

FOR FALCONBRIDGE NIKKELVERK A/S
A/S SULFIDMALM

Project 905-17

Ground surveys and prospect drilling
on Unna Vuovdas in 1976, Masi.

By

E. Kreivi

K. Taipale

Introduction (Fig.1)

The Unna Vuovdas grid is a part of the main 12 kms long Salggan grid, laid out in 1973. It is situated 3.5 kms NW of the old crossroad of Alta-Kautokeino-Masi on mapsheet 1833I.

Its southern end coincides with the Havggajavrre grid's northern part. The 900 ms long base-line was laid out from the point 200S/0 northwards and 400-500 ms long profiles, line-spacing was 50 ms. The grid was laid out to locate, by detailed mapping, prospecting, till-sampling and Shoot-Back-survey the geochemical and the VLF-EM-anomalies and the chalcopyrite-bearing graphitic horizons found in 1973 by the reconnaissance surveys. The area forms part of a northwards, gently raising, hill slope, which could be of some significance in the sense of boulder tracing. 4 prospect drill-holes, totalling 173 ms, were drilled to find a source of the anomalies. 9 ms of trench was dug over a horizon of massive iron sulphides with traces of chalcopyrite.

Geology by Kalle Taipale (Fig.2)

Petrography

The Unna Vuovdas area consists of rocks of both sedimentary and volcanic origin. The sulphide bearing chert-graphite schist horizons are lying about at the contact zone of sedimentary and volcanic series. The change from sedimentary rocks to volcanic ones is gradual and the greywackes are a mixture of sedimentary and volcanic material.

1. Greywacke and mica schist

Greywacke consists of biotite, quartz, feldspar, calcite and some amphibole. In places it contains some idiomorphic, lath-shaped, light mineral, which could be some aluminium rich one, like andalusite.

Greywackes are always well foliated and quite coarse grained and intercalated with calcite or dolomite.

In places, where the amount of mica has increased and the grain size is smaller these rocks can be called mica schists. This kind of variety is rare.

2. Greenschist,-stone

The basic volcanic rocks of Unna Vuovdas area consist of different varieties of greenstones. In places this rock type is somewhat coarse grained and poorly foliated resembling gabbros. These kind of varieties could represent the slowly cooled inner parts of lava beds. In some places the rock is very foliated and chlorite rich. In cases like this the rock is also tightly minor folded due to weak competence.

3. Amphibolite

Amphibolite is mostly dark green in colour, mostly medium grained and rather foliated. It is also intercalated with carbonate or carbonate may occur also as thin veinlets and fissure fillings.

4. Chert and graphite schist

As already said these rocks occur at the boundary between greywackes and greenstones.

The colour of chert varies from pure white to brownish with increasing ironstain caused by sulphides.

Chert is intercalated with graphite schist. When the graphite content is at its minimum or does not exist at all the chalcopyrite content seems to be at its maximum.

Graphite schist contains often pyrite whether as layers or as matrix in brecciated schist. This type of rock seldom contains considerable amounts of chalcopyrite, but only iron sulphides.

Structure

The structure of Unna Vuovdas area looks very interesting. According to both shoot-back data and geological field observations there seems to be a shallow syncline with eastern limb dipping about $20-30^{\circ}$ W and western limb little steeper with dips of $30-50^{\circ}$ E. The axis of syncline plunges about 20° to south. Quite opposite minor fold axis directions occur on the western limb of the syncline, but the graphite rich rock there is very intensely folded and almost any kind of plunge can be observed.

Block searching and till geochemistry

Block searching at Unna Vuovdas area was quite successfull.

Tens of py-, pO-, and cp-bearing boulders were found with best assays of copper being about 1% Zinc and lead were not analyzed.

Reasons for abundant occurrence of ore boulders are many:

First the synclinal structure causes double occurrence of ore bearing horizons and so the ore block producing area will be doubled. Furthermore the flat dips of the strata make the ore bearing horizons broad at the ground section.

Second the overburden is rather thin and this makes many boulders occur at or near the surface.

Third reason is topography of the area. The whole area consists of gently northwards raising hill slope. This slope has weakened the capacity of ice for carrying blocks and thus the slope has become an enrichment area of the boulders.

Detailed geochemistry correlates very well with the geology and geophysical anomalies. The best Cu-anomalies are situated approximatley upon the same ore bearing horizon, above which the best boulders were found.

Geophysics (Fig.3)

Only a Shoot-Back-EM-survey was done on the detailed grid with 50 ms coil-separation. A group of very strong conductors were found in 250 ms wide zone going through the whole grid from south to north. They seem to conform very closely to the cherty-graphite units.

Geochemistry (Fig.4)

Till-samplers were collected mostly from the C-layer 50-60 cms deep by a hand auger with 25 ms sample interval. Also stream sediment-samples were collected. The samples were assayed in Atom Energy Laboratory for Ni, Cu, Co, Zn and Ag. The plotted assays on a map show two distinctive anomalous zones going through the grid from south to north. The zone in the middle of the grid has got mainly anomalous Cu, Co and Ni and the zone on the eastern side of the grid has got mainly anomalous Zn and Co. The Co-values are significantly higher than anywhere else in Masi-area.

The highest values were:

Ni	340 ppm	at	300N/0	
Cu	1150 ppm	at	200S/150W	at lake shore
	1070 ppm	at	0/250W	in till
Co	1440 ppm	at	200S/100E	
Zn	1450 ppm	at	500N/0	

Drilling (Fig.5)

Four diamond-drill-holes totalling 173 ms were drilled by a contractor, called Terranor A/S, to find a source of the Shoot-Back-EM- and geochemical anomalies. The drill-holes are collared:

1-U/1776	60°W/50 m	at	300N/125W
2-U/1776	60°W/60 m	at	0/177W
3-U/1776	45°W/29 m	at	250S/167W
4-U/1776	60°W/34 m	at	50N/350W
	<u>Total 173 m</u>		

In the core we found basic volcanics-beds repeating with chert-beds with graphite-rich parts brecciated by iron sulphides, often more than 70% po with some py and traces of cp. Assays were very low compared to the relatively high till-anomalies. The highest metal-values were:

Ni 0.08% in 1-U/1776 at 17-18 m

Cu 0.46% in 1-U/1776 at 43-44 m

Zn-values were less than 0.01% and Pb-values were less than 0.03%.

Conclusions

The drilling-results were very disappointing, but even then I assume that we hit the right horizons, which give the strong EM- and geochemical anomalies. The mineralizations in these horizons were very strong, more than 70% of sulphides. Dips were flat, partly horizontal and in some parts of the grid well mineralized zones are on the surface of the bedrock under the till over large areas.

The best analyzes in the hand specimens gave:

0.20% Ni in 31/KT/76

1.10% Cu in 26 and 162/KT/76

Project no: *Masi 17/76*

Date *5/7 1976*

Investor by: *E. Kivi*

No	Probe- No.	Lokalitet	Provetype	Beskr.	N.	Cu	Bemerk:
0	<i>26/KT</i>	<i>Uuna Vuoksi</i>	<i>grab</i>		<i>0,18</i>	<i>1,10</i>	
1	<i>33/KT</i>	<i>---</i>	<i>---</i>		<i>0,02</i>	<i>0,58</i>	
2	<i>31/KT</i>	<i>---</i>	<i>---</i>		<i>0,20</i>	<i>0,14</i>	
3	<i>45/KT</i>	<i>---</i>	<i>---</i>		<i>0,04</i>	<i>0,76</i>	
4	<i>47/KT</i>	<i>---</i>	<i>---</i>		<i>0,14</i>	<i>0,82</i>	
5	<i>59a/KT</i>	<i>---</i>	<i>---</i>		<i>0,01</i>	<i>0,88</i>	
6	<i>145/KT</i>	<i>---</i>	<i>---</i>		<i>0,08</i>	<i>0,38</i>	
7	<i>150c/KT</i>	<i>---</i>	<i>---</i>		<i>0,09</i>	<i>1,00</i>	
8	<i>151c/KT</i>	<i>---</i>	<i>---</i>		<i>0,12</i>	<i>0,24</i>	
9	<i>161/KT</i>	<i>---</i>	<i>---</i>		<i>0,12</i>	<i>0,40</i>	
0	<i>152/KT</i>	<i>---</i>	<i>---</i>		<i>0,02</i>	<i>1,10</i>	
1	<i>137/KT</i>	<i>---</i>	<i>---</i>		<i>0,04</i>	<i>0,50</i>	
2	<i>151a/KT</i>	<i>---</i>	<i>---</i>		<i>0,01</i>	<i>0,60</i>	
3	<i>123/KT</i>	<i>Juorokangas</i>	<i>---</i>		<i>0,03</i>	<i>0,65</i>	

Erkänningar:

Shipment No. *17/1*

Box no: *Masi 1776*

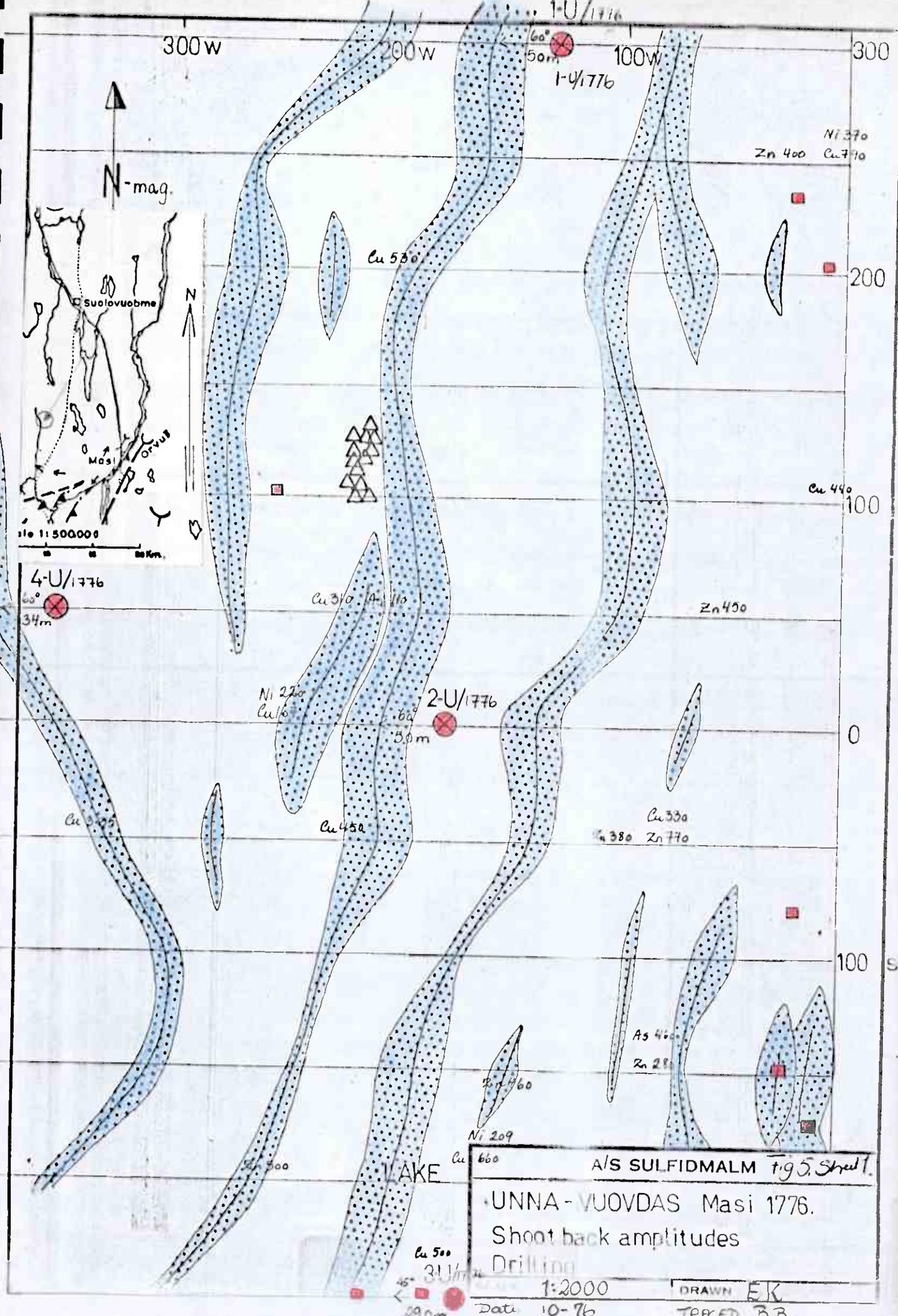
Date *9/11 1976*

Inspected by: *E. Kivi*

Core No.	Interval	Provetype	Depth	Ni	Cu	Zn	Pb	Remarks
9	1-0 1.5-2	<i>Uuna Vuorokas core</i>		007 _x	014 _x	<0.01 _x	<0.02 _x	
30	5.5-6	---		002 _x	009 _x	<0.01 _x	<0.02 _x	
31	17-18	---		008 _x	002 _x	<0.01 _x	0.03 _x	
32	21-22	---		004 _x	014 _x	<0.01 _x	<0.02 _x	
33	42-43	---		008 _x	016 _x	<0.01 _x	<0.02 _x	
34	43-44	---		004 _x	046 _x	<0.01 _x	<0.02 _x	
5	2-V 8-9	---		007 _x	013 _x	<0.01 _x	<0.02 _x	
36	28-29	---		003 _x	009 _x	<0.01 _x	<0.02 _x	
7	52-53	---		006 _x	003 _x	<0.01 _x	<0.02 _x	
38	3-V 2-3	---		005 _x	005 _x	<0.01 _x	<0.02 _x	
39	19.5-20	---		007 _x	003 _x	001 _x	<0.02 _x	
40	4-V 15-16	---		003 _x	008 _x	<0.01 _x	<0.02 _x	
41	19-20	---		005 _x	007 _x	<0.01 _x	<0.02 _x	
42	20-21	---		002 _x	006 _x	<0.01 _x	<0.02 _x	
43	21-22	---		005 _x	005 _x	<0.01 _x	<0.02 _x	

aminer:

Shipment No. *17/10*



300W

200W

100W

300

N-mag.

