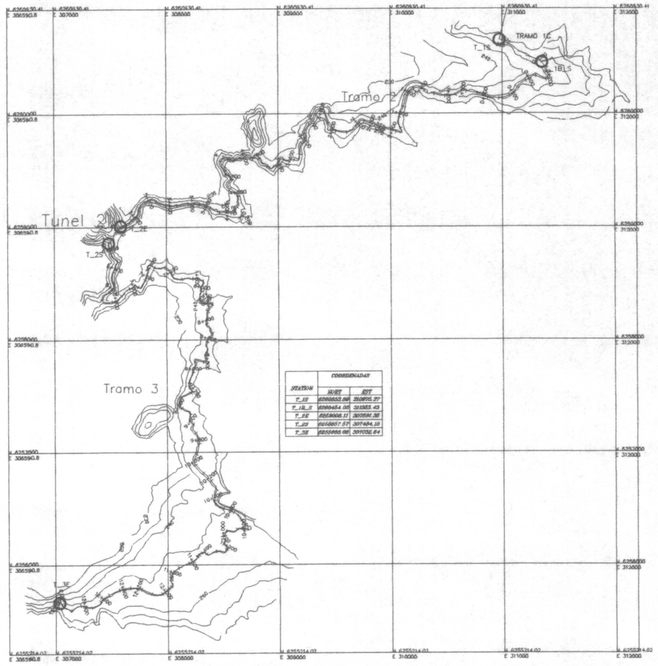
CAUDAL EN BOCATOMA Q = 22 m3/s

PLANTA GENERAL TRAMO 2 TUNEL 2 Y TRAMO 3

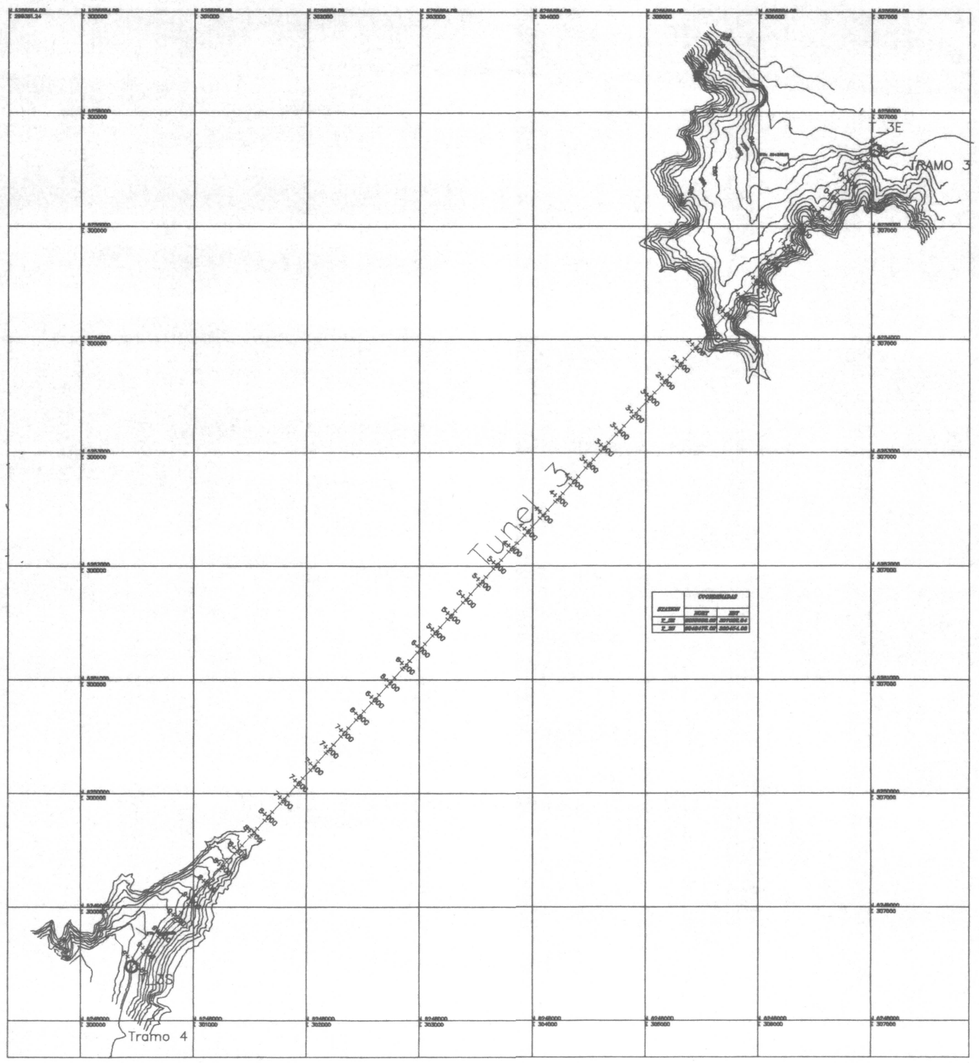
ESCALA 1:25000



CAUDAL EN BOCATOMA Q = 20 m3/s

PLANTA GENERAL TUNEL 3 Q=20m3/s

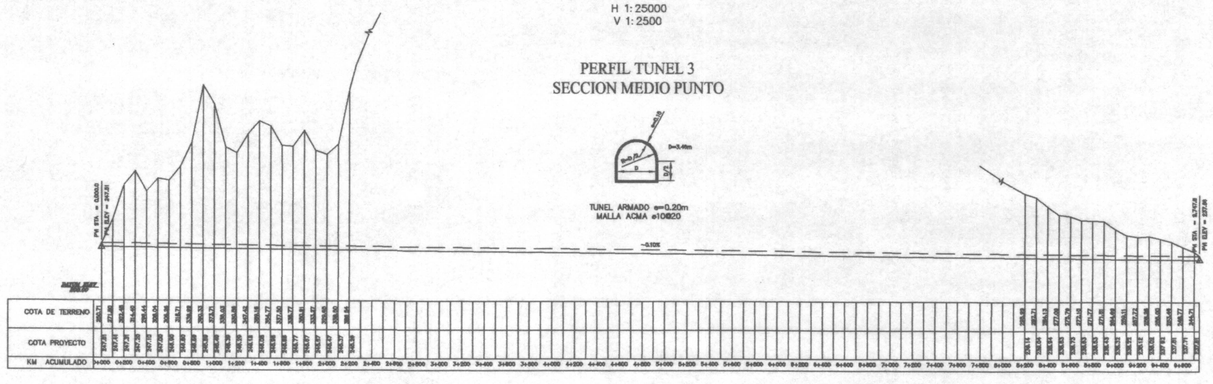
ESCALA 1: 25000



PERFIL LONGITUDINAL TUNEL 3 Q=20m3/s

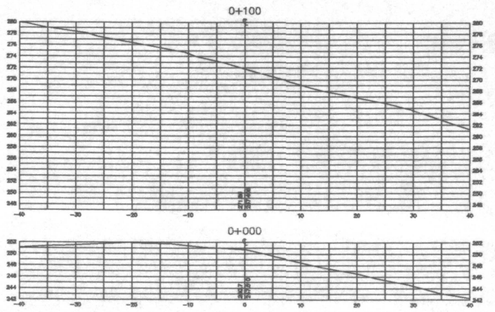
ESCALAS
H 1: 25000
V 1: 2500

PERFIL TUNEL 3
SECCION MEDIO PUNTO



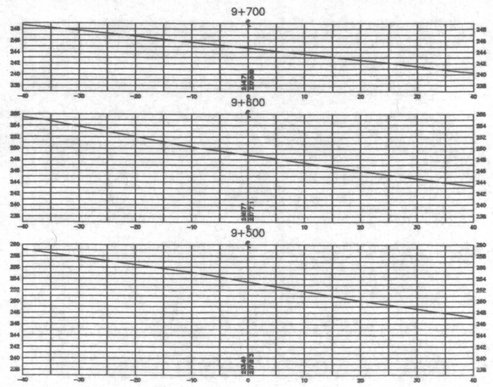
PERFILES TRANSVERSALES ENTRADA DEL TUNEL Q=20m3/s

ESCALAS
H 1: 500
V 1: 500



PERFILES TRANSVERSALES SALIDA DEL TUNEL Q=20m3/s

ESCALAS
H 1: 500
V 1: 500



GEOFUN LTDA.

REPUBLICA DE CHILE
COMISIÓN NACIONAL DE RIEGO
DEPARTAMENTO DE ESTUDIOS

ESTUDIO
ESTUDIO INTEGRAL DE OPTIMIZACIÓN DEL REGADÍO DE LA TERCERA SECCIÓN DEL RÍO MAIPO Y DE LOS VALLES YALI Y ALHUE

PLANO
PLANTAS, SECCIONES TIPOS, Y PERFILES TUNEL 3 Q(Bocatoma)=20m3/s

ESCALA: Indicadas

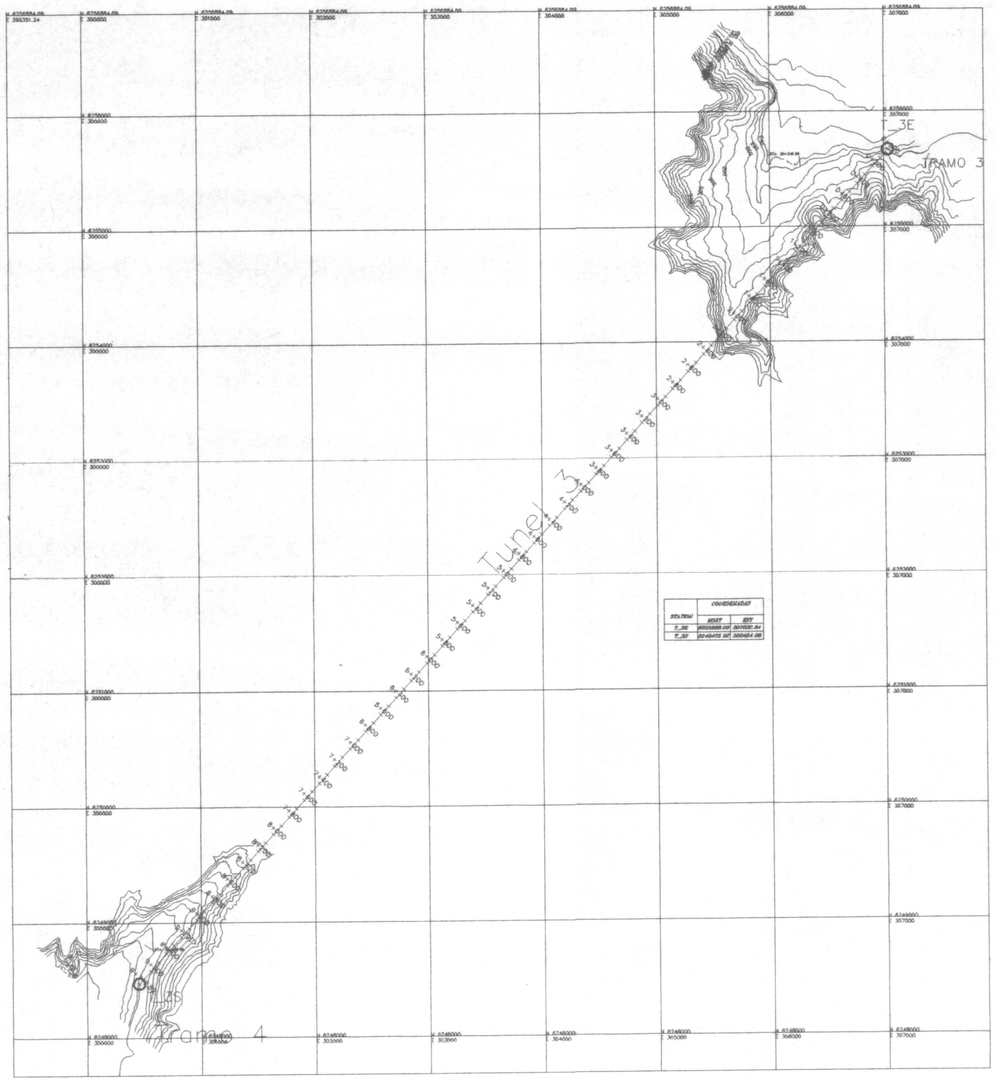
Nº 13.4.3-5

AGOSTO - 2001

CAUDAL EN BOCATOMA Q = 22 m3/s

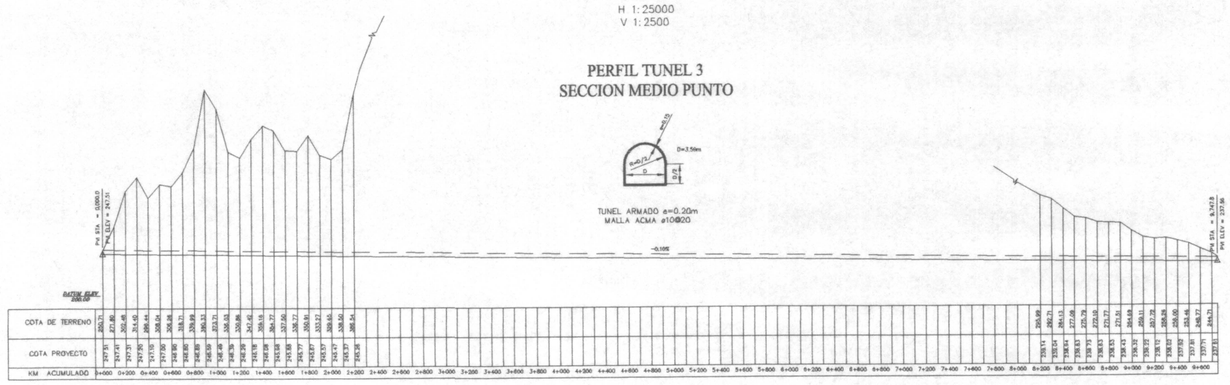
PLANTA GENERAL TUNEL 3 Q=22m3/s

ESCALA 1: 25000



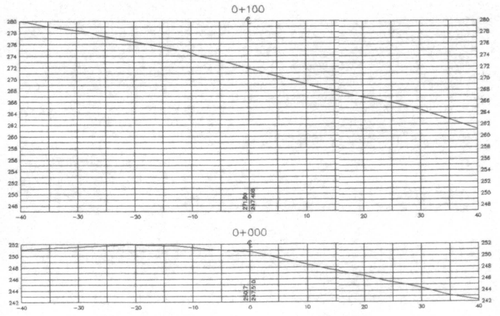
PERFIL LONGITUDINAL TUNEL 3 Q=22m3/s

ESCALAS
H 1: 25000
V 1: 2500



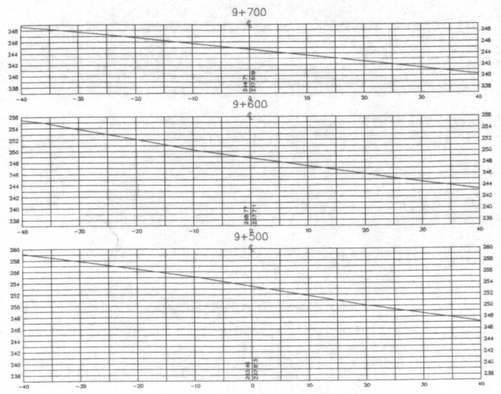
PERFILES TRANSVERSALES ENTRADA DEL TUNEL Q=22m3/s

ESCALAS
H 1: 500
V 1: 500



PERFILES TRANSVERSALES SALIDA DEL TUNEL Q=22m3/s

ESCALAS
H 1: 500
V 1: 500



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REPUBLICA DE CHILE
COMISIÓN NACIONAL DE RIEGO
DEPARTAMENTO DE ESTUDIOS

ESTUDIO
ESTUDIO INTEGRAL DE OPTIMIZACIÓN DEL REGADÍO DE LA TERCERA SECCIÓN DEL RÍO MAIPO Y DE LOS VALLES YALI Y ALHUE

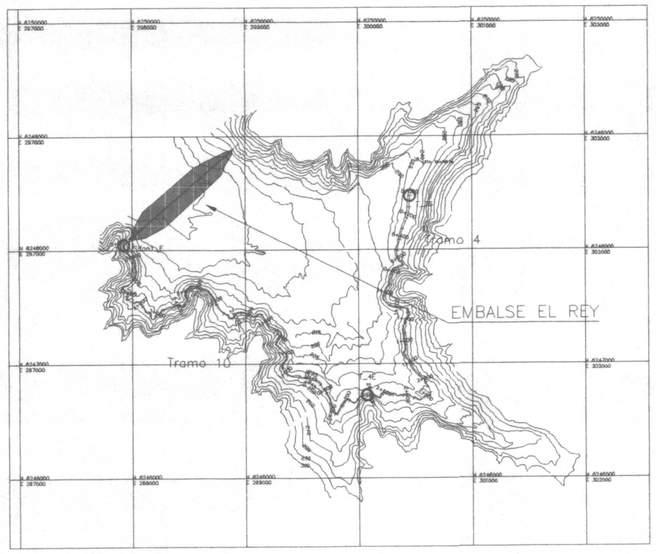
PLANO
PLANTAS, SECCIONES TIPOS, Y PERFILES TUNEL 3 Q(Bocatoma)=22m3/s

ESCALA: Indicadas | N° 13.4.3-6 | AGOSTO - 2001

CAUDAL EN BOCATOMA Q = 20 m3/s

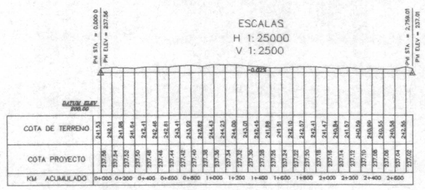
PLANTA GENERAL TRAMO 4 Y TRAMO 10 Q=2m3/s

ESCALA 1: 25000



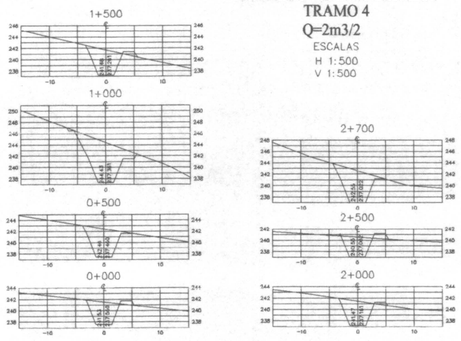
	COMIENZO/FIN
STATION	NORTE / ESTE
T_10	6246419.00 / 302444.00
T_42	6243979.42 / 3000000.00
S_3	6245648.98 / 297915.38

PERFIL LONGITUDINAL TRAMO 4 Q=2m3/s



PERFILES TRANSVERSALES TRAMO 4 Q=2m3/2

ESCALAS
H 1: 500
V 1: 500



CALCULO DE VOLUMENES TRAMO 4 Q=2m3/s

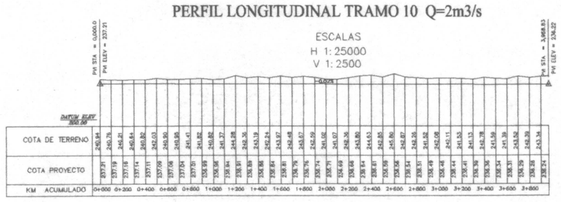
STATION	AREAS Square Meters CUT	AREAS Square Meters FILL	VOLUMES Cubic Meters CUT	VOLUMES Cubic Meters FILL	CUMULATIVE VOLUMES Cubic Meters CUT	CUMULATIVE VOLUMES Cubic Meters FILL
0+000	14.96	0.00	1768.84	0.00	1768.84	0.00
0+100	16.28	0.00	1883.63	0.00	3652.47	0.00
0+200	18.45	0.00	1724.65	0.00	5376.92	0.00
0+300	16.09	0.00	1880.87	0.00	7257.79	0.00
0+400	21.72	0.00	2201.33	0.00	9459.12	0.00
0+500	22.30	0.00	2383.35	0.00	11671.46	0.00
0+600	22.95	0.00	3647.78	0.00	14319.24	0.00
0+700	30.01	0.00	3288.24	0.00	17615.48	0.00
0+800	25.04	0.00	3247.67	0.00	20863.15	0.00
0+900	41.89	0.00	3246.57	0.00	24096.71	0.00
1+000	45.08	0.00	4088.58	0.00	28185.30	0.00
1+100	36.66	0.00	3685.91	0.00	31866.65	0.00
1+200	27.78	0.00	3374.18	0.00	35470.85	0.00
1+300	22.53	0.00	2515.92	0.00	37688.90	0.00
1+400	17.57	0.00	2004.45	0.00	39581.57	0.00
1+500	16.30	0.00	1693.17	0.00	41684.73	0.00
1+600	21.38	0.00	1877.53	0.00	43562.62	0.00
1+700	25.18	0.00	2322.14	0.00	45884.76	0.00
1+800	23.84	0.00	2450.32	0.00	48341.03	0.00
1+900	20.53	0.00	2053.75	0.00	50394.78	0.00
2+000	17.13	0.00	1927.76	0.00	51823.51	0.00
2+100	13.43	0.00	1616.06	0.00	53538.57	0.00
2+200	15.90	0.00	1537.55	0.00	55076.13	0.00
2+300	11.85	0.00	1394.04	0.00	56470.79	0.00
2+400	14.64	0.00	1303.17	0.00	57773.96	0.00
2+500	12.00	0.00	1322.09	0.00	59096.05	0.00
2+600	12.48	0.00	1225.72	0.00	60321.38	0.00
2+700	38.05	0.00	0.00	0.00	60321.38	0.00

PERFIL TIPO TRAMO 4 Q=2m3/2

ESCALA 1: 250

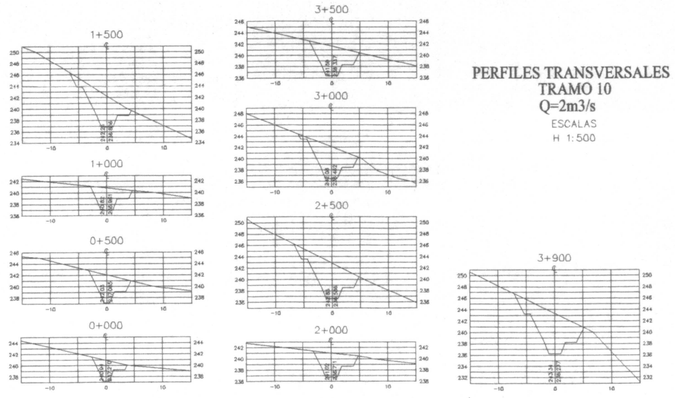
KM 0 – 2759

PERFIL LONGITUDINAL TRAMO 10 Q=2m3/s



PERFILES TRANSVERSALES TRAMO 10 Q=2m3/s

ESCALAS
H 1: 500



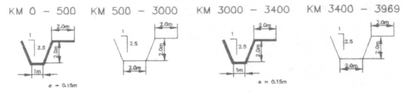
CALCULO DE VOLUMENES TRAMO 10 Q=2m3/s

STATION	AREAS Square Meters CUT	AREAS Square Meters FILL	VOLUMES Cubic Meters CUT	VOLUMES Cubic Meters FILL	CUMULATIVE VOLUMES Cubic Meters CUT	CUMULATIVE VOLUMES Cubic Meters FILL
0+000	11.87	0.00	1143.71	0.00	1143.71	0.00
0+100	11.00	0.00	987.28	0.00	2130.99	0.00
0+200	8.75	0.00	1006.31	0.00	3130.80	0.00
0+300	11.36	0.00	1157.14	0.00	4287.94	0.00
0+400	13.49	0.00	1627.54	0.00	5845.48	0.00
0+500	20.68	0.00	1847.30	0.00	7792.80	0.00
0+600	18.88	0.00	1721.44	0.00	9514.24	0.00
0+700	17.55	0.00	1632.41	0.00	11146.65	0.00
0+800	21.10	0.00	2387.12	0.00	13733.77	0.00
0+900	24.64	0.00	2281.49	0.00	15815.26	0.00
1+000	16.98	0.00	1972.46	0.00	17787.74	0.00
1+100	26.46	0.00	2492.88	0.00	20280.63	0.00
1+200	49.40	0.00	3639.14	0.00	23919.77	0.00
1+300	39.39	0.00	3539.83	0.00	27459.60	0.00
1+400	41.41	0.00	3618.12	0.00	31077.71	0.00
1+500	30.92	0.00	4279.24	0.00	35356.95	0.00
1+600	54.67	0.00	4217.68	0.00	39574.63	0.00
1+700	31.46	0.00	3908.52	0.00	43483.15	0.00
1+800	46.31	0.00	3885.80	0.00	47367.53	0.00
1+900	33.41	0.00	3997.92	0.00	51455.00	0.00
2+000	38.54	0.00	3997.46	0.00	55391.79	0.00
2+100	20.61	0.00	2910.57	0.00	58133.31	0.00
2+200	31.60	0.00	4135.48	0.00	60361.76	0.00
2+300	51.17	0.00	9643.75	0.00	69805.54	0.00
2+400	58.71	0.00	4630.86	0.00	70736.39	0.00
2+500	38.36	0.00	6098.95	0.00	76835.34	0.00
2+600	83.87	0.00	6471.92	0.00	83307.26	0.00
2+700	46.37	0.00	7427.11	0.00	87734.37	0.00
2+800	33.17	0.00	3988.27	0.00	90123.24	0.00
2+900	28.81	0.00	3830.96	0.00	93954.20	0.00
3+000	31.01	0.00	3942.82	0.00	97897.13	0.00
3+100	38.84	0.00	3373.38	0.00	99170.39	0.00
3+200	21.62	0.00	2013.99	0.00	100089.37	0.00
3+300	15.60	0.00	2561.88	0.00	102743.25	0.00
3+400	33.64	0.00	3009.97	0.00	105753.23	0.00
3+500	27.56	0.00	3673.37	0.00	109426.60	0.00
3+600	25.91	0.00	2772.66	0.00	112199.25	0.00
3+700	49.53	0.00	4453.44	0.00	116652.69	0.00
3+800	38.54	0.00	0.00	0.00	116652.69	0.00

PERFILES TIPO TRAMO 10 Q=2m3/s

ESCALA 1: 500

KM 0 – 500 KM 500 – 3000 KM 3000 – 3400 KM 3400 – 3969



GEOFUN LTDA.

