

A/S SULFIDMALM
INTER-OFFICE MEMORANDUM

Date: 17.7.73

To: Falconbridge Nikkelverk A/S ✓

cc: A.M. Clarke
H.T. Berry
E. Kreivi
R.B. Band

From: J.B. Gammon

Subject: 905-17. Carajavrre Map Sheet, Finnmark. Report no. 218/72/17

Please find attached Kreivi's summary and collation of earlier work by the NGU on the Carajavrre map sheet in Finnmark. Seven areas of interest are pointed out on p2 of the report with recommendation for further work. Till sampling was carried out over target no. 6 during 1972 and the (negative) results are shown on map 15 - 218 - 72 - 17. Additional work in June 1973 has discovered boulders with interesting chalcopyrite mineralisation between Gaesjavrre and Vuoddasjokka in target area 1. This is currently being followed up as part of "operation Phoenix"

J. B. Gammon

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FOR FALCONBRIDGE NIKKELVERK A/S

A/S SULFIDMALM

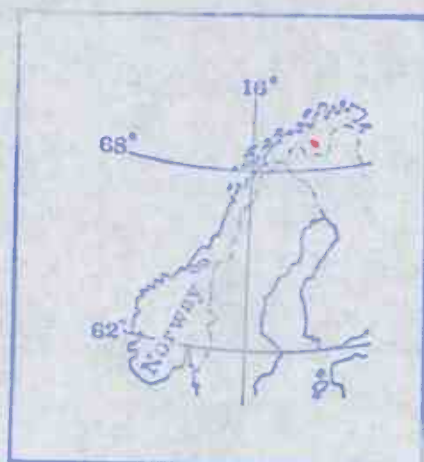
PROJECT 905-17

REPORT ON CARAJAVRE MAP SHEET (1833 I).

EARLIER WORK BY NGU AND 1972 TILL SAMPLING

by

Erkki Kreivi



218/72/17

The following maps, at a scale of 1:50000, are attached to this report:

Aerogeophysical map (NGU)	1-218-72-17
" " "	2 "
Cu-streamsediment anomaly map	3 "
Holman test (NGU)	
Cu-stream sediment anomaly map	4 "
Acid extractable (NGU)	
Ni-	5 "
Zn "	6 "
Zn, Cu, Pb "	7 "
Cu " (ashed)	8 "
Ni "	9 "
Zn "	10 "
Pb "	11 "
Co "	12 "
Overburden thickness map (NGU)	13 "
Geological map (NGU)	14 "
1972 till sampling in Burgunvarre	15 "
(1:25.000)	

The area of this map is quite well prospected by NGU, because there is a similar greenstone belt to that containing the Bidjovagge copper-mine. The area is covered by stream sediment sampling, some airborne EM-anomalies have been checked by ground geophysics. Reconnaissance mapping, overburden thickness mapping and some boulder tracing have also been done by NGU.

A couple of interesting showings have been found, such as an albite-carbonate-block at Vuoddaselva with 7,19% Cu and an albite-carbonate-outcrop at Gäsjevrre with 2,19% Cu. The former is possibly not traced well enough and the latter "is not Bidjovagge type".

(NGU report no. 959 and the report GM 314 A).

1972 Burgunvarre till sampling. (map 15-216-72-17)

The attempt to localize the source of stream sediment anomaly by till-sampling failed. The highest values were assayed:

Cu	Ni	Zn	Co	As
35 ppm	85 ppm	24 ppm	45 ppm	9 ppm

The area sampled needs extending northwards.

Summary of interesting targets.

1. Riettejokka.
 - Cu, Ni, Σ Zn Cu Pb - anomalies
 - magnetic anomalies
 - mt, po, cp. in bedrock
 - in south at Gasjavrrre 2,19% Cu in bedrock
 - in north at Vuoddasjokka 7,19% Cu in block
 - grit, albite-carbonate-rock, greenstones
 - faults
 - thick overburden
 - needs prospecting, boulder tracing and reconnaissance till-sampling
2. Garabasjokka.
 - Cu, Ni, Zn, Σ Zn Cu Pb - anomalies
 - po, sphalerite in brecciated bedrock, 0,69% Zn
 - hornfels, graphite-schist
 - no or thin overburden
 - needs prospecting, till sampling
3. Likčajavrrre.
 - Cu, Zn, Σ Zn Cu Pb - anomalies
 - magnetic, electromagnetic anomalies
 - cp in cracks
 - volcanic greenstone
 - faults
 - no or thin overburden
 - needs prospecting
4. Čuočajokka.
 - Cu, Ni, Σ Zn Cu Pb - anomalies
 - weak magnetic anomalies
 - po in bedrock
 - greenschist, greenstone, graphite schist
 - faults?
 - thin or thick overburden
 - needs prospecting, till sampling
5. Dafkovarrrre.
 - Ni, Σ Zn Cu Pb - anomalies
 - electromagnetic anomalies
 - mica schist
 - no or thin overburden
 - needs prospecting, till sampling
6. Masivarrrre.
 - Ni, Zn, Σ Zn Cu Pb - anomalies
 - Šursinvarrrre.
 - Havvgagiellas.
 - magnetic, electromagnetic - anomalies
 - mica schist, quartzite, greenstone
 - thick overburden
 - needs prospecting, till sampling
7. Roggeoaivve.
 - Cu, Ni, Σ Zn Cu Pb - anomalies
 - magnetic, electromagnetic
 - mica schist, quartzite, greenstone
 - stratigraphic discordances?
 - thick overburden
 - needs prospecting, till sampling

Descriptions of Geology

Metamorphism

Structure

Economic geology

Aero geophysics

Overburden

Geochemistry

Geology by NGU (P. Padget: NGU report 201)
map 13-218-72-17

The rock types in the area:

1. Greenstones
2. Hornblendite
3. Mica schists
4. Quartzite
5. Granite
6. Argillites
7. Massive feldspathic gneiss
8. Albite-carbonate rock
9. Graphite schists

1. Greenstones.

From Carajavre to the SE and in the NE-corner of the map sheet.

The following different types have been distinguished:

- a) pyroclastics
- b) lavas
- c) intrusives

a) Pyroclastics.

Agglomerates with large and small angular fragments of "greenstone" (and occasionally phyllite) in a "greenstone" matrix, e.g. NNW-SSE trending zone on Likéa mountain. Fine grained tuffs are less easy to find. The metamorphism frequently destroys the finer clastic texture. It is possible that some of the greenschists are altered pyroclasts. Certain greenschists have a very tuffitic character in thin section.

b. Lavas.

It is rarely possible to prove the existence of former lava flows due to later metamorphism of the rocks. A few structures do however suggest a lava origin for some of the greenstones. Thus there was found a vague curvaceous banding in certain greenstones in the Likéa area, which was interpreted as a former pillow-lava. This and several other greenstones elsewhere are often cavernous, suggesting the existence of segregations of former carbonate (zeolite?) minerals. Again in some greenstones a porphyritic structure is present which could be interpreted as relict amygdules.

Also there are thick units of a rather dense, fine-grained greenstone, which are apparently interlayered with the other rocks. A good example occurs on Biello-gielas, SE of Caravanne. These may possibly represent thick lava flows, possibly of submarine character.

c. Intrusives.

At many places coarse to medium-grained rocks (diabases) occur. They have rather irregular shapes, but show elongation in the direction of the main strike.

Mineralogically they consist of hornblende and often also albite, the latter occasionally sericitized. Chlorite, biotite, epidate, titanite, apatite and ore may be present in small amounts. Primary pyroxene is sometimes visible and an aphytic texture may be preserved. They thus resemble the albite diabases (described in Sulfidmalm report 215-17-72). At a few places similar rocks show a banding and resemble amphibolites more closely. This is more particularly the case in the areas of granitization. Some rocks especially rich in hornblende are virtually hornblendites and mineralogically and texturally resemble these from the dark schist group (also described in report 215-17-72).

2. Hornblendite.

To the north of Sodnajaavrre and the easternmost loop of Masijokka.

(Described in report 215-17-72).

3. Mica schists.

These cover a great deal of the eastern part of the area.

(Described in report 215-17-72).

4. Quartzite.

SE-corner and Burgunvarre at Masijokka and narrow layers in the mica schists.

(Described in report 215-17-72).

5. Granite.

To the north of Datkojavrrre.

The granite is clearly a tabular or sill-like body lying conformably in mica schists. It is commonly massive though frequently shows planar foliation. It is largely composed of albite (An_{10}), quartz and small quantities of microcline, biotite and muscovite. The albite tends to be slightly porphyritic while the quartz often appears to have corroded the feldspars. In addition there are numerous irregular veins and bodies of milky white quartz in many places and more coarsely crystalline pegmatite areas in others. The granite has probably travelled up the lineation and fold axis from the S3W.

6. Argillites.

In the SW corner of the map sheet and to the east of Carajavrre-greenstone-belt.

The rocks are typically dark gray and brownish, fine-grained and shaly with dolomitic horizons to the north. Also a distinct carbonate-breccia/conglomerate, very thin-splitting shales with clastic mica flakes on the lamellae surfaces and the types with lighter coloured (buff) and slightly coarser in grain size (about 0,08 mm) were found at certain places. Thin section of one of the latter showed the rock to be compact with a muscovitic matrix, having also biotite, carbonate and a little chlorite.

The formation is a typical shallow water type.

7. Massive feldspathic grit. (Main Grit).

This, the youngest member of the succession hereabouts, forms the higher part of the Caravarre-Guivevarre ridge.

It consists generally of thick or massive-bedded sandstone and grits with conglomeratic layers locally. Feldspat is conspicuous and in places the rock might almost be described as an arkose. Current-bedding is also common and shows clearly that the beds "young" to the east. The conglomeratic horizons are distinctly lens-like impersistent over long

distances and polymictic. The pebbles can be up to 3-4 cms across. They are quartz, microcline, quartzite, microperthite, fine grained felsitic rock, jasper or greenschist.

On the east side of the ridge the formation is limited by a major fault. On the west it has a sharp though normal stratigraphic contact with the underlying argillites. There is no specially marked conglomerate zone at the base. At some places thicknesses of silty argillite are interbedded with the grits.

8. Albite-carbonate rock.

The northern side of Gasjavrrre between the greenstone and the grit-formation and narrow sills in greenstones.

(Described in report 215-17-72).

9. Graphite schist.

In the northernmost corner and narrow layers in the greenstone-belt and in the mica-schists.

(Described in report 215-17-72).

Metamorphism.

