014153

ATLAS EXPLORATIONS LIMITED

# SUMMARY REPORT ON

# PAY MINERAL CLAIM GROUP

# SHELDON PROJECT, 1967

by

C.L. Smith,
Chief Geologist
November 15, 1967

TABLE OF CONTENTS


| | | Page |
|---|---|---|
| A) | Introduction | |
| 1) | List of Claims | 1 |
| 2) | Claim Acquisition | 1 |
| 3) | Location and Access | 2 |
| B) | Work Done | |
| 1) | Geologic Mapping | 3 |
| 2) | Prospecting | 3 |
| 3) | Line Cutting | 3 |
| 4) | Geochemical Sampling | 4 |
| 5) | Magnetometer Surveying | 4 |
| 6) | Electromagnetic Surveying | 5 |
| 7) | Surveying | 5 |
| 8) | Hand Trenching | 5 |
| 9) | Bulldozer Trenching | 7 |
| 10) | Sampling and Assaying of Trenches | 7 |
| 11) | Diamond Drilling | 7 |
| C) | Results and Interpretations | |
| 1) | Geology | 9 |
| | Stratigraphy | 9 |
| | Structure | 11 |
| | Economic Geology | 11 |
| 2) | Geochemistry | 13 |
| | Geochemical Environment, Soil Types, Nature of Dispersion | 13 |
| | Description of Anomalies | 15 |
| | Interpretation | 17 |
| 3) | Ground Magnetics (J.S. Brock) | 18 |
| 4) | Ground Electromagnetics (J.S. Brock) | 18 |
| 5) | Hand and Bulldozer Trenching | 21 |
| 6) | Diamond Drilling (Winkie) | 24 |
| D) | Conclusions and Recommendations | 25 |
| E) | Regional Exploration in Pay Area | 26 |

# LIST OF ILLUSTRATIONS

Figure


| | |
|---|---|
| 1 | Pay Key Map |
| 2 | Geologic Map - Pay Claim Group: 1" = 1000' |
| 3 | Geologic Map - Lishy showing: 1" = 10' |
| 4 | Zinc Frequency Distribution Histogram |
| 5 | Geochemical Values Map (North half of Grid) 1" = 400' |
| 6 | Geochemical Values Map (South half of Grid) 1" = 400' |
| 7 | Zinc Contour Map (North half of Grid) 1" = 400' |
| 8 | Zinc Contour Map (South half of Grid) 1" = 400' |
| 9 | Lead Contour Map (South half of Grid) 1" = 400' |
| 10 | Copper Contour Map (South half of Grid) 1" = 400' |
| 11 | Pit Soil Log and Zinc Profile Map |
| 12 | Ronka EM Values & Profiles (North half of Grid) 1" = 400' |
| 13 | Ronka EM Values & Profiles (South half of Grid) 1" = 400' |
| 14 | Crone EM Values (North half of Grid) 1" = 400' |
| 15 | Crone EM Values (South half of Grid) 1" = 400' |
| 16 | Crone EM Profiles (North half of Grid) 1" = 400' |
| 17 | Crone EM Profiles (South half of Grid) 1" = 400' |
| 18 | Crone EM Contours 1" = 400' |
| 19 | Magnetics, Values & Profiles 1" = 400' |
| 20 | Trench and Pit Location Map 1" = 100' |
| 21 | Transit and Stadia Map of Central Pay Group |


---

A) Introduction

1) List of Claims

| | Claim Number | Grant Number | Date Recorded |
|---|---|---|---|
| Pay | 1 - 16 | Y13133 - Y13148 | July 4, 1966 |
| | 17 - 32 | Y16523 - Y16538 | October 11, 1966 |
| | 33 - 40 | Y17137 - Y17144 | November 14, 1966 |
| | 41 - 86 | Y16539 - Y16584 | October 11, 1966 |
| | 87 - 166 | Y16981 - Y17060 | November 7, 1966 |
| | 167 - 203 | Y17793 - Y17829 | June 23, 1967 |
| | 204 - 221 | Y19019 - Y19036 | August 18, 1967 |
| Pay Fractions | 1 - 11 | Y19374 - Y19384 | September 15, 1967 |
| | 16 - 24 | Y19385 - Y19393 | September 15, 1967 |
| | 34 | Y19394 | September 15, 1967 |
| Zn | 1 - 2 | | |
| Phil | 1 - 42 | Y19072 - Y19113 | September 15, 1967 |

2) Claim Acquisition

The Pay 1 - 16 Group was optioned from R. McBean on August 16, 1966, following an examination and recommendation by A. Kulan and discussions with P. Risby, who made the initial discovery. The option agreement stated that a single row of claims would be staked around the 16 claims as well as between the 1 - 14 and 15 - 16 groups, which lie separated by about two claim lengths. In order to honor this agreement, a double row of claims was staked around the 1 - 14 block and claims were staked over and to the northwest of 15 - 16 so as to leave no fractions; this staking brought the total to 86 claims as of late September.

Because of a favorable geologic environment in the Pay area, as well as the occurrence of mineralization on the 1 - 16 claims, a regional geochemical soil sampling program was initiated in the Pay group area in late September. By mid-October, an extensive zinc geochemical anomaly had been outlined in an area about three miles west of the 1 - 16 group. Claims 87 - 166 were staked to cover this anomaly; they were tied to the previous group so as to leave no intervening ground open. In order to cover anomalies extending off the group, adjoining claims were attached to the northwest, southwest, and southeast sides of the 87 - 166 block in early June, 1967 (167 - 203), and early August, 1967, (204 - 221). Pay fractions were staked to cover wedge-shaped fractions within the Pay 87 - 166 area.

In mid-August, 1967, an independent prospector, G. Lishy, discovered zinc in an exposure about one-half mile south of the margin of the Pay group. Lishy staked the Zn 1 - 2 claims over the showing and subsequently optioned them to Atlas. In order to cover adjoining ground as well as to tie the showing to the Pay group, the Phil 1 - 42 claims were staked in early September, 1967.

## 3) Location and Access

The Pay-Phil group is centered roughly at latitude 62°00' North and longitude 130°30' West and covers the adjoining corners of claim sheets 105 G-15, 105 G-16, 105 J-1, and 105 J-2. The group lies immediately east of Fortin Lake and extends about five miles east of the lake. Two smaller groups were recently staked to the northwest and southeast.

Access to the property is by float or ski air-craft, landing on Fortin Lake or Pay Lake. A tote-trail runs through the property from north of Finlayson Lake on the Ross River - Watson Lake road. The trail may be negotiated with difficulty by bombardier in the summer or by 4-wheel drive vehicles in the winter.

## B) Work Done

### 1) Geologic Mapping

The entire Pay group was geologically mapped at a scale of 1" = 1000 feet by R. Darney, W. Roberts, and C.L. Smith.

Mapping was done on air photo blow-ups. All known outcrops were visited. Trenches and showings were mapped at larger scales, depending on detail required.

### 2) Prospecting

P. Risby and T. Skonseng did extensive prospecting in the Pay area. Skonseng was very successful in locating mineralized float in pits and trenches put down in areas of high geochemical results.

### 3) Line Cutting

During the period May 5 - September 1, a grand total of 90.9 miles of line were cut on the Pay group. The grid consists of three base lines (0, 50S, and 100S) which trend N45$^{O}$W. Cross-lines over most of the grid are at 400 foot intervals and generally run from 0 to 144W; 800-foot spaced cross-lines were cut southwest of the 100S base line.

4) Geochemical Sampling

Over 6,000 geochemical soil samples were taken at 100 foot intervals over the entire cut grid. Reconnaissance sampling was done ahead of line cutting over about one-fourth of the grid in order to determine anomalous areas which should be cut. In addition, a geochemical research program of soil profile sampling in pits and trenches, bedrock sampling of drill core, stream silt sampling, and pH determinations was carried out. Soil samples were taken by mattock from the upper B-horizon, placed in Kraft soil envelopes, and numbered by grid position. Determinations were made in the Atlas Geochemical laboratory in Ross River for copper, lead, and zinc. Results were plotted on 400-foot scale and 100-foot scale maps of the Pay grid.

A large area around the Pay group, extending as far as 12 miles to the southeast, was covered by reconnaissance soil sampling on lines spaced from 1000 feet to half a mile apart. Sampling technique was identical to that used on the grid and stations were flagged.

5) Magnetometer Surveying

Magnetic surveys were run over the entire grid with a Jalander fluxgate, vertical component instrument. Diurnal drift and gamma conversions were done in a conventional manner. Results are plotted on maps to scale 1:400, showing grid location - gamma values - profiles and grid location - isomagnetic contours.

6) Electromagnetic Surveying

Two types of electromagnetic survey were used over the Pay grid. Complete coverage has been obtained with a Crone JEM unit, using the horizontal loop method, which has been adequate in outlining major conductive areas. A Ronka EM 16 was also used to supply more detailed information over conductors delineated by the Crone JEM. All electromagnetic data was plotted on grid plans to scale 1:400. Maps showing results obtained from the JEM unit include: 1800 and 480 cps values and resultant dip angles profile, 480/1800 cps values and profiles (relative conductivity), and contoured 1800 cps resultant dip angles. Maps have been prepared showing in-phase and quadrature values and profiles for the EM 16.

7) Surveying

In the area of the main geochemical anomalies, 23 miles of grid line and all trenches, drill holes, and claim posts were surveyed with transit and stadia by P. Sandaluk. Fractions between claims were located and staked using survey points.

8) Hand Trenching

On July 1, a hand trenching program was initiated by T. Skonseng at L48W, 51S where a mineralized outcrop was coincident with a broad zone of anomalous geochemistry. Between this time and August 1st, a total of three hand trenches and 24 pits were dug. These pits and trenches were concentrated in an area between Line 40W and 60W from 48S to 59S.

The following is a tabulation of the hand trenches and pits:

| Trench | Dimensions (in feet) | Volume (in cubic feet) |
|---|---|---|
| 1 | 110 x 3.5 x 4.0 | 1540 |
| 2 | 25 x 2.5 x 3.5 | 218.75 |
| 3 | 17 x 3.5 x 5.5 | 327.25 |
| Pit | | |
| 1 | 7 x 4.5 x 8 | 252 |
| 2 | 5 x 4.5 x 6 | 135 |
| 3 | 5 x 3 x 2.5 | 37.5 |
| 4 | 4 x 4 x 4 | 64 |
| 5 | 2 x 2 x 1.6 | 6.4 |
| 6 | 8 x 4 x 6 | 192 |
| 7 | 4 x 4 x 2 | 32 |
| 8 | 6 x 3 x 7 | 126 |
| 9 | 17 x 3.5 x 2 | 119 |
| 10 | 7 x 3.5 x 5 | 122.5 |
| 11 | 9 x 3.5 x 4 | 126 |
| 12 | 10 x 3.5 x 5 | 175 |
| 13 | 10 x 3.5 x 4 | 140 |
| 14 | 6 x 3.5 x 5 | 105 |
| 15 | 5 x 3 x 3.5 | 52.5 |
| 16 | 4 x 3 x 3.5 | 42 |
| 17 | 4 x 3 x 3 | 36 |
| 18 | 5 x 3.5 x 2 | 35 |
| 19 | 6 x 3 x 3.5 | 63 |
| 20 | 6 x 4 x 3 | 72 |
| 21 | 8 x 4 x 4.5 | 144 |
| 22 | 7 x 4 x 5 | 140 |
| 23 | 7 x 4 x 8 | 224 |
| 24 | 6 x 3 x 4 | 72 |
| | TOTAL | 4,599 cubic feet |
| | | 170.3 cubic yards |

9) Bulldozer Trenching

Depth of overburden in the area of geochemical anomalies made hand trenching highly impractical, therefore a D-7E Cat, under contract from Liard Construction, was used for further trenching. A total of three trenches were dug on the Pay. One shift of 10 hours per day was run during the first two weeks of August. The following is a tabulation of bulldozer trenching done.

| Number | Dimensions (in feet) | Volume (in cubic feet) |
|---|---|---|
| Pay | | |
| 1 | 110 x 25 x 8 | 22,000 |
| 2 | 180 x 25 x 15 | 67,500 |
| 3 | 110 x 35 x 6 | 23,100 |
| | TOTAL | 112,600 cubic feet |
| | | 4,170 cubic yards |

10) Sampling and Assaying of Trenches

All sampling of hand and bulldozer trenches was done by R. Darney and W. Roberts. "Overall chip" samples, bagged in five-foot sections, were taken in hand trenches 1 and 2. The "continuous chip" method, bagged in five-foot sections, was used in Cat Trench #2.

Samples from hand trenches were sent to Atlas Explorations Geochemical Laboratory, Ross River, Y.T., and run for Zn, Pb, Cu, Ag, Cd.

11) Diamond Drilling

A Winkie Drill, purchased by Atlas in October, 1966, was used in an attempt to find the extension of the main showing. However, the extreme depth of overburden and highly fractured

nature of the rock units made drilling difficult and core recovery low. Several holes were abandoned at only a few feet. The driller was B. Morrisson, and he was assisted by C. Boiteau.

The following is a list of drill holes and locations:

| No.of Hole | Latitude | Departure | Depth | Remarks |
|---|---|---|---|---|
| WDH # 1 | 50' NE of L48W, 8N | | 97' | Overburden |
| WDH # 2 | 20' NE of L48W, 52S | 70' SE of L48, 52S | 10' | No log |
| WDH # 3 | 25' NE of L48W, 52S | 50' SE of L48, 52S | 8' | No log |
| WDH # 4 | 15' NE of L48W, 52S | 40' SE of L48, 52S | 8' | No log |
| WDH # 5 | 40' NE of L48W, 53S | 70' SE of L48, 53S | 6' | No log |
| WDH # 6 | L32W, 45S | | 49' | |
| WDH # 7 | 25' NE of L32, 48S | 140' NW of L32, 48S | 58' | Overburden, No log |
| WDH # 8 | 15' SW of L32, 47S | 160' NW of L32, 47S | 98' | |
| WDH # 9 | 50' NE of L32, 44S | | 28' | No log |
| WDH #10 | 70' NE of L32, 44S | | 51' | |
| WDH #11 | 50' SW of L88, 71S | | 94' | |
| WDH #12 | | | | |
| (a) | 50' SW of L88, 70S | | 22' | Dip 90 deg. No log |
| (b) | 50' SW of L88, 70S | | | Dip 90 deg. NE - No log |
| WDH #13 | L124, 71S | | 72' | Overburden |
| WDH #14 | 50'S of L88, 69S | | 88' | |
| WDH #15 | 30' NE of L48, 52S | 120' SE of L48, 52S | | No log |
| WDH #16 | 28' NE of L48, 52S | 120' SE of L48, 52S | | No log |
| WDH #17 | 35' NE of L48, 52S | 120' SE of L48, 52S | | No log |

## C) Results and Interpretations

### 1) Geology

The Pay group area is underlain by a northwesterly-trending, moderately-folded succession of low grade metasedimentary rocks ranging in age from Proterozoic (?) to Upper Devonian. The beds are cut by numerous faults and intruded by a granitic stock about ½-mile southeast of Barry Lake.