Ni 370
Zn 400 Cu 770

Cu 530

200

Cu 440

100

4-U/1776
60°
34m

Cu 310
Ni 110

Zn 450

Ni 270
Cu 60

2-U/1776
60°
50m

0

Cu 325

Cu 450

Cu 330

Zn 380 Zn 770

100

As 40

Zn 28

Ni 209

Cu 660

LAKE

A/S SULFIDMALM 795 Strull.

UNNA-VUOVDAS Masi 1776.

Shoot back amplitudes

Drilling

1:2000

DRAWN EK

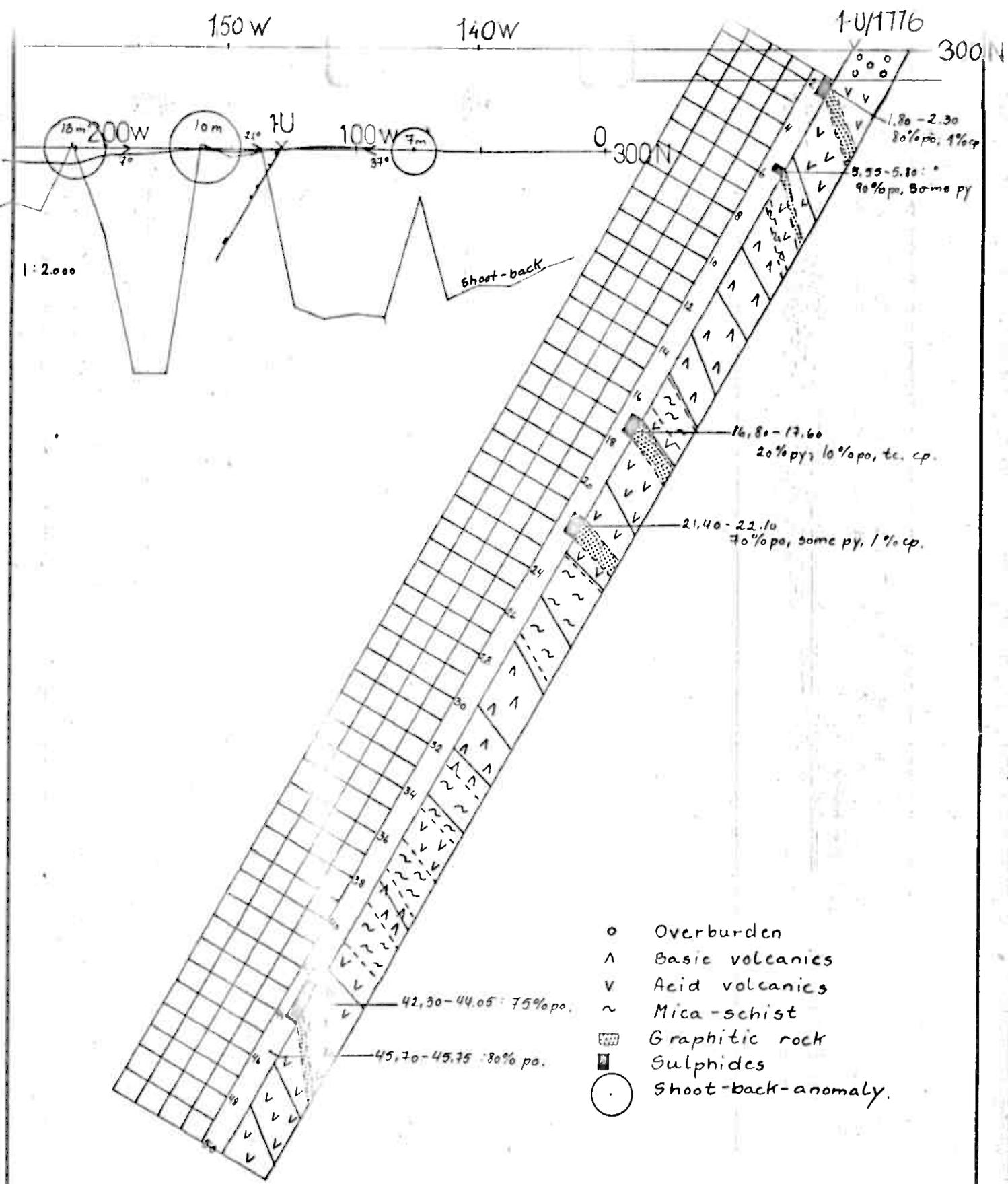
Cu 500

3-U/1776

290m

Date 10-76

TRACED B.B.

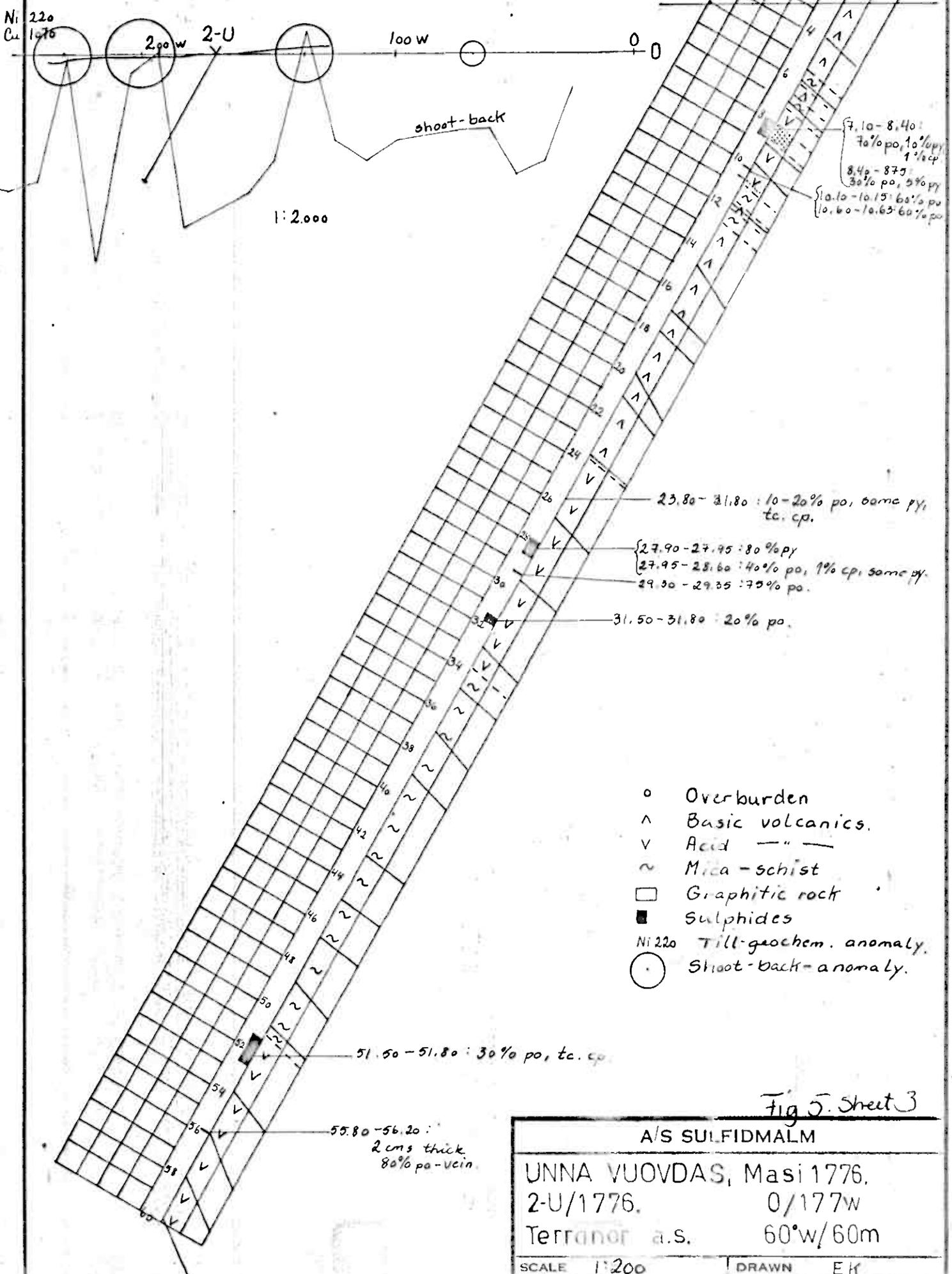


- Overburden
- △ Basic volcanics
- ▽ Acid volcanics
- ~ Mica-schist
- ▨ Graphitic rock
- Sulphides
- Shoot-back-anomaly.

Fig 5. Sheet 2

A/S SULFIDMALM	
UNNA VUOVDAS, Masi 1776.	
1-U/1776	300N/125W
Terranor a.s.	60°w/50m
SCALE 1:200	DRAWN EK
DATE 10-76	TRACED BB

210w 200w 190w 180w



- o Overburden
- ^ Basic volcanics.
- v Acid
- ~ Mica-schist
- Graphitic rock
- Sulphides
- Ni 220 Till-geochem. anomaly.
- Shoot-back-anomaly.

Fig 5. sheet 3

A/S SULFIDMALM	
UNNA VUOVDAS, Masi 1776.	
2-U/1776.	0/177w
Terranor a.s.	60°w/60m
SCALE 1:200	DRAWN EK
Date 10-76	TRACED BB.

