

PL - I

INVESTIGACION GEOLOGICA
EN
AREA DE SAN ANTONIO REPUBLICA DE BOLIVIA

**MAPA GEOLOGICO
DEL AREA ESTUDIADA**

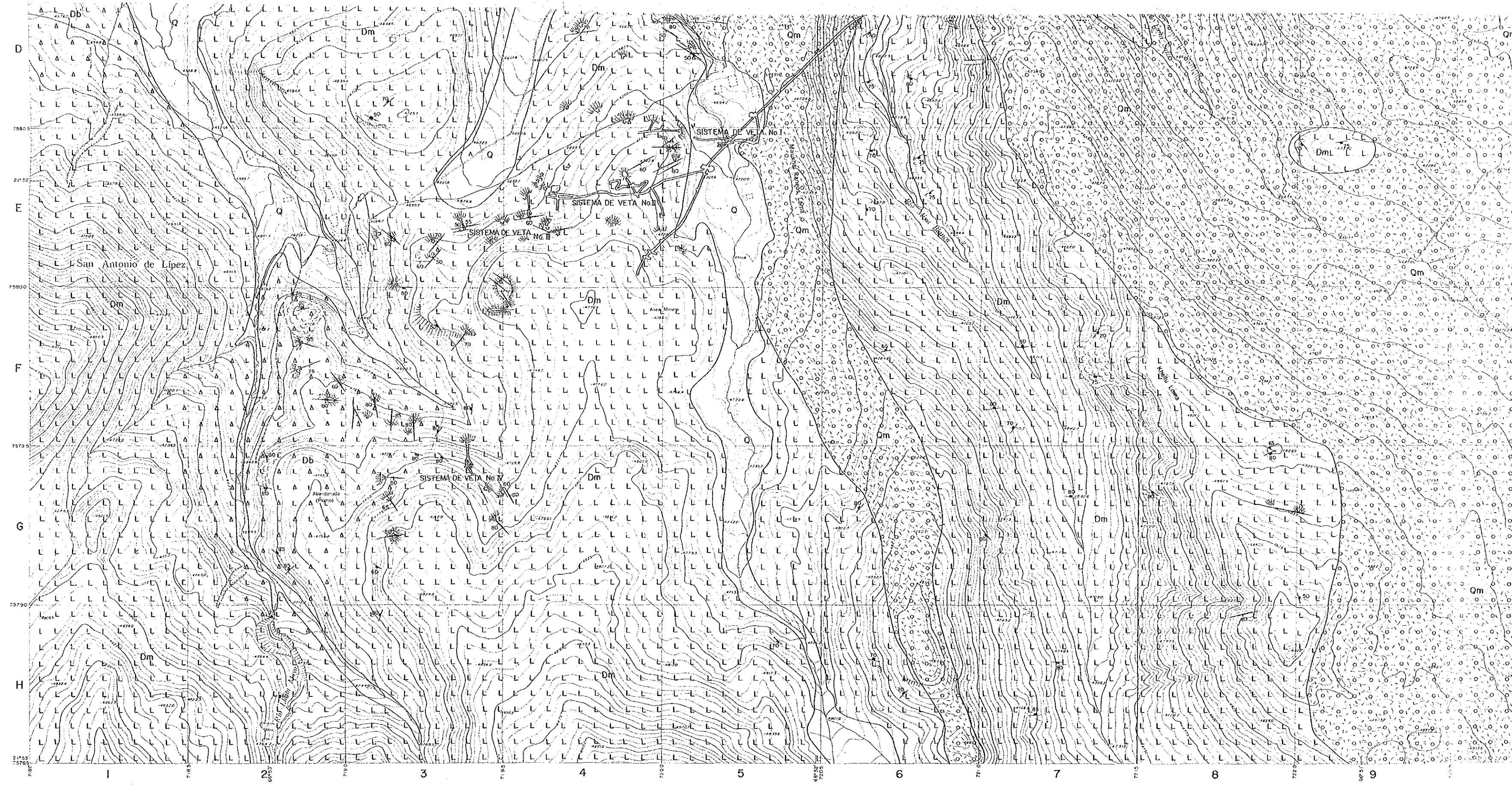
METAL MINING AGENCY OF JAPAN
JAPAN INTERNATIONAL COOPERATION AGENCY
GOBIERNO DEL JAPON

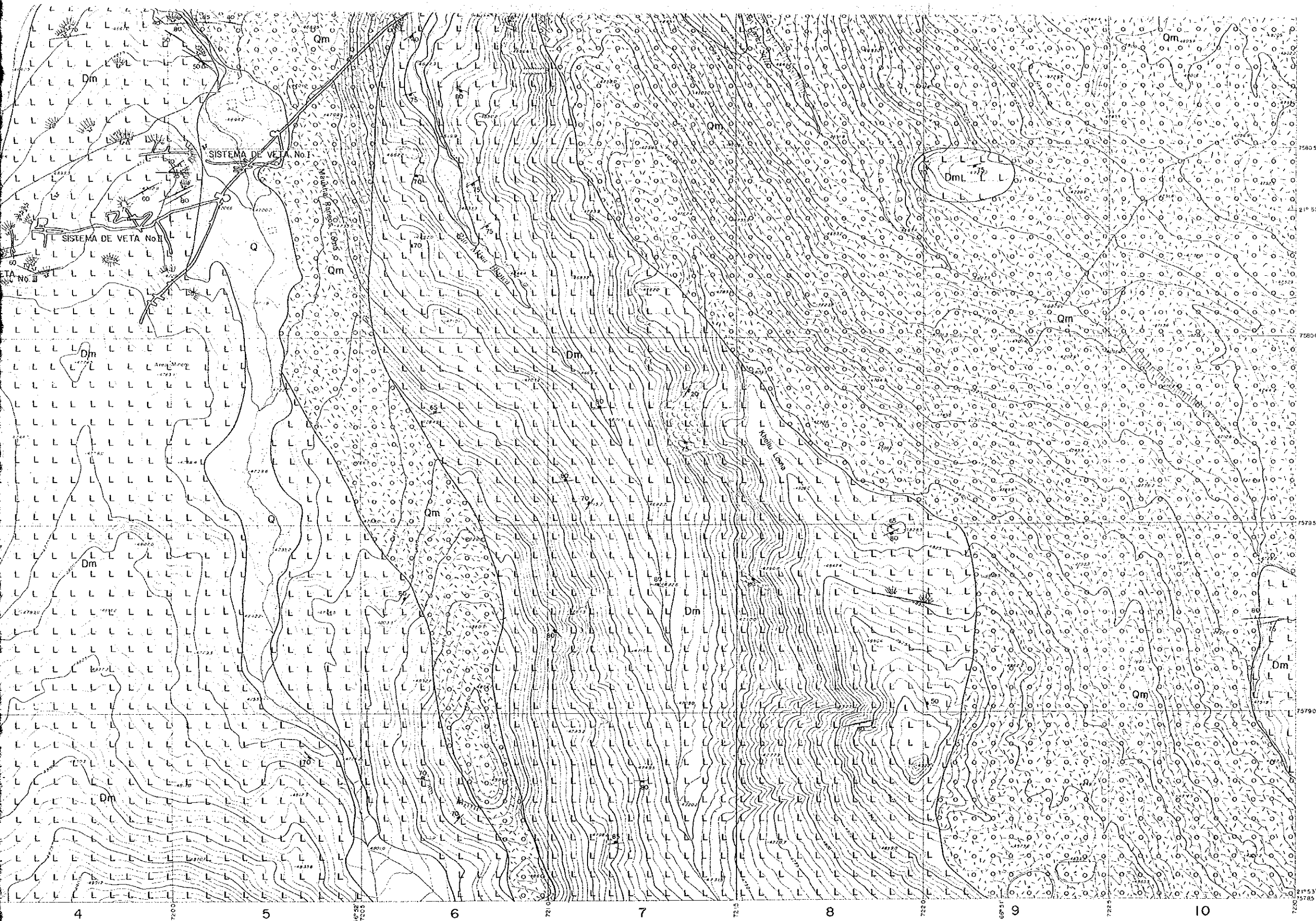
FEBRERO 1983
preparado por DOWA KOEI CO. LTD









ESCALA 1:

LEYENDA

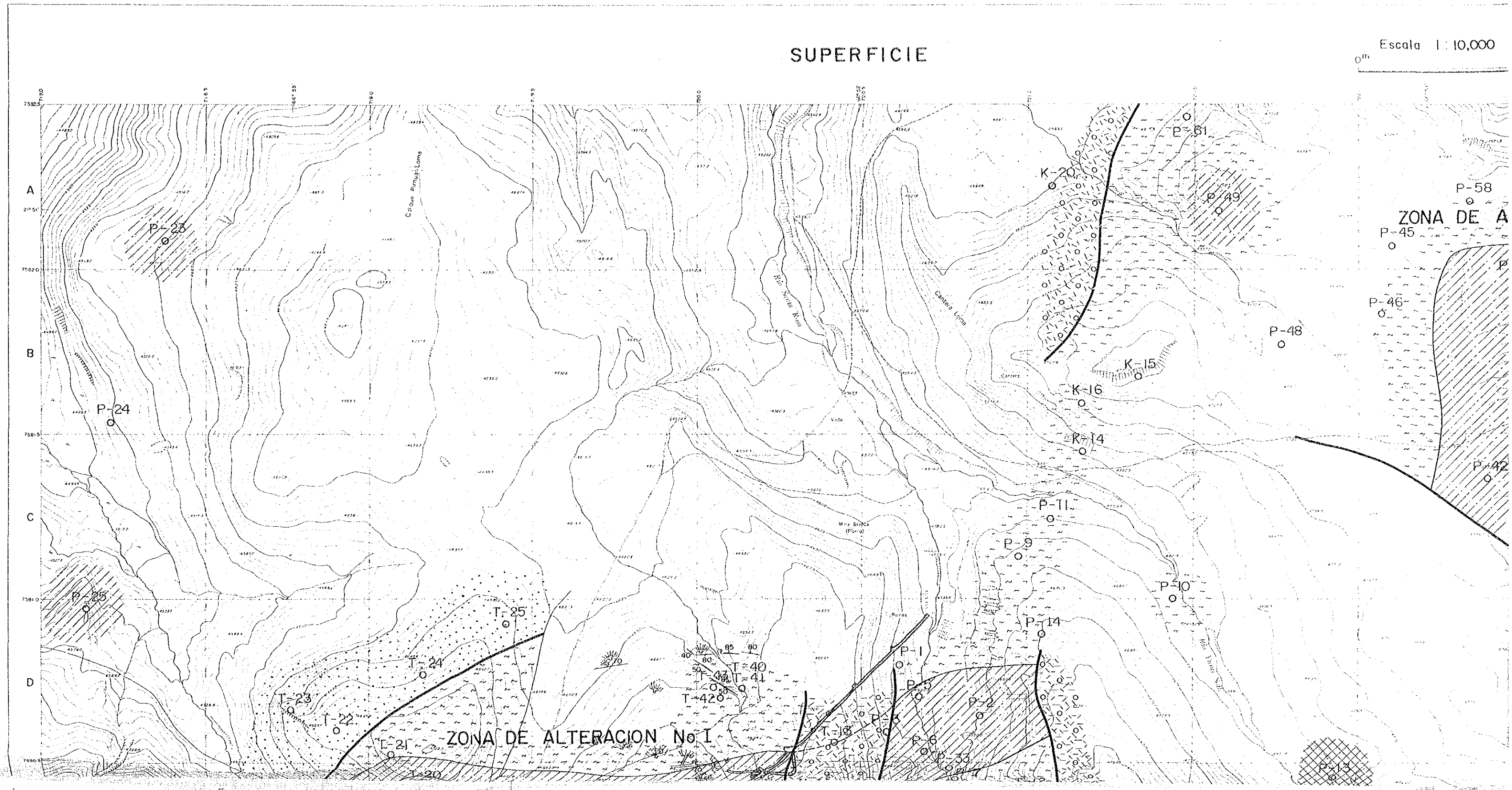
- Q Cuaternario
- Qm Morrenas
- ALALA
LADBAL
ALALA Dacito Brechado
- LLLLL
LLDmLL
LLLLL Dacito Masivo
- Veta
- Fractura
- Pique y Desmonte
- Boca Mina



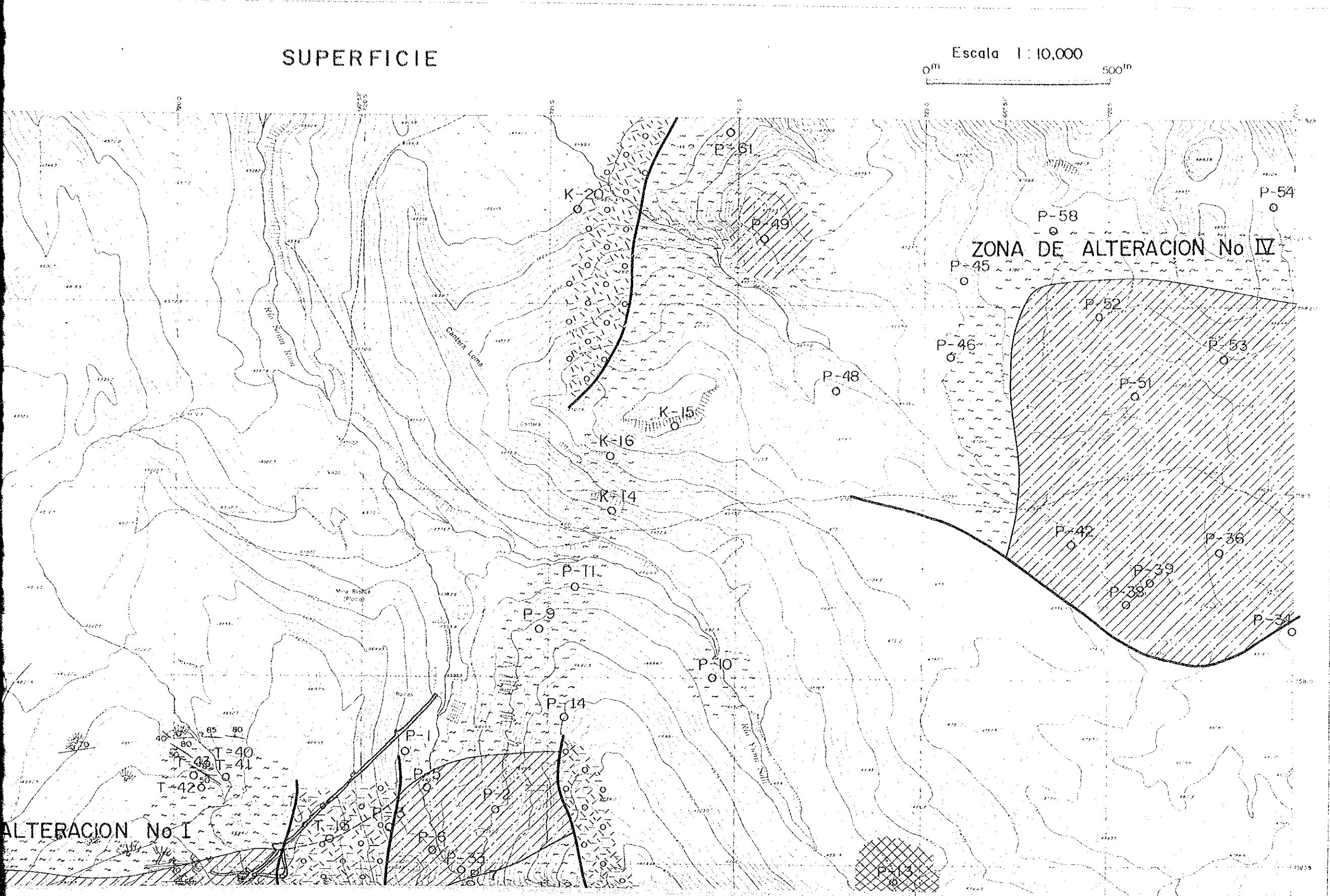


-  Cuaternario
-  Morrenos
-  Dacita Brechada
-  Dacita Masiva
-  Veta
-  Fractura
-  Pique y Desmante
-  Boca Mina

