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Rapportarkivet

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Tittel Ground surveys and prospect drilling in Dabmutjavrit-area, Masi				
Forfatter Kreivi, E. Taipale, K.		Dato 1976	Bedrift Sulfidmalm A/S	
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Sammendrag				

FOR FALCONBRIDGE NIKKELVERK A/S
A/S SULFIDMALM

Project 905-17

Ground surveys and prospect drilling
in Dabmutjavrit-area in 1976, Masi.

By
E. Kreivi
K. Taipale

Introduction (Fig.1)

Dabmutjavrit-grid is situated 6 kms NNW of Suolovuobme, 2 km NW of Ruvvačokka and 2 kms SV of Muvrračorre just south of three small lakes, called Dabmutjavrit, the lakes which are full of small trouts in the beginning of summers and empty in autumns, after the tourist-seasons. The grid was sited to find additional Zn- and Pb-bearing rocks, to those found in an outcrop and to find out if the rocks have any connection to the horizons at Ruvvačokka and Muvrračorro. Two base lines were laid out in the area. One was 1500 ms long running east-west direction from 0 to 1500W, the other was 1600 ms long, laid out in the south-north direction from 1000S to 500N, crossing the first base-line perpendicularly at 400W. 400-500 ms long profiles were laid out with 50 ms line-spacing, near the Zn-Pb-showing, between 1000W-1500W, otherwise the line-spacing is 100 ms. The grid was laid out until a large drumlin in the east. The V.L.F.-survey and the till-sampling with 25 ms sample-interval was done on all the profiles. A Shoot-Back-EM-survey and detailed mapping was done on the profiles 1000W-1500W. Three prospect drill-holes were drilled, two near the Zn-Pb-showings and the third one to penetrate the easternmost EM-anomaly in the place, where some Cu-mineralization was found in local blocks, where the conductor seems to be folded.

Geochemistry (Fig.2)

Till-samples were collected by the hand augers along all the profiles with 25 ms sample-interval mainly from the C-layers from a depth of 40-60 cm. A Partner-percussion drill was used to collect samples from the bottom of the swamp, which is beside the Zn-Pb-bearing outcrop. Laboratory in Kristiansand was asked to assay for Ni, Cu, Zn and Pb (Waiting for assays)

Geology by Kalle Taipale (Fig.3)

A goodlooking showing of sphalerite and galena bearing quartzose rock led to the mapping of the nearest surroundings of the showing just mentioned. The best assays got 5.2% Zn, 1.05% Pb, 0.07% Cu, 52 ppm Ag.

Most of the mapped area consists of gabbroic greenstones and greenschists. The coarsest varieties of gabbroic rocks are massive and unfoliated consisting of amphibole and plagioclase. They resemble intrusive gabbros, the greenschists contain plagioclase, amphibole and chlorite.

Quartz rich rocks occur very abundantly in this area. They consist of quartz, containing sometimes a little graphite. Must be chemical precipitates and thats why the name "acid volcanic" on the map should be chert.

Outside the mapped area there are albite-carbonate rocks. The sphalerite-galena mineralization are probably of hydrothermal origin as at Muvracooro judging by the occurence of these sulphides in the fissures.

Geophysics (Fig.4)

A V.L.F.-survey was done on the whole grid using Crone Radem equipment and reading a signal, sent from Bordeaux in France. The reading interval was 25 ms. Five long conductors were revealed in the area. The Zn-Pb-exposure is located between two conductors, which are conforming to the contacts of "acid volcanics" with gabbroic rocks in NE-direction. The three other zones are coming into the grid from the direction of Ruvvačokka and turning out of the grid to the direction of Muvrračorre.

A Shoot-Back-EM-survey was done across the V.L.F.-anomalies between the profiles 1000W-1500W using Crone-Shoot-Back equipment. This used a coil-separation of 50 ms and the reading interval 12.5 ms. The anomalies are not very uniform, not very strong either, but scattered. However, they conform to the V.L.F.-EM-anomaly-zones. Three short Shoot-Back-profiles, base-line between 400W-600W, 50N-profile 350W-550W and 400W-profile 50S-150N, were measured to locate the conductor, near the Cu-bearing local blocks, for drilling. Strong sulphide-mineralizations, mainly po and py with traces of chalcopyrite and sphalerite, were found on the EM-anomalies on the profiles 500N, 50N near base line and between 400S-700S on the eastern side of the base line.

Drilling (Fig.5)

Three diamond drill holes (totalling 104.5 ms) were drilled by a contractor, called Terranor A/S, to find out an extension of the sphalerite-galena-mineralization in the expose at 1100W/50N, and of the chalcopyrite-bearing mineralization at 400W/50N. The drill-holes were collared:

1-D/1776	45°SE/42.5 m	at	1100W/75N
2-D/1776	45°S /22.5 m	at	1094W/60N
3-D/1776	<u>45°E /39.5 m</u>	at	463W/50N

Total 105.5 m

Near the Zn-Pb-exposure we found, in the core "acid volcanics", mica schists, basic volcanics and a one meter thick graphitic bed, and also a one meter wide quartz-vein. Traces of sphalerite were found in fissures in the "acid volcanics" at the top of the hole 1-D.

The hole 2-D was drilled under the exposure. The core from it got sphalerite in microscopically thin joints from the top down to 17.6 ms.

Near the local blocks of a chalcopyrite-bearing mineralization the hole 3-D got "acid volcanics" with some, mainly po-mineralization with some chalcopyrite in it, and a mica-schist - greywacke-bed.

The best analyses from the core got:

0.14% Ni in 2-D/1776 at 15-16 m

0.11% Cu in 3-D/1776 at 7-8 m

1.72% Zn in 2-D/1776 at 5-6 m

0.41% Pb in 2-D/1776 at 5-6 m

Conclusions:

The Zn-Pb-mineralization in the core was very disappointing comparing with the impressive looking exposure. The density of the fissures, filled by sphalerite and galena, might not be very high at all. So by drilling a hole we can easily get either a good section or the worst one.

The drilling near the copper-bearing blocks (hole 3-D/1776) also gave a negative result, only minor cpy was found in po-rich acid volcanics.

The whole grid is not mapped. According to reconnaissance prospecting there are several sulphide-rich horizons, which have not yet been checked carefully enough.

Waiting for the assays of till-sampling.

The best analyses from the hand specimens got:

1.15% Cu in 442/KT/76

5.2% Zn in 39A/EK/76

1.05% Pb in 39C/EK/76

52 ppm Ag in 39A/EK/76

Ma: 1776

Dato 23/8 1976

Innsendt av: E. Kreivi

Prove-	Provetype	Beskr.	Cu	Zn	Pb	S	Ag	Au	Bemerk:
78	233/KT Sulojauri	Grub	040	0.012	<0.02				
79	252/KT ---	---	099	0.017	<0.02				
80	259/KT ---	---	019	<0.01	<0.02				
81	43/MP Silesjauri	---	110	<0.01	<0.02				
82	50/MP ---	---	121	<0.01	<0.02				
83	37A/EK Dabmutjauri	---	006	5.2	0.83		52 ppm		$\Sigma Zn, Pb = 6.03$
84	39B/EK ---	---	007	3.6	0.78		51 ppm		$\Sigma Zn, Pb = 4.38$
85	39C/EK ---	---	007	2.7	1.05				$\Sigma Zn, Pb = 3.75$
86	42A/EK Raipaa	---	270		<0.02		90 ppm	1 ppm	
87	42B/EK ---	---	048		<0.02				

Antal prover:

Shipment No. 13/2

Index of: *Eich. Ker.*

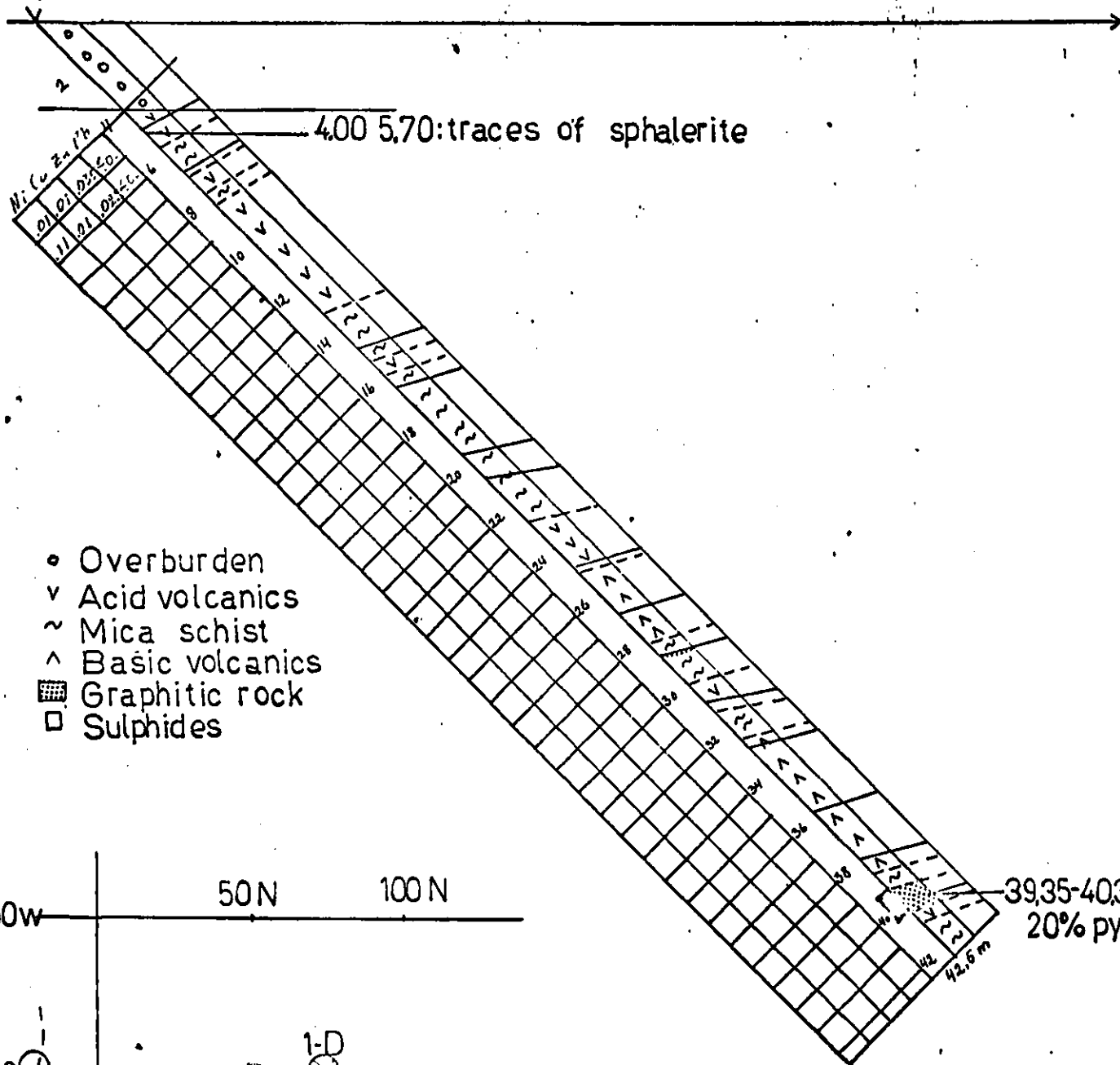
Shipment No. 17/5

Innesat av: *E. K.*

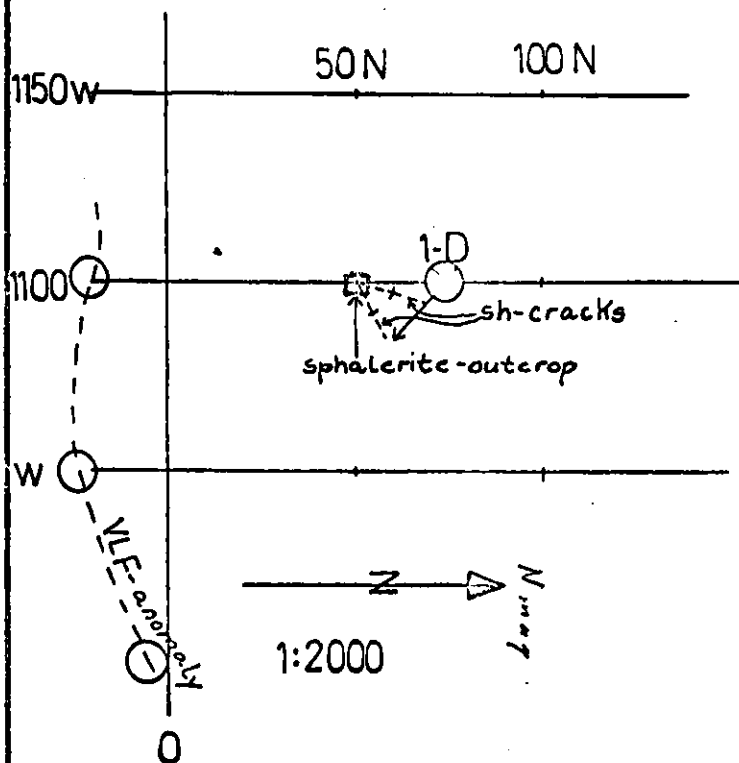
administer:

Shipment No. 1711

1-D/1776



39,35-40,30
20% py.



