FILE COPY

GEOLOGICAL REPORT

EROS CLAIM GROUP

Watson Lake Mining District

Yukon Territory

N.T.S. 105-F-9

Latitude: 61° 36' N

Longitude: 132° 21' W

Pelmac Project

By:

L. C. Pigage, Ph.D.

CYPRUS ANVIL MINING CORPORATION

December, 1980

Field Work Completed from July - August, 1980

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LIST OF CLAIMS

Claims	Grant No's	Recording Dates
Eros 1 - 8	YA 617 - YA 624	August 23, 1976

GEOLOGICAL REPORT

Eros Claim Group

INTRODUCTION

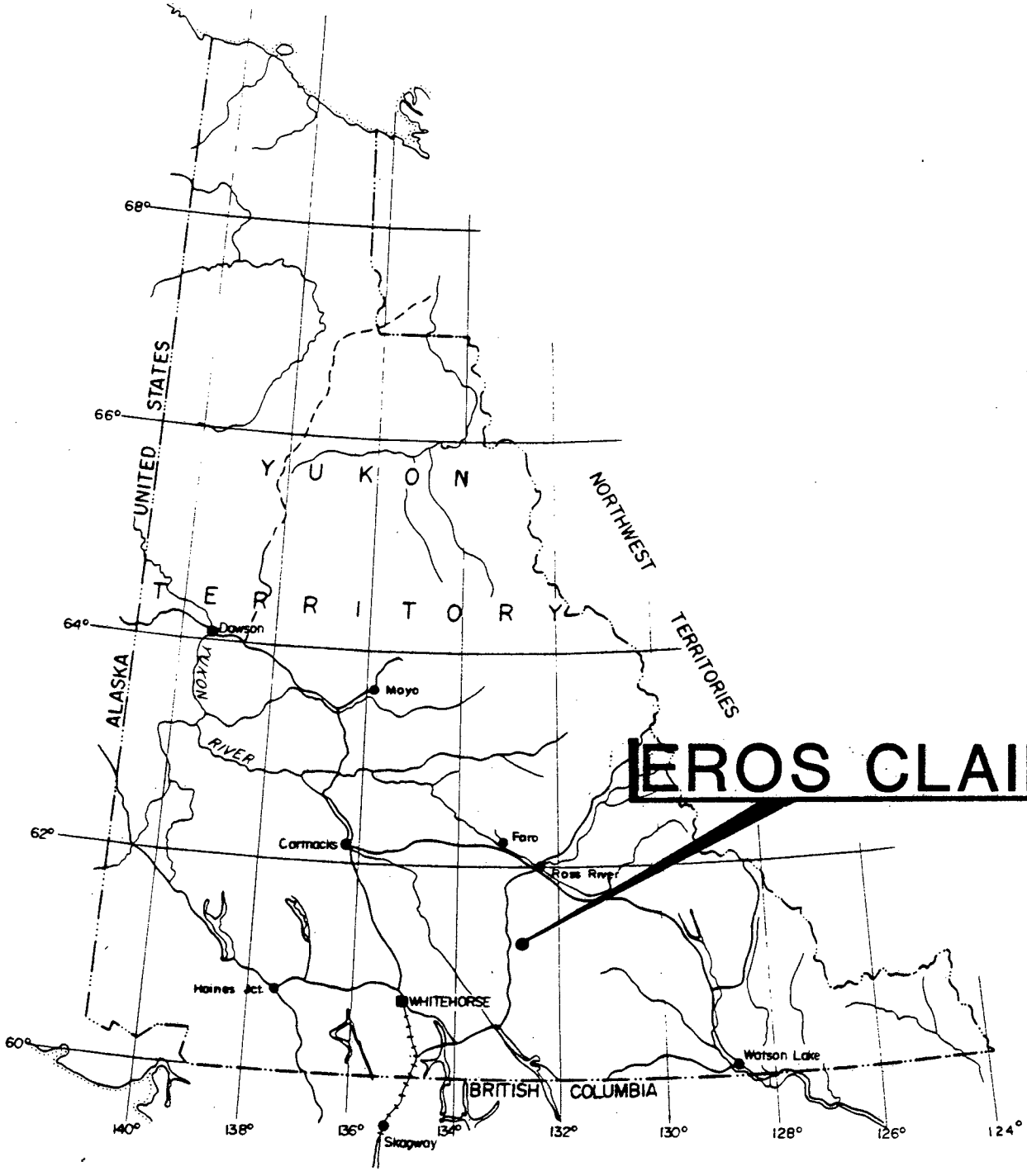
The EROS Claim Group was staked in August, 1976 during a regional joint venture prospecting program with Hudson's Bay Oil and Gas. It consists of 8 contiguous claims which cover coincident Pb and Zn soil geochemical anomalies. The claims are underlain by Devonian and Mississippian black shales and felsic volcanics.

The claims are located on a tributary of the Ketza River about 43 km (27 miles) south of the town of Ross River, Y.T. (Figure 1). Slopes are moderate to steep; flora is typical for alpine meadows. At present access is by helicopter.

PREVIOUS WORK

An exploratory soil sampling program was conducted concurrently with the staking in 1976. Results indicated that the area was highly anomalous for Zn, although Pb and Cu values were below background. In 1977 systematic soil geochemical and ground geophysical surveys were conducted on a flagged grid (Figures 2 and 3). The soil survey outlined coincident Pb and Zn geochemical anomalies. The geophysical surveys were less definitive, but indicated several broad EM conductors (Dean 1977).

In 1978 geologic mapping related the property geology to the regional stratigraphic and structural framework. Soil and chip sampling at the



