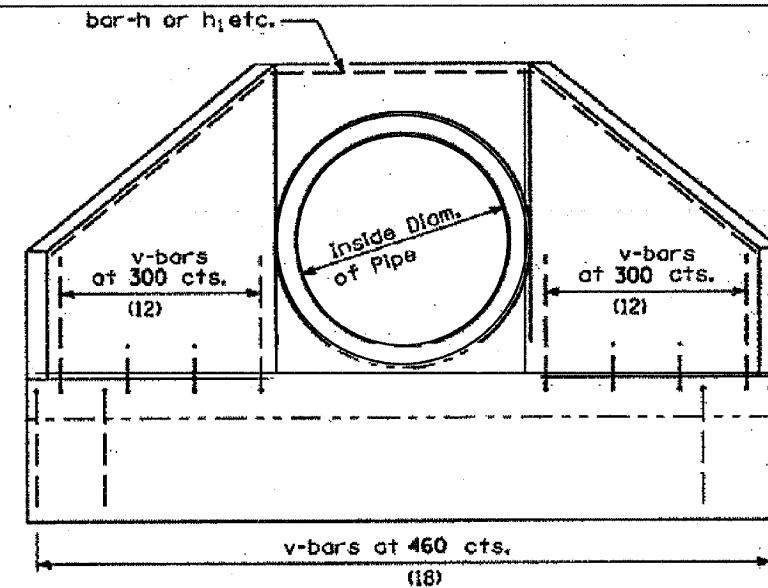


BILL OF MATERIAL

Design No.	Quantity
D15-2	2
D24-2	1

SECTION A-A

Mark	a	b
h	560 (22)	750 (29 1/2)
h ₁	560 (22)	980 (38 1/2)
h ₂	640 (25)	750 (29 1/2)
h ₃	640 (25)	980 (38 1/2)
h ₄	840 (33)	990 (39)
h ₅	840 (33)	1.26 m (4'-1 1/2")
h ₆	990 (39)	1.18 m (3'-10 1/2")
h ₇	990 (39)	1.50 m (4'-10 1/2")
h ₈	1.19 m (3'-11")	1.42 m (4'-8")
h ₉	1.19 m (3'-11")	1.77 m (5'-9 1/2")



