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GEOLOGICAL AND SUMMARY REPORT OF WORK PERFORMED ON THE PROPERTY OF FOREST KERR MINES LTD. (N.P.L.)

KINSKUCH LAKE, ALICE ARM
SKEENA MINING DIVISION
PROVINCE OF BRITISH COLUMBIA

Claims surveyed:

King #1 - 142 inclusive
Core #1 - 18 "
Kin #1 - 8 "
Reina Blanca #2-6 inclusive and #8
Kinskuch #5 and 6
Kinskuch Fr
Woodland
M.S.
Grizzly
Lavender #1

which are located a few miles north of Alice Arm, British Columbia (129°, 55°)

The field work was under the supervision of project manager A. M. Frew

The report was written by Mr. E. Amendolagine, Geologist.

The survey was conducted during the period June 13 to September 19, 1965.

Geophysical reports, both magnetometer and induced polarization, have been submitted by Mr. E. B. Nicholls dated September 16, 1965

SULMAC EXPLORATION SERVICES LIMITED

SEPTEMBER 16, 1965

GEOLOGICAL AND SUMMARY REPORT

OF WORK PERFORMED

ON THE PROPERTY OF

FOREST KERR MINES LTD. (N.P.L.)

KINSKUCH LAKE, ALICE ARM

SKEENA MINING DIVISION

PROVINCE OF BRITISH COLUMBIA

SULMAC EXPLORATION SERVICES LIMITED

SEPTEMBER 16, 1965

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SUMMARY

An exploration programme was carried out during the period of June 13 - September 19, 1965, on the Forest Kerr Mines Ltd. (N.P.L.) property consisting of an Induced Polarization (I.P.) survey, magnetometer survey, geological mapping, and diamond drilling.

The induced polarization survey located three extensive anomalous areas indicating sulphide mineralization. Geological mapping and the limited amount of diamond drilling consisting of five bore holes in the anomalous areas confirmed that sulphide mineralization is present. The sulphide mineralization contains copper. This is confirmed by surface exposures and by diamond drilling results. The magnitude and value of copper is not ascertained.

In order to ascertain the true extent of the copper mineralization, a preliminary programme of a minimum of 5,000 feet of diamond drilling would be required to cross section the anomalous areas prior to any detail drilling.

CONCLUSIONS

The work carried out indicates that the property has merit. The geophysical survey located three extensive anomalous areas that contain sulphide mineralization and chalcopyrite that could develop into a copper zone, however the results obtained from a limited diamond drill programme are inconclusive.

The most impressive mineralization is located southeast of Kinskuch Lake in the peninsula area which is adjacent to the glacier which tends to glamourize this area underlying the glacier. The area adjacent to the glacier can be surface diamond drilled and the area underlying the glacier cannot be drilled from the surface but can be investigated from underground with the aid of an adit.

A programme to investigate the potential of the property could be accomplished in either of two methods. One method of exploration would be to surface diamond drill the anomalous areas. This would require a minimum of 5,000 feet of drilling prior to any detail drilling and would be disbursed as follows:

No. 1 area	1,000 feet
No. 2 area	3,000 feet
No. 3 area	1,000 feet

This will allow one complete diamond drill cross section in the No. 1 and No. 3 areas and two diamond drill cross sections in the No. 2 area.

The second method would be to investigate the No. 2 area from underground. This would require an underground programme of approximately 2,500 feet of adit and cross cutting to establish a platform to explore the area adjacent to the glacier and directly below the glacier by diamond drilling. This underground drill programme would require a minimum of 5,000 feet of underground drilling prior to any detail drilling. This second approach would also require 2,000 feet of surface drilling to test the No. 1 and No. 2 areas.

The remoteness of the property and the difficult access relative to surface transportation, communication, and servicing are influential in the high cost of any operation which would be performed in this area.

The programme postulating 5,000 feet of drilling would require the sum of some $75,000. This is based on experience of previous drilling costs in the area. The programme postulating underground drilling and exploration and surface drilling would require the sum of some $200,000.

PROPERTY

The property consists of 181 contiguous mining claims located in the Skeena Mining Division, Alice Arm Area, Province of British Columbia.

The 181 claims are numbered as follows:

King #1 - 142 inclusive
Cora #1 - 18 "
Kin #1 - 8 "
Reina Blanca #2-6 inclusive and #8
Kinskuch #5 and #6
Kinskuch Fr
Woodland
M.S.
Grizzly
Lavender #1

LOCATION

Latitude 55°39' North

Longitude 129°22' West

The property is located at Kinskuch Lake, five miles east of Kinsault River, 13 miles north-northeast of Alice Arm, B. C., and 90 miles north of Prince Rupert, B. C.

ACCESSIBILITY

The property is at an elevation of some 3,750 feet above sea level at Kinskuch Lake and is accessible only by float plane or helicopter. Aircraft are available at both

Prince Rupert and Terrace, B. C. Kinskuch Lake is ice-free generally from mid-July to early November.

Alice Arm, B. C., is a coastal town with very limited facilities, not serviced by road but serviced by boat weekly by Northern Navigation Ltd. from Vancouver, and daily by Pacific Western float plane from Prince Rupert. A gravel road extends northward from Alice Arm along the west shore of Kinsault River and passes within five miles west of Kinskuch Lake.

TOPOGRAPHY AND VEGETATION

The terrain is fairly rugged and considered high relief with differences in elevation at Kinskuch Lake level of 3,750 feet to 7,620 feet on Lavender peak.

The property is divided into three lithologic divisions designated as: Lake Area, Glacial and Peak Area, and Workable Area.