CYPRUS ANVIL MINING CORPORATION

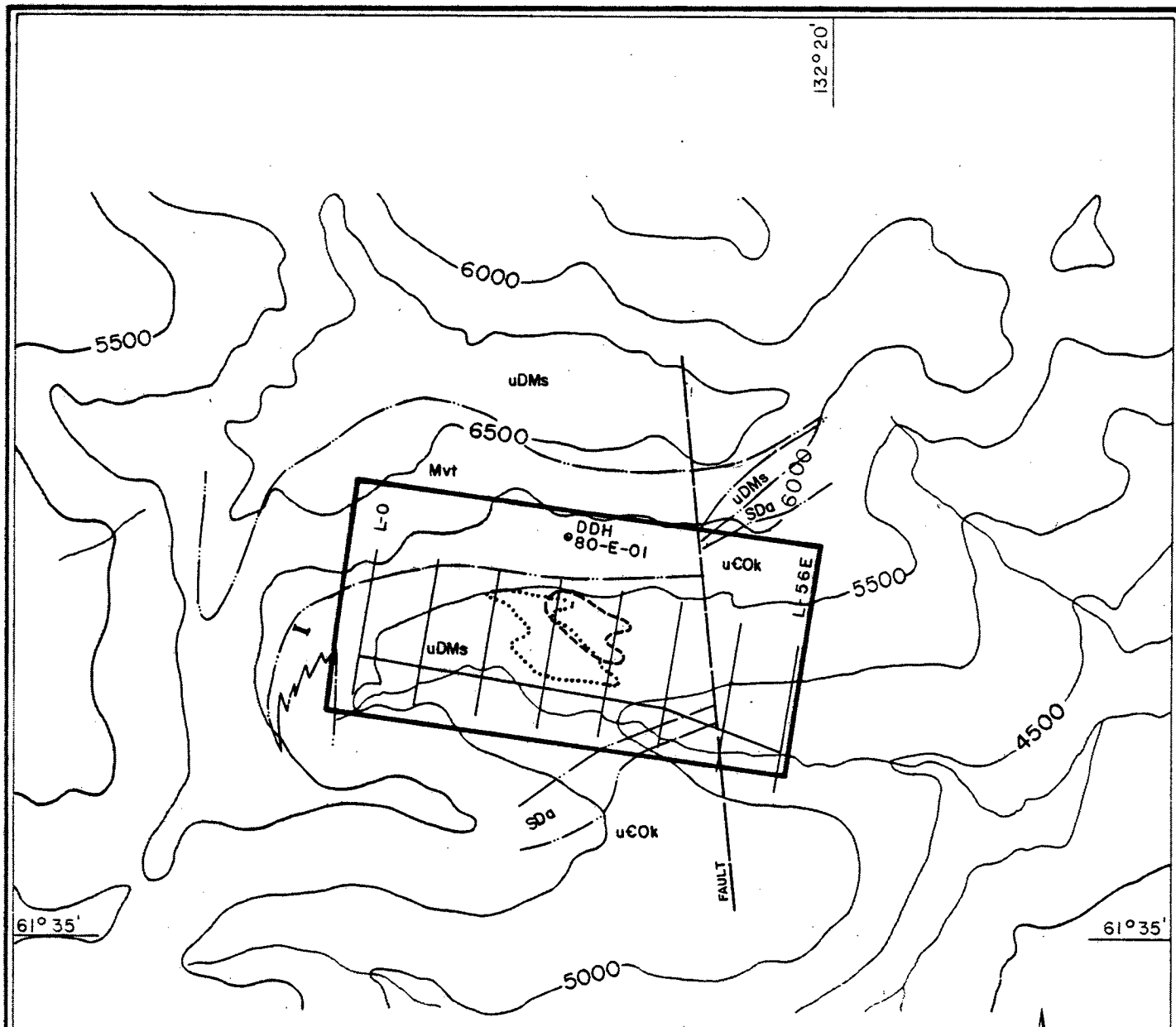
LOCATION MAP

YUKON

SCALE : 1" = 100 MILES

FIGURE 1

NTS 105-F-9



LEGEND

MISSISSIPPIAN

Mvt — FELSIC PYROCLASTICS

LATE DEVONIAN-MISSISSIPPIAN

uDMs — 'BLACK CLASTIC UNIT'

BLACK SHALE, MINOR FELSIC TUFFS

SILURIAN-DEVONIAN

SDa — ASKIN GROUP

DOLOMITE, DOLOMITIC SANDSTONE

LATE CAMBRIAN-ORDOVICIAN

COk — KECHIKA FORMATION

CALCAREOUS PHYLLITE, MINOR METAVOLCANICS

---- 1000 ppm Zn

..... 500 ppm Pb

0 2000 4000

FEET

CYPRUS ANVIL MINING CORPORATION

PELMAC PROJECT

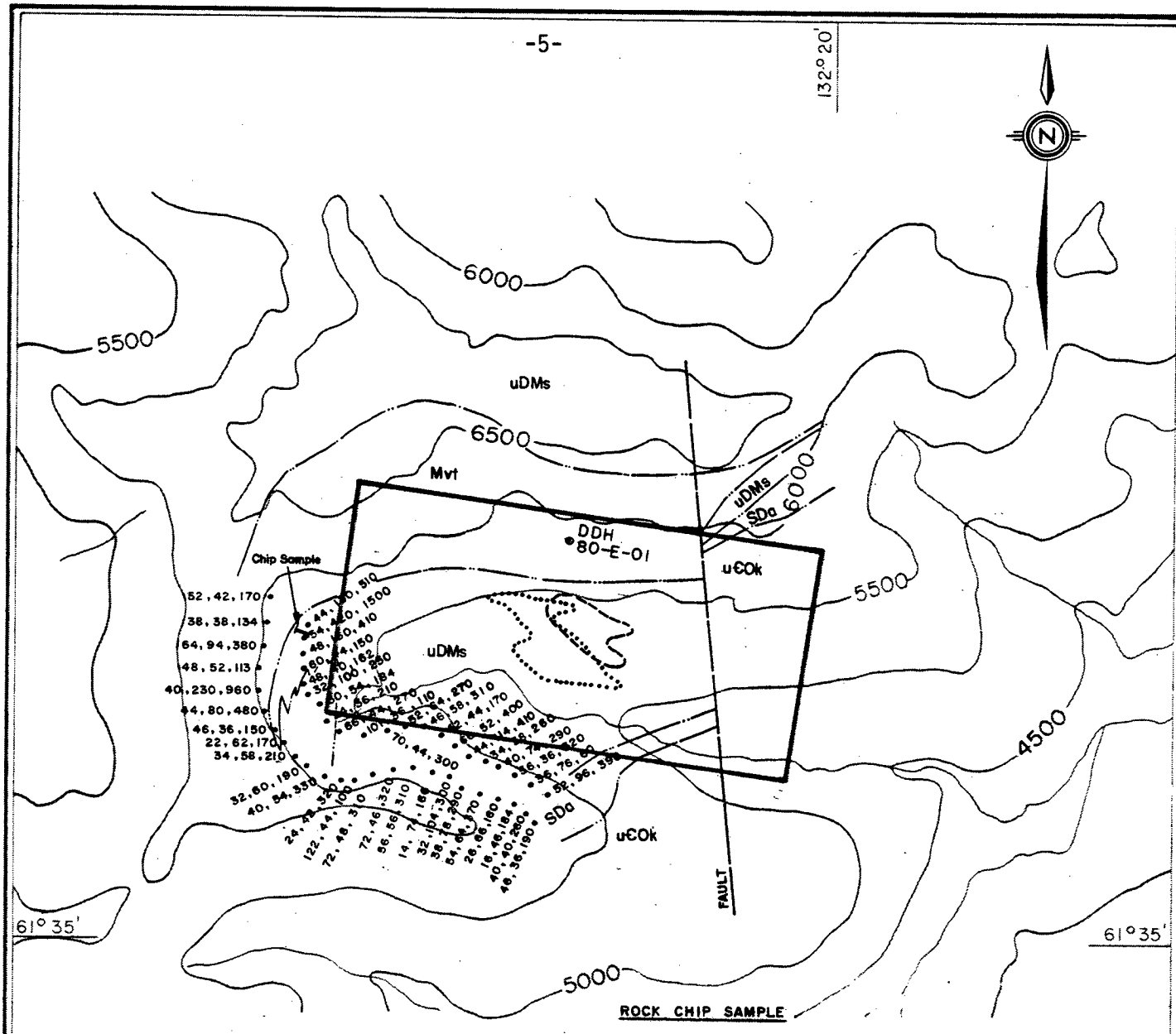
EROS CLAIMS

1977 GEOCHEMICAL & GEOPHYSICAL GRID

NTS 105 F - 9
SURVEY BY L.P.
DRAWN BY C.L.C.

DATE: Nov. 24/80

FIGURE: 2



LEGEND

MISSISSIPPIAN

Mvt — FELSIC PYROCLASTICS

LATE DEVONIAN-MISSISSIPPIAN

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BLACK SHALE, MINOR FELSIC TUFFS

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DOLOMITE, DOLOMITIC SANDSTONE

LATE CAMBRIAN-ORDOVICIAN

€Ok — KECHIKA FORMATION

CALCAREOUS PHYLLITE, MINOR METAVOLCANICS

---- 1000 ppm Zn

..... 500 ppm Pb

0 2000 4000

FEET

ROCK CHIP SAMPLE

0 – 2 m	14, 52, 86
2 – 4	20, 68, 142
4 – 5	22, 62, 50
5 – 7	62, 360, 3100
7 – 9	86, 790, 880
9 – 11	54, 1800, 1600
11 – 13	86, 156, 2400
13 – 15	16, 160, 1400
15 – 17	84, 230, 2500
17 – 19	14, 84, 1200
19 – 21	10, 70, 380
21 – 23	12, 260, 1600
23 – 25	16, 310, 1800
25 – 27	14, 210, 3300
27 – 29	16, 270, 1600
29 – 31	16, 580, 1900
31 – 33	16, 480, 3100
33 – 35	16, 2000, 3300
35 – 57	16, 142, 960

CHIP SAMPLE

Mvt — 0m

uDMs — 37m

132°20'

CYPRUS ANVIL MINING CORPORATION

PELMAC PROJECT

EROS CLAIMS

1978 SOIL GEOCHEMISTRY RESULTS Cu, Pb, Zn

NTS 105 F-9
SURVEY BY L.P.
DRAWN BY C. L. C.