REPUBLICA DE CHILE
COMISIÓN NACIONAL DE RIEGO
DEPARTAMENTO DE ESTUDIOS

ESTUDIO
ESTUDIO INTEGRAL DE OPTIMIZACIÓN DEL REGADÍO DE LA TERCERA SECCIÓN DEL RÍO MAIPO Y DE LOS VALLES YALI Y ALHUÉ

PLANO
PLANTAS, SECCIONES TIPOS, Y PERFILES TRAMO 4 Y TRAMO 10 Q(Bocatoma)=20m3/s

ESCALA: Indicadas

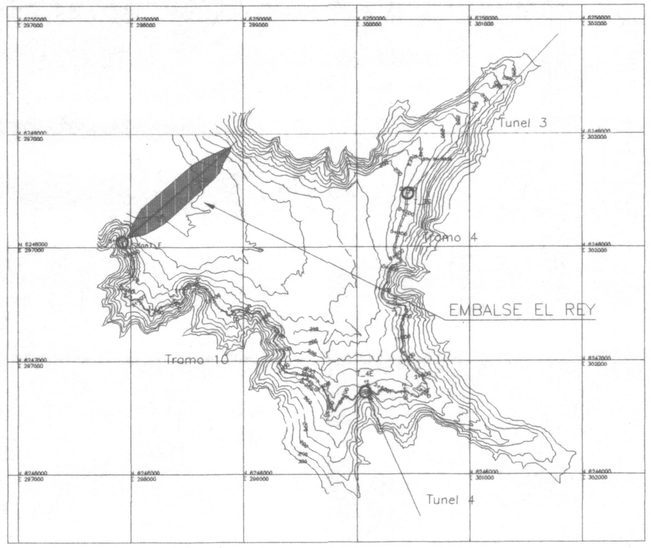
Nº 13.4.3-7

AGOSTO - 2001

CAUDAL EN BOCATOMA Q = 22 m3/s

PLANTA GENERAL TRAMO 4 Q=2m3/s Y TRAMO 10 Q=2m3/s

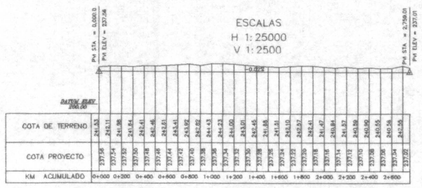
ESCALA 1: 25000



STA/TRAV	COORDENADAS	
	NORTE	ESTE
T_3S	6374470.00	3884454.69
T_4E	6374774.40	3886995.58
T_3	6374804.66	3879325.36

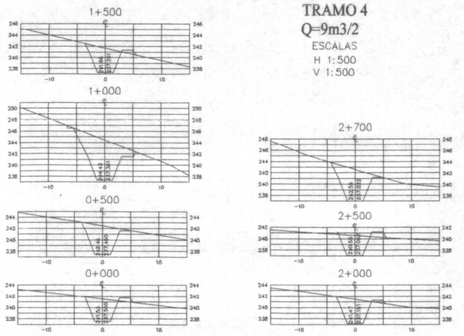
PERFIL LONGITUDINAL TRAMO 4 Q=9m3/s

ESCALAS
H 1: 25000
V 1: 2500



PERFILES TRANSVERSALES TRAMO 4 Q=9m3/2

ESCALAS
H 1: 500
V 1: 500



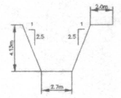
CALCULO DE VOLUMENES TRAMO 4 Q=9m3/s

STA/TRAV	AREAS Square Meters CUT	AREAS Square Meters FILL	VOLUMES Cubic Meters CUT	VOLUMES Cubic Meters FILL	CUMULATIVE VOLUMES Cubic Meters CUT	CUMULATIVE VOLUMES Cubic Meters FILL
0+000	17.67	1.47	3051.04	76.43	3051.01	76.43
0+100	23.73	0.06	3220.46	15.83	6241.42	93.25
0+300	71.66	0.15	364.97	66.66	6383.39	158.91
0+300	16.15	1.08	7388.68	54.15	8572.08	213.06
0+400	56.60	0.00	2302.68	0.00	11275.06	213.06
0+500	27.46	0.00	2672.79	38.18	14267.85	251.39
0+600	31.19	0.76	3542.95	38.18	17750.80	289.47
0+700	39.67	0.00	4413.25	5.00	3204+05	289.47
0+800	48.63	0.00	4345.87	67.63	36408.92	356.50
0+900	36.33	1.34	4818.18	67.63	71023.10	423.54
1+000	56.04	0.00	5402.07	5.00	3853+17	423.54
1+100	53.80	0.00	5501.80	13.63	47214.98	437.17
1+200	58.10	0.38	4891.98	13.93	68808.94	451.40
1+300	35.74	0.00	3355.61	70.44	50158.55	521.84
1+400	31.38	1.41	2700.68	146.76	51859.0+	668.64
1+500	22.78	1.53	2505.84	188.38	5564+88	857.02
1+600	21.24	3.24	2172.09	113.99	57430.07	971.01
1+700	26.12	0.04	2992.30	1.88	60330.38	972.87
1+800	31.72	0.00	3084.87	0.00	63425.05	972.87
1+900	38.17	0.00	3508.89	47.58	6391+.04	1020.56
2+000	36.85	0.95	1815.83	146.85	67791.86	1167.41
2+100	15.47	1.86	1844.58	99.38	69635.94	1266.67
2+200	21.41	0.00	1784.63	158.66	7+426.88	1425.33
2+300	14.29	3.16	1538.30	338.56	7249.08	1884.10
2+400	16.39	1.59	1526.89	333.67	74418.88	1857.76
2+500	14.32	3.68	1445.23	393.17	75824.10	2186.94
2+600	14.59	2.76	1446.36	139.46	78277.46	2338.40
2+700	34.40	0.01	0.00	0.00	78773.46	2338.40

PERFIL TIPO TRAMO 4 Q=9m3/2

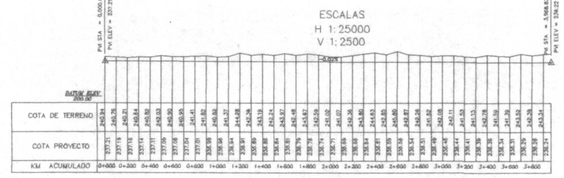
ESCALA 1: 250

KM 0 – 2759



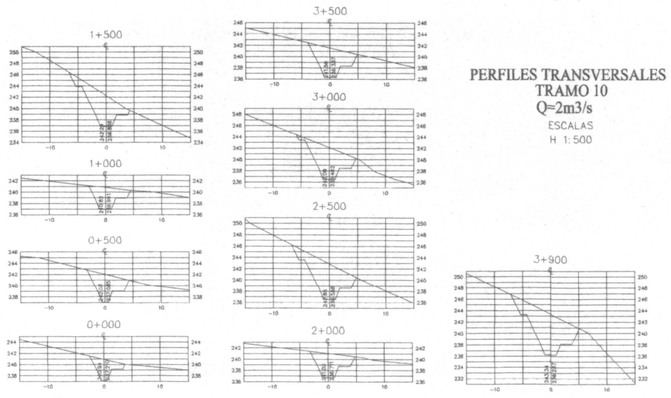
PERFIL LONGITUDINAL TRAMO 10 Q=2m3/s

ESCALAS
H 1: 25000
V 1: 2500



PERFILES TRANSVERSALES TRAMO 10 Q=2m3/s

ESCALAS
H 1: 500



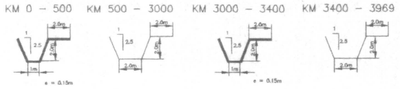
CALCULO DE VOLUMENES TRAMO 10 Q=2m3/s

STA/TRAV	AREAS Square Meters CUT	AREAS Square Meters FILL	VOLUMES Cubic Meters CUT	VOLUMES Cubic Meters FILL	CUMULATIVE VOLUMES Cubic Meters CUT	CUMULATIVE VOLUMES Cubic Meters FILL
0+000	11.67	0.00	1143.31	0.00	1143.31	0.00
0+100	11.00	0.00	987.38	0.00	2130.69	0.00
0+200	8.75	0.00	1000.37	0.00	3130.80	0.00
0+300	11.38	0.00	1187.74	0.00	431784	0.00
0+400	12.49	0.00	1872.54	0.00	5945.48	0.00
0+500	20.06	0.00	1847.22	0.00	7792.80	0.00
0+600	14.88	0.00	1721.44	0.00	9514.24	0.00
0+700	17.95	0.00	1633.41	0.00	11448.65	0.00
0+800	31.10	0.00	2387.13	0.00	13733.77	0.00
0+900	24.64	0.00	2081.49	0.00	15815.26	0.00
1+000	16.96	0.00	1972.48	0.00	17787.74	0.00
1+100	20.46	0.00	3482.88	0.00	21986.63	0.00
1+200	45.45	0.00	3639.14	0.00	25319.77	0.00
1+300	25.38	0.00	2536.61	0.00	28656.38	0.00
1+400	41.41	0.00	3816.12	0.00	32275.51	0.00
1+500	30.62	0.00	4279.24	0.00	3635+.75	0.00
1+600	54.67	0.00	4317.66	0.00	40872.41	0.00
1+700	31.68	0.00	3898.52	0.00	44771.93	0.00
1+800	46.31	0.00	3965.65	0.00	48787.53	0.00
1+900	33.41	0.00	3967.51	0.00	51455.05	0.00
2+000	20.54	0.00	2057.68	0.00	53913.73	0.00
2+100	20.61	0.00	2810.57	0.00	58123.31	0.00
2+200	31.66	0.00	4138.48	0.00	60281.79	0.00
2+300	51.17	0.00	5343.75	0.00	65868.54	0.00
2+400	59.71	0.00	4930.66	0.00	7118.39	0.00
2+500	38.91	0.00	6068.95	0.00	76935.34	0.00
2+600	83.02	0.00	6471.82	0.00	83307.16	0.00
2+700	48.77	0.00	3927.11	0.00	87234.27	0.00
2+800	33.17	0.00	2886.67	0.00	90133.34	0.00
3+900	35.61	0.00	2835.96	0.00	92994.30	0.00
3+000	21.09	0.00	1840.83	0.00	95787.13	0.00
3+100	25.84	0.00	2373.06	0.00	981.79.36	0.00
3+200	21.62	0.00	2310.98	0.00	100181.37	0.00
3+300	18.60	0.00	2061.88	0.00	102743.35	0.00
3+400	32.64	0.00	3006.07	0.00	105753.53	0.00
3+500	27.58	0.00	2873.27	0.00	108436.80	0.00
3+600	25.81	0.00	2773.08	0.00	111168.61	0.00
3+700	49.53	0.00	4403.44	0.00	116662.06	0.00
3+800	36.54	0.00	0.00	0.00	116802.06	0.00

PERFILES TIPO TRAMO 10 Q=2m3/s

ESCALA 1: 500

KM 0 – 500 KM 500 – 3000 KM 3000 – 3400 KM 3400 – 3969



GEOFUN LTDA.

REPUBLICA DE CHILE
COMISIÓN NACIONAL DE RIEGO
DEPARTAMENTO DE ESTUDIOS

ESTUDIO
ESTUDIO INTEGRAL DE OPTIMIZACIÓN DEL REGADÍO DE LA TERCERA SECCIÓN DEL RÍO MAIPO Y DE LOS VALLES YALI Y ALHUÉ

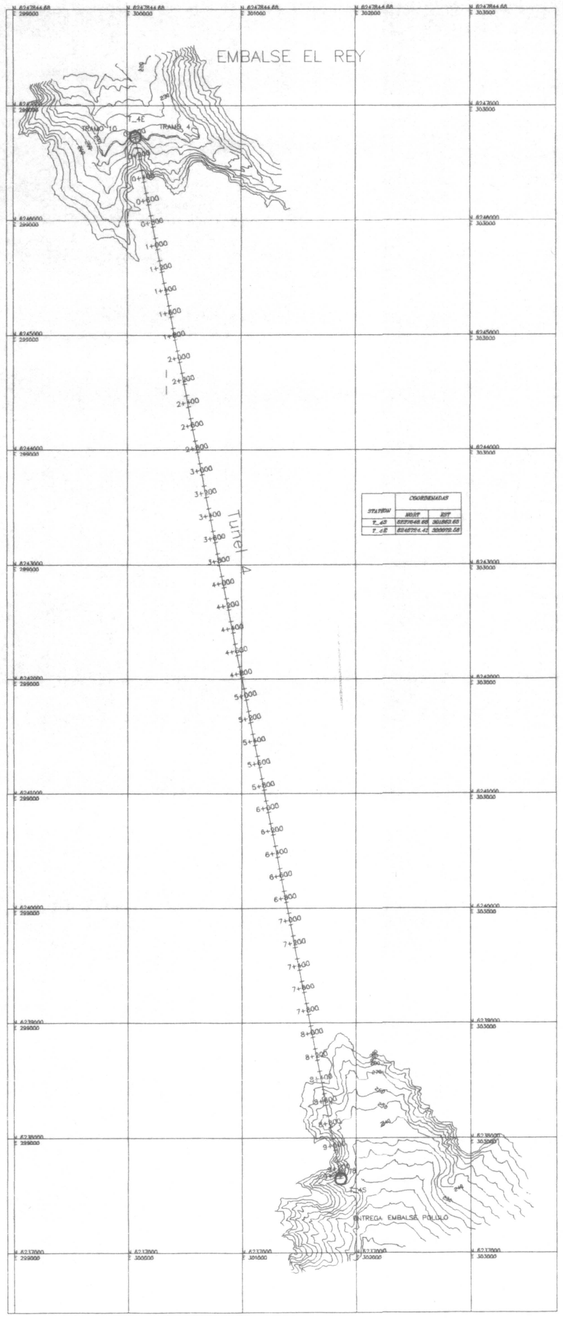
PLANO
PLANTAS, SECCIONES TIPOS, Y PERFILES TRAMO 4 Y TRAMO 10 Q(Bocatoma)=22m3/s

ESCALA: Indicadas
Nº 13.4.3-8
AGOSTO - 2001

CAUDAL EN BOCATOMA Q = 22 m3/s

PLANTA GENERAL TUNEL 4

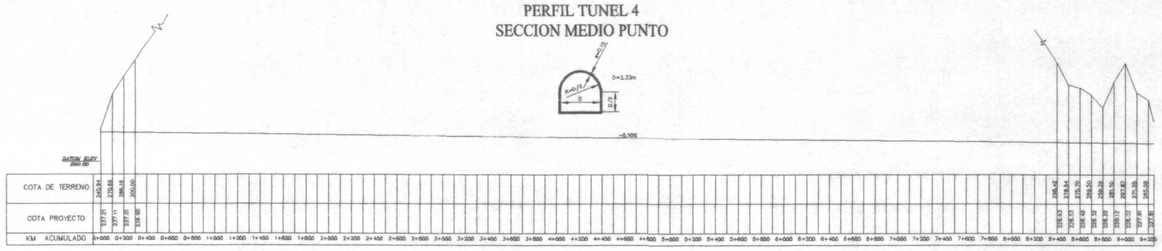
ESCALA 1: 25000



PERFIL LONGITUDINAL TUNEL 4 Q=7m3/s

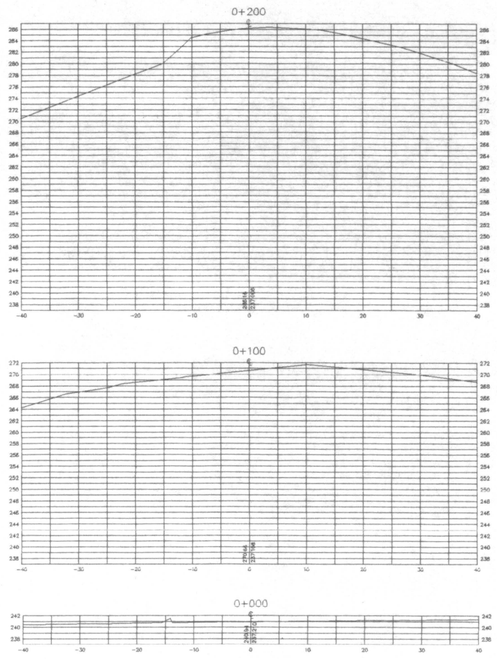
ESCALAS
H 1: 25000
V 1: 2500

PERFIL TUNEL 4
SECCION MEDIO PUNTO



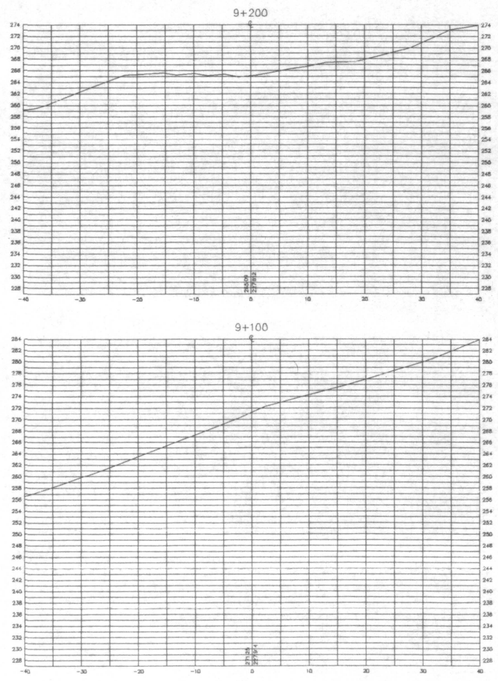
PERFILES TRANSVERSALES ENTRADA DEL TUNEL Q=7m3/s

ESCALAS
H 1: 500
V 1: 500



PERFILES TRANSVERSALES SALIDA DEL TUNEL Q=7m3/s

ESCALAS
H 1: 500
V 1: 500



GEOFUN LTDA.

REPUBLICA DE CHILE
COMISIÓN NACIONAL DE RIEGO
DEPARTAMENTO DE ESTUDIOS

ESTUDIO
ESTUDIO INTEGRAL DE OPTIMIZACIÓN DEL REGADÍO DE LA TERCERA SECCIÓN DEL RÍO MAIPO Y DE LOS VALLES YALI Y ALHUE

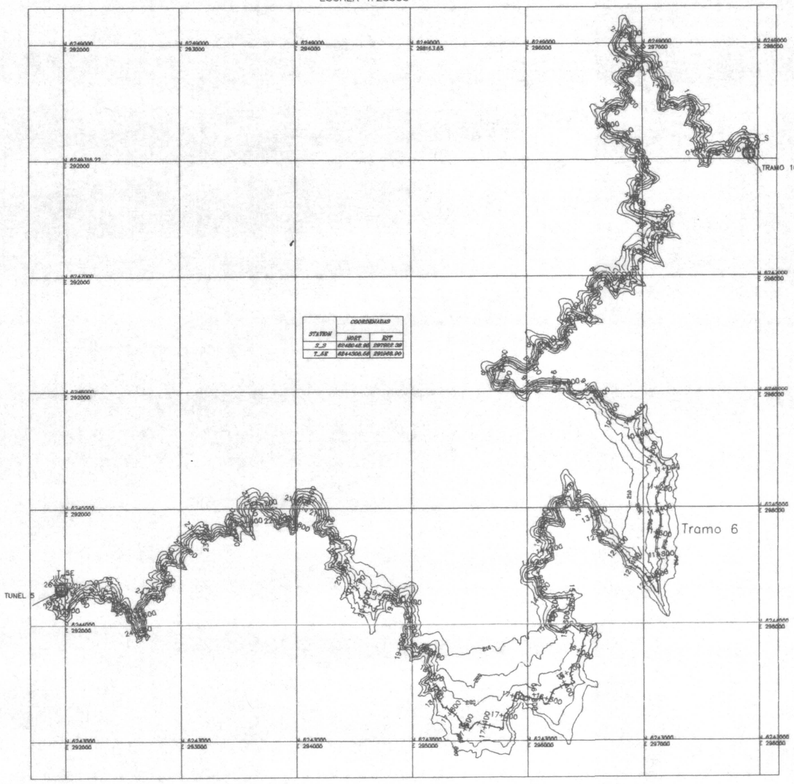
PLANO
PLANTAS, SECCIONES TIPOS, PERFILES TUNEL 4 Q(Bocatoma)=22m3/s