The Caravarre region is in effect the core to a series of roughly concentric zones of increasing thermal metamorphism culminating in the eastern and western zones of granitic rocks. The least metamorphosed rocks are clearly those argillites, sandstones and grits on and around Caravarre. The greenstones commonly show chlorite and are visibly metamorphosed. Agglomeratic layers show slight deformation of the fragments. The most highly metamorphosed rock types in the area are biotite schists and quartz-biotite schists. They are characterized by the appearance of brown biotite mica.

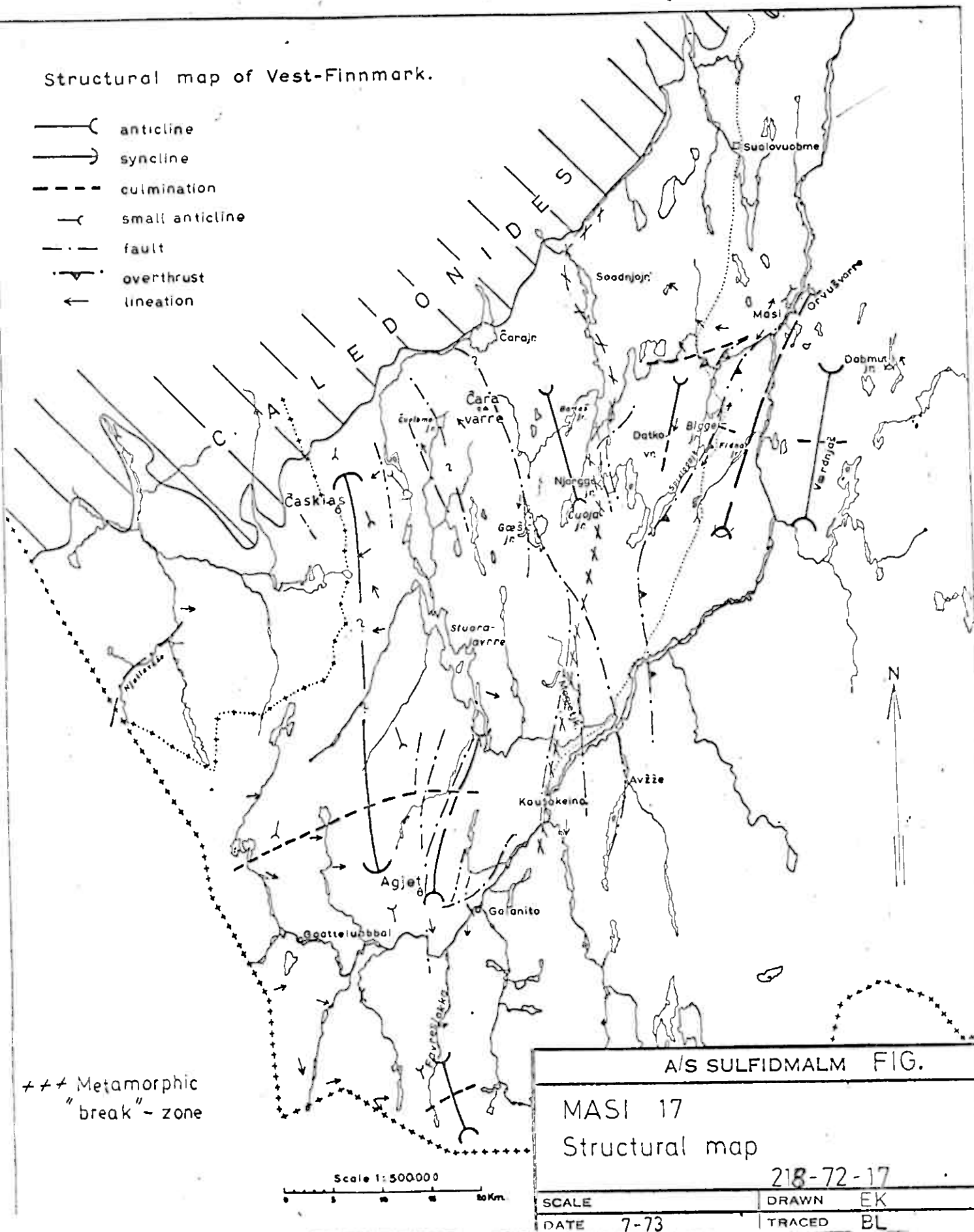
The regularity of the metamorphic zones is disturbed by a line of "break", which appears to run in a general N-S-direction from Sodnajokavrrre to the south. There is a contrast in degree of metamorphism shown by the rocks on opposite sides, those to the east normally belonging to a higher grade.

Structure. Fig. 1

The most distinctive structural features on this map sheet are:

1. Cuojojavrre-Likáa-syncline
2. Datkovarre-syncline
3. Gasjavrrre fault
4. Cuojojavrre-Bartašjavrrre fault
5. Njarggajavrre faults.

-  anticline
-  syncline
-  culmination
-  small anticline
-  fault
-  overthrust
-  lineation



1. Cuojajavrre-Likéa-syncline.

The thick "greenstone" group is folded into a syncline with a NNW-SSE strike. It is entirely deduced from a progressive change in the value and direction of dip on crossing the strike.

2. Datkovarre syncline.

The syncline axis plunges gently (10-15°) to the SSW. Lineation and minor fold axes all have the same trend. The whole sequence of schists appears to be thrust up on the axis of culmination. There is first and foremost a discordance in strike between allochthonous and autochthonous schists. Secondly there is a contrast in stratigraphy, viz. greenschists (culmination) as against a varied series of mica-, graphite-, quartz-schists (allochthonous).

3. Gasjavrre fault.

This is a major fault, largely determining the easterly limit of the Caravarre - Guivevarre ridge. It separates the Main Grit of Caravarre from "greenstones". Close to the fault the quartzite is much recrystallized and mylonitized for several metres from the contact, while the "greenstones" are much brecciated. The faults embrace nearly all Gasjavrre.

Within the zone and along its continuation northwards, the rocks show a marked enrichment in carbonate (brown weathering), probably dolomite. Albitic feldspars up to 2 cms across are embedded in it along with detached fragments of wall rock (greenschist, argillite, quartzite) the latter showing all degrees of alteration. The fault shows a tendency to cut across the strike of the Grit formation. It seems most likely that the fault is steeply inclined with a large downthrow of several hundred metres to the west.

4. Cuojajavrre-Barttašjavrre fault.

Nearly along the axis of the Cuojajavrre-Likéa syncline (i.e. NNW-SSE) a thick greenstone unit is much crushed, sheared and slickensided. Its northerly continuation to Barttašjavrre is marked by secondary feldspathization. Just north of Barttašjavrre lake more or less homogeneous granite is found in a few isolated exposures.

5. Njarggajavrre faults.

These belong to the "break", which here may be due to postmetamorphic faulting. The NE-SW trending faults separate ahales (slightly schistose) from greenschist. There is considerable mylonization of the rocks in several parallel zones.

Economic geology.

No layered (sedimentary) ore-mineral deposit has been found in the area, but a few epigenetic showings:

- | | | |
|------------------|----------------|---------------------------------|
| 1. Davggejavrrre | (po) | no stream sediment anomaly |
| 2. Cuojajokka | (po) | Cu-, Ni-anomalies |
| 3. Gasjavrrre | (cp, 2,19% Cu) | Mag-, Cu-anomalies to the north |
| 4. Riettejokka | (mt, po, cp) | Mag-, Cu-anomalies near |
| 5. Vuoddasjokka | (cp, 7,19% Cu) | boulder |
| 6. Caranasjokka | (po, sl) | Cu-, Ni-, Zn-anomalies |
| 7. Likéajavrrre | (cp) | Cu-, Zn-anomalies |
| 8. Carajavrrre | (ht) | Mag-anomalies |

1. Davggejavrrre.

A little to the north and north-east of the lake Davggejavrrre (north of Njarggajavrrre) good exposures occur. These are locally rusty in two zones due to a weak impregnation of pyrrhotite. This is associated with a white, particularly hard quartzose rock. There is evidence of mylonitization of the rocks in the vicinity. No geochemical anomaly of significance was found.

2. Cuojajokka.

The stream draining Cuojajavrrre northwards to the Masi-jokka is crossed by a NNW-trending zone of rust. It is apparently due to a weak pyrrhotite impregnation in greenschists and greenstones, with at least one thin graphitic layer. Copper- and nickel-anomalies were found in the sediments of the Cuojajokka.

3. Gasjavrrre.

A little to the north of Gasjavrrre. There was found a weak irregular impregnation of chalcopyrite in blocks and bedrock of the brecciated albite-carbonate rock between quartzite (Caravarre grit) and greenstone in the major fault zone. One sample contained 2,19% Cu. There is no geochemical anomaly in the stream near the mineralization, but a couple of kilometers to the north there are some Cu- and Ni-anomalies. There are also lens-like magnetic anomalies along the fault-zone.

According to the overburden thickness map the overburden is thick here.

4. Riettejokka.

To the west of Riettejokka near the albitecarbonate rock and the contact between quartzite and greenstones. There has been found a lens (9 m x 2 m) of magnetite in

greenstone. A little chalcopyrite and pyrrhotite were also found. A lens-like magnetic anomaly is near and also copper anomalies.

5. Vuoddasjokka.

One small round chalcopyrite-bearing block of brecciated albite-carbonate-rock was found at Vuoddasjokka 11 km to the north of Gaesjavrre. The chalcopyrite is in cracks, the sample contained 7,19% Cu. There are copper-anomalies lying about 5 km to the south. The direction of the ice movement has been about from the south to the north.

6. Saranasčokka.

Here pyrrhotite with minor sphalerite is brecciating graphite schist and hornfelsrocks. Hornfels has possibly been produced by the contact metamorphism of the pelitic sediments around the large or small intrusives of a coarse-grained dioritic rock.

There is a weak EM-anomaly in the mineralized area and also Cu-, Ni- and Zn-anomalies in the streams near it. The maximum values of the assayed rock samples were:

0,11% Cu
0,69% Zn
0,20% Ni
0,03% Co

7. Likéajavrre.

An about 15-20 cm wide horizontal cleft was filled by chalcopyrite in a volcanic greenstone in a narrow valley to the north of Likéajavrre. It is situated near the long magnetic zone, which is lying on the major fault on the axis of the Čuoajavrre-Likéa-syncline. The magnetic zone has a discordance here, and an electromagnetic anomaly occurs also here. Copper and zinc-anomalies are in the streams just to the north of the mineralized rock.