The areas are described as follows:

1. Lake Area: This comprises approximately 20% of the property and is located in the northwest portion of the property.
2. Glacial and Peak Area: This comprises approximately 60% of the property and covers the entire area south of Kinskuch Lake

and an area approximately four claims wide along the east boundary of the property. This area includes Lavender Peak and work is impractical.

3. Workable Area: This area comprises approximately 20% of the property and is located in an area approximately four claims wide directly east of Kinskuch Lake and includes a small area southwest of Kinskuch Lake. Parts of this area are rugged,but work could be performed.

Vegetation, consisting mainly of scrub pine, is very sparsely distributed. This growth is located mainly in the area adjacent to and east of Kinskuch Lake, from the E-W baseline north.

CLIMATE

The climate of the area is influenced by the Pacific Ocean. The property, being situated at an elevation of over 3,700 feet, receives approximately 350 inches of snow annually. Snow is not uncommon in June and in September.

PREVIOUS WORK PERFORMED

The mineralization and gossans at the southeast end of Kinskuch Lake have been known for over 40 years. No appreciable work had been performed on the mineralization until

1955 at which time Kennco Explorations Ltd. carried out a drill programme in an attempt to assess the economics of the mineralization. Prior to this only sporadic sampling had been performed. The property was inaccessible and values returned at that time were too low to be considered of interest.

WORK PERFORMED

All work performed on the property was carried out under the supervision of Sulmac Exploration Services Limited. The work consisted of a geological survey, geophysical survey (I.P. and magnetometer), and diamond drilling. Diamond drilling was contracted to Corona Drilling & Exploration Ltd. All surveys were tied in to a grid established on the property.

The work performed during this period was:

1.	Lines cut and picketed	25.89 miles
2.	Induced Polarization (I.P.) survey	19.6 miles
3.	Magnetometer survey	25.3 miles
4.	Diamond drilling	1,247 feet
5.	Geology, mapping (3 geologists)	

DESCRIPTION OF WORK PERFORMED

1. Linecutting and Picketing - 25.89 miles

25.89 miles of line were cut at 400 foot spacings and picketed at 100 foot intervals. The area on the peninsula in the southeast corner of Kinskuch Lake is at 100 foot spacings and picketed at 50 foot intervals.

2. Induced Polarization (I.P.) Survey - 19.6 miles

This survey was carried out on the cut lines with three anomalous areas being located. They are:

a. No. 1 area is located north of the baseline from 8+00E to 20+00E covering an area of approximately 1800 feet by 1000 feet. The extent of the anomalous area has not been delineated. The anomaly is bounded by the lake to the west and rugged ridges to the east. Two bore holes, Nos. 3 and 5, were put down on this anomaly. The number 5 hole was not completed and the No. 3 hole returned one section from 93 feet to 98 feet of 0.79% Cu over five feet, or a section from 86 feet to 108 feet yielding 0.35% Cu over 22 feet.

b. No. 2 area is located east of the south end of Kinskuch Lake and covers an area of approximately 2500 feet by 2500 feet. The extent of this anomaly is not delineated. It is bounded by the glacier on the east and south and by the lake on the west. The peninsula drilled by Kennco and the location of the No. 1 drill hole are located in this area.

Three bore holes, Nos. 1, 2, and 4, were put down in this anomalous area. The No. 1 bore hole returned a section from 11 feet to 64 feet of 1.22% Cu across 53 feet. The copper values for the remainder of the bore holes are in the .05% to 0.10% Cu range. The No. 2 bore hole returned a section from 244 to 245 of 2.37% Cu across 1.0 feet, or a section from 113 - 256.5 of 0.23% Cu across 143.5 feet. Bore hole No. 3 was lost due to very bad recovery.

c. No. 3 area is located southwest of Kinskuch Lake and covers an area of approximately 2,000 feet by 1,200 feet. The extent of the anomaly has not been delineated. It is bounded by the lake to the east, the glacier to the south, and the property boundary to the west. No drilling was performed in this anomalous area.

The No. 2 and No. 3 areas seem to be part of one zone. They both have the glacier as their south boundary and are bisected by Kinskuch Lake. This zone, which includes the lake, is open on both ends. This would indicate an anomalous area of over 9,600 feet striking east-west with the west end approximately 1,200 feet wide and the east end approximately 2,500 feet wide.

3. Magnetometer Survey - 25.3 miles

The survey indicated the area to be one of fairly uniform magnetic relief which indicates the underlying rocks to be of one group.

4. Drilling - 1,247 feet

Five bore holes have been put down to test the anomalous areas. Three bore holes (Nos. 1, 2, and 4) were put down in the No. 2 anomaly, with No. 4 hole being abandoned due to bad ground. Two bore holes (Nos. 3 and 5) were put down on the No. 1 anomaly, with the number 5 hole being stopped before completion. The No. 5 hole was stopped due to the lateness of the season and bad ground.

The only bore hole returning mineralization of any significance was the No. 1 hole which yielded a section of 1.22% Cu across 53 feet from 11 feet to 64 feet. The No. 2 bore hole returned a section from 113 - 256.5 of .23% Cu across 143.5 feet which included a section from 244 - 245 feet of 2.37% Cu across one foot. The remaining holes returned very low copper results. The drilling confirmed that sulphides were the cause of the I.P. anomalies.

Drilling was suspended due to the lateness of the season, and in order to assess the geophysical and drill results to determine a programme to further develop the property.

The anomalous areas are extensive and the five drill holes put down did not cover sufficient ground or return sufficient information to fully evaluate the property.

5. Geologic Mapping

Geologic mapping was performed using the established grid as control. The mapping was performed by field geologists Mr. A. Gray, Mr. B. Gross, and field manager geologist Mr. A. Frew, under the supervision of the writer.

The geology of the property is described as follows.