Mapa de distribuciones y clasificaciones de zonas alteradas



de distribuciones y clasificaciones de zonas alteradas



PL-2

INVESTIGACION GEOLOGICA
EN
AREA DE SAN ANTONIO REPUBLICA DE BOLIVIA

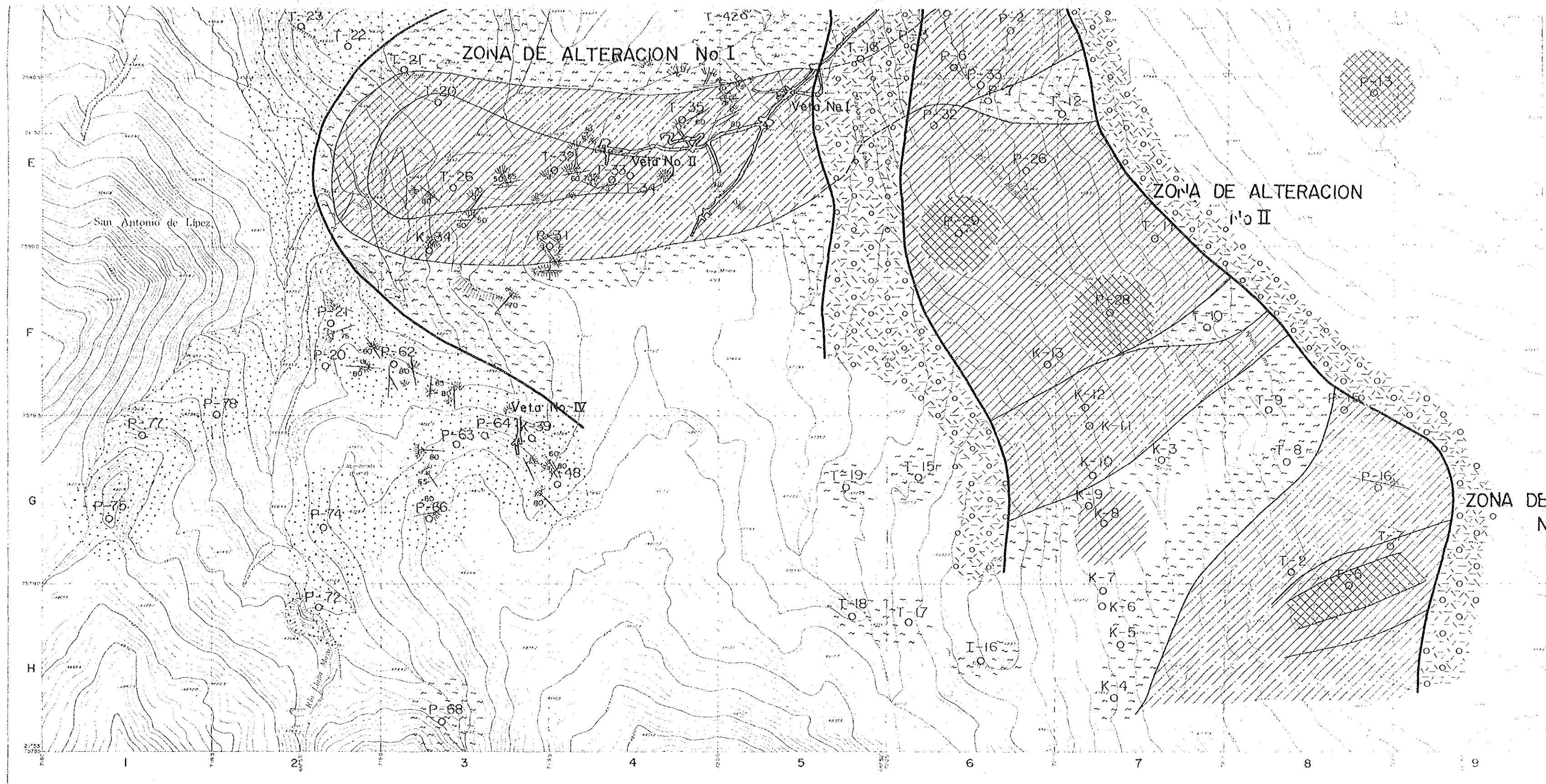
Mapa de distribuciones y clasificaciones
de zonas alteradas

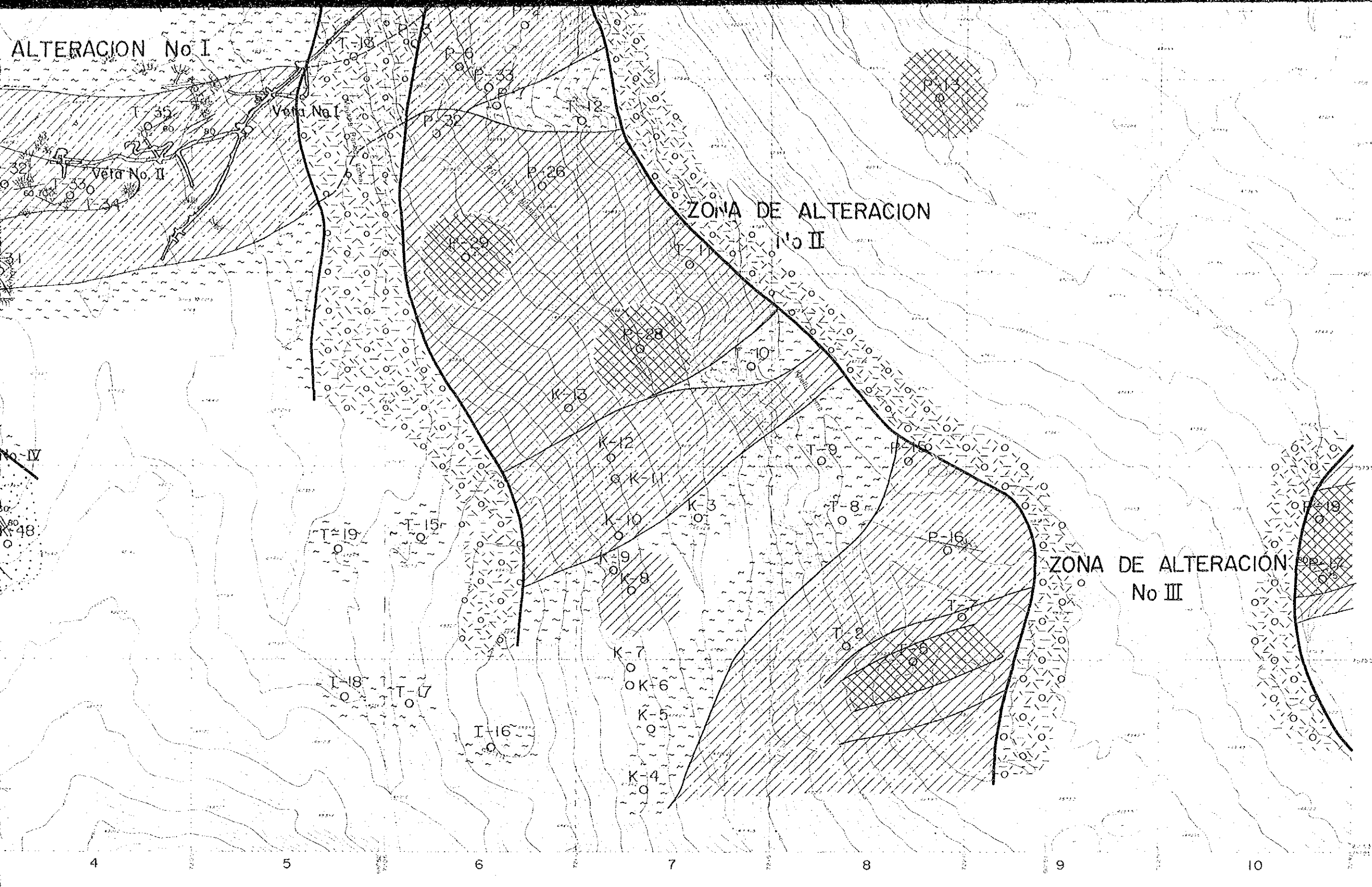
METAL MINING AGENCY OF JAPAN
JAPAN INTERNATIONAL COOPERATION AGENCY
GOBIERNO DEL JAPON


FEBRERO 1983
preparado por DOWA KOGI CO LTD

Leyenda

- Zona de clorita
- Zona de sericita
- Zona de caolinita
- Zona de montomorillonita
- Zona no alterada

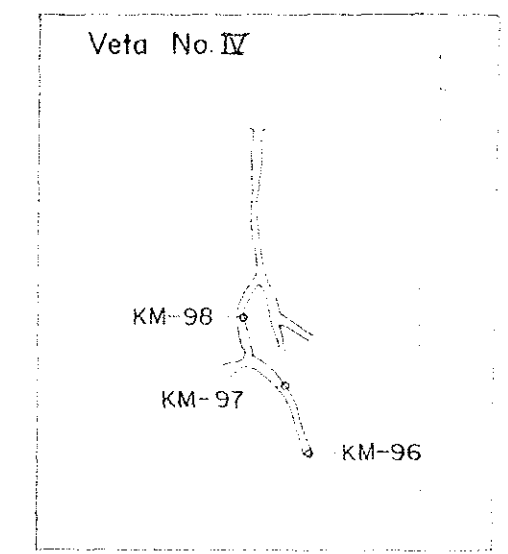
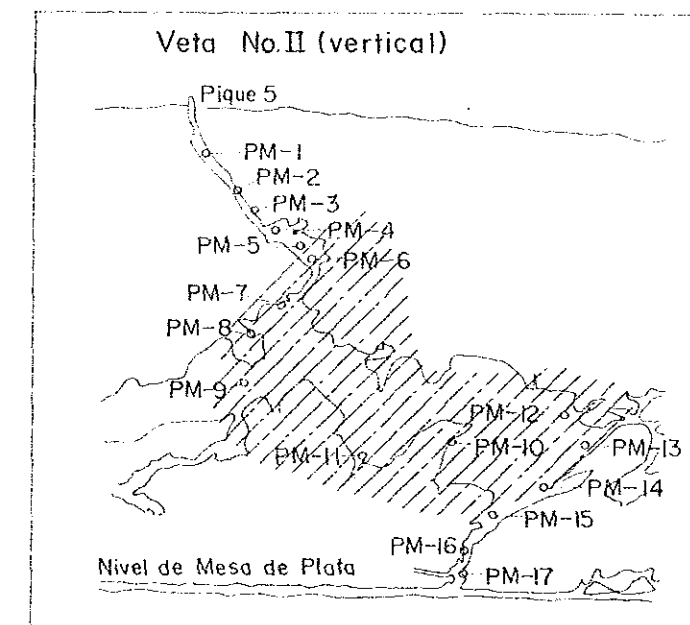
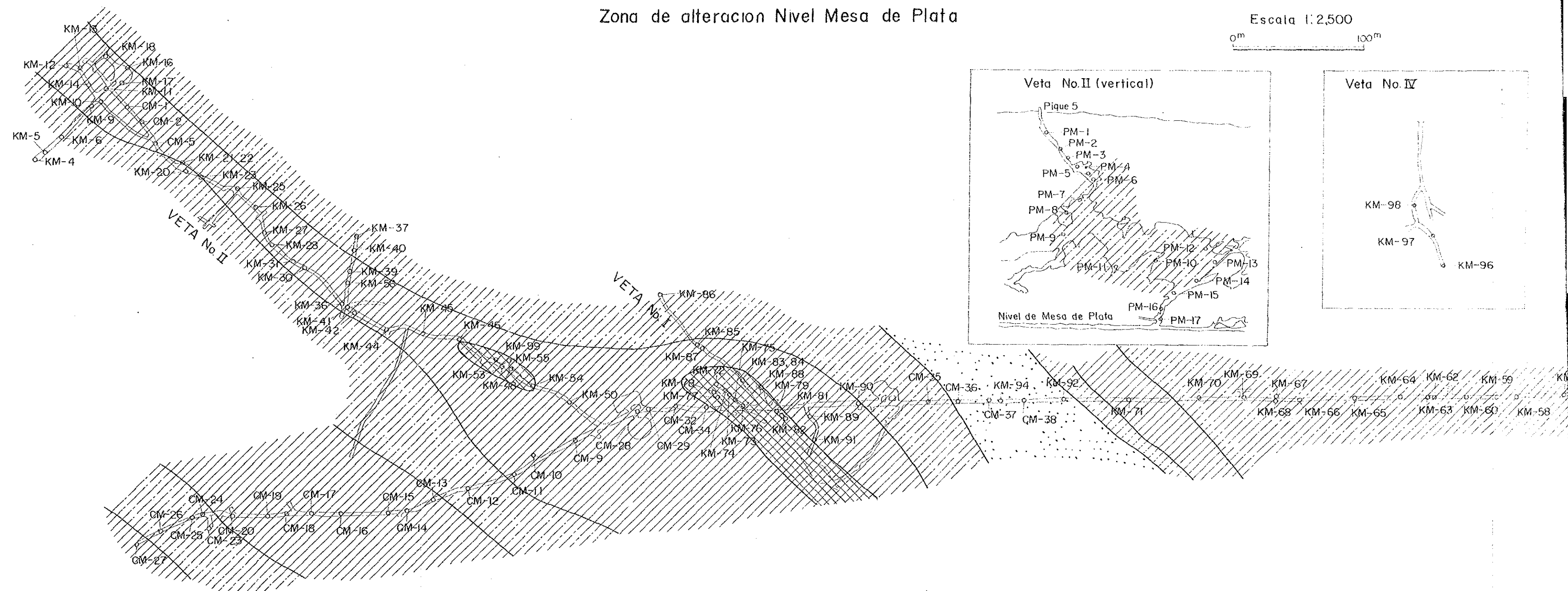




