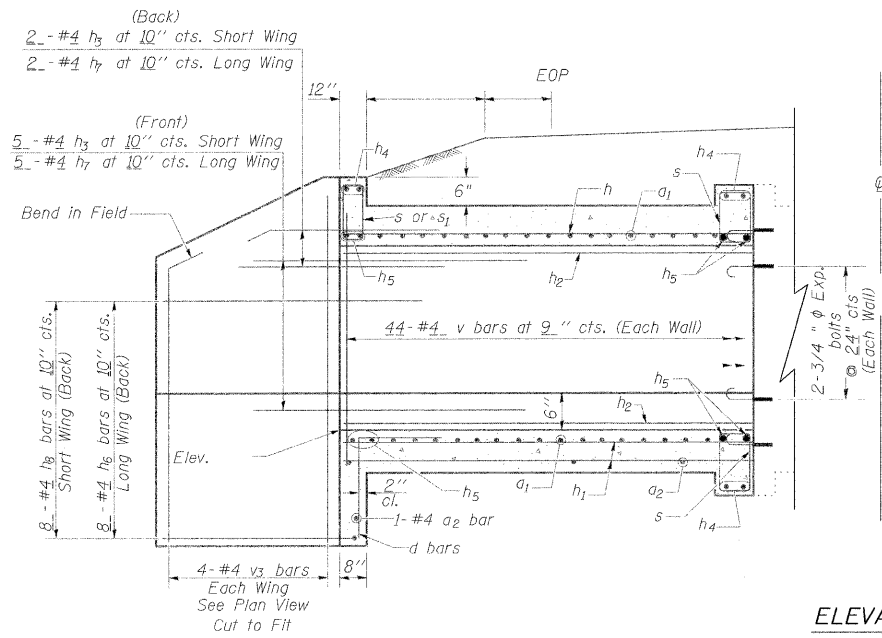
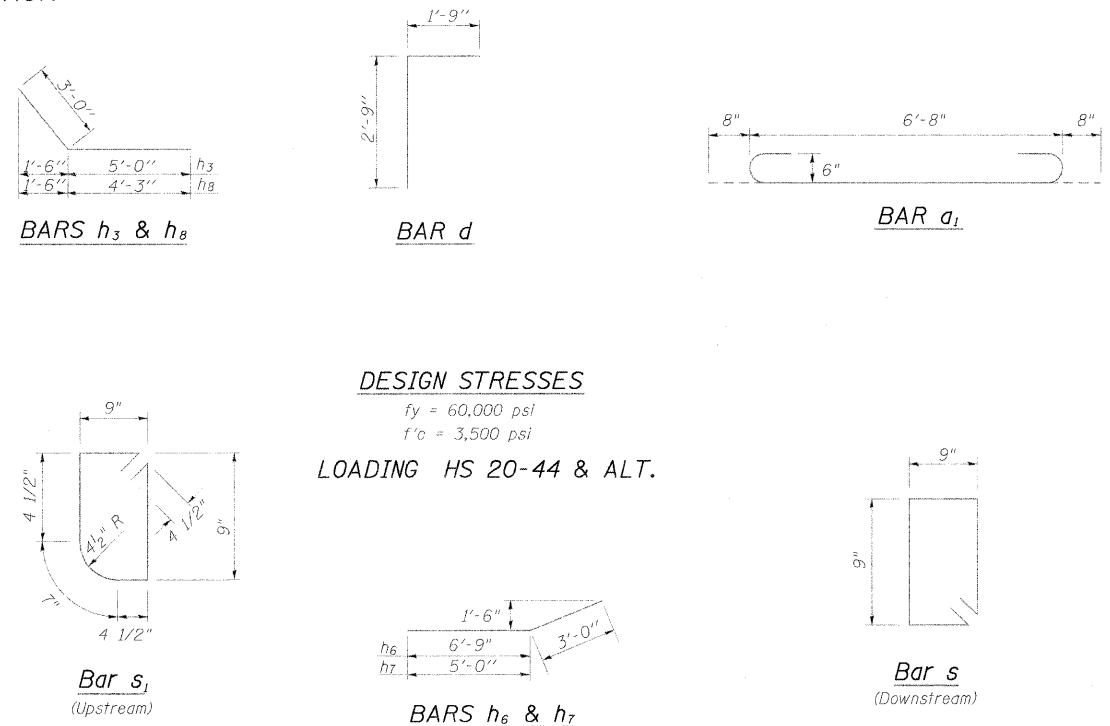
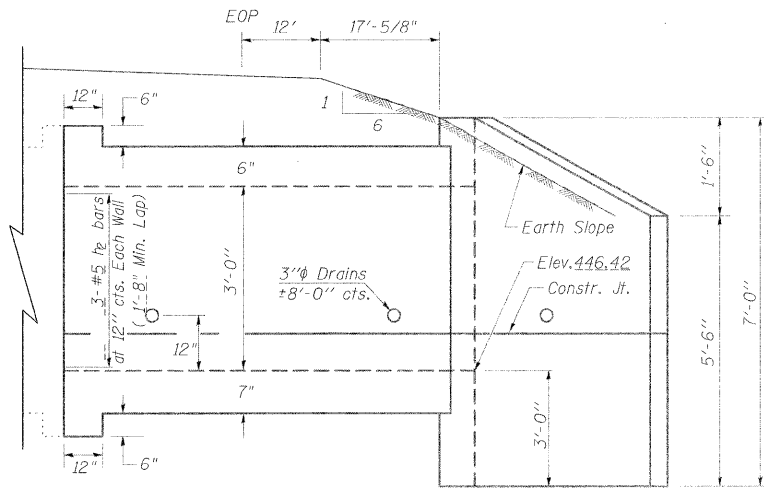


