

**THE STUDY ON
MONITORING AND EARLY WARNING SYSTEM
FOR LANDSLIDES AND FLOODS
IN SELECTED AREAS IN THE CAPITAL DISTRICT
OF BOGOTÁ AND SOACHA MUNICIPALITY
IN THE REPUBLIC OF COLOMBIA**

FINAL REPORT

VOLUME 4 DATA BOOK 2

**TOPOGRAPHICAL SURVEY FOR LANDSLIDE AREA
AND CREEK / RIVER CROSS SECTION SURVEY**

MARCH 2008

JAPAN INTERNATIONAL COOPERATION AGENCY

**PACIFIC CONSULTANTS INTERNATIONAL
OYO INTERNATIONAL CORPORATION**

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08-041

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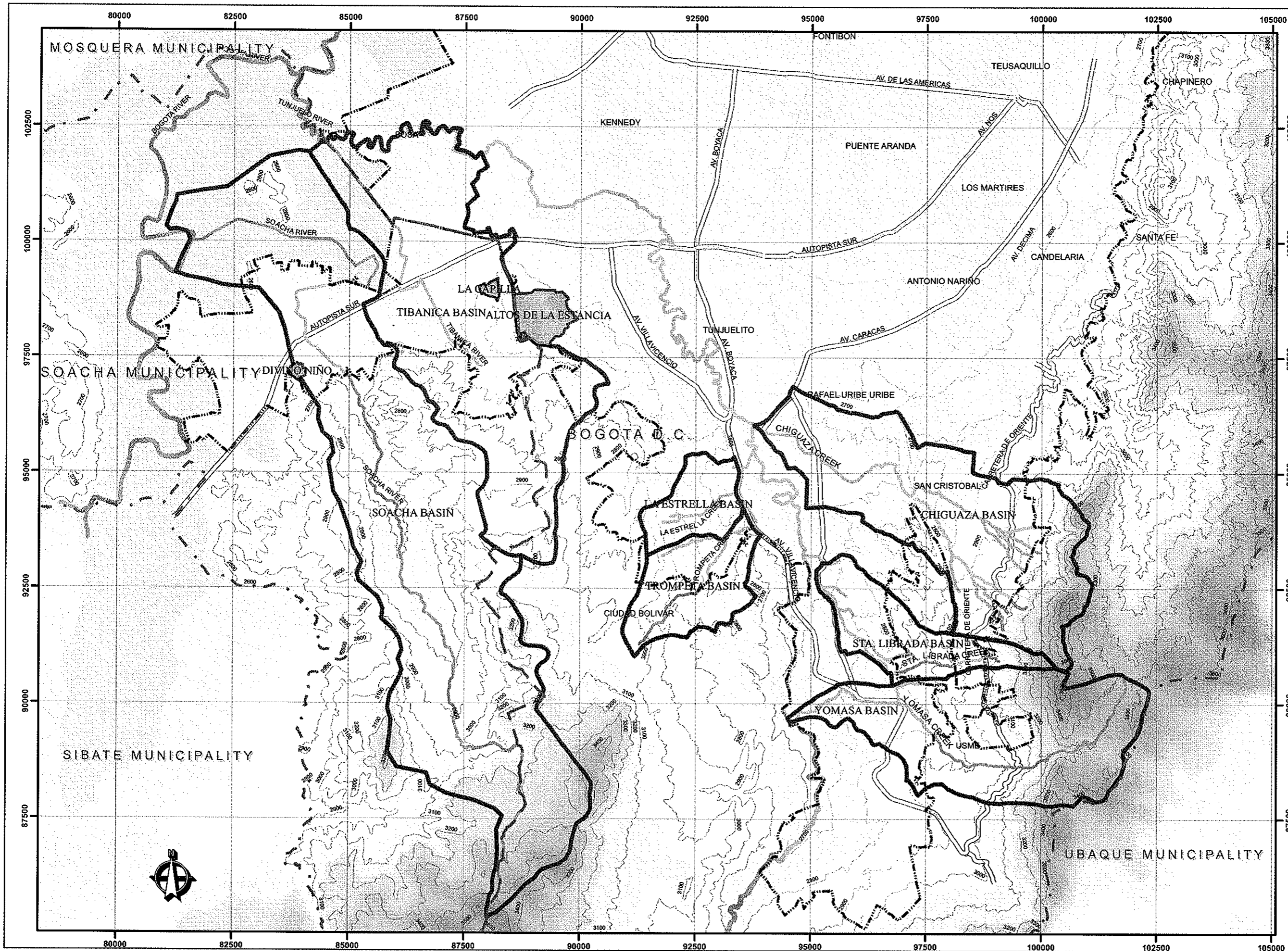
**PACIFIC CONSULTANTS INTERNATIONAL
OYO INTERNATIONAL CORPORATION**

TABLE OF CONTENTS OF DATA BOOK 2

Area	Drawing	Title	Page	
1. General	Plan	Location Map	1 / 1	
2. Altos de la Estancia	Plan	Estancia Sector A	1 / 1	
	Plan	Estancia Sector A Polygonal	1 / 1	
	Plan	Estancia Sector B	1 / 1	
	Plan	Estancia Sector B Polygonal	1 / 1	
	Plan	Estancia Sector C	1 / 1	
3. Divino Nino	Plan	Divino Niño	1 / 1	
	Plan	Divino Niño Polygonal	1 / 1	
4. Capilla	Section	Divino Niño	1 / 2	
	Section	Divino Niño	2 / 2	
5. Chiguaza	Plan	Capilla General Plan	1 / 1	
	Plan	Capilla Polygonal	1 / 1	
5.1 Chiguaza & Zuque	Section	Capilla	1 / 1	
	Plan	Cuenca Chiguaza	1 / 1	
5.2 Chorro Silverio & Seca	Plan	CHIGUAZA & ZUQUE	1 / 1	
	Profile	CHIGUAZA & ZUQUE	1 / 1	
	Section	K0+000 - K0+271	1 / 13	
	Section	K0+370 - K0+673	2 / 13	
	Section	K0+776 - K1+082	3 / 13	
	Section	K1+166 - K1+604	4 / 13	
	Section	K1+712 - K2+163	5 / 13	
	Section	K2+271 - K2+946	6 / 13	
	Section	K3+046 - K3+531	7 / 13	
	Section	K3+636 - K3+970	8 / 13	
	Section	K4+084 - K4+642	9 / 13	
	Section	K4+723 - K5+280	10 / 13	
	Section	K5+385 - K6+037	11 / 13	
	Section	K6+140 - K6+910	12 / 13	
	Section	K7+014 - K7+234	13 / 13	
	Section	K0+673 - K5+862	1 / 2	
	Section	K5+685 - K7+064	2 / 2	
	Section	ZUQUE K0+000 - K0+885	1 / 1	
	5.3 Nutria	Plan	CHORRO SILVERIO & SECA	1 / 1
		Profile	CHORRO SILVERIO NORTE	1 / 1
Section		K0+157 - K0+742	1 / 2	
Section		K0+857 - K1+141	2 / 2	
Profile		CHORRO SILVERIO SUR	1 / 1	
Section		K0+000 - K0+924	1 / 3	
Section		K1+194 - K1+509	2 / 3	
Section		K0+924 - K1+509	3 / 3	
Profile		SECA	1 / 1	
Section		K0+000 - K1+066	1 / 2	
5.4 Nueva Delhi, San Camilo & Verejones	Section	K1+157 - K1+497	2 / 2	
	Plan	Nutria	1 / 1	
	Profile	NUTRIA	1 / 1	
	Section	K0+046 - K0+397	1 / 5	
	Section	K0+519 - K0+895	2 / 5	
5.4 Nueva Delhi, San Camilo & Verejones	Section	K1+018 - K1+530	3 / 5	
	Section	K1+623 - K2+014	4 / 5	
	Section	K2+109 - K2+589	5 / 5	
	Plan	Nueva Delhi, San Camilo & Verejones	1 / 1	
	Profile	Verejones	1 / 1	
	Profile	San Camilo	1 / 1	
	Profile	Nueva Delhi	1 / 1	
	Section	Verejones K0+000 - K0+111	1 / 4	
	Section	Verejones K0+229 - K0+685	2 / 4	
	Section	Verejones K0+803 - K1+628	3 / 4	
	Section	Verejones K1+741 - K2+461	4 / 4	
	Section	San Camilo K0+000 - K0+547	1 / 2	
	Section	San Camilo K0+586 - K0+839	2 / 2	
Section	Nueva Delhi K0+000 - K0+692	1 / 3		
Section	Nueva Delhi K0+811 - K1+024	2 / 3		
Section	Nueva Delhi K1+147 - K1+504	3 / 3		

Area	Drawing	Title	Page	
6. Santa Librada	Plan	Santa Librada	1 / 1	
	Profile	Santa Librada	1 / 1	
	Section	K0+000 - K0+495	1 / 12	
	Section	K0+595 - K1+260	2 / 12	
	Section	K1+330 - K1+839	3 / 12	
	Section	K1+893 - K2+321	4 / 12	
	Section	K2+364 - K2+892	5 / 12	
	Section	K2+940 - K3+437	6 / 12	
	Section	K3+505 - K3+950	7 / 12	
	Section	K4+054 - K4+734	8 / 12	
	Section	K4+827 - K5+116	9 / 12	
	Section	K5+226 - K5+711	10 / 12	
	Section	K5+729 - K6+118	11 / 12	
	Section	K6+183 - K6+443	12 / 12	
	7. Yomasa	Plan	Yomasa	1 / 1
Profile		Yomasa	1 / 1	
Section		K0+000 - K0+829	1 / 11	
Section		K0+880 - K1+443	2 / 11	
Section		K1+458 - K1+985	3 / 11	
Section		K2+044 - K2+663	4 / 11	
Section		K2+746 - K3+274	5 / 11	
Section		K3+380 - K3+784	6 / 11	
Section		K3+858 - K4+344	7 / 11	
Section		K4+421 - K4+918	8 / 11	
Section		K5+006 - K5+425	9 / 11	
Section		K5+503 - K6+203	10 / 11	
Section		K6+312 - K6+730	11 / 11	
8. Estrella		Plan	La Estrella	1 / 1
		Profile	La Estrella	1 / 1
	Section	K0+000 - K0+117	1 / 6	
	Section	K0+221 - K0+587	2 / 6	
	Section	K0+599 - K1+022	3 / 6	
	Section	K1+438 - K1+955	4 / 6	
	Section	K1+973 - K2+156	5 / 6	
9. Trompeta	Section	K2+174 - K2+300	6 / 6	
	Plan	Trompeta	1 / 1	
	Profile	Trompeta	1 / 3	
	Profile	Trompeta Brazo 1	2 / 3	
	Profile	Trompeta Brazo 2	3 / 3	
	Section	Trompeta K0+000 - K0+539	1 / 7	
	Section	Trompeta K0+614 - K1+064	2 / 7	
	Section	Trompeta K1+132 - K1+622	3 / 7	
	Section	Trompeta K1+699 - K2+185	4 / 7	
	Section	Trompeta Brazo 1 K0+025 - K0+249	5 / 7	
10. Soacha	Section	Trompeta Brazo 2 K0+001 - K0+652	6 / 7	
	Section	Trompeta Brazo 2 K0+750 - K1+044	7 / 7	
	Plan	Soacha	1 / 2	
	Plan	Soacha	2 / 2	
	Profile	Soacha	1 / 1	
	Section	K0+000 - K0+715	1 / 44	
	Section	K0+815 - K1+511	2 / 44	
	Section	K1+610 - K2+308	3 / 44	
	Section	K2+407 - 3K+109	4 / 44	
	Section	K3+197 - K3+895	5 / 44	
	Section	K3+999 - K4+379	6 / 44	
	Section	K4+780 - K5+106	7 / 44	
	Section	K5+157 - K5+552	8 / 44	
Section	K5+603 - K5+922	9 / 44		
Section	K5+983 - K6+167	10 / 44		
Section	K6+620 - K6+460	11 / 44		
Section	K6+512 - K6+657	12 / 44		
Section	K6+709 - K6+965	13 / 44		
Section	K7+013 - K7+250	14 / 44		
Section	K7+437 - K7+815	15 / 44		

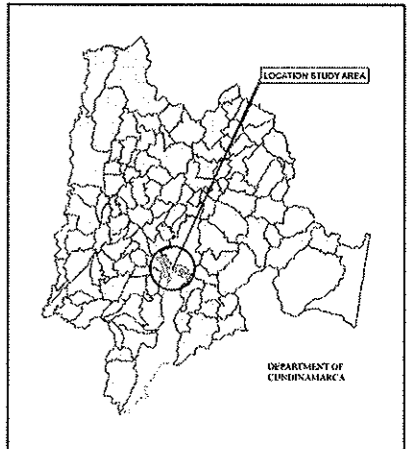
Area	Drawing	Title	Page
10. Soacha	Section	K7+877 - K8+042	16 / 44
	Section	K8+096 - K8+258	17 / 44
	Section	K8+283 - K8+456	18 / 44
	Section	K8+513 - K8+718	19 / 44
	Section	K8+765 - K8+908	20 / 44
	Section	K8+972 - K9+128	21 / 44
	Section	K9+233 - K10+025	22 / 44
	Section	K10+140 - K10+768	23 / 44
	Section	K10+844 - K11+645	24 / 44
	Section	K11+716 - K12+495	25 / 44
	Section	K12+587 - K12+826	26 / 44
	Section	K12+937 - K13+723	27 / 44
	Section	K13+823 - K14+897	28 / 44
	Section	K14+997 - K15+840	29 / 44
	Section	K15+923 - K16+934	30 / 44
	Section	K17+033 - K17+779	31 / 44
	Section	K17+927 - K18+803	32 / 44
	Section	K19+091 - K19+627	33 / 44
	Section	K19+719 - K20+462	34 / 44
	Section	K20+562 - K21+460	35 / 44
Section	K21+549 - K22+445	36 / 44	
Section	K22+583 - K23+315	37 / 44	
Section	K23+417 - K24+267	38 / 44	
Section	K24+372 - K24+473	39 / 44	
Section	K2+109 - K7+437	40 / 44	
Section	K7+569 - K9+067	41 / 44	
Section	K9+128 - K12+390	42 / 44	
Section	K13+262 - K19+970	43 / 44	
Section	K20+120 - K20+309	44 / 44	
11. Tibanica	Plan	Tibanica	1 / 1
	Profile	Tibanica	1 / 1
	Section	K0+000 - K0+642	1 / 12
	Section	K0+743 - K1+352	2 / 12
	Section	K1+481 - K2+027	3 / 12
	Section	K2+077 - K2+467	4 / 12
	Section	K2+534 - K2+989	5 / 12
	Section	K3+019 - K3+302	6 / 12
	Section	K3+322 - K3+639	7 / 12
	Section	K3+676 - K4+327	8 / 12
	Section	K4+477 - K5+264	9 / 12
	Section	K5+343 - K5+873	10 / 12
Section	K5+959 - K6+474	11 / 12	
Section	K6+595 - K6+635	12 / 12	
12. Molinos (Chiguaza)	General Plan	Chiguaza	1 / 1
	Cross Sections	K0+000 - K0+070	1 / 2
	Cross Sections	K0+080 - K0+110	2 / 2
13. La Gloria (Chiguaza)	General Plan	Chiguaza	1 / 1
	Cross Sections	K0+000 - K0+070	1 / 2
	Cross Sections	K0+080 - K0+110	2 / 2
14. Llano Grande (Soacha)	General Plan	Soacha	1 / 1
	Cross Sections	K0+000 - K0+070	1 / 2
	Cross Sections	K0+080 - K0+100	2 / 2
15. Ladrillera Santa Fe (Soacha)	General Plan	Soacha	1 / 1
	Cross Sections	K0+000 - K0+080	1 / 2
	Cross Sections	K0+090 - K0+120	2 / 2
16. Prison (Soacha)	General Plan	Soacha	1 / 1
	Cross Sections	K0+000 - K0+035	1 / 3
	Cross Sections	K0+040 - K0+075	2 / 3
	Cross Sections	K0+080 - K0+115	3 / 3
17. Fusunga (Soacha)	General Plan	Soacha	1 / 1
	Cross Sections	K0+000 - K0+035	1 / 3
	Cross Sections	K0+040 - K0+075	2 / 3
	Cross Sections	K0+080 - K0+105	3 / 3











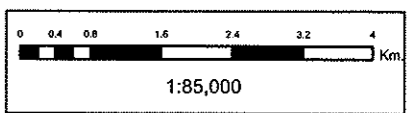
 ALCALDIA MAYOR DE BOGOTA D.C. ALCALDIA MUNICIPAL DE SOACHA
 Secretaría de Gobierno


 Japan International Cooperation Agency



LEGEND

-  MUNICIPALITY BOUNDARY
-  BASIN STUDY AREA
-  URBAN AREA
-  HOROGRAPHY
-  LOCALITY BOGOTA
-  CONTOUR LINES 100 m



Projection System Parameters

PCS_CartMAGBOG
 Projection: Transverse_Mercator
 False_Easting: 92334.879000
 False_Northing: 109320.965000
 Central_Meridian: -74.146592
 Scale_Factor: 1.000000
 Latitude_Of_Origin: 4.680486
 Linear Unit: Meter

GCS_CartMAGBOG
 Datum: CGS_CartMAGBOG

LOCATION MAP

STUDY ON MONITORING AND EARLY WARNING SYSTEM FOR LANDSLIDES AND FLOODS

ESTANCIA

A-2

ESTANCIA 1

GENERAL CONVENTIONS

	POZO
	HIDRANTE
	MECIBOR DE GAS
	MECIBOR
	SIFON
	POSTE TELEFONICO
	POSTE CON TRANSFORMADOR
	POSTE DE ENERGIA
	LAMPARILLA
	CAJERA TELEFONOS
	CAJA DE TELEFONO
	VALVULA
	POZO ALCANARILLADO
	POZO SEPTICO
	SEÑAL DE TRAFICO
	SUMIDERO
	CAJA DE VENTILACION
	MANOSAS / EFECTIVIDADES
	TIERRA
	GRABAS / ESALERAS
	PUERTA
	TAPAJE DE AGUA
	CAJA DE ENERGIA
	BOLADERO
	PARRAMENTO
	VIA PAVIMENTADA
	ANDEH
	CERCA / CERCAMIENTO
	LINIE DE LEVANTAMIENTO
	CURVA DE NIVEL INDICE
	CURVA DE NIVEL INTERMEDIA

SECTOR ESTANCIA A
COORDINATES

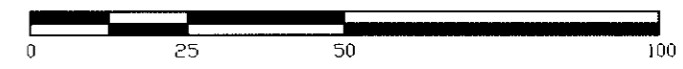
POINT	NORTH	ESTE
ESTANCIA	98249.92	89677.818
ESTANCIA 1	98159.568	89678.224
A-1	98225.175	89675.542
A-2	98172.211	89655.419
A-3	98089.714	89585.264
A-4	98149.825	89585.264
A-5	98054.258	89549.458
A-6	98089.007	89529.987
A-7	98043.706	89477.24
A-8	98084.019	89474.242
A-9		

LONG. POLIG 1: 72984 LONG. POLIG 1: 53559
 ERROR CIERRE: 0.029 ERROR CIERRE: 0.026
 PRECISION: 1: 1/1000 PRECISION: 1: 1/1000

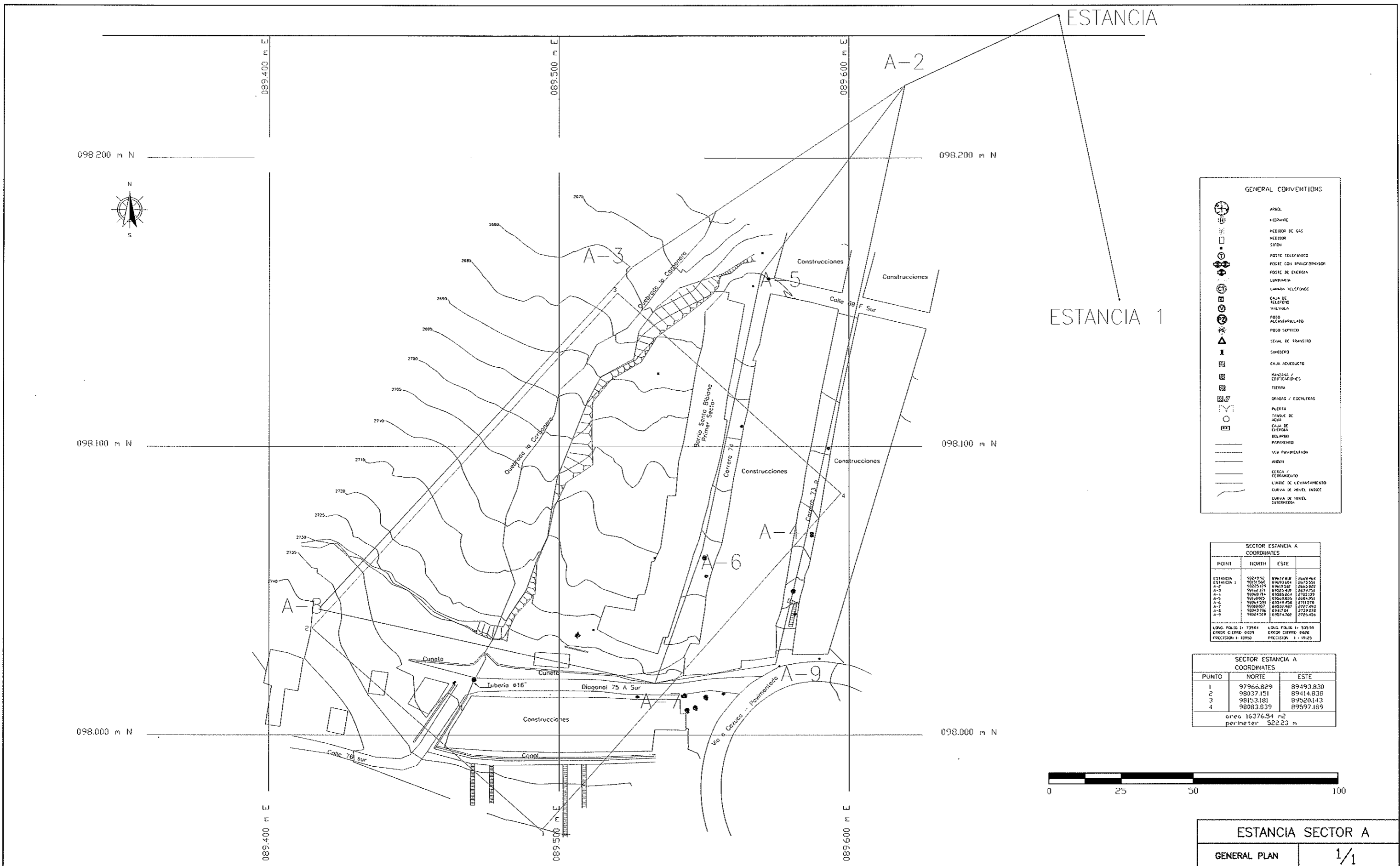
SECTOR ESTANCIA A
COORDINATES

PUNTO	NORTE	ESTE
1	97965.829	89493.830
2	98037.151	89414.838
3	98153.181	89520.143
4	98083.839	89597.189

area 16376.54 m²
 perimetro 522.23 m



ESTANCIA SECTOR A
GENERAL PLAN 1/1



098.200 m N



098.100 m N

098.000 m N

089.400 m E

089.500 m E

089.600 m E

089.400 m E

089.500 m E

089.600 m E

ESTANCIA

A-2

ESTANCIA 1

A-3

A-5

69 F Sur

Barrio Santa Bibiano
Primer Sector

Quebrada la Cebanera

Carrera 74

Carrera 73 p

A-4

A-6

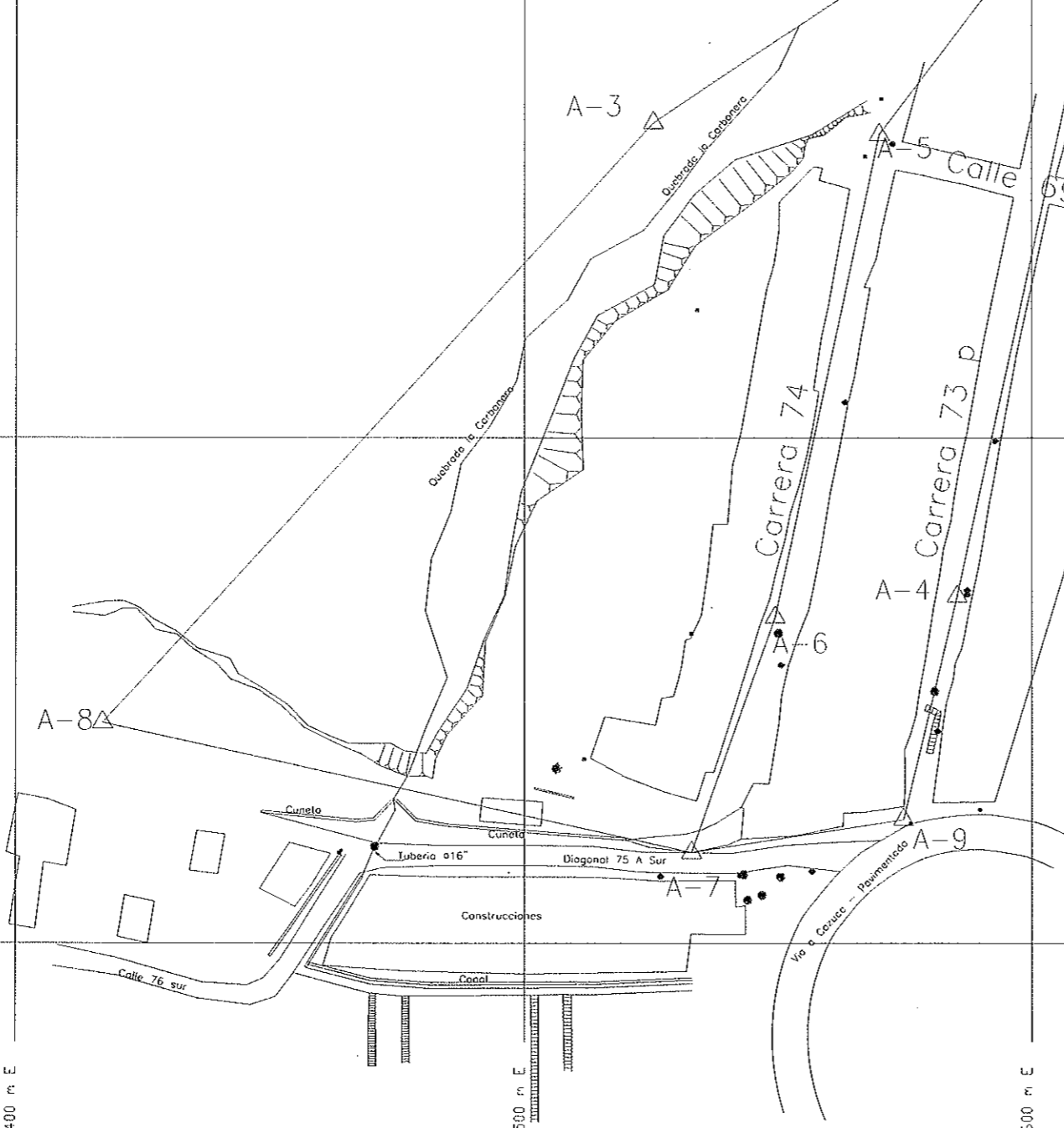
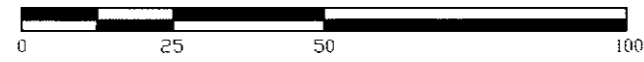
A-8

SECTOR ESTANCIA A
COORDINATES

POINT	NORTH	ESTE	
ESTANCIA	98249.92	89672.818	2668.462
ESTANCIA 1	98151.568	89693.604	2675.551
A-2	98225.179	89619.512	2665.822
A-3	98162.371	89525.419	2679.751
A-4	98068.714	89585.264	2703.139
A-5	98160.015	89569.885	2684.951
A-6	98064.591	89549.458	2711.278
A-7	98018.007	89532.987	2727.493
A-8	98043.706	89417.04	2739.278
A-9	98024.519	89574.702	2726.456

LONG. POLIG 1= 739.04 LONG. POLIG 1= 535.50
 ERROR CIERRE: 0.039 ERROR CIERRE: 0.028
 PRECISION 1: 18950 PRECISION 1: 19125