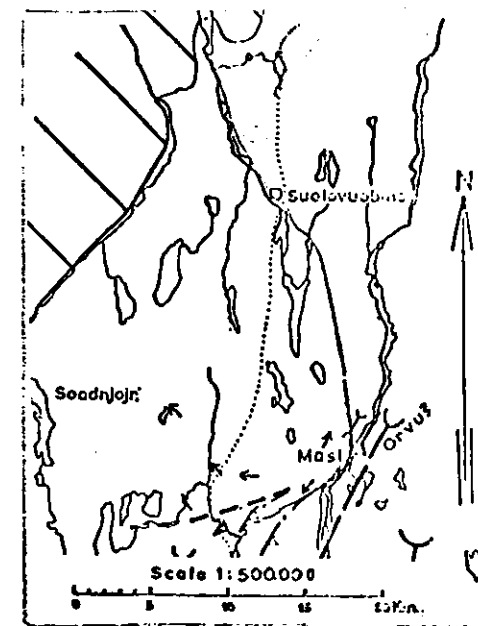
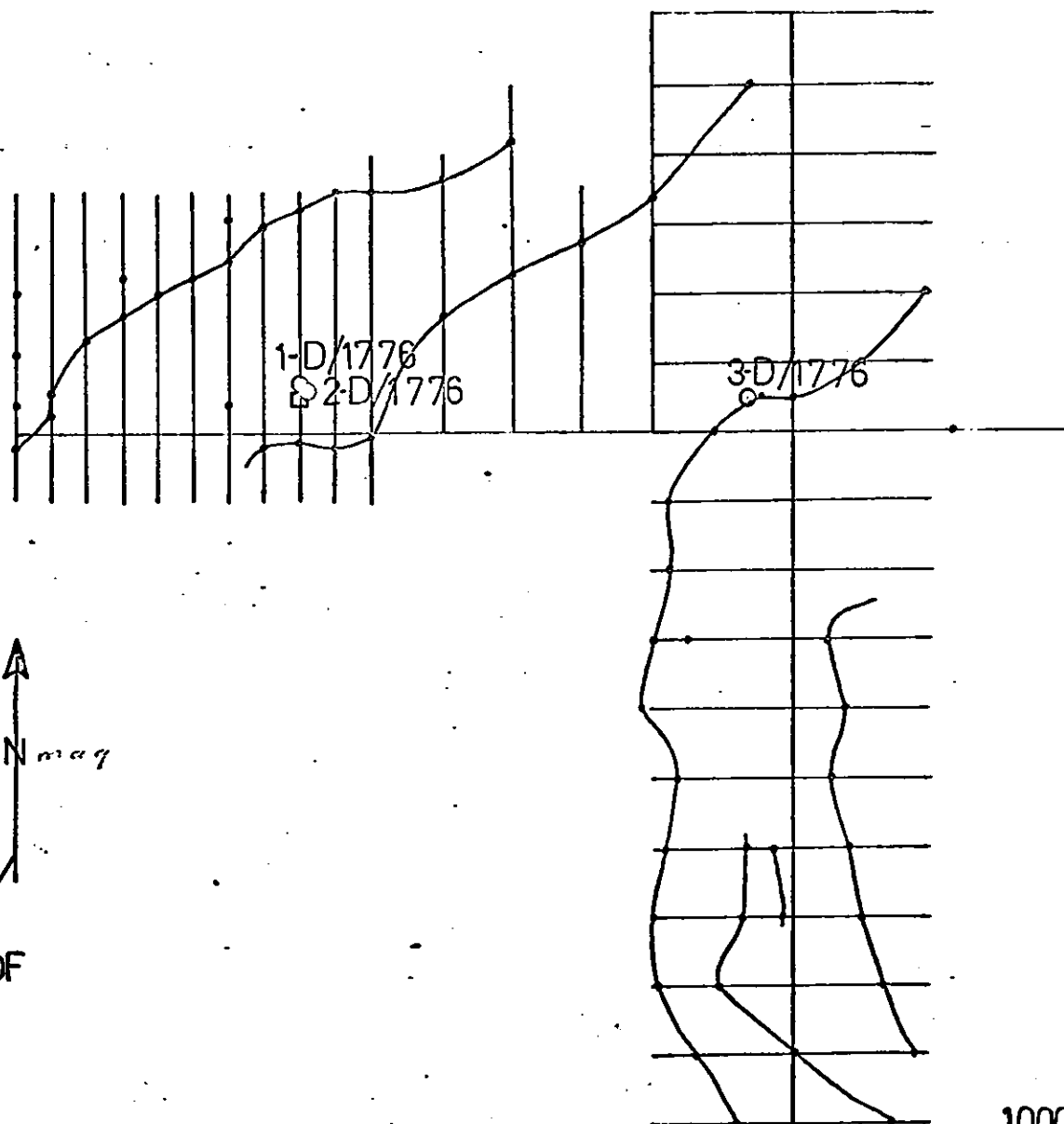
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DABMUTJAVRIT, Masi 1776.			
1-D/1776		1100w/75N	
Terranor a.s.		45°SE/425m	
SCALE	1:200	DRAWN	EK
DATE	10-76	TRACED	BB

1500w

1000w

500w

0



KEY:

- Sphalerite in outcrop
- Drillhole
- ⚡ VLF cross-over

500s

1000s

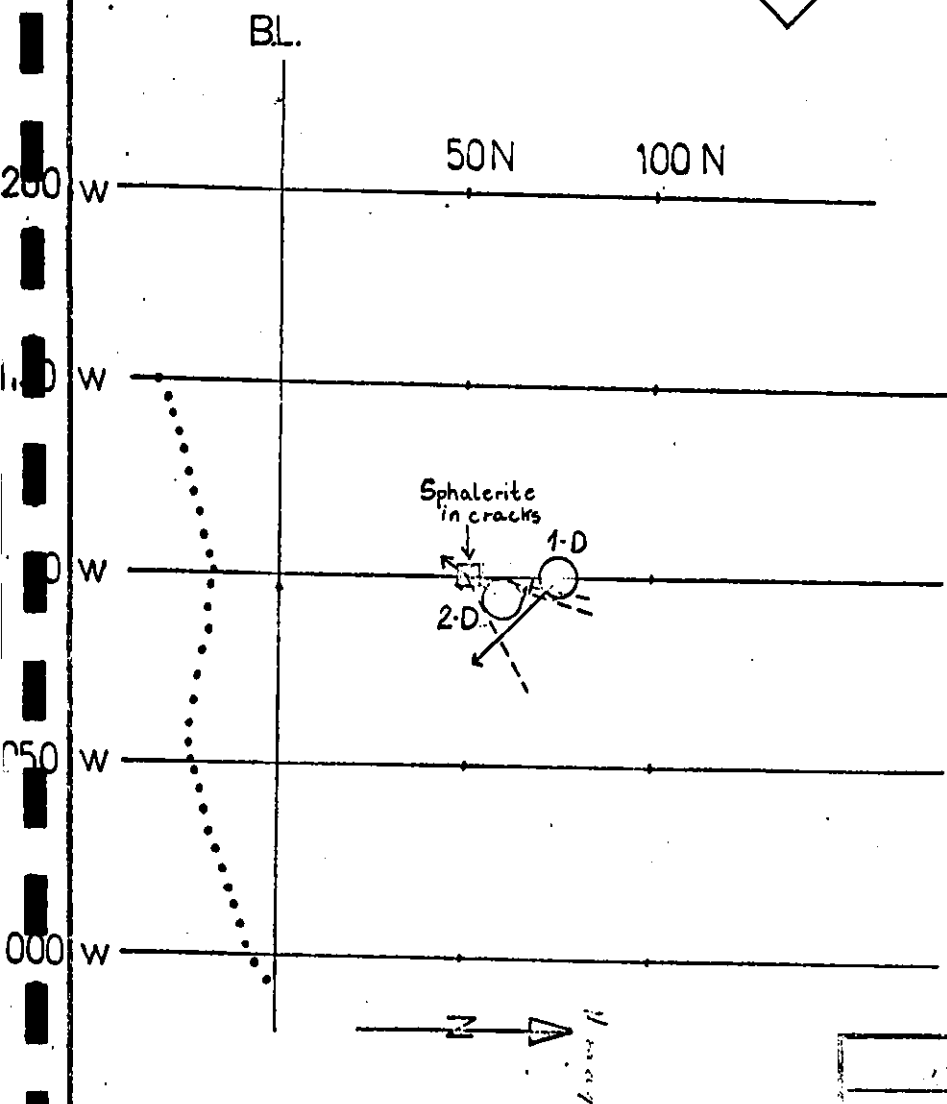
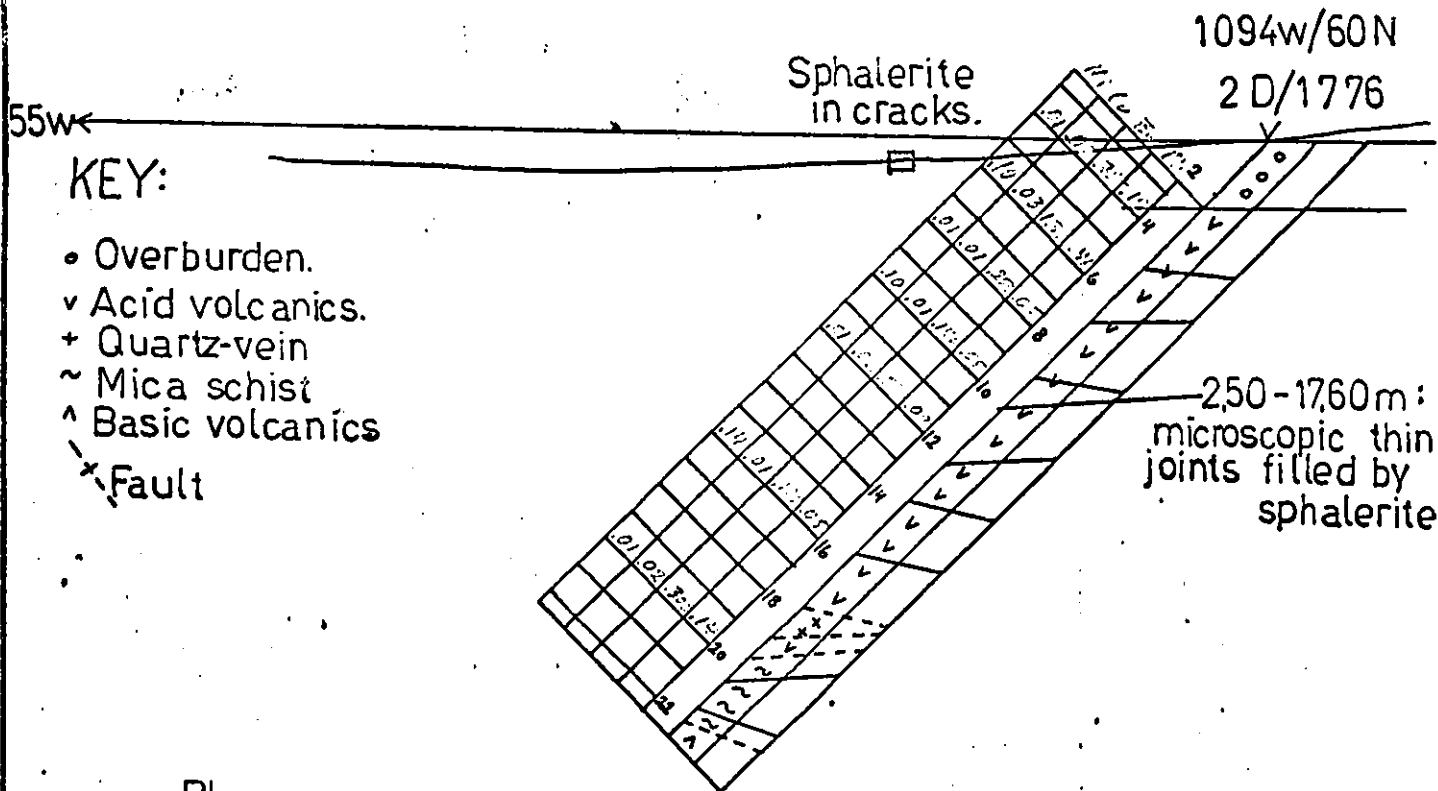
A/S SULFIDMALM

DABMUTJAVRIT, Masi 1776.

VLF-anomalies

Drill-hole-locations.