END VIEW

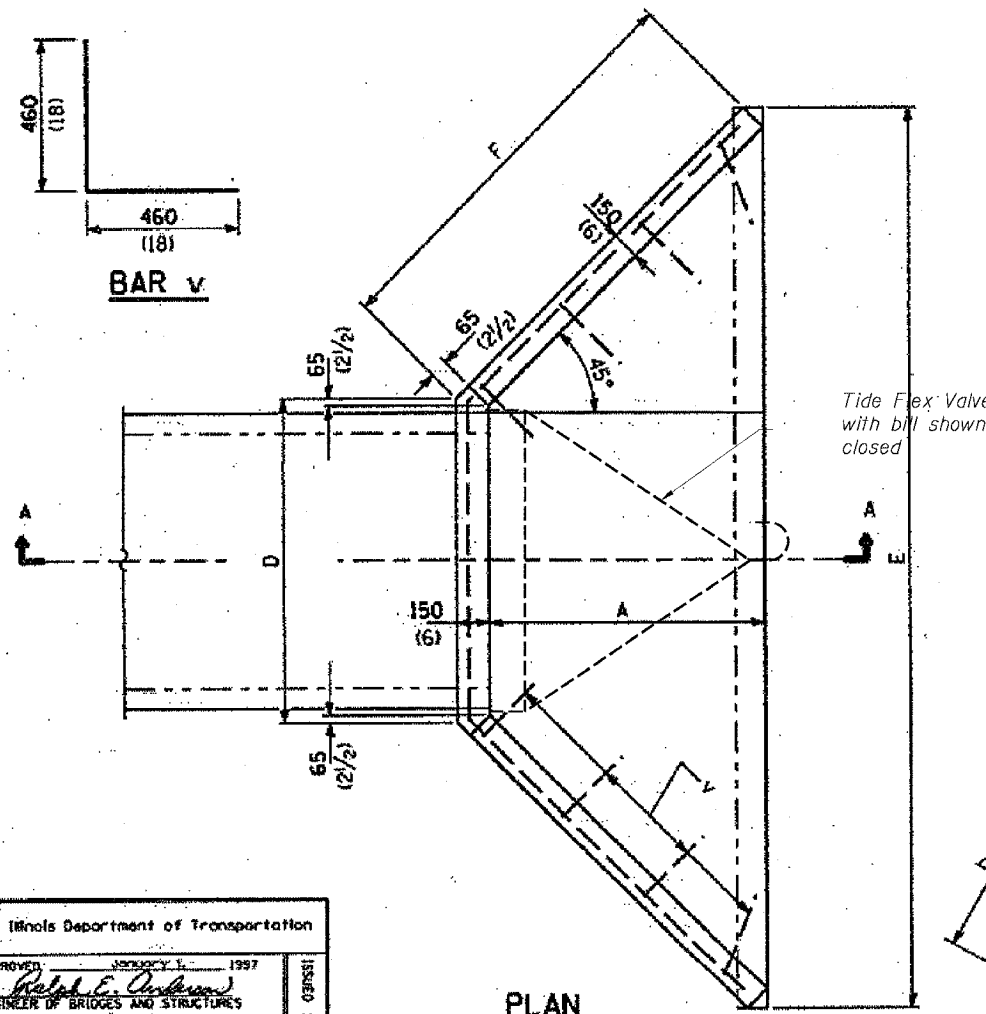
TABLE OF DIMENSIONS

DESIGN NO.	NOMINAL INSIDE DIAM. OF PIPE	SLOPE OF FILL	Dimensions						Concrete 2 End Secs. m ³ (cu. yds.)	Reinforcement Bars-No. 15 (No. 4)			
			A	B	C	D	E	F		h-Bars Mark	h-Bars Length	v-Bars No.	Total Wt. 2 End Secs. kg (lbs.)
D375-1/2 (D15-1/2)	375 (15)	1:1/2	485 (19)	260 (10)	590 (23)	610 (24)	1.67 m (5'-5 1/2")	750 (29 1/2)	0.7 (0.9)	h	2.06 m (6'-9")	16	30 (40)
D375-2 (D15-2)	375 (15)	1:2	660 (26)	260 (10)	590 (23)	610 (24)	2.02 m (6'-7 1/2")	1 m (3'-3 1/4")	0.9 (1.2)	h ₁	2.52 m (8'-3")	22	40 (60)
D450-1/2 (D18-1/2)	450 (18)	1:1/2	485 (19)	330 (13)	660 (26)	690 (27)	1.75 m (5'-8 1/2")	750 (29 1/2)	1.0 (1.3)	h ₂	2.14 m (7'-0")	16	30 (40)
D450-2 (D18-2)	450 (18)	1:2	660 (26)	330 (13)	660 (26)	690 (27)	2.11 m (6'-10 1/2")	1 m (3'-3 1/4")	1.0 (1.3)	h ₃	2.6 m (8'-6")	22	40 (60)
D600-1/2 (D24-1/2)	600 (24)	1:1/2	640 (25)	410 (16)	840 (33)	890 (35)	2.26 m (7'-4 1/2")	970 (38)	1.1 (1.5)	h ₄	2.82 m (9'-3")	22	40 (60)
D600-2 (D24-2)	600 (24)	1:2	865 (34)	410 (16)	840 (33)	890 (35)	2.72 m (8'-10 1/2")	1.29 m (4'-2 1/2")	1.5 (2.0)	h ₅	3.24 m (11'-0")	28	50 (70)
D750-1/2 (D30-1/2)	750 (30)	1:1/2	770 (30)	480 (19)	990 (39)	1.05 m (3'-5")	2.68 m (8'-8 1/2")	1.15 m (3'-9")	1.5 (2.0)	h ₆	3.39 m (11'-0")	28	50 (70)
D750-2 (D30-2)	750 (30)	1:2	1.01 m (3'-4")	480 (19)	990 (39)	1.05 m (3'-5")	3.17 m (10'-4 1/2")	1.5 m (4'-11")	2.0 (2.6)	h ₇	3.99 m (13'-0")	34	60 (80)
D900-1/2 (D36-1/2)	900 (36)	1:1/2	915 (36)	560 (22)	1.17 m (3'-10")	1.25 m (4'-1")	3.17 m (10'-4 1/2")	1.36 m (4'-5 1/2")	2.0 (2.6)	h ₈	4.03 m (13'-3")	30	60 (80)
D900-2 (D36-2)	900 (36)	1:2	1.22 m (4'-0")	560 (22)	1.17 m (3'-10")	1.25 m (4'-1")	3.78 m (12'-4 1/2")	1.79 m (5'-10 1/2")	2.7 (3.5)	h ₉	4.73 m (15'-6")	40	70 (100)

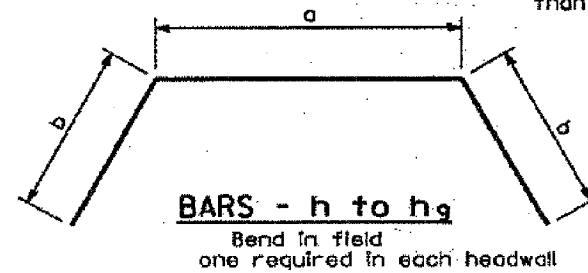
* If embankment slope above headwall is flatter than 1:2, provide wings for 1:2 slope.

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.



PLAN



BARS - h to h₉

Bend in field one required in each headwall

DATE	REVISIONS
1-1-97	Renum. Standard 1976-1.
6-15-94	Added slope note. Added Metric.

REINFORCED CONCRETE END SECTIONS FOR PIPE CULVERTS
375 mm (15") THRU 900 mm (36") DIA.
AT RIGHT ANGLES WITH ROADWAY

STANDARD 542101

REVISION	DATE	DESCRIPTION

Illinois Department of Transportation
APPROVED: [Signature] January 1, 1997
ENGINEER OF BRIDGES AND STRUCTURES
APPROVED: [Signature] January 1, 1997
ENGINEER OF DESIGN AND ENVIRONMENT

PLANS PREPARED BY:

CTE | AECOM

CTE
303 East Wacker Drive, Suite 600, Chicago, Illinois 60601-5276
T 312.938.0300 F 312.938.1109 www.cte.aecom.com

NOTES:

- All reinforcing bars epoxy coated.
- Concrete Headwalls will be paid for at the Contract unit price for each. Quantities shown on this Drawing are approximate.
- Tide Flex valves will not be paid for as part of the pay item for Concrete Headwalls, but will be paid for separately.

- At Contractor's option Precast Concrete Headwalls may be provided subject to submittal of calculations and Engineer Approval.