098.000 m N



ESTANCIA SECTOR A

POLYGONAL PLAN

1/1



098.600 m N

088.700 m E

088.800 m E

088.900 m E

098.600 m N

098.500 m N

098.500 m N

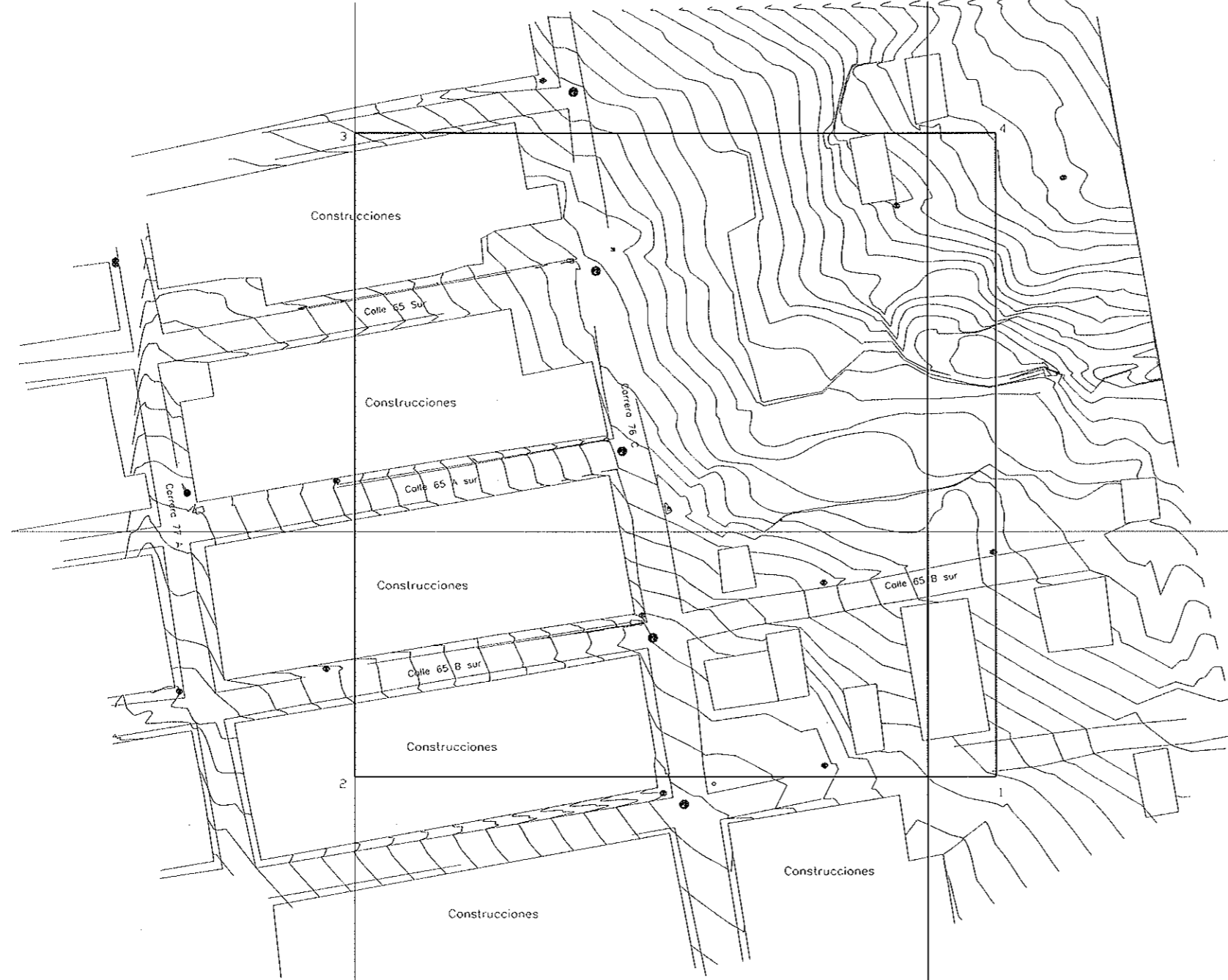
098.400 m N

088.700 m E

088.800 m E

088.900 m E

098.400 m N



GENERAL CONVENTIONS

	ARBOL
	HIDRANTE
	MEDIDOR DE GAS
	MEDIDOR
	SIFON
	POSTE TELEFONICO
	POSTE CON TRANSFORMADOR
	POSTE DE ENERGIA
	LUMINARIA
	CAMARA TELEFONOS
	CAJA DE TELEFONO
	V-SLVULA
	POZO ALCANTARILLADO
	POZO SEPTICO
	SEÑAL DE TRAFICHO
	SUMBERO
	CAJA ACUEDUCTO
	MAIZANA / EDIFICACIONES
	TIERRA
	GRABAS / ESCALERAS
	PUERTA
	TANQUE DE AGUA
	CAJA DE ENERGIA
	BDL ARBO
	PARAMENTO
	VIA PAVIMENTADA
	ARBEN
	CERRA / CERRAMIENTO
	LIMITE DE LEVANTAMIENTO
	CURVA DE NIVEL INDICE
	CURVA DE NIVEL INTERMEDIA

SECTOR ESTANCIA B
COORDINATES

POINT	NORTH	EASTE
ESTANCIA B	98519.562	88533.840
ESTANCIA B2	98780.188	88638.763
B-2	98529.425	88665.573
B-3	98763.205	88678.847
B-4	98446.387	88672.326
B-5	98558.494	88749.553
B-6	98485.236	88759.062
B-7	98552.528	88779.547
B-7	98576.912	88741.267
B-8	98524.422	88819.954
B-9	98424.687	88826.974

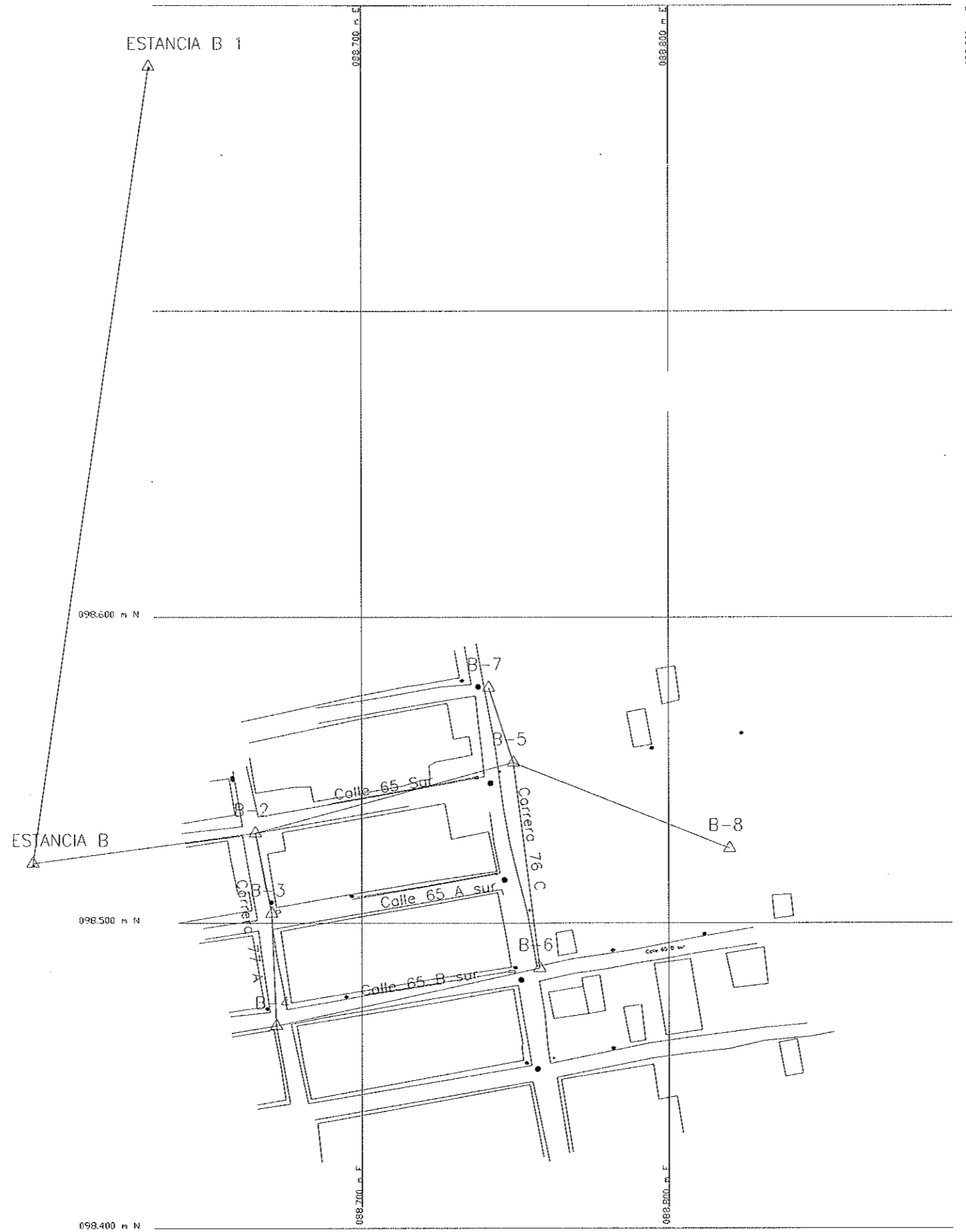
SECTOR ESTANCIA B
COORDINATES

POINT	NORTH	EASTE
1	98457.00	88812.00
2	98457.00	88700.00
3	98570.00	88700.00
4	98570.00	88812.00

area 12656.00
perimeter 450.00

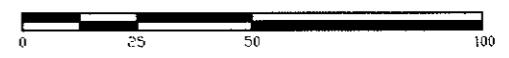


ESTANCIA SECTOR B	
GENERAL PLAN	1/1

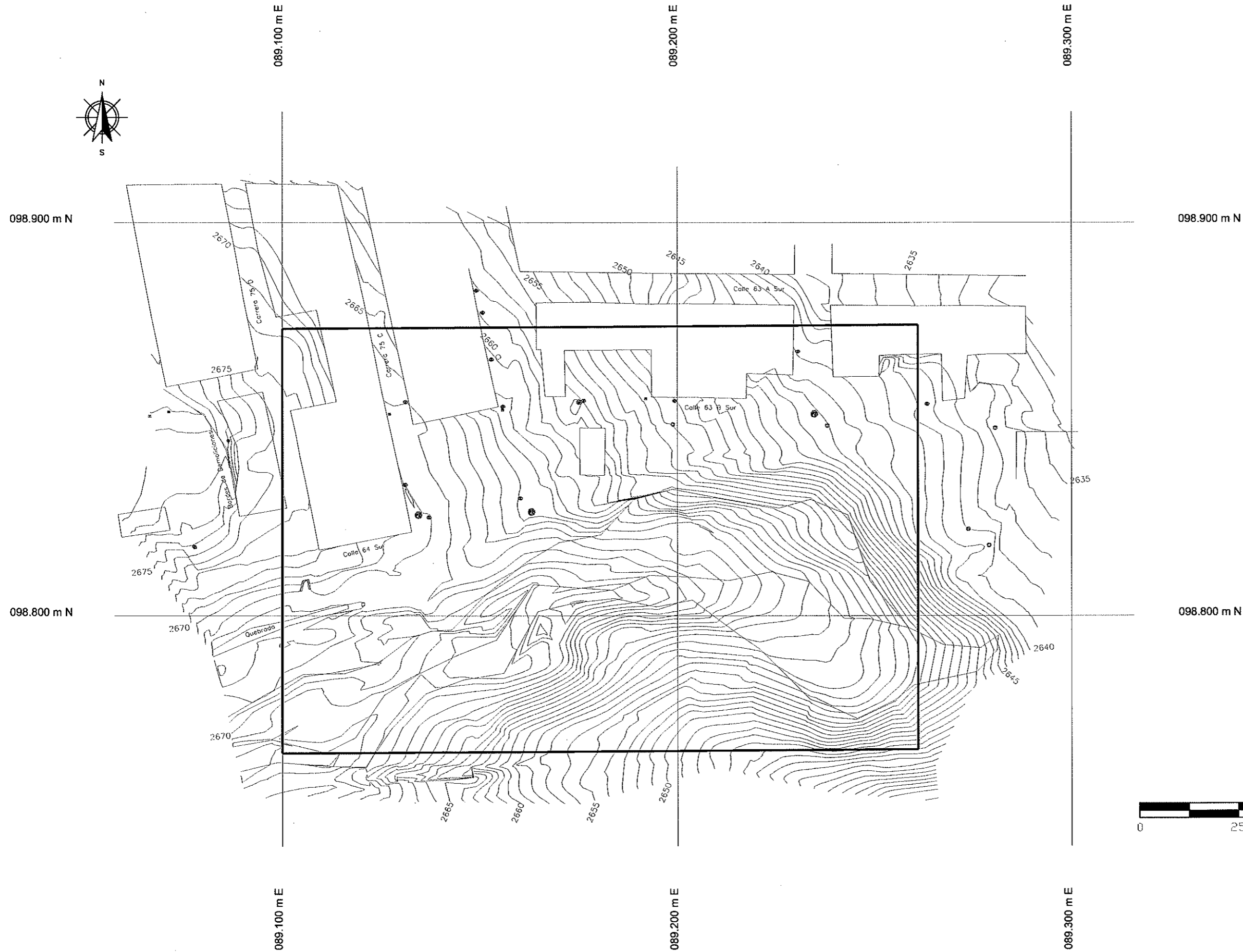


SECTOR ESTANCIA B COORDINATES			
POINT	NORTH	EASTE	
ESTANCIA B	98519.562	88593.046	2766.265
ESTANCIA B2	98780.188	88630.703	2722.247
B-2	98529.435	88665.573	2757.369
B-3	98503.205	88670.849	2762.113
B-4	98466.387	88672.326	2767.022
B-5	98552.494	88749.553	2744.113
B-6	98485.336	88758.062	2752.599
B-5	98552.530	88749.547	2744.090
B-7	98576.916	88741.507	2740.818
B-8	98524.422	88819.954	2740.867
B-9	98454.687	88816.974	2752.232

LONG. POLIG 1= 379.43
 ERROR CIERRE: 0.022
 PRECISION 1: 17247



ESTANCIA SECTOR B	
POLYGONAL PLAN	1/1



GENERAL CONVENTIONS

	ARBOL
	HIDRANTE
	MEIDOR DE GAS
	MEIDOR
	SFDR
	POSTE TELEFONICO
	POSTE CON TRANSFORMADOR
	POSTE DE ENERGIA
	LUMINARIA
	CABINA TELEFONOS
	CAJA DE TELEFONO
	VALVULA
	POZO
	ALCANTARILLADO
	POZO SEPTICO
	SEÑAL DE TRANSITO
	CUMIDERO
	CAJA ACUEDUCTO
	MANZANA / EDIFICACIONES
	TIERRA
	GRABAS / ESCALERAS
	PUERTA
	TANQUE DE AGUA
	CAJA DE ENERGIA
	RELAYO
	PAVIMENTO
	VIA PAVIMENTADA
	AMBIEN
	CERCA / CERRAMIENTO
	LIMITE DE LEVANTAMIENTO
	CURVA DE NIVEL DIRECTA
	CURVA DE NIVEL INTERMEDIA

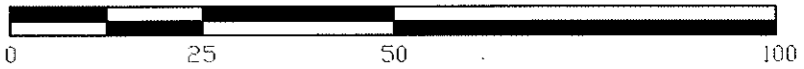
SECTOR ESTANCIA C
COORDINATES

POINT	NORTH	EASTE	
ESTANCIA C	98891.168	88980.225	2688.663
ESTANCIA C1	98960.607	88891.623	2669.879

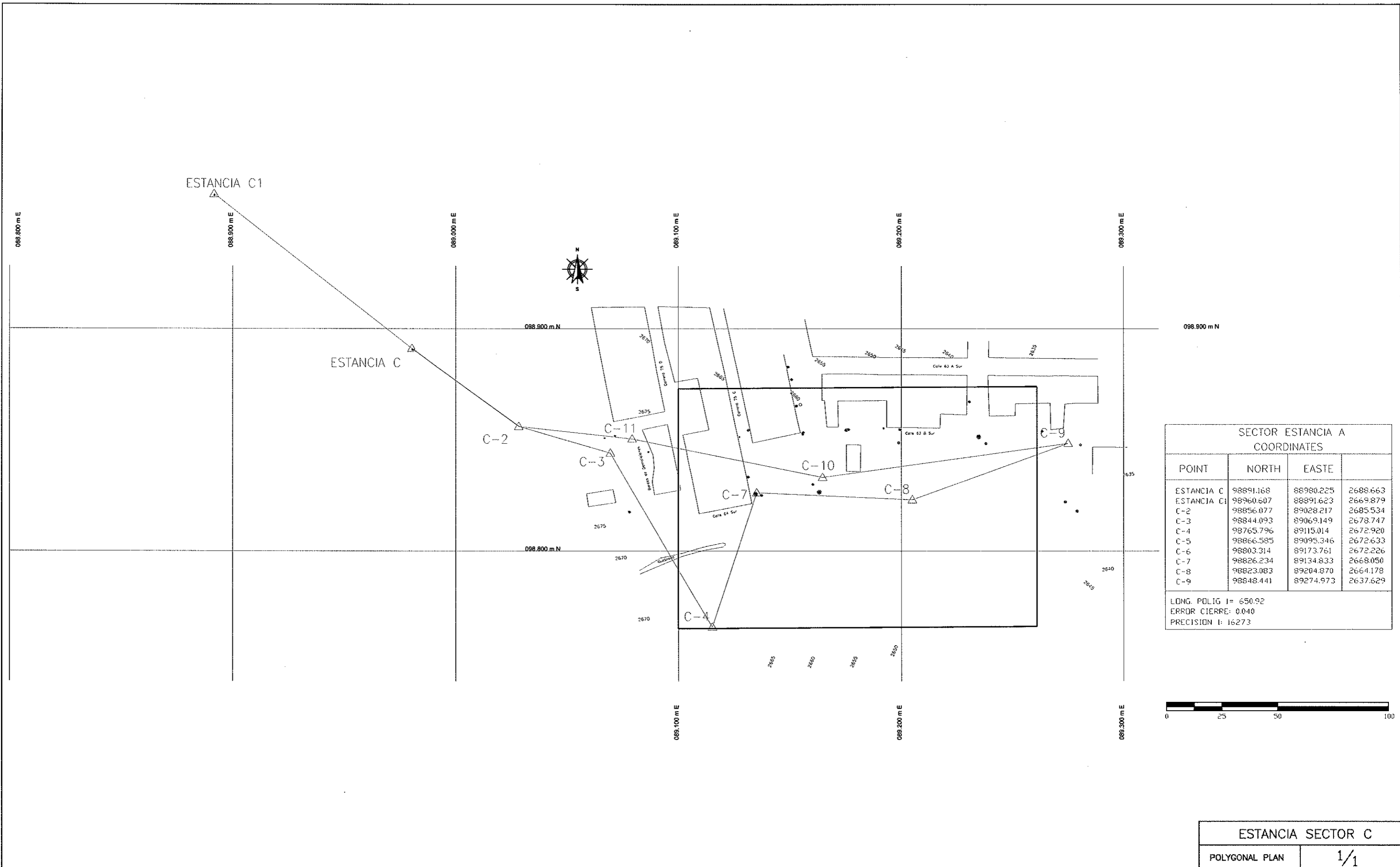
SECTOR ESTANCIA C
COORDINATES

POINT	NORTH	EASTE
1	98874	89261
2	98766	89261
3	98765	89100
4	98873	89100

area 17388.54 m²
perimeter 538.00 m



ESTANCIA SECTOR C	
GENERAL PLAN	1/1



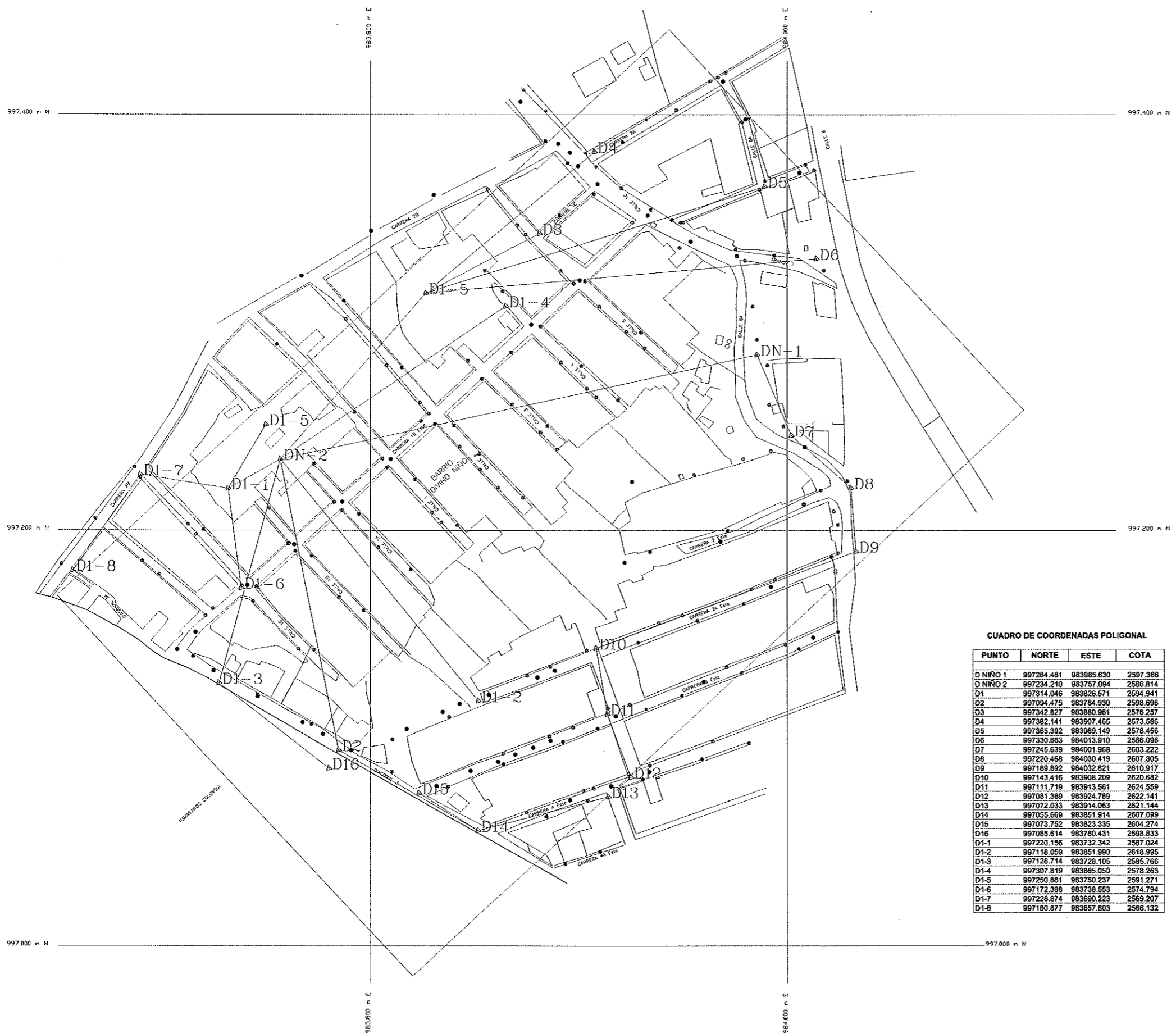
SECTOR ESTANCIA A COORDINATES			
POINT	NORTH	EASTE	
ESTANCIA C	98891.168	88980.225	2688.663
ESTANCIA C1	98960.607	88891.623	2669.879
C-2	98856.077	89028.217	2685.534
C-3	98844.093	89069.149	2678.747
C-4	98765.796	89115.014	2672.920
C-5	98866.585	89095.346	2672.633
C-6	98803.314	89173.761	2672.226
C-7	98826.234	89134.833	2668.050
C-8	98823.083	89204.870	2664.178
C-9	98848.441	89274.973	2637.629

LONG. POLIG I= 650.92
 ERROR CIERRE: 0.040
 PRECISION I: 16273

ESTANCIA SECTOR C	
POLYGONAL PLAN	1/1

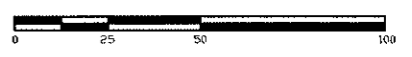


DIVINO NIÑO	
GENERAL PLAN	1/1

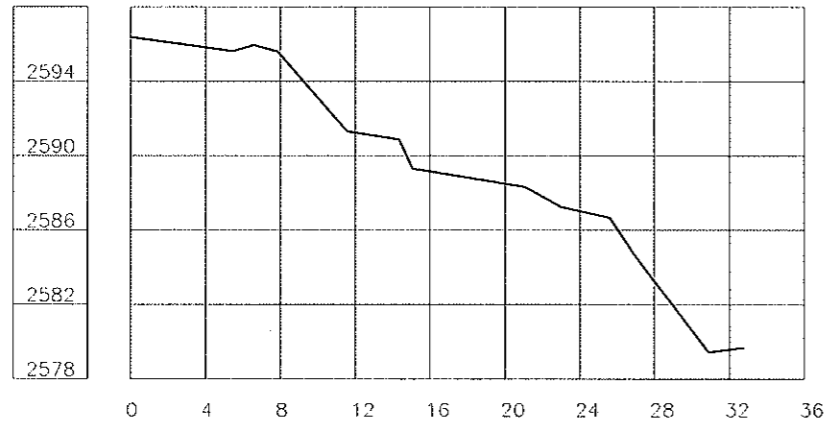


CUADRO DE COORDENADAS POLIGONAL

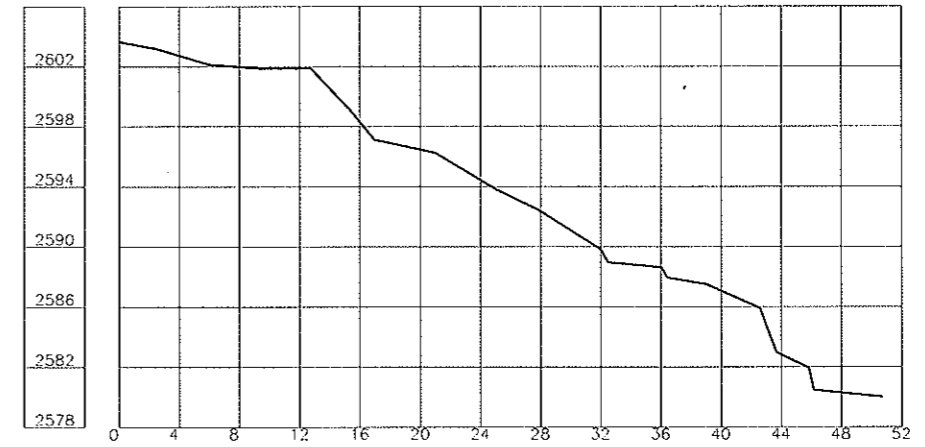
PUNTO	NORTE	ESTE	COTA
D NIÑO 1	997284.481	983985.630	2597.368
D NIÑO 2	997234.210	983757.094	2586.814
D1	997314.046	983826.571	2594.941
D2	997094.475	983784.930	2598.696
D3	997342.827	983880.961	2576.257
D4	997382.141	983907.465	2573.596
D5	997365.392	983969.149	2578.456
D6	997330.893	984013.910	2586.096
D7	997245.639	984001.968	2603.222
D8	997220.468	984030.419	2607.305
D9	997169.882	984032.821	2610.917
D10	997143.416	983908.209	2620.682
D11	997111.719	983913.581	2624.559
D12	997081.389	983924.789	2622.141
D13	997072.033	983914.063	2621.144
D14	997055.669	983851.914	2607.099
D15	997073.752	983823.335	2604.274
D16	997085.614	983780.431	2598.833
D1-1	997220.156	983732.342	2587.024
D1-2	997118.059	983851.990	2618.995
D1-3	997126.714	983728.105	2585.766
D1-4	997307.819	983885.050	2578.283
D1-5	997250.861	983750.237	2591.271
D1-6	997172.398	983738.553	2574.794
D1-7	997228.674	983690.223	2569.207
D1-8	997180.877	983657.803	2566.132