DATE Nov. 24/80
FIGURE: 4

same time indicated that a short interval of black shales immediately underlying the Mississippian volcanics near the property contained anomalously high Pb and Zn assay values (Figure 4).

GEOLOGY

Lithologic units in the vicinity of the EROS claims are presented in Figure 5 and Table 1. They range in age from late Cambrian to Mississippian. Although present regionally, the Ordovician-Silurian Road River Formation does not occur in the immediate vicinity of the claim group. Instead the Askin Group appears to lie unconformably on the Cambro-Ordovician calcareous phyllites of the Kechika Formation.

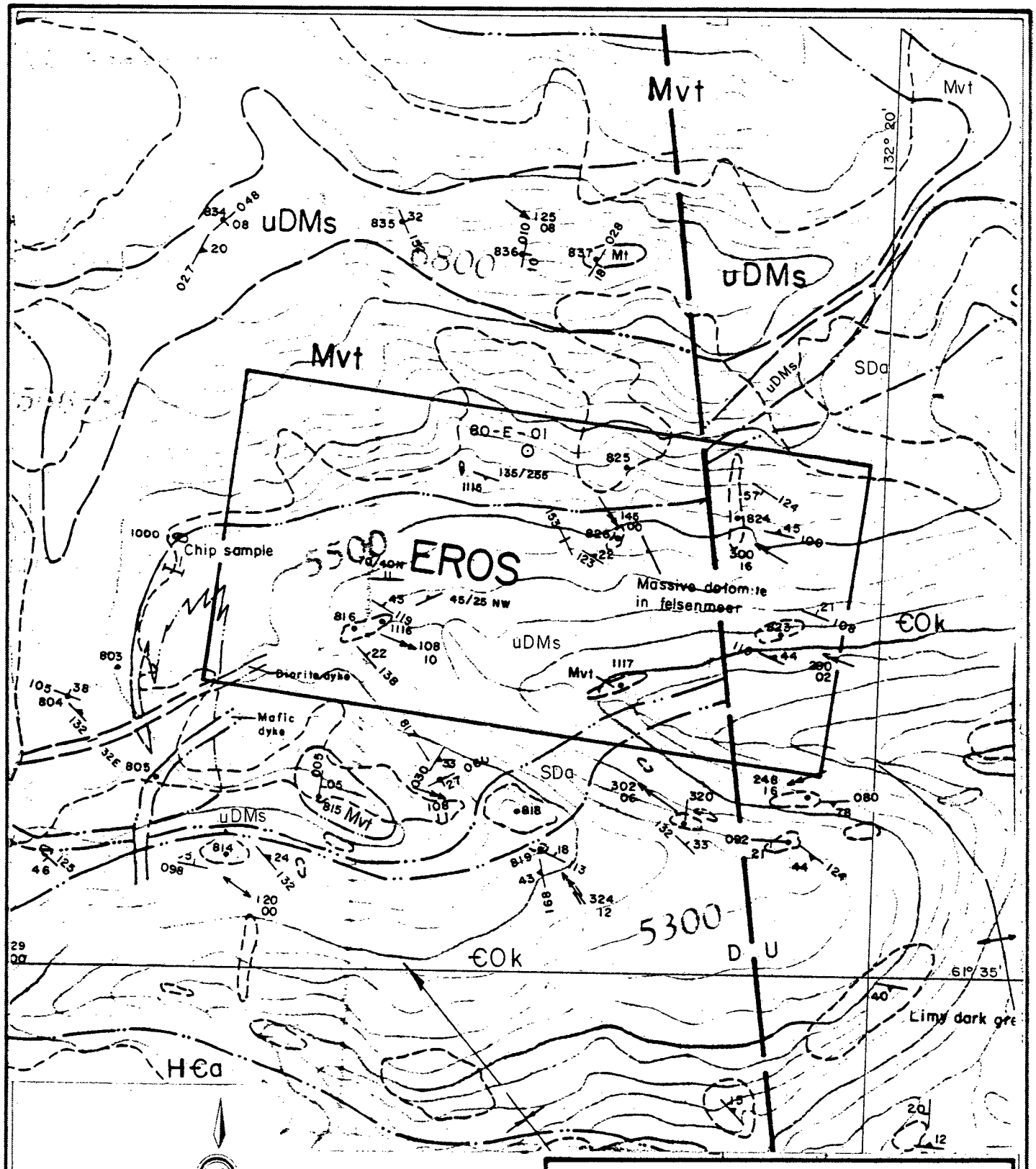
Structurally the EROS claims contain two recognized phases of deformation, D_1 and D_2 . The earlier D_1 deformation formed the dominant, pervasive S_1 axial plane schistosity. In most cases S_0 compositional layering is subparallel to the S_1 foliation. This is especially true for the incompetent phyllites of the Kechika Formation and the "Black Clastic Unit". D_1 minor folds were not recognized in the immediate area. Figure 5 shows that S_0 and S_1 generally dip gently to moderately north.

Locally S_0 and S_1 surfaces have variable orientation because of folding related to the later D_2 deformation. D_2 minor folds plunge gently northwest or southeast (Figure 5) and are typically accompanied by an S_2 axial plane crenulation cleavage.

The north-trending fault on the east side of the claim group is required to account for the juxtaposition of the Black Clastic Unit and the Kechika Formation. This fault also explains the apparent extremely rapid thinning of the Mvt on the northeast corner of the claims and the discontinuity of the Askin Group in this region.

1980 FIELD PROGRAM

Chip sampling in 1978 delineated a short stratigraphic interval just west of the EROS claims with anomalously high Pb and Zn values (Figure 4,5). The interval sampled consisted of black phyllites of the "Black Clastic



CYPRUS ANVIL MINING CORPORATION

PELMAC PROJECT

EROS CLAIMS

GEOLOGICAL MAP

NTS 105 F - 9
SURVEY BY L.C.P.
DRAWN BY r.w.r.

DATE: NOV. 1980

FIGURE 5

TABLE I

STRATIGRAPHIC COLUMN

LATE TRIASSIC

uTR_1 — BUFF TO GREY SILTY LIMESTONES. UNIT OCCURS ONLY IN THE VICINITY OF THE HOWRU CLAIMS.

PALEOZOIC

Pzu — SERPENTINITES, ULTRAMAFICS, CHLORITIC PHYLLITES OF PALEOZOIC (?) AGE.

CARBONIFEROUS (?)

C_{sl} — BUFF TO BROWN SILTSTONE AND SHALE. UNIT OCCURS ONLY IN THE VICINITY OF THE HOWRU CLAIMS.

MISSISSIPPIAN

My — FINE TO COARSE-GRAINED HORNEBLENDE SYENITE.

Mt — TAN TO PALE GREY BEDDED CHERTS. MINOR DARK GREY CHERT, BLACK SHALE AND LIMESTONE.

Mvt — PALE GREY, BROWN OR GREENISH FELSIC TO INTERMEDIATE TUFFS AND LAPILLI TUFFS. COMMONLY WEATHERS BROWN TO ORANGE BECAUSE OF DISSEMINATED PYRITE. MINOR DYKES, SILLS AND FLOWS. THIN INTERBANDS OF CHERT AND BLACK SHALE.

