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GEOLOGICAL, GEOPHYSICAL, GEOCHEMICAL SURVEYS AND DIAMOND DRILL RESULTS WOP MINERAL CLAIMS (ANVIL RANGE SYNDICATE) TENAS CREEK AREA, WHITEHORSE M.D., Y.T.

by

R.E. Chaplin

July 14,1975. Vancouver, B.C.

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Lat 62°03'N
Long 132°20'W

NTS 105 K/1

Field work completed in 1974 - between July and September

by

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LIST OF ILLUSTRATIONS IN POCKETS

Claim Map & Grid Location	1:50,000
Outcrop Map	1"=1000'
Geochemical Map Magnetometer Survey	1"=1000'
Induced Polarization PFE N=2	1"=1000'
Induced Polarization APP. Resist. Ohm-meters	1"=1000'

See 5 maps in Ager's Gravity Report under separate cover.

INTRODUCTION

The Anvil Range Syndicate was formed in 1974 to prospect for massive lead-zinc "bedded" type ore deposits of the Faro-Vangorda-Swim Lake type. A brief reconnaissance of the Tenas Creek - Ross River - Olgie Lakes area in 1973 indicated a lithology and structural similarity with the above mentioned mineralized belt. A straight line drawn between the Faro-Vangorda-Swim Lake deposits would extend easterly through the Tenas Creek - Ross River topographic depression, an overall distance of fifty miles!

Outcrop is not abundant in the lower elevations of the Tenas Creek valley and consequently a regional geophysical, and geochemical reconnaissance based on Faro-Vangorda & Swim Lakes case history studies was proposed in the vicinity of the present WOP claims. Forty-five line miles of IP reconnaissance was completed in the Tenas Creek valley at 1500-foot line intervals. Anomalous areas were soil sampled and otherwise prospected.

Property Location, Access, Ownership

The WOP claims are located on the NTS 105 K/1 approximately nine miles northerly from the village of Ross River, Y.T. Lat: 62°03'N Long: 132°20'W in the Whitehorse Mining District.

The claims are accessible by a standard automobile via the north Canol road which passes through the WOP claims. The area of main interest is approximately one mile north of the Canol road at the 3000' elevation above sea-level.

The claims are owned by R. Chaplin, P. Eng. on behalf of the Anvil Range Syndicate comprising Dupont Explorations of Canada Ltd. and Teck Mining Group, all of Vancouver, B.C.

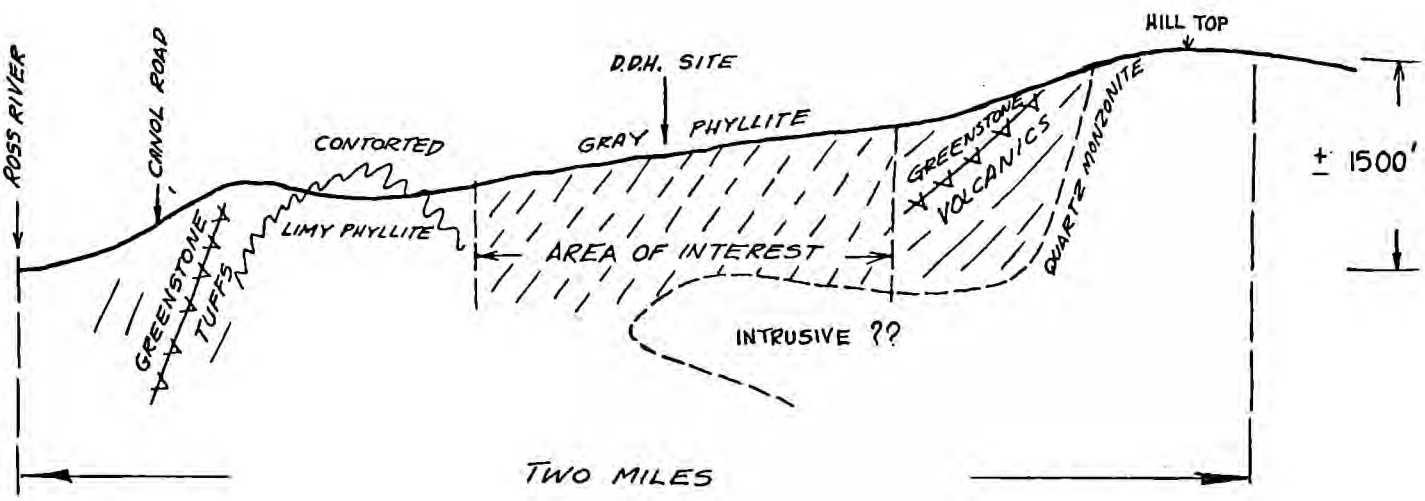
The claim names, record numbers and anniversary dates are as follows:

