83-#15 - #11025.

MINERAL EXPLORATION REPORT

GEOCHEMICAL SOIL SURVEY

ALTURAS CLAIM OF

ALTURAS CLAIM GROUP

SHEEP CREEK GOLD CAMP

NELSON MINING DIVISION

BRITISH COLUMBIA

FOR

CANWIN HOLDINGS INC.

307-1933 WEST 5TH AVENUE

VANCOUVER BC. V6J 1P6

BY

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FIELD WORK: SEPTEMBER 1982
REPORT: JANUARY 1983

N.T.S. REFERENCE 82 F 3/E

49° 49' NORTH LATITUDE
117° 07' WEST LONGITUDE

JANUARY 15, 1983

MINERAL EXPLORATION REPORT
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ALTURAS GROUP
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SUMMARY

The Alturas Claim Group (6 claims, 4 fractions, 150 ha) is located in the northeastern part of the Sheep Creek Gold Camp, which is located in the Nelson Mining Division about 45 km south of Nelson B.C.

The highest elevation on the group is at 6000' above sea level. The lowest is 3700' a.s.l.. The claims are lightly wooded with second growth softwoods. The climate of the area is moderate but heavy snowfall limits the field season to about June 15 to October 15. Overburden is heavy and extensive over much of the eastern half of the claim group.

Sheep Creek Camp produced about 1.7 million tons of ore at an average grade of about 0.50 oz/ton Au. There was a small amount of silver and lead and zinc produced from the auriferous quartz veins of the camp also. Production started about 1891 and ended about 1951. Only recently, after 1974, has active exploration been carried out in the camp. The Alturas Group was acquired by the writer in 1980 and sold to Canwin Holdings Inc. in October 1982. Search of assessment and other records indicates that very little exploration work has been carried out on these claims. The claims are east of two former producing mines and are underlain by the Navada and Nugget members (favorable quartzite lithologic units) of the Quartzite Range Formation of PreCambrian age.

In September of 1982 a 1859 m grid of four lines (average 450 m long) were soil sampled by the writer and his son as helper. The 61 samples taken from the Alturas Claim were analysed for lead, zinc, copper and silver. Plotting of the results and statistical analysis indicates that there is a weakly anomalous coincident zone on the easternmost lines of the grid trending northeasterly. This weak zone warrants detailed soil sampling at 10 m centers and even geophysical work this winter. The soil results also give encouragement to the idea of a soil sampling program over the entire claim group where underlain by favorable quartzite and where there is known to be little outcrop.

MINERAL EXPLORATION REPORT: GEOCHEMICAL SOIL SURVEY
ALTURAS CLAIM: ALTURAS CLAIM GROUP
SHEEP CREEK GOLD CAMP: NELSON MINING DIVISION
BRITISH COLUMBIA

M.D. Kierans P.Eng. January 15, 1983

INTRODUCTION

The purpose of this report is to present the results of a five day field trip to the Salmo area in September of 1982. The purpose of the trip was to collect soil samples over a limited part of the Alturas Claim Group, which comprises six reverted Crown Grants, two fractional Crown Grants and two fractional claims, in the northeastern part of Sheep Creek mining Camp. The writer and his son left Vancouver on September 3rd. The field work was carried out on September 4th, 5th and 6th. On September 7th we drove back to Vancouver. Except for the first day (it rained) weather was excellent for field work. It was hoped that this limited survey would locate a soil anomaly for follow-up work but, more importantly, indicate the usefulness of a complete soil survey over the whole property of about 150 hectares (370 acres). Such a survey was recommended by the writer in a private report (11) after a two day field reconnaissance geological assessment in June of 1980. The writer was at one time sole holder of the mineral rights to the group. Later he sold half of his interest to two others. Still later, he sold the remaining 50% interest to Canwin Holdings Inc. At present he has no interest in either the claim group or Canwin Holdings Inc.

LOCATION AND ACCESS

For regional location see Figures 1 and 2. The Alturas Claim Group lies within the Nelson Range of the Selkirk Mountains. The Group can be reached from Salmo by paved highway No.3 to the start of the Sheep Creek logging road (about 6 km south of Salmo). Salmo itself is about 45 km south of Nelson B.C. The logging road is a good gravel road following the north side of Sheep Creek eastward toward the claim Group. The Alturas Claim Group itself is located north and west of Sheep Creek. Please see Figures 2 and 3. The logging road is suitable for cars or 2X4 pick-up trucks to near the junction of Curtis Creek (13 km). From there a 4X4 vehicle is recommended on its continuation along the north side of Sheep Creek. This trip we went only as far as

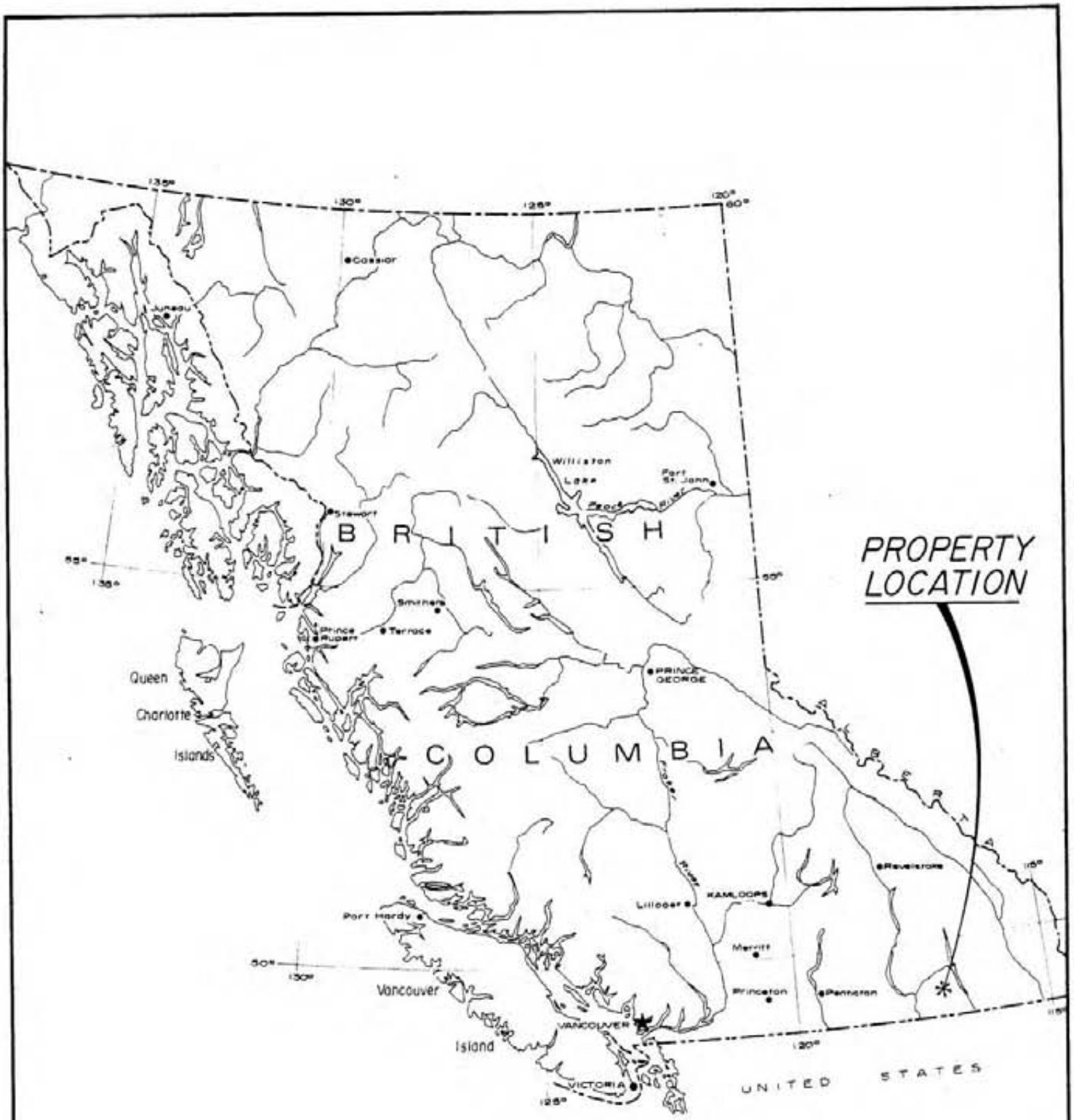


FIGURE 1

LOCATION MAP

ALTURAS GROUP

SHEEP CREEK AREA

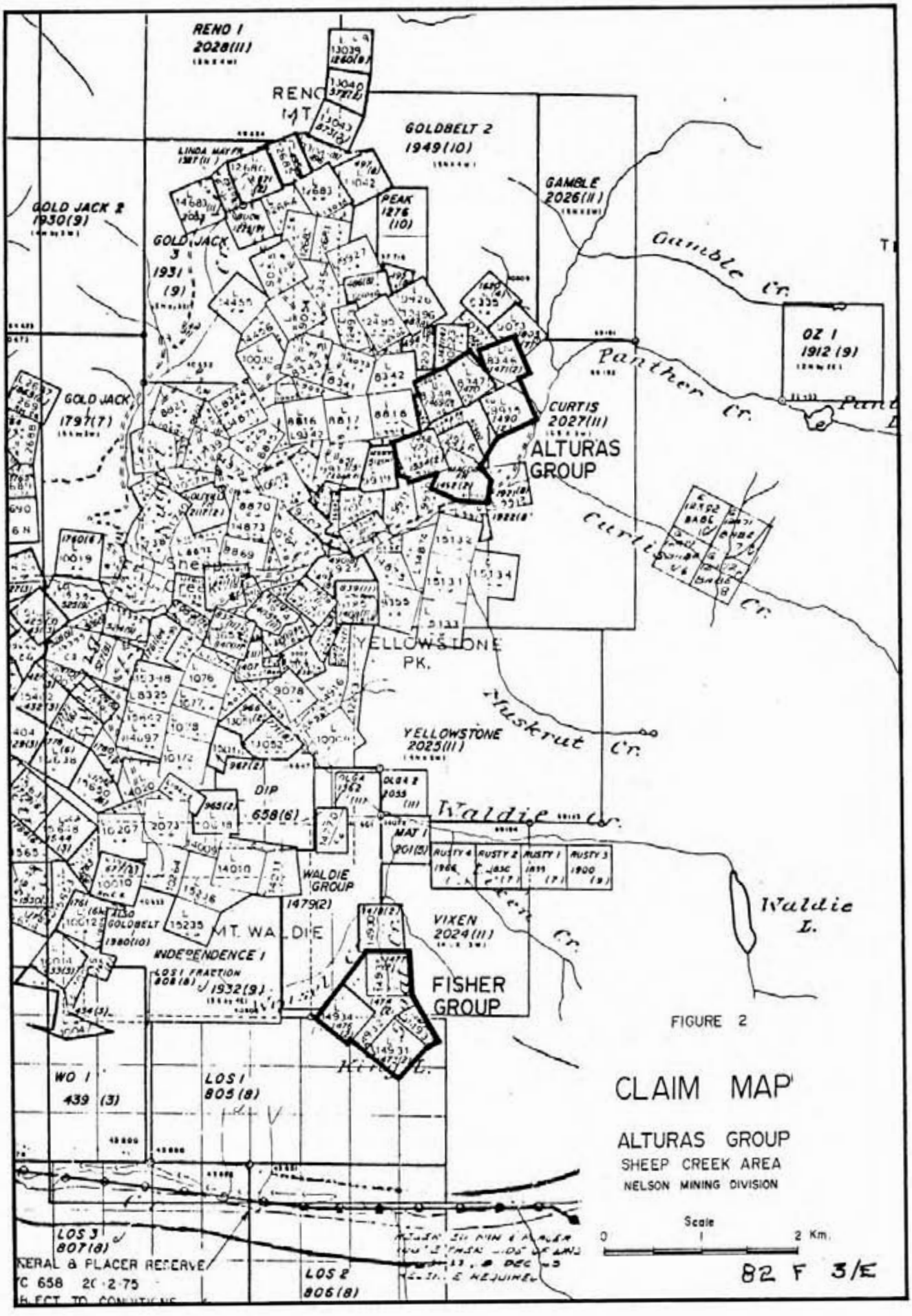
NELSON MINING DIVISION

SCALE

Km 100 50 0 100 200 300 400 Km

Miles 100 50 0 100 200 Miles

ALTAIR drafting services ltd.