-  Zona de caolinita
-  Zona de montmorillonita
-  Zona no alterada
-  Morrenas
-  Ubicación de muestra

Zona de alteracion Nivel Mesa de Plata

Escala 1:2,500



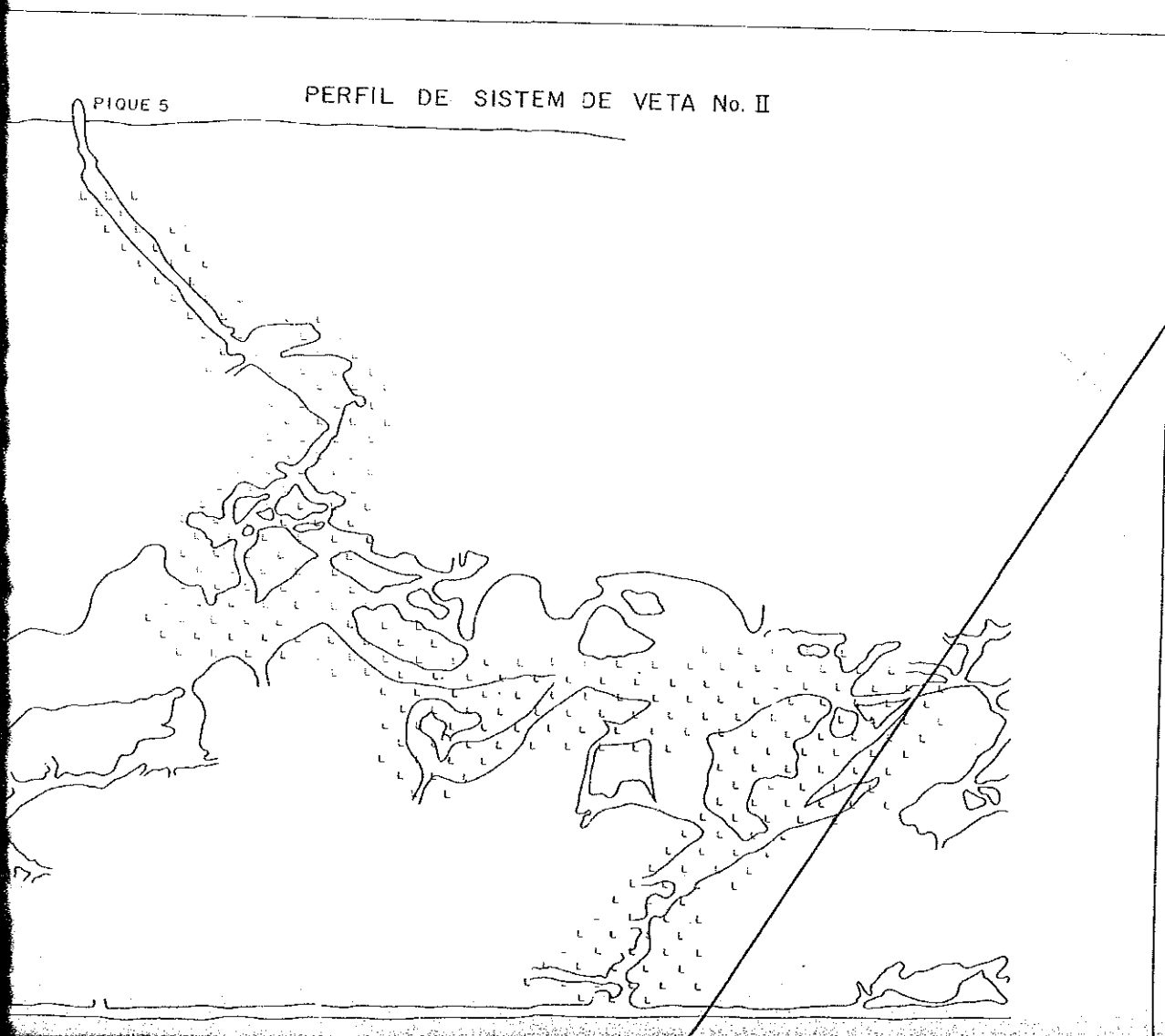
PL-3 MAPA DE DISTRIBUCION DE VETAS CO

(ESCALA 1:



DISTRIBUCION DE VETAS CORTADAS CON DIAMANTINA

(ESCALA 1 : 1,000)



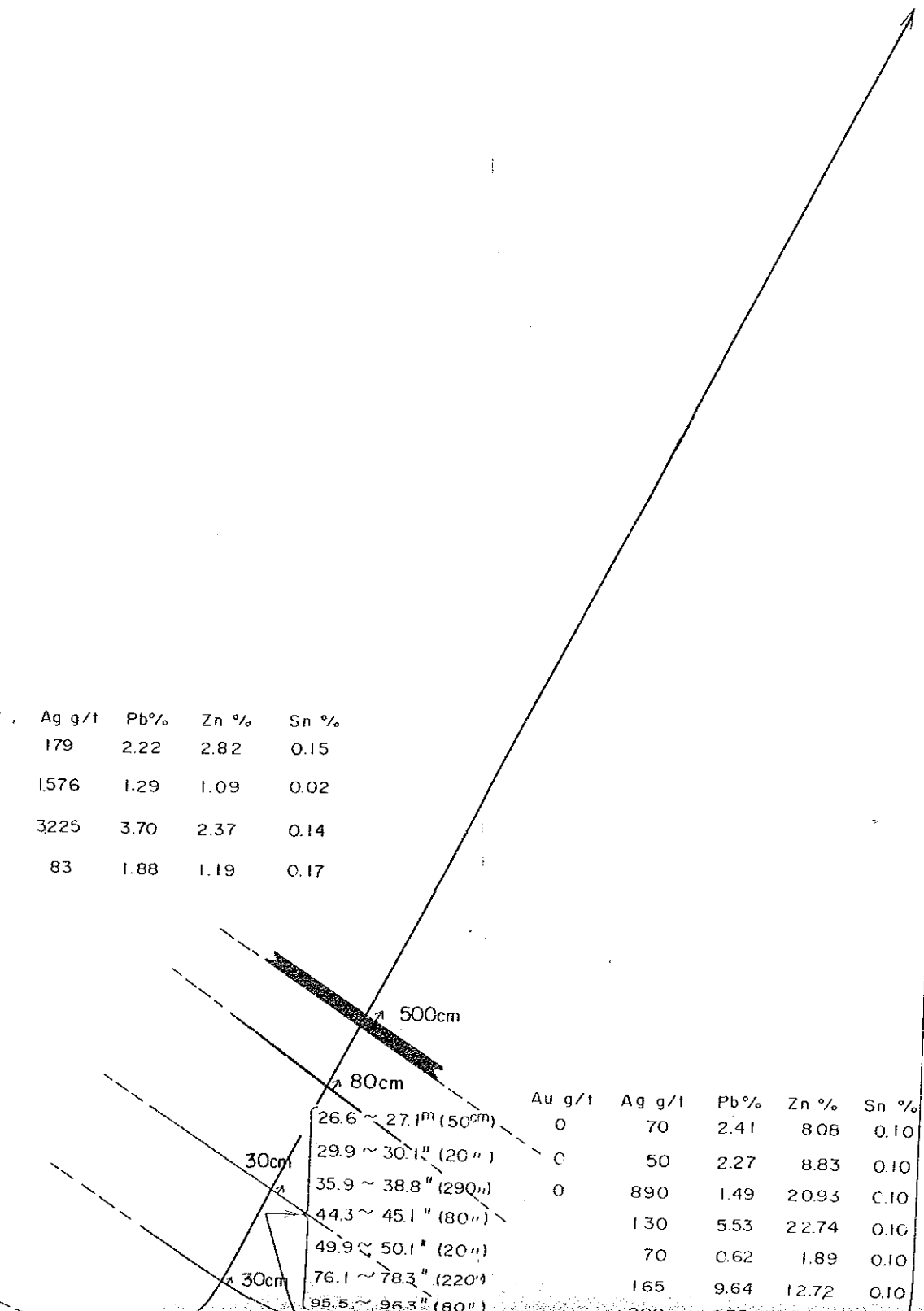
MJB-3 (N10°W, -30°)

284.0 ~ 284.3m (30cm)
 Au 15 g/t
 Ag 21 "
 Pb 0.16%
 Zn 0.38 "
 Sn 0.01 "

91.9 ~ 99.9m (800cm)
 101.6 ~ 102.0 (40 "
 103.85 ~ 105.0 (115 "
 122.2 ~ 128.1 (510 "

Au g/t	Ag g/t	Pb%	Zn %	Sn %
0	179	2.22	2.82	0.15
6.4	1576	1.29	1.09	0.02
5.5	3225	3.70	2.37	0.14
0	83	1.88	1.19	0.17

MJB-10 (N15°W, -20°)

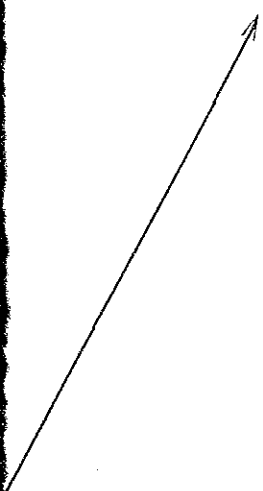


13.1 ~ 13.4m (30cm)
 14.0 ~ 14.6 (160 "
 16.4 ~ 17.35 (95 "

Au g/t	Ag g/t	Pb%	Zn %	Sn %
0	800	4.77	0.65	0.15
C	1.110	3.85	0.60	0.15
0	613	15.91	8.11	0.10

Au g/t	Ag g/t	Pb%	Zn %	Sn %
0	70	2.41	8.08	0.10
0	50	2.27	8.83	0.10
0	890	1.49	20.93	0.10
	130	5.53	22.74	0.10
	70	0.62	1.89	0.10
	165	9.64	12.72	0.10
	200	6.03	5.02	0.10

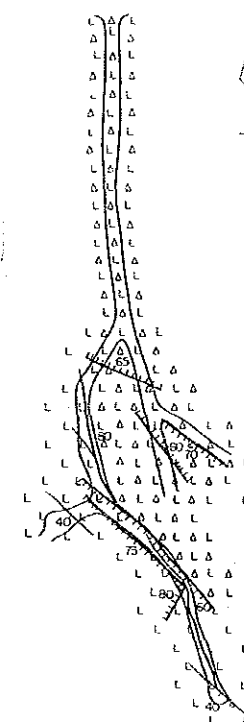
MJB-10 (N15°W, -20°)



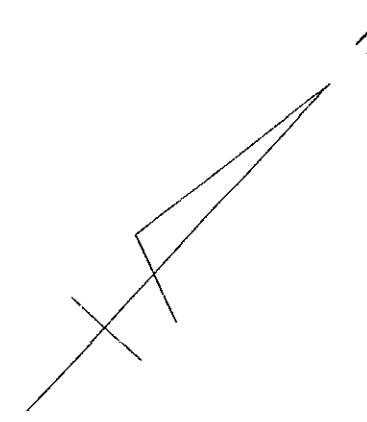
	Au g/t	Ag g/t	Pb%	Zn %	Sn %
13.1 ~ 13.4m (30cm)	0	800	4.77	0.65	0.15
14.0 ~ 14.6" (60 ")	C	1.110	3.85	0.60	0.15
16.4 ~ 17.35" (95 ")	O	613	15.91	8.11	0.10

Pb%	Zn %	Sn %
2.41	8.06	0.10
2.27	8.83	0.10
1.49	20.93	0.10
5.53	22.74	0.10
0.62	1.89	0.10
9.64	12.72	0.10

