Bergvesenet

Postboks 3021, 7002 Trondheim

Rapportarkivet

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Troms & Finnmark	Aspro 1507			

Tittel

Detailed geological survey on electromagnetric anomalies Kautokeino (2 stk: nr 1506 (BV761) og 1507 (BV 695))

Forfatter	Dato	Bedrift
Berge, Kari	27.04 1984	Prospektering A/S

Kommune	Fylke	Bergdistrikt	1: 50 000 kartblad	1: 250 000 kartblad
Kautokeino	Finnmark	Troms og Finnmark	18332 19324	

Fagområde	Dokument type	Forekomster
Geologi		
Råstofftype	**Emneord**	

Sammendrag

Nr 620.

Fm. 372/84 FB 19/6-84

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INTERN RAPPORT

DATO: 27/4-84	RAPPORT NR: 1506	KARTBLAD 1833 II 1932 IV	Antall sider —"— bilag

SAKSBEARBEIDER Kari Berge

RAPPORT VEDRØRENDE:

Detailed geological survey on electromagnetic anomalies.

Kautokeino, West-Finnmark

FORDELING

OSLO:

KIRKENES:

ANDRE:

RESYMÉ:

The survey was made to examine electromagnetic anomalies from Dighem's airborne survey of the Superior Oil Joint Venture Area.

In this report 13 areas are described. The location of the areas are shown on figs. no. 1, 2 and 3.

Detailed mapping has been done within grids put up for the ground geophysics.
The areas are for the major part covered by moraine. In addition to bedrock mapping, boulders were also mapped. Possible causes for the electromagnetic anomalies were especially looked for, such as zones of iron sulphides, iron oxides and graphite.

The results are presented on topographical maps in scale 1:5000, Figs. no. 4 to 15. The area numbers correspond to the numbers which the areas are given in the ground geophysics survey.
Together with the geology, the maps also show electromagnetic profiles from the ground geophysics survey.
To each map there is a description of geology, boulders and mineralizations.

Each area is given a recommendation for further follow-up work. This follow-up work was done partly in 1983 and will be continued in 1984.

KOMMENTAR:

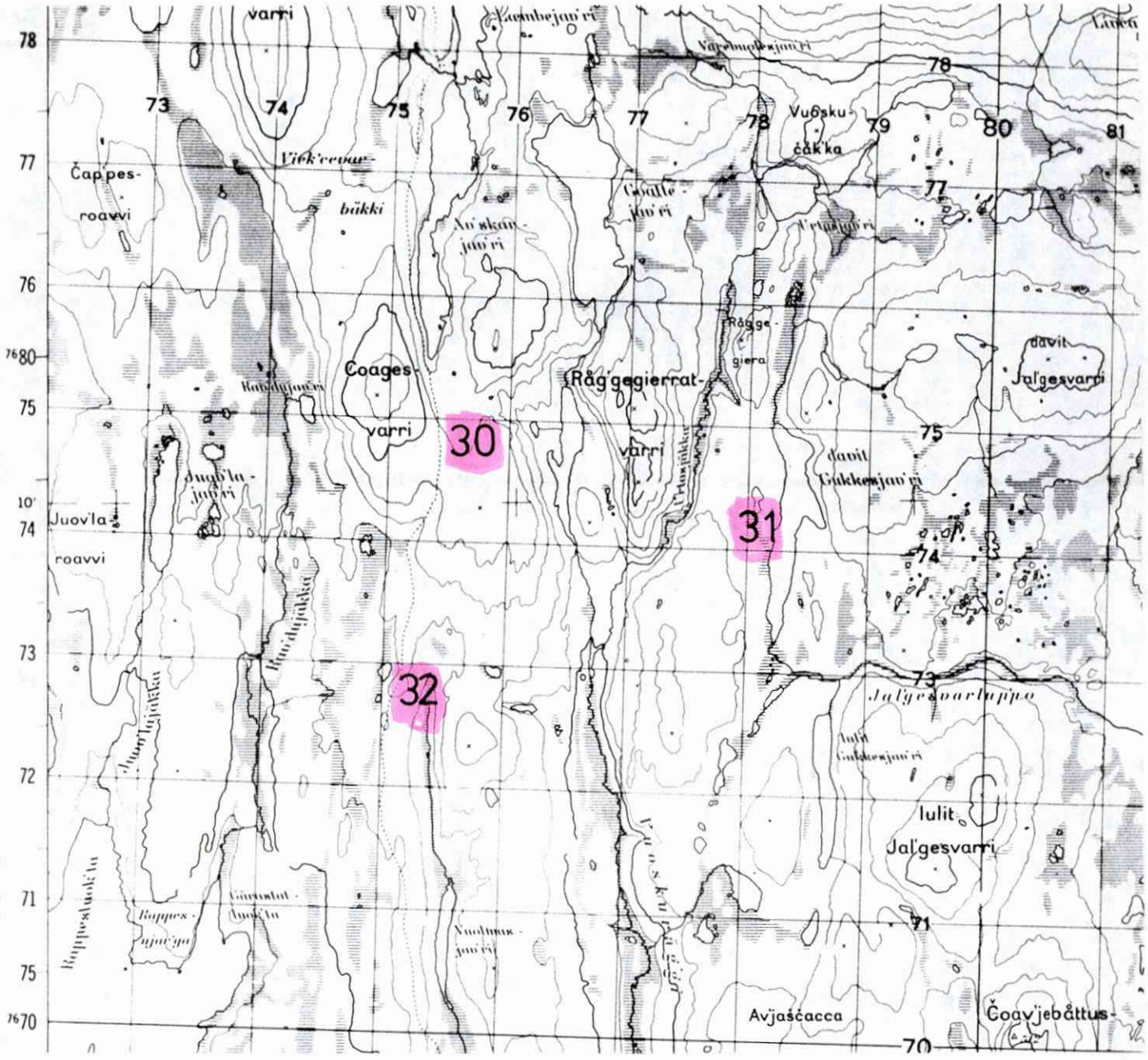


Fig. 1: Location map

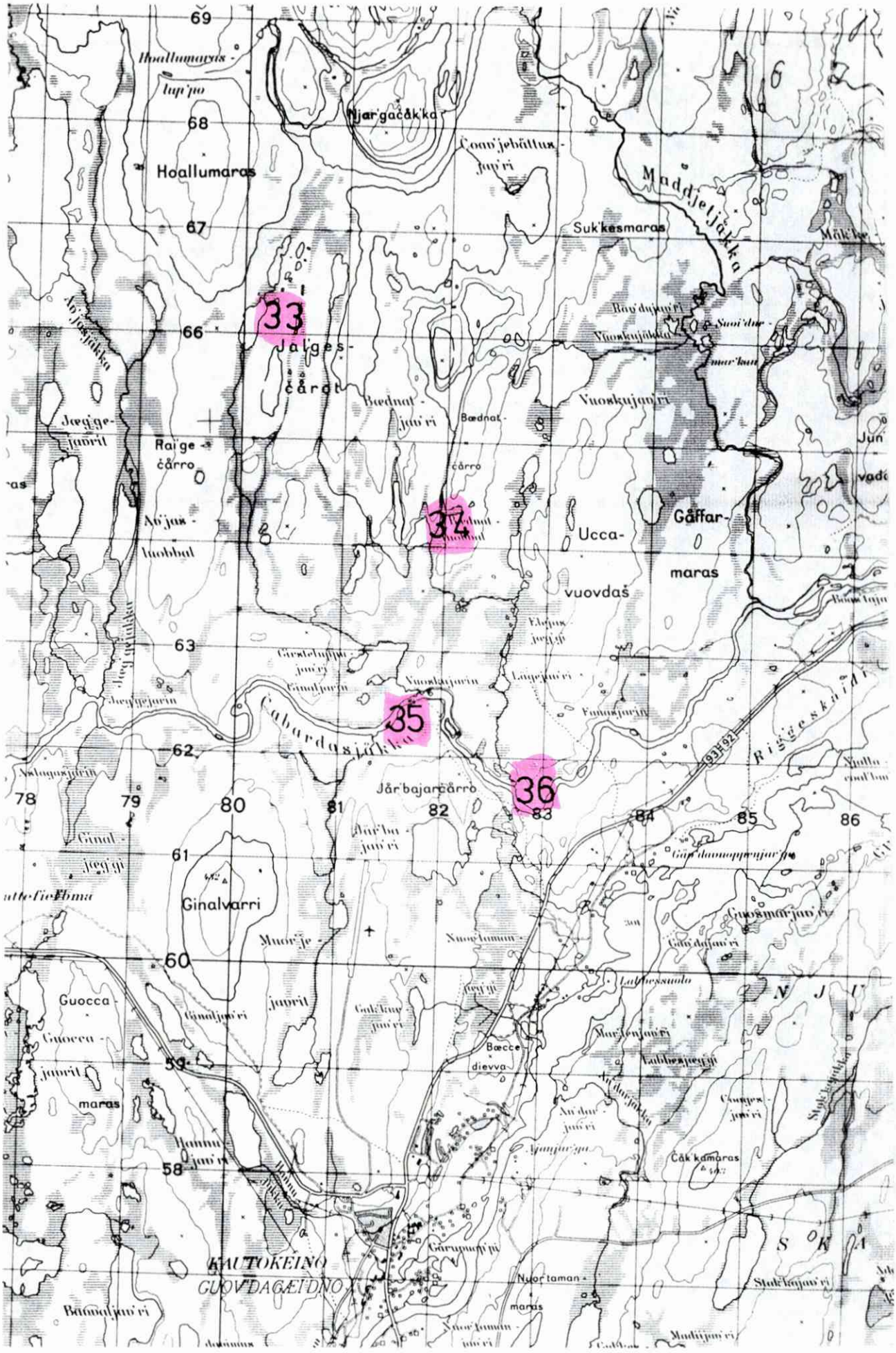


Fig. 2: Location map

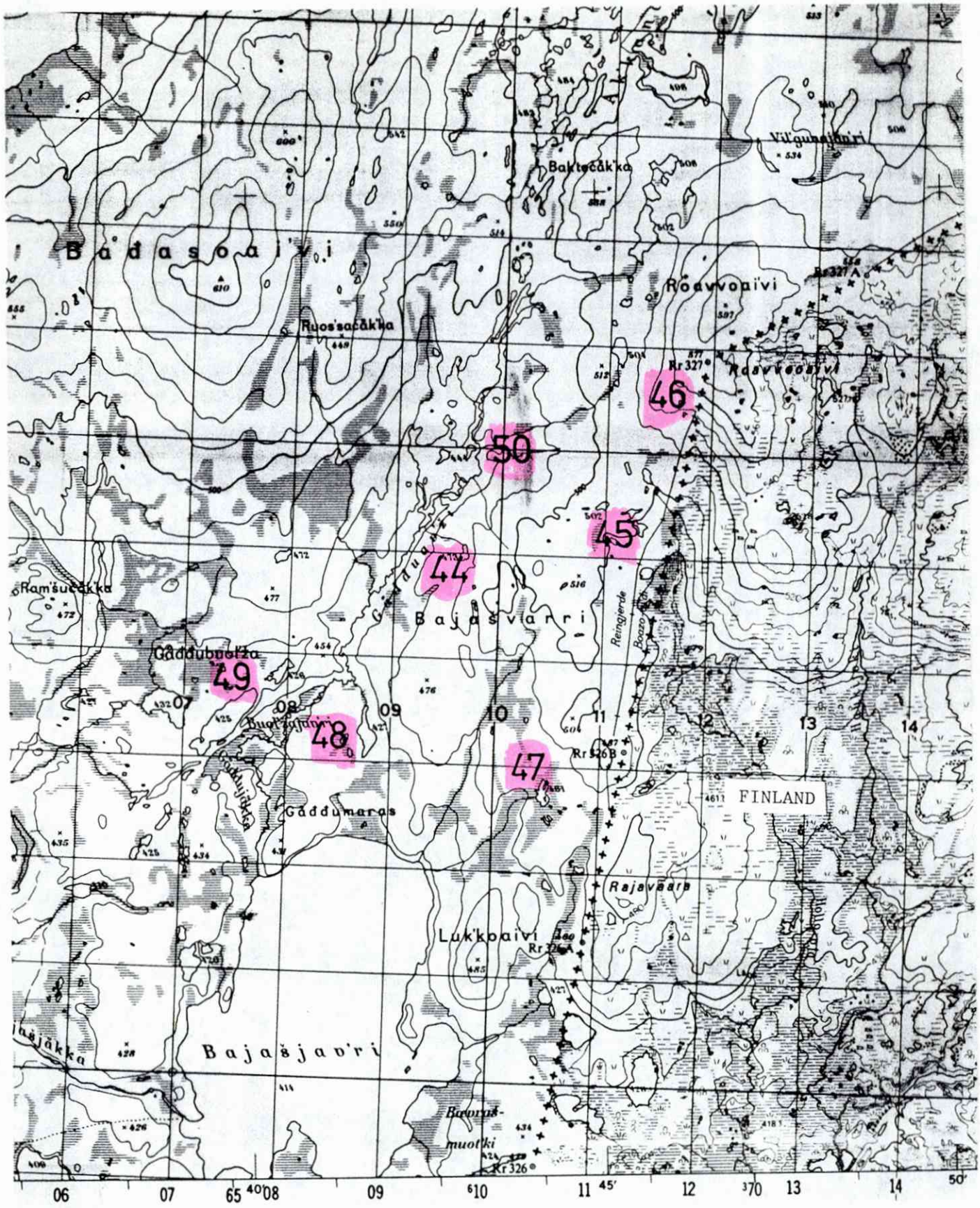


Fig. 3: Location map

AREA 30 Fig. 4

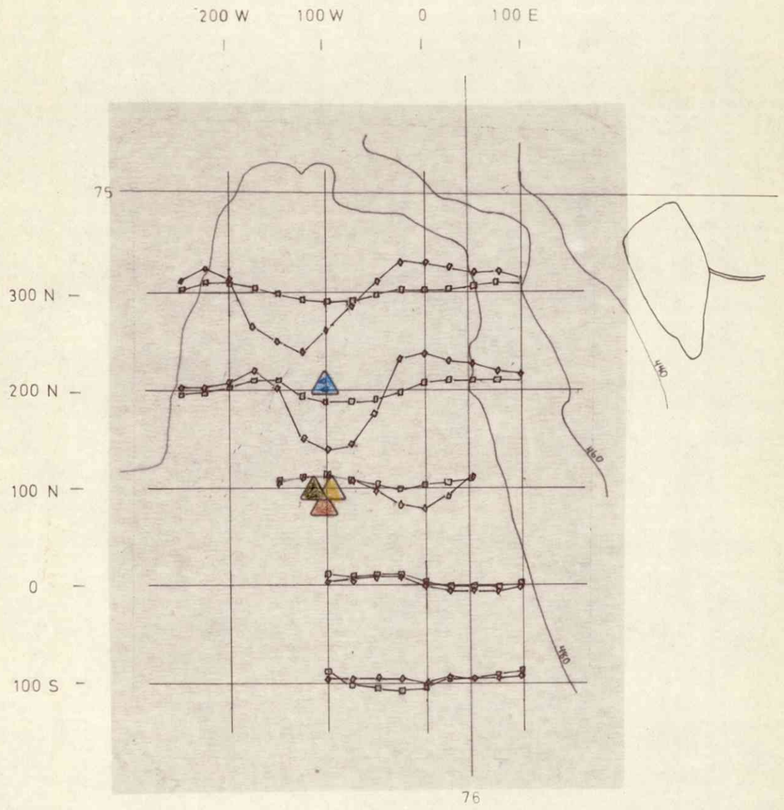
The localization of the area is uncertain. No sign of the grid except for one unmarked pole, was found.

Boulders

Carbonate breccia and carbonate rock with quartz veins.
Coarse grained amphibolite or diabase, and amphibolite.
Fine grained tuff or tuffite with veins filled with quartz and carbonate.

Recommendations

The geological observations give little information. The anomaly is suggested further examined by deep till sampling.