RENO 1
2028(11)
GOLDBELT 2
1949(10)
GAMBLE
2026(11)
PEAK
1276
(10)
GOLD JACK 2
1930(9)
GOLD JACK
3
1931
(9)
GOLD JACK
1797(7)
Gamble Cr.
OZ 1
1912 (9)
Panther Cr.
CURTIS
2027(11)
ALTURAS
GROUP
Curtis Cr.
YELLOWSTONE
PK.
YELLOWSTONE
2025(11)
Muskrat Cr.
DIP
658(6)
Waldie Cr.
MAT 1
201(5)
RUSTY 4
1906
RUSTY 2
RUSTY 1
1899
RUSTY 3
1900
(3)
WALDIE
GROUP
1479(2)
MT. WALDIE
GOLDBELT
1980(10)
INDEPENDENCE 1
LOT 1 FRACTION
808(8)
1932(9)
VIXEN
2024(11)
FISHER
GROUP
Waldie
L.
WO 1
439 (3)
LOS 1
805(8)
LOS 3
807(8)
LOS 2
806(8)
ERAL & PLACER RESERVE
C 658 20-2-75
FIGURE 2
CLAIM MAP
ALTURAS GROUP
SHEEP CREEK AREA
NELSON MINING DIVISION
Scale
0 1 2 Km.
82 F 3/E

Twilight Creek so we were able to follow the logging road in our 2-wheel drive pickup truck beyond the Curtis Creek Junction. We used the Twilight Creek and road intersection as a map reference point for our control grid. For access to other parts of the claims it is suggested that the logging road be followed some 3 km from the Curtis Creek junction. Then access is on foot along the 4700 contour westward across Twilight Creek. Access may also be possible via the old Reno mine road but this was not attempted.

TOPOGRAPHY AND CLIMATE

The highest elevation on the group is at about 6000' on the northwest corner of Virginia claim. The lowest elevation is about 3700' on the southern corner of Magda fraction. Slopes are steep on the rocky western margins of the group but surprisingly moderate over most of the eastern sections of the claims where there are very few outcrops. Overburden over most of the eastern part of the claim group is estimated from road cuts to be about 15 feet or more.

The claim area, in general, is rather lightly wooded with immature pine, spruce and hemlock. Some of the surrounding claims have mature stands of hemlock. The Reno mine, about 2 km northwest of the group operated for years, year-round, at an elevation of 6400'. About 90% of the group is below the 5500' contour and more than half is below the 5000' contour. Road building on the relatively deep overburden of gravel and soil on the northern and eastern claims should be relatively easy.

The general climate of the Sheep Creek region is moderate and temperatures are not extreme. But because mountains here are quite high and prevailing winds are westerly, precipitation is "greater than anywhere to the west except in the Coast Mountains themselves" (2). Average annual snowfall is 226 cm at Nelson and average annual temperature is 7° C (45° F) (2). The average annual snowfall at the claim group will certainly be more than 226 cm because the elevation is higher than at Nelson. In a normal year field work should be possible from about June 15 to about the end of October.

HISTORY OF THE CAMP AND THE PROPERTY

The Sheep Creek and Ymir gold Camps together produced in excess of one million ounces of gold from narrow east-west quartz fissure veins during the years 1891 and

1951. The Ymir gold Camp is about 15 km northwest of Alturas Group. Sheep Creek Camp ranks as the "sixth mining camp in British Columbia in terms of total lode gold produced to the end of 1951." (1). Production came from quartz veins that to the end of 1951 yielded a total of 736,000 ounces of gold, 365,000 ounces of silver, 377,000 pounds of lead, and 312,000 pounds of zinc from 1,720,000 tons of ore.

There were two period of production at Sheep Creek. The first was from about 1899 to 1916. The second period of production began about 1928. Production reached its peak in 1937 and was maintained at 135,000 tons per year until 1942. "Thereafter production was mainly from the property of Sheep Creek Gold Mines Limited which was shut down in 1951 after 17 years of production." (1). The camp has been inactive until the rise in the price of gold about 1974. It is reported that the HB Mill (about 8 km from the property) will accept custom ore from small producers.

It is not known when the reverted Crown Grants which form the main part of the Alturas Group were staked originally. Presumably they were staked during the first productive period of the camp. The writer acquired the reverted Crown Grants in February of 1980 and staked two fractional mineral claims (Lara and Magda) in the same month. I investigated the assessment files in Victoria in May of 1980 and BCDM Annual Reports to determine details of past exploration work on the claims. The search, in general, was unproductive. Little work has been done, apparently, on these claims in the past that has been recorded. So far as is known the deep overburden over most of the claims precluded normal prospecting work of the time, such as hand trenching. However, during the soil sampling I came across trenches that did not reach bedrock which appeared to be hand dug. Most likely, the claims were staked to protect the eastward extension of the Motherlode and possibly the Nugget vein.

PROPERTY AND CLAIM OWNERSHIP

Table 1 gives the details of the claims that form the Alturas Claim Group. The approximate total area of the ten claim group (including the fractions) is about 150 ha or about 370 acres. In October 1982, the writer and the individuals who held the other 50% interest in the mineral rights sold 100% interest in the claims to Canwin Holdings of 307-1933 West 5th Avenue, Vancouver. Canwin is now the sole holder of record to these claims as of this date.

Table 1

ALTURAS GROUP

CLAIM NAME	RECORD NO.	LOT NO.	EXPIRY DATE	AREA (HECTARES)	AREA (ACRES)
Motherlode Fr.	1489	8819	February 13/83	2.93	7.24
Alturas	1490	9915	February 13/83	20.89	51.63
Lodestone	1467	9916	February 11/83	11.87	29.33
Daisy Fr.	1534	9922	February 11/83	1.20	2.79
Beaver	1468	9920	February 11/83	20.89	51.61
Virginia	1469	8346	February 11/83	17.59	43.22
Comstock	1470	8347	February 11/83	15.47	38.23
Eldorado	1471	8346	February 11/83	18.43	45.55
Lara Fr.	1493	-	February 18/83	25.00	61.00
Magda Fr.	1492	-	February 18/83	25.00	61.00
				149.27 (Approx)	379.50 (Approx)

APPROXIMATE AREA OF GROUP = 150 HECTARES; or 370 ACRES; or ABOUT SIX UNITS

REGIONAL GEOLOGY

The Sheep Creek gold Camp is within an area that contained important deposits of tungsten, gold, silver and lead and zinc. The sedimentary rocks in the camp and adjoining base metal camps had been highly folded prior to the intrusion of igneous rocks, and two tight northerly trending anticlines (with a central syncline) make up the major Sheep Creek gold Camp structures. These are called the East and West Anticlines.

Gold ore in the narrow quartz veins which transect the northerly trending folds in an E-W direction is, almost without exception, confined to parts of the vein structure in which wallrock is made up of quartzite. The productive quartzite members are part of the PreCambrian (?) Quartzite Range formation. This formation has been subdivided into Motherlode, Nugget and Navada member. These last two important members underlie much of Alturas Group.

Despite the known and inferred presence of granitoid masses in or close to Sheep Creek mining Camp the metamorphic grade throughout the camp is low. Sandstone has been recrystallized to quartzite and shale to argillite. Minor schistosity and joint sheeting have been developed locally. Pre-vein and post-vein basic dikes have noted by Mathews (1).

"Northeasterly and easterly trending faults (vein fractures) and northwesterly trending faults appear to be, at least in part, conjugate shears." (1). Quartz and sulfides were introduced into the vein fractures that were developed as actual or potential openings. Folding is considered to have preceded the vein fracturing. Intermittent uplift followed the folding.

CLAIM GEOLOGY

Figure 3 shows the Alturas Claim Group in relation to the major stratigraphic and structural features as adapted from the geological map of the camp which accompanied Mathew's report (1). The axis of the Eastern Anticline does cross the western margin of the claim block. The amount of overburden cover here is not known to the writer. If overburden cover is heavy then this is a prime area for geochemical investigations in the future. Elsewhere on the claims it is known that much of the area, considered by Mathews to be underlain by favorable quartzite (Navada and Nugget members), is covered by overburden to some depth.