LATE DEVONIAN - MISSISSIPPIAN

'BLACK CLASTIC UNIT'

uDM_s — BLACK SHALE WITH CHERT GRANULE GRIT INTERBANDS. TYPICALLY SHALE CONTAINS THIN INTERBANDS OF MEDIUM GREY, SLIGHTLY PYRITIC SILTSTONE. MINOR INTERCALATED CHERT (MT) AND FELSIC TO INTERMEDIATE TUFFS (MVT).

SILURIAN - DEVONIAN

ASKIN GROUP

SDa — PALE GREY TO BUFF SANDY DOLOMITE TO DOLOMITIC OR CALCAREOUS ORTHOQUARTZITE. MINOR INTERBANDS OF DARK BROWN TO BLACK SHALE.

ORDOVICIAN - SILURIAN

ROAD RIVER FORMATION

OS_{rr} — BROWN TO BLACK SILTSTONE AND SHALE. LOCALLY UNIT IS SLIGHTLY TO MODERATELY CALCAREOUS. TYPICALLY PYRITIC.

LATE CAMBRIAN - ORDOVICIAN

KECHIKA FORMATION - VOLCANICS

ϵO_{kv} — FOLIATED BASIC TO INTERMEDIATE VOLCANIC FLOWS AND TUFFS WITH MINOR INTERCALATED CALCAREOUS, SILVERY PHYLLITES. SOME FLOWS ARE HIGHLY AMYGDALOIDAL.

KECHIKA FORMATION

ϵO_k — CALCAREOUS PHYLLITE AND SILTY LIMESTONE WITH MINOR BASIC TO INTERMEDIATE VOLCANIC FLOWS AND TUFFS. UNIT TYPICALLY WEATHERS TO A BUFF OR SILVERY COLOUR.

TABLE I (CONT.)

HADRYNIAN - CAMBRIAN

$H\epsilon_a$	ATAN GROUP INTERLAYERED LIMESTONE, DOLOMITE, ORTHOQUARTZITE, AND PHYLLITE. NOT MAPPED IN DETAIL.

CYPRUS ANVIL MINING CORPORATION

DIAMOND DRILL CORE LOG

Hole Number: 80-E-01

Fabric Orientation Diagram:

Project: PELMAC (Eros Claims)

Location: N.T.S. 105-F-9

Claim: EROS 3

Terr. Plane Co-ords.: Latitude 61° 36' N

Longitude 132° 22' W

Grid Co-ords.: L 24E, 19+60N

Inclination: 90°

All symmetry determinations looking _____ with _____ dipping _____ with dip azimuth _____.

Elevation: 5,800 ft.

Total Depth: 887 ft. (270.3 metres)

Purpose: _____

Logged by: L.C. Pigage and J. Mortensen Date(s) Logged: Aug. 11 - Aug. 14, 1980

Drilling Contractor: Arctic Diamond Drilling Core:

Size	From	To
BQ	0	887

Collar Cased and Capped: _____

Started: Aug. 8, 1980 Completed: Aug. 13, 1980

SUMMARY LOG

DDH 80-E-01

	Metres	
1.	0 - 25.1	Triconed in overburden - no core.
2.	25.1 - 36.3	Medium grey lapilli tuff. Creamy white volcanic fragments average 2-3mm in diameter and range up to 30 mm in diameter. Matrix is siliceous with anastomosing muscovite-chlorite micaceous laminae. Pyrite occurs as thin fine-grained bands and as larger disseminated grains.
3.	36.3 - 38.8	Lapilli tuff similar to Unit #2. Contains abundant (up to 50%) fine-grained disseminated pyrite.
4.	38.8 - 39.3	Lapilli tuff similar to Unit #2. Lapilli fragments occur in only minor amounts.
5.	39.3 - 111.4	Noncalcareous, black phyllite with thin laminarly banded medium to light grey siltstone layers. Siltstones are slightly calcareous and contain minor disseminated, fine-grained pyrite. Unit contains medium grey lapilli tuffs beds up to 2 m thick. Locally contains abundant quartz-feldspar veins.
6.	111.4 - 205.7	Noncalcareous, black phyllite with thin siltstone and lapilli tuff bands. Siltstones typically show graded bedding and cross bedding. They are slightly calcareous and contain fine-grained, disseminated pyrite. Locally phyllite contains abundant quartz-feldspar veins.
7.	205.7 - 245.9	Noncalcareous, black phyllite with minor discrete, fine-grained massive pyritic bands. Siltstones in this interval are very rare. Unit contains minor medium grey lapilli tuff layers.
8.	245.9 - 270.3	Noncalcareous, black phyllite with minor thin grey tuff bands. Locally phyllite is banded in shades of dark grey. Rare thin siltstone intervals are present. Phyllite contains streaky and nodular fine-grained pyrite. Pyrite nodules are often rimmed by quartz and calcite; average 3 mm in diameter and range up to 3 cm in diameter.
	270.3	END OF HOLE

Unit" immediately underlying the basal contact of the Mvt pyroclastics. Figure 3 shows that the 1977 grid Pb/Zn coincident soil anomalies also roughly coincided with this same stratigraphic interval.

In 1980 a drill program was conducted to test this stratigraphic interval in the vicinity of the 1977 soil anomalies. One DDH (80-E-01) was drilled to intercept the basal Mvt and underlying uDM_s black phyllites and hopefully ascertain the source of the geochemical anomaly.

DDH 80-E-01 is located at L24E, 19+60N (597 meters north of B/L - L24E on bearing $N009^{o}$ - Figures 2, 3, 4, 5). Total depth drilled was 270.3 meters (887 feet). Core from 80-E-01 is stored at the GRUM camp near Faro, Y.T.

Table 2 presents a summary lithologic log of major stratigraphic units in the DDH. A detailed lithologic log is located in Table 3. Assay values for the interval of interest are reported in Table 4. Detailed petrographic descriptions of representative lithologies are contained in Table 5.

RESULTS

DDH 80-E-01 is collared in felsic lapilli tuffs of the Mvt unit. The transition to the underlying uDM_s black phyllites occurs at a depth of 39.3 meters. This transition is gradational with intercalated felsic tuffs and noncalcareous carbonaceous phyllites. The entire interval below 39.3 meters consists of carbonaceous phyllites with minor interbands of grey felsic tuff. The noncalcareous phyllites typically contain thin intercalated grey siltstone layers. Siltstones are slightly calcareous and contain minor disseminated pyrite. Pyrite also occurs as rare nodules and thin, massive bands within the carbonaceous phyllites.

The basal felsic tuffs of the Mvt contain up to 50% (volume) disseminated pyrite. Since this interval roughly corresponds to the stratigraphic interval previously indentified as being geochemically anomalous (1978 chip samples), it was split and sent to Kamploops Research and Assay

Laboratory for assay. 6.1 meters of carbonaceous phyllites immediately beneath the felsic tuffs were also split for assay. Geochemical assay results are contained in Table 4.

Comparison of Table 4 with Figure 2 shows that the assay results from DDH 80-E-01 are not high enough to account for the 1977 Pb/Zn soil anomalies. The highly pyritic nature of the sampled tuffs and the results from the 1978 chip sample both suggest that DDH 80-E-01 did intercept the appropriate stratigraphic interval. If this correlation is correct, then the unit responsible for the Pb/Zn soil anomaly has no significant lateral extent (see Figure 2) away from the anomaly.

FURTHER EXPLORATION

DDH 80-E-01 has shown that the bedrock unit corresponding to the Pb/Zn soil geochemical anomaly does not extend laterally away from the area of the anomaly. Therefore it is recommended that no further work be done on this property.

