

PIPE CULVERT ENDS

REINFORCED CONCRETE PIPE

VITRIFIED SEWER PIPE ENCASED

NOTES

VITRIFIED SEWER PIPE ENCASED

CUT-OFF WALL for vitrified sewer pipe encased culverts shall be placed on each end of the culvert and of the dimensions as shown on the table.

CONCRETE shall be 1-5/2 mix.

ESTIMATED QUANTITIES:- The detail of each structure shall show the cut-off walls and the amount of rip-rap laid loose or grouted to be used on each structure. The excavation for the placing of the cut-off wall to be included in the excavation for the structure proper.

REINFORCED CONCRETE PIPE

CRADLE:- The length (L) of the cradle under reinforced concrete pipe culverts to be 10 feet for fills 15 feet and under over the top of the pipe measured from the center line grade; and for fills over 15 feet the length (L) of the cradle should equal the fill.

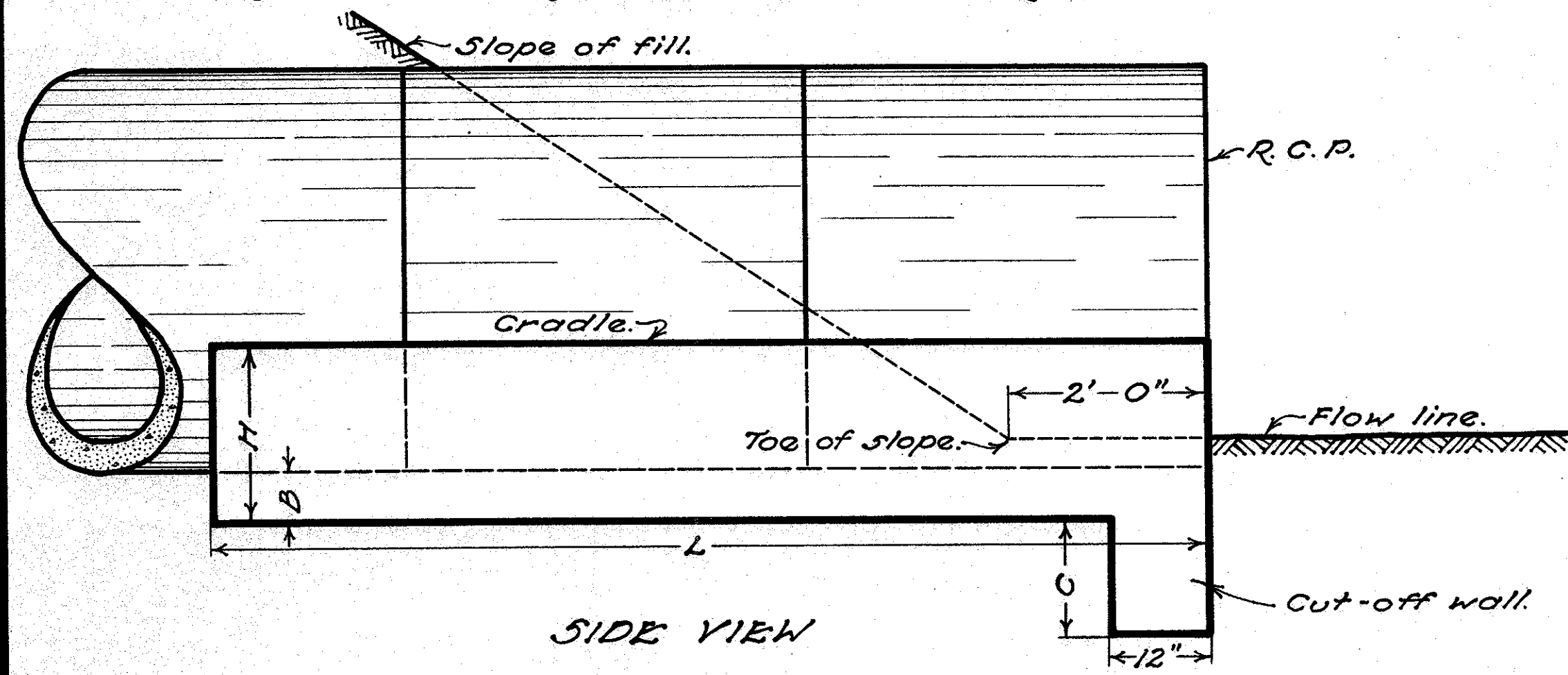
The length (L) of the cradle under the pipe culvert and the dimensions of the cut-off wall may be varied if deemed advisable by the Designing Engineer and shall be detailed on the Project Plans as a special design.

CUT-OFF WALL for reinforced concrete pipe culverts to be of the dimensions as shown on the table.