8. Čarajavrre.

A hematite mineralization has been found on Čilbbevarre on the eastern side of Čarajavrre. The hematite, with varying amounts, is in carbonate bearing argillitic formation trending in the NW-SE-direction. An obvious magnetic anomaly is on the mineralized zone.

(See NGU-report 959 and the report GM 314 A for the numbers 3-8).

Geophysics.

(map sheet(1-2)-218-17-72).

NGU's aerogeophysical map sheet 1-218-17-73.

There 7 interesting geophysical anomalies on the map sheet:

- | | |
|-------------------------------|--------------------|
| 1. Cuoajavrrre-Likéa-syncline | Mag-(+EM-) anomaly |
| 2. Gaesjavrrre fault | Mag-anomaly |
| 3. Njavggajavrrre faults | Mag-anomaly |
| 4. Spielgynjavrrre | Mag-anomaly |
| 5. Datkovarrrre anticline | EM-anomaly |
| 6. Masijokka loop | Mag+EM-anomalies |
| 7. Roggeoaivve | Mag+EM-anomalies |

1. Cuoajavrrre-Likéa-syncline.

A long magnetic anomaly-zone is following the synclines axis. There has been found a much crushed, sheared and slickensided greenstone unit in the Cuoajavrrre-Barttašjavrrre fault-zone. According to the Mag-anomaly probably the same fault is travelling to the north until Caledonides. There agglomerate and quartzites occur in the anomaly. Near it there have been found pyrrhotite-, sphalerite-mineralizations on Garanasóokka and in the place to the north of Likéajavrrre. One EM anomaly occurs in the magnetic zone, where it has a discordance. Geochemical anomalies (Cu, Zn) occur in the zone only near Likéajavrrre.

2. Gaesjavrrre fault.

The magnetic anomalies here are lense-like and follow the fault, which separates the Main Grit from the greenstones. In the zone there is a copper-bearing albite-carbonate rock near Gaesjavrrre and magnetite-, pyrrhotite- and chalcoppyrite-bearing rocks at Riettejokka and hematite on Gilbbevarre.

Geochemical anomalies (Cu, Ni) occur in the Riettejokka drainage system.

3. Njavggajavrrre faults.

This magnetic anomaly zone is lying in the fault-zone, where the rocks are mylonized shales and greenschists. A weak copper anomaly occurs here in a stream and also a little pyrrhotite has been found.

4. Spielggajavrrre.

This magnetic anomaly is a part of the Orvvšvarrrre-Fidnatjavrrre-synclines anomalyzone, which is described in the report 215-17-73.

5. Datkovarrrre anticline.

Here a large EM anomaly group is near the axis of the anticline in mica schists near the Datkovarrrre-granite

intrusive. Ni- and Σ Cu Zn Pb - anomalies occur in the streams, but no mineralization has been found here. The area seems quite well exposed.

6. Masijokka loop. (Masivarre-Burgunvarre).

Here the magnetic and electromagnetic anomalies are lying in a stratigraphically incomprehensible area. The only outcrop in this swamp terrain is a quartzite-rock, but it does not explain these anomalies including the high Ni- and Zn-values in stream sediments at the northern side of the main river.

7. Roggeoaivve.

In the place about two kilometer to the NE of Sodnajavrre there is an EM-anomaly on magnetic anomaly near the contacts between hornblendites and greenstones and mica schists. Because of the lack of streams, only a few sediment samples have been collected around the area, but they show quite high Cu- and Ni-values.

Their overburden seems a thin one.

Overburden.

The NGU's overburden thickness map 13-216-17-73.

This kind of maps is available just only for this map sheet at the moment. It shows that the northern and western parts of the area are well exposed and also Datkovarre, but the Masijokka-drainage system is swampy and the Čuojajavrre-Carajavrre greenstone belt is mostly covered by thick moraine deposits. Therefore the boulder tracing and till sampling would be valuable methods in helping to try to explain the unknown anomaly-sources.

Geochemistry. The map sheets (3-12)-216-17-72.

The list of the geochemical anomalies mentioned already with "Economic geology" and "Geophysics".

1. Riettejokka	Cu-, Ni-, Σ ZnCuPb-anomalies
2. Garanasčokka	Cu-, Ni-, Zn, Σ ZnCuPb-anomalies
3. Likéajavrre	Cu-, Zn-, Σ ZnCuPb-anomalies
4. Čuojajokka	Cu-, Ni-, Σ ZnCuPb-anomalies
5. Datkovarre	Ni-, Σ ZnCuPb-anomalies
6. Masivarre-Durgunvarre-Havggagielas	Ni-, Zn-, Σ ZnCuPb-anomalies
7. Roggevaivve	Cu-, Ni-, Σ ZnCuPb-anomalies

Only the number 6 is partly followed up by till-sampling at Burgvavarre in 1972. This one should be followed up more by till-sampling, mapping and boulder-tracing and also by stream sediment-sampling along the Masijokka on the northern side of it for checking if the anomaly is widening this way.

No one of these anomalies has revealed its source yet. The numbers 1-4 have showings in bedrock, but they don't seem convincing enough to explain the anomalies. Because of the thick overburden, especially the number 1 (Gaesjavrre-Riettejokka) has to be followed up by till sampling and boulder tracing. According to NGU the area has a major fault-zone, even there is a cross of two faults. Near Gaesjavrre it was found a copper-bearing albite-carbonate rocks. Possibly this area can hide the source of the albite-carbonate boulder with 7,19% copper found at Vuoddasjokka.

NGU's geochemical map 3-218-17-72.

NGU has collected stream sediment samples from the both banks of the streams with 250 m's spacing in 1961. The samples have been assayed with colorimetric method and the results have been plotted on the anomaly map with circles. Only the map sheet for copper is available of this method. The anomalies Riettejokka, Garanasjokka, Likéajavrre form clear groups of high values.

NGU's geochemical maps (4-7)-218-17-72.

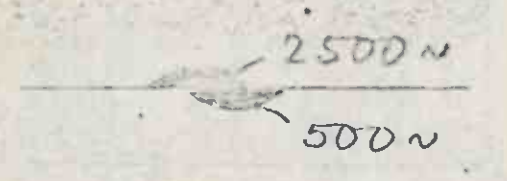
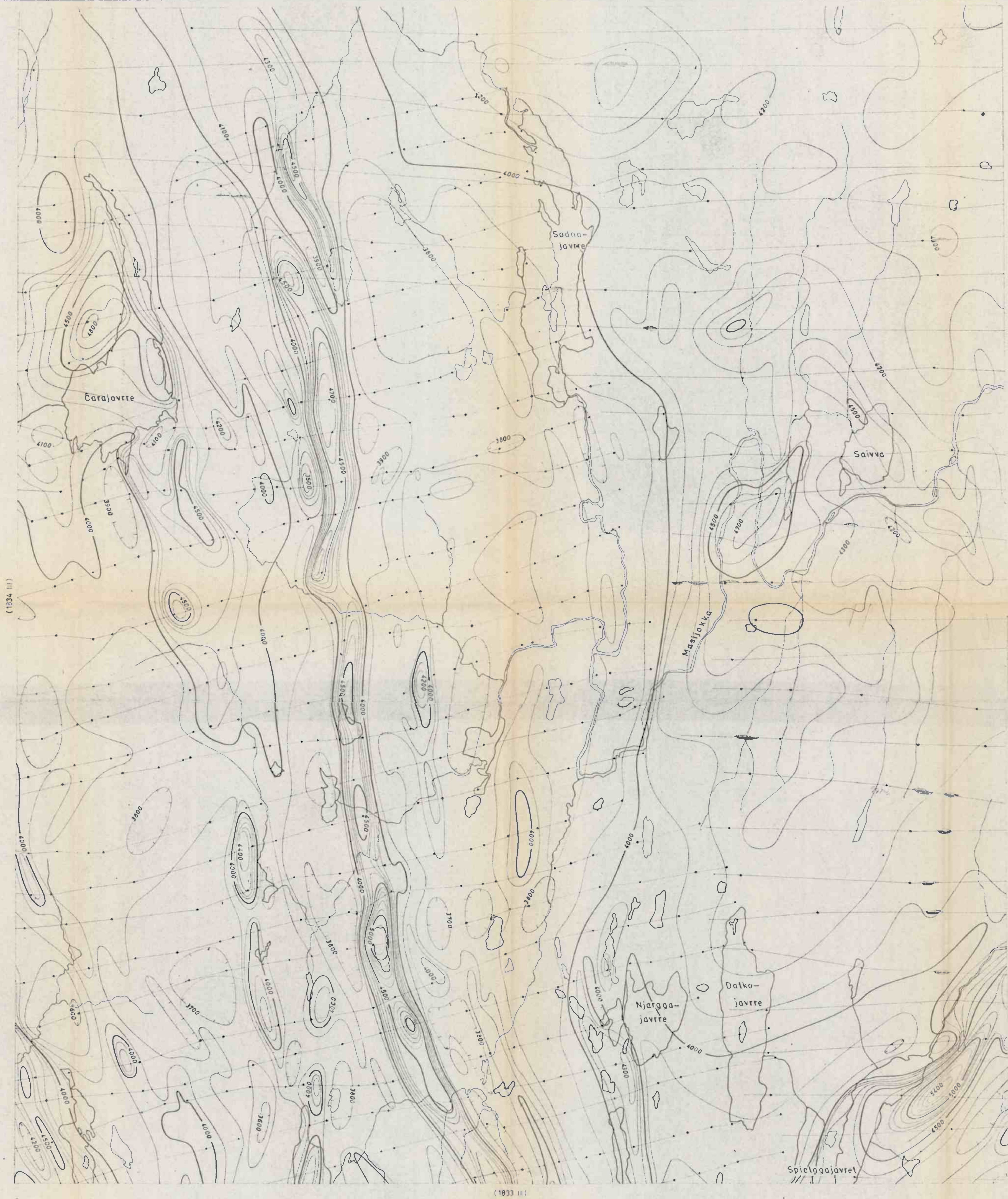
The samples, collected in 1961 and 1962, were mixed 6 from 3 points together and assayed. On the anomaly maps the method dropped some scattered values off, but the main anomalies Riettejokka, Garanasjokka, Likéajavrre, Cuoajokka, Datkovarre, Masivarre-Burgunvarre-Havvgagielas, Roggeasivve are detected quite clearly.

NGU's geochemical maps (8-12)-218-17-72.

