

A/S SULFIDMALM

INTER-OFFICE MEMORANDUM

Date : _____

27th August, 1973

To:

Falconbridge Nikkelverk A/S ✓

CC :

A. M. Clarke, H. T. Berry,

From :

J. B. Gammon

Subject :

905-17, Information of the Masi map sheet. Report No. 215-72-17.

Please find attached Kreivi's summary on the Masi map sheet. On pages 10-11 of the report he summarises targets of interest in the area and on pages 12-14 he summarises 1972 field activities on this map sheet. The results of the 1972 field work are shown on maps 6 to 13 incl. and 15. Particular attention is drawn to map no. 14 which summarises available information on the area covered by this report as well as the others in Kreivi's series of summaries.

AMS pp JBG.

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FOR FALCONBRIDGE NIKKELVERK A/S

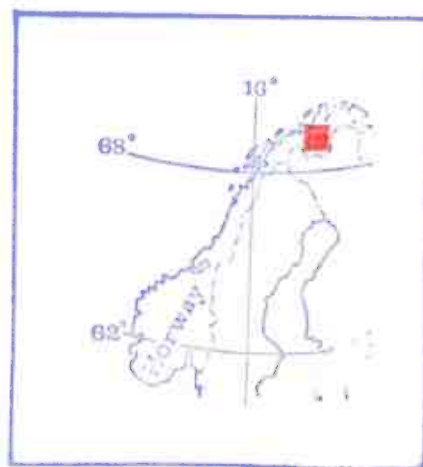
A/S SULFIDMALM

PROJECT 905-17

MAST MAPSHEET (1933 IV). EARLIER
WORK BY NGU, 1972 PROSPECTING AND
TILL SAMPLING.

by

ERKKI KREIVI



Report Nr. 215/72/17

The following maps are attached to this report:

Cu, Ni, Zn and Σ Zn, Cu, Pb (NGU) 1 - 215 - 72 - 17

Stream sediment anom. maps

(Acid extractable)

Cu, Ni, Zn --"-- (NGU) 2 - --"--

Cu, Ni, Zn, Pb, Co --"-- (NGU) 3 - --"--
(ashed)

Aero geophysical map (NGU) 4 - --"--

Geological map 5 - --"--

1972 prospecting 6 - --"--

1972 reconnaissance till
sampling 7 - --"--

Ingajokka, geology 8 - --"--

--"-- till-anomalies 9 - --"--
for Cu, Ni, Zn, Co, As

--"-- till anomalies 10 - --"--
for Sn, TiO_2 , V, Cr

--"-- assay results 11 - --"--
for Cu, Ni, Zn, Co, As

--"-- assay results 12
for Sn, TiO_2 , V, Cr

--"-- till-sampling 13 - --"--
location map

Summary map of targets, 14 - 215 - 72 - 17
Masi 17

I. PREVIOUS WORK BY NGU.

I. a. Stream sediment geochemistry

Map 1- 215 - 72 - 17

The samples from the area of this map sheet were collected from the banks of the streams with 250m - spacing. In the laboratory the 6 samples of three places in the same stream were mixed together and assayed with colorimetric method. The assay - results have been plotted 1963 at a scale 1:50.000.

Map 2- 215 - 72 - 17

The samples have been collected both from the banks and from the bottom of the streams with 500 m's spacing. The assay - results have been plotted in 1966 at a scale 1:50.000. The highest values of each assayed component, Ni, Cu and Zn, are mainly in the same places, but the bank samples detect more anomalies in the anomalous areas than active sediment - samples do.

Map 3- 215 - 72 - 17

The samples which were collected in 1963 from the banks of the streams were mixed 6 together as before and ashed and then re-assayed using atomic adsorption instead of a colorimetric method used previously.

One can assume that the anomalies which are detected have possibly 5 different sources:

- | | | |
|---|---|---|
| A | { | 1. Ingajokka - Njakkalævsejokka |
| | | 2. The small stream to the W of Nakkalævsejokka |
| | | 3. Masi Kpl |
| B | | 4. Dvolbbajavrre - area |
| C | | 5. Stuoravadojokka (N W - corner of the Masi - sheet) |

1. Ingajokka Njakkalævsejokka

Here the Ni-, Cu-, and Zn- anomalies obviously are caused by the graphite schist brecciated by pyrrhotite with minor chalcopryite, assayed maximum 0.20 % Ni
1.1 % Cu

See the more detailed description later in this report.

2. The small stream W of Njakkalævsejokka

Ni-, Cu-, Zn- and Pb-anomalies.

This stream is obviously too short to reach the Ingajokka

mineralized zone. It crosses probably 4 contacts, namely: hornblendite - quartzite, quartzite-greenstone, greenstone-quartzite and quartzite-albite-carbonate-schist and also one thrust zone.

3. Masi Kpl.

This Ni- and Cu- anomaly is in the mica - schist area. It is probably associated with a rusty, sulfide - bearing sheared zone found in this area.

4. Suolovuobme - area

Ni - anomaly plus two scattered places with quite high Zn - values. These are probably caused by a gabbroic rock and minor sulfide bearing schists around it and maybe partly by the boulders from Inga-jokka.

5. Stuoravadojokka

High Ni-, Cu-, Zn- and $\sum$ Zn Cu Pb - values in stream-limb coming from a graphite-schist area.

I. b. NGU - till sampling (see figures)

NGU has collected till samples near the Kautokeino - Alta highway from Finland's boundary up to Caledonian mountains. The assay - results detected heavy metal anomalies in the Inga-jokka area near Masi on the map sheet 1933 IV and on the map sheet 1934 III. The highest copper value (100 ppm) was found in Suolovuobme on the map sheet 1934 III. The following maximum values were found in the Inga-jokka - area:

	Max	Back ground
Cu	60	~5
Ni	300	~10
Zn	-	-
Co	30	~6
Mn	1000	~100
V	300	~30
Ti	1000	~300
Cr	2000	~100
Mo	10	~1
Sn	10	>10
W	10	-

These results are summarised on the maps on the following eight pages which show distribution of samples and assay results.

I. c. Airborne - Geophysics

Map 4- 215 - 72 - 17

The most conspicuous thing is that the graphite - schist zones were not detected by the airborne survey. The pyrrhotite in them is not magnetic, but they must be good conductors. Probably they are too narrow for the one km intervals of the lines, which were used in the airborne survey.

There is no magnetic anomaly in the mica - schist area not even on granitic gneiss excepting a small spot to the SE of Mokkejavrre. EM - anomalies are detected in granitic gneiss to the north of Lappojavrre, near Vuodasjavrre and to the south of Ruollajavrre.

Clearly anomalous areas:

1. N of Masi
2. Orvsvarre - Fidnatjavrre "synclines" thrust - zone
3. SE of Fidnatjavrre

1. N of Masi

The rock type is greenstone in the area. There are some small scattered magnetic anomalous areas with 5500γ as the highest value. The contact between the greenstone and mica - schists has an EM - anomaly.

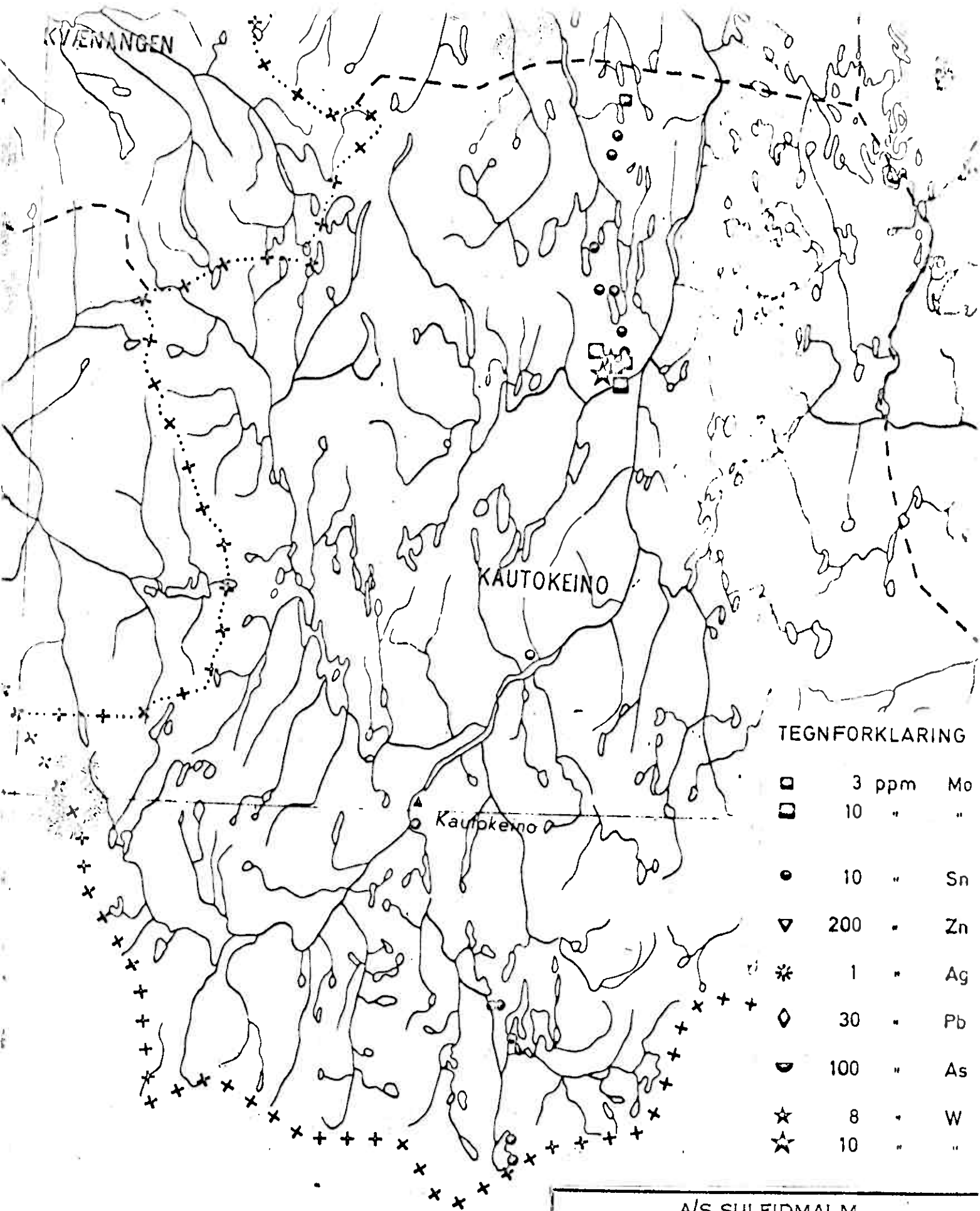
2. Orvsvarre - Fidnatjavrre syncline

Here there is possibly a thrust zone with albite - diabases. The highest mag. values (max. 5800γ) are on the albite - diabase. There is an EM - anomaly group near Njukzajavrre to the east of Masi, which is just in the direction of the mineralized graphite-schist's horizon at Ingajokka. Also one EM - anomaly is in quartzite on the eastern side of Habatjavrre, where NGU reported malachite. And another in the greenschist between diabase and gneiss 4 km to the east of Habatjavrre.

3. SE of Fidnatjavrre

The rock types are diabase, amphibole - and mica - schists. The highest values (max. 5700γ) are probably on diabase, but EM - anomalies are lying on the greenschist between diabase and gneiss.

Two separate EM - anomalies are detected in quartzite near the old road bridge over Masijokka (river) and on greenstone to the north of Biggejavrre.



TEGNFORKLARING

■	3 ppm	Mo
□	10 "	"
●	10 "	Sn
▼	200 "	Zn
*	1 "	Ag
◇	30 "	Pb
◐	100 "	As
☆	8 "	W
★	10 "	"

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MASI, FINNMARK project 905-17

Till sampling (NGU)

