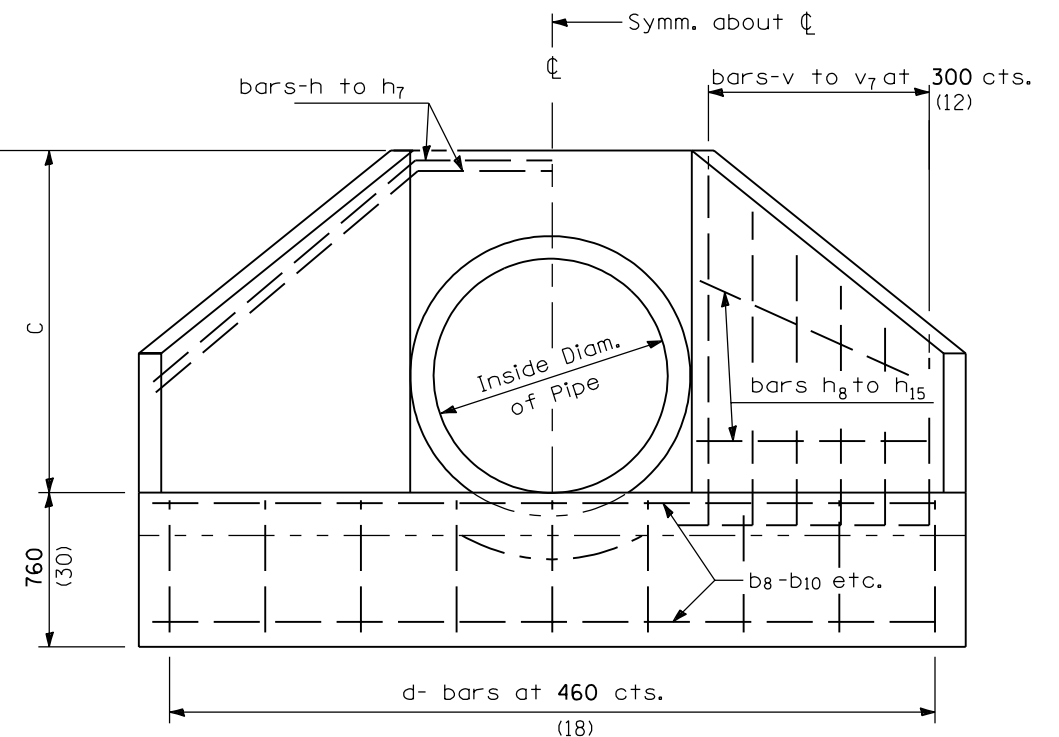
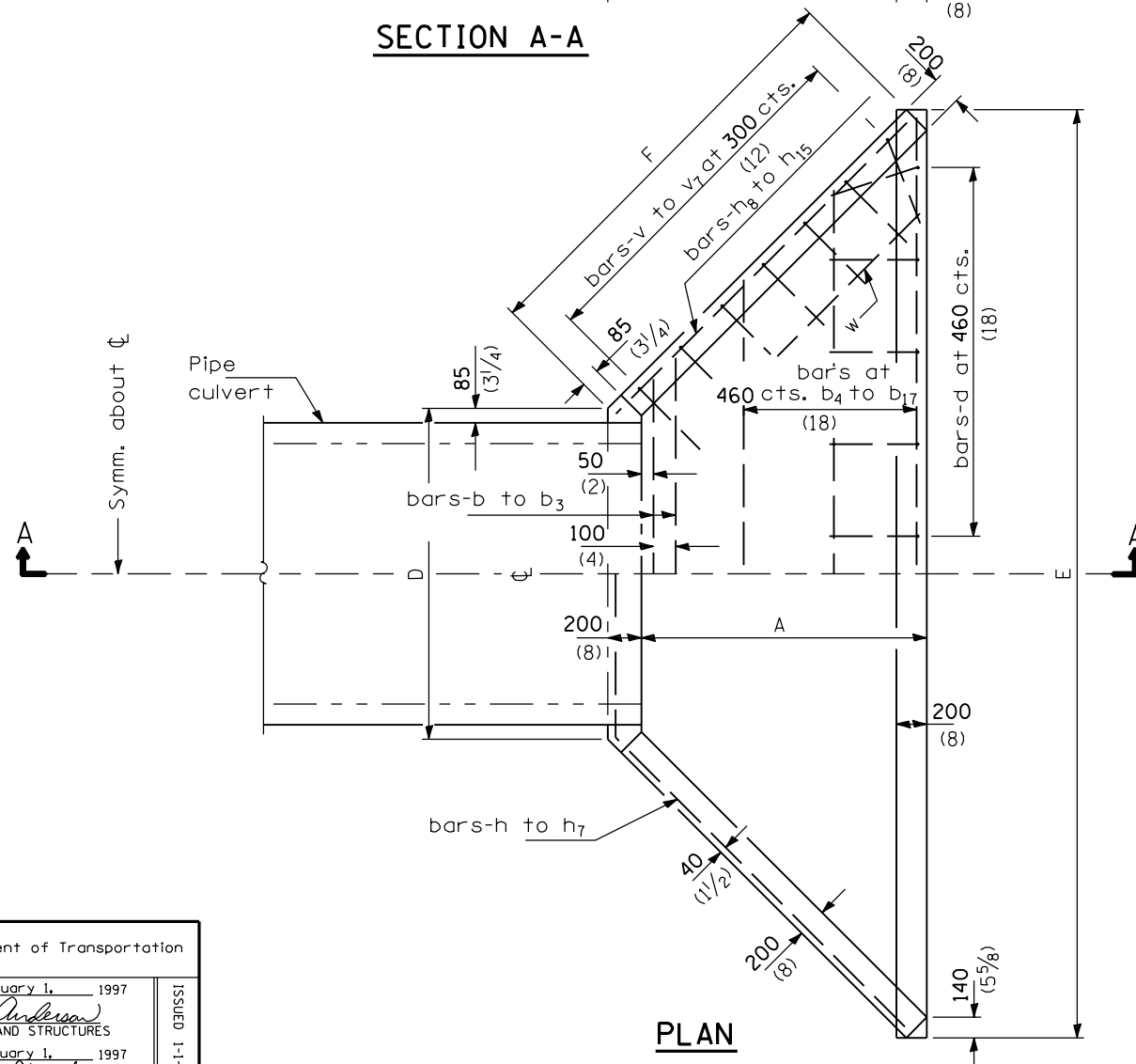