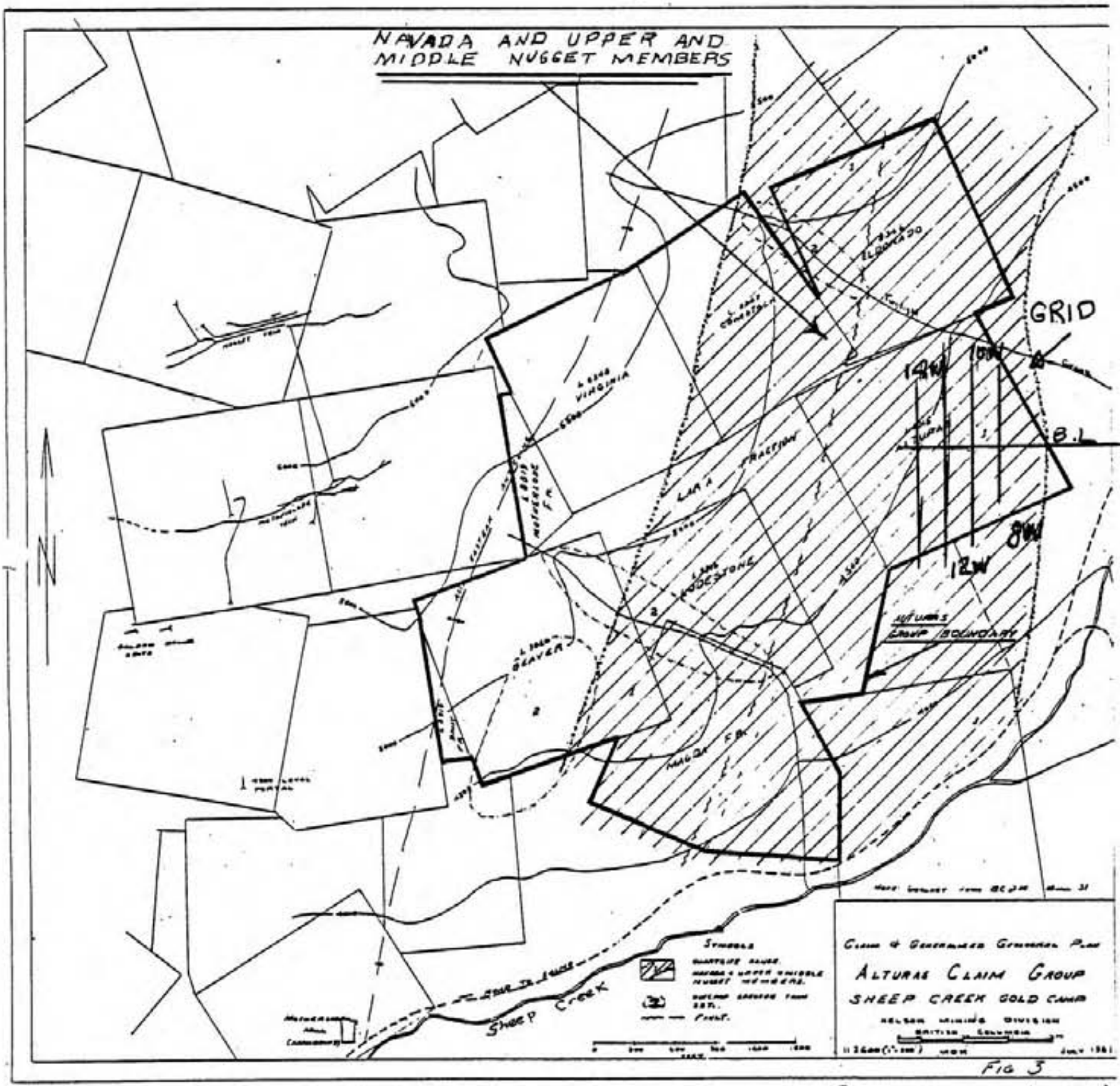

NAVADA AND UPPER AND MIDDLE NUGGET MEMBERS
GRID
14W
10W
8W
12W
B.L.
ALTURAS GROUP BOUNDARY
SHEEP CREEK
Claim & Geochemical Grid Plan
ALTURAS CLAIM GROUP
SHEEP CREEK GOLD CAMP
NELSON MINING DIVISION
BRITISH COLUMBIA
SCALE 1: 12500 (approx)
450 m

FIG 3

It is important to note that exploration work ceased in the camp about 1951. That is, exploration ceased in the camp at just about the time that geochemical soil sampling techniques were being used in Canada for the first time. Mathews does not refer to the use of geochemistry as an exploration tool at Sheep Creek. He does refer to the use of geophysics as an exploration technique. I did not succeed in locating references to geochemical exploration in the assessment files within the old Crown Grants of the claim group. There were references to post-1951 geochemical work outside the old Crown Grant areas of the camp. Considering the state of dormancy which succeeded the closure of the Sheep Creek mine in 1951 it is reasonable to assume that no geochemical work was ever done on the Alturas Group and, in fact, because of the overburden cover received little exploration attention even when the camp was active.

The writer's reconnaissance work in 1980 consisted of a one day traverse up the steep rocky slope on Beaver Claim. The outcrops were abundant from the elevation of Sheep Creek to the middle of Beaver Claim. Another day was spent on an E-W traverse across Alturas, Lara, Comstock and Virginia Claims. Except for one outcrop in Twilight Creek no outcrops were seen in the whole day-long traverse. Many pieces of unmineralized quartz float were noted. One piece of mineralized quartz float was found.

Mathews (1) noted that geophysical surveys were made in 1938 of the area between Reno and Nugget mines by Hans Lundberg for Reno Gold Mines Ltd. It is reported that one of the major anomalies led to the drilling and discovery of the Bluestone vein which was completely covered by overburden. Relatively small amounts of mineralization existed in the vein on the uppermost levels and stoping was abandoned above the second level at a point 150 feet below the surface. Thus ore bodies, covered by overburden, (according to Mathews) can be successful located by means of the geophysical technique used by Lundberg.

ADJOINING PROPERTIES

The Motherlode and Nugget Mines are about 500 m west of Alturas Group. The original work on the Nugget vein followed discovery of rich surface ore in the period 1905-1907. Within a few years the vein was explored to a depth of 137 m below the exposure. No blind ore shoots were found during exploration on both side of the original ore shoot. The mine was shut down in 1911 and not reopened until the end of WW1.

The Motherlode mine was developed prior to 1910 following discovery by surface work of the upper parts of two ore bodies on the Motherlode vein. Work from 1910 to 1914 (when the 100 tpd mill was shut down) extended these ore bodies to depths of 150 m below surface. At the end of WW1 the Nugget vein was reached from the No. 5 Level of Motherlode mine. The Nugget vein was productive through a vertical range of about 275 m. The Nugget mine was shut down in 1922. In 1932 the Reno Gold Mines Ltd. acquired the Nugget and Motherlode properties including the old Motherlode mill. In 1939 the Motherlode mill treated ore from the lower levels of the Motherlode mine and from the Bluestone vein. In 1941 the mill operated mainly on ore from the Nugget mine between 4900 level and older workings at higher levels. The Motherlode mill was closed in 1941 never to reopen.

ORE CONTROLS AND POTENTIAL OF ALTURAS GROUP

There are a number of geological factors which were useful in finding ore in the past and were generally accepted in the camp. They are:

1. Ore is confined to a series of roughly parallel northeasterly to easterly trending fault zones. No ore has been found in the northwesterly trending fault zones.

2. Ore is localized within the northeasterly to easterly trending zones where one or both walls consist of quartzite.

3. Ore bodies tend to be wider at easterly trending flexures in the vein zone.

4. In any one vein which carries ore shoots, the vertical persistence of ore is not more than 485 m. Higher parts of the vein tend to be too narrow and the wider parts two low grade.

5. It is a fact that most of the productive veins found at Sheep Creek Camp were located on the Western Anticline and on the western limb of the Eastern Anticline. But it should be noted that these structural zones coincide with a surface zone of abundant outcrops. The Alturas Group on the eastern limb of the Eastern Anticline (mostly overburden covered) could have undiscovered ore veins under the overburden.

6. Mathews does not dismiss the Eastern limb of the Eastern Anticline for exploration possibilities. Mathews (1) recommends that surface exploration work "and perhaps

some geophysical surveys might well be conducted at different levels to expose and explore northeasterly trending fault zones within the Nugget and Navada members."(1) He cites the Eureka vein, about 700 m south of the southern boundary of Alturas Group, as an example of a vein located on the Eastern limb of the Eastern Anticline.

It was the writer's conclusion based on Mathews' report (11) that geochemical and possibly geophysical surveys should be used to locate veins under the overburden. The intensity of the geochemical and the geophysical response could be used to locate the higher grade parts of the vein once found.

There is a possibility of discovering blind ore veins on the Eastern limb of the Eastern Anticline but geochemistry will be better used to search for surface ore veins that outcrop at the rock surface beneath the overburden.

There are three factors to consider when discussing the potential of the Alturas Group. These are listed below:

1. Production from Adjoining Properties

The Motherlode mine produced 108,000 tons of gold quartz ore at a grade of about 0.47 oz/ton Au. The Nugget mine produced 57,000 tons at 0.56 oz/ton Au. The combined production was 165,000 tons at 0.50 oz/ton Au. The Kootenay Belle does not adjoin the Alturas group but is a more or less typical vein of the camp. It produced 204,000 tons at 0.41 oz/ton. The mean production tonnage for the 32 producing veins of the camp was about 53,000 tons per vein.

2. Vein Mineralization

Minerals found in the productive quartz veins are the sulfides, pyrite, pyrrhotite, galena, and sphalerite. Other minerals known to occur in minor amounts are calcite, sericite, scheelite, wolframite, chalcopyrite, arsenopyrite, marcasite, tetrahedrite, ruby silver and gold. Several supergene minerals such as limonite, malachite, anglesite, smithsonite, and tungstite are known to occur in upper parts of some veins. Indium may occur in significant amounts in the sphalerite.

The sulfides rarely make up more than 10-20% of the full vein width. Only locally do galena and sphalerite together make up more than a few percent of the vein matter and as a general rule they constitute from a fraction of a

kg to a few kg per ton of ore. Gold occurs as isolated particles, generally from a few microns to 30 microns across. About one-third of the gold occurs within quartz, generally along boundaries within the veinlets. The rest of the gold occurs with sulfides, i.e., pyrite, galena and/or sphalerite. It has been generally accepted in the camp that vein quartz rich in galena and sphalerite will also be rich in gold. An official of one of the exploring mines of the camp in 1981 showed me a specimen of his highest grade gold ore. It was about 50% galena. The writer carried out a detailed sampling and mapping program at the Howard mine for about one month in 1980. The Howard mine is located about 8 km due north of the Alturas Group. I mapped and sampled a number of narrow quartz-gold veins underground and on surface. I found that the higher the sulfide content (they were the same sulfides as listed above) the higher the gold content of the vein. (12).

Oxidation has taken place to a depth of about 60 m in several of the veins, including the Motherlode, Nugget and Kootenay Belle A veins. Although oxidation has led to removal of sulfides from the vein it has had little or no effect on gold values.

3. Vein Widths, Lengths, and Frequency.

In the above and in what follows most of the data is taken directly from Mathews (1). The interpretations of his basic data are my own. "The widths of the veins in quartzite commonly range from zero to several feet. Many of the veins attain widths of 4 to 6 feet locally, but few of the veins have commonly such widths. The Queen vein, within the Western Anticline, is notable for its width, commonly being more than 6 feet wide and locally much wider--up to 16 feet wide." (1). Other veins are persistently narrow. The Black vein, for example, was less than one foot wide for most of its stoped length. "Greater than average widths tend to occur within the more favorable stratigraphic units, where the vein fractures tend to be more east than usual and between the forks of a branching structure..." (1). Flexures in vein strike and possibly dip may be, at least, as important as rock composition in influencing vein widths.

The interval between successive northeasterly trending veins is rarely more than 150 m. The spacing of the veins tends to be irregular with the intervals between them ranging from 60 m to about 150 m in the northern part of the Gold Belt mine and from 15 m to more than 215 m in the Sheep Creek mine. The lateral extent of the veins exceeds 300 m and a few are known to exceed 1000 m according to Mathews.