LITHOLOGIC LOG

DDH 80-ER-01

	Meters	
1.	0 - 25.1	Triconed in overburden.
2.	25.1 - 33.7	Medium grey lapilli tuff. Cream white volcanic fragments are 1 - 30 mm in diameter - average size is 2 - 3 mm. Fragments locally slightly calcareous. Matrix generally siliceous with anastomosing micaceous laminae consisting of muscovite-chlorite. Locally micas are dark grey from increased carbon content ('pelite component'). Pyrite occurs as thin fine-grained bands and as larger disseminated grains. Chlorite+muscovite aggregates sometimes as pressure shadows for volcanic fragments. Fragments are subrounded to subangular - variably flattened in plane of S_1 foliation.
		Core Axis angle S_1 72^o 25.6 m
		S_1 77^o 38.8 m
		Interval from 25.9 - 27.5 m contains abundant carbon-rich mud; phyllite chips; very broken.
3.	33.7 - 34.4	Brown to medium grey aphanitic dyke or tuff. Porphyritic with pale green and clear subhedral to angular phenocrysts. Locally altered to cream white clays. Massive-no readily visible foliation. Both upper and lower contacts appear to be finer grained.
4.	34.4 - 36.3	Lapilli tuff - similar to Unit #2. Darker grey than #2. More micaceous - more carbon content - more abundant finely disseminated pyrite. One larger rounded clast at 34.5 m appears to be black chert.
		Core Axis angle S_1 81^o 35.5 m
5.	36.3 - 38.8	Lapilli tuff - similar to Unit #2. Slightly fewer lapilli volcanic fragments. Contains very abundant fine-grained (up to 50%) disseminated pyrite. In places pyrite forms thin bands.
		Core Axis angle S_1 65^o 38.5 m
6.	38.8 - 39.2	Similar to Unit #4. Contains only rare lapilli fragments. Abundant disseminated, fine-grained pyrite.

	Meters	
7.	39.2 - 39.3	Cream-white, aphanitic, tuff. Totally altered to clays. Noncalcereous, very slightly pyritic.
8.	39.3 - 40.4	Black phyllite. Noncalcareous with minor finely disseminated pyrite. Thin (scale of mm) dark grey color banding. Contains quartz-feldspar (altered) veins. Foliation (S_1) disrupted and contorted.
9.	40.4 - 40.7	Pale grey, slightly pyritic, noncalcareous tuff. Scattered cream-white angular to rounded altered feldspar. Very rare micaceous fragments. Veins composed largely of feldspar with minor quartz.
10.	40.7 - 54.7	Noncalcareous black phyllite. Core much broken; S_1 foliation extensively disrupted. Quartz-feldspar veins common, in places veins contain angular fragments of the black phyllite. Nodular pyrite associated with the quartz veins.
11.	54.7 - 65.1	Slightly to noncalcareous, fine-to-medium grained, highly altered equigranular medium grey sill/dyke. Fine-grained chilled margins at both contact. Mineralogy originally feldspar, mafic minerals - now altered to clay and chlorite. Calcite veins contain minor quartz.
12.	65.1 - 66.8	Dominantly medium-grey, noncalcareous, muscovite-chlorite phyllite. Lesser amounts of black, carbon-rich phyllite. Veins contain quartz-feldspar-calcite. Locally pyritic. Minor, fine-grained grey tuff(?) at bottom of interval. Compositional contacts subparallel to compositional banding in phyllite (at high angle to core axis). S_1 foliation folded with subhorizontal axial planes.
13.	66.8 - 69.5	Noncalcareous black phyllite. Thin laminar bands of lighter grey, slightly calcareous siltstones. Minor fine-grained disseminated pyrite is confined to the silty layers. Locally 2 foliations are present within the phyllite.

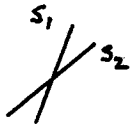
Core Axis	angle S_1	90^o	68.1 m
	S_2	63^o	

Meters

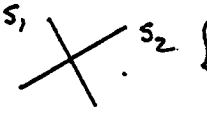
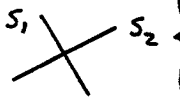
14. 69.5 - 81.7 Similar to Unit #13. Contains abundant quartz± feldspar veins. Light grey bands up to 3 cm thick - all laminarly banded. Phyllite extensively folded by S_2 (subhorizontal).

Core Axis	angle S_2	82°	77.6 m

15. 81.7 - 111.4 Same as Unit #13. Light grey silty layers are laminarly banded light and dark on mm scale. These layers are slightly calcareous and contain fine-grained disseminated pyrite (minor amt). Locally S_0 compositional banding. Minor quartz veins.

Core Axis	angle S_2	78°	92.7 m
	S_1	65°	93.8 m
	S_2	64°	100.2 m
	S_1	39°	100.2 m
	S_1	74°	110.2 m
	S_2	86°	

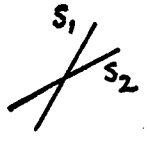
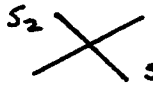
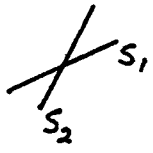
16. 111.4 - 126.8 Similar to Unit #13. Dark grey to black phyllite with interbands of grey siltsone. Siltstone locally slightly calcareous. Minor disseminated pyrite in silty layers. In contrast to Unit #15, siltstone layers in this interval are not strongly laminarly banded. Siltstone layers typically show graded bedding with cross-bedding. Graded bedding consistently has Tops UP DDH. Locally S_2 well developed to fold S_0 and S_1. Quartz veining common in region of S_2 folding. Contact with Unit #15 gradationed.

Core Axis	angle S_1	71°	115.6 m
	S_0/S_1	38°	118.0 m
	S_2	73°	
	S_0/S_1	71°	122.7 m
	S_2	53°	
	S_0/S_1	31°	124.8 m
	S_2	59°	

Meters

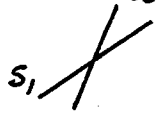
17. 126.8 - 127.1 Medium grey aphanitic lapilli tuff. Matrix is non-calcareous; cream-white fragments are slightly calcareous. Average fragment size is 2 - 3 mm although they range up to 5 cm in diameter. Fragments are poorly sorted. Lower 1 cm of interval is thinly banded fine-grained pyrite. Similar to Unit #9.

18. 127.1 - 144.0 Same as Unit #16. Minor quartz veining. Thicker siltstones slightly calcareous; thin ones are not. Siltstones are slightly pyritic; pyrite also in shales from 127.1 - 127.6 m.

Core Axis	angle S_0/S_1	60^0	127.7 m
	S_0/S_1	74^0	131.9 m
	S_2	84^0	
	S_0/S_1	68^0	133.1 m
	S_2	74^0	
	S_1	76^0	135.8 m
	S_2	83^0	
	S_1/S_0	72^0	140.2 m

19. 144.0 - 145.5 Like Unit #17. Not as many lapilli fragments; no large ones present. Minor flattened chlorite fragments. Entire unit pyritic; locally get diffuse bands of 30% - 20% pyrite. Contains one thin interval of black phyllite (0.1 m).

20. 145.5 - 154.8 Same as Unit #16. Minor quartz-feldspar veins. Host phyllite forms angular fragments in the veins. Siltstone not as pyritic.

Core Axis 	angle S_1	76^0	146.2 m
	S_0	66^0	
	S_1/S_0	76^0	153.2 m

Meters

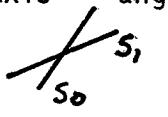
21. 154.8 - 157.7 Similar to Unit #16. Contains minor amounts of coarse siltstone bands up to 10 cm in thickness. Coarse siltstone is noncalcareous; contains clasts of quartz+feldspar (tuffaceous); slightly pyritic. Also contains typical fine-grained, graded, cross-bedded siltstones - slightly pyritic - noncalcareous to slightly calcareous.