SCALE	1:10000	DRAWN	EK
DATE	10-76	TRACED	BB



A/S SULFIDMALM			
DABUTJAVRIT, Masi 1776.			
2-D/1776.			
Terranor a.s.			
SCALE 1:200		DRAWN EK	
DATE 10-76		TRACED BS	

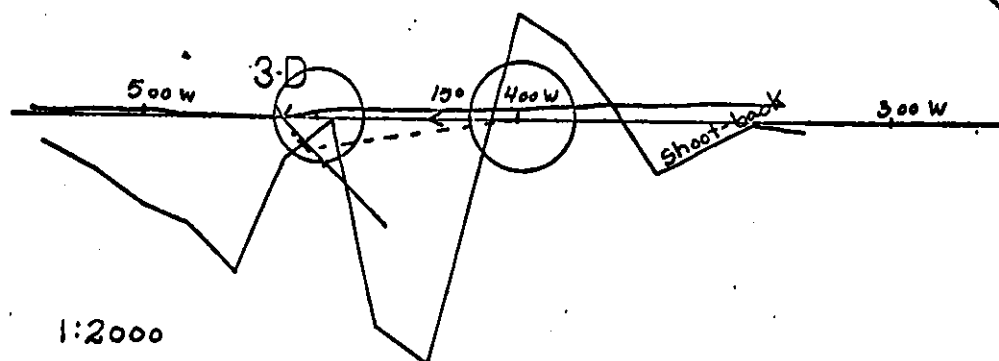
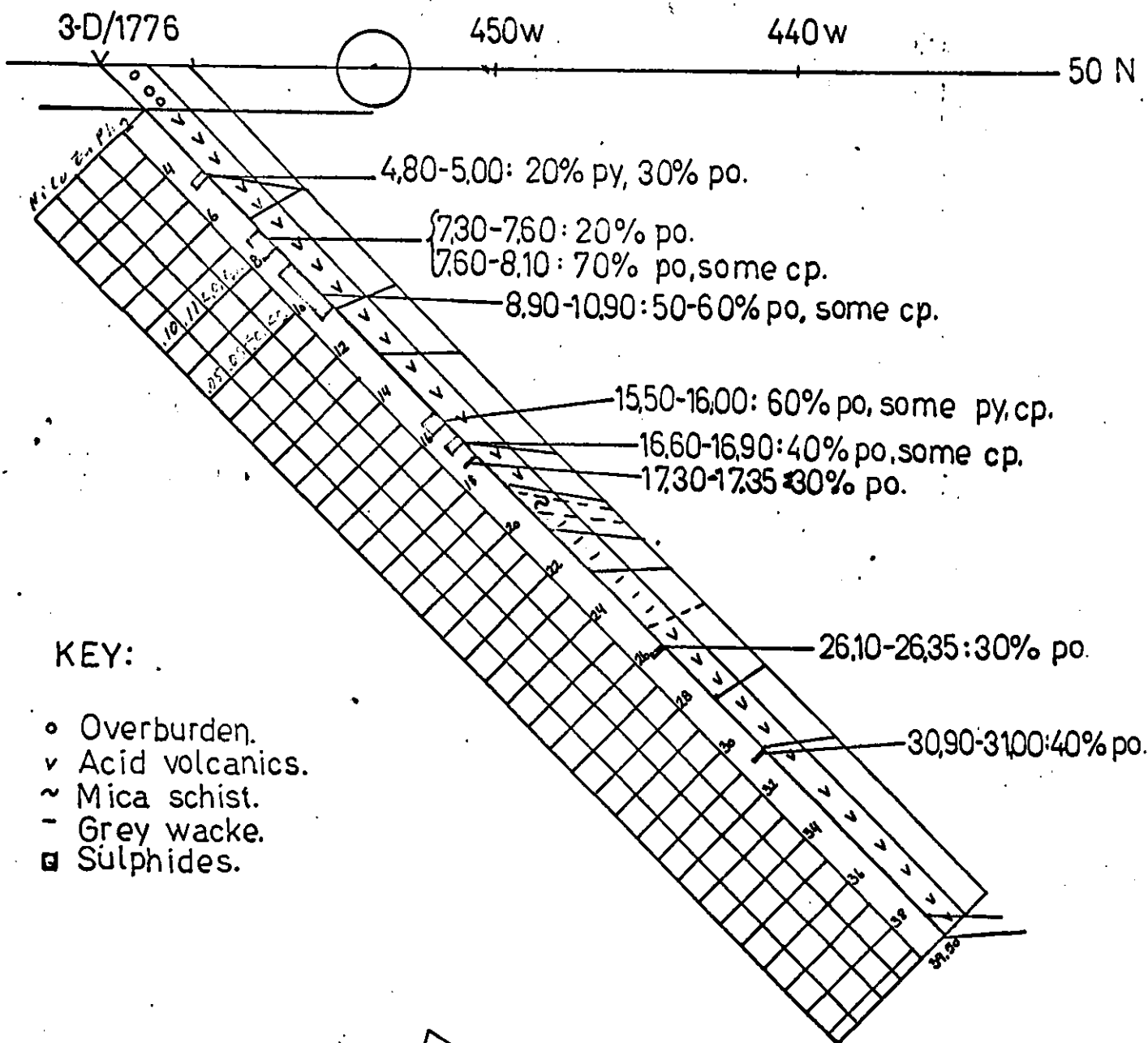


Fig. 22

A/S SULFIDMALM	
DABMUTJAVRIT, Masi 1776.	
3-D/1776	50 N/463 w
Terranor a.s.	45° E/39,5m
SCALE 1:200	DRAWN EK
DATE 10-76	TRACED BB

A/s SULFIDMALM

DIAMOND DRILL RECORD

LOCATION: 1100W/75N BEARING: SE DIP: 45° HOLE NO: 1-D SHEET NO: 1
 LOGGED BY: E. Kreivi STARTED: 22/10 1976 PROPERTY: Dabmutjavrit
 CASING: 4.80 m FINISHED: 22/10 1976 Masi 1776
 CORE SIZE: TT 46 TESTS (CORRECTED):

From	To	Description
0	4.00	Overburden
4.00	5.70	Acid volcanics
		- some narrow carb-veins with occasionally sphalerite
		- chlorite-bearing, some mica and py
5.70	6.85	Mica-schist
		- some carb-veins and chlorite
		6.35-6.60 Acid volcanics
6.85	7.70	Acid volcanics
		- some thin graphitic and mica-rich beds
		- thin cracks filled by py
7.70	8.10	Mica-schist
		- some carb-beds and -veins
		- some py-filled cracks
8.10	13.05	Acid volcanics (chert)
		- 8.10-8.50 Qtz-vein
		- some py in cracks
		- some mica
		9.10-9.40 Qtz-vein
13.05	15.30	Mica-schist
		- carb-veins with some py
15.30	16.00	Chert
		- some py in cracks
16.00	22.70	Mica-schist
		17.70-22.70 some carb-breccia
		- chlorite-rich, Afb-bearing
22.70	24.80	Acid volcanics (chert)
		- some carb-breccia with some po and py.

DIAMOND DRILL RECORD

LOCATION: 1100W/75N BEARING: SE DIP: 45° HOLE NO: 1-D SHEET NO: 1a
 LOGGED BY: E. Kreivi STARTED: 22/10 1976 PROPERTY: Dabmutjavrit
 CASING: 4.80 m FINISHED: 22/10 1976 Masi 1776
 CORE SIZE: TT 46 TESTS (CORRECTED):

From	To	Description
0	4.00	Overburden
4.00	5.70	Acid volcanics - occasionally sphalerite
5.70	6.85	Mica-schist
6.85	7.70	Acid volcanics
7.70	8.10	Mica-schist, some py in cracks
8.10	13.05	Acid volcanics, some py in cracks
13.05	15.30	Mica-schist
15.30	16.00	Acid volcanics, some py in cracks
16.00	22.70	Mica-schist
22.70	24.80	Acid volcanics, some po and py
24.80	28.08	Greenschist
28.08	30.00	Mica-schist
30.00	31.20	Acid volcanics
31.20	32.40	Mica-schist
32.40	38.50	Greenschist
38.50	39.35	Mica-schist
39.35	40.30	Graphitic rock
	0.95m	- 20% py-breccia
40.30	40.80	Acid volcanics
40.80	42.50	Mica-schist
42.50		End of hole
		The hole was drilled 25 ms north of an outcrop in which thin cracks are filled by sphalerite. In the core only traces of sphalerite were found.
	0.95m	20% py

7s SULFIDMALM

DIAMOND DRILL RECORD

LOCATION: 1100W/75N BEARING: SE DIP: 45° HOLE NO: 1-D SHEET NO: 2
 LOGGED BY: E. Kreivi STARTED: 22/10 1976 PROPERTY: Dabmutjavrit
 CASING: 4.80 m FINISHED: 22/10 1976 Masi 1776
 CORE SIZE: TT 46 TESTS (CORRECTED):

From	To	Description
24.80	28.08	Greenschist 25.80-28.05 Mica-bearing
28.08	30.00	Mica-schist - some carbonate and chlorite 28.95-29.15 graphitic bed
30.00	31.20	Acid volcanics 30.00-30.30 some py 30.60-31.20 Chlorite- and garnet-bearing
31.20	32.40	Mica-schist - carb-rich-breccia - some chlorite 31.20-31.50 Afb-crystals
32.40	38.50	Greenschist - carb-breccia
38.50	39.35	Mica-schist - some carb and chlorite
39.35	40.30	Graphitic rock - 20% py-breccia
40.30	40.80	Acid volcanics (chert)
40.80	42.50	Mica-schist - some carb
42.50		End of hole
		Core-angles
		B: 18°/ 4.80 17°/ 6.90 28°/14.80 30°/16.65 34°/19.65 38°/20.70 30°/24.80 30°/26.80 32°/28.70 35°/30.90 30°/32.90 30°/37.90 30°/39.90

%s SULFIDALM

DIAMOND DRILL RECORD

LOCATION: 1094W/60N BEARING: SSW DIP: 45° HOLE NO: 2-D SHEET NO: 1
 LOGGED BY: E. Kreivi STARTED: 23/10 1976 PROPERTY: Dabmutjavrit
 CASING: 4.00 FINISHED: 23/10 1976 Masi 1776
 CORE SIZE: TT 46 TESTS (CORRECTED):

From	To	Description
0	2.50	Overburden
2.50	17.60	15.10 Acid volcanics (chert) - microscopic thin cracks filled by sphalerite and siderite - some carb-veins and py
17.60	18.70	Qtz-vein - some carb, mica, po and py 18.20-18.35 Mica-schist - specks of sphalerite
18.70	19.50	0.80 Acid volcanics (chert) - microscopic thin cracks of sphalerite and siderite - some carbonate
19.50	21.90	Mica-chlorite-schist -brecciated by carbonate - specks of sphalerite in the beginning
21.90	22.50	Greenschist - mica-bearing - very fractured
22.50		End of hole
		B: 39°/ 4.80 45°/ 6.90 36°/ 8.90 48°/12.10 32°/13.50 33°/15.5 48°/20.30 25°/21.30
		The hole was collared 10 ms north-north-east of the sphalerite-bearing outcrop and drilled under it. In 16 ms can be seen microscopic thin cracks filled by sphalerite.
	15.90	Traces of sphalerite in joints

7s SULFIDALMA

DIAMOND DRILL RECORD

LOCATION: 463W/50N BEARING: E DIP: 45° HOLE NO: 3-D SHEET NO: 1
 LOGGED BY: E. Kreivi STARTED: 25/10 1976 PROPERTY: Dabmutjavrit
 CASING: 2.80 m FINISHED: 25/10 1976 Masi 1776
 CORE SIZE: TT 46 TESTS (CORRECTED):

From	To	Description
0	2.00	Overburden
2.00	19.00	Acid volcanics
		2.00-3.70 Carb-breccia with mica and garnets, some Afb-needles and some po and py
		2.00-10.90 Folded
	0.20m	4.80-5.00 20% py-, 30% po-impregnation
	0.30m	7.30-7.60 20% po-impregnation
	0.50m	7.60-8.10 70% po-impregnation, some cp
	2.00m	8.90-10.90 50-60% po-impregnation, some cp - some chlorite, mica, Afb and carbonate
	0.50m	15.50-16.00 60% po-impregnation, some py and cp
	0.30m	16.60-16.90 40% po-impregnation, some cp
	0.05m	17.30-17.35 reddish Fel-vein + 30% po
19.00	20.00	Mica-schist
		- 30-40% carb
20.00	25.35	Greywacke (volcanic)
		- carb-rich, mica-bearing
		- some po and Afb
25.35	39.50	Acid volcanics
		- some carb, mica, Afb, po and py
	0.25m	26.10-26.35 30% po
		30.00-37.40 Fel-breccia, some mica
		31.10-39.10 Afb-fragments
	0.10m	30.90-31.00 40% po
		33.90-34.20 Reddish Fel-vein
39.50		End of hole
	B:	54°/ 4.80 16°/ 6.90 24°/10.90 45°/12.90 53°/14.70 50°/16. 55°/18.80 52°/20.80 44°/22.80 11°/28.70 38°/30.90 47°/38. 42°/39.40
		The hole was collared 63 ms west of cp-bearing blocks on a shoot-back anomaly. Some cp was found in the core
	4.20m	50% po, some py and cp

Appendix

Geochemical results Fig.4, Sheets 3 and 4.

Assays of the till- and stream sediment samples were returned from the laboratory in Kristiansand and plotted on maps in the autumn of 1977.

The results show very distinctive anomalies(max 8200 ppm Zn, 3600 ppm Pb, 1580 ppm Cu, 1090 ppm Ni) extending up-ice, southwards of the sphalerite-galena-bearing outcrop at 1100W/50N. The anomalies also extend down-ice up to 200 ms from the exposure and also in a north-west-direction in the swampy stream-valley, down-stream. It would seem that the best indications of mineralization is not the known outcrop (5.2% Zn, 1.05% Pb and 1.15% Cu), but south of it, outside of our grid. An interesting phenomenon is that the high copper values follow the high zinc-values up-ice, but not down-ice of the outcrop and also in the stream valley. The high lead-values are following the high zinc-values up and down-ice of the exposure, but not in the stream valley.

Another interesting phenomenon is apparent if we compare the shallow-, deep till samples and stream-sediment-samples with each other. The shallow samples were collected from a depth of 60 cms on average, deep-ones, collected by Partner-percussion drill, 200 cms on average (max 400 cms), and the stream-sediment samples were collected from just under the fresh roots under the water-level. The shallow- sampling gives more homogenous anomalies than deep-sampling and exactly in the same area, but also extending along the stream-valley. The stream sampling also gives very homogenous anomalies in the valley. The deep-samples got quite irregular values, but the anomalous values can be much higher than with shallow-sampling.

The deep-sampling anomalies don't extend considerably along the stream-valley, only in the ice-movement direction. The copper-values are usually not anomalous in the shallow samples nearer the possible source, but they are anomalous in the deep-samples and in the shallow- and stream- samples in the stream-valley. Also lead is anomalous only in the deep-samples nearer the possible source, further down-ice lead is anomalous in the shallow-samples. The zinc-values are generally higher in the deep-samples than in the shallow-samples nearer the source and lower further- down-ice. The zinc-values are quite similar in both shallow- and stream-sediment-samples, taken from the same site. The deep-samples have much lower values down-stream.

