

22.70 Yellowish orange silty fine-grained sand

26.20 Yellowish orange sandy silt

27.90 Grey limestone with brecciated texture  
30.5-34.0m : dominated by light brown sandy clay, bearing limestone fragments (cavity fillings in limestone)

36.50 Dark brown fault clay, disseminating pyrite

38.00 Light brown sheared sandstone

43.00 Light brown weathered weakly banded coarse-grained sandstone

44.00 Grey to light brown banded silty very fine-grained sandstone

44.80 Light brown massive silty medium-grained sandstone

46.70 Light brown banded silty fine-grained sandstone

50.00 Light brown weathered coarse-grained sandstone  
White kaolin common in intergranular spaces of same grains, no calcareous  
50.7-56.0m : massive  
56.0-58.4m : banded

59.40 Grey banded silty fine-grained sandstone, no calcareous, disseminating minor pyrite

62.20 Brown banded coarse-grained sandstone

63.00 Grey banded medium-grained sandstone

63.50 Grey banded coarse-grained sandstone to calcareous

65.0-65.5m : very coarse and bearing pitch fragments

65.50 Greenish grey massive siltstone, disseminating minor pyrite  
Upper most part is sheared.

68.20 Light grey banded very calcareous fine-grained sandstone, disseminating minor pyrite

71.00 Greenish grey weakly banded siltstone, sheared partly and disseminating minor pyrite

73.40 Alternation of dark grey, partly sheared siltstone and light grey banded very calcareous fine-grained sandstone : 0.9-1.5m sandstone ; 0.4-0.7m thick siltstone ; 77.2-77.8m : flaser bedding bed

78.00 Light grey banded calcareous fine-grained sandstone

78.50 Grey to brownish grey weakly banded medium-coarse-grained sandstone, calcareous, bearing disseminated pyrite and sporadic spotty pyrite (φ=3-10mm)  
79.0-80.0m : bleached selvage with pyrite common  
83.7-88.9m : sheared and pyritized siltstone

84.30 Grey banded coarse-grained sandstone, disseminating pyrite and calcareous partly  
White kaolin common in intergranular spaces of sand grains  
85.2-86.5m : veined by pyrite (<1cm wide) in part  
90.3-90.6m : rich in siltstone fragments (φ<1mm)

90.50 Greenish grey siltstone, sheared and pyritized

91.50 Grey flaser bedding bed, very calcareous

92.50 Greenish grey siltstone, sheared and pyritized

94.50 Light grey very calcareous fine-grained sandstone, rich in disseminated pyrite

95.00 Grey banded calcareous medium-grained sandstone, bearing sporadic spotty pyrite (φ=2-5mm)  
95.55-95.65m, 95.9-96.0m : greenish grey siltstone

99.00 Grey banded calcareous coarse-grained sandstone

99.50 Grey banded calcareous fine-grained sandstone

100.00 Grey massive calcareous medium-grained sandstone

102.45 Grey banded calcareous medium-grained sandstone

104.05 Grey banded calcareous coarse-grained sandstone  
106.0-106.5m : bearing carbonaceous fragments

106.50 Grey banded calcareous medium-grained sandstone

109.10 Grey banded calcareous coarse-grained sandstone, bearing carbonaceous or siltstone fragments rarely and spotty pyrite (φ=5-10mm) sporadically  
Dark greenish grey bands are composed of muscovite biotite, chlorite, and clay minerals  
White kaolin in intergranular spaces common

125.0-125.05m : black coal seam

126.00 Grey very coarse-grained sandstone to granule conglomerate, bearing black carbonaceous (pitch like) seams, vesicles and fragments

128.40 Grey banded calcareous medium-grained sandstone  
129.8-130.5m : rich in siltstone fragments  
129.8-129.8m : sporadic carbonaceous fragments

132.20 Grey banded calcareous coarse-grained sandstone

134.80 Dark grey banded silty fine-grained sandstone, rich in disseminated pyrite  
135.4-135.0m : light grey massive very calcareous

137.30 Light grey massive calcareous medium-gr. sandstone

138.50 Dark grey banded silty fine-grained sandstone, rich in disseminated pyrite

139.00 Greenish grey massive siltstone, sheared partly  
142.8-145.1m : sandy and calcareous

145.0 Light grey massive calcareous medium-gr. sandstone

145.00 Dark grey massive very fine-grained sandstone

146.00 Grey banded calcareous medium-grained sandstone

150.70 m

Pyritization

Koalitization

Pyrite veinlets (<1cm wide)

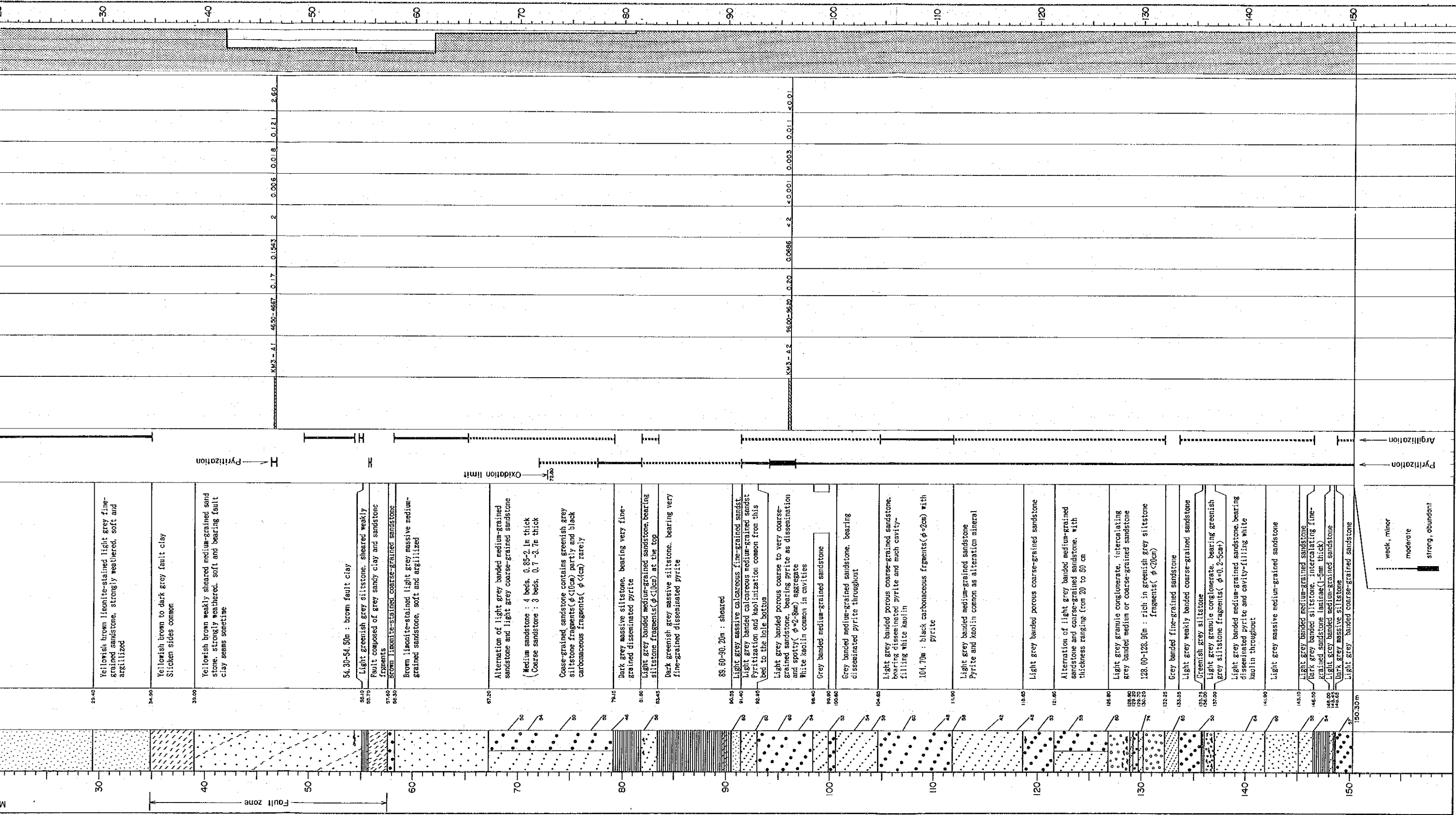
Oxidation limit

weak, minor

moderate

strong, abundant





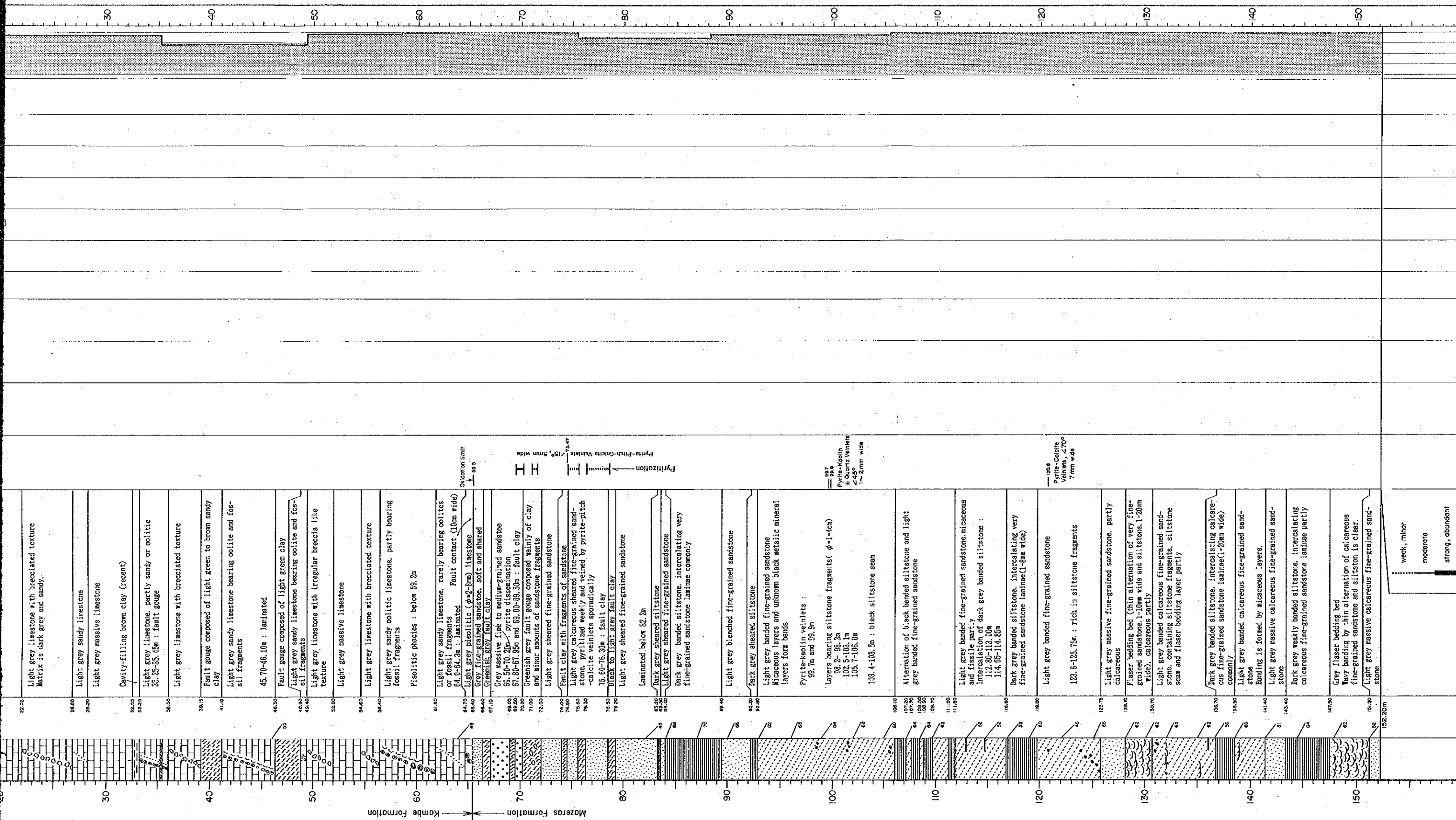
# MJKM-4

## Appendix 12 Geological Log of Diamond Drill Hole, MJKM-4

Location : Chieme Hill      Altitude : 140.5 m      Direction : N82°W      Angle : -50°      Depth : 152.20 m

SCALE (m)	GEOLOGIC COLUMN	DEPTH AND CORE ANGLE (°) (m)	DESCRIPTION	ALTERATION AND MINERALIZATION	POSITION OF CORE SAMPLES	ASSAY RESULTS						CORE RECOVERY (%)	SCALE (m)	
						Sample No.	Depth (m)	Width (m)	Au (g/t)	Ag (g/t)	Cu (%)			Pb (%)
0		2.00	Reddish brown sandy silt, containing fragments of hematitic sandstone and limestone Light grey limestone with brecciated texture, veined by carbonate veinlets irregularly											
10		10.40	Light grey massive sandy limestone, veined by carbonate veinlets irregularly 12.5-12.8m : brecciated texture Cavity-filling limonitized breccia (recent) Light grey massive limestone, veined by carbonate veinlets irregularly											
20		22.00	Light grey limestone with brecciated texture Matrix is dark grey and sandy.											
30		26.00	Light grey sandy limestone											
35		32.55	Cavity-filling brown clay (recent)											
40		35.25	Light grey limestone, partly sandy or oolitic 35.25-35.45m : fault gouge											
45		36.00	Light grey limestone with brecciated texture											
50		38.10	Fault gouge composed of light green to brown sandy clay											
55		41.10	Light grey sandy limestone bearing oolite and fossil fragments 45.70-46.10m : laminated											
60		46.30	Fault gouge composed of light green clay Light grey sandy limestone bearing oolite and fossil fragments											
65		48.40	Light grey limestone with irregular breccia like texture											
70		52.00	Light grey massive limestone											
75		54.40	Light grey limestone with brecciated texture											
80		56.40	Light grey sandy oolitic limestone, partly bearing fossil fragments Piscolitic facies : below 59.2m											
85		61.00	Light grey sandy limestone, rarely bearing oolites or fossil fragments 64.0-64.3m : laminated											
90		65.40	Light grey micritic ( $\phi=2-8m$ ) limestone Grey fine-grained sandstone, soft and shaly Greenish grey clay											
95		67.10	Grey massive fine to medium-grained sandstone 69.50-70.20m : pyrite dissemination 67.80-67.95m and 69.00-69.50m : fault clay Greenish grey fault gouge composed mainly of clay and minor amounts of sandstone fragments											
100		68.00	Light grey sheared fine-grained sandstone											
105		74.00	Fault clay with fragments of sandstone											
110		74.50	Light grey calcareous sheared fine-grained sandstone, pyritized weakly and veined by pyrite-pitch-calcite veinlets sporadically											
115		76.50	75.60-76.30m : fault clay											
120		76.50	Black to light grey fault clay											
125		76.50	Light grey sheared fine-grained sandstone											
130		82.20	Laminated below 82.2m											
135		82.20	Dark grey sheared siltstone											
140		82.20	Light grey sheared fine-grained sandstone											
145		82.20	Dark grey banded siltstone, intercalating very fine-grained sandstone laminae commonly											
150		89.40	Light grey bleached fine-grained sandstone											
155		92.20	Dark grey sheared siltstone											
160		92.20	Light grey banded fine-grained sandstone Mucous layers and unknown black detritic mineral layers form bands Pyrite-kaolin veinlets : 99.16 and 99.9m Layers bearing siltstone fragments ( $\phi=1-4cm$ ) 99.2-99.8m 102.5-103.1m 105.7-106.0m 103.4-103.5m : black siltstone seam											
165		106.10	Alteration of black banded siltstone and light grey banded fine-grained sandstone											
170		107.20	Light grey banded fine-grained sandstone, mucous and fissile partly											
175		107.20	Intercalation of dark grey banded siltstone : 112.80-113.00m 114.65-114.85m											
180		111.80	Dark grey banded siltstone, intercalating very fine-grained sandstone laminae (1-8mm wide)											
185		116.80	Light grey banded fine-grained sandstone											
190		118.00	Light grey banded fine-grained sandstone											
195		123.6-125.75m	rich in siltstone fragments											





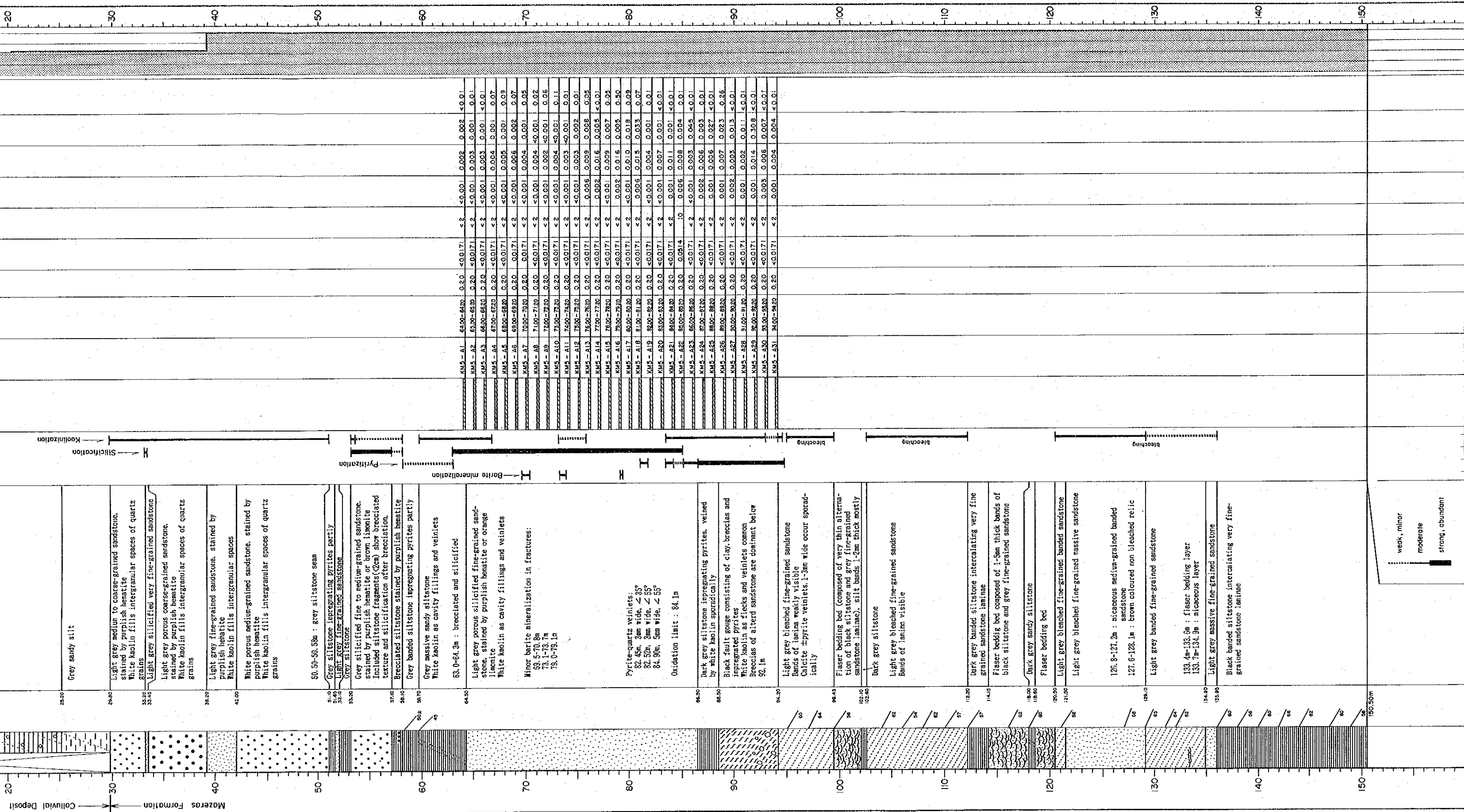
# MJKM-5

## Appendix 13 Geological Log of Diamond Drill Hole, MJKM-5

Location : Ribe      Altitude : 157.5 m      Direction : S75°W      Angle : -50°      Depth : 150.50 m