ESCALA: Indicadas
Nº 13.4.3-9
AGOSTO - 2001

CAUDAL EN BOCATOMA Q = 22 m3/s y Q=20m3/s

PLANTA GENERAL TRAMO 6 Q=2m3/s

ESCALA 1: 25000



TABLAS CALCULO DE VOLUMENES TRAMO 6 Q=2m3/s

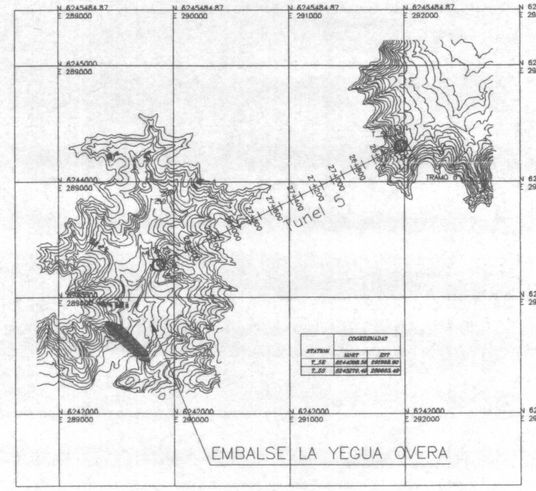
STATION	AREAS Square Meters CUT	AREAS Square Meters FILL	VOLUMES Cubic Meters CUT	VOLUMES Cubic Meters FILL	CUMULATIVE VOLUMES Cubic Meters CUT	CUMULATIVE VOLUMES Cubic Meters FILL
0+000	28.39	0.00	2981.15	0.00	2981.15	0.00
0+050	28.23	0.00	1825.62	4.76	4806.77	4.76
0+300	16.28	0.14	1560.84	11.48	6367.61	16.24
0+350	15.58	0.09	1543.24	11.48	7910.85	27.72
0+400	13.84	1.72	1470.89	98.64	9381.74	126.35
0+450	19.82	8.69	1683.33	538.46	11065.07	664.81
0+500	19.82	8.69	1964.91	86.06	13029.98	750.87
0+550	21.87	8.57	2084.85	86.06	15114.83	836.93
0+700	11.33	0.04	1654.95	22.75	16769.78	859.68
0+750	24.67	0.00	1781.74	3.18	18551.52	862.86
0+800	8.33	3.87	1516.88	193.48	20068.40	1056.34
0+850	15.38	0.00	1559.91	193.48	21628.31	1249.82
1+000	17.65	0.00	1651.51	5.40	23279.82	1255.22
1+050	17.65	0.11	1633.60	5.39	24913.42	1260.61
1+200	15.02	0.06	1500.39	73.87	26413.81	1334.48
1+250	15.02	0.06	1502.59	73.87	27916.40	1408.35
1+300	5.89	1.43	1052.55	73.87	28968.95	1482.22
1+350	14.42	0.71	1010.78	108.24	29979.73	1590.46
1+400	14.42	0.71	1443.08	35.56	31422.81	1626.02
1+500	17.94	0.33	1617.83	52.04	33040.64	1678.06
1+550	17.94	0.33	1794.88	16.57	34835.52	1694.63
1+600	25.16	0.00	2154.77	0.13	36990.29	1694.76
1+700	17.87	0.00	2137.52	0.65	39127.81	1695.41
1+750	27.18	0.00	2252.63	0.65	41380.44	1696.06
1+800	6.79	28.45	1568.21	1473.33	42948.65	3169.39
1+850	13.04	0.64	1005.97	1504.62	43954.62	4674.01
2+000	28.03	0.00	3038.58	0.00	46993.20	4674.01
2+050	34.75	0.00	2482.78	5.29	49475.84	4679.30
2+300	15.11	0.11	1266.33	4.50	50742.17	4683.80
2+350	24.87	0.08	1998.12	9.35	52740.29	4693.15
2+500	14.81	0.00	1899.39	1.98	54639.68	4695.13
2+550	14.81	0.00	1710.48	0.00	56350.16	4695.13
2+600	19.30	0.00	1862.12	0.00	58212.28	4695.13
2+700	30.80	0.00	2537.32	0.00	60749.60	4695.13
2+750	31.66	0.00	2687.30	0.00	63436.90	4695.13
2+800	41.45	0.00	3652.52	0.00	67089.42	4695.13
2+850	26.30	0.00	3367.38	0.00	70456.80	4695.13
3+000	17.38	0.00	1884.64	0.00	72341.44	4695.13
3+200	46.84	0.33	3265.72	11.48	75607.16	4706.61
3+250	18.97	0.00	1991.47	0.00	77598.63	4706.61
3+450	30.86	0.00	2485.67	0.00	80084.30	4706.61
3+500	45.08	0.00	3763.86	0.00	83848.16	4706.61
3+550	43.47	0.00	4427.74	0.00	88275.90	4706.61
3+600	18.72	0.00	3062.38	17.59	91338.28	4724.20
3+650	31.48	8.35	1262.00	429.34	92600.28	5153.54
3+800	18.72	0.00	1902.38	17.59	94502.66	5171.13
4+000	25.41	0.35	2179.78	17.38	96682.44	5188.51
4+050	25.19	0.00	1988.47	0.00	98670.91	5188.51
4+200	17.78	0.00	2138.34	0.00	100809.25	5188.51
4+250	36.52	0.00	2705.25	0.00	103514.50	5188.51
4+400	24.08	0.85	2345.65	43.81	105860.15	5232.32
4+450	30.61	0.00	2738.68	42.61	108598.83	5274.93
4+600	36.81	0.00	3418.56	0.00	112017.39	5274.93
4+650	36.81	0.00	3678.56	0.00	115695.94	5274.93
4+700	37.10	0.00	3739.11	0.00	119435.05	5274.93
4+750	37.53	0.00	3733.17	0.00	123168.22	5274.93
4+800	22.88	0.00	3030.33	0.00	126198.55	5274.93
4+850	23.78	0.00	2353.37	0.00	128551.92	5274.93
5+000	22.88	0.00	2263.30	0.00	130815.22	5274.93
5+050	22.67	0.00	2277.51	0.00	133092.73	5274.93
5+200	27.87	0.00	2883.75	0.00	135976.48	5274.93
5+250	28.39	0.00	2817.63	0.00	138794.11	5274.93
5+400	19.79	0.00	2398.97	0.00	141193.08	5274.93
5+450	18.77	0.00	1928.01	0.00	143121.09	5274.93
5+600	34.42	0.00	2659.66	0.00	145780.75	5274.93
5+650	34.42	0.00	3442.08	51.67	149222.83	5326.60
5+700	18.72	1.03	1780.28	51.67	151003.11	5378.27
5+800	16.27	0.00	1750.00	51.67	152753.11	5429.94
5+900	14.91	0.00	1564.34	0.00	154317.45	5429.94
6+000	17.61	0.00	1598.18	0.00	155915.63	5429.94
6+100	16.18	0.00	1698.75	0.00	157614.38	5429.94
6+200	19.58	0.00	1788.15	0.00	159402.53	5429.94
6+300	20.05	0.00	2005.63	0.00	161408.16	5429.94
6+400	14.38	0.00	1743.34	0.00	163151.50	5429.94
6+500	15.36	0.00	1485.46	0.00	164636.96	5429.94
6+600	16.13	0.00	1585.01	0.00	166221.97	5429.94
6+700	18.64	0.00	1728.88	0.00	167950.85	5429.94
6+750	21.53	0.00	2103.54	1.96	170054.39	5431.90
6+800	21.53	0.00	2150.12	69.41	172204.51	5501.31
6+900	34.67	13.38	2781.98	663.81	174986.49	6165.12
7+000	35.45	0.00	3506.12	133.81	178492.61	6298.93
7+150	38.13	0.00	2428.99	0.00	180921.60	6298.93
7+200	49.01	0.00	2887.38	0.00	183808.98	6298.93
7+250	49.01	0.00	3901.55	0.00	187710.53	6298.93
7+300	27.03	0.00	2307.29	0.00	190017.82	6298.93
7+400	19.13	0.00	1301.94	32.24	191319.76	6331.17
7+450	16.81	0.64	1787.48	32.24	193107.24	6363.41
7+600	54.38	0.00	3355.33	32.24	196462.57	6395.65
7+650	54.38	0.00	4868.18	0.00	201330.75	6395.65
7+700	43.77	0.00	4868.11	0.00	206198.86	6395.65
7+750	27.53	0.00	3508.47	455.34	209707.33	6850.99
7+900	4.82	8.15	1444.75	460.63	211152.78	7311.62
8+000	24.38	0.11	1464.00	8.11	212616.78	7319.73
8+100	17.66	0.09	2087.18	9.90	214703.92	7329.63
8+200	26.93	0.56	2198.86	6.53	216902.78	7336.16
8+300	21.13	0.44	2403.30	21.95	219306.08	7358.11
8+400	52.23	0.99	3668.14	71.27	222974.22	7429.38
8+500	32.54	0.00	4328.66	99.36	227302.88	7528.74
8+600	25.35	0.00	2924.73	0.00	230227.61	7528.74
8+700	27.98	0.00	2697.29	0.00	232924.90	7528.74
			2884.68	0.00	235809.57	7528.74

STATION	AREAS Square Meters CUT	AREAS Square Meters FILL	VOLUMES Cubic Meters CUT	VOLUMES Cubic Meters FILL	CUMULATIVE VOLUMES Cubic Meters CUT	CUMULATIVE VOLUMES Cubic Meters FILL
8+800	29.71	0.00	3147.82	0.00	2072774.45	6755.93
8+900	33.65	0.00	3125.39	0.00	2105900.15	6755.93
9+000	18.56	0.00	2627.61	0.00	2132527.76	6755.93
9+100	37.89	0.00	2675.82	0.00	2159803.57	6755.93
9+200	41.83	0.00	3953.13	0.00	2163056.70	6755.93
9+300	27.34	0.00	2936.36	0.00	2131851.66	6755.93
9+400	21.39	0.00	2480.35	0.00	2137887.22	6755.93
9+500	48.72	0.00	4807.07	0.00	2378860.48	6755.93
9+600	48.47	0.00	4897.63	0.00	2384468.41	6755.93
9+700	41.73	0.00	4470.39	0.00	2400418.10	6755.93
9+800	37.69	0.00	3993.98	0.00	2413483.32	6755.93
9+900	36.28	0.00	3653.41	0.00	2423823.11	6755.93
10+000	56.76	0.00	4550.81	0.00	2523730.43	6755.93
10+100	34.25	0.00	3960.69	0.00	2567731.12	6755.93
10+200	61.56	0.00	4890.95	0.00	2613851.87	6755.93
10+300	47.65	0.00	5068.31	0.00	2664449.97	6755.93
10+400	53.72	0.00	5064.16	0.00	2721414.16	6755.93
10+500	59.57	0.00	4857.90	0.00	2767772.06	6755.93
10+600	33.56	0.00	3316.67	0.00	2796981.66	6755.93
10+700	30.78	0.00	3175.85	0.00	2831846.53	6755.93
10+800	50.78	0.00	4174.16	0.00	2873338.61	6755.93
10+900	48.37	0.00	4887.33	0.00	2919225.94	6755.93
11+000	46.56	0.00	4714.27	0.00	2964412.33	6755.93
11+100	39.27	0.00	4279.18	0.00	3006155.80	6755.93
11+200	38.12	0.00	3836.06	0.00	3044255.89	6755.93
11+300	33.66	0.00	3589.08	0.00	3079981.72	6755.93
11+400	42.66	0.00	3781.17	0.00	3120665.68	6755.93
11+500	39.43	0.00	4127.88	0.00	3160163.96	6755.93
11+600	43.13	0.00	4317.87	0.00	3200511.83	6755.93
11+700	43.53	0.00	4336.64	0.00	3240848.47	6755.93
11+800	38.74	0.00	4668.44	0.00	3285516.27	6755.93
11+900	71.38	0.00	5404.84	0.00	3331851.11	6755.93
12+000	55.45	0.00	4684.46	0.00	3376383.96	6755.93
12+100	39.24	0.00	3816.56	0.00	3416786.54	6755.93
12+200	38.12	0.00	3676.68	0.00	3520360.22	6755.93
12+300	34.50	0.00	3721.04	0.00	3541081.26	6755.93
12+400	38.72	0.00	3673.17	0.00	3580663.43	6755.93
12+500	38.86	0.00	4156.61	0.00	3632447.66	6755.93
12+600	43.47	0.00	4284.69	0.00	3666641.15	6755.93
12+700	44.48	0.00	4364.13	0.00	4700043.60	6755.93
12+800	46.68	0.00	4556.18	0.00	4746599.78	6755.93
12+900	53.37	0.00	4885.38	0.00	4793532.66	6755.93
13+000	46.43	0.00	4886.81	0.00	4840586.65	6755.93
13+100	25.19	0.00	3584.53	0.00	4884171.18	6755.93
13+200	34.89	0.00	3539.42	0.00	4919425.60	6755.93
13+300	35.72	0.00	3502.88	0.00	4954928.48	6755.93
13+400	34.34	0.00	3486.86	0.00	4990415.34	6755.93
13+500	43.00	0.00	6385.85	0.00	5026801.19	6755.93
13+600	61.53	0.00	5183.58	0.00	5067984.77	6755.93
13+700	34.80	0.00	3643.13	0.00	5101627.90	6755.93
13+800	27.96	0.00	3155.38	0.00	5134783.28	6755.93
13+900	62.13	0.00	4508.08	0.00	5179291.36	6755.93
14+000	87.44	0.00	8306.55	0.00	5229719.03	6755.93
14+100	56.48	0.00	4924.19	0.00	5284143.21	6755.93
14+200	54.41	0.00	5552.86	0.00	5339426.01	6755.93
14+300	45.98	0.00	4539.31	0.00	5444003.32	6755.93
14+400	47.84	0.00	4693.91	0.00	5430697.24	6755.93
14+500	27.25	0.00	4274.48	0.00	5491789.24	6755.93
14+600	58.24	0.00	4253.49	0.00	5536043.71	6755.93
14+700	45.58	0.00	5138.18	0.00	5621237.35	6755.93
14+800	56.65	0.00	5358.18	0.00	5676595.53	6755.93
14+900	50.87	0.00	5384.04	0.00	5731979.57	6755.93
15+000	48.19	0.00	4971.30	0.00	5786950.87	6755.93
15+100	39.23	0.00	4410.68	0.00	5831361.55	6755.93
15+200	44.33	0.00	5383.36	0.00	5886745.09	6755.93
15+300	63.31	0.00	5388.64	0.00	5942133.73	6755.93
15+400	68.48	0.00	6588.64	0.00	6007543.57	6755.93
15+500	62.51	0.00	6536.84	0.00	6062965.02	6755.93
15+600	45.63	0.00	5538.84	0.00	6104831.87	6755.93
15+700	37.31	0.00	4187.18	0.00	6149093.05	6755.93
15+800	39.15	0.00	3835.77	0.00	6212809.81	6755.93
15+900	36.27	0.00	3755.52	0.00	6246785.44	6755.93
16+000	36.77	0.00	4652.04	0.00	6321338.44	6755.93
16+100	40.94	0.00	4985.48	0.00	6326315.86	6755.93
16+200	38.87	0.00	3993.98	0.00	6366308.87	6755.93
16+300	41.47	0.00	3915.33	0.00	6534231.60	6755.93
16+400	38.34	0.00	3988.76	0.00	6538010.76	6755.93
16+500	39.80	0.00	3917.06	0.00	6541927.82	6755.93
16+600	38.52	0.00	3866.12	0.00	5450313.88	6755.93
16+700	38.16	0.00	3867.48	0.00	5689373.54	6755.93
16+800	41.16	0.00	3731.96	0.00	6693737.54	6755.93
16+900	33.48	0.56	3731.96	0.00	5574615.14	6755.93
17+000	36.14	0.00	4481.98	0.00	5611097.12	6755.93
17+100	36.57	0.00	5785.31	0.00	5647735.53	6755.93
17+200	53.05	0.00	5630.81	0.00	5773366.43	6755.93
17+300	48.24	0.00	5114.48	0.00	5778480.91	6755.93
17+400	45.65	0.00	4784.36	0.00	5830715.17	6755.93
			4831.34	0.00	5878026.68	6755.93

STATION	AREAS Square Meters CUT	AREAS Square Meters FILL	VOLUMES Cubic Meters CUT	VOLUMES Cubic Meters FILL	CUMULATIVE VOLUMES Cubic Meters CUT	CUMULATIVE VOLUMES Cubic Meters FILL
17+800	46.38	0.00	4728.04	0.00	5926555.54	6755.93
17+850	43.65	0.00	4478.58	0.00	5971828.03	6755.93
17+700	31.21	0.00	5063.68	0.00	6036668.89	6755.93
17+750	50.65	0.00	4403.19	0.00	6077041.88	6755.93
17+900	38.60	0.00	4671.44	0.00	6121683.32	6755.93
18+000	58.40	0.00	5527.53	0.00	6174401.85	6755.93
18+100	51.14	0.00	5098.86	0.00	6230308.70	6755.93
18+200	44.81	0.00	5356.38	0.00	6275744.88	6755.93
18+300	62.31	0.00	5341.53	0.00	6329286.41	6755.93
18+400	60.52	0.00	6121.66	0.00	6390813.27	6755.93
18+500	48.32	0.00	5428.60	0.00	6443773.87	6755.93
18+600	50.79	0.00	4984.83	0.00	6488338.70	6755.93
18+700	40.31	0.00	4738.95	0.00	6533077.65	6755.93
18+800	54.27	0.00	5530.31	0.00	6585979.94	6755.93
18+900	56.12	0.00	5588.94	0.00	6594568.85	6755.93
19+000	43.80	0.00	5397.27	0.00	6753202.18	6755.93
19+100	50.34	0.00	4709.56	0.00	6783598.75	6755.93
19+200	50.79	0.00	5308.24	0.00	6808854.99	6755.93
19+300	53.12	0.00	5243.88	0.00	6862388.88	6755.93
19+400	57.54	0.00	5527.36	0.00	6917521.77	6755.93
19+500	47.33	0.00	5227.80	0.00	6972749.57	6755.93
19+600	49.23	0.00	4864.83	0.00	7017380.27	6755.93
19+700	72.52	0.00	7093.57	0.00	7044872.84	6755.93
19+800	47.30	0.00	7114.78	0.00	7158778.61	6755.93
19+900	38.18	0.00	7154.54	0.00	7198713.15	6755.93
20+000	55.47	0.00	6568.17	0.00	7225256.33	6755.93
20+100	56.49	0.00	5568.17	0.00	7308854.49	6755.93
20+200	60.09	0.00	5828.00	0.00	7314682.49	6755.93
20+300	53.12	0.00	7231.04	0.00	7438145.55	6755.93
20+400	74.35	0.00	7628.77	0.00	7511901.30	6755.93
20+500	69.61	0.00	7195.85	0.00	7589043.17	6755.93
20+600	81.06	0.00	7535.12	0.00	7665777.24	6755.93
20+700	71.61	0.00	7574.75	0.00	7740151.99	6755.93
20+800	62.78	0.00	6719.33	0.00	7809631.33	6755.93
20+900	71.81	0.00	6738.13	0.00	7878883.46	6755.93
21+000	77.70	0.00	7428.54	0.00	7951371.19	6755.93
21+100	79.73	0.00	7872.67	0.00	8033099.86	6755.93
21+200	70.52	0.00	7552.51	0.00	8107022.77	6755.93
21+300	81.39	0.00	7557.77	0.00	8177128.54	6755.93
21+400	65.95	0.00	7355.38	0.00	8254483.91	6755.93
21+500	58.16	0.00	6185.05	0.00	8338868.89	6755.93
21+600	73.75	0.00	6585.05	0.00	8385384.94	6755.93
21+700	115.93	0.00	9393.15	0.00	8455898.10	6755.93
21+800	92.61	0.00	10357.04	0.00	8558855.14	6755.93
21+900	77.33	0.00	8497.43	0.00	8641352.58	6755.93
22+000	58.16	0.00	6811.76	0.00	8714164.27	6755.93
22+100	52.67	0.00	5548.88	0.00	8769713.16	6755.93
22+200	49.87	0.00	5084.06	0.00	8819797.14	6755.93
22+300	53.27	0.00	5154.18	0.00	8869461.34	6755.93
22+400	51.84	0.00	5245.82	0.00	8912207.16	6755.93
22+500	52.63	0.00	5231.48	0.00	8967438.65	6755.93
22+600	121.86	0.00	8729.54	0.00	9061421.19	6755.93
22+700	57.52	0.00	8966.38	0.00	9150187.57	6755.93
22+800	44.26	0.00	5083.06	0.00	9203301.63	6755.93
22+900	88.74	0.00	5053.67	0.00	9257355.49	6755.93
23+000	94.66	0.00	8636.98	0.00	9337792.48	6755.93
23+100	97.63	0.00	7581.78	0.00	9410774.25	6755.93
23+200	55.91	0.00	7677.43	0.00	9488451.68	6755.93
23+300	57.07	0.00	5749.61	0.00	9739156.67	6755.93
23+400	54.86	0.00	7157.37	0.00	9580154.04	6755.93
23+500	84.51	0.00	8468.49	0.00	9668622.53	6755.93
23+600	56.10	0.00	7033.35	0.00	9745655.88	6755.93
23+700	62.91	0.00	5836.54	0.00	9801892.42	6755.93
23+800	84.51	0.00	7352.18	0.00	9209444.60	6755.93
23+900	84.51	0.00	7838.65	0.00	9917283.25	6755.93
24+000	101.49	0.00	9238.68	0.00	10026521.93	6755.93
24+100	83.20	0.00	9149.86	0.00	10090855.79	6755.93
24+200	89.75	0.00	8656.51	0.00	10180511.66	6755.93
24+300	107.38	0.00	8434.53	0.00	10288046.19	6755.93
24+400	81.31	0.00	9371.34	0.00	10397417.53	6755.93
24+500	72.95	0.00	10173.04	0.00	10429584.56	6755.93
24+600	135.05	0.00	10830.08	0.00	10260014.74	6755.93
24+700	70.17	0.00	7038.62	0.00	10542453.37	6755.93
24+800	72.40	0.00	8661.58	0.00	10510806.63	6755.93
24+900	150.83	0.00	10471.88	0.00	10621278.76	6755.93
25+000	106.60	0.00	9177.61	0.00	10717456.89	6755.93
25+100	74.05	0.00	8908.45	0.00	10777483.17	6755.93
25+200	45.58	0.00	5454.38	0.00	10828837.55	6755.93
25+300	42.51	0.00	7304.58	0.00	10900192.13	6755.93
25+400	53.58	0.00	3929.53	0.00	10931.566	6755.93
25+600	74.31	0.00	0.00	0.00	10931.566	6755.93