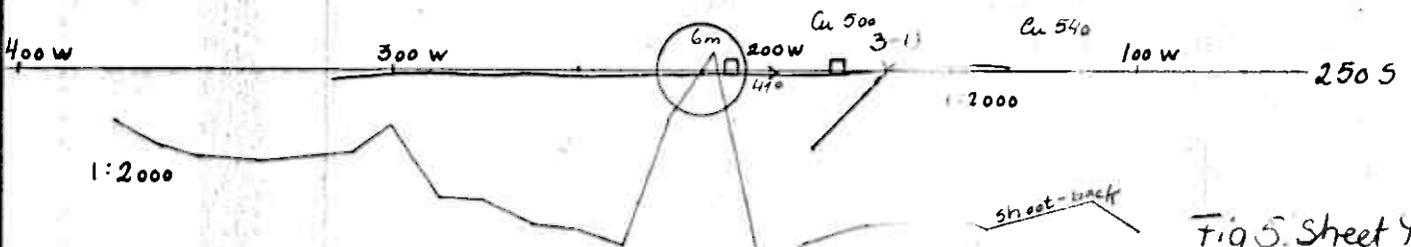
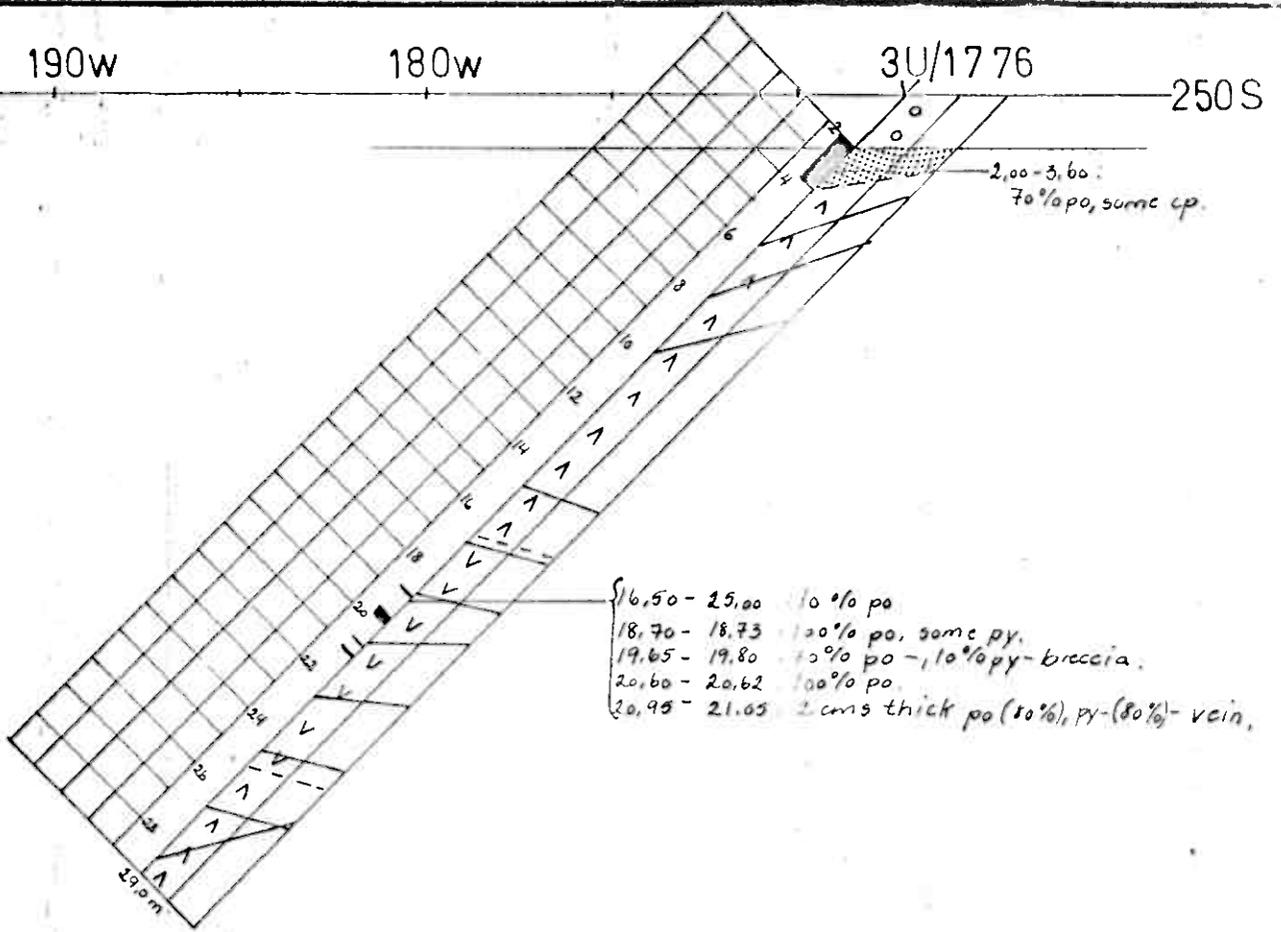


Fig 5. sheet 4

A/S SULFIDMALM

UNNA VUOVDAS, Masi 1776.

3U/1776 250S/167W

Terranor s. 45°W/29m

Scale 1:200 DRAWN EK

Date 10-76 Traced B.B.

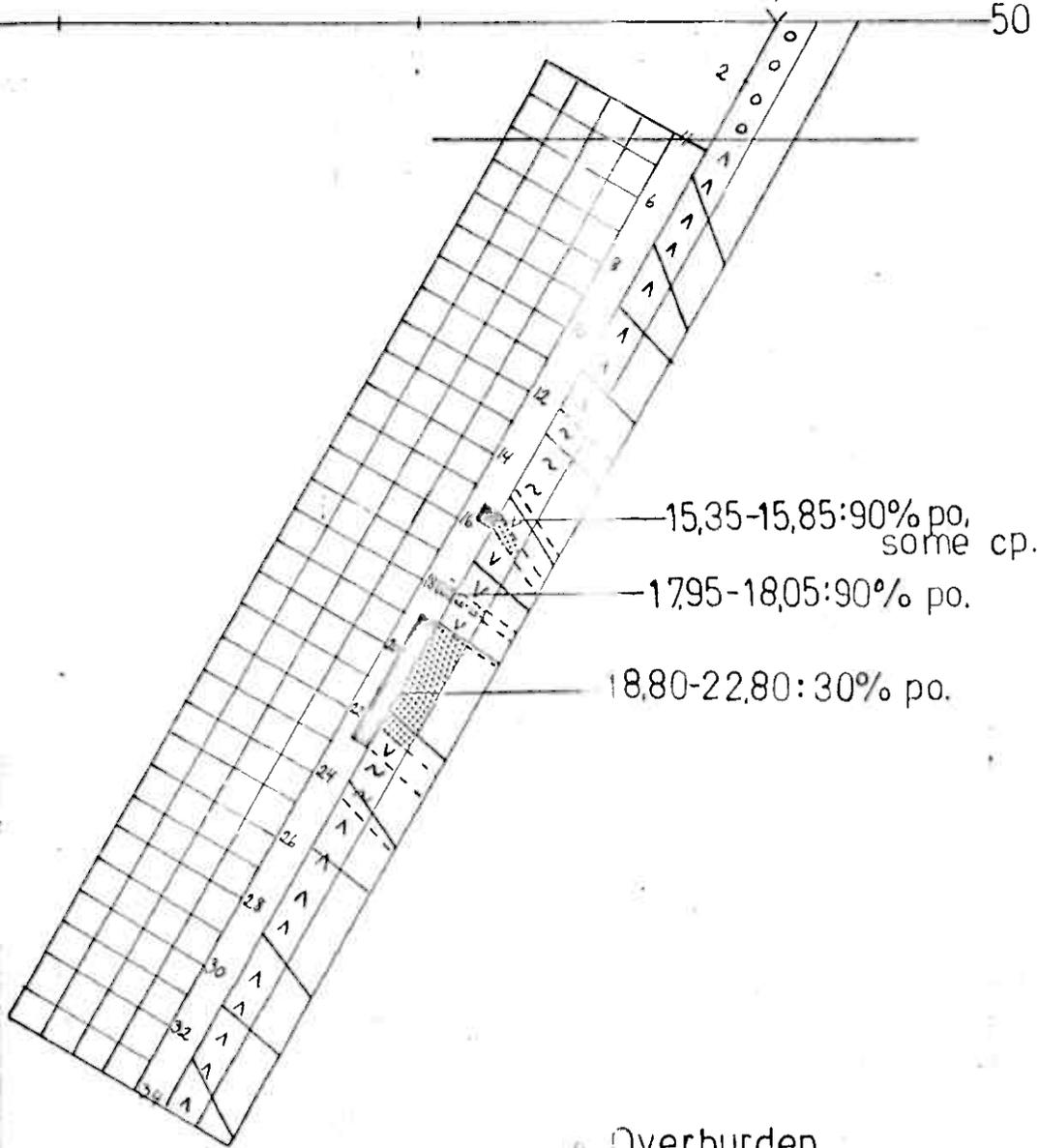
380w

370w

360w

4U/1776

50 N



15,35-15,85:90% po, some cp.

17,95-18,05:90% po.

18,80-22,80:30% po.

- Overburden
- △ Basic volcanics
- ⋯ Acid
- Graphitic rock
- ▭ Sulphides
- ▨ Mica schist
- ▮ Sulphides in outcrop
- ⊙ Stream geochem. anomaly
- ⊗ Shoot-back anomaly.

Stream
400w

Ni 250
Cu 580

1:2000

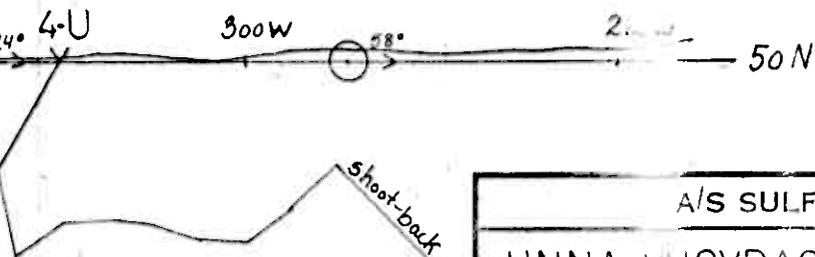


Fig 5 sheets

A/S SULFIDMALM	
UNNA VUOVDAS, Masi 1776.	
4-U/1776	50N/350w
Terranor a.s.	60°w/34m
SCALE 1:200	DRAWN EK
Date 10-76	Traced B.B.

^/s SULFIDMALM

DIAMOND DRILL RECORD

LOCATION: Masi 1776 BEARING: W DIP: 60° HOLE NO: 1-U SHEET NO: 1a
 LOGGED BY: E. Kreivi STARTED: 30/9-76 PROPERTY: Unna Vuovdas
 CASING: 3.00 FINISHED: 1/10-76 300N/125W
 CORE SIZE: TT 46 TESTS (CORRECTED):

From	To	Description
0	1.50	Overburden
1.50	1.80	Acid volcanics
1.80	2.30	0.50m Graphitic rock -80% po, 1% cp
2.30	6.80	Acid volcanics
	0.45m	4.05-4.50 Thin graphitic layers
	0.25m	5.55-5.80 Graphitic rock, 90% po, some py
6.80	7.10	Mica-schist
7.10	14.85	Greenschist
14.85	16.05	Mica-schist
16.05	22.90	Acid volcanics -10% py, po-breccia
	0.80m	16.80-17.60 Graphitic rock, 20% py, 10% po, to cp
	0.70m	21.40-22.10 " " , 70% po, some py, 1% cp
	0.15m	21.95-22.10 90% po
22.90	26.60	Mica-schist
		26.35-26.40 Graphitic rock
26.60	32.30	Greenschist
32.30	34.30	Mica-schist
34.30	35.80	Acid volcanics (chert) -10% po
35.80	37.00	Mica-schist
37.00	38.50	Greenschist
38.50	40.30	Mica-schist
40.30	50.00	Acid volcanics (chert)
	1.75m	42.30-44.05 70% po
		43.80-44.00 Graphitic rock
		44.05-50.00 5% po
	0.05m	45.70-45.75 80% po
50.00		End of hole
		The hole was drilled to test geochemical and geophysical anomalies. The anomalies are probably caused by the sulphide-rich graphitic layers as follows:
	1.65m	60-70% po, some py and traces of cp

SULFIDMALM

DIAMOND DRILL RECORD

LOCATION: Masi 1776 BEARING: W DIP: 60° HOLE NO: 1-U SHEET NO: 2
 LOGGED BY: E. Kreivi STARTED: 30/9 1976 PROPERTY: Unna Vuovdas
 CASING: 3.00 m FINISHED: 1/10 1976 300N/125W
 CORE SIZE: TT 46 TESTS (CORRECTED):

From	To	Description
32.30	34.30	Mica-schist - carbonate-veins
34.30	35.80	Acid volcanics (chert) - 10% po-breccia, carb-breccia 34.50-34.55 Amphibole-rich
35.80	37.00	Mica-schist 35.80-36.00 Folded
37.00	38.50	Greenschist
38.50	40.30	Mica-schist 38.50-40.00 Very folded 38.90-39.40 Scapolite-rich
40.30	50.00	Acid volcanics (chert) - some carb-veins 42.30-44.05 70% po-breccia 43.80-44.00 Graphitic rock 41.60-44.00 Folded 44.05-50.00 5% po 45.70-45.75 80% po
50.00		End of hole
		Core-angles
		41°/ 4.90 50°/ 6.90 31°/ 8.90 30°/10.90 40°/12.80
		33°/14.70 26°/16.80 42°/19.60 14°/22.80 30°/24.80
		31°/26.80 24°/29.80 17°/31.70 18°/33.80 30°/37.50
		17°/41.60 53°/43.70 35°/45.90 38°/47.80

A/s SULFIDMALM

DIAMOND DRILL RECORD

LOCATION: Masi 1776
 LOGGED BY: E. Kreivi
 CASING: 3.50
 CORE SIZE: TT 46
 BEARING: W DIP: 60° HOLE NO: 2-U SHEET NO: 1
 STARTED: 28/9-76 PROPERTY: Unna Vuovdas
 FINISHED: 28/9-76 0/177W
 TESTS (CORRECTED):

From	To	Description
0	2.00	Overburden
2.00	5.30	Greenschist - Fel-banded, some carb in veins 2.00-3.50 Broken rock
5.30	6.00	Mica-schist - some chlorite and carb
6.00	6.50	Greenschist - more Fel and carb than before
6.50	7.05	Mica-schist - more Fel, less mica than before
7.05	7.90	Acid volcanics - thin beds of graphite - some carb - -5% po-breccia, some py 7.50-7.90 chert
7.90	8.75	Graphite-schist - brecciated by po 7.90-8.40 70% po, 10% py, 1% cp 8.40-8.75 30% po, 5% py
8.75	10.80	Acid volcanics - some carb-breccia, some chlorite, some mica and po 10.10-10.15 Graphitic rock, 60% po 10.60-10.63 " " "
0.80	12.75	Mica-schist - 50% mica, 50% Fel+ carb - 2% po 11.60-11.90 Greenschist, some carb-breccia
2.75	23.80	Greenschist - Fel-banded - some carb-breccia, some mica 18.70-18.80 Chert, mica rich rock on both sides 19.05-19.30 Chert
23.80	33.80	Acid volcanics 23.80-24.60 Chlorite-bearing carbonate-breccia, 30% mica