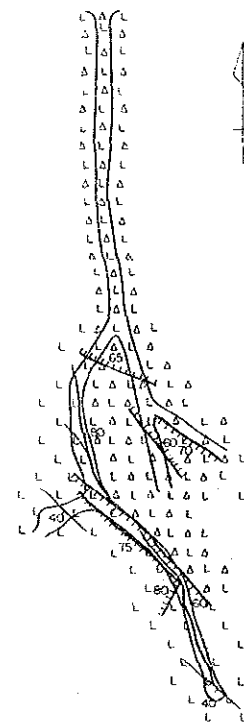
SISTEM DE VETA No. IV



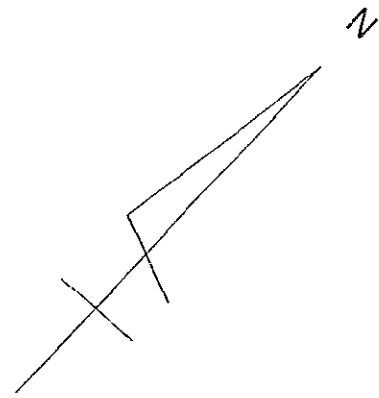
0 25 50m

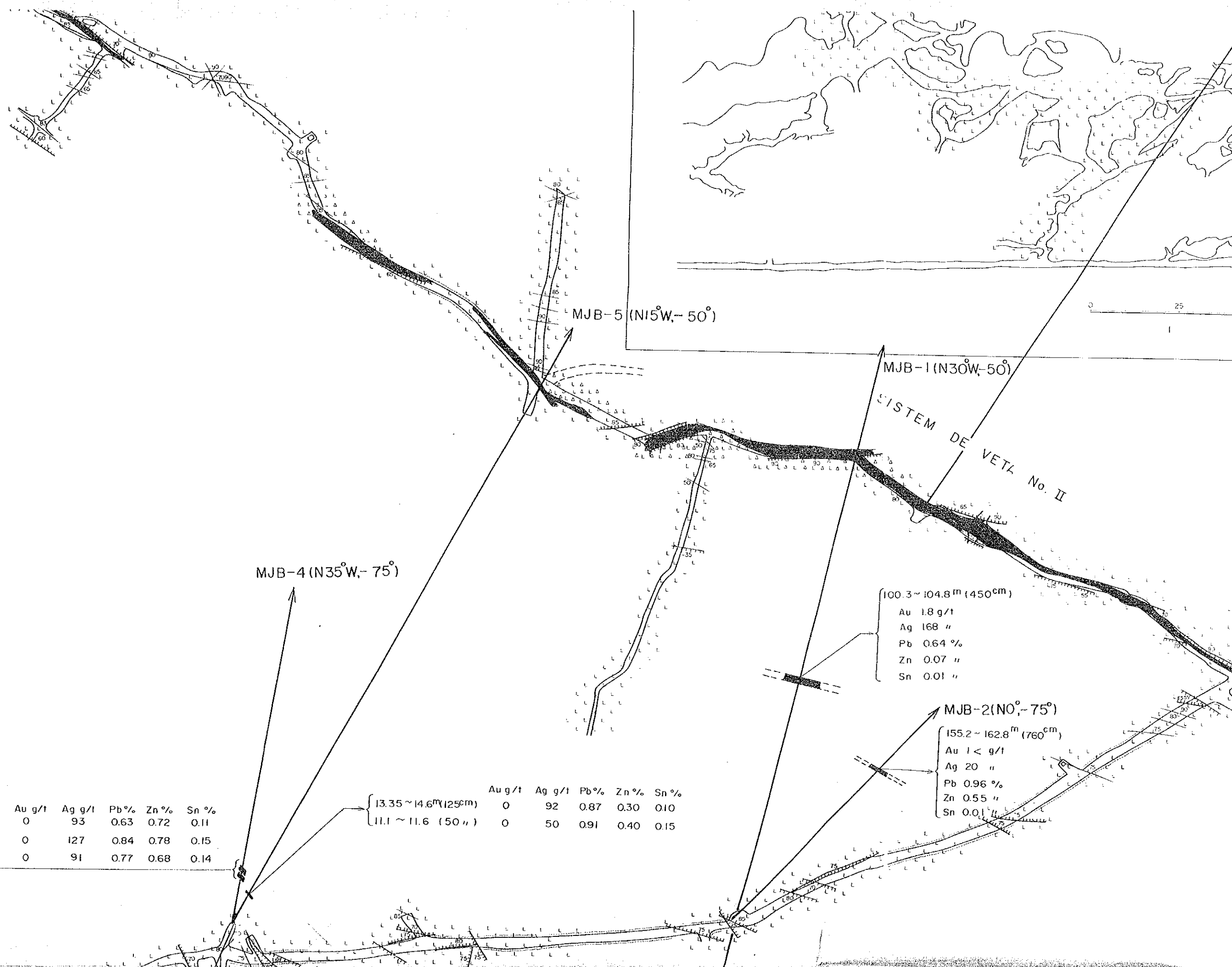


SISTEM DE VETA No. IV



0 25 50m





	Au g/t	Ag g/t	Pb%	Zn%	Sn%
34.2 ~ 35.0 ^m (80 ^{cm})	0	93	0.63	0.72	0.11
38.2 ~ 42.1 ^m (390 ^{cm})	0	127	0.84	0.78	0.15
43.1 ~ 46.1 ^m (300 ^{cm})	0	91	0.77	0.68	0.14

	Au g/t	Ag g/t	Pb%	Zn%	Sn%
13.35 ~ 14.6 ^m (125 ^{cm})	0	92	0.87	0.30	0.10
11.1 ~ 11.6 (50 ^{cm})	0	50	0.91	0.40	0.15

100.3 ~ 104.8 ^m (450 ^{cm})					
Au	1.8 g/t				
Ag	168 "				
Pb	0.64 %				
Zn	0.07 "				
Sn	0.01 "				

155.2 ~ 162.8 ^m (760 ^{cm})					
Au	< 1 g/t				
Ag	20 "				
Pb	0.96 %				
Zn	0.55 "				
Sn	0.01 "				

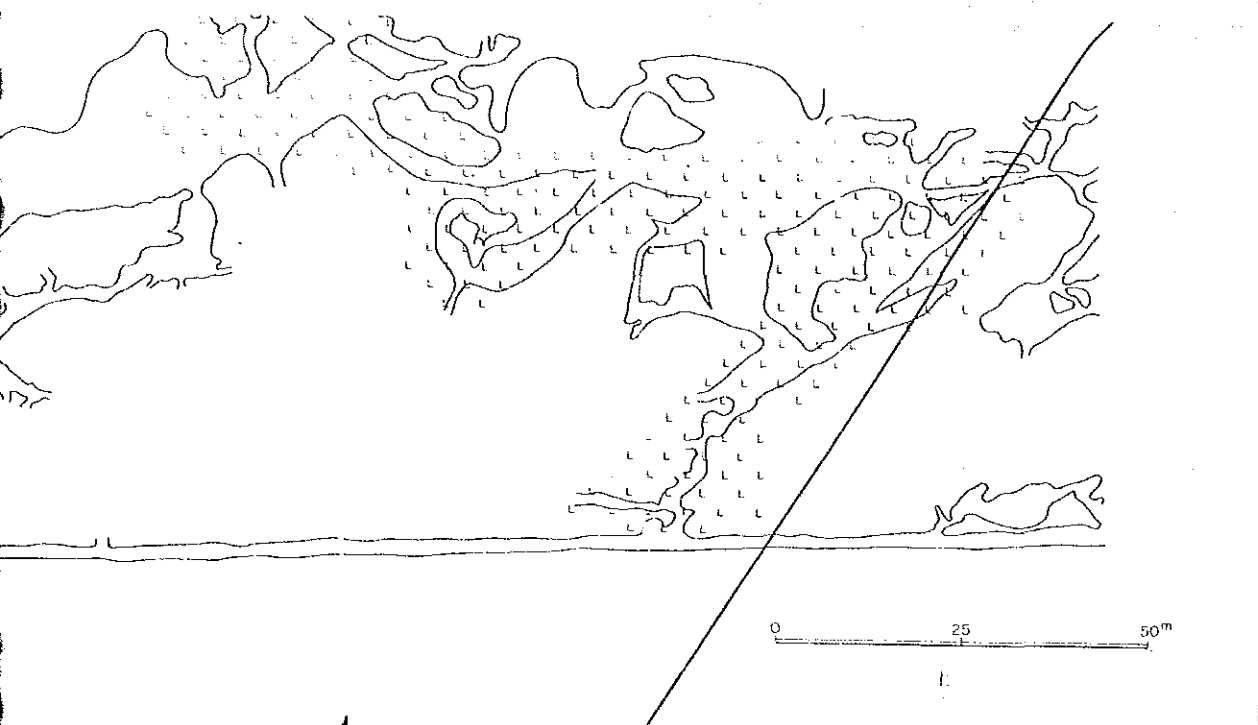
MJB-4 (N35°W, -75°)

MJB-5 (N15°W, -50°)

MJB-1 (N30°W, -50°)

MJB-2 (N0°, -75°)

SISTEM DE VETA No. II



14.0 ~ 14.6" (160")	C	1.110	3.85	0.60	0.15
16.4 ~ 17.35" (195")	O	613	15.91	8.11	0.10

	Au g/t	Ag g/t	Pb %	Zn %	Sn %
26.6 ~ 27.1" (50cm)	0	70	2.41	8.08	0.10
29.9 ~ 30.1" (20")	C	50	2.27	8.83	0.10
35.9 ~ 38.8" (290")	O	890	1.49	20.93	0.10
44.3 ~ 45.1" (80")		130	5.53	22.74	0.10
49.9 ~ 50.1" (20")		70	0.62	1.89	0.10
76.1 ~ 78.3" (220")		165	9.64	12.72	0.10
95.5 ~ 96.3" (80")		200	6.83	5.92	0.10

	Ag g/t	Pb %	Zn %	Sn %
73.2 ~ 73.5" (30cm)	60	0.39	0.80	0.10
83.2 ~ 84.7" (150")	1383	2.49	2.0	0.08
106.5 ~ 106.9" (40")	110	6.11	3.63	0.15
121.4 ~ 121.9" (50")	280	3.18	3.42	0.15

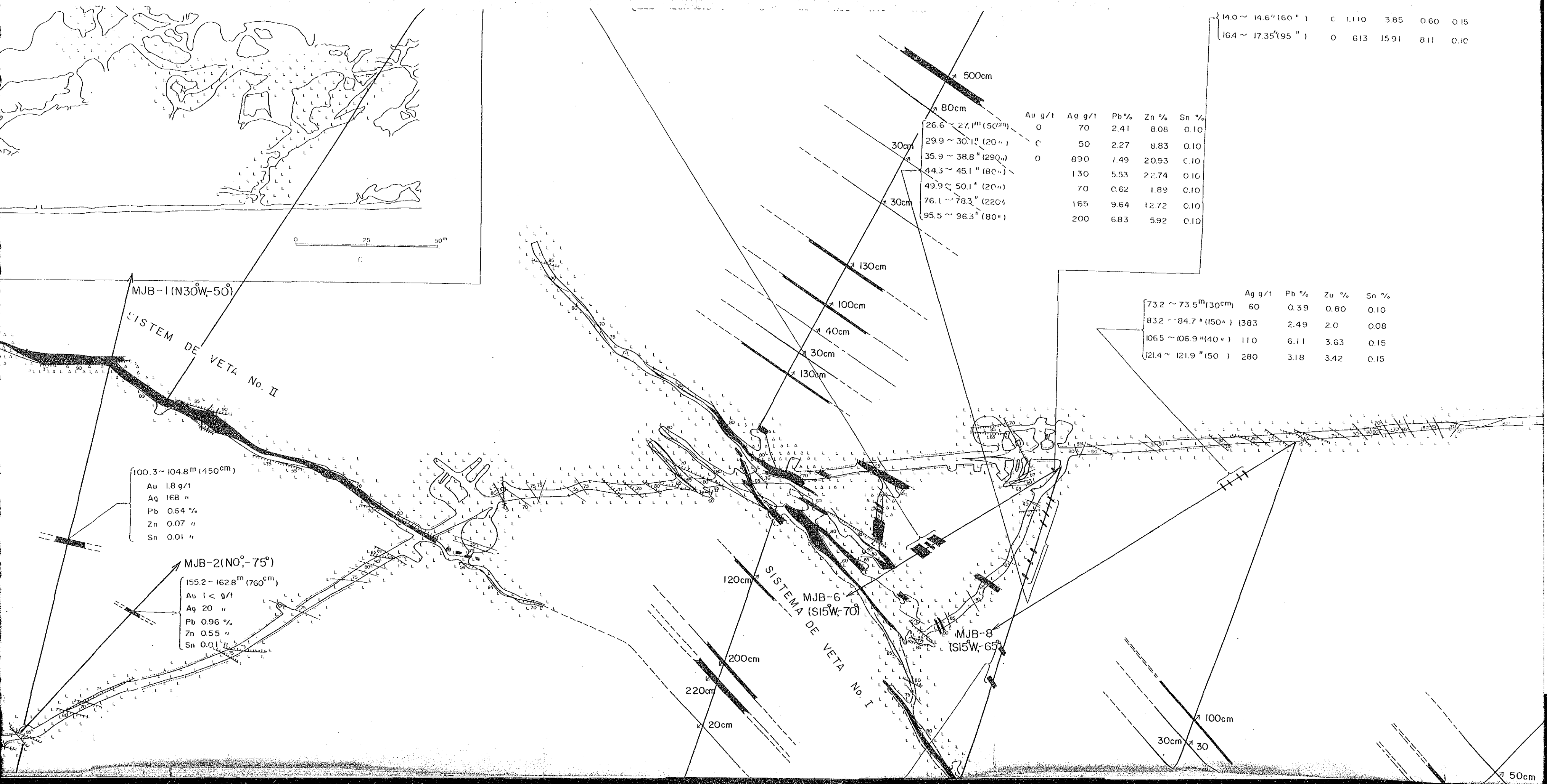
MJB-1 (N30W, -50°)
SISTEMA DE VETA No. II

100.3 ~ 104.8" (450cm)
Au 1.8 g/t
Ag 168 "
Pb 0.64 %
Zn 0.07 "
Sn 0.01 "

MJB-2 (N0°, -75°)
155.2 ~ 162.8" (760cm)
Au 1 < g/t
Ag 20 "
Pb 0.96 %
Zn 0.55 "
Sn 0.01 "

MJB-6 (S15W, -70°)
SISTEMA DE VETA No. I

MJB-8 (S15W, -65°)