Core Axis angle S_0/S_1 78^0 155.8 m

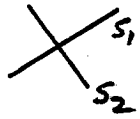
22. 157.7 - 158.1 Like Unit #17. Fine-grained grey tuff. Maximum grain size up to 1 cm. Slightly pyritic. Inter-banded with black phyllite on a scale of 4 - 5 cm.

23. 158.1 - 168.2 Same as Unit #21. S_2 locally present.

Core Axis angle S_0 79^0 159.1 m



S_1 69^0



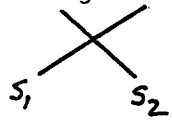
S_0/S_1 70^0 166.5 m

S_2 32^0

24. 168.2 - 170.2 Same as Unit #17 - fine-grained, grey lapilli tuff. Slightly chloritized - locally pervasive in minor amounts. A few veins dominantly quartz with chlorite rims. Average clast size about 1 mm. Some flattened pyritic clasts up to 1 cm in diameter. Noncalcareous.

25. 170.2 - 175.8 Similar to Unit #21.

Core Axis angle



S_0/S_1 73^0 171.7 m

S_2 73^0

S_0/S_1 64^0 174.9 m

26. 175.8 - 176.7 Same as Unit #17. Very rare lapilli fragments. Quartz veins.

27. 176.7 - 180.7 Same as Unit #16. No coarse siltstones.

Core Axis angle S_0/S_1 72^0 178.9 m

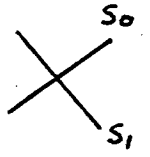
28. 180.7 - 180.8 Felsic tuff as Unit #17.

Meters

29. 180.8 - 205.7 Same as Unit #16. Abundance of siltstone bands decreases as go down DDH. Brief gouge zone 201 - 201.2 m. Minor quartz-feldspar veining.

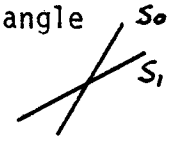
Core Axis	angle S_0/S_1	81^o	187.1 m
	S_0/S_1	83^o	201.4 m
	S_0/S_1	63^o	203.3 m

30. 205.7 - 227.1 Similar to Unit #16. Rare silty bands (siltstone just not common). Locally zones of quartz-feldspar veins (213.0 - 214.1 m).

Core Axis	angle	S_0	11^o 208.2 m
S_0 dips 90^o to S_1		S_1	32^o
		S_0	5^o 215.7 m
		S_0	37^o 222.0 m
		S_1	62^o

31. 227.1 - 228.8 Same black phyllite. Abundant gouge.

32. 228.8 - 241.5 Same as Unit #30. Minor discrete fine-grained massive pyritic bands within the black phyllite.

Core Axis	angle 	S_0	71^o 230.9 m
		S_1	56^o
		S_1	60^o 237.8 m

33. 241.5 - 241.9 Medium grey felsic lapilli tuff same as Unit #17. Slightly pyritic, noncalcareous.

34. 241.9 - 242.4 Black phyllite as Unit #32.

35. 242.4 - 245.9 Black phyllite as above with abundant quartz-feldspar veining. Breccia zone from 244.0 - 244.2 m.

	Meters		
36.	245.9 - 254.5	Noncalcareous black phyllite with calcareous siltstone bands. Siltstone is rarely pyritic (to 50% by vol. pyrite). Pyrite occurs predominantly as medium to coarse-grained equidimensional nodules within the black phyllite. Nodules are mainly pyrite, associated (often rimmed) by quartz and calcite, average 3 mm diameter, ranging as high as 3 cm diameter. Pyrite also common as extremely small streaks within the plane of S_0/S_1 - streaks up to 5 mm long and less than 1 mm thick.	
		Core Axis angle S_0/S_1 52^o	250.0
		S_1 at 30^o from S_0 S_0 55^o	254.3
		S_0 dips more W S_1 56^o	
37.	254.5 - 261.0	Slightly pyritic, noncalcareous, thinly laminated dark grey to black phyllite. Minor silty interbands. Some thin pyritic bands within the phyllite - become more common in lowermost 0.5 m.	
		Core Axis angle S_0 52^o	257.3 m
		S_0 slightly more W dip S_1 72^o	
		S_0 51^o	260.1 m
38.	261.0 - 262.5	Pale grey, pyritic, noncalcareous tuff. Extensive quartz-feldspar veining with trace of galena at 261.0 m (foliated).	
39.	262.5 - 265.2	Black, noncalcareous, slightly pyritic phyllite. No siltstone bands. Numerous zones of broken core and gouge - main interval of gouge 263.0 - 263.5 m.	
40.	265.2 - 270.3	Black phyllite with nodular and thin streaky pyrite. Similar to Unit #36. Pyrite nodules are smaller and less abundant.	
		Core Axis angle S_0 57^o	267.0 m
		S_1 dips more W than S_0 S_1 68^o	
		S_0/S_1 68^o	269.8 m
	270.3 -	End of hole.	

TABLE 4

GEOCHEMICAL LOG

80-E-01 (EROS)

DDH	From	To	Sample No.	Recovery	Unit	% Cu	% Pb	% Zn	Ag (oz/ton)
80-E-01	34.4	36.3	2096	1.6	Lapilli tuff	0.01	0.03	0.11	2
80-E-01	36.3	38.8	2097	2.3	Pyritic lapilli tuff	0.01	0.01	0.06	1
80-E-01	38.8	39.2	2098	0.3	Pyritic tuff	0.02	0.03	0.06	TR
80-E-01	39.3	40.4	2099	0.6	Black phyllite	L0.01	0.02	0.08	TR
80-E-01	40.7	45.7	2100	2.9	Black phyllite	L0.01	0.03	0.07	TR

RESEARCH SAMPLE LOG

PROJECT: PELMAC

STATION:

DDH: 80-E-01 DEPTH: 31.8

HAND SAMPLE: Medium grey lapilli tuff. Cream volcanic fragments are 1-30 mm in diameter - average size is 2-3 mm. Matrix siliceous with anastamosing micaceous laminae. Pyrite occurs as thin, fine-grained bands and as larger disseminated grains. Unit Mvt

THIN SECTION: ✓

POLISHED SECTION:

POLISHED THIN SECTION:

ANALYSIS:

PROBE:

XRD:

ISOTOPE:

FOSSIL:

STAINED:

OTHER:

COMMENTS: No reject block

THIN SECTION LOG

PROJECT: PELMAC

STATION:

DESCRIBED BY: LCP

DDH: 80-E-01 DEPTH: 31.8 DATE: FEB. 23, 1981

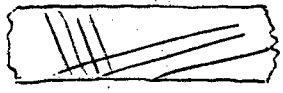
UNIT: Mvt

HAND SAMPLE: Medium grey lapilli tuff. Cream volcanic fragments in a siliceous, micaceous matrix. Pyrite occurs as thin, fine-grained bands and as larger disseminated grains

PURPOSE:

---

large muscovite grain



2 directions of kinking

	EST.	POINT CT.
CALCITE	15	
MUSCOVITE	40	
QUARTZ	45	
OPAQUES	Tr	
ZIRCON	Tr	

COMMENTS: Thin section is slightly thin.

Coarse-grained aggregates of calcite with irregular margins occur as phenocrysts - lapilli in a fine-grained, interlocking matrix of anhedral quartz and muscovite. Calcite is infrequently twinned and contains minor quartz and euhedral opaques.

Quartz typically occurs as small anhedral grains. Locally these form slightly larger, round to oval aggregates of grains.

Muscovite dispersed. Forms laminae which are more micaceous. Large grains show extensive kinking — 2 directions of kinks.

Pyrite euhedral. Rarely has quartz pressure shadows with curving quartz fibers.