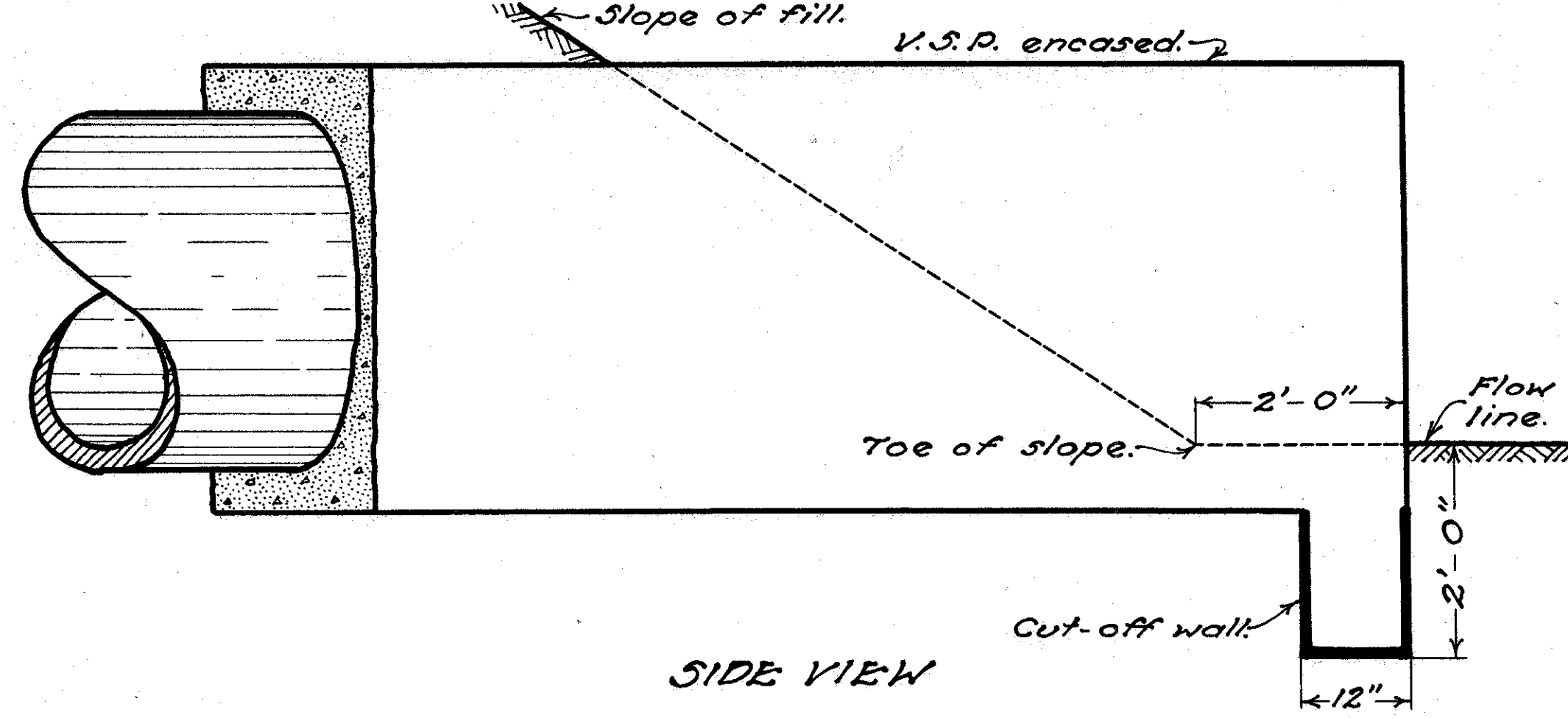
CONCRETE shall be 1-5/2 mix.

RIP-RAP may be placed on both inlet and outlet ends if deemed necessary. The engineer will determine the necessity and amount of rip-rap for each structure. Rip-rap may be composed of field boulders, quarried stone, broken concrete pavement, old paving brick or bagged concrete to be laid loose or grouted. May also include stream bed and slope rip-raping.

ESTIMATED QUANTITIES:- The detail of each structure shall show the cut-off walls, the length of the cradle and the amount of rip-rap laid loose or grouted to be used on each structure. The excavation for the placing of cut-off wall and cradle to be included in the excavation for the structure proper.