CLAIM	STAKER	GRANT NO.	ANNIVERSARY DATE
WOP 1-8	R. Chaplin	Y79660-67	July 22,1974
9-16	M. Berretta	Y79668-75	"
17-20	L. Ladue	Y79696-99	"
21-28	W. White	Y79676-83	"
29-36	J. Ladue	Y80208-15	August 16,1974
37-44	A. Dieckmann	Y80216-23	"
45-52	N. Dieckmann	Y80224-31	"
53-60	J. Atkinson	Y80232-39	"
61-66	H. Carson	Y80240-45	"

GEOLOGY

Approximately five percent of the land surface is rock outcrop, and the geology is imperfectly known. The rock units comprise, from north to south, a northwesterly trending quartz-monzonite intrusive, in contact (not exposed) with pyrrhotite-rich green "andesitic volcanic" with moderate south-west dipping foliations. The volcanic appears to be overlain by a grey sericitic phyllite of very low south-west dip which is similar, lithologically, to the Faro-Vangorda-Swim Lake schistose rocks which tend to weather forming gentle "dip" slopes of very little outcrop. South of the grey phyllite are a few outcrops of a light coloured highly contorted limy-phyllite of irregular strike and dip (no breccia blocks were recognized). Outcrop is more plentiful, south of the lime-rich rocks, near the Canol road and comprise green-coloured tuffaceous competent greenstones bounded by sheared chloritic borders of steep inclination.

A sketch of the likely geology in profile on the WOP claims is as follows:



The "area of interest" shown on the above sketch contains a combined induced polarization, Bouguer gravity, and base metal geochemical soil anomaly. A 1000-gamma magnetic anomaly flanks the southern part of the "area of interest", however no outcrops have been found to explain the magnetic or gravity features. Bedrock in this area consists of grey sericite phyllite which contains abundant quartz-stringers containing irregularly disseminated pyrrhotite with very minor chalcopyrite forming up to 5% of the vein material. At least two generations of quartz-veins may be observed in the drill core. The sulphide mineralization in veins contains rare larger clots of arsenopyrite with very low gold values. Disseminated scheelite is common in some thin quartz-stringers. The phyllite adjacent to the quartz stringers contains disseminated pyrrhotite in a thin brown biotite border. On weathered outcrop, revealed in trenches, irregularly light cream to rusty alteration areas are common, not as a pervasive zone, but rather a widespread number of narrow alteration zones containing pyrrhotite, biotite, secondary sericite and quartz. The area of interest is approximately 5000 feet long and 2500 feet across, and coincides with the IP, Bouguer gravity and soil geochemical anomaly.

Two surface vertical diamond drill holes were completed at line 32E-46N (318 feet deep) and at line 20E-44N (480 feet deep). The core (95% recovery) consists

of grey phyllite and minor, slightly hornfelsed tuffaceous greenstone. Quartz stringers and narrow silicified zones, commonly parallel to the rock foliation, occur throughout the drill holes. No obvious explanation of the gravity anomaly was observed in the drill core. Rock densities determined from outcrops and drill core varied slightly between 2.7 and 2.9 grams per cubic centimeter. The quartz monzonite intrusive rocks possess a density of 2.65.

No indication of massive lead-zinc sulphide mineralization was observed. One small light coloured float boulder of silicified phyllite contained 1/16" stringers of chalcopyrite along relict foliation planes.

GEOCHEMISTRY

Approximately 250 soil samples were collected from the WOP claims on the cut grid. The soil was obtained from immediately below the white volcanic ash layer and contained very little organic matter. The soil consists of a brown to reddish mineral soil containing numerous fragments and "buttons" of local country rock. The samples were dried, sieved and tested for copper, lead, and zinc using atomic absorption on hot aqua regia extractions. The Ph was slightly acidic. Background values for copper, lead and zinc are 50, 40 and 250 ppm respectively.

The data was plotted on a single map by combining the sum of the individual metal contents as times above background. Anomalous zinc quantities with no corresponding copper or lead anomaly were discarded for plotting purposes.

Zinc-only anomalous soils occurred downhill from the copper-lead-zinc-rich soils. The highest combined values varied up to seven times background, forming three distinct bands, approximately conformable with the IP and gravity features.

Soil sample rejects were later analysed for tungsten and indicated an anomaly approximately coincident with the base-metal anomalous areas. No high molybdenum was indicated from selective tests.