LEGEND

Geology

- Granite / P=pegmatite
- Mica scist
- Coarse, massive amphibolite or diabase
- Tuff, tuffite
- Medium to finegrained, often schistose and foliated, amphibolite
- Carbonate rock, albite carbonate rock
- Carbonate schist
- Carbonate breccia
- Sandstone, quartzite
- Gneiss
- R — Rust
- Strike and dip (90 degrees division)
- Rock boundary, certain and uncertain
- Outcrop
- Boulder
- Group of boulders

hem – hematite
py – pyrite
mt – magnetite
cp – chalcopyrite

} As a major constituent (> 1/3) of the rock

Electromagnetics

- Real comp. Horizontal loop 1777 Hz
- Imag. comp. Horizontal loop 1777 Hz

Topography

- Stream or river, lake
- Bog
- Elevation contour
- X 605 — Elevation
- Path
- Cart track
- 67 / 90 — UTM grid with coordinates

AREA 30 Kautokeino Geological mapping EM survey	M 1:5000
	Målt: KB 83 Tegn: KB 3/84 Trace: HB 4/84
PROSPEKTERING A/S	Fig. 4

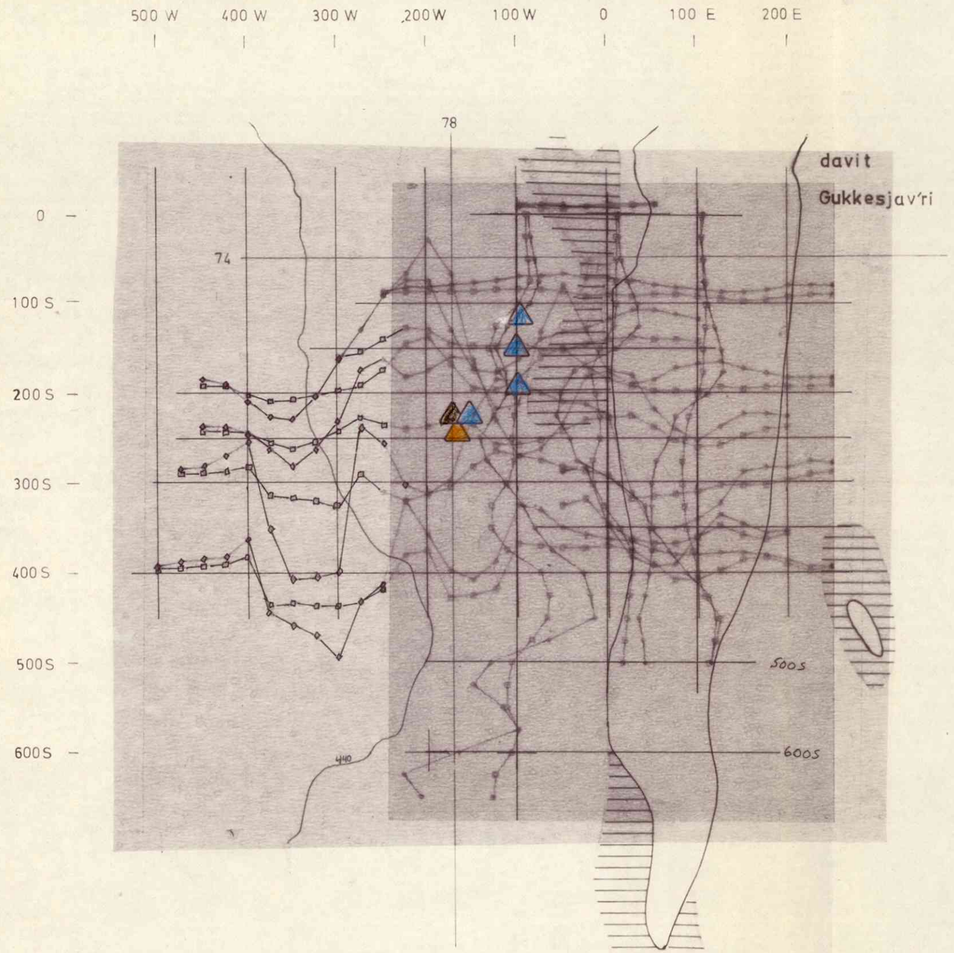
AREA 31 Fig. 5

A part of the area is investigated. No outcrops were discovered.

Except for some boulders of gneiss and amphibolite, there are mainly boulders of albite carbonate rock. These are very fine grained, light coloured and have veins with hematite mineralization.

Recommendations

As there is little geological informations on this area, the anomaly is suggested surveyed in a minor deep till sampling programme.



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Topography

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AREA 31 Kautokeino Geological mapping EM survey	M 1:5000
	Målt: KB 83
	Tegn: KB 3/84
	Trace: HB 4/84
PROSPEKTERING A/S	Fig.5

AREA 32 Fig. 6

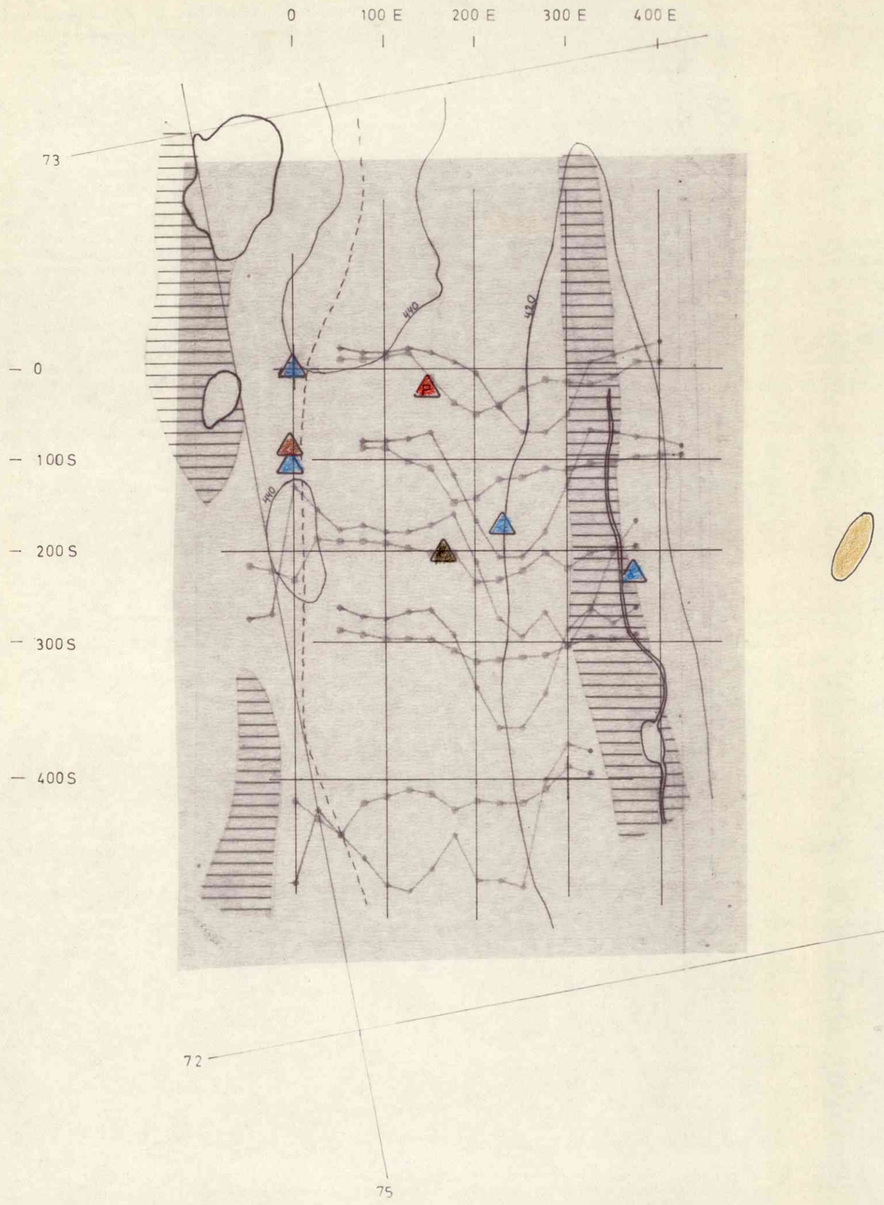
Inside the grid area there are no exposures of bedrock.
About 200 m east of the grid there is an outcrop of tuff or tuffite. It has veins filled with carbonate minerals and quartz. The rock is probably altered.