PROPERTY GEOLOGY

The consolidated rocks of the Kinskuch Lake area consist mainly of a thick sequence of andesitic volcanic rocks ranging in a thickness measured in thousands of feet. These can be divided into the "Upper Member" and "Lower Member". The base of this formation is not exposed on the property, but is exposed in the Dak Valley to the south and indicates that this

formation is underlain by black argillites assigned to the Hazelton group of Jurassic Age. The sequence following the volcanics is represented by a complex period of metamorphism which included fracturing, shearing, and faulting, with chloritization, sericitization, epidotization, mineralization of mainly pyrite and chalcopyrite, and intrusions of more than one period of dykes.

A glacier present on the southern and eastern portion of the property is influential and contributing to the topographic features of the property and is represented by hog-back ridges and a delta plain located on the southeast shore of Kinskuch Lake.

Lower Member

The lower member is exposed in the lower elevations in the central and southern portion of the Kinskuch Lake area. It seems to be the host for the major portion of the mineralization. It consists generally of a fine grain greenish-grey andesite which also includes units of fine, gritty, apple-green possible tuffs, possible greywacke, vesicular lavas and more greenish cast rocks containing hornblende. Volcanic breccias exist in the sequence, but never very extensive and not in mappable units.

Upper Member

The upper part of the volcanic sequence is notable for the great amount of agglomerate and the presence of small amounts of hematite in the matrix. Thus, even when no inclusions can be found, and the hematite content is minimal, the rock appears olive grey rather than greenish grey. Hematite and breccias do occur in the lower member in limited amounts.

The upper member of agglomerate and its associated rocks seem to encircle the lower member. The upper member is exposed at the north end of Kinskuch Lake at water level, to the west of the lake, eastward from the camp, and a great thickness is exposed in Lavender Peak to the southeast. Agglomerate has also been found southwest of the lake although there it contains no hematite.

This group contains inclusions and coarse grain section. The concentration of inclusions and the coarse grain sections are relatively few and generally have gradational margins. Some of the sections have the appearance of a red shale. These sections are generally narrow and conform with a northeasterly strike of the formation. The inclusions are disbursed in most of the formation.

There is little metamorphism of the agglomerate member. Northeast of the camp it contains veins of quartz and epidote.

Most of the inclusions in the agglomerate are angular greenish grey rocks of the type of the lower member. Some inclusions are reddish and must be derived from the upper member itself, perhaps by the breaking of an upper hardened crust on a thick flow.

To the southwest of the lake the agglomerate contained no red rocks, but in addition to the usual greenish grey andesite it contained fragments of basalt. The only basalts in the area are insignificant dykes of later date, and the origin of these fragments is not known.

The vaguely oval outline of exposures of the lower member is not considered as an anticline or dome, but as due to the deep scooping out of the Kinskuch Lake basin by glaciation. A regional dip to the north is postulated on the basis of agglomerate appearance, but this is not very reliable as the two types of volcanics could have coexisted for some time in different parts of the area. Abundant fragments in the agglomerate member, some of them six or eight inches across, southeast of the camp, suggest increased relief, and the

hematite could have been derived from weathering action on volcanic rocks. The lower member may have been deposited rapidly on an area of low relief, the upper more slowly on a more rugged relief.

Strikes and dips obtained on supposed primary structures such as flow contacts are not consistent from one part of the map to another. Flow structures were noted in a small area to the southwest of the lake, and are considered primary.

Metamorphism

It is possible that the metamorphism of the volcanic series is associated with the injection of the Coast Range Batholith, which outcrops some fifteen miles to the west. There are indications that the sequence of events as given here are oversimplified. But, the material will be treated under three headings: Thermal Metamorphism, Dynamic Metamorphism, and the injection of dykes.

Thermal Metamorphism

Thermal and hydrothermal alteration is indicated by the presence of chlorite, pyrite, and epidote, with minor quartz and sericite.

Chlorite alteration is widely distributed, disseminated throughout the rock for the most part but sometimes forming concentrations. It is prominent in the area of the mineralized peninsula and to the southeast. Limits of this alteration are hard to determine as in small amounts chlorite is not conspicuous. Some of the chlorite alteration is associated with areas later subjected to carbonate alteration and silicification.

The distribution of pyrite coincides with that of chlorite, being greatest on the mineralized peninsula and to the southeast, and gradually fading to the north, northeast, and west. The mineralization occurs as disseminated throughout the andesite and also concentrated into veinlets and sizeable veins. Nearly all rocks in the peninsula and southwest areas contain at least 1% disseminated pyrite with local concentrations being estimated up to 10%. The economic significance will be discussed under chalcopyrite. Pyrite is often concentrated in areas of shearing, and in part is associated with mineralized veins which are partially obliterated owing to subsequent metamorphism.

Epidote, likewise, is found both disseminated and in veinlets, with some veins in the magnitude of inches and at

times associated with quartz. The distribution is more erratic than that of chlorite and pyrite and is absent on much of the peninsula.

Sericite is minor, mostly confined to sheared rock. It has been noted on the east side of the peninsula, but it is insignificant, and there is no reason to separate the sericite bearing rocks from the main body of the altered volcanics.

Quartz veining is scanty. Its formation is later than that of chlorite and earlier than that of calcite. Sometimes quartz veins are associated with carbonization and silicification areas. There appears to be two periods of quartz vein formation, as some are partially destroyed by metamorphism and may be mineralized, while others are of fresher appearance and are barren. In places nettings of veinlets of quartz form stockwork structures, but these structures are invariably barren even when they occur in heavily mineralized host rock on the peninsula and southeast of it.