#### Stratigraphy

The oldest rocks in the area are Proterozoic (?) quartzites exposed west of Little Grid Lake. The rocks are fine-grained, grey to black, massively-bedded, "clean" quartzites which may be correlated with a thick section cropping out to the east on Fleming Ridge.

South of Grid Lake a thick section of Middle-Upper Cambrian phyllites is exposed. The phyllites are characteristically grey, well-foliated and cleaved, and contain up to 50 percent quartz as distinct laminae, lenticular pods, or veinlets. The quartz has a "sweated-out" appearance but, because the rocks are of low metamorphic grade, this is probably not its origin; the quartz bodies are probably thin chert layers which have been modified in shape and crystallinity by metamorphism. The phyllites have a characteristic "Gleitbrit" structure consisting of microfolds separated by fractures, along which fold limbs are displaced. Three sub-units may be distinguished: spotted phyllite, grey phyllite, and sericitic phyllite. Spotted phyllite is distinguished by the presence of cordierite and rare andalusite porphyroblasts in a grey phyllite matrix. Sericitic phyllite has a lustrous sheen, apparently caused by an abundance of sericite mica.

Silurian-Devonian dolomite and graphitic dolomite occurs folded into the axis of a tight syncline south of Grid Lake and south of the Boundary fault. Stratigraphic relations in the Pay area are not definite, but the dolomites may be correlated with a thick carbonate sequence exposed on Dolomite Ridge southeast of the Pay group. In the Pay area, dolomites are dark grey-brown,microcrystalline, and either "platy-" or massively-bedded. South of the Boundary fault, a distinct unit of "host" dolomite is interbedded in the carbonaceous dolomites. The host dolomite is light to dark grey and is characteristically brecciated and veined with quartz and calcite, as well as locally hydrothermally altered to silica and pyrite; it is this unit which contains important zinc mineralization.

A sequence of Upper Devonian cherts, dolomites, and black slates crops out between Grid Lake and Barry Lake. Although separated from older rocks by faults, this unit is believed to lie with strong angular unconformity upon Silurian-Devonian and Cambrian. The older member of this sequence (4a) is a distinctive grey to green, finely-banded chert which forms the core of an open anticline east of Grid Lake. Small fracture-filling deposits of Pb-Zn and Au - arsenopyrite occur in these cherts. Overlying 4a is a dark brown, massively-bedded dolomite unit (4b) which contains interbedded chert north of Barry Lake. Younger units (4c, 4d, 4e) consist of varying amounts of dark grey chert, massive dark brown dolomite, and black carbonaceous slate. North of Barry Lake, Pb-Zn mineralization (showing G) of low grade occurs as chert breccia fillings scattered over a length of 4000 feet. The mineralization appears to have a general stratigraphic control within a 200-300 foot thick bed of interbedded chert and dolomite.

A Cretaceous (?) biotite quartz monzonite porphyry stock cuts the metasediments just east of the Pay group.

## Structure

The Pay region appears to have undergone at least two periods of deformation and metamorphism. An older period is reflected in the well-developed shistosity and Gleitbrit structure of the Cambrian phyllites. The younger period has imposed very low-grade metamorphism on rocks of younger age and thrown the beds into moderately tight folds plunging gently (up to 20 degrees) to the northwest. In the area of important mineralization south of the Boundary fault, the structure is not well known, due to limited outcrop,but the host dolomite appears to occur within the northeast limb of an anticline.

Two important directions of faulting are recognized; a northwest to east-west set and a northerly set. Major faults trend northwesterly and some display an accurate trace swinging more westerly as they are followed to the north. Displacements cannot be accurately determined, but in places they must be large for major stratigraphic sections are commonly brought into juxtaposition.

## Economic Geology

Three basic types of mineralization occur in the Pay area: Small Pb-Zn vein and breccia-filling bodies in banded chert, quartzite, and chert-dolomite (showings A, B, and E), Au-arsenopyrite veins (showings C and D), and Zn-Pb replacement and breccia-filling deposits in host dolomite (showing F). The first two types were shown to be of little economic importance (see assays on geologic map).

The main targets of the Pay area are low grade Zn deposits in host dolomite south of the Boundary fault. The host dolomite was exposed by two bulldozer trenches, one long hand trench, and several small pits and trenches near showing F (between L40W and 45W, just south of B150S). Exposures in this area coincide with

an intense, linear, northwesterly-trending Zn geochemical anomaly which may be traced for about 2 miles to the northwest and about 1 mile to the southeast of the exposure area. The host unit also strikes northwest-southeast and it appears that high Zn geochemical values are reflecting mineralization along strike within this bed.

In the exposure area, the host is a 90+foot thick bed of light grey, microcrystalline, massively-bedded dolomite. Mineralization is irregularly distributed, consisting of light purplish-brown, fine-to-medium-grained sphalerite, galena in quartz veins, pyrite and rare chalcopyrite in a gangue of quartz, calcite, gypsum, siderite, and rare barite (?). Hydrothermal alteration is erratic and not pervasive, consisting of silicification and minor pyritization. Textures are characteristic of open space filling in quartz-carbonate veins in brecciated dolomite and of true disseminated replacement by sphalerite and pyrite. Genetically, the deposits appear to be of the telethermal class (Mississippi Valley Pb-Zn, Tenessee Zn, and Polish Pb-Zn types).

Three chip samples taken across significant lengths ran 3.8% Zn over 25 feet, 1.9% Zn over 90 feet, and 1.42% Zn over 95 feet. Numerous mineralized erratics in ground moraine exposed by pits and trenches, mainly northwest of the exposure area, are of a higher grade, well disseminated type, visual estimates running as high as 20% Zn. Due to the limited amount of exposure on an intense geochemical anomaly of such magnitude, it is difficult to estimate whether or not economic grade can be located and, if so, what tonnages will be found. The great length of the anomaly and its definite relation to a 90+foot thick host unit suggest, however, that, should economic grade be located, tonnages could be large.

## 2) Geochemistry

### Geochemical Environment, Soil Types, Nature of Dispersion.

Topography in the area of the Pay geochemical anomaly is gently-rolling and slopes westward to Fortin Lake. Local relief is up to 50 feet between northwesterly-trending elongate depressions and irregular, elongate ridges. Drainage is sluggish and stream flow is minimal except in major westerly-flowing streams. Ground water level is high and emerges in abundant seepages, swamps, and small creeks. Permafrost is erratic in distribution, but occurs over about 70 percent of the area. Vegetation consists mainly of dwarf birch with stands of spruce, poplar, and tamarack.

Glacial striations are clearly recognizable in the field and on air photos; the direction of glacial movement was east-west. It is believed that a piedmont glacier moved westerly through the Pelly Lakes valley and was fed by tributary glaciers entering from the southeast and north. Glacial erratics may be found on the highest mountain peaks and remnants of lateral moraine occur up to elevations of 5,000 feet.

Twenty-four hand trenches and pits were sampled and logged in an orientation survey between L40W and L56W in the easterly geochemical zone. Typical soil profiles consist of: 2-4" decayed organic material ($A_1$), 1-2" white volcanic ash, 2-18" coarse, light grey-brown coloured sandy soil (locally has small clay percentage) ($A_2$), 2-36" dark grey-brown clay (locally silty or pebbly, with up to 60% phyllite chips) ($B_1$), 0-36" dark grey-brown sandy clay (with up to 60% phyllite chips) ($B_2$), parental ground moraine material of 95+% phyllite chips and rubble with rare granitic erratics, and up to 5% mineralized dolomite (C). The soil appears to be relatively mature for tundra types because a fairly distinct B horizon with ferruginous content can be recognized. Immaturity is suggested, however, by rapid changes

in profiles over short distances. Also, the abundance of phyllite in parent material has no doubt contributed to rapid development of a clay-rich B horizon. Furthermore, sluggish drainage, high water table, and abundant clays suggest that soils developed under conditions of limited aeration.

Throughout the area of the Pay geochemical anomaly, dispersion appears to have occurred almost exclusively by physical transport of mineralized material through glacial action. The following facts support this conclusion:

(1) Pits and trenches put down in areas of anomalous zinc geochemistry exposed glacial moraine rich in phyllite, containing angular boulders and fragments of zinc mineralized dolomite.

(2) Zinc geochemical results in pit profiles (sample interval, 6 inches) are erratic, do not show a definitive relation to the B horizon, and are highest in parental moraine where mineralized material may be observed; these facts suggest that chemical soil-forming processes have had little influence on dispersion.

(3) Anomalies commonly lie on ridges and not in adjacent depressions where ground water emerges; if zinc were being carried by ground waters, high values should be found in low ground at points of ground water emergence where precipitation would normally occur.

(4) Soils are obviously transported; diamond drilling of anomalies encountered phyllite-rich morainal overburden underlain by carbonaceous dolomite bedrock; furthermore, the soils are the obvious result of glacial transport rather than colluvial or alluvial action.

(5) Phyllite crops out immediately east (up the glacial direction) of the anomalies and is the most logical morainal material. (Glacial studies commonly show that the bulk of moraine is made up of material derived within 1-2 miles of the site of deposition).

(6) Chemical oxidation appears to be minimal (except for sphalerite) because pyrite, chalcopyrite, and galena are fresh and un-oxidized.

Description of Anomalies. Important geochemical zones in the Pay area consist mainly of elongate zinc anomalies with minor related lead highs. A frequency distribution histogram of zinc values shows that background over the Pay grid averages about 60 ppm with a distinct threshold value of about 250 ppm. The histogram further suggests that a local background level exists between 250 ppm and 600 ppm; significant anomalies are therefore defined as those above 600 ppm. The significance of the 600 ppm contour may be seen on the zinc contour map - anomalies are most clearly outlined at this level

Zinc anomalies on the Pay group consist of four major zones, averaging about 3,000 feet in length, which are elongate, intense, and arranged end-to-end in a northwesterly direction with a slight en echelon configuration. In addition, a broad, irregular anomaly occurs separated from the linear group, and several small peaks occur scattered south of the main trend. Of the four major zones, the two central zones are most intense.

The zone which occurs between L40W, 47S and L76W, 69S ranges from 100 to 400 feet wide within the 1,000 ppm contour and reaches four distinct peaks of over 4,000 ppm Zn. Two bulldozer trenches, one long hand trench, and several small trenches and pits were put down on this anomaly. In the area between L40W and L48W,

trenches exposed a bed of dolomite (90+ feet thick in one trench), irregularly mineralized with sphalerite, galena in quartz veins, pyrite, rare chalcopyrite, quartz, calcite, and minor siderite. The dolomite is locally silicified and pyritized, and commonly brecciated. Three chip samples taken across significant lengths ran 3.8% Zn over 25 feet, 1.9% Zn over 90 feet, and 1.42% Zn over 95 feet. Winkie drilling to the southeast on the same anomaly penetrated carbonaceous dolomites beneath ground moraine.

The most intense zinc geochemical zone occurs between the area of L80W 68S, and L120W 74S. It contains a sub-zone of about 1,400 feet long and about 200 feet wide, enclosed by the 3,000 ppm contour; peak values are over 9,000 ppm. No exposure occurs in the area of the anomaly, but sericitic phyllite crops out just to the northeast. Winkie drilling of the anomaly penetrated carbonaceous dolomite beneath ground moraine overburden, which averages about 20 feet thick. Several hand trenches put down by T. Skonseng in the anomaly area exposed angular blocks of mineralized dolomite in phyllite-rich ground moraine; numerous blocks carried up to 20% Zn. (Visual).

A broad, anomalous Zn area occurs along base line 0 between L104W and L140W. It consists of four separate, smaller zones enclosed by the 1,000 ppm contour; peak values in the area are over 6,500 ppm. A small trench northeast of the zone exposed a 4-foot wide quartz vein-breccia zone carrying up to 11.8% Pb with 1.3 oz/ton Ag. No exposures were made on the Zn anomaly.

Lead geochemical results are erratic and only locally intense. The only important anomalies occur northeast of the main Zn geochemical anomaly near its northwesterly end, where small zones up to 600 feet long occur; a peak of 14,800 ppm is the highest Pb value in the grid area. The fact that higher Pb

geochemical values occur northeast of the Zn geochemical zone probably reflects Pb mineralization, for it is notable that, to the southeast, in the area which was trenched, Pb veins occur on the northeast side of the exposure; this same relation appears along Base Line 0 at L136 (see above).

Copper geochemical results appear to be of little significance. Only small, isolated anomalies of low intensity occur along and to the northeast of the main zinc anomaly. Because chalcopyrite has been noted with the zinc mineralization, some of these anomalies may reflect minor concentrations of copper; none are sufficiently intense to warrant follow-up work, however.

Interpretation. The coincidence of high Zn geochemical results and the Zn mineralization in dolomite between L40W and L48W proves that, at least in part, the extensive Zn geochemical zone of the Pay group accurately reflects mineralization in place. Attempts were made to reach bedrock in several places northwest and southeast of this area. In most cases, overburden could not be penetrated due to difficulties in drilling with the Winkie or because overburden was too thick for trenching. Wherever drilling reached bedrock, however, carbonaceous dolomite was encountered; host dolomite could not be located by geochemical anomaly drilling. The cause of anomalies in these outlying areas was shown to be zinc mineralized dolomite blocks occurring as erratics in phyllite-rich ground moraine.

Because anomalies over large parts of the Pay area are definitely transported, the problem remains to locate the source of mineralization in these areas. Accepting glacial transport as a means of dispersion, it is notable that patterns are not more fan-like and diffuse. Anomalies are intense and linear and show highest peaks on the northeast side (up-glacier).

Also, direction of glacial movement was at an angle of about 30 degrees to anomaly trends. These facts appear to support the theory that mineralization lies beneath, or a short distance east of, the northeastern edge of the anomalies.

3) Ground Magnetics

The field operators report that continual problems have been encountered during the course of the magnetic survey. Instrument trouble, coupled with severe and irregular magnetic storms, have given magnetic readings that are of doubtful accuracy. It has not been determined where the problem lies, although four different instruments have been tested on the grid by an experienced operator.

With the results obtained to date, it is apparent that the magnetics over the geochemical and electromagnetic expressions are very "flat". To the north, responses of over 300 gammas above background have delineated zones that are interpreted as being phyllite zones that have undergone a higher degree of metamorphism (see Interpretation Map). The displacement of these zones has given some support to the theory that a northeast-trending fault strikes across the grid. The magnetic responses are of a broad nature, with dips generally to the south. Local irregularities within the overall anomalies are attributed to facies changes within the phyllite units themselves.

The magnetometer survey has not disclosed possible areas of sulphide mineralization, but has provided some minor guides to geologic mapping.