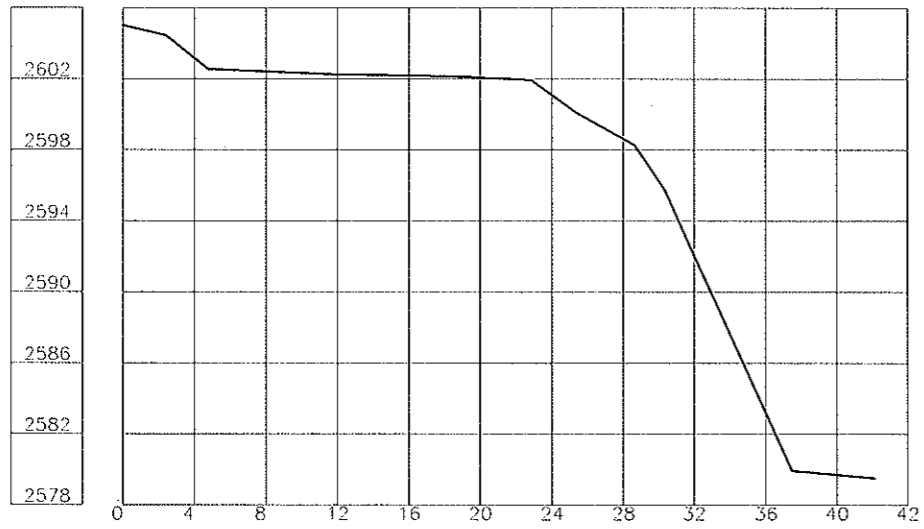
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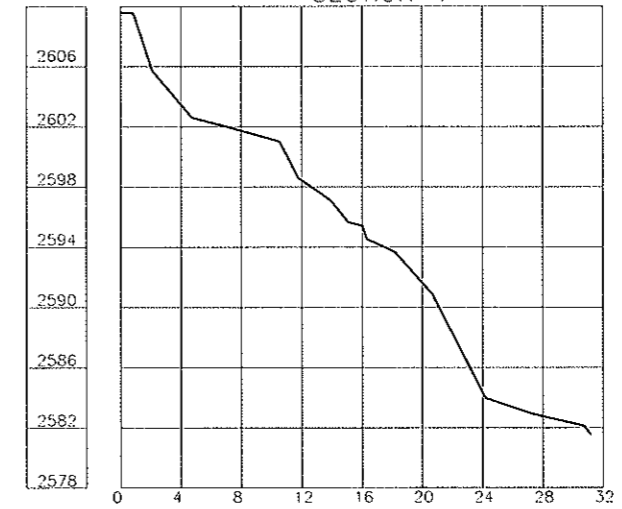
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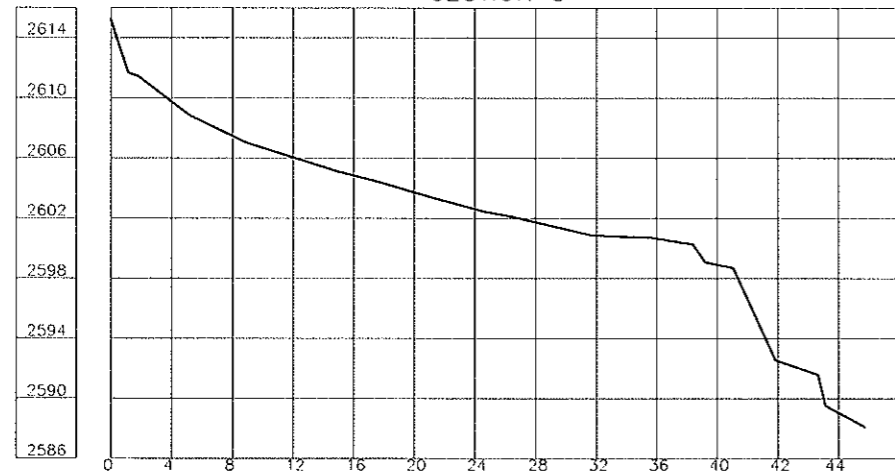
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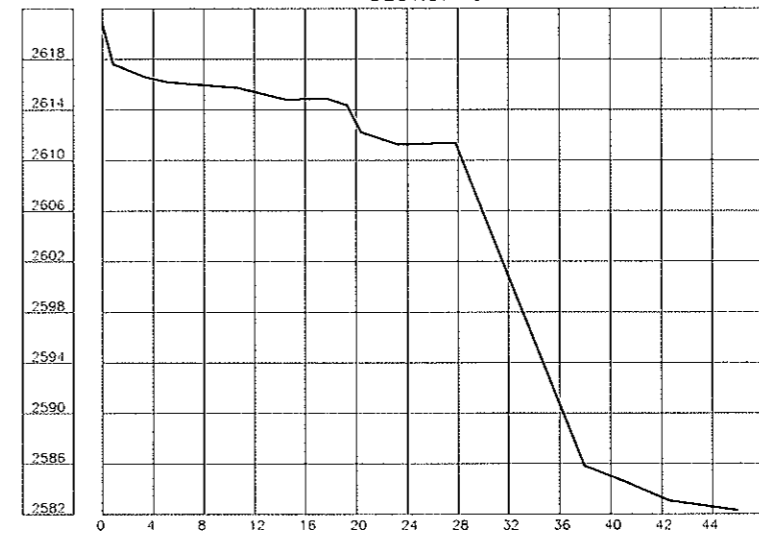
SECTION 4



SECTION 5



SECTION 6

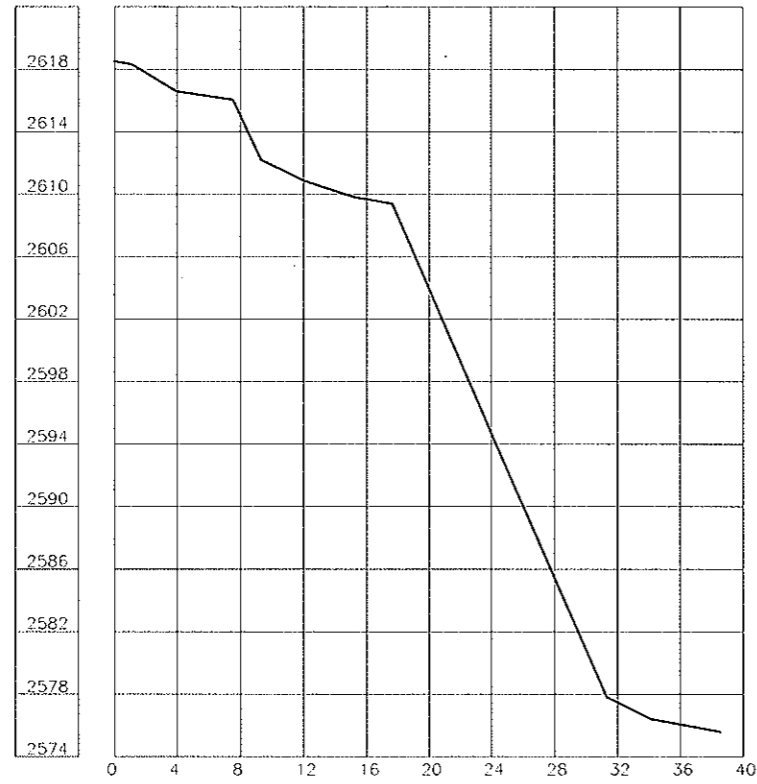


DIVINO NIÑO

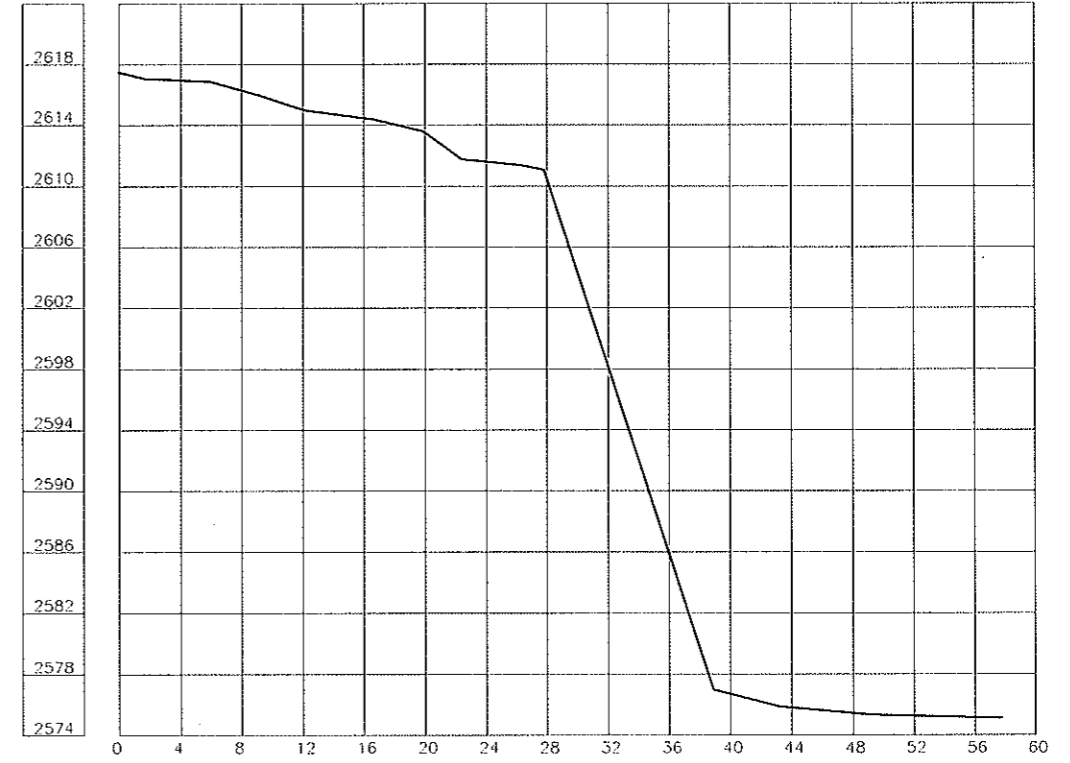
SECTIONS

1/2

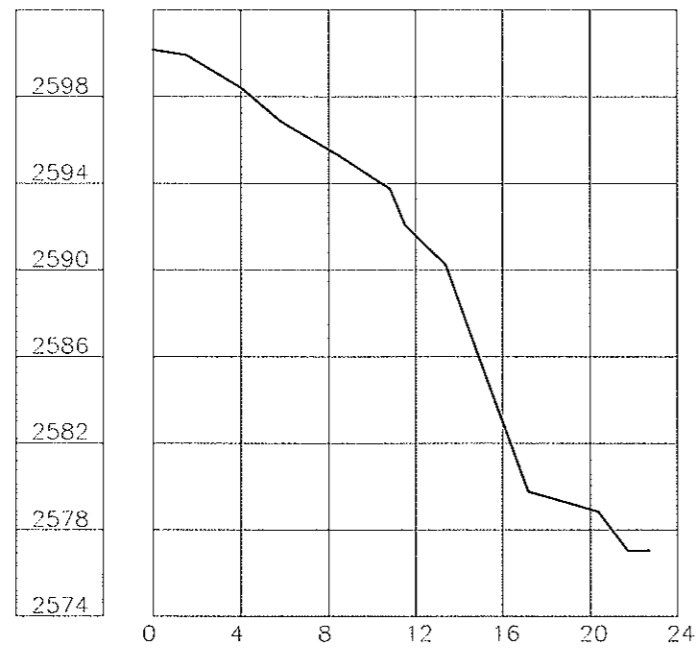
SECTION 7



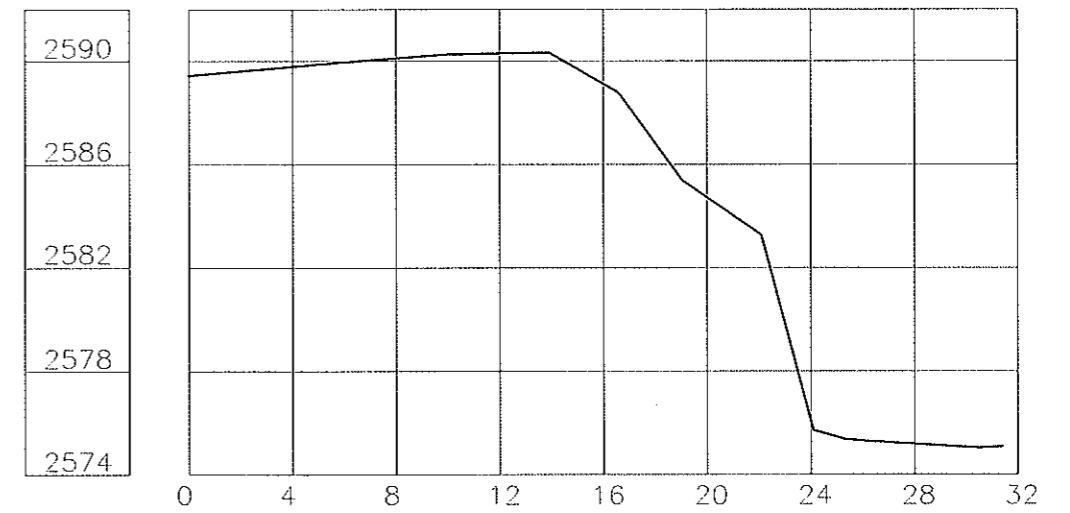
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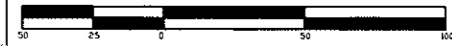
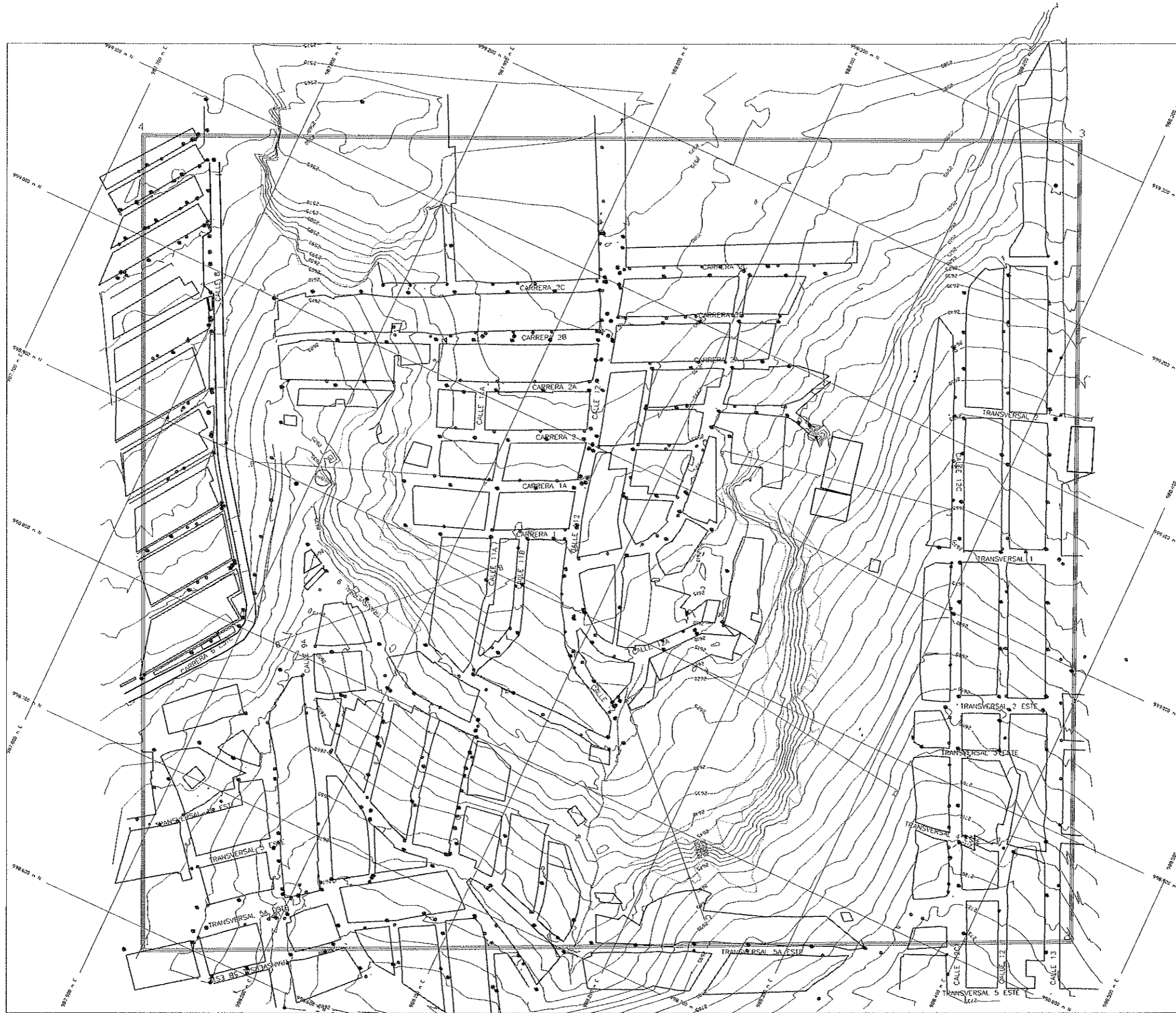


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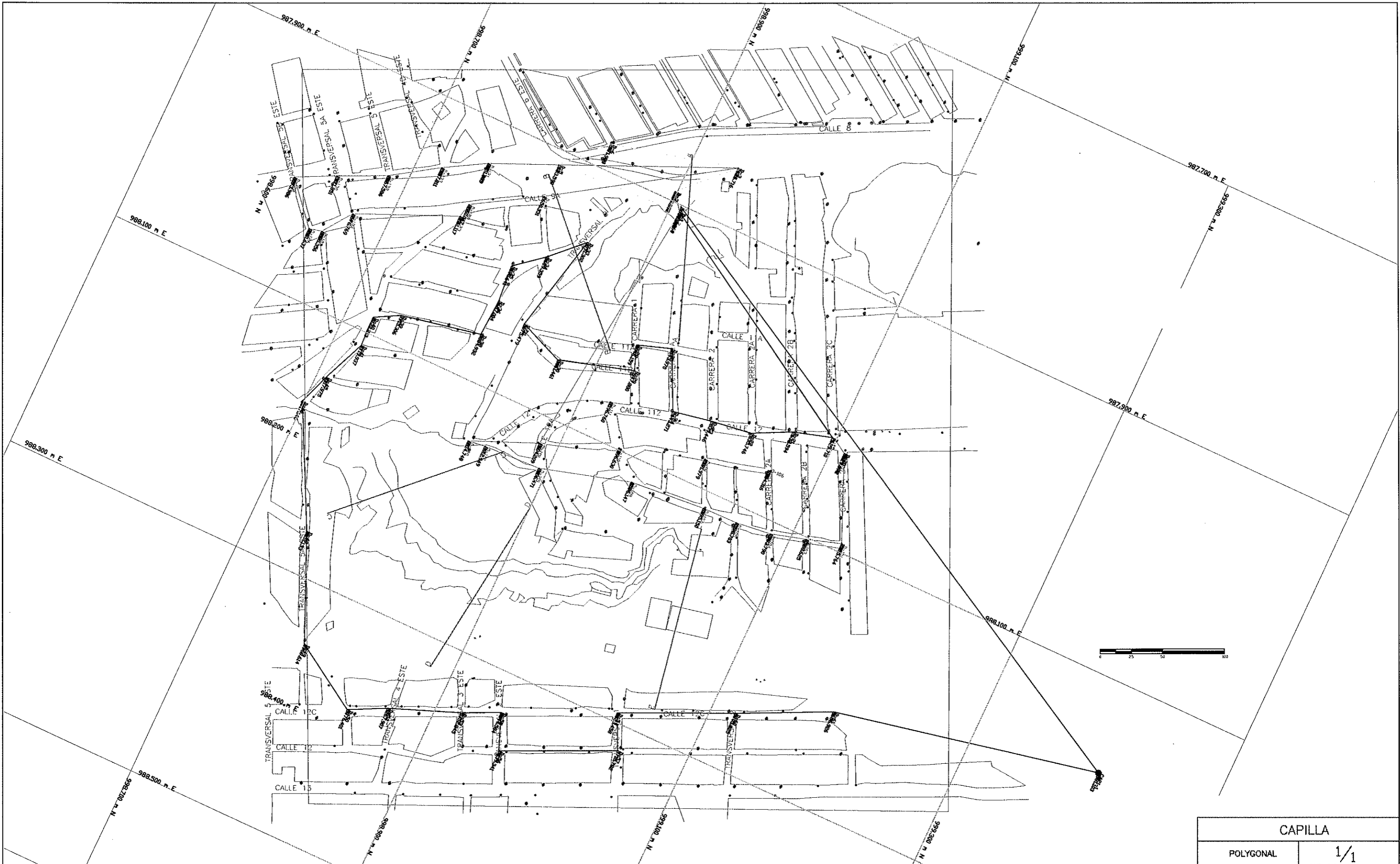


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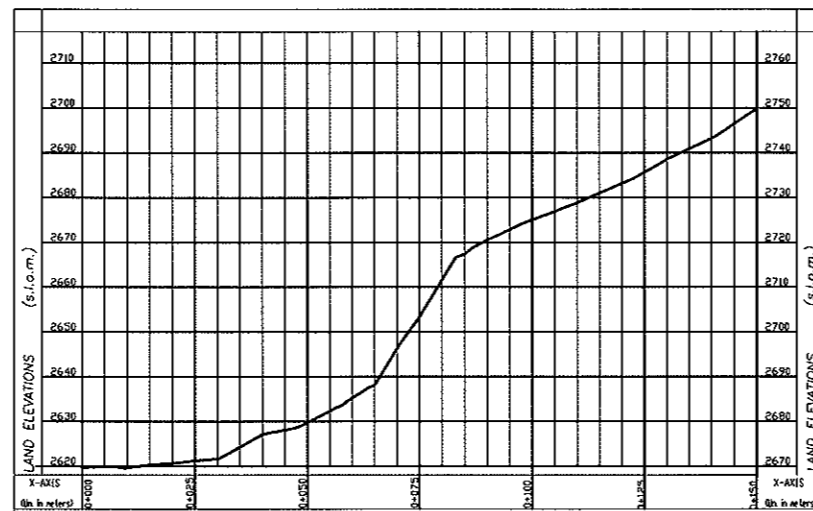
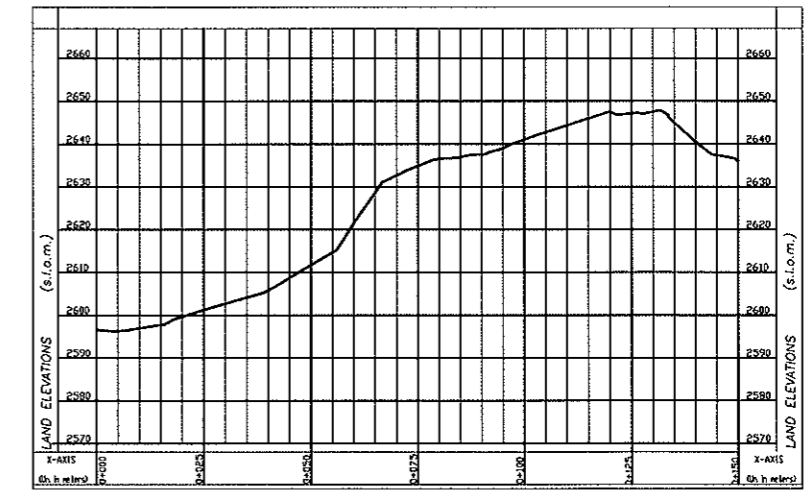
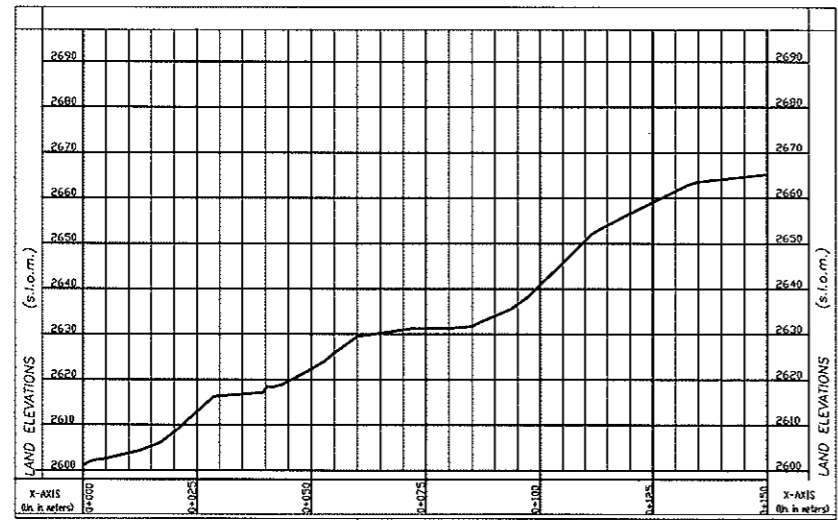
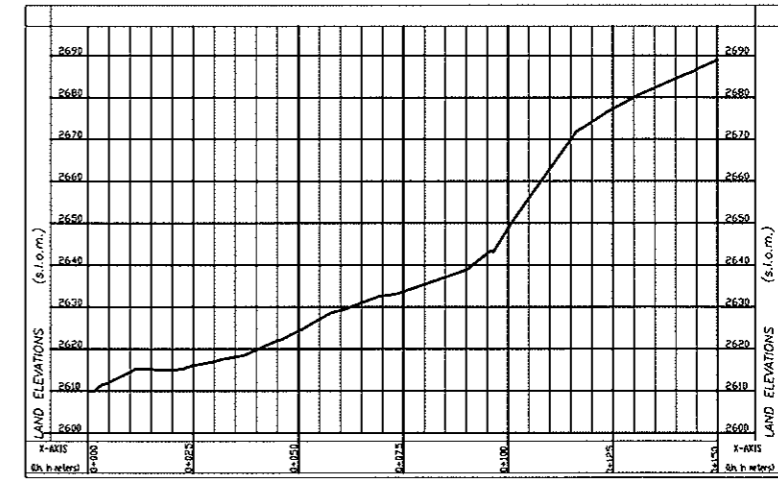