All samples were tested by Acme Analytical Laboratories Ltd. in Ross River, Y.T. and in Burnaby, B.C.

The cause of the goechemical anomaly is due to concentrations of pyrrhotite, scheelite and chalcopyrite in near-surface bedrock and is coincident with an IP and Bouguer gravity anomaly.

GEOPHYSICAL SURVEYS

Please see the Gravity Survey Report by C. Ager under separate cover.

INDUCED POLARIZATION

Approximately 15 line miles of pole-dipole frequency-type induced polarization survey was completed on the property. A GEOSCIENCE frequency-type unit with a 2.5 KW generator operated on a 3.0 - 0.1 frequency range using a 400-foot spread to the first and second separation. Apparent resistivities were calculated in ohm meters.

All receiver deviations were obtained by maintaining power supply at currents between 0.2 and 1 ampere. Transmitter deviations in excess of one percent were not accepted and all such stations were re-read.

The IP effect, called the percent frequency effect (P.F.E.) on the 3.0 - 0.1 cps frequency range, was obtained by deducting transmitter deviations from the receiver deviation.

The background PFE vary up to 10% and two anomalous areas were obtained. One, centering on line 20E and 40N, has a peak of 25% and is coincident with the Bouguer gravity high and soil geochemical anomaly. A second PFE anomaly centered on L20W and 30N is unexplained to date. The former anomaly is clearly due to the disseminated sulphides described in the geology section.

Note that the PFE map shows a plot of the N=2 separation, and consequently indicates an averaging effect from surface down to approximately 400 feet below surface. (In keeping with apparent resistivity range.)

A comparison of the N=1 and N=2 data indicates that the anomaly of known interest dips gently beneath the surface in a westerly direction.

The apparent resistivity plot indicates that the two PFE anomalous zones are due to two different causes in that the 20E - 40N anomaly has a corresponding resistivity low due probably to grey phyllitic rocks whereas the 20W - 30N anomaly is more likely caused by disseminated sulphide in a more competent, more resistive rock, with some possible associated slightly magnetic mineral.

MAGNETOMETER SURVEYS

A ground magnetometer survey was performed with an M-F-1 fluxgate magnetometer with readings at 200-foot intervals. Diurnal variations up to 100 gammas were ignored.

The known, main area of interest lies between a localized magnetic low of 800-1000 gammas on the north, and a linear magnetic high up to 2000 gammas to the south.

In profile, the magnetic pattern suggests a dipole effect due to a slightly magnetic mass that dips gently to the southwest. The cause of the magnetic anomaly has not been determined.

CONCLUSIONS

Base metal concentrations do occur in the Tenas Creek - Ross River trend which is located on a linear extension of the Faro-Vangorda-Swim Lake trend, a distance of approximately 50 miles and parallel to the Tintina Trench.

The mineralization found on the WOP claims tends to be iron, copper and tungsten with very minor gold and silver values. No hint of a large concordant lead-zinc deposit is readily apparent. The area of known mineralization is large but tests of the upper 400 feet below surface to date have not revealed any economic concentrations of mineralization.

All the geochemical and IP results may be explained by the work done, however the gravity and magnetic patterns are unexplained.

It is possible that a large lead-zinc deposit occurs on the claims at some depth in excess of 500 feet below surface.

The writer believed that a copper-tungsten deposit may similarly exist at depth in excess of 500 feet below surface, possibly as deep as 1000 feet.

With reference to the geologic map and the general cross section provided, it may be that the contorted limy-phyllite, underlies the grey phyllite and possibly contacts a buried quartz-monzonite intrusive contact,

producing a large, deeply buried skarn zone that could explain the gravity anomaly and magnetic pattern.

RECOMMENDATIONS

Two deep diamond drill holes are recommended to further test the Bouguer gravity anomaly to a depth of 1500 feet. The two vertical holes should be collared in the central portion of the anomaly and should be of N-Q size using mud.

The cost for such a program would be approximately $20.00 per foot in terms of 1975 prices.

Respectfully submitted,

R.E. Chaplin, P. Eng.

