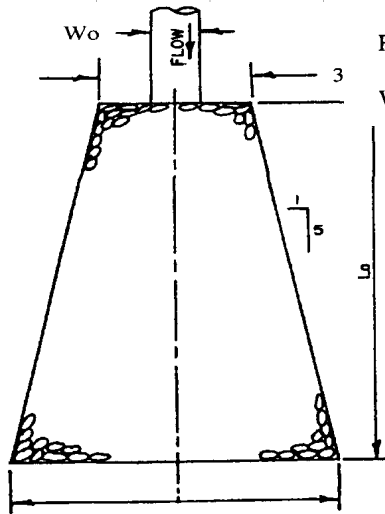


RIPRAP APRON DATA SHEET

PROJECT NAME:		Job #: 2047H
STORM FREQUENCIES:	25-Year	DATE: 11/17/2021
		BY: KH

OUTLET STRUCT.	YEAR STORM	Q (cfs)	PIPE HEIGHT (in)	PIPE WIDTH (in)	TAILWATER (ft)	La (ft)	W (beg) (ft)	W (end) (ft)	d50 (in)
HW-1	25	15.18	24	24	3.79	16.1	6.0	12.4	0.8
HW-2	25	35.88	36	36	3.79	20.7	9.0	17.3	1.4
HW-9	25	5.25	18	18	0.93	8.6	4.5	7.9	1.1
HW-7	25	4.35	15	15	0.93	9.3	3.8	7.5	1.1
CB-32	25	24.64	36	36	1.63	14.2	9.0	14.7	1.9



For tailwater elevation greater than or equal to the elevation of the center of the pipe,

$$W = 3 W_o + 0.4 L_a$$

$$L_a = 3 \frac{q}{D_o^{1/2}}$$

$$TW > \frac{1}{2} D_o$$

$$TW = 0.2 D_o$$

$$D_{50} = \frac{0.016}{T_w} q^{1.33}$$

where $q = Q/D_o$

$$W = 3 W_o + 0.4 L_a$$

(Tailwater $\geq 0.5 D_o$)