Some sizeable veins of fresh appearance contain angular fragments of lava in a matrix of quartz alone or quartz with carbonate. Quite a number of these breccia-veins were found on surface and in the drill cores, but only one of them

was mineralized, and it will be described later. These breccia-veins are fillings of opened fissures. Another phenomenon noted in the peninsula and southwestward is the presence of quartz veins with calcite cores, and also of pink calcite veins with white calcite cores.

Calcite is the last mineral put in place. It is found as the filling of tension cracks, on slickenslided surfaces, and as tiny veinlets ranging up to large veins, either straight walled or irregular. All core examined of the peninsula area contained calcite veinlets. A little of it is pink. White veins have been observed to cut pink ones, but never the reverse. It is associated with quartz in most of the breccia-veins, and is usually more abundant.

The origin of this calcite was not established, as no limestone is known to exist in the section, and the solutions presumably moved upward rather than downward. Hematite may have been of surface origin, but it is believed that a great thickness of rock has been eroded from the peninsula and hence some other source must have provided it.

Dynamic Metamorphism

There has been intense tectonic activity in the area. Observation of aerial photographs discloses a net of lineations of many orientations. The complexity continues down to a much smaller scale, as is shown in the detailed mapping.

Much detail is below a mappable limit. On the peninsula, one six-foot quartz vein had been sheared into ten pieces, and orientations on the shears diverged from each other through a range of 35 degrees. Similar phenomena occur southeast and east of the peninsula. Tiny shears range up continuously to the great open faults revealed on the aerial photographs.

The earliest shearing was prior to mineralization. In the best mineralized areas of the peninsula, there are sequences of east-west shears, which are often well mineralized, followed by another set of north-south shears which are rarely well mineralized.

Mineralization

The host rock for the major portion of the mineralization is the lower member. The ore mineral present is chalcopyrite with galena as a rarity. The surface expression of the presence of copper is staining by malachite, azurite, and with chalcopyrite without any visible surface stains.

The association between pyrite and chalcopyrite is variable. A few veinlets are composed purely of chalcopyrite. Many veins contain both pyrite and chalcopyrite with pyrite the major mineral. Many pyritic seams contain little or no chalcopyrite. Although most of the chalcopyrite is connected with veins or in shear zones, some chalcopyrite is disseminated in the host rock on the peninsula. It is clear that mineralization was by no means the last step in the evolution of these rocks.

Minor galena and molybdenum have been identified in surface exposures and core samples. There is a striking display of galena visible in a tiny vein in the southeastern area, close to the glacier and some 2,200 feet east of the lake shore.

Surface staining by malachite, occasionally by azurite, is widespread. These are seen as far north as 14N24E, on the east side of Kinskuch Lake. On the west side of the lake on a peninsula malachite stain was observed in three different places, with the sulphide mineralization seeming to be insignificant.

One chalcopyrite vein outcropping at the surface in the centre of the peninsula is intersected by the Kinskuch Sulmac Number Two hole for some 2 1/2 feet. Its surface width is up to over a foot and a half. It seems to have been originally a vein of quartz-carbonate breccia, most of which has later been replaced by massive chalcopyrite, with each fragment of the volcanic retaining a halo of quartz. This body of chalcopyrite is later than the rest of the mineralization, as it is not offset or sheared, and is different from any other sulphide-bearing structure. An attempt was made to pan gold in numerous places. The results were always negative.

Dyke Rocks

The dykes, though not numerous, are of several distinct types. They are later than much of the shearing, and are not mineralized to any extent.

In the south, two dykes of green andesite are very close to the host rock in composition, but are very fine-grained to dense, with definite margins. They contain a minor amount of pyrite.

Two basalt dykes are also present to the south-east of the peninsula, one of which is identified by a petrographic analysis, K-5. This rock has a chocolate brown

weathering, in places it is bounded on one or both sides by shearing or quartz veining, and occasionally is vesicular at its edges.

A dyke running across the northern part of the property may also be a form of basalt. Its central area is coarse and of spotted appearance, and it is very high in magnetite, accounting for some high magnetometer readings. It reaches some thirty feet across, and the outer portions seem to resemble the basalt dykes seen in the south. It cuts a more acid dyke.

A sample from a large pale dyke to the south of the lake, which also forms a small island, was identified by a petrographic analysis, K-7, as a quartz monzonite. Other dykes of the same type occur in the area north of camp and on the opposite side of the lake. The presence of quartz monozite is considered as encouraging, as most of the great American porphyry copper deposits are associated with intrusions of monzonite or of quartz monzonite. No immediate connection is known here between the presence of the copper mineralization and the presence of the quartz monzonite, which is not mineralized at all.

A rock type found on the west side of the lake is a hornblende porphyry. These rather large bodies require care to distinguish from the andesite host rocks. There is one large mass of hornblende porphyry on the west extremity of the lake. It is suspected that these are the earliest intrusions, because they are not greatly different from the host rock and have sustained a good deal of shearing and fracturing. They are not mineralized at all.

The variety of the dykes, and their small number, raises a question as to the nature of the magmas that formed them, whether a single magma of gradually changing composition could account for all the varieties, or whether several sets of magmas must be postulated.

One dyke, which crosses the detail area in the south, appears to be dual. One component, believed to be the earlier, is a pale rock of uncertain composition, not sharply contrasted to the host andesites; together with a similar dyke rock to the southwest of the lake, it is referred to as "felsite". Apparently this fissure was later reopened and occupied by basalt, the second component which sometimes displaces the felsite, sometimes occurring to one side or to the other. Some of the dykes show vague chill zones.