SOLFIDMALM

DIAMOND DRILL RECORD

LOCATION: Masi 1776 BEARING: W DIP: 60° HOLE NO: 2-U SHEET NO: 1a
 LOGGED BY: E. Kreivi STARTED: 28/9-76 PROPERTY: Unna Vuovdas
 CASING: 3.50 FINISHED: 29/9-76 0/177W
 CORE SIZE: TT 46 TESTS (CORRECTED):

From	To	Description
0	2.00	Overburden
2.00	5.30	Greenschist
5.30	6.00	Mica-schist
6.00	6.50	Greenschist
6.50	7.05	Mica-schist
7.05	7.90	Acid volcanics -5% po-breccia, some py
7.90	8.75	0.85m Graphite-schist -brecciated by po 7.90-8.40 70% po, 10% py, 1% cp 8.40-8.75 30% po, 5% py
8.75	10.80	Acid volcanics
	0.05m	10.10-10.15 Graphitic rock 60% po
	0.03m	10.60-10.63 " " "
10.80	12.75	Mica-schist
		11.60-11.90 Greenschist
12.75	23.80	Greenschist
23.80	33.80	Acid volcanics
	8.00m	23.80-31.80 10-20% po-breccia, some py, tc cp 27.90-27.95 80% py 27.95-28.60 40% po, 1% cp, some py 29.30-29.35 95% po 31.50-31.80 20% po
33.80	51.10	Mica-schist
51.10	60.00	Acid volcanics
		51.50-52.80 30% po, traces of cp 55.80-56.20 2 cm thick 80% po-vein
	60.00	End of hole
		The hole was drilled to test geochemical and geophysical anomalies. In the hole there were acid volcanics with graphitic beds under basic volcanics. The acid volcanics and graphitic beds got some po and py and traces of cp: 30-40% po, 5% py, traces of cp.
	8.93m	

1/5 SULFIDMALM

DIAMOND DRILL RECORD

LOCATION: Masi 1776 BEARING: W DIP: 60° HOLE NO: 2-U SHEET NO: 2
 LOGGED BY: E. Kreivi STARTED: 28/9-76 PROPERTY: Unna Vuovdas
 CASING: 3.50 FINISHED: 29/9-76 0/177W
 CORE SIZE: TT 46 TESTS (CORRECTED):

From	To	Description
		23.80-31.80 10-20% po-breccia, some py traces of cp
		27.90-27.95 80% py
		27.95-28.60 40% po, 1% cp, some py
		29.30-29.35 95% po
		31.50-31.80 Carb-vein, 20% po
33.80	51.10	Mica-schist -50% mica and chlorite
		34.50-34.55 Mica-rich Fel-vein
51.10	60.00	Acid volcanics -mica and chlorite-bearing
		51.50-52.80 White feldspar, brecciated by 30% po, traces of cp, a little of fucsite
		58.30-58.45 Qtz-vein
60.00		55.80-56.20 2 cm thick carb- and po-vein, 80% po End of hole
		Core-angles
		B: 13°/ 3.90 10°/ 5.95 15°/ 6.90 10°/ 8.90
		15°/ 9.80 10°/11.70 28°/14.60 15°/16.80
		15°/17.80 33°/19.70 23°/20.90 10°/23.70
		17°/26.60 11°/29.60 18°/32.80 10°/34.80
		20°/36.80 17°/38.80 7°/42.70 5°/44.90
		7°/46.50 20°/48.70 15°/50.80 23°/53.80
		38°/55.80 38°/57.80 37°/59.90

No. SULFIDMALM

DIAMOND DRILL RECORD

LOCATION: Masi 1776 BEARING: W DIP: 45° HOLE NO: 3-U SHEET NO: 1
 LOGGED BY: E. Kreivi STARTED: 20/9-76 PROPERTY: Unna Vuovdas
 CASING: 3.60 FINISHED: 27/9-76 250S/167W
 CORE SIZE: TT 46 TESTS (CORRECTED):

From	To	Description
0	2.00	Overburden
2.00	3.60	Graphitic rock -70% po, a little of cp - lost core about 1 m
3.60	16.50	Greenschist -thin white Fel-beds and veins -thin carb-veins 3.60- 5.50 Lost core about 1 m 7.00-14.40 Folded 15.10-15.20 Carb-vein surrounded by mica 15.20-16.50 Mica-rich layers
16.50	25.00	Acid volcanics - mainly Fel, a little Qtz and carb - 10% po-breccia with carbonate 16.50-18.00 Mica-, carb-rich 18.70-18.73 Massive po, some py 19.65-19.80 70% po-, 10% py-, carb-, qtz-breccia 20.60-20.62 Po-vein (100% po) 20.95-21.05 2 cms thick po- (80%), py-(20%) vein 23.40-23.95 Carb-rich (50% carb) 23.95-25.00 Mica- and carb-rich
25.00	29.00	Greenschist -Fel- and carb-rich layers 25.80-27.50 Scapolite-, mica- and carb-rich 28.80-29.00 Mica- and carb-rich
29.00		End of hole. Had to stop because of caving. Planned 40 ms deep.
		Core-angles:
		B: 54° / 3.70 63° / 5.70 63° / 7.70 57° / 9.70
		24° / 14.50 30° / 16.70 32° / 18.60 44° / 20.50
		38° / 22.40 30° / 24.40 30° / 26.60 58° / 28.60

SULFIDMALM

DIAMOND DRILL RECORD

LOCATION: Masi 1776 BEARING: W DIP: 45° HOLE NO: 3-U SHEET NO: 1a
 LOGGED BY: E. Kreivi STARTED: 20/9-76 PROPERTY: Unna Vuovdas
 CASING: 3.60 FINISHED: 27/9-76 250S/167W
 CORE SIZE: TT 46 TESTS (CORRECTED):

From	To		Description
0	2.00		Overburden
2.00	3.60	1.60m	Graphitic rock -70% po, a little of cp, lost core about 1 m
3.60	16.50		Greenschist
16.50	25.00	8.50m	Acid volcanics -10% po-breccia
		0.03m	18.70-18.73 100% po, some py
		0.15m	19.65-19.80 70% po-, 10% py-breccia
		0.02m	20.60-20.62 100% po
		0.02m	20.95-21.05 2 cms thick po- (80%), py (20%) vein
25.00	29.00		Greenschist
29.00			End of hole
<p>The hole was planned to test geophysical and geochemical anomalies and to be drilled down to 40 ms, but because of caving the hole had to be stopped at 29.00. One graphitic bed, less than 1.60 ms thick, was intersected. It got 70% po and a little of cp. 8.50 ms of acid volcanics with 10% po-breccia and some thin massive po-veins was penetrated.</p>			
		1.82m	70% po, some py, rare cp.

DIAMOND DRILL RECORD

LOCATION: Masi 1776 BEARING: W DIP: 60° HOLE NO: 4-U SHEET NO: 1
 LOGGED BY: E. Kreivi STARTED: 2/10-76 PROPERTY: Unna Vuovdas
 CASING: 3.50 FINISHED: 3/10-76 50N/350W
 CORE SIZE: TT 46 TESTS (CORRECTED):

From	To	Description
0	3.50	Overburden
3.50	12.00	Greenschist - some carb-breccia and Qtz-veins 6.60-6.70 Fractured 7.00-8.05 Carb-breccia
12.00	14.50	Mica-schist -40% mica, 60% Fel and carb, some amphibole
14.50	22.80	Acid volcanics -thin graphite-bearing beds and carb-veins 15.35-15.85 Graphitic rock, brecciated by 90% po, some cp 15.85-16.20 60% carb 17.95-18.05 90% po in graphitic rock 18.05-18.80 Carb-vein with some po-breccia 18.80-22.00 30% graphite, brecciated by 30% po and carbonate and some py 17.30-17.55 Folded 20.50-20.60 Fractured 22.00-22.80 30% po + carb-breccia, mica-rich, some py
22.80	24.20	Mica-schist -carb-rich 23.80-24.20 Chlorite-rich
24.20	34.00	Greenschist -thin carb-veins 26.45-26.50 Graphite 27.00-27.20 Qtz-vein 28.50-29.00 Folded
34.00		End of hole. Had to stop because of caving. Planned 40 ms deep.

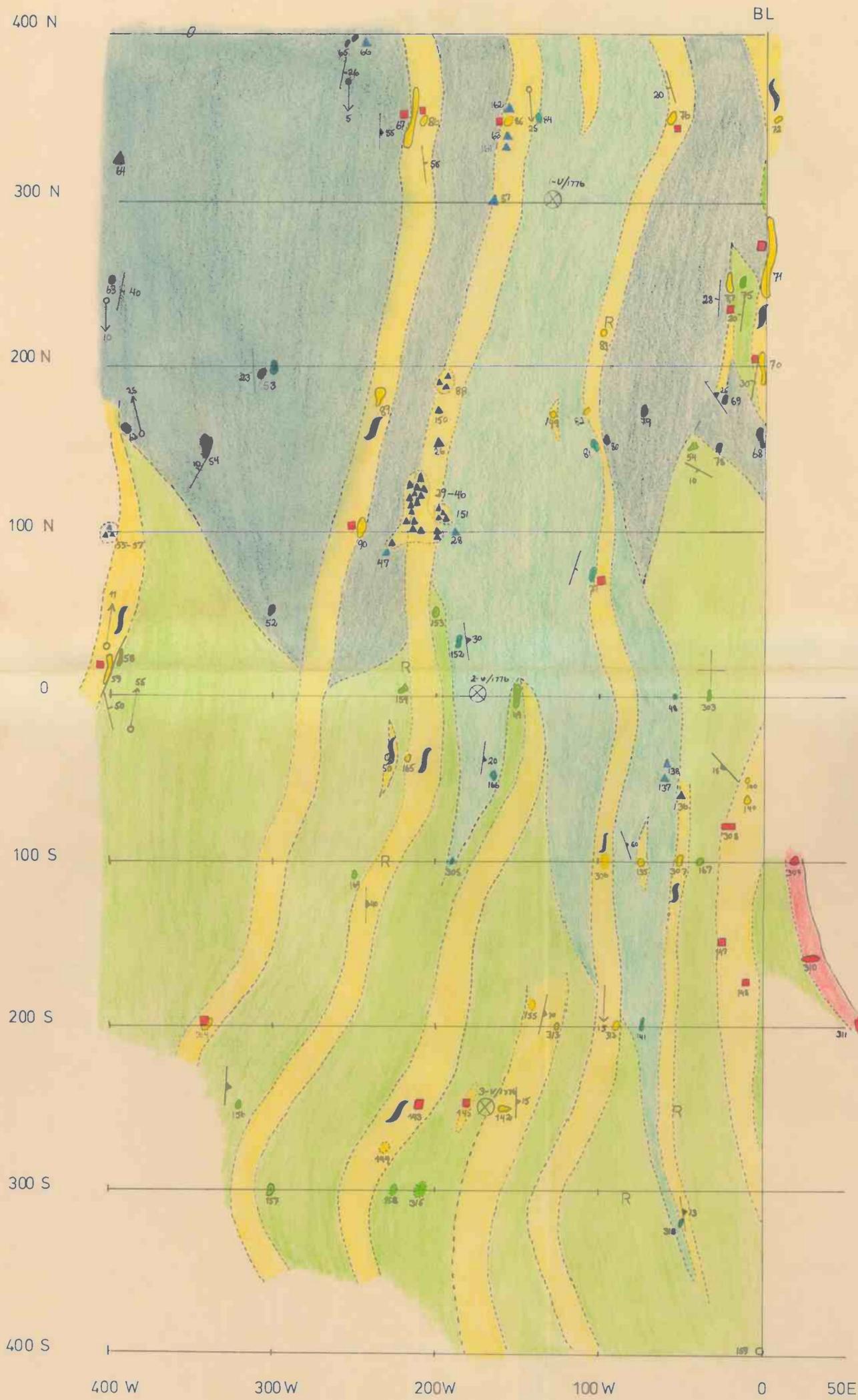
A/s SULFIDMALM

DIAMOND DRILL RECORD

LOCATION: Masi 1776 BEARING: W DIP: 60° HOLE NO: 4-U SHEET NO: 1a
 LOGGED BY: E. Kreivi STARTED: 2/10-76 PROPERTY: Unna Vuovdas
 CASING: 3.50 FINISHED: 3/10-76 50N0350W
 CORE SIZE: TT 46 TESTS (CORRECTED):

From	To	Description
0	3.50	Overburden
3.50	12.00	Greenschist
12.00	14.50	Mica-schist
14.50	22.80	Acid volcanics
	0.50m	15.35-15.85 Graphitic rock, brecciated by 90% po, some cp
	0.10m	17.95-18.05 90% po in graphitic rock
		18.05-18.80 Carb vein with some po-breccia (<5%)
	3.20m	18.80-22.00 30% po in graphitic rock
	0.80m	22.00-22.80 30% po
22.80	24.20	Mica-schist
24.20	34.00	Greenschist
		26.45-26.50 Graphite
34.00		End of hole
		The hole was drilled to test geochemical and geophysical anomalies, and planned to drill down to 40 ms, but because of caving we had to stop at 34.00. The hole got mineralized graphitic beds with:
	4.60m	30-40% po, traces of cp
		Core-angles
		B: 40°/ 4.80 38°/ 6.90 15°/ 8.90 15°/10.90
		14°/12.90 28°/14.80 11°/16.90 4°/18.90
		12°/21.65 24°/23.80 8°/25.90 22°/28.60
		12°/30.95 32°/32.40 70°/33.50

Arktis kartat 2000 A.J. E.F.J. (O.S.) Kustantus Oy



KEY:

- ⊗ DDH
- ☐ ACID VOLCANICS
- ☞ GRF-SCHIST INTERCALATION
- ☐ QUARTZ VEIN
- ☐ GREENSCHIST-STONE
- ☐ GREYWACKE, MICASCHIST
- ☐ AMPHIBOLITE
- ☐ SULPHIDES IN BEDROCK
- ▲ SULPHIDES IN BLOCK
- R GOSSAN
- ↗ BEDDING
- ↘ SCHISTOSITY
- ↻ MINOR FOLD AXIS
- CONTACT INFERRED
- CONTACT OBSERVED

UNNA VUOVDAS MASI 1776
GEOLOGY

SCALE	OBS. KT	JULY-76
1: 2000	DRAW. KT	AUG-76
	TRAC.	
	CHK.	