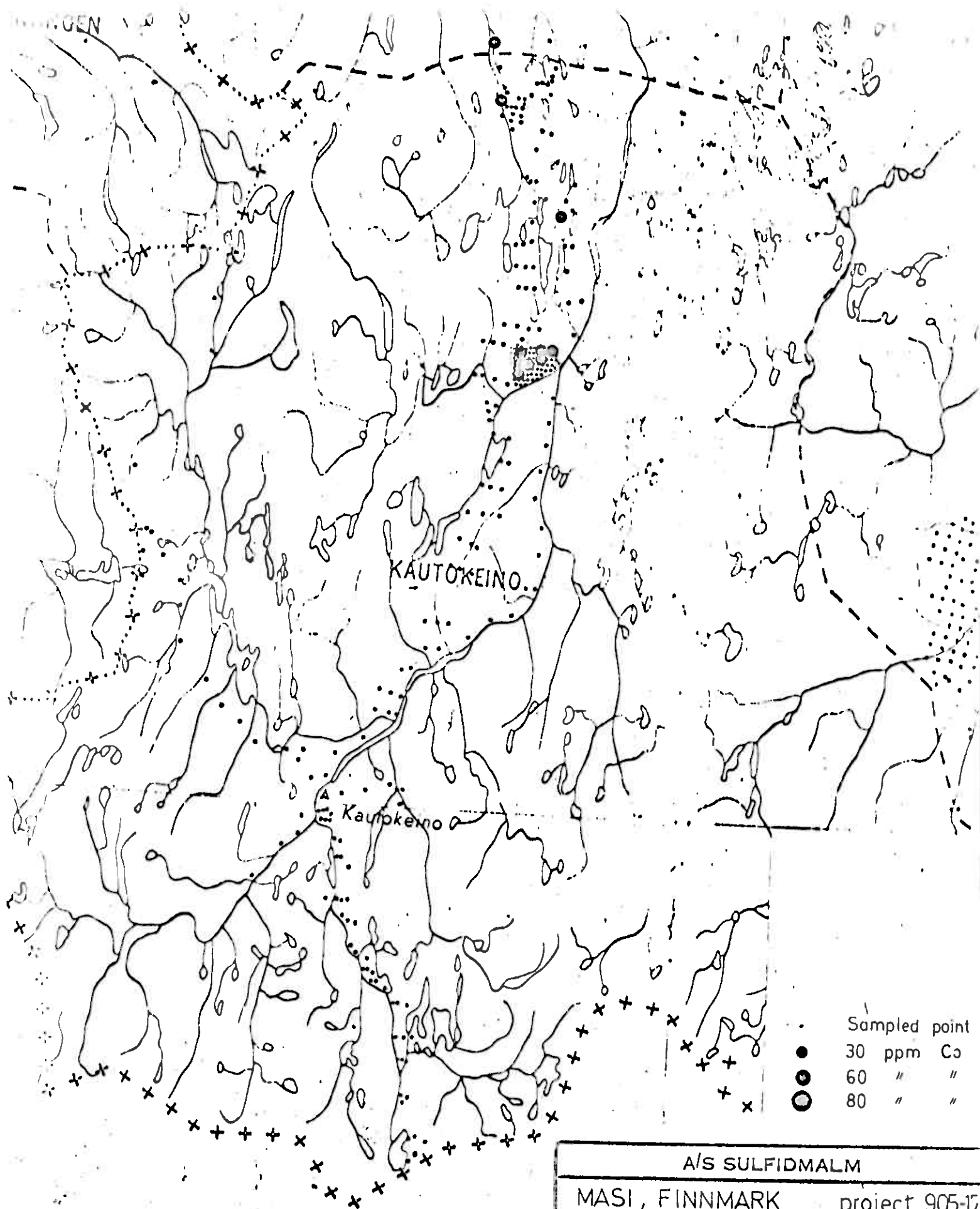
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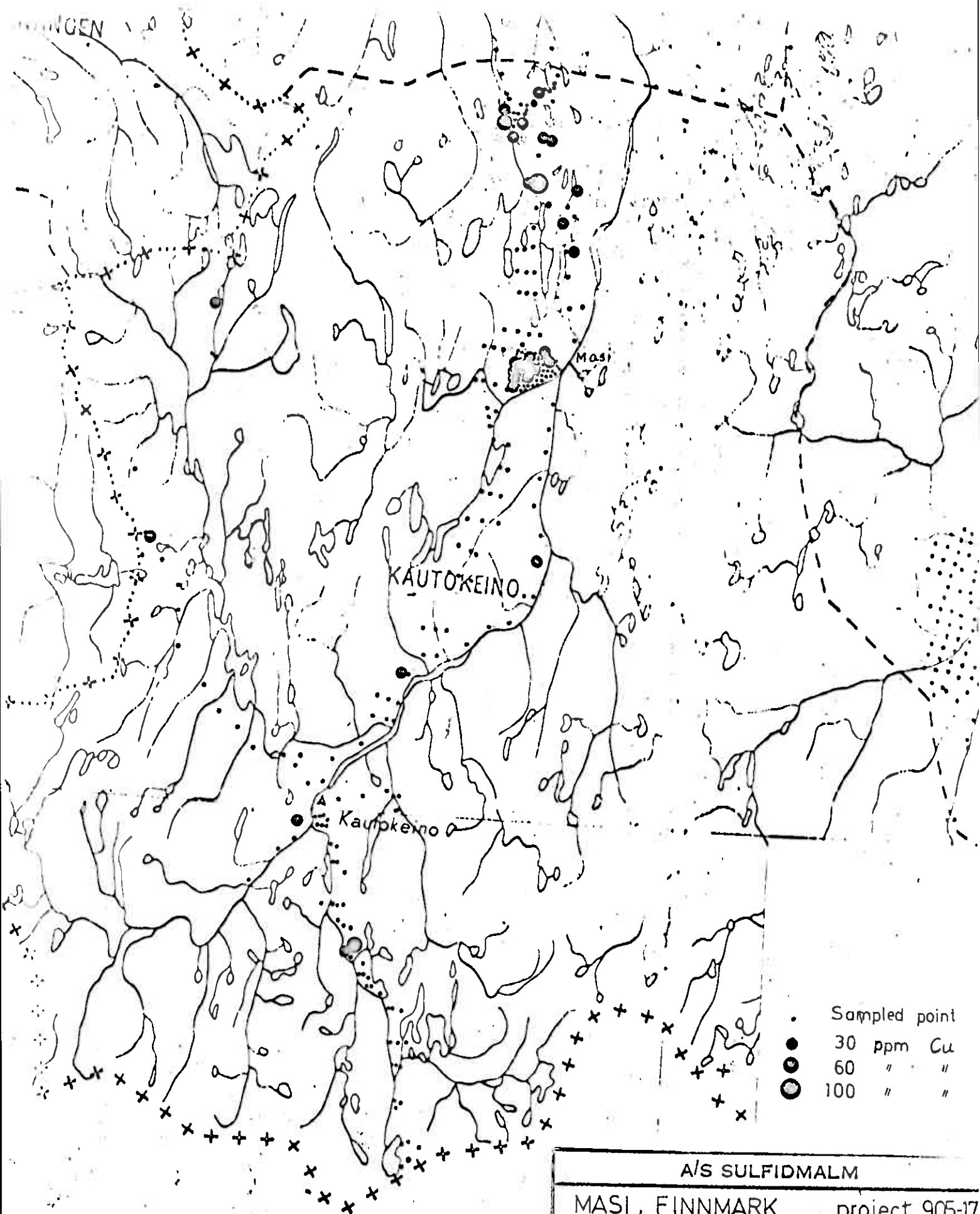
SCALE 1 500 000

DRAHM EV

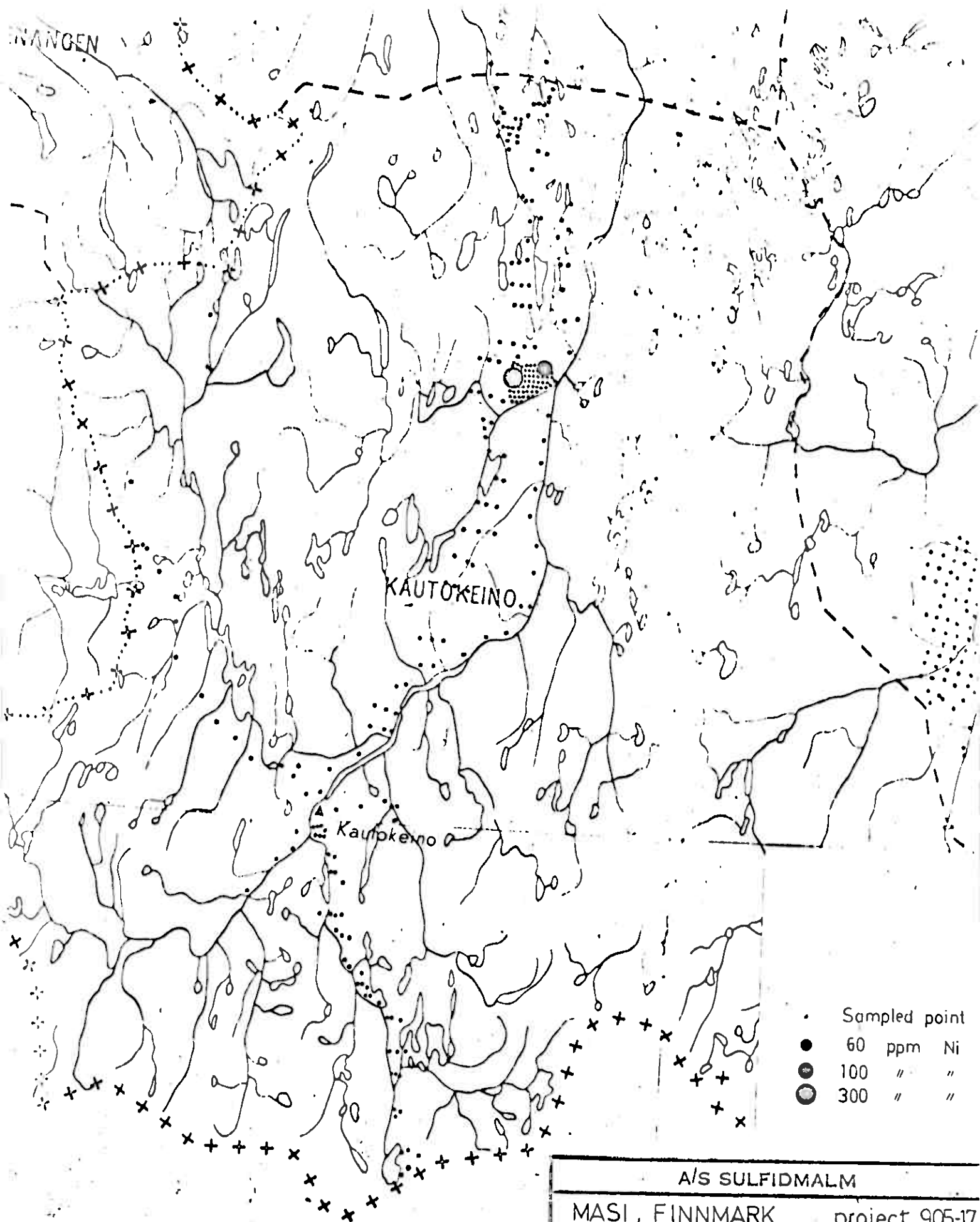
DATE 7-73

TRACED BL



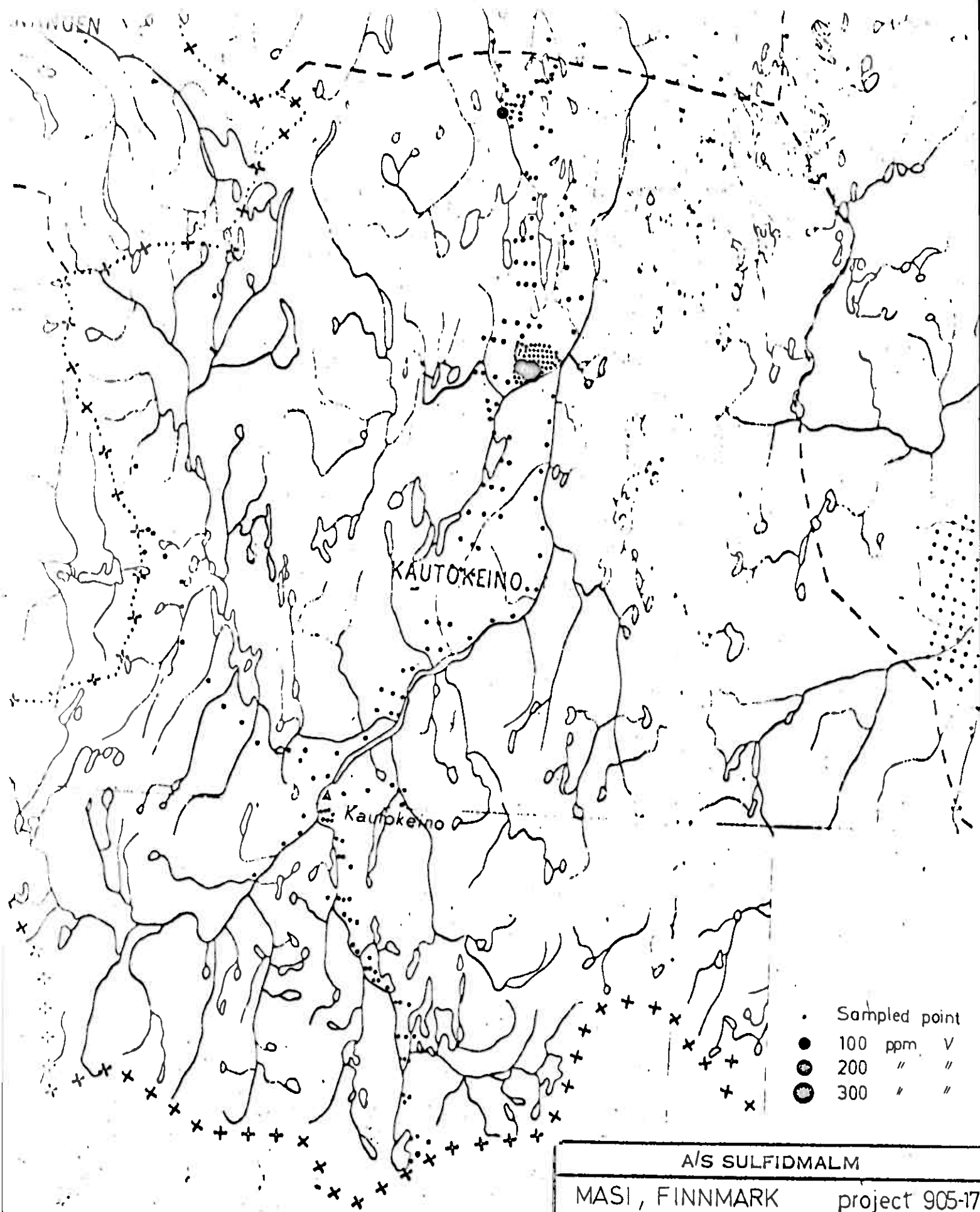


A/S SULFIDMALM	
MASI, FINNMARK	project 905-17
Till sampling	(NGU-70)
215-17-73	
SCALE 1 500 000	DRAWN EK
DATE 2-73	TRACED EL



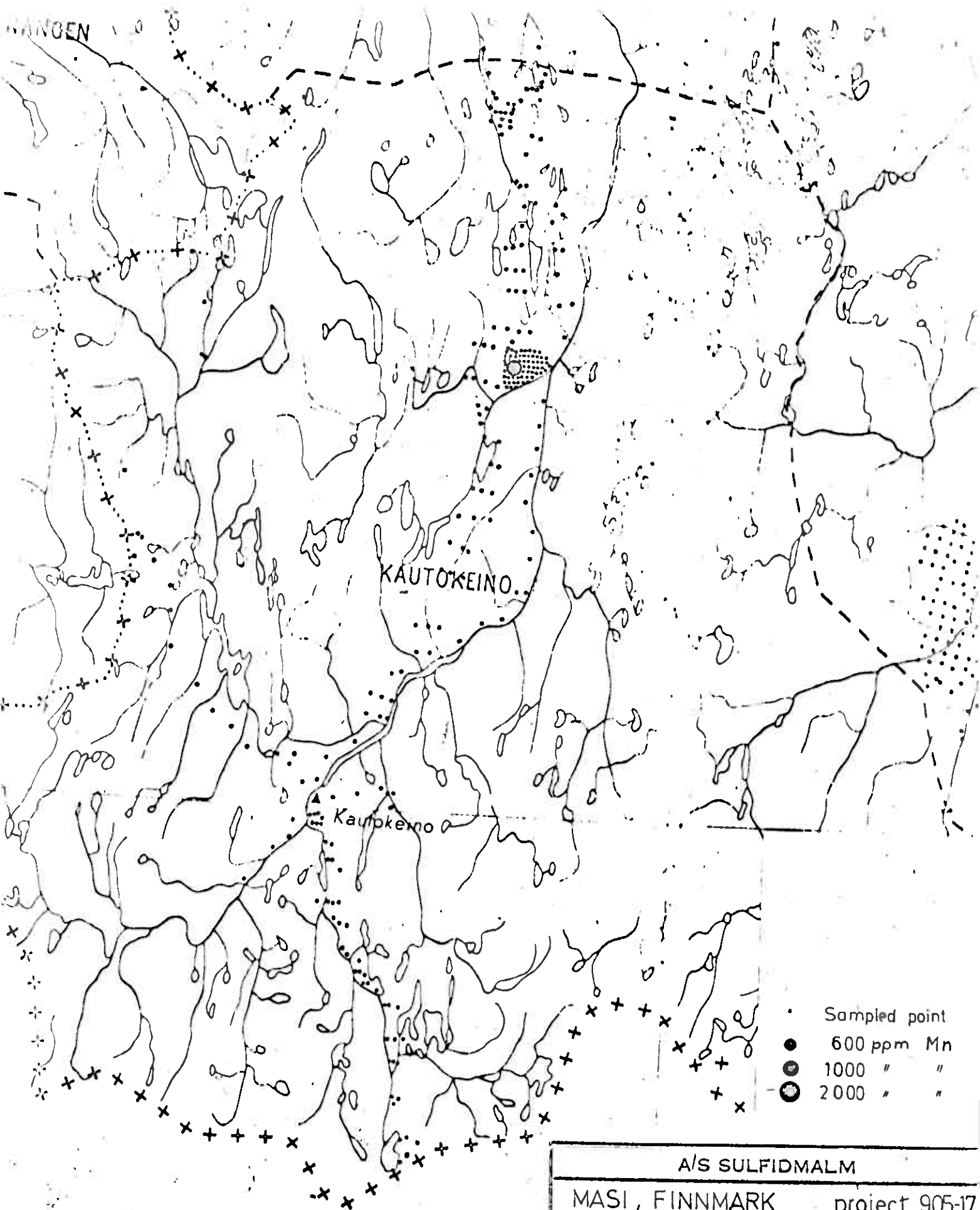
- Sampled point
- 60 ppm Ni
- ◐ 100 " "
- ◑ 300 " "