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Personnel Involved in Project

M. Berretta	- Geophysicist & Lecturer at BCIT in Burnaby, B.C. June - September 1975
C. Ager, PhD	- Geophysicist August 1975
G. Ellis, BASc	- Geophysicist August 1975
C. Green	- Laborer & surveyors assistant August 1975
S. Atkinson	- Laborer June - August 1975
L. Ladue	- Laborer June - August 1975
G. Peter	- Laborer June - August 1975
U. Carson	- Cat operator August 1975
R. Chaplin, BASc	- Geological Engineer June - September 1975
R. Voisine	- Line cutter August 1975
Coates Enterprises Ltd.	- Diamond drillers September 1975

EXPENDITURES ON WOP CLAIMS FOR

ASSESSMENT WORK PURPOSES

1974 SEASON

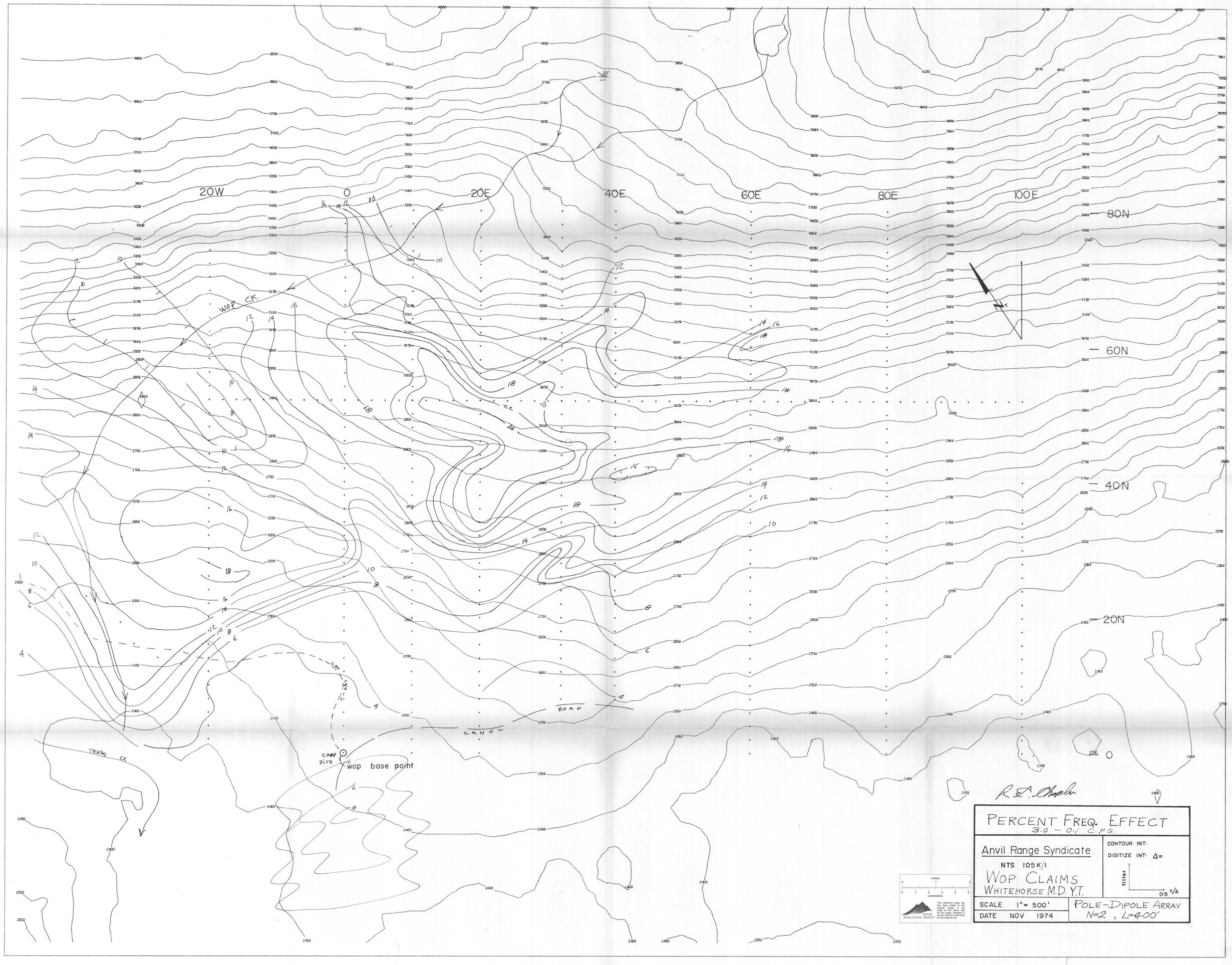
Date	Detail	Amount
14/6/74	Riverside Grocery - Whse	$ 1,398.84
26/6/74	Wages - L. Ladue, G. Peter, S. Atkinson, Dr. Berretta, G. Gray, J. Hayes	4,190.00
2/7/74	Prof. Geo. Services	5,050.00
7/7/74	ACME Geochem	186.94
7/7/74	Welcome Inn	368.55
6/8/74	Ross River Store	900.00
20/8/74	Listers (saws)	317.00
25/8/74	C. Matsen (500)	200.00
25/8/74	Crew Pay	1,064.00
26/8/74	Arctic Tracking (saw)	46.10
