PC - 1

DIAMETER INCHES	AREA SQ. FT.	MAXIMUM HEIGHT OF COVER IN FEET				DIAMETER INCHES
		NONREINFORCED CONCRETE (STRENGTH) (SEE NOTE 4)	REINFORCED CONCRETE CLASS			
			III	IV	V	
12	0.8	14' (1800)	14'	19'	29'	12
15	1.2	14' (2125)	14'	19'	29'	15
18	1.8	14' (2400)	14'	20'	29'	18
21	2.4	13' (2700)	14'	20'	29'	21
24	3.1	13' (3000)	14'	20'	29'	24
27	4.0		14'	20'	29'	27
30	4.9		14'	20'	29'	30
33	5.9		14'	20'	29'	33
36	7.1		14'	20'	30'	36
42	9.6		14'	21'	30'	42
48	12.6		14'	21'	30'	48
54	15.9		14'	21'	30'	54
60	19.6		14'	21'	30'	60
66	23.8		14'	21'	30'	66
72	28.3		14'	21'	30'	72
78	33.2		14'	21'	30'	78
84	38.5		14'	21'	30'	84
90	44.4		14'	21'	30'	90
96	50.3		14'	21'	30'	96
102	56.7		14'	21'	30'	102
108	63.6		14'	21'	30'	108

NOTES:

1. COVER HEIGHTS INDICATED IN TABLES ARE FOR FINISHED CONSTRUCTION.
2. TO PROCTET PIPE DURING CONSTRUCTION, MINIMUM HEIGHTS OF COVER PRIOR TO ALLOWING CONSTRUCTION TRAFFIC TO CROSS INSTALLATION ARE TO BE ½ DIAMETER OR 3'0", WHICHEVER IS GREATER. THE COVER SHALL EXTEND THE FULL LENGTH OF THE PIPE. THE APPROACH FILL RAMP IS TO EXTEND A MINIMUM OF 10(DIAMETER + 36") ON EACH SIDE OF THE PIPE, OR TO THE INTERSECTION WITH A CUT.
3. STANDARD MINIMUM FINISHED HEIGHT OF COVER FOR ALL PIPES, EXCEPT THOSE UNDER ENTRANCES, SHALL BE 2.0' OR ½ DIAMETER, WHICHEVER IS GREATER. IN CASES IN WHICH THESE COVER HEIGHTS CANNOT BE ACHIEVED, AN ABSOLUTE MINIMUM FINISHED COVER HEIGHT OF 1.0' WILL BE ALLOWED ONLY IF ALL POSSIBLE MEANS TO OBTAIN THE STANDARD VALUE HAVE BEEN EXHAUSTED. THE MINIMUM FINISHED HEIGHT OF COVER FOR PIPES UNDER ENTRANCES IS 9".
4. CRUSHING STRENGTH (POUNDS PER LINEAR FOOT ULTIMATE STRENGTH)
5. FOR HEIGHT OF COVER GREATER THAN THAT SHOWN FOR CLASS V, A SPECIAL DESIGN CONCRETE PIPE IS REQUIRED.
6. NONREINFORCED PIPE TO BE USED ONLY UNDER ENTRANCES AND LOWER FUNCTIONAL CLASSIFICATION (LFC) ROADWAYS (SEE SHEET 17 OF 18).
7. SEE STANDARD PB-1 FOR PIPE BEDDING AND BACKFILL REQUIREMENTS.
8. PIPE WITH LESS THAN THE STANDARD MINIMUM COVER IS TO BE MINIMUM CLASS III REINFORCED.

SHEET 1 OF 18

SPECIFICATION REFERENCE: 302, 232

CONCRETE PIPE
HEIGHT OF COVER TABLE FOR H-20 LIVE LOAD

VIRGINIA DEPARTMENT OF TRANSPORTATION

REV. 7/05
107.05

PC-1

HORIZONTAL INSTALLATION (SPAN H, RISE I)			
EQUIVALENT ROUND SIZE INCHES	SPAN X RISE INCHES	MAX. HEIGHT OF COVER IN FEET CLASS HE - III	HE - IV
18	23 x 14	13'	21'
24	30 x 19	13'	21'
27	34 x 22	13'	21'
30	38 x 24	13'	21'
33	42 x 27	13'	21'
36	45 x 29	13'	21'
39	49 x 32	13'	21'
42	53 x 34	13'	21'
48	60 x 38	13'	21'
54	68 x 43	13'	21'
60	76 x 48	13'	21'
66	83 x 53	13'	21'
72	91 x 58	13'	21'
78	98 x 63	13'	21'
84	106 x 68	13'	21'

VERTICAL INSTALLATION (SPAN H, RISE I)			
SPAN X RISE INCHES	MAX. HEIGHT OF COVER IN FEET CLASS VE - III	VE - IV	VE - V
29 x 45	13	21	29
32 x 49	13	21	29
34 x 53	13	21	29
38 x 60	13	21	29
43 x 68	13	21	29
48 x 76	13	21	29
53 x 83	13	21	29
58 x 91	13	21	29
63 x 98	13	21	29
68 x 106	13	21	29

NOTES:

1. COVER HEIGHTS INDICATED IN TABLES ARE FOR FINISHED CONSTRUCTION.
2. TO PROTECT PIPE DURING CONSTRUCTION, MINIMUM HEIGHTS OF COVER PRIOR TO ALLOWING CONSTRUCTION TRAFFIC TO CROSS INSTALLATION ARE TO BE ½ SPAN OR 3', WHICHEVER IS GREATER. THE COVER SHALL EXTEND THE FULL LENGTH OF THE PIPE. THE APPROACH FILL RAMP IS TO EXTEND A MINIMUM OF 10(SPAN + 36") ON EACH SIDE OF THE PIPE OR TO THE INTERSECTION WITH A CUT.
3. STANDARD MINIMUM FINISHED HEIGHT OF COVER FOR ALL PIPES SHALL BE 2.0' OR ½ SPAN, WHICHEVER IS GREATER. IN CASES IN WHICH THESE COVER HEIGHTS CANNOT BE ACHIEVED, AN ABSOLUTE MINIMUM FINSHED COVER HEIGHT OF 1.0' WILL BE ALLOWED ONLY IF ALL POSSIBLE MEANS TO OBTAIN THE STANDARD VALUE HAVE BEEN EXHAUSTED. MINIMUM FINISHED HEIGHT OF COVER FOR PIPE UNDER ENTRANCES IS 9".
4. SEE STANDARD PB-1 FOR PIPE BEDDING AND BACKFILL REQUIREMENTS.

SHEET 2 OF 18

REINFORCED ELLIPTICAL CONCRETE PIPE
HEIGHT OF COVER TABLES FOR H-20 LIVE LOAD

VIRGINIA DEPARTMENT OF TRANSPORTATION

REV. 7/05
107.06

SPECIFICATION REFERENCE: 302, 232

NEW 7/05
SPECIAL DESIGN SECTION
DRAWING NO. A 166_1

PLAN NO. | PROJECT | FILE NO. | SHEET NO.

SURVEYED BY: ___
SUPERVISED BY: AAL
DESIGNED BY: BBD

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

VA. | REVISED | STATE | FEDERAL AID PROJECT | ROUTE | STATE PROJECT | SHEET NO.