A/S SULFIDMALM	
MASI, FINNMARK	project 905-17
Till sampling	(NGU-70)
	215-17-73
SCALE 1 500 000	DRAWN EV
DATE 2-73	TRACED BL

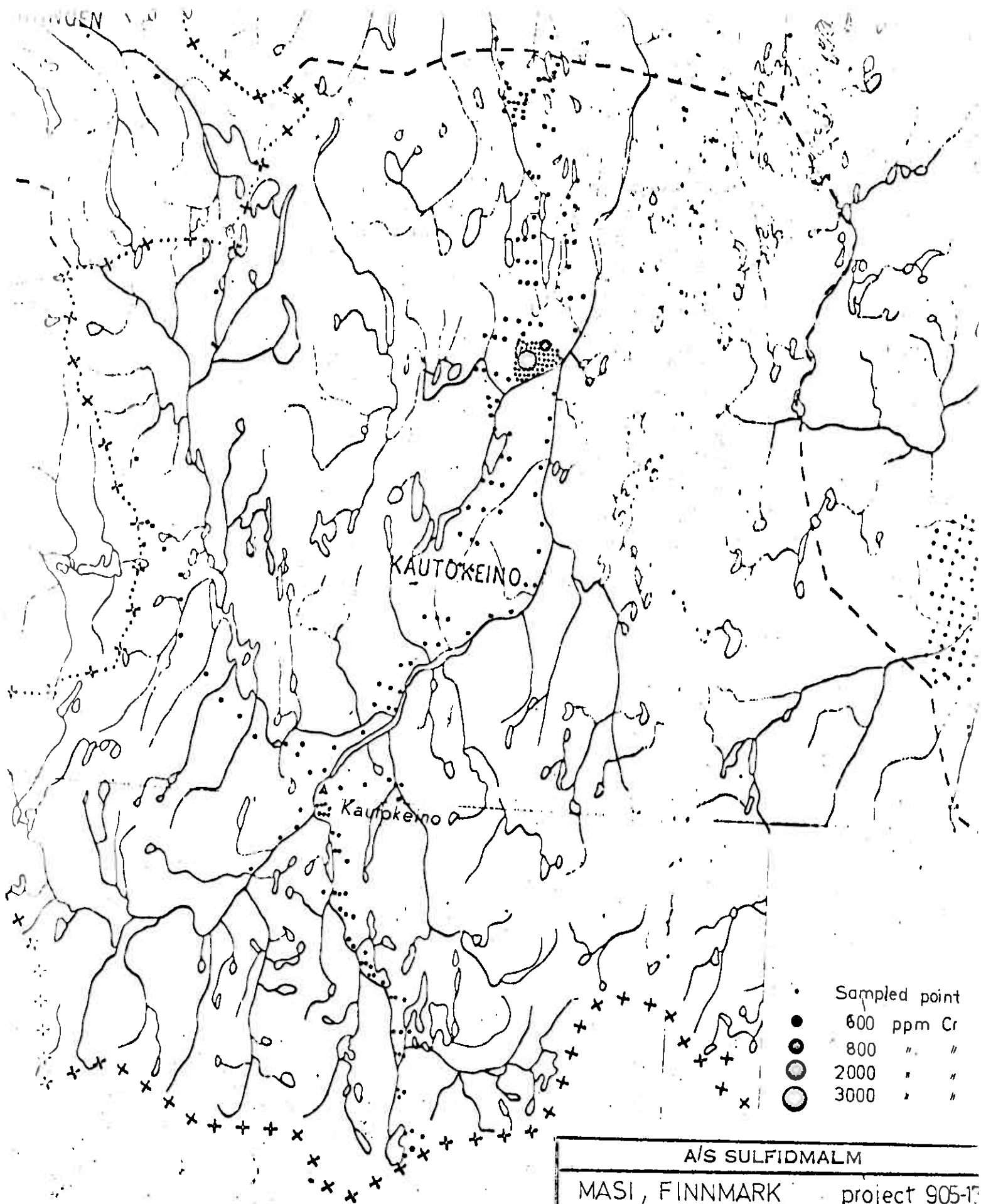


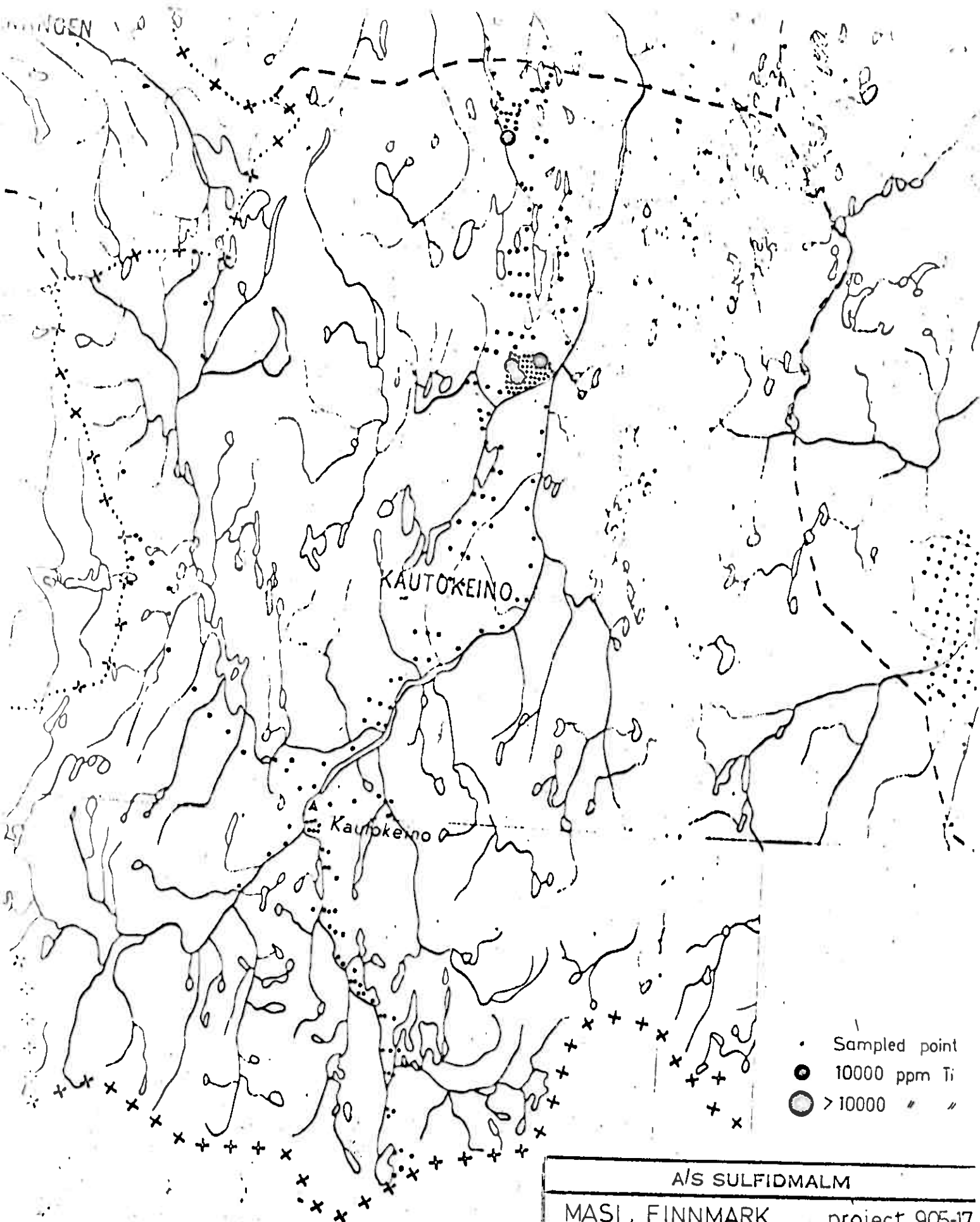
- Sampled point
- 100 ppm V
- ⊙ 200 " "
- ⊗ 300 " "

A/S SULFIDMALM	
MASI, FINNMARK	project 905-17
Till sampling (NGU-70)	
215-17-73	
SCALE 1 500 000	DRAWN EK
DATE 2-73	TRACED EL



A/S SULFIDMALM	
MA SI, FINNMARK	project 905-17
Till sampling	(N60-70)
215-17-73	
SCALE 1 500 000	DRAWN EK
DATE 7-73	TRACED EL





I. d. Geology as described by Peter Padget (NGU Nr. 201)

Map Nr. 5- 215 - 72 - 17

Rock types in the area:

1. Quartzite
2. Conglomerate
3. Quartz - mica schist
4. Greenschists
5. Dark schists
6. Graphite schist
7. Albite - carbonate rock
8. Amphibolites
9. Hornblendites
10. Albite diabase
11. Granitic gneiss

1. Quartzite (To the SW and NE of Masi)

It is usually light coloured, white, grey or pale pink. Often it shows good regular bedding and quite frequently good jointing. At some places it is massive, usually it is banded, too, the bands can be:

- a) feldspar - rich
- b) mica - rich
- c) carbonate - rich
- d) coloured by pigment (Fe)
- e) pebble -, coarse, sandy material - rich

It consists of quartz grains with appreciable amounts of feldspar (often microcline) and micas (muscovite, biotite, more rarely fuchsite) and sometimes carbonate.

2. Conglomerate (On the eastern sides of Biggejavre and Masi)

It is basal to the quartzite owing to overthrusting it may also come to lie within the body of the quartzite and show various degrees of deformation.

The pebbles are quartz, grey coloured quartzite, pink granitic types and also a greenstone fragment has been found. The matrix consists commonly of carbonate, mica (including fuchsite), a little tourmaline and rutile.

3. Quartz - mica - schist (NW corner of the map sheet and narrow zones in quartzites.)

It is usually alternating with more quartzites and more micaceous layers. Hornblende is common especially in the southern part of the large mica - schist area.

4. Green schist (Usually quite narrow long zones in quartzite or in mica schists)

It is usually rich in hornblende, but locally with chlorite as the main mineral.

5. Dark schists

They are dense, fine grained pelitic schists with a weak sulfide impregnation (pyrrhotite and pyrite).

6. Graphite schists

They occur at many localities. They are often discontinuous and have acted as horizons of gliding and overthrusting. It is possible that the various occurrences belong to one of two or three horizons. Impregnations of pyrrhotite and a little chalcopyrite are commonly present, the former giving rise to areas of rust on weathering.

7. Albite - carbonate - rocks (at Masi Jokka)

The main minerals are albitic feldspar and quartz, carbonate occurs at various places. Common, but less abundant minerals include epidote (clinozoisite), actinolite, hematite and scapolite.

They are light coloured where the carbonate component is especially large. Weathering leads to cavernous structure in the rocks. More often the carbonate is intimately associated with other minerals

The following types are distinguished by Padget:

- I White rock: schistose and with planar foliation, chlorite occurs on schistosity planes, otherwise rock composed of albite quartz (clinozoisite, rutile).
- II Grey rock: fine grained, non-schistose and occasionally having clusters of yellowish carbonate (dolomite) and green actinolite, in the main fine grained aggregate of albite, quartz, carbonate.
- III Red rock: as for II, but with slight hematite staining, occasional blebs of quartz give the rock a conglomeratic appearance, other minerals include plagioclase, carbonate, chlorite, (titanitic).
- IV Spotted schist: biotite flakes orientated parallel with each other and having scapolite poikiloblasts.

8. Amphibolites

The amphibolites are usually lense - like, dark and fine-grained rocks. They contain pyroxene (pigeonite), altered to hornblende and a little plagioclase (Anzo) with ore, epidote and chlorite as accessories.

8. Amphibolites (continued)

Usually the lenses are smaller and consist mainly of hornblende and plagioclase (An35). Usually all traces of original structures have disappeared and the lens itself may be gneissic, granitized or cut by aplite and pegmatite veins parallel orientation of the hornblende - needles is also common, giving a lineation.

9. Hornblendites

These generally have a tendency to lie conformable to the enclosing schists. Hornblendites in mica - schist areas are characterized by the presence of hornblende with only small amounts of other minerals. The chief occurrences lie between the Masiokka and the road junction, where the road from Masi joins the old main Alta - Kautobeine highway. They occur in the dark schist - group and are intruded into both mica schist and greenschists. They appear to be rather thick and lens - like. Hornblende and biotite are the main constituents. Carbonate, scapolite and chlorite are also present sometimes.

10. Albite diorites (3 km to the east of Masi and to the SE of Biggejavre)

These consist mainly of albitic, feldspar and hornblende often with a pinkish colour and small quantities of titanite and epidote in a weakly metamorphosed condition. Small quantities of ilmenite, magnetite and locally pyrite or pyrrhotite are usually present.

11. Granitic gneiss (In the eastern part of the map sheet)

The border of granitic gneiss with the schists is quite sharp and appears to pass conformably beneath them.

It is concluded that the granitic gneiss zone is one of extensive granitization of the synkinematic type.

Within the area of the granitic rocks large and small lenses, schlieren relics etc. of schists occur. These include mica - schists, greenschist quartzites - all common types in the so - called westerly supracrustals and soapstone.

GENERAL GEOLOGY IN THE AREA

Within the quartzite area, narrow zones of greenschist and mica-schist occur. Their stratigraphic relationship to the quartzite is uncertain, but those forming the mountain Orvšvarre, east of Masiokka possibly overlie it. Quartzite is often highly deformed and much recrystallized due to thrusting. It is therefore suggested that the diorite were intruded into these planes or zones of movement.

Index minerals apparently critical for the increasing metamorphism are chlorite, brown biotite, garnet, staurolite and sillimanite.

Structural map of Vest-Finnmark.