% SULFIDMALM

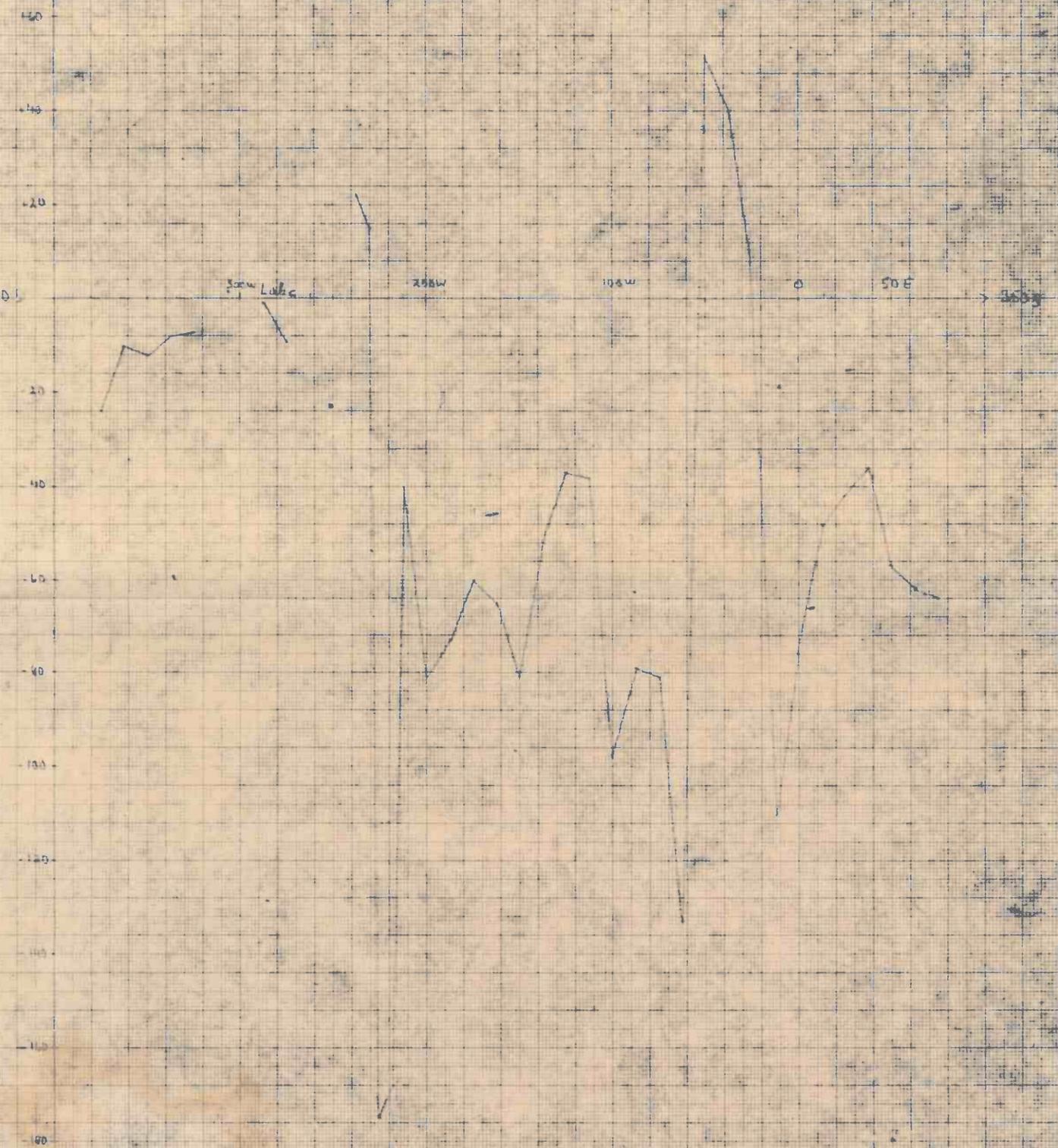
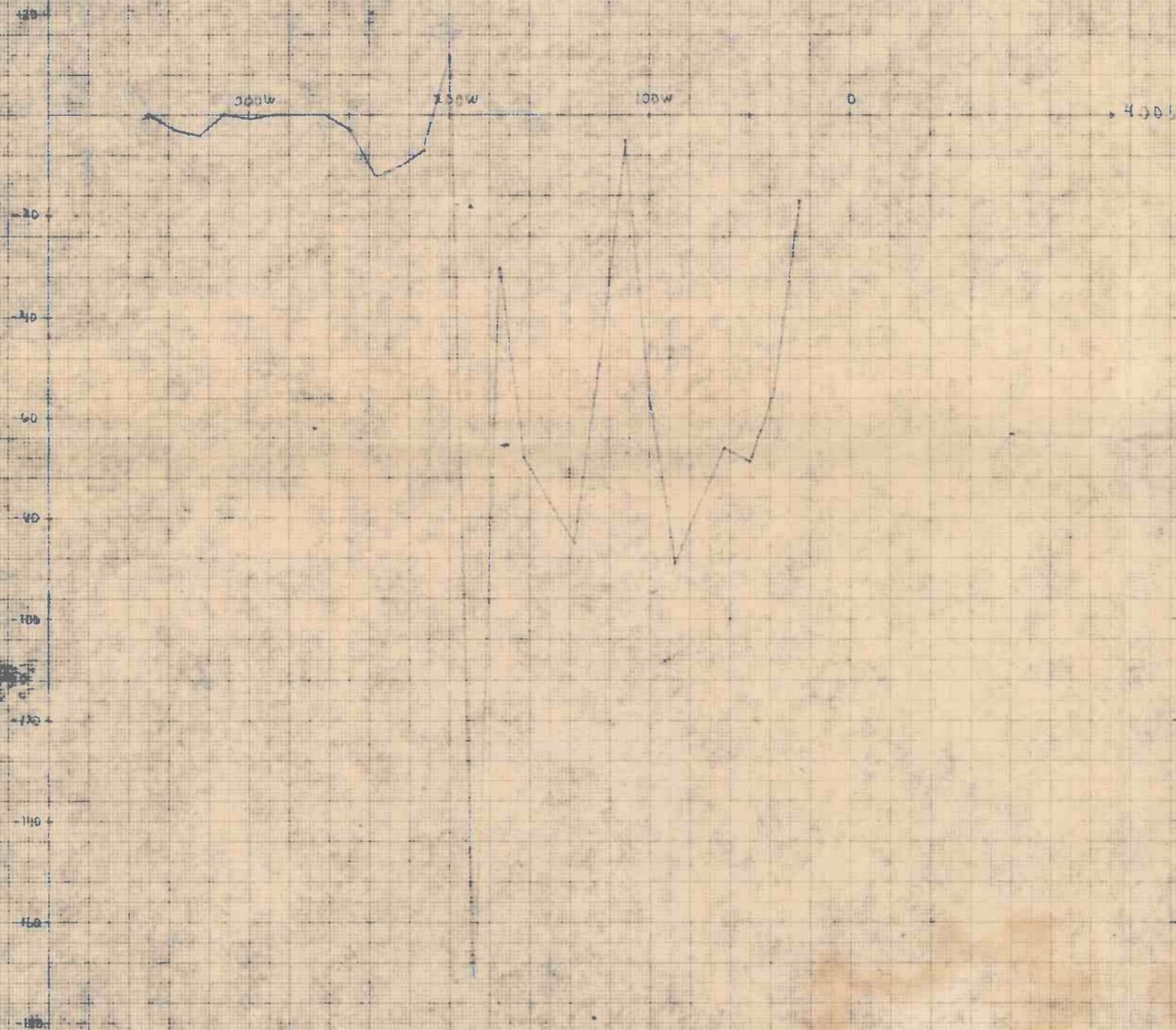
MAP NO.	407/76/17
MAP SHEET	

Tig. 1. Sheet 1
UNNA VUOVDAS MASI 1776 GEOLOGY

GEOPHYSICS

Top 204W 175W 119W
 Dip 2° E
 Depth 5m
 Ampl. fact. 170 120 90

Top 220W 210W 190W 170W 150W 130W 110W
 Dip 2° E
 Depth 5m
 Ampl. fact. 100 80 60 40 20 100 80



UNNA VUOVDAS, Mai 1976
 Shoot-back 50m
 Profiles 4005 3505
 Scale 1:2000
 Dip 2° E
 Depth 5m

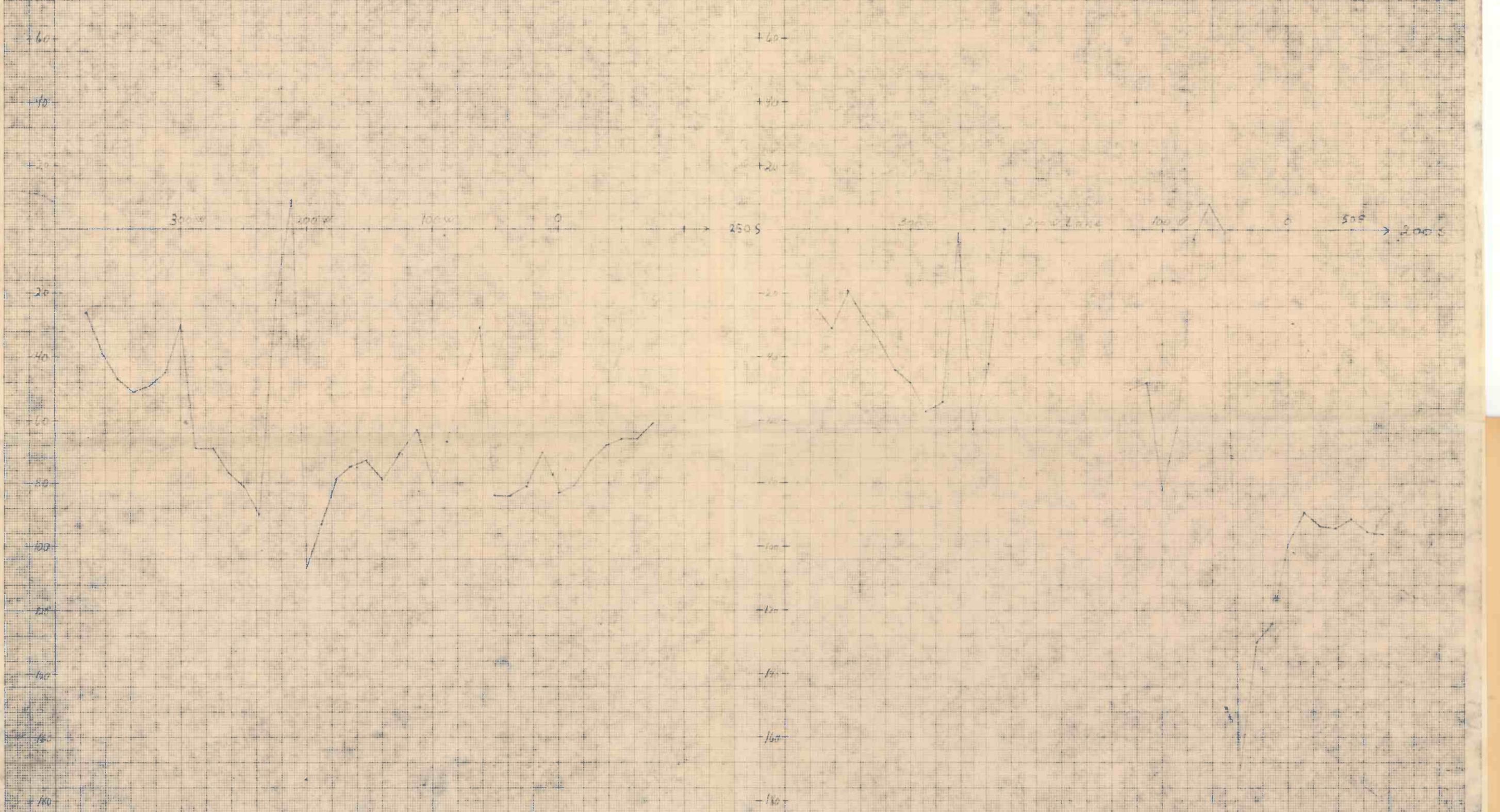
1st	320 W	300 W	170 W	180 W	40 W
2nd		270 E	220 E		20 W
Height		6			
Amplitude	20	20	20	20	20