Carbonate Alteration

Mention has been made of the presence in the lower member of intervals of rock of light grey colour very finely granular to dense, formed by carbonate alteration and silicification due to hydrothermal solutions, petrographic analysis K-13. First seen in cores, its nature is clearer in outcrops, where it forms patches of limonitic weathering rock conspicuous to the eye, mostly with a vague east-west trend. A majority are too small to be mappable except in the areas mapped in detail. There is never a sharp edge to the alteration unless shearing is involved and the rock has been displaced. Usually in the case of the smaller patches, a central quartz vein, or a fracture or shear zone, provides evidence of a channel for hydrothermal solutions, but at times none was observed, especially in the large areas of alteration.

These limonitic weathering areas form conspicuous patches on the walls of the valley, at first appearing as possible gosson zones; but this type of alteration is later than the mineralization and has little to do with the sulphide content of the rocks. A carbonization zone will have approximately the same degree of mineralization as the chloritic andesite close to it, whether high or low.

True gossan zones do exist. They occur over zones of massive pyritization, but in addition some of them occur on rocks that contain little pyrite, especially to the southwest of the lake.

While carbonization and silicate alteration seems to have no effect on the actual sulphide content, it does seem to favour the establishment of gossan weathering, and most of those gossan patches located over low-sulphide rocks are in the carbonate-alteration areas.

Scattered patches of carbonate alteration occur well to the north of the main area of metamorphism, and are also numerous to the southwest of the lake. They are conspicuous, but seem to be of little significance.

The following petrographic analyses were made by Dr. Peach at the University of Toronto:

K-5 Fine grained basalt (probably a dike perhaps the chilled margin of diabase intrusive). Laths of calcic plagioclase (Labradorite-Bytownite) and pyroxene with plagioclase phenocrysts. Some rounded carbonate inclusions. Basaltic texture.

K-7 Quartz monzonite porphyry. Consists of a medium to fine grained matrix of sodic to intermediate plagioclase about oligoclase-andesine, orthoclase, light green hornblende and less than 5% quartz with strongly zoned phenocrysts of plagioclase. All of the feldspar slightly sericitized. There is some pyrite and magnetite.

K-13 Chloritized Carbonatized (andesite?) Rock is almost entirely replaced by carbonate. Vague suggestion of original volcanic texture in outlines of sericitized feldspar and in chlorite.

K-22 Greywacke or "dirty" arkosic sandstone. Rock is mainly angular to subrounded fragments of various feldspars, most of them sericitized, angular fragments of amphibole and pyroxene, some fragments of fine grained volcanic rock in a matrix of fine sericite chlorite and clay. The rock is close to the source of the material.

K-27 Carbonated andesite breccia. Rock consists of angular fragments made up of secondary plagioclase and chlorite, partly replaced by carbonate and in a carbonate matrix.

GLACIATION - TOPOGRAPHY

The present landscape is extremely immature. There are numerous perched boulders, and rubble slopes occurring close to the critical angle for sliding. Many high and steep ridges are composed entirely of incompetent glacial rubble.

The deeper character of weathering in the area east of the lake at approximately 20S, 20E, where the rocks are extremely fractured and incompetent, indicates a possibility that this area was exposed to preglacial weathering and was somehow protected from glacial gouging. The area is still partially covered by the glacier.

The lake level has been stable for some time. It is suggested by the sizeable alluvial plain built up by two small streams south of the camp, and by the presence of a number of beaches. The beach sands, even the finest grains, are composed of volcanic rocks for the most part, and an examination of fine sand with the hand lens reveals that the little grains have exactly the same appearance and composition as the pebbles and boulders.

Respectfully submitted,

SULMAC EXPLORATION SERVICES LIMITED

E. Amendolagine,B.A.,M.A.,P.Eng.

September 16, 1965

TRUE NORTH

MAGNETIC NORTH

29°

K-22

GRAYWACKE

K I N S K U C H L A K E

HORN BLENDE PORPHYRY

68W 64W 60W 56W 52W 48W 44W 40W

30S 34S 38S 42S 46S 50S 54S 58S 62S 66S 70S 74S 78S 82S 86S 90S

B/L-50S

BASALT

ANDESITE

QUARTZ MONZONITE

K-13 K-7

BASALT DYKE

B/L-0+00

0+00 4E 8E 12E 16E 20E 24E 29E 33E 36E 40E 44E 48E BASELINE-0+00

48N 44N 40N 36N 32N 28N 24N 20N 16N 12N 8N 4N

4S 8S 12S 16S 20S 24S 28S 32S 36S 40S 44S 48S

6W 4W 2W

HEMATITE STN.

FELSPAR PORPHYRY

EPIDOTE

BASIC

65°

HEMATITE STN.

K-27

DDH-KS-3

DDH-KS-5

CU STN.

DDH-KS-4

11W 9W 7W
12W 10W 8W 6W

DDH-KS-1

K-5

DDH-KS-2

FELSITE

CU STN.

CUSTN

LEGEND

ABBREVIATIONS

CU. — COPPER
PY. — PYRITE
STN — STAINED

SYMBOLS

- 65 STRIKE, DIP ANGLE
- OUT CROP
- CONTACT BOUNDARY
- DYKE OUTLINE
- GLACIER BOUNDARY
- LAKE BOUNDARY
- PROPERTY BOUNDARY
- DIAMOND DRILL HOLE
- PETROGRAPHIC SAMPLE STUDY

GEOLOGY

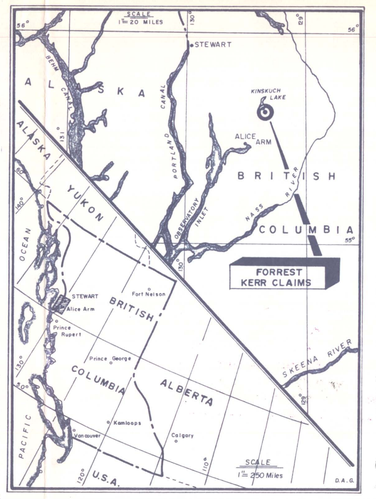
- ANDESITE, CHLORITIC
- ANDESITE, CARBONITIZED, ALTERED
- AGGLOMERATE
- DYKE

TO ACCOMPANY REPORT BY E. AMENDOLAGINE DATED SEPT. 16, 1965.