Legend:

- C anticline
- D syncline
- - - culmination
- Y small anticline
- . - fault
- V overthrust
- ← lineation

Scale 1:500,000
0 5 10 15 20 Km.

Masi 17
Structural comp
Fig 1

DRAWN

71A0113

STRUCTURE Fig. 1.

The main structural units are:

- a) The Orvsv^vvarre - Fidnatjav^vrre "syncline"
- b) The Vardn^vjas anticline
- c) The Dabmutjav^vrre syncline
- d) The Masi Overthrust

a) THE ORVSV^vVARRE - FIDNATJAV^vRRE "SYNCLINE"

Masi quartzite shows it to be disposed in a synclinal form with an axis trending mainly KNE. Its westerly limb shows easterly dips and it is supposed that its contact with underlying schists is a thrust one. The easterly limb of the syncline seems to have a rather gentle westerly dip. The zones of deformation also appear to dip to the west. One of these close to the base of the quartzite, appears to have been intruded by sills of albite - diabase. It may be interpreted as a thrust plane. In the western side of the syncline minor thrust - planes are common and are inclined down to the east. Strong lineation is developed parallel to the fold axis and marked jointing at right angles. The greenstones forming much of Orvsv^vvarre and others SE of Fidnatjav^vrre may lie in the axial zone like mica schists to the south of Fidnatjav^vrre. One major fault within this axial zone is presumed to limit the greenstones on Orvsv^vvarre to the east and travels SSW across the Kautokeineelv.

b) THE VARDN^vJAS ANTICLINE

It apparently has a NNE - SSW axis and plunges to the NNE. The core of the fold is mainly mica-schist, much granitized.

c) THE DABMUTJAV^vRRE SYNCLINE

This syncline is a combination of thrusting, normal faulting and folding. Quartzite is disposed in a syncline, which plunges to the NNE. It is, however, broken by faults trending in a more N-S direction along its core. Here narrow strips of mica-schist and greenschist occur. Mylonization of the quartzite is seen at a few places.

d) THE MASI OVERTHRUST

To the east of Biggejav^vrre the distinctive basal conglomerate is repeated several times by thrusting and in addition to the imbrication the quartzite is often very highly deformed with complete loss of bedding and intense recrystallization. The thrust is everywhere quite steep, probably heading at a small angle to the east and has the movement in a westerly direction. It is suggested that this overthrust reappears on the east side of the Orvsv^vvarre - Fidnatjav^vrre syncline. Almost exactly the same structure is deduced for the

d) THE MASI OVERTHRUST (continued)

Dabmatjavre syncline. It thus seems that the beds have first been thrust and later folded into synclines.

The main structure in the area to the north of Masi-river is most complicated and it is difficult to give even a general idea.

I. e. Economic geology

The following classification is proposed by Pageet for the area:

- a) Layered (sedimentary) deposits: mainly impregnations of pyrite-pyrrhotite - (chalcopyrite) in dark, often graphitic schists.
- b) Epigenetic deposits: chalcopyrite, pyrite, hematite as vein fillings and in metasomatic alteration.

a) LAYERED DEPOSITS

1. Dark schist group

The occurrences are to be found at various places from the Masi-jokka north wards to Svolovvobme.

The following occurrences are mentioned:

I Masijokka, northerly loop in river, 1 km NNW of roadbridge.

Brecciated graphite schist with infilling of pyrrhotite and a little chalcopyrite.

Assayed 0,45% Cu

0,07% Ni

0,02% Co

35,57% S

II Varetjokka, a stream close to the road to Masi:

Dark, pelitic schists with a weak pyrrhotite and pyrite impregnation.

III Njakkalevšejokka, a stream SW of road to Masi, entering Masijokka on its NW bank. Mica - and quartz - mica schists show a weak pyrite impregnation through several meters. Graphitic schists show also an impregnation as elsewhere. Locally brecciation of the graphitic layer is visible and there is a distinct sulfide infilling.

The sulfides are believed to be largely of syngenetic origin. Locally gliding on the graphite horizons has brought about brecciation and here a local increase of sulfide occurs as an infilling.

b) EPIGENETIC DEPOSITS

I Masijokka roadbridge

Schists locally altered to albite-carbonate rocks (+ some quartz) and cut by veins of carbonate with aggregations of pyrite

Assayed: 0,19% Ni

0,53% Co

Sulfide-occurrences in the epigenetic deposits in Finnmark show clear relationships to the albite-carbonate rocks, which are largely the result of metasomatic alteration. The rock often contains: magnetite, pyrite, chalcopryite, ilmenite, molybdenite in minor quantities.

II E of Håbatjavrrre, 5 km S of Masi

Malachite in the cliffs of Kautokeinoelv.

III 4 km NE of Masi

Chalcopryite, pyrrhotite and magnetite, the latter occurring as alteration veins in the pyrrhotite. The occurrences are small, but are apparently in rocks having undergone tectonic deformation (Masi overthrust).

I. f. Summary of interesting areas indicated by the NGU studies

(Located on the relevant part of Map 14-215-72-7)

- 1) Ingajokka-Masijokka
- 2) Stuvoravadda
- 3) Roauvejavrre
- 4) SE of Masi
- 5) NE of Masi
- 6) Lappojavrre

- | | |
|------------------------|-------------------------------|
| 1) Ingajokka-Masijokka | -weak Mag-anomaly |
| | -Cu, Ni, Zn, Pb, Co-anomalies |
| | -Masi-overthrust zone |

- 1) Ingajokka-Masijokka
(continued)
 - gabbro, albitite, graphite-schists, quartzite, mica-schists, greenstones and greenschists
 - found a mineralized zone in graphite schist
 - followed up in 1972 by prospecting and fill sampling
 - needs more prospecting, ground geophysics, till sampling
- 2) Stueravadda
 - no aerogeophysical anomaly
 - high Cu, Ni, Zn and Co-anomalies
 - graphite schist, mica schist, amphibolite
 - needs prospecting and till-sampling
- 3) Roauvejavrre
 - Mag/EM-anomalies
 - weak Cu, Ni-anomalies
 - mica-schist-amphibolite-contact, rusty zones
 - needs prospecting
- 4) SE of Masi
 - Mag/EM -anomalies
 - malachite in quartzite
 - quartzite, albite diabases, greenstones, greenschists, conglomerate
 - needs prospecting
- 5) NE of Masi
 - Mag - anomalies
 - found cp in bedrock
 - amphibolites, hornblendites
 - needs prospecting
- 6) Lappojavrre
 - EM anomalies
 - in granitic area
 - needs prospecting

II. a. 1972 Prospecting in the area

Some till sampling and mapping was carried on in Roavvejokka and Varetvarre areas. Boulder tracing was done along the roads and till sampling and more detail mapping in the Ingajokka - area. Results are summarised in map 6-215-72-17.

II. b. Ingajokka area

Near Ingajokka there was found by boulder tracing a long possibly more than 8 km long mineralized zone in an E-W direction. It was mapped a narrow, about 4 km long part of it at a scale 1:5000. There is massive pyrrhotite with pyrite and minor chalcopyrite concentrated in a graphitic schist brecciating it. Where the zone is not exposed, we can follow it, because it is indicated by many rusty areas, where the sulfides have completely burnt the organic material, where the water conditions have been suitable.

Because of the gently sloping bedding in the western part, it is fine to see the sulfide - rich layer restricted by faults along a stream called Njakkalavsejokka at its banks and on its bottom in a half kilometer long section. Here a 3 m thick graphite layer is almost completely brecciated by massive pyrrhotite with rare grains of chalcopyrite. It is poorer in sulfides at the top and just at the bottom of it there was found often a little chalcopyrite in thin layers. The southern most side contained pyrite.

In the eastern part of the mapped zone the bedding and schistosity are dipping southwards from 20 to 30 degrees, but in the western part to the NW from 10 to 30 degrees. The faults are vertical with the direction of EW.

Because of the lack of outcrops it is hopeless to follow the zone to the west. One mineralized outcrop of the same type was found about 1 km to the west of the mapped area and there is another similar outcrop at Masi - river about 3,5 km to the west. One can assume that the same horizon possibly continues until the nickel - anomalies about 10 kilometers to the west of the mapped area.

The highest assay results of till samples:

Cu	Ni	Zn	Co	As	Sn	TiO ₂	V	Cr
580 ppm	205	195	97	60	5ppm	3,59%	1090ppm	1160

The assay - results of the rock - samples:

	Ni	Co	Cu	Fe	S
42/EK/17/72	0,20		0,06	51.6	33.6
64/EK	0,16		0,29	19,0	11.0

(continued)

	Ni	Co	Cu	Fe	S
69/EK	0,11	0,076	1.1	36.0	20.6
65 ^a /EK	0.17		0.18		25.4 Mo 0.03
65 ^b /EK	0.12		0.65		11.0
75 ^a /EK	0.12		0.17		28.8 As 0.016
75 ^b /EK	0.08		0.10		32.4

The assay - results of the block - samples:

	Ni	Co	Cu	S	Zn	Au
14/TH/17/72	0,08	0,04	0,11	18,7	0,002	<0,005
15/TH	0,07	0,01	0,10	21.9	0,002	"
24/TH	0,06	0,02	0,12	32,3	0,002	"
31/TH	<0,05	0,01	0,08	24,1	0,003	"

In the middle of the mapped area was found an actinolite - chlorite - schist with up to 1 cm thick layers of magnetite. The rock contained about 50 % magnetite in volume.

The graphite schist is lying between amphibolites to the west. Above the amphibolite there is a gabbroic rock. Just under the graphite schist there is a thin layer of phyllitic rock, which is wideing to the north, where the rock is very folded, the fold axis plunging 28 degrees to the NW. In the east the graphite schist is lying on a mica schist and above it there are quartzite, amphibolite and gabbroic rock. Between the amphibolite and gabbro there are pegmatitic rocks.

The tectonic features seem quite strong ones. According to the discordances in the area instead of the folds and the vertical faults probably the graphite schist layer has been as thrust plane before the faults have been produced.

II. c. SW area of the map sheet

In the south western most corner of the map sheet there was found some sulfide bearing blocks:

8/TH Epidote - rich gabbroic rock with rare grains of pyrite and chalcopryrite.

II. c. SW area of the map sheet (continued)

9/TH Coarse grained gabbroic rock with rare grains of pyrrhotite which were positive with DMG.