Unna Vuovdas Maa 1776
 Shoot Back 50m
 Profiles 300 S
 Scale 1:2000
 1776

Top	328 W	215 W	110 W	29 W	14 W
H ₁	42° E	41° E			
Amplitude	40	30	20	50	10

Top	262 W	63 W
H ₁	63° E	15° E
Amplitude	70	140

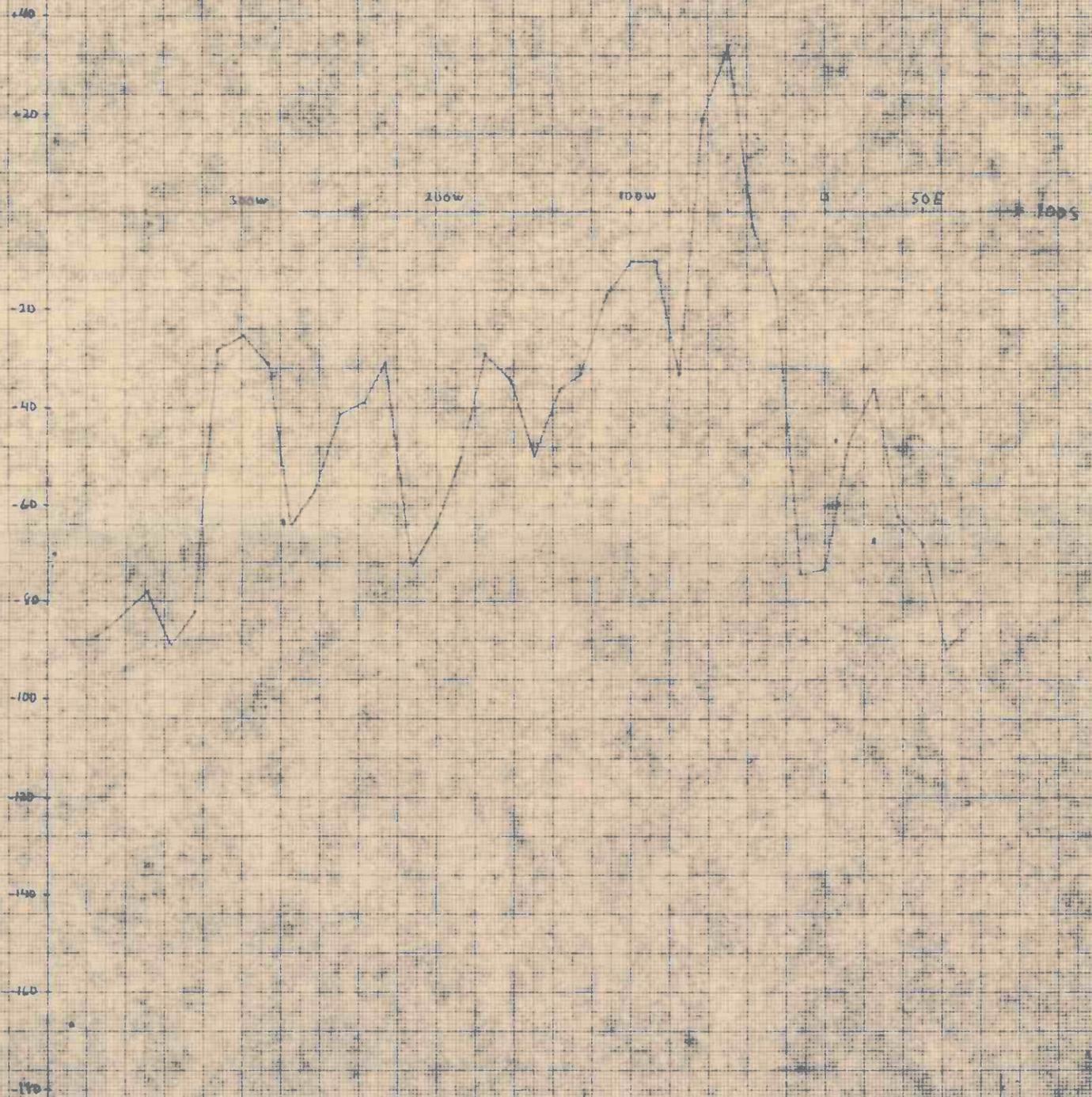
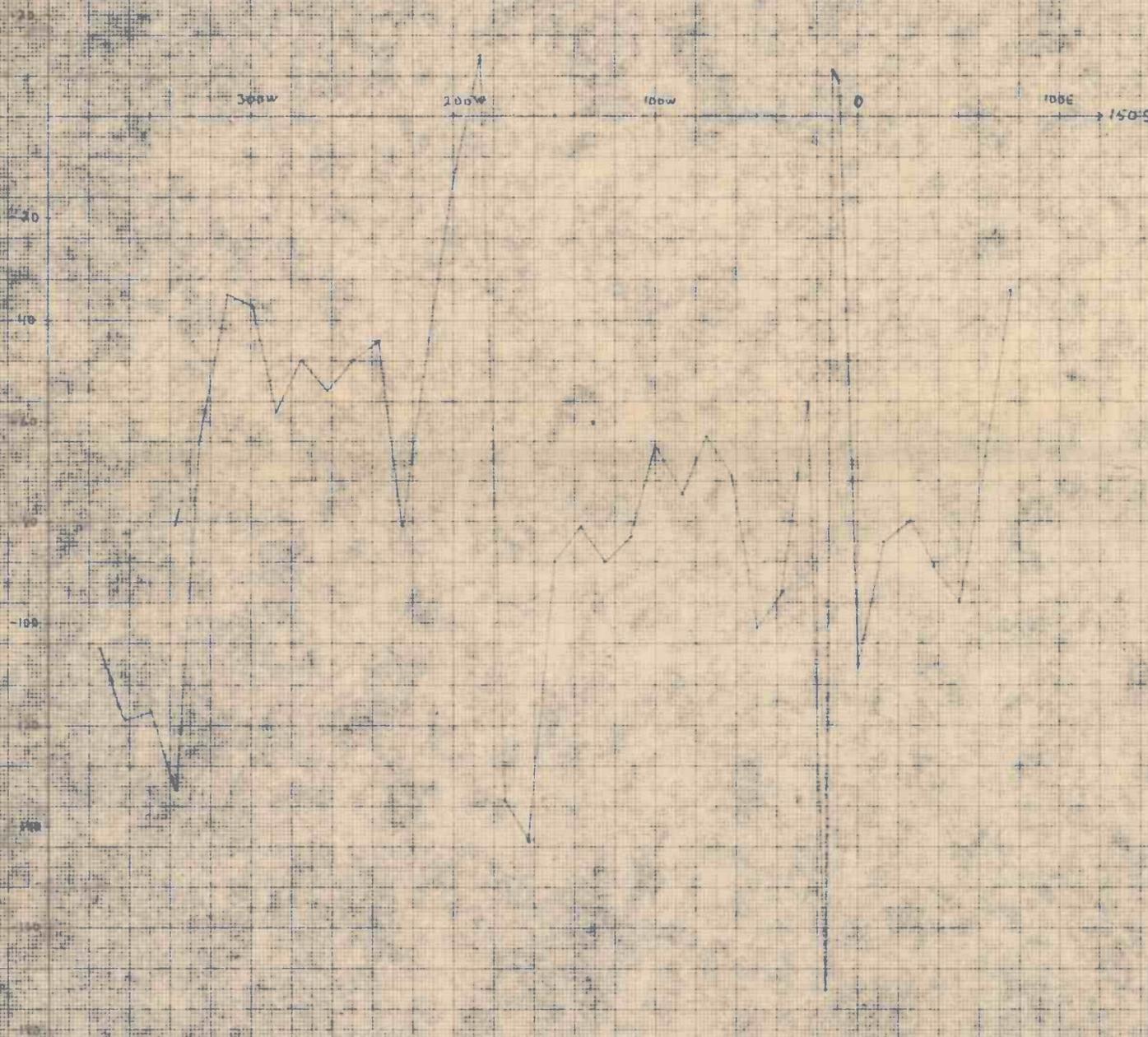


Unavudat, Masi 1776
 Shoot - Back 50 m
 Profiles: 2505, 2005
 Scale: 1:2000
 m - 1000 FAD

UNNA VUOVDFIS, Masi 1776 Shoot-back 50m Profiles 2505, 2005 Fig 3, sheet 4.

Top	20W	180W	25W	10W
Ref	15W	19W		6W
Rifle		8W		2W
Amplitude	60	100	100	160

Top	20W	180W	25W	10W
Ref	15W	19W		6W
Rifle		8W		2W
Amplitude	60	100	100	160

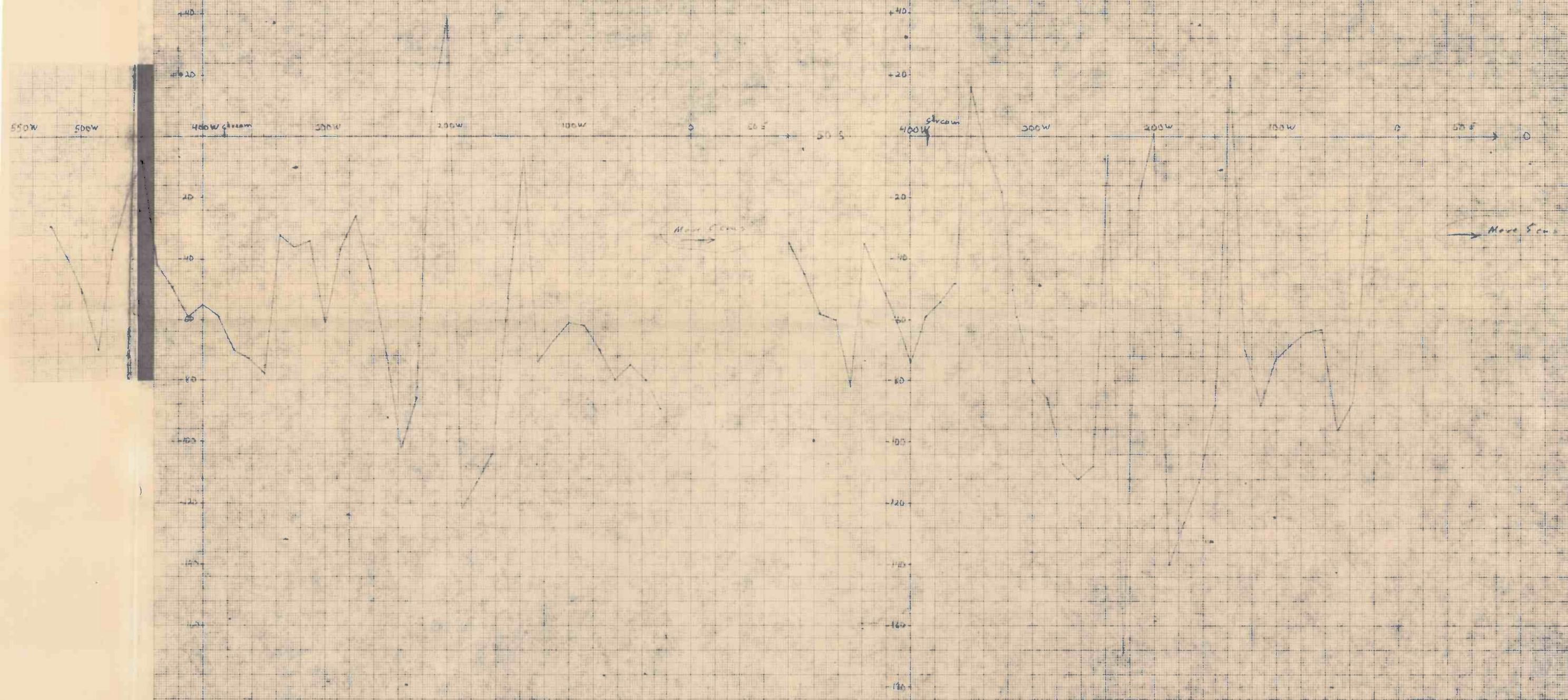


UnnaVuovdas, Maxi 1776
 Shoot-back 50m
 Profiles 150S, 100S
 Scale 1:2000
 Date 1976