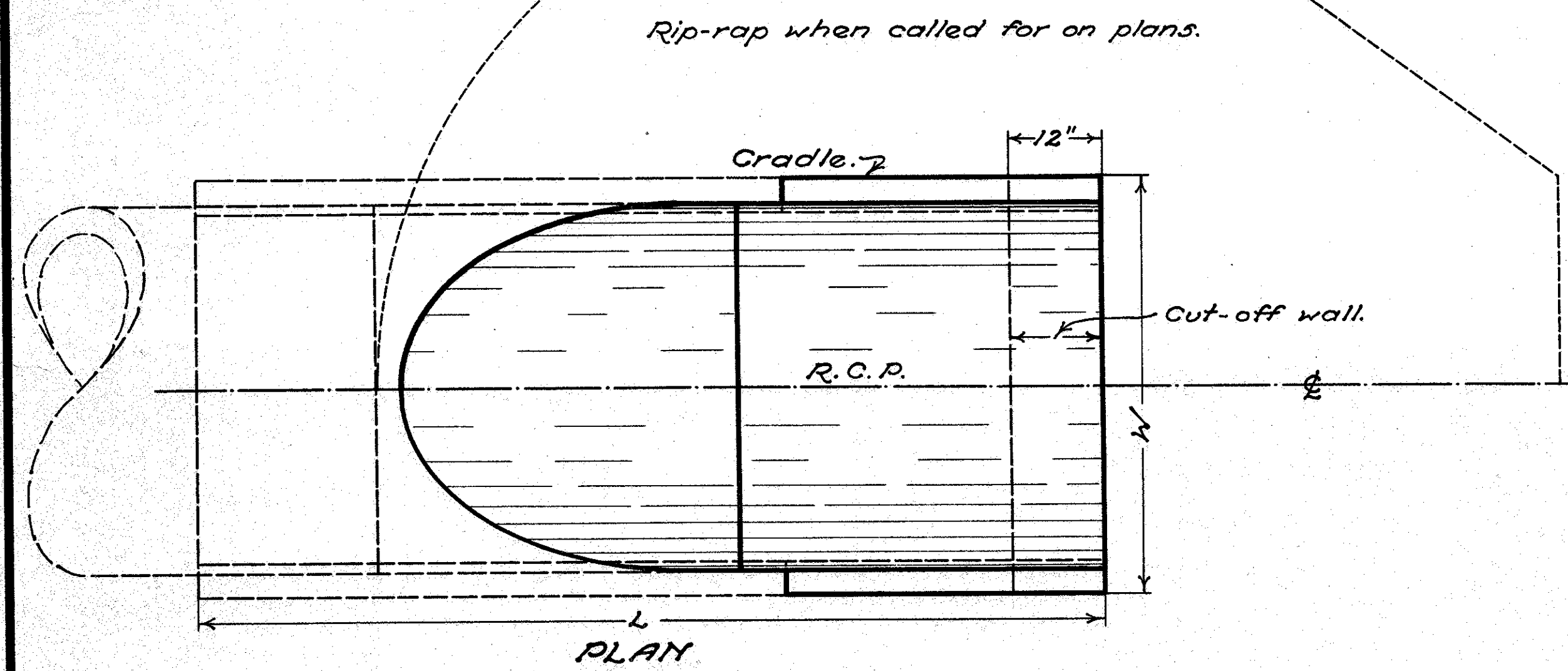


SIDE VIEW

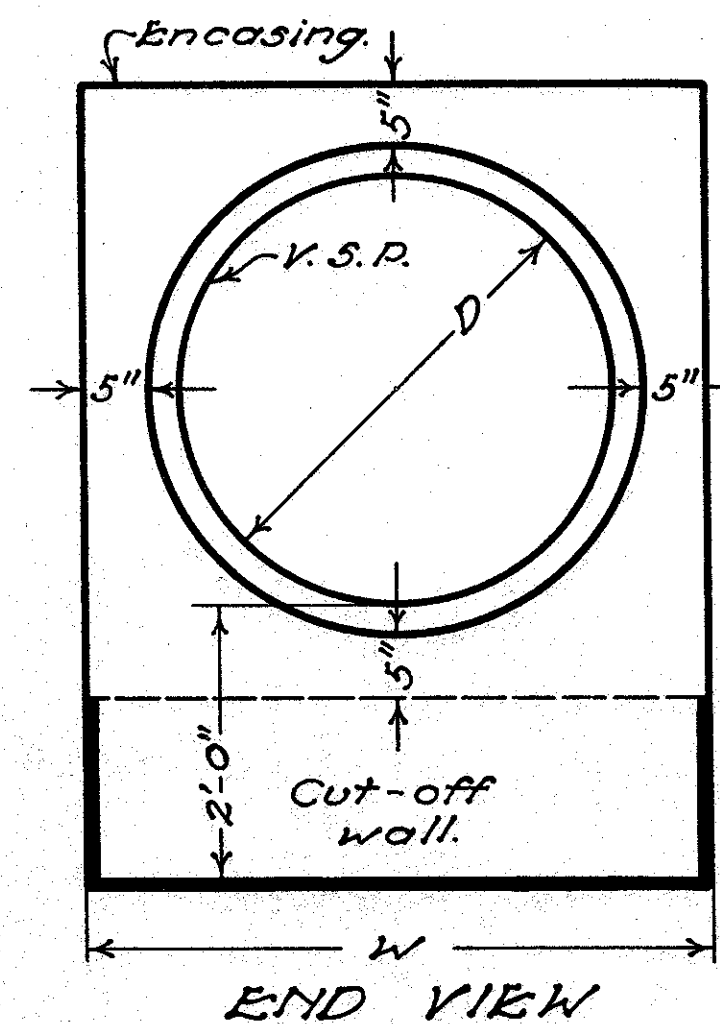


SIDE VIEW

For fills 15' and under L = 10'
For fills over 15' L = Fill.



PLAN



END VIEW

D	W	CU. YDS. 1-5/2 CONC. TWO CUT-OFF WALLS
12"	2'-0"	.2
15"	2'-3/4"	.3
18"	2'-6 1/2"	.3
21"	2'-10"	.3
24"	3'-1 1/4"	.3
27"	3'-5"	.4
30"	3'-8 1/4"	.4
33"	3'-11 1/2"	.4
36"	4'-3"	.4

D	B	C	H	W	CUBIC YARDS 1-5/2 CONCRETE	
					TWO CUT-OFF WALLS	PER LIN. FT. OF CRADLE
12"	6"	1'-4"	0'-11"	1'-10"	.2	.0476
15"	6"	1'-4"	1'-0"	2'-1"	.2	.0580
18"	6"	1'-4"	1'-2"	2'-5"	.2	.0801
24"	6"	1'-3"	1'-4"	2'-11"	.3	.0924
27"	6"	1'-3"	1'-5"	3'-3"	.3	.1044
30"	6"	1'-3"	1'-6"	3'-6"	.3	.1181
33"	6"	1'-3"	1'-7"	3'-10"	.3	.1323
36"	6"	1'-3"	1'-8"	4'-1"	.4	.1462
39"	6"	1'-3"	1'-9"	4'-4"	.4	.1606
42"	6"	2'-2"	1'-11"	4'-8"	.7	.1768
48"	6"	2'-2"	2'-1"	5'-3"	.8	.2110
54"	8"	1'-11"	2'-4"	5'-11"	.9	.2972
60"	8"	1'-11"	2'-9"	6'-6"	.9	.3398
66"	10"	1'-9"	3'-0"	7'-3"	.9	.4486
72"	10"	1'-8"	3'-2"	7'-10"	1.0	.4989
84"	10"	1'-7"	3'-6"	8'-11"	1.1	.6126

V. S. P. ENCASEMENT												
CU. YDS. CONCRETE PER LINEAL FOOT OF BARREL ENCASED												
LIN. FT.	SIZE OF PIPE											