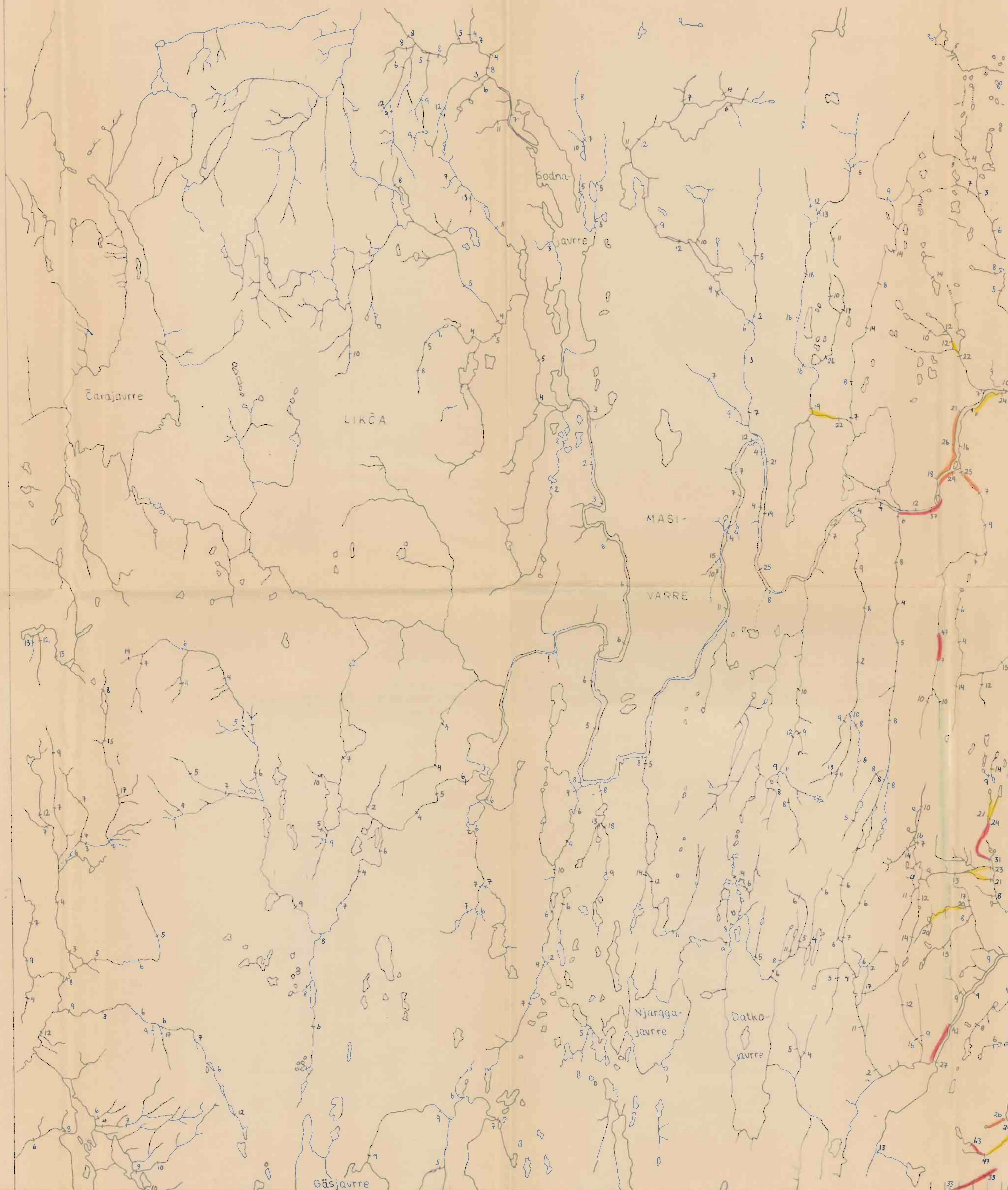
The same samples as before were mixed 6 together and ashed and reassayed in 1972.

Conclusion.

None of the interesting targets are easily accessible from the roads. The targets 1), 2) and 3) are the high priority targets.



CARAJAVRE Aeromagnetic map + EM anomalies	SCALE		OBS.	
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			TRAC.	
			CHK.	
SULFIDMALM	MAP NO.		1-218-72-17	
	MAP SHEET		1833 I	

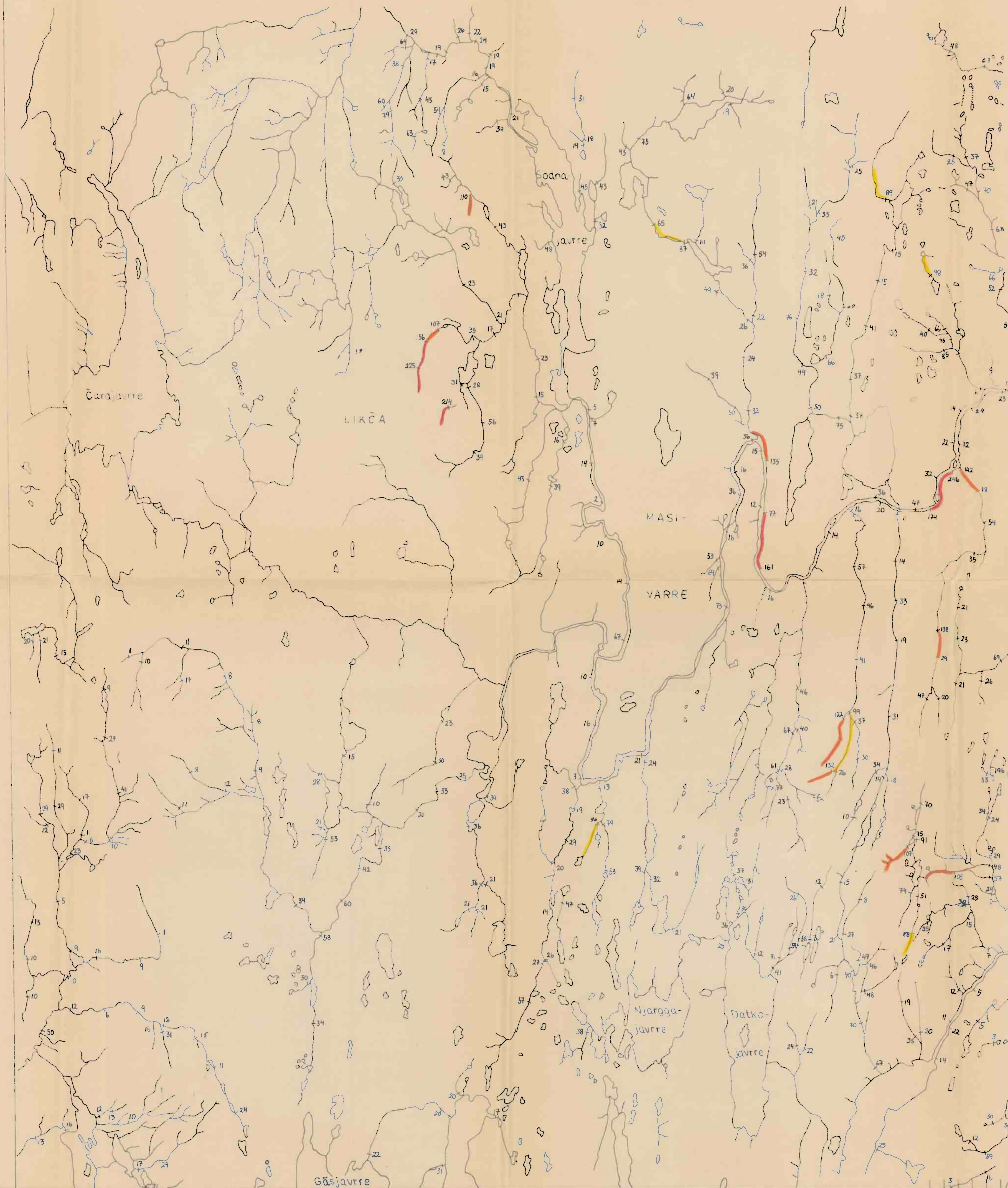


Possible anomaly 17-25 ppm
 Probably " 25-30 "
 Anomaly > 30 "

0 1 2 3 km



CARAJAVRE Acid extractable Pb in ashed stream sediment samples	SCALE	ORIG. NGU	72
	1:50 000	DRAW.	
		TRAC. BL	2-73
		CHK.	
% SULFIDMALM	MAP NO.		
	11-218-72-17		
	MAP SHEET 1833 I		