4) Ground Electromagnetics

Zone 1, being as described between line 20E and 60W, is an extensive conductor outlined by the horizontal loop Crone JEM. The boundaries of this conductor are shown on the compilation map; profile details of lines 24, 32, 40, 48, and 56 W are

shown in the Appendix of this report. All dip angles are negative and of large magnitude (in excess of $-30^{\circ}$). The general conductor has been interpreted as being the near surface (less than 200 feet) trace of synclinal folding of a graphitic horizon. The syncline plunges to the west, as represented by EM profiles. With reference to the compiled profiles of line 24 W, the axial plane of the syncline would be at 53 S, the northern limb dips to the south between stations 44 S and 52 S, the southern limb has a gentle dip to the north from at least station 80 S to 60 S. With respect to the same line, the EM 16 profile (deeper penetration) appears to outline the north and south contacts of the graphite at 43 S and 72 S; faulting at 40 S gives a well-defined "cross-over" The axial-plane or central portion of the graphitic zone is clearly shown by the cross-over at 56 S. The profile of line 32 W gives the same basic interpretation, although the main graphitic bed is plunging to the west, therefore giving weaker readings on the Crone JEM. The less conductive dolomite host is thought to lie in the region of 44 to 48 S, shown both on the Crone, EM 16, and zinc profile. The profile of line 40 W is interpreted similarly, except for the westerly-trending fault cutting the northern limb of the graphitic bed near its northern contact; this is shown both on the EM 16 and Crone profiles. The main body of graphite appears to be still plunging uniformly to the west on line 56 W; the Crone profile is one of a conductor at depth and does not provide much detail. On each profile, irregularities are noted both on the Crone and EM 16 results for each line. These are thought to be either due to minor folding within the proposed synclinal structure or more conductive zones within the graphite formations. In all instances, formational dips are steeper on the northern limb than on the southern limb of the fold. The axis of the major fold is best defined as the conductor dips or

plunges below the penetration depth of the Crone JEM. Within the central portion of the fold (axial plane?), positive resultant dips are indicated, thus giving further evidence to its existence by the presence of near vertical shears.

At the western extremity of the Zone 1 conductor, a fault has been assumed through the location of a well-defined, north-easterly topographic linear, displacement of magnetic anomalies, and a cut-off and apparent partial displacement of the conductors. It is probable that, in the vicinity of line 72E, the topographic linear is so pronounced that heavy overburden cover within its confines has masked EM results. This area could represent the central portion of a doubly-folded syncline, although structurally this is not likely.

Zone 2 is described as being the area between line 80 W and the western boundary of the grid (line 124 W), as shown by the conductor outline on the Compilation Map. It is suspected that a synclinal formation gives rise to a similar electromagnetic situation here as found over Zone 1. If such is the case, the north and south limbs do not dip as steeply as in Zone 1. The axial plane would pass through line 108 W at 78 S. (Refer to profile of line 108 W).

The geophysical surveys are not complete over Zone 2 and the conductor is not fully delineated. The Zone 2 conductor is thought to have a shallow plunge in comparison with Zone 1 because of relative differences in strength of EM response. Over the north limb, the conductor has not been closed; from the survey information to date, it appears to continue to the north and may join with another extensive conductor outlined in the vicinity of line 136 W station 0. This could possibly indicate the continuation of the graphitic zone into an anticlinal arch to the north. It should be noted that sulphide mineralization of limited extent was found in the vicinity of line 136 W, in association with a large and complex conductor.

Electromagnetics appears to be a valuable tool aiding in the prognostication of local and regional structure and, more specifically, economic environments in relation to structural control. The outlining of the graphitic marker may well aid in the location of, and possible projections of, the associated host unit.

The compilation of geophysical and geochemical data indicates that the zinc anomalies favor the northern limb of the proposed synclinal structure, possibly where the thickest section of host unit overlies the graphite?

Two structural situations have been interpreted from geophysical-geologic observations; an elongate westerly-trending, westerly-plunging syncline, or a synclinal structure with a down-dropped center giving a basin-like structure.

5) Hand and Bulldozer Trenching

Three trenches adequately exposed bedrock in the area between L40W and L48W. They were hand trench #1, hand trench #2, and bulldozer trench #2.

Chip samples of five-foot sections in these trenches ran as follows:

Hand Trench #1

| | Ag | Pb | Zn | Cu | Cd |
|---|---|---|---|---|---|
| 0 - 5 | ND | ND | 2.20 | ND | TR |
| 5 - 10 | ND | .08 | .8 | .01 | .01 |
| 10 - 15 | ND | .01 | 1.45 | .01 | .01 |
| 15 - 20 | .13 | .45 | 2.15 | .01 | TR |
| 20 - 25 | ND | ND | 1.05 | .01 | .03 |
| 25 - 30 | ND | .01 | 2.75 | .01 | .02 |
| 30 - 35 | .29 | .03 | 4.30 | .01 | .01 |
| 35 - 40 | .28 | .01 | 1.50 | ND | .01 |
| 40 - 45 | ND | ND | 1.40 | .01 | .01 |
| 45 - 50 | ND | ND | 1.95 | .01 | .01 |
| 50 - 55 | ND | .05 | 1.40 | .01 | .01 |
| 55 - 60 | ND | .06 | 1.65 | .01 | .01 |
| 60 - 65 | ND | .01 | 1.55 | .01 | TR |
| 65 - 70 | ND | .16 | .89 | .01 | TR |
| 70 - 75 | ND | .04 | 1.40 | .00 | TR |
| 75 - 80 | ND | .01 | 2.80 | .01 | .01 |
| 80 85 | ND | ND | .83 | .01 | .02 |
| 85 - 90 | ND | .01 | 4.20 | .01 | .01 |

From 0 - 90, i.e. 90 feet, Average Zn = 1.95%

Hand Trench #2

| | Cu | Pb | Zn |
|---|---|---|---|
| 0 - 10 | .017 | .13 | 8.4 |
| 10 - 15 | .01 | ND | 1.6 |
| 15 - 20 | ND | .18 | 3.85 |
| 20 - 25 | ND | .01 | 1.35 |

From 0 - 25, i.e. 90 feet, Average Zn = 3.82%

## Cat Trench #2

| | South Side | | | | | North Side | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Ag | Pb | Zn | Cu | Cd | Ag | Pb | Zn | Cu | Cd |
| 0 - 5 | TR | .1 | .6 | TR | TR | TR | TR | TR | TR | TR |
| 5 - 10 | .02 | TR | 2.6 | TR | .2 | TR | TR | .4 | .01 | TR |
| 10 - 15 | TR | TR | TR | TR | TR | TR | TR | 1.0 | TR | TR |
| 15 - 20 | TR | TR | .1 | TR | TR | TR | TR | TR | TR | TR |
| 20 - 25 | TR | TR | TR | TR | TR | TR | TR | .7 | TR | TR |
| 25 - 30 | TR | TR | TR | TR | TR | TR | TR | 1.3 | TR | TR |
| 30 - 35 | TR | TR | TR | TR | TR | TR | TR | .7 | TR | TR |
| 35 - 40 | TR | TR | TR | TR | TR | TR | TR | 1.6 | TR | TR |
| 40 - 45 | TR | TR | TR | TR | TR | TR | TR | 2.9 | TR | .013 |
| 50 - 55 | TR | TR | TR | TR | TR | TR | TR | 2.3 | TR | .01 |
| 55 - 60 | TR | TR | TR | TR | TR | TR | TR | .6 | TR | TR |
| 60 - 65 | TR | TR | TR | TR | TR | TR | TR | 1.6 | TR | TR |
| 65 - 70 | TR | TR | TR | TR | TR | TR | TR | 5.9 | TR | .035 |
| 70 - 75 | TR | TR | TR | TR | TR | TR | TR | .5 | TR | TR |
| 75 - 80 | | | | | | TR | TR | .5 | TR | TR |
| 80 - 85 | | | | | | TR | TR | .7 | TR | TR |
| 85 - 90 | | | | | | TR | .1 | 1.9 | TR | TR |
| 90 - 95 | | | | | | TR | TR | 1.3 | TR | TR |
| 95 - 100 | | | | | | TR | TR | .5 | TR | TR |
| 100 - 105 | | | | | | | | | | |
| 105 - 110 | | | | | | | | | | |

From 5 - 100, i.e. length 95', Average Zn = 1.42%

6) Diamond Drilling (Winkie)

Although 17 holes were drilled, 12 penetrated only short distances or never reached bedrock so that only 5 holes were logged. These were WDH #6, 8, 10, 11, and 14. Most holes were spotted on geochemical anomalies, or rarely on electromagnetic targets, in an attempt to locate the host dolomite unit. In no case was the host penetrated through anomaly drilling; instead, in most holes, bedrock was found to be carbonaceous dolomite or argillite.

The Winkie drill was found to be entirely inadequate for drilling in the Pay area. Firstly, overburden is generally deep; secondly, talus blocks, just above the bedrock surface, have a nasty habit of rotating when being drilled, thereby making it difficult to penetrate them; and thirdly, if any degree of fracturing existed in bedrock, on bedrock set-ups, the Winkie was unable to get through.

The following are logs of WDH's #6, 8, 10, 11, and 14.

# DIAMOND DRILL RECORD,

HOLE NO. WDH #6

PROPERTY ATLAS-SHELDON-PAY

SHEET NUMBER 1 SECTION FROM ____ TO ____ STARTED July 9, 1967

LATITUDE L32W, 45S DATUM ____ COMPLETED July 10, 1967

DEPARTURE ____ BEARING ____ ULTIMATE DEPTH ____

ELEVATION ____ DIP 90 deg. PROPOSED DEPTH ____

| DEPTH FEET | CORE RECOV | DESCRIPTION | CORE SAMPLE NO. | FOOTAGE | CORE ASSAYS AG. | CU. | PB. | ZN. | SLUDGE SAMPLE NO. | FOOTAGE | SLUDGE ASSAYS AG. | CU. | PB. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0-18 | O.B. | | | | | | | | | | | | |
| 18-28 | | light grey-black argillaceous dolomite | 1 | 18' | | 40 ppm | 3,440 ppm | 200 ppm | | | | | |
| | | laminated and cut by calcite stringers | 2 | 23' | | 40 ppm | 656 ppm | 36 ppm | | | | | |
| | | Contains up to 5% pyrite concentrated | | | | | | | | | | | |
| | | along lamination. Core angle 45 deg. | | | | | | | | | | | |
| | | Very slightly conductive. Reactive with HCL. | | | | | | | | | | | |
| 28-33 | | Black finely laminated carbonaceous | 3 | 28' | | 34 ppm | 408 ppm | 82 ppm | | | | | |
| | | dolomite. Slowly reactive with HCL. | 4 | 33' | | 32 ppm | 360 ppm | 24 ppm | | | | | |
| | | Moderately conductive. Contains | | | | | | | | | | | |
| | | disseminations & concentrations of pyrite- | | | | | | | | | | | |
| | | 5%. Some blebs range to 1/4 inch in dia. | | | | | | | | | | | |
| | | Core angle 40 deg. | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |

# DIAMOND DRILL RECORD,

HOLE NO. WDH #8

PROPERTY ATLAS-SHELDON-PAY

SHEET NUMBER 1 | SECTION FROM 0 Feet TO 61 Feet | STARTED July 14, 1967

LATITUDE 15' SW of L32, 47S | DATUM | COMPLETED July 17, 1967

DEPARTURE 160' NW of L32, 47S | BEARING | ULTIMATE DEPTH

ELEVATION | DIP 90 deg. | PROPOSED DEPTH

| DEPTH FEET | CORE RECOV | DESCRIPTION | CORE SAMPLE NO. | FOOTAGE | CORE ASSAYS AG. | CU. PPM | PB. PPM | ZN. PPM | SLUDGE SAMPLE NO. | FOOTAGE | SLUDGE ASSAYS AG. | CU. | PB. | ZN. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0-41 | O.B. | | | | | | | | | | | | | |
| 41-42 | 30% | Light-grey-black, laminated argillaceous | 1 | 41' | | 23 | 136 | 30 | | | | | | |
| | | dolomite. Finely disseminated pyrite 1- | | | | | | | | | | | | |
| | | 10%. Core angle 55 deg. Moderately | | | | | | | | | | | | |
| | | reactive with HCL. Slightly conductive. | | | | | | | | | | | | |
| 42-61 | 55% | Black, finely laminated carbonaceous | 2 | 42' | | 41 | 90 | 3500 | | | | | | |
| | | dolomite. Slowly reactive with HCL. | 3 | 45' | | 18 | 102 | 70 | | | | | | |
| | | Between 5-10% carbon. Pyrite is | 4 | 50' | | 24 | 76 | 160 | | | | | | |
| | | disseminated throughout, but is mostly | 5 | 55' | | 50 | 60 | 260 | | | | | | |
| | | concentrated parallel to laminations. | | | | | | | | | | | | |
| | | Pyrite 5%. Core angle 52 deg. Rock highly | | | | | | | | | | | | |
| | | conductive. | | | | | | | | | | | | |
| 61-65 | 85% | Light grey-black, laminated argillaceous | 6 | 61' | | 18 | 80 | 35 | | | | | | |
| | | dolomite. Finely diss. pyrite 1-10% | | | | | | | | | | | | |
| | | Core Angle 50 deg. | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |

# DIAMOND DRILL RECORD,

HOLE NO. WDH #8

PROPERTY ATLAS-SHELDON-PAY

SHEET NUMBER 2 | SECTION FROM 61 Feet TO 73 Feet | STARTED July 14, 1967

LATITUDE 15' SW of L32, 47S | DATUM | COMPLETED July 17, 1967

DEPARTURE 160' NW of L32, 47S | BEARING | ULTIMATE DEPTH

ELEVATION | DIP 90 deg. | PROPOSED DEPTH

| DEPTH FEET | CORE RECOV | DESCRIPTION | CORE SAMPLE NO. | FOOTAGE | CORE ASSAYS AG. | CU. PPM | PB. PPM | ZN. PPM | SLUDGE SAMPLE NO. | FOOTAGE | SLUDGE ASSAYS AG. | CU. | PB. | ZN. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 61-65 | (cont'd.) | moderately reactive with HCL. Dolomite | 7 | 65' | | 9 | 66 | 26 | | | | | | |
| | | itself is very slightly conductive, but | | | | | | | | | | | | |
| | | pyrite concentrations on lamination planes | | | | | | | | | | | | |
| | | is highly conductive. | | | | | | | | | | | | |
| 65-72 | 40% | Light-grey-black laminated argillaceous | 8 | 66' | | 9 | 62 | 23 | | | | | | |
| | | dolomite. Moderately reactive with HCL. | 9 | 72' | | 15 | 52 | 21 | | | | | | |
| | | Pyrite 5% More massive than previous run. | | | | | | | | | | | | |
| | | Core angle 50 deg. Very slightly conduct. | | | | | | | | | | | | |
| 72-73 | 50% | Dark grey-black carbonaceous dolomite | 10 | 72.5 pyrite | bleb | 27 | 110 | 26 | | | | | | |
| | | finely laminated; minor diss. pyrite. | | | | | | | | | | | | |
| | | Core Angle 55 deg. Moderately conductive. | | | | | | | | | | | | |
| 73-76 | 60% | Grey, finely crystalline dolomite | 11 | 75' | | 11 | 38 | 17 | | | | | | |