UNNA VUOVDas, Maxi 1776 shoot-back 50m Profiles 150S, 100S Fig 3 sheet 5

Top	32.5 W	28.0 W	2.0 W	13.2 W
Dist			5	13.2 W
Depth			170	80
Amplitude	60	60	170	80

Top	32.5 W	28.0 W	2.0 W	13.2 W
Dist			5	13.2 W
Depth			170	80
Amplitude	60	60	170	80

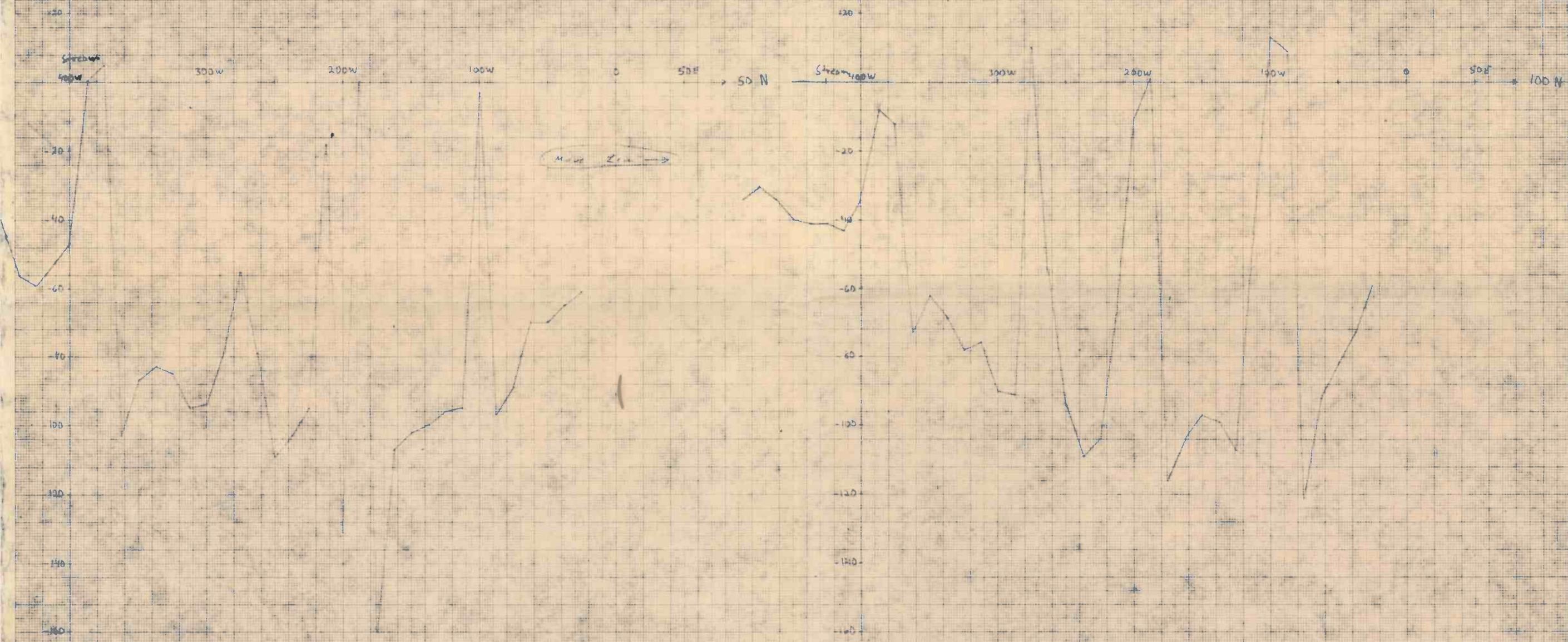


UNNA VUORDAS, Masi 1776
 Shoot back 50m
 Profiles 505.0
 Scale 1:1000

UNNA VUORDAS, Masi 1776 Shoot-back 50m Profiles 505.0 Fig 3. sheet 6

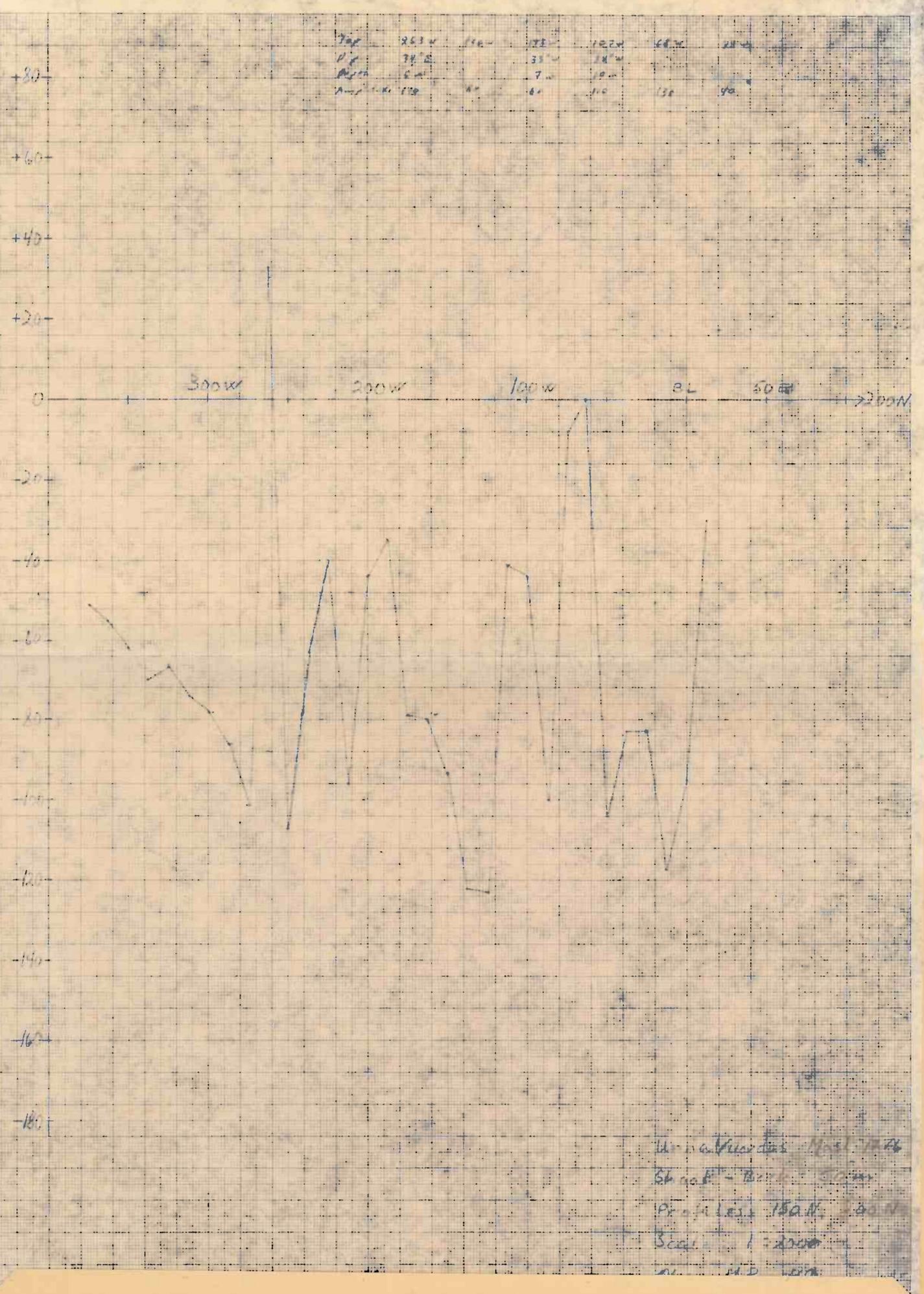
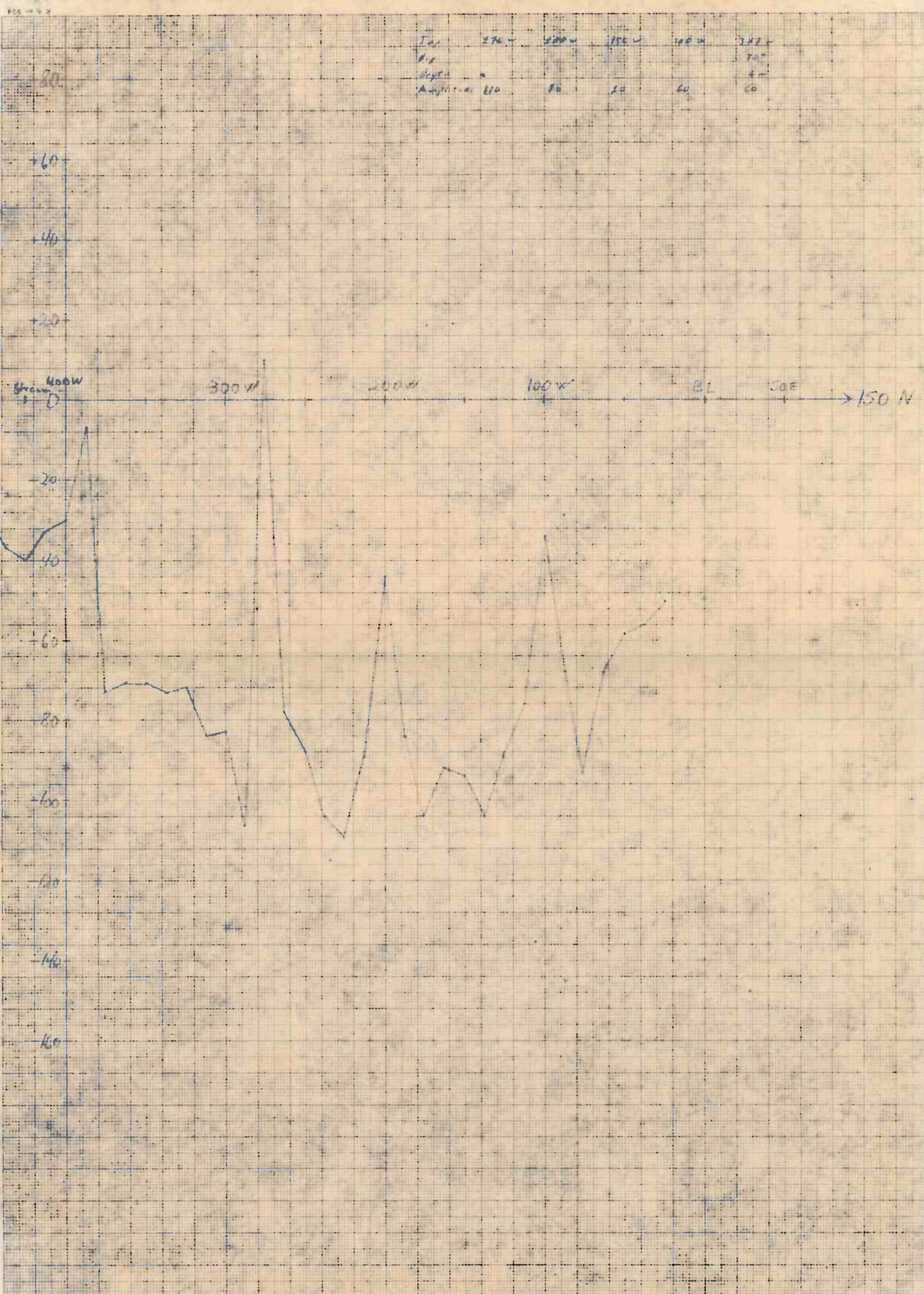
Top	Angle	Dist	Depth
280 W	110	24'	6"
170 W	50	58'E	
210 W	120		
100 W	110	70'E	6"
140 W	100	55'E	7.5"

Top	Angle	Dist	Depth
180 W	70	39'E	7.5"
270 W	110		
190 W	110	80'E	6"
70 W	100	85'E	8"



Unnakuodas, Masi 1776
 Shoot-Back 50m
 Profiles 50m, 100m

UNNA VUOVDAS, Masi 1776 shoot-back 50m Profiles 50m, 100m Fig 3. Sheet 7.