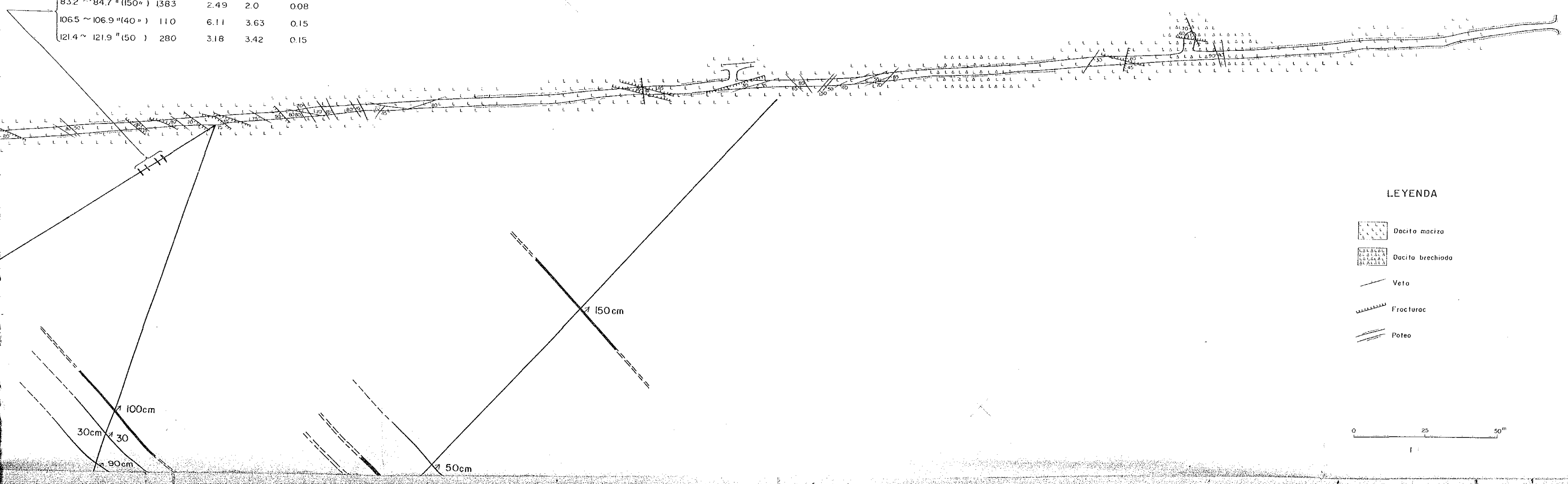
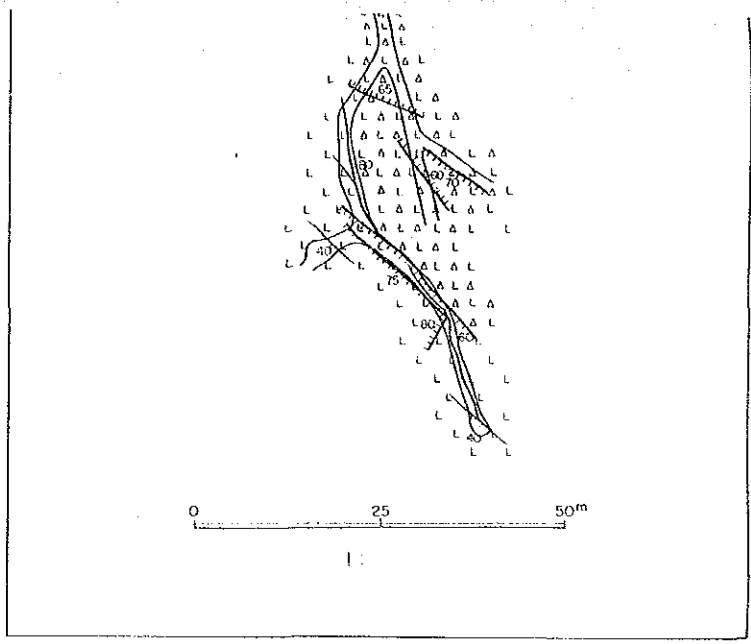


50cm






14.0 ~ 14.6" (60")	C	1.110	3.85	0.60	0.15
16.4 ~ 17.35" (95")	O	613	15.91	8.11	0.10

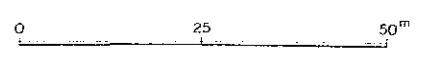
Pb %	Zn %	Sn %
2.41	8.08	0.10
2.27	8.83	0.10
1.49	20.93	0.10
5.53	22.74	0.10
0.62	1.89	0.10
9.64	12.72	0.10
6.83	5.92	0.10

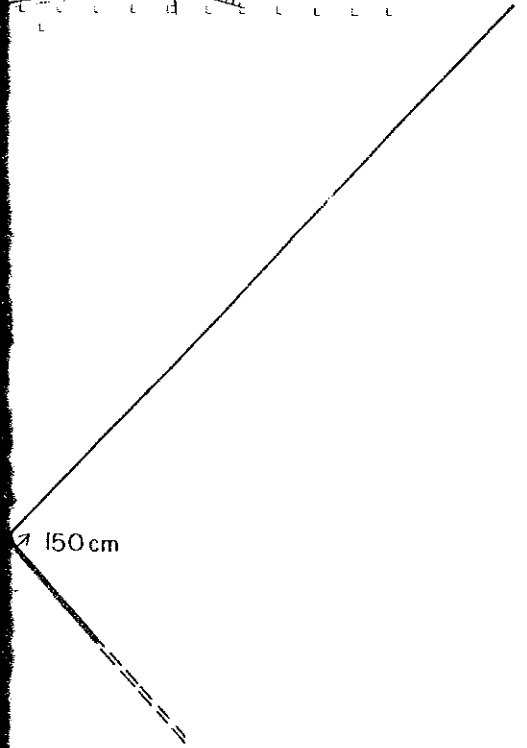
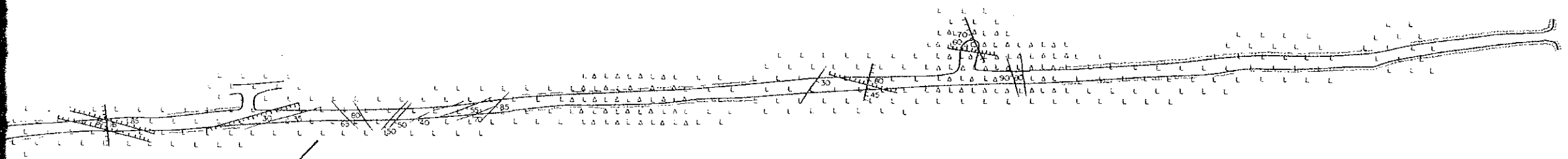
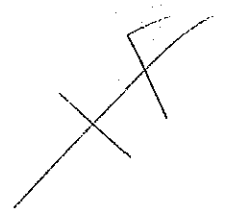
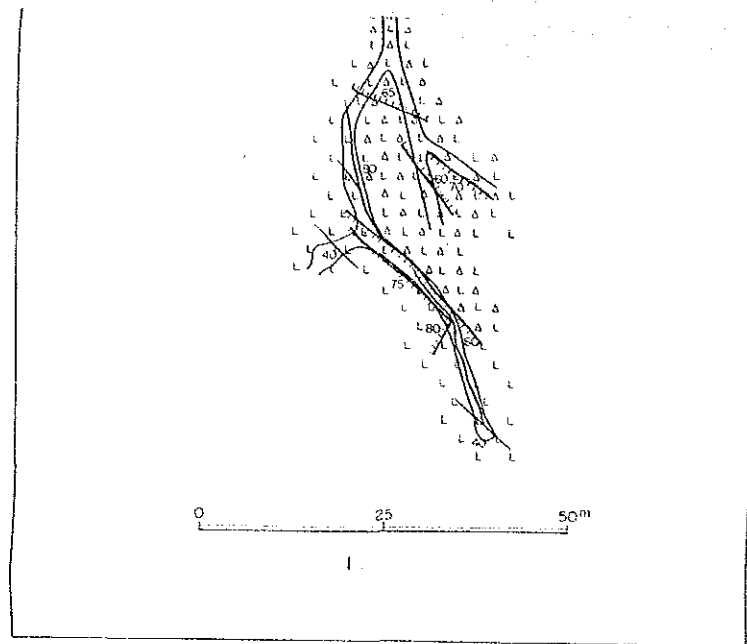
	Ag g/t	Pb %	Zn %	Sn %
73.2 ~ 73.5" (30cm)	60	0.39	0.80	0.10
83.2 ~ 84.7" (150")	1383	2.49	2.0	0.08
106.5 ~ 106.9" (40")	110	6.11	3.63	0.15
121.4 ~ 121.9" (50")	280	3.18	3.42	0.15








LEYENDA

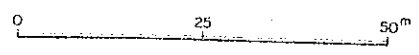
-  Dacito maciza
-  Dacito brechiada
-  Veto
-  Fracturas
-  Poteo



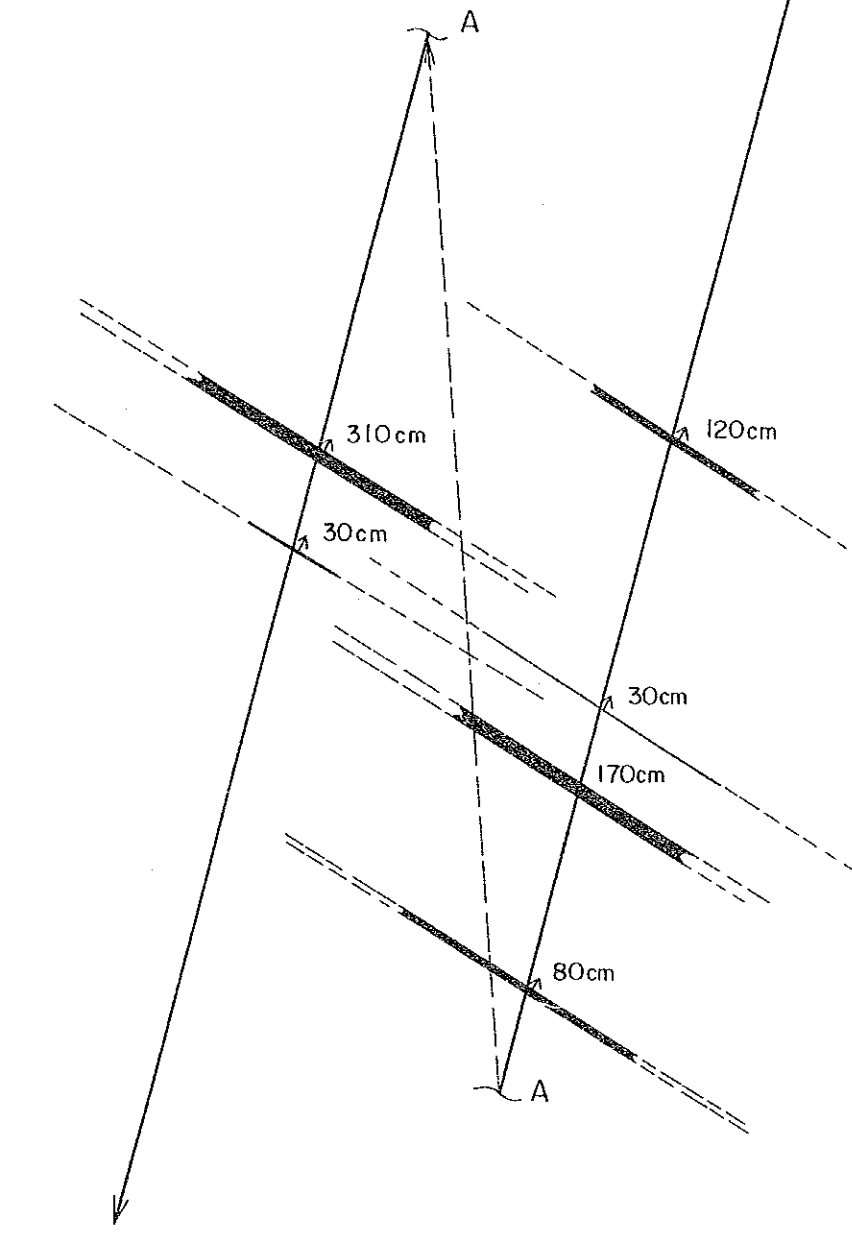
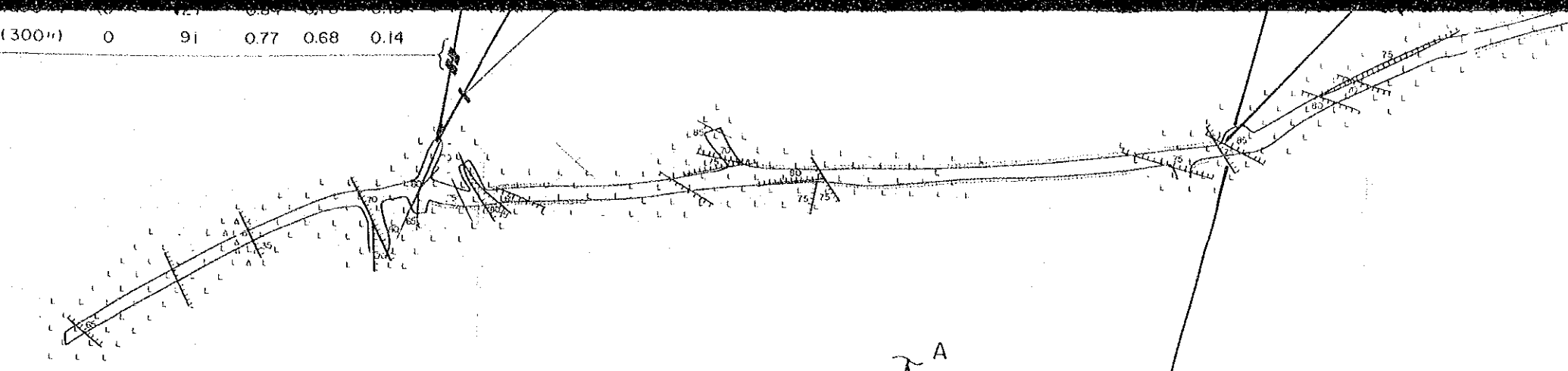


LEYENDA

-  Dacita maciza
-  Dacita brechiada
-  Veto
-  Fracturas
-  Poteo



43.1 ~ 46.1" (300") 0 91 0.77 0.68 0.14



MJB-9 (S30°E, -20°)

MJB-11 (S25°E, -20°)

20cm

150cm

MJB-7 (S25°E, -60°)

	Ag g/t	Pb %	Zn %	Sn %
153.9 ~ 155.5m (160cm)	73	2.65	1.67	0.06
186.45 ~ 186.7m (25 ")	100	8.33	3.68	0.10

MJB-12 (S25°, -50°)