10/TH Amphibole gneiss with a little of pyrrhotite

11/TH Massive quite fine grained pyrite

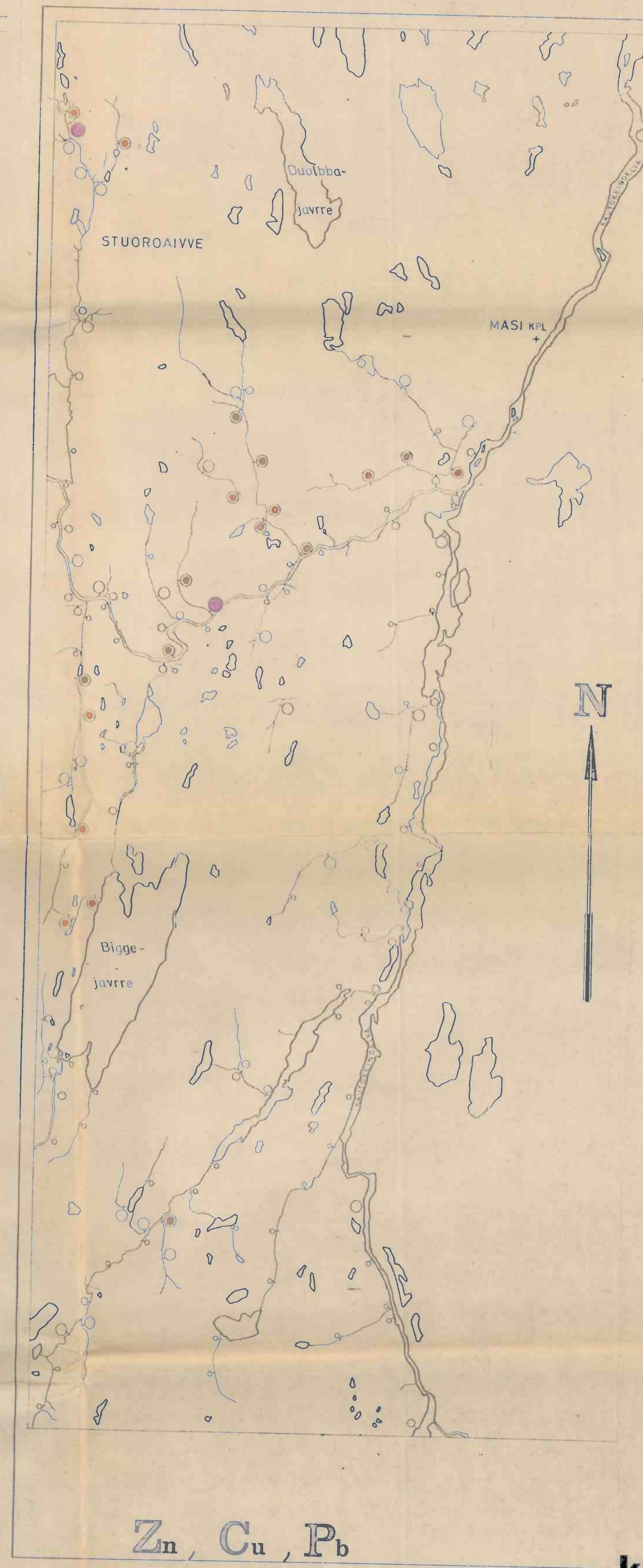
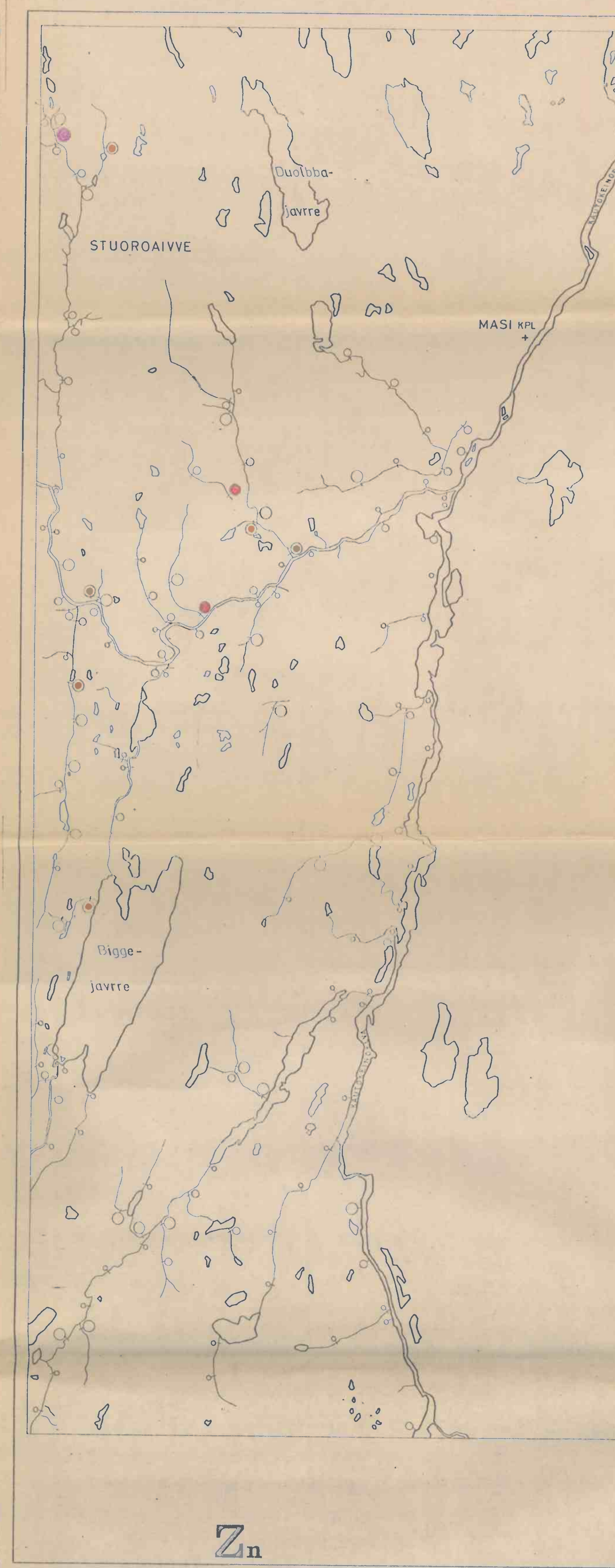
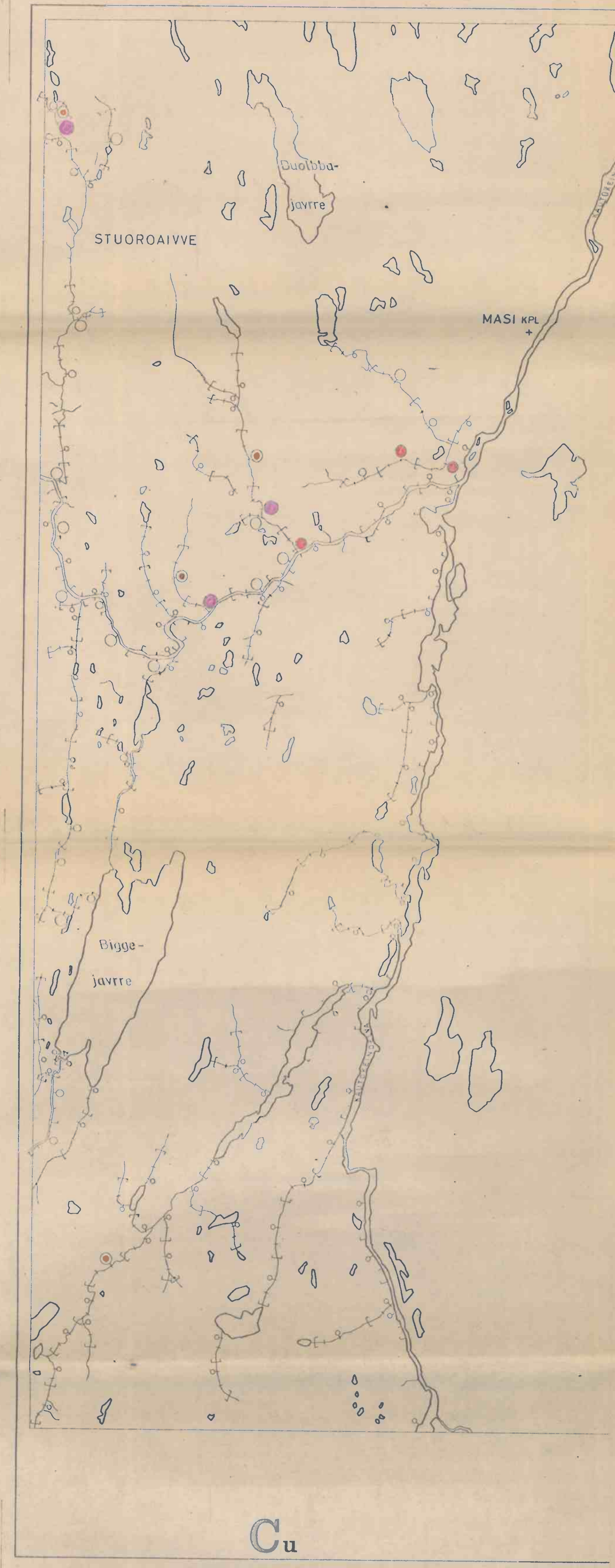
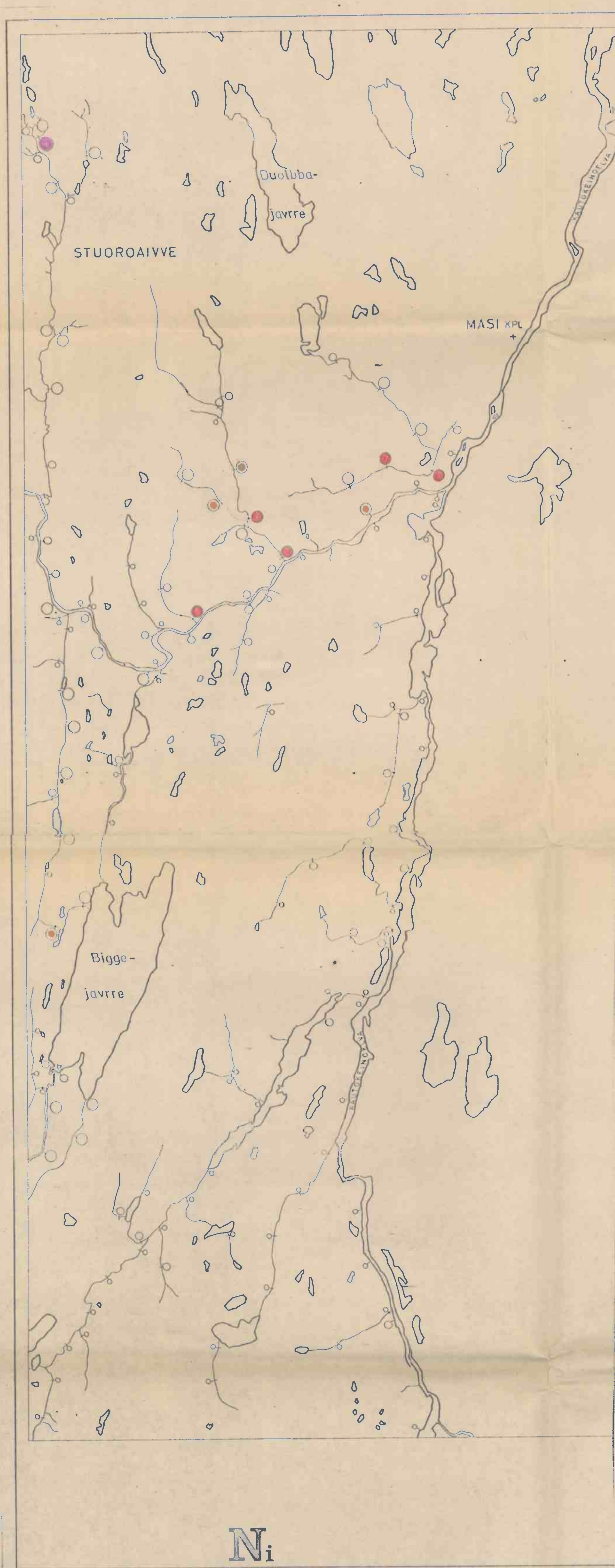
These boulders are lying on the Orvvšvarre - Fidnatjavre synclines magnetic zone.

II. d. Boulder tracing

The boulder tracing between Nasi and the old Alta-Kautokeine highway defected a lot of the Ingajokka - type blocks according to which the mineralized zone was found later on. The direction of the movement of ice is about from the south to the north.

II. e. Till sampling

Till profiles were sampled in ones indicated to be of interest from the NGU studies. Results are shown on map number 7-215-72-17.



key:

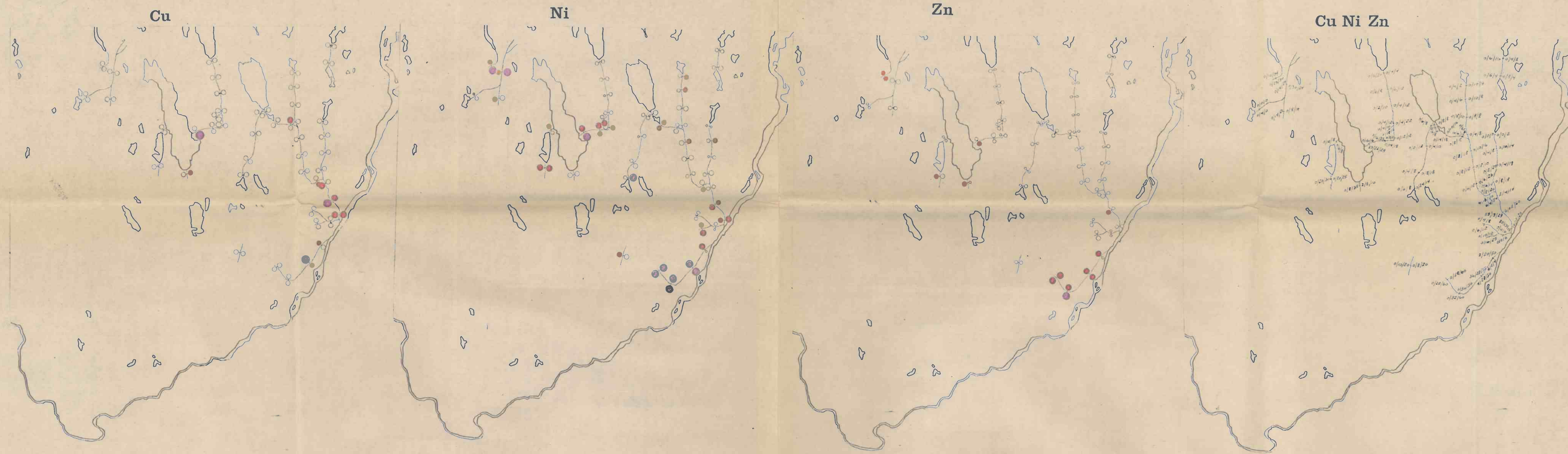
- Anomalous
- Prob. anomalous
- Poss. anomalous

Acid extractable Ni, Cu, Zn and Zn/Cu/Pb
in stream sediments.

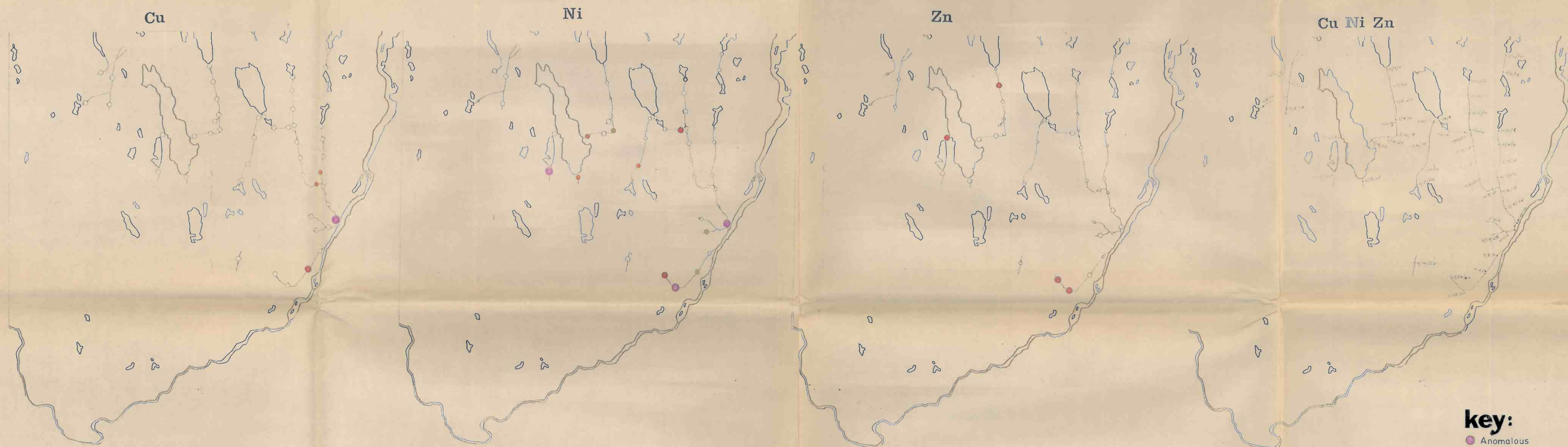
masi

% SULFIDMALM

SCALE	1:50,000	OBS.	1.3.63
DRAW.	EH	TRAC.	NGU
CHK.			
MAP NO.	1-215-72-17		
MAP SHEET	1933 IV		



BANK SAMPLING



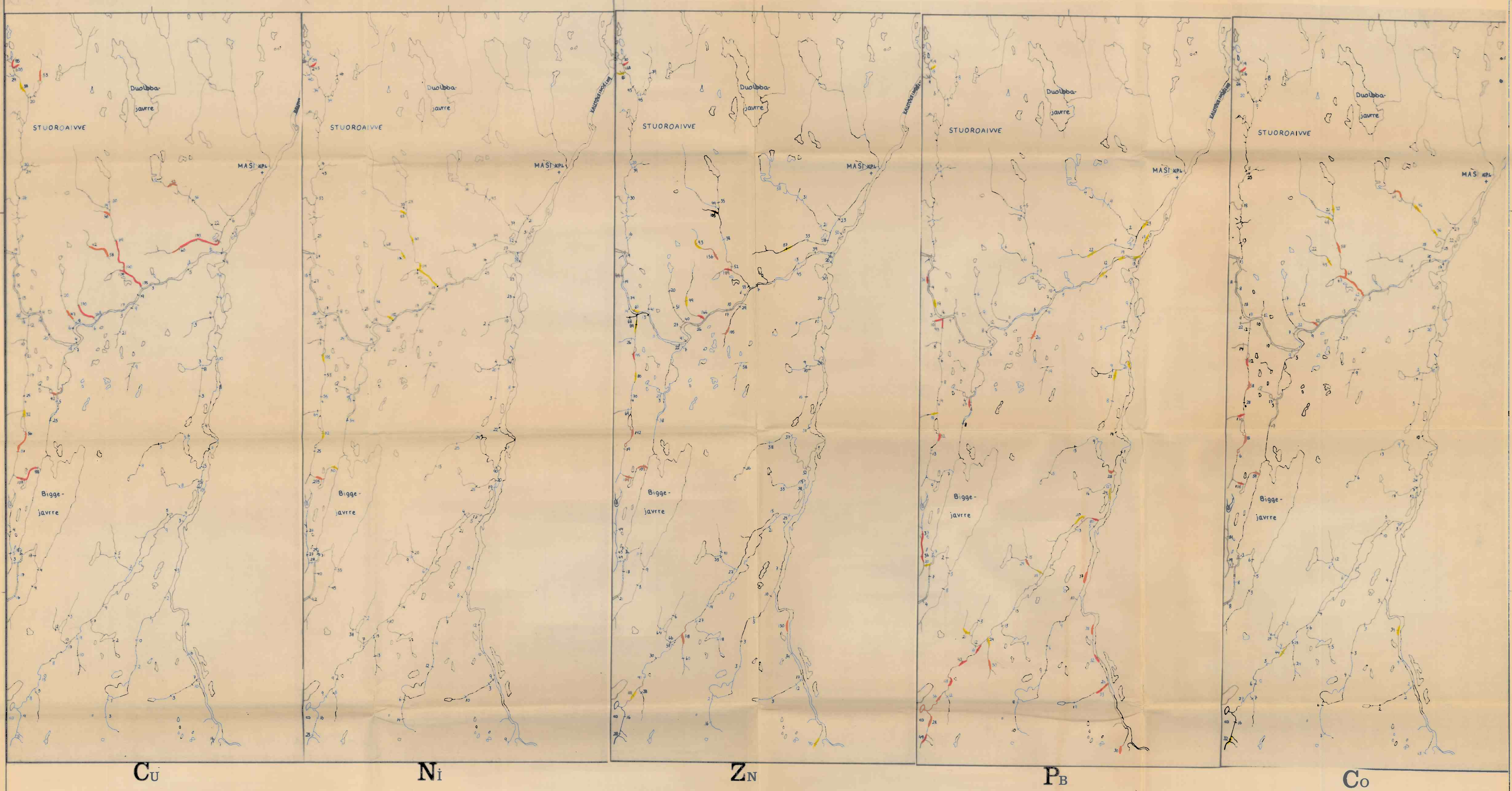
ACTIVE SEDIMENTS

key:

- Anomalous
- Prob. anomalous
- Poss. anomalous



Acid extractable Cu,Ni,Zn in stream sediments.		SCALE	ORL
masi		1:50 000	DIAM. E14 3-63
SULFIDMALM		CHK	TRAC. NGU
		MAP NO.	2-215-72-17
		MAP SHEET	1933 IV



— POSSIBLE ANOMALY 30-40 ppm
 — PROBABLE " 40-60 "
 — ANOMALY " > 60 "

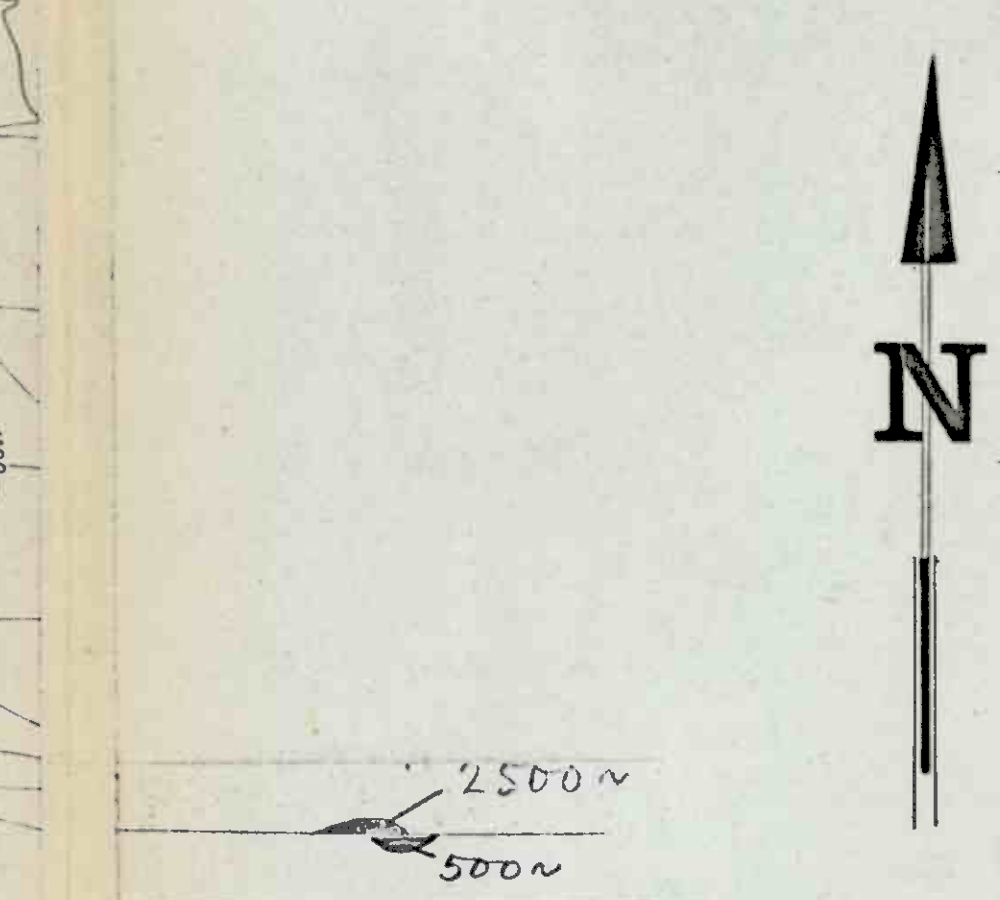
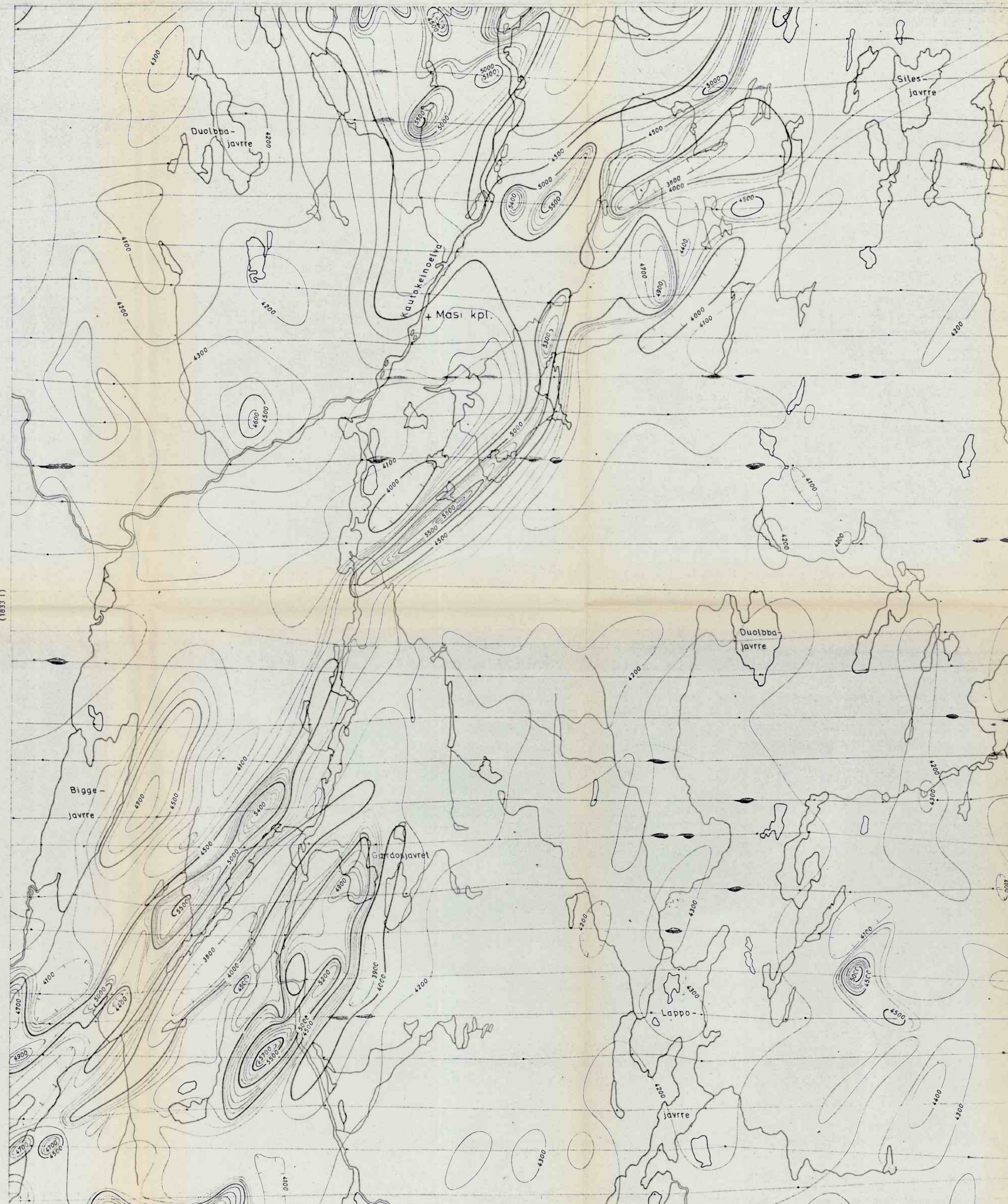
— POSSIBLE ANOMALY 70-120 ppm
 — PROBABLE " 120-190 "
 — ANOMALY " > 190 "

— POSSIBLE ANOMALY 80-100 ppm
 — PROBABLE " 100-140 "
 — ANOMALY " > 140 "

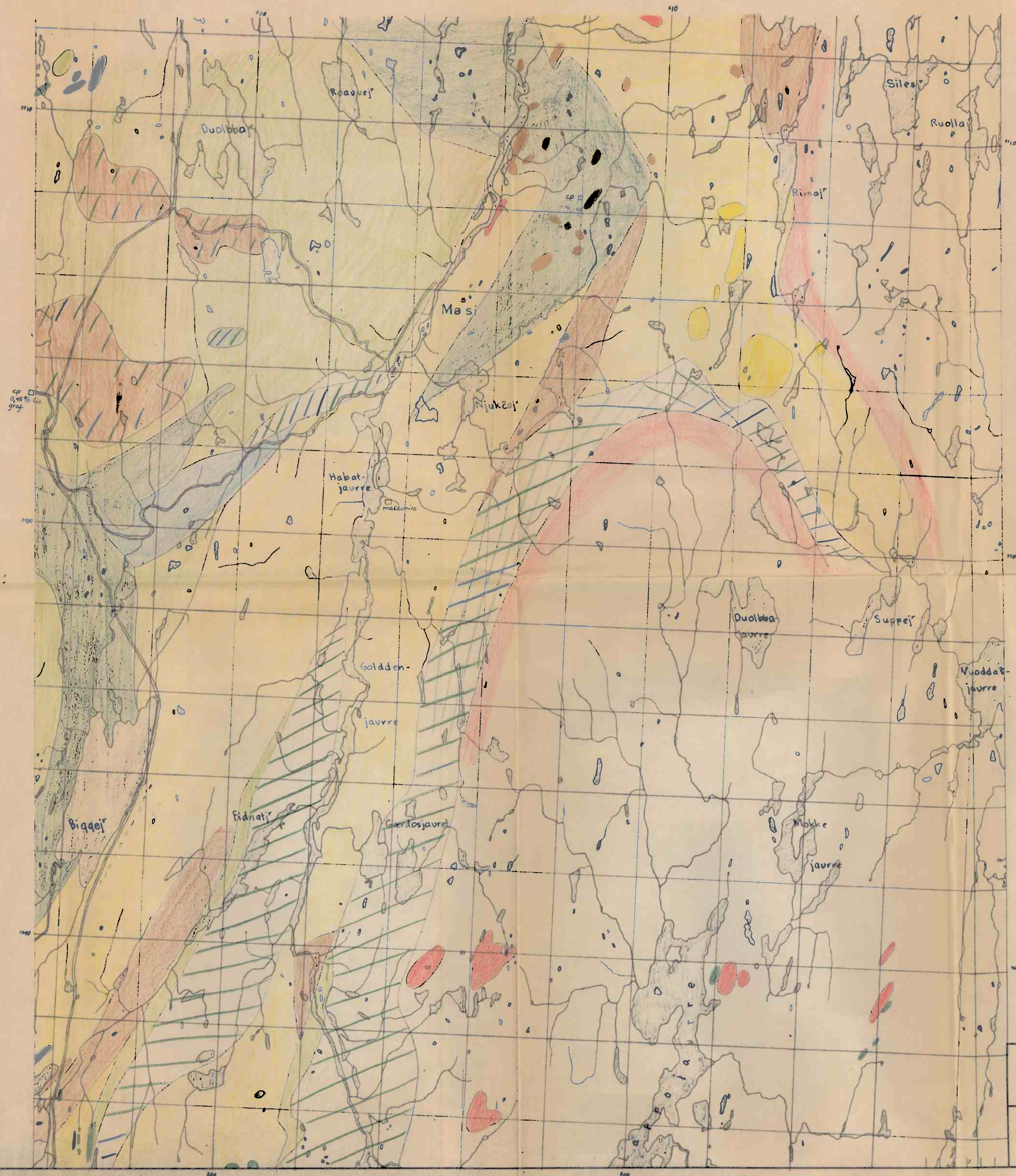
— POSSIBLE ANOMALY 17-20 ppm
 — PROBABLE ANOMALY 25-30 "
 — ANOMALY " > 30 "

— POSSIBLE ANOMALY 30-100 ppm
 — PROBABLE " 90-200 "
 — ANOMALY " > 200 "

MASI Acid extractable Cu, Ni, Zn, Pb, Co in point stream sediment samples	1:50,000	NGU 1972
	1:50,000	1:50,000
	1:50,000	1:50,000
% Sulfidmalm		



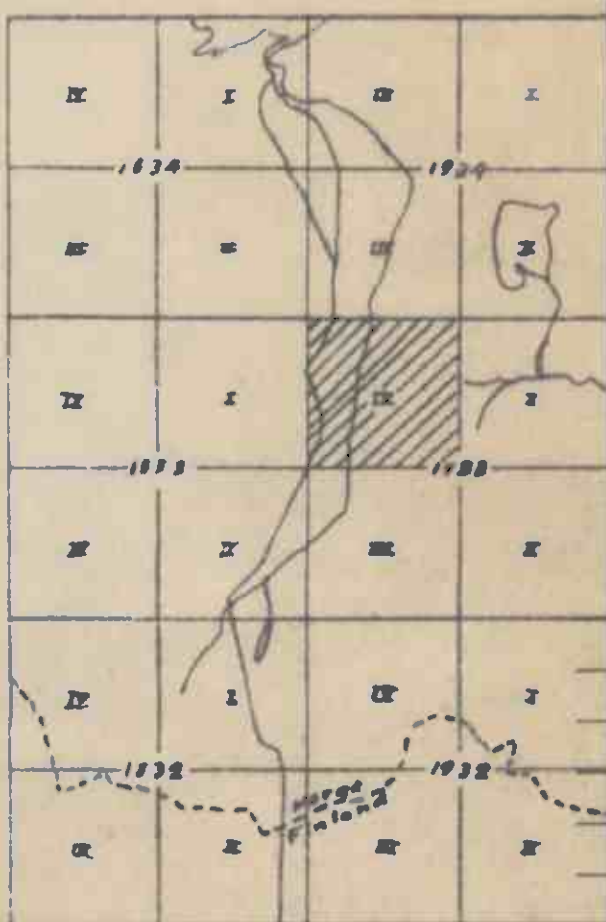
MASI Aeromagnetic and electromagn. map	SCALE	OBS.	NGU
	1:50 000	DRAW.	
		TRAC.	
		CHK.	
SULFIDMALM	MAP NO.	4-215-72-17	
	MAP SHEET	1933 IV	