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ELEVATION

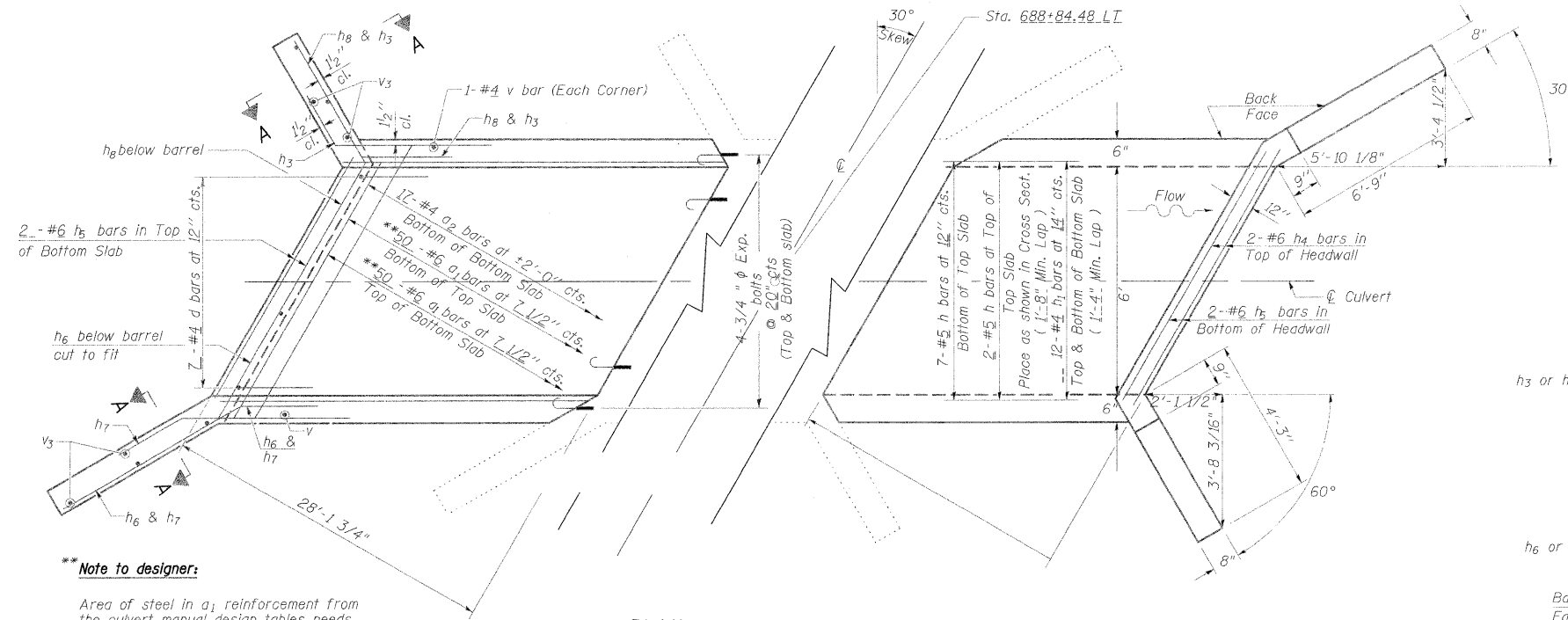
Dimensions at Rt. L's to \mathcal{C} Roadway