The Motherlode and the 3500 vein to the west are almost on line with one another. They could constitute a single vein about 1200 m long. Most productive veins are vertical or very steeply dipping to north or south.

The average N-S width of Alturas Group is about 1000 m. The E-W width averages about 1350 m. Assuming a N-S frequencey of 150 m (500') and an average vein length of 600 m (2000') then one should expect to find about six veins of the above lengths on the property within the favorable Navada and Nugget formations. At least, that would be the target for a geochemical soil sampling program. If two of the veins ultimately produced the same amount as the Motherlode and Nugget veins then the successful result of a soil sampling program would be, more than likely, an economically profitable result also.

SEPTEMBER 1982 SOIL SAMPLING PROGRAM

The basic thought behind the 1982 program was to select a limited area on the claim group (reasonably accessible) underlain by favorable rocks and carry out a limited program of soil sampling on relatively widely spaced centers. From the results it was hoped that follow-up soil sampling at closer intervals would be indicated by the "recce" program. Also it was hoped that the N-S frequency of veins would be indicated to be in the order of the spacing deduced by Mathews (see above).

Boyle (7) states on page 463 that pedogeochemical surveys (including soils) "should be conducted on a closely spaced grid (25 to 50 foot centers) because of the relatively narrow width of most types of gold bearing deposits." For deposits of disseminated types the spacing can be increased to 30 m centers or more in most cases. Obviously, the closer spacing should apply to the Sheep Creek veins. But to conduct a preliminary sampling of the claim group at this spacing could result in a very expensive geochemical program. So as a first test the writer decided to see if the wider (and cheaper spacing) would indicate targets for detailed sampling later at 10 m centers. If this preliminary program were successful then next season a "recce" program could be carried out over the whole of the claim group which was underlain by the favorable quartzite. Then detailed grids could be carried out over the selected targets as indicated by the results.

Also, although gold itself would probably be the best single indicator at Sheep Creek the writer felt that for

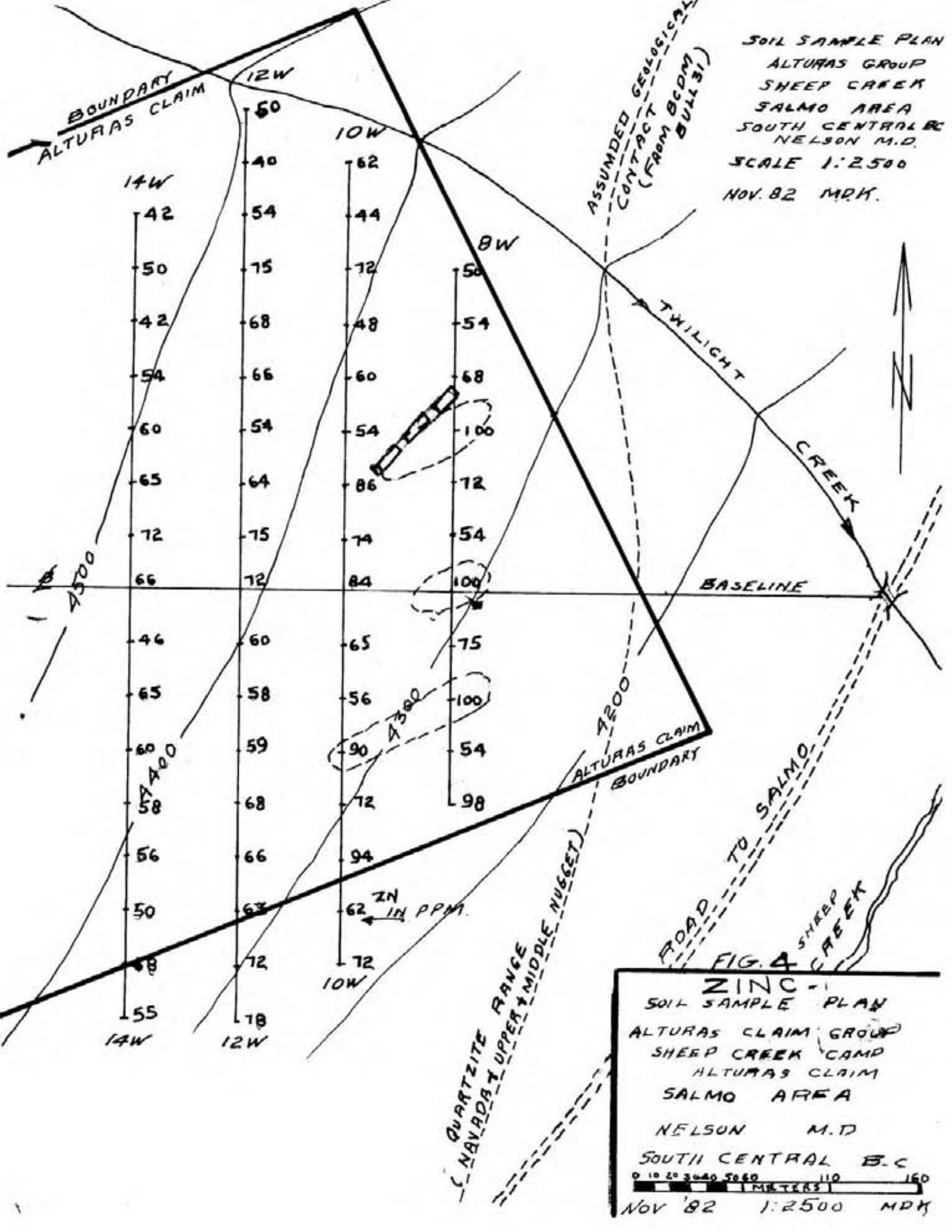
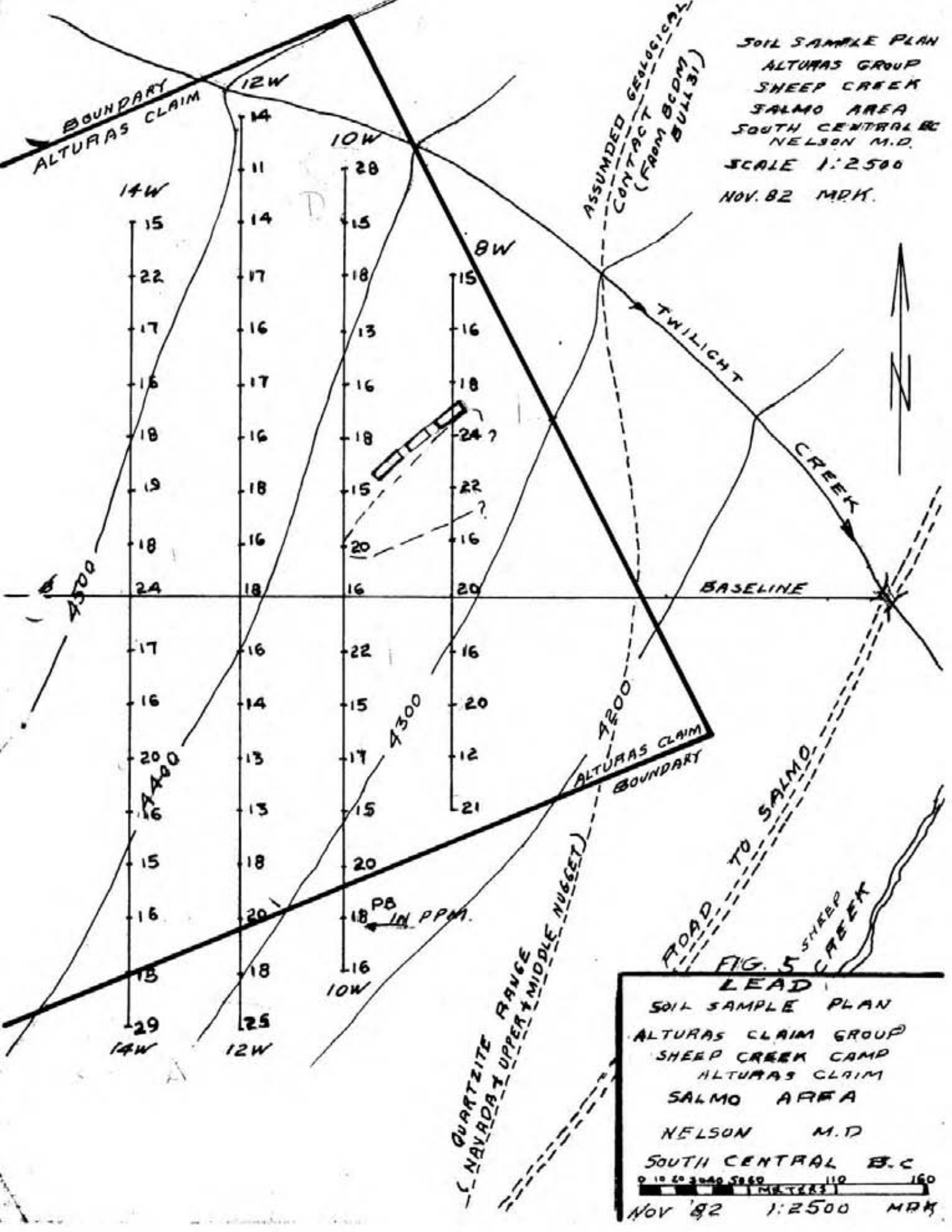
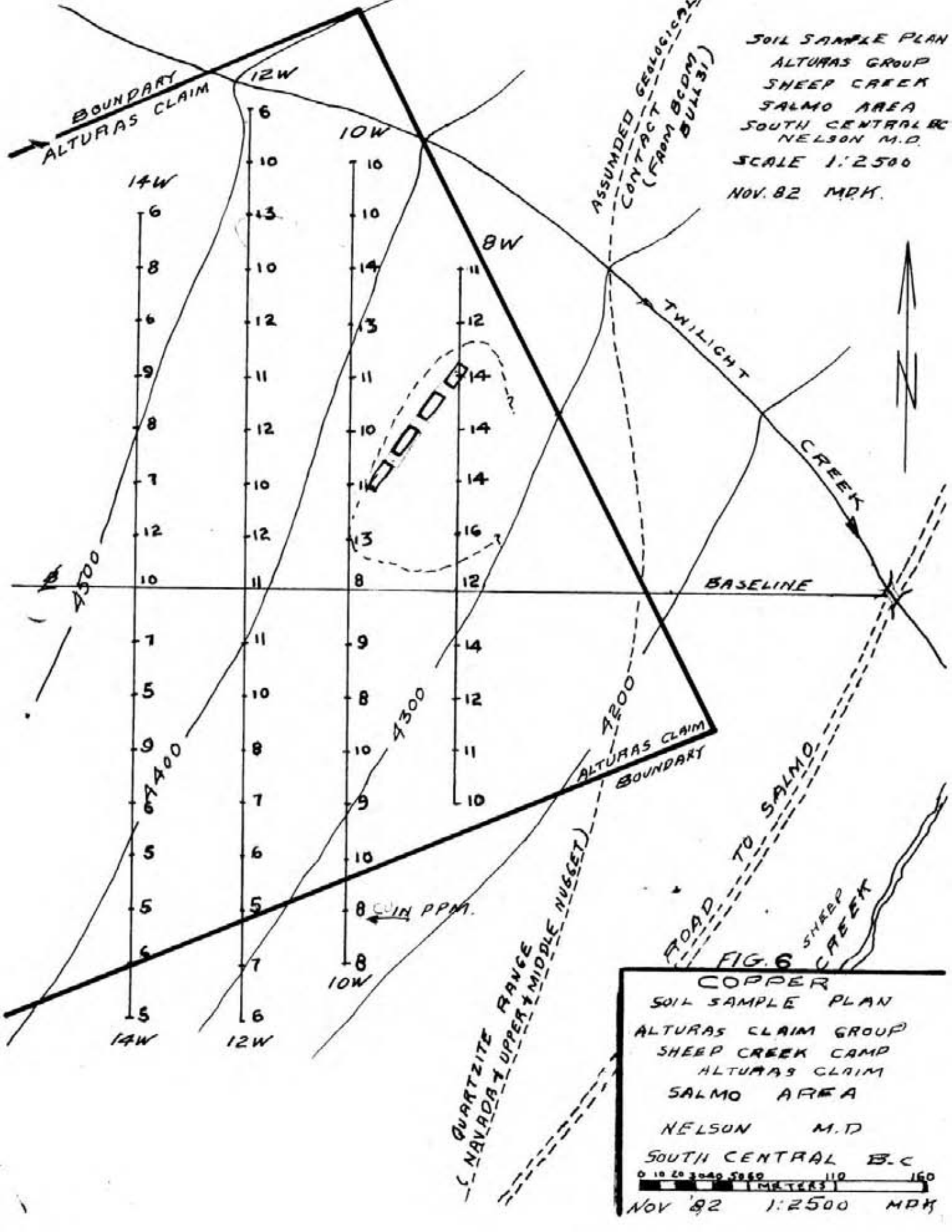
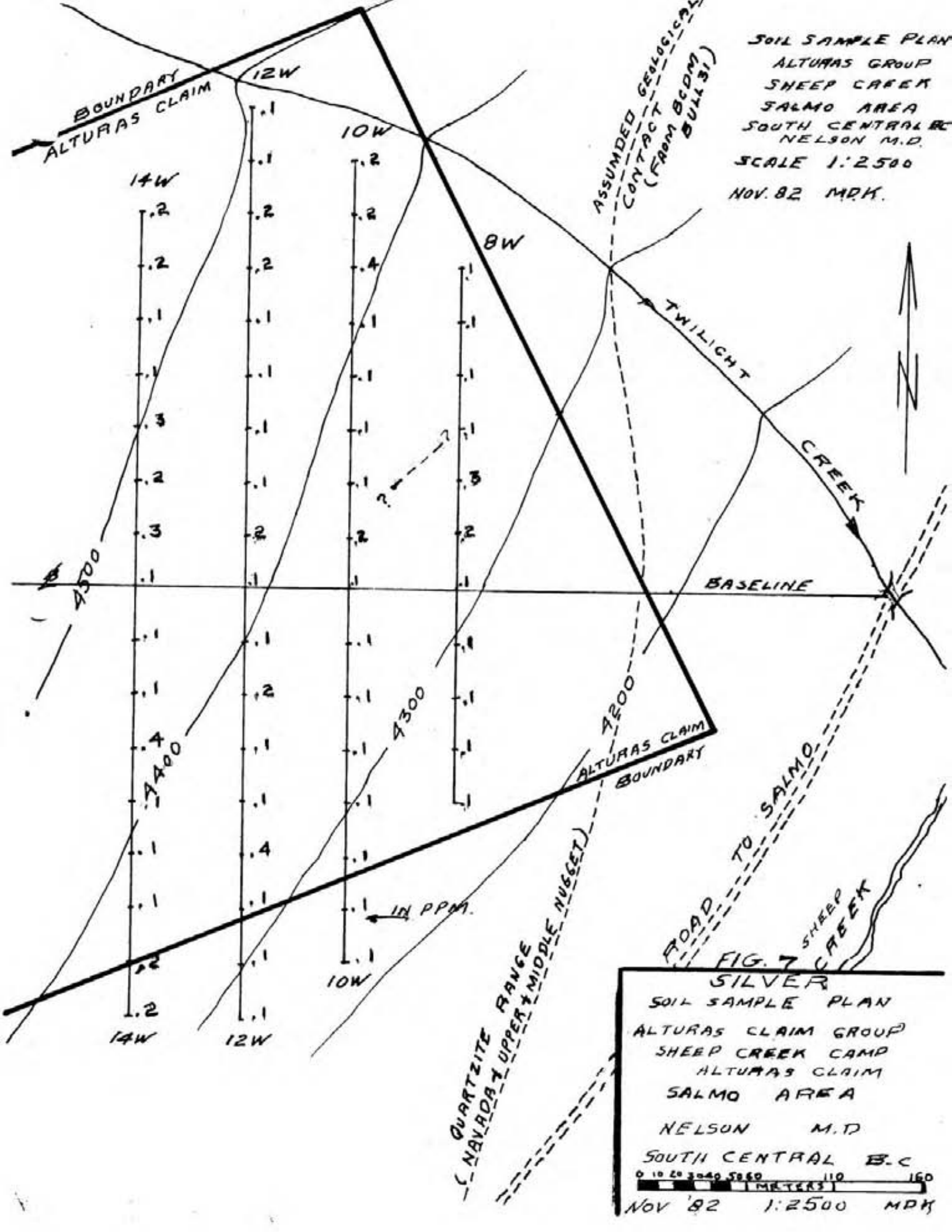