	6"	8"	10"	12"	15"	18"	21"	24"	27"	30"	33"	36"
1	.066	.080	.094	.109	.131	.154	.181	.208	.238	.267	.296	.329
2	.132	.159	.188	.217	.262	.309	.362	.415	.476	.533	.592	.659
3	.198	.239	.281	.326	.393	.463	.543	.623	.715	.800	.889	.988
4	.264	.318	.375	.434	.524	.617	.724	.830	.953	1.067	1.185	1.318
5	.330	.398	.469	.543	.654	.772	.905	1.038	1.191	1.333	1.481	1.647
6	.395	.477	.563	.651	.785	.926	1.086	1.245	1.429	1.600	1.777	1.976
7	.461	.557	.656	.760	.916	1.081	1.267	1.453	1.668	1.867	2.074	2.306
8	.527	.636	.750	.868	1.047	1.235	1.448	1.660	1.906	2.133	2.370	2.635
9	.593	.716	.844	.977	1.178	1.389	1.629	1.868	2.144	2.400	2.666	2.965
10	.659	.796	.938	1.085	1.309	1.544	1.810	2.075	2.382	2.666	2.962	3.294
20	1.318	1.591	1.876	2.171	2.618	3.087	3.619	4.151	4.765	5.333	5.925	6.588
30	1.977	2.387	2.813	3.256	3.926	4.631	5.429	6.226	7.147	7.999	8.887	9.862
40	2.637	3.182	3.751	4.342	5.235	6.175	7.239	8.301	9.529	10.666	11.849	13.176
50	3.296	3.978	4.689	5.427	6.544	7.718	9.048	10.377	11.911	13.332	14.812	16.470

BUREAU OF LOCATION & DESIGN
OHIO DEPARTMENT OF HIGHWAYS

5-1934
4-20-36

PIPE CULVERT ENDS

STANDARD CONSTRUCTION S-27 P.C.2
DRAWING

APPROVED *K.L.V.* CHIEF ENGINEER