26/8/74	Ross River Store	335.66
26/8/74	L. Ladue (pro rated)	200.00
26/8/74	S. Atkinson (pro rated)	80.00
29/8/74	Bombardier	600.00
30/8/74	ACME Geochem	608.05
31/8/74	Welcome Inn - meals	360.95
31/8/74	Welcome Inn - meals	308.50
1/9/74	S. Atkinson	175.00
2/9/74	Bombardier	100.00
5/9/74	U. Carson	200.00
6/9/74	Eastern Assoc. Line Cutting	1,515.00
18/9/74	G. Ellis	1,000.00
21/9/74	Drillers extra pay	725.00
21/9/74	S. Atkinson & Family	1,000.00
21/9/74	G. Peter	490.00
21/9/74	G. Gray (pro rated)	650.00
22/9/74	L. Ladue	200.00
22/9/74	Canol Petroleum	60.00
23/9/74	Welcome Inn	1,702.00
27/9/74	Whitehorse Esso (pro rated)	100.00
28/9/74	Lester Saw #2	317.90
3/10/74	Whitehorse Assay	117.00
3/10/74	Whitehorse Esso (pro rate)	150.00
28/10/74	M. Berretta	2,000.00
28/10/74	Cat work	245.04
29/10/74	Welcome Inn - drillers	2,412.05
	Prof. Geo Services (pro rated) July to September 1974	8,175.00
	Personal Expenses of R. Chaplin (pro rate)	562.00
	PGS Cheques (pro rate)	1,807.00
	Camp Supplies from Deakin Equipment (pro rate)	2,463.72
	Diamond Drilling, Coates Enterprises	15,693.00
	Gravity Survey, C. Ager (pro rate)	8,625.00
	TOTAL	$66,699.30

