

FINLAYSON LAKE PROJECT REPORT - 1978

By F. Chow

105 - G - 14-15

Summary by W.M. Sirola

005923

# KERR ADDISON MINES LIMITED

(FOR INTER-OFFICE USE ONLY)

To D. Lowrie

From W.M. Sirola, Vancouver

LETTER OF TRANSMITTAL -

Subject Finlayson Lake Project Report - 1979

Date May 1st, 1979.

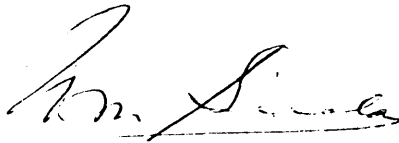
Fred's report covers in considerable detail the exploration activities on the Pelly claims during the 1978 exploration season.

As you know the project was instigated through the discovery by Carlos and Harris of mineralized lead-zinc-silver float just west of the Pelly River approximately 20 km. north-west of the west end of Finlayson Lake. Preliminary electromagnetic and geochemical work made the project look very interesting indeed. Subsequent soil analyses collected by a new crew under the direction of Fred Chow neatly eliminated all of the initial promising geochemical results.

All efforts to explain the initial results by discussion with the Vancouver Geochem Lab, by a study of possible hydromorphic and float-train dispersion, failed, when it was found that none of the previously high samples was authentic. There remained then the possibility of salting - a possibility which was borne out by the presence of fresh grains of sphalerite and galena in the soil samples.

As explained in the text of the report, there are anomalous situations to be checked in the north-west corner of the claim group, on the east side and along the east-west fault near the south boundary. These are not high priority situations and don't necessarily have to be worked on during the summer of 1979.

The three diamond drill holes have been used to maintain a group of sixty-nine claims to a common date of January 21st, 1982.



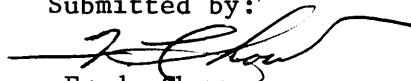
W.M. Sirola

WMS:lg

FINLAYSON LAKE PROJECT

1978

Submitted by:



Fred Chow

9th March, 1979

FINLAYSON LAKE PROJECT - 1978

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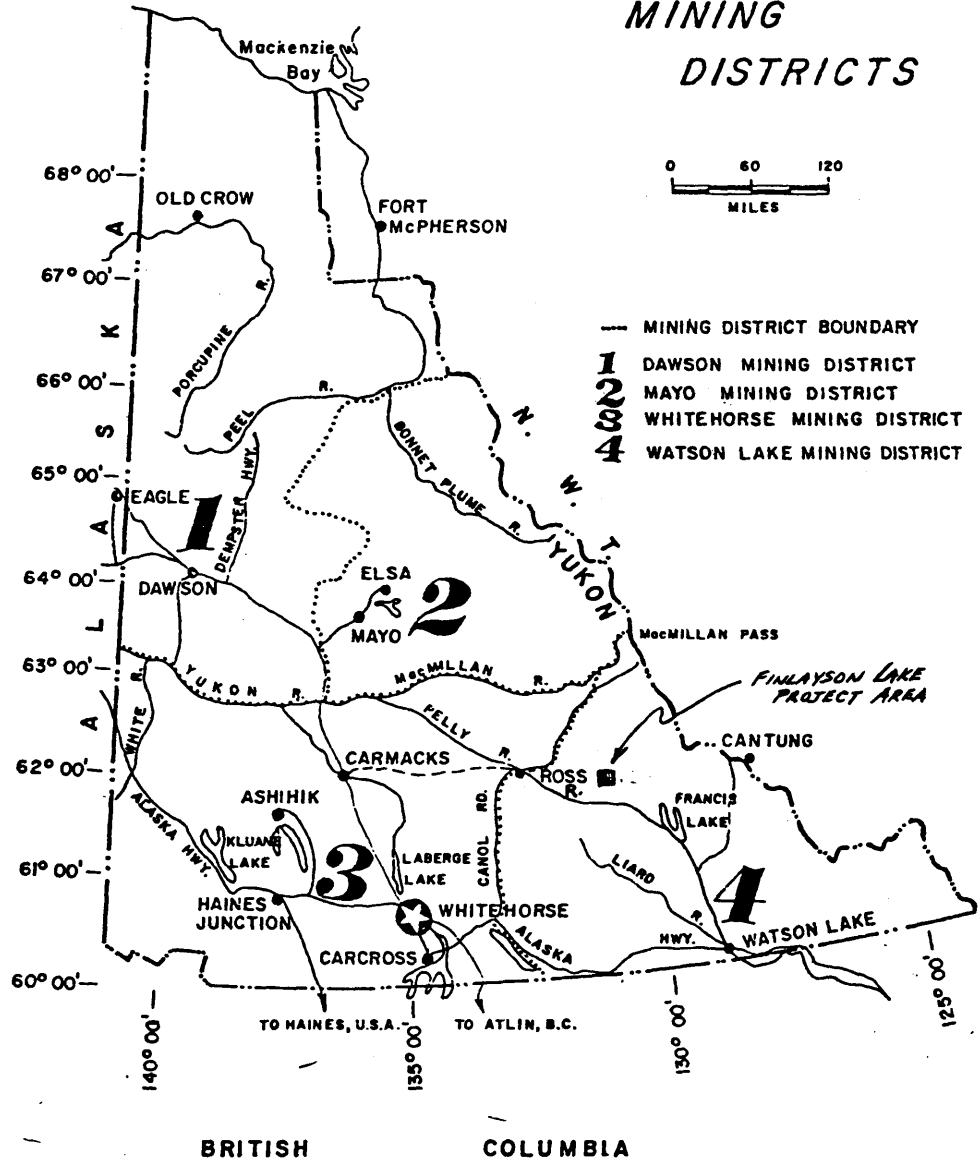
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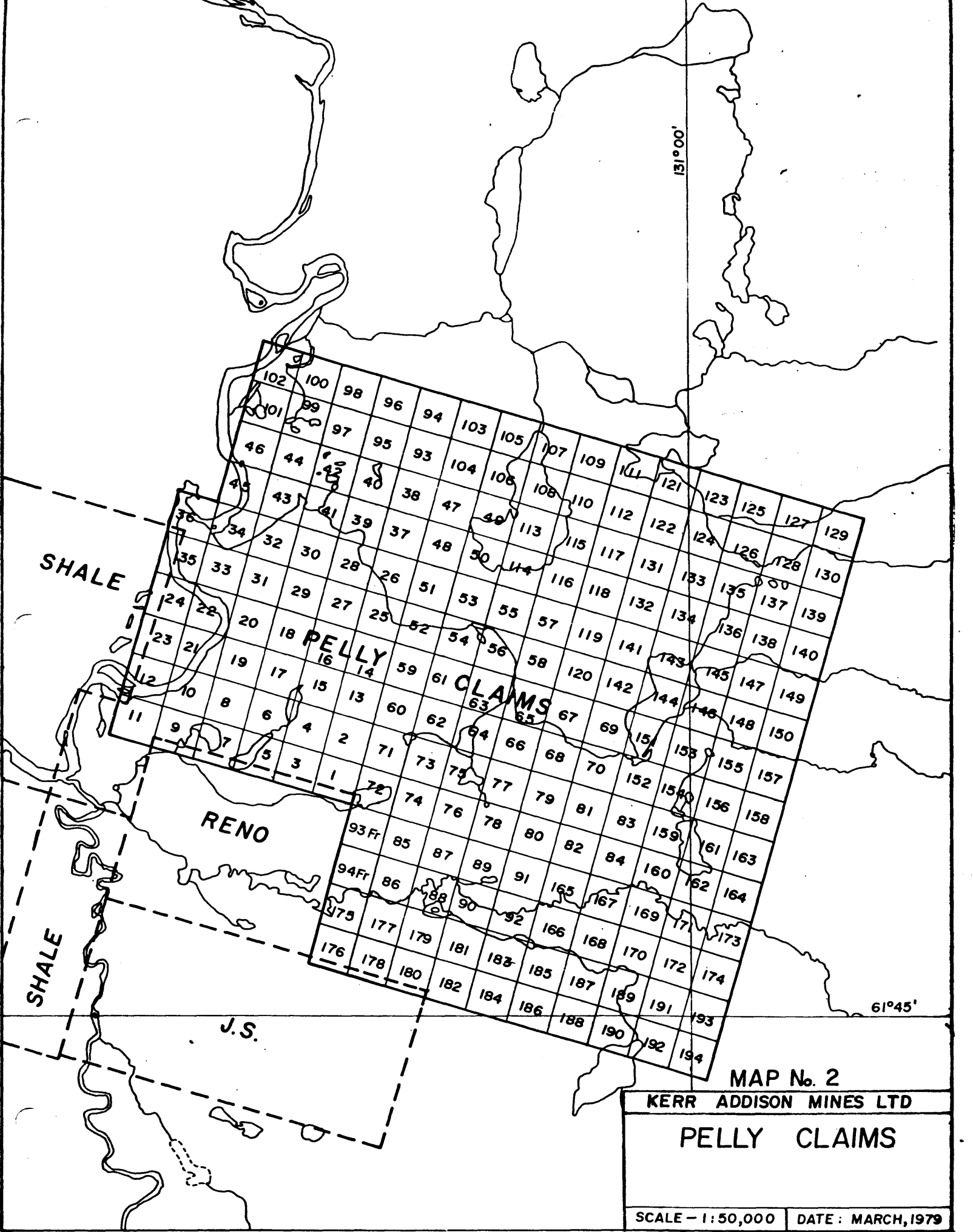
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# YUKON TERRITORY MINING DISTRICTS



