

HOJA DE CALCULO				PROYECTO										CRITERIO DE DISEÑO										F.O.B.			
HERNANDO GONZALEZ HURTADO				ALCANTARILLADO SANITARIO Y PLUVIAL Y RED DE										METODO RACIONAL - Q = CIA										CALCULO:			
INGENIERO CONSULTOR				ACUEDUCTO DE LA URBANIZACION CHIPICHAPE										C = 0.26 CERRO ALEDAÑO										REVISOR			
CALI, VALLE				ALCANTARILLADO PLUVIAL										C = 0.48 - URBANIZACION										FECHA			
														CURVA DE LLUVIAS DE CALI f = 5 años										I-7-70			
														FORMULA DE MANNING n = 0.013										HOJA No. 1 DE 2			
TRAMO	CAMARAS		UBICACION	LONGITUD MTS	AREAS TRIBUTARIAS (HECTAREAS)			COEFICIENTE DE ESCORRENTIA	TIEMPOS (MINUTOS)		INTENSIDAD DE LLUVIA LPS.-HA.	CAUDAL DE DISEÑO	Pendiente %	DIAMETRO O SECCION	CAPACIDAD LLENO	VELOCIDAD M.P.S.		COTAS METROS						CORTES MTS			
	INICIAL	FINAL			ATRAS	INCREMENTO	TOTAL		CONCENTRACION	RECORRIDO						LLENO	REAL	TERRENO		BATEA		RASANTE		INICIAL	FINAL		
																		INICIAL	FINAL	INICIAL	FINAL	INICIAL	FINAL				
1	2		50.0	0.21	0.21	0.45	6.0	0.6	296.8	280	9.0	10"	107.3	2.1	1.5	987.50	986.10	986.46	984.95	987.80	986.30	1.54	1.54				
2	3		100.30	0.21	0.58	0.79	0.45	6.6	4.0	291.2	103.5	1.5	12"	128.9	1.7		86.10	84.40	84.71	83.21	86.30	84.60	1.59	1.39			
3	4		70.0	0.79	0.48	1.27	0.45	7.6	0.6	282.5	161.5	1.5	12"	187.5	1.9		84.40	84.40	83.76	82.11	84.60	83.50	1.44	1.49			
4	5		65.0	1.27	0.36	1.63	0.45	8.2	0.5	277.6	203.5	1.3	14"	211.0	2.1		84.40	82.90	82.07	80.74	83.50	82.30	1.53	1.46			
5A	5		55.0	—	0.25	0.25	0.45	6.0		296.8	334	0.2	12"	45.2	0.6		81.40	82.90	80.95	80.84	82.30	82.30	1.55	1.45			
5	6		70.0	1.88	—	1.88	0.45	8.7	0.1	273.7	231.5	1.7	16"	251.5	2.2		82.90	82.50	80.74	80.71	82.30	82.15	1.56	1.54			
6A	6A		30.0	—	0.18	0.18	0.45	6.0	0.5	296.8	245	0.9	10"	58.4	1.2	1.0	82.90	82.50	81.32	81.25	82.90	82.50	1.38	1.35			
6A	6		43.0	0.18	0.23	0.41	0.45	6.5		292.1	53.9	0.9	10"	53.8	1.2		82.50	82.50	81.22	80.83	82.50	82.15	1.38	1.32			
6	C		132.0	2.29	—	2.29	0.45	8.8		272.3	261.2	1.7	16"	281.2	2.2		82.50		80.71	80.77	82.15		1.54				
7	8		42.0	2.01	0.21	2.22	0.26	16.6	0.3	275.8	364.4	2.3	12"	153.4	2.1		90.00	87.80	88.39	86.43	88.90	88.90	1.61	1.58			
8	9		42.0	2.22	0.25	2.47	0.26	16.9	0.3	274.4	143.9	2.3	12"	153.4	2.1		87.80	89.00	88.39	86.43	89.10	87.90	1.61	1.58			
9	10		20.0	2.47	0.11	2.58	0.26	17.2	0.2	273.0	149.6	2.4	12"	156.7	2.1		89.80	89.40	88.37	86.91	89.80	89.40	1.61	1.54			
10	11		24.0	4.04	0.15	4.19	0.26	17.4	0.2	272.0	261.8	2.4	14"	237.1	2.4		83.40	83.00	85.86	85.28	84.50	83.70	1.64	1.60			
11	12		26.59	4.19	0.16	4.35	0.26	17.6	0.2	271.1	260.0	2.3	16"	327.8	2.5	2.4	84.00	83.20	85.28	84.62	84.90	86.30	1.64	1.60			