PLANTA GENERAL TUNEL 5 Q=2m3/s

ESCALA 1: 25000

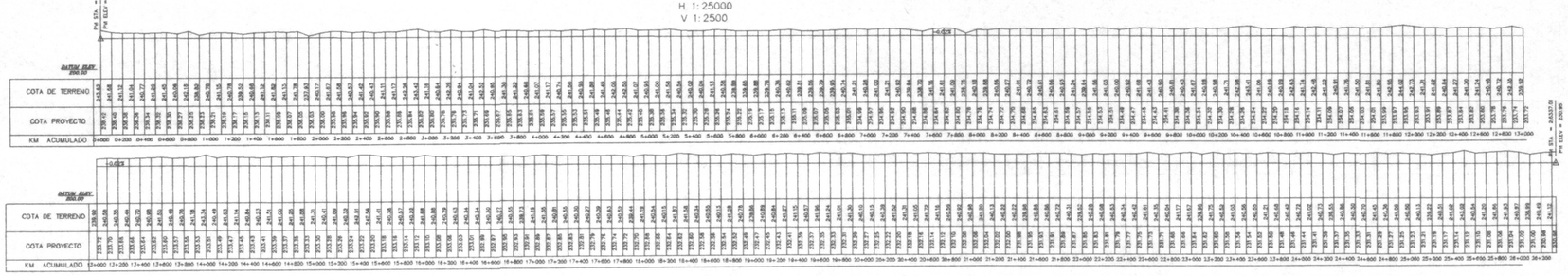


PERFIL LONGITUDINAL TUNEL 5 Q=2m3/s

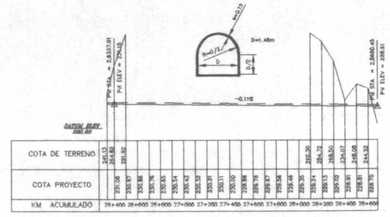
ESCALAS
H 1: 25000
V 1: 2500

PERFIL LONGITUDINAL TRAMO 6 Q=2m3/s

ESCALAS
H 1: 25000
V 1: 2500



PERFIL TUNEL 5
SECCION MEDIO PUNTO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D
2.0 D
-0.11%
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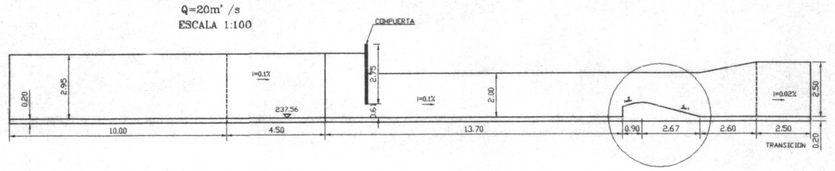
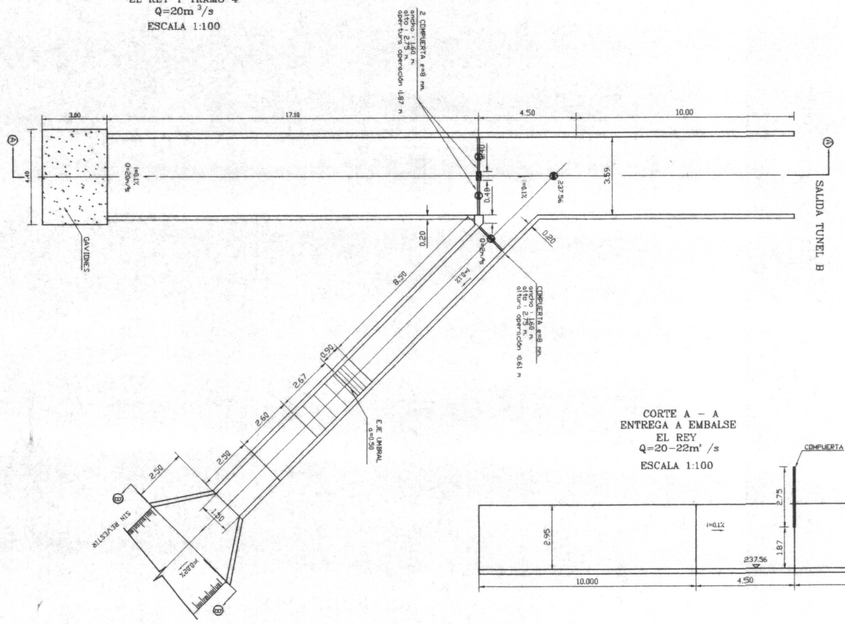
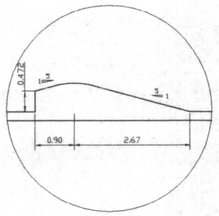
Pd ELEV = 259.42
Pd STA. = 2.860540
Pd ELEV = 259.51
DATUM ELEV. 200.00
COTA DE TERRENO
COTA PROYECTO
KM ACUMULADO
0+400 0+450 0+500 0+550 0+600 0+650 0+700 0+750 0+800 0+850 0+900 0+950 1+000 1+050 1+100 1+150 1+200 1+250 1+300 1+350 1+400 1+450 1+500 1+550 1+600 1+650 1+700 1+750 1+800 1+850 1+900 1+950 2+000 2+050 2+100 2+150 2+200 2+250 2+300 2+350 2+400 2+450 2+500 2+550 2+600 2+650 2+700 2+750 2+800 2+850 2+900 2+950 3+000 3+050 3+100 3+150 3+200 3+250 3+300 3+350 3+400 3+450 3+500 3+550 3+600 3+650 3+700 3+750 3+800 3+850 3+900 3+950 4+000 4+050 4+100 4+150 4+200 4+250 4+300 4+350 4+400 4+450 4+500 4+550 4+600 4+650 4+700 4+750 4+800 4+850 4+900 4+950 5+000 5+050 5+100 5+150 5+200 5+250 5+300 5+350 5+400 5+450 5+500 5+550 5+600 5+650 5+700 5+750

CORTE B – B
ENTREGA A TRAMO 4
Q=20m³/s
ESCALA 1:100

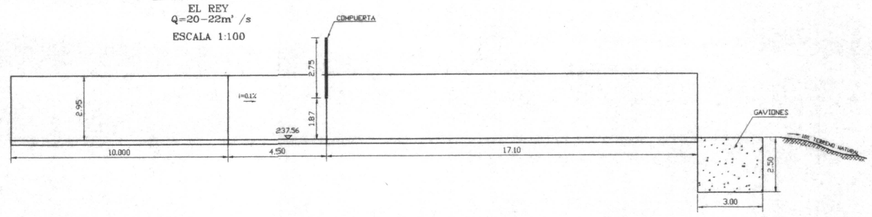


OBRA C
OBRA ENTREGA EMBALSE
EL REY Y TRAMO 4
Q=20m³/s
ESCALA 1:100



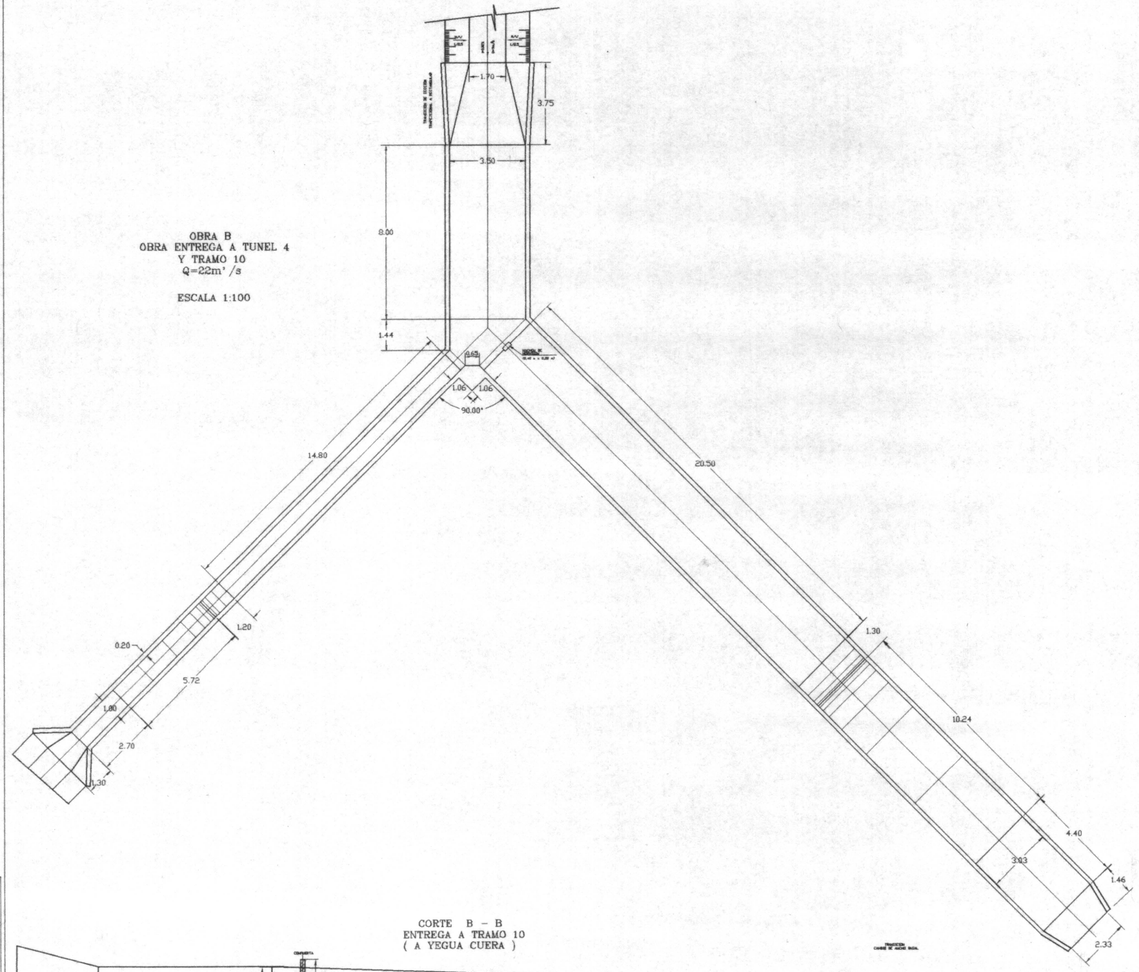


CORTE A – A
ENTREGA A EMBALSE
EL REY
Q=20-22m³/s
ESCALA 1:100

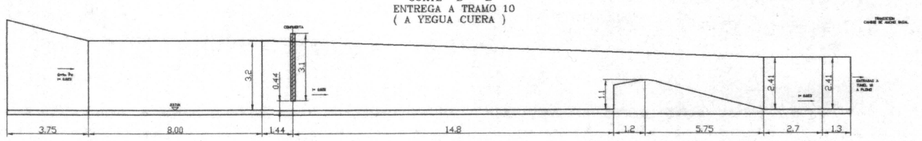


OBRA B
OBRA ENTREGA A TUNEL 4
Y TRAMO 10
Q=22m³/s

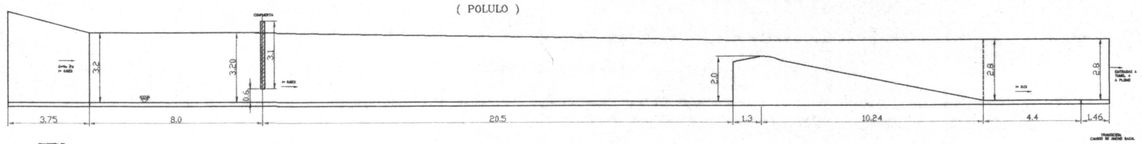
ESCALA 1:100



CORTE B – B
ENTREGA A TRAMO 10
(A YEGUA CUERA)

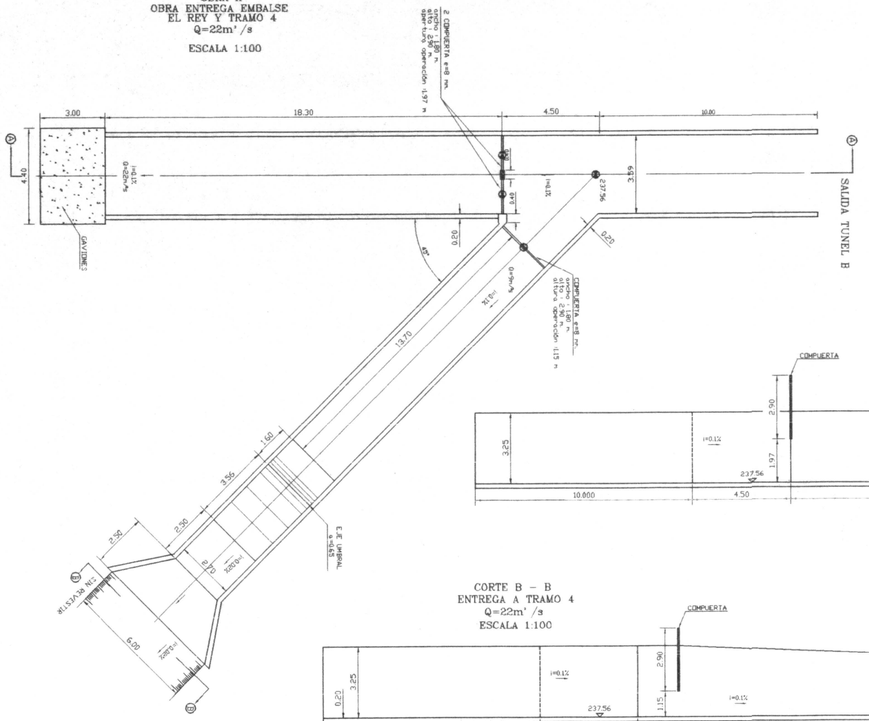


CORTE A – A
ENTREGA A TUNEL 4
(POLULO)

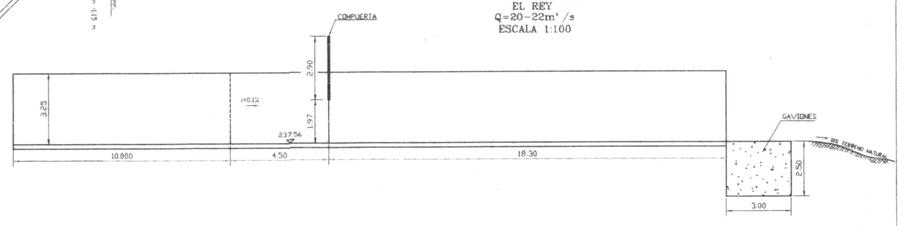


OBRA A
OBRA ENTREGA EMBALSE
EL REY Y TRAMO 4
Q=22m³/s

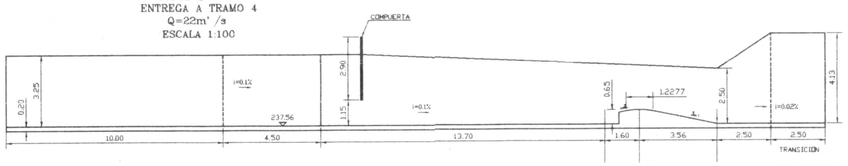
ESCALA 1:100



CORTE A – A
ENTREGA A EMBALSE
EL REY
Q=20-22m³/s
ESCALA 1:100



CORTE B – B
ENTREGA A TRAMO 4
Q=22m³/s
ESCALA 1:100



GEOFUN LTDA.

REPUBLICA DE CHILE
COMISIÓN NACIONAL DE RIEGO
DEPARTAMENTO DE ESTUDIOS

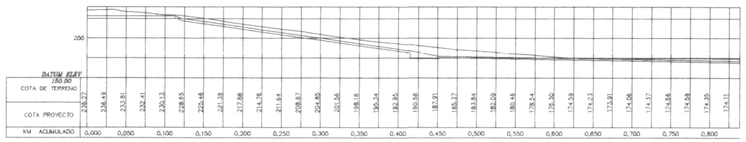
ESTUDIO
ESTUDIO INTEGRAL DE OPTIMIZACIÓN DEL REGADÍO DE LA TERCERA SECCIÓN DEL RÍO MAIPO Y DE LOS VALLES YALI Y ALHUE

PLANO
OBRAS DE ARTE
CANAL DE TRASVASE

ESCALA: Indicadas
Nº 13.4.3-11
AGOSTO - 2001

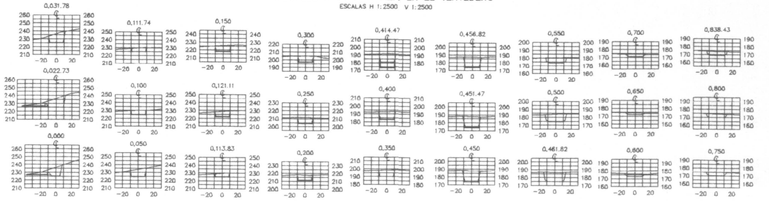
PERFIL LONGITUDINAL EN EL VERTEDERO

ESCALAS H 1:2500 V 1:2500



PERFILES TRANSVERSALES EN EL VERTEDERO

ESCALAS H 1:2500 V 1:2500



VOLUMEN EXCAVACIÓN

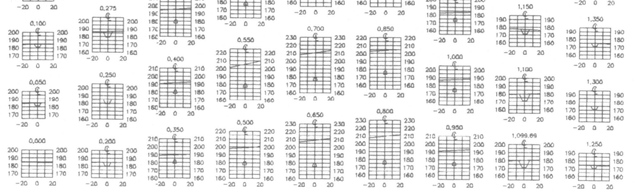
Perfil	Area (m2)	Volumen (m3)
0,000	346,21	
50,780	335,92	14726,88
100,000	334,81	16685,52
150,000	175,55	8564,09
200,000	100,61	6985,87
211,790	87,82	1811,89
213,830	85,26	775,57
220,110	127,78	3841,79
250,000	136,18	16.458,00
300,000	127,74	6775,75
350,000	146,43	7198,25
397,000	118,42	7507,25
399,000	154,89	8805,25
400,000	199,52	3967,18
414,470	308,82	0,00
414,470	331,41	

Perfil	Area (m2)	Volumen (m3)
414,470	308,82	0,00
414,470	331,41	10821,74
450,000	261,38	3817,27
451,470	262,13	0,00
451,470	275,28	1496,06
458,830	271,85	1417,13
461,830	261,00	9874,72
500,000	226,51	9774,25
550,000	181,46	5924,25
600,000	75,51	2986,75
650,000	43,96	2981,36
700,000	58,50	3931,56
750,000	94,40	3933,75
800,000	186,95	4247,38
838,430	114,66	

Total 133587,89 (m3)

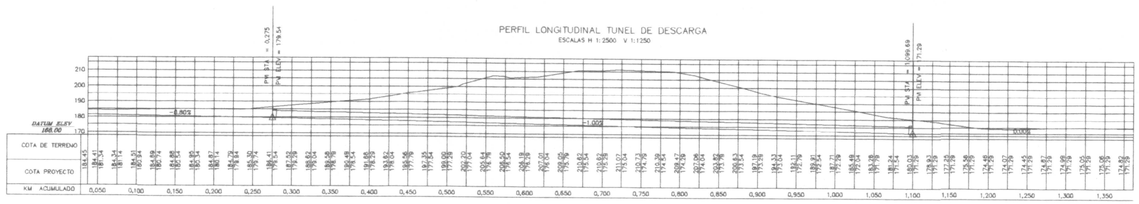
PERFILES TRANSVERSALES TUNEL DE DESCARGA

ESCALAS H 1:2500 V 1:2500



PERFIL LONGITUDINAL TUNEL DE DESCARGA

ESCALAS H 1:2500 V 1:1250

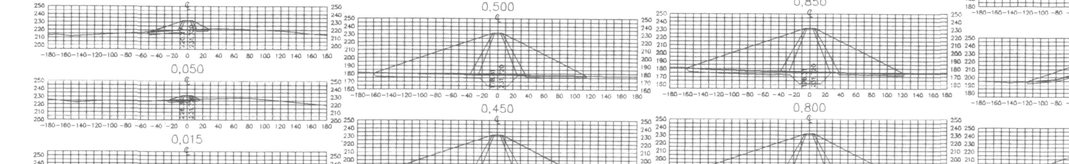


VOLUMEN EXCAVACIÓN EN CANAL DE TUNEL DE DESCARGA

STATION	AREAS Square Meters CUT	AREAS Square Meters FILL	VOLUMES Cubic Meters CUT	VOLUMES Cubic Meters FILL	CUMULATIVE VOLUMES Cubic Meters CUT	CUMULATIVE VOLUMES Cubic Meters FILL
0+000	0,00	0,00	458,62	0,00	458,62	0,00
0+050	18,34	0,00	1015,34	0,00	1473,97	0,00
0+100	22,27	0,00	1275,74	0,00	2749,70	0,00
0+150	28,76	0,00	1525,78	0,00	4275,48	0,00
0+200	32,27	0,00	1812,70	0,00	6088,18	0,00
0+250	46,24	0,00	1980,53	0,00	8068,71	0,00
0+275	54,20	0,00	677,52	0,00	8746,24	0,00
0+300	0,00	0,00	0,00	0,00	8746,24	0,00
0+350	0,00	0,00	0,00	0,00	8746,24	0,00
0+400	0,00	0,00	0,00	0,00	8746,24	0,00
0+450	0,00	0,00	0,00	0,00	8746,24	0,00
0+500	0,00	0,00	0,00	0,00	8746,24	0,00
0+550	0,00	0,00	0,00	0,00	8746,24	0,00
0+600	0,00	0,00	0,00	0,00	8746,24	0,00
0+650	0,00	0,00	0,00	0,00	8746,24	0,00
0+700	0,00	0,00	0,00	0,00	8746,24	0,00
0+750	0,00	0,00	0,00	0,00	8746,24	0,00
0+800	0,00	0,00	0,00	0,00	8746,24	0,00
0+850	0,00	0,00	0,00	0,00	8746,24	0,00
0+900	0,00	0,00	0,00	0,00	8746,24	0,00
0+950	0,00	0,00	0,00	0,00	8746,24	0,00
1+000	0,00	0,00	0,00	0,00	8746,24	0,00
1+050	0,00	0,00	0,00	0,00	8746,24	0,00
1+099,69	77,35	0,00	1921,76	0,00	10668,00	0,00
1+100	77,36	0,00	23,96	0,00	10691,96	0,00
1+150	44,34	0,00	3038,45	0,00	13730,33	0,00
1+200	18,14	0,00	1587,02	0,00	15317,35	0,00
1+250	19,10	0,00	956,14	0,00	16273,49	0,00
1+300	23,33	0,00	1060,96	0,00	17334,45	0,00
1+350	23,71	0,00	1176,12	0,00	17510,57	0,00
1+387,13	21,39	0,00	837,30	0,00	18347,87	0,00
			0,00	0,00	18347,87	0,00

PERFIL LONGITUDINAL POR EL EJE DEL MURO

ESCALAS H 1:2500 V 1:2500



PERFILES TRANSVERSALES EN EL MURO

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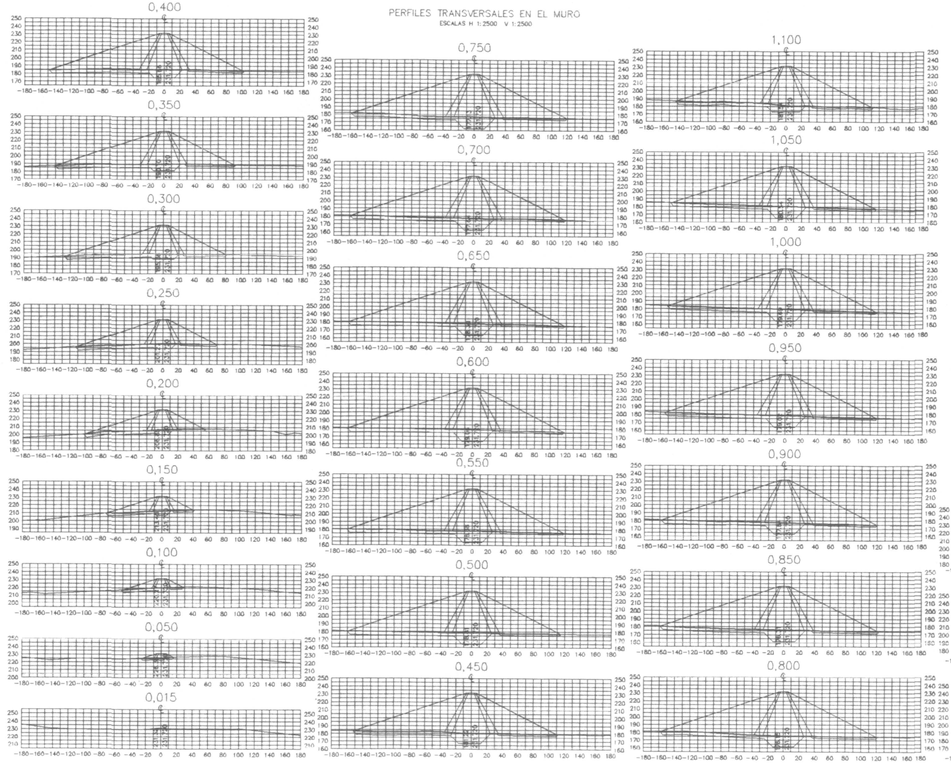
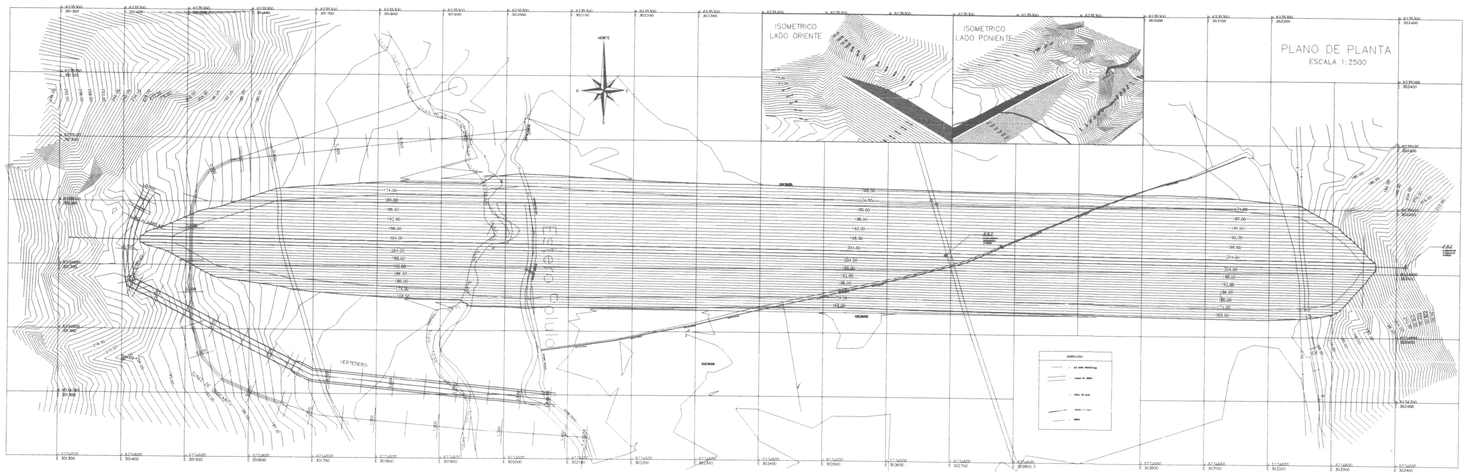