SCALE (m)	GEOLOGIC COLUMN	DEPTH AND CORE ANGLE (°)	DESCRIPTION	ALTERATION AND MINERALIZATION	POSITION OF EXAMINED CORE SAMPLES	ASSAY RESULTS							CORE RECOVERY SCALE (%)							
						Sample No.	Depth (m)	Width (m)	Au (g/t)	Ag (g/t)	Cu (%)	Pb (%)		Zn (%)	Ba (%)					
0			Reddish brown sandy clay, containing fragments of sandstone and silicified rock																	
10		8.00	White to yellowish brown kaolinitic clay																	
20		12.00	White to light brown kaolinitic clay, containing fragments of altered sandstone partly																	
30	Colluvial Deposit	28.20	Grey sandy silt																	
30	Mazeros Formation	33.80	Light grey medium to coarse-grained sandstone, stained by purplish hematite	Silicification																
30		33.80	White kaolin fills intergranular spaces of quartz grains																	
30		33.80	Light grey silicified very fine-grained sandstone																	
30		33.80	Light grey porous coarse-grained sandstone, stained by purplish hematite																	
40		40.20	White kaolin fills intergranular spaces of quartz grains																	
50		50.50-50.50a	White porous medium-grained sandstone, stained by purplish hematite																	
50		50.50	White kaolin fills intergranular spaces of quartz grains																	
50		51.0	Grey siltstone impregnating pyrites partly	Pyritization																
50		51.0	Dark grey fine-grained sandstone																	
50		51.0	Grey silicified fine to medium-grained sandstone, stained by purplish hematite or brown limonite. Included siltstone fragments (2cm) show brecciated texture and silicification after brecciation.																	
50		51.0	Brecciated siltstone stained by purplish hematite																	
50		51.0	Grey banded siltstone impregnating pyrites partly																	
50		51.0	Grey massive sandy siltstone																	
50		51.0	White kaolin as cavity fillings and veinlets																	
50		51.0	63.0-64.3m : brecciated and silicified																	
60		64.30	Light grey porous silicified fine-grained sandstone, stained by purplish hematite or orange limonite	Barite mineralization																
60		64.30	White kaolin as cavity fillings and veinlets																	
60		64.30	Minor barite mineralization in fractures: 82.5m, 3mm wide, < 25° 82.5m, 3mm wide, < 55° 84.5m, 3mm wide, < 55° 82.1m																	
70		82.10	Pyrite-quartz veinlets: 82.5m, 3mm wide, < 25° 82.5m, 3mm wide, < 55° 84.5m, 3mm wide, < 55° 82.1m																	
70		82.10	Oxidation limit : 84.1m																	
80		86.40	Dark grey siltstone impregnating pyrites, veined by white kaolin sporadically																	
80		86.40	Black fault gouge consisting of clay, breccias and impregnated pyrites																	
80		86.40	White kaolin as flecks and veinlets common																	
80		86.40	Breccias of altered sandstone are dominant below 82.1m																	
90		94.50	Light grey bleached fine-grained sandstone bands of lamina weakly visible	Bleaching																
90		94.50	Calcite + pyrite veinlets, 1-3mm wide occur sporadically																	
100		99.45	Fine bedded bed (composed of very thin alternation of black siltstone and grey fine-grained sandstone laminae), silt bands 1-2mm thick mostly																	
100		102.60	Dark grey siltstone																	
100		102.60	Light grey bleached fine-grained sandstone bands of lamina visible																	
110		112.20	Dark grey banded siltstone intercalating very fine grained sandstone laminae																	
110		114.15	Fine bedded bed composed of 1-5mm thick bands of black siltstone and grey fine-grained sandstone																	
120		118.00	Dark grey sandy siltstone																	
120		118.00	Fine bedded bed																	
120		120.50	Light grey bleached fine-grained banded sandstone																	
120		120.50	Light grey bleached fine-grained massive sandstone																	

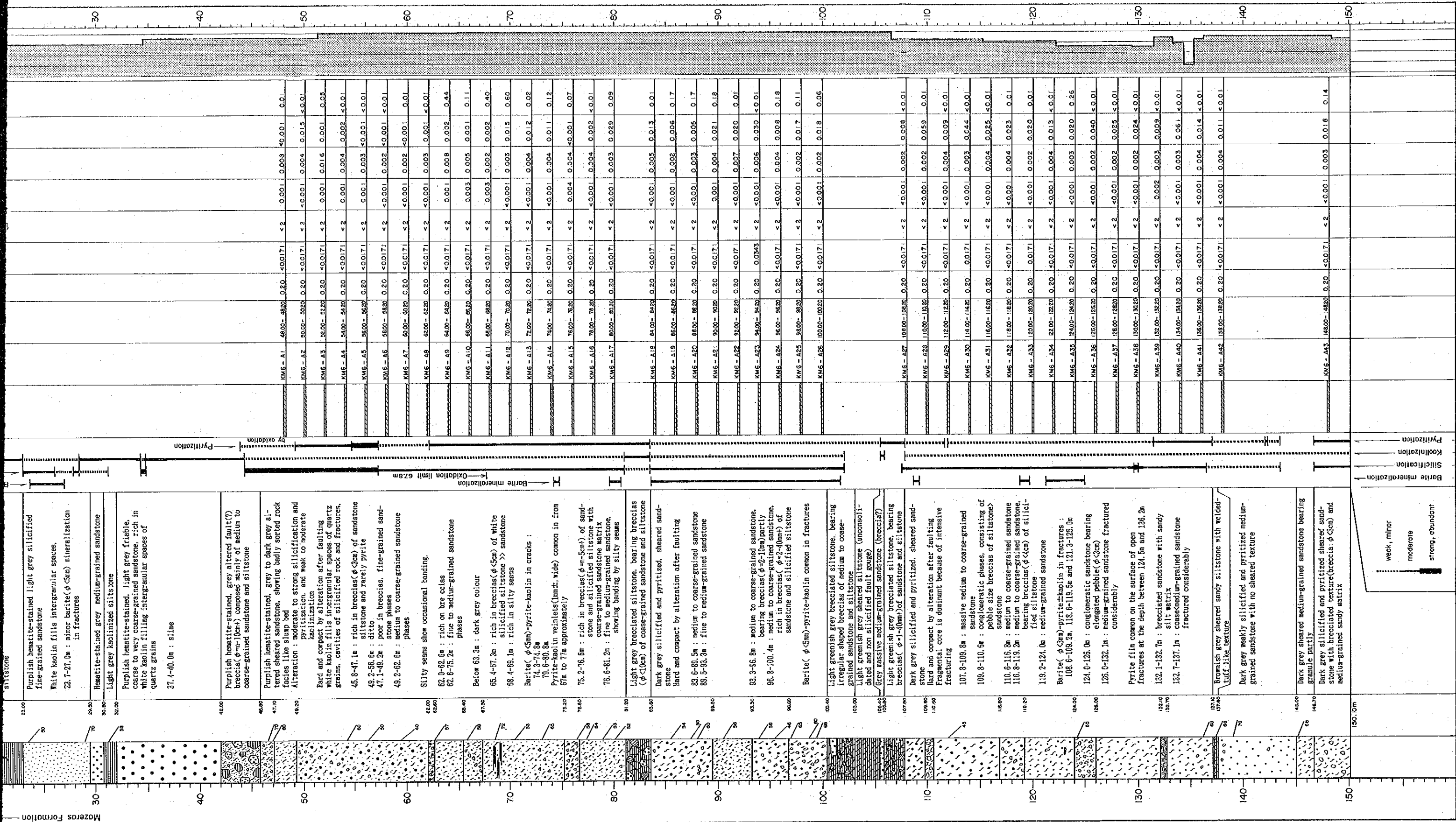
120.5-121.2m : micaceous staining-grained banded



weak, minor  
 moderate  
 strong, abundant







31.00 Purplish hematite-stained light grey silicified fine-grained sandstone  
 23.7-27.0m : minor barite( $\phi < 5\text{mm}$ ) mineralization in fractures

29.50 Hematite-stained grey medium-grained sandstone  
 30.00 Light grey kaolinized siltstone

32.50 Purplish hematite-stained, light grey friable, coarse to very coarse-grained sandstone, rich in white kaolin filling intergranular spaces of quartz grains  
 37.4-40.0m : silice

45.00 Purplish hematite-stained, grey altered fault(?) breccias( $\phi \approx 10\text{cm}$ ) composed mainly of medium to coarse-grained sandstone and siltstone

46.00 Purplish hematite-stained, grey to dark grey altered sheared sandstone, showing badly sorted rock facies like slump bed  
 Alteration : moderate to strong silicification and kaolinization  
 Hard and compact by alteration after faulting  
 white kaolin fills intergranular spaces of quartz grains, cavities of silicified rock and fractures,  
 45.8-47.1m : rich in breccias( $\phi < 3\text{cm}$ ) of sandstone siltstone and rarely pyrite  
 49.2-56.6m : ditto  
 47.1-49.2m : poor in breccias, fine-grained sandstone phases  
 49.2-62.6m : medium to coarse-grained sandstone phases  
 Silty seams show occasional banding.  
 62.0-62.6m : rich on breccias  
 62.6-75.2m : fine to medium-grained sandstone phases  
 Below 63.3m : dark grey colour  
 65.4-67.3m : rich in breccias( $\phi < 5\text{cm}$ ) of white silicified siltstone >> sandstone  
 68.4-69.1m : rich in silty seams  
 Barite( $\phi < 5\text{mm}$ )-pyrite-kaolin in crevices :  
 74.9-74.8m  
 70.6-80.8m  
 Pyrite-kaolin veinlets(1mm±, wide) common in from 5m to 7m approximately

75.2-76.6m : rich in breccias( $\phi \approx 5\text{cm}$ ) of sandstone and silicified siltstone with coarse-grained sandstone matrix showing banding by silty seams

76.6-81.2m : fine to medium-grained sandstone, showing banding by silty seams

81.00 Light grey brecciated siltstone, bearing breccias( $\phi < 10\text{cm}$ ) of coarse-grained sandstone and siltstone

Dark grey silicified and pyritized, sheared sandstone  
 Hard and compact by alteration after faulting

83.6-85.5m : medium to coarse-grained sandstone, bearing breccias( $\phi < 2-10\text{mm}$ ) partly rich in coarse-grained sandstone,  
 85.5-93.3m : fine to medium-grained sandstone

83.3-95.8m : medium to coarse-grained sandstone, bearing breccias( $\phi < 2-10\text{mm}$ ) partly rich in coarse-grained sandstone,  
 95.8-100.4m : medium to coarse-grained sandstone, rich in breccias( $\phi < 2-40\text{mm}$ ) of sandstone and silicified siltstone

Barite( $\phi < 5\text{mm}$ )-pyrite-kaolin common in fractures

107.8-109.8m : massive medium to coarse-grained sandstone  
 109.8-110.6m : conglomeratic phases, consisting of pebble size breccias of siltstone >> sandstone  
 110.6-116.8m : medium to coarse-grained sandstone  
 116.8-119.2m : medium to coarse-grained sandstone, bearing breccias( $\phi < 4\text{cm}$ ) of silicified siltstone  
 119.2-124.0m : medium-grained sandstone

Barite( $\phi < 5\text{mm}$ )-pyrite-kaolin in fractures :  
 108.6-109.2m, 118.6-119.5m and 121.3-125.0m  
 124.0-126.0m : conglomeratic sandstone bearing elongated pebbles( $\phi < 3\text{cm}$ )  
 126.0-132.1m : medium-grained sandstone fractured considerably

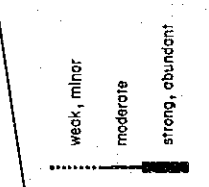
Pyrite film common on the surface of open fractures at the depth between 124.5m and 136.2m

132.1-132.7m : brecciated sandstone with sandy silt matrix  
 132.7-137.1m : coarse-medium-grained sandstone fractured considerably

137.1-137.6m : brownish grey sheared sandy siltstone with welded tuff-like texture

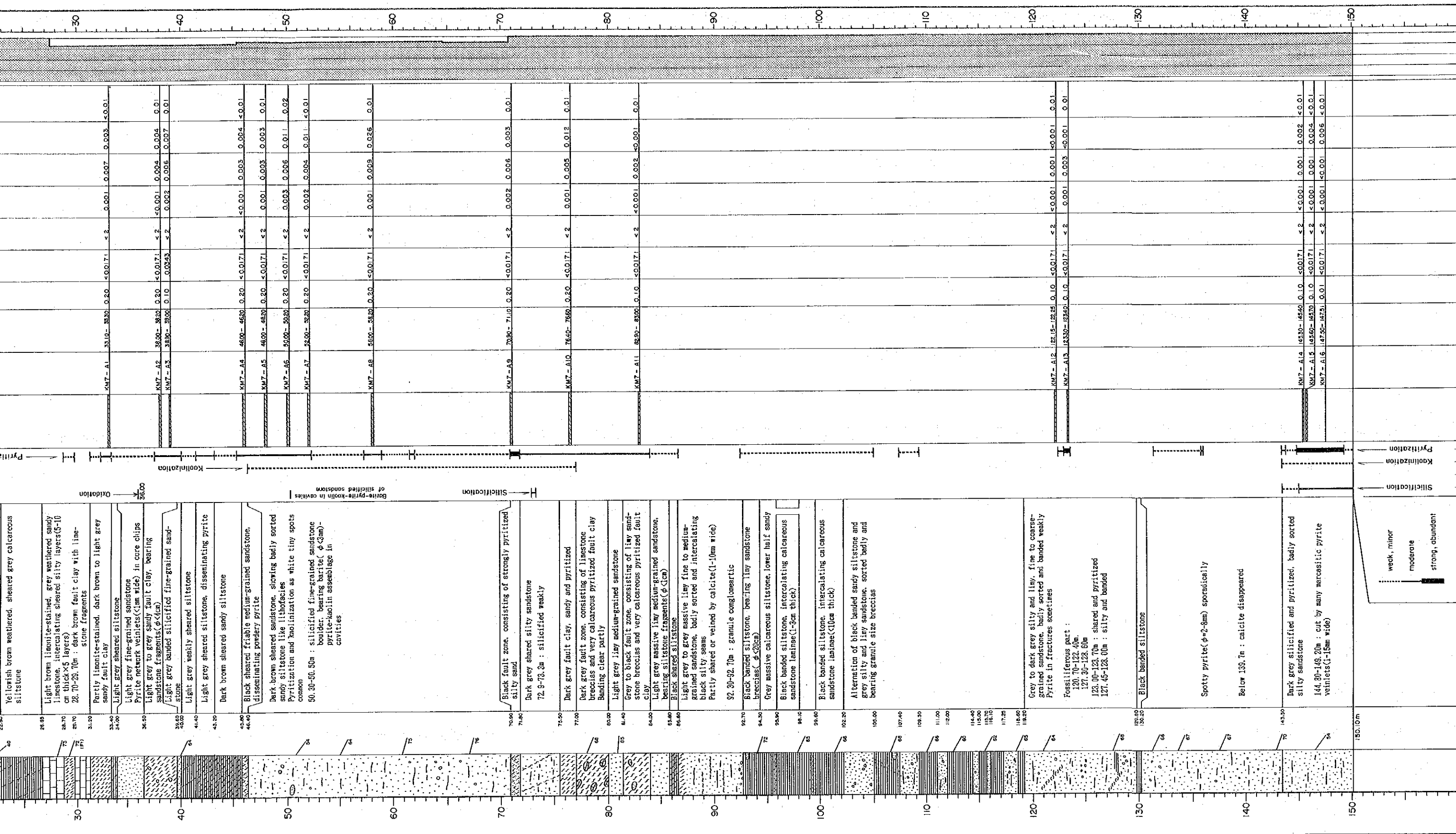
Dark grey weakly silicified and pyritized medium-grained sandstone with no sheared texture

145.00 Dark grey sheared medium-grained sandstone bearing granule partly  
 144.70 Dark grey silicified and pyritized sheared sandstone with brecciated texture(breccias:  $\phi < 3\text{cm}$ ) and medium-grained sandy matrix



Barite mineralization  
 Silicification  
 Kaolinization  
 Pyritization





# MJKM-8

## Appendix 16 Geological Log of Diamond Drill Hole, MJKM-8

Location : M'kangombe North Altitude : 218.0m Direction : N63°W Angle : -65° Depth : 100.65m

SCALE (m)	GEOLOGIC COLUMN	DEPTH AND CORE ANGLE (°) (m)	DESCRIPTION	ALTERATION AND MINERALIZATION	POSITION OF EXAMINED CORE SAMPLES	ASSAY RESULTS						CORE RECOVERY (%)		
						Sample No.	Depth (m)	Width (m)	Au (g/t)	Ag (g/t)	Cu (%)		Pb (%)	Zn (%)
0	Moff-ya-Chumvi Formation	0												
0-2.00		2.00	Pale brown sandy silt. bearing fragments of weathered mudstone											
2.00-3.50		3.50	Dark olive weathered mudstone											
3.50-6.00		6.00	Dark grey fresh banded mudstone, easy to be broken along joint or laminae planes. Very thin calcite veinlets (<1mm wide) common	Oxidation										
29.55-35.2m			relatively poor calcite veinlets											
33.7-34.8m			relatively massive											
40-45			stable rock facies											
50-55			intercalating light grey very fine-grained sandstone laminae (0.5-5cm thick)											
54.80-54.83m			fault breccia											
60.15-63.30m			sheared											
63.30-67.20m			sheared strongly											
67.20-68.85m			Dark brown massive sphalerite vein, bearing little quartz pyrite and mudstone fragments (<10% volume), width about 2/cm	Quartz veinlets (w 5mm) Sphalerite vein Pyrite veinlets zone (w 1-5mm)										
68.85-74.40m			Dark grey banded sandy mudstone, intercalating very fine-grained sandstone laminae (0.1-2cm thick) commonly. Calcite veinlets (0.1-3cm wide) common											
74.40-74.50m			sheared											
74.50-74.90m			brecciation + calcite network veins											
74.90-81.60m			sphalerite-calcite vein, accompanying by very little pyrite and chalcopyrite, 2.5cm wide, sphalerite (φ=1-10mm) × 10 grains											
81.60-82.10m			rich in calcite veinlets											
82.10-83.00m			brecciation + calcite network veins											
83.00-84.70m			Grey banded very fine to fine-grained sandstone, intercalating black thin siltstone laminae											
84.70-bottom			poor in calcite veinlets											
100		100.65m												

weak, minor  
moderate  
strong, abundant

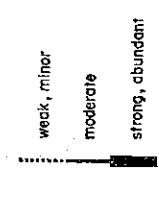
# MJKM-9

## Appendix 17 Geological Log of Diamond Drill Hole, MJKM-9

Location : Mkarombé North Altitude : 214.0m Direction : N63°W Angle : -65° Depth : 100.50m

SCALE (m)	GEOLOGIC COLUMN	DEPTH AND CORE ANGLE (°) (m)	DESCRIPTION	ALTERATION AND MINERALIZATION	POSITION OF CORE SAMPLES	ASSAY RESULTS						CORE RECOVERY (%)	
						Sample No.	Depth (m)	Width (m)	Au (g/t)	Ag (g/t)	Cu (%)		Pb (%)
0	Maji-ya-Chumvi Formation	0.00	Pale brown sandy silt, bearing fragments of weathered mudstone	Oxidation									
5.33		5.33	Dark olive weathered mudstone										
10		10	Dark grey fresh banded mudstone Very thin calcite veinlets (<1mm wide) common in joint planes										
15		15	Light grey calcareous fine-grained sandstone seams (0.5-10cm thick) intercalated sporadically										
20		20											
25		25	25.30-26.60m : relatively massive 28.50-29.00m : ditto										
30		30	33.80-34.00m : weakly brecciated and veined by calcite network veinlets										
35		35											
40		40	Calcite veinlets (1-2mm wide) and network veinlets (<1mm wide) common										
45		45	Below 43.70m : weak brecciation and network veining of calcite common										
50		50	48.30-49.70m : veined by networked calcite, 1-15mm wide										
55		55	49.00-50.40m : intercalating green calcareous fine-grained sandstone seams (1-11cm thick)										
60		60	50.40-50.55m : fault, mostly filled by thick calcite vein										
65		65	54.50-59.80m : brecciated and veined by quartz and calcite network veinlets (<1mm wide)										
70		70	Strongly sheared and brecciated mudstone, hosting ore veins, silicification common (Chalcopyrite)-sphalerite-quartz vein, 16cm wide (Chalcopyrite)-quartz vein, 21cm wide	Chalcopyrite-sphalerite-quartz vein Chalcopyrite-quartz vein Pyrite veinlets zone (1mm ± wide)									
75		75	Dark grey banded sandy mudstone, intercalating very fine-grained sandstone laminae (0.1-1cm thick)										
80		80	63.00-66.20m : brecciated partly										
85		85	Gradual change										
90		90	Grey thinly banded very fine to fine-grained sandstone, intercalating many black thin mud laminae faggy or fissile along laminae planes in parts										
95		95	Calcite veinlets (<1mm wide) poor										
100		100	Below 85.00m : calcite veinlets rare										

Sample No.	Depth (m)	Width (m)	Au (g/t)	Ag (g/t)	Cu (%)	Pb (%)	Zn (%)	Ba (%)
KM9-A1	52.51-50.62	0.11	<0.0171	<2	0.034	0.002	0.090	<0.01
KM9-A2	50.62-50.69	0.07	<0.0171	<2	0.024	0.002	11.60	<0.01
KM9-A3	50.69-50.71	0.02	<0.0171	8	0.043	0.004	40.3	<0.01
KM9-A4	50.85-50.90	0.10	<0.0171	<2	0.003	0.001	0.300	0.01
KM9-A5	61.39-61.82	0.13	<0.0171	<2	0.330	0.001	0.220	0.01
KM9-A5	61.52-61.65	0.13	<0.0171	<2	0.072	0.002	0.800	0.01





# Appendix. 18 Progress of Dilling Survey

	Sep.	Oct.	Nov.	Dec.	Jan. 1993	Feb.
	25	5 10 15 20 25	5 10 15 20 25	5 10 15 20 25	5 10 15 20 25	5 10 15 20 25
Moving	22-29					
Preparation	30-17					
MJKM-1					8-25	
MJKM-2				2-22		
MJKM-3					7	
MJKM-4		22-1				
MJKM-5		8-22				
MJKM-6				28-2		
MJKM-7					8-25	
MJKM-8				14-6		
MJKM-9					7-17	
Arrangement					18-4	
Moving						5-11