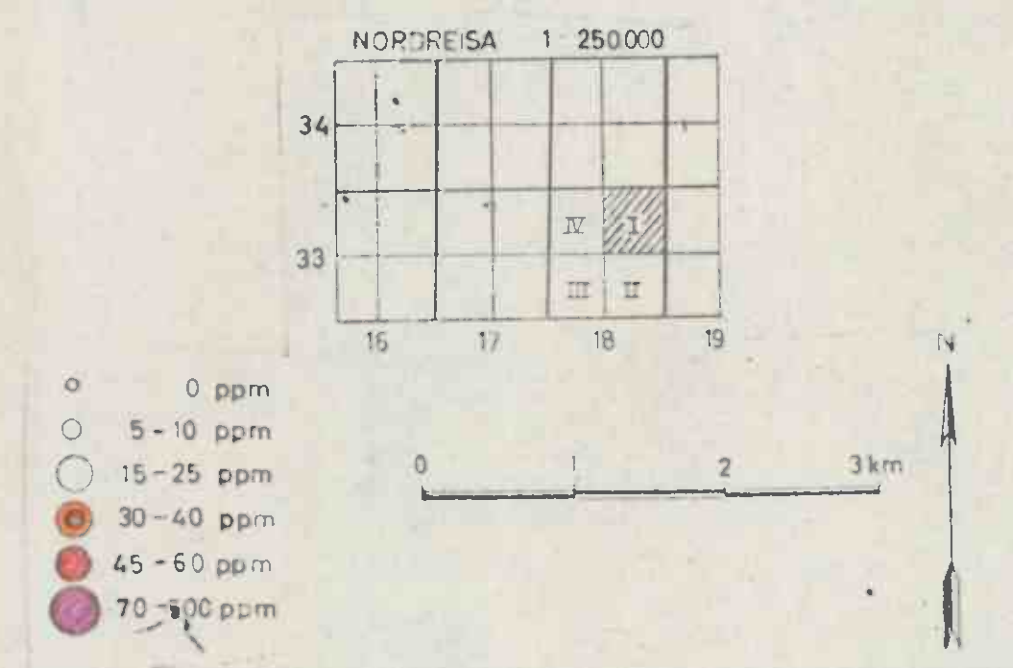
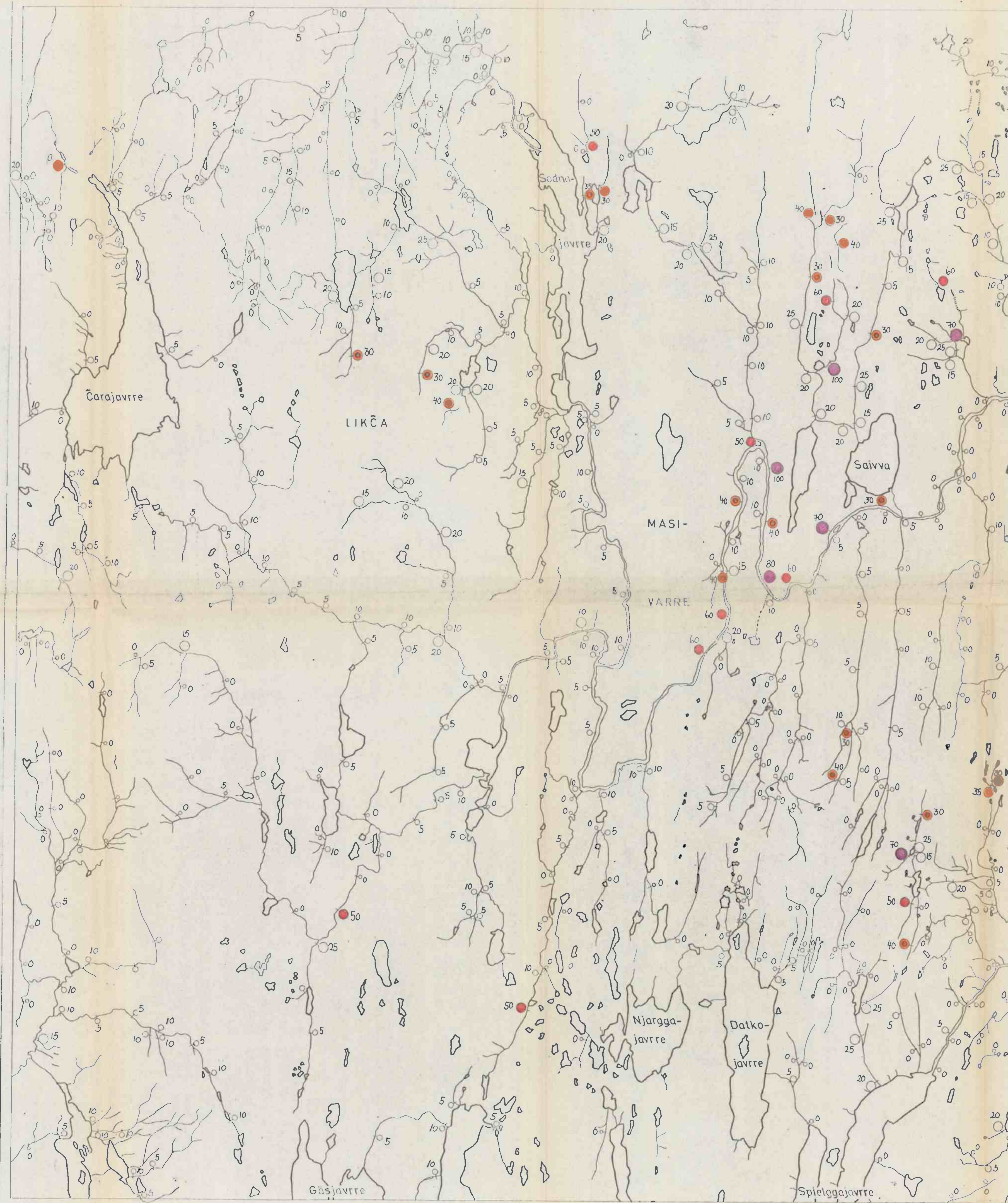


Possible anomaly 80 - 100 ppm
 Probably 100 - 140 "
 Anomaly > 140 "

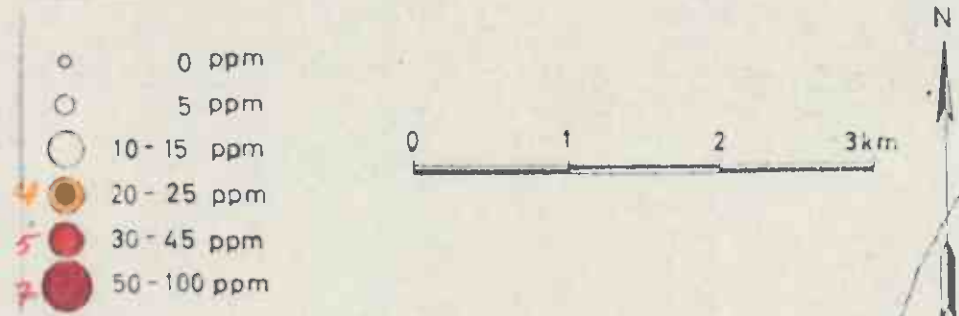
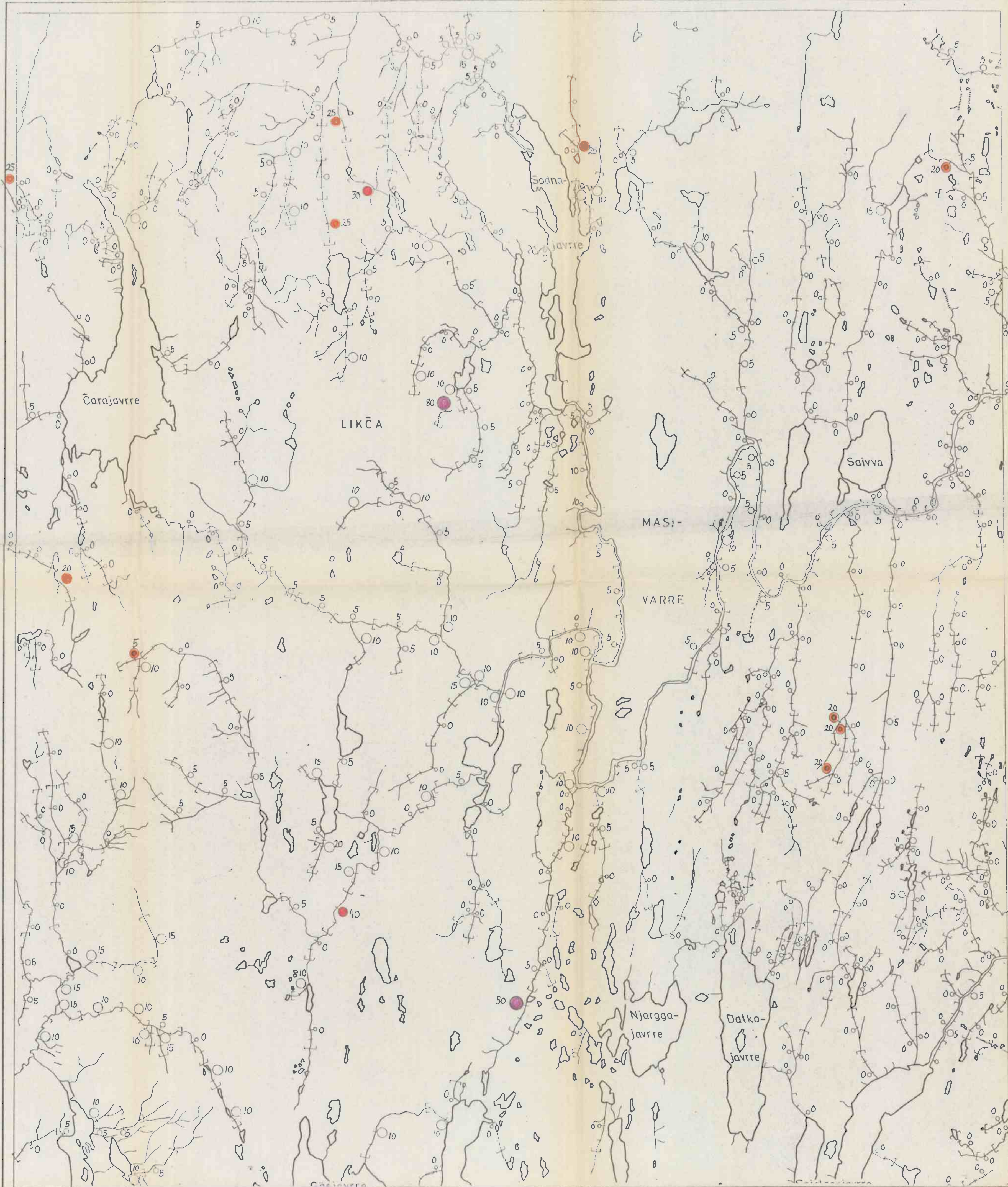
0 1 2 3 km