DESIGN STRESSES

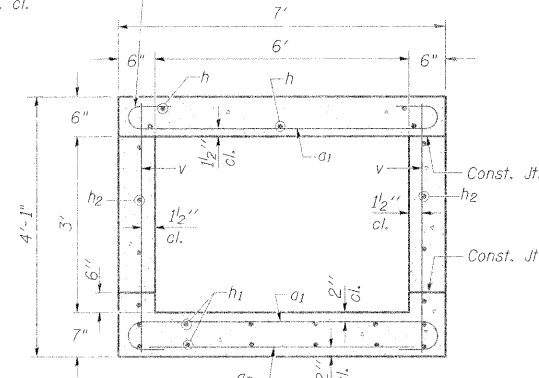
$f_y = 60,000 \text{ psi}$
 $f'_c = 3,500 \text{ psi}$

LOADING HS 20-44 & ALT.

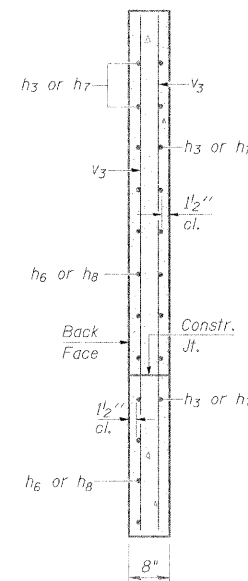


PLAN

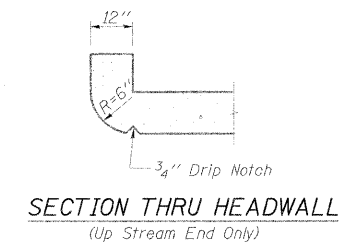
Tilt hook of a_1 bars if necessary for $1\frac{1}{2}$ " min. cl.



SECTION THRU BARREL



SECTION A-A



SECTION THRU HEADWALL
(Up Stream End Only)

BILL OF MATERIAL

Bar	No.	Size	Length	Shape
a_1	100	#6	8'-0"	U
a_2	18	#4	6'-6"	U
d	7	#4	4'-6"	L
h_1	9	#5	32'-3"	—
h_2	12	#4	32'-3"	—
h_3	6	#5	32'-3"	—
h_4	7	#4	8'-0"	—
h_5	6	#6	7'-9"	—
h_6	8	#6	8'-4"	—
h_7	7	#4	8'-0"	—
h_8	8	#4	7'-3"	—
s	16	#4	3'-9"	U
s_1	8	#4	3'-7"	U
v	90	#4	3'-9"	—
v_3	8	#4	6'-0"	—

Concrete Box Culverts Cu. Yd. 15.6
Reinforcement Bars Pound 2720
 $\frac{3}{4}$ " Expansion bolts Each 12

Note to designer:

Area of steel in a_1 reinforcement from the culvert manual design tables needs to be multiplied by $\sec^2 \theta$ to incorporate the skew.

REVISIONS

REVISIONS	DATE	BY
DRAWN	2-04	
REVISED	5-09	SHT CELL
REVISED		
REVISED		

BASED ON: SSB-H-R 6-1-2000

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.

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.

NOTES

All construction joints shall be bonded.

Expansion bolts shall be $\frac{3}{4}$ " ϕ x 12" hooked bolts. Hooked bolts shall extend a minimum of 9" into new concrete and have a minimum certified proof load of 4,000 lbs.

s, s_1 bars @ 12" centers

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BOX CULVERT EXTENSION STATION 688+84.48 LT
6' X 3', SKEW 30° RT. AH. EXTEND 32'-6"

FILE NAME	USER NAME	DESIGNED	REVISED	SCALE	SHEET NO.	OF SHEETS	STA.	TO STA.	F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
c:\pwork\p1001\SH\EPAR000\dna473381\dtdm13-sht-oulet.dgn	shapardp			5/8" = 1' / IN.	331				331	(1-2)N-2,R3(1X-1)N-3,R-2	WILLIAMSON	202	110
													110

CONTRACT NO. 98857
ILLINOIS FED. AID PROJECT