# DIAMOND DRILL RECORD,

HOLE NO. WDH #8

PROPERTY ATLAS-SHELDON-PAY

SHEET NUMBER 3 | SECTION FROM 73 TO 79 | STARTED July 14, 1967

LATITUDE 15' SW of L32, 47S | DATUM | COMPLETED July 17, 1967

DEPARTURE 160' NW of L32, 47S | BEARING | ULTIMATE DEPTH

ELEVATION | DIP 90 deg. | PROPOSED DEPTH

| DEPTH FEET | CORE RECOV | DESCRIPTION | CORE SAMPLE NO. | FOOTAGE | CORE ASSAYS AG. | CU. PPM | PB PPM | ZN PPM | SLUDGE SAMPLE NO. | FOOTAGE | SLUDGE ASSAYS AG. | CU. | PB. | ZN. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 73-76 | Con't. | Moderately reactive with HCL. Cut by | | | | | | | | | | | | |
| | | carbonate stringers 1/16" in width. | | | | | | | | | | | | |
| | | Core angle 35 deg. Several of the | | | | | | | | | | | | |
| | | carbonate stringers are vertical. Not | | | | | | | | | | | | |
| | | conductive and contains only very minor | | | | | | | | | | | | |
| | | pyrite. | | | | | | | | | | | | |
| 6-79' | 85% | Dark grey-black carbonaceous dolomite. | 12 | 77' | | 24 | 68 | 30 | | | | | | |
| | | Has lighter coloured appearance due to | | | | | | | | | | | | |
| | | extremely irregular interlayering with | | | | | | | | | | | | |
| | | segregated carbonate (calcite) | | | | | | | | | | | | |
| | | Moderately conductive and reactive with | | | | | | | | | | | | |
| | | HCL. Minor diss. pyrite. Core angle | | | | | | | | | | | | |
| | | 60 deg. | | | | | | | | | | | | |
| 9-90 | 20% | Dark grey, laminated carbonaceous | 13 | 80 | | 18 | 48 | 30 | | | | | | |
| | | dolomite. Slowly reactive | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |

# DIAMOND DRILL RECORD,

HOLE NO. WDH #8

PROPERTY ATLAS-SHELDON-PAY

SHEET NUMBER 4 | SECTION FROM 79 TO 98' | STARTED July 14, 1967

LATITUDE 15' SW of L32, 47S | DATUM | COMPLETED July 17, 1967

DEPARTURE 160' NW of L32, 47S | BEARING | ULTIMATE DEPTH

ELEVATION | DIP 90 deg. | PROPOSED DEPTH

| DEPTH FEET | CORE RECOV | DESCRIPTION | CORE SAMPLE NO. | FOOTAGE | CORE ASSAYS AG. | CU PPM | PB PPM | ZN PPM | SLUDGE SAMPLE NO. | FOOTAGE | SLUDGE ASSAYS AG. | CU. | PB. | ZN. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 9-90 | (cont | d.) with HCL. Moderately conductive. | 14 | 90' | | 20 | 54 | 23 | | | | | | |
| | | Core angle 50 deg. Pyrite 1% | | | | | | | | | | | | |
| | | diss. and in blebs up to 1/2" in dia. | | | | | | | | | | | | |
| 0-98 | 65% | dark grey-black, laminated carbonaceous | 15 | 95' | | 22 | 46 | 17 | | | | | | |
| | | dolomite. Slightly conductive. Slowly | 16 | 98' | | 19 | 46 | 17 | | | | | | |
| | | reactive with HCL. Core angle 50 deg. | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | Hole terminated in same at 98' | | | | | | | | | | | | |

# DIAMOND DRILL RECORD,

HOLE NO. WDH #10

PROPERTY ATLAS-SHELDON-PAY

SHEET NUMBER 1 | SECTION FROM 0 TO 49' | STARTED July 19, 1967

LATITUDE 70' NE of L32, 44S | DATUM | COMPLETED July 22, 1967

DEPARTURE | BEARING | ULTIMATE DEPTH

ELEVATION | DIP 90 deg. | PROPOSED DEPTH

| EPTH EET | CORE RECOV | DESCRIPTION | CORE SAMPLE NO. | FOOTAGE | CORE ASSAYS AG. | CU. PPM | PB. PPM | ZN. PPM | SLUDGE SAMPLE NO. | FOOTAGE | SLUDGE ASSAYS AG. | CU. | PB. | ZN. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 22 | O.B. | | | | | | | | | | | | | |
| -30' | 15% | Dark grey carbonaceous dolomite. Several | 1 | 25' | | 22 | 62 | 26 | | | | | | |
| | | quartz veins 1/2 inches wide with minor | | | | | | | | | | | | |
| | | pyrite. Slowly reactive with HCL and | | | | | | | | | | | | |
| | | weakly conductive. Core angle 6 5 deg. | | | | | | | | | | | | |
| -49 | 50% | Light grey, finely laminated carbonaceous | | | | | | | | | | | | |
| | | dolomite. Core angle 60 deg. Very weakly | 2 | 30' | | 34 | 62 | 17 | | | | | | |
| | | conductive Moderately reactive with HCL. | 3 | 35' | | 18 | 64 | 30 | | | | | | |
| | | Several calcite stringers from 1/16" - 1/4" | 4 | 40' | | 11 | 70 | 48 | | | | | | |
| | | width. Minor pyrite. | 5 | 45' | | 19 | 78 | 26 | | | | | | |
| | | | 6 | 49' | | 13 | 78 | 21 | | | | | | |
| | | Hole terminated. | | | | | | | | | | | | |

# DIAMOND DRILL RECORD,

HOLE NO. WDH #11

PROPERTY ATLAS-SHELDON-PAY

SHEET NUMBER 1 | SECTION FROM 0 TO 68' | STARTED July 23, 1967

LATITUDE 50' SW of L88, 71S | DATUM | COMPLETED

DEPARTURE | BEARING | ULTIMATE DEPTH

ELEVATION | DIP 90 deg. | PROPOSED DEPTH

| DEPTH FEET | CORE RECOV | DESCRIPTION | CORE SAMPLE NO. | FOOTAGE | CORE ASSAYS | | | | SLUDGE SAMPLE NO. | FOOTAGE | SLUDGE ASSAYS | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | AG. | CU. PPM | PB. PPM | ZN. PPM | | | AG. | CU. | PB. | ZN. |
| 0-20' | O.B. | | | | | | | | | | | | | |
| 0-30' | 15% | dark grey carbonaceous dolomite with dis- | 1 | 20-25' | | 33 | 70 | 200 | | | | | | |
| | | cordant quartz stringers up to 1/2" in dia. | | | | | | | | | | | | |
| | | with minor disseminated pyrite in dolomite | | | | | | | | | | | | |
| | | (2%). weakly conductive; moderately | | | | | | | | | | | | |
| | | reactive with conc. HCL; core angle 60deg. | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| 0-68' | 20% | Dark grey to black finely laminated very | 2 | 30' | | 70 | 100 | 90 | | | | | | |
| | | carbonaceous dolomite, moderately to good | 3 | 35' | | 15 | 50 | 40 | | | | | | |
| | | conductivity, slow reaction with HCL. | 4 | 40' | | 61 | 90 | 1,640 | | | | | | |
| | | Discordant calcite stringers with or with- | 5 | 45' | | 36 | 65 | 200 | | | | | | |
| | | out small lenses and pods of pyrite; also | 6 | 50'' | | 25 | 65 | 70 | | | | | | |
| | | disseminated grains of pyrite in dolomite | 7 | 55' | | 36 | 65 | 126 | | | | | | |
| | | 1%. Graphite very lustrious on | 8 | 60' | | 28 | 70 | 150 | | | | | | |
| | | bedding planes. Core angle -20 deg. | 9 | 65' | | 28 | 70 | 200 | | | | | | |
| | | | | | | | | | | | | | | |

# DIAMOND DRILL RECORD,

HOLE NO. WDH #11

PROPERTY ALTAS-SHELDON-PAY

SHEET NUMBER 2 | SECTION FROM 68' TO 94' | STARTED July 23, 1967

LATITUDE 50' SW of L88, 71S | DATUM | COMPLETED

DEPARTURE | BEARING | ULTIMATE DEPTH

ELEVATION | DIP 90 deg. | PROPOSED DEPTH

| DEPTH FEET | CORE RECOV | DESCRIPTION | CORE SAMPLE NO. | FOOTAGE | CORE ASSAYS AG. | CU. PPM | PB. PPM | ZN. PPM | SLUDGE SAMPLE NO. | FOOTAGE | SLUDGE ASSAYS AG. | CU. | PB. | ZN. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3-75' | 10% | Light grey to white interbed of crystalline | 10 | 68' | | 26 | 50 | 60 | | | | | | |
| | | limestone with discordant bands of dark | | | | | | | | | | | | |
| | | grey undulating dolomite. Very minor | | | | | | | | | | | | |
| | | pyrite. | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| 5-94' | 50% | Dark grey to black finely laminated, very | 11 | 75' | | 15 | 45 | 30 | | | | | | |
| | | carbonaceous dolomite with discordant light | | | | | | | | | | | | |
| | | grey to white calcite veins. Moderate to | 12 | 80' | | 28 | 50 | 77 | | | | | | |
| | | strongly conductive and slightly | 13 | 85' | | 38 | 60 | 40 | | | | | | |
| | | reactive with HCL. Calcites stringers | 14 | 90' | | 58 | 55 | 170 | | | | | | |
| | | generally less than 1/4" in diameter. | 15 | 94' | | 66 | 130 | 80 | | | | | | |
| | | 1% disseminated pyrite in dolomite. | | | | | | | | | | | | |
| | | Core angle 25 deg. (in some sections it | | | | | | | | | | | | |
| | | appears to be between 20 deg. & 25 deg. | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | Hole Terminated. | | | | | | | | | | | | |

# DIAMOND DRILL RECORD,

HOLE NO. WDH #14

PROPERTY ATLAS-SHELDON-PAY

SHEET NUMBER 1 SECTION FROM 0' TO 67' STARTED

LATITUDE 50' S of L88, 69S DATUM COMPLETED

DEPARTURE BEARING ULTIMATE DEPTH

ELEVATION DIP 90 deg. PROPOSED DEPTH

| DEPTH FEET | CORE RECOV | DESCRIPTION | CORE SAMPLE NO. | FOOTAGE | CORE ASSAYS AG. | CU. PPM | PB. PPM | ZN. PPM | SLUDGE SAMPLE NO. | FOOTAGE | SLUDGE ASSAYS AG. | CU. | PB. | ZN. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0-21' | O.B. | | | | | | | | | | | | | |
| 1-25' | 10% | Light brown grey dolomite and limestone | 1 | 21-25' | | 33 | 85 | 90 | | | | | | |
| | | h fragments average dia 1/4". Also | | | | | | | | | | | | |
| | | quartz fragments present. No | | | | | | | | | | | | |
| | | mineralization observable. | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| 5-67' | 25% | Dark grey finely laminated dolomite with | 2 | 25 - 30' | | 18 | 50 | 176 | | | | | | |
| | | discordant calcite veins (light grey) | 3 | 30-35' | | 36 | 75 | 176 | | | | | | |
| | | minor disseminated pyrite (1%) moderate | 4 | 35-45' | | 18 | 60 | 62 | | | | | | |
| | | % of carbon. Slow reaction with | 5 | 45-55' | | 13 | 50 | 60 | | | | | | |
| | | concentrated HCL. Core angle 75 deg. | 6 | 55-67' | | 15 | 85 | 73 | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |

# DIAMOND DRILL RECORD,

HOLE NO. WDH #14

PROPERTY ATLAS-SHELDON-PAY

SHEET NUMBER 2 SECTION FROM 67' TO 88' STARTED

LATITUDE 50' S of L88, 69S DATUM COMPLETED

DEPARTURE BEARING ULTIMATE DEPTH

ELEVATION DIP 90 deg. PROPOSED DEPTH

| DEPTH FEET | CORE RECOV | DESCRIPTION | CORE SAMPLE NO. | FOOTAGE | CORE ASSAYS AG. | CU. PPM | PB. PPM | ZN. PPM | SLUDGE SAMPLE NO. | FOOTAGE | SLUDGE ASSAYS AG. | CU. | PB. | ZN. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 67-70' | 15% | Light grey to white lens of limestone in the | 7 | 67-70 | | 11 | 55 | 200 | | | | | | |
| | | dark grey dolomite, contains minor pyrite, | | | | | | | | | | | | |
| | | very reactive with HCL, not conductive. | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| 70-88' | 10% | Dark grey to black very carbonaceous | 8 | 70-75' | | 40 | 50 | 200 | | | | | | |
| | | dolomite with carbon sheen on bedding | 9 | 75-80' | | 40 | 50 | 66 | | | | | | |
| | | planes. Finely laminated. Contains fine | 10 | 80-88' | | 28 | 50 | 200 | | | | | | |
| | | calcite veinlets up to 1/4 dia. discordant | | | | | | | | | | | | |
| | | to bedding; very conductive, very slow | | | | | | | | | | | | |
| | | reaction to HCL. Core angle 40 deg. | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | Hole Terminated. | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |

## D) Conclusions and Recommendations

It has been shown that an intense, linear zinc geochemical anomaly, with aggregate length of three miles, accurately reflects zinc mineralization in a 90+ foot thick host unit of brecciated, silicified, and pyritized dolomite. The mineralized zone can be traced in bedrock over a length of about 800 feet along strike. Assays in the zone are low, but the area examined constitutes only a fraction of the total geochemical zone. It is notable that high grade zinc float is commonly found in pits over a large part of the geochemical zone. The possibility is good that a large tonnage, low-grade body of economic zinc-lead ore can be located.

Geochemical highs occur in transported soils over much of the anomalous zone; several features indicate that distance of transport from source is not great. Geophysical methods have not been successful in tracing the host unit. It is recommended that the mineralized zone could best be located and sampled by a program of exploratory diamond drilling. Because the host dolomite dips moderately to steeply to the northeast, and because the geochemical highs have probably been transported over a short distance to the west of the mineralized zone, it is suggested that drill set-ups should be northeast of the anomalies to be tested and holes drilled at shallow angles to the southwest.

## E) Regional Exploration in Pay Area

The discovery of high grade zinc and associated lead-copper mineralization by G. Lishy one half-mile south of the Pay group (see Introduction) emphasizes the regional potential of the Pay area. The Lishy showing consists of a 1½ foot wide zone of solid sphalerite, assaying 48% Zn and 4% Pb (Atlas Ross River laboratory assay), either as a vein or replacement in carbonate (?) altered lustrous phyllite (see Fig. 3). A bulldozer trench in the area of the showing exposed narrow sections of lead and copper mineralization grading up to 6.9% Pb and .49% Cu over 5-foot sections. The significance of the Lishy showing is that it was not detected, and possibly could not be detected, by reconnaissance geochemical soil sampling in the area, and furthermore that mineralization does not occur in the host dolomite unit of the main Pay zone.

Reconnaissance geochemical soil sampling was done over a wide area around the Pay group, but no anomalies of significance were located. A problem in the region, however, is that glacial cover is probably thick enough over much of the region to prevent dispersion of metals to the surface. Lack of geochemical results should not be regarded as the final word where overburden is probably deep.

At this stage in the Atlas program, geochemical coverage in the Pay area is probably adequate. If further regional work is believed warranted, it is suggested that careful, detailed geologic mapping of all outcrop in the Pay region be done by an experienced and competent geologist. This mapping should provide the basis for the choice of areas for future geochemical sampling and geophysical work.