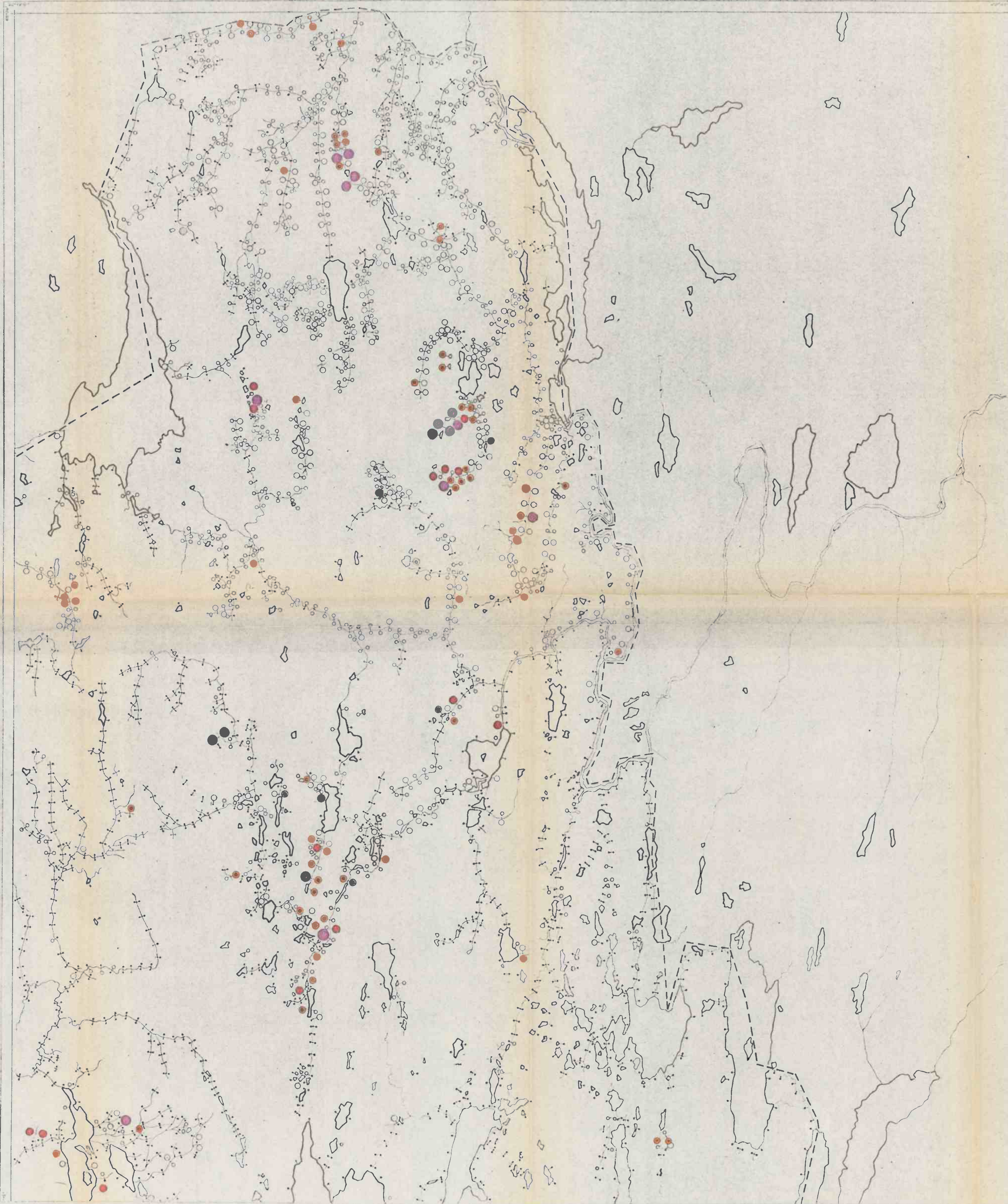
CARAJAVRE		SCALE	OBS. NGU	72
Acid extractable Zn in ashed stream sediment samples		1:50 000	DRAW.	
			TRAC. BL	2-73
			CHK.	
		MAP NO.	10-218-72-17	
SULFIDMALM		MAP SHEET	1833 I	



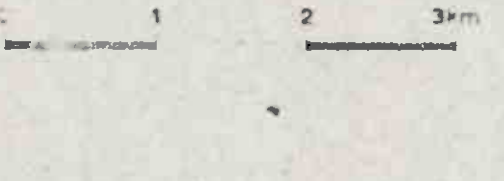
CARAJAVRRE		SCALE	OBS.
Acid extractable Ni in stream sediments		1:50000	DRAW.
			TRAC. BL. 2-73
			CHK.
% SULFIDMALM		MAP NO.	5-218-72-17
		MAP SHEET	1833 I



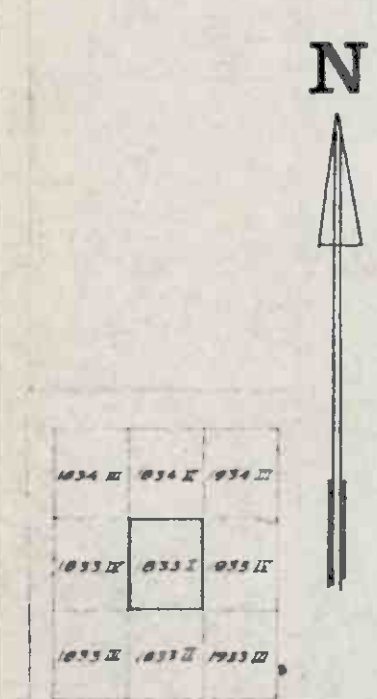
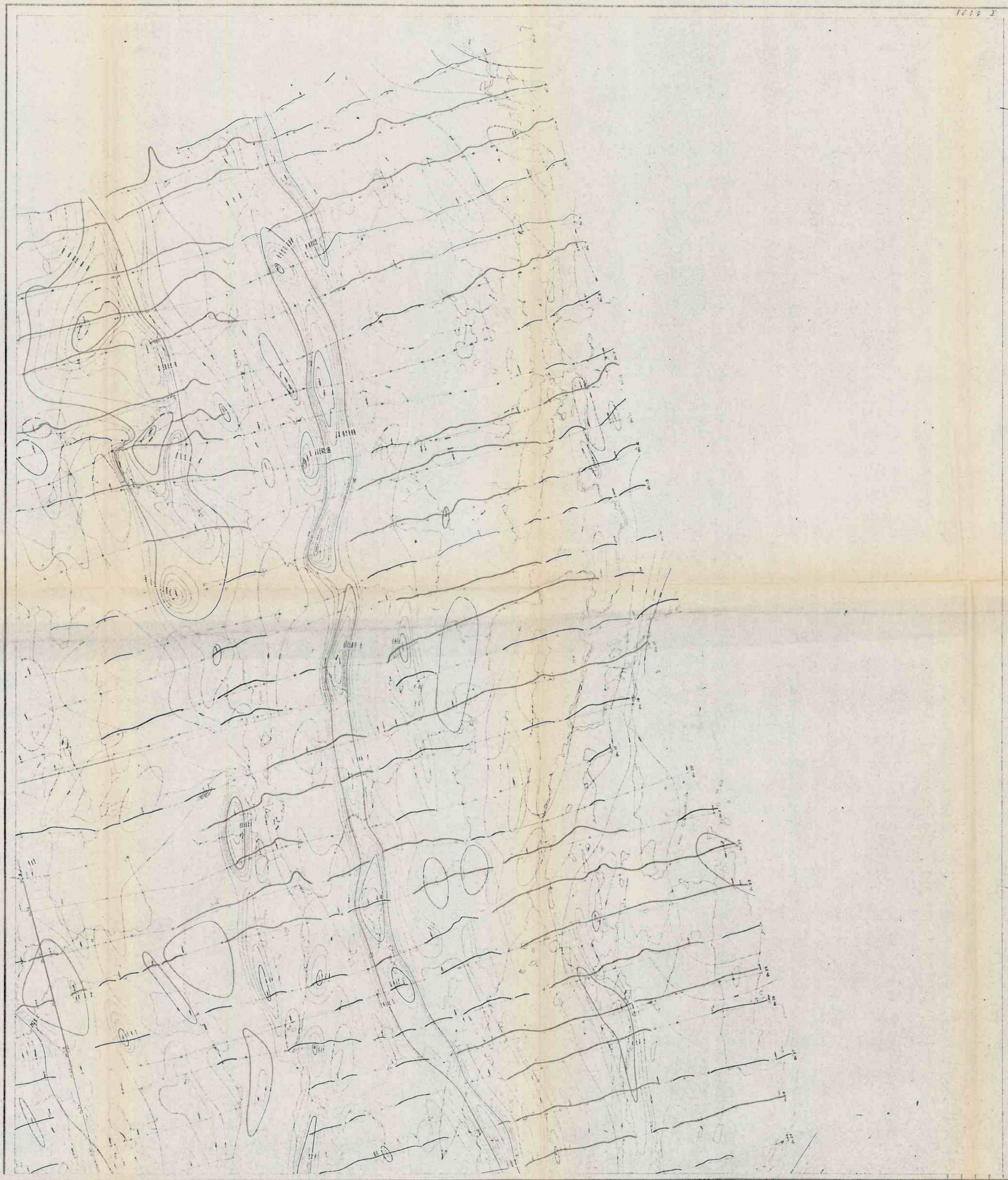
CARAJAVRRE Acid extractable Cu in stream sediments	SCALE	OBS.	
	DRAW.		
	TRAC. BL.	2-73	
	CHK.		
% SULFIDMALM	MAP NO.	4-218-72-17	
	MAP SHEET	1833 I	



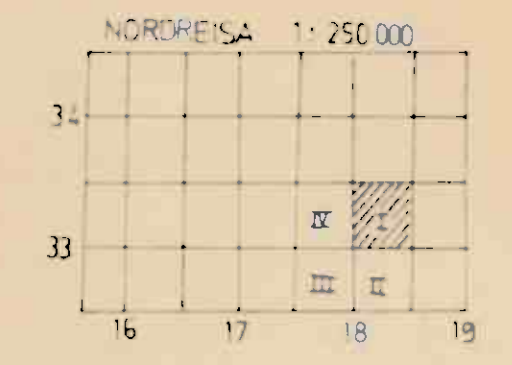
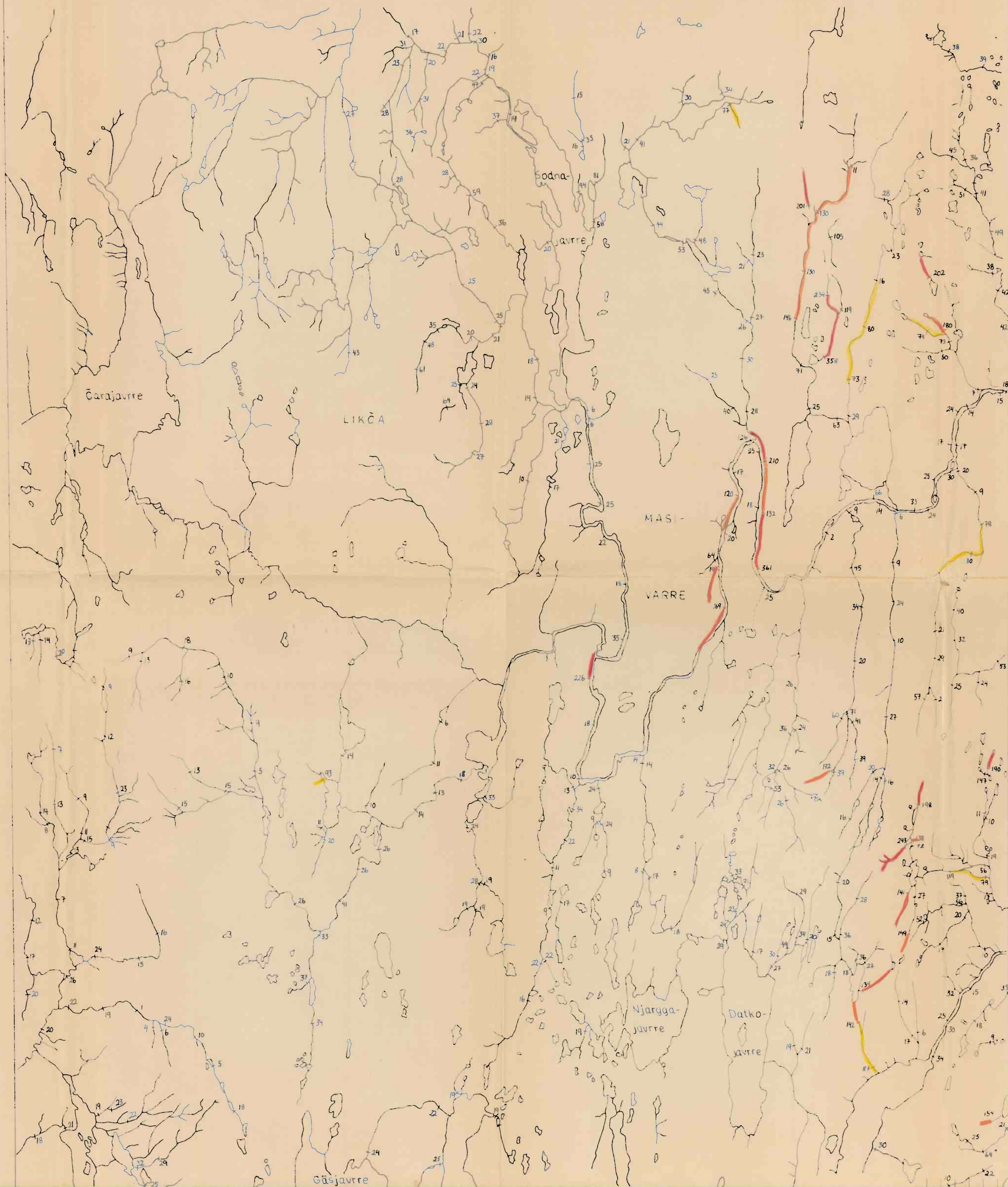
- 1 - 2 ppm
- 3 - 4 ppm
- 5 - 9 ppm
- 10 - 18 ppm
- 20 - 34 ppm



