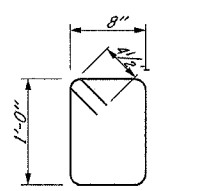
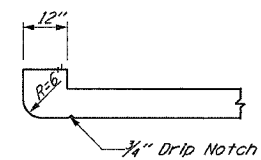


SECTION THRU BARREL

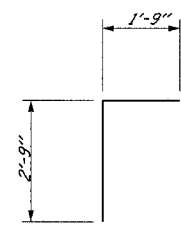
SECTION A-A



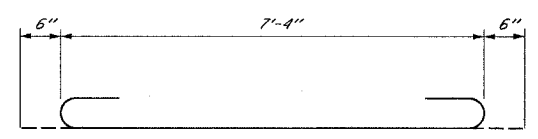
STIRRUP s



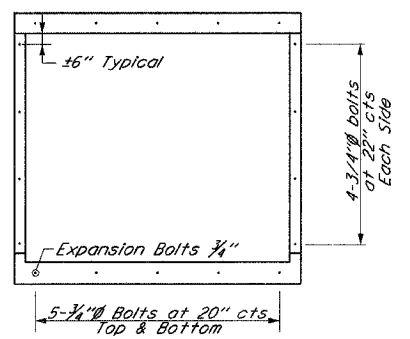
SECTION THRU HEADWALL



BAR d



BAR a1



EXPANSION BOLT PLACEMENT DETAIL

BILL OF MATERIAL

Bar	No.	Size	Length
a1	64	#4	8'-4"
a2	16	#4	6'-9"
a3	15	#5	6'-9"
d	7	#4	4'-6"
h	7	#6	31'-4"
h1	12	#5	31'-4"
h2	14	#6	31'-4"
h3	10	#6	8'-0"
h4	6	#6	8'-4"
h5	8	#6	8'-5"
h6	9	#9	17'-10"
h7	12	#9	8'-0"
h8	8	#6	11'-6"
h9	8	#4	31'-4"
s	30	#4	4'-1"
v	78	#4	7'-6"
v1	8	#4	10'-3"
Concrete Structures	Cu Yd		29.6
Reinforcement Bars	Pound		3940
Expansion Bolts 3/4"	Each		18

NOTES:

- Design fill height  $\leq 2'$
- Exposed edges shall be chamfered  $3/4"$ .
- Class SI Concrete shall be used throughout.
- Reinforcement Bars shall conform to the requirements of AASHTO M-31 or M-53, Grade 60.
- Bars indicated thus 12x4-#5 etc. indicates 12 lines of bars with 4 lengths per line.
- Nonmetallic water seal used in the wingwall joints shall extend from the top of the footing to within 6" of the top of the headwall.
- For backfilling and embankment, see Standard Specifications.
- Expansion Bolts shall consist of self-drilling expansion shields and hooked bolts. Hooked Bolts shall extend a minimum of 9" into new concrete.
- 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.
- All construction joints shall be bonded.

SPECIFICATION

1996 AASHTO with 1997, 1998, 1999, 2000 and 2002 Interims

DESIGN STRESSES

$f_y = 60,000$  psi  
 $f_c = 3,500$  psi

LOADING HS 20-44

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION  
**CAST-IN-PLACE BOX CULVERT EXTENSION DETAILS**  
 @ STA. 900+43.11 RT.  
 SHEET 2 OF 2  
 DATE 8/02  
 DRAWN BY ASB  
 CHECKED BY SJK