OFFICE COPY D. XCA

W.R.

Figures for

# SUMMARY REPORT ON PAY MINERAL CLAIM GROUP SHELDON PROJECT, 1967

by

C.L. Smith
Chief Geologist
ATLAS EXPLORATIONS LIMITED

November 15, 1967

DO NOT REMOVE

FIG. 1

# ATLAS EXPLORATIONS LIMITED

## ROSS RIVER (Y.T.)

## PAY MINERAL CLAIMS

## KEY MAP OF CLAIMS AND GRID

CLAIM SHEETS: 105-G-16
" " 105-G-15
" " 105-J-1
" " 105-J-2

inches
0 1
0 1 2
centimetres

YUKON GEOLOGICAL SURVEY

This reference scale bar has been added to the original image. It will scale at the same rate as the image, therefore it can be used as a reference for the original size.

PELLY RIVER

130° 30'

62° 00'

FORTIN LAKE

PAY

PHIL

LINE 148 W

BASELINE O

LINE O

LINE 24 E

BASELINE 50S

LINE 80S

OUTLINE OF GRID

Cat trench 3

Cat trench 2

Cat trench 1

3000

3500

4500

6000

P.V.

# ATLAS EXPLORATIONS LIMITED

## ROSS RIVER (Y.T)

## PAY MINERAL CLAIMS

# GEOLOGY

SCALE 1: 1000'

GEOLOGY: R. DARNEY
C.L. SMITH
W. ROBERTS

DATE: AUGUST 1967




## LEGEND:

**CRETACEOUS (?)**

- 5a — QUARTZ MONZONITE PORPHYRY: QUARTZ AND ORTHOCLASE PHENOCRYSTS IN A GREY, MILDLY-ALTERED FINE- TO MEDIUM GRAINED MATRIX.

**UPPER DEVONIAN**

- 4e — BLACK PHYLLITE: EXTREMELY FINE-GRAINED WITH WELL DEVELOPED FOLIATION, CARBONACEOUS, LACKS SEGREGATED QUARTZ.
- 4d — CHERT-DOLOMITE: DARK GREY-BLACK, MASSIVELY-BEDDED. LOCALLY INTERBEDDED WITH GREY DOLOMITE UP TO 40%. UNIT IS QUITE EXTENSIVELY BRECCIATED AND CONTAINS ORIGINAL PAY-SHOWINGS ON 1-16 GROUP.
- 4c — DOLOMITE: DARK GREY, FINE GRAINED, MASSIVE TO WELL BEDDED. MINOR THINLY INTERBEDDED LIMESTONE.
- 4b — DOLOMITE - CHERT: CRYPTOCRYSTALLINE, DARK BROWN, THINLY-BEDDED WITH WELL DEVELOPED FOLIATION. LOCALITY N.E. OF GRID LAKE IS ESSENTIALLY DOLOMITE WITH MINOR INTERBEDS OF PHYLLITE AND CHERT WHILE AREA NORTH OF BARRY LAKE CONTAINED A MUCH HIGHER PERCENTAGE OF INTERBEDDED CHERT.
- 4a — BANDED CHERT: FINELY-BEDDED GREY GREEN CHERT. BANDING IS FINE, (1-2 M.M.) AND IN SOME LOCALITIES VERY REGULAR. IN AREA S.E. OF PAY LAKE THE BANDING CONSISTS OF ALTERNATE LAYERS OF GREY, GREENISH-GREY, AND PURPLISH BLACK COLOURED CHERT. BANDING IS REGULAR BUT CRENULATED.

**SILURIAN-DEVONIAN**

- 3a — GRAPHITIC DOLOMITE: MEDIUM-DARK GREY, FINE GRAINED, CRYSTALLINE AND LOCALLY PLATY.
- 3a — HOST DOLOMITE: LIGHT TO DARK GREY, FINE- TO MEDIUM-GRAINED LOCALLY BRECCIATED, SPORATICALLY HYDROTHERMALLY ALTERED BY SILICA AND PYRITE.
- 3a — DOLOMITE: CRYPTOXLINE, DARK BROWN, THINLY BEDDED AND FOLIATED. VERY SIMILAR TO UNIT 4b, BUT LACKS INTERBEDDED CHERT AND PHYLLITE.

**MIDDLE-UPPER CAMBRIAN**

- 2c — SERICITIC PHYLLITE: LIGHT-MEDIUM GREY, FINE GRAINED WITH WELL DEVELOPED FOLIATION UP TO 15% INTERBEDDED AND CROSS-CUTTING SEGREGATED QUARTZ.
- 2b — PHYLLITE: DARK GREY, FINE GRAINED, FOLIATED, AND CONTAINS UP TO 50% SEGREGATED QUARTZ, BOTH INTERBEDDED AND CROSS CUTTING. FOLIATION NOT AS WELL DEVELOPED AS IN UNIT #3.
- 2a — SPOTTED PHYLLITE: PHYLLITE SPOTTED WITH FINE-GRAINED CRYSTALS OF CORDIERITE AND ANDALUSITE.

**PROTEROZOIC (?)**

- 1c — QUARTZITE: FINE GRAINED, GREY TO BLACK, MASSIVE-BEDDED

## MINERAL SHOWINGS:

**A** — SHEAR ZONE 12-18' WIDE IN BANDED GREEN-GREY CHERT. Pb-Zn OCCURS AS BRECCIA MATRIX. ASSAYS: Y1554

**B** — ARSENOPYRITE, PYRITE, PYRRHOTITE, AND MINOR Pb-Zn-Cu IN A SERIES OF 4 CROSS-CUTTING VEINS IN BANDED CHERT. VEINS WIDTHS VARY FROM 6" TO 12". ASSAYS: Y1555

**C** — ARSENOPYRITE, PYRRHOTITE, PYRITE IN CROSS-CUTTING QUARTZ VEIN (12" WIDE) IN BANDED CHERT. ASSAYS: 4855

**D** — Pb-Zn, ARSENOPYRITE AND PYRITE AS BRECCIA MATRIX IN NARROW SHEAR ZONE IN BANDED CHERT. ASSAYS: Y1601-1602-, Y1556

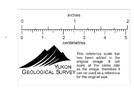
**E** — IRREGULAR Pb AND MINOR Zn REPLACEMENT WITH QUARTZ, BARITE GANGUE APPROXIMATELY 3 FEET WIDE IN MEDIUM TO DARK GREY QUARTZITE. SOME DISSEMINATION OCCURS ERRATICALLY OUTWARDS FOR 3-4 FEET FROM THE MAIN MINERALIZED AREA ASSAY: Y1603, Y1553.

**F** — MAIN SHOWING: VEINED AND TRUE DISSEMINATED LIGHT PURPLISH-BROWN Zn IN BRECCIATED SILICIFIED DOLOMITE. SOME PYRITE ALTERATION AND VEINED Pb IS ALSO PRESENT. GANGUE CONSIST OF QUARTZ, CALCITE, MINOR SIDERITE AND BARITE.
ASSAYS Y1674, 1675, 1676, 1677, Y1557, 1551-1552
HANDTRENCH # 1 1.9% Zn/90'
CAT TRENCH # 2 1.6% Zn/70'
FOR DETAIL ASSAYS SEE TRENCH ASSAY MAP.
HAND TRENCH #2 1.6% Zn/70'

**G** — REPLACEMENT Pb-Zn-Cu IN CHERT BRECCIA AND LOCALLY IN DOLOMITE ASSAYS: Y1604-Y1616.

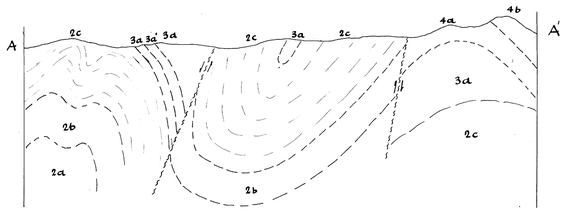
## SYMBOLS:

- OUTLINE OF GRID
- OUTLINE OF CLAIMS
- GEOLOGICAL CONTACT (DEFINED, APPROXIMATELY, ASSUMED)
- BEDDING (HORIZONTAL, INCLINED, VERTICAL)
- FAULT (ASSUMED)
- FAULT (APPROXIMATELY)
- ISOCLINAL SYNCLINAL AXIS
- ANTICLINAL AXIS
- OUTLINE OF OUTCROP AREA
- OUTCROPS
- TOPOGRAPHIC CONTOURS

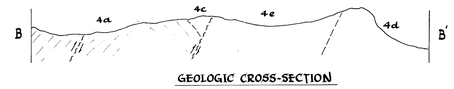



### ASSAY RESULTS

| | Au | Ag | Cu | Pb | Zn |
|---|---|---|---|---|---|
| Y1554 | TR | .6 | .15 | .95 | 1.10 |
| Y1555 | .92 | .5 | .02 | .15 | NO |
| 4855 | .44 | .15 | — | NO | .02 |
| Y1601 | — | .77 | — | 3.0 | 4.0 |
| Y1602 | — | .91 | — | 2.0 | 0.66 |
| Y1556 | — | 1.4 | .07 | 3.15 | 1.95 |
| Y1603 | — | 1.3 | .005 | 11.8 | .005 |
| Y1553 | | .6 | .01 | 1.75 | .3 |
| Y1674 | TR | .15 | — | TR | 1.8 |
| Y1675 | — | TR | — | TR | 1.6 |
| Y1676 | — | 8.60 | — | 96.7 | — |
| Y1677 | — | — | — | — | 1.5 |
| Y1557 | | NO | .004 | .015 | 1.00 |
| Y1551 | | — | .02 | NO | 6.00 |
| Y1552 | | .2 | .02 | NO | 1.9 |
| Y1604 | | 1.7 | .76 | .09 | .41 |
| Y1605 | | 1.5 | .15 | .06 | .03 |
| Y1606 | | 2.1 | .08 | 2.0 | .005 |
| Y1607 | | 2.2 | .08 | 2.5 | .008 |
| Y1608 | | 0.5 | .02 | .99 | .006 |
| Y1609 | | 0.5 | .02 | .09 | .006 |
| Y1610 | | .5 | .01 | .1 | .007 |
| Y1611 | | 1.1 | .06 | .5 | .006 |
| Y1612 | | .4 | .03 | .02 | .002 |
| Y1613 | | 5.4 | .18 | 2.9 | .01 |
| Y1614 | | 0.6 | .04 | 3.0 | 1.07 |
| Y1615 | | 0.4 | .1 | 4.6 | .005 |
| Y1616 | | 9.9 | .96 | 5.0 | .004 |




GEOLOGIC CROSS-SECTION




GEOLOGIC CROSS-SECTION

OVERLAY OF AIRPHOTOS # A 12189-156 & A 12295-304

FIG. 3

N

Scale: 1" = 10'

Cat Trail

Decomposed Schist

Soil, Granite Boulders, and fragments of Dolomite Schist

Quartz lenses and Veins with predominant mineralization, mainly galena with minor Sphalerite and Chalcopyrite. — Azurite & Malachite common throughout schist.

Bearing 285°/45°S

Cat Trench #4

Rubbled Schist

| | AG | PB | ZN | CU |
|---|---|---|---|---|
| 10 | | | | |
| | 1.80 | 6.5 | TR | .10 |
| 5 | | | | |
| | 1.30 | 5.5 | TR | .45 |
| 0 | | | | |

45

Side Elevation of the West Bank of Cat Trench

Talus of Fluvial Sand with fragments of Granite and Dolomite

35°

30°

40°

454

453

455

456

Very High % of Sphalerite ± Galena and Chalcopyrite

Lishy Showing

Creek

~210'

30°

R-457

# PLAN OF THE LISHY SHOWING

(Zn Claims)

## Legend

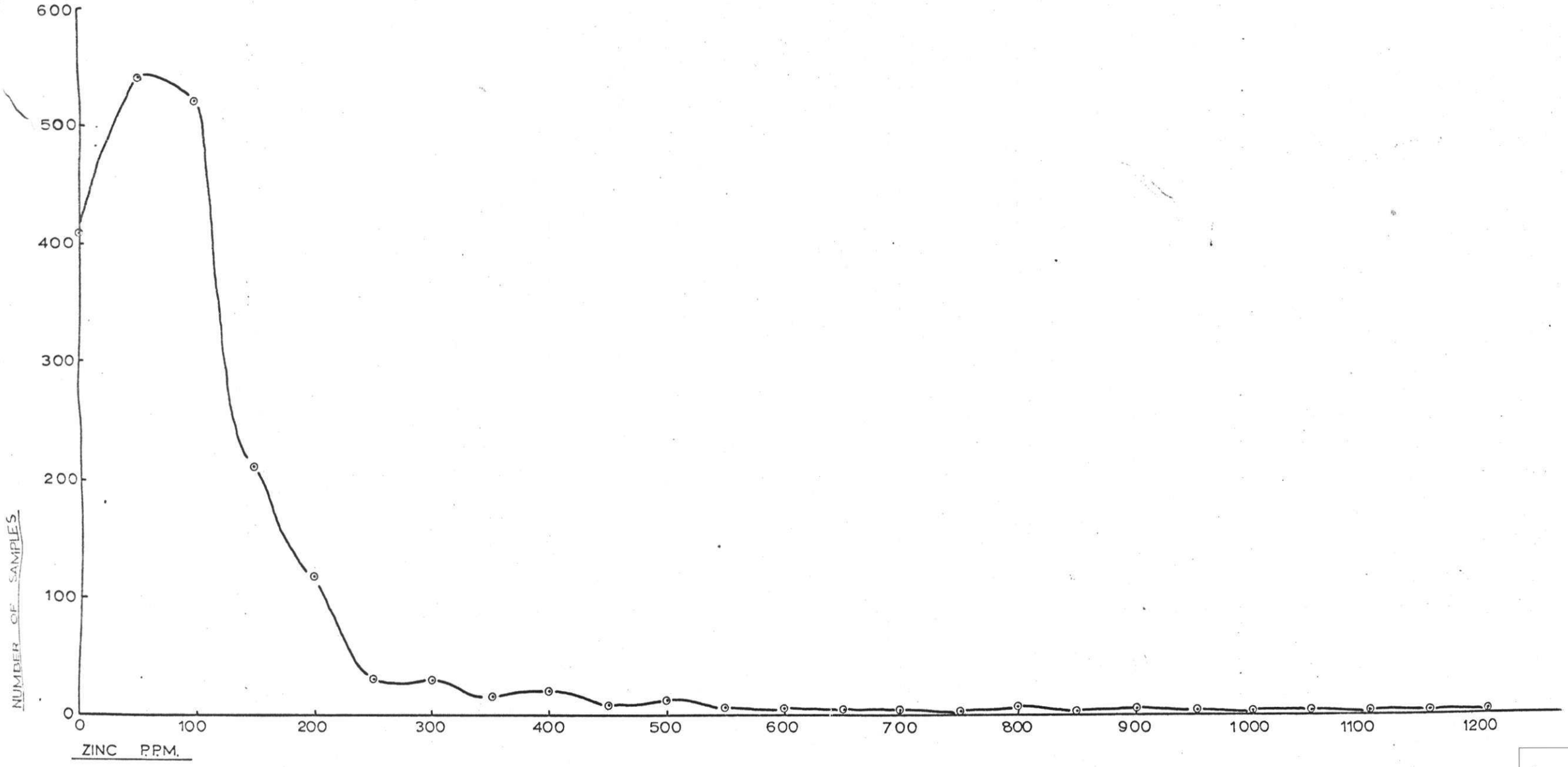
- Light creamy yellow to light grey highly weathered sericitic to a talc schist ? with minor qtz pods and lenses and minor mineralization. Contains some rust stains.
- Light creamy yellow to light grey highly altered sericitic quartzose schist with concordant quartz veins controlling predominant mineralization of which galena is more abundant with minor chalcopyrite, sphalerite and malachite and azurite stains ± some gypsum on foliation planes.
- Dark grey graphitic dolomite schist with many discordant quartz veins in areas, ranging to a breccia with dolomite schist fragments with a matrix of sphalerite and quartz. In some areas matrix is sphalerite with minor galena.
- Medium grey well bedded platy sericitic dolomite, some interbeds appear to be phyllitic. Does not appear to be metamorphosed.