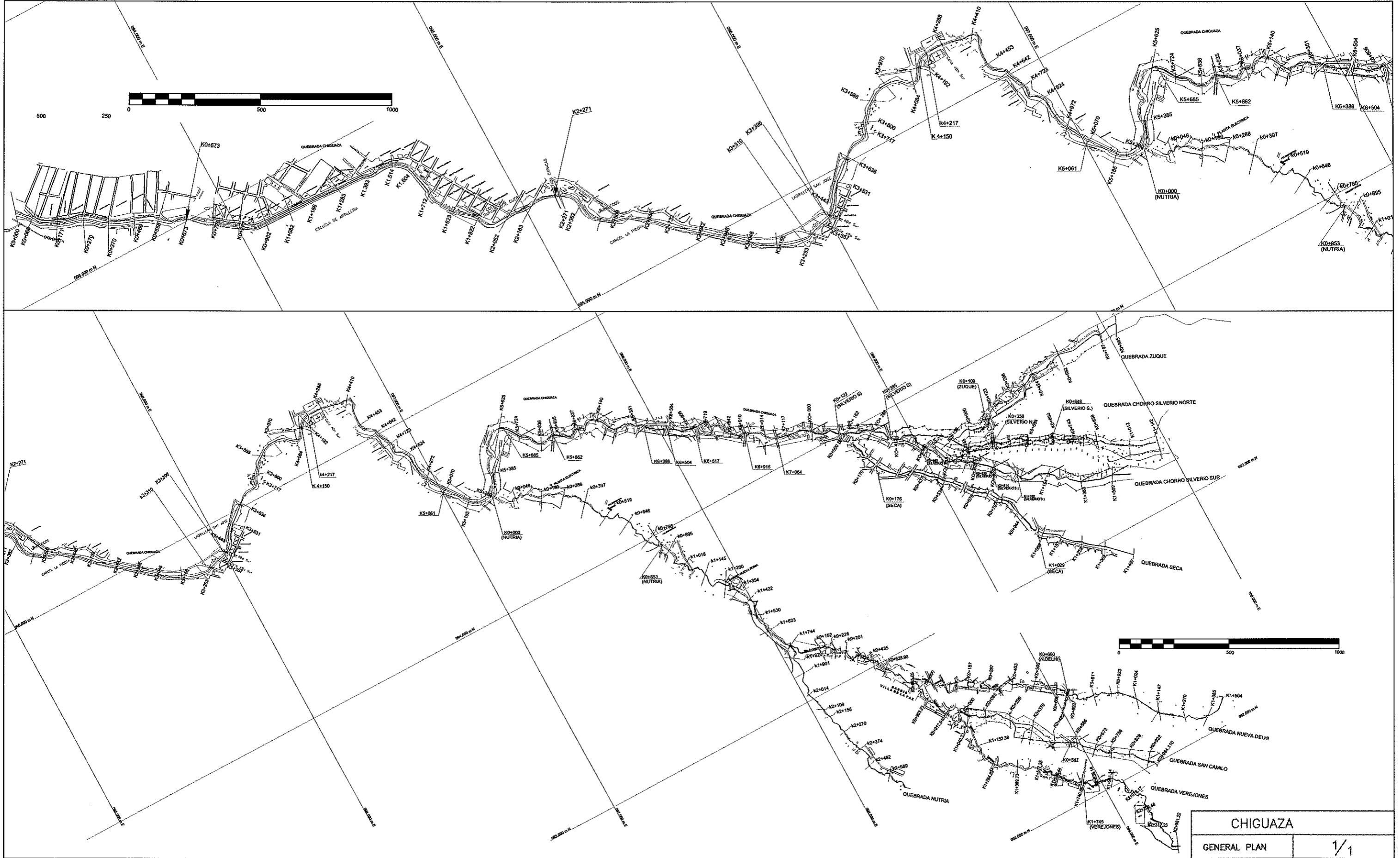


CAPILLA	
GENERAL PLAN	1/1

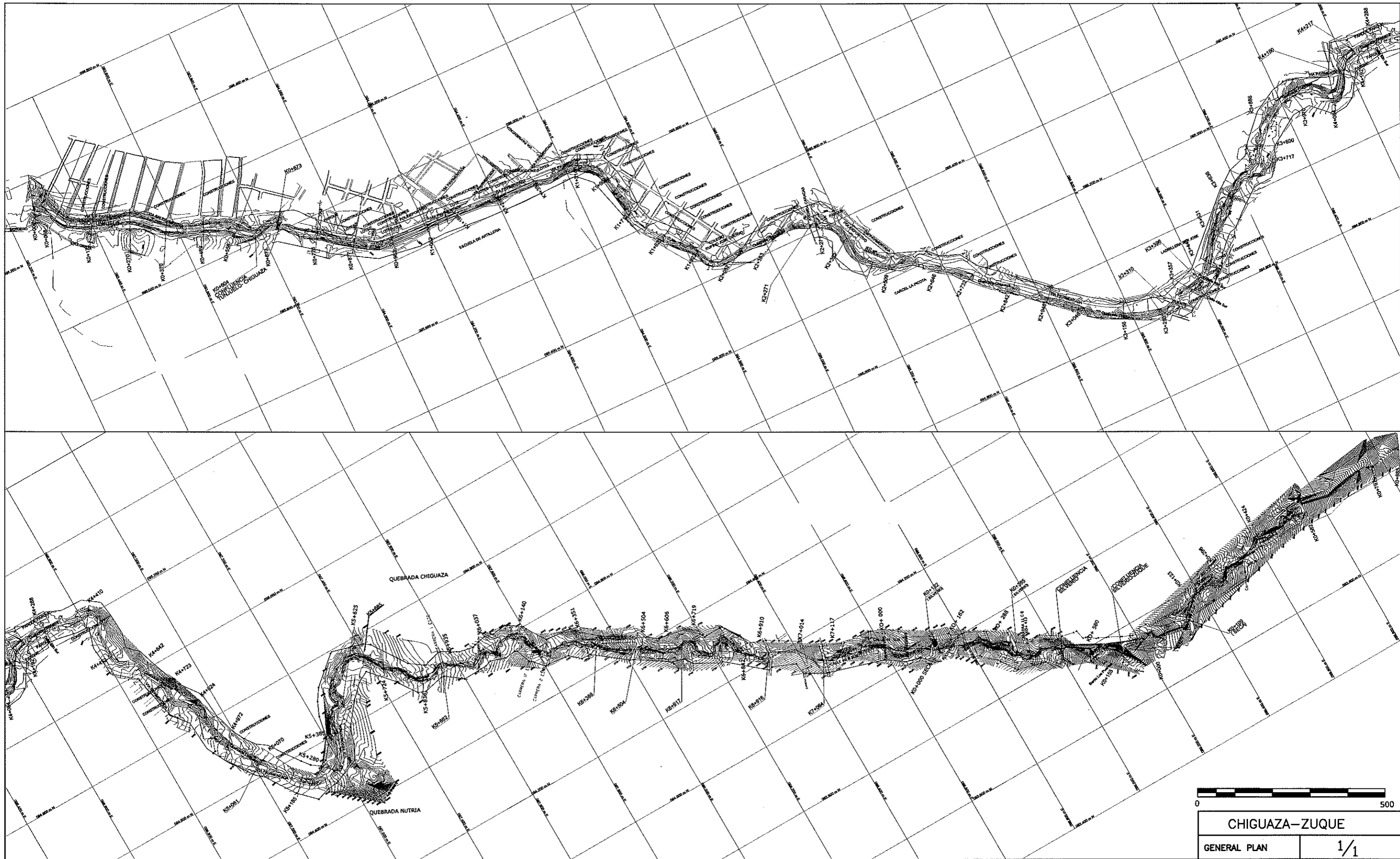


CAPILLA	
POLYGONAL	1/1

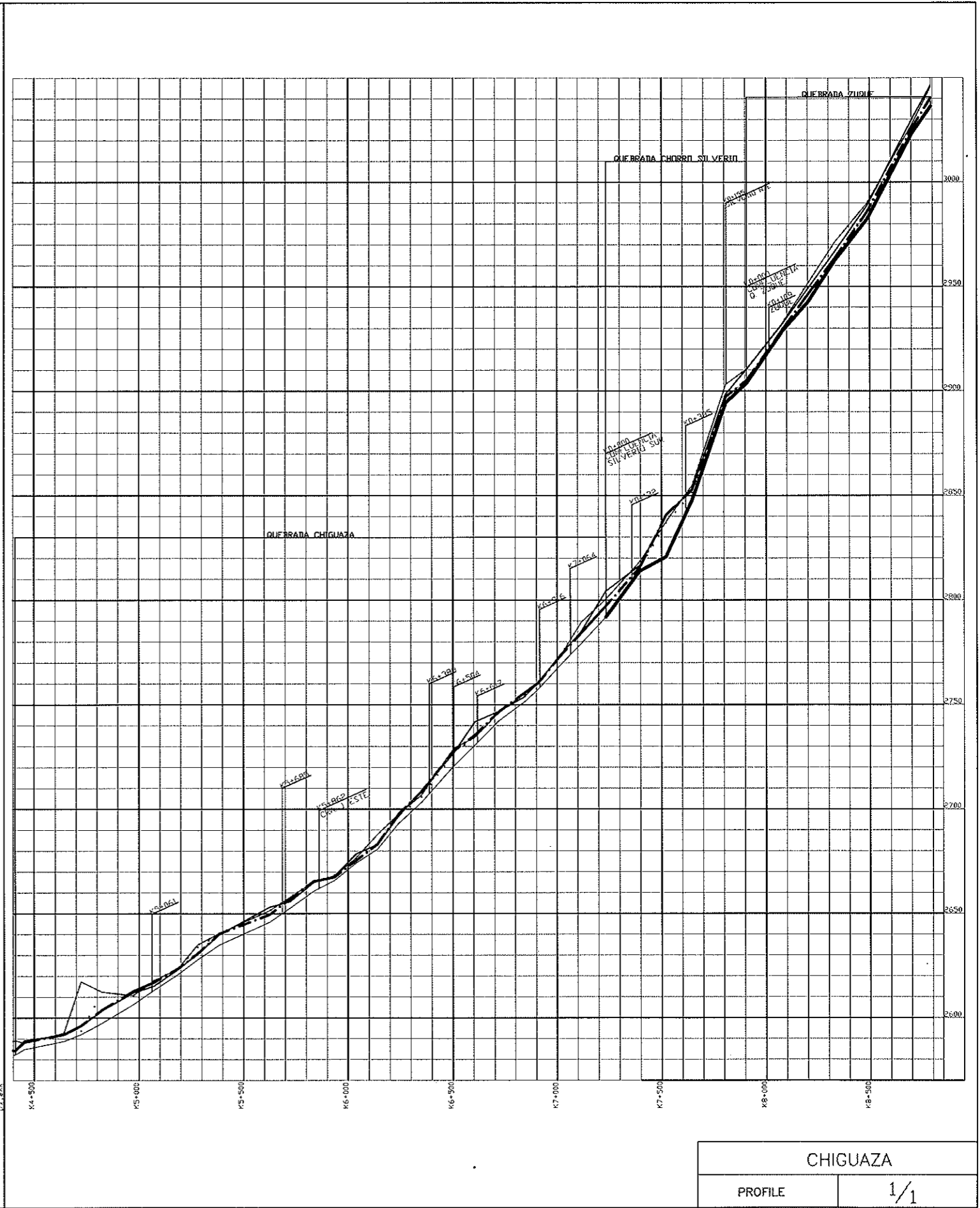
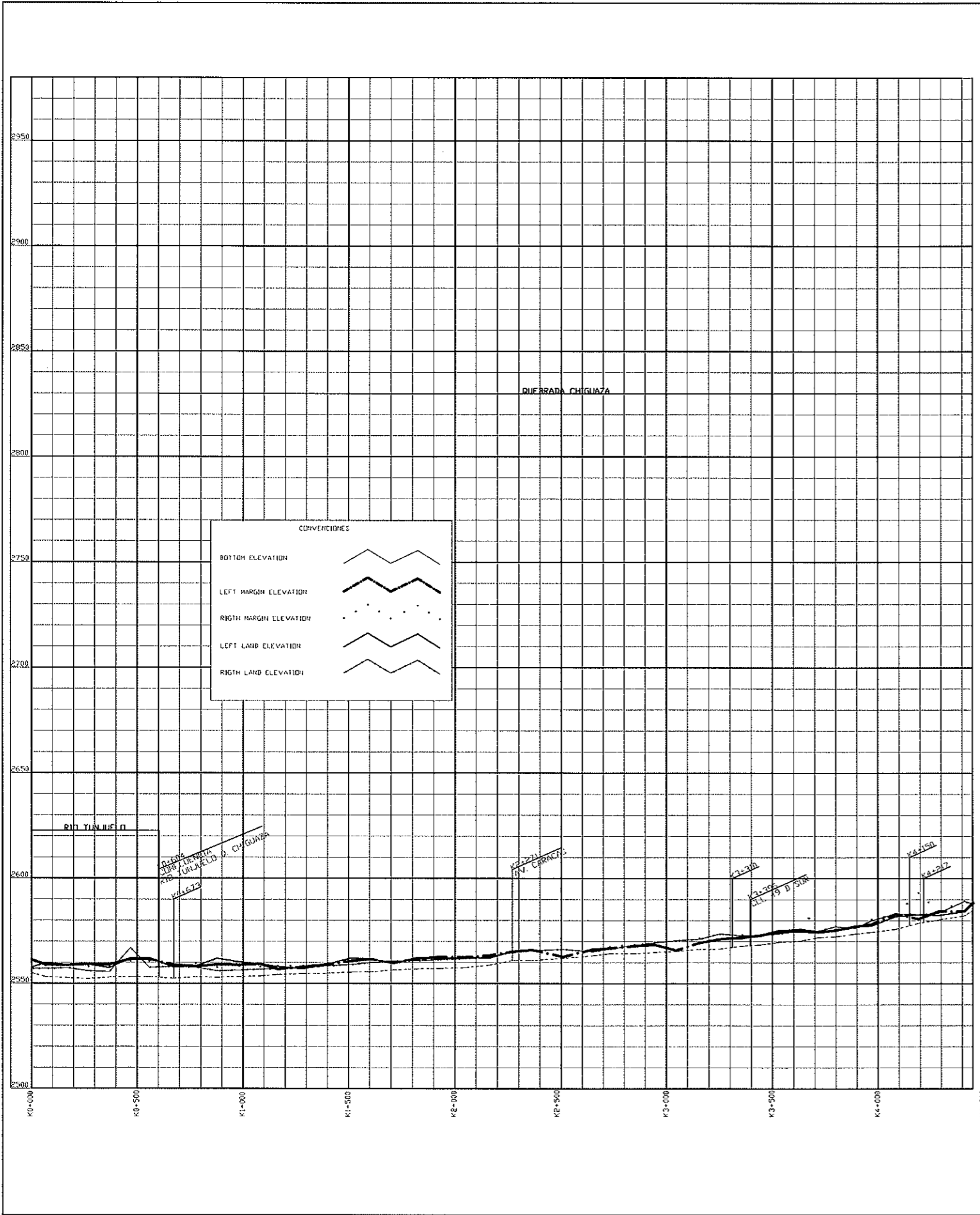




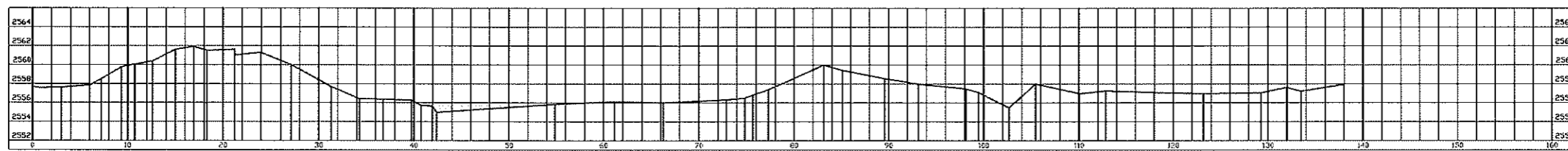
CHIGUAZA	
GENERAL PLAN	1/1



CHIGUAZA-ZUQUE	
GENERAL PLAN	1/1

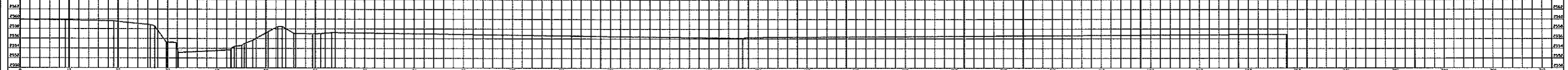


Section k0+000



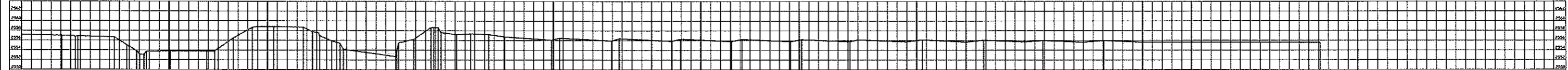
K0+000

Section k0+068



K0+068

Section k0+171

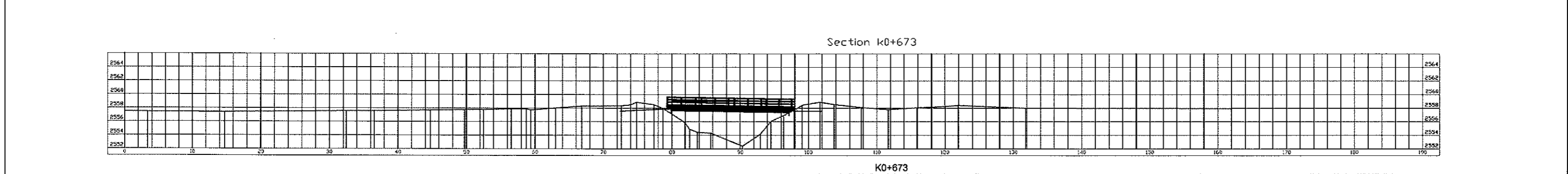
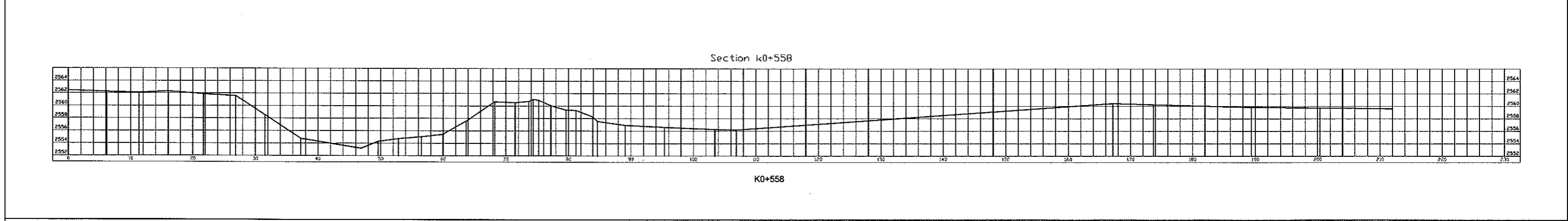
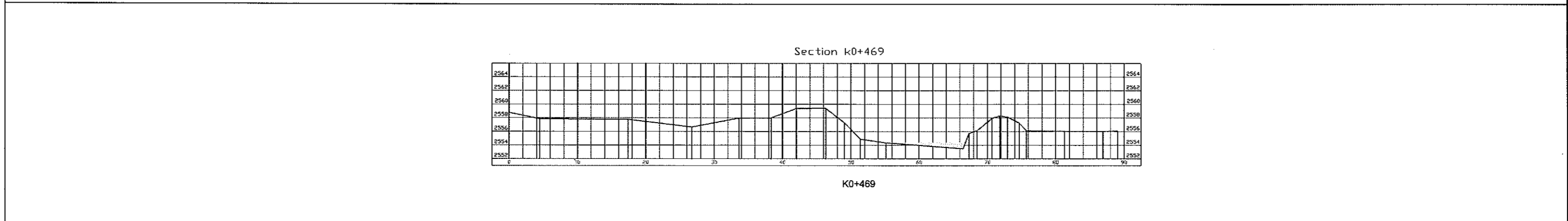
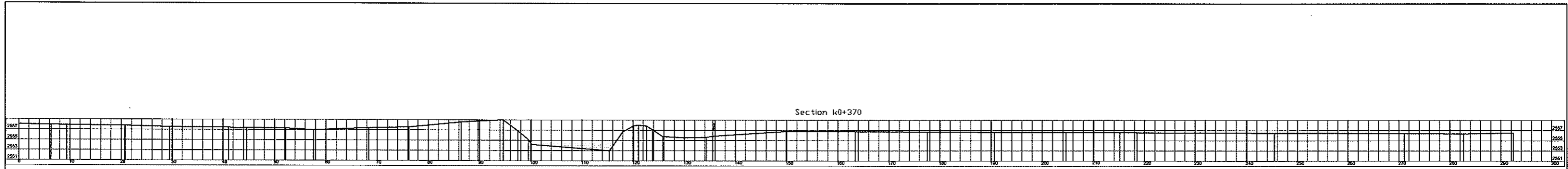


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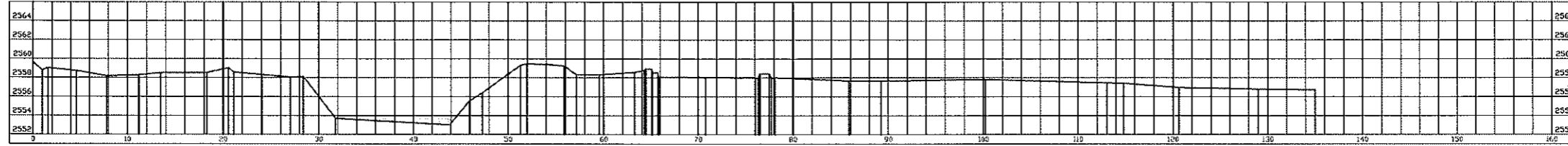
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K0+271

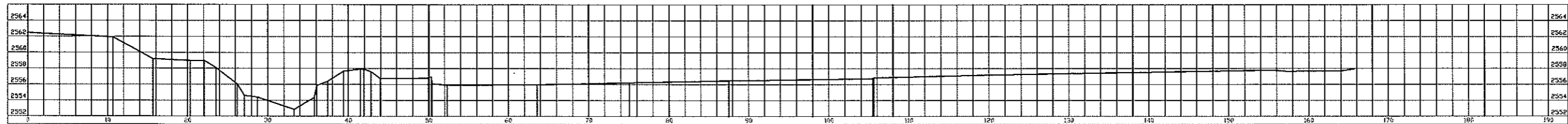


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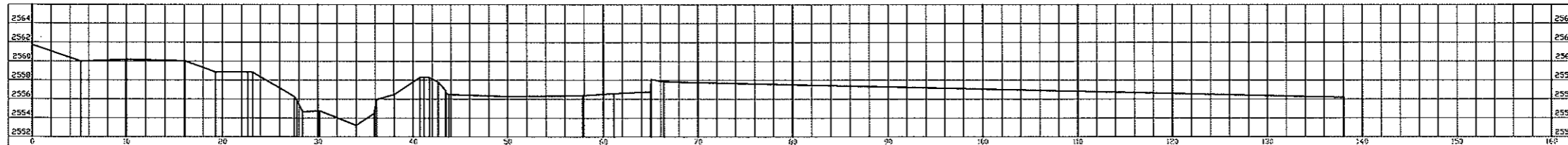
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Section k0+877



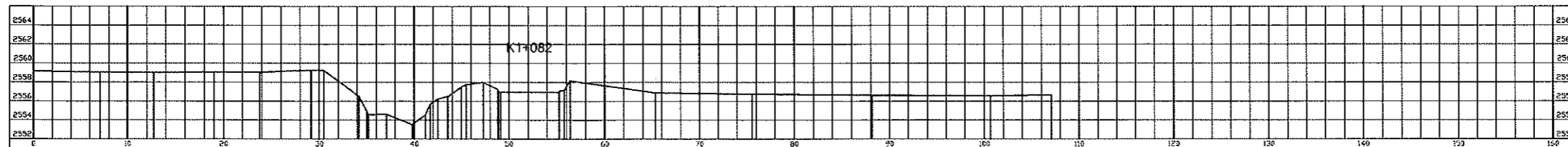
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Section k0+982



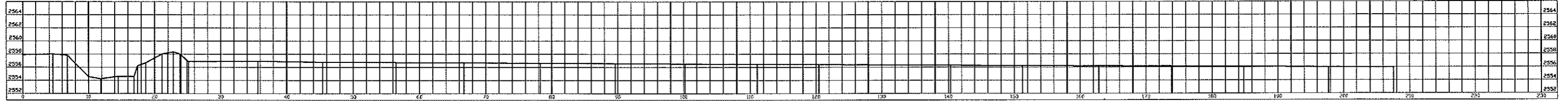
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Section k1+082



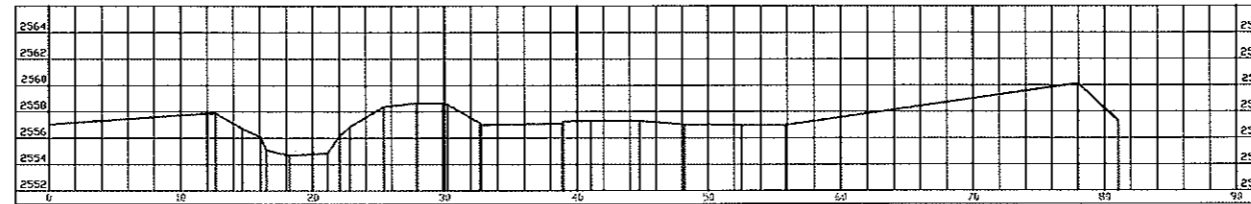
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Section k1+166



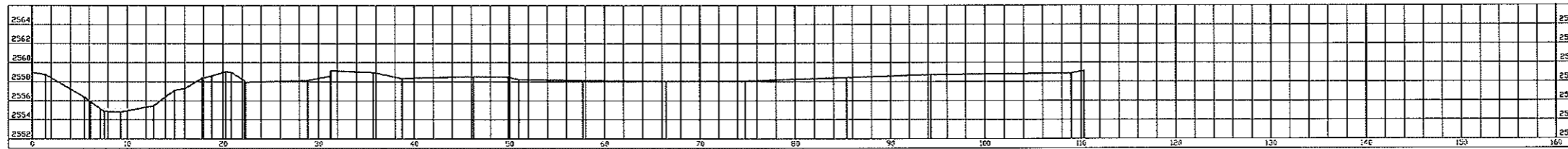
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Section k1+285



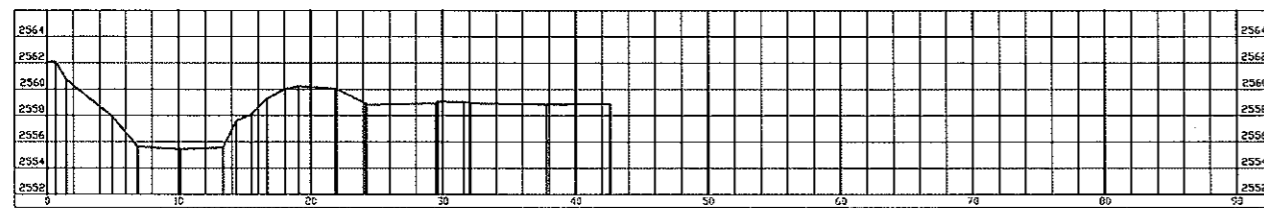
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Section k1+393



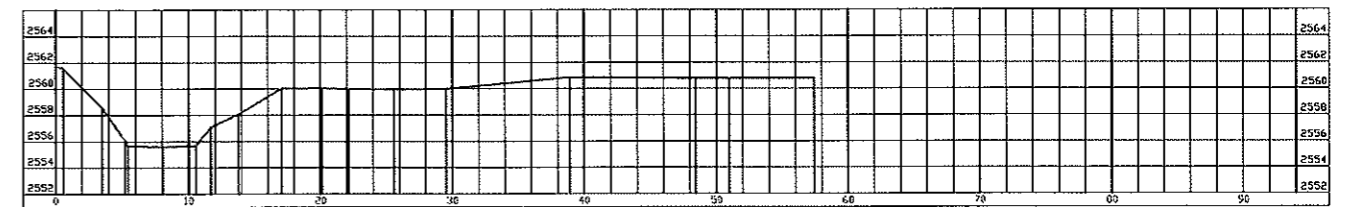
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Section k1+514



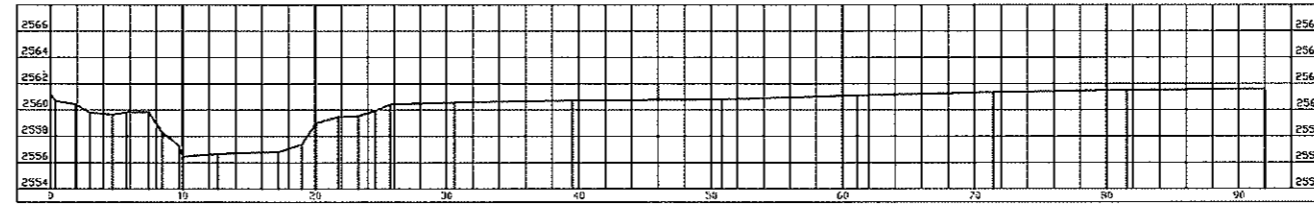
K1+514

Section k1+604



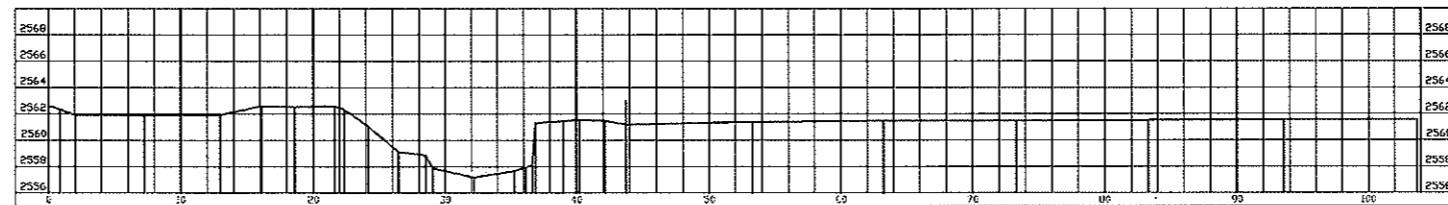
K1+604

Section k1+712



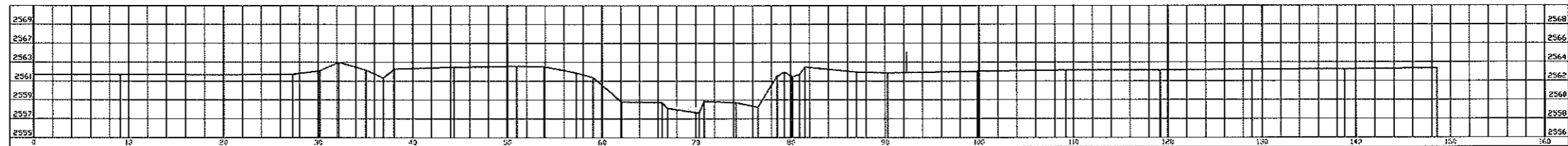
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Section k1+922



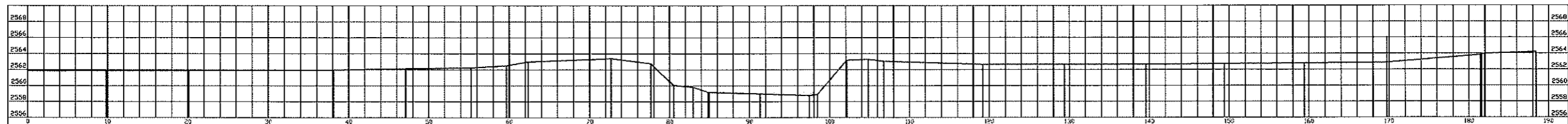
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Section k2+052



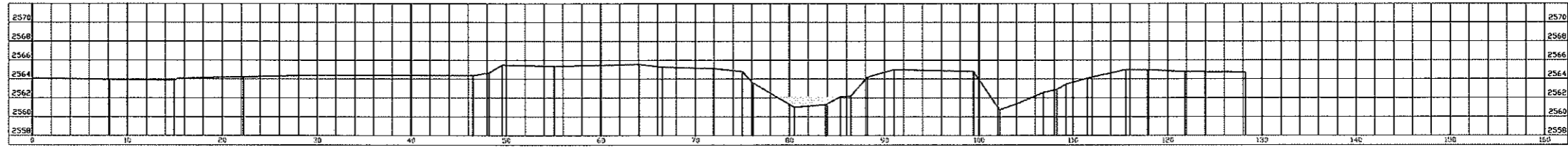
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Section k2+163