CUADRO DE VOLUMENES EN MURO

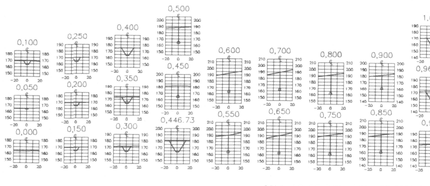
A.S.T. = AREA SOBRE TERRENO
V.S.T. = VOLUMEN SOBRE TERRENO

Station	Excavac (m3)	A1(m2) Area (m2)	V1(m3) Area (m2)	A2(m2) Area (m2)	V2(m3) Area (m2)	Excavac (m3)	A1(m2) Hor (m.3)	V1(m3) Hor (m.3)	A2(m2) Hor (m.3)	V2(m3) Hor (m.3)
75,000	0,000	0,000	0,000	0,000	0,000	7,482				
50,000	27,005	126,630	6.320	66,350	3.317	3.317,588	2205,525	758.890	120,6435	2963,225
100,000	39,630	241,330	10.449,80	169,020	6.838	4.941,750	1515,875	14688,750	3756,750	34938,350	15678,350
150,000	57,050	367,340	15.241,75	293,250	11.560,675	6.900,213	1980,750	24.669,500	5.737,750	53.608,750	27.447,750
200,000	76,665	548,170	23.162,88	457,300	18.763,75	9.481,438	2.470,750	30.735,625	11.737,250	73.346,000	39.185,000
250,000	95,340	698,350	31.225,88	623,350	27.018,75	12.060,313	3.086,375	38.410,938	14.934,375	93.280,938	54.119,375
300,000	104,385	1.484,440	54.572,25	1.390,895	50.356,125	26.393,438	6.734,438	83.813,281	32.590,313	203.516,406	118.109,688
350,000	146,430	2.793,740	106.455,75	2.639,090	100.618,375	51.268,688	13.085,625	162.847,031	63.312,813	395.156,250	229.422,500
400,000	199,520	4.387,180	179.081,25	4.240,460	173.143,875	88.056,063	22.481,563	279.764,531	108.781,250	678.906,250	394.203,750
450,000	261,380	6.433,180	270.540,75	6.410,320	270.540,75	135.771,750	34.653,906	431.191,406	167.648,438	1.046.484,375	607.656,250
500,000	226,510	8.660,500	354.770,75	8.660,500	354.770,75	156.278,688	39.882,813	496.310,156	193.007,813	1.204.570,313	699.484,375
550,000	181,460	10.454,250	427.768,75	10.454,250	427.768,75	140.567,063	35.882,813	446.535,156	173.632,813	1.083.828,125	629.296,875
600,000	75,510	11.000,000	436.312,50	11.000,000	436.312,50	65.703,125	16.765,625	208.632,813	81.132,813	506.484,375	294.140,625
650,000	43,960	11.000,000	437.500,00	11.000,000	437.500,00	37.976,563	9.687,500	120.546,875	46.875,000	292.578,125	169.921,875
700,000	58,500	11.000,000	437.500,00	11.000,000	437.500,00	50.546,875	12.890,625	160.429,688	62.390,625	389.414,063	226.171,875
750,000	94,400	11.000,000	437.500,00	11.000,000	437.500,00	81.562,500	20.812,500	258.984,375	100.718,750	628.828,125	365.156,250
800,000	186,950	11.000,000	437.500,00	11.000,000	437.500,00	161.531,250	41.218,750	512.890,625	199.453,125	1.245.312,500	723.437,500
838,430	114,660	11.000,000	275.000,00	11.000,000	275.000,00	99.045,000	25.271,250	315.859,375	122.850,000	766.875,000	445.546,875
						1.335.187,500	340.706,250	4.258.828,125	1.655.943,750	10.337.109,375	6.003.281,250



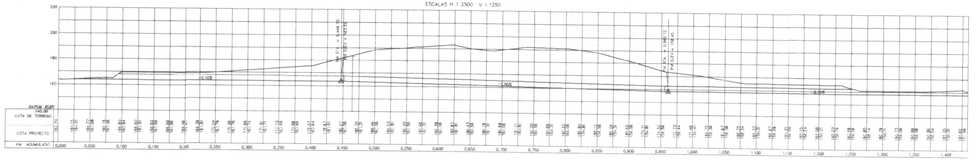
PERFILES TRANSVERSALES POR TUNEL DE DESCARGA

ESCALAS H: 1:2500 V: 1:2500



PERFIL LONGITUDINAL TUNEL DE DESCARGA

ESCALAS H: 1:2500 V: 1:1250



VOLUMEN EXCAVACIÓN POR CANAL DE DESCARGA

PK Progresiva	EXCAVACIÓN Volumen parcial CVP	EXCAVACIÓN Volumen parcial PRU	RELLENO Volumen parcial CVP	RELLENO Volumen parcial PRU	COMPENSACIÓN VOLUMEN Volumen parcial CVP	COMPENSACIÓN VOLUMEN Volumen parcial PRU
0+000	0.00	0.00	0.00	0.00	0.00	0.00
0+180	4.57	0.00	96.27	0.00	39.17	0.00
0+195	43.17	0.00	1498.72	0.00	1398.00	0.00
0+210	44.15	0.00	2163.17	0.00	1941.39	0.00
0+240	43.80	0.00	3177.48	0.00	1818.76	0.00
0+270	50.28	0.00	4139.43	0.00	2177.00	0.00
0+300	75.24	0.00	5136.92	0.00	2988.61	0.00
0+330	126.08	0.00	4900.43	0.00	1599.58	0.00
0+360	138.08	0.00	5004.80	0.00	2178.83	0.00
0+444.72	218.73	0.00	8701.38	0.00	3139.28	0.00
0+480	0.00	0.00	495.72	0.00	31777.00	0.00
0+540	0.00	0.00	0.00	0.00	31777.00	0.00
0+600	0.00	0.00	0.00	0.00	31777.00	0.00
0+660	0.00	0.00	0.00	0.00	31777.00	0.00
0+720	0.00	0.00	0.00	0.00	31777.00	0.00
0+780	0.00	0.00	0.00	0.00	31777.00	0.00
0+840	0.00	0.00	0.00	0.00	31777.00	0.00
0+900	0.00	0.00	0.00	0.00	31777.00	0.00
0+960.72	208.74	0.00	7185.28	0.00	4021.51	0.00
1+000	67.44	0.00	1448.36	0.00	10899.50	0.00
1+050	116.86	0.00	3877.54	0.00	7677.76	0.00
1+100	58.93	0.00	2448.00	0.00	5304.66	0.00
1+150	27.87	0.00	2931.78	0.00	34488.32	0.00
1+200	21.20	0.00	2228.42	0.00	76847.76	0.00
1+250	21.89	0.00	1784.31	0.00	78883.51	0.00
1+300	14.89	0.00	784.28	0.00	41454.24	0.00
1+350	11.55	0.00	888.08	0.00	41915.53	0.00
1+433.56	17.97	0.00	641.85	0.00	42358.53	0.00

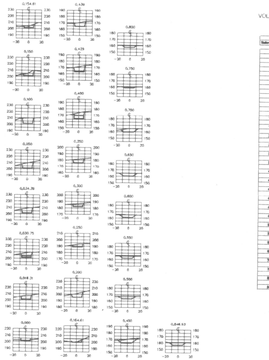
CUADRO DE VOLUMENES EN MURO

A.S.T. = AREA SOBRE TERRENO
V.S.T. = VOLUMEN SOBRE TERRENO

Numero	Abscisa (mm)	ASTm2 (mm2)	ASTm2 (mm2)	A.S.T.m2 (mm2)	A.S.T.m2 (mm2)	Abscisa (mm)	VSTm3 (mm3)	VSTm3 (mm3)	V.S.T.m3 (mm3)	V.S.T.m3 (mm3)
110.000	0.000	0.000	0.000	0.000	0.000					
120.000	36.219	0.000	18.109	0.000	18.109		181.785	0.000	181.785	0.000
130.000	80.436	0.000	58.328	0.000	58.328		581.774	0.000	581.774	0.000
140.000	135.000	0.000	107.718	0.000	107.718		1.077.180	0.000	1.077.180	0.000
150.000	191.128	0.000	163.064	0.000	163.064		1.630.641	0.000	1.630.641	0.000
160.000	247.500	0.000	219.314	0.000	219.314		2.193.139	0.000	2.193.139	0.000
170.000	304.372	0.000	275.936	0.000	275.936		2.759.255	0.000	2.759.255	0.000
180.000	361.744	0.000	333.058	0.000	333.058		3.330.581	0.000	3.330.581	0.000
190.000	419.617	0.000	390.681	0.000	390.681		3.906.810	0.000	3.906.810	0.000
200.000	477.990	0.000	448.804	0.000	448.804		4.488.042	0.000	4.488.042	0.000
210.000	536.863	0.000	507.427	0.000	507.427		5.074.153	0.000	5.074.153	0.000
220.000	596.236	0.000	566.550	0.000	566.550		5.665.494	0.000	5.665.494	0.000
230.000	656.109	0.000	626.173	0.000	626.173		6.261.731	0.000	6.261.731	0.000
240.000	716.482	0.000	686.296	0.000	686.296		6.862.963	0.000	6.862.963	0.000
250.000	777.355	0.000	746.919	0.000	746.919		7.469.076	0.000	7.469.076	0.000
260.000	838.728	0.000	808.042	0.000	808.042		8.080.419	0.000	8.080.419	0.000
270.000	900.601	0.000	869.665	0.000	869.665		8.696.653	0.000	8.696.653	0.000
280.000	962.974	0.000	931.788	0.000	931.788		9.317.775	0.000	9.317.775	0.000
290.000	1.025.847	0.000	994.411	0.000	994.411		9.944.000	0.000	9.944.000	0.000
300.000	1.089.220	0.000	1.057.534	0.000	1.057.534		10.575.334	0.000	10.575.334	0.000
310.000	1.153.093	0.000	1.121.157	0.000	1.121.157		11.211.457	0.000	11.211.457	0.000
320.000	1.217.466	0.000	1.185.280	0.000	1.185.280		11.852.480	0.000	11.852.480	0.000
330.000	1.282.339	0.000	1.249.903	0.000	1.249.903		12.498.403	0.000	12.498.403	0.000
340.000	1.347.712	0.000	1.315.026	0.000	1.315.026		13.149.226	0.000	13.149.226	0.000
350.000	1.413.585	0.000	1.380.649	0.000	1.380.649		13.804.949	0.000	13.804.949	0.000
360.000	1.479.958	0.000	1.446.772	0.000	1.446.772		14.465.572	0.000	14.465.572	0.000
370.000	1.546.831	0.000	1.513.395	0.000	1.513.395		15.131.095	0.000	15.131.095	0.000
380.000	1.614.204	0.000	1.580.518	0.000	1.580.518		15.801.518	0.000	15.801.518	0.000
390.000	1.682.077	0.000	1.648.141	0.000	1.648.141		16.476.841	0.000	16.476.841	0.000
400.000	1.750.450	0.000	1.716.264	0.000	1.716.264		17.157.064	0.000	17.157.064	0.000
410.000	1.819.323	0.000	1.784.887	0.000	1.784.887		17.842.187	0.000	17.842.187	0.000
420.000	1.888.696	0.000	1.854.010	0.000	1.854.010		18.532.210	0.000	18.532.210	0.000
430.000	1.958.569	0.000	1.923.633	0.000	1.923.633		19.227.133	0.000	19.227.133	0.000
440.000	2.028.942	0.000	1.993.756	0.000	1.993.756		19.926.956	0.000	19.926.956	0.000
450.000	2.099.815	0.000	2.064.379	0.000	2.064.379		20.631.679	0.000	20.631.679	0.000
460.000	2.171.188	0.000	2.135.502	0.000	2.135.502		21.341.302	0.000	21.341.302	0.000
470.000	2.243.061	0.000	2.207.125	0.000	2.207.125		22.055.825	0.000	22.055.825	0.000
480.000	2.315.434	0.000	2.279.248	0.000	2.279.248		22.775.248	0.000	22.775.248	0.000
490.000	2.388.307	0.000	2.351.871	0.000	2.351.871		23.499.571	0.000	23.499.571	0.000
500.000	2.461.680	0.000	2.424.994	0.000	2.424.994		24.228.794	0.000	24.228.794	0.000
510.000	2.535.553	0.000	2.498.617	0.000	2.498.617		24.962.917	0.000	24.962.917	0.000
520.000	2.609.926	0.000	2.572.740	0.000	2.572.740		25.701.940	0.000	25.701.940	0.000
530.000	2.684.799	0.000	2.647.363	0.000	2.647.363		26.445.863	0.000	26.445.863	0.000
540.000	2.760.172	0.000	2.722.486	0.000	2.722.486		27.194.686	0.000	27.194.686	0.000
550.000	2.836.045	0.000	2.798.109	0.000	2.798.109		27.948.409	0.000	27.948.409	0.000
560.000	2.912.418	0.000	2.874.232	0.000	2.874.232		28.707.032	0.000	28.707.032	0.000
570.000	2.989.291	0.000	2.950.855	0.000	2.950.855		29.470.555	0.000	29.470.555	0.000
580.000	3.066.664	0.000	3.027.978	0.000	3.027.978		30.238.978	0.000	30.238.978	0.000
590.000	3.144.537	0.000	3.105.601	0.000	3.105.601		31.012.301	0.000	31.012.301	0.000
600.000	3.222.910	0.000	3.183.724	0.000	3.183.724		31.790.524	0.000	31.790.524	0.000
610.000	3.301.783	0.000	3.262.347	0.000	3.262.347		32.573.647	0.000	32.573.647	0.000
620.000	3.381.156	0.000	3.341.470	0.000	3.341.470		33.361.670	0.000	33.361.670	0.000
630.000	3.461.029	0.000	3.421.093	0.000	3.421.093		34.154.593	0.000	34.154.593	0.000
640.000	3.541.402	0.000	3.501.216	0.000	3.501.216		34.952.416	0.000	34.952.416	0.000
650.000	3.622.275	0.000	3.581.839	0.000	3.581.839		35.755.139	0.000	35.755.139	0.000
660.000	3.703.648	0.000	3.662.962	0.000	3.662.962		36.562.762	0.000	36.562.762	0.000
670.000	3.785.521	0.000	3.744.585	0.000	3.744.585		37.375.285	0.000	37.375.285	0.000
680.000	3.867.894	0.000	3.826.708	0.000	3.826.708		38.192.708	0.000	38.192.708	0.000
690.000	3.950.767	0.000	3.909.331	0.000	3.909.331		39.015.031	0.000	39.015.031	0.000
700.000	4.034.140	0.000	3.992.454	0.000	3.992.454		39.842.254	0.000	39.842.254	0.000
710.000	4.118.013	0.000	4.076.077	0.000	4.076.077		40.674.377	0.000	40.674.377	0.000
720.000	4.202.386	0.000	4.160.200	0.000	4.160.200		41.511.400	0.000	41.511.400	0.000
730.000	4.287.259	0.000	4.244.823	0.000	4.244.823		42.353.323	0.000	42.353.323	0.000
740.000	4.372.632	0.000	4.329.946	0.000	4.329.946		43.200.246	0.000	43.200.246	0.000
750.000	4.458.505	0.000	4.415.569	0.000	4.415.569		44.052.069	0.000	44.052.069	0.000
760.000	4.544.878	0.000	4.501.692	0.000	4.501.692		44.908.792	0.000	44.908.792	0.000
770.000	4.631.751	0.000	4.588.315	0.000	4.588.315		45.770.415	0.000	45.770.415	0.000
780.000	4.719.124	0.000	4.675.438	0.000	4.675.438		46.636.938	0.000	46.636.938	0.000
790.000	4.806.997	0.000	4.763.061	0.000	4.763.061		47.508.361	0.000	47.508.361	0.000
800.000	4.895.370	0.000	4.851.184	0.000	4.851.184		48.384.684	0.000	48.384.684	0.000
810.000	4.984.243	0.000	4.939.807	0.000	4.939.807		49.265.907	0.000	49.265.907	0.000
820.000	5.073.616	0.000	5.028.930	0.000	5.028.930		50.152.030	0.000	50.152.030	0.000
830.000	5.163.489	0.000	5.118.553	0.000	5.118.553		51.043.053	0.000	51.043.053	0.000
840.000	5.253.862	0.000	5.208.676	0.000	5.208.676		51.938.976	0.000	51.938.976	0.000
850.000	5.344.735	0.000	5.299.299	0.000	5.299.299		52.839.799	0.000	52.839.799	0.000
860.000	5.436.108	0.000	5.390.422	0.000	5.390.422		53.745.522	0.000	53.745.522	0.000
870.000	5.527.981	0.000	5.482.045	0.000	5.482.045		54.656.145	0.000	54.656.145	0.000
880.000	5.620.354	0.000	5.574.168	0.000	5.574.168		55.571.668	0.000	55.571.668	0.000
890.000	5.713.227	0.000	5.666.791	0.000	5.666.791		56.492.091	0.000	56.492.091	0.000
900.000	5.806.600	0.000	5.759.914	0.000	5.759.914		57.417.414	0.000	57.417.414	0.000
910.000	5.900.473	0.000	5.853.537	0.000	5.853.537		58.347.637	0.000	58.347.637	0.000
920.000	5.994.846	0.000	5.947.660	0.000	5.947.660		59.282.760	0.000	59.282.760	0.000
930.000	6.089.719	0.000	6.042.283	0.000	6.042.283		60.222.783	0.000	60.222.783	0.000
940.000	6.185.092	0.000	6.137.406	0.000	6.137.406		61.167.706	0.000	61.167.706	0.000
950.000	6.280.965	0.000	6.233.029	0.000	6.233.029		62.117.529	0.000	62.117.529	0.000
960.000	6.377.338	0.000	6.329.152	0.000	6.329.152		63.072.252	0.000	63.072.252	0.000
970.000	6.474.211	0.000	6.425.775	0.000	6.425.775		64.031.875	0.000	64.031.875	0.000
980.000	6.571.584	0.000	6.522.898	0.000	6.522.898		64.996.398	0.000	64.996.398	0.000
990.000	6.669.457	0.000	6.620.521	0.000	6.620.521		65.965.821	0.000	65.965.821	0.000
1000.000	6.767.830	0.000	6.718.644	0.000	6.718.644		66.940.144	0.000	66.940.144	0.000
1010.000	6.866.703	0.000	6.817.267	0.000	6.817.267		67.919.367	0.000	67.919.367	0.000
1020.000	6.966.076	0.000	6.916.390	0.000	6.916.390		68.903.490	0.000	68.903.490	0.000
1030.000	7.065.949	0.000	7.016.013	0.000	7.016.013		69.892.513	0.000	69.892.513	0.000
1040.000	7.166.322	0.000	7.116.136	0.000	7.116.136		70.886.436	0.000	70.886.436	0.000
1050.000	7.267.195	0.000	7.216.759	0.000	7.216.759		71.885.259	0.000	71.885.259	0.000
1060.000	7.368.568	0.000	7.317.882	0.000	7.317.882		72.888.982	0.000	72.888.982	0.000
1070.000	7.470.441	0.000	7.419.505	0.000	7.419.505		73.897.605	0.000	73.897.605	0.000
1080.000	7.572.814	0.000	7.521.628	0.000	7.521.628		74.911.128	0.000	74.911.128	0.000
1090.000	7.675.687	0.000	7.624.251	0.000	7.624.251		75.929.551	0.000	75.929.551	0.000
1100.000	7.779.060	0.000	7.727.374	0.000	7.727.374		76.952.874	0.000	76.952.874	0.000
1110.000	7.882.933	0.000	7.830.997	0.000	7.830.997		77.981.097	0.000	77.981.097	0.000
1120.000	7.987.306	0.000	7.935.120	0.000	7.935.120		79.014.220	0.000	79.014.220	0.000
1130.000	8.092.179	0.000	8.039.743	0.000	8.039.743		80.052.243	0.000	80.052.243	0.000
1140.000	8.197.552	0.000	8.144.866	0.000	8.144.866		81.095.166	0.000	81.095.166	0.000
1150.000	8.303.425	0.000	8.250.489	0.000	8.250.489		82.142.989	0.000	82.142.989	0.000
1160.000	8.409.798	0.000	8.356.612	0.000	8.356.612		83.195.712	0.000	83.195.712	0.000
1170.000	8.516.671	0.000	8.463.235	0.000	8.463.235		84.253.335	0.000	84.253.335	0.000
1180.000	8.624.044	0.000	8.570.358	0.000	8.570.358		85.315.858	0.000	85.315.858	0.000
1190.000	8.731.917	0.000	8.677.981	0.000	8.677.981		86.383.281	0.000	86.383.281	0.000
1200.000	8.840.290	0.000	8.786.104	0.000	8.786.104		87.455.604	0.000	87.455.604	0.000
1210.000	8.949.163	0.000	8.894.727	0.000	8.894.727		88.532.827	0.000	88.532.827	0.000
1220.000	9.058.536	0.000	9.003.850	0.000	9.003.850		89.614.950	0.000	89.614.950	0.000
1230.000	9.168.409	0.000	9.113.473	0.000	9.113.473		90.701.973	0.000	90.701.973	0.000
1240.000	9.278.782	0.000	9.223.596	0.000	9.223.596		91.793.896	0.000	91.793.896	0.000
1250.000	9.389.655	0.000	9.334.219	0.000	9.334.219		92.890.719	0.000	92.890.719	0.000
1260.000	9.501.028	0.000	9.445.342	0.000	9.445.342		93.992.442	0.000	93.992.442	0.000
1270.000	9.612.901	0.000	9.556.965	0.000	9.556.965		95.099.065	0.000	95.099.065	0.000
1280.000	9.725.274	0.000	9.669.088	0.000	9.669.088		96.210.588	0.000	96.210.588	0.000
1290.000	9.838.147	0.000	9.781.711	0.000	9.781.711		97.327.011	0.000	97.327.011	0.000
1300.000	9.951.520	0.000	9.894.834	0.000	9.894.834		98.448.334	0.000	98.448.334	0.000
1310.000	10.065.393	0.000	10.008.457	0.000	10.008.457		99.574.557	0.000	99.574.557	0.000
1320.000	10.179.766	0.000	10.122.580	0.000	10.122.580		100.705.680	0.000	100.705.680	0.000
1330.000	10.294.639	0.000	10.237.203	0.000	10.237.203		101.841.703	0.000	101.841.703	0.000
1340.000	10.410.012	0.000	10.352.326	0.000	10.352.326		102.982.626	0.000	102.982.626	0.000
1350.000	10.525.885	0.000	10.467.949	0.000	10.467.949		104.128.449	0.000	104.128.449	0.000
1360.000	10.642.258	0.000	10.584.072	0.000	10.584.072		105.279.172	0.000	105.279.172	0.000
1370.000	10.759.131	0.000	10.700.695	0.000	10.700.695		106.434.795	0.000	106.434.795	0.000
1380.000	10.876.504	0.000	10.817.818	0.000	10.817.818		107.595.318	0.000	107.595.318	0.000
1390.000	10.994.377	0.000	10.935.441	0.000	10.935.441		108.760.741	0.000	108.760.741	0.000
1400.000	11.112.750	0.000	11.053.564	0.000	11.053.564		109.931.064	0.000	109.931.064	0.000
1410.000	11.231.623	0.000	11.172.187	0.000	11.172.187		111.106.287	0.000	111.106.287	0.000
1420.000	11.350.996	0.000	11.291.310	0.000	11.291.310		112.286.410	0.000	112.286.410	0.000
1430.000	11.470.869	0.000	11.410.933	0.000	11.410.933		113.471.433	0.000	113.471.433	0.000
1433.560	11.507.000	0.000	11.488.935	0.000	11.488.935		114.041.356	0.000	114.041.356	0.000

PERFILES TRANSVERSALES VERTEDERO

ESCALAS H: 1:2500 V: 1:2500



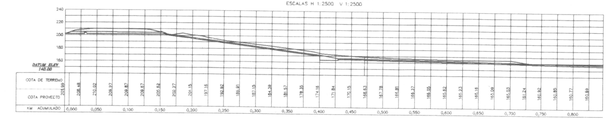
VOLUMEN EXCAVACIÓN

Tramo	Tramo (m3)	Tramo (m3/seg)
0.00	0.00	
10.00	0.00	76.291
20.00	0.00	152.582
30.00	0.00	228.873
40.00	0.00	305.164
50.00	0.00	381.455
60.00	0.00	457.746
70.00	0.00	534.037
80.00	0.00	610.328
84.01	0.00	636.000
90.00	19.98	636.000
100.00	199.80	636.000
110.00	1,998.00	636.000
120.00	19,980.00	636.000
130.00	199,800.00	636.000
140.00	1,998,000.00	636.000
150.00	19,980,000.00	636.000
160.00	199,800,000.00	636.000
170.00	1,998,000,000.00	636.000
180.00	19,980,000,000.00	636.000
190.00	199,800,000,000.00	636.000
200.00	1,998,000,000,000.00	636.000

Total 1,997,961,999,999.00

PERFIL LONGITUDINAL POR EL EJE DEL VERTEDERO

ESCALAS H: 1:2500 V: 1:2500



GEOFUN LTDA.