Boulders

Boulders of carbonate schist are dominating the area. There are also boulders of coarse grained amphibolite and pegmatitic granite.

Recommendations

There is little geological informations on this area.
The anomaly is recommended surveyed by deep till sampling.



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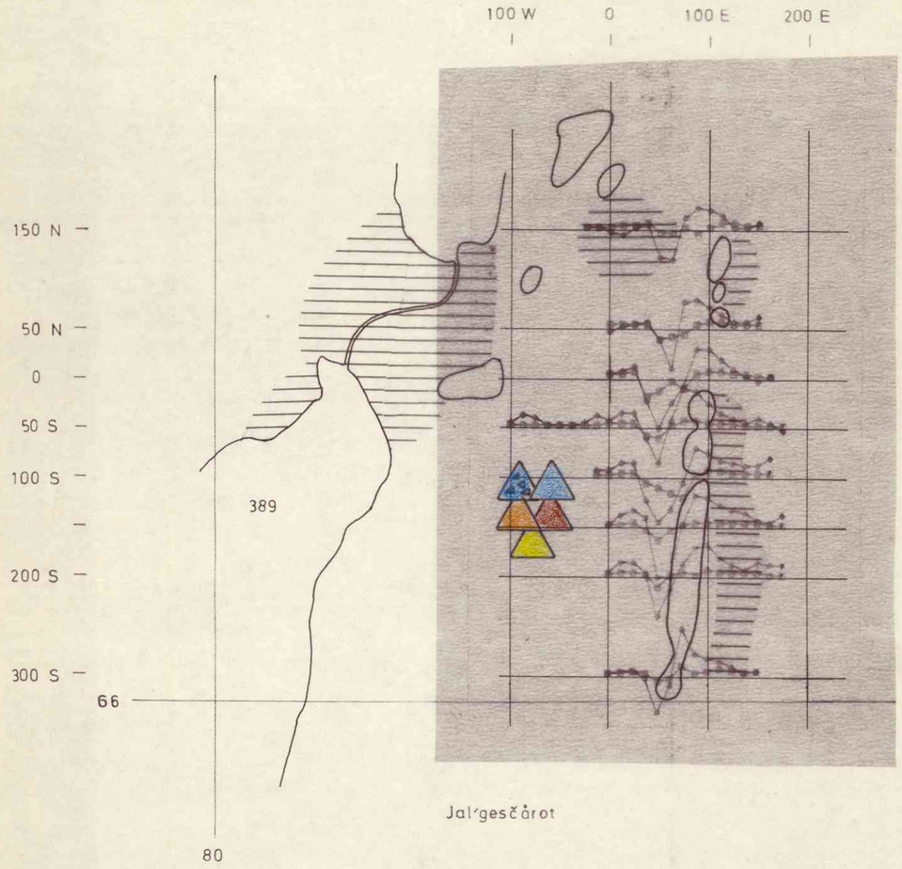
Area 32 Kautokeino Geological mapping EM survey	M 1:5000
	Målt: KB 83
	Tegn: KB 3/84
	Trace: HB 4/84
PROSPEKTERING A/S	Fig. 6

AREA 33 Fig. 7

The area lacks exposures of bedrock. It is covered by bog and moraine. Boulders that are seen consist of banded gneiss, carbonate breccia, carbonate schist, tuff or tuffite and quartzite.

Recommendations

No further work is recommended in this area.



LEGEND

Geology

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Electromagnetics

- Real comp. Horizontal loop 1777 Hz
- Imag. comp. Horizontal loop 1777 Hz

Topography

- Stream or river, lake
- Bog
- Elevation contour
- X 605 — Elevation
- Path
- Cart track
- 67 / 90 — UTM grid with coordinates

AREA 33 Kautokeino Geological mapping EM survey	M 1:5000
	Målt: KB 83 Tegn: KB 3/84 Trace: HB 4/84
PROSPEKTERING A/S	Fig. 7

AREA 34 Fig. 8

The surveyed area is dominated by bog and moraine.

Outcrops

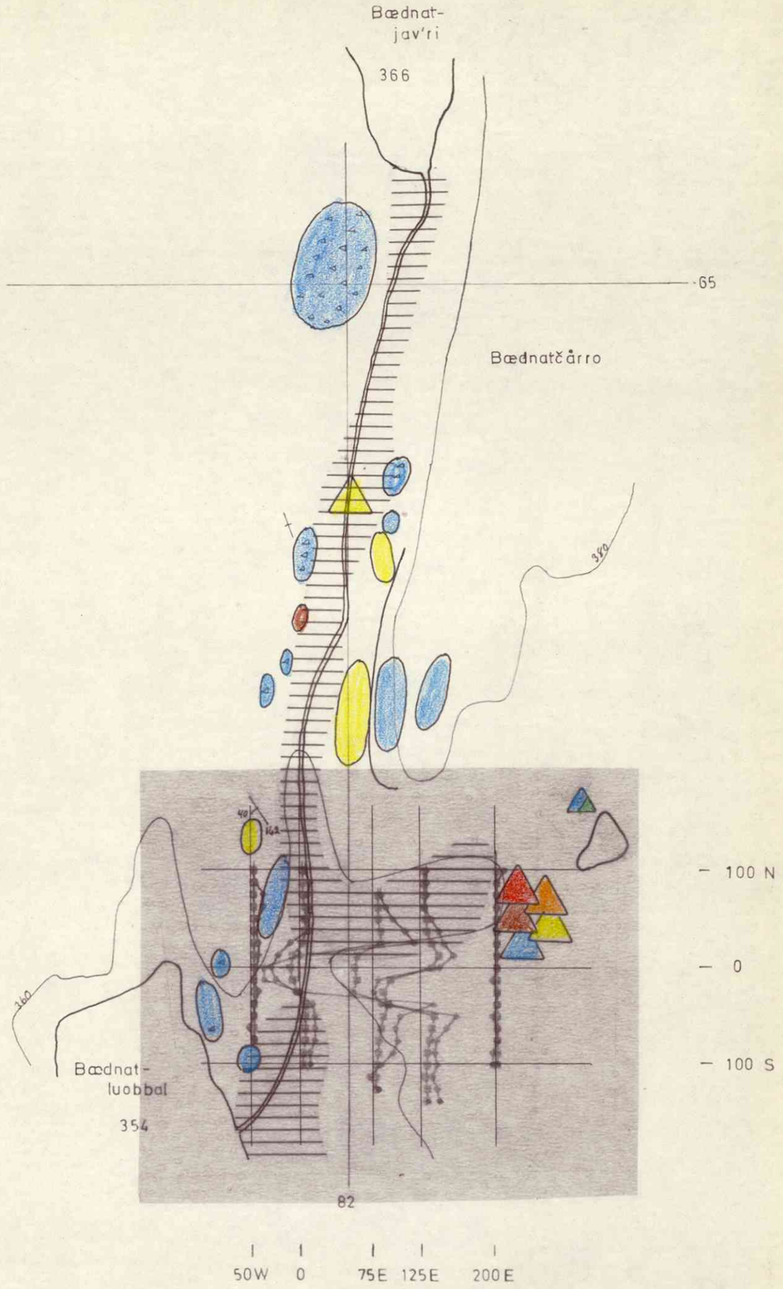
Along the 100W profile there are outcrops of albite carbonate rocks and carbonate breccia.
North of the area there are outcrops as far north as the lake Bædnatjav'ri. On both sides of a small stream that leads southwards from the lake towards the measured area, there are outcrops of coarse grained quartzite. The quartzite is exposed in topographic depressions.
To the east of the quartzite, and seemingly overlying this, there are albite carbonate rocks. These consist of zones or layers of differing varieties of the rock: One light coloured to reddish and very fine grained rock with hematite in grains with sizes up to 1 cm across, and one grey, fine grained rock containing some mica. The zones occur irregularly and the lighter type may be an alteration product of the grey one.
One outcrop is of an amphibolitic rock type.
The rocks are mostly without orientation. Two outcrops show northwestern strike and have a steep and moderate dip to the southwest.