70cm

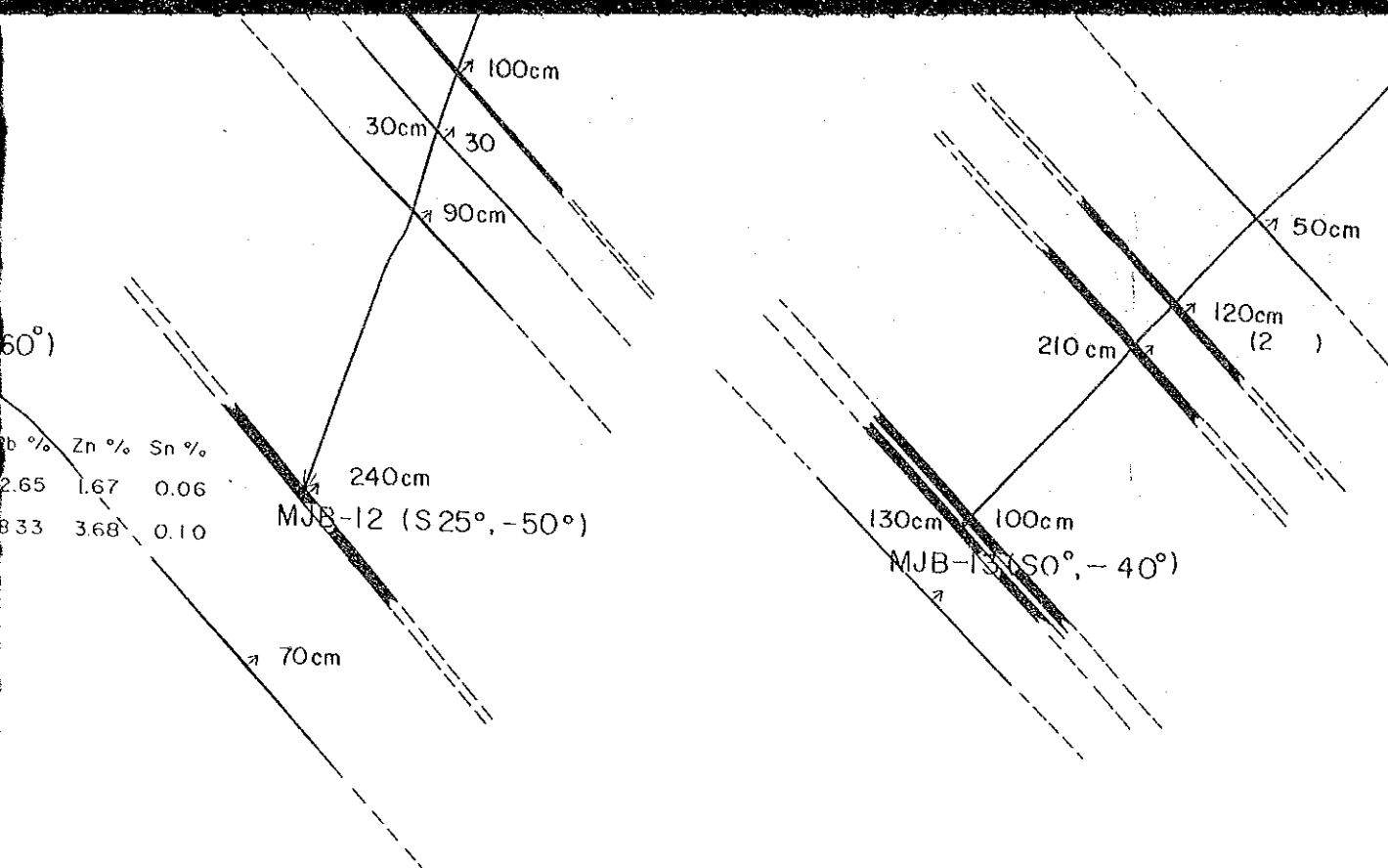
100cm
30cm
90cm

MJB-13 (S0°, -40°)

130cm 100cm

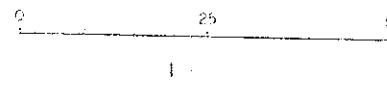
210cm 120cm (2)

50cm

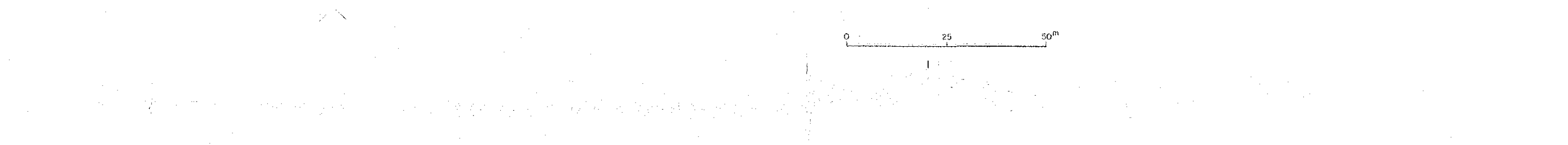


60°)

Pb %	Zn %	Sn %
2.65	1.67	0.06
8.33	3.68	0.10



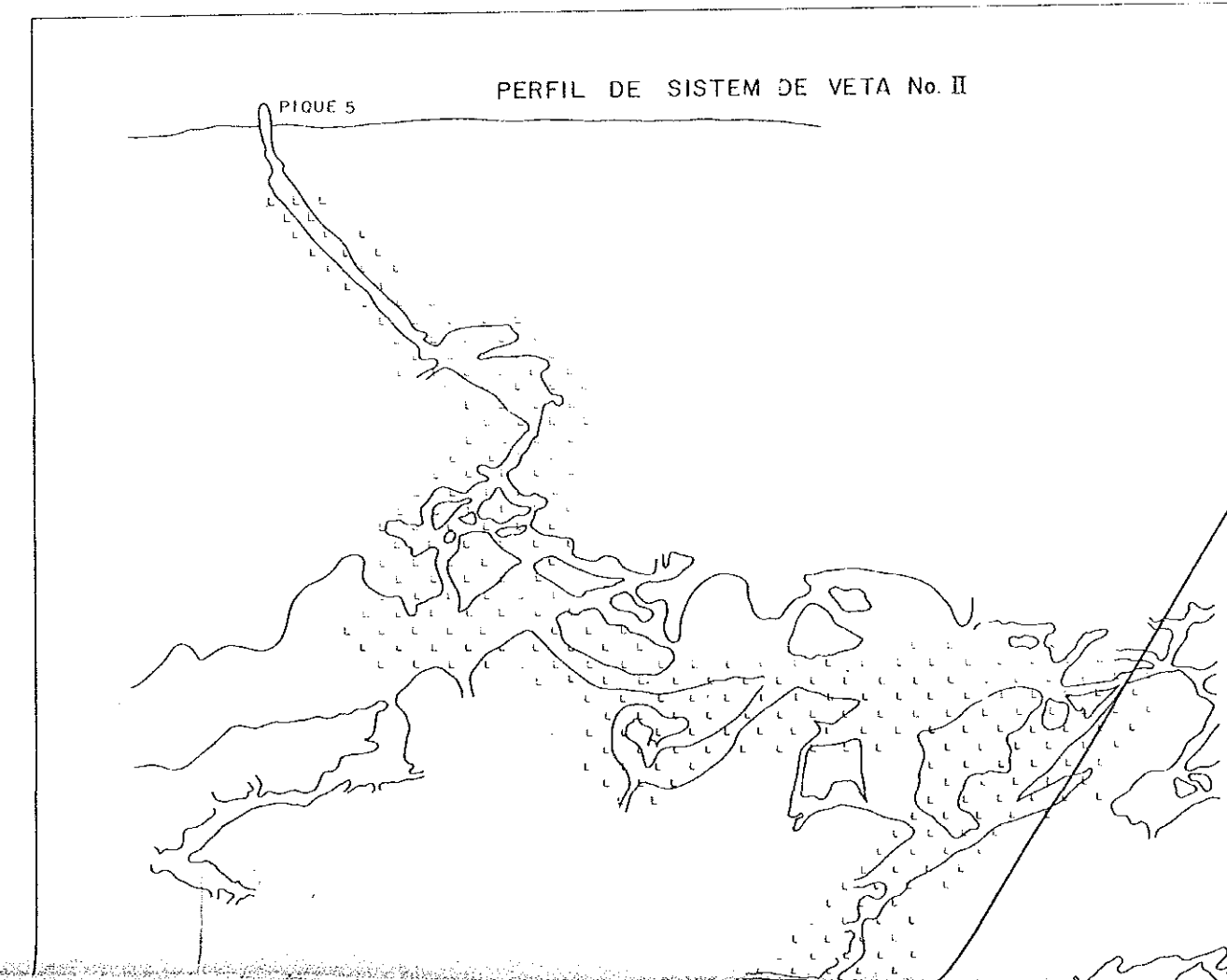
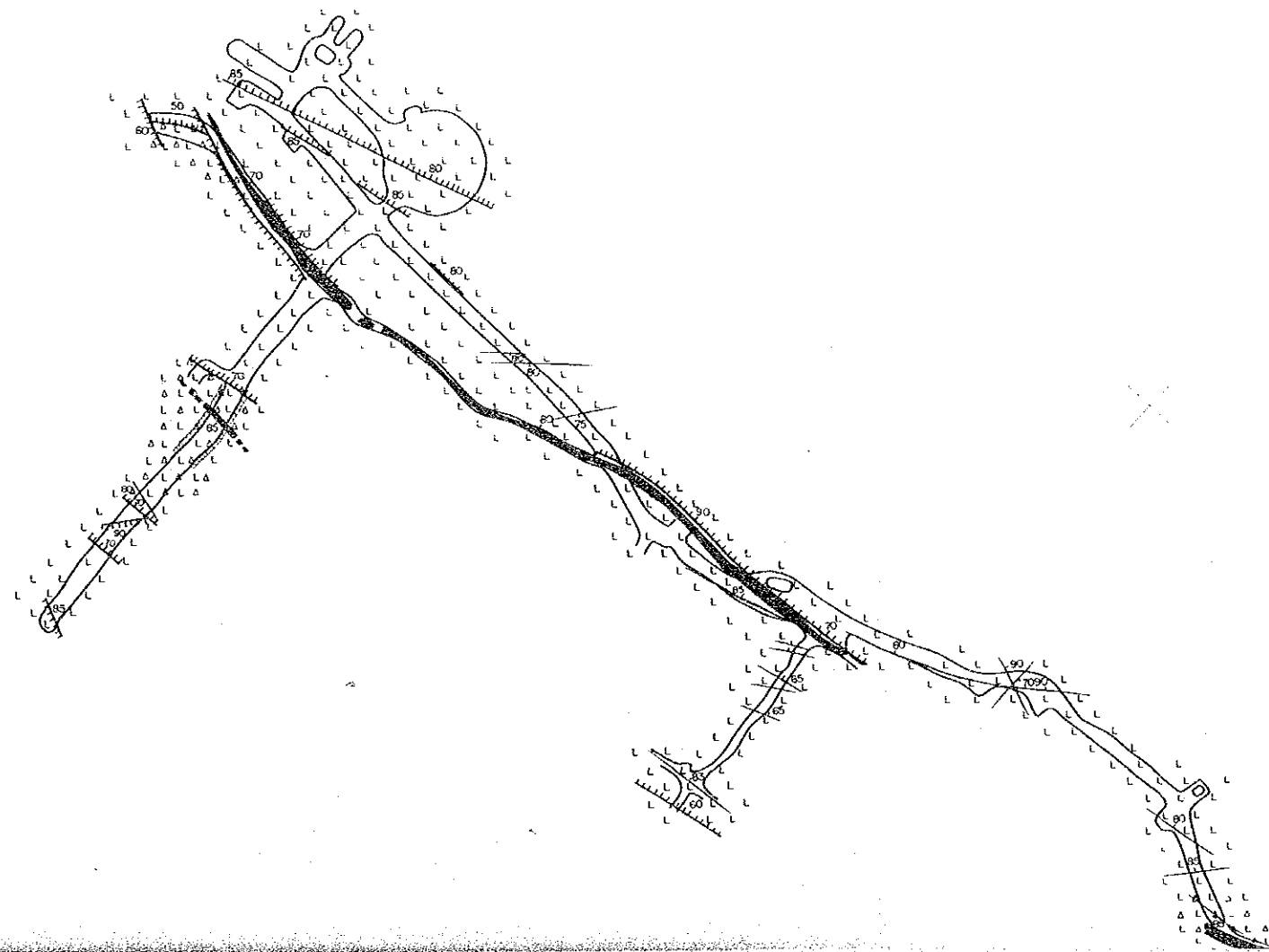
0 25 50^m



PL-4 MAPA GEOLOGICO DE INTERIOR MINA
Y GRADOS DE VETAS CORTADAS POR TALA

(Posiciones de vetas estan proyectada en nivel de recorte principal)

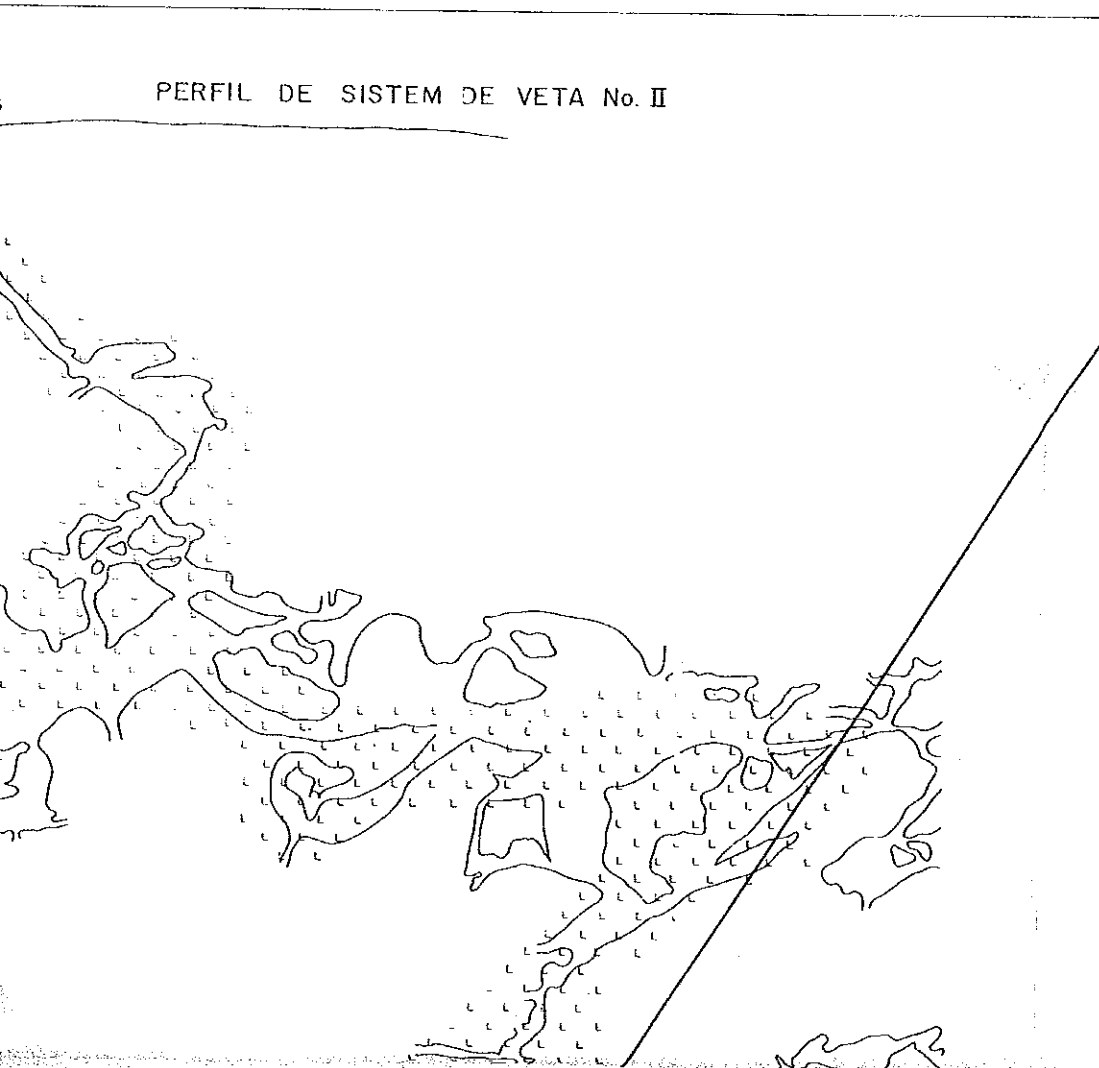
(ESCA 1:1,000)