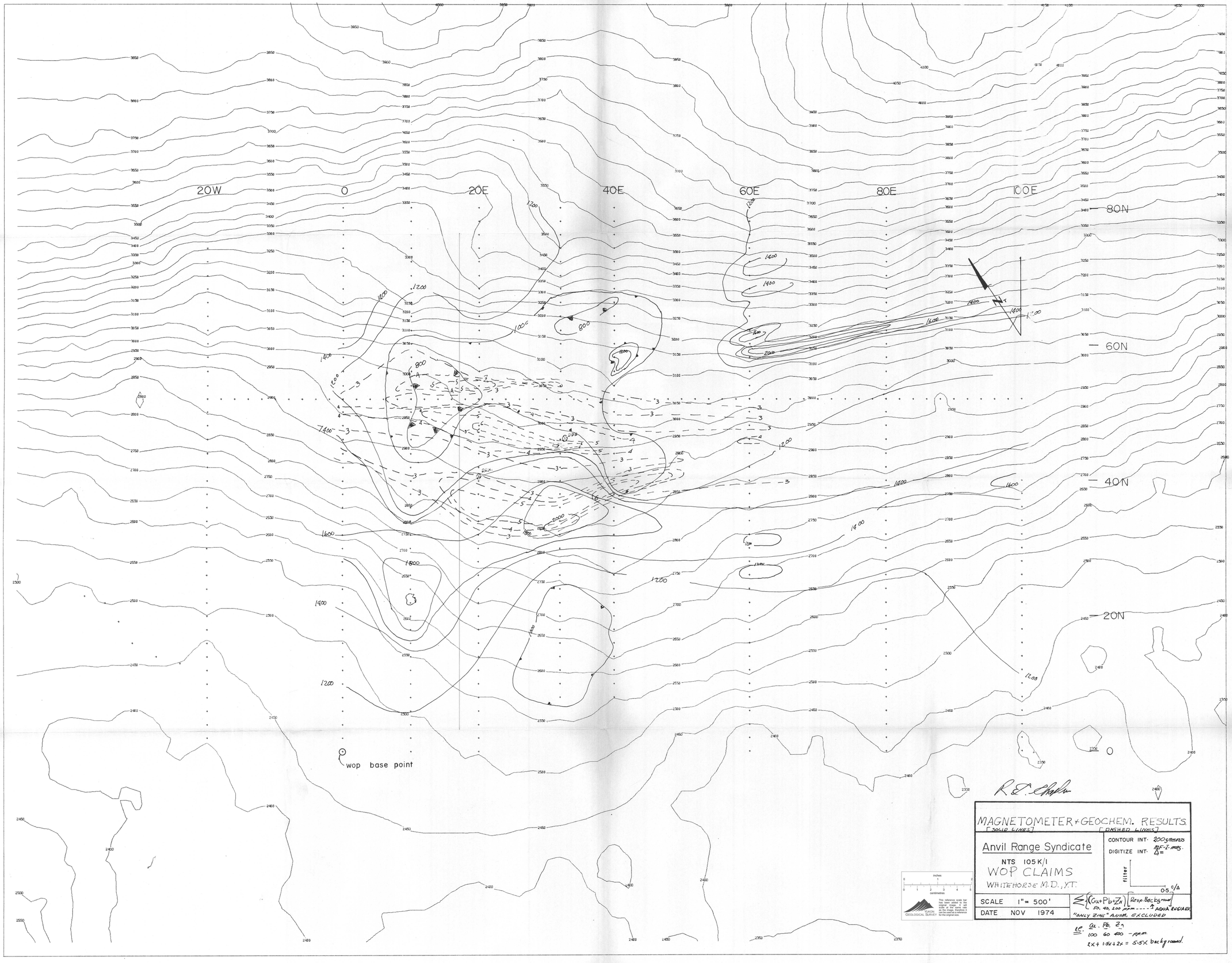
WRITER'S QUALIFICATIONS

- Geological Engineer BASc - U.B.C. - 1958
- Professional Engineer - B.C. & pending in Y.T.
- 24 years experience in mineral exploration

Yours truly,

R.E. Chaplin, P. Eng.


20W
0
20E
40E
60E
80E
100E
80N
60N
40N
20N
0
WOP CK.
TENAS CK
CAMP SITE
wop base point
ROAD
CANOL
N
PERCENT FREQ. EFFECT
3.0 – 0.1 C.P.S.
Anvil Range Syndicate
NTS 105K/1
WOP CLAIMS
WHITEHORSE M.D. Y.T.
CONTOUR INT.
DIGITIZE INT. Δ=
filter
0.5 c/Δ
SCALE 1" = 500'
DATE NOV 1974
POLE-DIPOLE ARRAY
N=2 , L=400'
inches
centimetres
YUKON GEOLOGICAL SURVEY
This reference scale bar has been added to the original image. It will scale at the same rate as the image, therefore it can be used as a reference for the original size.


