

**REINFORCED CONCRETE HORIZONTAL ELLIPTICAL PIPE
HEIGHT OF COVER LIMITS (ft.)**

SPAN (in.)	RISE (in.)	AREA (sqft)	Strength Class/D-load Rating											
			Class HE-A: D _{0.01} = 800		Class HE-I: D _{0.01} = 800		Class HE-II: D _{0.01} = 1000		Class HE-III: D _{0.01} = 1350		Class HE-IV: D _{0.01} = 2000			
			MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.		
23	14	1.8	4.0	1.0	8.0	1.0	11.0	1.0	20.0	1.0	100.0			
30	19	3.3	5.0	1.0	7.0	1.0	10.0	1.0	16.0	1.0	47.0			
34	22	4.1	5.0	1.0	8.0	1.0	11.0	1.0	17.0	1.0	48.0			
38	24	5.1	5.0	1.0	8.0	1.0	11.0	1.0	18.0	1.0	49.0			
42	27	6.3	6.0	1.0	9.0	1.0	12.0	1.0	19.0	1.0	50.0			
45	29	7.4	6.0	1.0	9.0	1.0	12.0	1.0	19.0	1.0	45.0			
49	32	8.8	6.0	1.0	9.0	1.0	12.0	1.0	19.0	1.0	45.0			
53	34	10.2	6.0	1.0	9.0	1.0	12.0	1.0	20.0	1.0	44.0			
60	38	12.9	5.0	1.0	8.0	1.0	10.0	1.0	15.0	1.0	26.0			
68	43	16.6	6.0	1.0	8.0	1.0	10.0	1.0	15.0	1.0	27.0			
76	48	20.5	6.0	1.0	8.0	1.0	11.0	1.0	16.0	1.0	28.0			
83	53	24.8	6.0	1.0	9.0	1.0	11.0	1.0	16.0	1.0	29.0			
91	58	29.5	6.0	1.0	9.0	1.0	12.0	1.0	17.0	1.0	29.0			
98	63	34.6	6.0	1.1	9.0	1.1	12.0	1.1	17.0	1.1	29.0			
106	68	40.1	6.0	1.2	9.0	1.2	12.0	1.2	17.0	1.2	30.0			
113	72	46.1	7.0	1.2	9.0	1.2	12.0	1.2	18.0	1.2	30.0			
121	77	52.4	7.0	1.3	9.0	1.3	12.0	1.3	18.0	1.3	30.0			
128	82	59.2	7.0	1.4	10.0	1.4	13.0	1.4	18.0	1.4	30.0			
136	87	66.4	7.0	1.5	10.0	1.5	13.0	1.5	18.0	1.5	31.0			
143	92	74.0	7.0	1.5	10.0	1.5	13.0	1.5	18.0	1.5	31.0			
151	97	82.0	7.0	1.6	10.0	1.6	13.0	1.6	19.0	1.6	31.0			
166	106	99.2	7.0	1.7	10.0	1.7	13.0	1.7	19.0	1.7	31.0			
180	116	136.6	7.0	1.9	10.0	1.9	13.0	1.9	19.0	1.9	31.0			

NOTE:

- The tabulated cover depths shall be measured from the bottom of the asphalt or concrete pavement to the top of the pipe.

INDIANA DEPARTMENT OF TRANSPORTATION
PIPE HEIGHT OF COVER LIMITS
JANUARY 1996

STANDARD DRAWING NO. E 715-PHCL-23

DETAILS PLACED IN THIS FORM 11-15-59

L. UREKHOVICH
REGISTERED PROFESSIONAL ENGINEER
No. 18055
STATE OF INDIANA

/s/ F. Ross Zetler
CHIEF HIGHWAY ENGINEER
DATE 11-15-99
ORIGINALLY APPROVED 11-02-99