REPUBLICA DE CHILE
COMISIÓN NACIONAL DE RIEGO
DEPARTAMENTO DE ESTUDIOS

ESTUDIO
ESTUDIO INTEGRAL DE OPTIMIZACIÓN DEL REGADÍO DE LA TERCERA SECCIÓN DEL RÍO MAIPO Y DE LOS VALLES YALI Y ALHUE

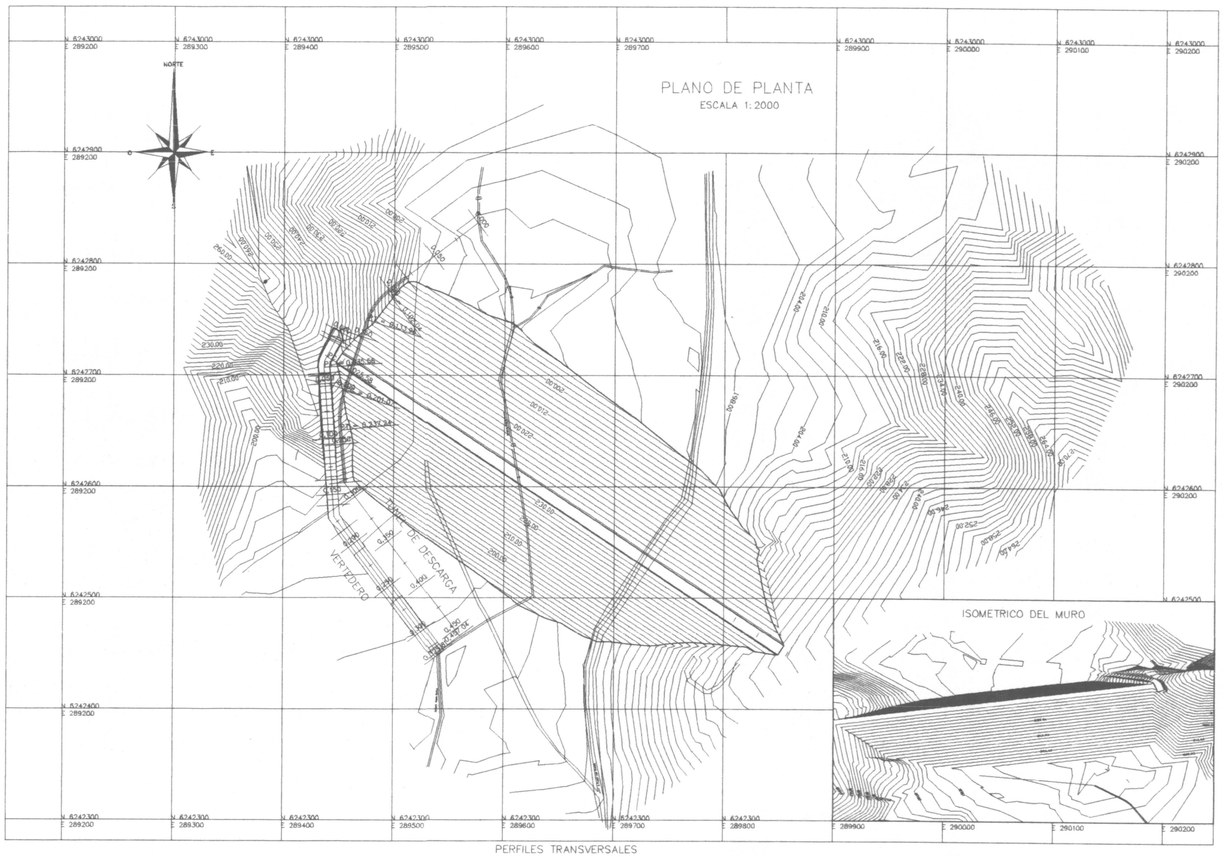
PLANO
EMBALSE POLCURA
PLANTA GENERAL DE OBRAS

ESCALA H: 1:2500 V: 1:2500

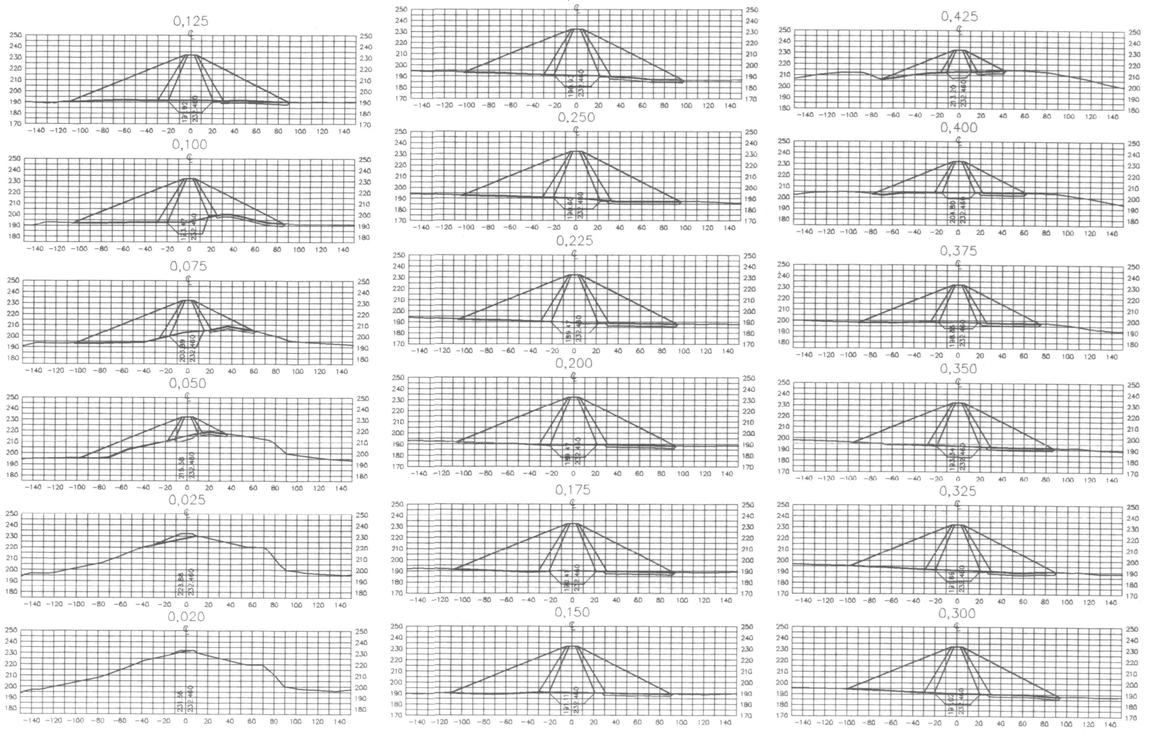
N° 1.3.4.4-2

AÑO 2001

PLANO DE PLANTA
ESCALA 1: 2000



PERFILES TRANSVERSALES
ESCALAS H 1: 2000 V 1: 2000

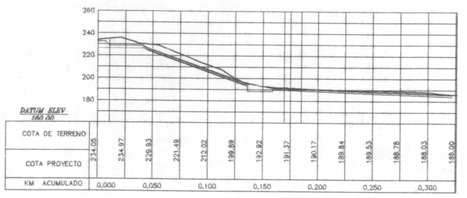


VOLUMEN EXCAVACIÓN

Perfil	Area (m2)	Volumen (m3)
0,000	95,83	
7,146	126,86	819,46
18,788	106,56	433,42
40,560	55,98	2466,50
43,702	54,37	118,63
50,000	57,43	407,51
100,000	70,85	3207,00
135,536	30,96	1809,28
135,536	30,96	0,00
150,000	82,08	673,11
158,536	52,47	391,30
158,536	36,79	0,00
184,988	40,17	773,81
184,988	30,69	390,40
300,000	16,31	1295,00
250,000	17,69	1760,00
300,000	38,01	746,17
325,833	16,79	

Total 15584,36 (m3)

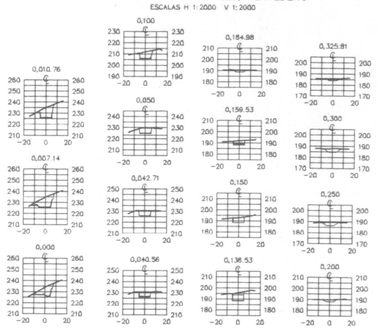
PERFIL LONGITUDINAL POR EL EJE DEL VERTEDERO
ESCALAS H 1: 2000 V 1: 2000



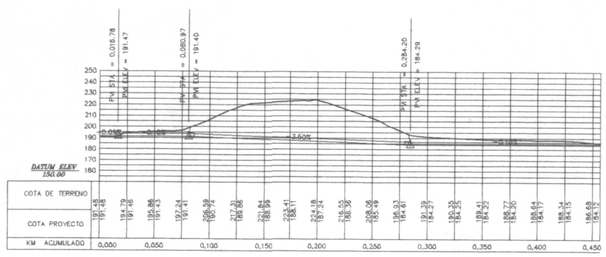
DATUM ELEV. 160.00										
COTA DE TERRENO	234,05	234,97	226,83	221,49	213,02	199,89	192,92	191,37	190,17	189,84
COTA PROYECTO										
KM ACUMULADO	0,000	0,050	0,100	0,150	0,200	0,250	0,300			

DATUM ELEV. 160.00							
COTA DE TERRENO	189,53	188,78	188,03	185,00			
COTA PROYECTO							
KM ACUMULADO							

PERFILES TRANSVERSALES, VERTEDERO
ESCALAS H 1: 2000 V 1: 2000

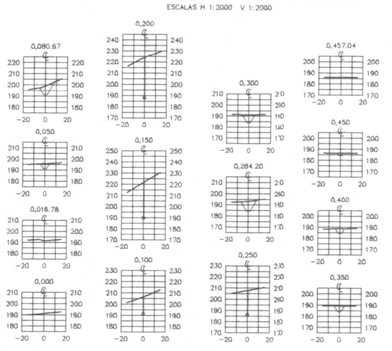


PERFIL LONGITUDINA_ POR EL TUNEL DE DESCARGA
ESCALAS H 1: 2000 V 1: 2000



COTA DE TERRENO	191,48	191,48	191,79	191,43	192,44	191,41	209,39	210,74	214,31	214,88	221,84	222,99	228,11	228,51	231,04	231,96	236,06	236,96	184,13	184,61	184,29	184,29	184,20	184,25	189,41	189,52	188,27	188,50	188,64	188,74	188,74	184,15	186,68	184,12
COTA PROYECTO																																		
KM ACUMULADO	0,000	0,050	0,100	0,150	0,200	0,250	0,300	0,350	0,400	0,450																								

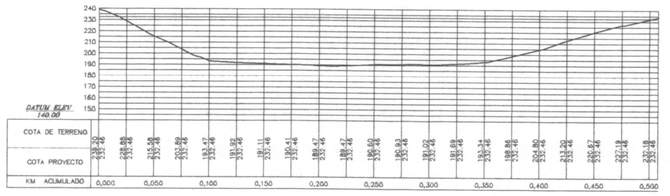
PERFILES TRANSVERSALES DEL TUNEL DE DESCARGA
ESCALAS H 1: 2000 V 1: 2000



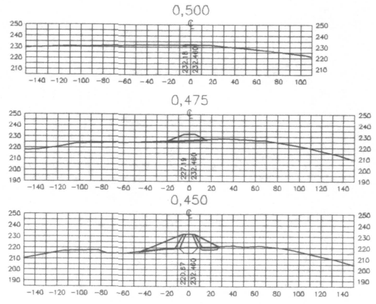
VOLUMEN EXCAVACIÓN EN CANAL TUNEL DE DESCARGA

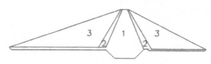
STATION	AREAS Square Meters CUT	AREAS Square Meters FILL	VOLUMES Cubic Meters CUT	VOLUMES Cubic Meters FILL	CUMULATIVE VOLUMES Cubic Meters CUT	CUMULATIVE VOLUMES Cubic Meters FILL
0+000	0,00	0,00				
0+016,78	0,22	0,00	1,87	0,00	1,87	0,00
0+050	14,51	0,00	244,77	0,00	246,64	0,00
0+080,97	31,05	0,00	705,55	0,00	952,19	0,00
0+100	0,00	0,00	295,45	0,00	1247,64	0,00
0+150	0,00	0,00	0,00	0,00	1247,64	0,00
0+200	0,00	0,00	0,01	0,00	1247,65	0,00
0+250	0,00	0,00	0,00	0,00	1247,65	0,00
0+284,20	37,22	0,00	636,47	0,00	1884,12	0,00
0+300	27,12	0,00	508,31	0,00	2392,43	0,00
0+350	17,76	0,00	1121,97	0,00	3514,40	0,00
0+400	14,87	0,00	810,75	0,00	4325,10	0,00
0+450	7,42	0,00	552,27	0,00	4877,37	0,00
0+457,04	0,00	0,00	26,10	0,00	4903,47	0,00
			0,00	0,00	4903,47	0,00

PERFIL LONGITUDINAL POR EL EJE DEL MURO
ESCALAS H 1: 2000 V 1: 2000



DATUM ELEV. 140.00																							
COTA DE TERRENO	202,22	202,48	202,48	202,48	202,48	202,48	202,46	202,46	202,46	202,46	202,46	202,46	202,46	202,46	202,46	202,46	202,46	202,46	202,46	202,46	202,46	202,46	202,46
COTA PROYECTO																							
KM ACUMULADO	0,000	0,050	0,100	0,150	0,200	0,250	0,300	0,350	0,400	0,450	0,500												





CUADRO DE VOLUMENES EN MURO

A.S.T. = AREA SOBRE TERRENO
V.S.T. = VOLUMEN SOBRE TERRENO

Station	Escarpe Area (m2)	A1(m2) Area (m2)	A2(m2) Area (m2)	A3(m2) Area (m2)	A.S.T.(m2) Area (m2)	Escarpe Vol (m3)	A1(m3) Vol (m3)	A2(m3) Vol (m3)	A3(m3) Vol (m3)	V.S.T.(m3) Vol (m3)
35,000	0,000	0,000	0,000	0,000	17,980					
35,000	21,735	117,100	0,000	0,000	96,445	54,388	392,750	0,000	0,000	206,250
50,000	68,860	298,930	178,630	10,371,380	1341,360	1131,563	5100,250	2236,625	12868,000	17871,250
75,000	63,330	807,870	375,370	1844,150	2577,810	1901,750	14706,875	6938,750	36017,875	48985,875
100,000	97,390	1192,060	516,600	2436,400	3504,550	2476,438	24056,375	13896,750	65337,875	93711,250
125,000	100,245	1252,690	564,440	2798,830	3646,150	2530,063	29697,500	15673,250	79506,375	101586,375
150,000	101,380	1338,310	611,340	3063,680	4178,160	2525,000	34348,500	15586,625	75090,250	106603,375
175,000	100,840	1496,510	635,990	3003,540	4303,710	2513,063	35350,125	15935,750	74661,250	107507,875
200,000	100,405	1418,445	638,670	3069,445	4338,830	2502,875	34841,500	15952,375	75834,375	108726,375
225,000	99,835	1377,640	638,120	3037,310	4338,110	2497,250	34174,375	15917,625	75791,875	108582,375
250,000	99,555	1356,960	641,260	3066,020	4355,480	2494,125	33518,750	15864,500	75417,000	107794,250
275,000	100,175	1325,380	635,830	3067,340	4371,740	2498,438	33047,875	15918,875	77193,750	109459,500
300,000	97,740	1318,440	615,780	3060,160	4185,900	2466,063	32912,500	15868,125	76317,875	107529,875
325,000	84,105	1282,530	587,260	3077,270	4038,890	2355,750	32128,375	14919,875	84736,375	97998,875
350,000	91,995	1207,635	564,300	2501,640	3986,100	3187,938	32619,250	13765,625	104319,000	83893,125
375,000	83,085	861,795	456,950	1649,480	3938,375	1917,125	18731,750	9985,875	41215,875	83150,750
400,000	75,190	635,850	340,320	1347,780	3045,790	1590,375	12677,125	6765,875	38022,250	38525,375
425,000	56,945	378,230	201,550	733,990	1116,240	1166,375	7202,375	3803,750	12742,500	19808,750
450,000	36,530	197,935	109,870	285,410	467,850	889,875	4209,500	1370,875	3587,625	7356,500
475,000	18,680	138,790	0,000	0,000	130,700	337,250	1848,875	0,000	0,000	3917,500
500,000	0,000	9,350	0,000	0,000	130,700					
						31866,800	440686,250	208938,000	964468,250	1381800,000

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REPUBLICA DE CHILE
COMISIÓN NACIONAL DE RIEGO
DEPARTAMENTO DE ESTUDIOS

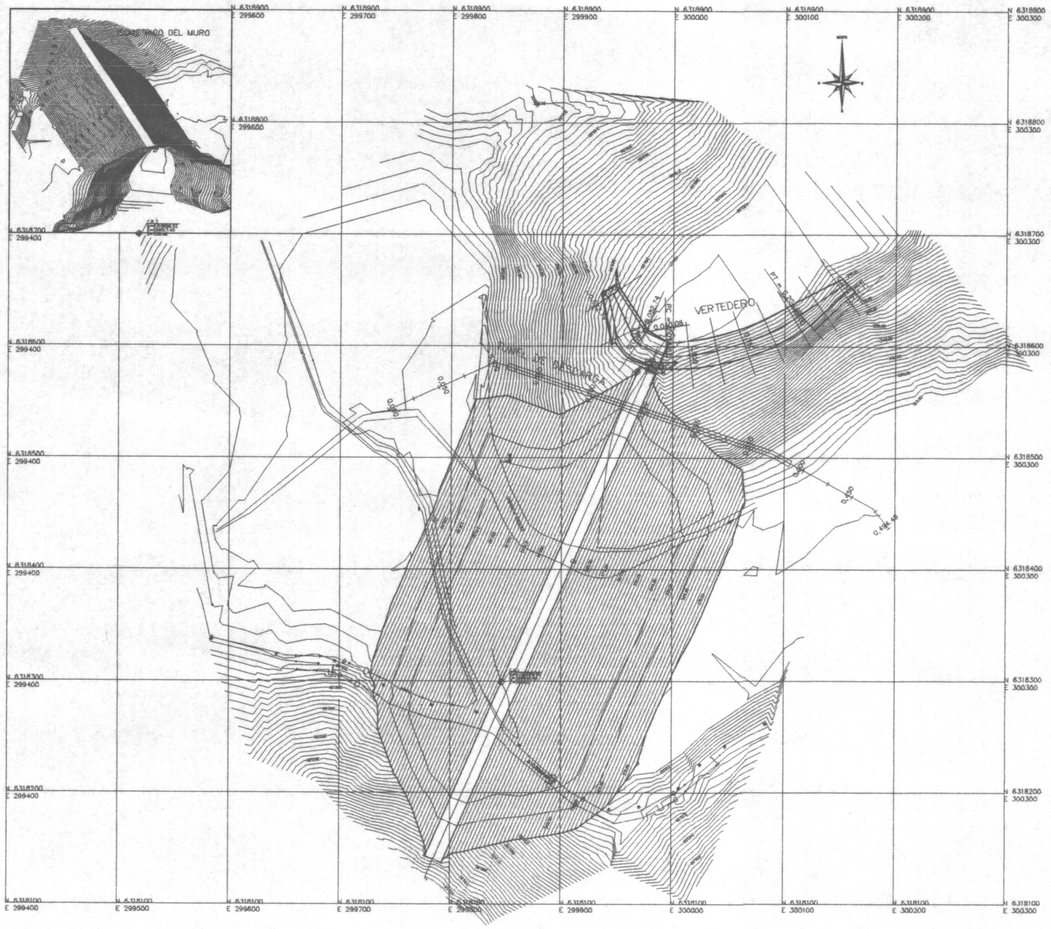
ESTUDIO
ESTUDIO INTEGRAL DE OPTIMIZACIÓN DEL REGADÍO DE LA TERCERA SECCIÓN DEL RÍO MAIPO Y DE LOS VALLES YALI Y ALHUE

PLANO
EMBALSE YEGUA OVERA
PLANTA GENERAL DE OBRAS

ESCALA: Indicadas
Nº 13.4.4-3
AGOSTO - 2001

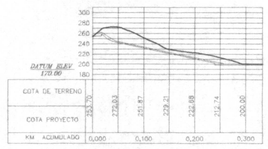
PLANO DE PLANTA

ESCALA 1: 2000


EJE DEL MURO
VERTEDERO
TUNEL DE DESCARGA
0.0%
0.0%
0.0%

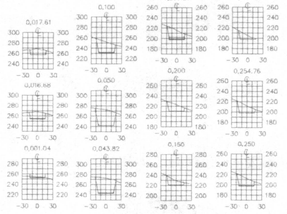
PERFIL LONGITUDINAL VERTEDERO

ESCALAS H 1:5000 V 1:5000



PERFILES TRANSVERSALES VERTEDERO

ESCALAS H 1:5000 V 1:5000



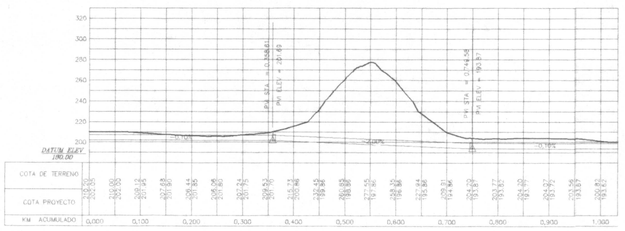
VOLUMEN EXCAVACIÒN

Perfil	Area (m2)	Volumen (m3)
1,040	50,54	
		1417,11
16,680	386,43	
		327,74
17,610	718,36	
		17521,78
43,820	1018,65	
		6405,13
50,000	1054,53	
		43808,50
100,000	697,73	
		25109,75
150,000	310,66	
		17990,25
200,000	408,95	
		16845,33
239,290	448,74	
		0,00
239,290	568,34	
		5031,13
250,000	490,78	
		2276,37
254,760	465,68	
		88170,99
279,290	241,29	