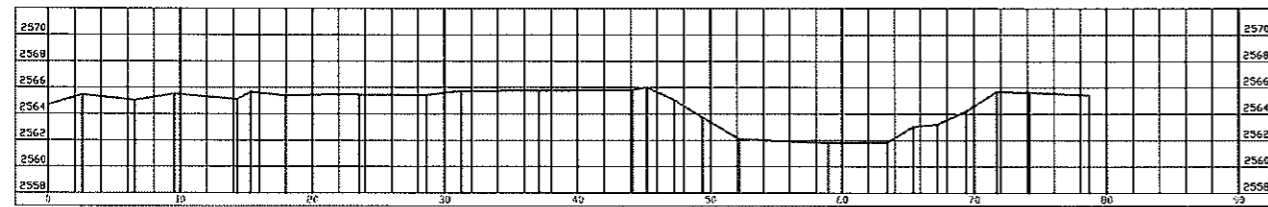
K2+163

Section k2+271



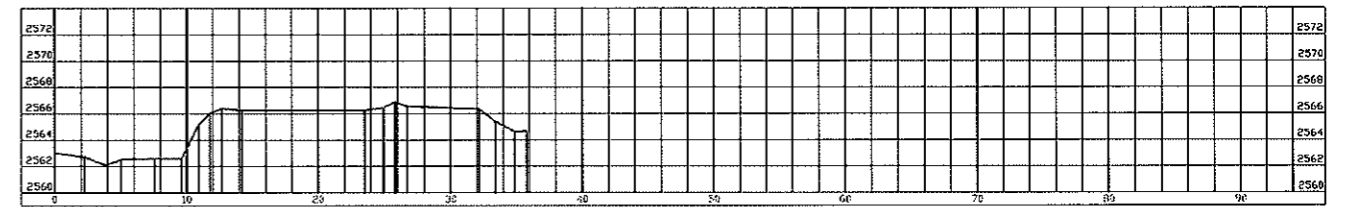
K2+271

Section k2+362



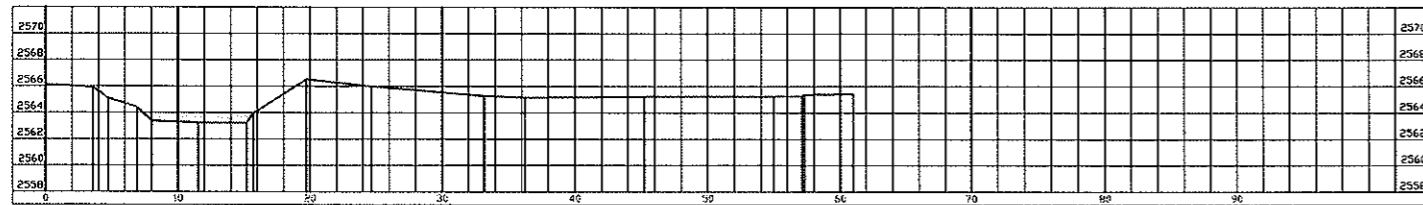
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Section k2+509



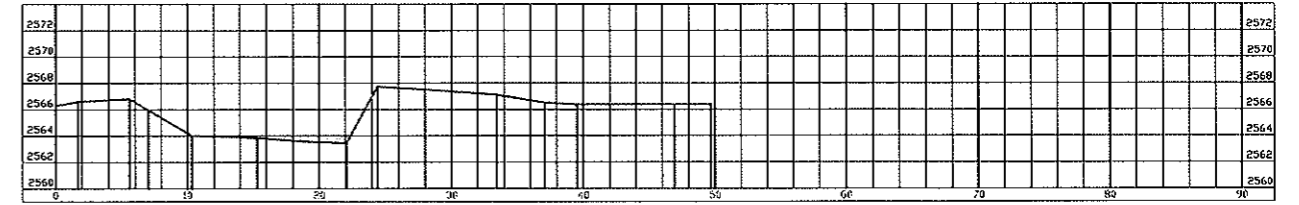
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Section k2+646



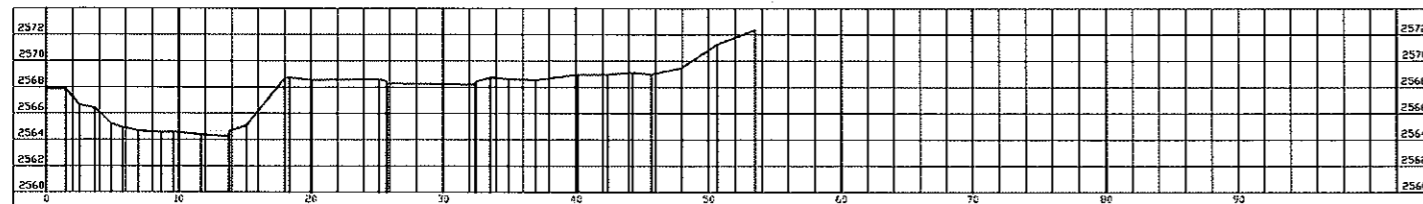
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Section k2+732



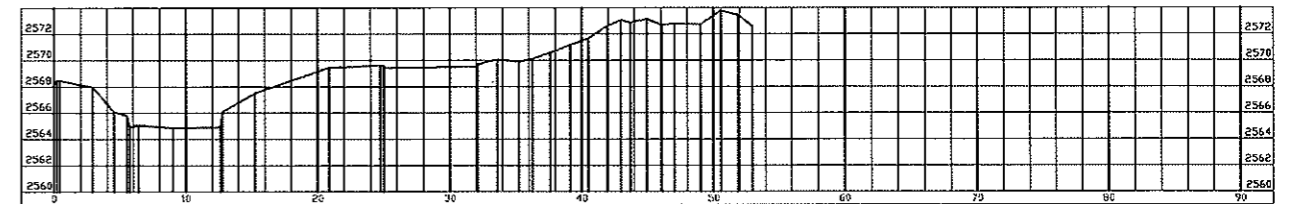
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Section k2+848



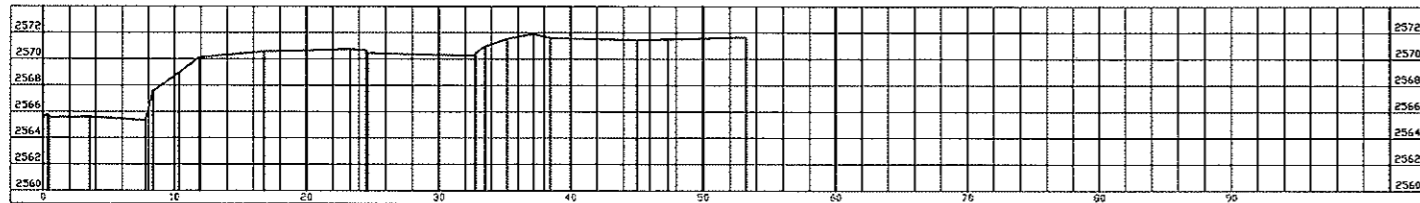
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Section k2+946



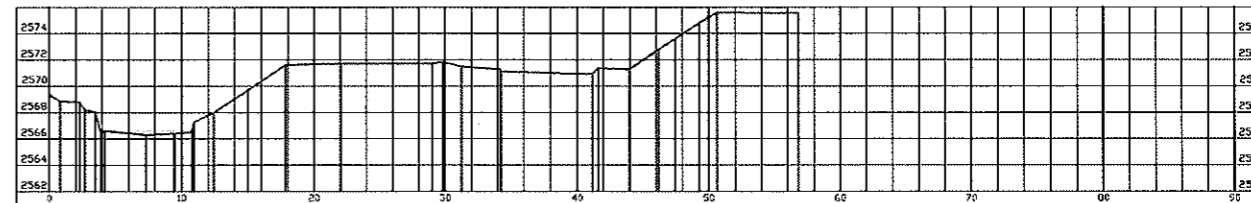
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Section k3+046



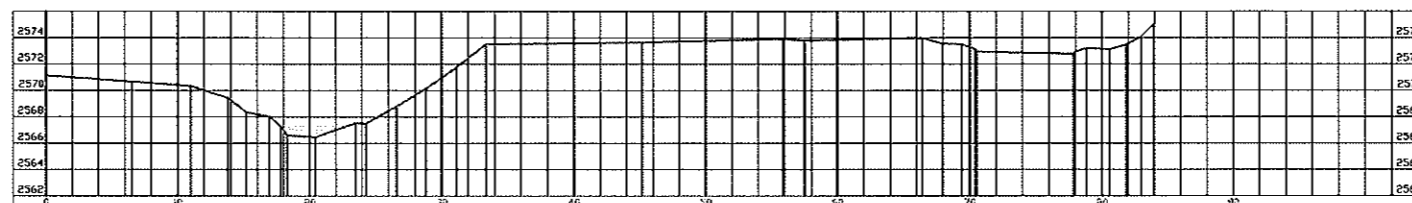
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Section k3+156



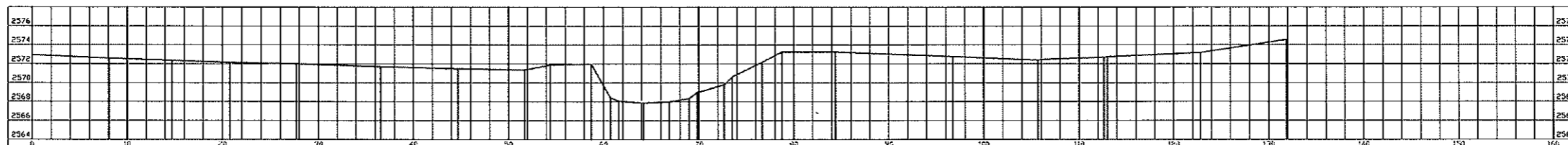
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Section k3+253



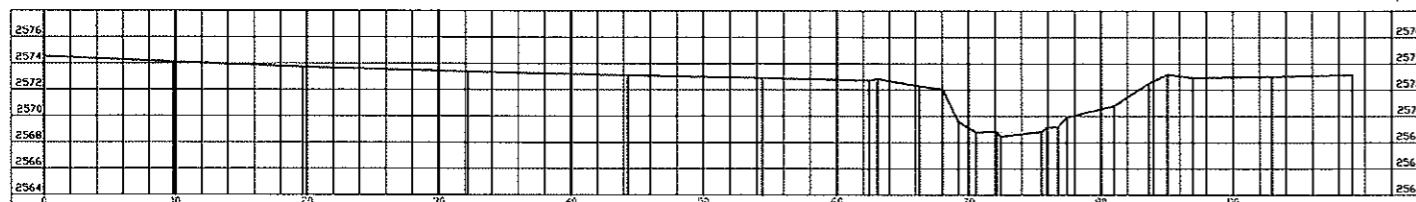
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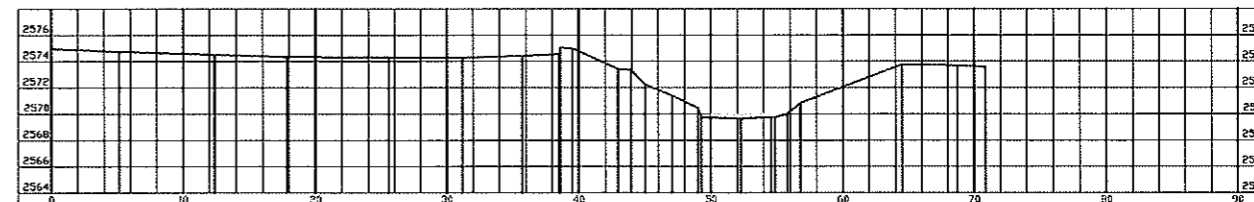
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Section k3+443



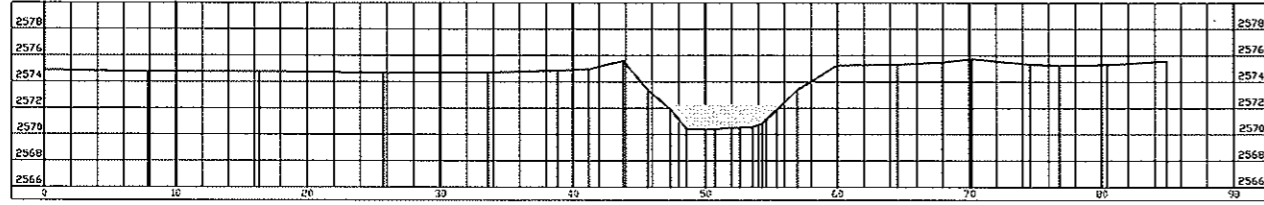
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Section k3+531



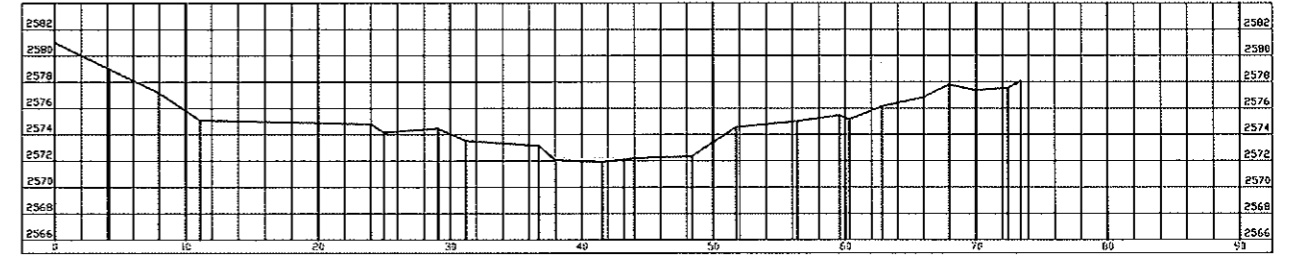
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Section k3+636



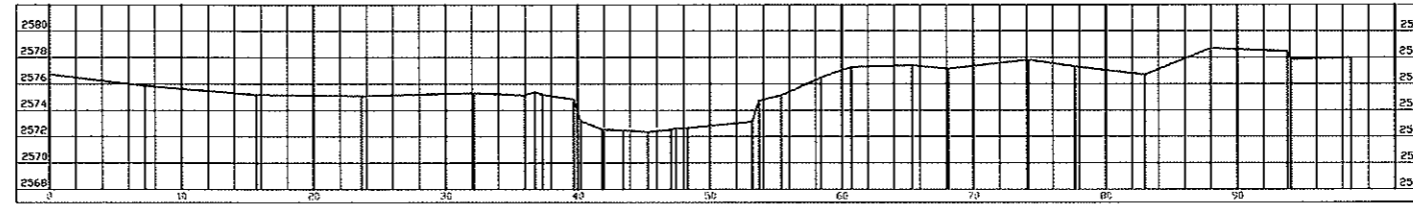
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Section k3+717



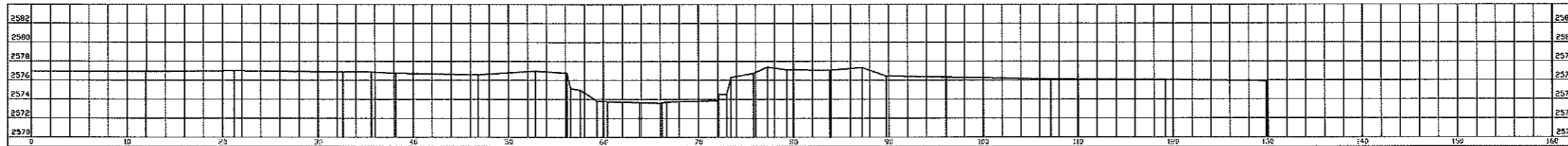
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Section k3+800



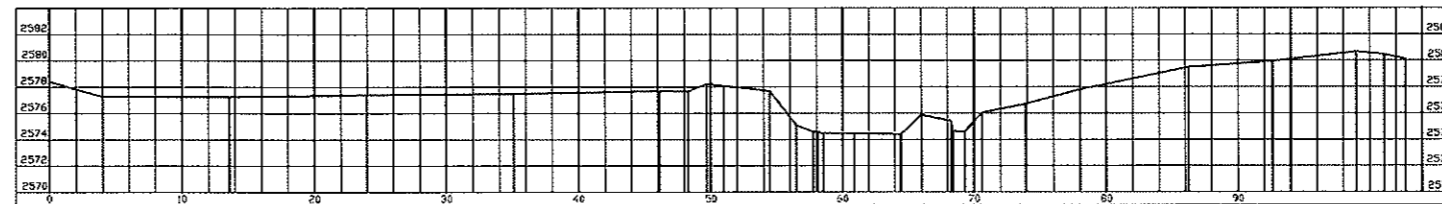
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Section k3+888



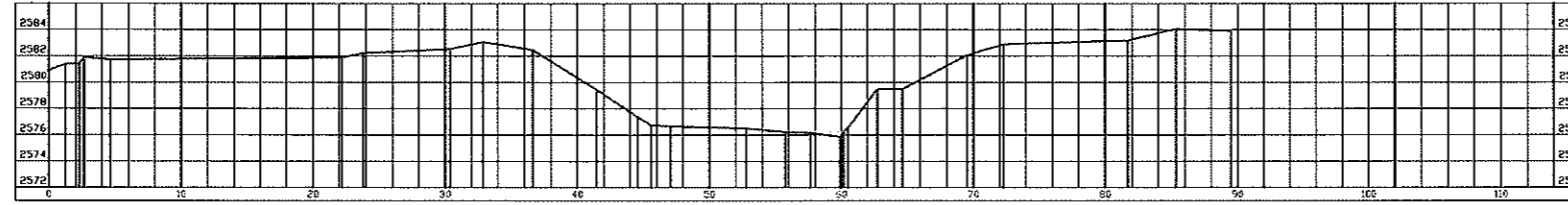
K3+888

Section k3+970



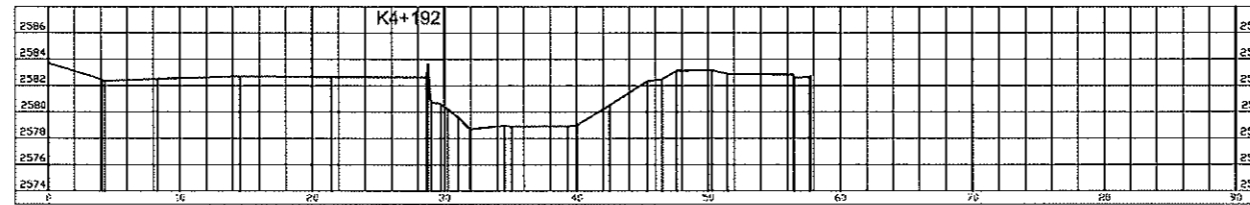
K3+970

Section k4+084



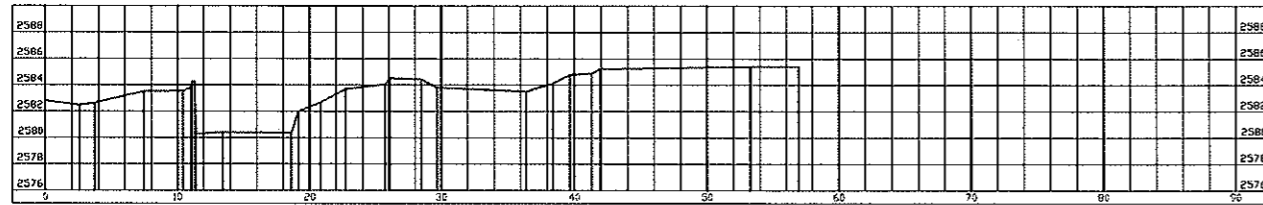
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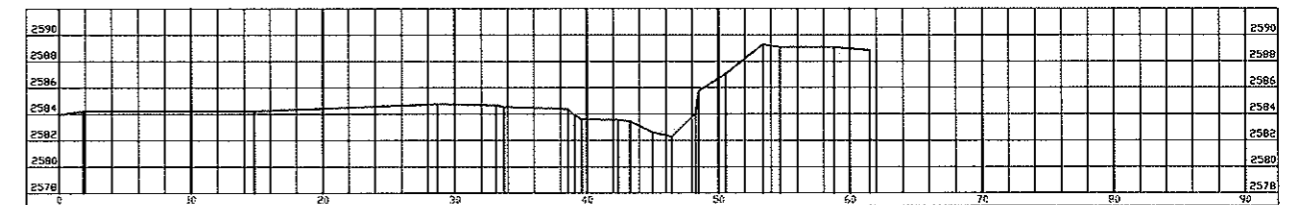
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Section k4+288



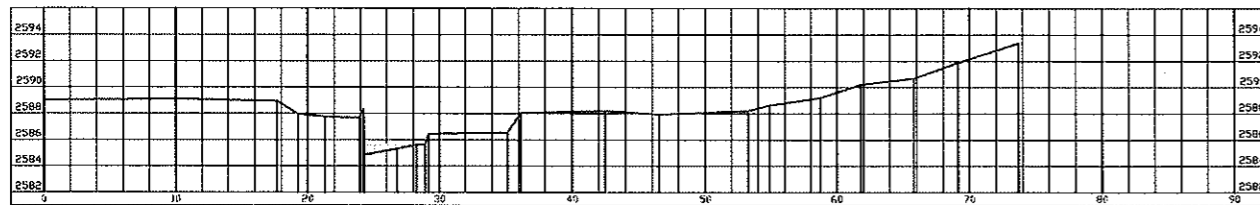
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Section k4+410



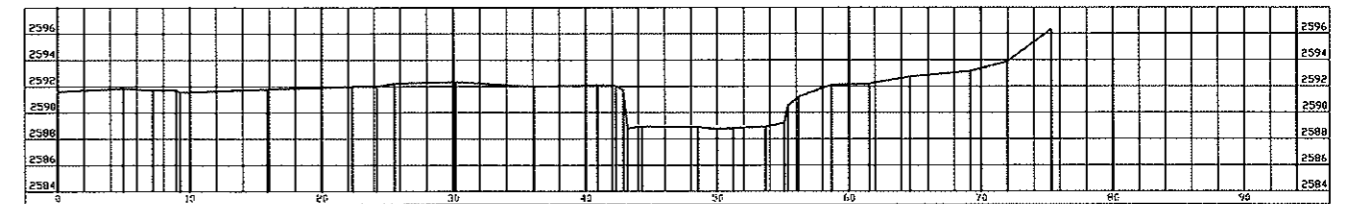
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Section k4+453



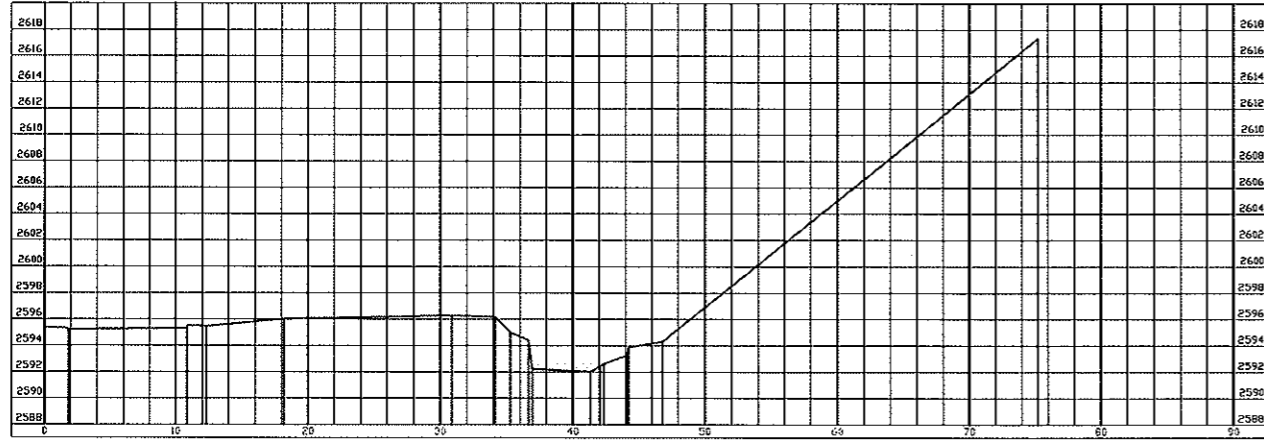
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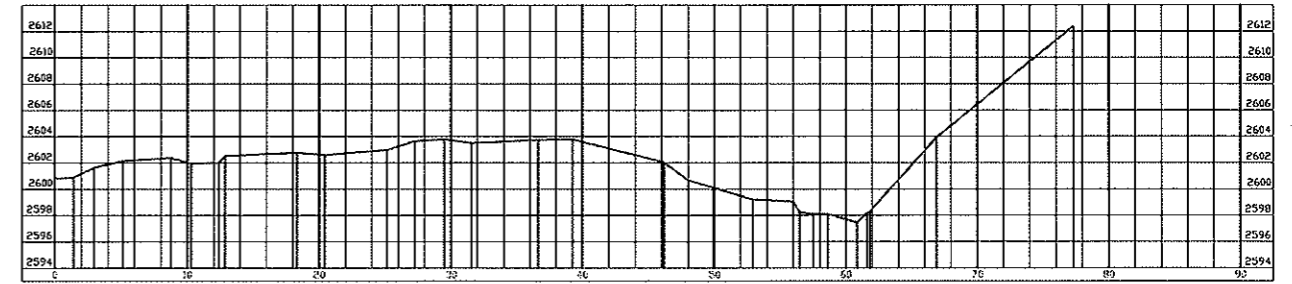
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Section k4+723



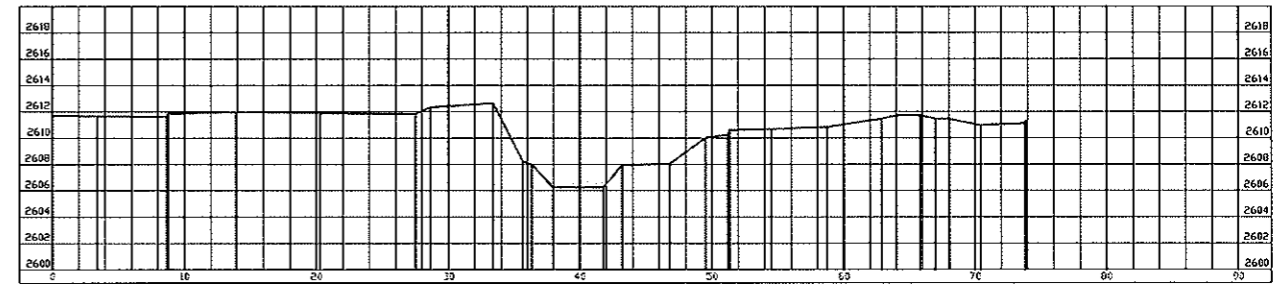
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Section k4+824



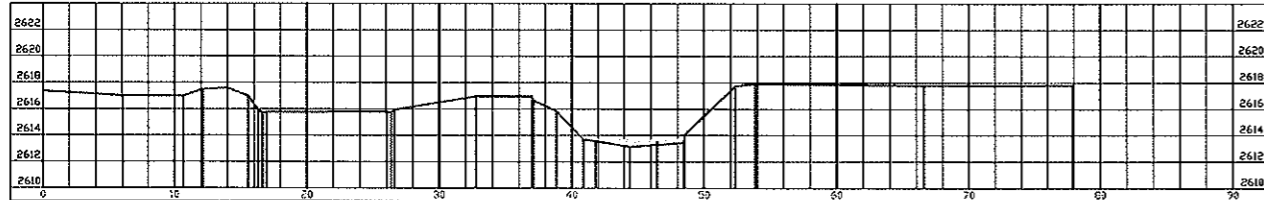
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Section k4+972



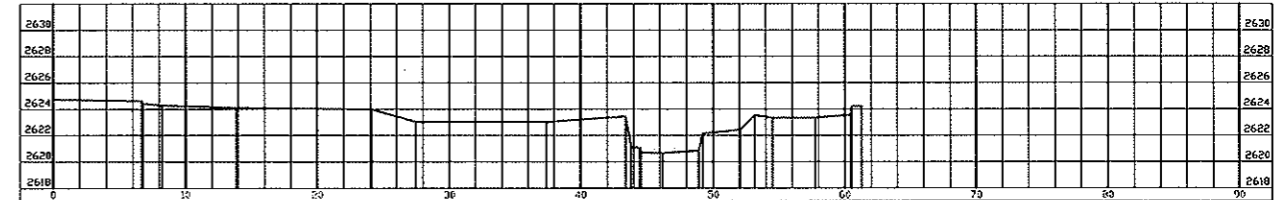
K4+972

Section k5+070



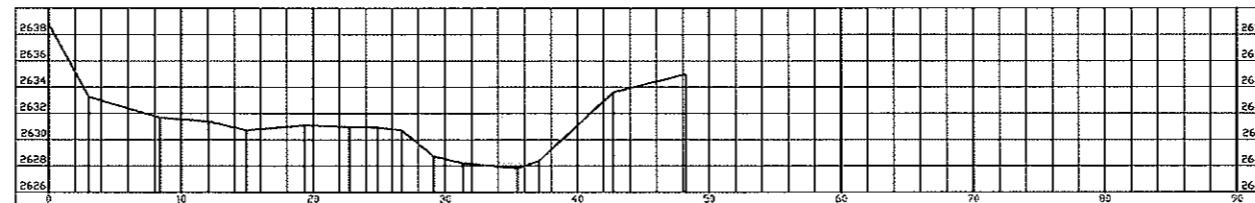
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Section k5+185