12	13		55.80	4.35	0.05	4.40	0.45	17.9	0.2	270.2	436.0	2.5	18"	444.6	2.7		87.20	84.70	84.50	82.75	84.50	85.50	1.72	1.60			
2	12		66.10	—	0.27	0.27	0.45	6.0	0.6	296.8	35.5	1.5	10"	78.4	1.5		86.10	84.70	85.21	83.95	86.30	85.30	1.39	1.40			
13	14		49.70	4.67	0.43	5.10	0.45	18.0	0.7	219.8	504.0	1.15	24"	683.4	2.3	2.2	84.70	84.40	83.90	82.45	85.28	84.40	1.75	1.05			
14A	14		38.0	—	0.14	0.14	0.45	6.0		296.8	19.2	0.6	10"	48.0	0.7		84.25	84.40	82.98	82.75	84.40	84.40	1.47	1.55			
14	15		135.40	5.24	0.68	5.92	0.45	18.7	0.8	216.2	576.0	1.5	24"	784.5	2.7	2.6	84.40	81.40	82.40	80.80	84.40	82.80	2.00	1.34			
15A	15		92.20	—	0.26	0.26	0.45	6.0		296.8	34.6	0.4	10"	37.2	0.8		82.62	81.40	80.95	80.67	82.25	82.20	1.40	1.63			
15	C		8.80	6.18	—	6.18	0.45	19.5		212.8	57.0	—	20"		—		81.40		80.33	80.23	82.20		1.97	—			
14	16		67.20	—	0.26	0.26	0.45	6.0	0.9	296.8	34.8	1.5	10"	26.5	1.7	1.3	84.40	82.95	83.90	81.65	84.40	83.20	1.40	1.55			
16	17		68.0	0.26	0.36	0.62	0.45	6.9	0.7	288.5	77.2	0.7	12"	84.6	1.2		82.55	82.90	81.61	81.13	83.20	82.70	1.59	1.57			
17	15A		67.80	6.61	0.32	6.93	0.45	7.8	0.9	280.8	117.5	0.7	14"	158.0	1.3		82.30	82.60	81.08	80.60	82.70	82.35	1.62	1.75			
15B	15A		61.0	—	0.27	0.27	0.45	6.0		296.8	35.4	0.4	10"	37.2	0.8		82.68	82.62	80.94	80.70	82.46	82.25	1.46	1.65			
15A	C		8.60	1.20	—	1.20	0.45	8.7		273.7	147.6	—	16"		—		82.60		80.95	80.52	82.35		1.80	—			
18	19		115.0	0.07	0.53	1.67	0.26	13.6	1.0	241.4	104.8	2.0	12"	143.1	2.0	1.9	85.50	85.70	84.71	82.41	84.90	84.90	1.59	1.57			
19	20		36.70	1.92	0.20	2.12	0.45	14.6	0.1	235.9	225.0	2.2	14"	227.0	2.3		85.90	82.65	82.36	81.55	83.40	83.40	1.44	1.50			
20B	20A		65.0	—	0.36	0.36	0.45	6.0	0.8	296.8	47.7	1.3	10"	70.6	1.4		84.35	83.20	83.45	82.40	84.70	83.90	1.45	1.40			
20A	20		65.0	0.36	0.30	0.66	0.45	6.8		287.4	85.7	1.2	12"	110.8	1.5		83.20	82.95	82.38	81.60	83.80	83.05	1.43	1.45			
20	21		58.60	2.78	0.27	3.05	0.45	14.7		235.4	323.0	0.9	20"	372.7	1.8		82.55	82.65	81.40	80.87	83.05	82.50	1.65	1.63			
16	21		75.20	—	0.27	0.27	0.45	6.0		296.8	35.5	1.04	10"	63.2	1.2		82.90	82.65	81.90	81.12	83.20	82.50	1.30	1.38			
24	26		68.0	2.68	0.36	3.04	0.26	17.0	0.4	223.9	142.0	4.1	12"	142.0	2.8	2.6	84.90	82.70	85.45	82.91							

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HERNANDO GONZALEZ HURTADO INGENIERO CONSULTOR CALI, VALLE				ALCANTARILLADO SANITARIO Y PLUVIAL Y RED DE ACUEDUCTO DE LA URBANIZACION CHIPICHAPE										METODO RACIONAL - Q = CIA C = 0.26 CERRO ALEDAÑO C = 0.45 - URBANIZACION CURVA DE LLUVIAS DE CALI f = 5 años FORMULA DE MANNING n = 0.013				REVISO I-7-70 FECHA HOJA No DE				W.H.P.			