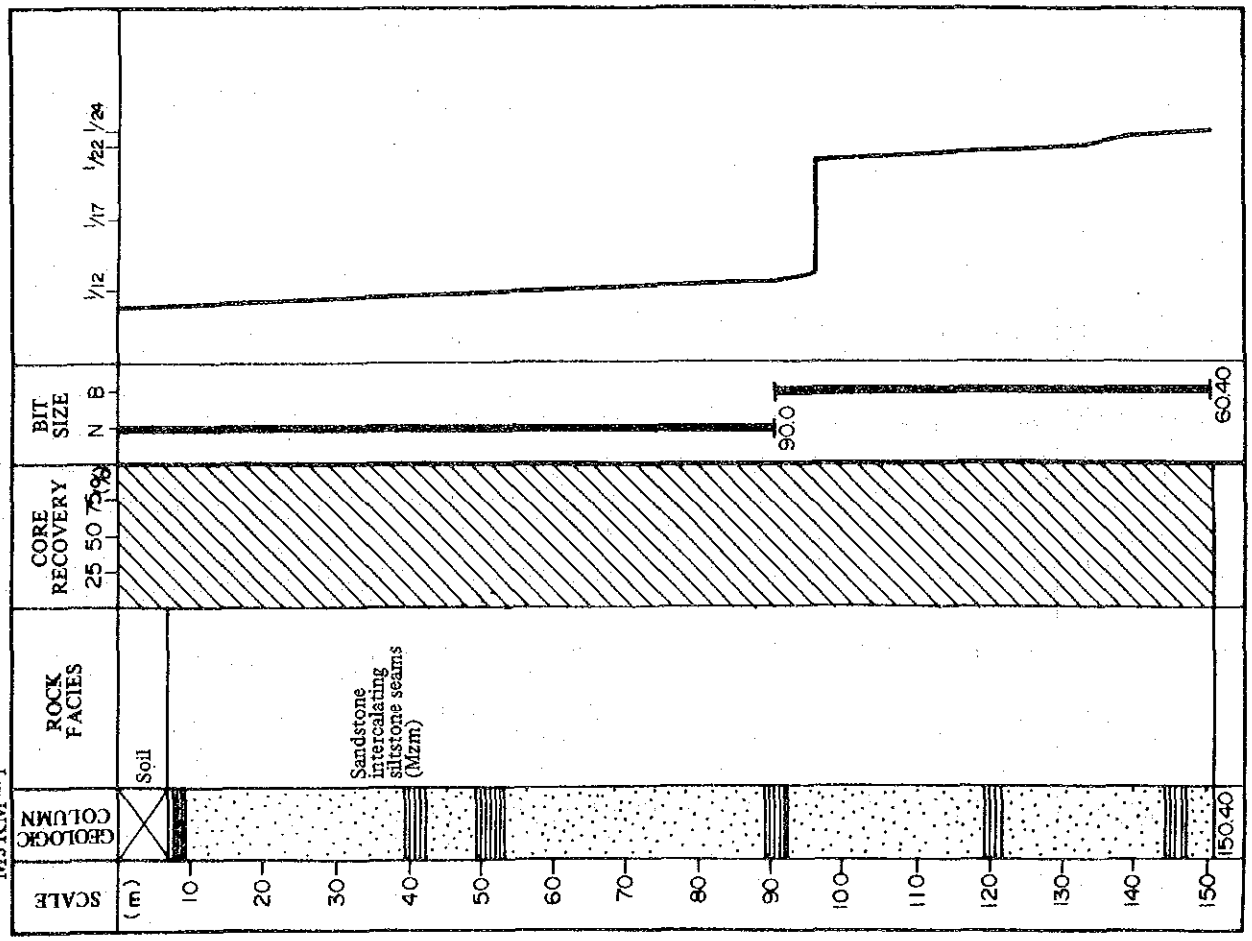
APPENDIX 19 SUMMARY OF DRILLING RESULTS

Items	Drilling hole No.										Mobilization & Demobilization	Total
	MJKM-1	MJKM-2	MJKM-3	MJKM-4	MJKM-5	MJKM-6	MJKM-7	MJKM-8	MJKM-9			
<b>Drilling Data</b>												
Drilling length (m)	150.40	150.70	150.30	152.20	150.50	150.10	150.10	150.10	100.60	100.65	1255.55	
Core length (m)	150.40	148.40	136.90	144.20	136.00	135.60	144.10	100.40	100.60	1191.60		
Core recovery (%)	100.00	95.20	91.10	95.80	30.30	90.30	96.00	99.80	100.00	94.9		
Depth by N Q size (m)	90.00	93.00	69.10	58.40	5.00	89.70	75.80	69.70	66.60	617.30		
do. B Q size (m)	60.40	57.70	31.20	33.80	145.50	60.40	74.30	30.95	34.00	633.25		
Casing pipe NW (m)	3.70	29.20	37.10	7.30	36.00	13.00	27.00	1.50	1.50	166.30		
do. BW (m)	88.80	92.90	69.10	135.00	78.20	97.00	75.80	69.00	69.00	774.70		
Drilling machine	THS-5	THS-5	THS-5	THS-5	THS-5, L-38	L-38	L-38	YBM-3ES	YBM-3ES			
Working Period d e	1.8-1.25	12.2-12.22	12.23-1.7	10.22-12.1	10.8-11.22	11.23-1.2	1.3-1.25	12.14-1.6	1.7-1.17	3.32-5.1		
Actual Working (d)	18	21	16	41	46	41	23	24	11	33		
No Working (d)	0	0	0	0	0	0	0	0	0	0		
Total (d)	18	21	16	41	46	41	23	24	11	33		
Mounting (d)	3	5	2	10	2	1	2	4	0	0		
Drilling (d) (shifts)	8(14)	10(18)	10(16)	15(25)	13(21)	20(33)	13(23)	15(15)	11(11)	115(176)		
Dismounting (d)	1	1	2	2	1	3	1	1	0	12		
Others (d)	6	6	2	14	30	17	7	4	0	86		
Total (d)	18	21	16	41	46	41	23	24	11	241		
<b>Working Period</b>												
Drilling period (m/d)	8.36	7.18	9.40	3.72	3.30	3.66	6.53	4.20	9.15	5.21		
Drilling labor (m/d)	8.36	7.18	15.03	10.20	11.60	7.51	11.55	6.70	9.15	10.92		
Drilling shifts (m/s)	10.74	8.37	9.40	6.10	7.20	4.55	6.53	6.70	9.15	7.13		
Drilling (h)	90	94	96	116	102	155	130	89	87	959		
Mounting & dismounting etc. (h)	21	165	39	72	126	132	54	39	32	681		
Repairing (h)	58	13	18	44	66	168	67	0	0	523		
Sub total (h)	169	272	153	232	284	456	251	128	119	2163		
Mounting (h)	27	47	18	90	18	9	18	36	0	327		
Dismounting (h)	9	9	18	18	9	27	9	9	0	138		
Others (h)	1	63	18	29	133	30	36	18	0	448		
Total (h)	206	391	207	369	459	522	314	191	119	3071		
Drilling length (m/h)	1.67	1.60	1.57	1.31	1.48	0.97	1.15	0.53	1.16	1.31		
Driller	34	42	32	90	128	82	46	24	17	130		
Counterport driller	40	44	43	90	92	82	38	48	34	581		
Labor	40	42	46	90	92	84	88	46	22	799		
Pump operator	54	63	48	123	138	174	108	24	11	883		
Cardman	54	63	48	123	138	174	108	72	33	933		
Labor for construction	118	136	103	120	77	49	22	27	3	925		
Total	340	390	320	636	665	645	460	241	120	4776		
Drilling length (m/h)	2.26	2.59	2.13	4.17	4.42	4.30	3.08	2.40	1.19	3.80		

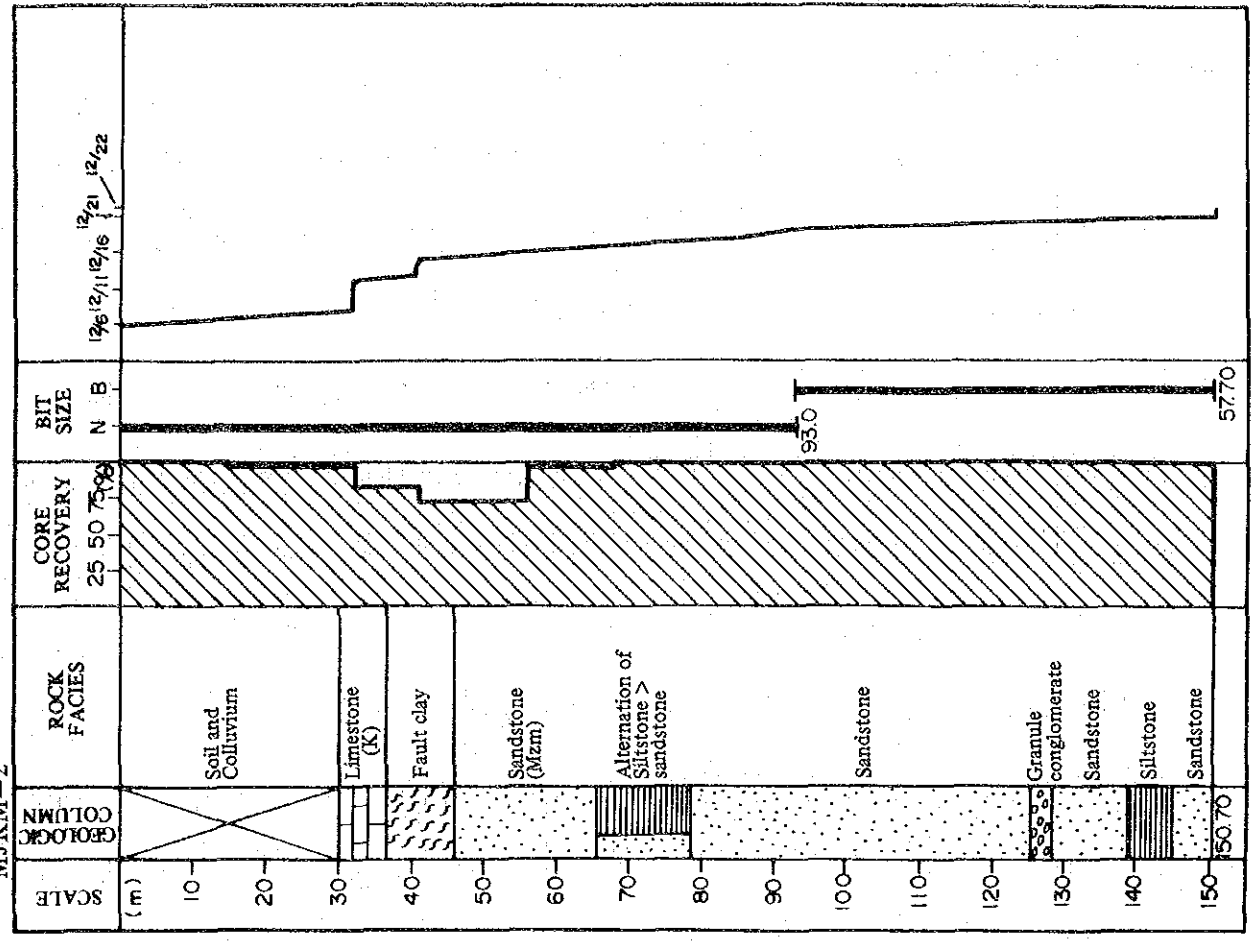


APPENDIX 20 DRILLING PROGRESS BY HOLE (1)

