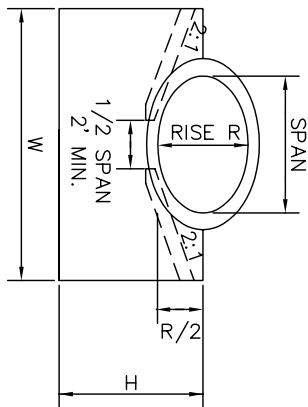
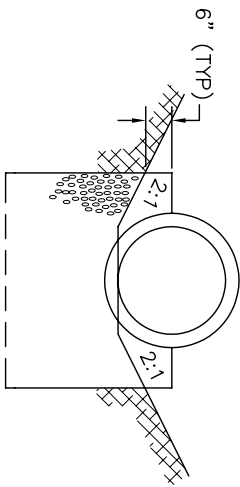


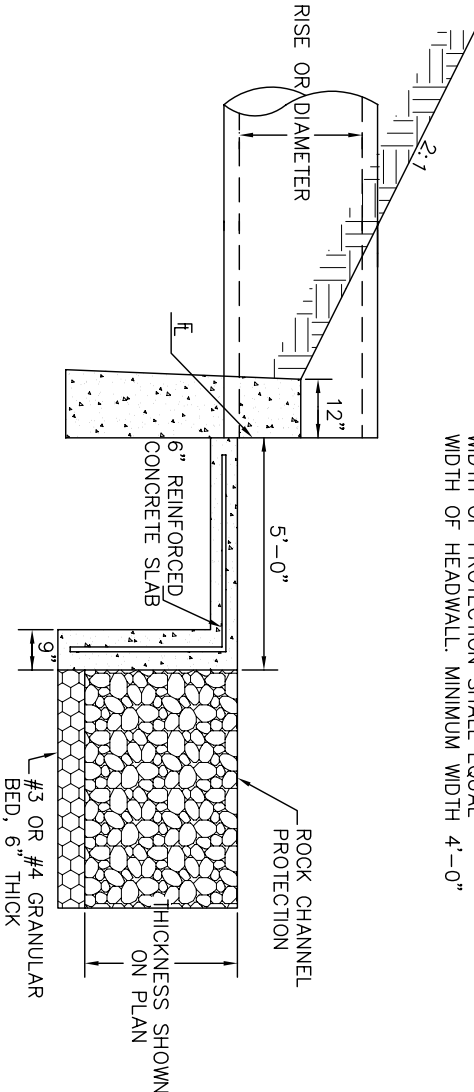
CIRCULAR



ELLIPTICAL



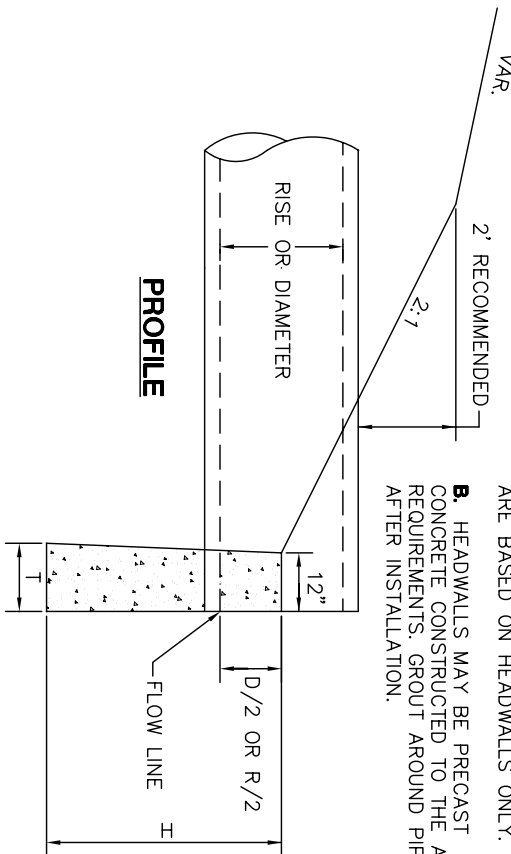
WIDTH OF PROTECTION SHALL EQUAL
WIDTH OF HEADWALL. MINIMUM WIDTH 4'-0"



OUTLET CHANNEL PROTECTION DETAIL

(CUTOFF WALL DEPTH 2'-6" MINIMUM IS VARIABLE TO MATCH REQUIRED THICKNESS OF ROCK.)

- NOTES**
- A. CONCRETE FOR HEADWALLS SHALL BE ODOT CLASS C. CONCRETE QUANTITIES ARE BASED ON HEADWALLS ONLY.
 - B. HEADWALLS MAY BE PRECAST CONCRETE CONSTRUCTED TO THE ABOVE REQUIREMENTS. GROUT AROUND PIPE AFTER INSTALLATION.



PROFILE

HEADWALL FOR CONCRETE PIPE

CIRCULAR				CONC.		ELLIPTICAL				CONC.	
D	W	H	T	C.Y.	SPAN	RISE	W	H	T	C.Y.	
12"	2'-0"	3'-0"	12"	.20	23"	14"	3'-0"	3'-2"	12"	.29	
15"	2'-6"	3'-2"	12"	.25	30"	19"	3'-7"	3'-4"	12"	.35	
18"	3'-0"	3'-3"	12"	.31	34"	22"	3'-11"	3'-5"	12"	.38	
21"	3'-6"	3'-4"	12"	.37	38"	24"	4'-6"	3'-6"	12"	.44	
24"	4'-0"	3'-6"	12"	.43	42"	27"	4'-8"	3'-7"	12"	.45	
27"	4'-6"	3'-8"	12"	.49	45"	29"	5'-2"	3'-8"	12"	.49	
30"	5'-0"	3'-9"	12"	.56	49"	32"	5'-5"	3'-10"	12"	.52	
33"	5'-6"	3'-10"	12"	.62	53"	34"	5'-11"	4'-0"	14"	.66	
36"	6'-0"	4'-0"	12"	.69	60"	38"	6'-10"	4'-2"	14"	.82	
39"	6'-6"	4'-2"	12"	.77	68"	43"	8'-0"	4'-4"	16"	1.01	
42"	7'-0"	4'-3"	12"	.84	76"	48"	9'-2"	5'-0"	16"	1.34	
48"	8'-0"	4'-6"	14"	1.09	83"	53"	10'-4"	5'-2"	18"	1.65	
54"	9'-3"	4'-9"	14"	1.32	91"	58"	11'-6"	5'-5"	18"	1.97	
60"	10'-6"	5'-6"	16"	1.93	98"	63"	12'-7"	5'-7"	20"	2.38	
66"	11'-9"	5'-9"	18"	2.42	106"	68"	13'-9"	5'-10"	20"	2.69	
72"	13'-0"	6'-0"	18"	2.77	113"	72"	14'-9"	6'-0"	22"	3.14	
78"	14'-3"	6'-3"	20"	3.37	121"	77"	15'-11"	6'-3"	22"	3.49	
84"	15'-6"	6'-6"	22"	4.05	128"	82"	17'-0"	6'-5"	24"	4.04	

VILLAGE OF

ADA



HALF-HEIGHT HEADWALL

REVISIONS:

AUG. 1999

DATE APPROVED:
MAY 1997
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