Department of Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 712 MAP #1

(1)

LOCATION MAP



FORREST KERR MINES LIMITED

ALICE ARM — BRITISH COLUMBIA
SKEENA MINING DIVISION

GEOLOGICAL SURVEY

712 2/2

SULMAC EXPLORATION SERVICES LIMITED

JULY-SEPT-1965

Scale
400 200 0 400 800 1200 1600 FEET
One Inch = Four Hundred Feet

Geologist E. AMENDOLAGINE

Drawn By D. A. GRANT

KINSKUCH LAKE

12W 10W 8W

44S 46S

SNOW RUBBLE TRANSITION BRECCIA INTENSE SHEARING CARB. AND. CHL. AND. CU STN QTZ VEIN CALCITE BASALT DYKE TRANSITION ROCK QTZ CARB. PY. CPY DDH KS NO.-1 DDH KS NO.-2 GUNN'S VEIN

TRANSITION (MIXTURE OF CHLORITIC AND CARB. ANDESITE)

KINSKUCH LAKE

LEGEND

ABBREVIATIONS

- ALT. – ALTERIZATION
- BX. – BRECCIA
- AND. – ANDESITE
- CU. – COPPER
- CHL. – CHLORITIC
- CARB. – CARBONITIZED
- CPY. – CALCOPYRITE
- DDH – DIAMOND DRILL HOLE
- STN – STAINED
- QTZ. – QUARTZ

SYMBOLS

- FAULT
- FAULT, DIP ANGLE
- VEIN or STRINGER
- CONTACT
- SNOW OUTLINE
- LAKE BOUNDARY

GEOLOGY

- ANDESITE, CHLORITIC
- ANDESITE, CARBONITIZED, ALTERED
- QUARTZ and QUARTZ CARB.
- SULPHIDES
- BASALT DYKE
- RUBBLE

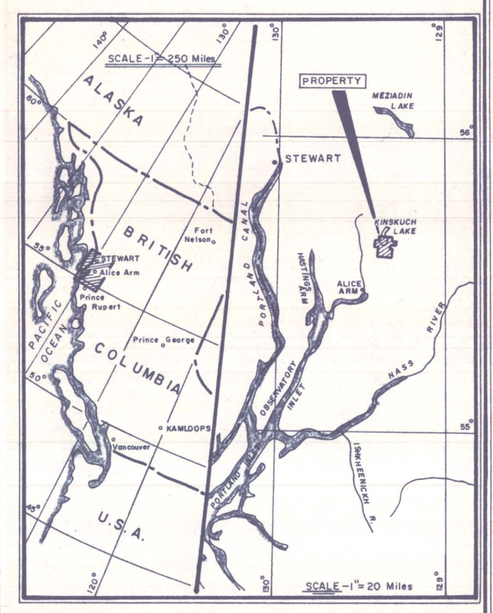
TO ACCOMPANY REPORT BY E. AMENDOLAGINE DATED SEPT. 16, 1965

(2)

