

# DETENTION POND CALCULATIONS

## GENERAL SUMMARY:

### I. TOTAL PREDEVELOPED RUNOFF WITHIN SQUABBLE CREEK BASIN:

PROPOSED DETENTION AREA = 7.82 AC.

### II. DETENTION AREA :

PREDEVELOPED TIME OF CONCENTRATION = 20 MIN.

C = .35  
 A = 17.295  
 I<sub>100</sub> = 8.3 in/hr  
 I<sub>25</sub> = 6.7 in/hr  
 I<sub>10</sub> = 5.9 in/hr

ALLOWABLE RELEASE RATE = PREDEVELOPED Q

Q allow 100 = (.35) (8.3) (17.295) = 50.24  
 Q allow 25 = (.35) (6.7) (17.295) = 40.56  
 Q allow 10 = (.35) (5.9) (17.295) = 35.71

REQUIRED STORAGE FOR POND :

Q = (.5) (17.295) i = 8.64 i

100 YR.	TIME	I <sub>100</sub>	Q in	Q out	Q acc	CUM. STRG.
	10	9.8	84.75	50.24	34.50	20,702
	15	9.0	77.83	50.24	27.59	24,827
	20	8.3	32.4	50.24	21.53	25,839*
	25	7.5	29.3	50.24	14.61	21,921

25 YR.	TIME	I <sub>25</sub>	Q in	Q out	Q acc	CUM. STRG.
	10	8.3	71.77	40.56	31.22	18,730
	15	8.0	69.18	40.56	28.62	11,700*
	20	6.7	57.94	40.56	17.38	9,480
	25	6.0	51.89	40.56	11.33	7,800

10 YR.	TIME	I <sub>10</sub>	Q in	Q out	Q acc	CUM. STRG.
	10	7.2	62.26	35.71	26.55	15,929
	15	6.5	56.21	35.71	20.49	18,445*
	20	5.8	50.16	35.71	14.44	17,330
	25	5.4	46.70	35.71	10.98	16,473

REQUIRED STORAGE FOR POND NO. 1:

100 YR = 25,839 cf  
 25 YR = 25,761 cf  
 10 YR = 18,445 cf

CAPACITY OF POND :

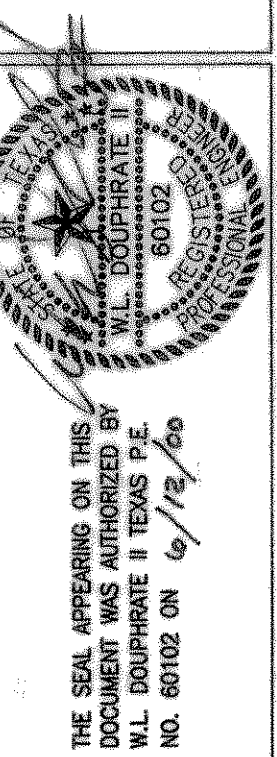
CONTOUR	CUM. STRG.
496	0
497	2,889.46
498	6,693.39
499	11,544.33
500	17,574.85
501	24,917.51
502	33,704.88

WITH 2' OF FREEBOARD, POND CAN DETAIN  
 33,705 ft<sup>3</sup>. REQUIRED VOLUME = 25,839 ft<sup>3</sup>

From	To	Length	Box Height	Width	Q100	Pipe Size (in)	V	Kj	R(ft.)	R <sup>2</sup> /3	Flow Area	S	HGL Rise	HGL Number	
<b>Line A</b>															
0+00.00	2+82.31	282.31			21.54	27	5.4174		0.5625	0.6814	3.9761	0.0048	1.3656	493.25	Starting
<b>Junction Loss</b>															
2+82.31	5+14.16	6.6			6.6	18	3.7348		0.3750	0.5200	1.7671	0.0039	0.9153	495.86	
<b>Line B</b>															
0+00	0+28.88	28.88			14.94	18	8.4543		0.3750	0.5200	1.7671	0.0202	0.5842	495.91	Starting
<b>Junction Loss</b>															
0+28.88	0+45.50	16.62			10.54	18	5.9644		0.3750	0.5200	1.7671	0.0101	0.1673	496.92	
<b>Junction Loss</b>															
0+45.50	1+21.35	75.85			5.4	18	3.0558		0.3750	0.5200	1.7671	0.0026	0.2004	497.58	
<b>Junction Loss</b>															
1+21.35	1+73.72	52.37			3.5	18	1.9806		0.3750	0.5200	1.7671	0.0011	0.0581	497.75	
<b>Line C</b>															
0+00	0+30.57	30.57			24.68	27	6.2071		0.5625	0.6814	3.9761	0.0064	0.1941	501.69	Starting
<b>Junction Loss</b>															
0+30.57	0+56.20	25.63			20.57	24	6.5476		0.5000	0.6300	3.1416	0.0083	0.2119	502.17	
<b>Junction Loss</b>															
0+56.20	0+82.86	26.66			15.17	24	4.8288		0.5000	0.6300	3.1416	0.0045	0.1199	502.78	
<b>Junction Loss</b>															
0+82.86	3+78.34	295.48			11.22	21	4.6647		0.4375	0.5763	2.4053	0.0050	1.4816	504.45	
<b>Line D</b>															
0+00	3+55.77	355.77			15.88	18	8.9862		0.3750	0.5200	1.7671	0.0229	8.1308	509.63	Starting
<b>Junction Loss</b>															
3+55.77	3+73.35	17.58			8.92	18	5.0477		0.3750	0.5200	1.7671	0.0072	0.1268	510.77	

## RECORD DRAWINGS:

THE INTENT OF THE OWNER AND ENGINEER WAS TO CONSTRUCT THESE FACILITIES ACCORDING TO THESE PLANS AS APPROVED BY THE CITY OF \_\_\_\_\_ THE LINES AND GRADES WERE SET ON THE GROUND FOR CONSTRUCTION ACCORDING TO SAID PLANS. THE CITY OF \_\_\_\_\_ INSPECTED THE CONSTRUCTION. THE OWNER NOR ENGINEER DID NOT VERIFY LINES OR GRADES AFTER CONSTRUCTION. WE ARE NOT AWARE OF ANY CHANGES OR REVISIONS TO THESE PLANS DURING CONSTRUCTION EXCEPT AS NOTED



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DETENTION POND CALCULATIONS  
 CREEKSIDE VILLAGE, PHASE TWO  
 CITY OF ROCKWALL  
 COUNTY OF ROCKWALL

REVISION  
 W.L.D.  
 CHECKED  
 A.J.W.  
 DRAWN  
 5/4/2000  
 DATE  
 9960CHARTS  
 PROJECT