Boulders

The moraine in the eastern part of the surveyed area contains boulders of granite, gneiss, amphibolite, albite carbonate rocks and quartzite.

Recommendations

Due to the geological observations the area is recommended investigated by diamond drilling.



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Electromagnetics

- Real comp. Horizontal loop 1777 Hz
- Imag. comp. Horizontal loop 1777 Hz

Topography

- Stream or river, lake
- Bog
- 500 — Elevation contour
- X 605 — Elevation
- Path
- Cart track
- 67 / 90 — UTM grid with coordinates

AREA 34 Kautokeino Geological mapping EM survey	M 1:5000
	Målt: KB 83 Tegn: KB 3/84 Trace: HB 4/84
PROSPEKTERING A/S	Fig. 8

AREA 35 Fig. 9

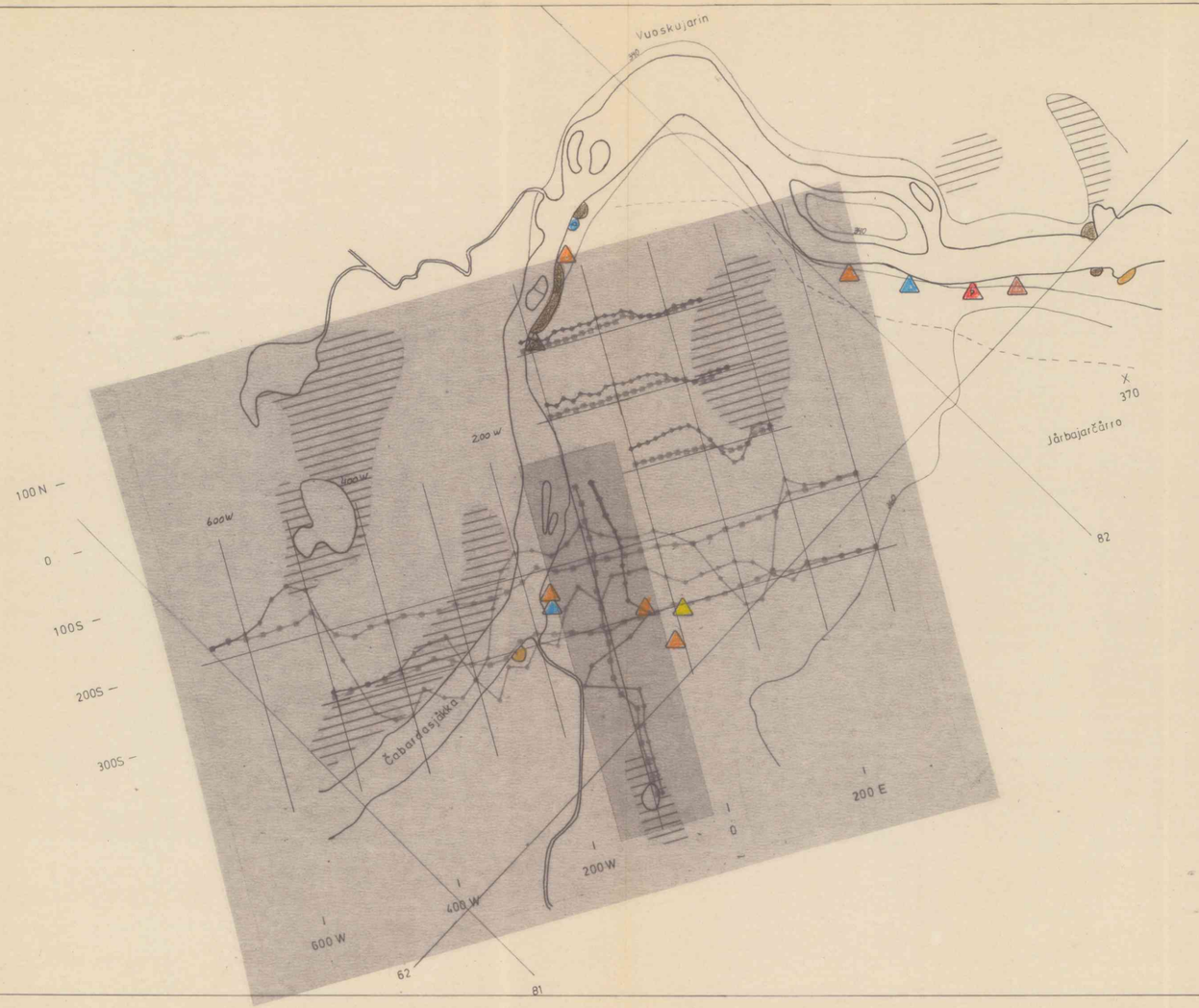
The area has a thick cover of moraine.
Outcrops are found only by the riverside. There are outcrops of diabase, carbonate breccia and tuff.

Boulders

Where the moraine cover is thick, there are boulders mostly of gneiss and quartzite. Along the river bank there are boulders of granite, amphibolite and albite carbonate rocks as well.

Recommendations

Geological observations are lacking in most of the area.
To examine the anomaly further, deep till sampling is recommended.



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Electromagnetics

- Real comp. Horizontal loop 1777 Hz
- Imag. comp. Horizontal loop 1777 Hz

Topography

- Stream or river, lake
- Bog
- Elevation contour
- X 605 — Elevation
- Path
- Cart track
- 67 / 90 — UTM grid with coordinates

AREA 35 Kautokeino Geological mapping EM survey	M 1:5000
	Målt: KB 83
	Tegn: KB 3/83
	Trace: HB 4/84
PROSPEKTERING A/S	Fig. 9

AREA 36 Fig. 10

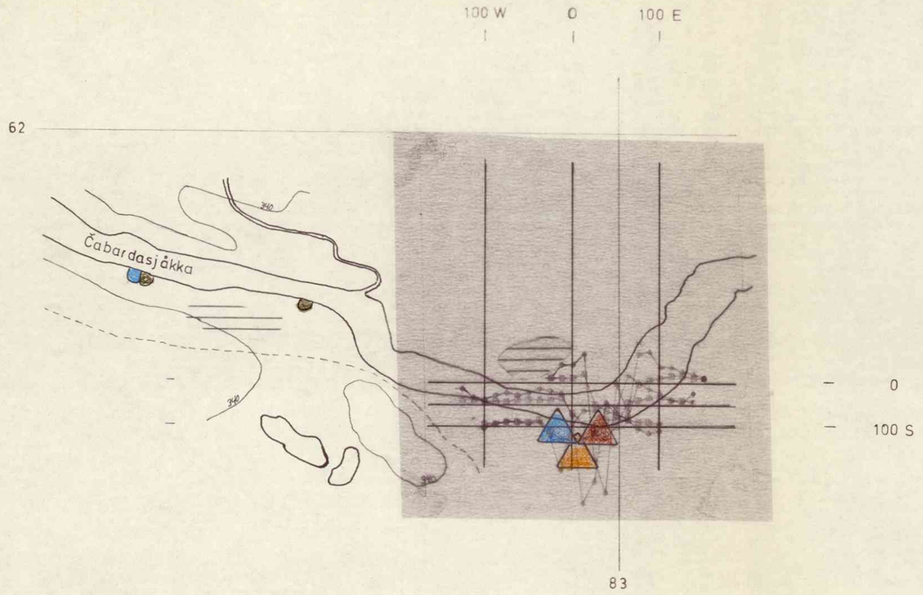
There are no outcrops inside the grid area on the southern side of the river. The land rises steeply on the southern bank of the river to a thick cover of moraine.
Further west on the southern river bank, there are outcrops of coarse grained amphibolite and carbonate rock.

Boulders

Boulders in the moraine consist of gneiss for the major part.
Close to the river bank, the boulders are amphibolite and carbonate rock.