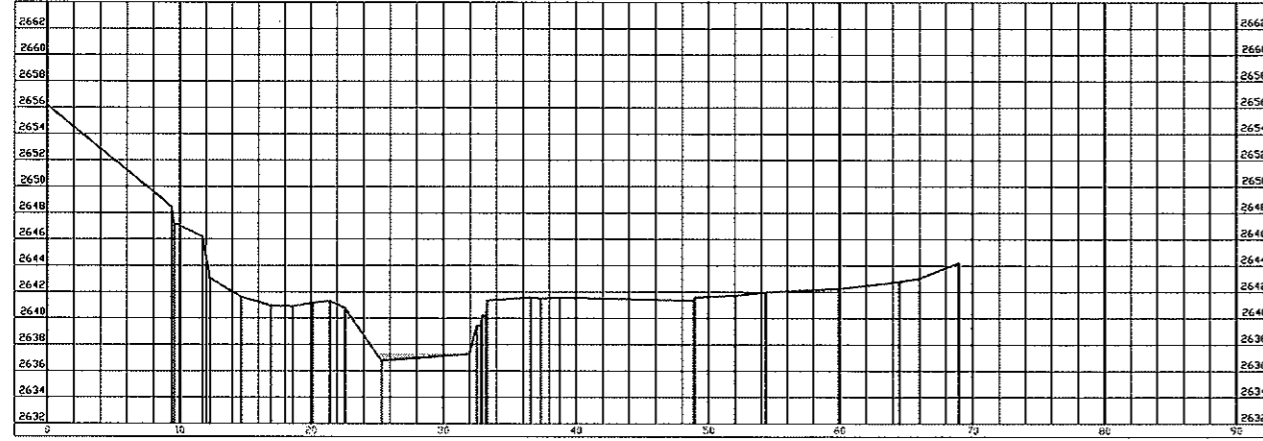
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Section k5+280



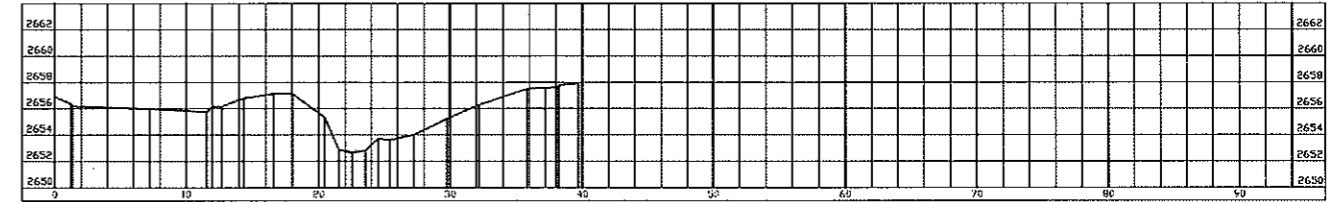
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Section k5+385



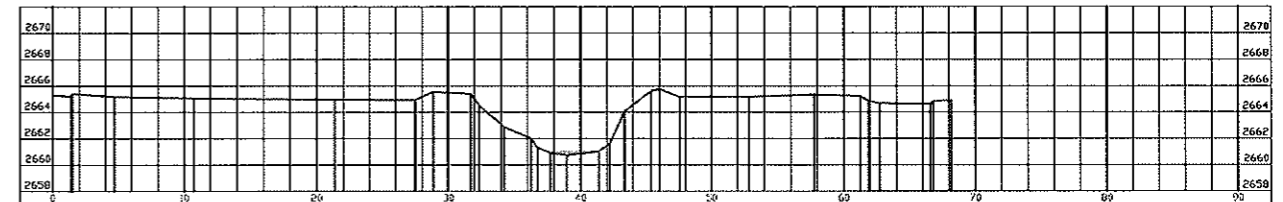
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Section k5+724