RESEARCH SAMPLE LOG

PROJECT: PELMAC

STATION:

DDH: 80-E-01 DEPTH: 34.2

HAND SAMPLE: Aphanatic medium-grey dyke. Porphyritic with pale green and clear subhedral to angular phenocrysts. Abundant, fine-grained, randomly oriented feldspar microlites.

'Intrudes' Mvt and uDMs sections of stratigraphic column

THIN SECTION: ✓

POLISHED SECTION:

POLISHED THIN SECTION:

ANALYSIS:

PROBE:

XRD:

ISOTOPE:

FOSSIL:

STAINED: Reject block – for K-feldspar – NONE PRESENT

OTHER:

COMMENTS:

THIN SECTION LOG

PROJECT: PELMAC

STATION:

DDH: 80-E-01

UNIT: dyke in MVT

DESCRIBED BY: LCP

DEPTH: 34.2

DATE: FEB 23, 1981

HAND SAMPLE: Aphanitic medium-grey dyke. Porphyritic. Intrudes MVT and uOMs section of stratigraphic column.

PURPOSE:

Biotite pleochroism
pale tan
brown to reddish brown

	EST.	POINT CT.
BIOTITE	10	
OPAQUES	3	
CARBONATE	MD	
SERICITE/MUSCOVITE	5	
PLAGIOCLASE	37	
QUARTZ	5	

COMMENTS:

Randomly oriented biotite in a fine-grained matrix of plagioclase microlites and irregular carbonate 'splotches'. Microlites are randomly oriented; they are partly to completely altered to carbonate and/or sericite. Minor albite twinning visible.

Large plagioclase (?) phenocrysts replaced by carbonate and/or muscovite.

Quartz occurs as single anhedral grains and as irregular aggregates. Probably filling vesicles or cavities (?).

Near margin of unit the carbonate is orange from iron staining.

RESEARCH SAMPLE LOG

PROJECT: PELMAC

STATION:

DDH: 80-E-01 DEPTH: 37.4

HAND SAMPLE: Medium-grey lapilli tuff with abundant, fine-grained, disseminated pyrite. Cream volcanic fragments are locally slightly calcareous. Matrix siliceous with anastamosing micaceous laminae.

Unit Mvt in uDM3

THIN SECTION:

POLISHED SECTION:

POLISHED THIN SECTION: ✓

ANALYSIS:

PROBE:

XRD:

ISOTOPE:

FOSSIL:

STAINED: Reject block for K-feldspar — NONE PRESENT

OTHER:

COMMENTS:

THIN SECTION LOG

PROJECT: PELMAC

STATION: _____ DESCRIBED BY: _____

DDH: 80-E-01 DEPTH: 37.4 DATE: _____

UNIT: Mvt

HAND SAMPLE: Medium grey lapilli tuff with abundant, fine-grained, disseminated pyrite.

PURPOSE:

	EST.	POINT CT.
CALCITE	20	
QUARTZ	30	
MUSCOVITE	25	
CHLORITE	5	
OPAQUES	20	

COMMENTS: Thin section is slightly thin

Elongate calcite augen in a fine-grained muscovite-quartz-opaque-chlorite matrix. Augen consist of irregular calcite aggregates containing euhedral pyrite and quartz (?) grains. Quartz looks like feldspar-shaped outlines.

Matrix also contains elongate augen of quartz aggregates. Quartz is coarser-grained in augen than in matrix.

Small muscovite flakes poorly delineate S_1 foliation. Also has a poorly defined S_2 crenulation cleavage.

One band rich in graphite (opaque dust) contains abundant colorless Mg-rich chlorite.

Pyrite distributed as small to large euhedral grains. Grains smaller and more abundant in matrix (as opposed to augen). Minor quartz pressure shadows around pyrite (some curved fiber growth).

RESEARCH SAMPLE LOG

PROJECT: PELMAC

STATION:

DDH: 80-E-01 DEPTH: 90.7

HAND SAMPLE: Black phyllite with thin laminarly bonded siltstone layers Siltstone is slightly calcareous and contains minor fine-grained, disseminated pyrite.

Unit uDMs

THIN SECTION: ✓

POLISHED SECTION:

POLISHED THIN SECTION:

ANALYSIS:

PROBE:

XRD:

ISOTOPE:

FOSSIL:

STAINED: Reject block for K-feldspar — NONE PRESENT

OTHER:

COMMENTS:

THIN SECTION LOG

PROJECT: PELMAC

STATION:

DESCRIBED BY: LCP

DDH: 80-E-01 DEPTH: 90.7 DATE: FEB 23, 1981

UNIT: uDM$_3$

HAND SAMPLE: Black phyllite with thin laminarly banded siltstone layers. Siltstone is slightly calcareous and contains minor disseminated pyrite

PURPOSE:

	EST.	POINT CT.
MUSCOVITE	25	
QUARTZ	30	
OPAQUES	Tr	
OPAQUE DUST	15	
CARBONATE	30	
TOURMALINE	Tr	

COMMENTS:

S_1 foliation delineated by muscovite, carbon dust streaks, and elongate quartz grains. S_2 crenulation cleavage marked by microlithons and heavy concentrations of opaque carbon dust (indicates pressure solution).

Siltstone consists of carbonate splotches and elongate subangular quartz grains in a fine matrix containing muscovite, quartz, carbon dust.

Phyllite is finer-grained, more carbon dust, and fewer quartz grains. Muscovite fine-grained except for a few coarser grains (possibly detrital?). S_1 and S_2 cleavages more pronounced in phyllite. Graded bedding visible. Small siltstone boudins in phyllite, boudins elongate in S_1 foliation.

Carbonate vein in phyllite strongly crenulated by S_2 microlithons.

RESEARCH SAMPLE LOG

PROJECT: PELMAC

STATION:

DDH: 80-E-01 DEPTH: 126.9

HAND SAMPLE: Medium-grey, aphanitic lapilli tuff. Matrix is noncalcareous. Fragments are poorly sorted.

THIN SECTION: ✓

POLISHED SECTION:

POLISHED THIN SECTION:

ANALYSIS:

PROBE:

XRD:

ISOTOPE:

FOSSIL:

STAINED: Reject block - for K-feldspar - None present

OTHER:

COMMENTS:

THIN SECTION LOG

PROJECT: PELMAC

STATION:

DDH: 80-E-01

UNIT: Mvt

DESCRIBED BY: LCP

DEPTH: 126.9

DATE: FEB 23, 1981

HAND SAMPLE: Medium grey, aphanitic lapilli tuff. Matrix is noncalcareous.

PURPOSE:

	EST.	POINT CT.
CARBONATE (CALCITE)	35	
MUSCOVITE	28	
QUARTZ	30	
UNKNOWN (?)	5	
OPAQUES	2	

COMMENTS:

Large subhedral carbonate ± quartz aggregates in fine-grained matrix consisting of quartz-carbonate-muscovite-opaques. Carbonate grains locally display undulatory extinction and subgrain development (evidence of strain). Coarse quartz locally fills fractures and "pull-apart" structures in the carbonate aggregates.

Matrix consists of fine-grained, anhedral quartz-carbonate-muscovite-opaque dust. Muscovite defines 2 foliations. Carbonate has irregular, splotchy grain boundaries.

Abundant fine-grained subhedral to dust-size opaques.

Late fractures filled by clear, low-relief mineral (relief < quartz) with low 1st order grey birefringence. Forms fine-grained aggregates of rosettes. Block treated with HF leaves this mineral a chalky white.