20W
0
20E
40E
60E
80E
100E
80N
60N
40N
20N
wop base point
MAGNETOMETER + GEOCHEM. RESULTS.
[SOLID LINES]
[DASHED LINES]
Anvil Range Syndicate
NTS 105K/1
WOP CLAIMS
WHITEHORSE M.D., Y.T.
CONTOUR INT. 200 gammas
DIGITIZE INT. 1/4" = 1-mag.
filter
0.5 c/A
SCALE 1" = 500'
DATE NOV 1974
Σ{(Cu+Pb+Zn) [Resp. Background 50, 40, 200 ppm] ---- AQUA REGIA}
"ONLY ZINC" ANOM. EXCLUDED
i.e. Cu. Pb. Zn
100 60 400 - ppm.
2X + 1.5X + 2X = 5.5X background.
inches
centimetres
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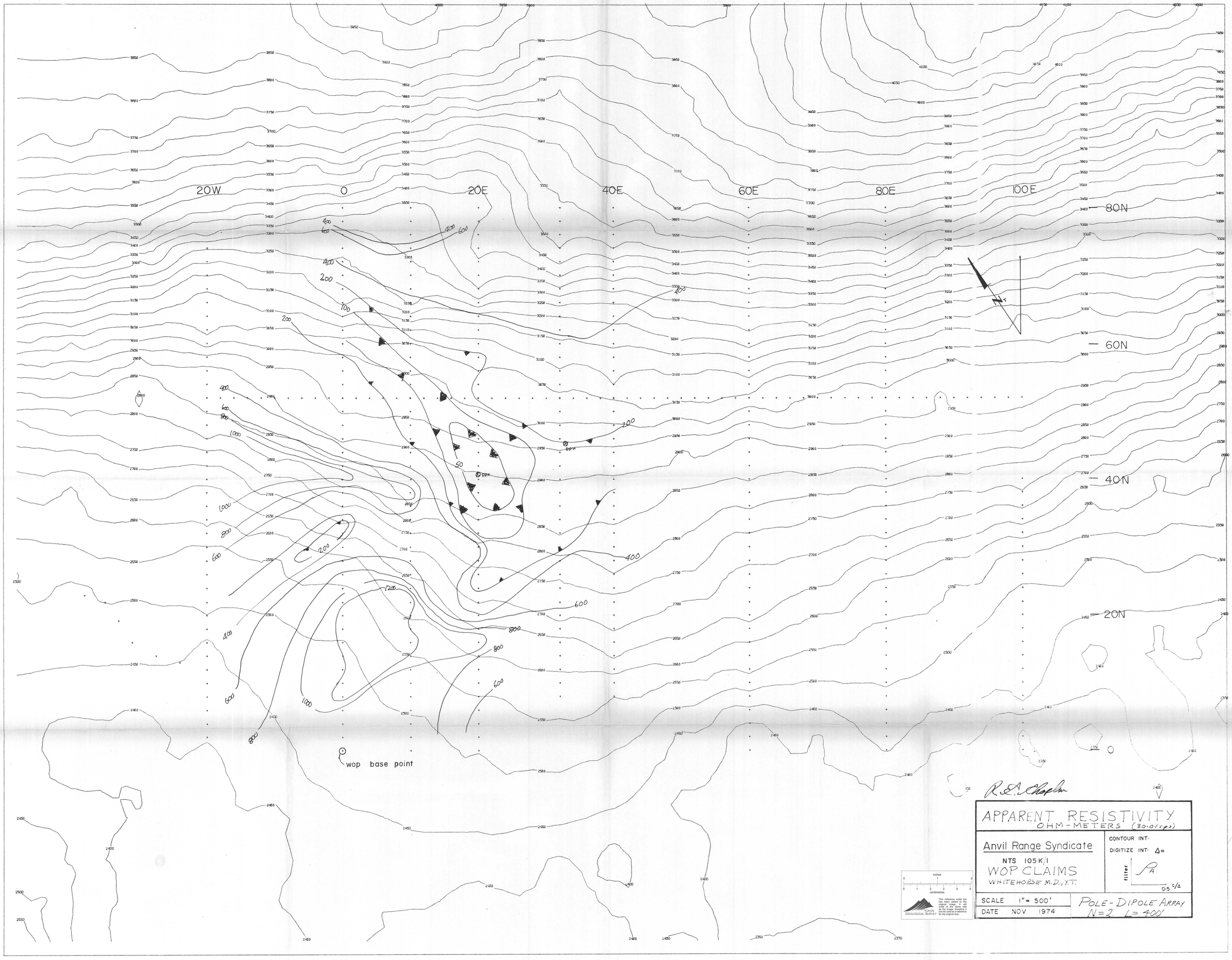
YUKON GEOLOGICAL SURVEY