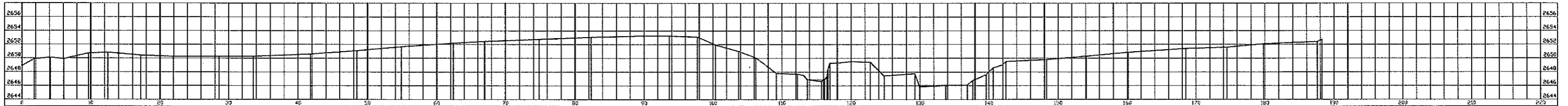
K5+724

Section k5+836



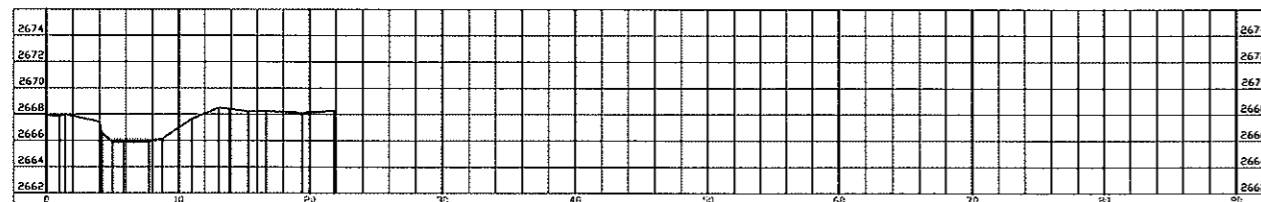
K5+836

Section k5+625



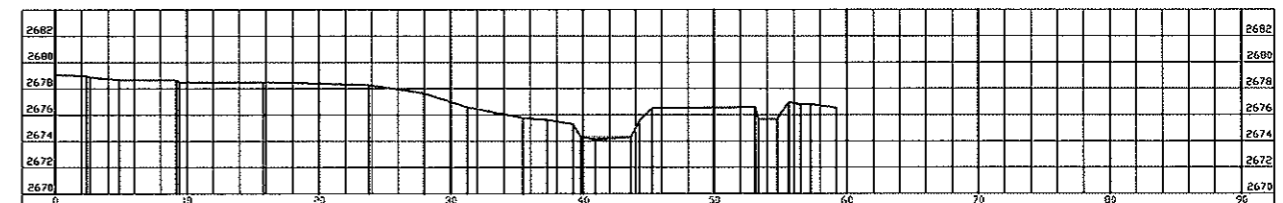
K5+625

Section k5+935

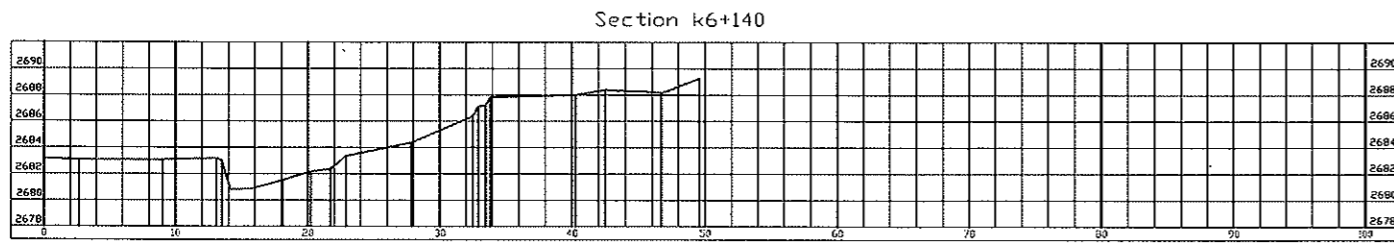


K5+935

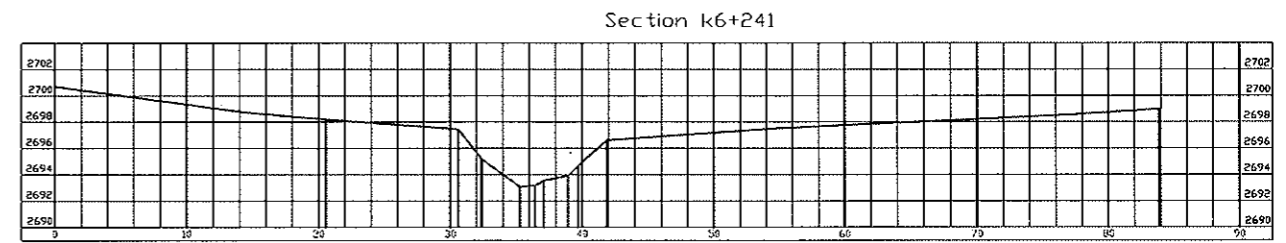
Section k6+037



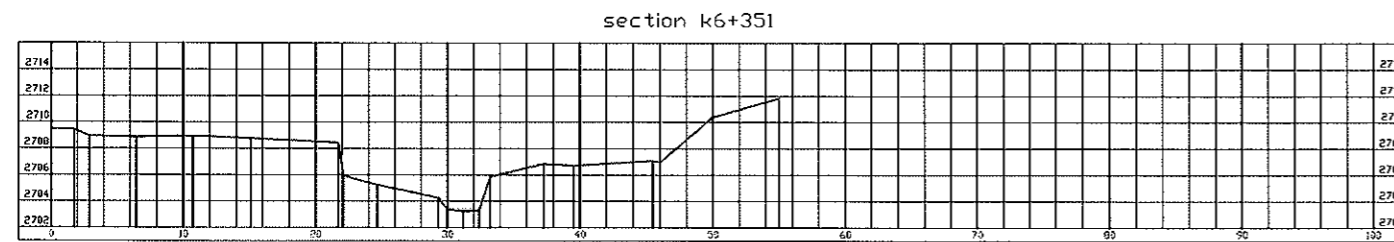
K6+037



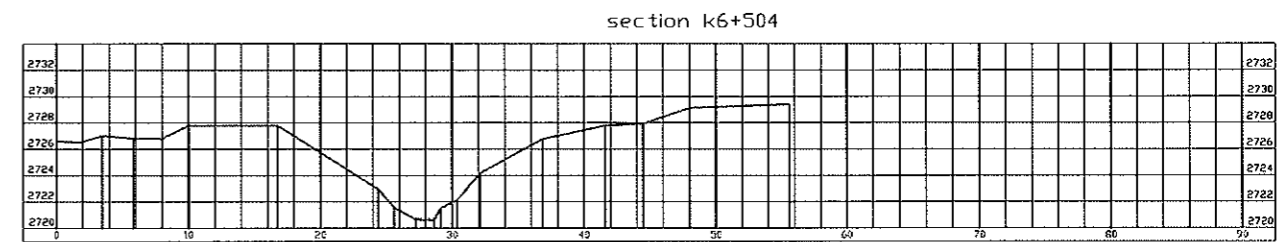
K6+140



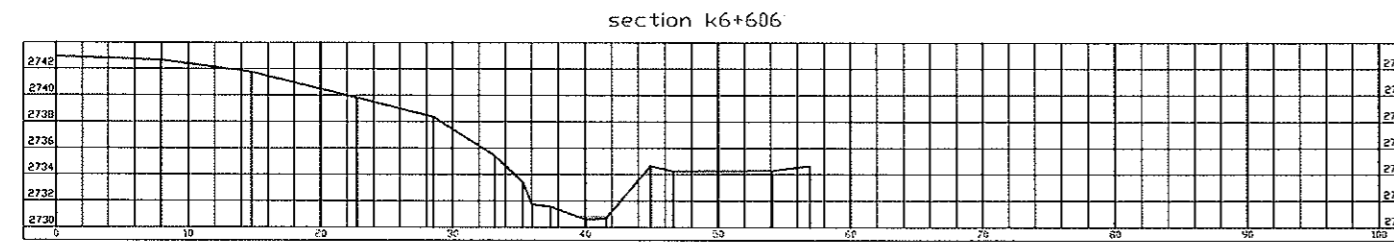
K6+241



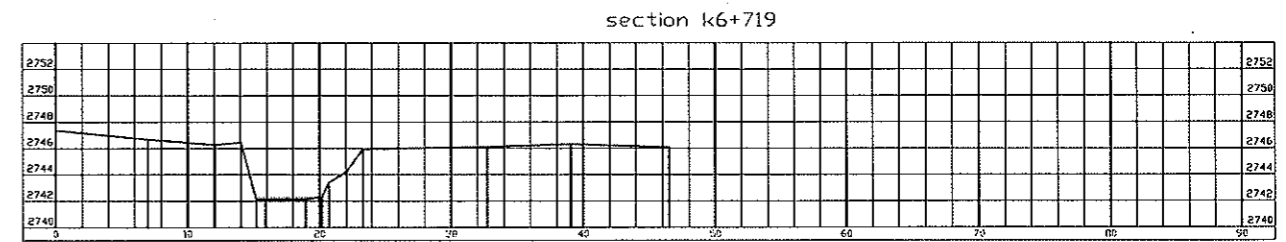
K6+351



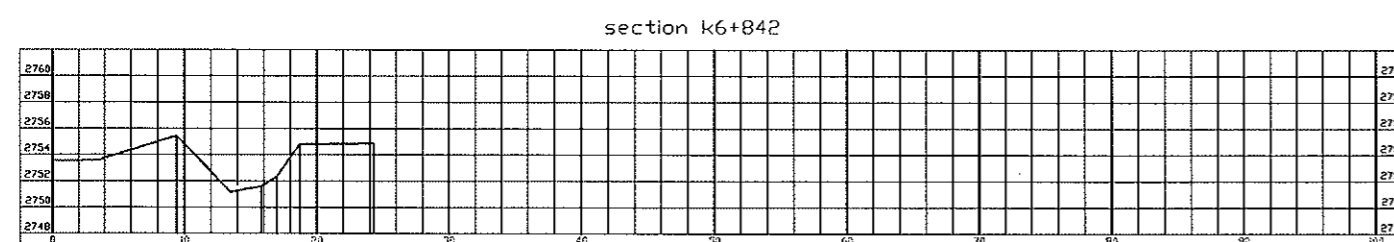
K6+504



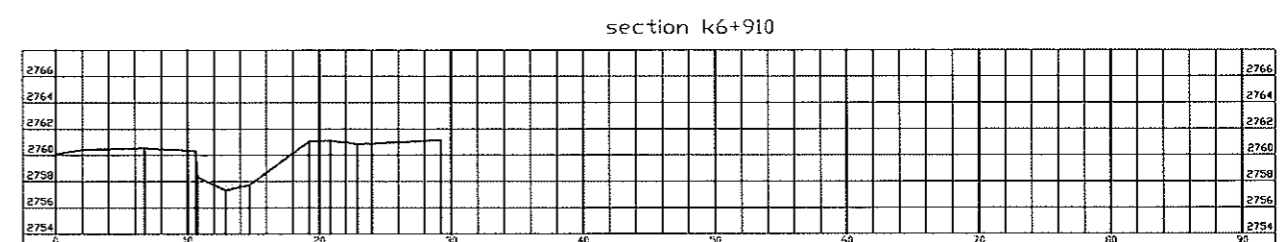
K6+606



K6+719

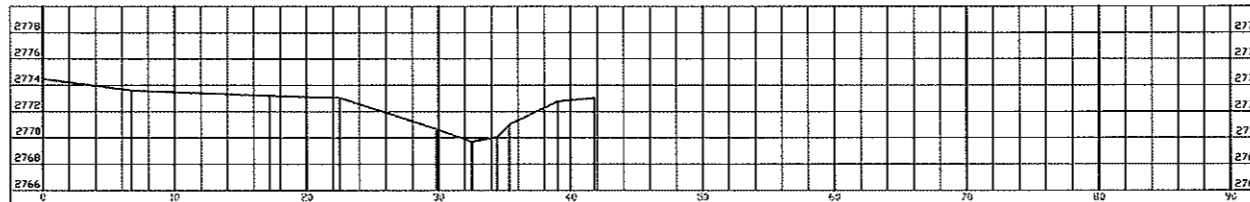


K6+842



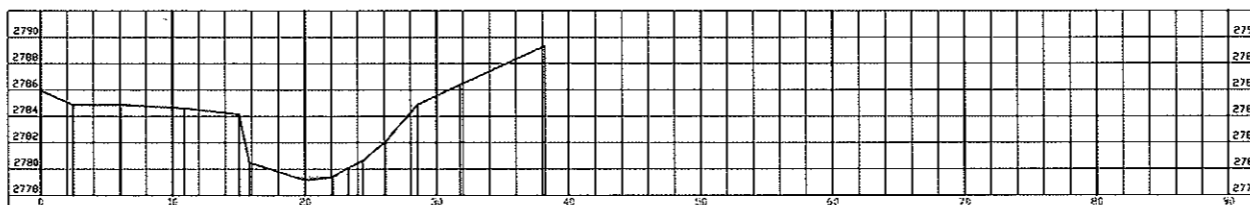
K6+910

section k7+014



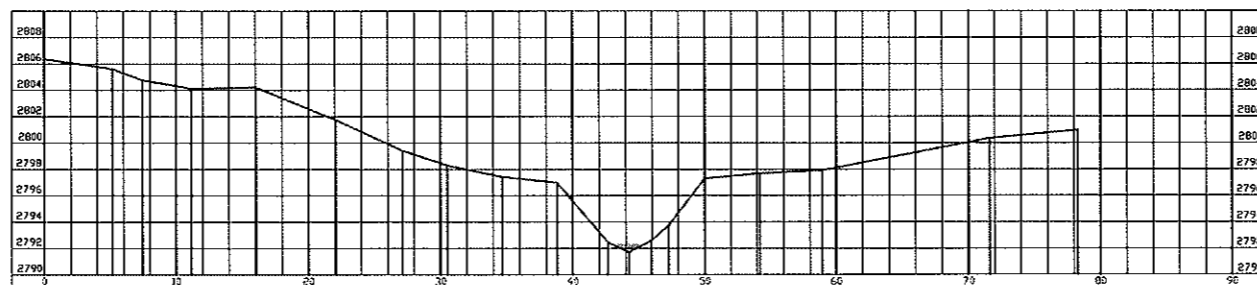
K7+014

section k7+117



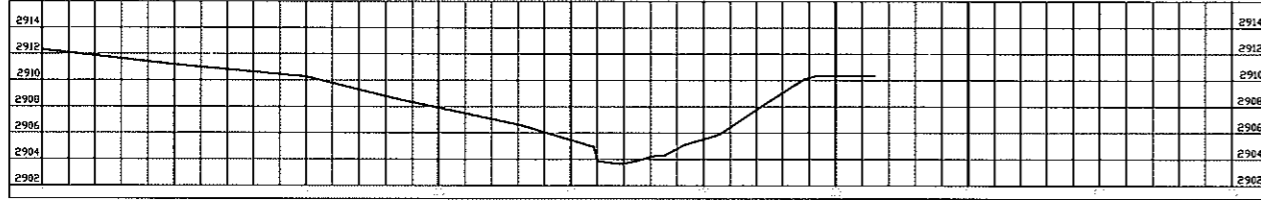
K7+117

section k7+234



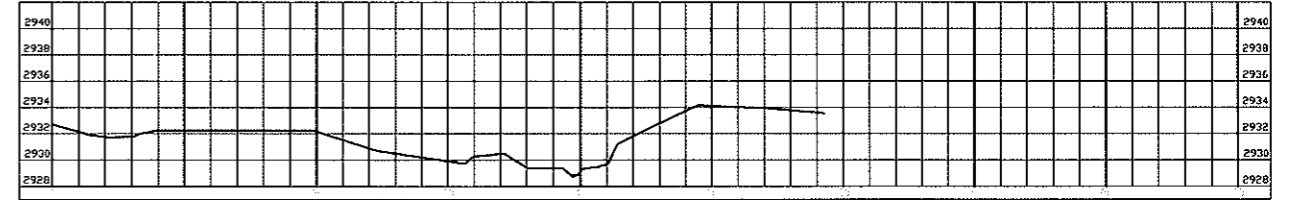
K7+234

Section k0+000



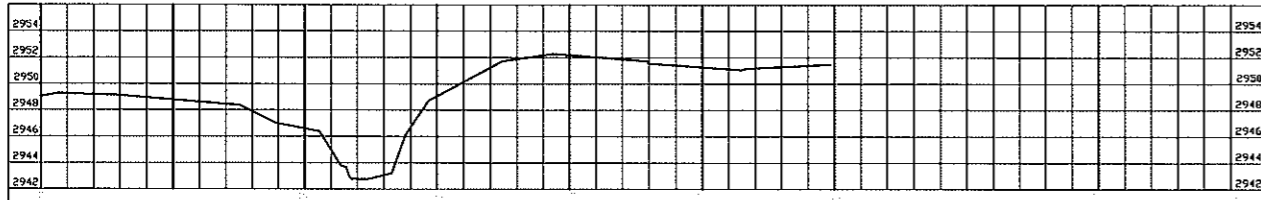
K0+000

Section k0+173



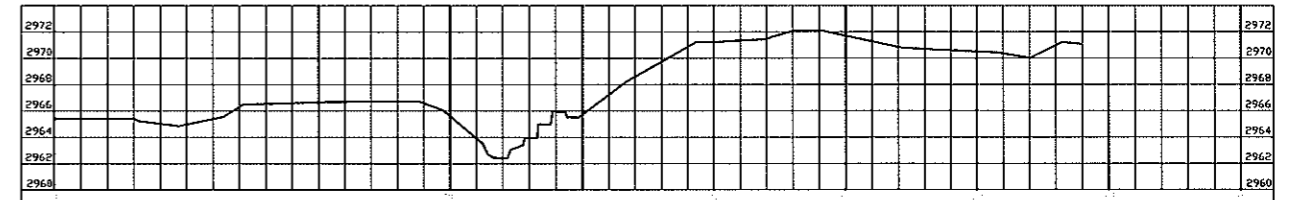
K0+173

Section k0+296



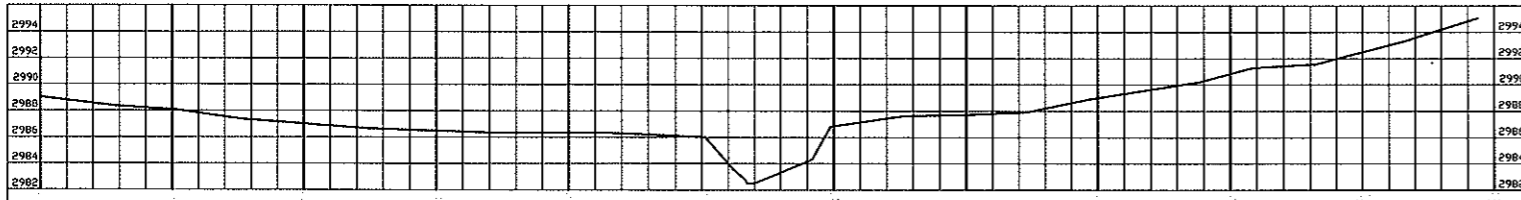
K0+296

Section k0+424



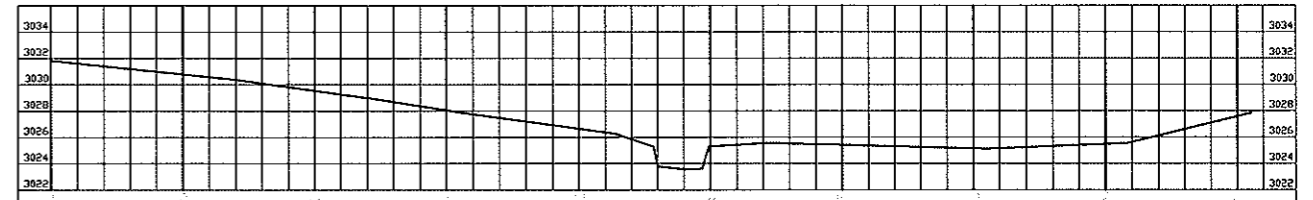
K0+424

Section k0+582



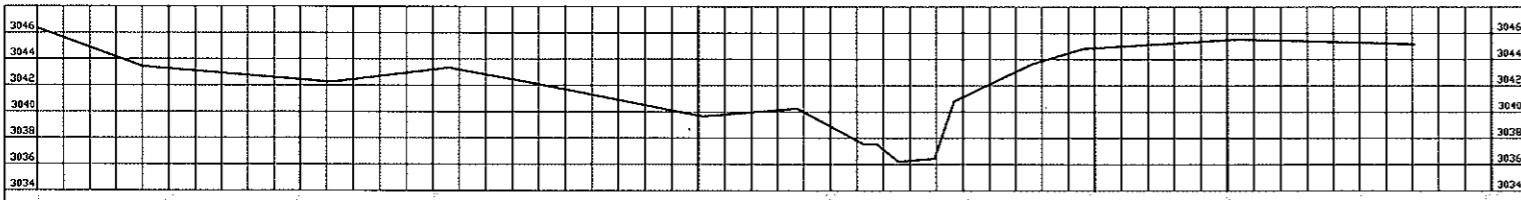
K0+582

Section k0+797



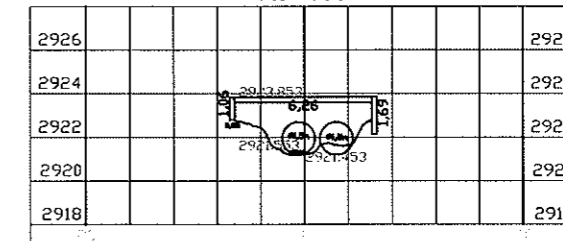
K0+797

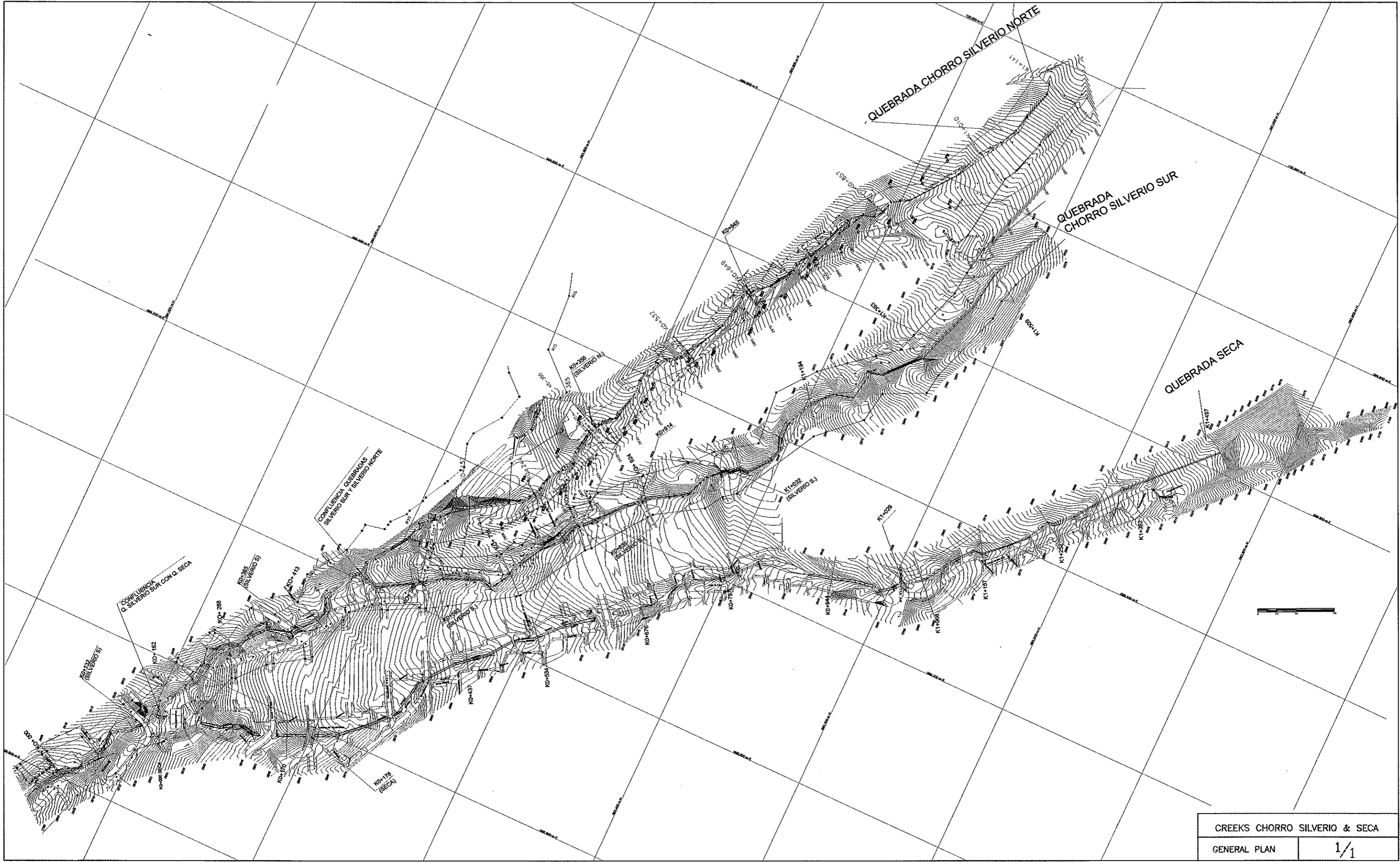
Section k0+885



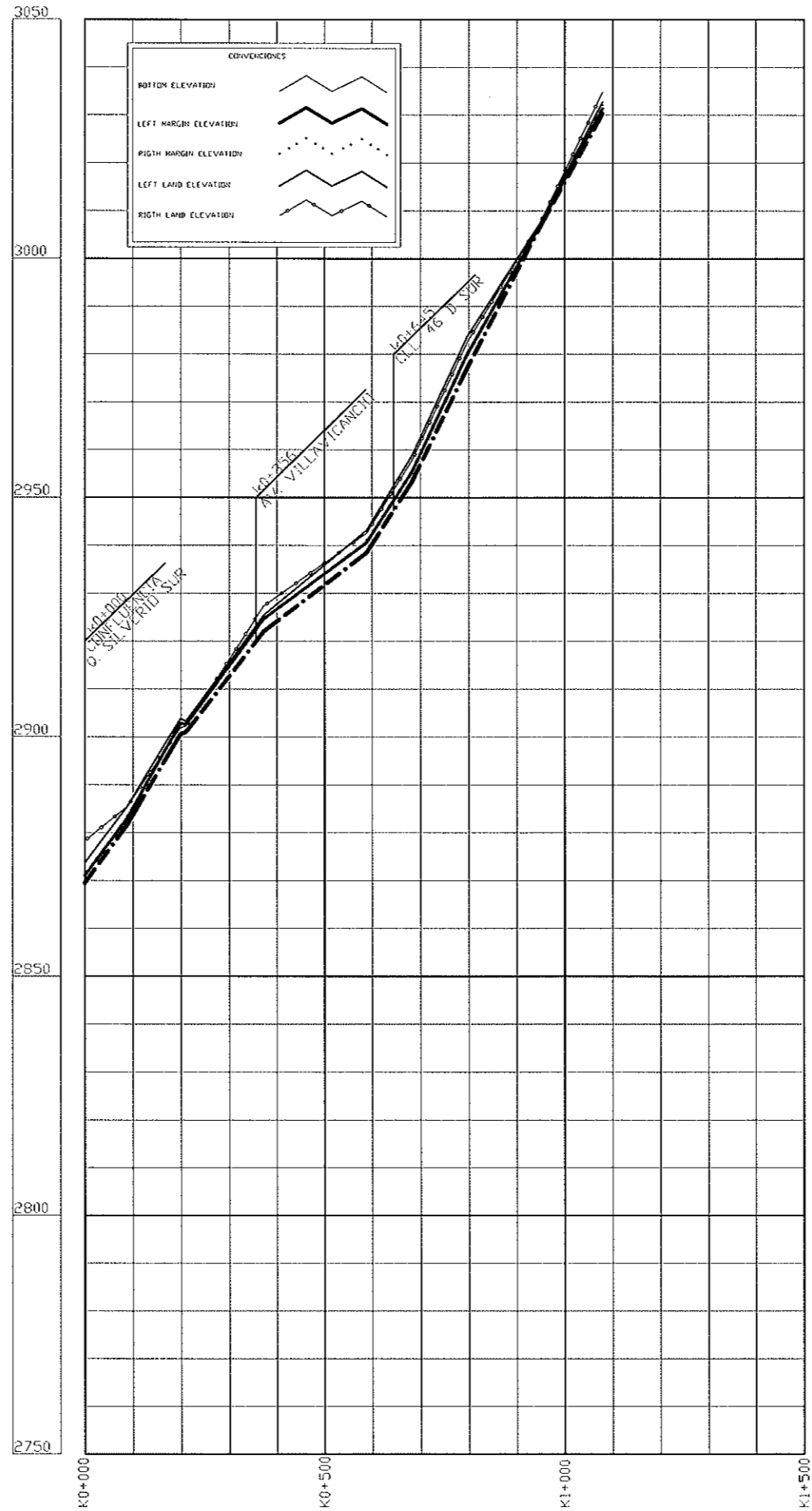
K0+885

BRIDGE
K0+109

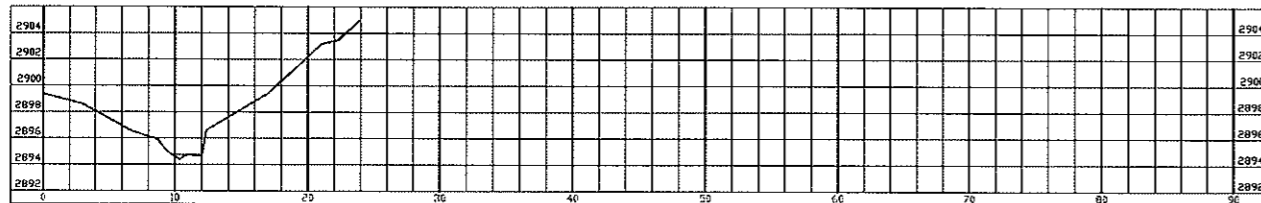




CREEKS CHORRO SILVERIO & SECA	
GENERAL PLAN	1/1

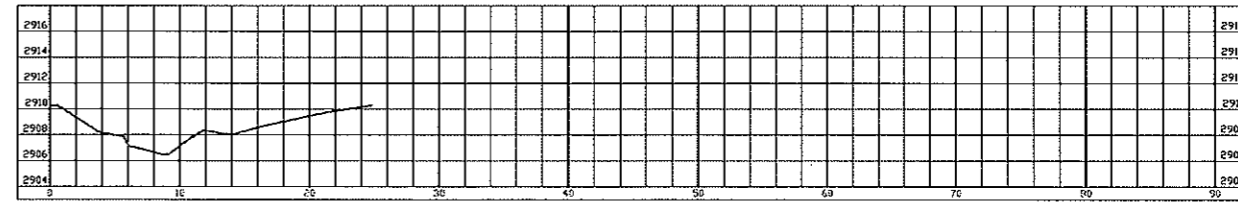


Section k0+157



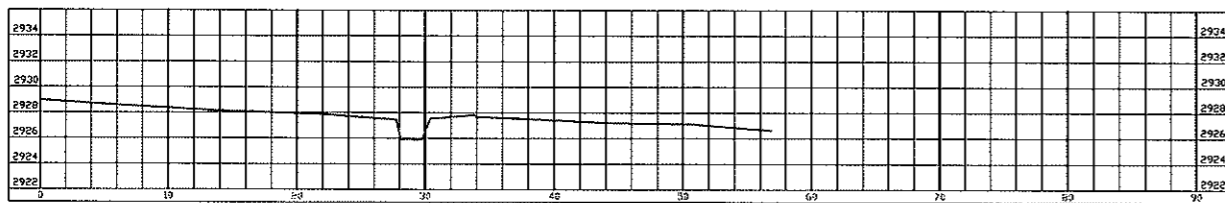
K0+157

Section k0+244



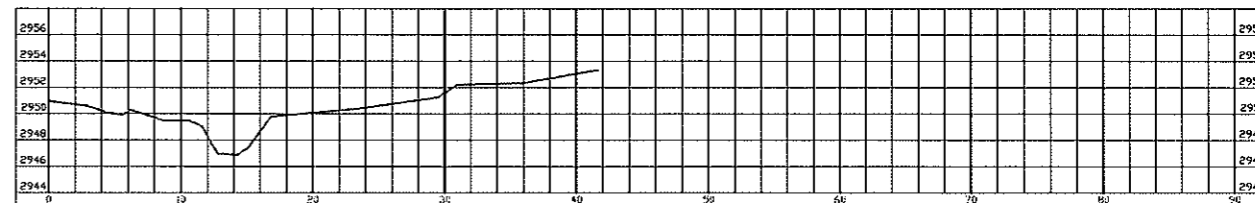
K0+244

Section k0+365



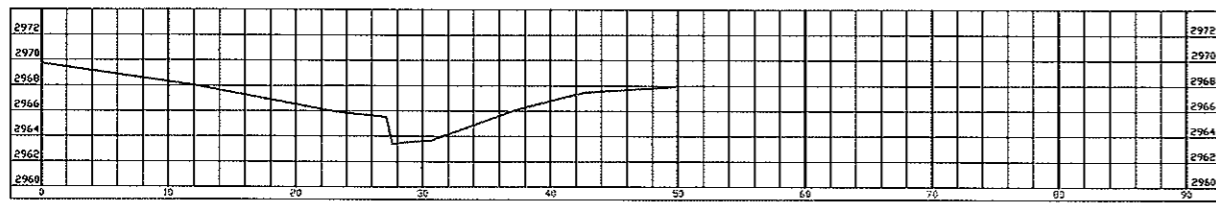
K0+365

Section k0+532



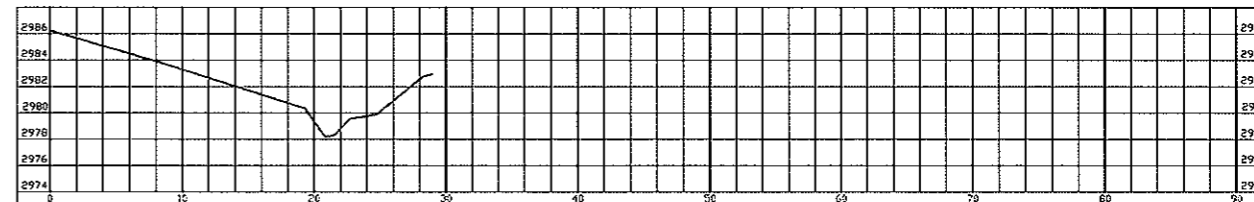
K0+532

Section k0+649



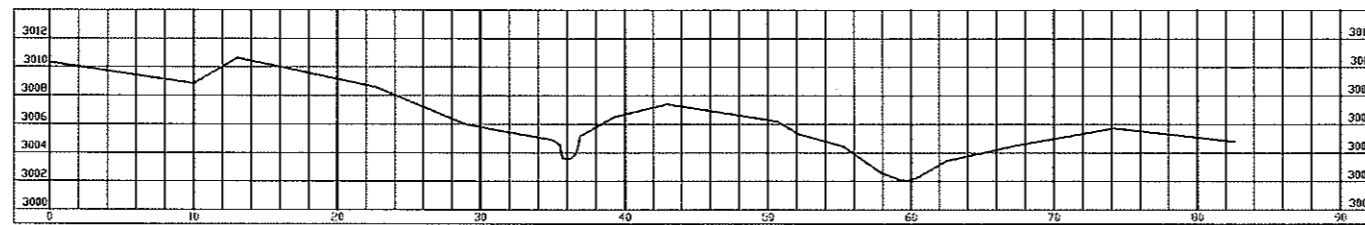
K0+649

Section k0+742



K0+742

Section k0+857



K0+857

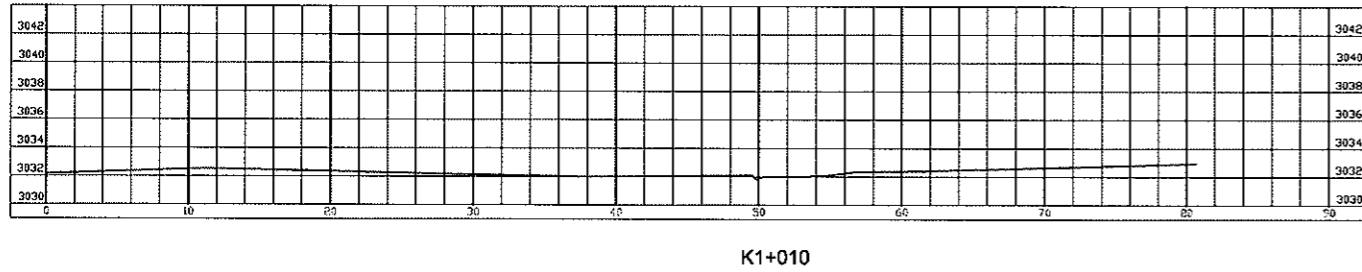
SILVERIO N.