KEY:

- Granite, pegmatite, granitic gneiss
- Quartzite, feldspathic grit.
- Conglomerate
- Quartz-mica schist
- Albite-carbonate rock
- Graphite schist
- Dark schists, greenschists
- Amphibolite, greenstone
- Hornblende, albite diabase
- Argillite
- Ore-minerals in block/bedrock

- Chromite
- Chalcopyrite
- Chalcosite
- Pyrite
- Pyrrhotite
- Pentlandite
- Sphalerite
- Galena
- Molybdenite
- Magnetite
- Hematite
- Arseno-pyrite



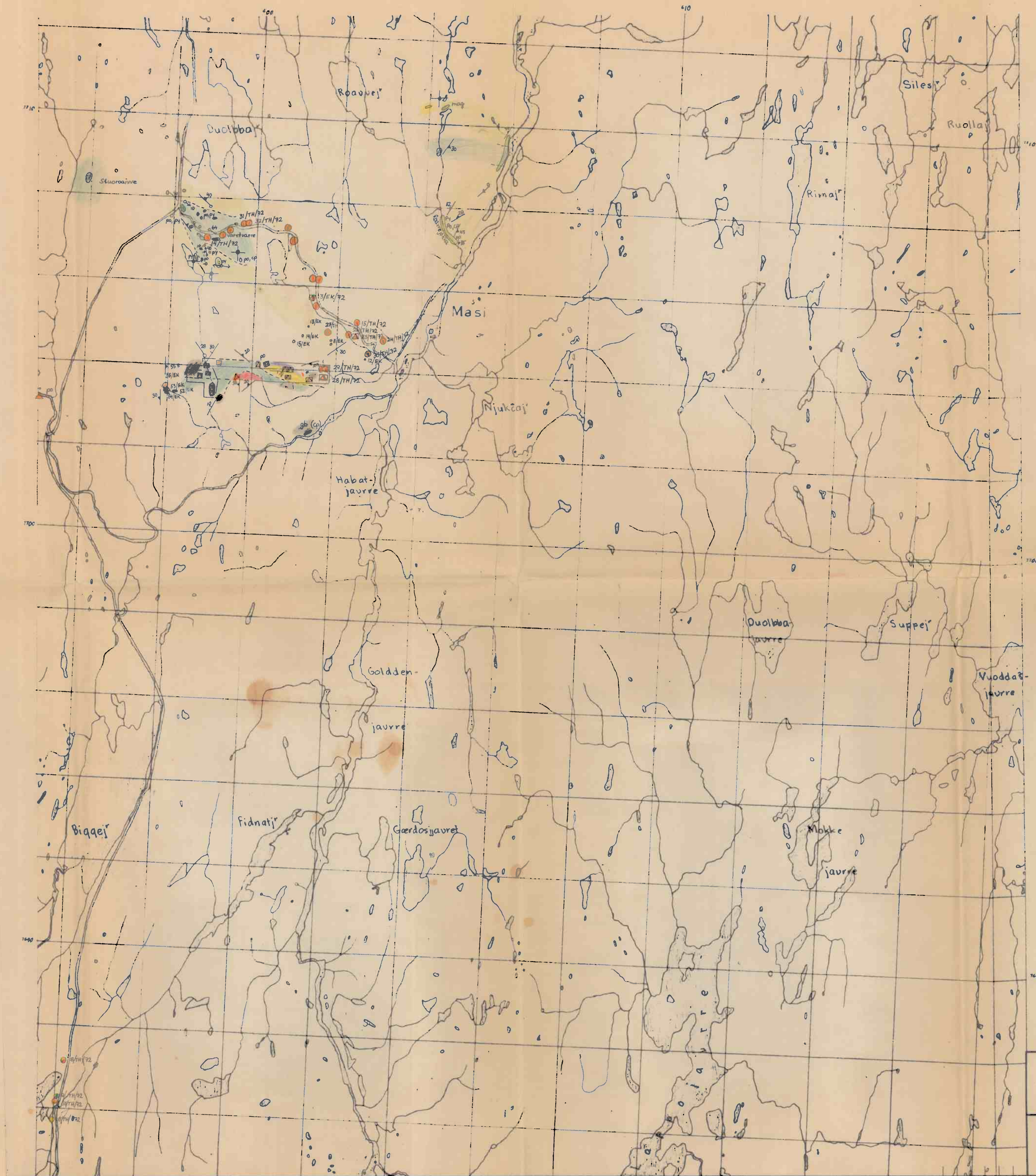
MASI
Geology according to NGU

1/2 SULFIDMALM

SCALE	1:50 000
OBS.	
DRAW.	
TRAC.	
CHK.	

MAP NO.	1933 IV
	MASI
MAP SHEET	5-215-72-17

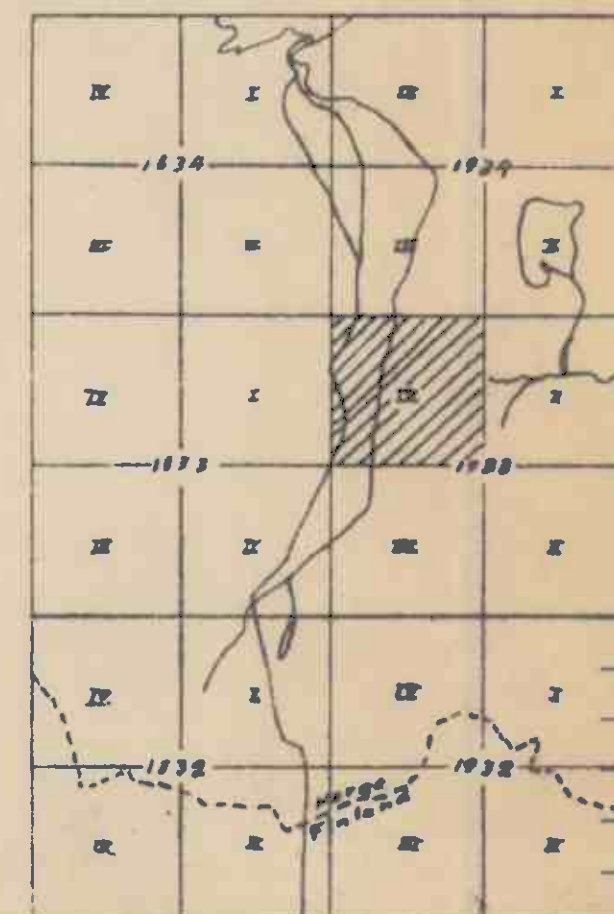




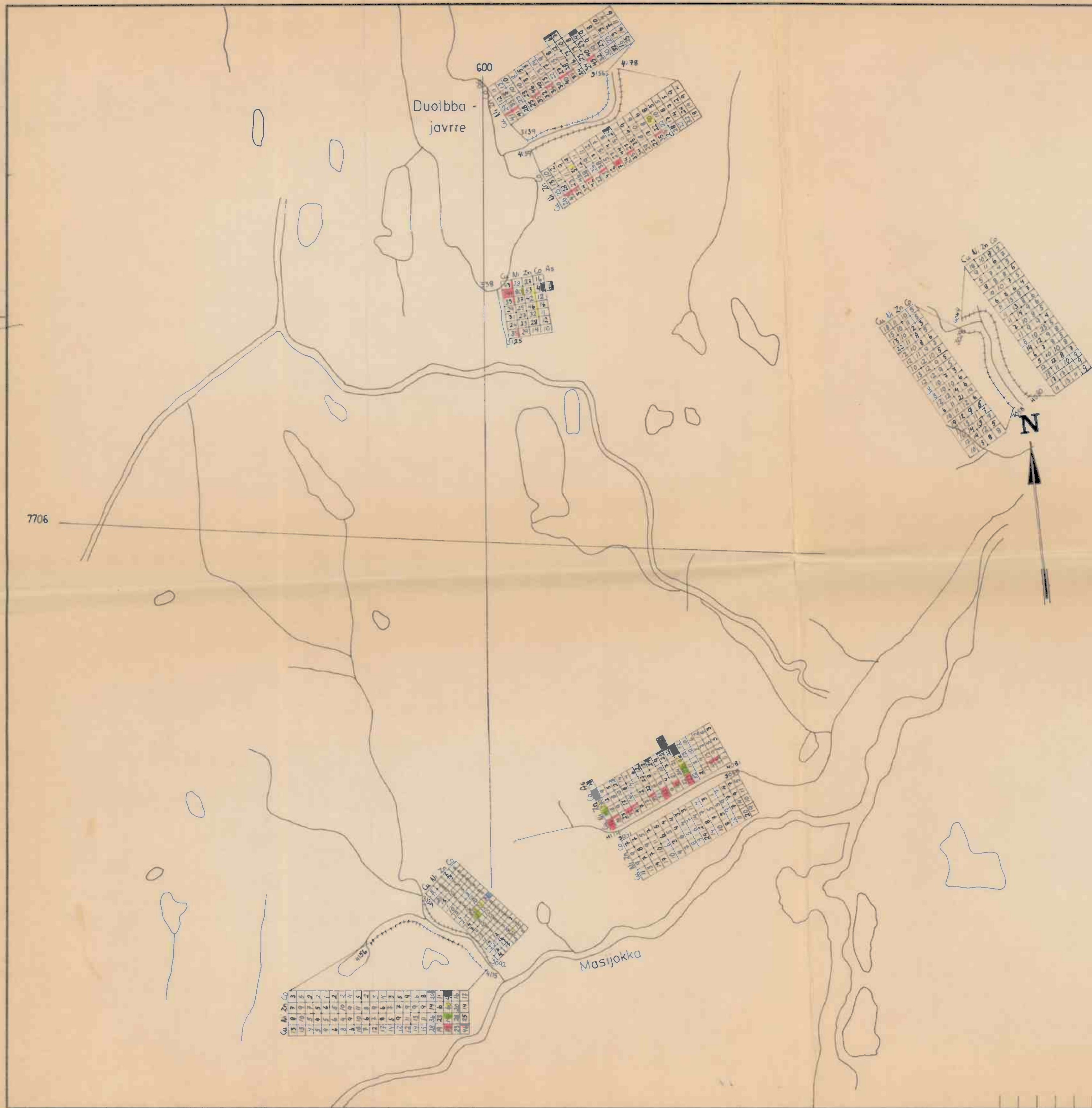
KEY:

- Granite, pegmatite, granitic gneiss
- Quartzite, feldspathic grit.
- Conglomerate
- Quartz-mica schist
- Albite-carbonate rock
- Graphite schist
- Dark schists, greenschists
- Amphibolite, greenstone
- Hornblende, albite diabase
- Argillite
- Ore-minerals in black/bedrock

- Chromite
- Chalcopyrite
- Chalcocite
- Pyrite
- Pyrrhotite
- Pentlandite
- Sphalerite
- Galena
- Molybdenite
- Magnetite
- Hematite
- Arseno-pyrite



MASI 1972 Prospecting		SCALE 1:50 000	OBS. DRAW. TRAC. CHK.
SULFIDMALM		MAP NO. 1933 IV MASI	MAP SHEET 6-215-72-17

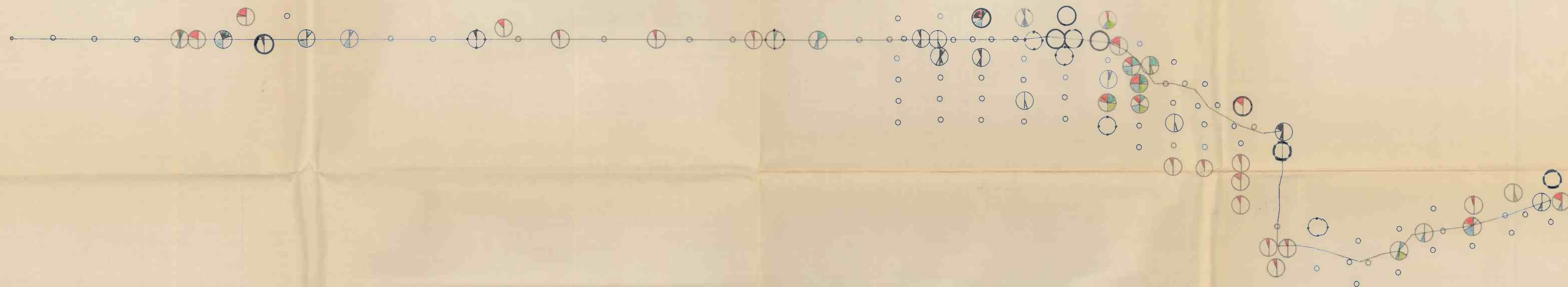


key:

	Cu	Ni	Zn	Co	As	
Poss. anomalous	35-50	50-100	30-50	20-30	5-8	in ppm
prob "	50-100	100-200	50-80	30-50	8-15	
anomalous	> 100	> 200	> 80	> 50	> 15	



MASI, KAUTOKEINO Reconnaissance till sampling 1972 Cu, Ni, Zn, Co, As.	SCALE	OBS.	
	1:25 000	DRAW. EK	
		TRAC. BL	5-73
½ SULFIDMALM	MAP NO.	7-215-72-17	
	MAP SHEET	1933 IV	