MJKM-1

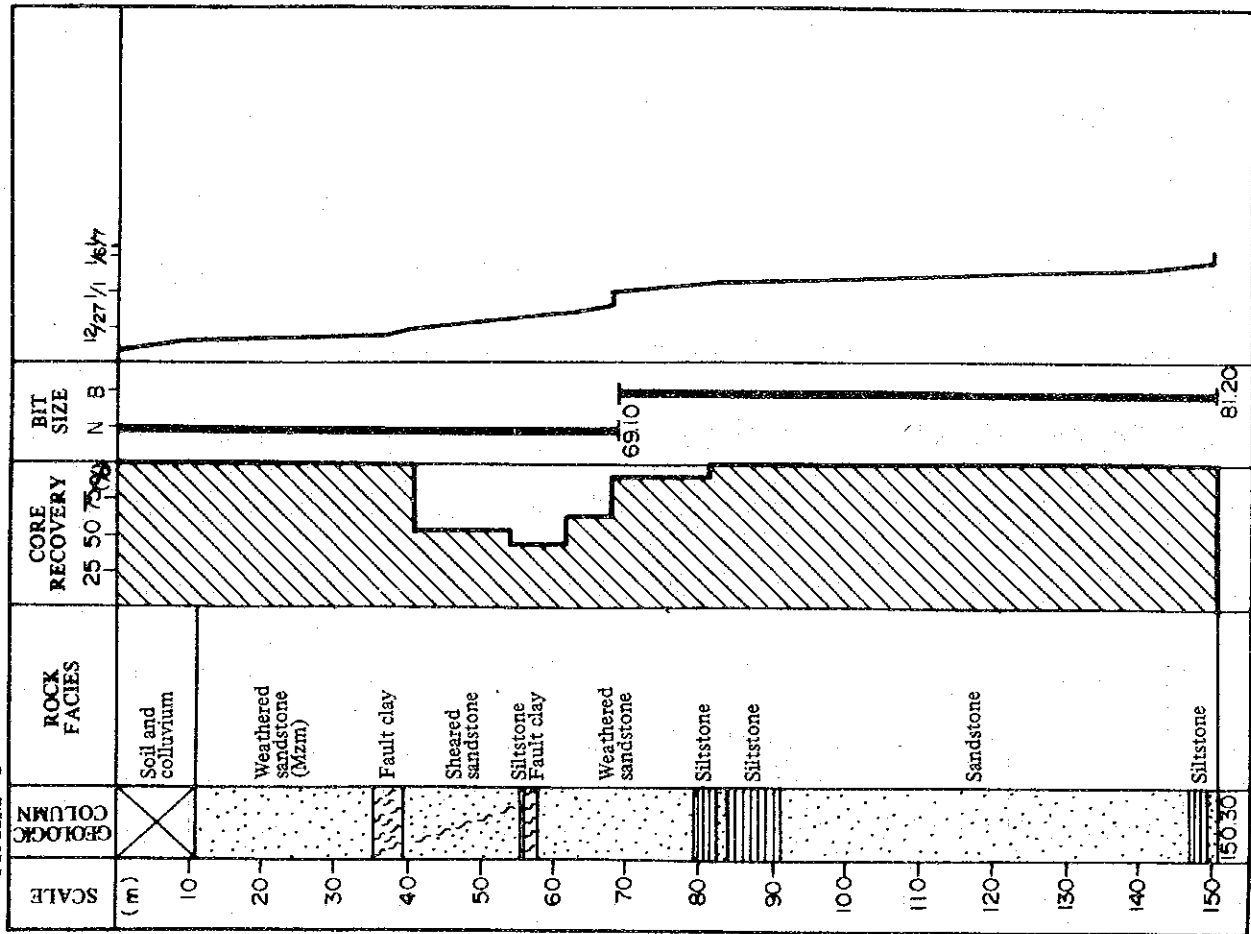


MJKM-2

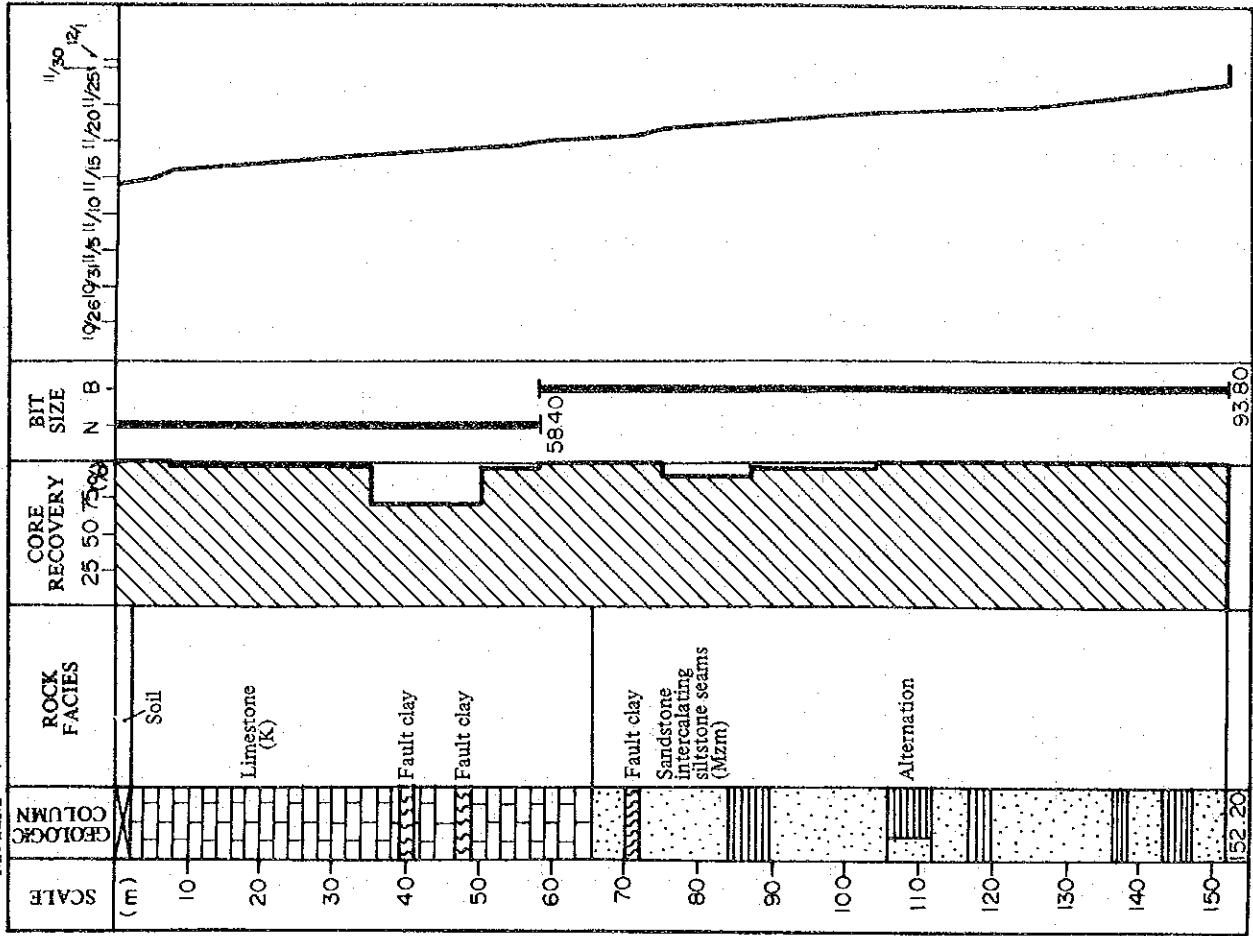


# APPENDIX 20 DRILLING PROGRESS BY HOLE (2)

MJKM-3

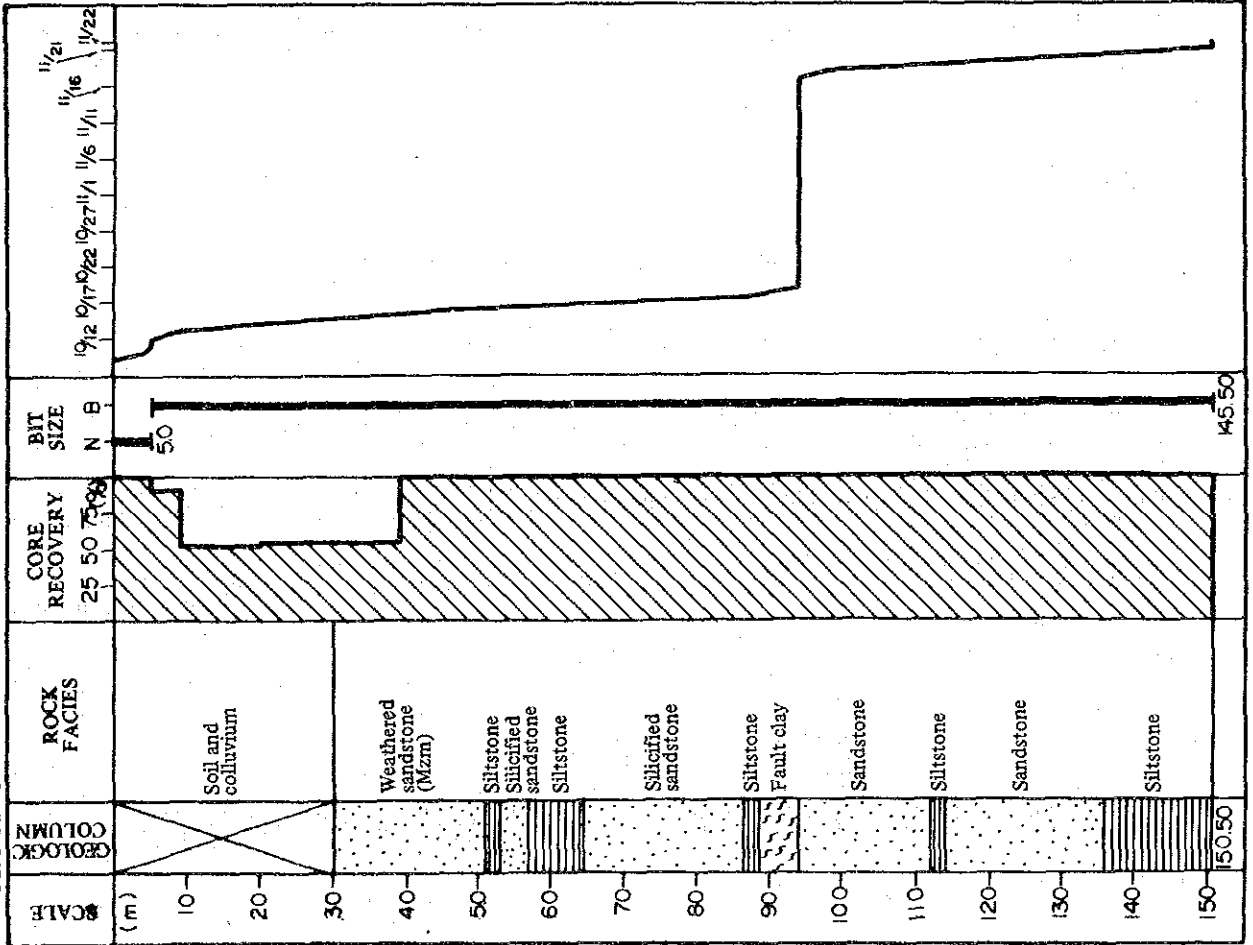


MJKM-4

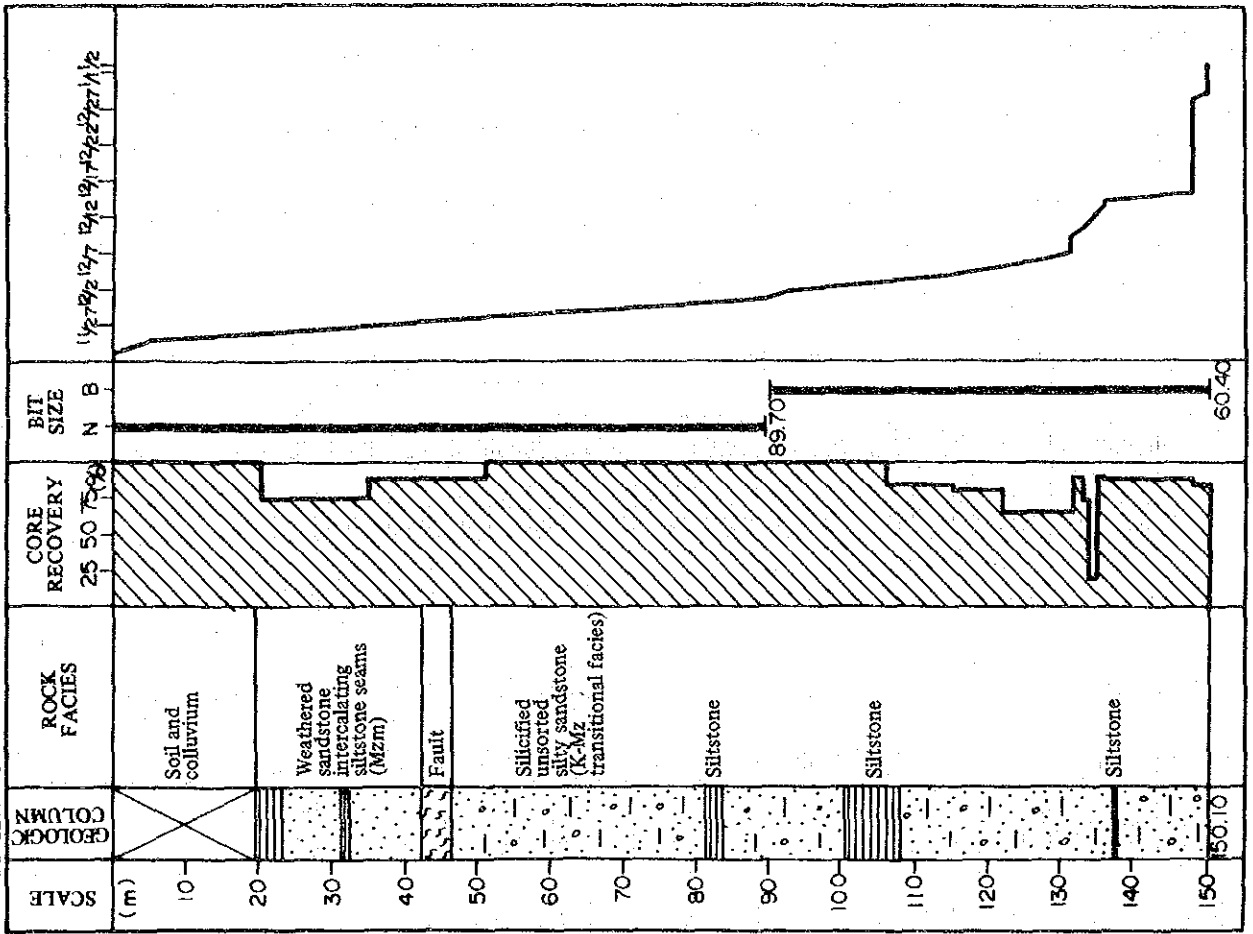


APPENDIX 20 DRILLING PROGRESS BY HOLE (3)

MJKM-5

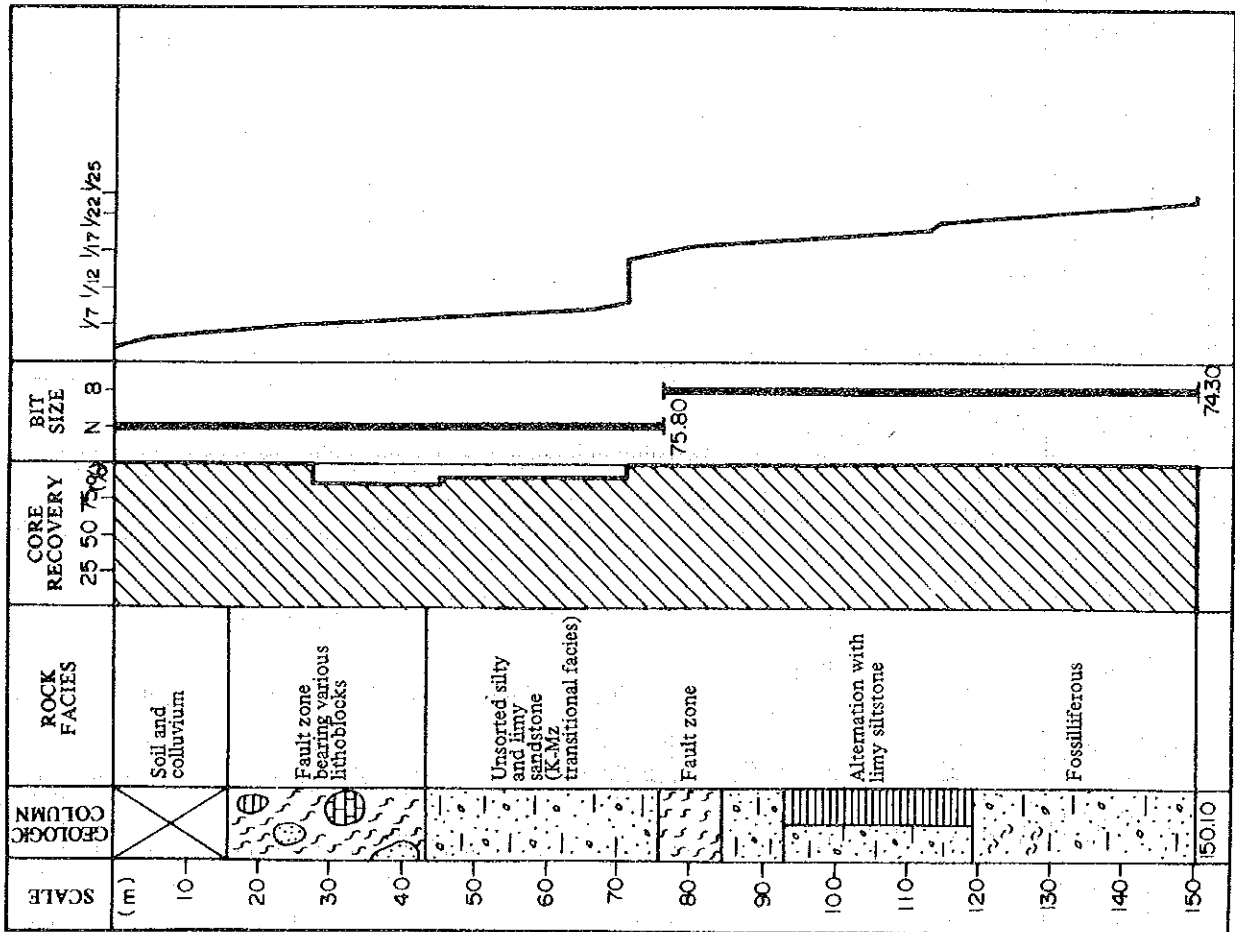


MJKM-6

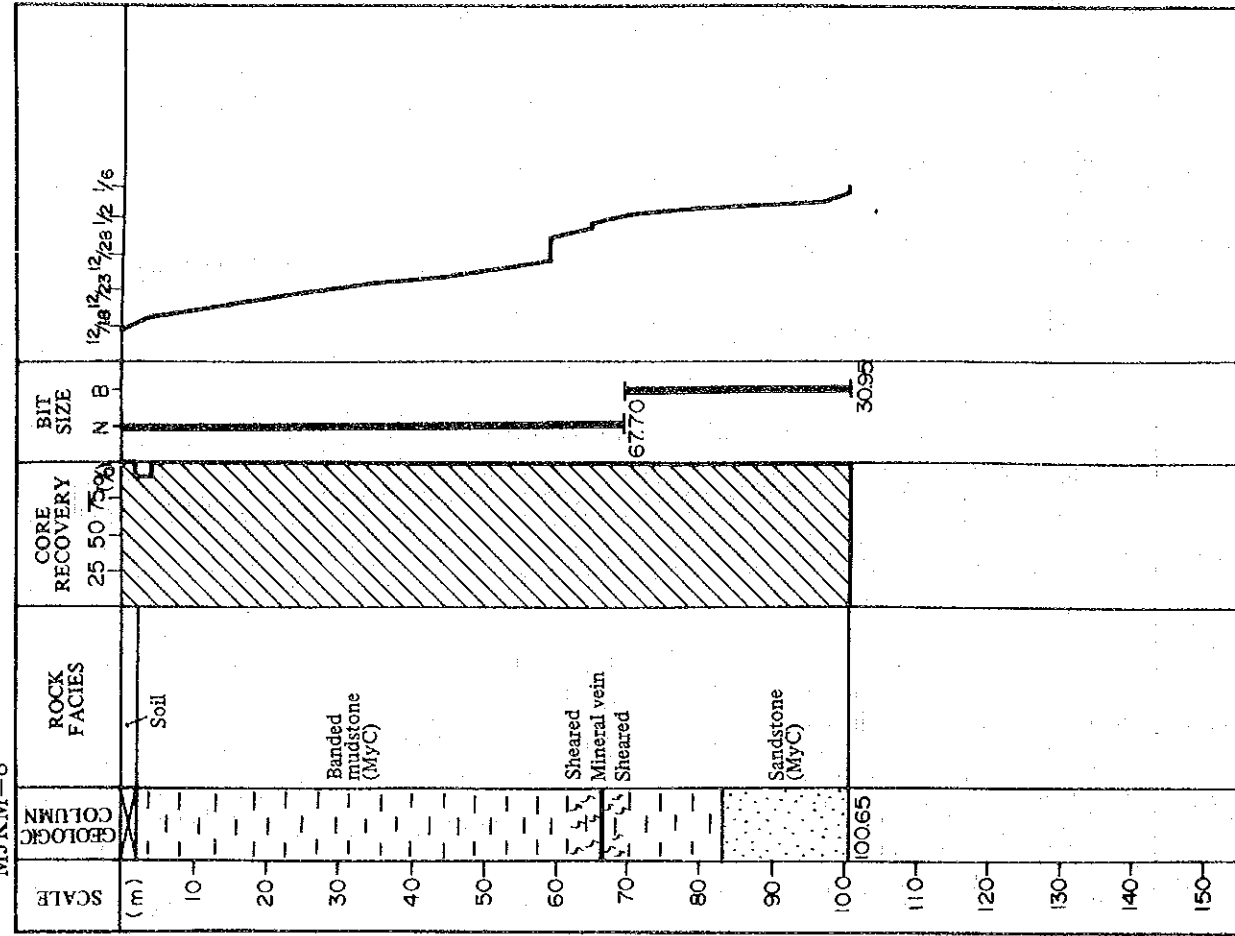


APPENDIX 20 DRILLING PROGRESS BY HOLE (4)

MJKM-7

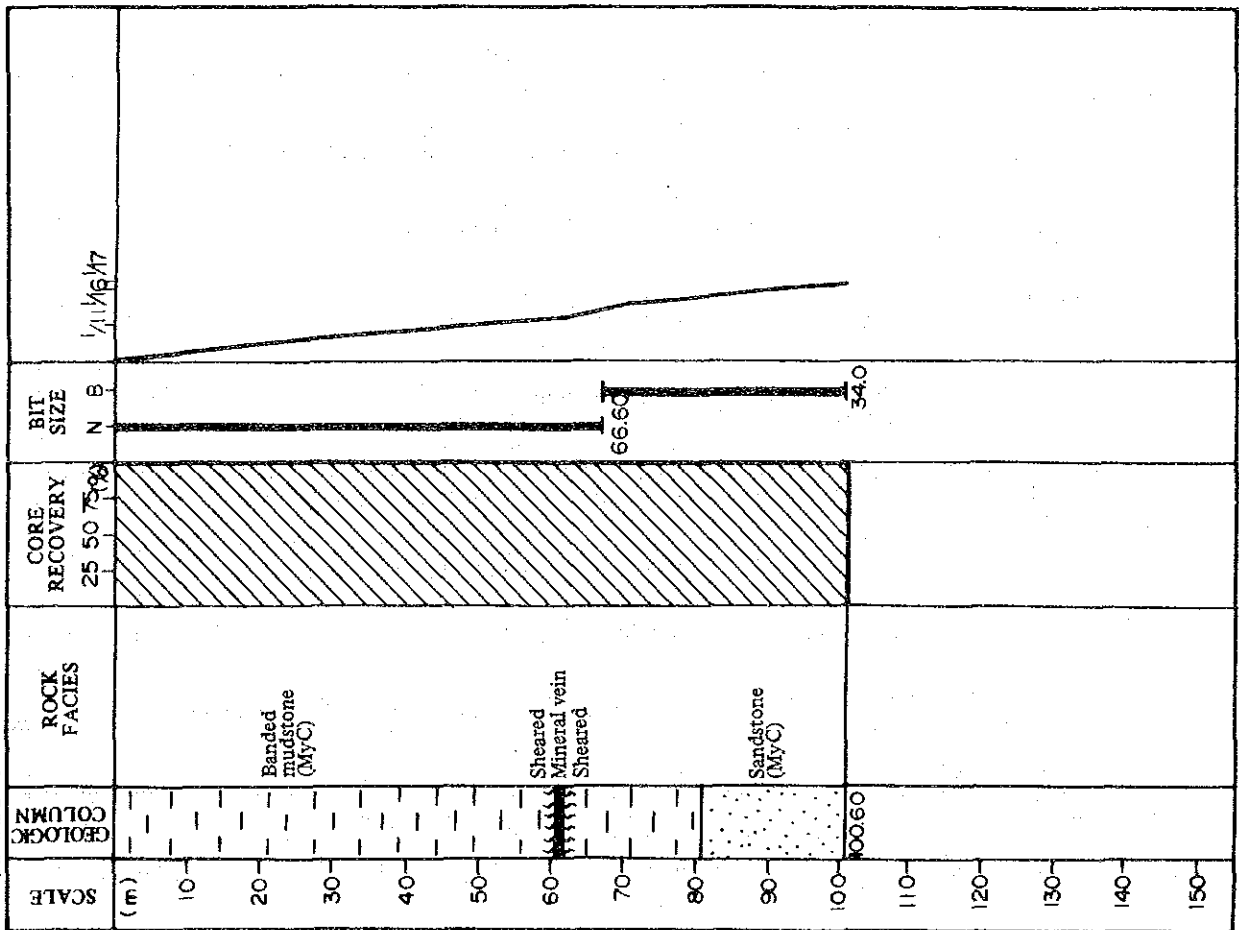


MJKM-8



APPENDIX 20 DRILLING PROGRESS BY HOLE (5)

MJKM-9



**Appendix 21 Drilling Equipments**

Article	Model	Specification	Quantity
Drilling machine		Capacity: BQWL 725m Inner diameter of spindle: 98.4mm Spindle speed : 172, 357, 653, 1105r.p.m Weight: 1200kg	1 set
Motor	F4L912 (MITSUI-DEUTZ)	Diesel engine: Revolution: 3,600r.p.m Related power: 59.6ps	
Drilling machine	THS-5 (TONE BORING)	Capacity: BQWL 290m Inner diameter of spindle: 80mm Spindle speed : 125, 250, 500r.p.m Weight: 950kg	1 set
Motor	F2L912 (MITSUI-DEUTZ)	Diesel engine: Revolution: 2,500r.p.m Related power: 30ps	1 set
Drilling pump	YBM-3ES (YOSHIDA BORING)	Capacity: BQWL 240m Inner diameter of spindle: 93mm Spindle speed : 125, 250, 500, 750r.p.m Weight: 650kg	1 set
Motor	NF-110EK (YANMAR DIESEL)	Diesel engine: Revolution: 2,400r.p.m Related power: 11ps	1 set
Drilling pump	NAS-3B (TONE BORING)	Type: 2 piston Capacity(max): 130/min Pressure(max): 26kg/cm <sup>2</sup>	1 set
Motor	NS-90C (YANMAR DIESEL)	Diesel engine: Revolution: 2,400r.p.m Related power: 9ps	1 set
Drilling pump	NES-100 (TONE BORING)	Type: 2 piston Capacity(max): 100/min Pressure(max): 30kg/cm <sup>2</sup>	1 set
Motor	NF-90K (YANMAR DIESEL)	Diesel engine: Revolution: 2,400r.p.m Related power: 9ps	1 set
Water supply pump	MS-703 (DELTA ALAT)	Type: 2 piston Capacity(max): 80/min Pressure(max): 40kg/cm <sup>2</sup>	1 set
Motor	E-70N (KUBOTA)	Diesel engine: Revolution: 3 000r.p.m Related power: 7ps	1 set
Wire line hoist	For THS	Attached to drilling machine 300m	1 set
Derrick	DRP-6	Pipe structural derrick 6.0m	2 sets
Generator	EB1500X (HONDA)	Gasoline engine : 1.5kVA	2 sets
Drill rod	Wire line rod	NQWL x 3m BQWL x 3m	150 pcs 200 pcs
Water tank		2m <sup>3</sup>	6 sets
Water supply pipe		25mm polyvinyl pipes	1800 m