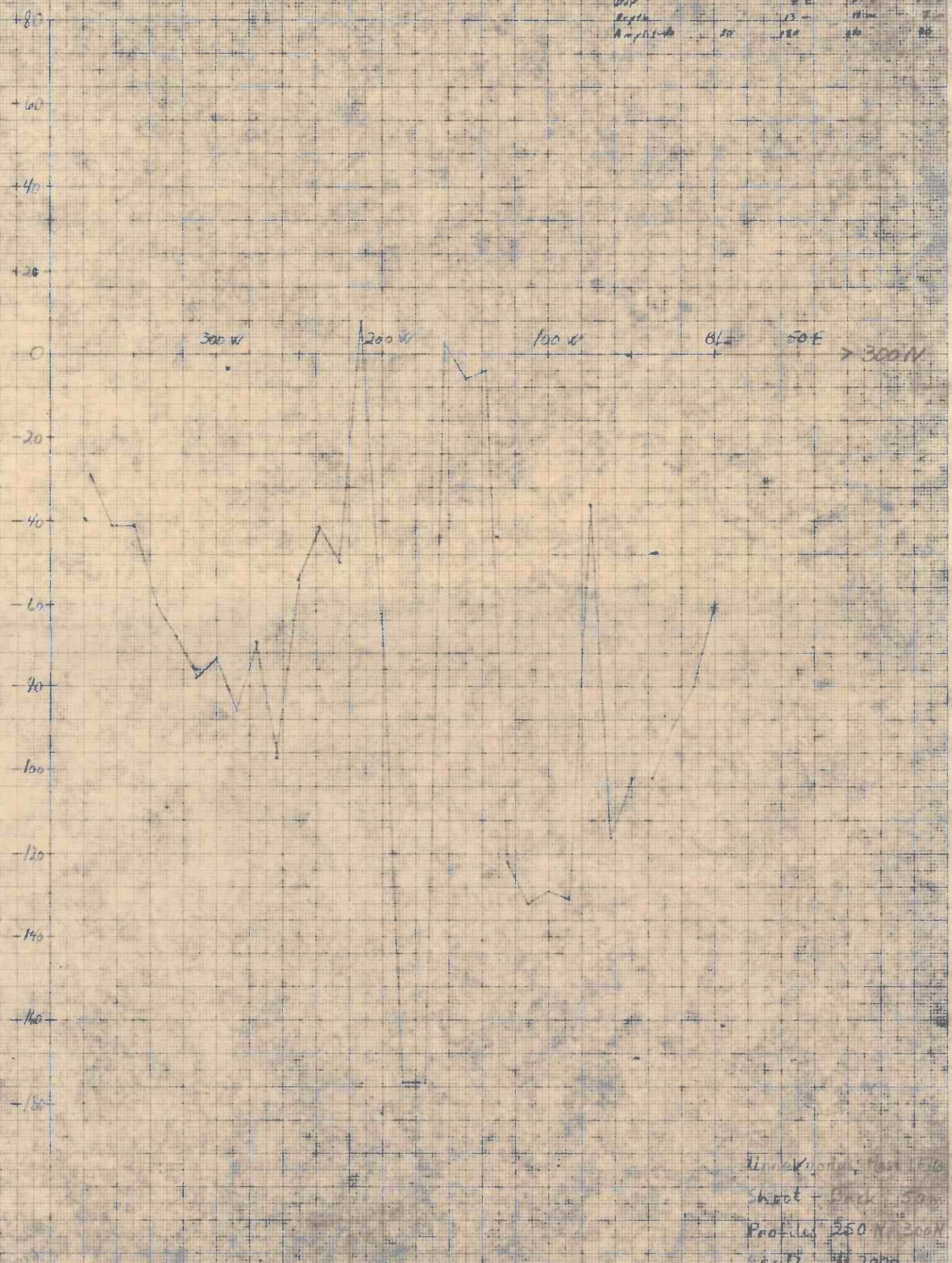
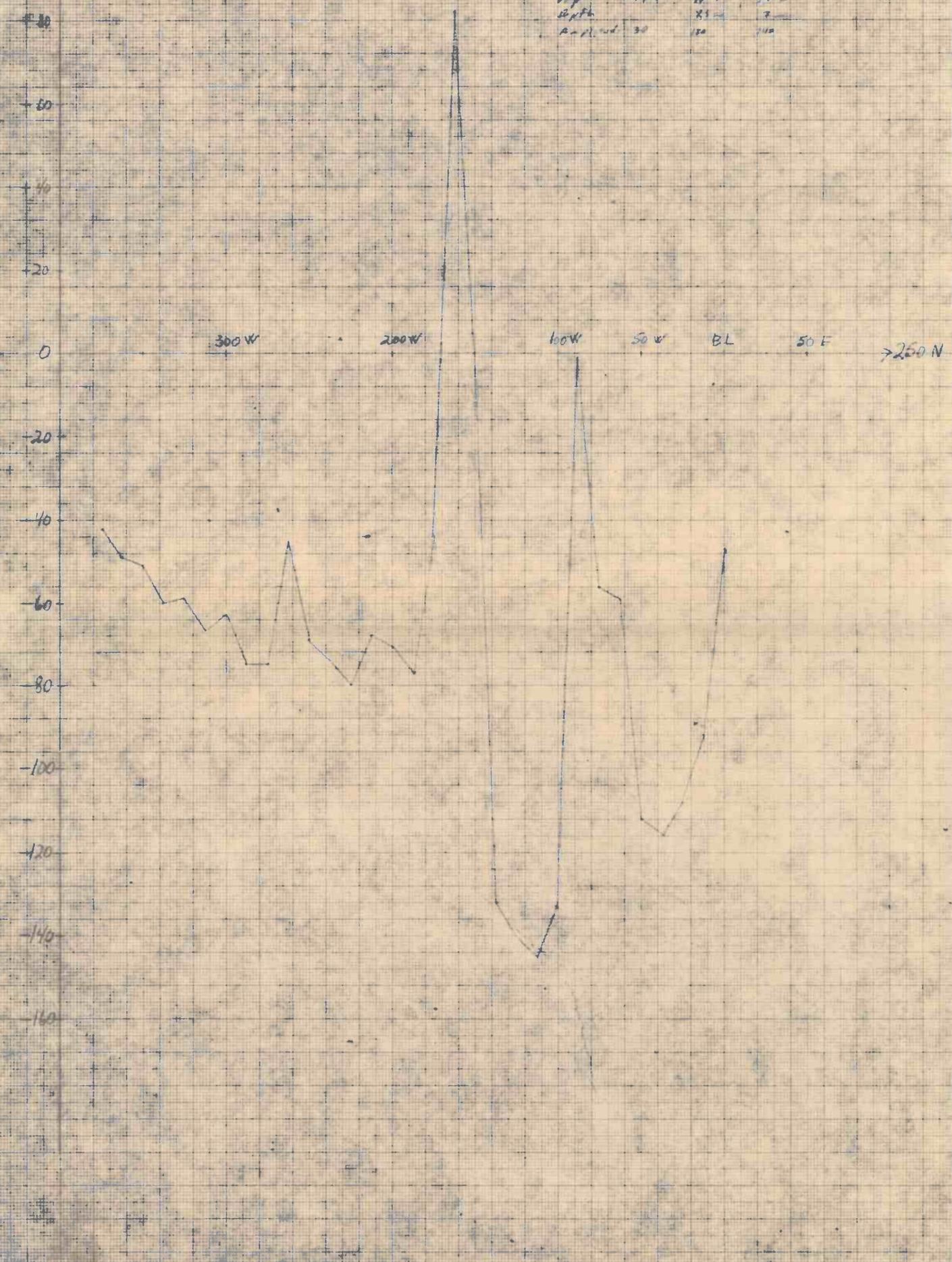


UNNA VUOVDAS, Maii 1776
 Shot - Back 50m
 Profile 150N, 200N
 Scale 1:2000
 M.D. 1976

UNNA VUOVDAS, Maii 1776 Shot-back 50m Profiles 150N, 200N Fig 3 Sheet 8

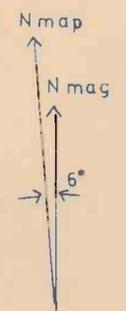
Top	262 W	160 W	85 W
Dist	492	180	77
Depth	21	21	2
Amplitude	30	10	100

Top	262 W	160 W	85 W
Dist	492	180	77
Depth	21	21	2
Amplitude	30	10	100



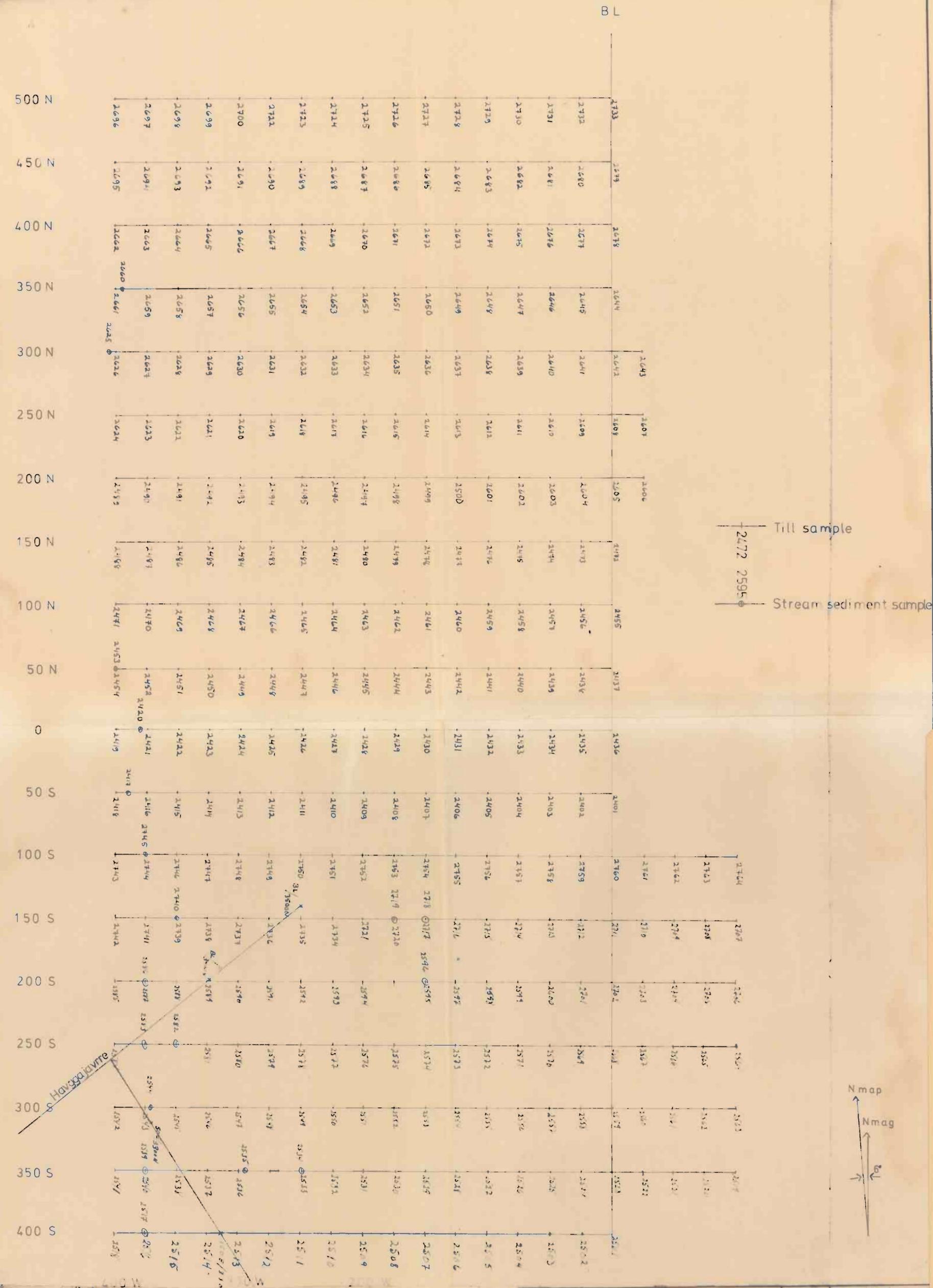
UNNA VUOVDAS, Masi 1776
 Sheet - Dist 50m
 Profiles 250N, 300N
 Scale 1:2000

AST-1000-200 A1 E 8 1/2" 1071 - Sintering - Trakker

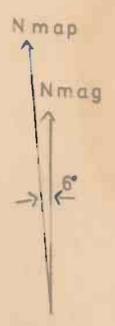


UNNA VUOVODAS MASI 1776 TILLSAMPLING Assays	SCALE	OBS. MPAO	6-7
	1:2000	DRAW. MP	6-7
% SULFIDMALM		TRACEKSE	7-7
		CHK. EK.	1-7
MAP NO.	407/76/17		
MAP SHEET			

UNNA VUOVODAS MASI 1776 TILLSAMPLING Assays
Fig 4. Sheet 1



2472 Till sample
2595 Stream sediment sample



UNNA VUOVDA, MASI 1776 TILL-SAMPLING Samples' locations	SCALE	OBS MPAO
	1:2000	DRAW MPAO
% SULFIDMALM	MAP NO.	407/76/17
	MAP SHEET	