For example Zn:

	Shallow sample	Deep-sample	Stream-sample
100S/1200W	281 ppm	3380 ppm	-
75N/1150W	1620 ppm	270 ppm	-
275N/1400W (valley)	960 ppm	54 ppm	820 ppm

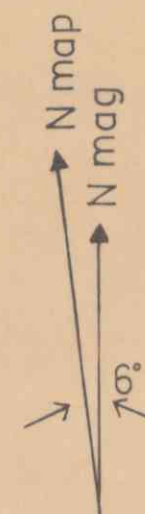
In these circumstances the shallow-sampling gives at least about the same information as the deep-and stream-sediment-sampling together. It gives an even more homogenous picture.

Unusually high nickel values (max 1090 ppm Ni) were picked up in the area of 300 ms west of the Zn-anomalies.

The grid should be extended southwards of the anomalous areas. The source is obviously outside the grid.

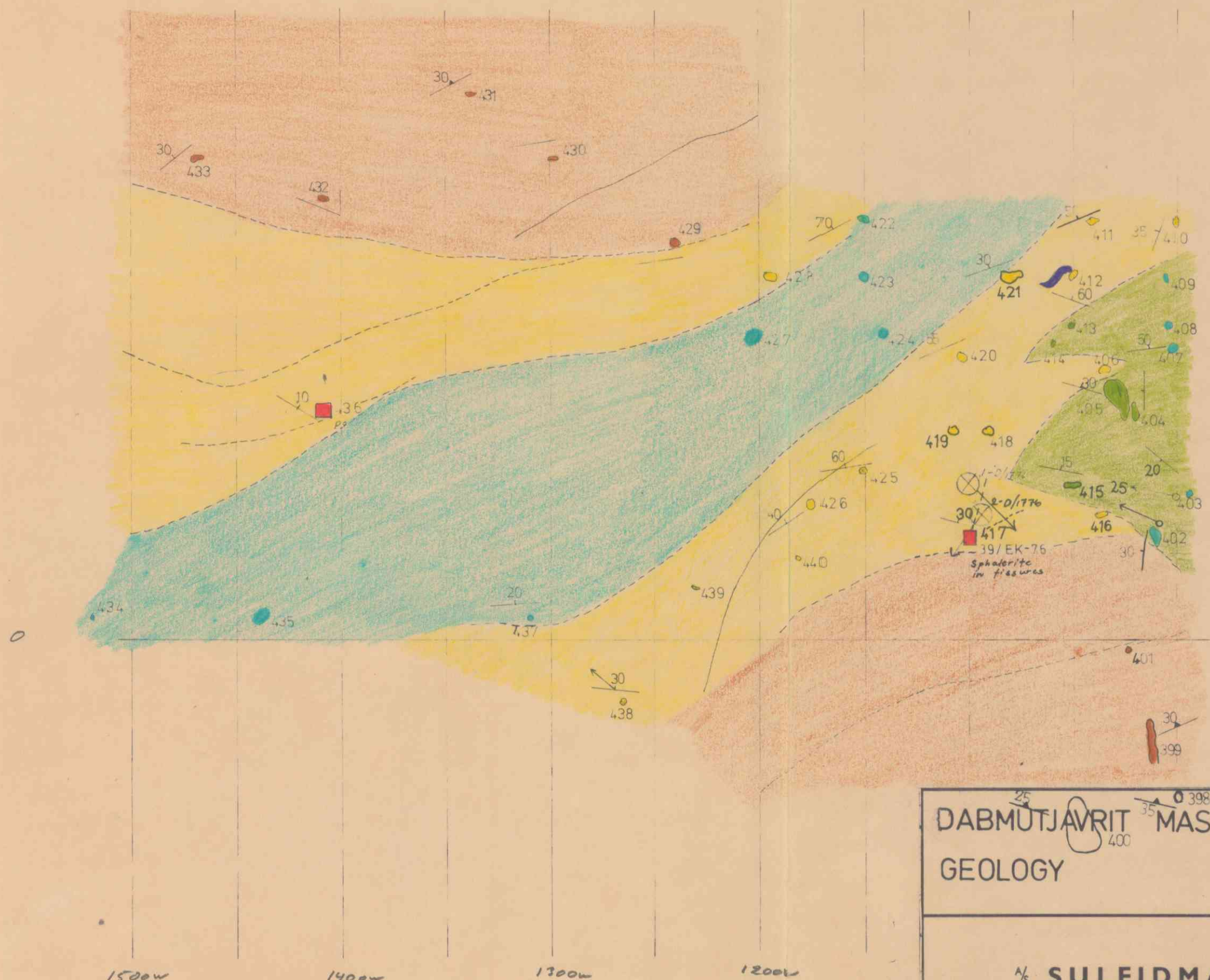
This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There is a vertical margin line on the left side, creating a narrow left margin. The paper appears to be from a notebook or a standard ruled sheet.





KEY:

- DDH
- ACID VOLCANICS
- GRAPHITE SCHIST
- GREENSCHIST
- MICA SCHIST
- GABBROIC ROCK



DABMUTJAVRIT MASI 1776
GEOLOGY

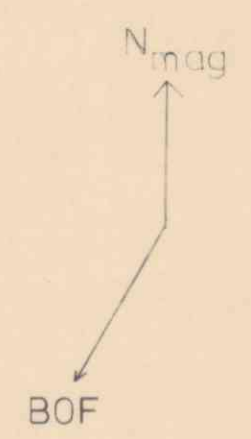
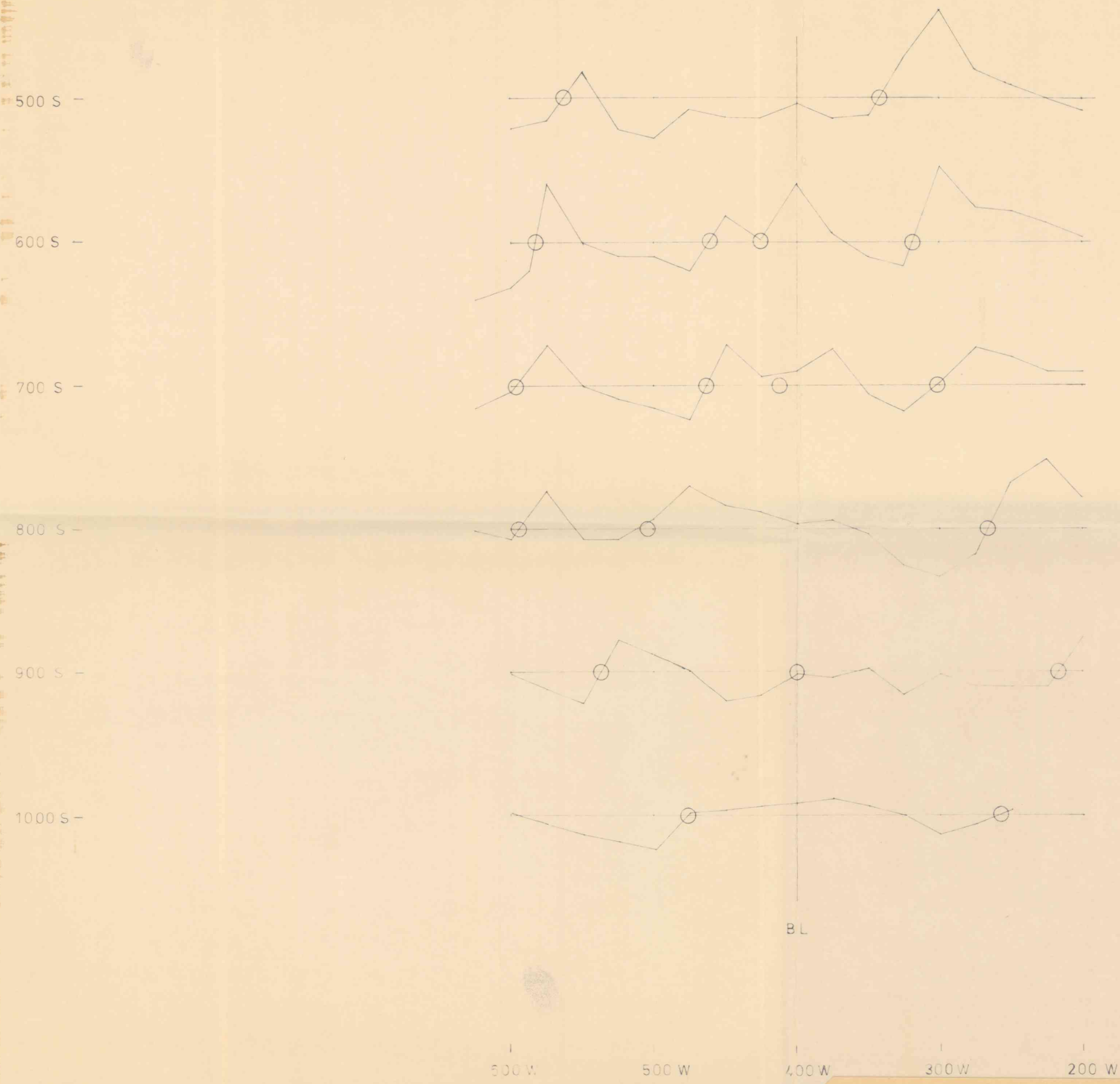
1/8 SULFIDMALM

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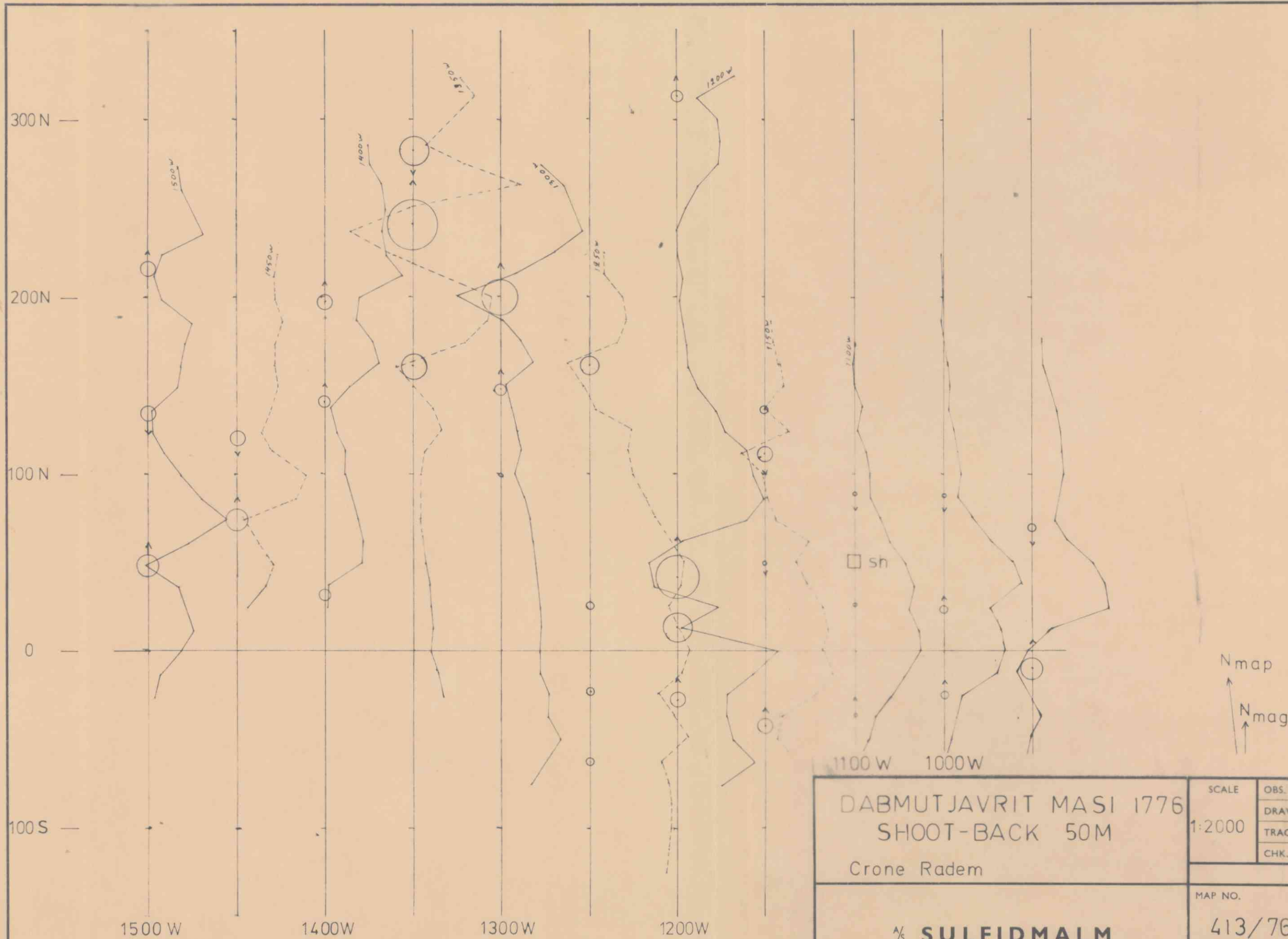
MAP NO.
413/76/17

MAP SHEET

GEOPHYSICS



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		TRAC. MP	9-76
		CHK.	
MAP NO.		413/76/17	
% SULFIDMALM			