Appendix 22 Amount of Consumed Materials and Diamond Bits

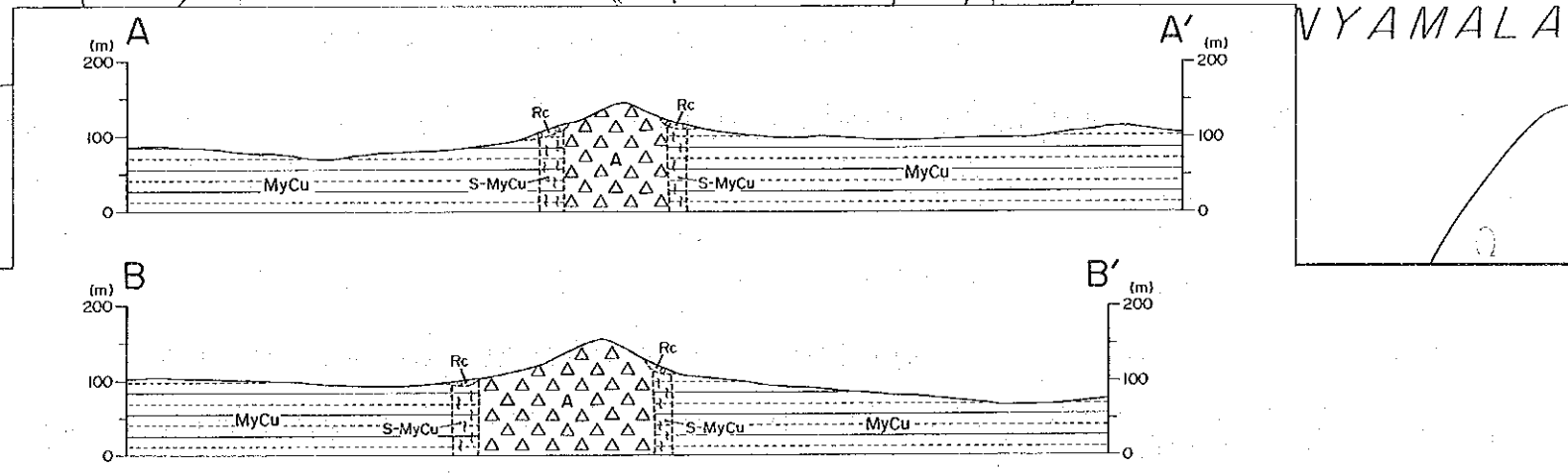
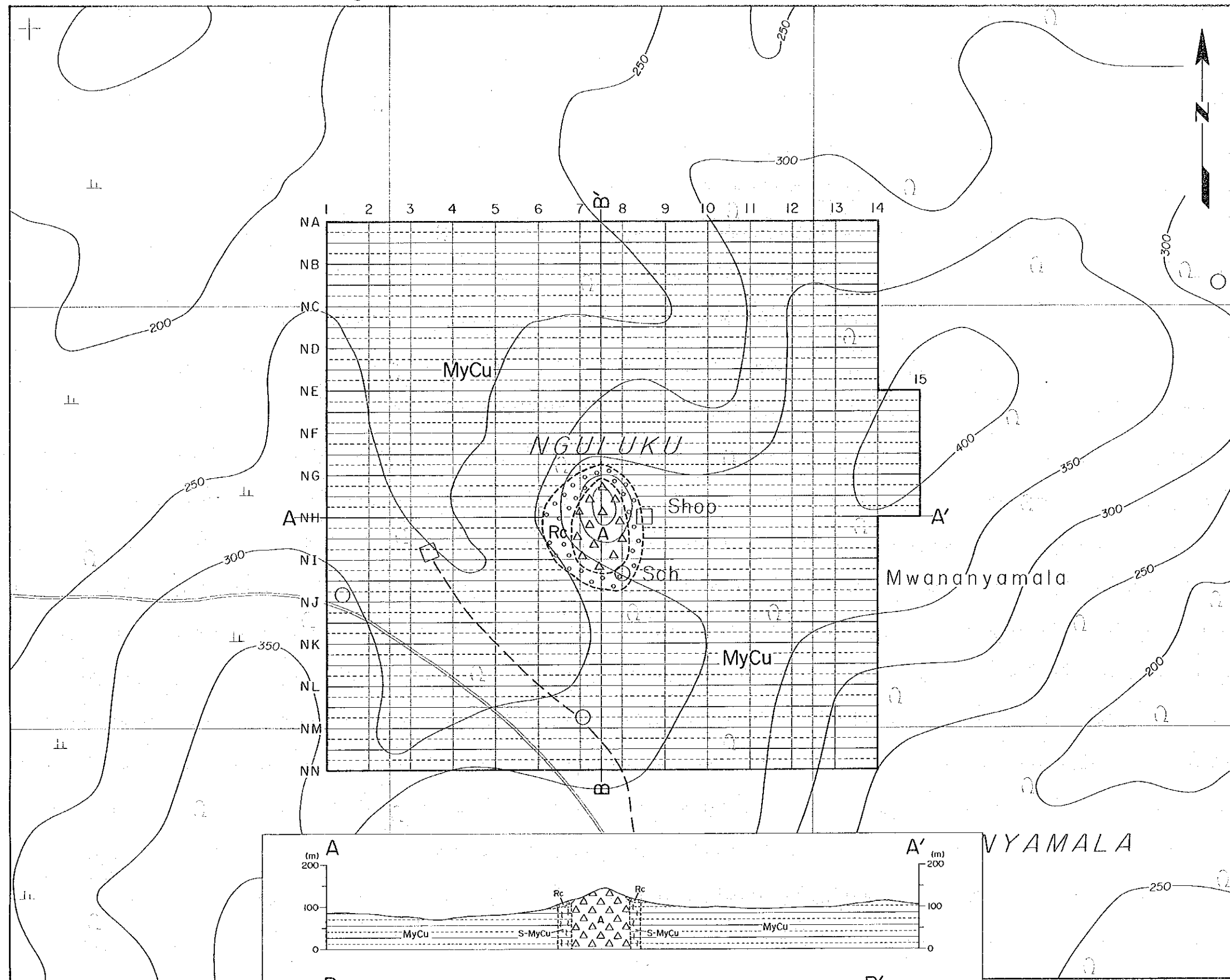
Article	Unit	MJKM-1	MJKM-2	MJKM-3	MJKM-4	MJKM-5	MJKM-6	MJKM-7	MJKM-8	MJKM-9	Total
Diamond bit(NQ)	pcs	2	3	2	1	1	5	4	3	2	23
do. (BQ)	pcs	2	2	2	2	2	9	2	2	1	24
Diamond reaming shell (NQ)	pcs	2	2	2	1	1	2	3	2	1	16
do. (BQ)	pcs	2	1	2	3	2	4	1	1	1	17
Metal crown(NW)	pcs								1	1	2
Core lifter(NQ)	pcs	6	6	4	2	4	6	1	2	2	44
do. (BQ)	pcs	4	2	3	4	2	12	12	2	2	35
Core lifter case (NQ)	pcs	4	4	2	2	2	2	2	2	2	22
do. (BQ)	pcs	4	2	2	2	2	2	2	2	2	20
Core Box(NQ)	pcs	22	21	19	21	19	19	20	15	14	170
Cutting Oil (Detergent powder)	Dz	60	100	85	135	45	160	95	110	47	837
Diesel	Dz	160	280	200	240	260	900	550	340	200	3130
Gasoline	Dz	70	100	60	80	100	500	220	60	40	1230
Engine Oil	Dz	5	5	2	2	6	15	10	4	5	54
Grease	kg	6	3	10	8	5	10	7	5	6	60







# Nguluku Hill Sub-area

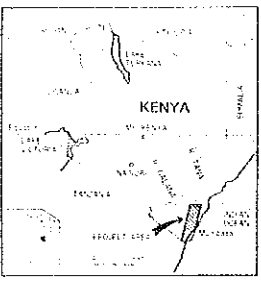
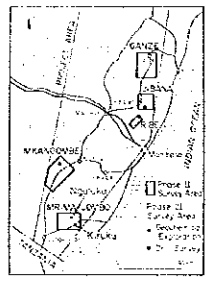


PL. 1

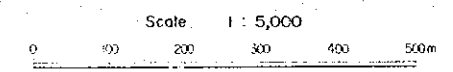
MINERAL EXPLORATION  
IN  
THE MOMBASA AREA, REPUBLIC OF KENYA  
PHASE III

GEOLOGICAL MAP AND SECTIONS  
OF  
THE KIRUKU HILL AND  
NGULUKU HILL SUB-AREA

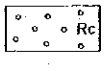
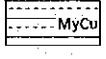
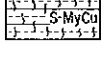
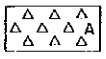
LOCATION INDEX

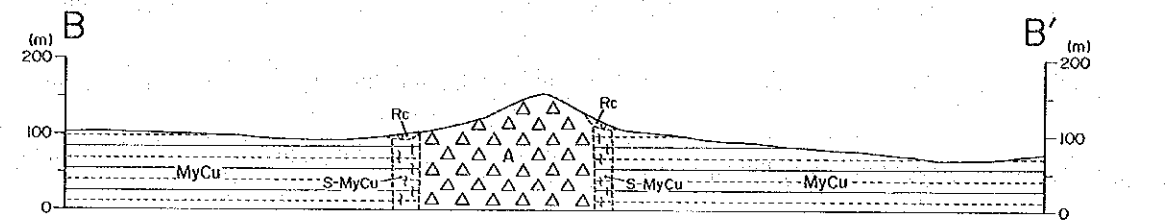
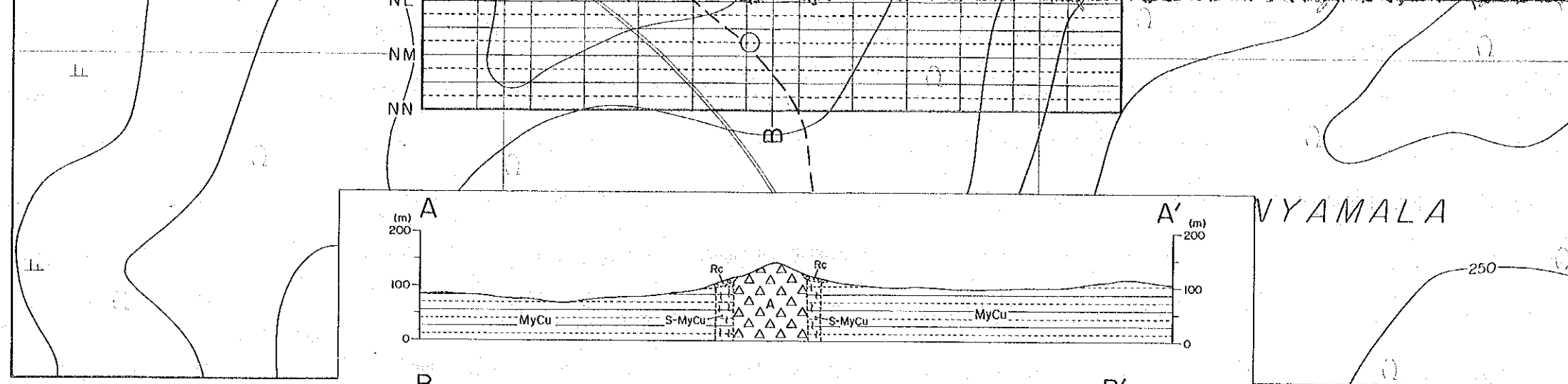



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### LEGEND

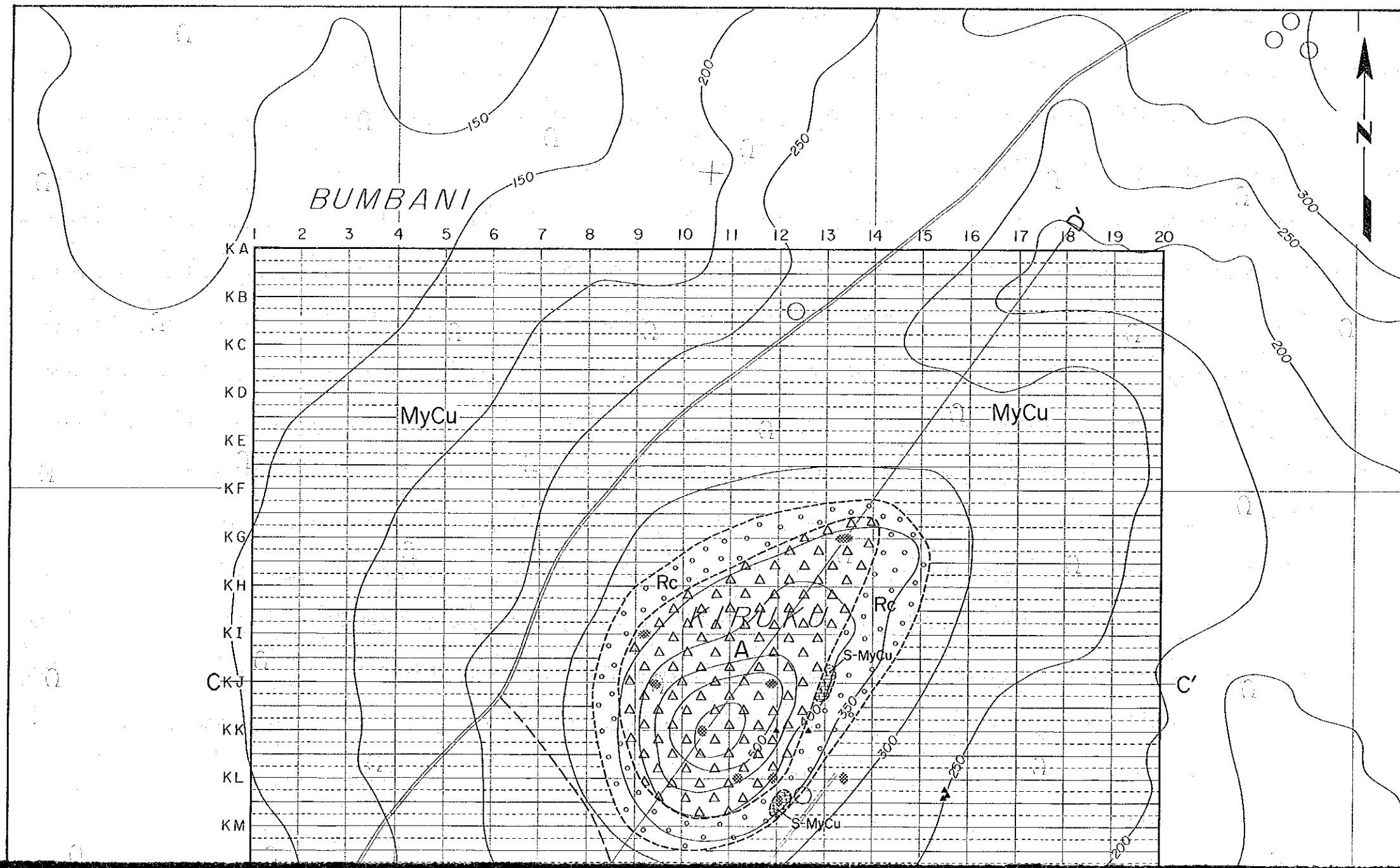
QUATERNARY		Colluvium
TRIASSIC		Upper Member of Maji-ya-chumwi Formation
		
Igneous Rock		Agglomerate vent (mostly limonitized)



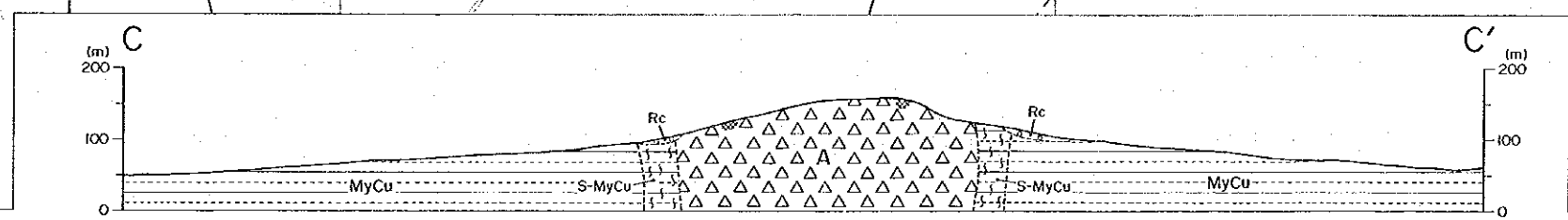
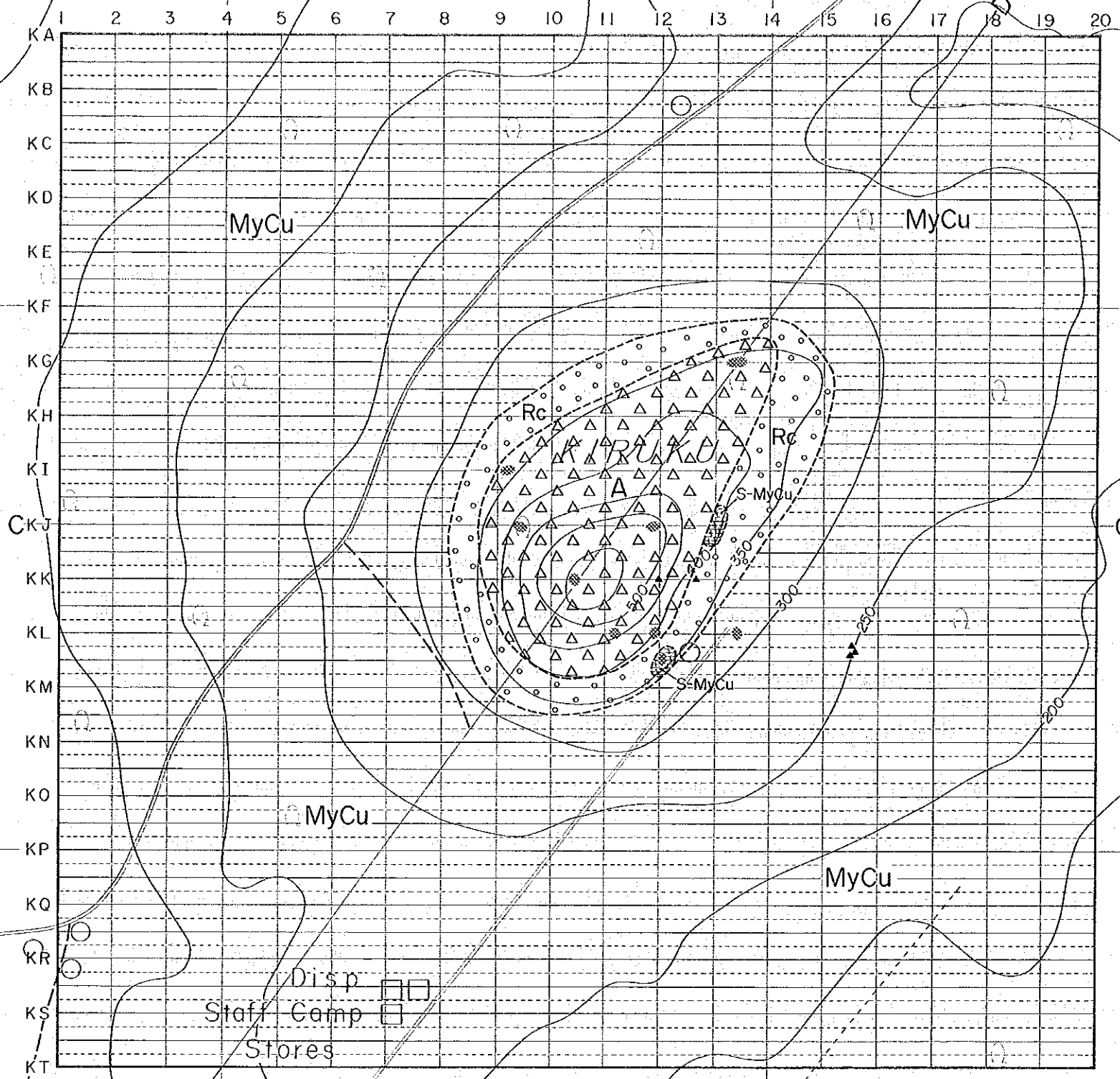
LEGEND

- |              |  |  |
|--------------|--|--|
| QUATERNARY   |  | Colluvium                                |
| TRIASSIC     |  | Sandstone covered by soils               |
|              |  | Sheared sandstone                        |
| Igneous Rock |  | Agglomerate vent (mostly limonitized)    |
|              |  | Strongly silicified rock (outcrop/float) |
|              |  | Geological boundary                      |
|              |  | Line of geological section               |