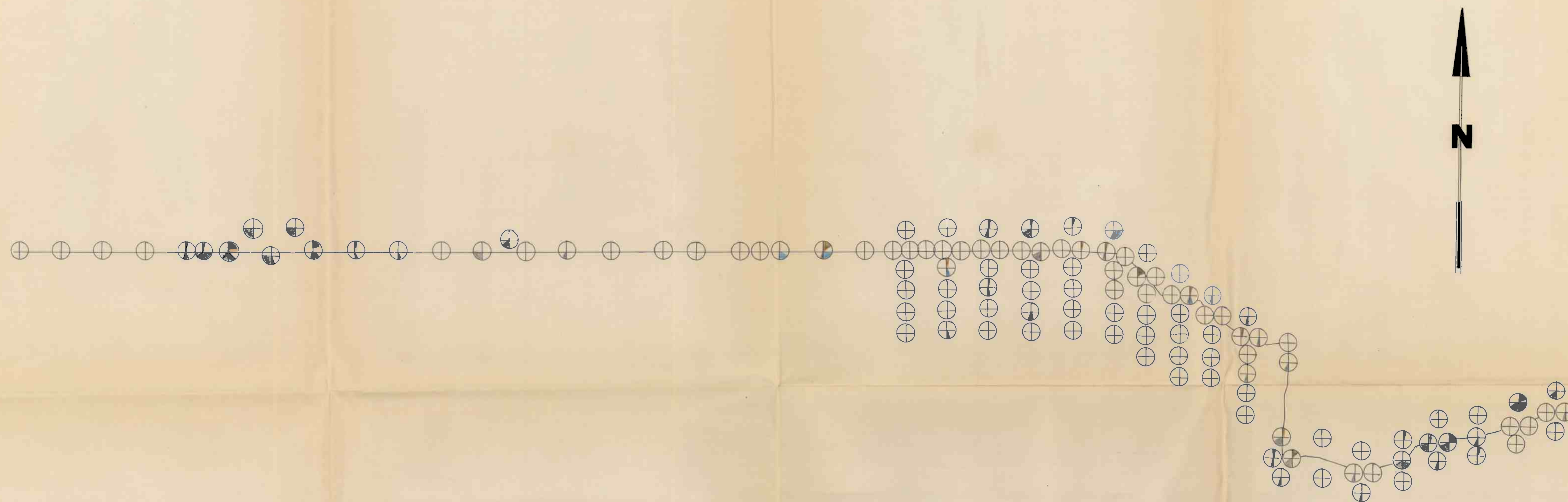


KEY:

As		Cu	Ni	Zn	Co
5-10 ppm	○	⊖	100-150 ppm		
10-20 "	⊖	⊖	150-200 "	50-100	20-40
> 20 "	⊖	⊖	200-250 "	100-150	40-60
	⊖	⊖	> 250 "	> 150	> 60

Cu, Ni, Zn
 Co, As
 ○ As
 ○ sampled

INGAJOKKA, MASI FINNMARK 1772 Till sampling along the sulphidbearing zone Cu, Ni, Zn, Co, As	SCALE	OBS. EK
	1:5000	DRAW. EK
		TRAC.
		CHK.
% SULFIDMALM	MAP NO.	
	9-215-72-17	
MAP SHEET		

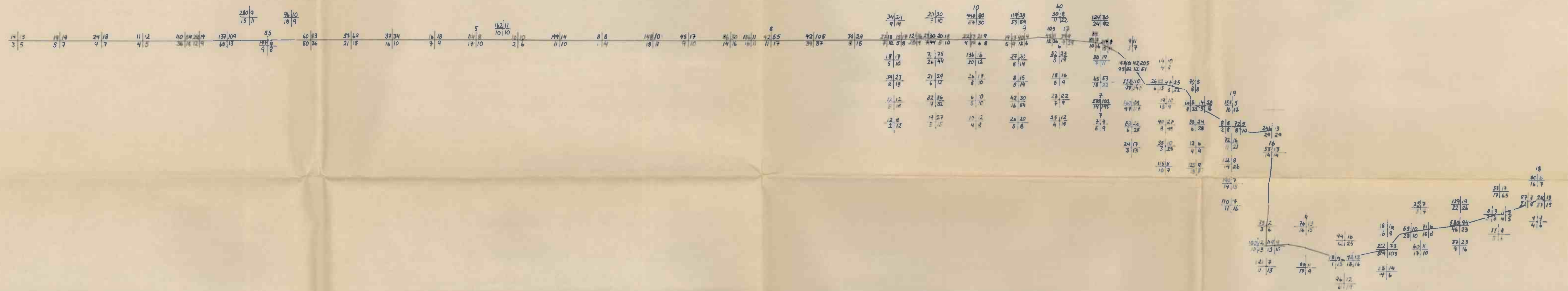


KEY:

		TiO ₂	V	Cr
Sn	TiO ₂			
possible	anomalous	1.0 - 1.50 %	100 - 250 ppm	100 - 150 ppm
probable	"	1.50 - 2.00 %	250 - 400 ppm	150 - 200 ppm
anomalous		> 2.00 %	> 400 ppm	> 200 ppm

No anomalous Sn-values.

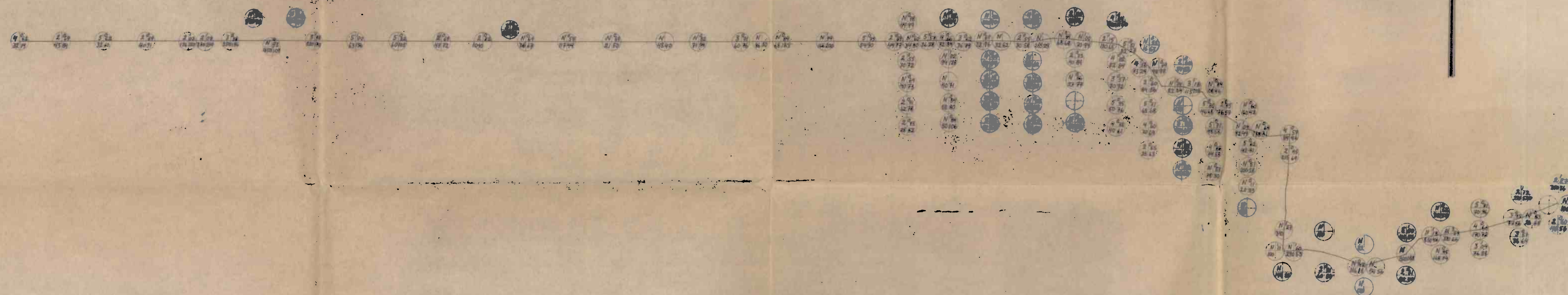
INGAJOKKA, MASI FINNMARK 1772 Sn, TiO ₂ , V, Cr	SCALE	1:50 00
	DATE	1933 IV
SULFIDMALM	DRAWN	EK
	CHK.	
MAP SHEET	MAP NO.	10-215-72-17
	DATE	1933 IV



KEY:

As
Cu Ni
Co Zn

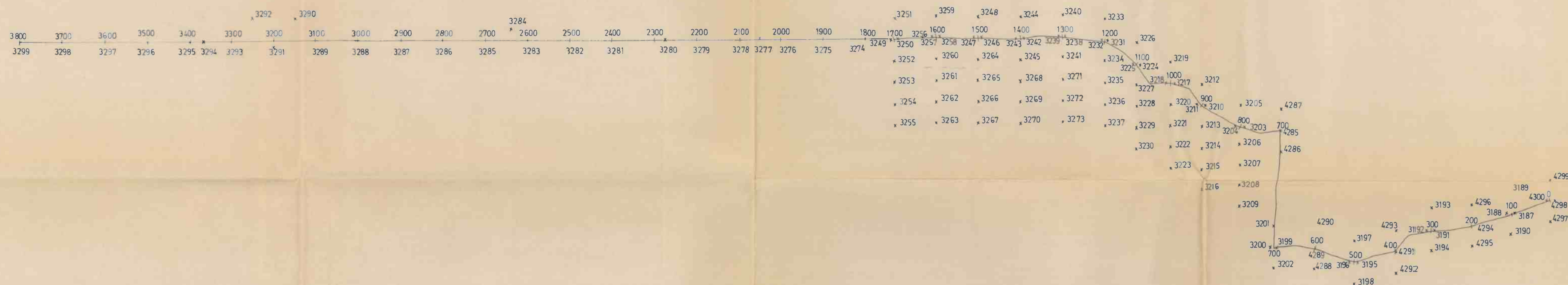
INGAJOKKA, MASI FINNMARK 1772 Till sampling along the sulphidebearing zone Cu, Ni, Zn, Co, As	SCALE	OBS.	EK
	1:5000	DRAW.	EK
		TRAC.	
		CHK.	
% SULFIDMALM	MAP NO.		
	11-215-72-17		
	MAP SHEET 1933 IV		



KEY: $\begin{matrix} \text{Sn} & \text{TiO}_2 \\ \text{V} & \text{Cr} \end{matrix}$ = Sn 3 ppm, TiO₂ 1,27%, V 78 ppm, Cr 67 ppm
 N = not detected

INGAJOKKA, MASI FINNMARK 1772 Sn, TiO ₂ , V, Cr	SCALE	1:5000	DATE	1933
	DRAW.		CHK.	EK
	TRAC.			
MAP NO.		12-215-72-17		
MAP SHEET		1933 IV		

N

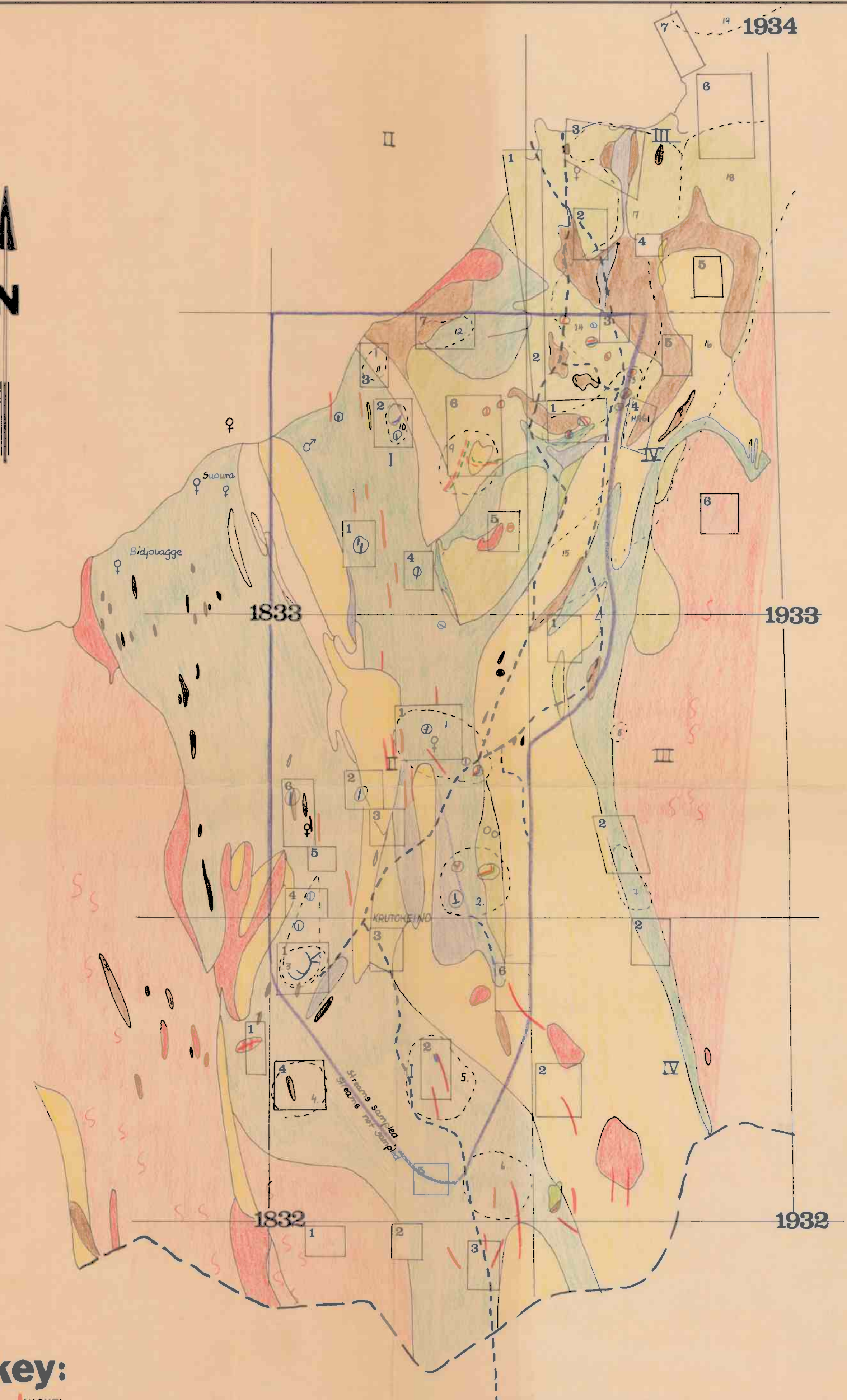


INGAJOKKA, MASI FINNMARK 1772 Till samples' location map	SCALE	OBS.	
	1:5000	DRAW. EK	
		TRAC. BL	1-73
		CHK.	
% SULFIDMALM	MAP NO.		
	13-215-72-17		
	MAP SHEET 1933 IV		

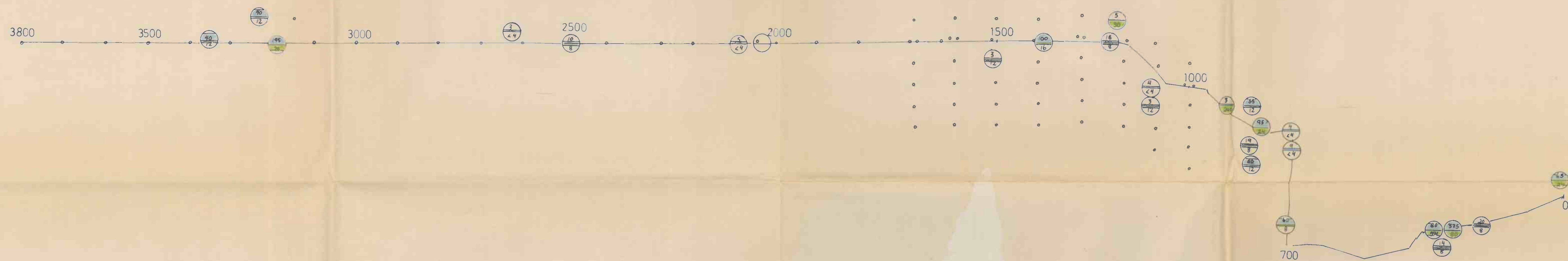


key:

- NICKEL
- COPPER
- ZINC
- road



MASI 17	SCALE	OBS.	
Index map of target zones - 72 , with geology, aero-EM and stream-sed.-anomalies	1:250 000	DRAW. EK	
Targets of the reports MASI 17 / EK / 72		TRAC. BL	6-73
		CHK.	
1/2 SULFIDMALM	MAP NO.		
	14-215-72-17		
	MAP SHEET		



KEY:

	Mo	W
	Possibly anomalous	3 - 40 ppm
	Probably "	40 - 90 "
	Anomalous	> 90 "



INGAJOKKA, MASI Finnmark 1772 Till sampling. Mo, W.	SCALE	OBS. EK	
	1:5000	DRAW. EK	
		TRAC. BL	7-73
		CHK.	
% SULFIDMALM	MAP NO.		
	15-215-72-17		
	MAP SHEET 1933 IV		