DABMUTJAVRIT MASI 1776
SHOOT-BACK 50M

Crone Radem

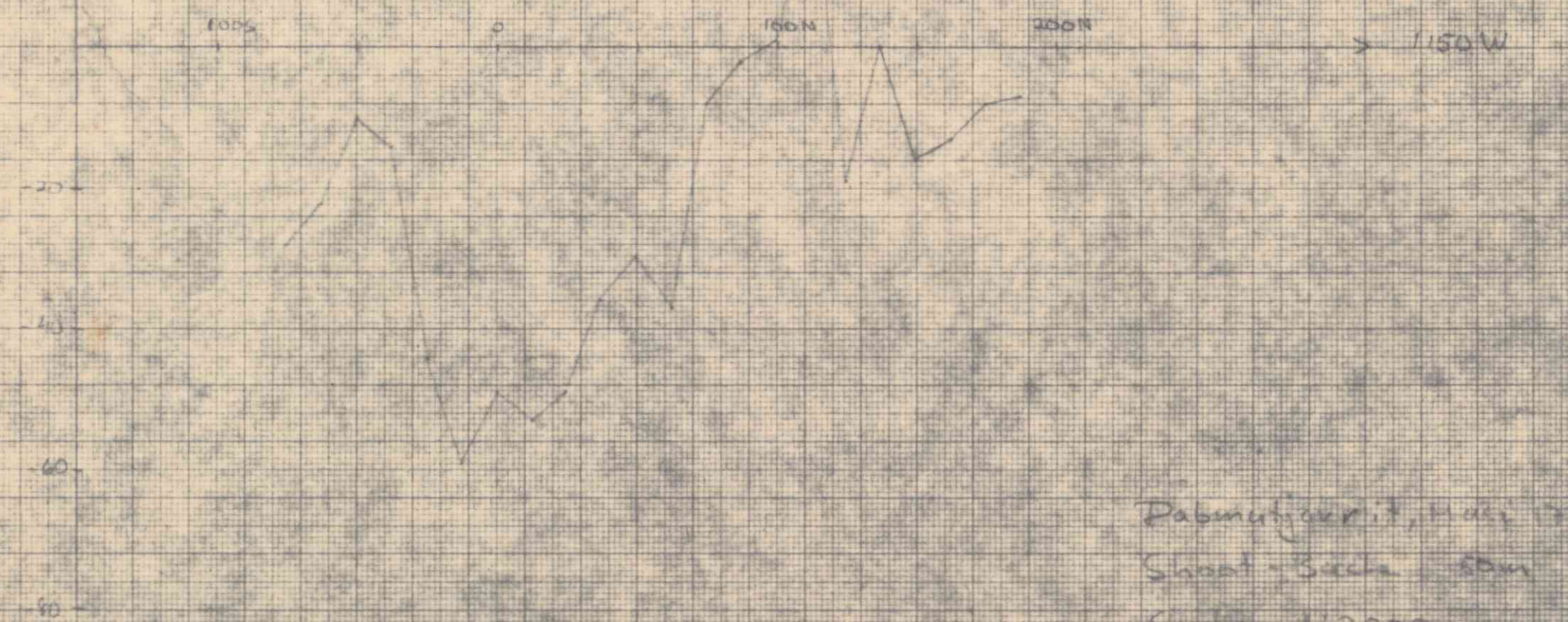
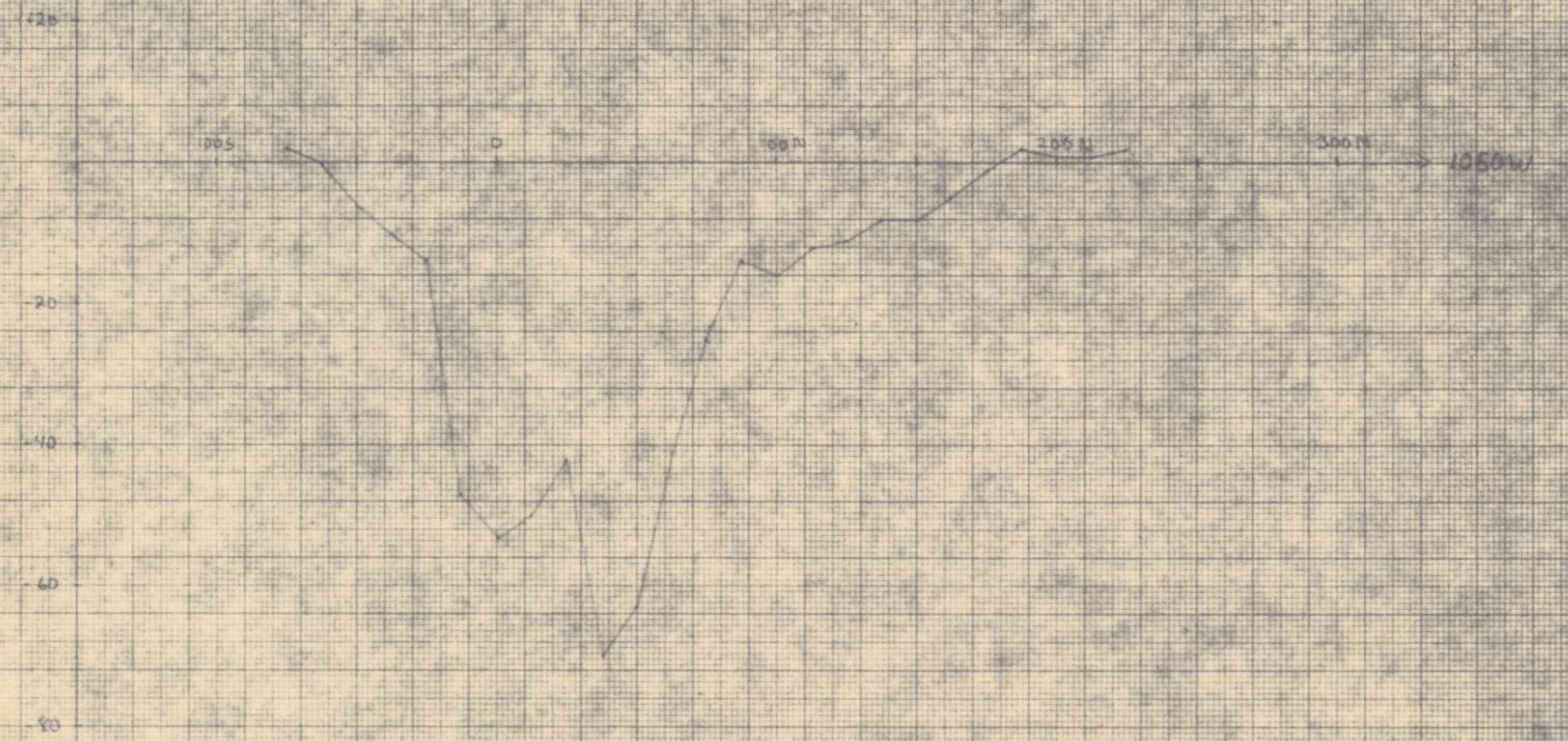
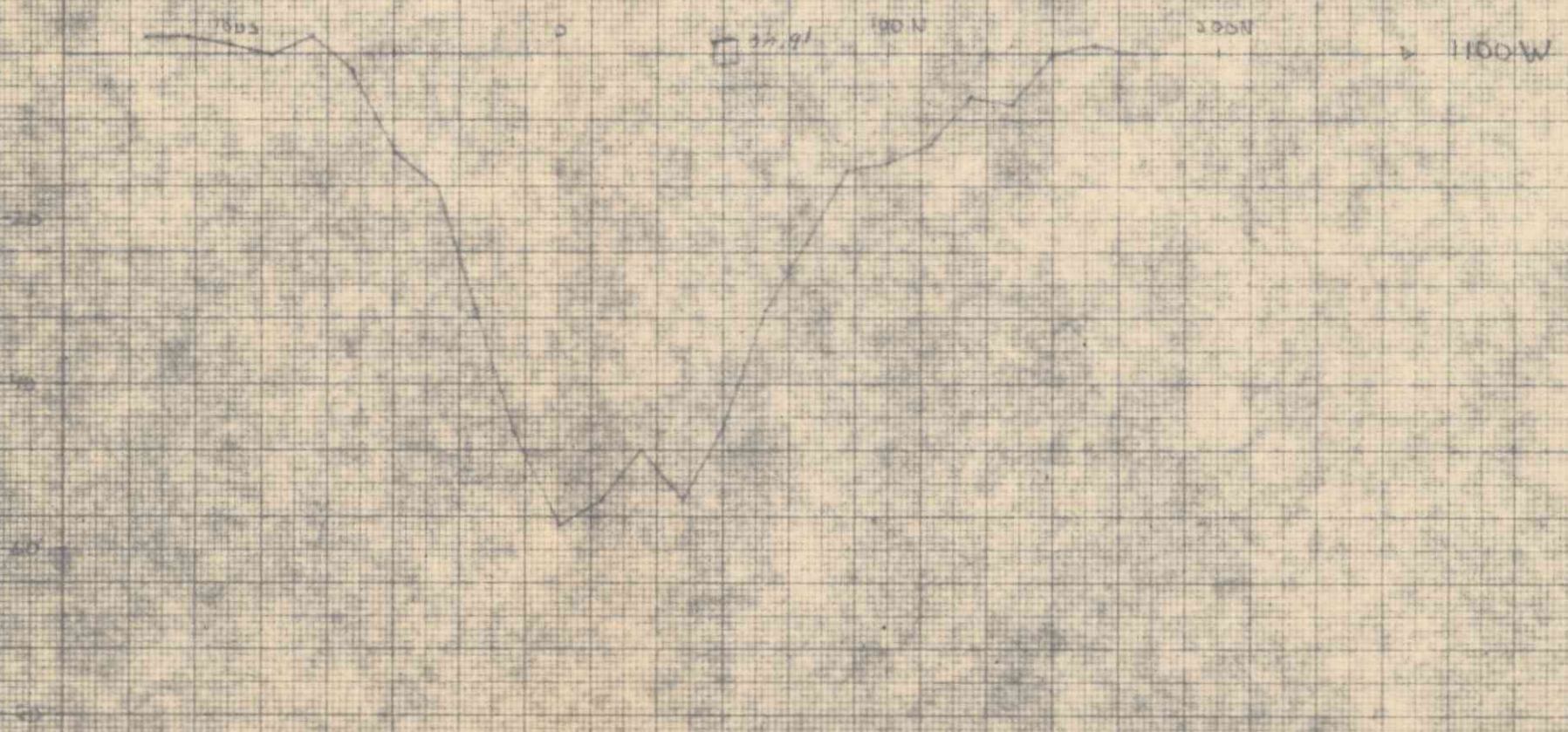
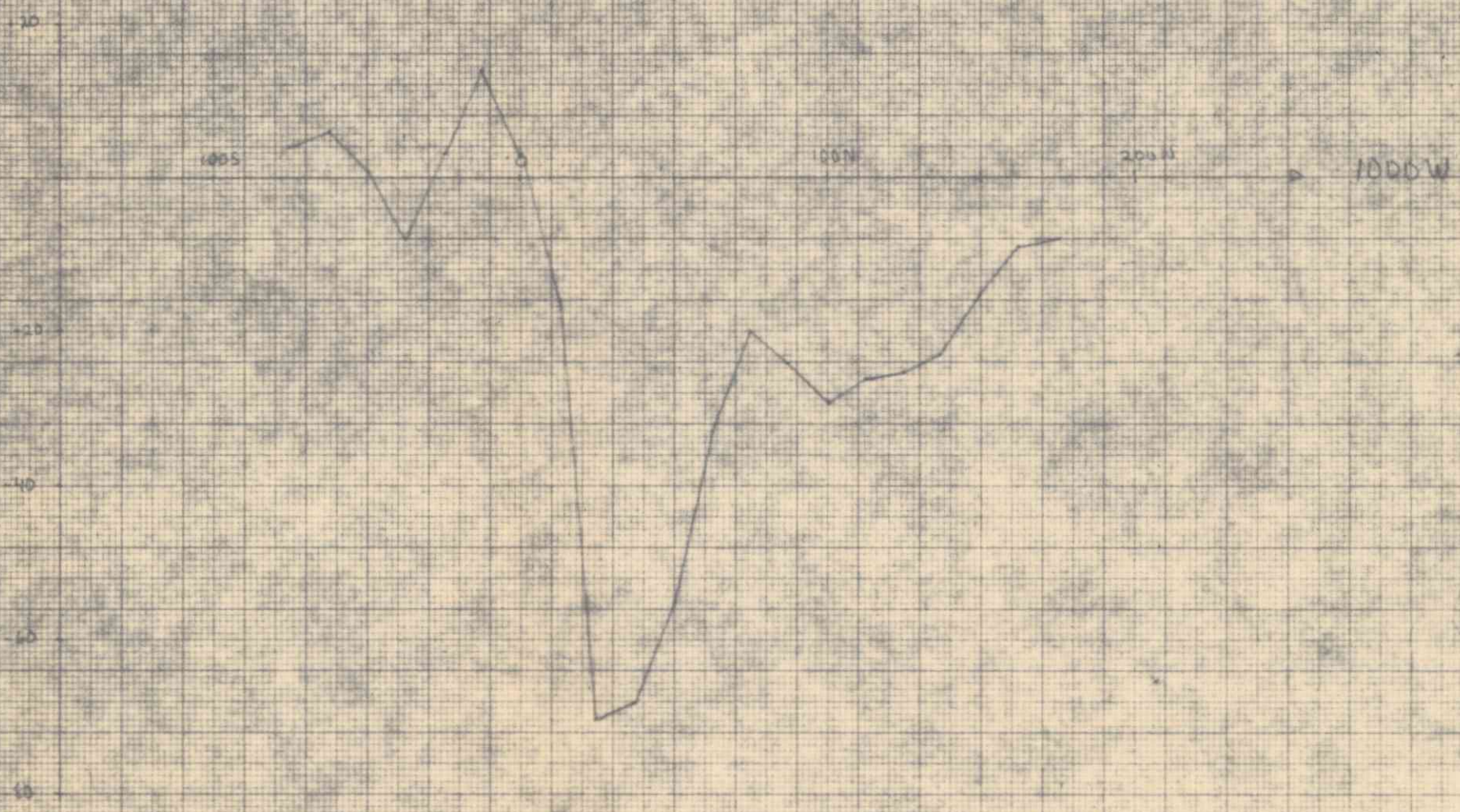
$\frac{1}{25}$ SULFIDMALM

SCALE	OBS. MP KT	AUG 76
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	TRAC. EK	— " —
	CHK. EK	— " —

MAP NO.