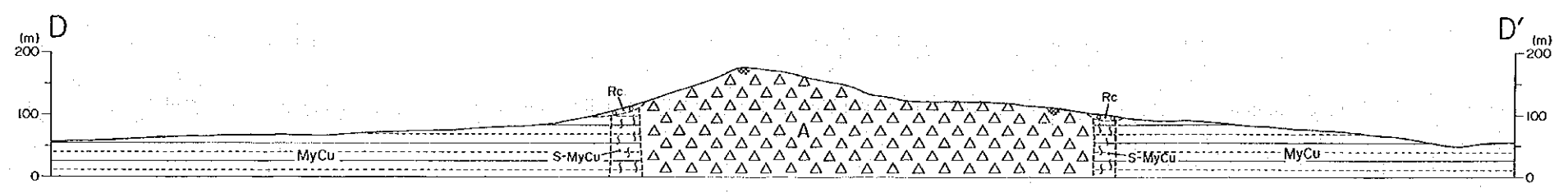
Kiruku Hill Sub-area



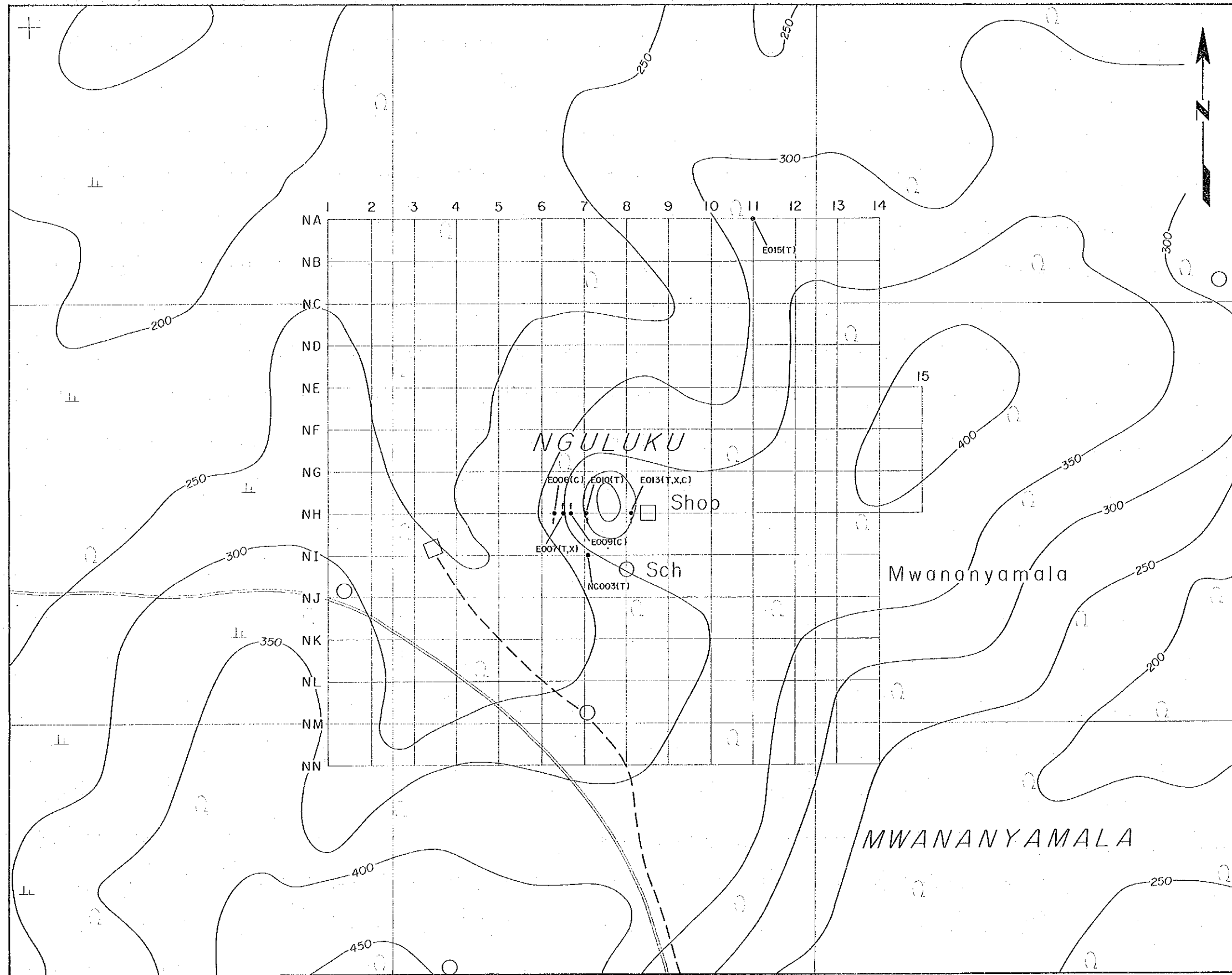
BUMBANI



NZILOLE



# Nguluku Hill Sub-area

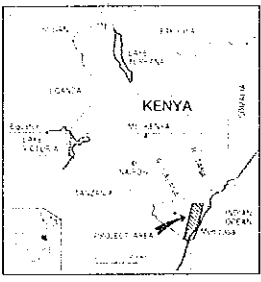
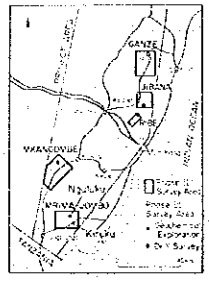


PL. 2

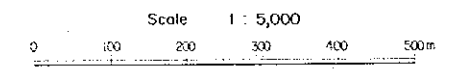
MINERAL EXPLORATION  
IN  
THE MOMBASA AREA, REPUBLIC OF KENYA  
PHASE III

LOCATION MAP OF TESTED SAMPLES  
IN  
THE KIRUKU HILL AND  
NGULUKU HILL SUB-AREA

LOCATION INDEX

JAPAN INTERNATIONAL COOPERATION AGENCY  
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February 1993

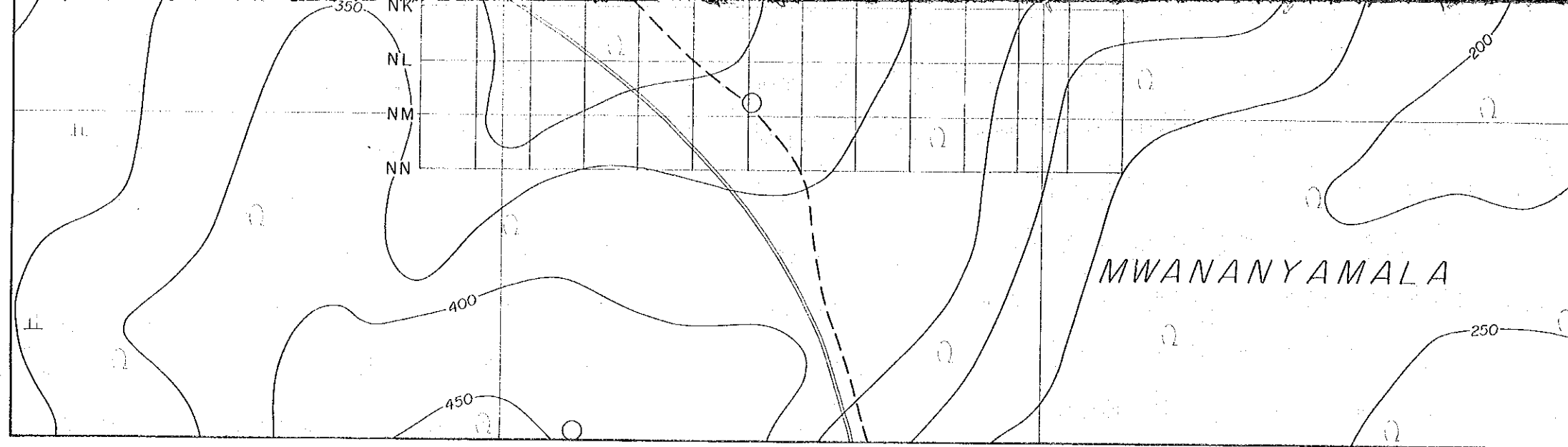


NA	1	2	3
NB			
NC			

**LEGEND**

Soil samples  
(Sampling points are indicated by intersection of two survey lines and sample numbers are indicated by the combination of the survey lines'number as NA-1, NB-2.)

• Rock and ore samples for laboratory tests



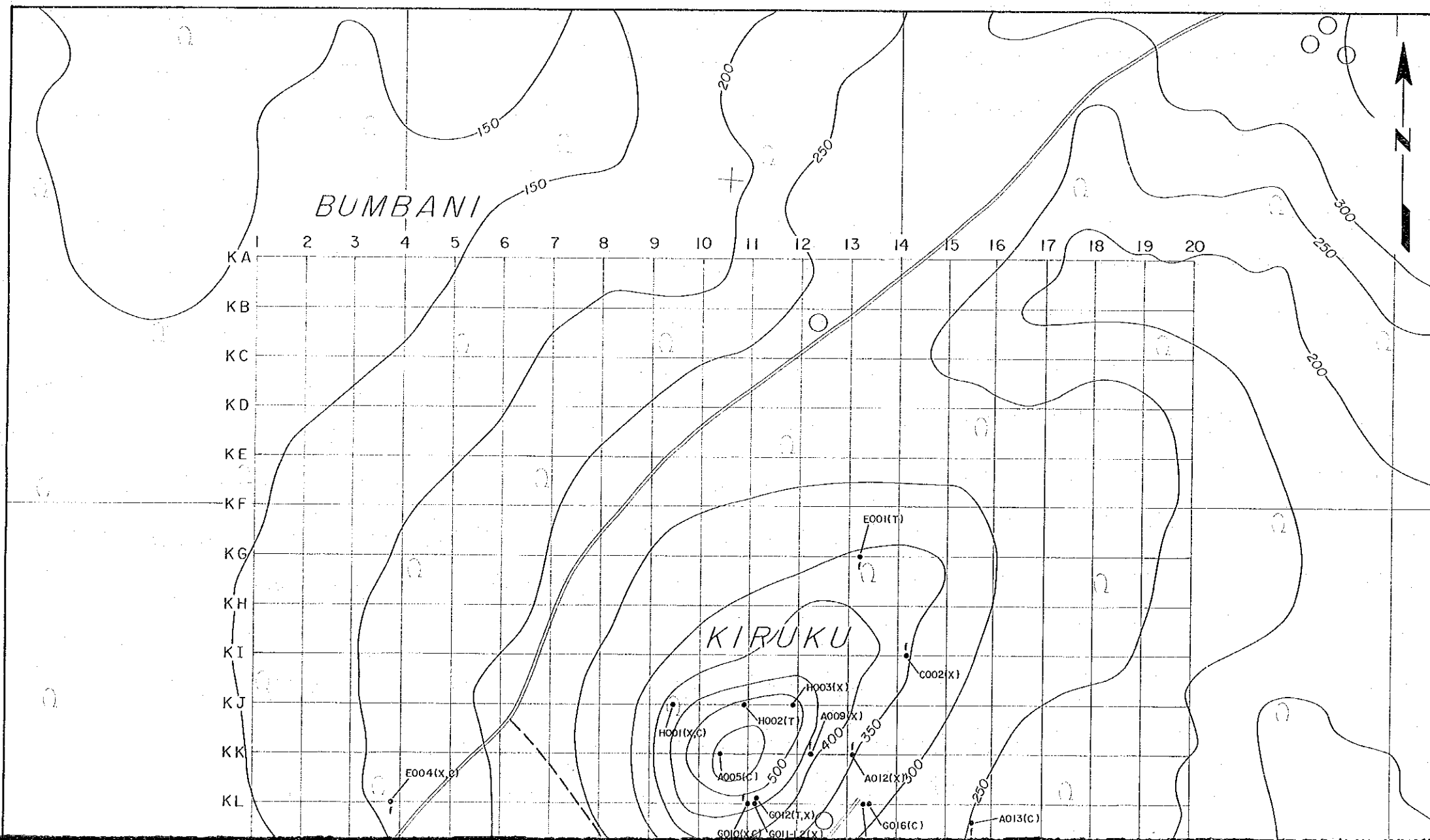
**LEGEND**

NA	1	2	3
NB			
NC			

Soil samples  
 (Sampling points are indicated by intersection of two survey lines and sample numbers are indicated by the combination of the survey lines'number as NA-1, NB-2.)

- Rock and ore samples for laboratory tests
  - T : for thin section
  - X : for XRD analysis
  - C : for chemical analysis
- f float sample

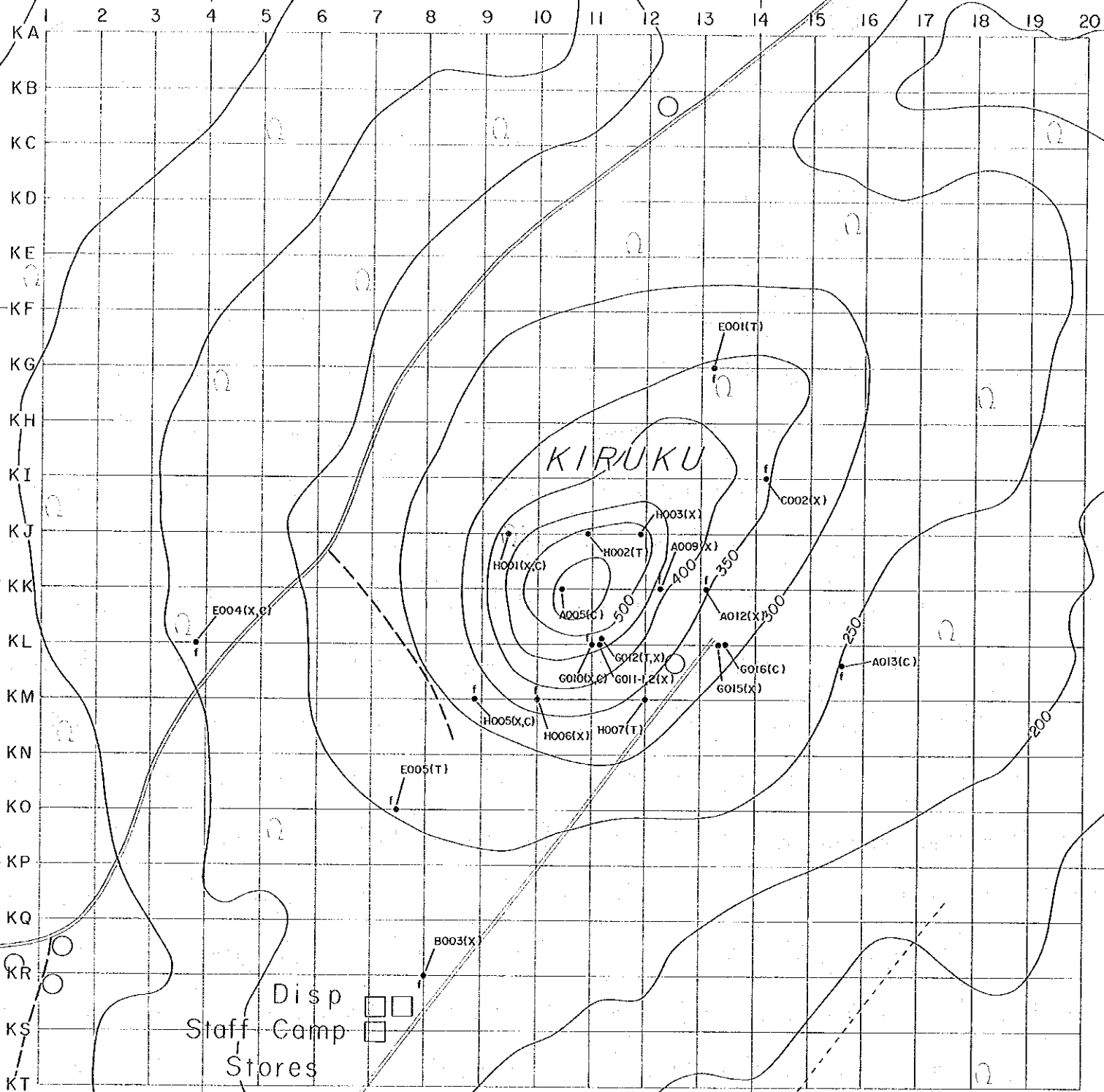
**Kiruku Hill Sub-area**



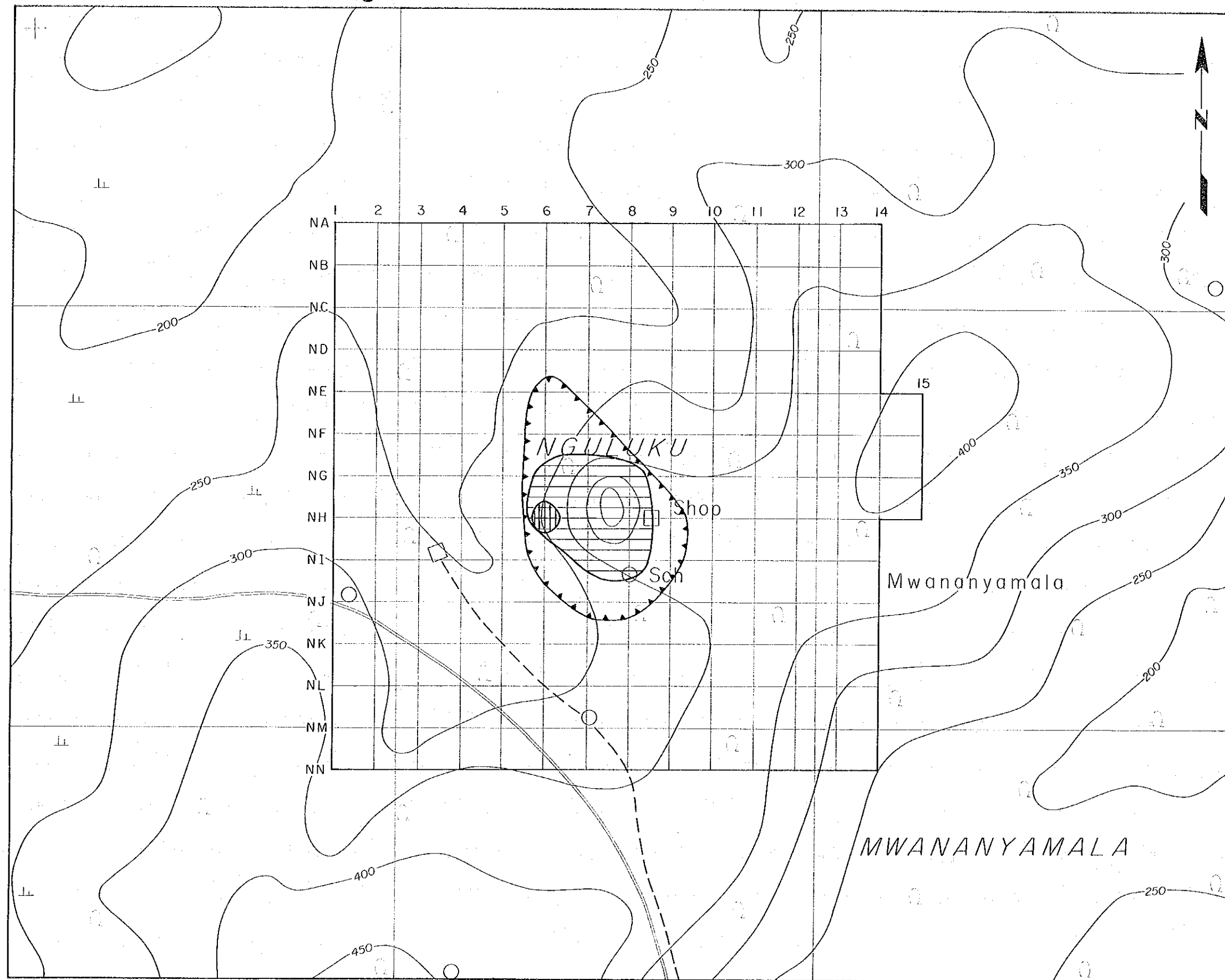
BUMBANI

KIRUKU

NZIOLE

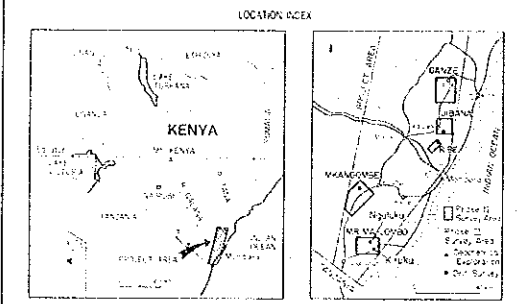


# Nguluku Hill Sub-area

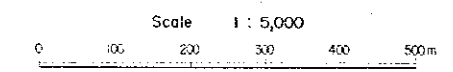


PL. 3

MINERAL EXPLORATION  
IN  
THE MOMBASA AREA, REPUBLIC OF KENYA  
PHASE III  
GEOCHEMICAL INTERPRETATION MAP  
OF  
THE KIRUKU HILL AND  
NGULUKU HILL SUB-AREA (1)  
- Au, Ba, Sr, Fe, Mn, P -



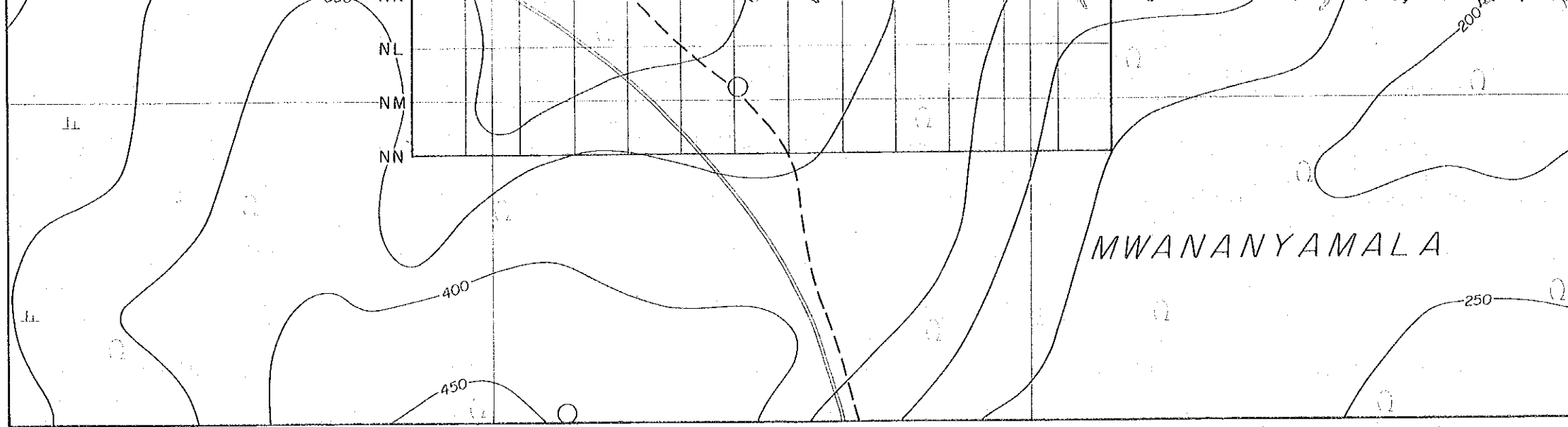
JAPAN INTERNATIONAL COOPERATION AGENCY  
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February 1993



## LEGEND

Element	Anomaly	Threshold Value	Maximum Value (Sample No.)
Au		≥ 50 ppb	160 ppb (KL-13)
Ba		≥ 5100 ppm	9970 ppm (KH-14)
Sr		≥ 480 ppm	1430 ppm (KI-15)
Fe		≥ 9.2 %	13.05 % (KI-14)
Mn		≥ 4000 ppm	9610 ppm (KI-14)