Total 147507,06 (m3)

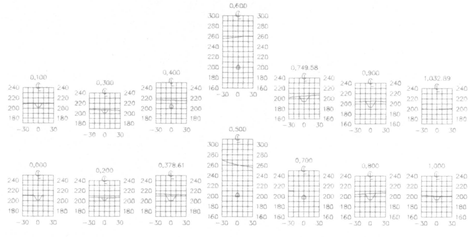
PERFIL LONGITUDINAL TUNEL DE DESCARGA

ESCALAS H 1:5000 V 1:2500



PERFILES TRANSVERSALES TUNEL DE DESCARGA

ESCALAS H 1:5000 V 1:5000



VOLUMEN EXCAVACIÓN EN CANAL

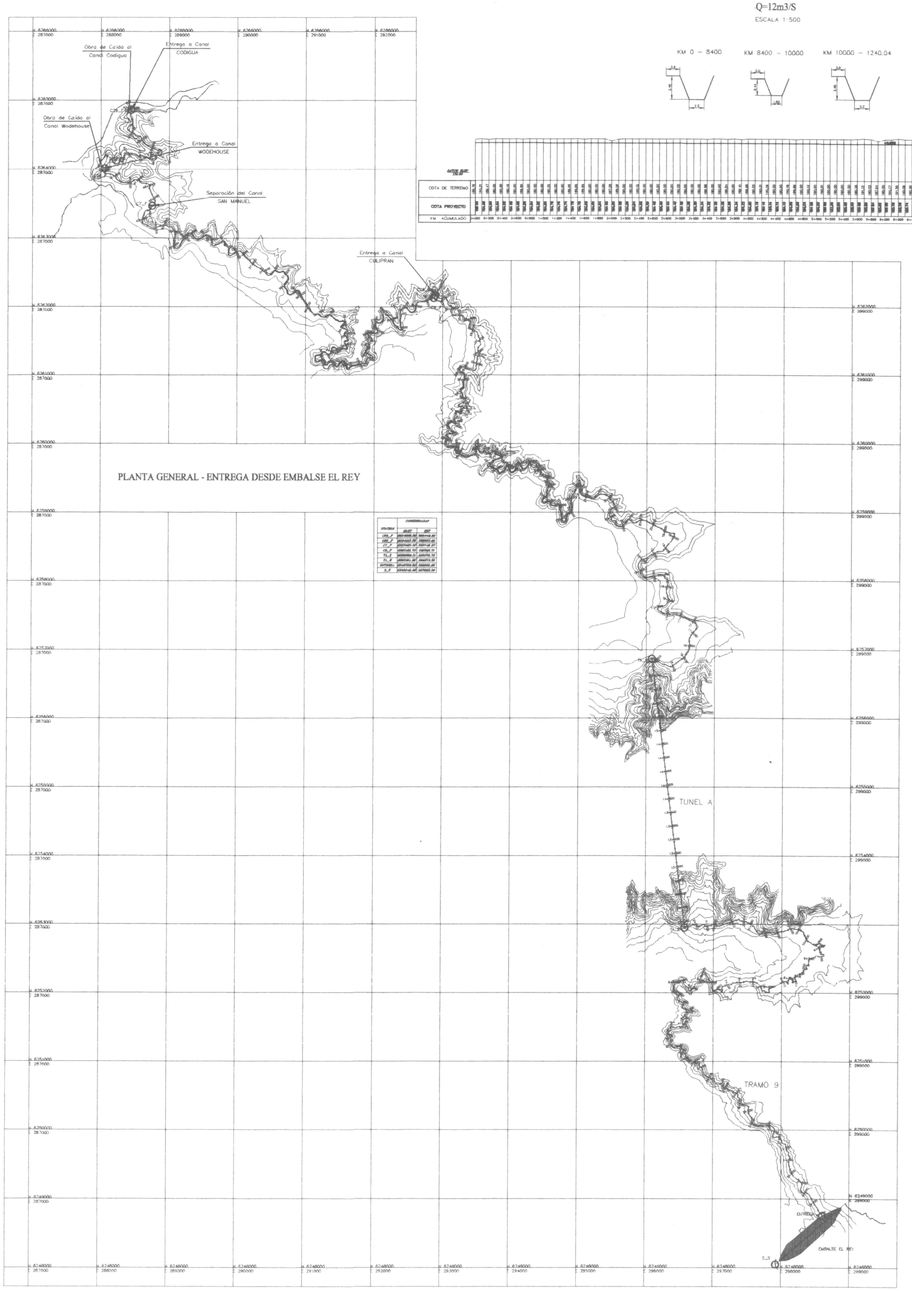
STATION	AREAS Square Meters CUT	AREAS Square Meters FILL	VOLUMES Cubic Meters CUT	VOLUMES Cubic Meters FILL	CUMULATIVE VOLUMES Cubic Meters CUT	CUMULATIVE VOLUMES Cubic Meters FILL
0+000	56.30	0.00	5219.28	0.00	5219.28	0.00
0+100	48.09	0.00	3825.15	0.00	9044.43	0.00
0+200	28.41	0.00	3173.39	0.00	12217.82	0.00
0+300	33.05	0.00	3189.22	0.00	15407.04	0.00
0+378.61	46.09	0.00	492.99	0.00	15900.03	0.00
0+400	0.00	0.00	0.00	0.00	15900.03	0.00
0+500	0.00	0.00	0.00	0.00	15900.03	0.00
0+550	0.00	0.00	0.00	0.00	15900.03	0.00
0+700	0.00	0.00	2075.08	0.00	17975.10	0.00
0+749.58	83.71	0.00	4408.50	0.00	22383.61	0.00
0+800	91.16	0.00	8869.47	0.00	31253.28	0.00
0+900	85.33	0.00	8676.30	0.00	39929.58	0.00
1+000	40.30	0.00	794.17	0.00	40723.75	0.00
1+032.89	0.00	0.00	0.00	0.00	40723.75	0.00

CUADRO DE VOLUMENES EN MURO

A.S.T. = AREA SOBRE TERRENO
V.S.T. = VOLUMEN SOBRE TERRENO

Station	Excavac Area (m2)	ASO(1) Area (m2)	ASO(2) Area (m2)	A.S.T(m2) Area (m2)	Excavac Vol (m3)	ASO(1) Vol (m3)	ASO(2) Vol (m3)	A.S.T(m3) Vol (m3)
320,000	0,000	0,000	0,000	0,000				
					324,845	863,889	552,845	960,609
260,000	20,396	50,859	34,888	89,599				
					1327,256	3833,888	2084,888	3048,388
386,000	45,859	117,876	80,749	263,530				
					3246,375	7951,764	5816,764	9311,764
332,000	87,892	191,988	133,756	347,240				
					2421,000	17961,528	9838,756	33703,768
406,000	75,785	347,468	239,326	648,982				
					4845,756	43734,758	16887,080	38911,080
452,000	83,107	714,870	411,382	1677,890				
					4176,580	11458,356	20983,928	18815,758
386,000	80,160	754,496	367,756	1591,180				
					3844,580	5884,375	8272,080	3289,375
352,000	178,440	1982,606	481,756	3017,750				
					4811,960	8931,750	2089,500	13240,750
468,000	155,870	2158,960	643,870	3811,350				
					5317,230	18333,500	3949,500	25338,750
450,000	118,380	2265,350	1068,530	4130,700				
					5774,090	8811,750	21436,500	21621,000
396,000	147,410	2417,460	727,400	4496,380				
					8189,355	7886,375	13379,500	21358,250
750,000	148,650	2538,740	786,110	4772,780				
					8383,758	7495,758	19668,500	28050,758
330,000	150,185	2922,350	813,430	4882,480				
					8995,388	7113,500	13207,500	41318,500
816,000	134,366	2972,630	830,616	5283,750				
					7202,298	6763,250	4554,000	34394,750

Station	Excavac Area (m2)	ASO(1) Area (m2)	ASO(2) Area (m2)	A.S.T(m2) Area (m2)	Excavac Vol (m3)	ASO(1) Vol (m3)	ASO(2) Vol (m3)	A.S.T(m3) Vol (m3)
900,000	138,000	2868,000	844,000	5160,000				
					7218,000	6762,000	3960,000	9660,000
900,000	138,000	2867,000	858,000	5447,000				
					7182,000	6699,000	3948,000	9660,000
1000,000	148,000	2637,000	897,000	5637,000				
					7146,000	6699,000	3948,000	9660,000
1000,000	147,000	2697,000	900,000	5777,000				
					7146,000	6699,000	3948,000	9660,000
1000,000	142,000	2643,000	914,000	5966



PLANTA GENERAL - ENTREGA DESDE EMBALSE EL REY

PERFILES TIPO
Q=12m3/S
ESCALA 1:500

KM 0 - 8400 | KM 8400 - 10000 | KM 10000 - 1240.04

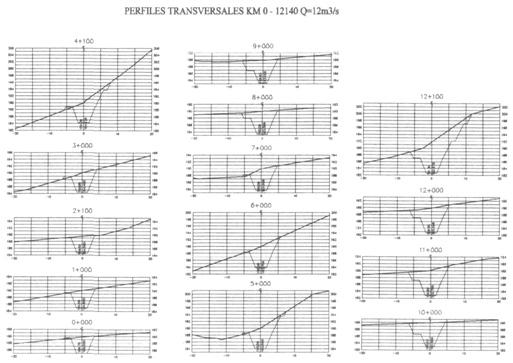
PERFIL LONGITUDINAL ENTREGA DESDE EMBALSE EL REY
KM 0,000 - 30606.39 Q=12m3/s

PERFIL TUNEL A
SECCION MEDIO PUNTO

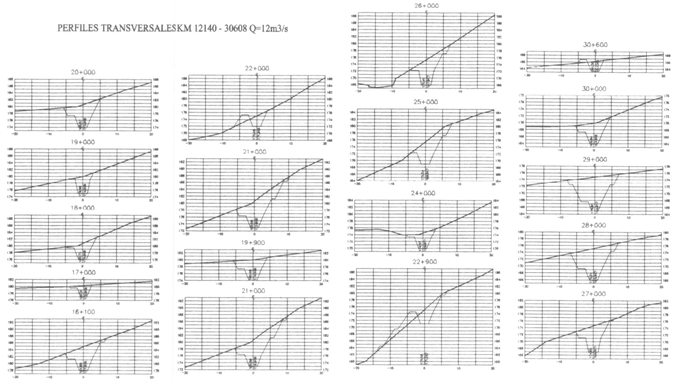
PERFILES TIPO
Q=12m3/S
ESCALA 1:500

KM 16088.31 - 16600 | KM 16600 - 17200 | KM 17200 - 18500 | KM 18500 - 19400 | KM 19400 - 19800 | KM 19800 - 25800 | KM 25800 - 27600 | KM 27600 - 28800 | KM 28800 - 29500 | KM 29500 - 30606.39

PERFILES TRANSVERSALES KM 0 - 12140 Q=12m3/s



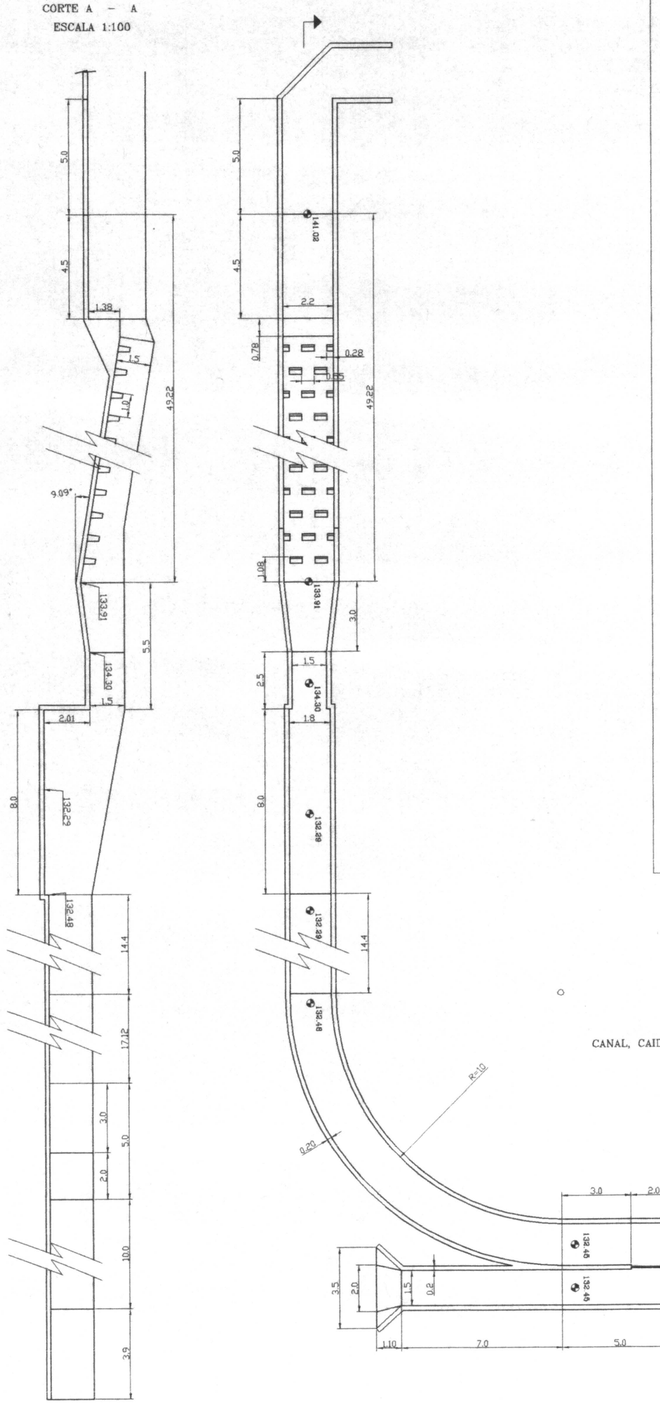
PERFILES TRANSVERSALESKM 12140 - 30608 Q=12m3/s



CALCULO DE VOLUMEN
ENTREGA DESDE EMBALSE EL REY Q=12m3/s
KM 0 - 12140

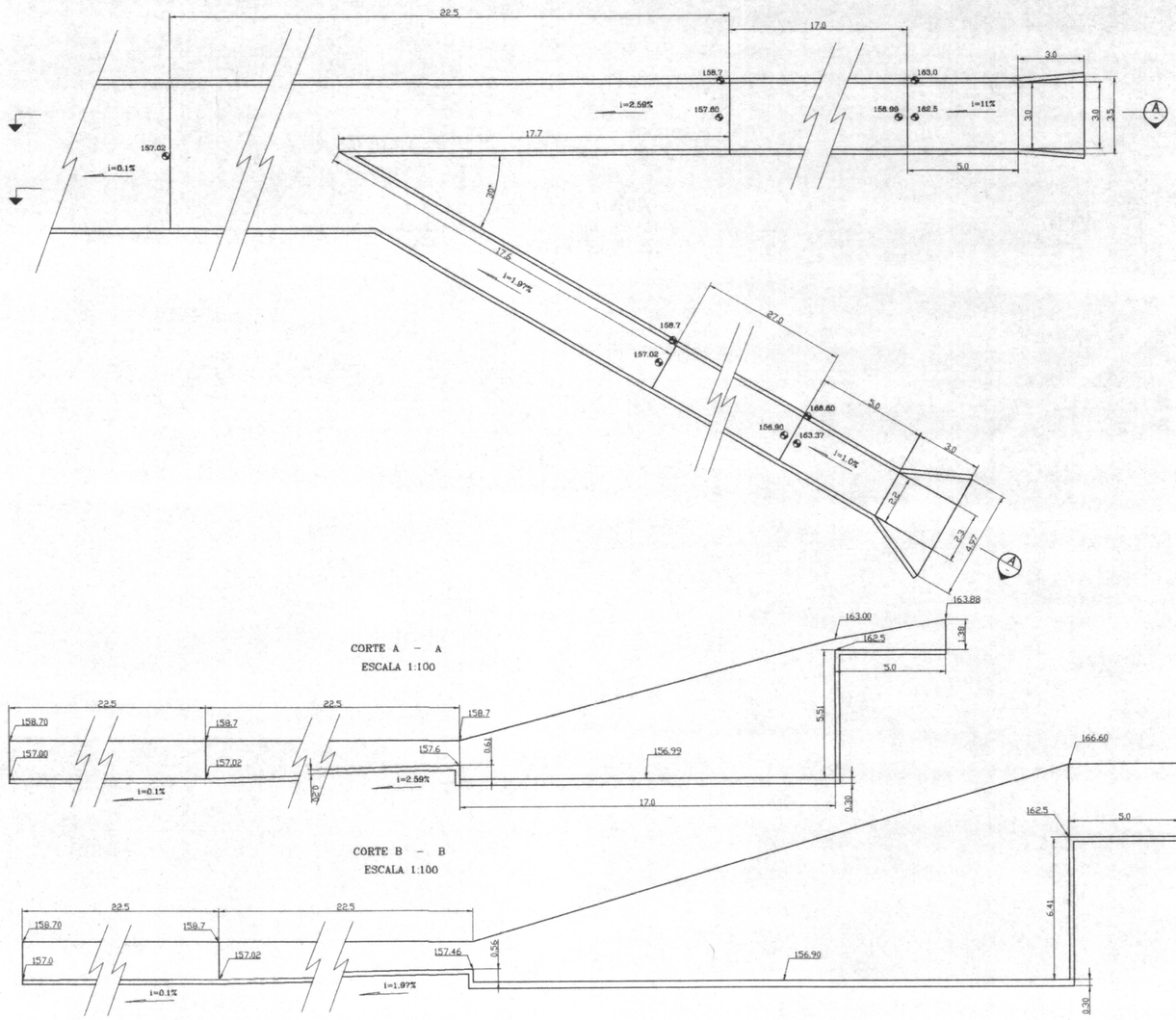
PROGRESIVA	AREAS Parcial (Metros cuadrados)		VOLUMEN Total (Metros cubicos)		ITEMS LINEARES Total (Metros)	
	CORTE	RELLENO	CORTE	RELLENO	CORTE	RELLENO
0+000	17.58	1.26	3556.12	20.14	3556.12	20.14
0+020	17.58	1.26	3556.12	20.14	3556.12	20.14
0+040	17.58	1.26	3556.12	20.14	3556.12	20.14
0+060	18.27	0.79	3585.11	13.84	3585.11	13.84
0+080	18.27	0.79	3585.11	13.84	3585.11	13.84
0+100	18.27	0.79	3585.11	13.84	3585.11	13.84
0+120	17.19	0.35	3524.57	5.45	3524.57	5.45
0+140	17.19	0.35	3524.57	5.45	3524.57	5.45
0+160	17.19	0.35	3524.57	5.45	3524.57	5.45
0+180	16.31	0.35	3451.36	5.45	3451.36	5.45
0+200	16.31	0.35	3451.36	5.45	3451.36	5.45
0+220	16.31	0.35	3451.36	5.45	3451.36	5.45
0+240	15.67	0.35	3198.72	5.45	3198.72	5.45
0+260	15.67	0.35	3198.72	5.45	3198.72	5.45
0+280	15.67	0.35	3198.72	5.45	3198.72	5.45

CORTE A – A
ESCALA 1:100



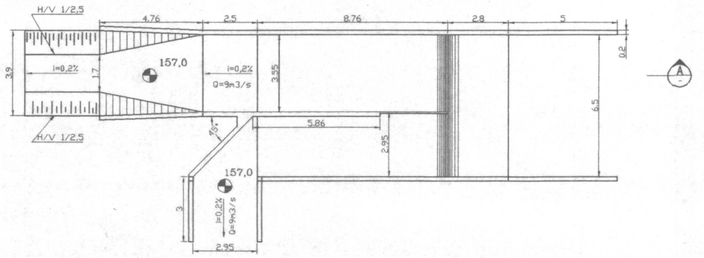
PLANTA OBRA E
CANAL, CAIDA Y ENTREGA A CANAL WODEHOUSE DESDE CANAL DE ENTREGA
Km 41,658.7
ESCALA 1:100

PLANTA OBRA A
OBRA ENLACE CANAL ENTREGA, DESDE EMBALSE EL REY Y CANAL CULIPRAN
Km 30,566.0
ESCALA 1:100

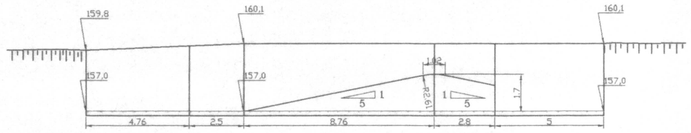


GEOFUN LTDA.	*REPUBLICA DE CHILE* *COMISIÓN NACIONAL DE RIEGO* *DEPARTAMENTO DE ESTUDIOS*	*ESTUDIO* ESTUDIO INTEGRAL DE OPTIMIZACIÓN DEL REGADÍO DE LA TERCERA SECCIÓN DEL RÍO MAIPO Y DE LOS VALLES YALI Y ALHUE	*PLANO* *OBRAS DE AL* *CANAL DE ENT*	
			ESCALA: *Indicadas*	*Nº* 13.4.5–2

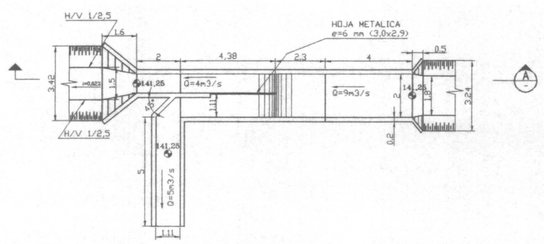
PLANTA OBRA B
MARCO PARTIDOR CANAL ENTREGA KM 30.654,9
ENTREGA A CANAL CULIPRAN



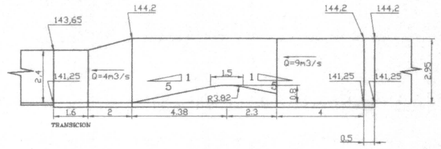
CORTE A - A
ESCALA 1:50



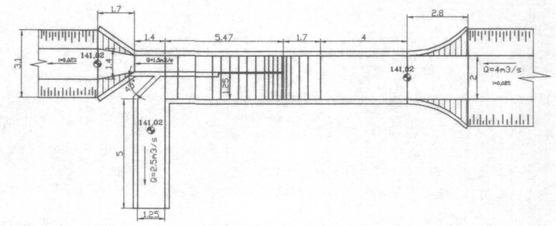
PLANTA OBRA C
MARCO DERIVADO SAN MANUEL- ENTREGA A CANALES
WODEHOUSE Y CODIGUA- KM 31813