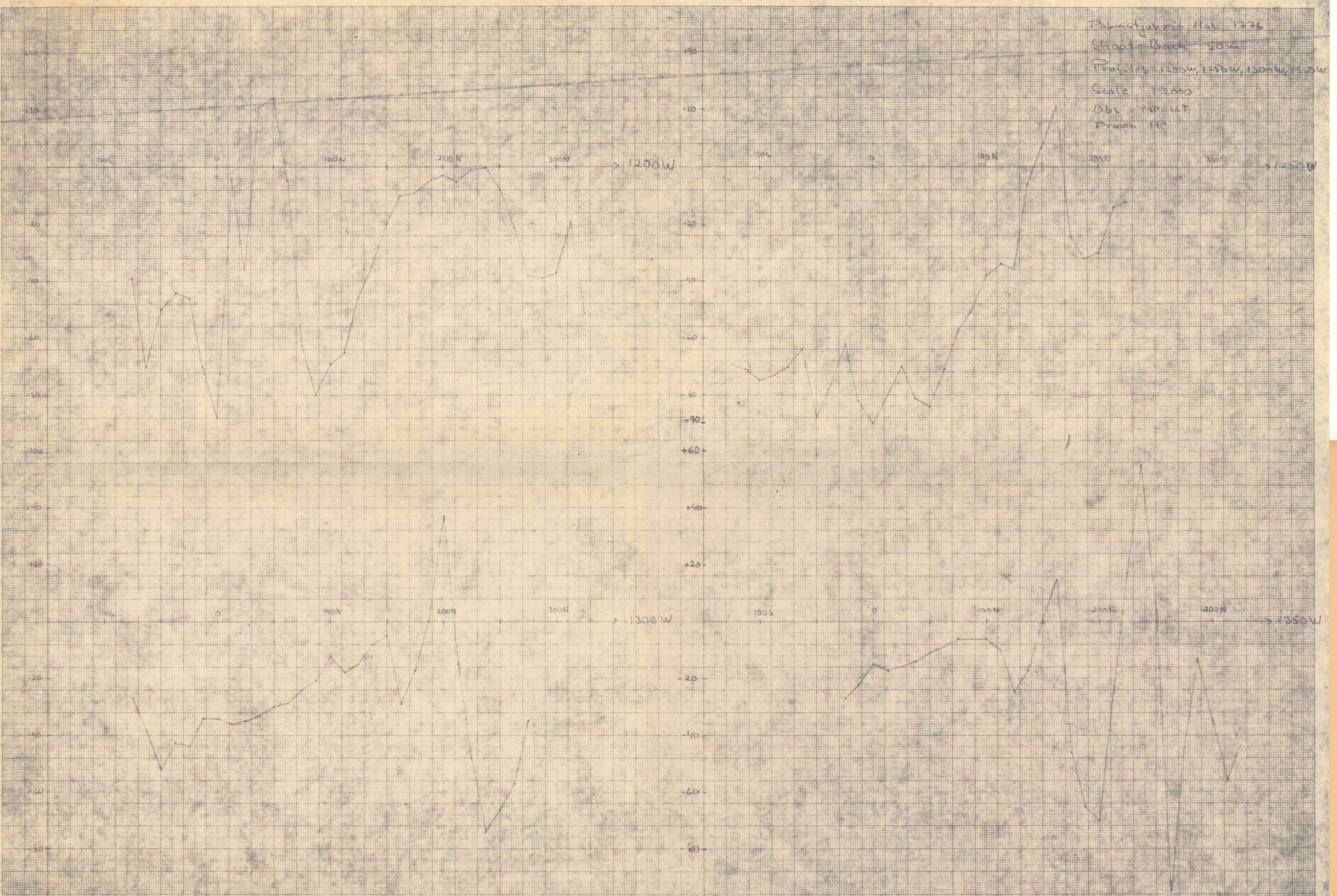
413/76/17

MAP SHEET

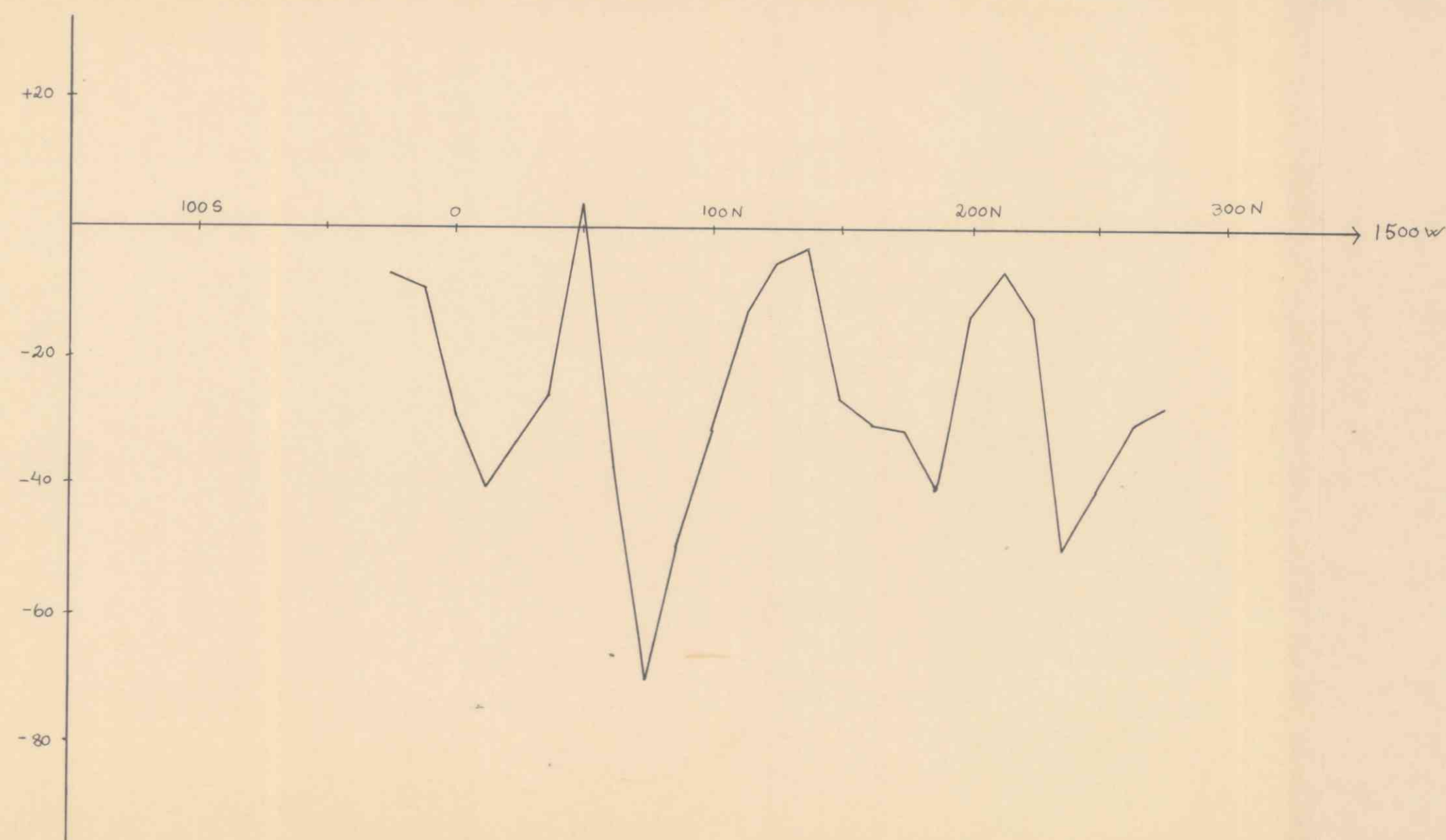
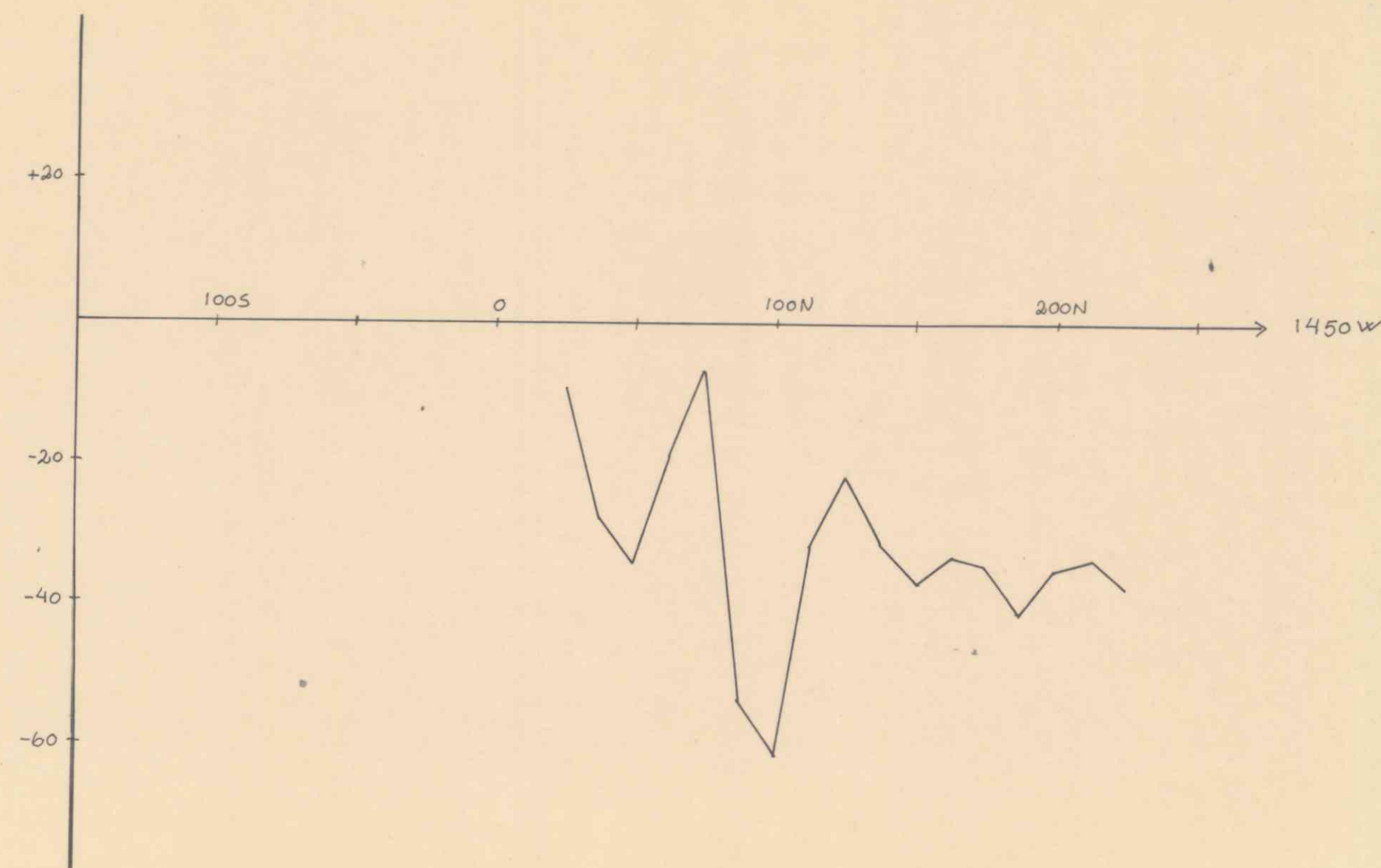
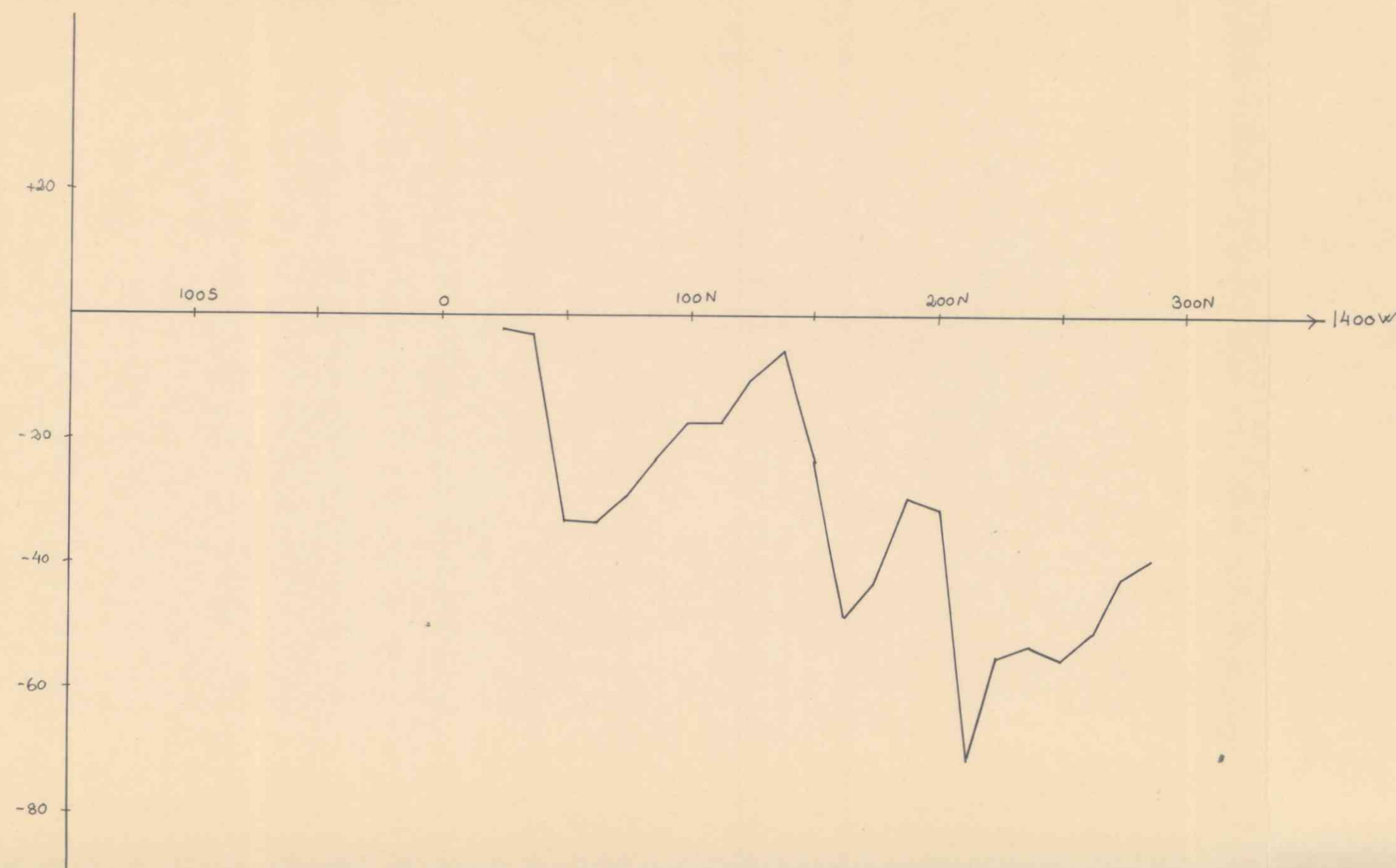