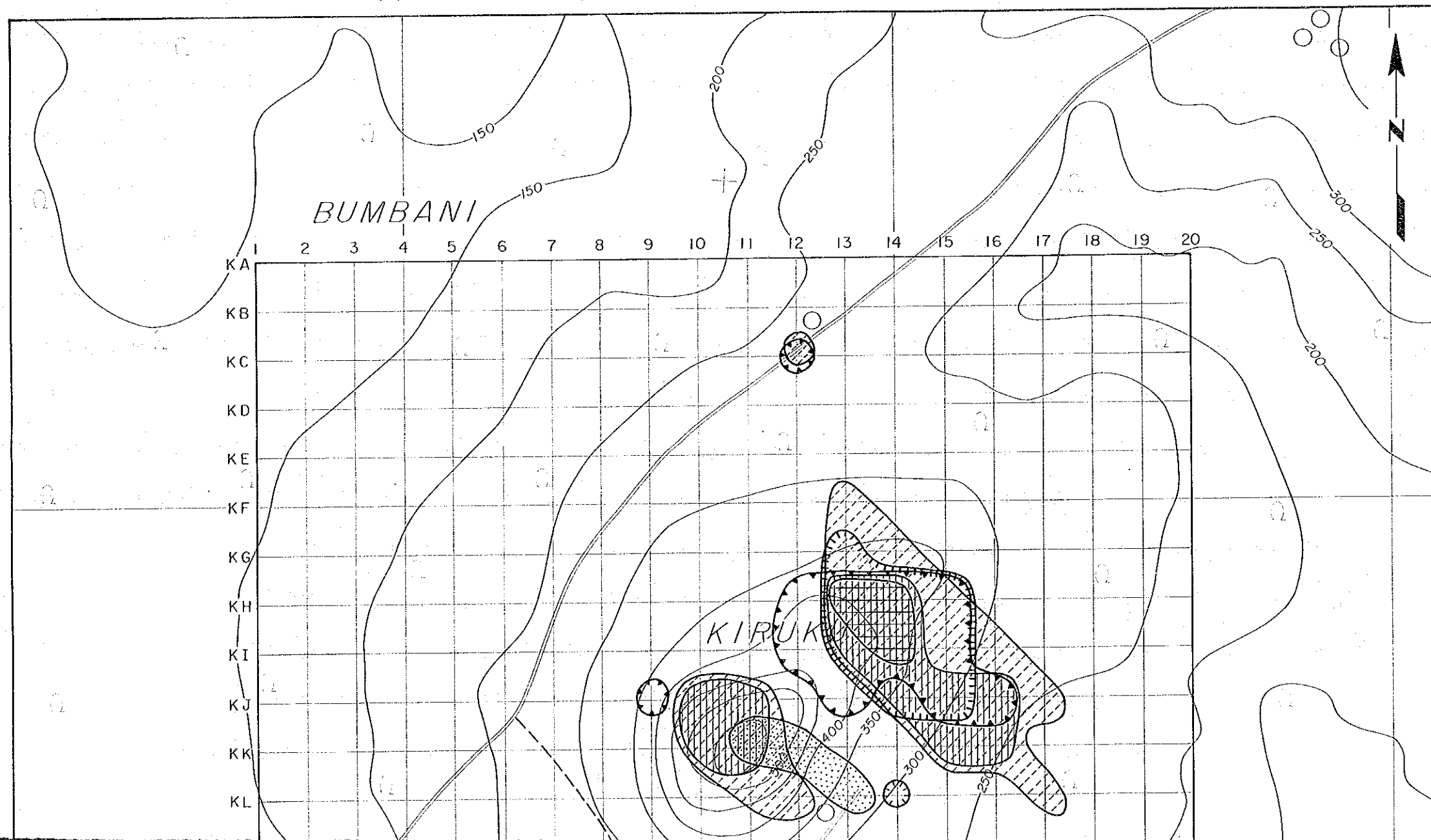


LEGEND

Element	Anomaly	Threshold Value	Maximum Value (Sample No.)
Au		≥ 50 ppb	160 ppb (KL-13)
Ba		≅ 5100 ppm	9970 ppm (KH-14)
Sr		≅ 480 ppm	1430 ppm (KI-15)
Fe		≅ 9.2 %	13.05 % (KI-14)
Mn		≥ 4000 ppm	9610 ppm (KI-14)
P		≥ 4200 ppm	7310 ppm (NH-07)

The total of 600 samples from both sub-areas were analyzed statistically as one population.

Kiruku Hill Sub-area

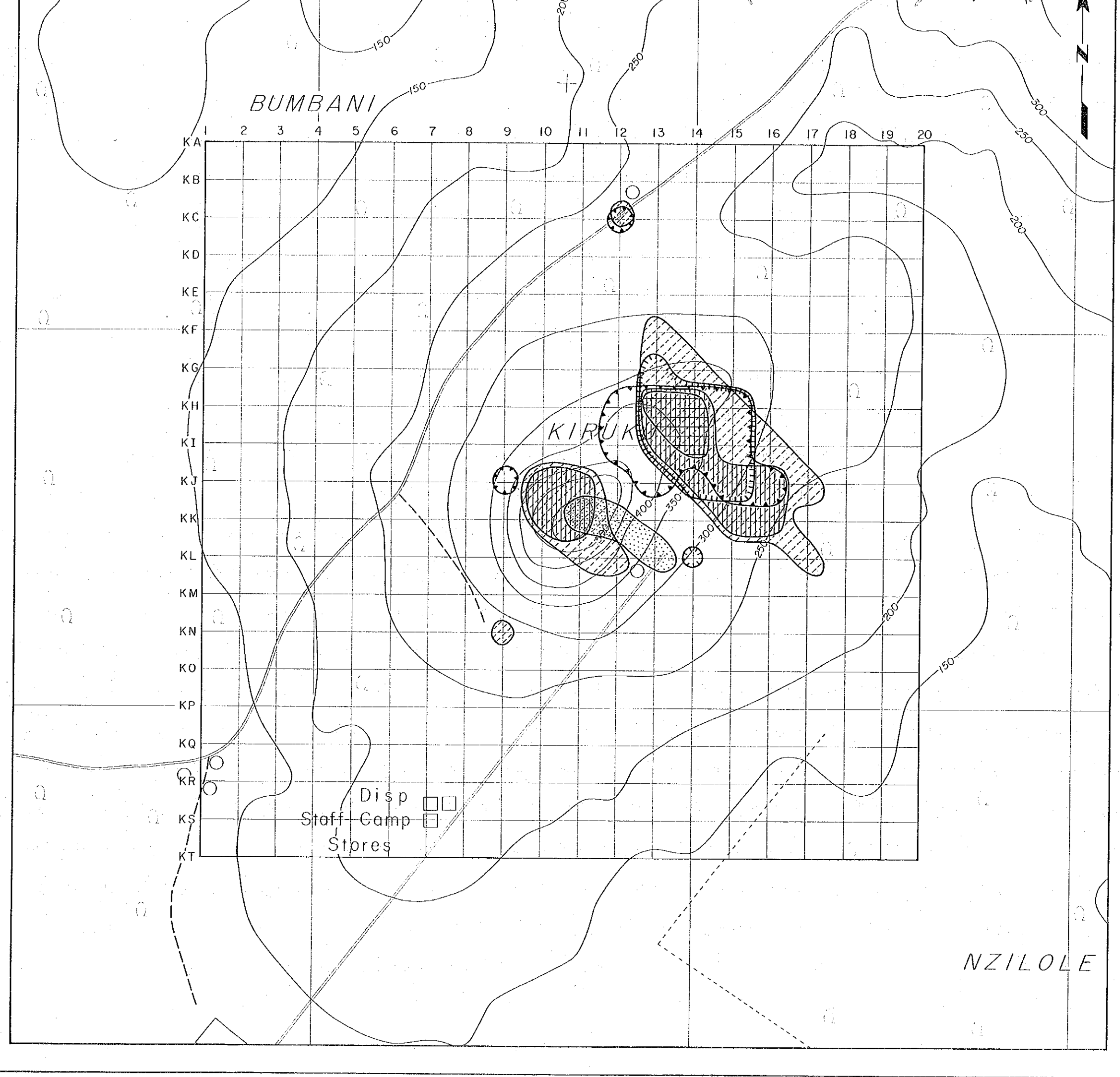


STATISTIC VALUES

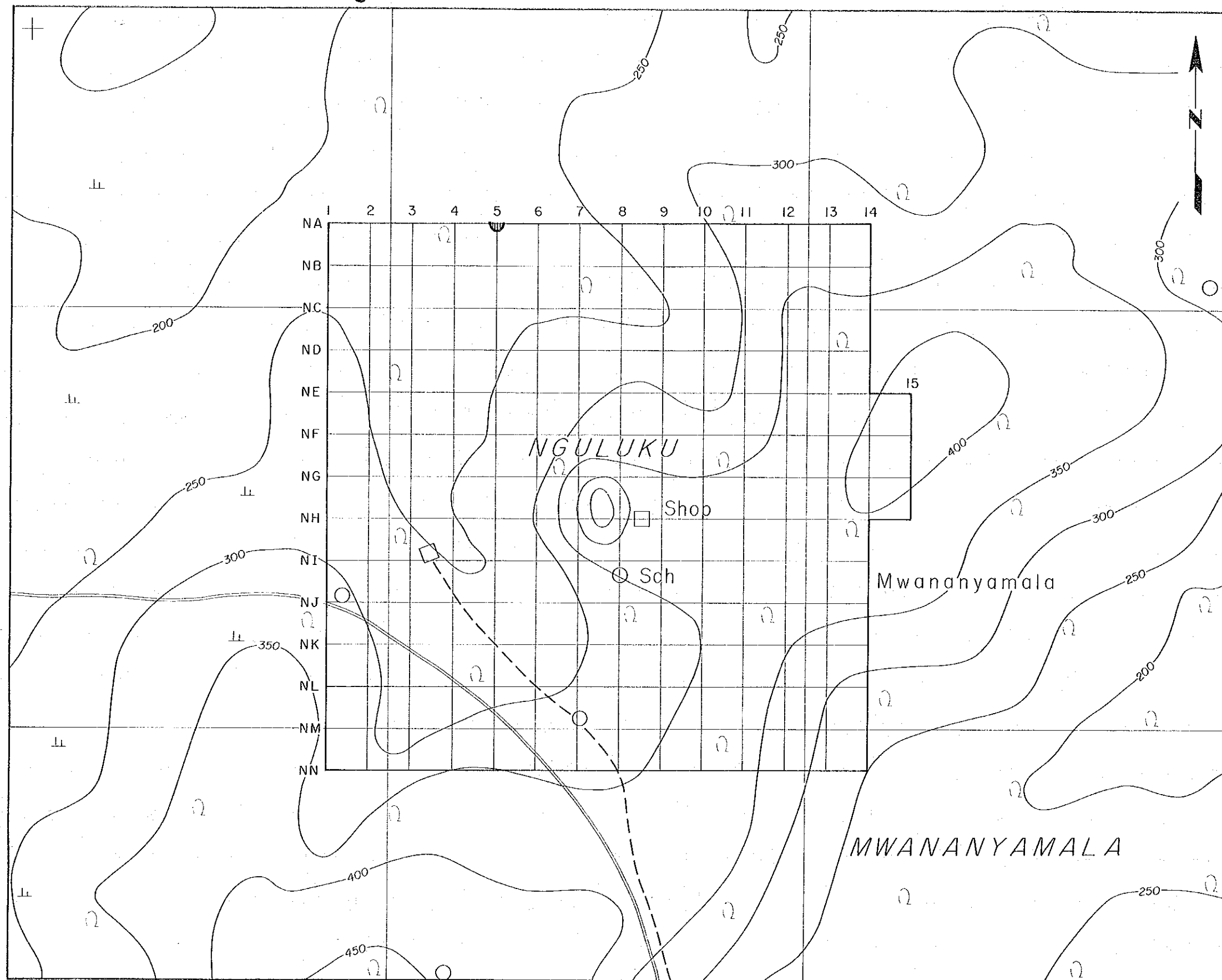
Element	Unit	Max. Data	Max.	Min.	Mean (μ)	Std. Dev. (SD)	M:SD	M:2:SD
Au	ppb	353	160	1	8.0	0.424	21.2	56.3
Ba	ppm	600	9970	20	419.2	0.525	1404.8	4707.3
Sr	ppm	600	1430	8	19.2	0.443	213.5	605.3
Fe	%	600	13.05	0.05	2.507	0.371	5.885	13.812
Mn	ppm	600	9610	5	897.7	0.495	2812.1	8809.5
P	ppm	600	7310	30	433.0	0.373	1022.5	2414.2

STATISTIC VALUES

Element	Unit	Num. Data	Max.	Min.	Mean (M)	Std. Dev. (SD)	M/SD	M/2SD
Au	ppb	353	150	1	8.0	0.424	21.2	56.3
Ba	ppm	600	9910	20	419.2	0.525	1404.8	4707.3
Sr	ppm	600	1430	8	79.2	0.443	219.5	608.3
Fe	%	600	13.05	0.06	2.507	0.371	5.885	13.812
Mn	ppm	600	9810	5	897.7	0.496	2812.1	8809.5
P	ppm	600	7310	30	433.0	0.313	1022.5	2414.2



# Nguluku Hill Sub-area

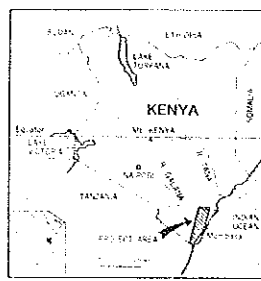
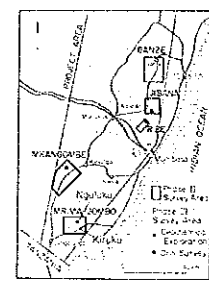


PL. 4

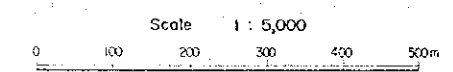
MINERAL EXPLORATION  
IN  
THE MOMBASA AREA, REPUBLIC OF KENYA  
PHASE III

GEOCHEMICAL INTERPRETATION MAP  
OF  
THE KIRUKU HILL AND  
NGULUKU HILL SUB-AREA (2)  
- Nb, La, Ce, Nd, Sm, Eu -

LOCATION INDEX

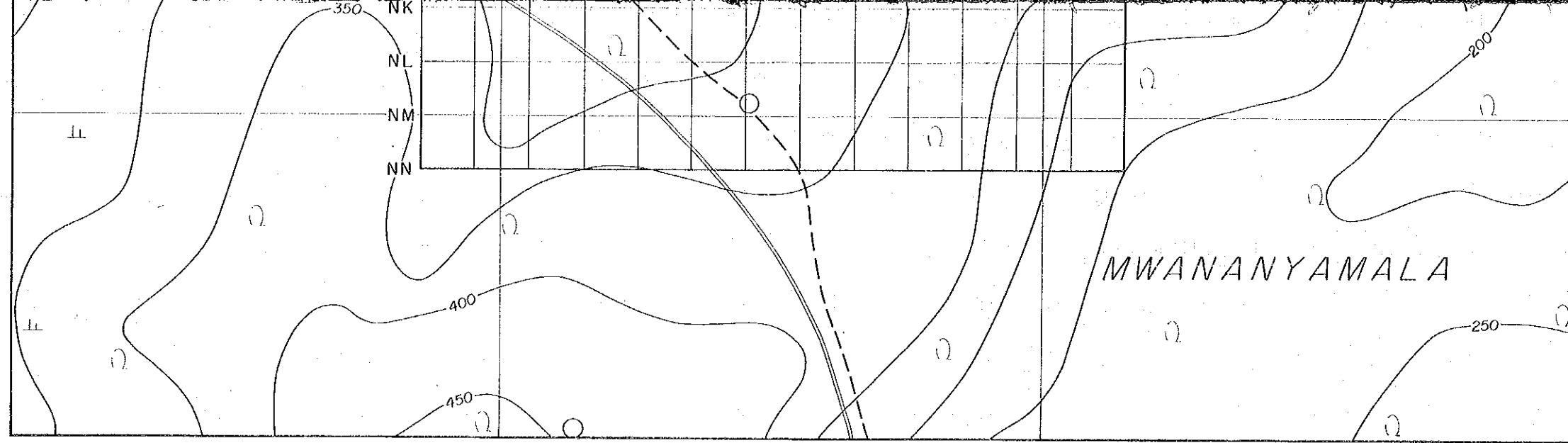



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February 1995



## LEGEND

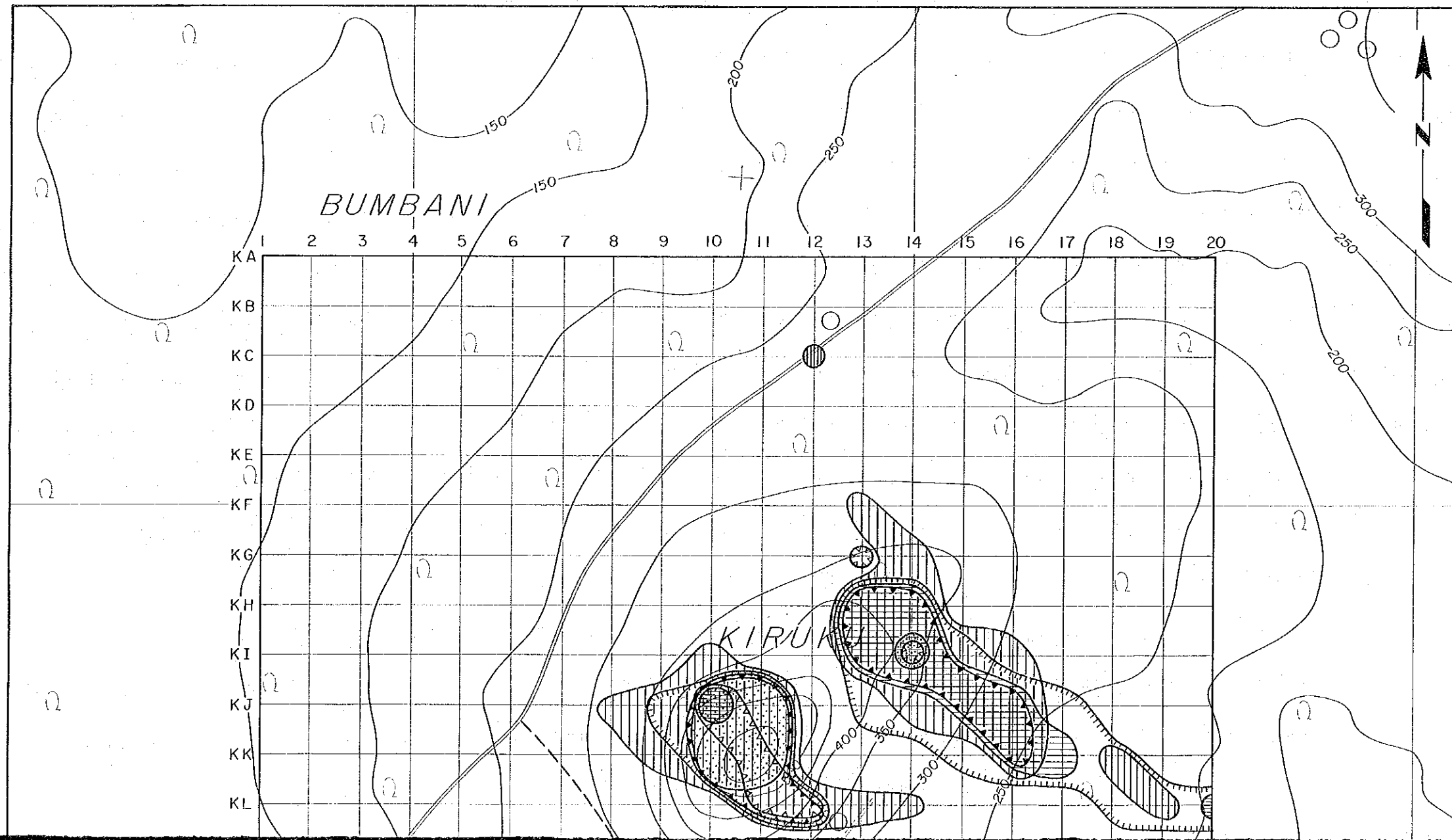
Element	Anomaly	Threshold Value	Maximum Value (Sample No.)
Nb		≥ 1100ppm	1300ppm (K1-14)
La		≥ 2400ppm	6700ppm (K1-14)
Ce		≥ 1060ppm	7020ppm (K1-14)
Nd		≥ 600ppm	2260ppm (K1-14)
Sm		≥ 130ppm	271ppm (K1-14)



LEGEND

Element	Anomaly	Threshold Value	Maximum Value (Sample No.)
Nb		≥ 1100ppm	1300ppm (K1-14)
La		≥ 2400ppm	6700ppm (K1-14)
Ce		≥ 1060ppm	7020ppm (K1-14)
Nd		≥ 600ppm	2260ppm (K1-14)
Sm		≥ 130ppm	271ppm (K1-14)
Eu		≥ 51ppm	105ppm (KG-13)