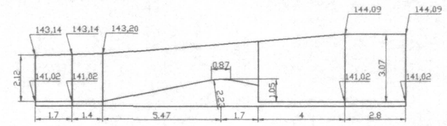


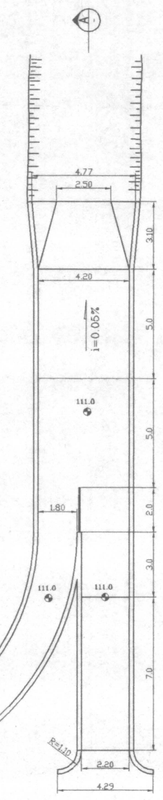
CORTE A - A
ESCALA 1:50



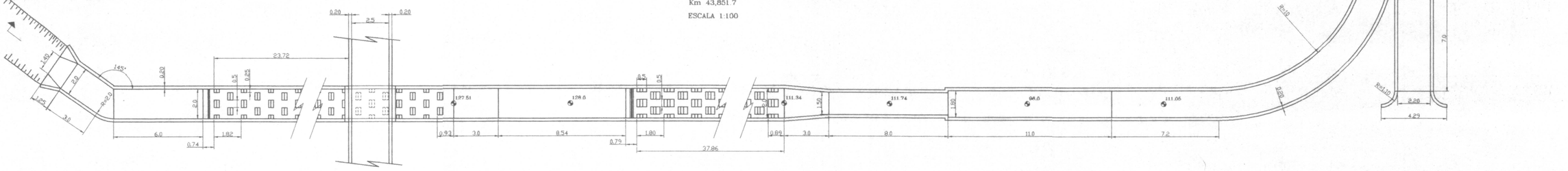
PLANTA OBRA D
MARCO PARTIDOR CANAL ENTREGA WODEHOUSE-CODIGUA
CANAL ENTREGA CODIGUA KM 41658,7

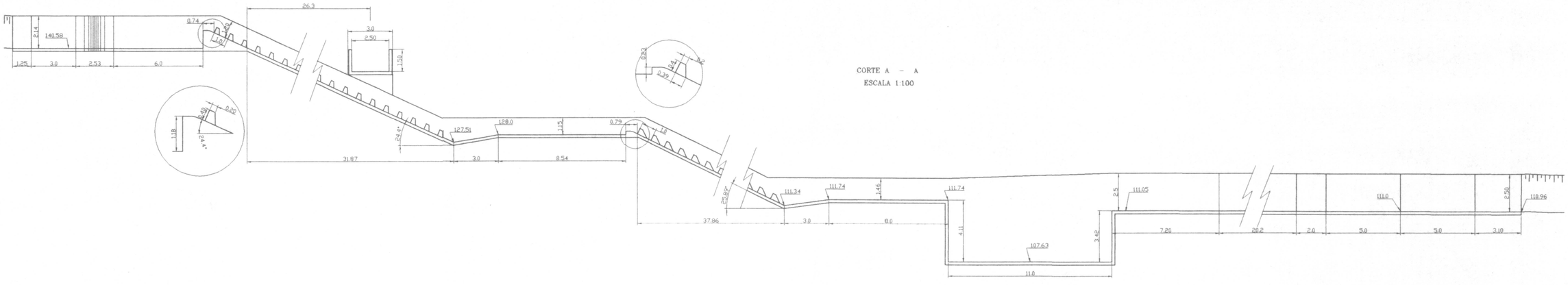






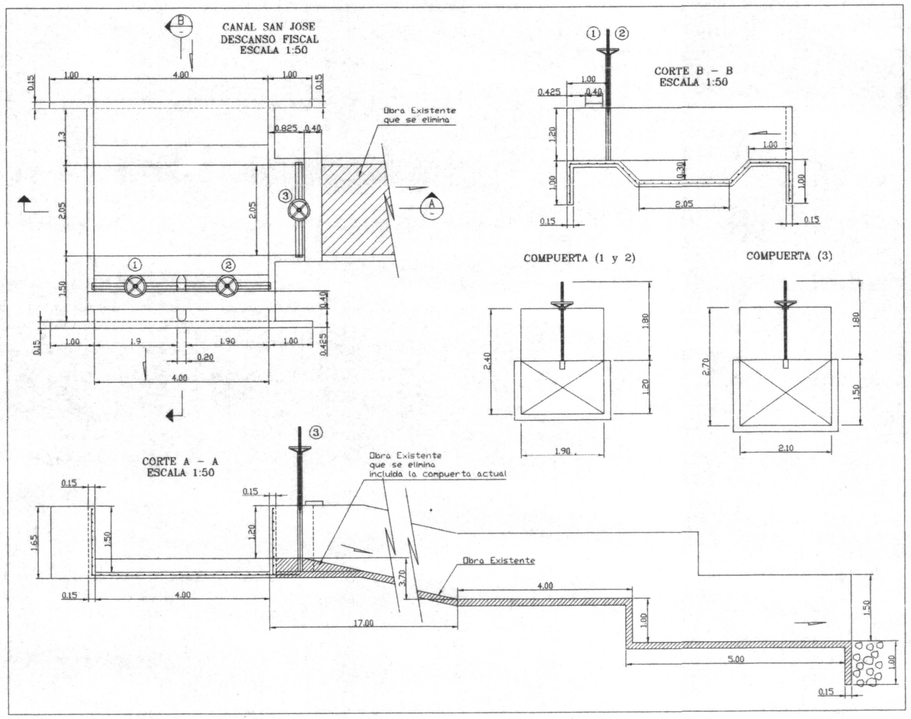
PLANTA OBRA F
CANAL, CAIDA Y ENTREGA A CANAL CODIGUA DESDE CANAL DE ENTREGA
Km 43,851.7
ESCALA 1:100

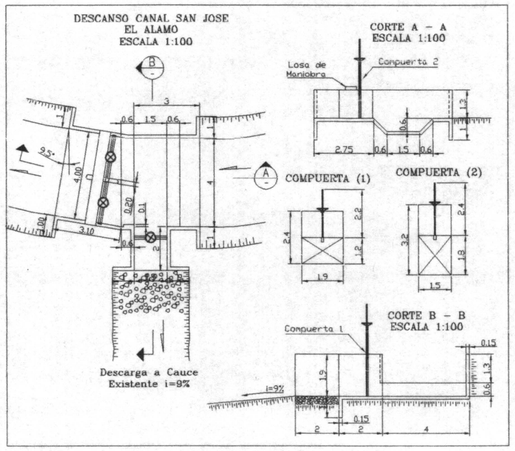


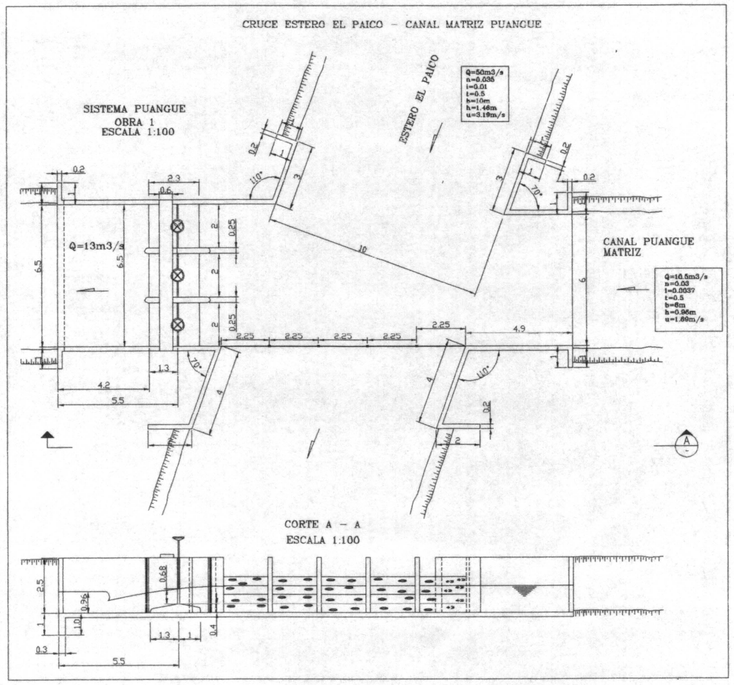


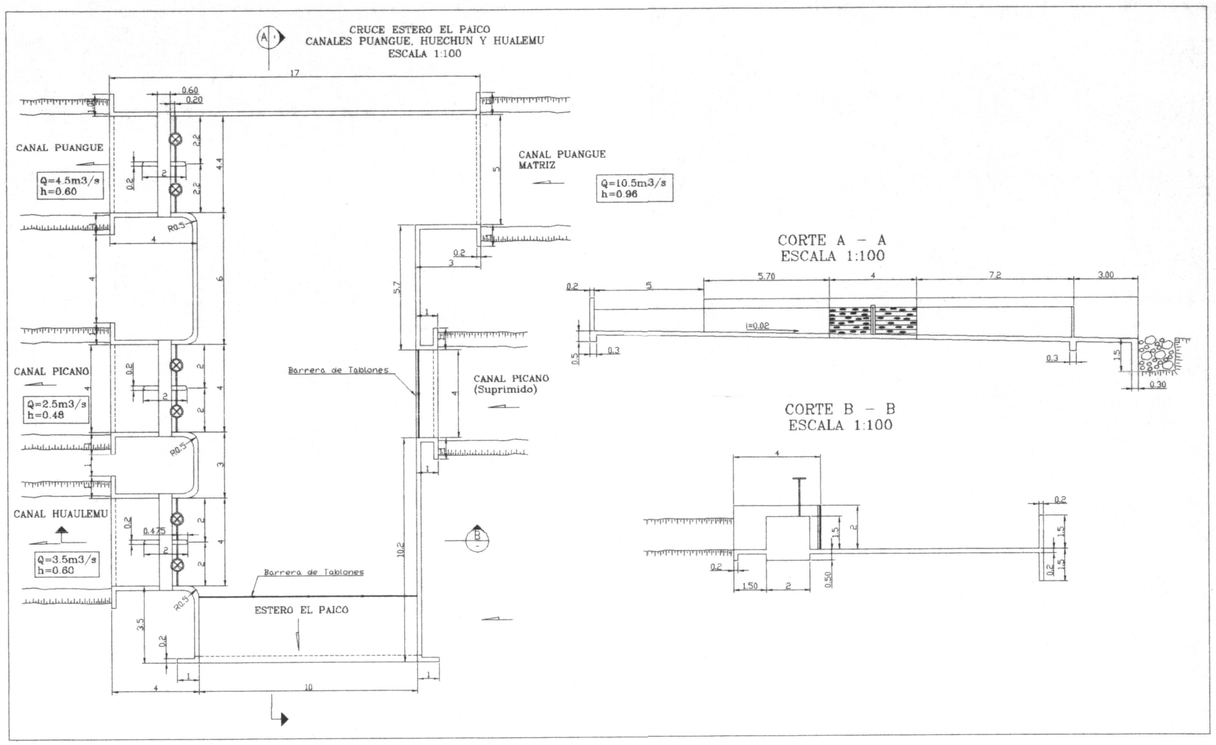
CORTE A - A
ESCALA 1:100

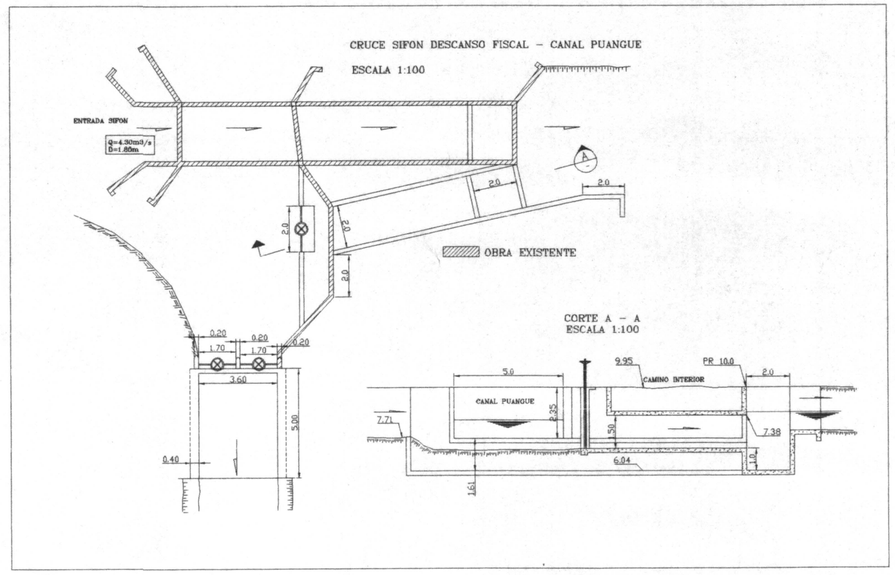
GEOFUN LTDA.	REPUBLICA DE CHILE COMISIÓN NACIONAL DE RIEGO DEPARTAMENTO DE ESTUDIOS	ESTUDIO ESTUDIO INTEGRAL DE OPTIMIZACIÓN DEL REGADÍO DE LA TERCERA SECCIÓN DEL RÍO MAIPO Y DE LOS VALLES YALI Y ALHUE		PLANO OBRAS DE ARTE CANAL DE ENTREGA
			ESCALA: Indicadas	Nº 13.4.5-3 AGOSTO - 2001





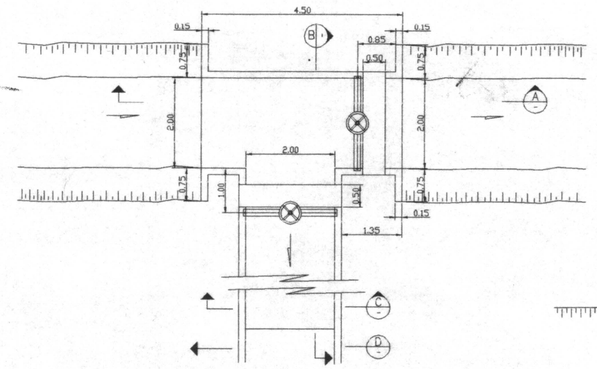




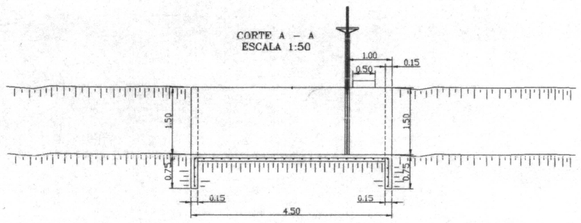


GEOFUN LTDA.	*REPUBLICA DE CHILE* *COMISIÓN NACIONAL DE RIEGO* *DEPARTAMENTO DE ESTUDIOS*	*ESTUDIO* ESTUDIO INTEGRAL DE OPTIMIZACIÓN DEL REGADÍO DE LA TERCERA SECCIÓN DEL RÍO MAIPO Y DE LOS VALLES YALI Y ALHUE	*PLANO 1/2* *OBRAS DE MEJORAMIENTO CANALES TERCERA SECCIÓN*	
			ESCALA: *Indicadas*	*N°* 13.4.6-1 AGOSTO - 2001

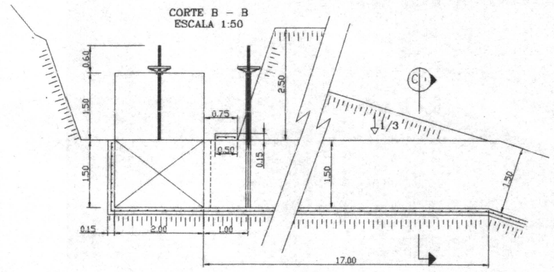
OBRA DE DESCANSO CANAL PUANGUE
SECTOR LOS JAZMINES
ESCALA 1:50



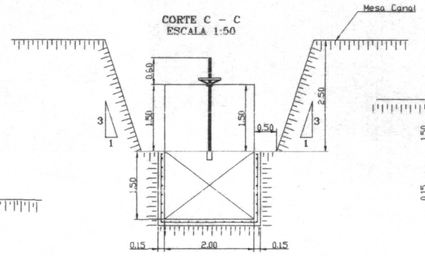
CORTE A – A
ESCALA 1:50



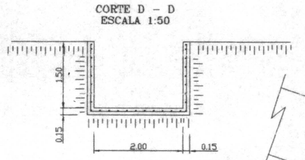
CORTE B – B
ESCALA 1:50



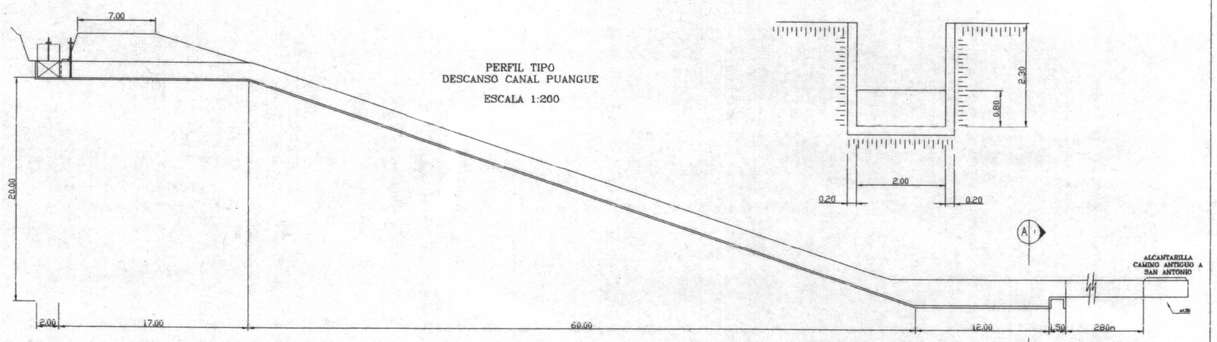
CORTE C – C
ESCALA 1:50



CORTE D – D
ESCALA 1:50

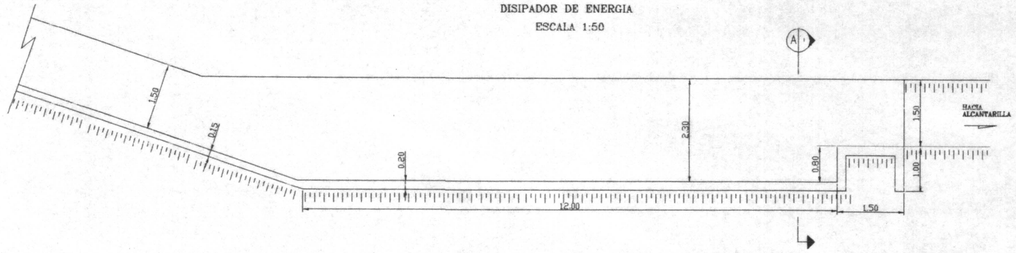


PERFIL TIPO
DESCANSO CANAL PUANGUE
ESCALA 1:200



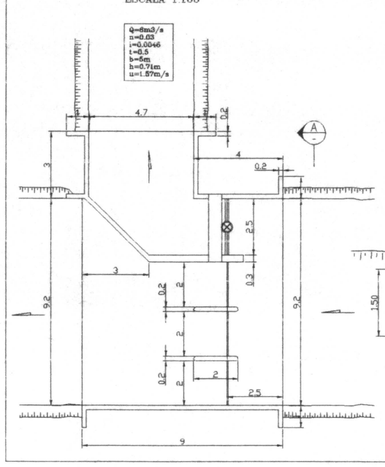
CORTE A – A
ESCALA 1:50

DISIPADOR DE ENERGIA
ESCALA 1:50

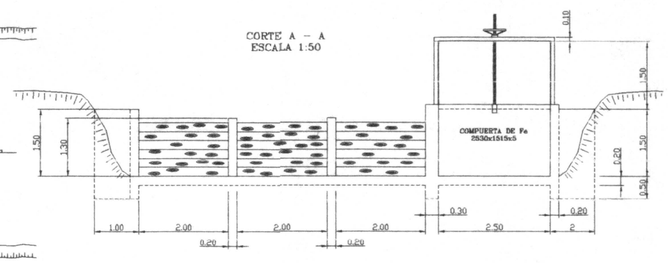


PLANTA
ESCALA 1:100

CANAL HUECHUN BAJO
BOCATOMA

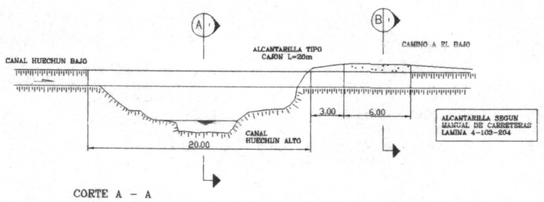


CORTE A – A
ESCALA 1:50

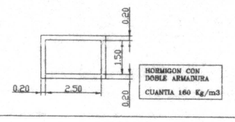


CRUCES DEL CANAL HUECHUN BAJO
CON EL CAMINO A EL BAJO

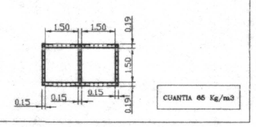
ESQUEMA Y PERFIL TIPO
ESCALA 1:200



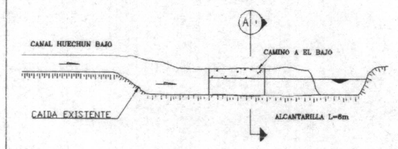
CORTE A – A
ESCALA 1:100
(OBRA REEMPLAZA A CANOA)



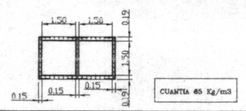
CORTE B – B
ESCALA 1:100



CRUCES DEL CANAL HUECHUN BAJO
CON EL CAMINO A EL BAJO
Y DESCARGA AL CANAL HUECHUN ALTO
ESCALA 1:200

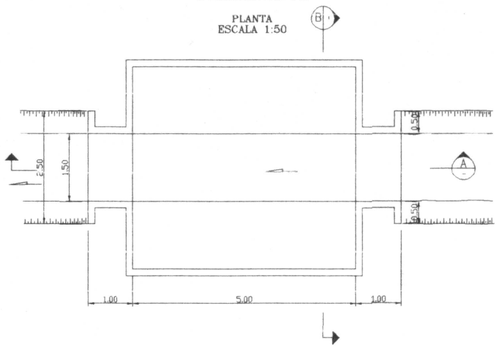


CORTE A – A
ESCALA 1:100

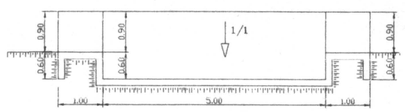


CANAL CHOLQUI
DESARENADOR

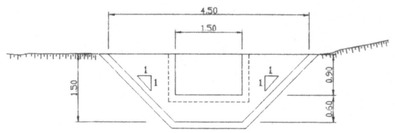
PLANTA
ESCALA 1:50



CORTE A – A
ESCALA 1:50

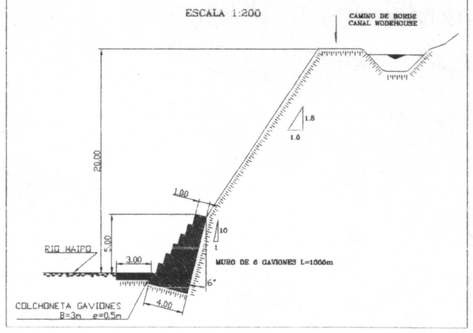


CORTE B – B
ESCALA 1:50



NOTAS:
Muros e=0.15m
Fierro Malla Central ø8a20

PROTECCION CANAL WODEHOUSE
PERFIL TIPO ZONA AGUAS ARRIBA TUNEL
(VISTA DE AGUAS ABAJO)
ESCALA 1:200



GEOFUN LTDA.

REPUBLICA DE CHILE
COMISIÓN NACIONAL DE RIEGO
DEPARTAMENTO DE ESTUDIOS

ESTUDIO
ESTUDIO INTEGRAL DE OPTIMIZACIÓN DEL REGADÍO DE LA TERCERA
SECCIÓN DEL RÍO MAIPO Y DE LOS VALLES YALI Y ALHUE

PLANO 2/2
OBRAS DE MEJORAMIENTO
CANALES TERCERA SECCIÓN

ESCALA: Indicadas
Nº 13.4.6-2
AGOSTO - 2001