				ALCANTARILLADO PLUVIAL										DISEÑO											
TRAMO	CAMARAS		UBICACION	LONGITUD MTS	AREAS TRIBUTARIAS (HECTAREAS)			COEFICIENTE DE ESCORRENTIA	TIEMPOS (MINUTOS)		INTENSIDAD DE LLUVIA LPS.-HA.	CAUDAL DE DISEÑO	Pendiente %	DIAMETRO O SECCION	CAPACIDAD LLENO	VELOCIDAD M.P.S.		COTAS METROS						CORTES MTS	
	INICIAL	FINAL			ATRAS	INCREMENTO	TOTAL		CONCENTRACION	RECORRIDO						LLENO	REAL	TERRENO		BATEA		RASANTE		INICIAL	FINAL
																		INICIAL	FINAL	INICIAL	FINAL	INICIAL	FINAL		
82	C			50.0		0.47	0.47	0.45	6.0		276.8	63.0	0.4	12"	64.0	0.9		981.20	981.85	979.85	979.85	981.15	981.00	1.20	1.35
63	63			74.0		0.24	0.24	0.45	6.0	1.2	276.8	32.1	0.85	10"	57.0	1.1		82.93	82.70	81.73	81.10	82.90	82.40	1.17	1.30
68	68A			74.80	0.24	0.18	0.42	0.45	7.2	1.0	285.9	54.0	0.85	10"	57.0	1.1		82.70	82.80	81.07	80.44	82.40	81.85	1.33	1.41
66	68A			67.30		0.41	0.41	0.45	6.0		276.8	54.8	1.0	10"	62.0	1.2		82.85	82.60	81.13	80.44	82.50	81.85	1.39	1.39
68A	73			30.0	0.83	0.99	1.82	0.45	8.2	0.3	277.6	227.0	1.1	16"	226.7	1.3		82.80	81.65	80.29	79.76	81.85	81.60	1.26	1.34
73	73			65.0	1.82	0.31	2.13	0.45	8.5	0.5	275.7	264.0	1.5	16"	264.7	2.0		81.65	79.00	79.16	78.47	81.60	81.25	1.44	2.26
73	80			91.0	2.13	0.27	2.40	0.45	9.0	0.7	271.4	293.0	1.9	16"	286.0	2.3		79.00	77.00	76.77	76.25	81.25	79.60	2.25	2.34
80	81			34.0	2.40		2.40				243.0	14	16"	272.0	2.3			77.90	78.70	77.86	76.51	79.60	79.70	2.54	2.54
81A	81			93.0		0.52	0.52	0.45	6.0		276.8	64.5	2.2	10"	91.9	1.8		79.90	78.40	78.81	76.76	80.05	79.70	1.24	2.44
81	82			5.0	2.92		2.92	0.45	9.9		264.8	348.0	2.6	16"	348.6	2.7		78.75		76.55	76.42	79.70	79.61	0.12	1.19
73	74			55.0		0.46	0.46	0.45	6.0	0.6	296.8	61.5	2.1	10"	89.9	1.9		82.80	81.70	80.95	79.79	82.25	81.65	1.25	1.26
74B	74A			65.0		0.45	0.45	0.45	6.0	1.0	296.8	60.0	0.4	12"	64.0	0.9		82.35	82.80	80.00	79.76	81.25	81.15	1.25	1.27
74A	74			75.0	0.45	0.57	0.92	0.45	7.0	1.2	287.7	106.0	0.5	14"	103.2	1.1		82.80	81.70	79.73	79.25	81.15	81.05	1.42	1.70
74	75			48.00	1.27	0.09	1.36	0.45	8.2	0.5	277.6	170.0	1.3	14"	174.5	1.7		81.70	80.80	79.33	78.72	81.05	80.15	1.70	1.43
75	76			136.00	1.36	0.36	1.72	0.45	8.7	2.1	273.7	212.0	0.3	20"	215.1	1.1		80.30	81.40	78.51	78.16	80.15	81.20	1.58	3.04
76	77			156.70	1.72	0.52	2.24	0.45	10.8	1.9	258.6	261.0	0.5	20"	277.8	1.2		81.40	80.30	78.16	77.38	81.20	80.80	3.04	3.22
77B	77A			85.0		0.14	0.14	0.45	6.0	1.3	296.8	25.4	0.4	10"	39.2	0.8		80.80	80.35	79.70	79.36	81.00	80.80	1.00	1.44
77A	77			100.0	0.14	0.14	0.28	0.45	7.3		285.1	48.7	0.7	10"	51.3	1.0		80.30	80.28	79.34	78.51	80.80	80.60	1.49	1.94
77	77			35.0	2.62		2.62	0.45	12.7		246.6	281.0	0.6	20"	304.3	1.5				77.73	77.12	80.60	79.23	2.27	1.18
Total				766.70 m.A.																					