INTERIOR MINA CORTADAS POR TALADROS DE DIAMANTINA

(Cortada en nivel de recorte principal)

(Escala 1:1,000)



MJB-3 (N10°W, -30°)

284.0 ~ 284.3 ^m (30 ^{cm})
Au 15 g/t
Ag 21 "
Pb 0.16%
Zn 0.38 "
Sn 0.01 "

	Au g/t	Ag g/t	Pb%	Zn %	Sn %
91.9 ~ 99.9 ^m (800 ^{cm})	0	179	2.22	2.82	0.15
101.6 ~ 102.0 ["] (40 ["])	6.4	1576	1.29	1.09	0.02
103.85 ~ 105.0 ["] (115 ["])	5.5	3225	3.70	2.37	0.14
122.2 ~ 128.1 ["] (510 ["])	0	83	1.88	1.19	0.17

	Ag g/t	Pb %	Zn %	Sn %
3.2 ~ 4.1 ^m (90 ^{cm})	70	1.53	2.15	0.10
21.5 ~ 22.8 ["] (130 ["])	325	0.47	0.80	0.08
33.1 ~ 33.4 ["] (30 ["])	40	0.28	0.65	0.10
46.9 ~ 47.3 ["] (40 ["])	30	0.57	2.80	0.05
58.3 ~ 59.3 ["] (100 ["])	240	0.74	0.75	0.13
78.5 ~ 79.8 ["] (130 ["])	61	0.42	0.86	0.10

MJB-10 (N15°W, -20°)

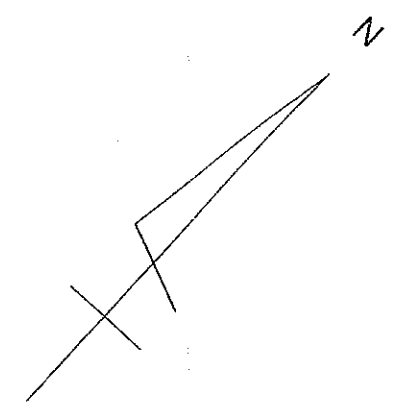
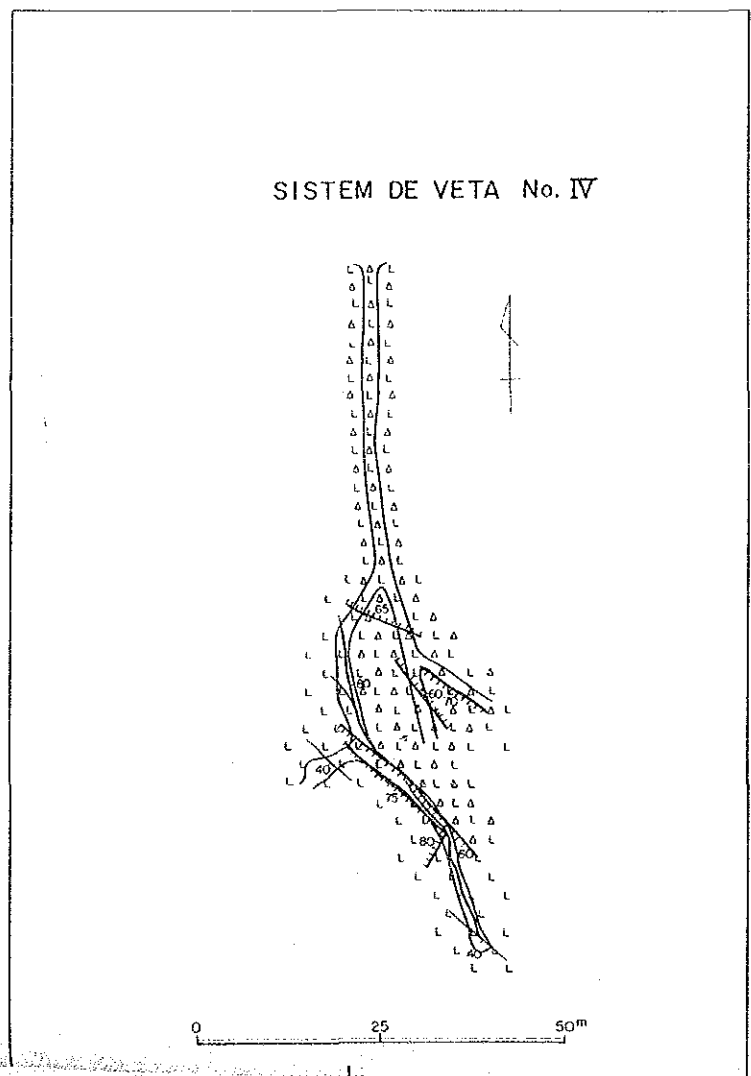
	Au g/t	Ag g/t	Pb%	Zn %	Sn %
26.6 ~ 27.1 ^m (50 ^{cm})	0	70	2.41	8.08	0.10
29.9 ~ 30.1 ["] (20 ["])	0	50	2.27	8.83	0.10
35.9 ~ 38.8 ["] (290 ["])	0	890	1.49	20.93	0.10
44.3 ~ 45.1 ["] (80 ["])		130	5.53	22.74	0.10
49.9 ~ 50.1 ["] (20 ["])		70	0.62	1.89	0.10
76.1 ~ 78.3 ["] (220 ["])		165	9.64	12.72	0.10

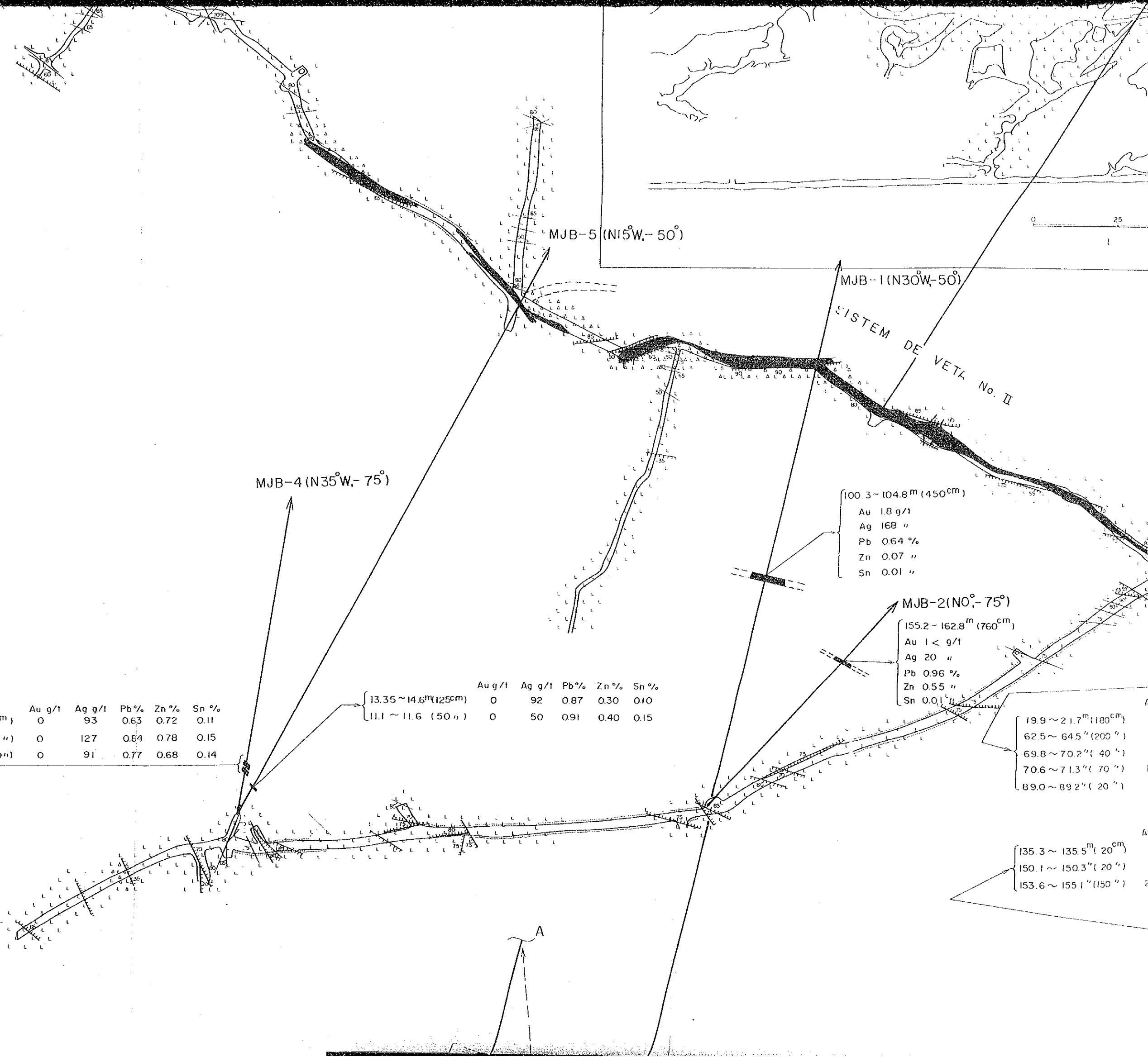
	Au g/t	Ag g/t	Pb%	Zn %	Sn %
13.1 ~ 13.4 ^m (30 ^{cm})	0	800	4.77	0.65	0.15
14.0 ~ 14.6 ["] (60 ["])	0	1,110	3.85	0.60	0.15
16.4 ~ 17.35 ["] (95 ["])	0	613	15.91	8.11	0.10

	Ag g/t	Pb%	Zn %	Sn %
155.5 ~ 156.3 ^m (80 ^{cm})	280	5.91	11.50	0.10
171.2 ~ 176.2 ["] (130 ["])	30	5.90	9.35	0.10
109.3 ~ 109.7 ["] (40 ["])	30	2.25	5.20	0.10
131.9 ~ 132.2 ["] (30 ["])	50	2.73	5.55	0.10

Ag g/t	Pb%	Zn %	Sn %
800	4.77	0.65	0.15
110	3.85	0.60	0.15
613	15.91	8.11	0.10

	Ag g/t	Pb %	Zn %	Sn %
0cm)	280	5.91	11.50	0.10
0")	30	5.90	9.35	0.10
0")	30	2.25	5.20	0.10
0")	50	2.73	5.55	0.10





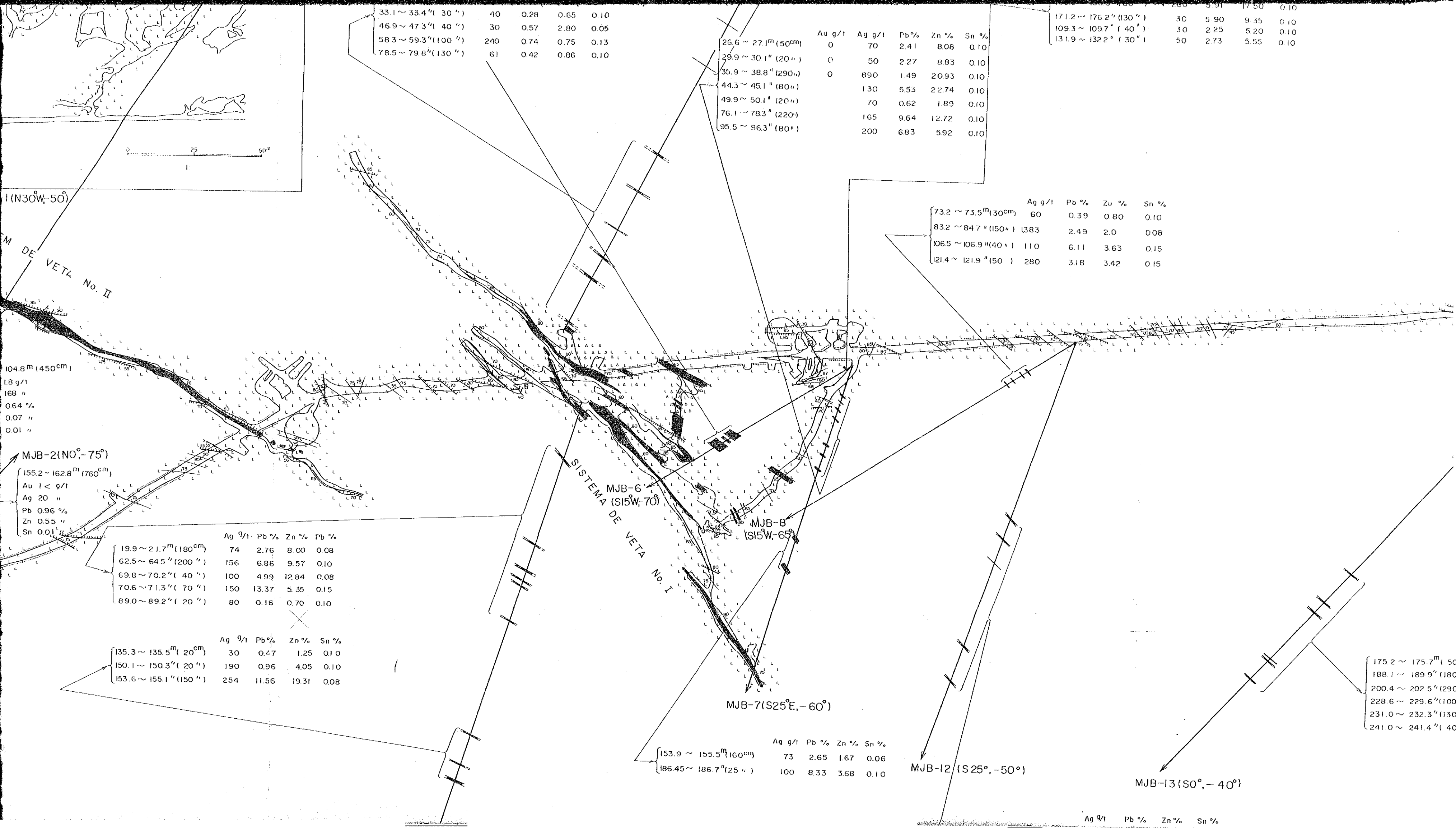
	Au g/t	Ag g/t	Pb%	Zn%	Sn %
34.2 ~ 35.0 ^m (180 ^{cm})	0	93	0.63	0.72	0.11
38.2 ~ 42.1 ^m (390 ^{''})	0	127	0.64	0.78	0.15
43.1 ~ 46.1 ^m (300 ^{''})	0	91	0.77	0.68	0.14
13.35 ~ 14.6 ^m (125 ^{cm})	0	92	0.87	0.30	0.10
11.1 ~ 11.6 (50 ^{''})	0	50	0.91	0.40	0.15