Kiruku Hill Sub-area



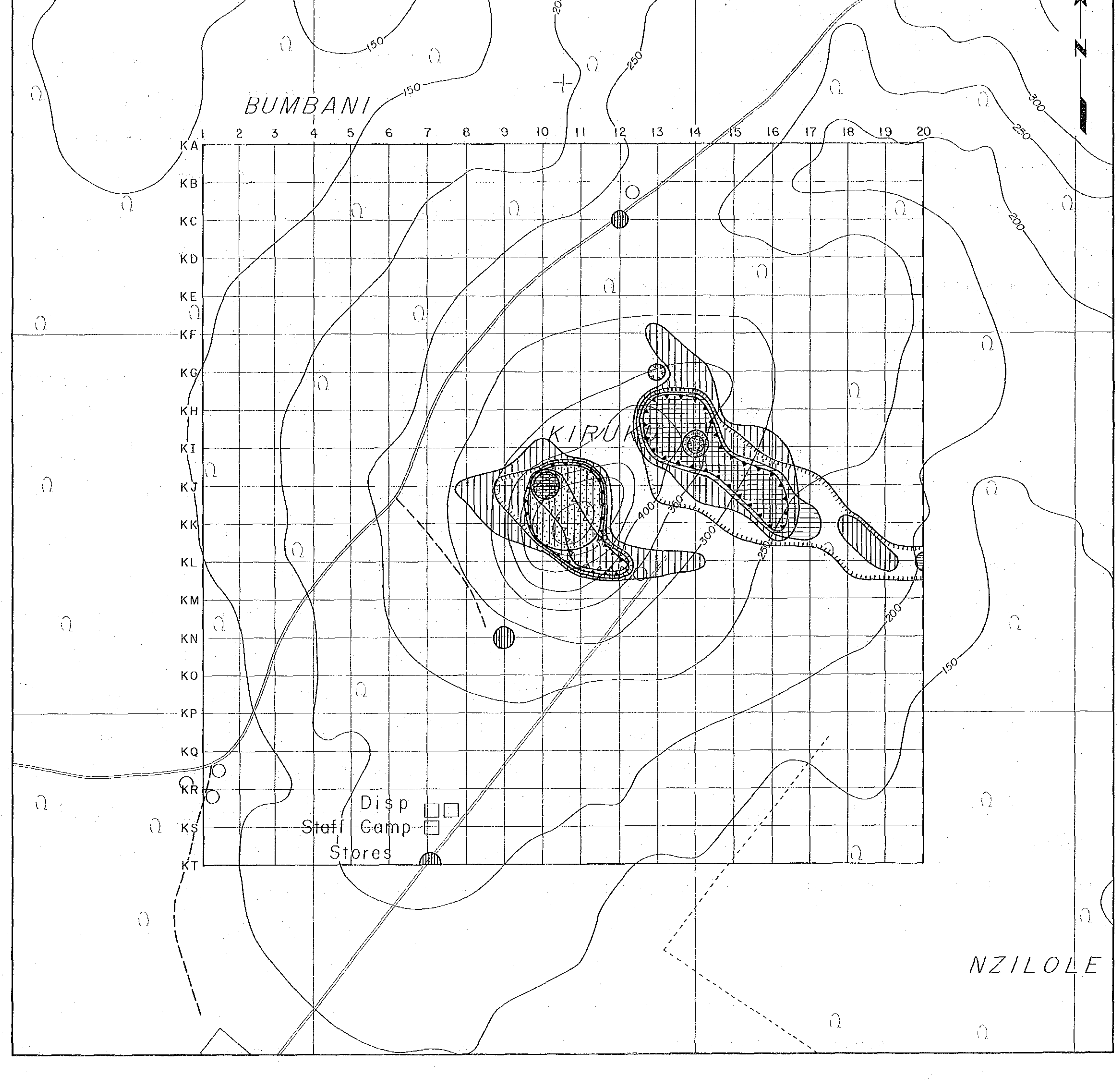
The total of 600 samples from both sub-areas were analyzed statistically as one population.

STATISTIC VALUES

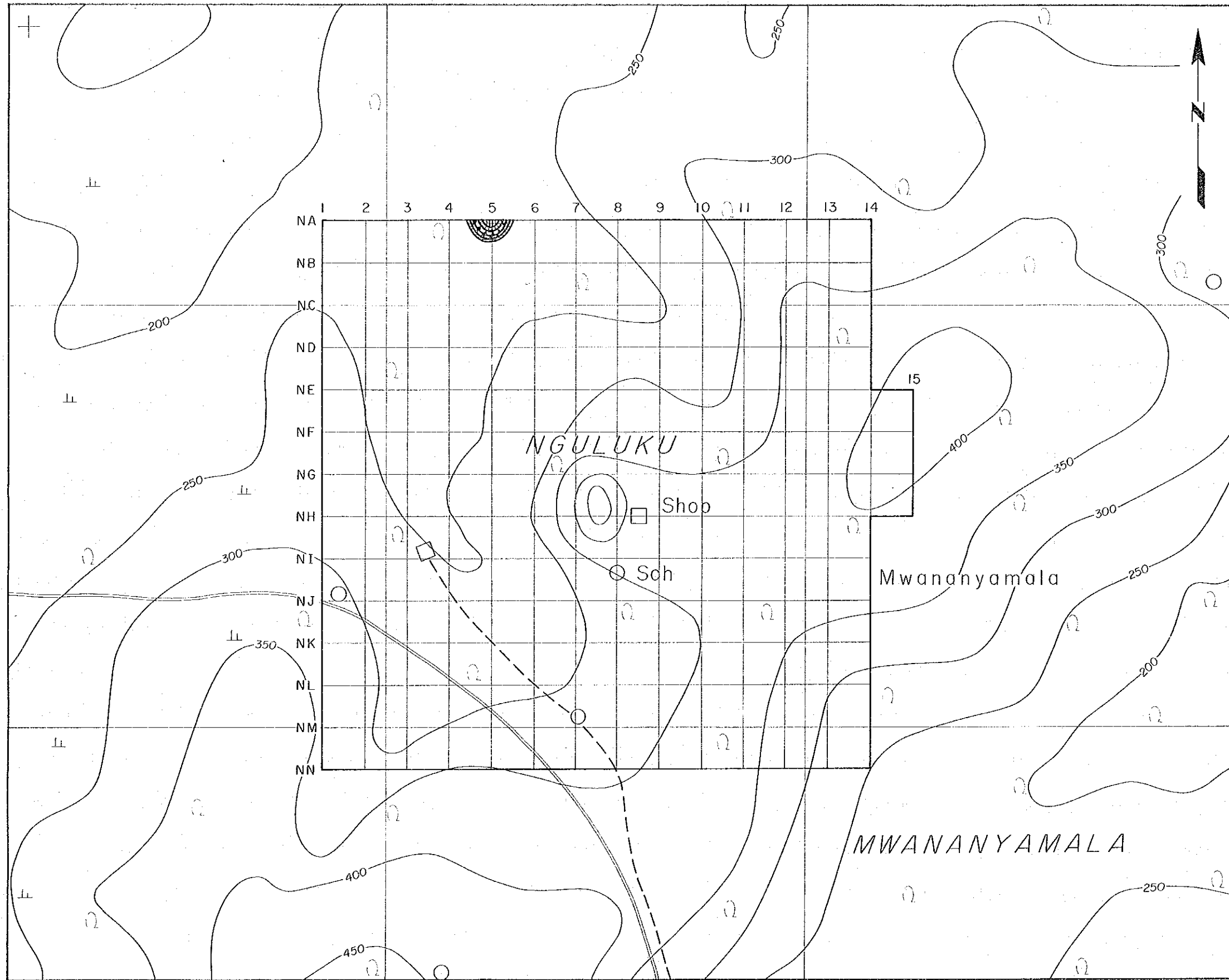
Element	Unit	Max. Data	Max.	Min.	Mean (M)	Std. Dev. (SD)	M+SD	M+2SD
Nb	ppm	699	1300	15	138.0	0.423	360.1	953.3
La	ppm	609	6700	35	212.2	0.454	803.6	1717.9
Ce	ppm	600	7020	66	285.6	0.334	615.9	1328.1
Nd	ppm	600	2260	15	108.4	0.375	257.2	619.0
Sm	ppm	600	271.0	3.5	18.54	0.352	41.72	93.85
Eu	ppm	600	105.0	0.5	4.34	0.464	12.64	36.79

STATISTIC VALUES

Element	Unit	No. Data	Max.	Min.	Mean (M)	Std. Dev. (SD)	M+SD	M-2SD
Nb	ppm	600	1300	15	138.0	0.423	362.1	953.3
La	ppm	600	6700	35	212.2	0.454	603.8	1717.9
Co	ppm	600	7000	68	285.6	0.334	615.9	1328.1
Ni	ppm	600	2260	15	168.4	0.375	257.2	619.0
Su	ppm	600	271.0	3.5	18.54	0.352	41.72	93.85
Eu	ppm	600	105.0	0.5	4.34	0.484	12.64	38.79

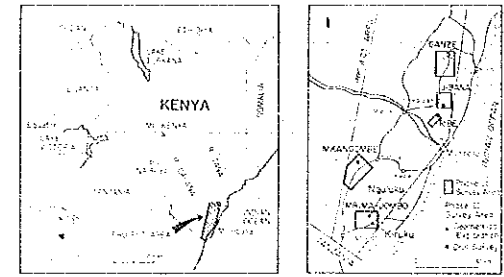


# Nguluku Hill Sub-area



MINERAL EXPLORATION  
IN  
THE MOMBASA AREA, REPUBLIC OF KENYA  
PHASE III  
GEOCHEMICAL INTERPRETATION MAP  
OF  
THE KIRUKU HILL AND  
NGULUKU HILL SUB-AREA (3)  
- Y, U, Th, Tb, Yb, Lu -

LOCATION PLAN



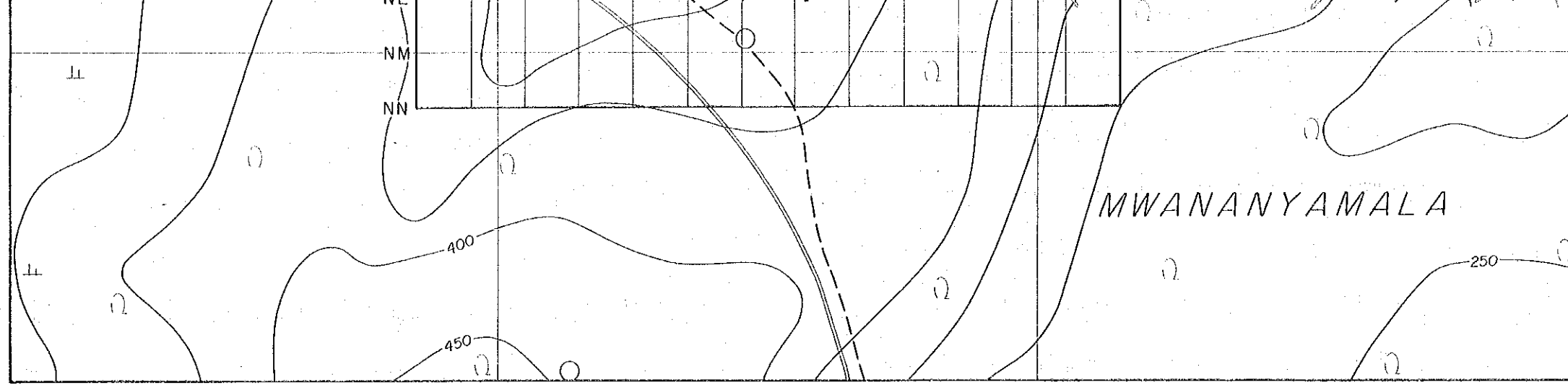
JAPAN INTERNATIONAL COOPERATION AGENCY  
METAL MINING AGENCY OF JAPAN  
February 1993

Scale 1 : 5,000



## LEGEND

Element	Anomaly	Threshold Value	Maximum Value (Sample No.)
Y		≥ 420ppm	660ppm (KJ-10)
U		≥ 16 ppm	310ppm (NA-5)
Th		≥ 400 ppm	501 ppm (KJ-10)
Tb		≥ 11 ppm	25 ppm (KI-14)
Yb		≥ 20 ppm	50 ppm (KJ-10)

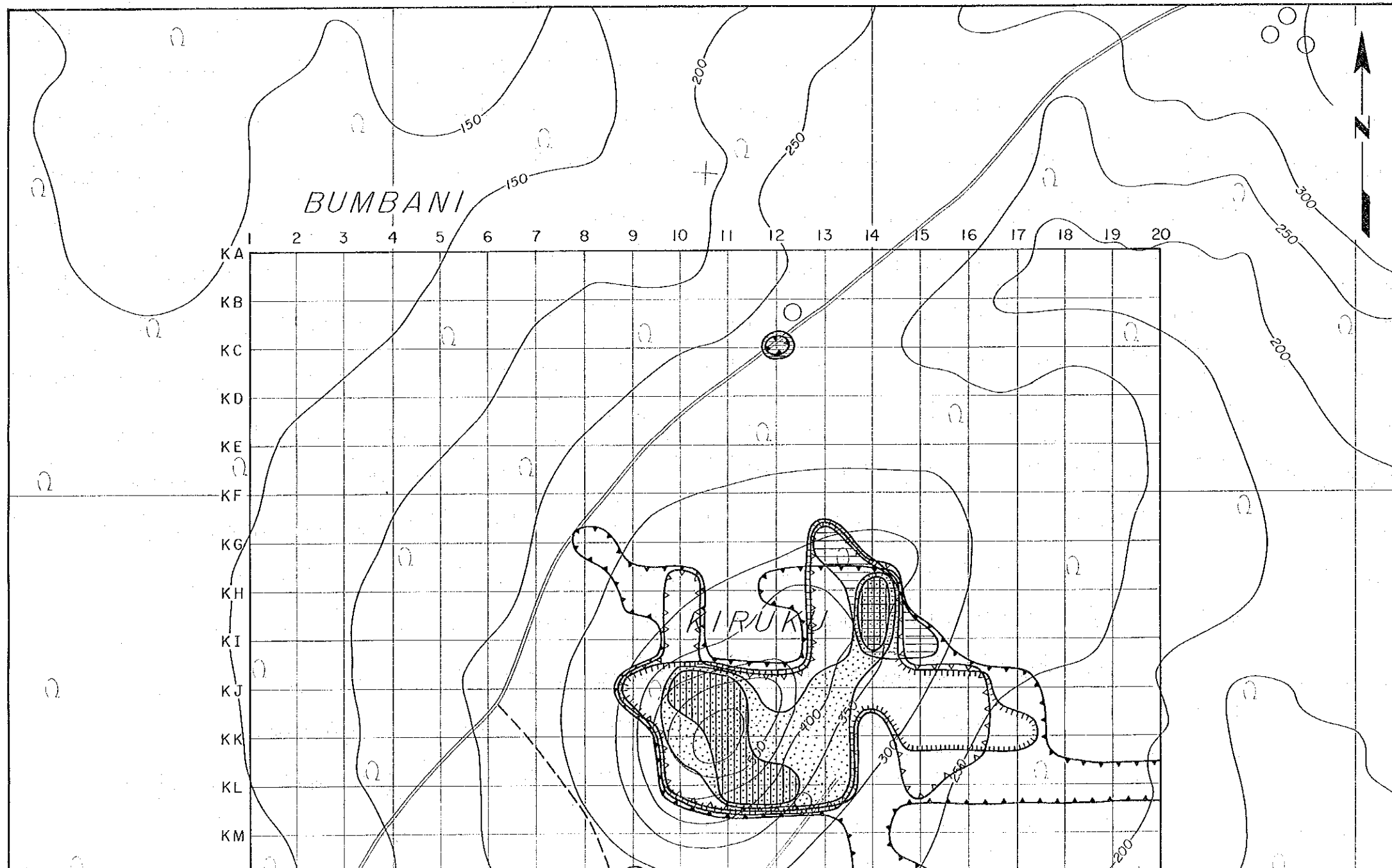


**LEGEND**

Element	Anomaly	Threshold Value	Maximum Value (Sample No.)
Y		≥ 420ppm	660ppm (KJ-10)
U		≥ 16 ppm	310ppm (NA-5)
Th		≥ 400 ppm	501ppm (KJ-10)
Tb		≥ 11 ppm	25ppm (KI-14)
Yb		≥ 20 ppm	50ppm (KJ-10)
Lu		≥ 3.3 ppm	7.2ppm (KJ-10)

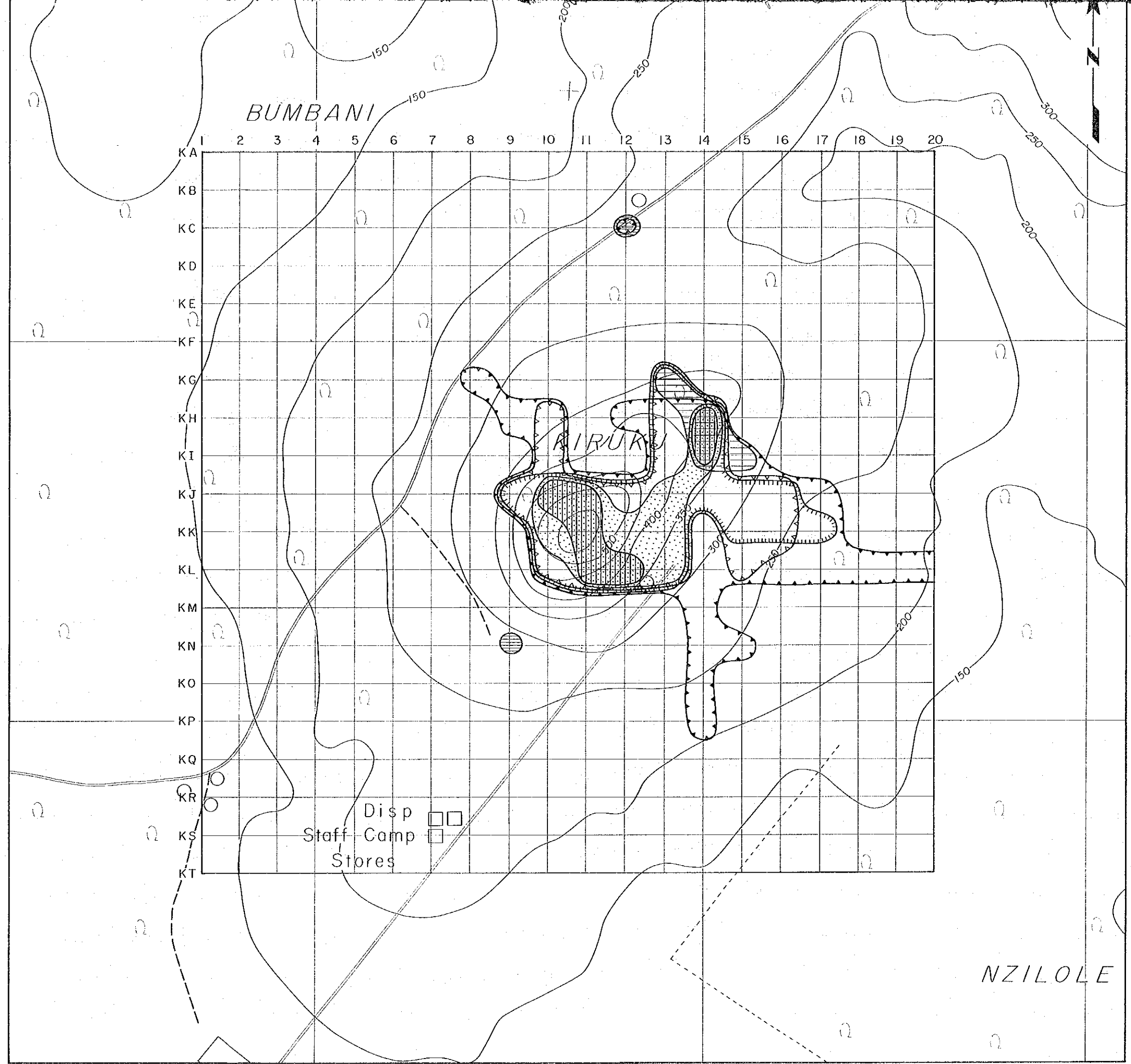
The total of 600 samples from both sub-areas were analyzed statistically as one population.

**Kiruku Hill Sub-area**



**STATISTIC VALUES**

Element	Unit	No. Data	Max.	Min.	Mean (M)	Std. Dev. (SD)	M+SD	M-2SD
Y	ppm	600	660	30	89.4	0.266	172.9	334.3
U	ppm	595	310.0	1.0	7.51	0.174	11.19	16.69
Th	ppm	600	501	9	60.2	0.370	141.0	330.2
Tb	ppm	600	25.0	0.4	2.50	0.328	5.31	11.30
Yb	ppm	600	50.0	2.8	8.35	0.232	14.25	24.32
Lu	ppm	600	7.2	0.3	1.26	0.216	2.08	3.42



STATISTIC VALUES

Elevation	Unit	No. Data	Max.	Min.	Mean (M)	Std. Dev. (SD)	M+50	M+21SD
Y	ppa	600	660	30	85.4	0.288	172.9	331.3
U	ppa	595	310.0	1.0	7.51	0.174	11.19	16.69
Uu	ppa	600	501	9	66.2	0.370	141.0	330.2
Uv	ppa	600	25.0	0.4	2.50	0.328	5.31	11.30
Uw	ppa	600	50.0	2.0	8.35	0.232	14.25	24.32
Lu	ppa	600	7.2	0.3	1.28	0.218	2.08	3.42