RESEARCH SAMPLE LOG

PROJECT: PELMAC

STATION:

DDH: 80-E-01 DEPTH: 131.4

HAND SAMPLE: Non calcareous black phyllite with interbands of slightly calcareous siltstone. Siltstone is not strongly laminarly banded; typically contains graded bedding and cross bedding. Minor disseminated pyrite in siltstones. Unit uDMs

THIN SECTION: ✓

POLISHED SECTION:

POLISHED THIN SECTION:

ANALYSIS:

PROBE:

XRD:

ISOTOPE:

FOSSIL:

STAINED: Reject block - for K-feldspar - none present

OTHER:

COMMENTS:

THIN SECTION LOG

PROJECT: PENMAC

STATION:

DESCRIBED BY: LCP

DDH: 80-E-01 DEPTH: 131.4 DATE: FEB 24, 1981

UNIT: uDMs

HAND SAMPLE: Noncalcareous black phyllite with interbands of slightly calcareous siltstone. Siltstone is not laminarly banded; typically it contains graded bedding and cross bedding.

PURPOSE:

	Phyll. EST.	Silst.	POINT CT.
QUARTZ	25	60	
MUSCOVITE	60	20	
CARBONATE	—	10	
TOURMALINE	Tr	—	
OPAQUES	Tr	Tr	
OPAQUE DUST (CARBON)	15	10	

COMMENTS: Phyllite is muscovite-quartz-opaque dust with scattered slightly larger quartz grains. Larger grains are elongate in S_1 foliation; most are single crystals — one consists of aggregate of very fine anhedral quartz (probable chert). Rare slightly larger mica is probably detrital. Well developed S_1 and S_2 cleavages. S_2 marked by microlithons and heavier concentration of carbon dust.

Siltstone contains more subangular quartz grains in a fine-grained matrix consisting dominantly of fine, anhedral quartz. Matrix also contains minor carbon, muscovite, carbonate. Carbonate occurs as 'large' splotchy, irregular grains. S_2 cleavage not as well developed in siltstone.

Lithologic contacts are sharp S_0 subparallels S_1

RESEARCH SAMPLE LOG

PROJECT: PELMAC

STATION:

DDH: 80-E-01 DEPTH: 248.5

HAND SAMPLE: Noncalcareous black phyllite with calcareous siltstone bands. Pyrite predominantly as medium to coarse grained nodules in black phyllite. Nodules rimmed by quartz and calcite. Pyrite also occurs as small streaks in S_0/S_1 plane

Unit uDMs

THIN SECTION: ✓

POLISHED SECTION:

POLISHED THIN SECTION:

ANALYSIS:

PROBE:

XRD:

ISOTOPE:

FOSSIL:

STAINED: Reject block - for K-feldspar — none present

OTHER:

COMMENTS:

THIN SECTION LOG

PROJECT: PELMAC

STATION:

DESCRIBED BY: LCP

DDH: 80-E-01 DEPTH: 248.5 DATE: FEB 24, 1981

UNIT: UDM$_5$

HAND SAMPLE: Noncalcareous black phyllite. Pyrite mainly as medium to coarse grained nodules rimmed by calcite and quartz. Pyrite also occurs as small streaks in S_0/S_1 plane.

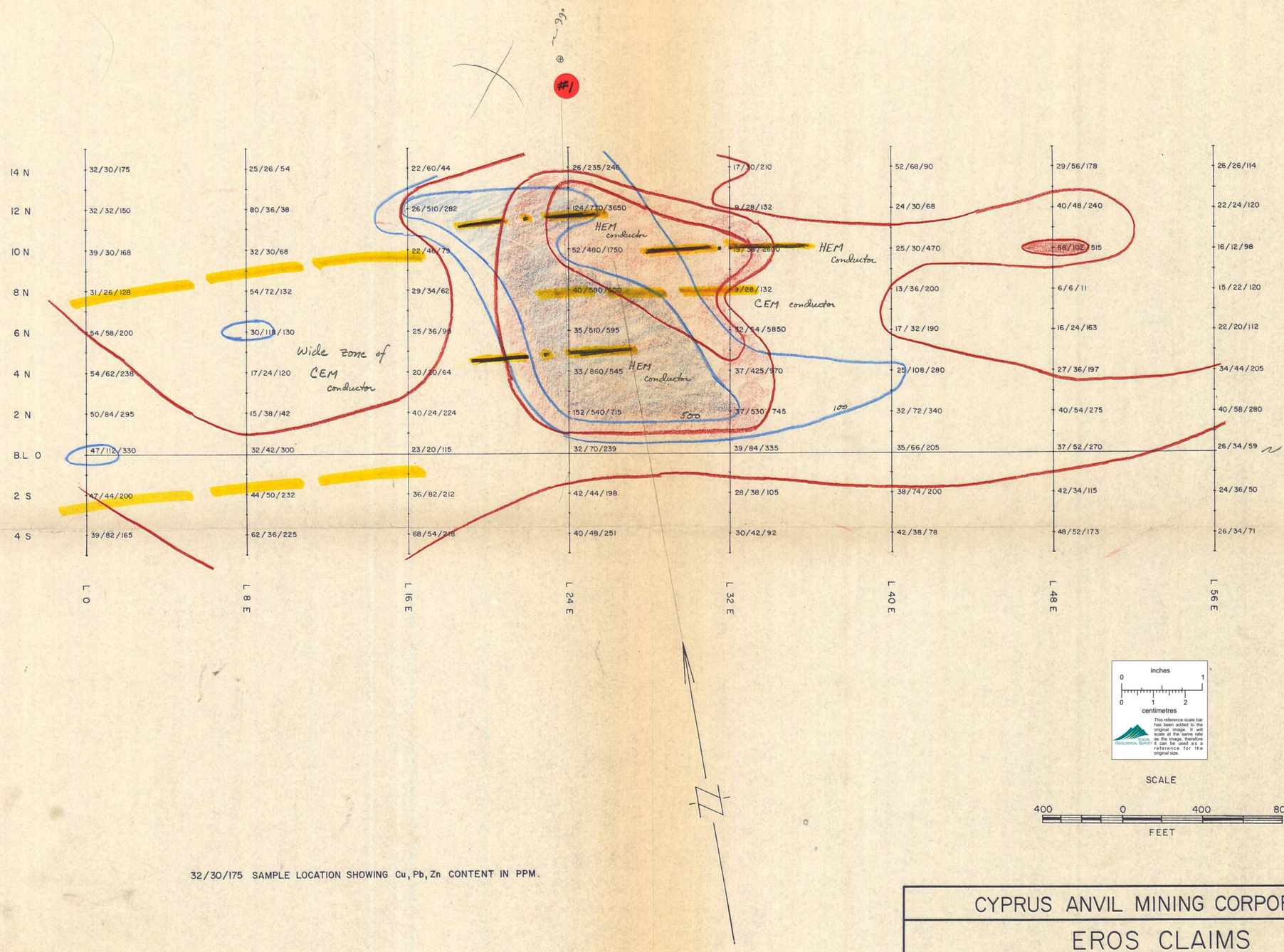
PURPOSE:

	EST.	POINT CT.
CARBONATE	30	
QUARTZ	35	
MUSCOVITE	25	
OPAQUES	3	
OPAQUE DUST	7	

COMMENTS:

Coarse grained aggregates of euhedral pyrite are enclosed by rims of quartz-muscovite ± carbonate. Quartz grains commonly fibrous - elongate ⊥ edge of pyrite grain. Muscovite does not appear oriented.

Phyllite consists of fine-grained matrix of carbonate - muscovite - quartz - opaque dust. Carbon dust, elongate carbonate ± muscovite delineate S_1. S_2 formed by microlithons and slight concentration of carbon dust. Phyllite does not contain scattered elongate quartz grains.



32/30/175 SAMPLE LOCATION SHOWING Cu, Pb, Zn CONTENT IN PPM.

SCALE

400 0 400 800

FEET

CYPRUS ANVIL MINING CORPORATION

EROS CLAIMS

GEOCHEMICAL VALUES

NTS 105 F 9	SCALE: 1" = 400'	DATE: AUG. 1977	DRAWN BY: R.D.H.

FIGURE 3