CARAJAVIRRE (1961) Copper in stream sediments. (Holman test)	SCALE	OBS.	
	1:50 000	DRAW.	
		TRAC.	
		CHK.	
SULFIDMALM	MAP NO.		
	3-218-72-17		
MAP SHEET		1833 I	



CARAJAVRRE Magnetic and electromagnetic map	SCALE	OBS.	
	1:50 000	DRAW.	
		TRAC.	
		CHK.	
% SULFIDMALM	MAP NO.	2-218-72-17	
	MAP SHEET	1833 I	

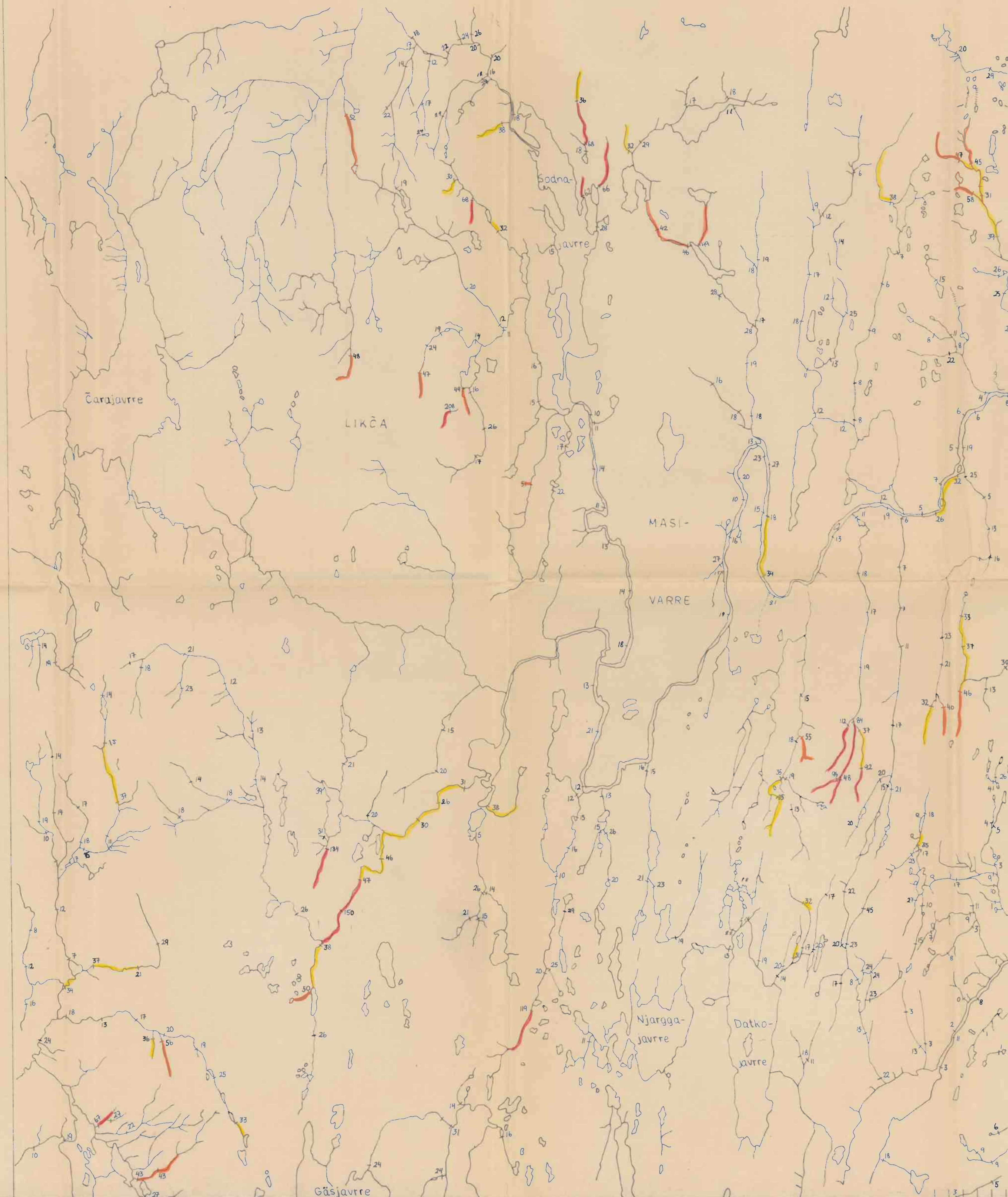


Possible anomaly 70-120 ppm
 Probably 120-190 ppm
 Anomaly > 190 ppm



CARAJAVRE Acid extractable Ni inashed stream sediment samples	SCALE	OBS. NGU	72
	1:50 000	DRAW.	
		TRAC. BL	2-73
		CHK.	
MAP NO.			
9-218-72-17			
MAP SHEET 1833 I			