<i>KERR ADDISON MINES LIMITED</i>	
<i>FINLAYSON LAKE PROJECT</i>	
<i>INDEX MAP</i>	
<i>Year: 1978</i>	<i>NTS 105G-14</i>
<i>MAP No. 78-1</i>	<i>[Signature]</i>



MAP No. 2

KERR ADDISON MINES LTD

PELLY CLAIMS

SCALE - 1:50,000

DATE: MARCH, 1979

I SUMMARY AND CONCLUSION

1. Early in 1978 we were advised by Marvin Sherman that a large boulder containing massive lead/zinc mineralization had been found by prospectors, Carlos and Harris, on the Shale Claims located approximately fifty miles east of Ross River, Y.T.

2. Glacial patterns in the area indicated that the alpine glaciation direction was from east to west. Accordingly we planned to stake a block of claims immediately east of, and contiguous to, the Shale Claims. Prior to staking however, we ran a V.L.F. Traverse in a north-south direction through the centre of the area and we therefore staked an initial block of ninety-two claims.

3. North-south lines were established at 250 m. centres and when the line cutting was complete, Crone "shoot-back" E.M. surveys were carried out using a 60 m. coil spacing. This work established the presence of a number of good conductors of limited extent which formed no recognizable structural patterns.

4. Profile pits were dug in the centres of the better conductors and soil samples were carefully collected from each recognizable layer. This work indicated high values in lead, zinc, and silver. A typical result would be in the order of 1000 ppm lead, 1700 ppm zinc, and 2 - 8 ppm silver. Not only were the values of a high order, but in most cases they coincided with electromagnetic conductors. A decision was then made to enlarge the claim block. To aid and abett this process, a limited airborne E.M. - magnetic survey was flown for the purpose of locating additional conductors. The claim block was then enlarged to a total of 196 claims.

5. On the basis of the excellent geochemical response and considerable prodding from higher echelons, we elected to drill some of the better coincident anomalies. Just prior to the drilling however, we managed to run two north-south lines with a gravity meter. This work indicated broad, low order (0.5 mgals) residual features more or less coincident with the geochemical and electrical anomalies.

6. A total of three diamond drill holes drilled to a maximum depth of 150 m. cut quartzose, sericitic, chloritic, and graphitic phyllites

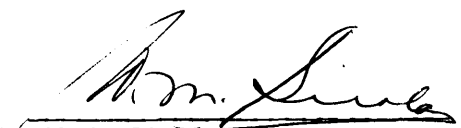
with no evidence of mineralization.

7. The complete absence of mineralization in the drill holes made the geochemical results suspect and detailed check soil sampling in an east-west direction including re-sampling of the profile pits, failed to locate any anomalous values. We were then left with a geochemical enigma and one unexplained geophysical parameter - the anomalous gravity results.

8. The initial soil sampling which had produced excellent results now had to be discarded because the samples had obviously been contaminated either accidentally or deliberately. After exhaustive inquiries, we were forced to the conclusion that Laboratory contamination on a continuing basis as samples were received, was unlikely. Since the contaminated high values fit the electrical conductors, the contamination was construed to be deliberate by a person or persons familiar with the geophysical maps of the property. The motive for such contamination remains obscure.

9. Since rock types with contrasting specific gravities were not encountered in the drill core and since the overburden in the vicinity of the drill sites was uniformly thin, we are forced to the somewhat reluctant conclusion that the causative mass lies below the maximum depth of the drill holes, or that the anomalies result from imperfections of technique.

10. There remain on the property, coincident anomalies in the north-west corner which require additional investigation. Some further soil sampling should be done near the south boundary of the property in the vicinity of an east-west fault system which may have something to do with the localization of the mineralized float. In addition, a limited amount of soil sampling should be done near the east boundary of the property. The limited magnetic surveys both ground and airborne served only to delineate irregular limited areas of Tertiary and older lavas and we attach no economic significance to these results with the possible exception of the combined anomalies in the north-west corner of the claim group.



W.M. Siröla

RECOMMENDATIONS

A two-hole 330 m. diamond drilling program is recommended to explore the coincident electromagnetic, magnetic, gravity, and geochemical anomalies at line 120W/2600N on Pelly 41 M.C. Further soil geochemical work should be done to check the lead anomaly on line 4000E between 2600 N and 3480 N. It is recommended that the area east of L 4000E be soil sampled on four lines spaced 250 m. apart, and prospected at the same time. Anomalies not checked during the 1978 season could be tested by soil geochemistry during the coming season.