FIG. 4

ZINC - I
SOIL SAMPLE PLAN
ALTURAS CLAIM GROUP
SHEEP CREEK CAMP
ALTURAS CLAIM
SALMO AREA
NELSON M.D
SOUTH CENTRAL B.C
0 10 20 30 40 50 60 110 160
METERS
NOV '82 1:2500 MDK


SOIL SAMPLE PLAN
ALTURAS GROUP
SHEEP CREEK
SALMO AREA
SOUTH CENTRAL B.C.
NELSON M.D.
SCALE 1:2500
NOV. 82 MDK.
BOUNDARY
ALTURAS CLAIM
12W
10W
14W
8W
ASSUMED GEOLOGICAL CONTACT BCDM (FROM BULL 31)
TWILIGHT
CREEK
BASELINE
4500
4400
4300
4200
ALTURAS CLAIM
BOUNDARY
ROAD TO SALMO
SHEEP CREEK
QUARTZITE RANGE
(NAVADA & UPPER & MIDDLE NUGGET)
PB IN PPM.
FIG. 5
LEAD
SOIL SAMPLE PLAN
ALTURAS CLAIM GROUP
SHEEP CREEK CAMP
ALTURAS CLAIM
SALMO AREA
NELSON M.D
SOUTH CENTRAL B.C
METRES
NOV '82 1:2500 MDK


SOIL SAMPLE PLAN
ALTURAS GROUP
SHEEP CREEK
SALMO AREA
SOUTH CENTRAL BC
NELSON M.D.
SCALE 1:2500
NOV. 82 MDK.
BOUNDARY
ALTURAS CLAIM
12W
10W
14W
8W
ASSUMED GEOLOGICAL CONTACT BCDM BULL 31
(FROM
TWILIGHT
CREEK
BASELINE
4500
4400
4300
4200
ALTURAS CLAIM
BOUNDARY
QUARTZITE RANGE
(NAVADA & UPPER & MIDDLE NUGGET)
ROAD TO SALMO
SHEEP CREEK
IN PPM.
14W
12W
10W
FIG. 6
COPPER
SOIL SAMPLE PLAN
ALTURAS CLAIM GROUP
SHEEP CREEK CAMP
ALTURAS CLAIM
SALMO AREA
NELSON M.D
SOUTH CENTRAL B.C
0 10 20 30 40 50 60 110 160
METERS
NOV '82 1:2500 MDK


SOIL SAMPLE PLAN
ALTURAS GROUP
SHEEP CREEK
SALMO AREA
SOUTH CENTRAL B.C.
NELSON M.D.
SCALE 1:2500
NOV. 82 MDK.
BOUNDARY
ALTURAS CLAIM
12W
10W
14W
8W
ASSUMED GEOLOGICAL CONTACT (FROM BLOM BULL 31)
TWILIGHT
CREEK
BASELINE
4500
4400
4300
4200
IN PPM.
ALTURAS CLAIM
BOUNDARY
QUARTZITE RANGE
(NAVADA + UPPER + MIDDLE NUGGET)
ROAD TO SALMO
SHEEP CREEK
FIG. 7
SILVER
SOIL SAMPLE PLAN
ALTURAS CLAIM GROUP
SHEEP CREEK CAMP
ALTURAS CLAIM
SALMO AREA
NELSON M.D
SOUTH CENTRAL B.C
0 10 20 30 40 50 60 110 160
METERS
NOV '82 1:2500 MDK

ANALYTICAL METHODS AND RESULTS

All the samples were left in their paper bags to dry at room temperature. Later they were brought to Acme Analytical Laboratories Ltd. at 825 E. Hastings Street, Vancouver B.C. for sample preparation and geochemical analyses.

At the Laboratory the samples were dried at 60°C and sieved to -80 mesh. A 0.5 gram sample of the -80 mesh portion of the sample was digested in hot dilute aqua regia in a boiling water bath and diluted to 10 ml with demineralized water. Measurment of the Ag, Cu, Pb, and Zn content of the material was made by atomic absorption in ppm. Silver was corrected for background.