Department of Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 712 MAP #2

TRUE MAGNETIC 29°

LOCATION MAP



FORREST KERR MINES LIMITED

ALICE ARM - BRITISH COLUMBIA
SKEENA MINING DIVISION

GEOLOGICAL SURVEY

DETAIL OF PENINSULA

712 2/2

SULMAC EXPLORATION SERVICES LIMITED

JULY-SEPT.-1965

Scale

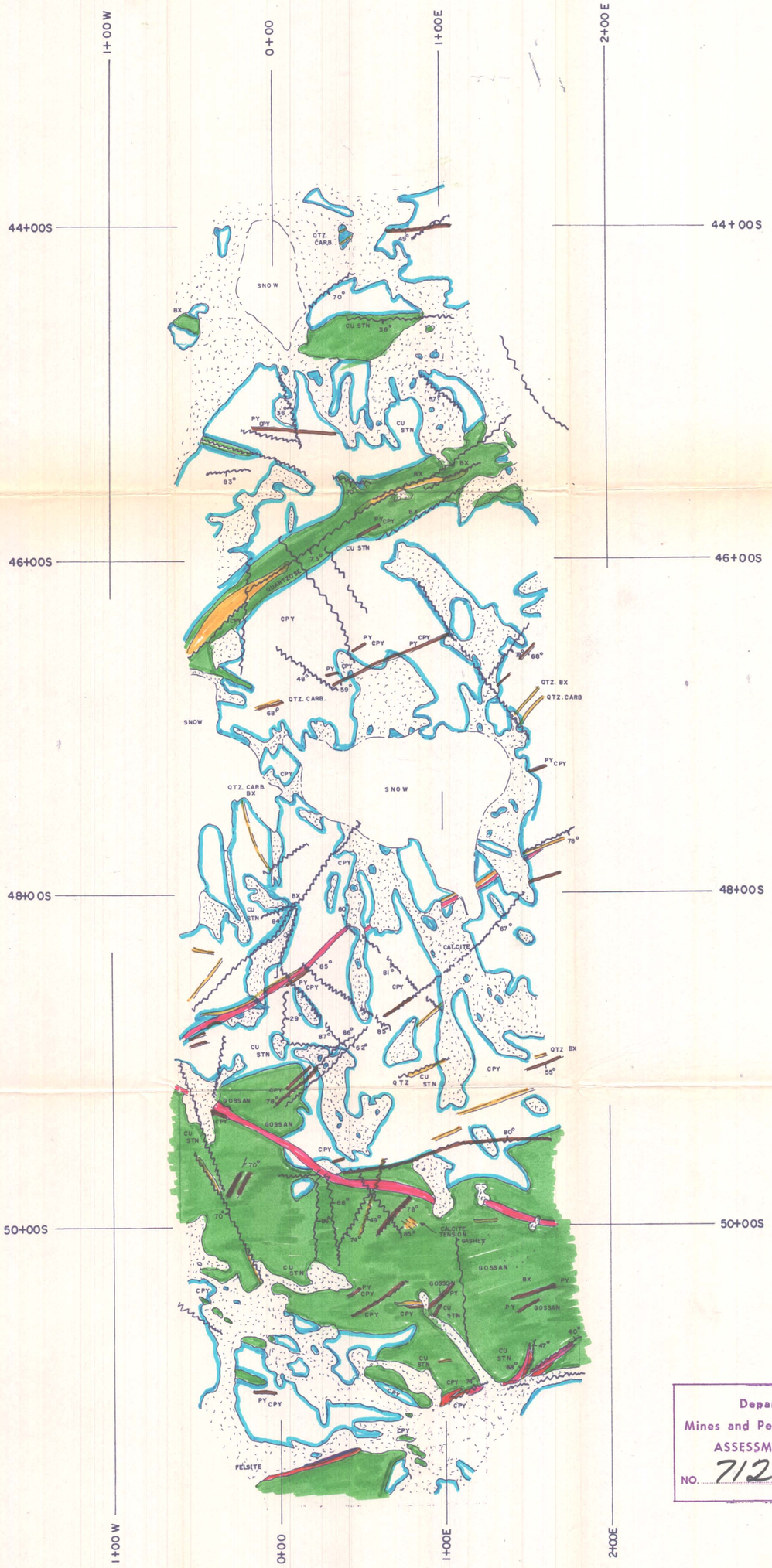
40 20 0 40 80 120 160 FEET

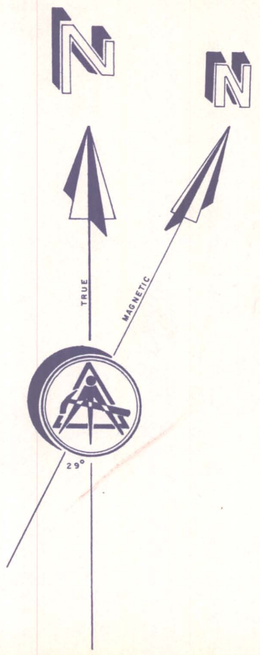
One Inch = Forty Feet

REGISTERED PROFESSIONAL ENGINEER E. AMENDOLAGINE

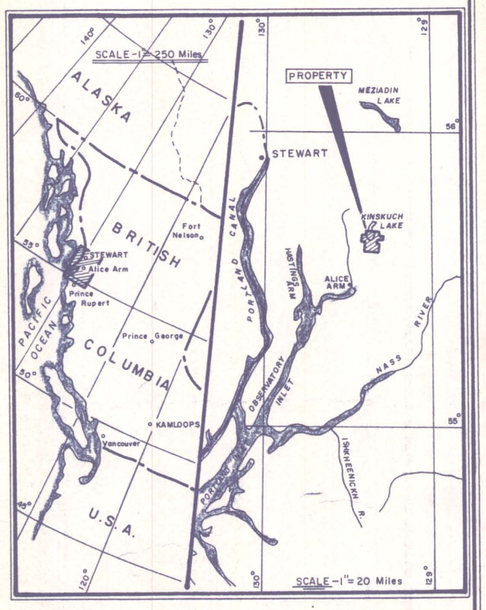
Geologist E. AMENDOLAGINE

Drawn by D.A. GRANT





LOCATION MAP



LEGEND

ABBREVIATIONS

ALT. - ALTERIZATION
BX. — BRECCIA
AND. - ANDESITE
CU. — COPPER
CHL.— CHLORITIC
CARB.-CARBONITIZED
CPY. - CALCOPYRITE
DDH - DIAMOND DRILL HOLE
STN - STAINED
QTZ.- QUARTZ

SYMBOLS

FAULT
FAULT, DIP ANGLE
VEIN or STRINGER
CONTACT
SNOW OUTLINE

GEOLOGY

- ANDESITE, CHLORITIC
- ANDESITE, CARBONITIZED, ALTERED
- QUARTZ and QUARTZ CARB.
- SULPHIDES
- BASALT DYKE
- FELSITE DYKE
- RUBBLE

TO ACCOMPANY REPORT BY E. AMENDOLAGINE DATED SEPT. 16, 1965

Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 712 MAP #3

(3)