W. Roberts

DATE : AUGUST 1967

inches
0 1 2
0 1 2 3 4 5
centimetres
YUKON GEOLOGICAL SURVEY
This reference scale bar has been added to the original image. It will scale at the same rate as the image, therefore it can be used as a reference for the original size.

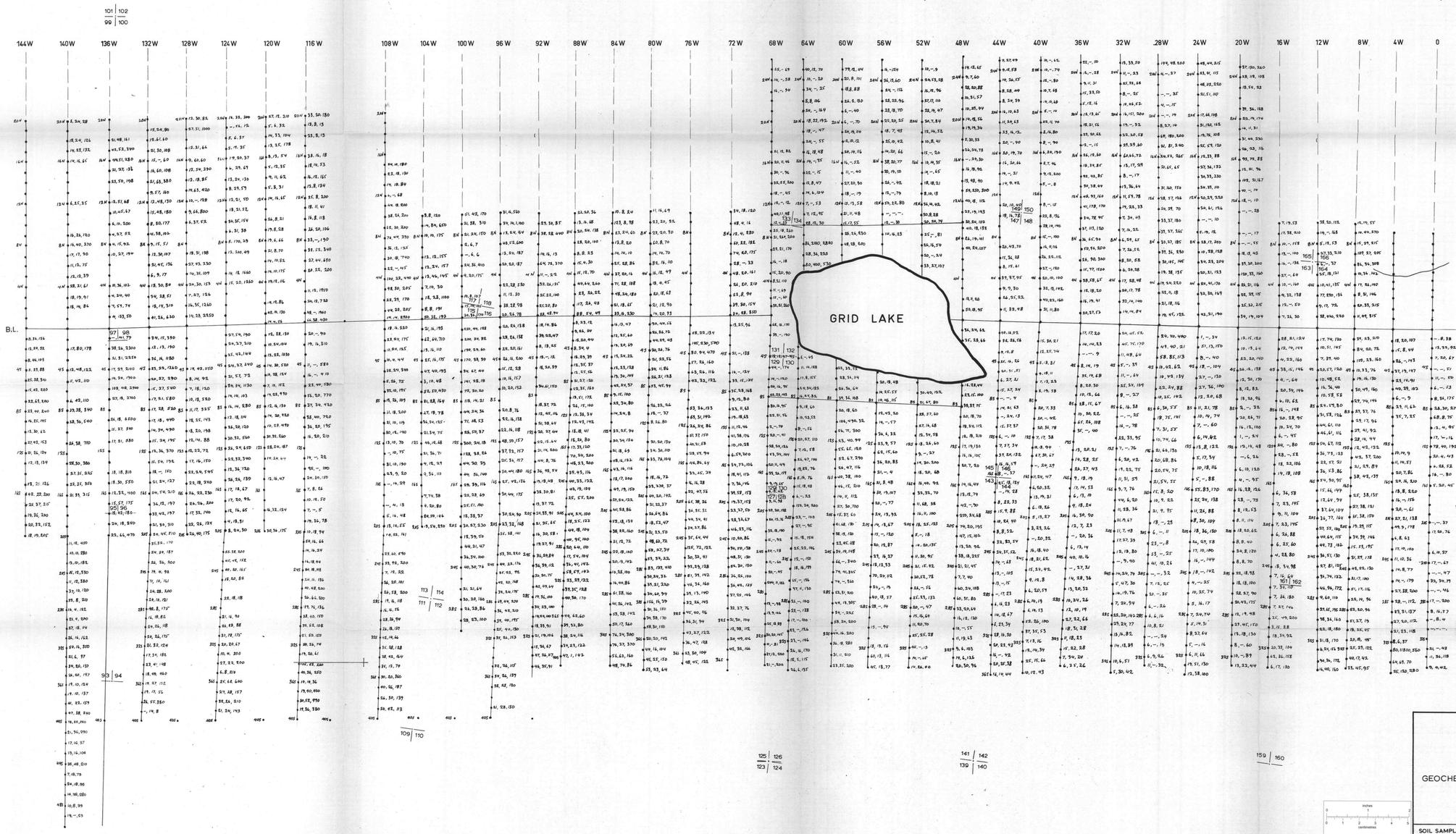
FIG. 4




# ZINC FREQUENCY DISTRIBUTION HISTROGRAM

PAY MINERAL CLAIMS SHELDON AREA

inches
0 1
0 1 2
centimetres
This reference scale bar has been added to the original image. It will scale at the same rate as the image, therefore it can be used as a reference for the original size.
YUKON GEOLOGICAL SURVEY




# ATLAS EXPLORATIONS LIMITED

ROSS RIVER (Y.T.)

SHELDON REGION

PAY MINERAL CLAIMS

GEOCHEMICAL SOIL SAMPLING SURVEY, COPPER LEAD & ZINC

RESULTS BY ATOMIC ABSORPTION

SPECTROPHOTOMETER ANALYSIS

## VALUES

SOIL SAMPLERS: C.WICKS, F.CHARLIE + G.HAINE

DRAWN BY: J.N.B. + P.V.

DATE: AUGUST 1967

inches
centimetres
EUROPA GEOLOGICAL SURVEY
The reference scale bar on this map is that of the original image. It will change if this image, or a section of the image, therefore is enlarged or reduced from the original size.

Fig. 6

# ATLAS EXPLORATIONS LIMITED

ROSS RIVER (Y.T.)

SHELDON REGION

## PAY MINERAL CLAIMS

GEOCHEMICAL SOIL SAMPLING SURVEY, COPPER, LEAD & ZINC
RESULTS BY ATOMIC ABSORPTION
SPECTROPHOTOMETER ANALYSIS

SOIL SAMPLERS: C. WICKS • B. ETZEL

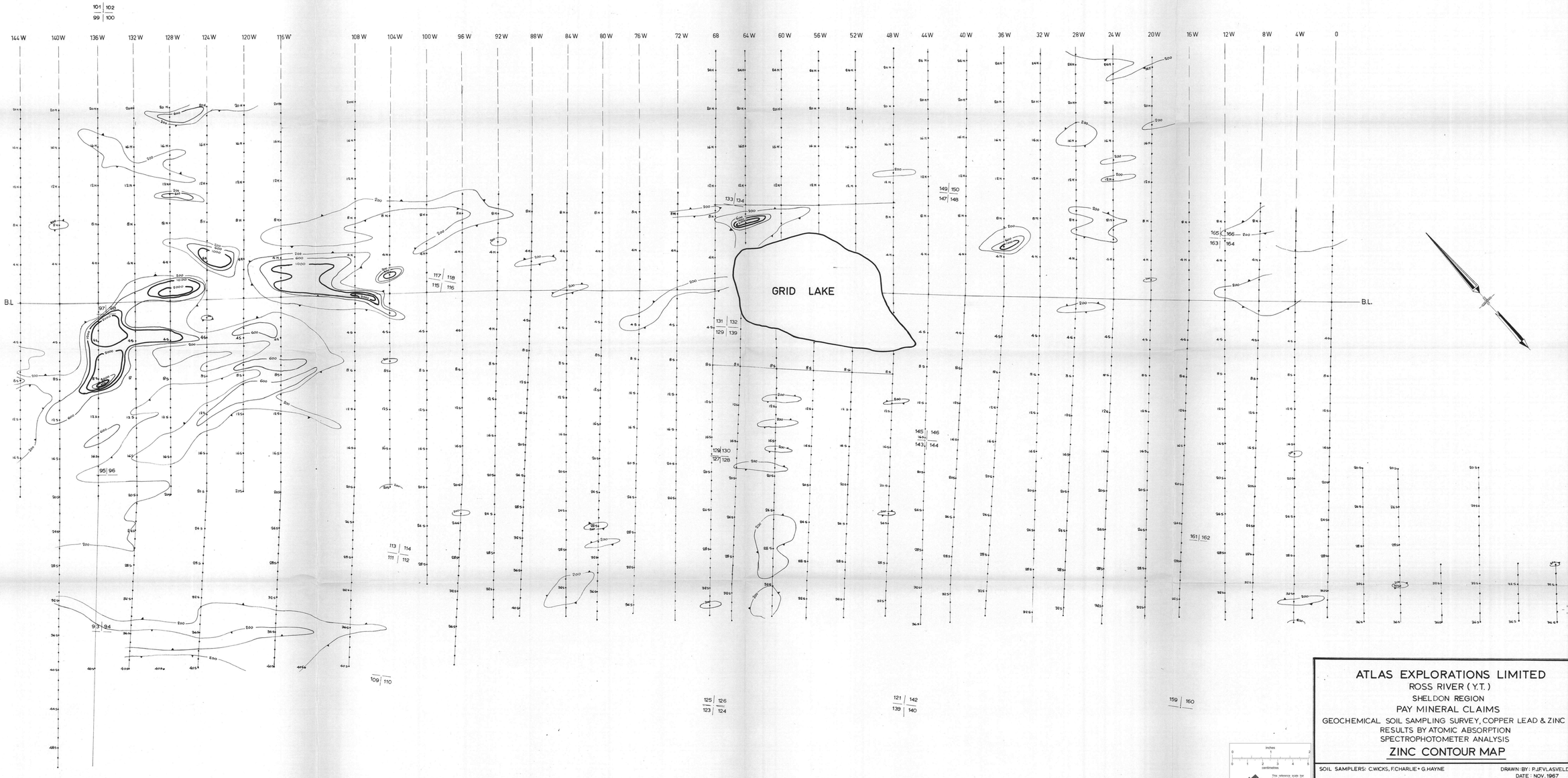
DRAWN BY: J.N. BOATENG

scale in feet

400 0 400 800

This reference scale has been reduced from the original drawings & will scale at the same size as the original drawings for the overall size.

YUKON GEOLOGICAL SURVEY




# ATLAS EXPLORATIONS LIMITED

ROSS RIVER ( Y.T. )

SHELDON REGION

PAY MINERAL CLAIMS

GEOCHEMICAL SOIL SAMPLING SURVEY, COPPER LEAD & ZINC

RESULTS BY ATOMIC ABSORPTION

SPECTROPHOTOMETER ANALYSIS

## ZINC CONTOUR MAP

SOIL SAMPLERS: C.WICKS, F.CHARLIE + G.HAYNE

DRAWN BY: P.J.F.VLASVELD

DATE : NOV. 1967

scale in feet

YUKON GEOLOGICAL SURVEY

This reference scale for centimetres is true to original image. It will scale at the same rate as the original drawing for the use and as a reference for the original size.

# ATLAS EXPLORATIONS LTD
ROSS RIVER, YUKON
SHELDON PROJECT
## PAY MINERAL CLAIMS
## GEOCHEMICAL SOIL SAMPLING SURVEY
Zn. CONTOUR MAP

SOIL SAMPLER: C.WICKS

200, 600, contour
1000 p.p.m.

DRAWN BY: J.N. BOATENG
DATE: AUGUST 1967

400 0 400 800
scale in feet

Inches 0 1 2
centimetres 0 1 2 3 4 5

This reference scale bar was added to the original image. It will scale at the same rate as the original and can be used as a reference for the original size.

YUKON GEOLOGICAL SURVEY

# ATLAS EXPLORATIONS LTD
ROSS RIVER, YUKON
SHELDON PROJECT
PAY MINERAL CLAIMS
GEOCHEMICAL SOIL SAMPLING SURVEY
Pb. CONTOUR MAP

SOIL SAMPLER: C.WICKS

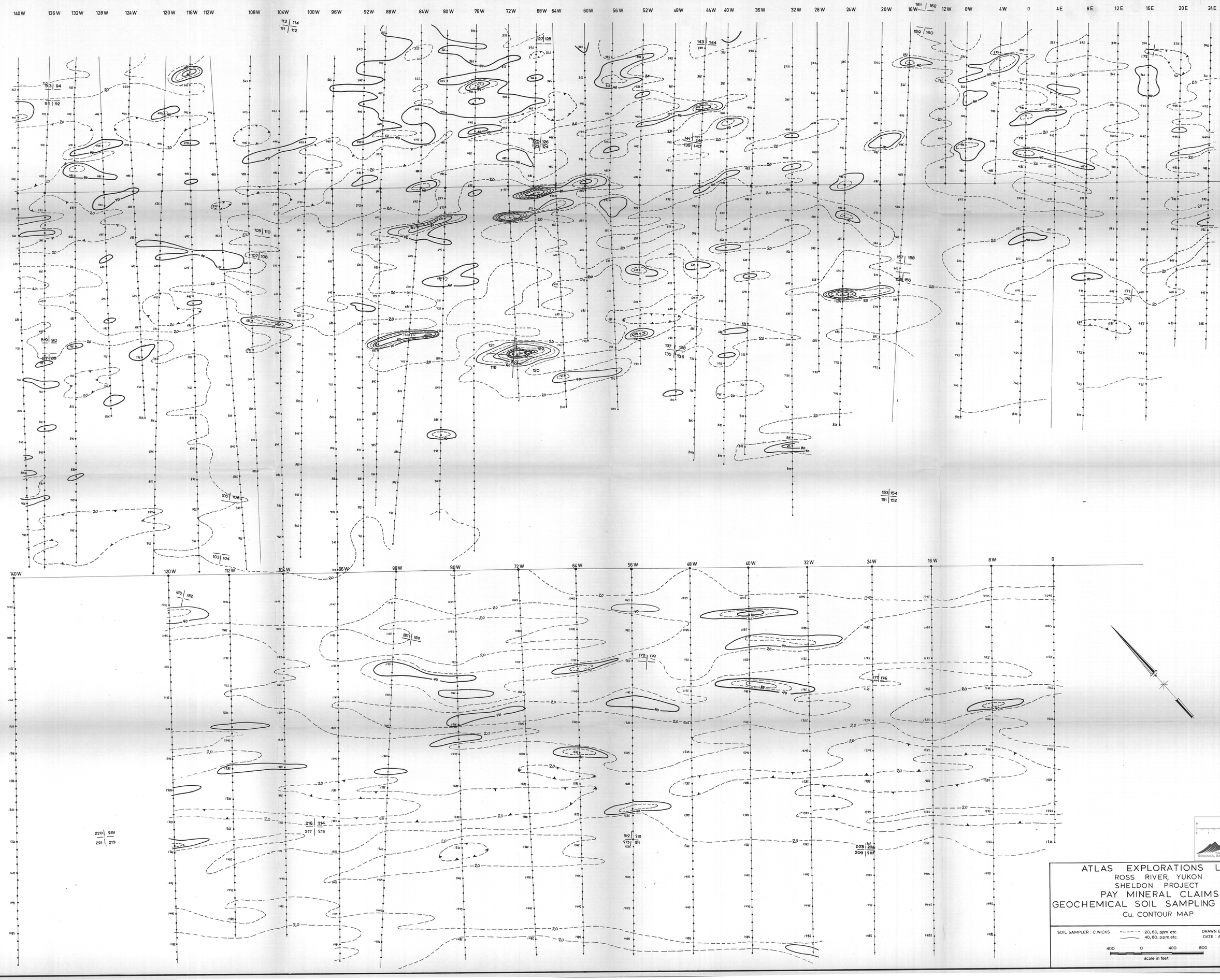
20 p.p.m (60, 100 etc.)
40 p.p.m (80, 120 etc.)