20W
0
20E
40E
60E
80E
100E
80N
60N
40N
20N
0
wop base point
APPARENT RESISTIVITY
OHM-METERS (3.0-0.1 cps)
Anvil Range Syndicate
NTS 105K/1
WOP CLAIMS
WHITEHORSE M.D., Y.T.
CONTOUR INT.
DIGITIZE INT. Δ=
filter
0.5 c/a
SCALE 1" = 500'
DATE NOV 1974
POLE-DIPOLE ARRAY
N=2 L=400'
YUKON GEOLOGICAL SURVEY
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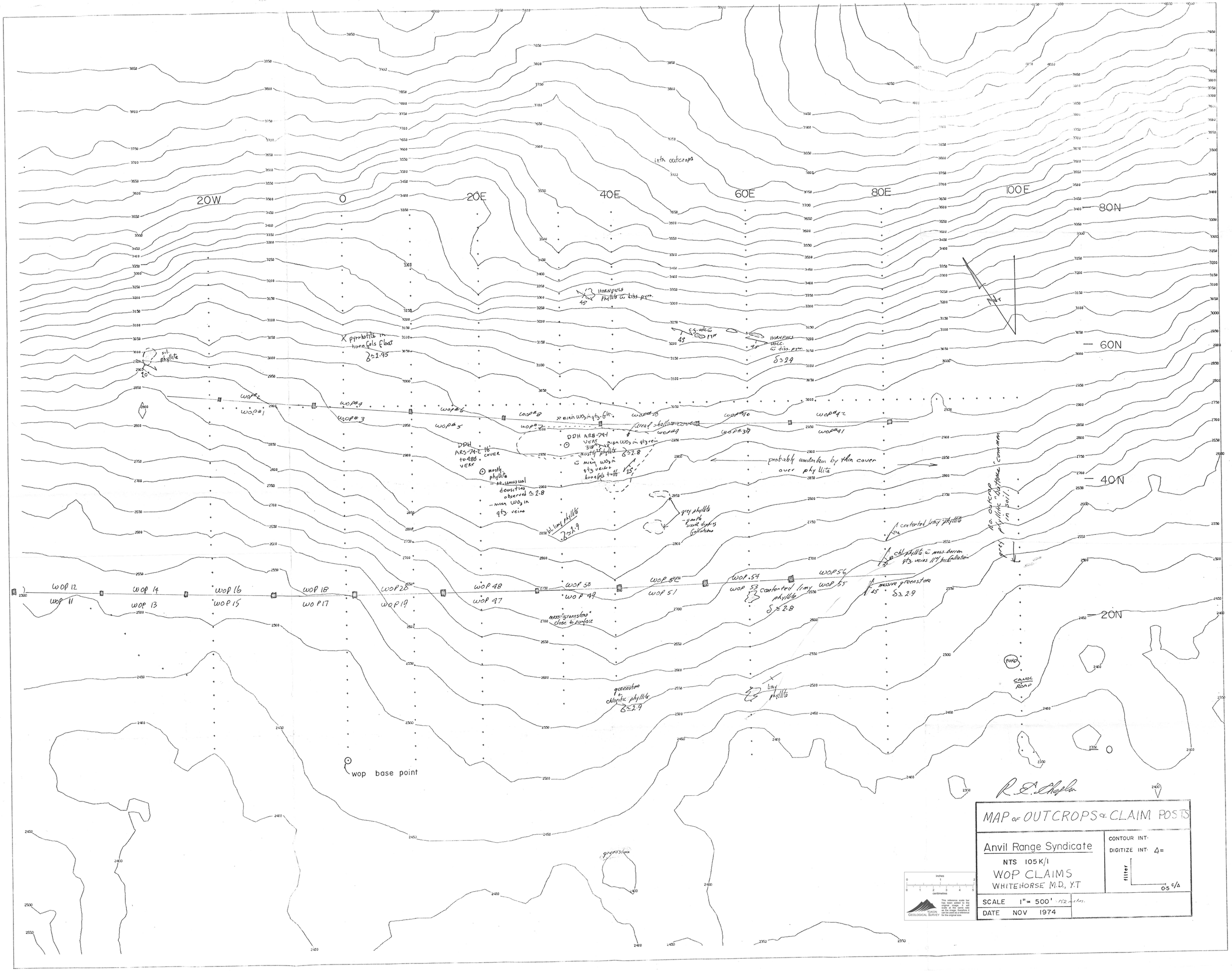
20W
0
20E
40E
60E
80E
100E
80N
60N
40N
20N
14th outcrops
HORNFELS
phyllite w diss. pyr.
45
c.g. vole w
pyr
HORNFELS
vole.
w diss. pyr.
δ≃2.4
X pyrrhotite in hornfels float
δ≃2.95
sil. phyllite
20
wop#1
wop#2
wop#3
wop#4
wop#5
wop#6
wop#7
wop#8
wop#9
wop#10
wop#37
wop#40
wop#41
wop#42
x minor WO3 in qtz-filt.
cheap shallow cover
DDH ARS-74-2 16 COVER to 180 VERT
DDH ARS-74-1 VERT 310 mign WO3 in qtz vein
mostly phyllite
δ≃2.8
w minor WO3 in qtz veins + hornfels tuff
45
mostly phyllite
no unusual densities observed ≃2.8
minor WO3 in qtz veins
probably underlain by thin cover over phyllite
grey phyllite
- gentle scale dip-ss foliations
lt. limy phyllite
δ≃2.9
contorted limy phyllite
chl. phyllite w mass. boron qtz. veins ⊥ to foliation
massive greenstone
45
δ≥2.9
no outcrop phyllitic "bedrock" common in soil.
wop 12
wop 11
wop 14
wop 13
wop 16
wop 15
wop 18
wop 17
wop 20
wop 19
wop 48
wop 47
wop 50
wop 49
wop 52
wop 51
wop 54
wop 53
wop 56
wop 55
contorted limy phyllite
δ≃2.8
massive greenstone close to surface
greenstone
chloritic phyllite
δ≃2.9
limy phyllite
POND
CAMOL ROAD
wop base point
R. E. Chaplin
MAP OF OUTCROPS & CLAIM POSTS
Anvil Range Syndicate
NTS 105K/1
WOP CLAIMS
WHITEHORSE M.D., Y.T
CONTOUR INT·
DIGITIZE INT· Δ=
filter
0·5 c/Δ
SCALE 1" = 500' 1:12 metres
DATE NOV 1974
inches
centimetres
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YUKON GEOLOGICAL SURVEY