## II INTRODUCTION

In the spring of 1978, our attention was focused on the Pelly Banks area, north of Campbell Creek in the Yukon Territory, where a large float boulder containing galena-sphalerite mineralization associated with augen gneiss was discovered in the fall of 1977. A reconnaissance electromagnetic (EM-16) and magnetic survey was conducted by W. Murton and A. Po of Kerr Addison during March - April, 1978. A wide non-magnetic conductor was located within the area proposed for staking.

An initial group of 92 claims were staked in April 1978, within a geologically favorable area immediately east of the Shale claim group where the mineralized float was found.

## III PROPERTY

The property consists of 194 staked mineral claims, plus two fractions, a total of 196 claims. The claim block was enlarged when coincident electromagnetic and geochemical anomalies were found, and enlarged again when the airborne electromagnetic survey detected additional strong conductors.

## IV LOCATION AND ACCESS

The claims are situated in the Watson Lake Mining District, Y.T., NTS 105G -14/15, about latitude  $61^{\circ} 47'$  and longitude  $131^{\circ} 02.5'$ . The property is located about 4 km NE of Big Campbell Creek mouth, eastward from the Pelly River and northward from the Campbell Highway.

Access is by road vehicle, 100 km eastward on the Campbell Highway from Ross River, Y.T. A 4-wheel drive access road northward from km 271 on the highway leads into the field camp 2 km away.

## V GENERAL CHARACTER OF THE DISTRICT

### A. Climate and Vegetation

The summer and fall are usually mild and pleasant. Annual precipitation is about 30 - 40 cm., of which about one-half is rainfall occurring between the months of July - September. Freeze-up begins in October and break-up starts in April/May.

Timber growth is moderately light but widespread. Most of the area was fire-burned, probably 20 - 30 years ago. Deep moss and swampy ground covers most of the flat lying areas.

B. Topography

The area lies within the Pelly River valley, flat terrain with 7 - 30 m. high eskers running east-west.

C. Drainage

The Pelly River drains the entire area, and the extension of the water system includes the Campbell River on the south and a smaller creek through the central part of the property. The main drainages are westward.

VI CAMPING

A 3 - man field camp was established at the Big Campbell Creek Bridge on the Campbell Highway on June 31st, 1978. The camp was enlarged in early August to accommodate additional personnel from Kerr Addison and Arctic Diamond Drilling Company. When the access road was completed in early September, the camp was moved to Lily Lake on the property @ L300 E/150 S, Pelly 74 M.C. Presently, there are two tent frames at this site.

VII GRID LAYOUT

Field work commenced on June 4th, 1978, with the layout of the survey grid by 3 men. Using the NW-SE claim location lines plus one NE-SW tie line as base lines, cross-lines were layed out 250 metres apart on a bearing of  $N 14^{\circ} E/S 14^{\circ} W$ . Lines were layed out by compass and chainage (topofil chainage), with flagged stations every 30 metres, and marked by blazing and flagging. About 72 line-km were layed out initially before commencement of electromagnetic survey work. Later, an additional 100 line km. of survey grid was layed out concurrent with the E.M. survey but no blazing and clearing was done.

In addition to the flagged grid system, clear-cut, picketed lines and grids were done by a contractor. These amounted to about 27 line-km.

#### VIII ACCESS ROAD

A 2-km, 4-wheel drive access road was built from km 271 on the Campbell Highway to the new camp at Lily Lake located at Line 300E/150 S. Layout and road building, including a log bridge over Campbell Creek, took about seven days from August 26th - September 2nd, 1978. The bridge would be vulnerable to spring floods if log jams occur.

#### IX GENERAL GEOLOGY

(See Map No.40)

Several days were spent by W. Murton on geologic reconnaissance around the Pelly claims in an attempt to better understand the local claims geology. Overburden completely masks all rock on the claims and only in DDH's and in one cat trench is the underlying structure exposed.

A significant change occurs in rocks to the east and west of the Pelly River in the Pelly claims area. To the SW of the river, a grey-green fine grained chloritic phyllite predominates, while to the east, a cherty quartzitic grit to chert pebble conglomerate predominates. Exposures are only evident on hills or river cuts and rock is minimal in the critical lower areas where Kerr Addison's claims occur.

The designation of rock units is partly taken from G.S.C. mapping, but the breakdown of PP1 - PP4 is purely hypothetical and is only used to attempt some correlation between rock units, and has no numerical correlation to G.S.C. units PPk1 - PPk4. The small k has been deliberately omitted. Age could be Proterozoic.

PP4 - To the west of the river on claims held by Carlos - Harris, and on Kerr Addison's Vam claims, a topographically thick ( > 400') section of very fine grained grey-green chloritic phyllite extends for at least 10 km. in an E-W direction, and probably extends further west than indicated on the

map. This unit may extend northward to an unobserved contact with younger greenstones (CPav) of probable Carboniferous to Permian age. The grey-green phyllite again probably extends southwards about 5 km. to its contact with mapped quartz feldspar augen gneiss.

The phyllite has flat foliation except in the vicinity of fault zones (both EW & NS) where local contortion results in dips of up to  $45^{\circ}$  to north.

A specimen of the flat lying phyllite on the Vam claims was cut by a diamond saw and shows F1 banding @  $80^{\circ}$  to the flat F2 foliation, indicating a near vertical primary bedding.

Sheared chlorite-carbonate altered fine-medium grained volcanics of andesitic to basaltic composition also occur with the phyllites and are exposed on the Vam claims on the south side of the main EW creek valley, and also in DD core on the Black claims further south. Foliation in these volcanics strikes N-S and dips  $20^{\circ}$  east.

Pb-Zn mineralization on the Carlos - Harris ground occurs in float near the Pelly River, in a quartzite section within phyllitic rock. In the vicinity of mineralization found in outcrop, 3 km. west of the float, chlorite carbonate altered volcanics are present with minor phyllite, and mineralization again is in quartzite material. No mineralization was observed in place, as previous visitors had "mined out" the small showing.

Both occurrences of mineralization lie very close to a strong EW fault zone and may be spatially associated with faulting. The quartzite material has the appearance of accumulations, or segregations, possibly associated with folding, rather than either quartz veining or bedded control.

PP 3,2,1 - Rocks to the east of the Pelly River are an assemblage of chert, graphitic quartzite, sericite quartz phyllite, graphitic phyllite, and sheared phyllitic grits, with interbedded slaty horizons, and thin layers of grey-green phyllite.

PP 3 - To the SE of the Pelly claims, gritty quartzites, black slate to phyllite, phyllitic grits, and sheared chert pebble conglomerates predominate. An observation of bedding at one location would indicate that

these rocks are stratigraphically younger than the cherts and quartzites of PP - 1 to the north, but relationships to PP - 2, (the graphitic conductor unit) are unknown.

PP 2 - Rocks on the Pelly claims are a mixture of grey quartz sericite phyllite, graphitic phyllite, and graphitic quartzite, all cut by innumerable faults of unknown direction. Zones of heavy graphite are present, and this unit is referred to elsewhere as the "airborne conductor" unit. It may be a particular horizon within a larger unit, or it may be a thrust plate of graphitic, quartzite material with no genetic relationship to the surrounding rocks.

A heavily bleached fault zone cut in DDH 78-3 contains a late dyke that is highly clay altered, unmineralized, and shows no signs of deformation. This dyke is the only obvious sign of intrusive activity on the Pelly claims.