DRAWN BY: J.N. BOATENG
DATE: AUGUST 1967

400 0 400 800
scale in feet

This reference scale bar has been added to the original drawing. When the scale on the copy may be the image, therefore it may not correspond to the scale for the original size.

GEOLOGICAL SURVEY YUKON




Inches
0 1 2
centimetres
0 1 2 3 4 5

YUKON GEOLOGICAL SURVEY

This reference scale for the original image. It will scale at the same rate as the original and can be used as a reference for the original size.

# ATLAS EXPLORATIONS LTD
## ROSS RIVER, YUKON
## SHELDON PROJECT
## PAY MINERAL CLAIMS
## GEOCHEMICAL SOIL SAMPLING SURVEY
### Cu. CONTOUR MAP

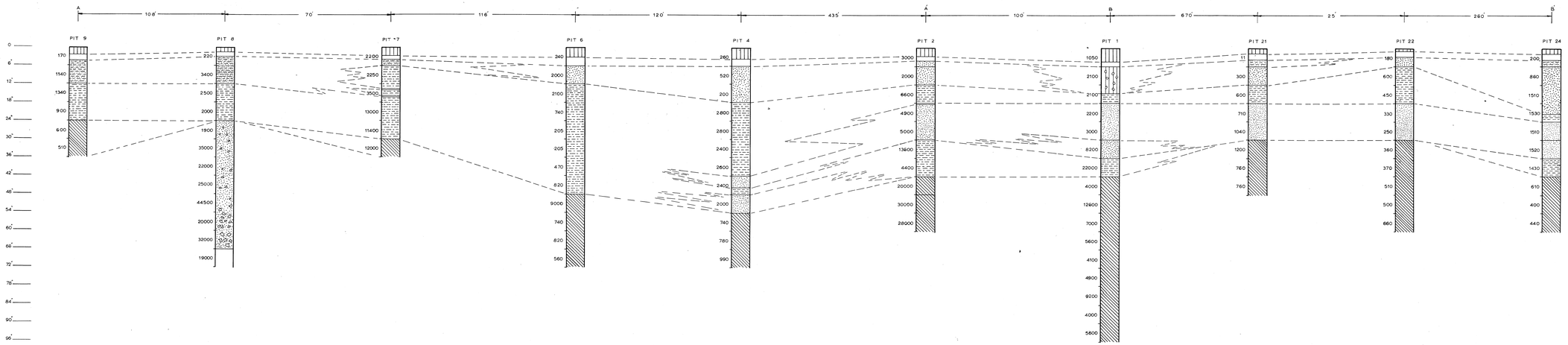
SOIL SAMPLER : C.WICKS

20, 60, ppm. etc.
40, 80. p.p.m. etc.

DRAWN BY: J.N. BOATENG
DATE : AUGUST 1967

400 0 400 800
scale in feet

SOIL PROFILES A-A'




SOIL PROFILES B-B'




SOIL PROFILES C-C'




SOIL PROFILES D-D'




DARK BROWN - BLACK ORGANIC MATERIAL

ORGANIC MATERIAL MIXED WITH PEBBLES - 25%

VOLCANIC ASH

LIGHT BROWN TO GREY - BROWN SANDY CLAY

MEDIUM TO DARK GREY BROWN CLAY

DARK GREY TO BROWN SILTY TO SANDY SOIL

LIGHT GREY - BROWN SANDY SOIL

DARK GREY - BLACK CLAY. COMPOSED ENTIRELY OF DECOMPOSED PHYLLITE

BLACK FRAGMENTED PHYLLITE




# ATLAS EXPLORATIONS LIMITED

ROSS RIVER (Y.T.)

SHELDON REGION

## PAY MINERAL CLAIMS

PIT SOIL PROFILES

COMPILED BY: R. DARNEY
W. ROBERTS

P.P.M. ZINC

DRAWN BY: R. DARNEY
DATE: NOV. 1967

144W 140W 136W 132W 128W 124W 120W 116W 108W 104W 100W 96W 92W 88W 84W 80W 76W 72W 68W 64W 60W 56W 52W 48W 44W 40W 36W 32W 28W 24W 20W 16W 12W 8W 4W 0 4E 8E 12E 16E 20E 24E

BASE LINE 2

BASE LINE 3

A

B

# ATLAS EXPLORATIONS LIMITED

ROSS RIVER (Y.T.)

SHELDON REGION

PAY MINERAL CLAIMS

GROUND MAGNETOMETER SURVEY

VALUES & PROFILES

INSTRUMENT :

A — JALANDER

B — SHARPE MF1

OPERATOR: P DEAN

DRAWN BY: Blds

DATE: AUG./ 67

PROFILE SCALE: 1/10"= 100 ft

This reference scale bar has been added to the original image and may not be the same scale as the image, therefore it is not to be used for reference for the original scale.

Fig. 13

# ATLAS EXPLORATIONS LIMITED

ROSS RIVER (Y.T.)

SHELDON REGION

## PAY MINERAL CLAIMS

GROUND ELECTROMAGNETIC SURVEY

## VALUES & PROFILE MAP

INSTRUMENT: RONKA EM 16 — DRAWN BY: Blake

OPERATOR: V. PRATICO — DATE: NOV. 1967

high freq. —— quadrature

+ve —— -ve

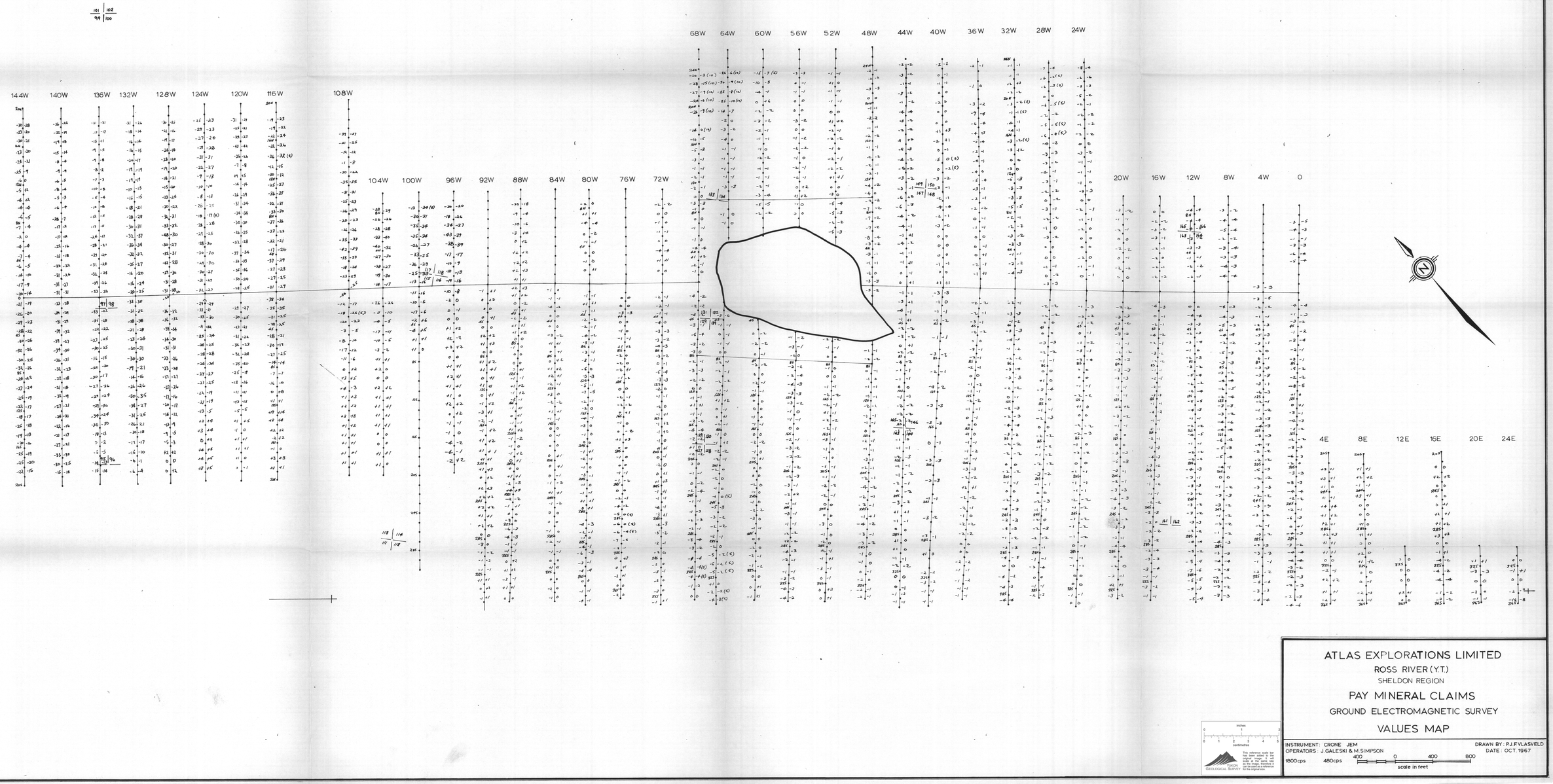
PROFILE SCALE: 1/10" = 2*dip angle

scale in feet: 400 0 400 800

inches 0 1 — centimetres 0 1 2 3 4 5

This reference scale bar has been added to the original image. It will change in proportion to the image. therefore it can be used as a reference for the original size.

YUKON GEOLOGICAL SURVEY




# ATLAS EXPLORATIONS LIMITED

ROSS RIVER (Y.T.)

SHELDON REGION

## PAY MINERAL CLAIMS

GROUND ELECTROMAGNETIC SURVEY

## VALUES MAP

INSTRUMENT: CRONE JEM

OPERATORS: J. GALESKI & M. SIMPSON

1800cps 480cps

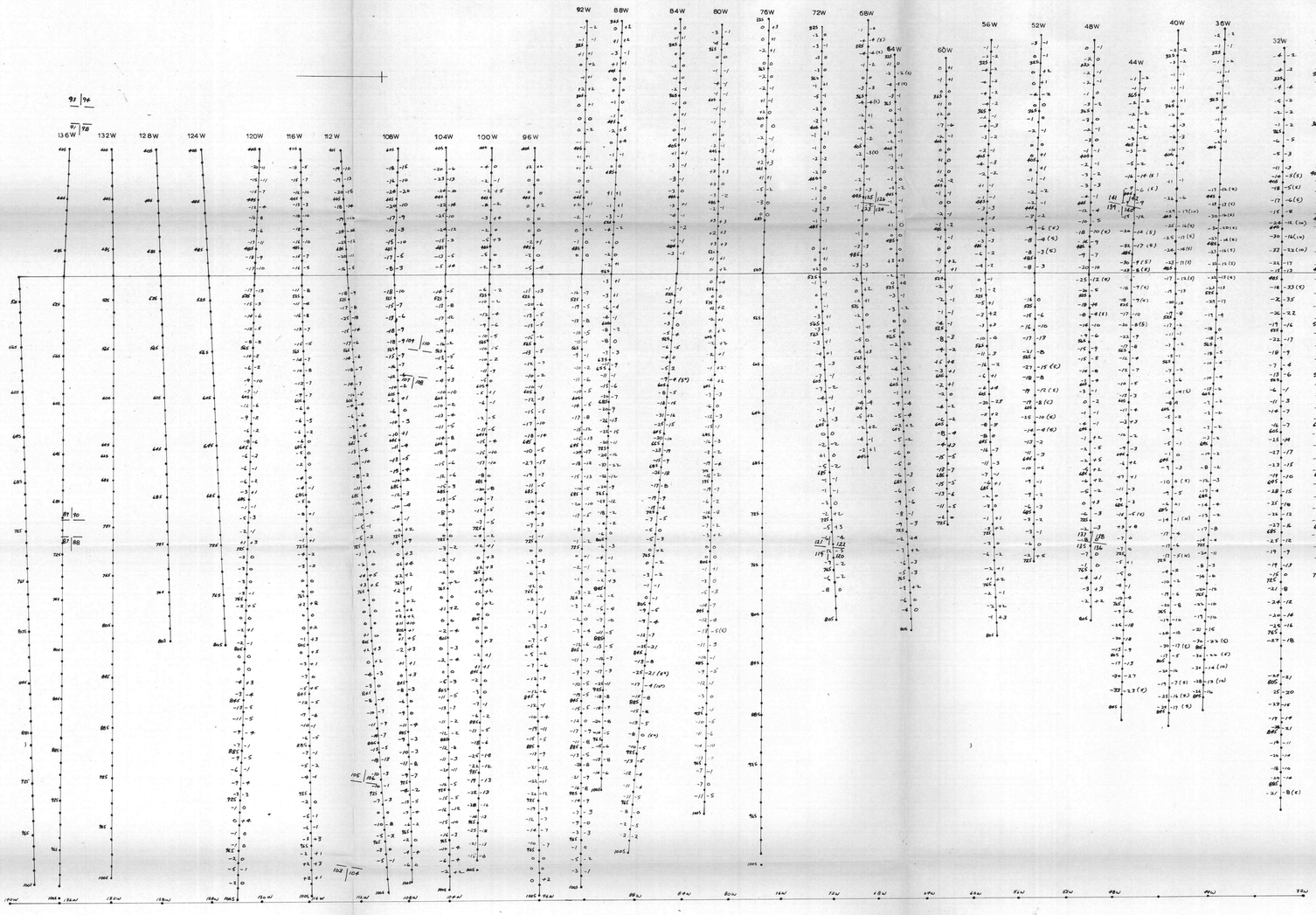
DRAWN BY: P.J.F.VLASVELD

DATE: OCT. 1967

scale in feet 400 0 400 800

This reference scale bar has been added to the original image. It will change if the image has been resized. Therefore it can be used as a reference for the original size.

Yukon GEOLOGICAL SURVEY




# ATLAS EXPLORATIONS LIMITED

ROSS RIVER (Y.T.)