100.3 ~ 104.8^m (450^{cm})
 Au 1.8 g/t
 Ag 168 "
 Pb 0.64 %
 Zn 0.07 "
 Sn 0.01 "

MJB-2 (N0°, -75°)
 155.2 ~ 162.8^m (760^{cm})
 Au < g/t
 Ag 20 "
 Pb 0.96 %
 Zn 0.55 "
 Sn 0.01 "

19.9 ~ 21.7^m (180^{cm})
 62.5 ~ 64.5^{''} (200^{''})
 69.8 ~ 70.2^{''} (40^{''})
 70.6 ~ 71.3^{''} (70^{''})
 89.0 ~ 89.2^{''} (20^{''})

135.3 ~ 135.5^m (20^{cm})
 150.1 ~ 150.3^{''} (20^{''})
 153.6 ~ 155.1^{''} (150^{''})



33.1 ~ 33.4" (30")	40	0.28	0.65	0.10
46.9 ~ 47.3" (40")	30	0.57	2.80	0.05
58.3 ~ 59.3" (100")	240	0.74	0.75	0.13
78.5 ~ 79.8" (130")	61	0.42	0.86	0.10

	Au g/t	Ag g/t	Pb%	Zn %	Sn %
26.6 ~ 27.1m (50cm)	0	70	2.41	8.08	0.10
29.9 ~ 30.1" (20")	0	50	2.27	8.83	0.10
35.9 ~ 38.8" (290")	0	890	1.49	20.93	0.10
44.3 ~ 45.1" (80")		130	5.53	22.74	0.10
49.9 ~ 50.1" (20")		70	0.62	1.89	0.10
76.1 ~ 78.3" (220")		165	9.64	12.72	0.10
95.5 ~ 96.3" (80")		200	6.83	5.92	0.10

171.2 ~ 176.2" (130")	30	5.90	9.35	0.10
109.3 ~ 109.7" (40")	30	2.25	5.20	0.10
131.9 ~ 132.2" (30")	50	2.73	5.55	0.10

	Ag g/t	Pb %	Zn %	Sn %
73.2 ~ 73.5m (30cm)	60	0.39	0.80	0.10
83.2 ~ 84.7" (150")	1383	2.49	2.0	0.08
106.5 ~ 106.9" (40")	110	6.11	3.63	0.15
121.4 ~ 121.9" (50")	280	3.18	3.42	0.15

104.8m (450cm)
1.8 g/t
168 "
0.64 %
0.07 "
0.01 "

MJB-2 (N0°, -75°)
155.2 ~ 162.8m (760cm)
Au 1 < g/t
Ag 20 "
Pb 0.96 %
Zn 0.55 "
Sn 0.01 "

	Ag g/t	Pb %	Zn %	Pb %
19.9 ~ 21.7m (180cm)	74	2.76	8.00	0.08
62.5 ~ 64.5" (200")	156	6.86	9.57	0.10
69.8 ~ 70.2" (40")	100	4.99	12.84	0.08
70.6 ~ 71.3" (70")	150	13.37	5.35	0.15
89.0 ~ 89.2" (20")	80	0.16	0.70	0.10

	Ag g/t	Pb %	Zn %	Sn %
135.3 ~ 135.5m (20cm)	30	0.47	1.25	0.10
150.1 ~ 150.3" (20")	190	0.96	4.05	0.10
153.6 ~ 155.1" (150")	254	11.56	19.31	0.08

SISTEMA DE VETA No. I

MJB-6 (S15W, -70)

MJB-8 (S15W, -65)

MJB-7 (S25°E, -60°)

	Ag g/t	Pb %	Zn %	Sn %
153.9 ~ 155.5m (160cm)	73	2.65	1.67	0.06
186.45 ~ 186.7" (25")	100	8.33	3.68	0.10

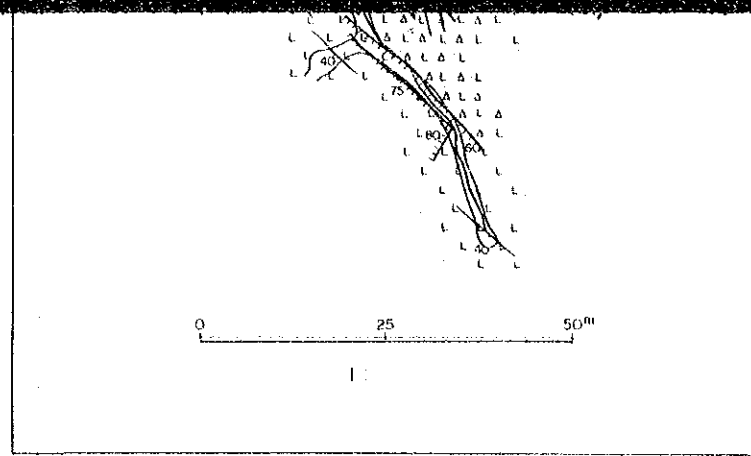
MJB-12 (S25°, -50°)

MJB-13 (S0°, -40°)

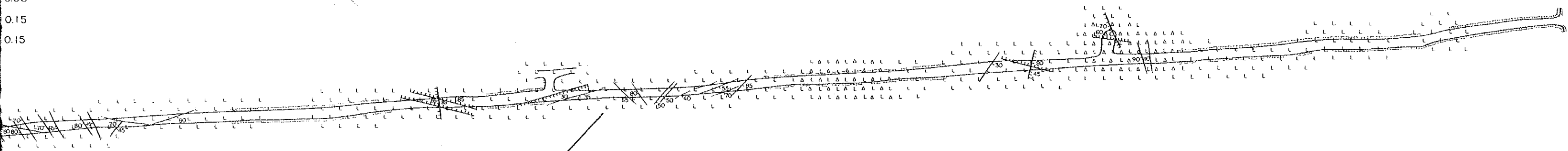
175.2 ~ 175.7m (50cm)				
188.1 ~ 189.9" (180")				
200.4 ~ 202.5" (290")				
228.6 ~ 229.6" (100")				
231.0 ~ 232.3" (130")				
241.0 ~ 241.4" (40")				

Ag g/t Pb % Zn % Sn %

30	5.90	9.35	0.10
30	2.25	5.20	0.10
50	2.73	5.55	0.10



Sn %
0.10
0.08
0.15
0.15

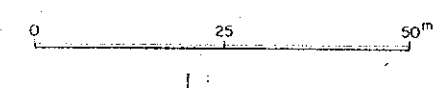


99.0 ~ 100.5 m (150 cm)
Ag 133 g/t
Pb 6.86 %
Zn 12.13 %
Sn 0.10 %

	Ag g/t	Pb %	Zn %	Sn %
175.2 ~ 175.7 m (50 cm)	50	1.40	2.35	0.10
188.1 ~ 189.9 m (180 ")	20	2.22	1.88	0.10
200.4 ~ 202.5 m (290 ")	138	4.32	4.60	0.10
228.6 ~ 229.6 m (100 ")	560	17.67	3.30	0.05
231.0 ~ 232.3 m (130 ")	440	16.58	2.20	0.10
241.0 ~ 241.4 m (40 ")	160	8.84	6.85	0.10

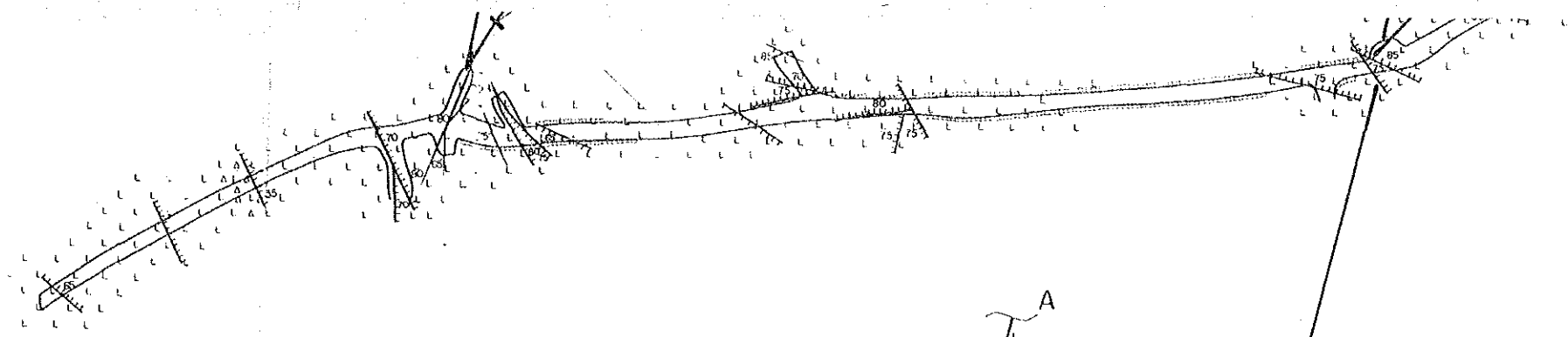
LEYENDA

- Dacita maciza
- Dacita brechiada
- Veta
- Fracturas
- Poteo



MJB-13 (S0°, -40°)

% Zn % Sn %



135.3 ~ 135.5^m (20^{cm})
 150.1 ~ 150.3^m (20^{cm})
 153.6 ~ 155.1^m (150^{cm})

	Ag g/t	Pb %	Zn %	Sn %
230.7 ~ 233.8 ^m (310 ^{cm})	100	1.26	2.42	0.09
242.0 ~ 242.3 ^m (30 ^{cm})	120	0.64	0.80	0.10

Ag g/t	Pb %	Zn %	Sn %
65	1.26	0.63	0.10

88.4 ~ 89.6^m (120^{cm})

Ag g/t	Pb %	Zn %	Sn %
130	0.71	0.90	0.10
24	0.35	0.59	0.09

120.8 ~ 121.1^m (30^{cm})
 130.5 ~ 132.2 (130^{cm})

Ag g/t	Pb %	Zn %	Sn %
90	0.71	1.10	0.10

157.5 ~ 158.3^m (80^{cm})

MJB-9 (S30°E, -20°)

	Ag g/t	Pb %	Zn %	Sn %
135.3 ~ 135.5 ^m (20 ^{cm})	30	0.47	1.25	0.10
150.1 ~ 150.3 ["] (20 ["])	190	0.96	4.05	0.10
153.6 ~ 155.1 ["] (150 ["])	254	11.56	19.31	0.08

Ag g/t	Pb %	Zn %	Sn %
65	1.26	0.63	0.10

Ag g/t	Pb %	Zn %	Sn %
130	0.71	0.90	0.10
24	0.35	0.59	0.09

Ag g/t	Pb %	Zn %	Sn %
90	0.71	1.10	0.10

MJB-11 (S25°E, -20°)

MJB-7 (S25°E, -60°)

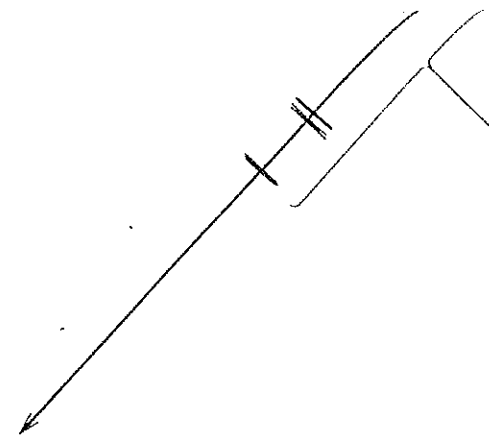
	Ag g/t	Pb %	Zn %	Sn %
153.9 ~ 155.5 ^m (160 ^{cm})	73	2.65	1.67	0.06
186.45 ~ 186.7 ["] (25 ["])	100	8.33	3.68	0.10

MJB-12 (S25°, -50°)

	Ag g/t	Pb %	Zn %	Sn %
110.7 ~ 111.7 ^m (100 ^{cm})	40	2.57	3.10	0.10
182.2 ~ 184.6 ["] (240 ["])	152	9.72	3.97	0.10
206.8 ~ 207.5 ["] (70 ["])	75	5.34	1.35	0.10
119.5 ~ 119.8 ["] (30 ["])	260	4.39	3.45	0.10
132.2 ~ 132.7 ["] (50 ["])	10	1.08	3.95	0.10
134.1 ~ 134.5 ["] (40 ["])	90	0.34	3.90	0.10

MJB-13 (S0°, -40°)

175
188
200
228
231
241



	Ag g/t	Pb %	Zn %	Sn %
175.2 ~ 175.7 ^m (50 ^{cm})	50	1.40	2.35	0.10
188.1 ~ 189.9" (180")	20	2.22	1.88	0.10
200.4 ~ 202.5" (290")	138	4.32	4.60	0.10
228.6 ~ 229.6" (100")	560	17.67	3.30	0.05
231.0 ~ 232.3" (130")	440	16.58	2.20	0.10
241.0 ~ 241.4" (40")	160	8.84	6.85	0.10

MJB-13 (S0°, -40°)

Pb %	Zn %	Sn %
2.57	3.10	0.10
9.72	3.97	0.10
5.34	1.35	0.10
4.39	3.45	0.10
1.08	3.95	0.10
0.34	3.90	0.10