SECTION A-A



END ELEVATION



PLAN

GENERAL NOTES

* If embankment slope above headwall is flatter than 1:2, provide wings for 1:2 slope.

All slope ratios are expressed as units of vertical displacement to units of horizontal displacement (V:H).

All dimensions are in millimeters (inches) unless otherwise shown.

DATE	REVISIONS
1-1-97	Renum. Standard 1997-1.
6-15-94	Added metric and added slope note.

REINFORCED CONCRETE END SECTIONS FOR PIPE CULVERT
1050 mm (42") THRU 1500 mm (60") DIA.
AT RIGHT ANGLES WITH ROADWAY
 (Sheet 1 of 2)

STANDARD 542106

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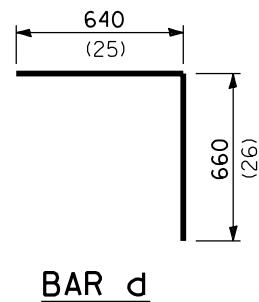
APPROVED January 1, 1997
Ralph E. Anderson
 ENGINEER OF BRIDGES AND STRUCTURES

APPROVED January 1, 1997
Ray Stoddard
 ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-97

SIZES OF STRAIGHT BARS

BARS	SIZE	LENGTH	BARS	SIZE	LENGTH
b	No. 15 (No. 5)	1.9 m (6'-3")	b ₁₃	No. 15 (No. 4)	4.57 m (15'-0")
b ₁	No. 15 (No. 5)	2.06 m (6'-9")	b ₁₄	No. 15 (No. 4)	4.72 m (15'-6")
b ₂	No. 15 (No. 5)	2.21 m (7'-3")	b ₁₅	No. 15 (No. 4)	5.03 m (16'-6")
b ₃	No. 15 (No. 5)	2.44 m (8'-0")	b ₁₆	No. 15 (No. 4)	5.18 m (17'-0")
b ₄	No. 15 (No. 4)	2.51 m (8'-3")	b ₁₇	No. 15 (No. 4)	5.79 m (19'-0")
b ₅	No. 15 (No. 4)	2.74 m (9'-0")	h ₈	No. 15 (No. 4)	1.45 m (4'-9")
b ₆	No. 15 (No. 4)	3.05 m (10'-0")	h ₉	No. 15 (No. 4)	1.9 m (6'-3")
b ₇	No. 15 (No. 4)	3.2 m (10'-6")	h ₁₀	No. 15 (No. 4)	1.6 m (5'-3")
b ₈	No. 15 (No. 5)	3.43 m (11'-3")	h ₁₁	No. 15 (No. 4)	2.2 m (7'-3")
b ₉	No. 15 (No. 5)	3.66 m (12'-0")	h ₁₂	No. 15 (No. 4)	1.83 m (6'-0")
b ₁₀	No. 15 (No. 4)	3.96 m (13'-0")	h ₁₃	No. 15 (No. 4)	2.44 m (8'-0")
b ₁₁	No. 15 (No. 4)	4.11 m (13'-6")	h ₁₄	No. 15 (No. 4)	1.98 m (6'-6")
b ₁₂	No. 15 (No. 4)	4.34 m (14'-3")	h ₁₅	No. 15 (No. 4)	2.67 m (8'-9")
			w	No. 15 (No. 4)	1.22 m (4'-0")