PP - 1 East of the Pelly claims, on the hills, a mixture of cherts, quartzites and graphitic phyllite have many similarities to the rocks from Pelly DD core. It is possible that PP - 1 and PP - 2 are really the same unit and only represent stratigraphic variations within one sedimentary unit.

It is possible all rocks are part of one large group that has not been split apart as yet. It is also quite possible that Dirk Templeman Kluit's suggestions of extensive thrusting whereby many different stratigraphic horizons are stacked on top of each other at random is as good an explanation as any for the complexity of observed rocks.

The number and size of the airborne EM conductors would indicate a graphitic unit of large dimensions is present east of the Pelly River, on Kerr's Pelly claims, and possibly west of the Pelly River and to the north of the PP4 unit discussed earlier. A large conductive area was located on the Vam claims, and may be part of a graphitic unit extending north to the CPav volcanics.

Many graphitic exposures, were observed in a helicopter traverse along Big Campbell Creek, south of the Pelly claims, but the graphite may be related to faulting.

CPav - Thrust over all rock units is an undeformed fine grained greenstone containing abundant carbonate. This rock has a variable magnetic signature and some of the occurrence mapped are extrapolated from Kerr Addison's airmag survey. This greenstone contains interbedded sediments and has been dated as Carboniferous to Permian by G.S.C. geologists.

CPac - Areas of "silica carbonate" rock with associated marine and characteristic of fault zone alteration occur in several locations adjacent to E-W faulting shown in the west central section of the map.

QTVb - Overlying all rocks in the region is a young basalt sequence of probably Tertiary age, with a characteristic erratic magnetic signature.

## X ELECTROMAGNETIC SURVEYS

An electromagnetic survey was planned for initial exploration, to search and locate conductors which may provide targets for further work.

### A. Crone J.E.M. Survey

The electromagnetic survey was started on June 24th, 1978, after most of the blazed survey grid had been laid out. A Crone J.E.M. unit with a 12-volt power pack was used. The horizontal shoot-back method with coil separation of 60 m. was employed. Readings were read on the high frequency (3600 cps) signal and readings taken again on the low frequency (1800 cps) when the first resultant is four or greater. Some of the anomalies were surveyed with closer line spacing than the 250 m. grid originally laid out. A total of 149 line-km were surveyed covering 172 mineral claims. Nine claims near the NE corner of the claim block and 15 claims along the western boundary were not surveyed because of other priorities.

Results of the J.E.M. survey are plotted on Map Nos. 78-3 to 7 inclusive, on a scale of 1:5,000 metric. The conductive zones outlined within the  $-5^{\circ}$  contours appear to form a large arc around the NE sector of the property, with the "nose" near the centre (Area #1), of the claim block. Other conductors ring the west and south flanks. Most of the conductors range between  $-5^{\circ}$  to  $-30^{\circ}$ , and the strongest conductors up to  $-40^{\circ}$  at the centre of the property.

Many of the anomalies are broad features, up to 500 m. wide ( $-10^{\circ}$  contour). Smaller anomalies are generally linear in shape, 40 m. to 80 m. in width by 20 m. - 800 m. in length. The considerable extent of the conductors suggest a rock type such as graphitic phyllites underlying about 20% of the area. This proved to be the case on claims Pelly 62 and 73 where the strongest E.M. anomalies were drilled.

The conductive rocks are not likely folded in a form as exhibited by the conductors. The rocks are believed to be gently dipping, with F2 and/or F1 folds, some of which are close to the surface. Glaciation of conductive stratas or bodies which dip and plunge would form irregular or folded contours of E.M. results.

Almost all the conductors dip either north or south and are elongated east-west. The trace of the conductors suggests east-west striking rocks folded in a N-S direction.

Nearly all the J.E.M. conductors have been checked by soil geochemistry. Two of those checked in post contamination time, showed slightly to moderately anomalous values. One in Area 3 at L 1250W/BL 2600N is anomalous in zinc and the one (in Area 4) on L 4000E between BL 2600 N and BL 3480 N is anomalous in lead. (See geochemical soil sampling).

#### B. Geonics EM-17 Survey

Detail investigation of the J.E.M. anomalies in Area #1, and Area #2, (L510 E/ BL 1710 N - BL 2600 N) were conducted with the use of a Geonics EM-17 unit. This was done in 7 days during August 14th - 25th, 1978. A cable length of 60 m. was used. A total of 18 line-km was surveyed. Further detail work using a cable length of 30 m. was completed on L 400 E, L 500 E, and L 600 E.

Results of the survey are plotted on Map Nos. 78 - 8 to 11 inclusive. The conductors in both areas are interpreted as gently dipping thin layers or bands of conductive material occurring as lenses; whereas the J.E.M. conductors exhibit broad features. In Area #1, the results of both show roughly a NW trend. On Area #2, the EM-17 conductor (s) trend northward whereas the J.E.M. conductor (s) trend northeastward. Detail work using the

EM-17 on a 100 foot cable length resulted in one broad but very weak conductor with a vertical dip. It occurs on L 500 E and L 600 E between  $250^{\text{N}}$  -  $480^{\text{N}}$  where no conductor was detected using the 200 foot cable.

The results seem to indicate that the EM-17 unit is picking up individual bands or lenses of the more graphitic material; whereas, the J.E.M. unit is detecting the overall mass of graphitic rocks.

#### C. Airborne Electromagnetic Survey

Aerodat Limited was contracted to conduct a combined airborne electromagnetic and magnetic survey covering the Finlayson Lake Project area, during the early part of September, 1978. A total of 150 line-km were flown on lines 700 m. - 1800 m. apart, bearing N 14 E and S 14 W, at a height of 65 m. above terrain. A Hughes 500 D helicopter was utilized for the aero survey.

The survey was conducted with the use of a Geonics EM-33 instrument. Data from the recorded tapes are plotted by Kerr Addison personnel onto Map No. 78 - 12, scale of 1:50,000.

There are numerous conductors and nearly as many anomalies. Interpretation of these results strongly indicate conductive rocks underlying a vast area. It is difficult to outline anomalies or structures with this vast array of conductors. This is better done using the ground J.E.M. survey and expanding the conductors beyond the ground survey limit with the aero survey results as a guide.

Airborne anomalies outside the boundary of the Pelly claims were sampled with results described under Geochemistry.

## XI MAGNETIC SURVEYS

### A. Ground Magnetic Survey

A Geonics Proton Magnetometer (Model G-816) was used for the ground magnetic survey. A total of 49 line-km were surveyed, covering mainly the central area of the claim block. Results are plotted on Map Nos. 13 and 14.

The overall magnetic pattern shows a gentle gradient of 225 gammas, increasing from west to east, with a trend of north-south. This is similar to the government air magnetic survey flown at 1000 feet above terrain.

The magnetic anomalies are small in size and bear the signature of andesitic plugs or lenses. One is believed to be basalt. Results are compared to the published geological and magnetic maps on the map area.

