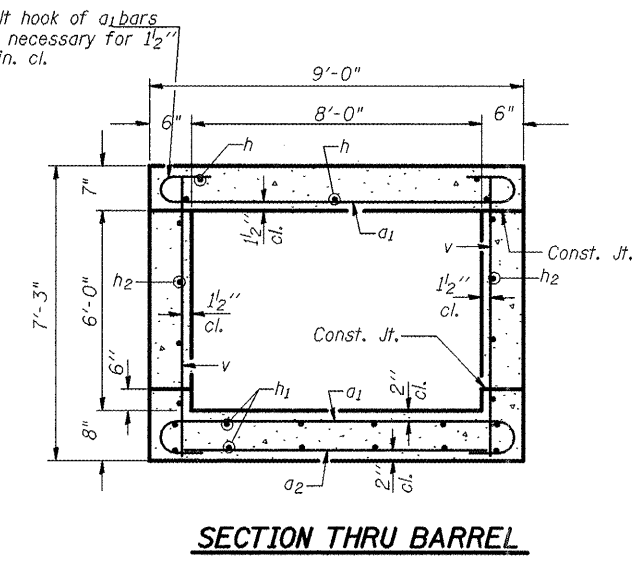
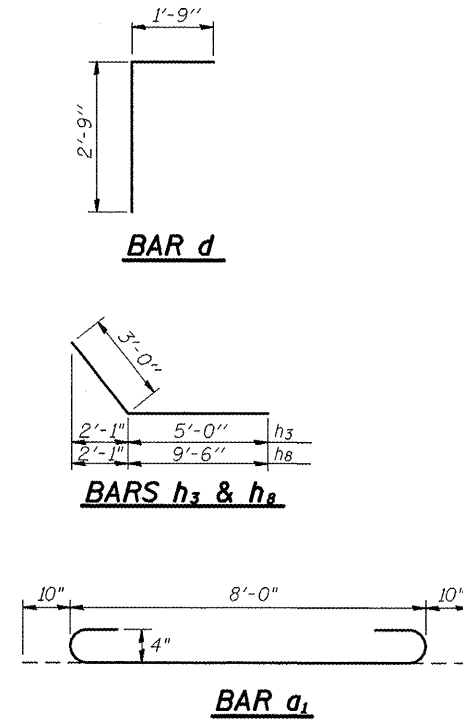


**HALF LONG SECTION**

**HALF ELEVATION**



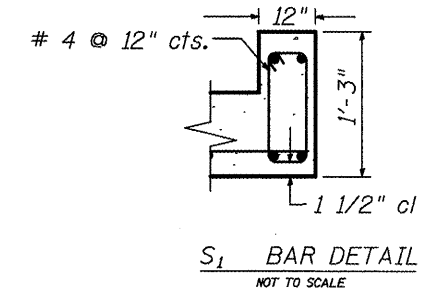
**SHOWING REINFORCEMENT**

**SHOWING OUTLINES**

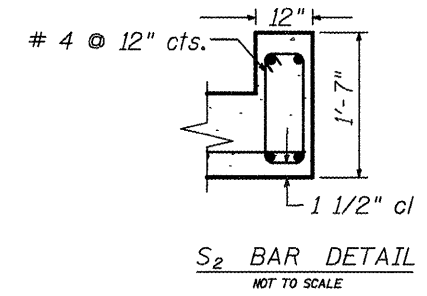
**PLAN**

**NOTES**

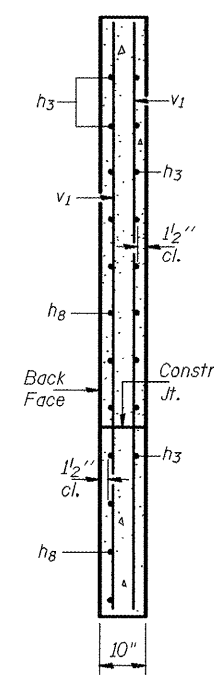
A distance of half the length of the wingwall but not less than six feet of the barrel shall be poured monolithically with the wingwalls.  
 Reinforcement Bars shall conform to the requirements of AASHTO M-31, M-42 or M-53, Grade 60.  
 Bars indicated thus 12 x 4-#5 etc. indicates 12 lines of bars with 4 lengths per line.  
 All construction joints shall be bonded.



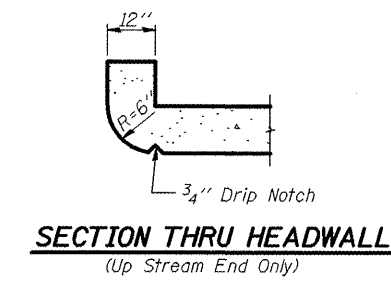
**S1 BAR DETAIL**  
NOT TO SCALE



**S2 BAR DETAIL**  
NOT TO SCALE



**SECTION A-A**



**SECTION THRU HEADWALL**  
(Up Stream End Only)

**DESIGN STRESSES**

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

**LOADING HS 20-44 & ALT.**

**BILL OF MATERIAL**

Bar	No.	Size	Length	Shape
a1	170	#7	10'-4"	
a2	28	#4	8'-3"	
d	18	#4	4'-6"	
h (Stg. I)	9	#6	25'-9"	
h (Stg. II)	9	#6	26'-9"	
h1 (Stg. I)	18	#4	25'-9"	
h1 (Stg. II)	18	#4	26'-9"	
h2 (Stg. I)	12	#5	25'-9"	
h2 (Stg. II)	12	#5	26'-9"	
h3	40	#7	8'-0"	
h4	12	#6	8'-8"	
h8	32	#7	11'-6"	
v	142	#4	6'-11"	
v1	20	#4	10'-0"	
S1	45	#4	4'-3"	
S2	9	#4	4'-11"	
3/4" Expansion Bolts			Each	18
Concrete Box Culverts			Cu. Yd.	70
Reinforcement Bars			Pound	8,305.82

FILE NAME = sht-details.dgn  
 USER NAME = mendej  
 PLOT SCALE = 1/8" = 1'-0"  
 PLOT DATE = 3/25/2011

DESIGNED -  
 DRAWN -  
 CHECKED -  
 DATE -  
 REVISED -  
 REVISED -  
 REVISED -  
 REVISED -

**STATE OF ILLINOIS**  
**DEPARTMENT OF TRANSPORTATION**

**BOX CULVERT**  
**STA. 302+17.76**  
 SCALE: SHEET NO. OF SHEETS STA. TO STA.

F.A.P. RTE. 685 SECTION \*\* COUNTY \* TOTAL SHEETS 329 SHEET NO. 136  
 ILLINOIS FED. AID PROJECT CONTRACT NO. 68599