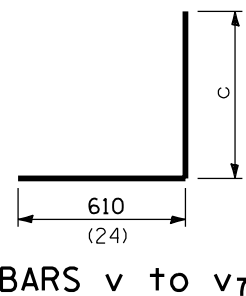


BARS IN ONE END SECTION

1050 Pipe (42)				1200 Pipe (48)				1350 Pipe (54)				1500 Pipe (60)			
D1.05 -1/2 (D42-1/2)		D1.05 -2 (D42-2)		D1.2 -1/2 (D48-1/2)		D1.2 -2 (D48-2)		D1.35 -1/2 (D54-1/2)		D1.35 -2 (D54-2)		D1.5 -1/2 (D60-1/2)		D1.5 -2 (D60-2)	
BARS	No.	BARS	No.	BARS	No.	BARS	No.	BARS	No.	BARS	No.	BARS	No.	BARS	No.
d	8	d	9	d	9	d	10	d	10	d	12	d	11	d	13
b	2	b	2	b ₁	2	b ₁	2	b ₂	2	b ₂	2	b ₃	2	b ₃	2
b ₅	1	b ₄	1	b ₇	1	b ₆	1	b ₅	1	b ₅	1	b ₇	1	b ₇	1
b ₈	2	b ₈	1	b ₁₀	2	b ₁₀	1	b ₉	1	b ₉	1	b ₁₁	1	b ₁₁	1
		b ₁₁	2			b ₁₄	2	b ₁₂	2	b ₁₃	1	b ₁₄	2	b ₁₅	1
										b ₁₆	2			b ₁₇	2
h	2	h ₁	2	h ₂	2	h ₁	2	h ₄	2	h ₅	2	h ₆	2	h ₇	2
h ₈	4	h ₉	4	h ₁₀	4	h ₉	4	h ₁₂	4	h ₁₃	4	h ₁₄	4	h ₁₅	4
v ₃	2	v ₃	2	v ₂	2	v ₂	2	v ₁	2	v ₁	2	v	2	v	4
v ₄	2	v ₄	2	v ₃	2	v ₃	4	v ₂	2	v ₂	4	v ₁	2	v ₁	2
v ₅	2	v ₅	4	v ₄	2	v ₄	2	v ₃	2	v ₃	2	v ₂	2	v ₂	2
v ₆	2	v ₆	2	v ₅	2	v ₅	2	v ₄	2	v ₄	2	v ₃	2	v ₃	4
v ₇	2	v ₇	2	v ₆	2	v ₆	4	v ₅	2	v ₅	4	v ₄	2	v ₄	2
								v ₆	2	v ₆	2	v ₅	4	v ₅	4
w	2	w	2	w	2	w	2	w	2	w	2	w	2	w	2