All the magnetic anomalies were investigated by checking the ground geochemically, with emphasis on ones which are coincident with E.M. anomalies. A magnetic high detected on a one-line survey at B.L. 872<sup>N</sup>/900<sup>W</sup> was not checked. It appears to be similar to the one at L 1000<sup>W</sup>/830<sup>S</sup> (on Reno property) which was checked by ground magnetometer and soil geochemistry. Both are interpreted as caused by basalt. Only one magnetic anomaly has coincident soil geochemistry. (See Geochemical Soil Sampling). This is the linear south dipping magnetic feature just south of B.L. 2600 N. between 1000 W - 1250 W. It is a 130 gamma anomaly lying parallel to another linear, 380 gamma anomaly immediately on the south. There is also a coincident bouger gravity anomaly (See Gravity Surveys).

#### B. Airborne Magnetic Survey

A Barringer AM-104 Nuclear Precession Magnetometer with a one gamma sensitivity was used for the airborne survey. Data from the recorded tapes are plotted on Map No. 78-15. In general, results of this survey flown at 65 m. above terrain is similar to that of the government aeromag survey flown at 300 m. The Aerodat survey outlined the isolated and local magnetic highs in better detail.

All three anomalies detected were checked by ground magnetometer and/or ground E.M. or by geochemical soil sampling.

The somewhat pear-shaped 150 gamma anomaly detected on flight lines 8, 9, and on the E.W. Tieline is contoured as a roughly oval-shaped 100 gamma *anomaly* on the government magnetic map. This anomaly lies within the NE corner of the property, centered about BL 3480<sup>N</sup>/2750<sup>E</sup>. No ground magnetic survey was done in this area. Several of the ground and airborne EM anomalies lying along

the SW edge of the magnetic anomaly were checked by soil geochemistry but the results were negative. Two lines on the east side of the magnetic anomaly were soil sampled. L3750E sample results were negative but L 4000E samples were slightly to moderately anomalous in Pb. This is coincident with both a ground and airborne EM conductor. Further work is required to determine the significance of the coincident anomalies.

The magnetic high on Flight Line 5, south of the Pelly claims, on the Reno property was checked by ground E.M. and soil geochemistry but gave negative results.

The coincident electromagnetic, magnetic gravity, and geochemical anomaly at L 1250<sup>W</sup>/BL 2600<sup>N</sup> was also detected by the airborne EM and magnetic survey. It occurs as a small 25 gamma anomaly at the intersection of Flight Lines 5 and Tie Line.

## XII GEOCHEMICAL SURVEYS

By July 17th, 1978, several large and small electromagnetic anomalies were outlined by the J.E.M. Survey. A reconnaissance geochemical program involving silt and soil profile sampling over the EM conductors commenced on July 19th, 1978.

### A. Silt Sampling

Drainage is limited to one creek which flows westward through the central part of the property, and is located between the EM anomalies in Area 1 and 2. One silt sample from the L 250<sup>E</sup>/140<sup>N</sup> site assayed 800 ppm Pb and 2050 ppm Zn. Three others collected downstream at 210<sup>W</sup>/1710<sup>N</sup>, L750<sup>W</sup>/2130<sup>N</sup>, and L1000<sup>W</sup>/2500<sup>N</sup> were not anomalous (10-16 Pb, 75-140 Zn). Although the site was not re-sampled, the high Pb/Zn sample is now believed to be contaminated.

A seepage silt sample collected at 1360<sup>W</sup>/2500<sup>N</sup>, just west of a -20° J.E.M. anomaly assayed 27 Pb and 760 Zn. This value is believed to be true because similar values were obtained from later soil samples.

### B. Soil Profile Sampling

Between July 20th - August 2nd, 1978, soil profile sampling was conducted over all the strong E.M. conductors. Assay results showed

exceptionally high values in zinc (300 - 3400 ppm) and lead (185 - 1750 ppm), and slightly above background values in copper and silver in three areas (Area 1, 2, and 3.) The results also indicated anomalous geochemical values in all soil horizons.

(Note: Samples later proved to be contaminated.)

### C. Soil Sampling

Immediately after anomalous geochemical results were known a soil sampling program was launched to grid sample the target areas.

#### 1. Soil Sampling and Results, Prior to August 14th, 1978 (See Map No. 16 & 17)

During August 4th - 13th, 1978, soil samples were collected from four N-S lines in Area #1, and from two lines in Area #2. Samples adjacent to previous soil profile holes, along Lines 250<sup>E</sup>, 510<sup>E</sup>, and 750<sup>E</sup>, within Area #1, and Lines 375<sup>E</sup> and 500<sup>E</sup> within Area #2, confirmed the geochemical anomalies when the assays also returned high Pb and Zn values, in the range of thousands of ppm Pb and Zn each. Samples from Line 300<sup>E</sup> in Area #1 did not contain any anomalous values. The results suggested unusual geochemistry:

- (a) sharp changes in values, and
- (b) short linear dispersion patterns with exceptionally high geochemical values.

These were disturbing factors. At the time, only more sampling and more assay returns could provide the answers.

Results from the initial work indicated a near-surface source, anomalous values occurring immediately over the peak of the conductors, and a sudden drop in values within a short distance, (i.e., 2450 Pb/2600 Zn to 21 Pb/86 Zn on sample 30 m. apart.) This is an unusual dispersion behavior, even for the near-flat topography which overlies the area. Negative results on Line 300<sup>E</sup> in Area #1 were unexplainable at the time.

#### 2(a) Soil Sampling and Results, after August 13th, 1978 (On Original 92 Claim Block) (See Map Nos. 18,19,23,24,28 & 29)

During the period between August 15th to August 29th, 1978, fill-in sampling and grid sampling continued in Areas 1 & 2. From August 30th to September 9th, soil sampling of EM conductors in Area #3 and elsewhere were conducted.

Results from the fill-in sampling of Areas 1 and 2 were received in early September but none of the assays was anomalous. Even sample sites close to former ones which gave high assays, contained only background values in Pb and Zn.

Results from the August 30th - September 9th soil survey of Area 3 plus other EM conductors were received at the end of September. Only Area 3 was geochemically positive but anomalous only in zinc. Assays of 300 - 700 ppm Zn are slightly to moderately anomalous and 19 - 29 ppm Pb are just average background values. These values and their Pb/Zn ratio are similar to that obtained from the seepage silt sample, but vary considerably from the soil profile sample assays of 165 - 750 ppm Pb and 520 - 1120 ppm Zn. The profile samples were later proved to be contaminated. The 200 ppm and 300 ppm zinc geochemical contour outlines an area about 300 m. x 300 m., and forms a half circle open to, but probably ending abruptly along, the Pelly River slough on the west. The highest contour is 400 ppm Zn which encloses an area of about 200 m. by 100 m. N-S. A few values of 500 - 700 ppm Zn occur within. This anomaly is not large, and does not contain exceptionally high values, and is anomalous only in zinc. Despite these negative factors, the positive features such as the coincident electromagnetic, magnetic, and gravity anomalies still provide a fairly good exploration target.

Of the EM conductors in other areas, only the ones near the western property boundary show a slightly higher ( + 25 ppm to about 150 ppm Zn) geochemical background. A few isolated values of 200 - 300 ppm Zn are noted. (Map 19.)