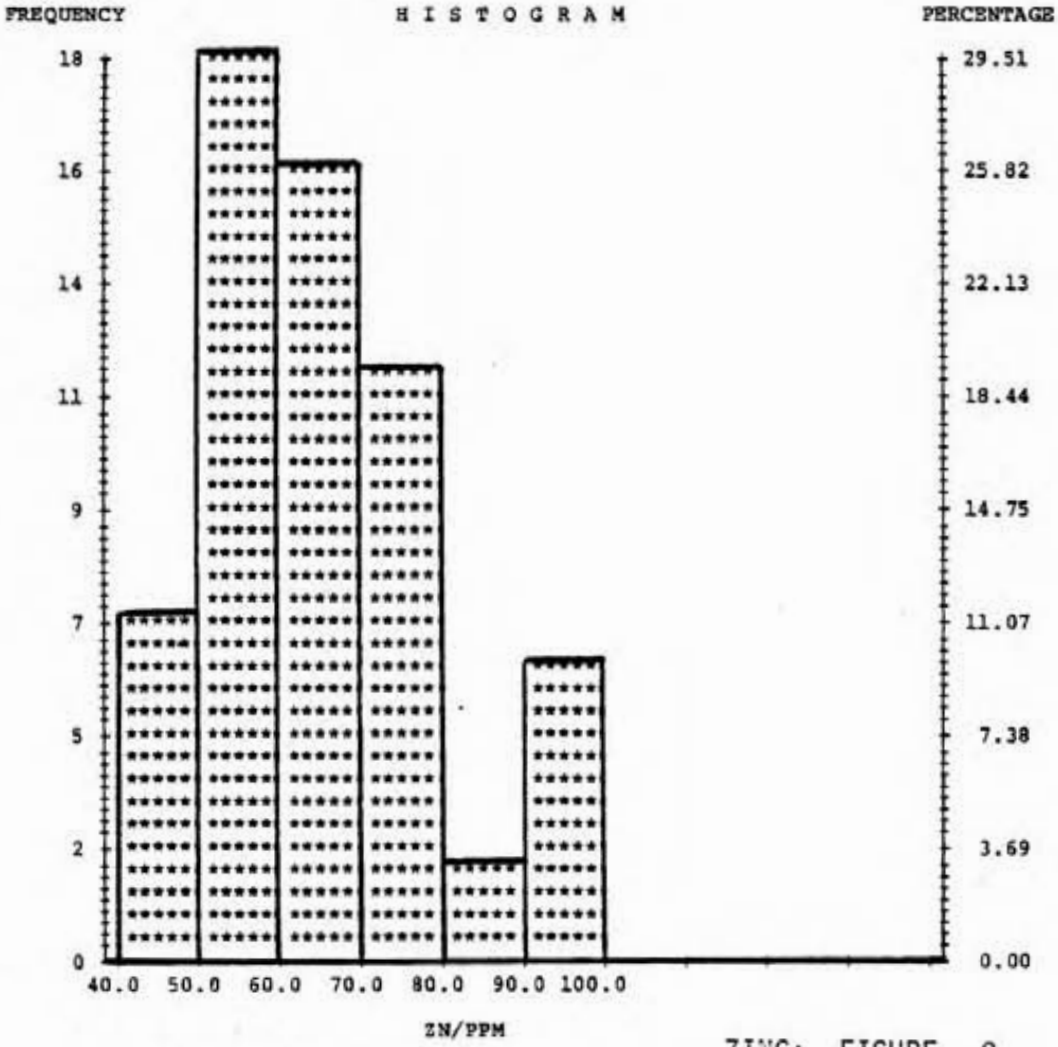
The results of the analyses are shown in Appendix A. At first sight the results are quite unimpressive and one would assume from a cursory examination of the results that the program had been a failure in detecting zones of follow-up interest. Also it would appear that the program had failed to verify a N-S spacing of 150 m for the veins. However, after statistical analyis and plotting the results can be interpreted as indicating a 60 m long zone of interest near station 10W 3+00N. Also two zones about 200m apart are weakly indicated by the results. These could represent northeasterly trending veins near the expected frequency.

STATISTICAL ANALYIS OF RESULTS

The writer's TRS-80 Model II computer was used to process the analytical results. The TRS-80 program "Statistical Analysis " was used to generate histograms, frequency distribution tables, a correlation matrix and descriptive statistics. These are shown in Figures 8 to 12.

It is obvious from Figure 12, the correlation matrix, that correlation between the amounts of the four metal ions in the soil of the grid is poor to non-existent. The best of the poor correlations was between variables 3 and 2 or lead and zinc. The second best was between variables 1 and 3 or copper and zinc. The third best was between lead and silver. The r or correlation coefficient between the variables was very low and poor. Yet these correlations do agree with known geological and mineralogical parameters of the Sheep Creek auriferous quartz veins.

Figures 8 to 11 show the histograms of the samples for



ZINC: FIGURE 8

DATA FILE USED: "ALTURAS"

F R E Q U E N C Y D I S T R I B U T I O N

INTERVAL			FREQUENCY	%	CUMULATIVE %
40.000	TO	49.999	7	11.48	11.48
50.000	TO	59.999	18	29.51	40.98
60.000	TO	69.999	16	26.23	67.21
70.000	TO	79.999	12	19.67	86.89
80.000	TO	89.999	2	3.28	90.16
90.000	TO	100.000	6	9.84	100.00

VARIABLE: ZN/PPM
DATA FILE USED: "ALTURAS"
VARIABLE: ZN/PPM
DATA FILE USED: "ALTURAS"

D E S C R I P T I V E S T A T I S T I C S

VARIABLE: ZN/PPM SAMPLE SIZE (N) = 61

SAMPLE STATISTICS:

MEAN	= 64.6885	RANGE	= 60
VARIANCE	= 220.378	MAXIMUM	= 100
STD. DEV.	= 14.8451	MINIMUM	= 40

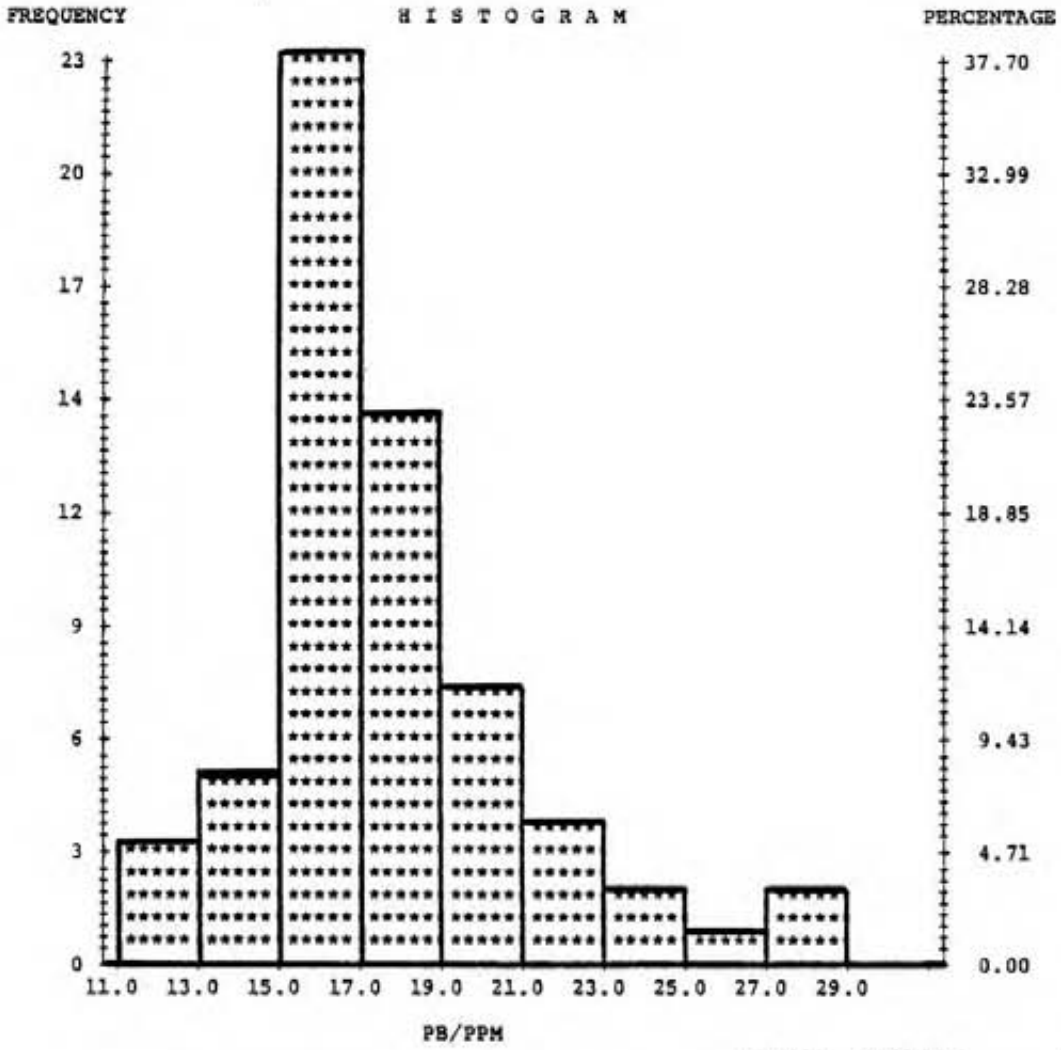
UNBIASED ESTIMATES OF POPULATION PARAMETERS:

VARIANCE	= 224.051	STD. DEV.	= 14.9683

DATA DISTRIBUTION COEFFICIENTS:

SKEWNESS	= .736055	KURTOSIS	= .0971313

DATA FILE USED FOR THIS ANALYSIS: "ALTURAS"



DATA FILE USED: "ALTURAS"

LEAD: FIGURE 9

F R E Q U E N C Y D I S T R I B U T I O N

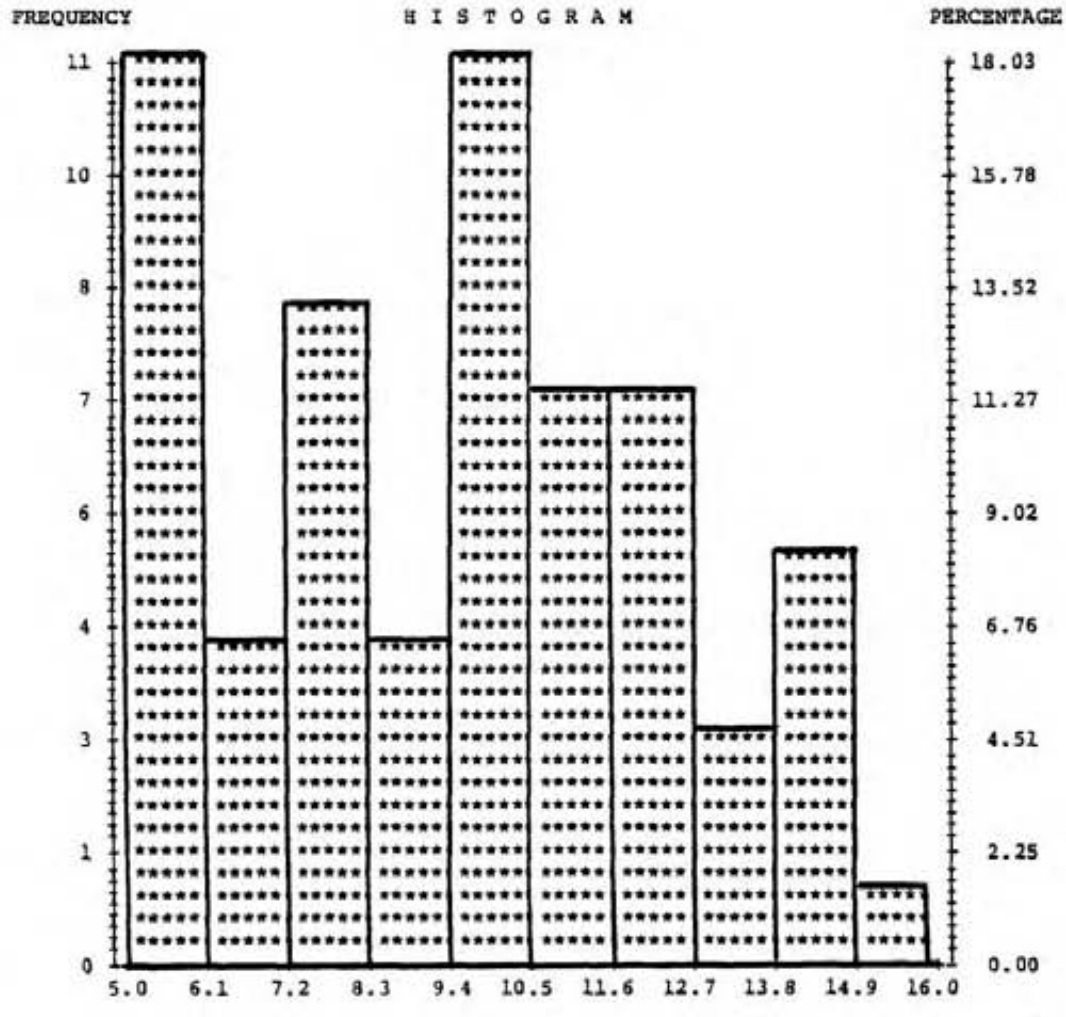
INTERVAL			FREQUENCY	%	CUMULATIVE %
11.000	TO	12.999	3	4.92	4.92
13.000	TO	14.999	5	8.20	13.11
15.000	TO	16.999	23	37.70	50.82
17.000	TO	18.999	14	22.95	73.77
19.000	TO	20.999	7	11.48	85.25
21.000	TO	22.999	4	6.56	91.80
23.000	TO	24.999	2	3.28	95.08
25.000	TO	26.999	1	1.64	96.72
27.000	TO	29.000	2	3.28	100.00