Recommendations

Although there is little information on the geology of this area, the anomaly is interesting and diamond drilling is recommended.



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Electromagnetics

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- Imag. comp. Horizontal loop 1777 Hz

Topography

- Stream or river, lake
- Bog
- 600 — Elevation contour
- X 605 — Elevation
- Path
- Cart track
- 67 / 90 — UTM grid with coordinates

AREA 36 Kautokeino Geological mapping EM survey	M 1:5000
	Målt: KB 83 Tegn: KB 3/84 Trace: HB 4/84
PROSPEKTERING A/S	Fig. 10

AREA 44 Fig. 11

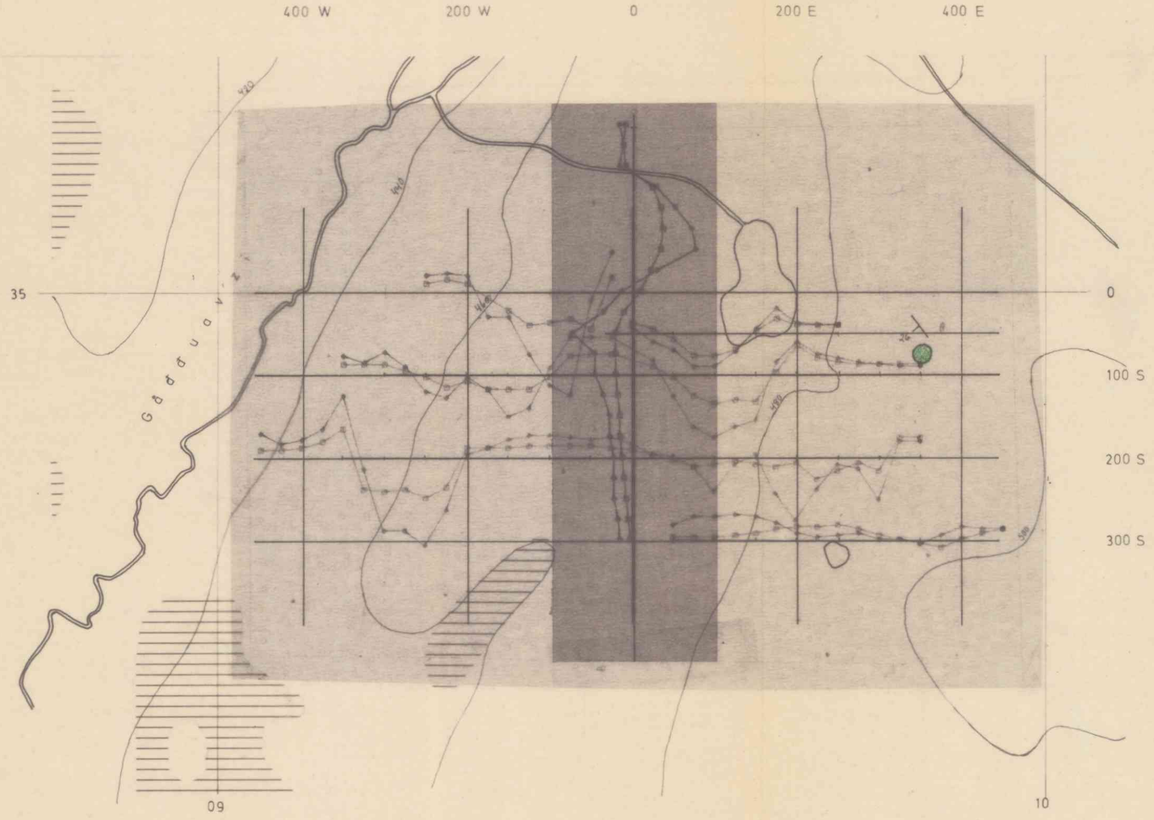
The area is well exposed. Only one outcrop is examined in this investigation.

The rock is a quartz-mica schist. It is grey, foliated and fine grained. The foliation is cut by a vein of pegmatitic granite. The strike of the rock is to the southeast, and it is dipping gently to the southwest.

Recommendations

The geological informations is small. On the strength of the anomaly, deep till sampling is recommended.

Area 44



LEGEND

Geology

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Electromagnetics

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Topography

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- Bog
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AREA 44 Lavvoai'vi Geological mapping EM survey	M 1:5000
	Målt: KB 83
	Tegn: KB 3/84
	Trace: HB 4/84
PROSPEKTERING A/S	Fig. 11

AREA 45 Fig. 12

The bedrock in the area is well exposed. The rocks are foliated amphibole schists with lenses and layers of quartzite. There are also outcrops of granite and gneiss. To the far north in the area there is amphibole biotite schist that is mapped as mica schist. Coarse and massive amphibole schist is also separated from the amphibole schist on the map.

Amphibole schist

The rock is foliated with bands of amphibole, feldspar and various amounts of quartz. The bands are about 1 mm in width. Zones that are rich in quartz frequently show distorted foliation and lack measurable orientation. The strike is varying from western and northwestern to northly, with dip respectively to the south, southwest and west. The dip is gentle to medium.

Mineralization in amphibole schist:

Pyrite and pyrrhotite may form a major part of the rock, especially in zones rich in quartz. Many of the outcrops are covered by rust. Thick layers of rust have sometimes made the examination of the rock difficult.

Quartzite and granite

Quartzite and granite occur as lenses or layers in the amphibole schist. The layers can be more than 1 m in thickness. They are coarse, reddish and have no or few orientated minerals.

Boulders

The boulders in the area are mostly of local rock types, and apparently of local origin. In the bog area to the northwest, there are several boulders of amphibolite, gneiss and granite. Some of these may be transported.

Recommendations

Follow-up work in this area should consist of bedrock sampling of the sulphide zones.

AREA 46 Fig. 12

The bedrock in the area is well exposed.
The dominating rock type is amphibole schist which is bordering to granite in the northwest by fault zones.

Amphibole schist

The amphibole schist is foliated with mm-thick bands of green and light coloured minerals. It is mostly fine grained or occasionally medium grained. The main minerals are apmphibole, quartz and feldspar, with various amounts of biotite. Varieties rich in biotite are mapped as mica schist. Much of the quartz in the amphibole schist occur as veins and lenses. Where these features are most prominent, the orientation of the rock is distorted. Outcrops mapped as quartzite are assumed to represent large quartz lenses in the amphibole schist. The direction of the strike is to the north-northeast with dip to the west-southwest. In the central part of the area, the strike is east-west dip to the south.

Mineralizations in amphibole schist:

Magnetite occur occasionally in some of the outcrops. Pyrite or pyrrhotite is found in various amounts in most of the outcrops. The highest amounts are found in outcrops that have a large content of quartz. In quartzite outcrops they can be a major constituent of the rock.
Most outcrops have rusty areas. In some cases the exposed bedrock is completely oxidised, and the minerals impossible to decide.