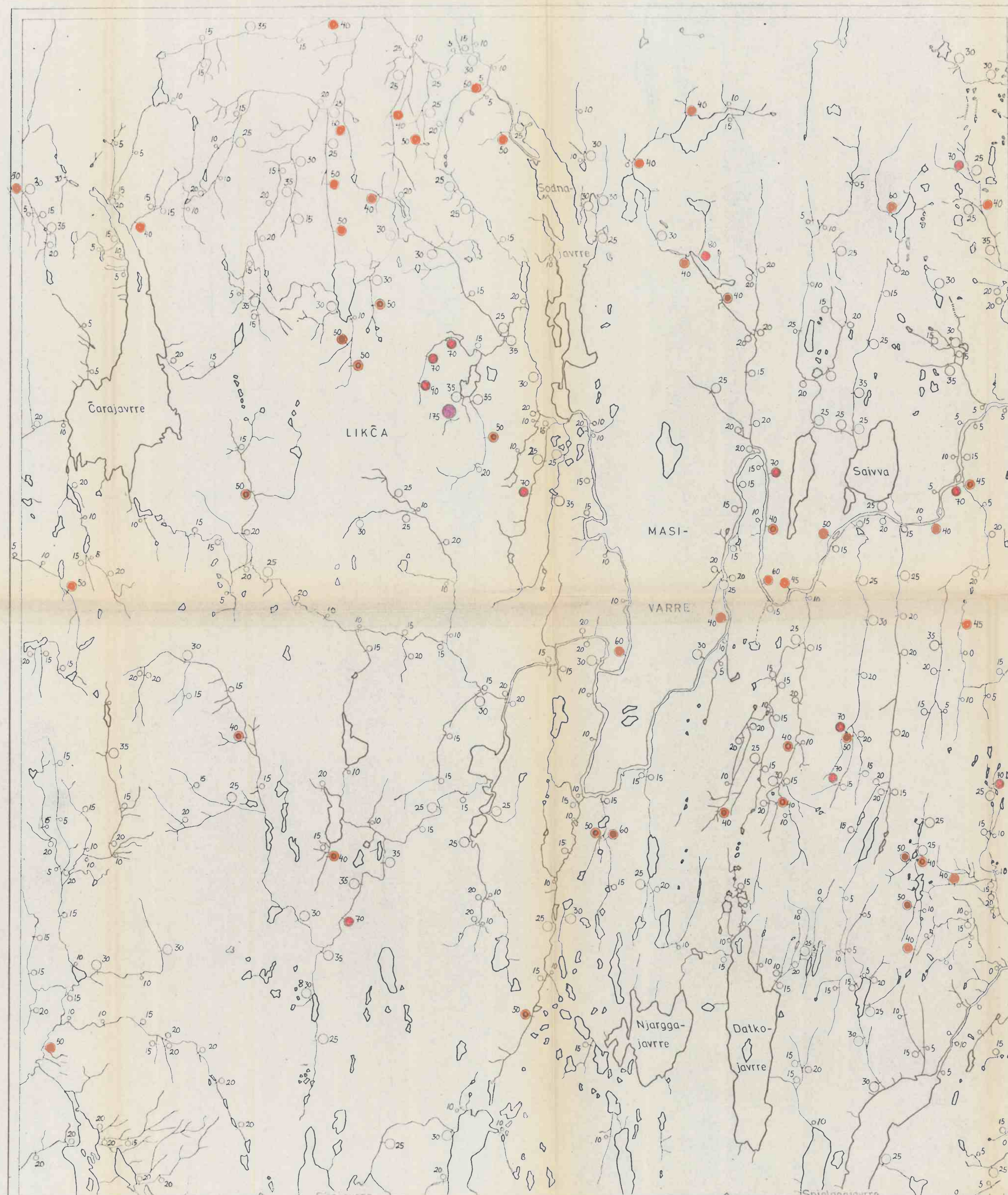
SULFIDMALM



Possible anomaly 30-40 ppm
 Probably 40-60 ppm
 Anomaly > 60 ppm



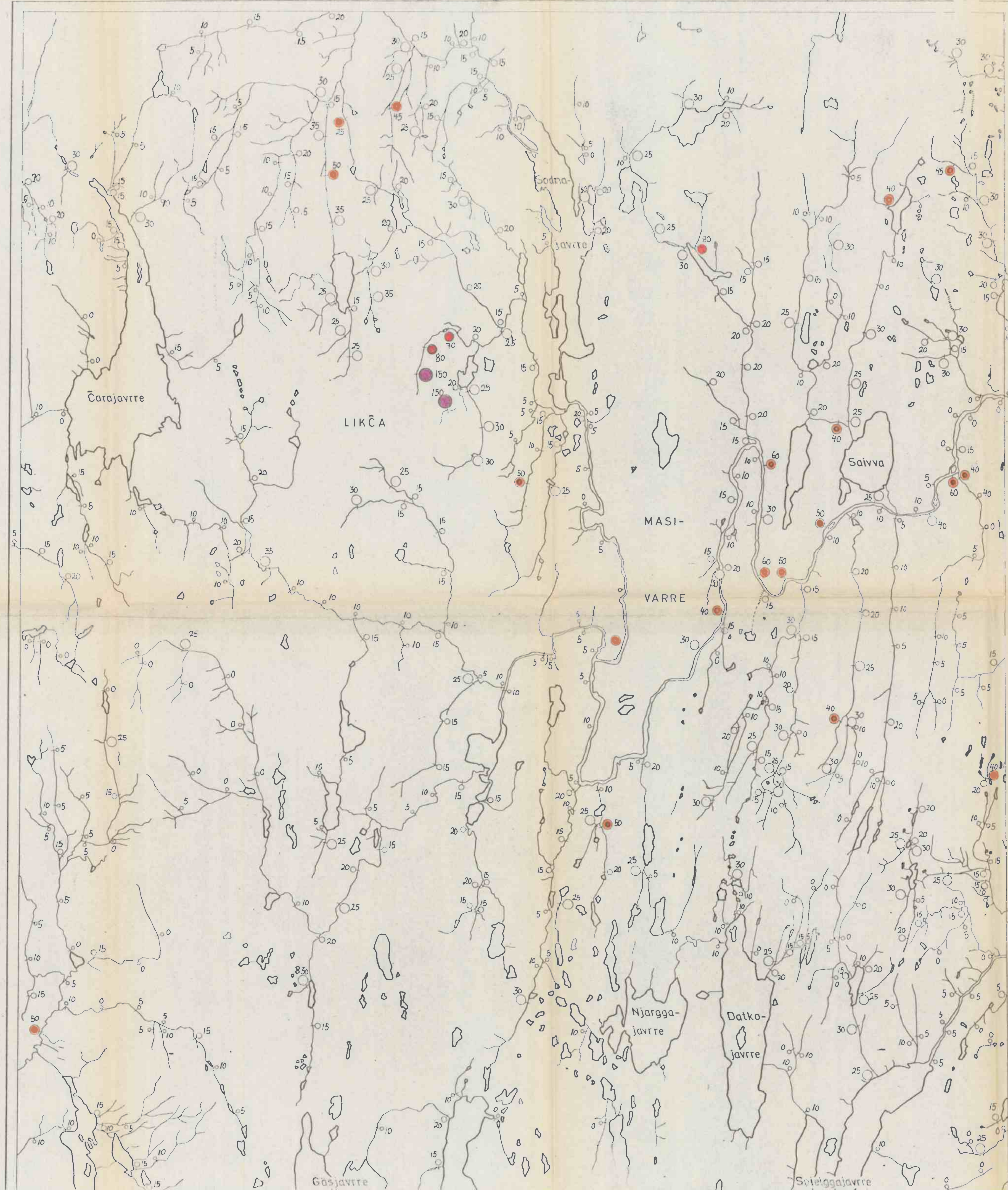
CARAJAVRE Acid extractable As in ashed stream sediment samples	SCALE	OBS. NGU	72
	1:50 000	DRAW.	
		TRAC. BL	2-73
		CHK.	
% SULFIDMALM	MAP NO.	8-218-72-17	
	MAP SHEET	1833 I	



- 0-10 ppm
- 15-20 ppm
- 25-35 ppm
- 40-60 ppm
- 65-80 ppm
- 100-600 ppm

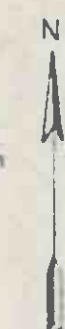


CARAJAVRE Acid extractable Zn,Cu,Pb in stream sediments	SCALE	OBS.
	1:50 000	DRAW.
	TRAC. BL.	2-73
SULFIDMALM	MAP NO.	7-218-72-17
	MAP SHEET	1833



- 0 - 10 ppm
- 15 - 20 ppm
- 25 - 35 ppm
- 40 - 60 ppm
- 65 - 80 ppm
- 150 - 350 ppm

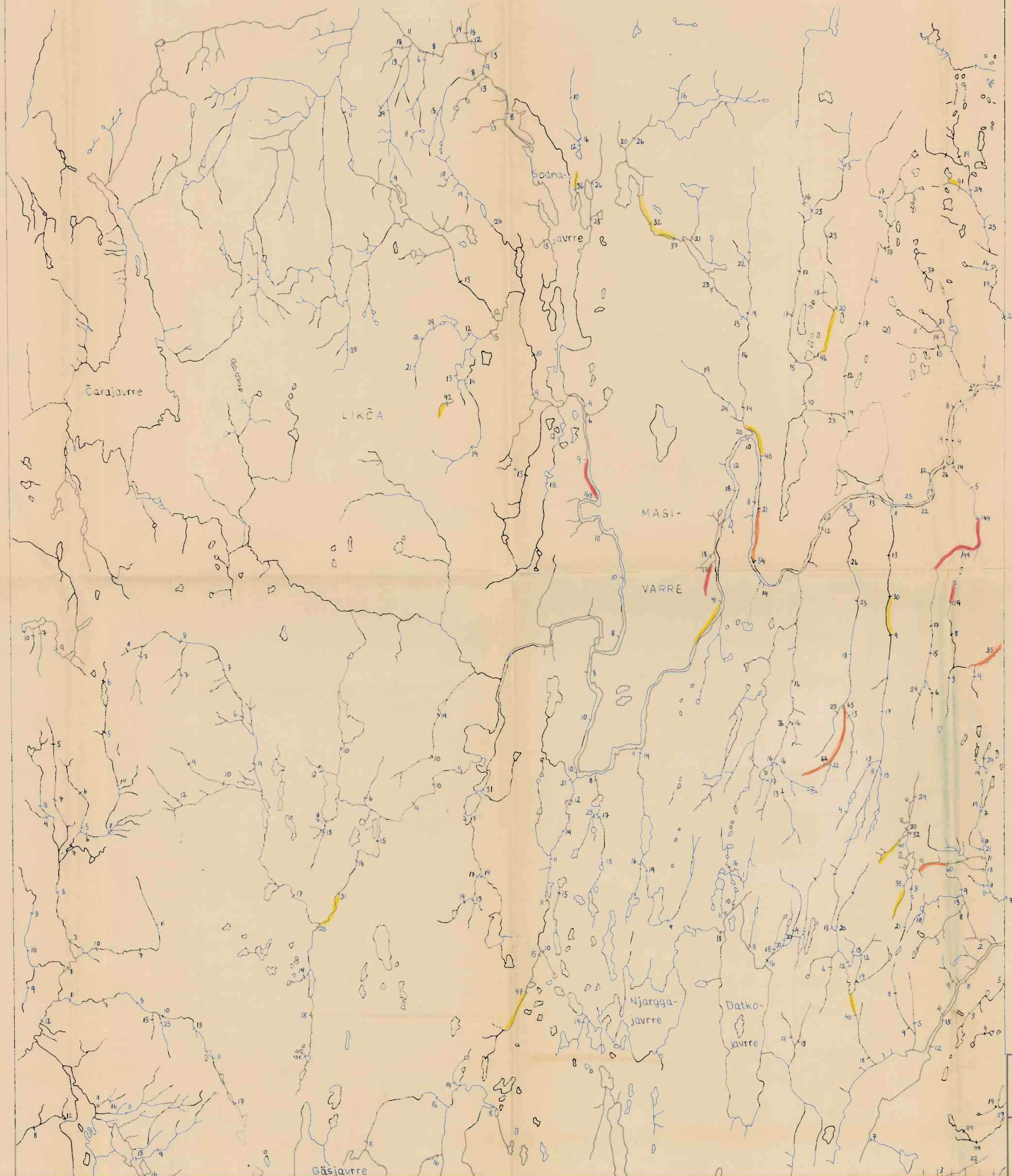
0 1 2 3 km



CARAJAVRE
Acid extractable Zn
in stream sediments

% SULFIDMALM

SCALE	OBS.
1:50 000	DRAW.
TRAC. BL	2-73
CHK.	
MAP NO.	6 218 72 17
MAP SHEET	1833 I



Possible anomaly 30-50 ppm
 Probably " 50-70 "
 Anomaly > 70 "

0 1 2 3 km



CARAJAVRE		SCALE	OBS	NGU	72
Acid extractable Co in ashed stream sediment samples		1:50000	DRAW		
			TRAC	BL	2-73
			CHK		
		MAP NO.	12-218-72-17		
SULFIDMALM		MAP SHEET	1833 I		



KEY :

Thick overburden	49,1 %
thin overburden	26,0 %
outcrops	8,0 %
swamp	10,5 %
water	5,4 %

CARAJAVRE
Overburden thickness map
(based on airphotos)

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

% SULFIDMALM

MAP NO.
13-218-72-17
MAP SHEET 1833 I



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	



BURGUNVARRE, KAUTOKEINO Reconnaissance till sampling 1972 Cu, Ni, Zn, Co, As.	SCALE	OBS.	
	1:25 000	DRAW. EK	
		TRAC. BL	2-73
		CHK.	
1/2 SULFIDMALM	MAP NO.		
	15-218-72-17		
	MAP SHEET 1833 I		