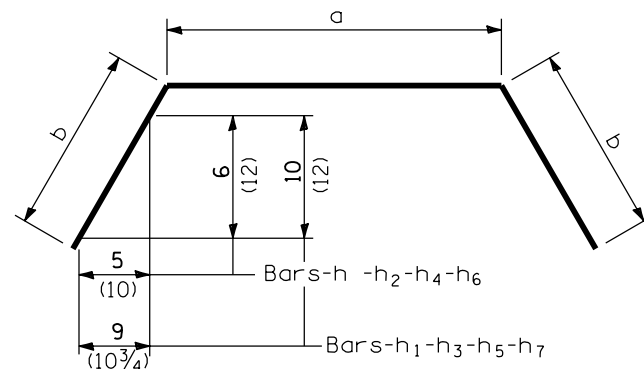
DIMENSIONS OF BENT BARS

No. 15-bars v to v ₇ (No. 5)			No. 15-bars h to h ₇ (No. 5)		
BARS	c	TOTAL LENGTH	BARS	a	TOTAL LENGTH
v	1.83 m (6'-0")	2.44 m (8'-0")	h	1.42 m (4'-8")	4.56 m (15'-0")
v ₁	1.68 m (5'-6")	2.29 m (7'-6")	h ₁	1.42 m (4'-8")	5.48 m (18'-0")
v ₂	1.52 m (5'-0")	2.13 m (7'-0")	h ₂	1.6 m (5'-3")	5.18 m (17'-0")
v ₃	1.37 m (4'-6")	1.98 m (6'-6")	h ₃	1.6 m (5'-3")	6.18 m (20'-3")
v ₄	1.22 m (4'-0")	1.83 m (6'-0")	h ₄	1.78 m (5'-10")	5.78 m (19'-0")
v ₅	1.07 m (3'-6")	1.68 m (5'-6")	h ₅	1.78 m (5'-10")	6.86 m (22'-6")
v ₆	920 (36)	1.53 m (5'-0")	h ₆	1.96 m (6'-5")	6.32 m (20'-9")
v ₇	610 (24)	1.22 m (4'-6")	h ₇	1.96 m (6'-5")	7.59 m (25'-0")



DIMENSIONS AND QUANTITIES

DESIGN NO.	NOMINAL INSIDE DIAM. of PIPE	SLOPE of FILL	DIMENSIONS						Concrete 2 End Secs. m ³ (cu. yds.)	Reinf. Bars 2 End Secs. kg (lbs.)
			A	B	C	D	E	F		
D1.05 -1/2 (D42-1/2)	1050 (42)	1:1/2	1.01 m (3'-4")	660 (26)	1.33 m (4'-4 1/2")	1.48 m (4'-10")	3.63 m (11'-10 1/2")	1.52 m (5'-0")	3.7 (4.8)	180 (330)
D1.05 -2 (D42-2)	1050 (42)	1:2	1.35 m (4'-5")	660 (26)	1.33 m (4'-4 1/2")	1.48 m (4'-10")	4.29 m (14'-0 1/2")	1.99 m (6'-6 1/4")	4.7 (6.2)	220 (400)
D1.2 -1/2 (D48-1/2)	1200 (48)	1:1/2	1.14 m (3'-9")	740 (29)	1.5 m (4'-11")	1.65 m (5'-5")	4.05 m (13'-3 1/2")	1.7 m (5'-7")	4.4 (5.8)	200 (360)
D1.2 -2 (D48-2)	1200 (48)	1:2	1.52 m (5'-0")	740 (29)	1.5 m (4'-11")	1.65 m (5'-5")	4.82 m (15'-9 1/2")	2.24 m (7'-4 1/4")	5.8 (7.6)	250 (460)
D1.35 -1/2 (D54-1/2)	1350 (54)	1:1/2	1.27 m (4'-2")	815 (32)	1.66 m (5'-5 1/2")	1.83 m (6'-0")	4.49 m (14'-8 1/2")	1.88 m (6'-2")	5.2 (6.8)	240 (430)
D1.35 -2 (D54-2)	1350 (54)	1:2	1.7 m (5'-7")	815 (32)	1.66 m (5'-5 1/2")	1.83 m (6'-0")	5.35 m (17'-6 1/2")	2.49 m (8'-2")	7.0 (9.2)	310 (550)
D1.5 -1/2 (D60-1/2)	1500 (60)	1:1/2	1.4 m (4'-7")	890 (35)	1.83 m (6'-0")	2.0 m (6'-7")	4.91 m (16'-1 1/2")	2.06 m (6'-9")	6.1 (8.0)	280 (490)
D1.5 -2 (D60-2)	1500 (60)	1:2	1.88 m (6'-2")	890 (35)	1.83 m (6'-0")	2.0 m (6'-7")	5.88 m (19'-3 1/2")	2.74 m (9'-0")	8.3 (10.8)	350 (630)



BARS - h to h₇

All dimensions are in millimeters (inches) unless otherwise shown.

REINFORCED CONCRETE END SECTIONS FOR PIPE CULVERT
1050 mm (42") THRU 1500 mm (60") DIA.
AT RIGHT ANGLES WITH ROADWAY
 (Sheet 2 of 2)

STANDARD 542106

Illinois Department of Transportation

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ISSUED 1-1-97