Granite

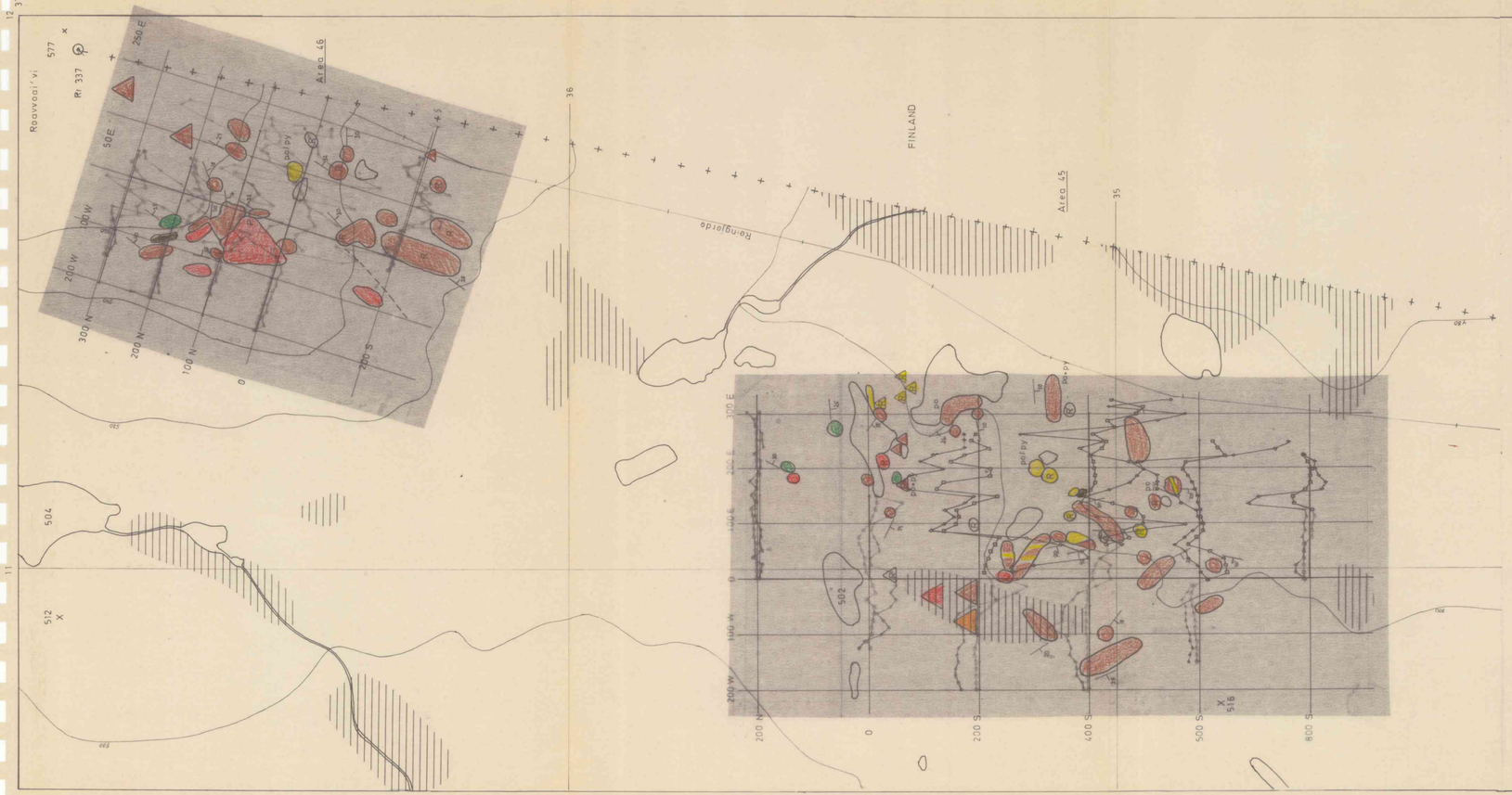
The granite is reddish, lacks orientation and is medium grained with quartz, feldspar and biotite as the main minerals.

Boulders

In the area there are boulders of amphibole schist, especially to the north. These are clearly of local origin.

Recommendations

Follow-up work in this area should consist of bedrock sampling of the sulphide zones.



LEGEND

Geology

- Granite / Pegmatite
- Mica schist
- Coarse, massive amphibolite or diabase
- Tuff, tuffite
- Medium to finegrained, often schistose and foliated, amphibolite
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Electromagnetics

- Real comp. Horizontal loop 1777 Hz
- Imag. comp. Horizontal loop 1777 Hz

Topography

- Stream or river, lake
- Bog
- Elevation contour
- X 505 Elevation
- Path
- Cart track
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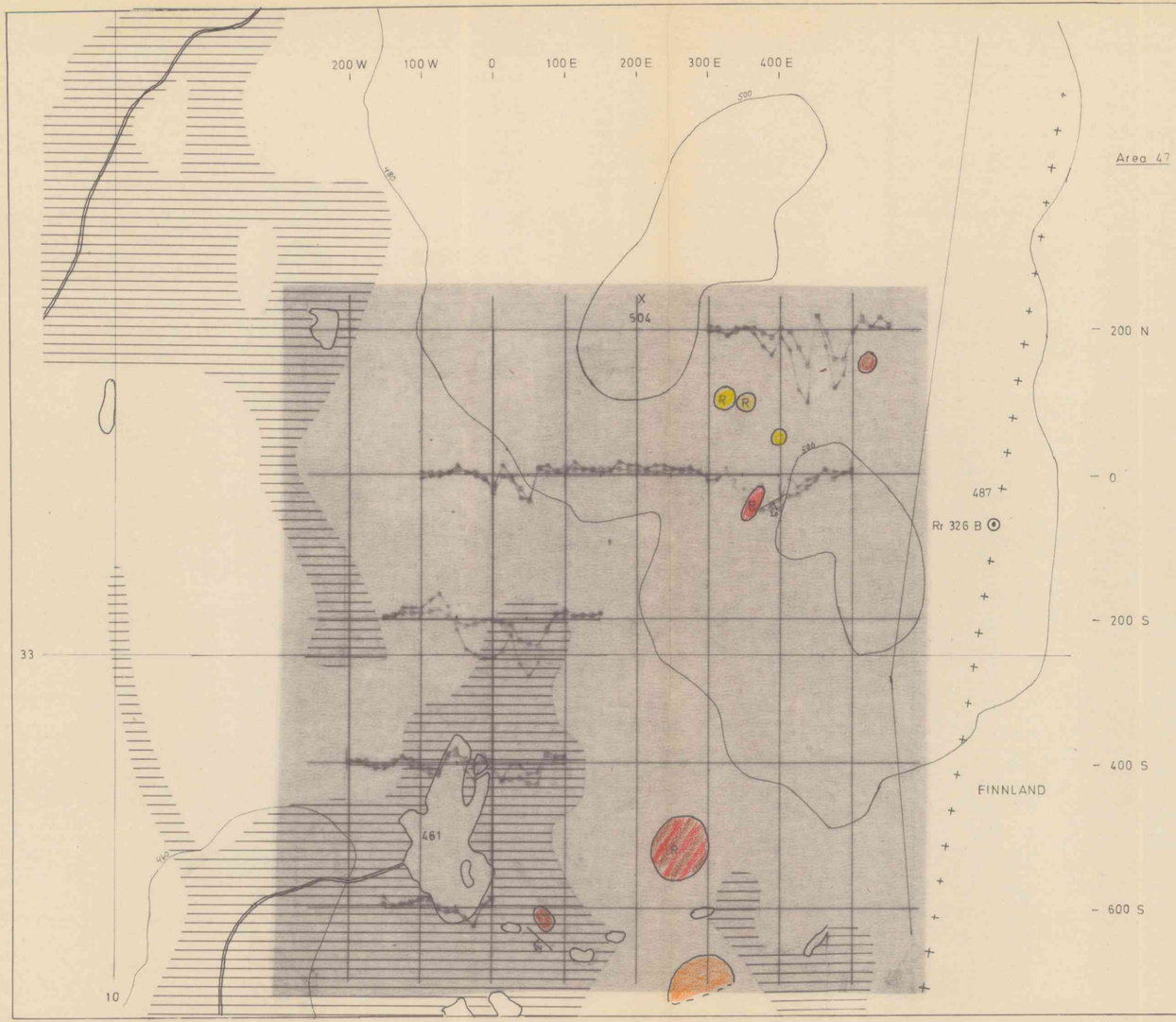
AREA 45 and 46 Geological mapping EM survey	M 1:5000
	Mält: KB 83
	Tegn: KB 3/84
	Trace: HB 4/84
PROSPEKTERING A/S	Fig. 12

AREA 47 Fig. 13

The localization of the area is uncertain.
The greater part of the area is covered by bog. To the northeast and the southeast there are some outcrops. In the northeast there is an outcrop of foliated amphibolite and some outcrops of quartzite, rusty quartzite and one outcrop where nothing but rust can be seen. South of the quartzite there is an outcrop of granite, partly pegmatitic.
There are layers of folded and foliated amphibole schist in the granitic rock mass. The strike of the rock is to the northeast and it has medium dip to the southeast.
In the southeast there is an area with folded layers of amphibolite schists and granitic rock. The rock also contains layers and masses of iron sulfides and is covered by rust in many places.
South of the amphibole-granite area, the rocks are gneissic.