DATA FILE USED: "ALTURAS"

D E S C R I P T I V E S T A T I S T I C S

VARIABLE: PB/PPM SAMPLE SIZE (N) = 61
SAMPLE STATISTICS:
MEAN = 17.459 RANGE = 18
VARIANCE = 12.5762 MAXIMUM = 29
STD. DEV. = 3.54629 MINIMUM = 11
UNBIASED ESTIMATES OF POPULATION PARAMETERS:
VARIANCE = 12.7858 STD. DEV. = 3.57572
DATA DISTRIBUTION COEFFICIENTS:
SKEWNESS = 1.12173 KURTOSIS = 1.53994

DATA FILE USED FOR THIS ANALYSIS: "ALTURAS"



COPPER: FIGURE 1C

DATA FILE USED: "ALTURAS"

F R E Q U E N C Y D I S T R I B U T I O N

INTERVAL			FREQUENCY	%	CUMULATIVE %
5.000	TO	6.099	11	18.03	18.03
6.100	TO	7.199	4	6.56	24.59
7.200	TO	8.299	8	13.11	37.70
8.300	TO	9.399	4	6.56	44.26
9.400	TO	10.499	11	18.03	62.30
10.500	TO	11.599	7	11.48	73.77
11.600	TO	12.699	7	11.48	85.25
12.700	TO	13.799	3	4.92	90.16
13.800	TO	14.899	5	8.20	98.36
14.900	TO	16.000	1	1.64	100.00

D E S C R I P T I V E S T A T I S T I C S

VARIABLE: CU/PPM SAMPLE SIZE (N) = 61

SAMPLE STATISTICS:

MEAN	= 9.59016	RANGE	= 11
VARIANCE	= 7.55335	MAXIMUM	= 16
STD. DEV.	= 2.74834	MINIMUM	= 5

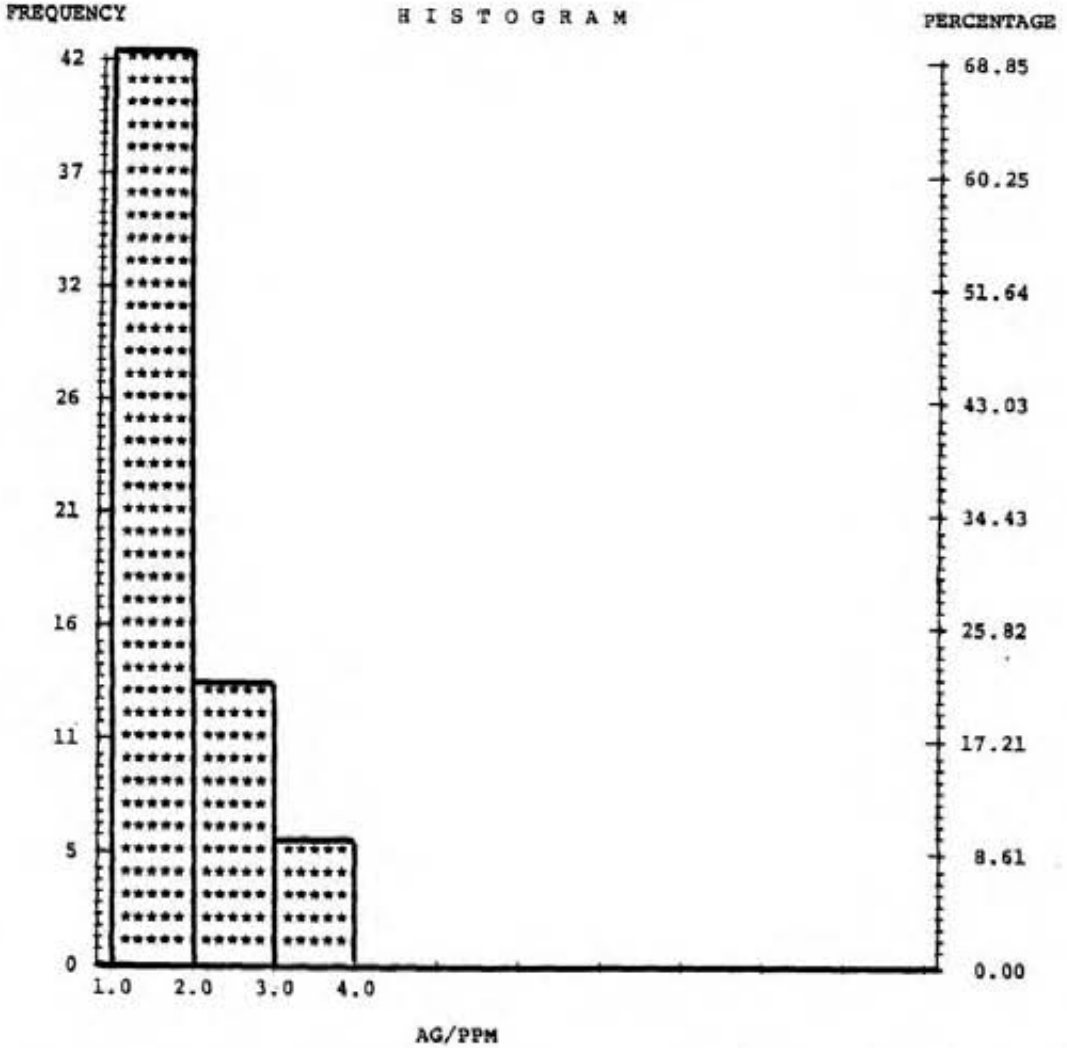
UNBIASED ESTIMATES OF POPULATION PARAMETERS:

VARIANCE	= 7.67924	STD. DEV.	= 2.77114

DATA DISTRIBUTION COEFFICIENTS:

SKEWNESS	= .0518833	KURTOSIS	= -.788471

DATA FILE USED FOR THIS ANALYSIS: "ALTURAS"



DATA FILE USED: "ALTURAS"

SILVER X10: FIGURE 11

F R E Q U E N C Y D I S T R I B U T I O N

INTERVAL			FREQUENCY	%	CUMULATIVE %
1.000	TO	1.999	42	68.85	68.85
2.000	TO	2.999	13	21.31	90.16
3.000	TO	4.000	6	9.84	100.00

VARIABLE: AG/PPM
DATA FILE USED: "ALTURAS"

D E S C R I P T I V E S T A T I S T I C S

VARIABLE: AG/PPM X10 SAMPLE SIZE (N) = 61

SAMPLE STATISTICS:

MEAN	= 1.45902	RANGE	= 3
VARIANCE	= .641763	MAXIMUM	= 4
STD. DEV.	= .801101	MINIMUM	= 1

UNBIASED ESTIMATES OF POPULATION PARAMETERS:

VARIANCE	= .652459	STD. DEV.	= .807749

DATA DISTRIBUTION COEFFICIENTS:

SKEWNESS	= 1.85556	KURTOSIS	= 2.76981

DATA FILE USED FOR THIS ANALYSIS: "ALTURAS"

C O R R E L A T I O N M A T R I X

VAR. #	1	2	3	4
1	61	-0.060	0.287	0.093
2	61	61	0.321	0.203
3	61	61	61	-0.087
4	61	61	61	61

Note: r's in upper triangle, N's in diagonal, contingent N's in lower triangl

V A R I A B L E S T A T I S T I C S

VARIABLE #	VARIABLE NAME	MEAN	S.D.
1	CU/PPM	9.5902	2.7483
2	PB/PPM	17.4590	3.5463
3	ZN/PPM	64.6885	14.8453
4	AG/PPM	1.4590	0.8011

DATA FILE USED: "ALTURAS"

FIGURE 12

distribution of lead, copper, zinc and silver. It should be noted that because this computer program cannot handle decimal amounts the silver results in ppm were all multiplied by a factor of 10. This will not affect interpretation of the results provided this multiplication is taken into account. The quantities for the other elements were unchanged. Below the histograms are tables of frequency distribution and descriptive statistics.

Lead:

The lead distribution in the samples is a skewed normal distribution pattern. Background values range from 11 to 26 ppm. The "threshold" value is interpreted for lead to be 24-26 ppm and above 26 the values are considered to be anomalous. Please see Figure 4.

The highest anomalous value in Pb was found at the end of line 14W at 8+00S. The second highest was at 10W 8+00N. Because these high values were not repeated in the other metals (especially zinc), for the time being, they are being disregarded. Also one of them may be outside the Alturas Claim block. The writer considers that the 24 ppm result in lead at L8W 3+00N is significant.

Zinc:

The zinc histogram indicates a normally distributed sample pattern but well skewed to the left. Clearly anomalous results are from 90-100 ppm and "threshold" from 80-90 ppm. The normal distribution pattern is good but not nearly as good as for lead. Still for a limited number of samples one is justified in using the above conclusion. Figure 5 indicates a zone of interest in zinc at the south ends of lines 10W and 8W and, more importantly, on the same lines at 3+00N and 2+00N. The zone at the south ends of these two lines is coincident with very weak (not anomalous) values for lead. There is also a zone of interest at 3+00S and 2+00S for lines 10W and 8W.