#### 2 (b) Re-sampling

Re-sampling of the anomalous soil sites, on work done prior to August 14th, 1978, in Areas 1 and 2, was necessary when detail sampling did not confirm any geochemical anomalies. Initial work was to re-sample the two most southerly anomalies in Area #1, on Lines 250<sup>E</sup> and 510<sup>E</sup>, and also sample an east-west line connecting the two areas. This method was designed to check the sampling and provide information on geochemical dispersion. This program was delayed till the fourth week in September due to a shortage in field personnel, access road layout and construction, camp move, start up of the

diamond drilling program, and commencement of additional geophysical work. At the time, it was decided that the author alone should do the check sampling.

The assay report for the check samples were received on October 3rd, 1978. The results were totally negative. By this time, there was enough evidence from check sampling and fill-in sampling done to erase the existence of all the geochemical anomalies within Areas 1 and 2. Samples collected prior to August 14th, 1978, were under suspicion of contamination.

The soil profile samples from Area #3 (L 1250<sup>W</sup>/BL 2600<sup>N</sup>) were also considered suspect, but the seepage silt sample is believed to be legitimate.

3. Soil Sampling and Results - On New Claims - Pelly 93 - 194.  
(See Maps 20-22, 25-27, 30-33)

During September 25th - October 9th, 1978, a reconnaissance soil geochemical survey was conducted on the new claims when the J.E.M. survey was near completion. Soil samples were collected from one or more lines across the conductors.

All the EM conductors were checked except the following:

- (a) A small - 10<sup>o</sup> anomaly which is a part of a large conductor on L 3250 E on claim Pelly 153.
- (b) An elongated, -10<sup>o</sup> anomaly straddling Pelly 108 and 110 M.C., possible extension of the conductor from Area 2.
- (c) An elongated, -5<sup>o</sup> conductor with two small -10<sup>o</sup> anomalies straddling Pelly 142, 141, and 143 M.C., and
- (d) A long -5<sup>o</sup> conductor with a narrow -10<sup>o</sup> anomaly lying parallel to the Campbell Highway on Pelly 180, 182, and 184-189 M.Cs.

Of all the EM conductors surveyed, only one indicated anomalous geochemistry. This is the one along L 3750<sup>E</sup>/2600<sup>N</sup> - 3480<sup>N</sup> plus L 4000<sup>E</sup>, which was also detected on airborne EM survey lines #10 and the Tie Line (Area #4). Lead is the only anomalous element, ranges from 56 ppm - 216 ppm Pb, on L 4000<sup>E</sup> from 2610<sup>N</sup> to 3570<sup>N</sup>. There is a correlation with copper in the soils though Cu is not anomalous. A large 150 gamma airborne magnetic anomaly lies

immediately west. The lack of anomalous Zn, Cu, Ag values suggests that the Pb may be from vein structures. Further work is required to assess the anomalous Pb geochemistry with the coincident EM conductor and associated magnetic anomaly.

#### 4. Reconnaissance Sampling on Airborne EM Anomalies

Several days were spent by W. Murton looking at EM conductors located by the airborne survey, and lying off the Pelly claim block.

Line 12 - The anomaly between fid points 424 - 425 was sampled and a rock specimen of grey-green gritty phyllite was collected @ the southern edge of the anomaly. Soil sampling for 1½ km northward revealed only background values for Cu 6 - 30 ppm, Pb 05 - 20 ppm, Zn 43 - 89 ppm, and Ag 0.6 - 1.0 ppm, in seven samples. Graphite was noted in soil rubble.

Line 11 - The anomaly between fid points 390 - 391 was examined and sampled with eight samples. Background values of Cu 31 - 45, Pb 12 - 24, Zn 63 - 100, and Ag 0.7 - 1.1 ppm were found. No rock was evident and heavy glacial debris is present on the east facing side-hill. Many moose are also present!

At the north end of line 11, some possible exploration work has been done on the anomaly between fid points 383 - 384. A cat trail is evident from the air.

Line 8 - A spot check was made at an area of many anomalies north of our Pelly claims. Low rolling hills with many glacial erratics were present, and all soil values lie in the ranges mentioned above. Conductive overburden is a possibility in the area.

#### 5. Contamination of Soil Samples

During October to December 1978, many studies were made to investigate every possible phenomena which may have caused a geochemical anomaly to appear and disappear. No reasonable explanation was found. A study of laboratory procedures at Vangeochem Lab plus trace element studies of similar material handled by the assay office, ruled out any errors on their part.

Binocular microscopic work by Wayne Murton positively indentified fresh looking grains of galena and lesser amounts of sphalerite. Their findings point to material being added to the samples.

It is noted that the anomalous samples all occur at the peak of the conductors, and that the values drop off abruptly at both ends. It is also noted that contamination occurred only on samples collected prior to August 14th, 1978.

The author concludes that the soil samples taken prior to August 14th were deliberately salted, and that the person or persons had knowledge of the electromagnetic survey.

D. Overburden Drill Sampling (See Map 34)

Subsurface investigation of geophysical and geochemical anomalies by overburden drilling was contracted out to Bema Industries of Langley, B.C. A petrol driven hammer type machine equipped with extension rods and sampling tube was used. At each metre of depth down to bedrock a sample of the overburden was collected, and a sample of the bedrock was obtained. Each sample was examined for its composition and possible mineralization then assayed geochemically. The practical limits of penetration through clayey till on the Pelly claims was about 9 metres.

Thirty-one out of forty-six holes drilled reached bedrock, ranging in depth from 3 - 6 metres. Deepest hole drilled was 9.5 metres. Most of the drilling was conducted in Area #1, over the EM conductors and where the "false" geochemical anomalies occurred. Detail drilling along L 500<sup>E</sup> in this area also provided a bedrock profile for the gravity analysis.

Other locations drilled are as follows:

- (a) L 510E/1170N, to check a ground magnetic anomaly.
- (b) L 1000W/2300N, " " " " " , and
- (c) L 1250W/2550N, " " the coincident EM magnetic gravity, and geochemical anomalies in Area #3.

Area #1 overburden consisted mainly of rich clay soil with phyllitic, volcanic, and granitic rock chips and pebbles. Bedrock is composed of black graphite - phyllite in the main, also green chlorite phyllite. No sulphides were noted. Bedrock depth is around 4 - 6 metres in Area #1, and is about 9 m. at L 510E/150S just south of the anomalies.

Assay returns of the overburden drill samples showed normal back-

ground values with local highs in zinc (180 - 345 ppm), a few spotty highs in copper (103 - 269 ppm) and silver (2.6 - 8.3 ppm), but no high values in lead content. These results definitely ruled out any possible geochemical anomalies in Area #1, and further confirm the salting of the anomalous samples taken before August 14th, 1978.

Only Area #3 (L 1250W/2550N) overburden drill hole samples are geochemically anomalous. Zinc content increases from 460 ppm to 1180 ppm from 1 m. depth to 4 m. depth, in clay-till overburden. From 4 m. to 9.5 m. the hole was entirely in sand, and only a small sample was cored at the 5 m. depth which assayed 140 ppm Zn. At 9.5 m. a smaller amount was recovered but appeared to be a foreign substance which assayed 112 ppm Zn. Interpretation based on the results of one hole with partial recovery of the samples is dubious but one may surmise the following:

1. Transported geochemical anomaly in the till, or
2. Legitimate anomaly by geochemical dispersion, retained in the till but not in the sands. A study of the sample description recorded in the field books versus assays shows that the anomalous zinc values are contained in clay till and black silty sand but none in pure sand. This favours the legitimacy of the geochemical anomaly. Combined with the coincident EM, magnetic and gravity anomalies makes this area a target for further exploration.