Recommendations

Geological information on the area is sparse.
The anomaly is recommended investigated by till sampling.



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Area 47 Lavvoai'vi Geological mapping EM survey	M 1:5000
	Mält: KB 83 Tegn: KB 3/84 Trace: HB 4/84
PROSPEKTERING A/S	Fig. 13

AREA 48 Fig. 14

The area is completely covered by sand.

Recommendations

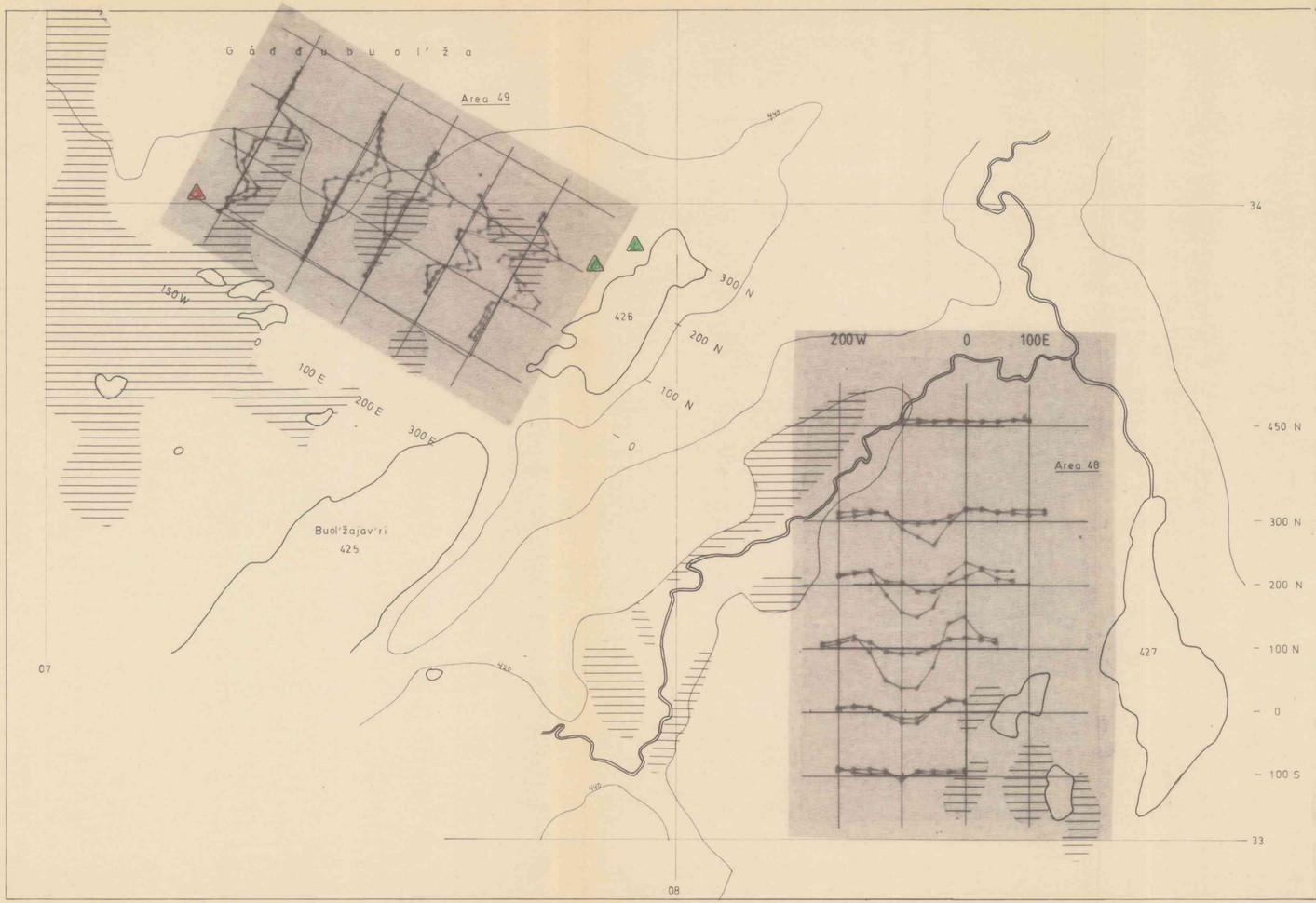
There is no information on the geology in this area.
Follow-up work should be deep till sampling.

AREA 49 Fig. 14

There are no outcrops in the area.
West of the area there is a boulder of amphibolite. East of the area there are a couple of boulders of mica schist.

Recommendations

There is little information on the geology in this area.
Recommended follow-up work is deep till sampling.



LEGEND

Geology

- P — Granite / P=pegmatite
- Mica schist
- Coarse, massive amphibolite or diabase
- Tuff, tuffite
- Medium to finegrained, often schistose and foliated, amphibolite
- Carbonate rock, albite carbonate rock
- Carbonate schist
- Carbonate breccia
- Sandstone, quartzite
- Gneiss
- R — Rust
- Strike and dip (90 degrees division)
- Rock boundary, certain and uncertain
- Outcrop
- Boulder
- Group of boulders

hem – hematite
py – pyrite
mt – magnetite
cp – chalcopyrite
} As a major constituent (> 1/3) of the rock

Electromagnetics

- Real comp. Horizontal loop 1777 Hz
- Imag. comp. Horizontal loop 1777 Hz

Topography

- Stream or river, lake
- Bog
- Elevation contour
- X 605 — Elevation
- Path
- Cart track
- 67 / 90 — UTM grid with coordinates

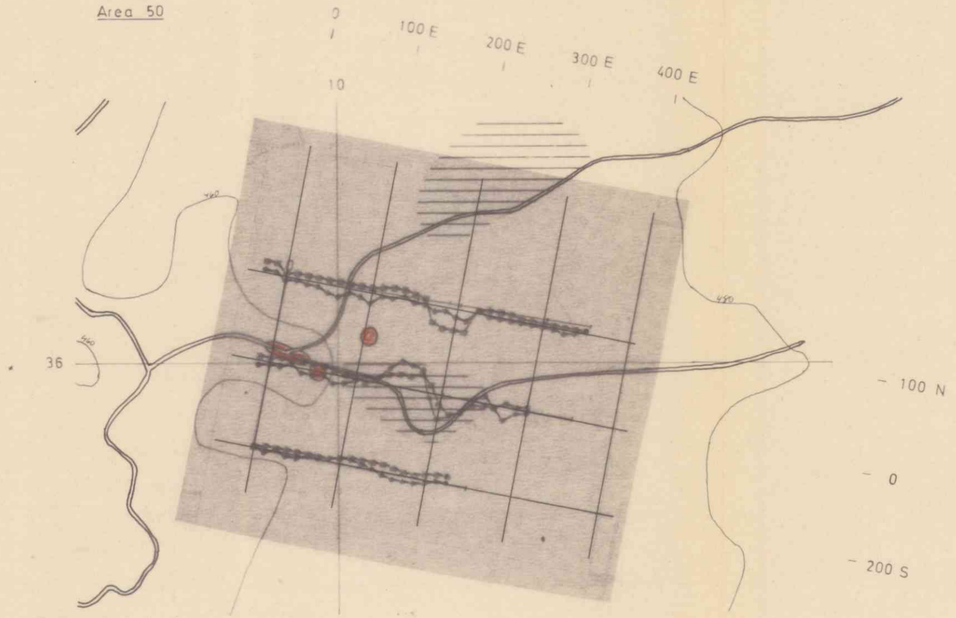
AREA 49 and 48 Lavvoai'vi Geological mapping EM survey	M 1:5000
	Mält: KB 83 Tegn: KB 3/84 Trace: HB 4/84
PROSPEKTERING A/S	Fig. 14

AREA 50 Fig. 15

In this area there are a few outcrops of amphibolite.

Recommendations

Recommended follow-up work is deep till sampling.



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AREA 50 Lavvoairvi Geological mapping EM survey	M 1:5000
	Målt: KB 83 Tegn: KB 3/84 Trace: HB 4/84
PROSPEKTERING A/S	Fig. 15