Copper:

The histogram pattern does not indicate normal distribution for the copper content of soils on the grid sampled. This could be due to intrinsic factors or an insufficient number of samples. Figure 6 shows that the highest copper sample was on line 8W at 1+00N. The other highest value (14 ppm) is on the same line at 2+00N, 3+00N and 4+00N. The writer interprets this result to be weakly corroborative of the indicated zinc and lead anomalies at

about the same location. Also at 1+00S on line 8W a weak 14 ppm result in copper may indicate coincident weak lead and zinc zones near and just south of the baseline. A 13 ppm sample on line 10 W at 1+00N is considered to indicate a trend to the weak zone north of the baseline here.

Silver:

In general, the statistical analysis (including the histogram) indicates that silver is of little value or use as an indicator metal at Sheep Creek. This probably reflects the tenor of the silver content of the ore mined at Sheep Creek which was generally well under one ounce of silver per ton. The distribution appears to be lognormal, a result one might expect for a precious metal. It does appear that (inconlusively) possibly silver in the range of .3-.4 ppm might be anomalous. But that is far from clear. So it is concluded that silver will not serve (in succeeding sampling programs) as a useful quide to anomalous soil dispersion patterns.

CONCLUSIONS

Using the coincident results of weakly anomalous samples for lead, zinc and copper near lines 8W and 10W at about 3+00N and the "fall-line" of the surface contours there is indicated a zone for "follow-up" work. This result can be interpreted as a northeasterly trending vein as shown in Figures 4, 5, and 6. It should be remembered that sampling at these wide centers might not pick up highly anomalous values (many times above background) if the sample is not immediately over the source.

There is, in the writer's opinion, clearly enough justification in the sample results for a detailed soil sample program at 10 m centers next field season--or even this winter. In addition the 'pulps' should be tested for gold, arsenic and tungsten. The analytical results should be plotted and analysed statistically for coincident anomalies on the grid and especially near 3+00N on lines 8W and 10W.

As for vein frequency in a N-S direction no firm conclusions are possible at this time. But there is a weak suggestion of multiple anomalies on the grid. For example, copper and zinc results suggest a very weak zone on lines 10W and 8W about 2+00S. Perhaps the additional metals recommended for analysis will indicate more strongly than at present the existence of a N-S frequency pattern to veins.

RECOMMENDATIONS

1. The 61 sample pulps of the 1982 program at Alturas Claim Group should be analysed for gold, arsenic, and tungsten. The results should be plotted and analysed statistically. These results should be compared to the base metal results.

2. Next field season a grid at 10 m centers should be laid out over the anomalous (weak) zone interpreted to be on lines 8W and 10W at about 3+00N.

3. Next field season a grid of soil sample should be collected over all of the Alturas Group which is overburden covered and near favorable rocks and structures. The grid lines should be 60 m apart and samples taken every 30 m on these lines.

4. Possibly a geophysical program could be run over the suspected anomalous zone this winter.

Respectfully submitted,

M. D. Kierans

M.D. Kierans P.Eng.

CERTIFICATE

I, Martin D. Kierans, of 1503-1616 Pendrell Street, Vancouver B.C. do hereby certify that:

1. I am a Geological Engineer.

2. I am a Resident Member of the Association of Professional Engineers of the Province of British Columbia.

3. I am a graduate in Geological Sciences of the University of British Columbia (M.A. 1952) and McGill University (B. Sc. 1949).

4. I have practised my profession of Geological Engineer and Mine and Exploration Geologist for 30 years.

5. My knowledge of the property discussed in this report is based on a field visit to the property for two days in June of 1980 and directing a two-man party on a soil sampling project in September 1982. In addition I have studied assessment files, BCDM Annual Reports and other government reports and maps. I also spent one month in 1980 on a surface and underground mapping project at the Howard Mine (about 8 km to the north of the Alturas Group) where there are similar narrow auriferous quartz veins.

6. I have at present no interest in the subject claims nor Canwin Holdings Inc. nor do I expect any.

DATED January 15, 1983 at Vancouver, British Columbia.

M. D. Kierans

M.D. Kierans P. Eng.

COST STATEMENT

	$(CAN)
September 3, 1982 Vancouver-Salmo B.C	
Travel Time M.D. Kierans 1 day @$200	200.00
Travel Time K.J. Kierans 1 day @$ 60	60.00
September 4-6, 1982, Salmo B.C.	
Field work, Grid layout and soil sampling	
3 days @ $300 for MDK	900.00
Field work, Helper on grid layout and soil	
sampling , 3 days@ $60 for KJK	180.00
September 7, 1982 Salmo-Vancouver	
Travel time MDK 1 day @ $200	200.00
Travel time KJK 1 day @ $ 60	60.00
Truck rental,gasoline and oil	
5 days @ $20.00	100.00
Gasoline and oil	100.00
Motel 4 days for 2	100.00
Food and meals for 2	95.00
61 soil sample preparation and analyes	253.15
Report preparation 4 days @ $200	800.00
Typing, copies etc	211.50
TOTAL	3259.65

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To: M.D. Kierans, P. Eng.
1503 - 1616 Pendrell St.,
Vancouver, B.C.
V6G 1S8

APPENDIX A

File No. 82-1283
Type of Samples Soils
Disposition

Alturas Claim

GEOCHEMICAL ASSAY CERTIFICATE

SAMPLE No.		Cu	Pb*	Zn	Ag		
8W	BL	12	20	100	.1	1	1
	1N	16	16	54	.2	2	2
	2	14	22	72	.3	3	3
	3	14	24	100	.1	4	4
	4	14	18	68	.1	5	5
	5	12	16	54	.1	6	6
	6N	11	15	50	.1	7	7
	1S	14	16	75	.1	8	8
	2	12	20	100	.1	9	9
	3	11	12	54	.1	10	10
8W	4S	10	21	98	.1	11	11
							12
10W	BL	8	16	84	.1	12	13
	1N	13	20	74	.2	13	14
	2	11	15	86	.1	14	15
	3	10	18	54	.1	15	16
	4	11	16	60	.1	16	17
	5	13	13	48	.1	17	18
	6	14	18	72	.4	18	19
	7	10	15	44	.2	19	20
	8N	10	28	52	.2	20	21
	1S	9	22	65	.1	21	22
	2	8	15	56	.1	22	23
	3	10	17	90	.1	23	24
	4	9	15	72	.1	24	25
	5	10	20	94	.1	25	26
	6	8	18	62	.1	26	27
10W	7S	8	16	72	.1	27	28
							29
12W	BL	11	12	72	.1	28	30
	1N	12	16	75	.2	29	31
	2	10	18	64	.1	30	32
	3	12	16	54	.1	31	33
	4	11	17	66	.1	32	34
	5	12	16	68	.1	33	35
	6	10	17	75	.2	34	36
	7	13	14	54	.2	35	37
	8	10	11	40	.1	36	38
12W	9N	8	14	50	.1	37	39
							40

All reports are the confidencial property of clients
All results are in PPM.

DIGESTION:.....

DETERMINATION:.....

DATE SAMPLES RECEIVED Sept. 30, 1982

DATE REPORTS MAILED Oct. 8, 1982

ASSAYER .....

DEAN TOYE, B.Sc.
CHIEF CHEMIST
CERTIFIED B.C. ASSAYER

ACME ANALYTICAL LABORATORIES LTD.
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852 E. Hastings St., Vancouver, B.C. V6A 1R6
phone:253 - 3158

To: M.D. Kieran, P. Eng.

APPENDIX A

File No. 82-1283

Type of Samples Soils

Disposition

GEOCHEMICAL ASSAY CERTIFICATE

SAMPLE No.		Cu	Pb*	Zn	Ag								
12W	1S	11	16	60	.1							38	1
	2	10	14	58	.2							39	2
	3	8	13	59	.1							40	3
	4	7	15	68	.1							41	4
	5	6	18	66	.4							42	5
	6	5	20	68	.1							43	6
	7	7	18	72	.1							44	7
12W	8S	6	25	78	.1							45	8
													9
14W	BL	10	24	66	.1							46	10
	1N	12	18	72	.3							47	11
	2	7	19	65	.2							48	12
	3	8	18	60	.3							49	13
	4	9	16	54	.1							50	14
	5	6	17	42	.1							51	15
	6	8	22	50	.2							52	16
	7N	6	15	42	.2							53	17
	1S	7	17	46	.1							54	18
	2	5	16	65	.1							55	19
	3	9	20	60	.4							56	20
	4	6	16	58	.1							57	21
	5	5	15	56	.1							58	22
	6	5	16	50	.1							59	23
	7	6	15	48	.2							60	24
14W	8S	5	29	55	.2							61	25
													26
													27
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													38
													39
													40

All reports are the confidencial property of clients
All results are in PPM.

DIGESTION:

DETERMINATION:

DATE SAMPLES RECEIVED Sept. 30, 1982

DATE REPORTS MAILED Oct. 8, 1982

ASSAYER

DEAN TOYE, B.Sc.
CHIEF CHEMIST
CERTIFIED B.C. ASSAYER

APPENDIX B

Resume

KEVIN J. KIERANS

1503 - 1616 Pendrell Street

Vancouver, B. C. V6G 1S8

(604) 682-0289

EDUCATION

1971	St. Patrick's High School, Vancouver, B.C.
1982	Bachelor of General Studies (minor: English), S.F.U.

EXPERIENCE

April/81 Oct./81	Underground sampling, drafting, office work, at Nickel Plate Mine, Mascot Gold Mines Ltd., 900 - 837 West Hastings St. Vancouver, B.C.
May/80 July/80	Staking, underground wall washing, and sampling for Kootenay Business Services, Nelson, B.C.
Aug/80	Underground sampling at Nickel Plate Mine, Mascot Gold Mines Ltd.
April/79 Aug./79	Drafting, and office work for Trigg, Woollett, Consulting Geologists of Edmonton, Alberta.
May/78 Sept./78	Maintenance: cleaning, painting, landscaping for Dawson Creek and District Hospital, Dawson Creek, B.C.
Sept./78 March/79	Clerk for Dawson Creek Public Library, Dawson Creek B.C.
May/77 Aug./77	Slashing and burning on highway rights of way near Dawson Creek, B.C. for B.C. Highways Dept.
May.76 Aug./76	Laborer: house construction, for Rick Lowcay, Dawson Creek, B.C.
Jan./75 June/75	Teacher: grade 10 English and Physical Education for grades 1-11. Badminton coach, and assistant basketball coach. St. Patrick's School Board, Vancouver, B.C.

April/74 Dec./74	Underground sampler and assayer for Granduc Mining Co., Stewart, B.C.
1968 1973	Six summers employment in mining exploration: soil sampling, staking claims, helper on geophysical surveys, picket line cutting.

PERSONAL

Born October 23, 1953, Monterrey, Mexico. Canadian Citizen. Weight 165 lbs. Height 6'1". Health excellent.

Fluent in English and French.

Hobbies: motorcycle riding, scuba diving, sailing, running, writing short stories.

REFERENCES

Available upon request