CROSS SECTION

SECTION K0+157 - K0+742

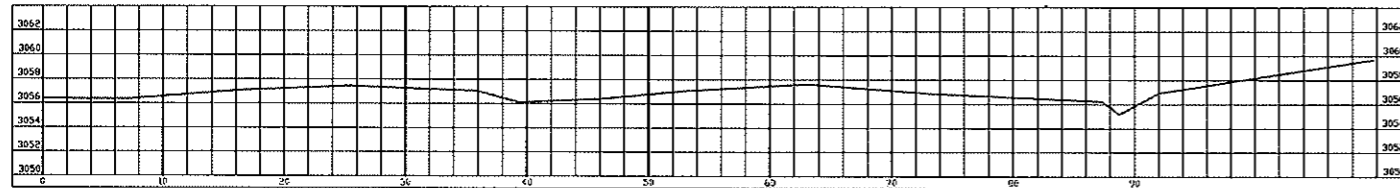
01/02

Section k1+010



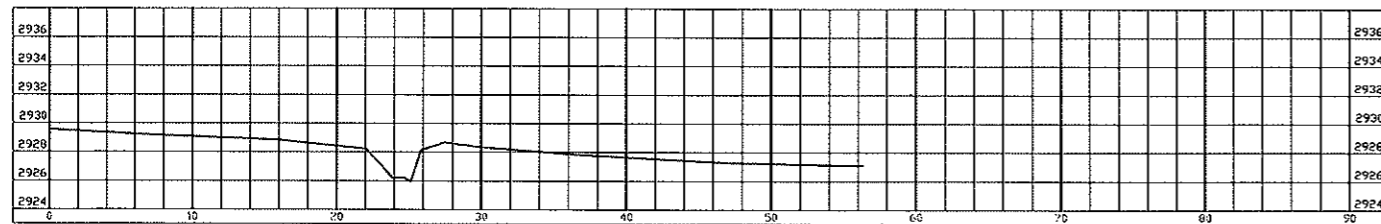
K1+010

Section k1+141



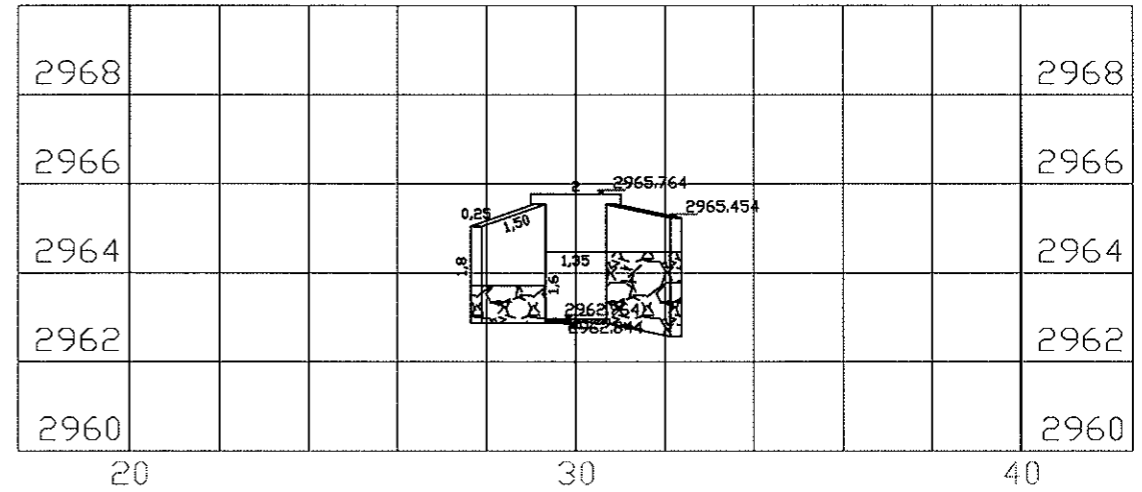
K1+141

Section k1+355

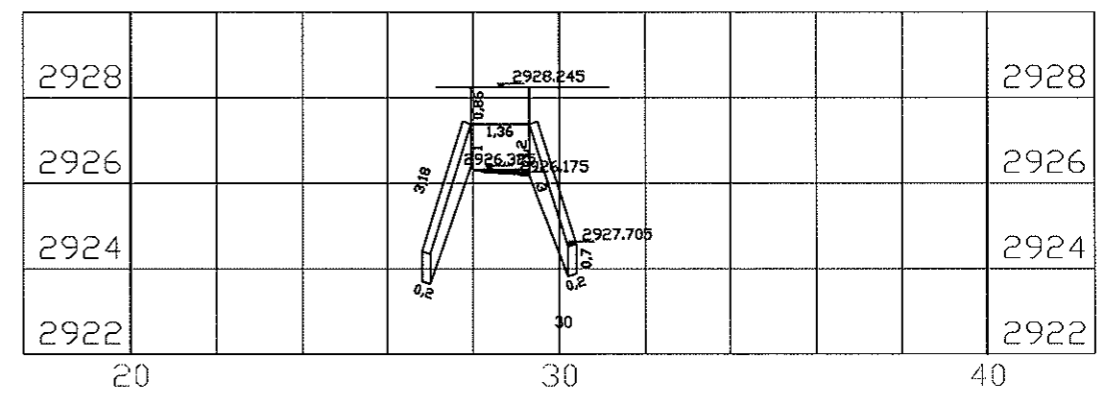


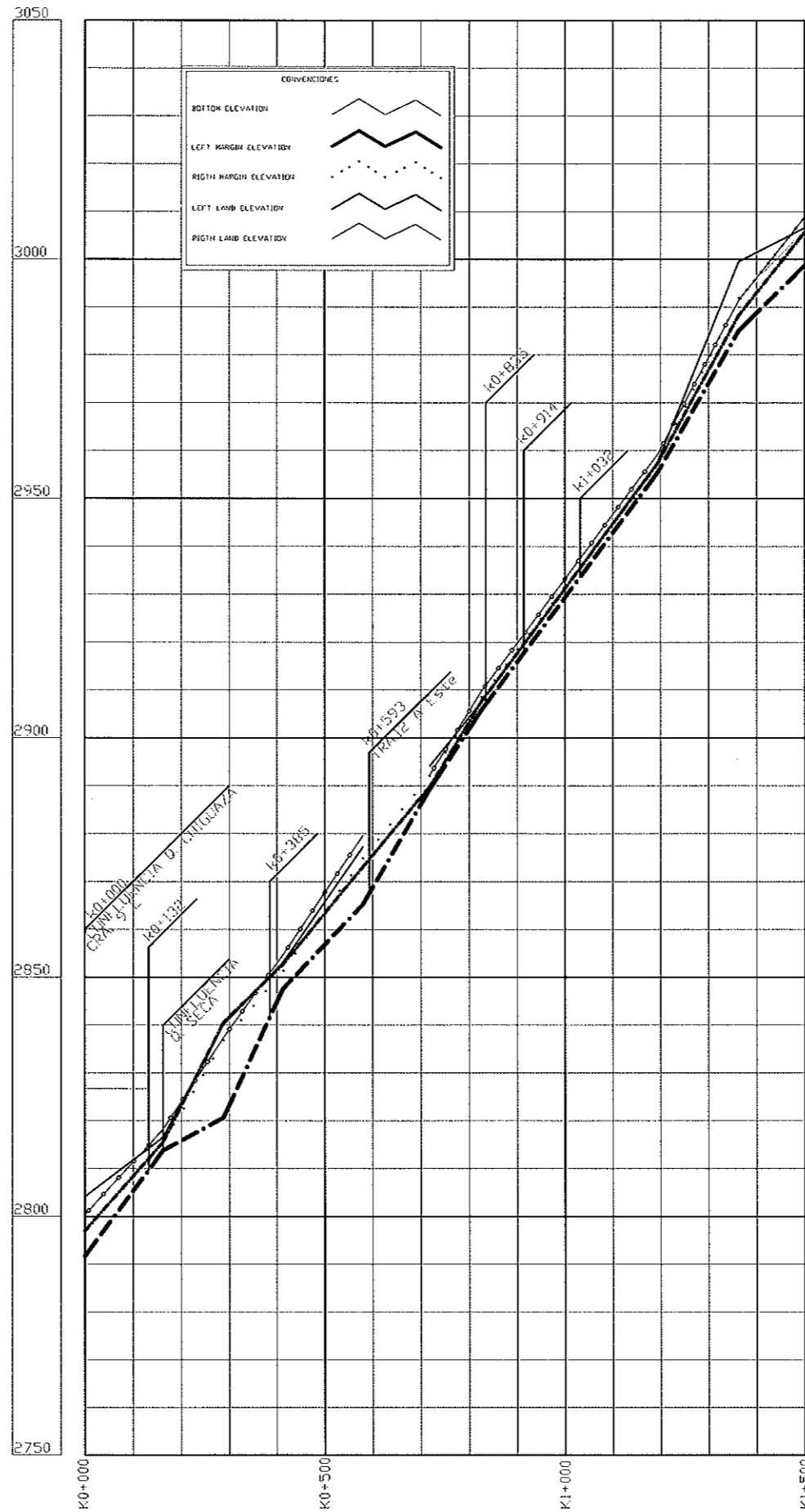
K1+355

Section Bridge k0+645

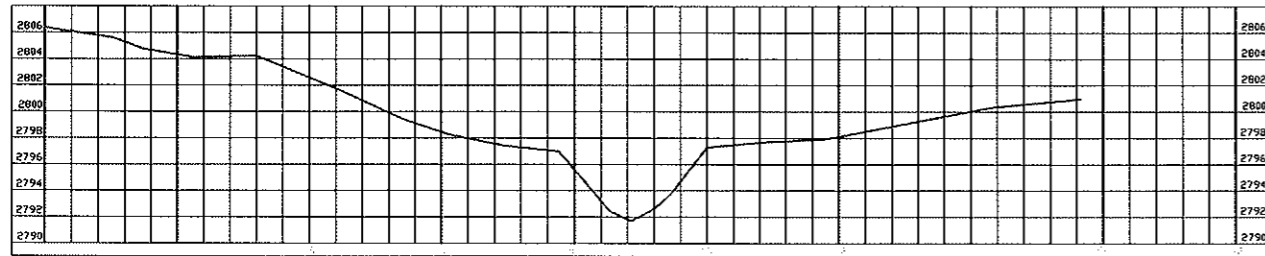


Section Bridge k0+356



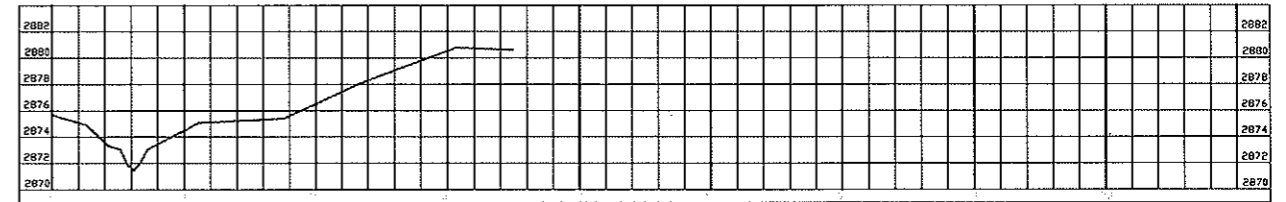


section k0+000



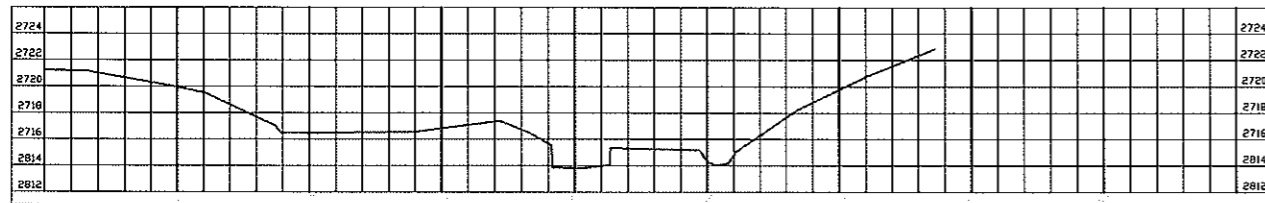
K0+000

section k0+580



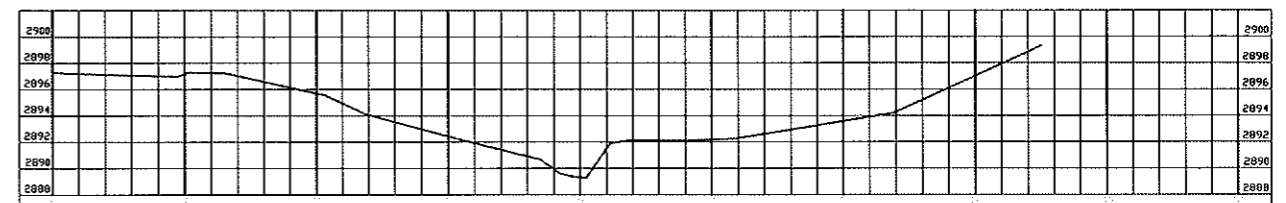
K0+580

section k0+162



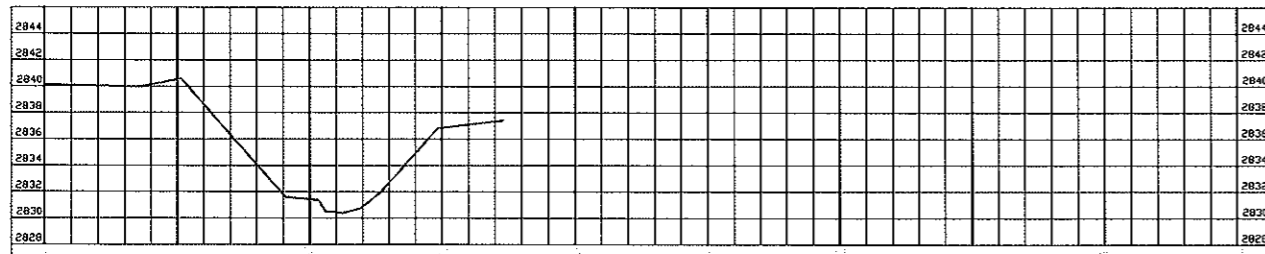
K0+162

section k0+718



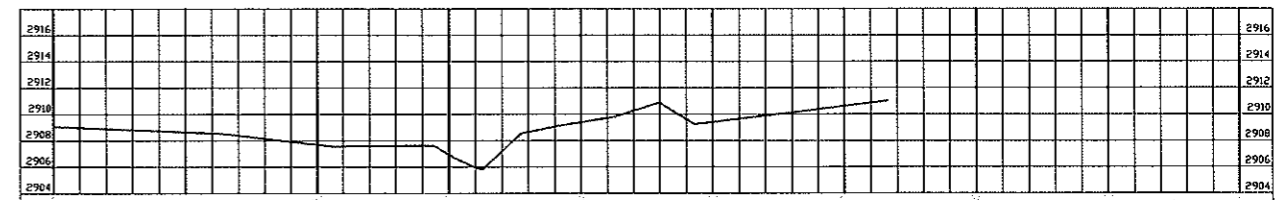
K0+718

section k0+385



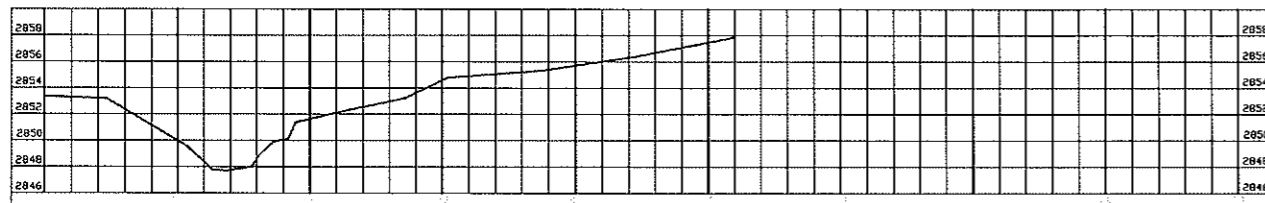
K0+385

section k0+826



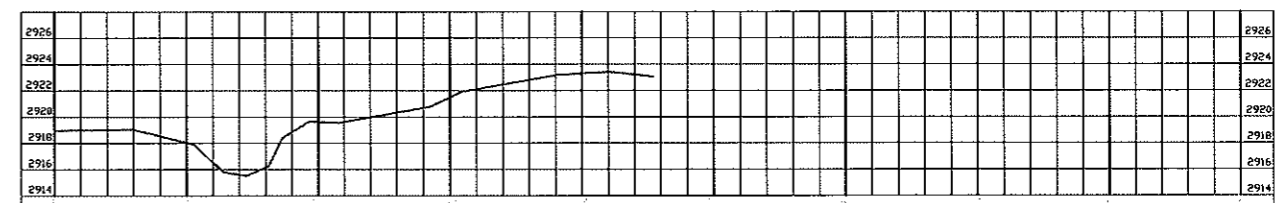
K0+826

section k0+413



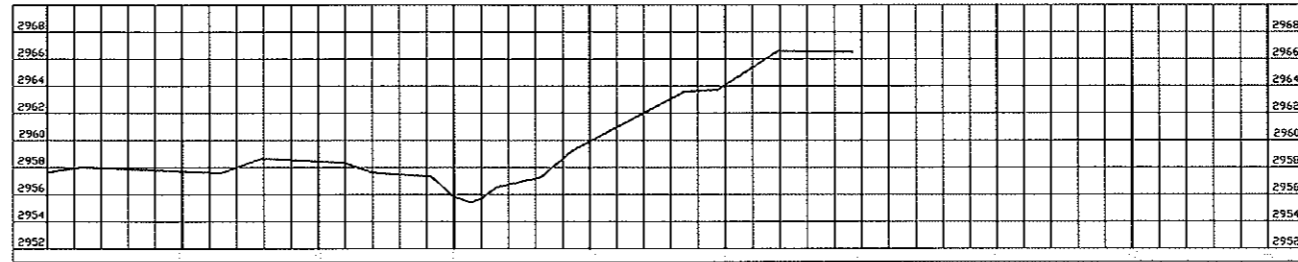
K0+413

section k0+924



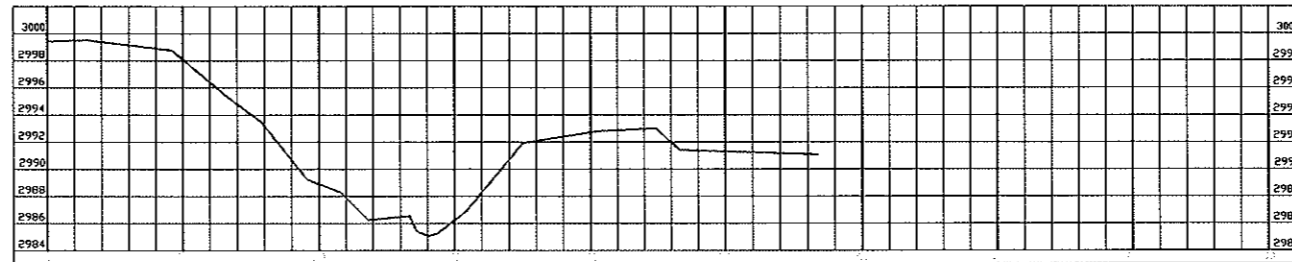
K0+924

section k1+194



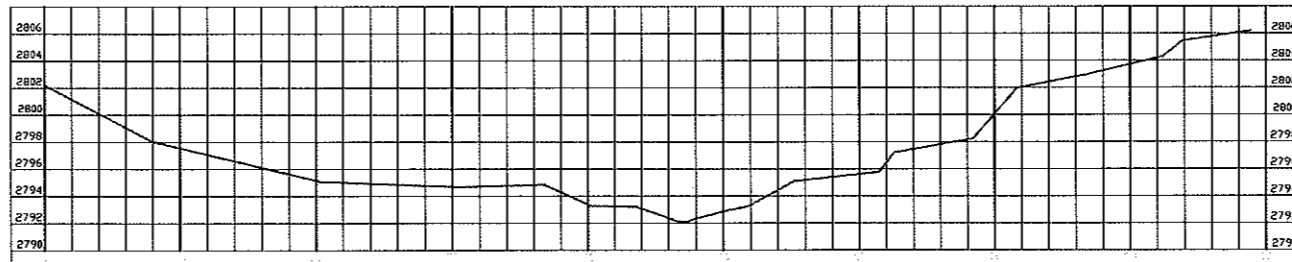
K1+194

section k1+363



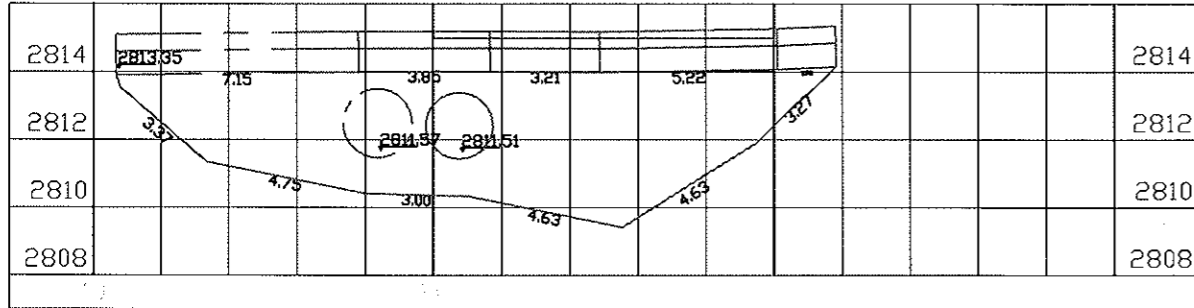
K1+363

section k1+509

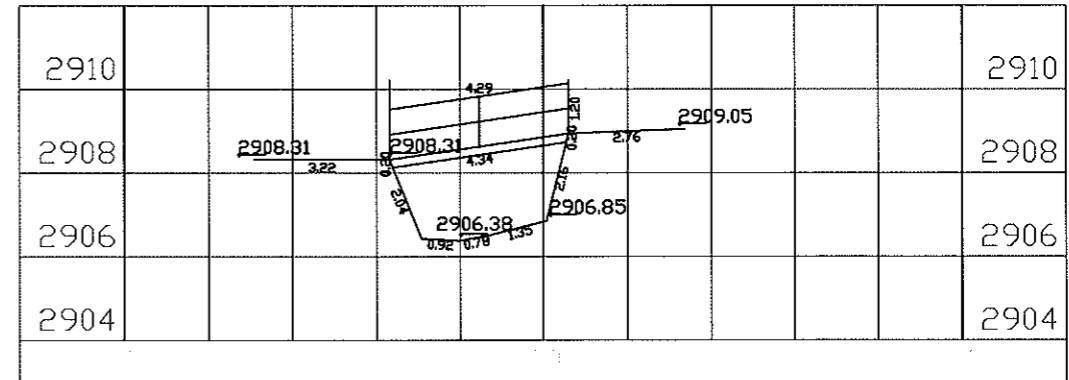


K1+509

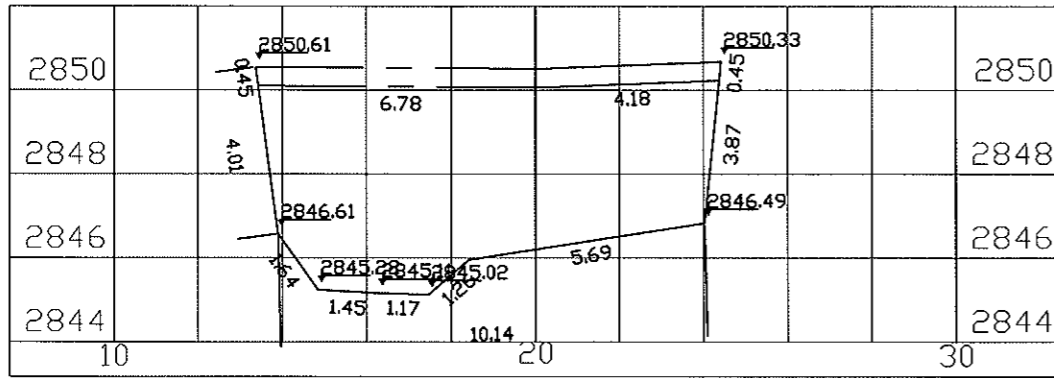
section k0+132



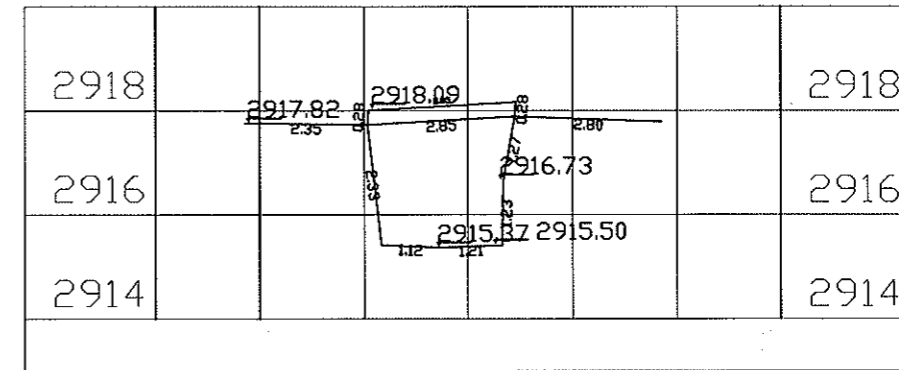
section k0+835



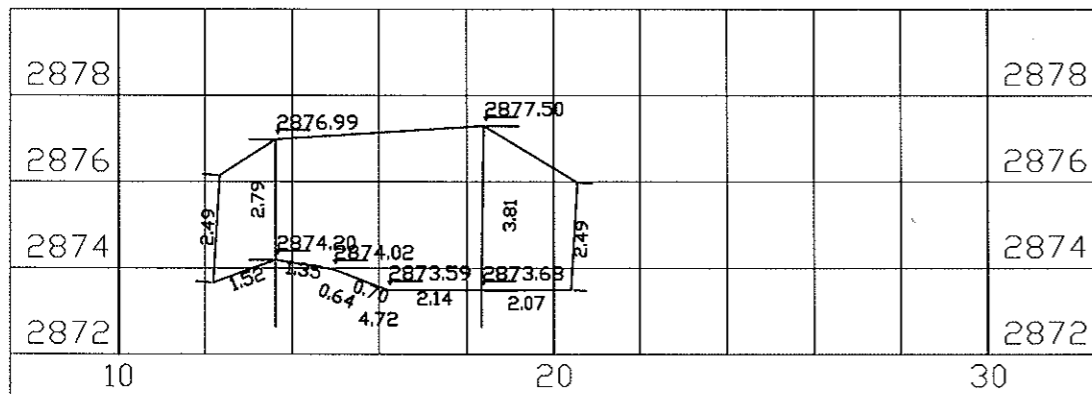
section k0+385



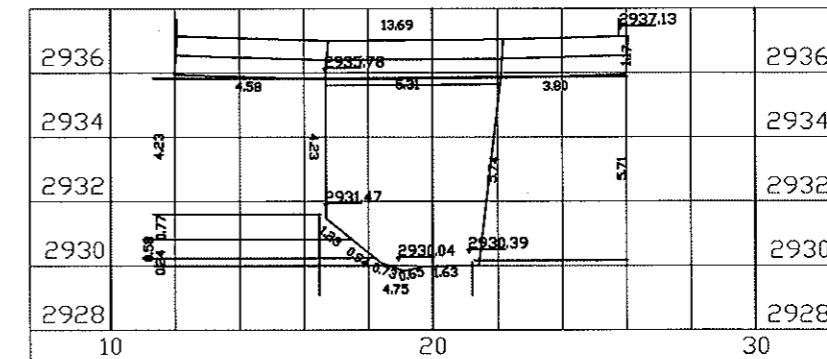
section k0+914

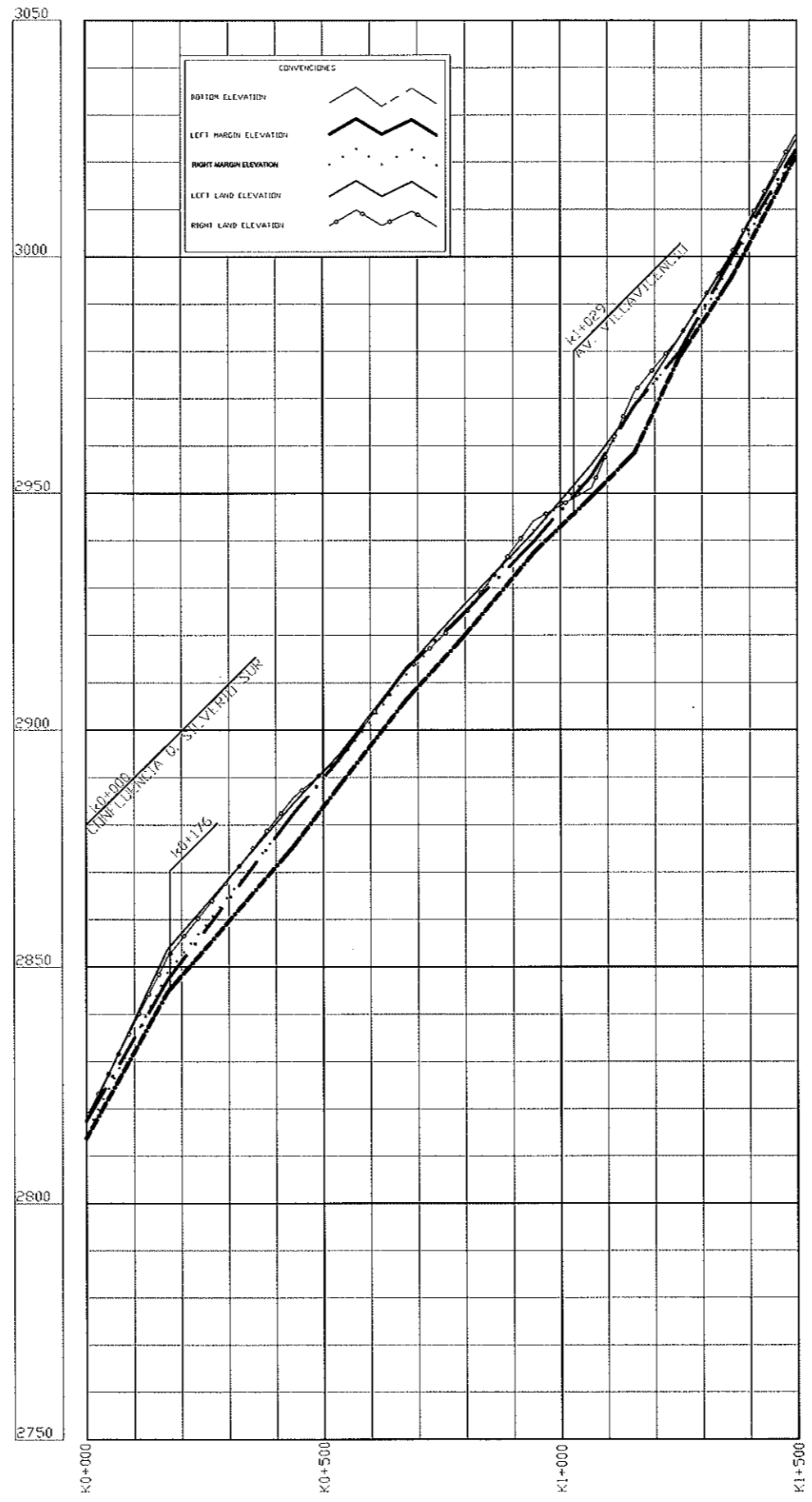


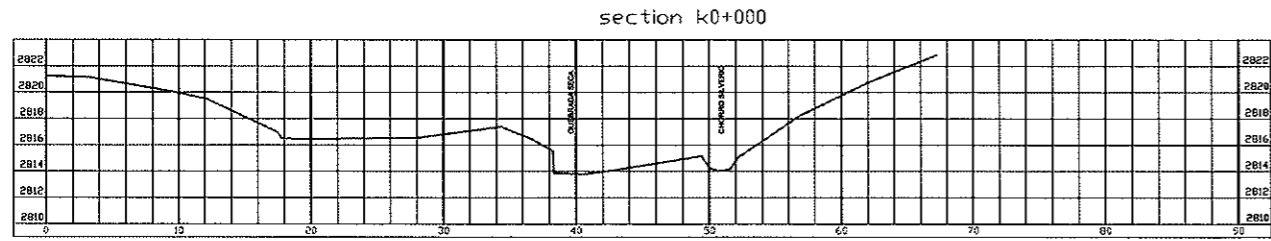
section k0+593



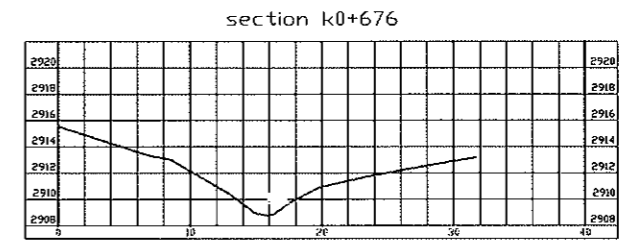
section k1+032



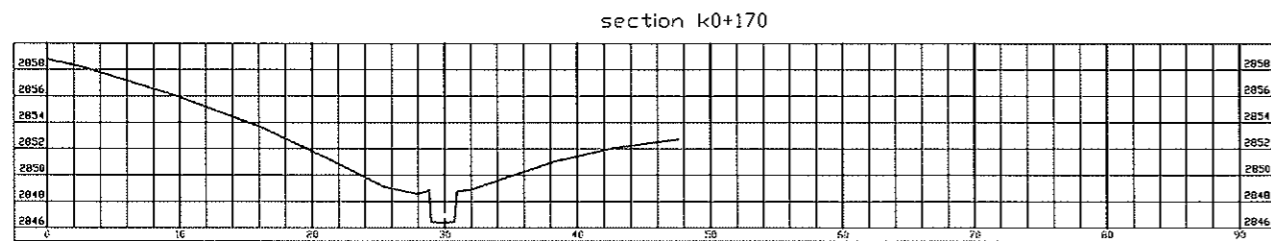




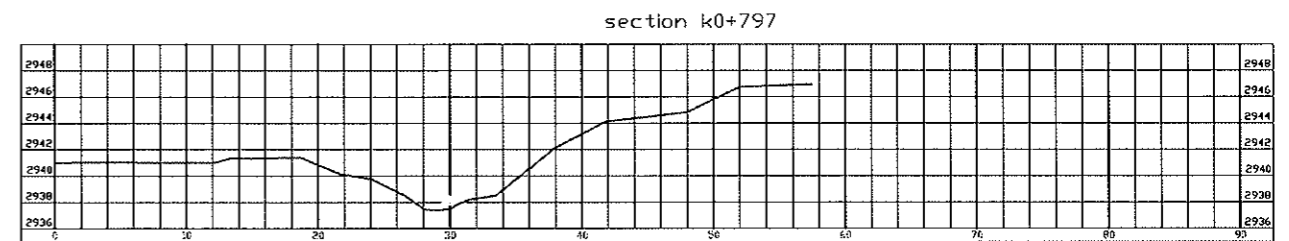
K0+000



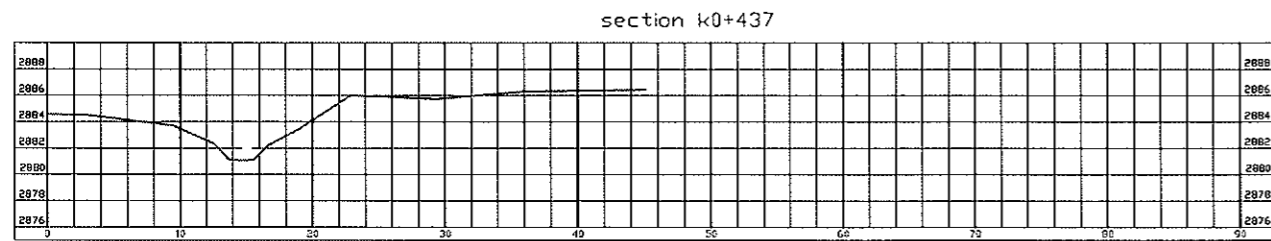
K0+676



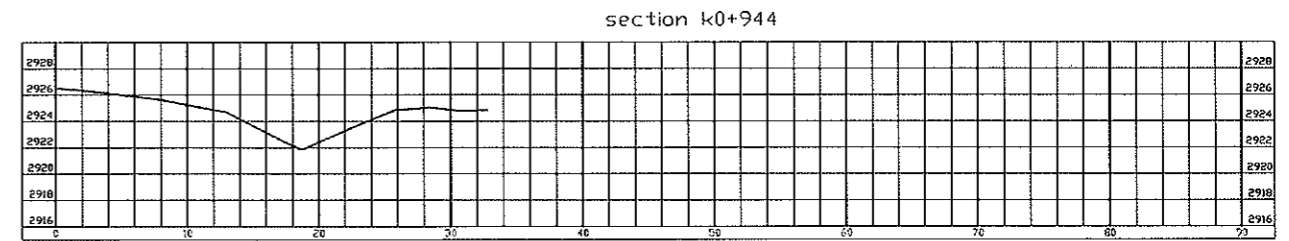
K0+170



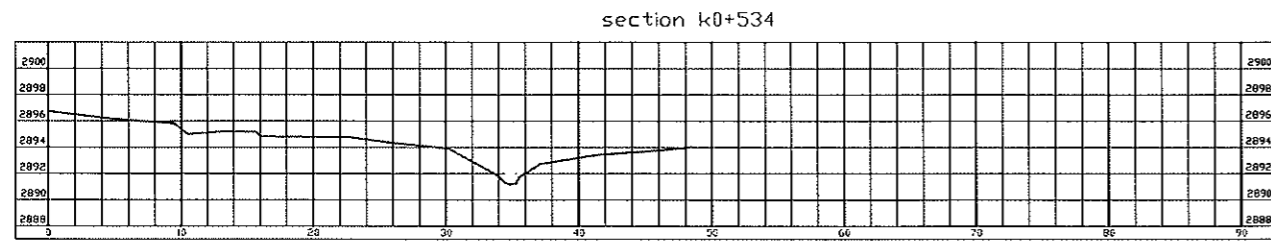
K0+797



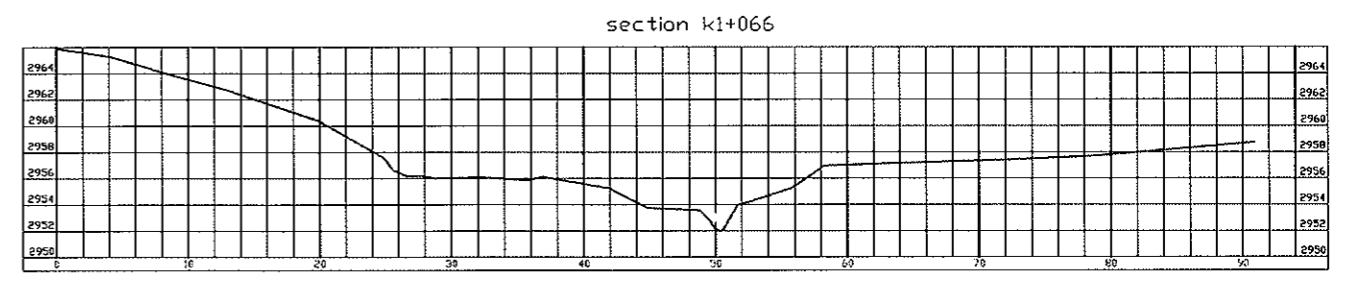
K0+437



K0+944

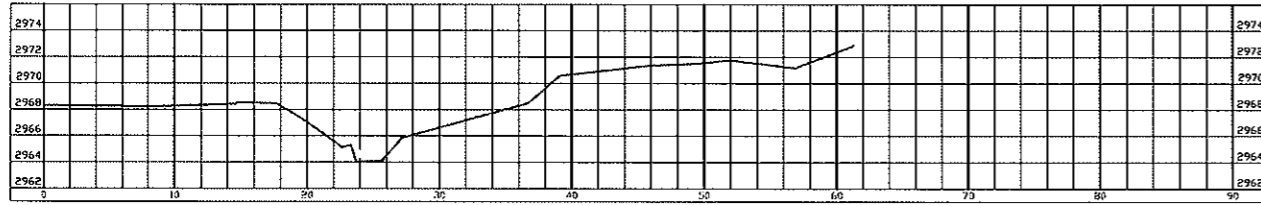


K0+534



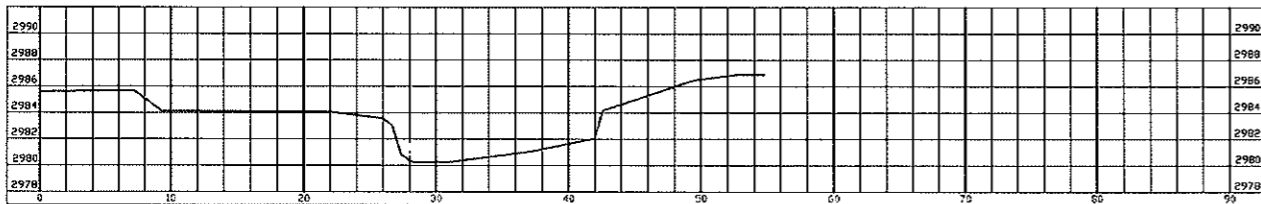
K1+066

section k1+157



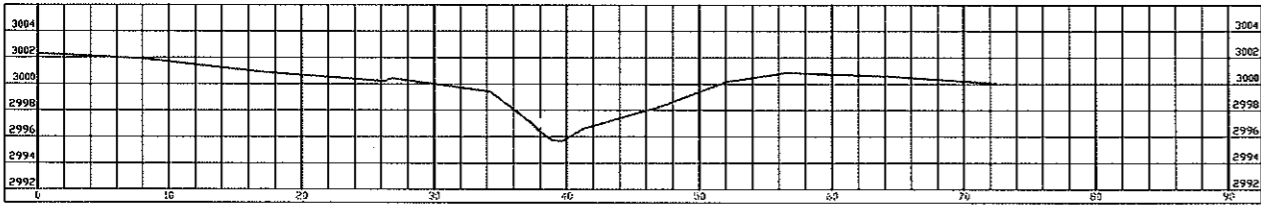
K1+157

section k1+252



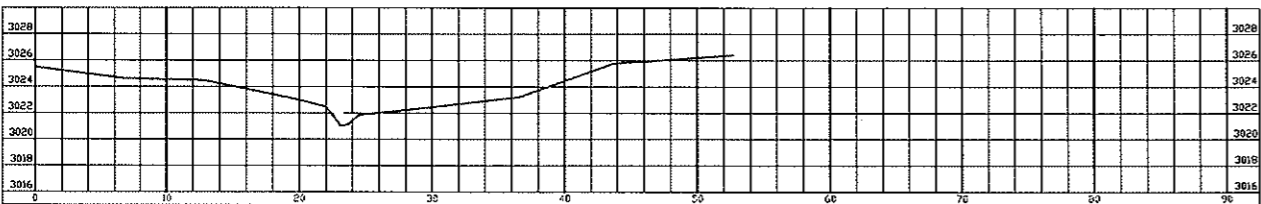
K1+252

section k1+362



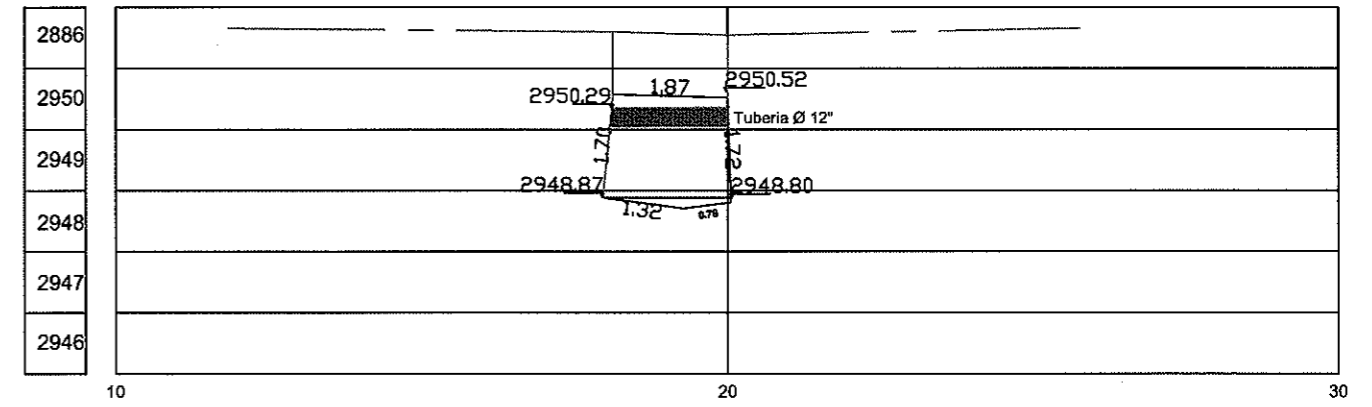
K1+362

section k1+497

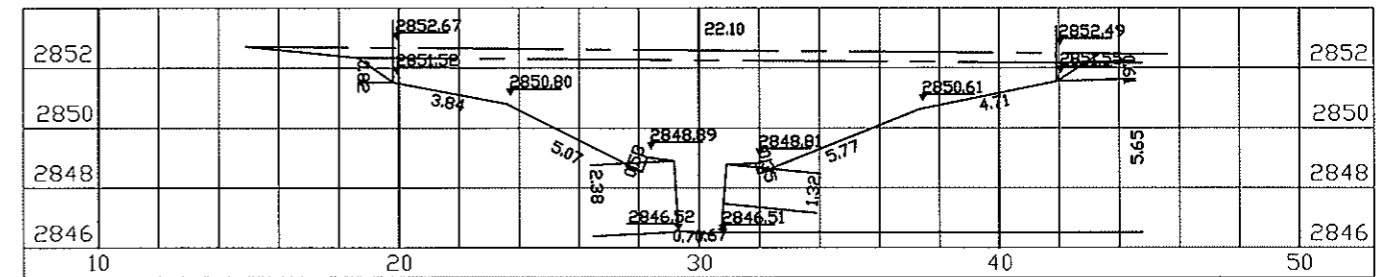


K1+497

**BRIDGE
K1+029
box culvert
Av. Villavicencio**



section Bridge k0+170



K0+170