#### XIII GRAVITY SURVEYS (See Maps 35 - 40, also C.A. Ager's Assoc's Report)

A gravity survey was conducted on six lines; namely, Lines 300E, 500E, 750E, 250W, 1250W, and 2070N. The purpose was to check for denser material or sulphide bodies underlying the EM anomalies. A total of eleven line - km was surveyed by C.A. Ager & Associates. The results are presented in their report dated October 9th, 1978. Copies of Ager's maps have been used to show composite profiles of the EM, magnetic, and geochemical anomalies.

Area #1, gravity profiles show a gravity gradient towards the north with gravity highs on L 300E and L 500E between 00N to 390N, but none on L 700E. Area #2 gravity profiles are flat (L 500E and L 2070N). Line 250W

also shows a gradient towards the north but appears to fall off after a gravity high between 2010N to 2640N. Area #3 (L 1250W) has a gravity gradient from both the north and south, flat in the central, and a gravity high between 2280N to 2690N at the north break in the gradient.

The gravity highs on L 300E and L500E in Area #1 and on L 250W have similar profiles. They are interpreted as flat lying slabs of denser material resulting in a 0.2 to 0.3 mgal bouger gravity anomaly. Two diamond drill holes were drilled into the gravity (coincident EM) anomaly on L 500E and one hole was drilled 210 m. north in an EM anomaly. The cause of the gravity anomaly was not found, though the EM anomaly can be explained by the intersections of graphitic phyllite. The overburden and bedrock depth study from the overburden drilling program rules out any cause from these sources. A possible cause of the gravity anomaly could be a dense mass having a great vertical dimension and with its top more than 150 m. below the ground surface. Another possible cause could be attributed to specific gravity differences in the rock which are not noticeable in the drill core.

Line 250W gravity high appears to be a similar type of anomaly as the ones in Area #1, and also negative in geochemical response. The gravity profile is also similar to the one on Line 1250W in one characteristic - a double gradient.

Area #3 gravity high is interpreted as a gently, southerly dipping, dense slab resulting in a 0.2 - 0.5 mgal bouger anomaly. A dense slab emerging towards a sloping surface could result in a gravity profile as shown on Map #39. The sudden drop at 2600N could be due to one of two circumstances:

- (1) The dense mass is a thin slab outcropping towards the north and has been eroded north of 2600N, or
- (2) That portion north of 2600W has been faulted upwards and then eroded. The anomalous zinc in the soil north of 2600N may be caused by a thin remnant of the mass containing the zinc mineralization.

The gravity anomaly on L 1250W is coincident with an EM, magnetic, and zinc geochemical anomalies. Although the outlines of the latter three anomalies do not indicate a large target; nonetheless, four coincident anomalies covering an area approximately 200 m. x 300 m. do provide a worthwhile exploration beginning.

XIV DIAMOND DRILLING (Map #78 - 3)

An exploratory diamond drilling program was conducted between the period of September 11th to October 5th, 1978. Three holes totalling 443.5 m. were drilled on Line 500E at stations 150N, 275N, and at 700N to test the gravity, EM, and geochemical anomalies. No Pb-Zn sulphides or valuable minerals were intersected.

Rocks in all three drill holes were similar, comprising of sericitic, chloritic, and graphitic phyllites, occurring in 0.5 m. to 6 m. thick bands. A few thicker bands up to 26 m. were logged from the drill core.

The phyllites are usually quartzzy, up to 80 - 90% quartz or chert in content. Graphite content varies from about 3 - 30%, pyrite is a minor constituent but locally up to 1 - 3%. No Pb or Zn sulphides were noted in the drill core. From measured core angles, the rock foliation has a dip of about 15 - 20° to the north.

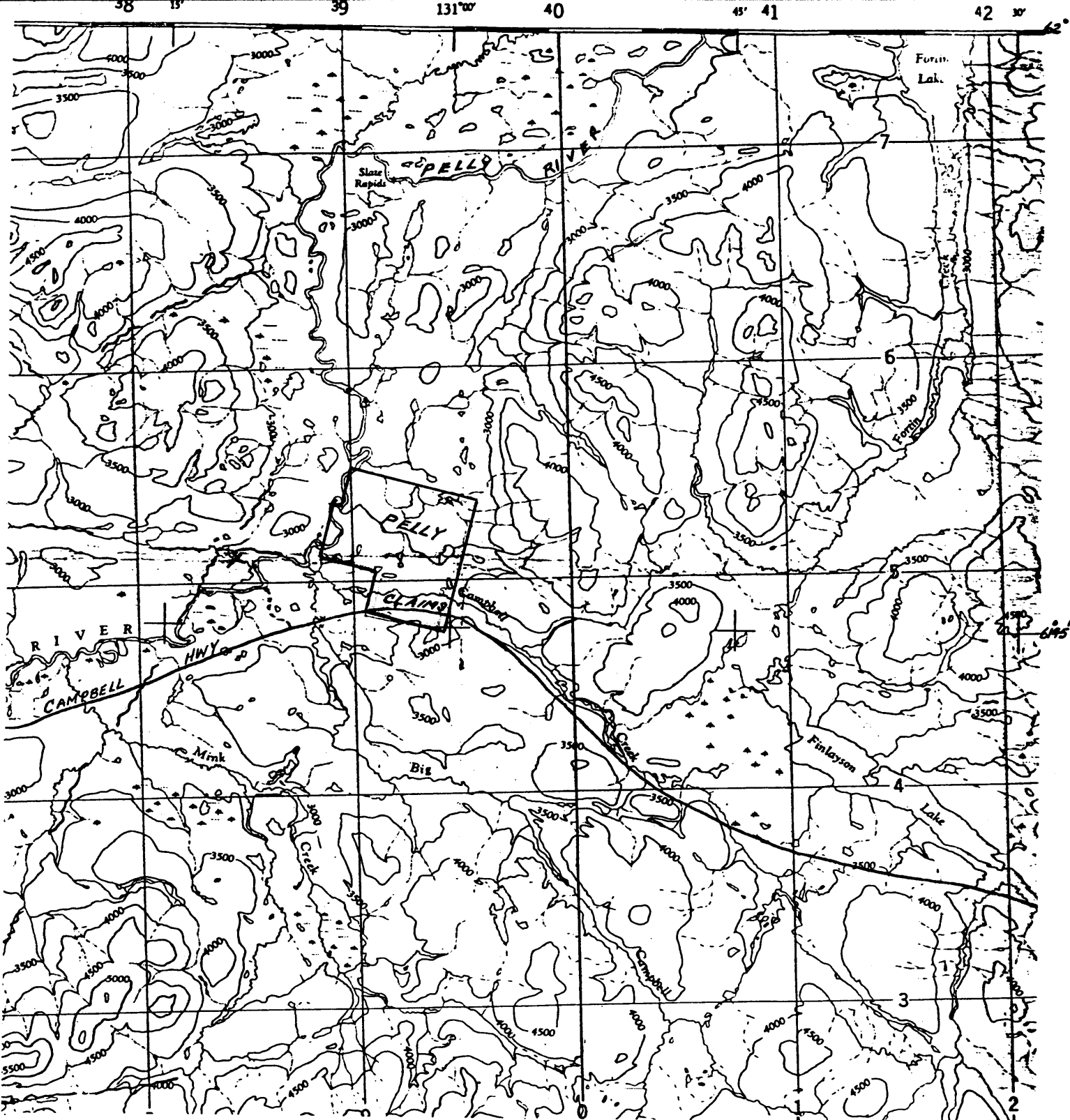
Geochemical analysis of drill core from 7.9 m. - 9.0 m. in diamond drill hole #KP78-1 assayed 15 ppm Pb, 80 ppm Zn, and 92 ppm Cu. Sludge samples from 69 m. to 78 m. in the hole assayed an average of 13 ppm Pb, 257 ppm Zn, and 319 ppm Cu. The sludge sample is probably contaminated by Cu and Zn in the metal alloy of the drill bit as there was considerable wear during the drilling.