Dabmutjavrit, Masi 1776
 Shoot-back 50m
 Scale 1:2000
 Profiles 1000W, 1050W, 1100W, 1150W

Dabmutjavrit, Masi 1776
 Shoot-back 50m
 Profiles 1200W, 1250W, 1300W, 1350W
 Scale 1:2000
 Obs. 100m
 Drawn HP

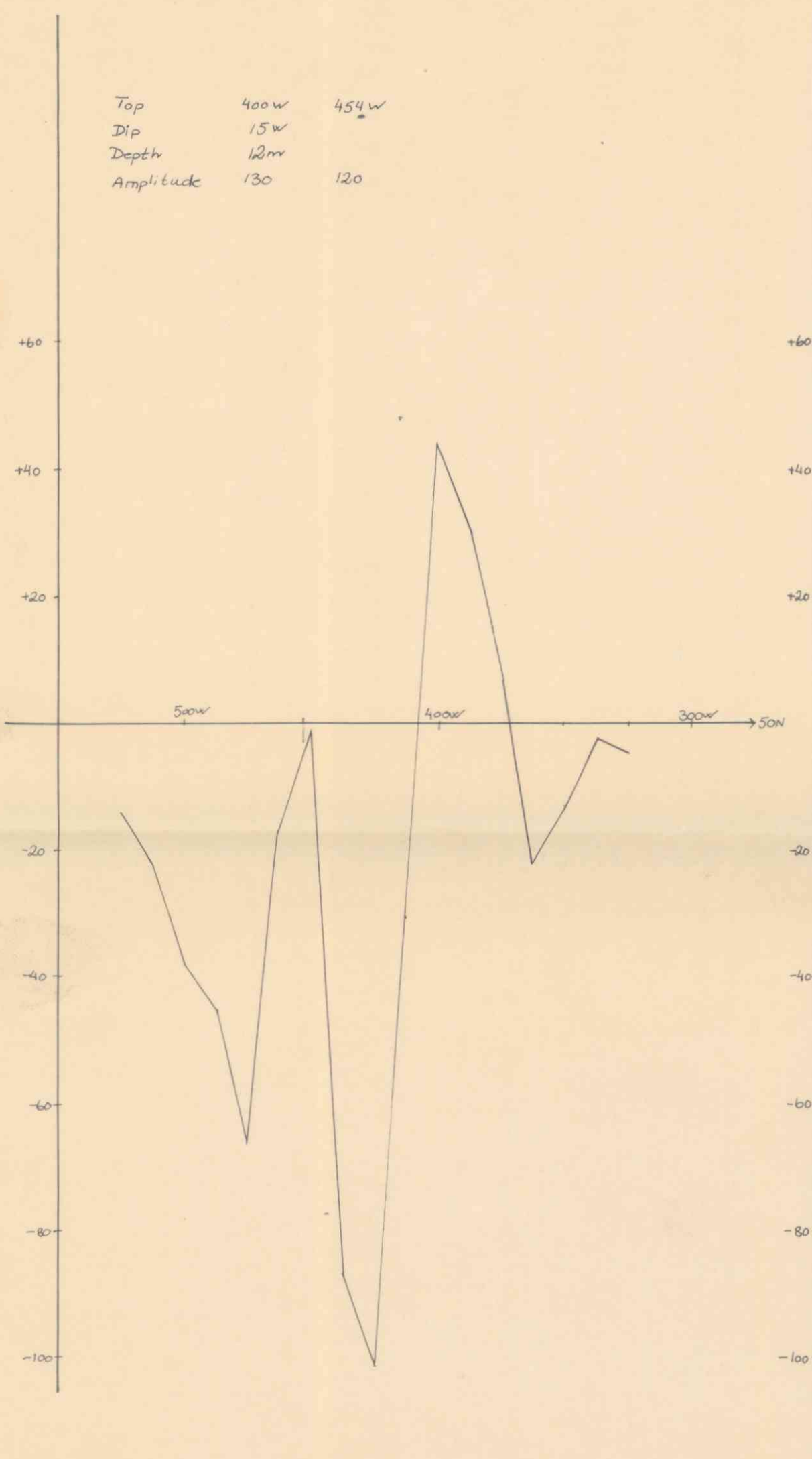


DABMUTJAVRIT, MASI 1776 shoot-back 50m Profiles 1200W, 1250W, 1300W 1350W Sheet 5

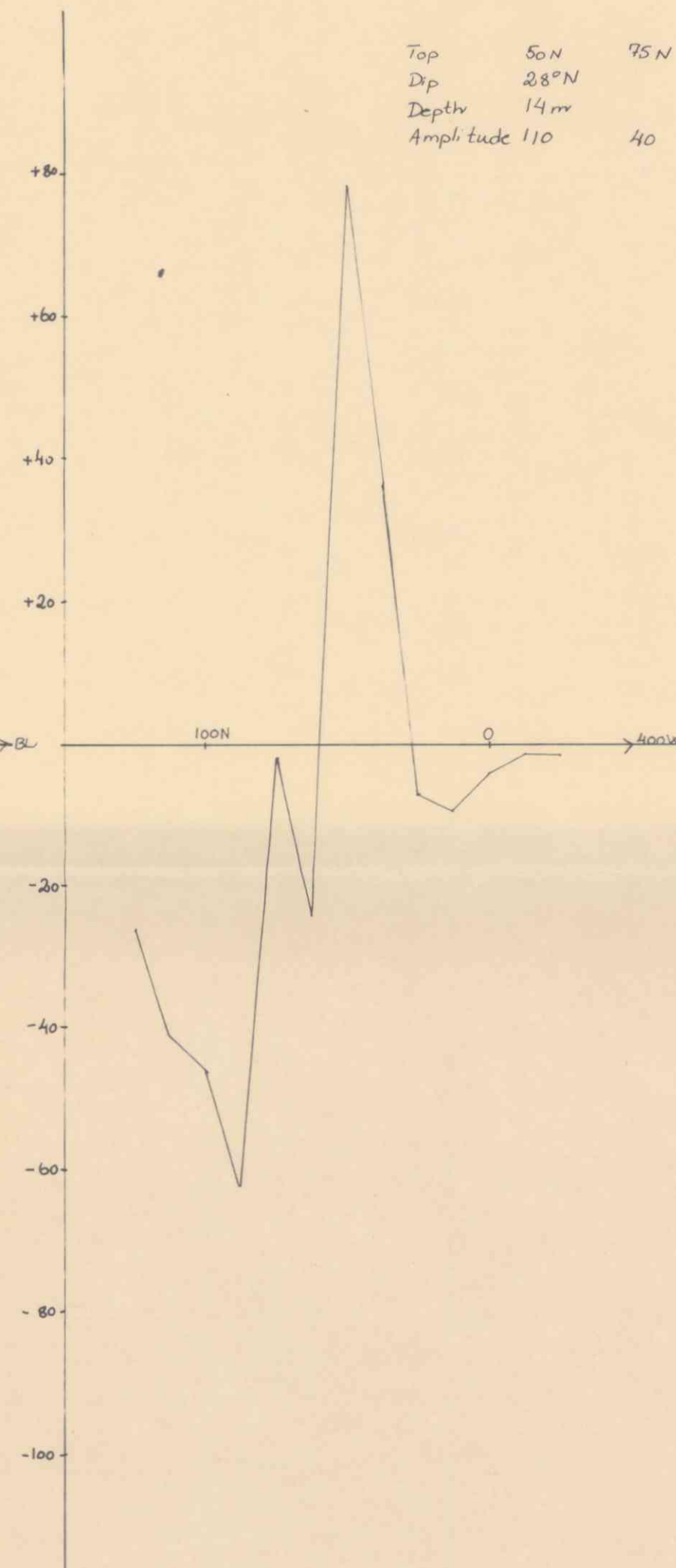


DABMUTJAVRIT, MASI 1776 Shoot-back 50 m Profiles 1400 W, 1450 W, 1500 W	SCALE	OBS.	E.K. MP
	1:2000	DRAW.	M.P.
		TRAC.	K.A. 1977
		CHK.	
% SULFIDMALM		MAP NO.	

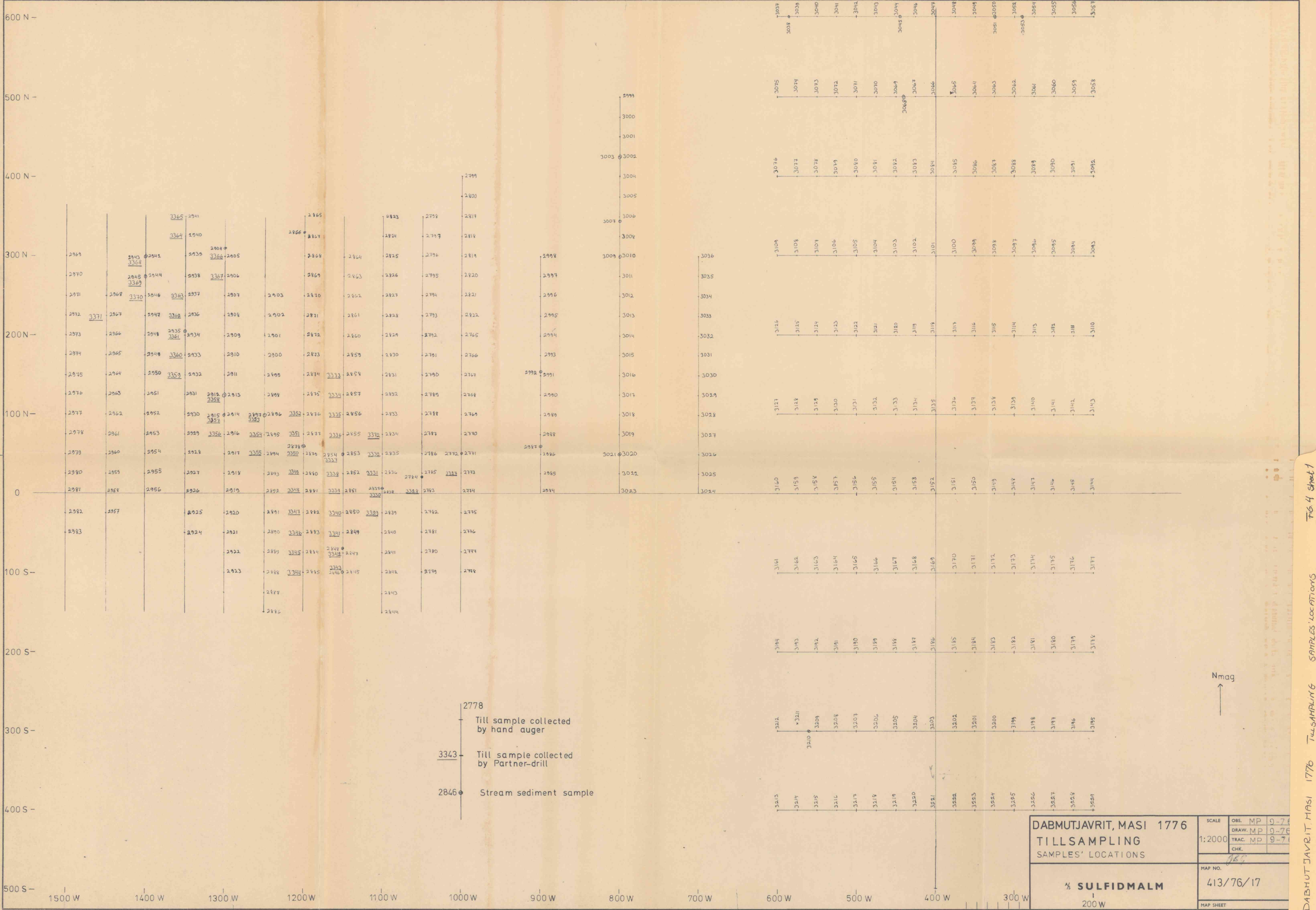
Top 400w 454w
 Dip 15w
 Depth 12m
 Amplitude 130 120



Top 50N 75N
 Dip 28°N
 Depth 14m
 Amplitude 110 40



DABMUTJAVRIT, MASI Shoot-back 50 m Profiles 50 N BL 400 W	SCALE	OBS. K.R. E.K.	
	1:2000	DRAW. E.K.	
		TRAC. K.A.	1977
		CHK.	
1/2 SULFIDMALM	MAP NO.		