SHELDON REGION

## PAY MINERAL CLAIMS

GROUND ELECTROMAGNETIC SURVEY

## VALUES MAP

INSTRUMENT: CRONE JEM

OPERATORS: J. GALESKI & M. SIMPSON

DRAWN BY: [illegible]

DATE: SEPT. 1967

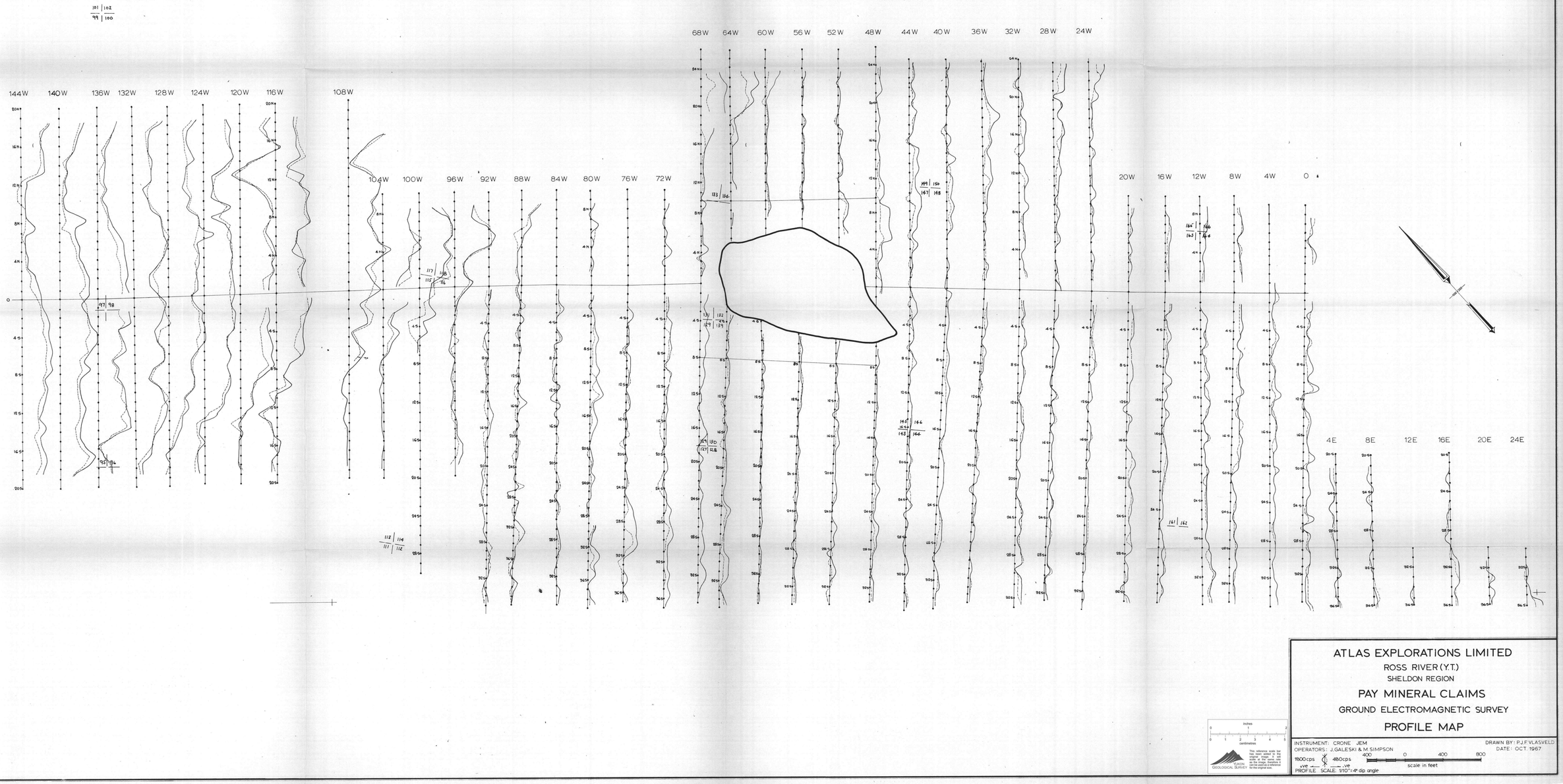
780cps | 480cps

400 0 400 800

scale in feet

This reference scale for the original map. If not original map, it not scale or the same was changed in reproduction, use the unit as a reference for the original size.

YUKON GEOLOGICAL SURVEY




# ATLAS EXPLORATIONS LIMITED

ROSS RIVER (Y.T.)

SHELDON REGION

## PAY MINERAL CLAIMS

GROUND ELECTROMAGNETIC SURVEY

## PROFILE MAP

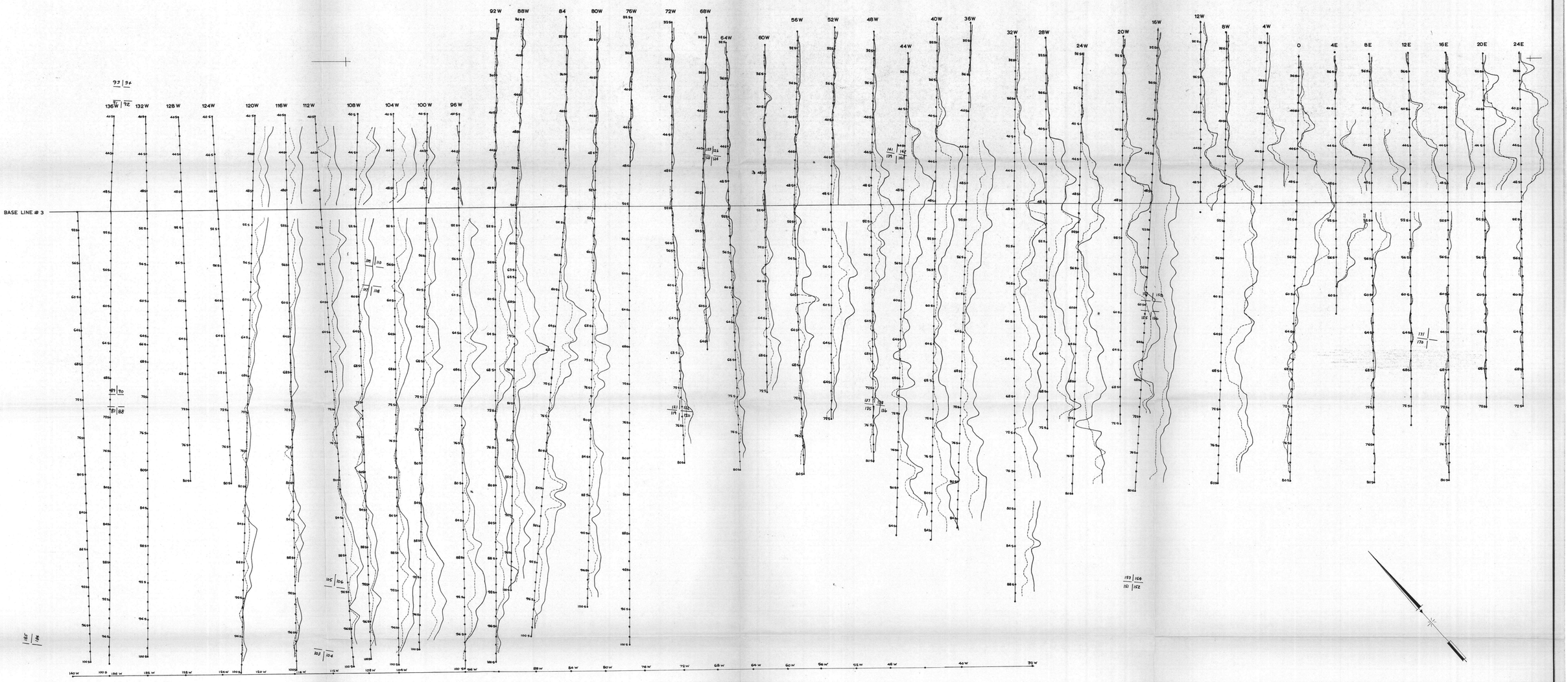
INSTRUMENT: CRONE JEM — DRAWN BY: P.J.F. VLASVELD

OPERATORS: J. GALESKI & M. SIMPSON — DATE: OCT. 1967

1800 cps — 480 cps — 400 0 400 800 scale in feet

+ve — ⊗ — -ve

PROFILE SCALE: 1/10" = 4° dip angle




ATLAS EXPLORATIONS LIMITED

ROSS RIVER (Y.T.)

SHELDON REGION

PAY MINERAL CLAIMS

GROUND ELECTROMAGNETIC SURVEY

PROFILE MAP

INSTRUMENT: CRONE JEM

OPERATORS: J.GALESKI & M.SIMPSON

DRAWN BY: P.J.F.VLASVELD

DATE: SEPT. 1967

1800 cps ⟨ 480 cps

PROFILE SCALE 1/10"=4" dip angle

scale in feet 400 0 400 800

YUKON GEOLOGICAL SURVEY
This reference scale bar has been added to the original plan to enable the scale of the same to be determined when the plan is used as a reference for the original size.

Fig. 18

# ATLAS EXPLORATIONS LIMITED

ROSS RIVER (Y.T.)

SHELDON REGION

## PAY MINERAL CLAIMS

GROUND ELECTROMAGNETIC SURVEY

## CONTOUR MAP

INSTRUMENT: CRONE JEM — DRAWN BY: Blake

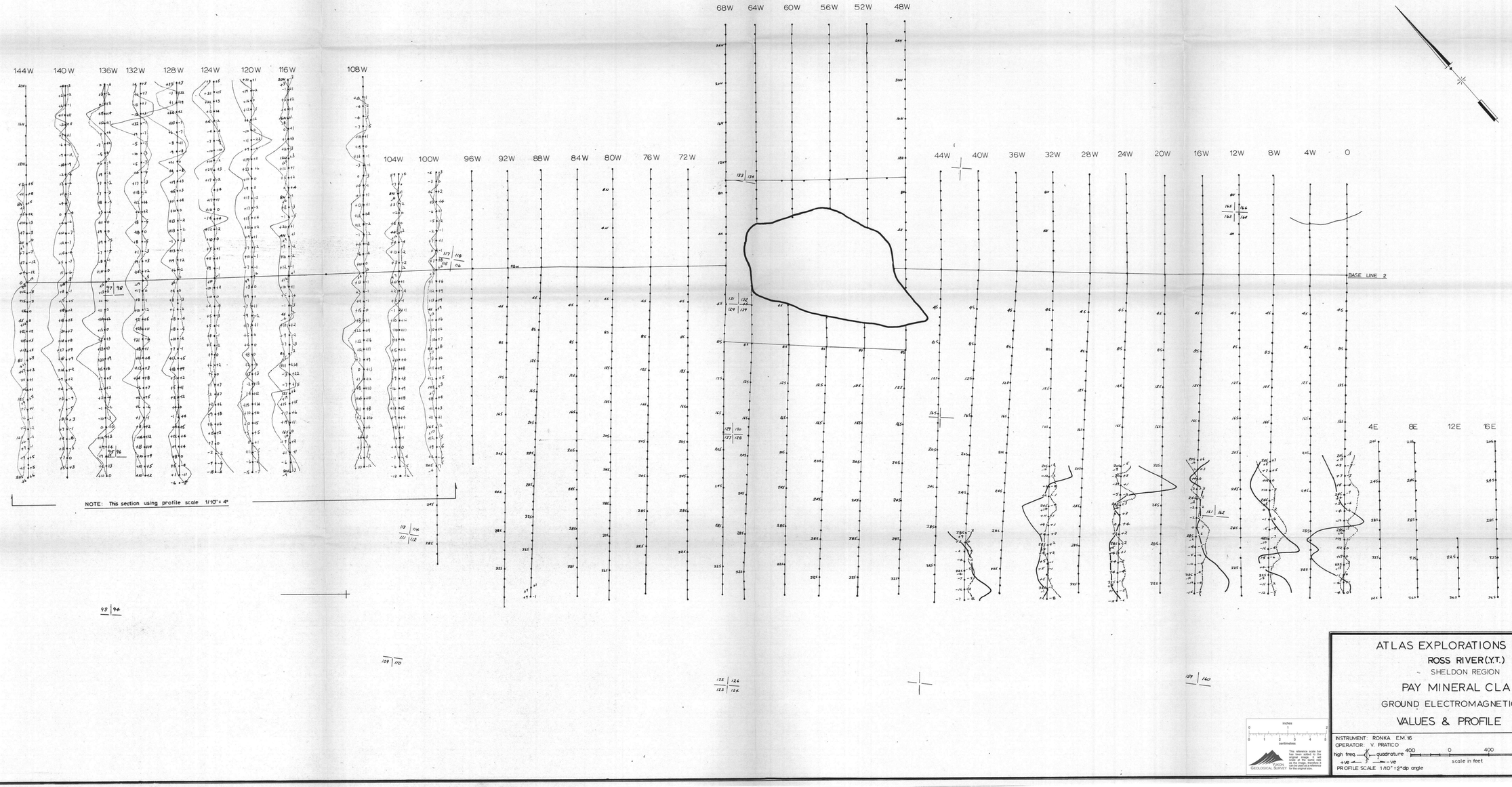
OPERATORS: J. GALESKI M. SIMPSON — DATE: NOV. 1967

400 0 400 800

scale in feet

CONTOUR INTERVAL: 4 dip angle (high freq. 1800 c.p.s.)

This reference scale has been added to the original drawing by the YUKON GEOLOGICAL SURVEY. The scale may not be correct if the drawing has been reduced or enlarged for the original size.




# ATLAS EXPLORATIONS LIMITED

## ROSS RIVER (Y.T.)

SHELDON REGION

## PAY MINERAL CLAIMS

GROUND ELECTROMAGNETIC SURVEY

## VALUES & PROFILE MAP

INSTRUMENT: RONKA E.M.16
OPERATOR: V. PRATICO
DRAWN BY: [illegible]
DATE: NOV. 1967

high freq. — quadrature
+ve — —ve

400 0 400 800
scale in feet

PROFILE SCALE 1/10" = 2° dip angle

This reference scale has been added to the original image. It was not present on the image therefore it can be used as a reference for the original size.
YUKON GEOLOGICAL SURVEY

48W

BL 50S

CAT TRENCH #1

CAT TRENCH #2

CAT TRENCH #3

WDH #1

WDH #2

WDH #3

WDH #4

WDH #5

WDH #6

WDH #7

WDH #8

WDH #9

WDH #10

WDH #11

WDH #12

WDH #13

WDH #14

WDH #15

WDH #16

WDH #17

WDH #18

WDH #19

WDH #20

WDH




# ATLAS EXPLORATIONS LIMITED

ROSS RIVER (Y.T.)

AY CLAIMS, SHELDON REGION

PAY TRANSIT-STADIA TRAVERSE OF CUT LINES ON GRID

400 0 400 800

scale in feet

SURVEYED BY : P. SANDALUK
ROD: M. SHORTY, P. DEAN, M. PETER

DRAWN BY : P.J.F. VLASVELD
DATE : JUNE 1967

YUKON GEOLOGICAL SURVEY

This reference scale bar has been added to the original image & will therefore not appear on the image. Therefore it can be used as a reference for the original size.