Negative results in the drilling confirms again the "false" geochemical anomaly indicated by the early soil survey. The EM conductors are caused by graphitic phyllites. The gravity anomaly was not explained by the rocks in the drill core.

APPENDIX "A"

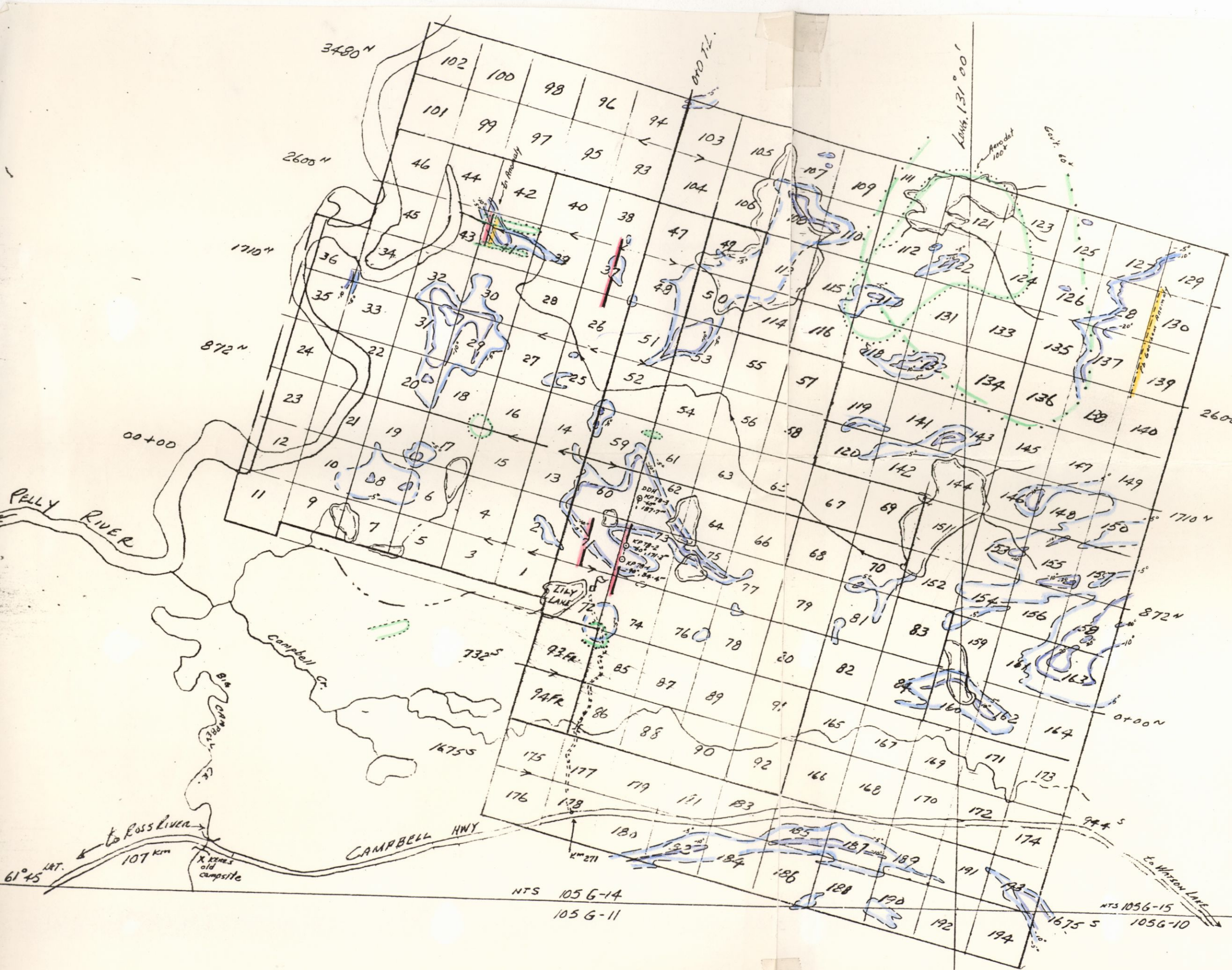
STATUS OF CLAIMS

<u>CLAIM NAME</u>	<u>STAKED</u>	<u>RECORDED</u>	<u>GRANT NO.</u>
Pelly 1 - 40	2nd April/78	25th April/78	YM 28508-28547
Pelly 41 - 92	5th April/78	25th April/78	YM 28548-28599
Pelly 93Fr & 94Fr	29th June/78	21st July/78	YA 34310-34311
Pelly 93 - 106	13th August/78	28th August/78	YA 34966-34979
Pelly 107 - 120	16th August/78	29th August/78	YA 34980-34993
Pelly 121 - 168	28th August/78	11th September/78	YA 35264-35311
Pelly 169 - 194	29th August/78	11th September/78	YA 35312-35337



Appendix "B"

KERR ADDISON MINES LIMITED	
FINLAYSON LAKE PROJECT	
PELLY MINERAL CLAIMS	
LOCATION MAP	
SCALE: 1:250,000	
NTS: 1056-14	1978 <i>J. Chow</i>



- claims
- claim
- 
- new camp, Sept. 7/78 at Lily Lake
- 4-wheel drive road.
- Gravity Anomaly
- JEM "
- Magnetic "
- Geochem "

Appendix "D"

Kerr Addison Mines Ltd.	
<b>FINLAYSON LAKE PROJECT, 1978</b>	
PELLY M.C. GROUP COMPOSITE MAP	
GRAVITY, JEM, MAG, GEOCHEM ANOMALIES	
SCALE 1" = 1/2 MILE	
NTS: 105G-14, 15 11, 10	PROJECT No. Y-7
DRAWN BY: J. Phos Dwa. MARCH, 1979	

PELLY RIVER

To Ross River  
107 km

CAMPBELL HWY

NTS 105G-14  
105G-11

NTS 105G-15  
105G-10

To Watson Lake