600 N -

500 N -

400 N -

300 N -

200 N -

100 N -

0

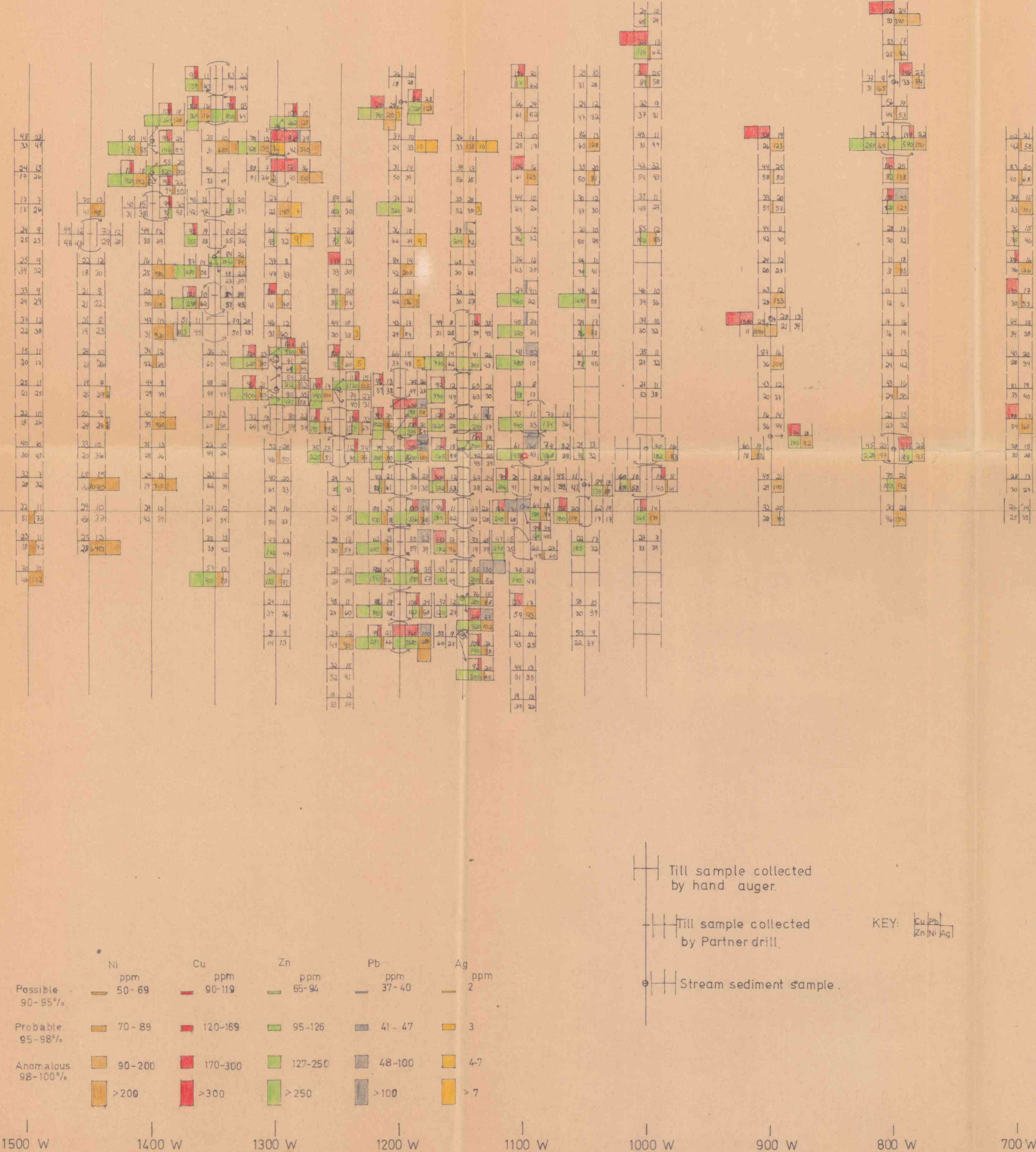
100 S -

200 S -

300 S -

400 S -

500 S -



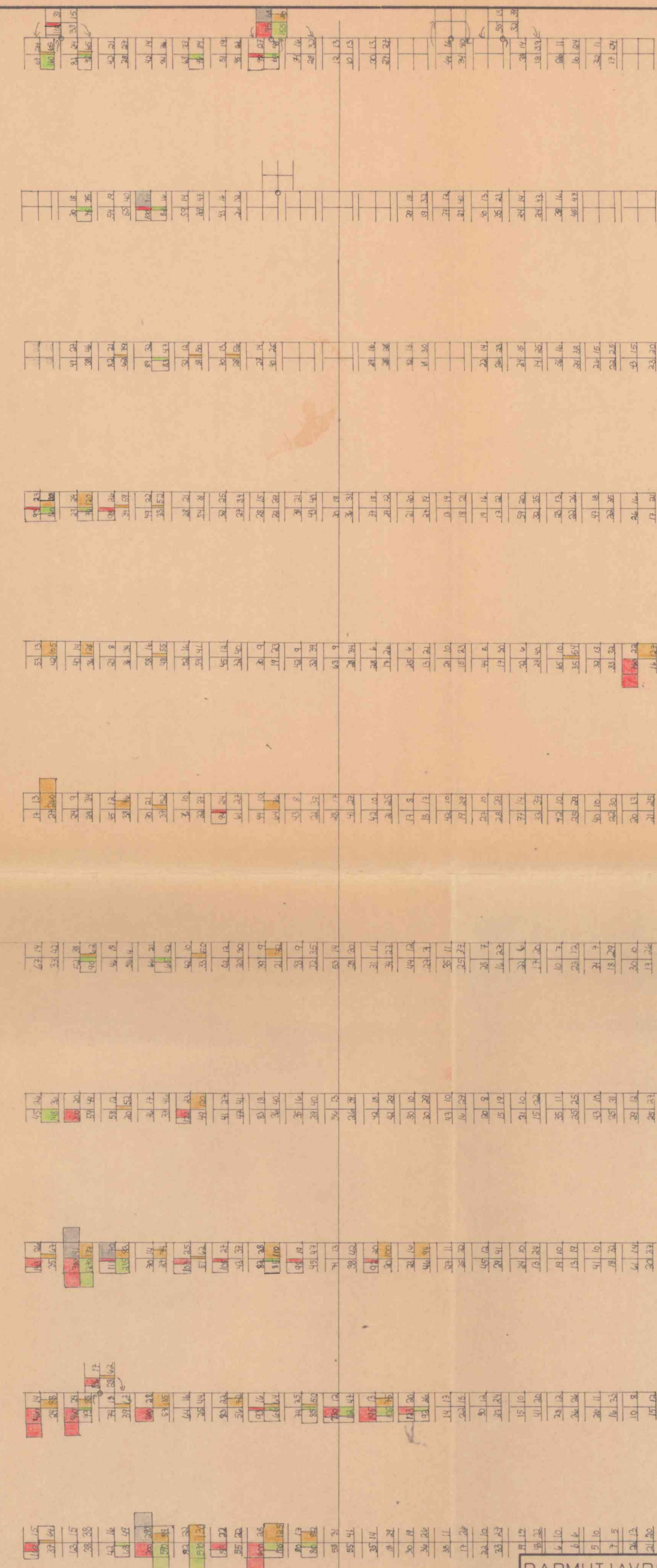
	Ni ppm	Cu ppm	Zn ppm	Pb ppm	Ag ppm
Possible 90-95%	50-69	90-119	65-94	37-40	2
Probable 95-98%	70-89	120-169	95-126	41-47	3
Anomalous 98-100%	90-200	170-300	127-250	48-100	4-7
	>200	>300	>250	>100	>7

Till sample collected by hand auger.

Till sample collected by Partner drill.

Stream sediment sample.

KEY: Cu Pb Zn Ni Ag



N mag
↑

DABMUTJAVRIT, MASI 1776		SCALE	OBS. MP 9-76
TILLSAMPLING		1:2000	DRAW. MP 9-76
SAMPLES' LOCATIONS			TRAC. LH 10-77
			CHK. RB 10-77
% SULFIDMALM		MAP NO.	413/76/17
		MAP SHEET	

Dabmutjavrit, Masi 1776, Till-sampling, Results, Fig. 4 Sheet 3

500 S

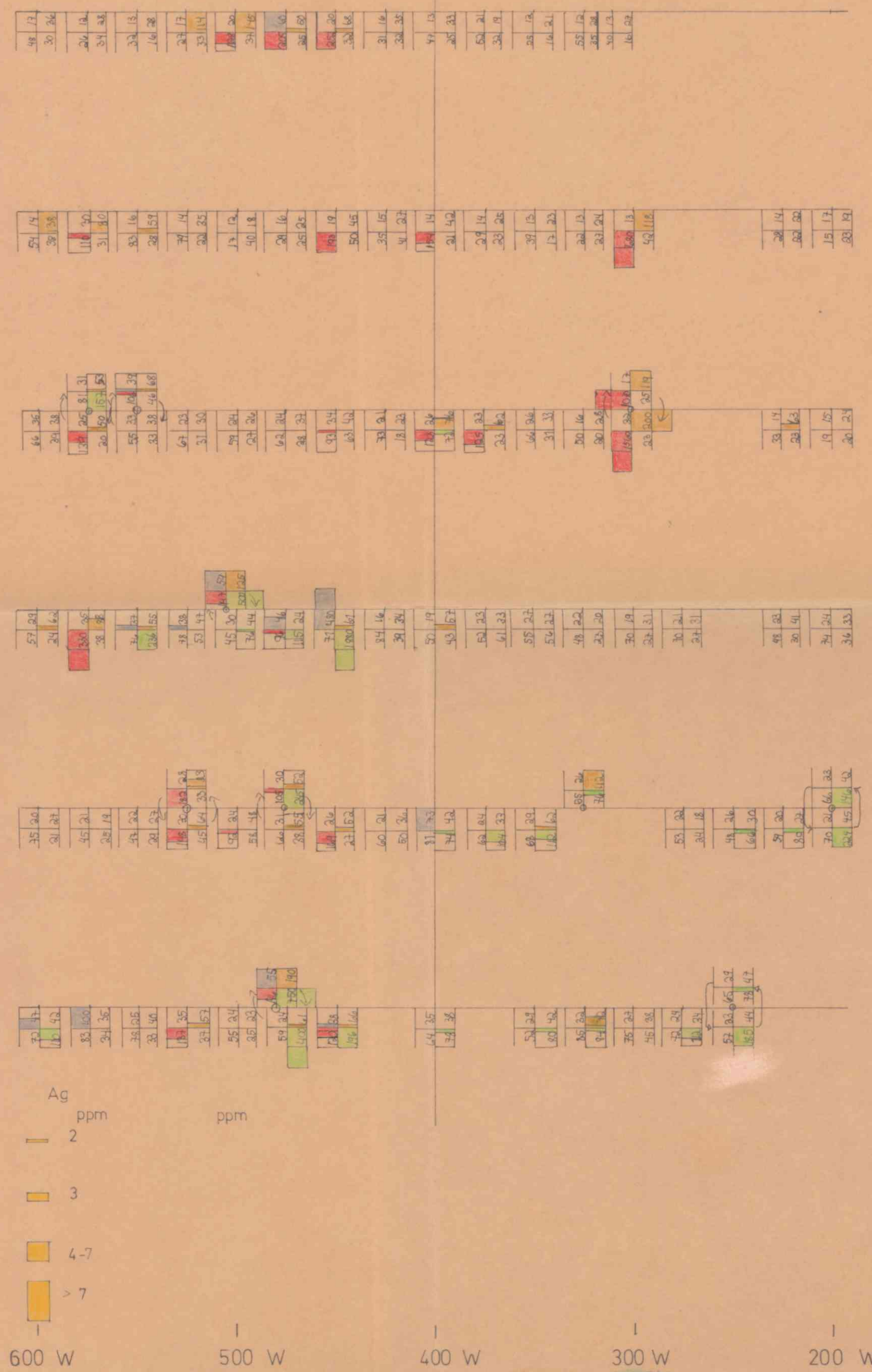
600 S

700 S

800 S

900 S

1000 S



Till sample collected
by hand auger.

Stream sediment sample

KEY:

Cu	Pb
Zn	Ag

N mag
↑

	Ni ppm	Cu ppm	Zn ppm	Pb ppm	Ag ppm
Possible 90-95%	50-69	90-119	65-94	37-40	2
Probable 95-98%	70-89	120-169	95-126	41-47	3
Anomalous 98-100%	90-200	170-300	127-250	48-100	4-7
	> 200	> 300	> 250	> 100	> 7

DABMUTJAVRIT MASI 1776 TILLSAMPLING SAMPLES' LOCATIONS	SCALE	OBS. MP	9-76
	1:2000	DRAW. MP	9-76
		TRAC. LH	10-77
		CHK. RB	10-77
% SULFIDMALM		MAP NO. 413/76/17	