FORREST KERR MINES LIMITED

ALICE ARM - BRITISH COLUMBIA
SKEENA MINING DIVISION

GEOLOGICAL SURVEY

DETAIL
EAST OF PENINSULA

712 2/2

SULMAC EXPLORATION SERVICES LIMITED

JULY-SEPT-1965

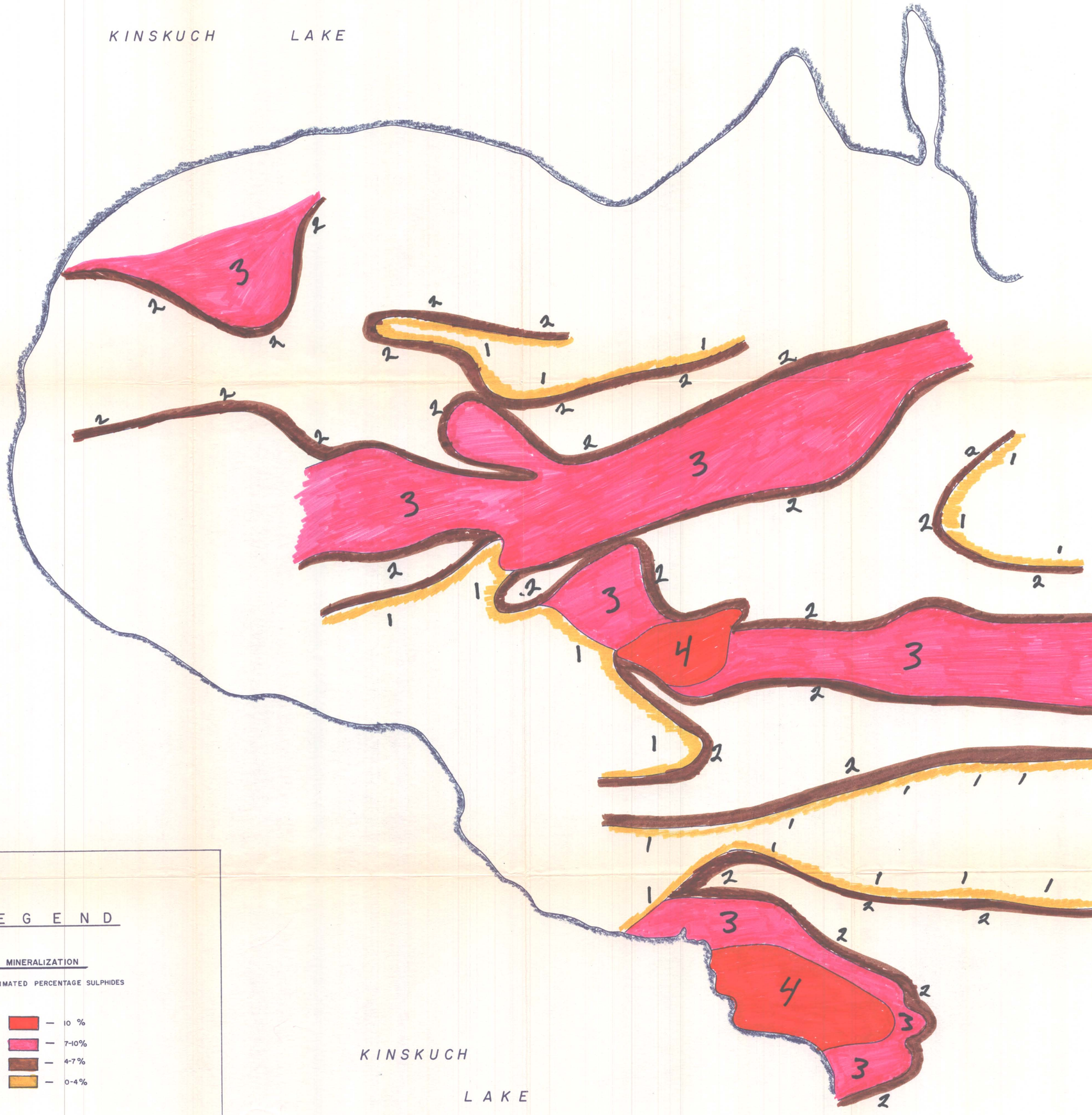
Scale
40 20 0 40 80 120 160
FEET FEET
One Inch = Forty Feet

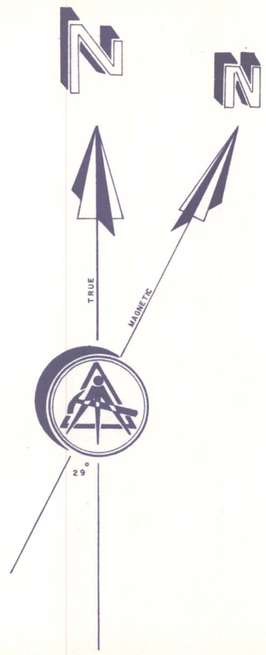
REGISTERED PROFESSIONAL ENGINEER E. AMENDOLAGINE

Geologist E. AMENDOLAGINE

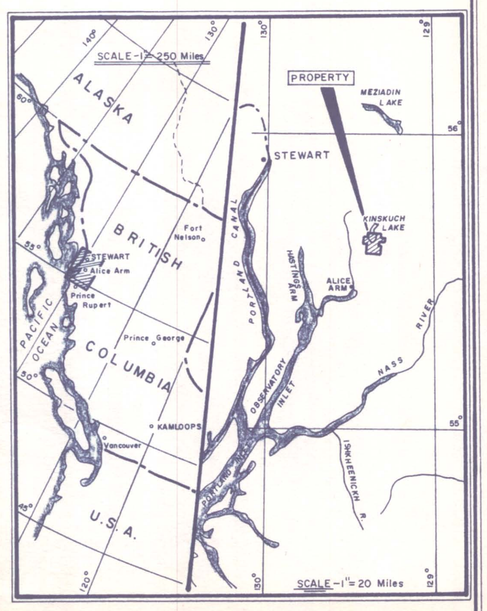
Drawn By D.A. GRANT

KINSKUCH LAKE





LOCATION MAP



LEGEND

MINERALIZATION

ESTIMATED PERCENTAGE SULPHIDES

4	—	10 %
3	—	7-10%
2	—	4-7%
1	—	0-4%

SYMBOLS

LAKE BOUNDARY

TO ACCOMPANY REPORT BY E. AMENDOLAGINE DATED SEPT. 16, 1965.

FORREST KERR MINES LIMITED

ALICE ARM - BRITISH COLUMBIA
SKEENA MINING DIVISION

MINERALIZATION MAP

PENINSULA

712

SULMAC EXPLORATION SERVICES LIMITED

JULY-SEPT.-1965

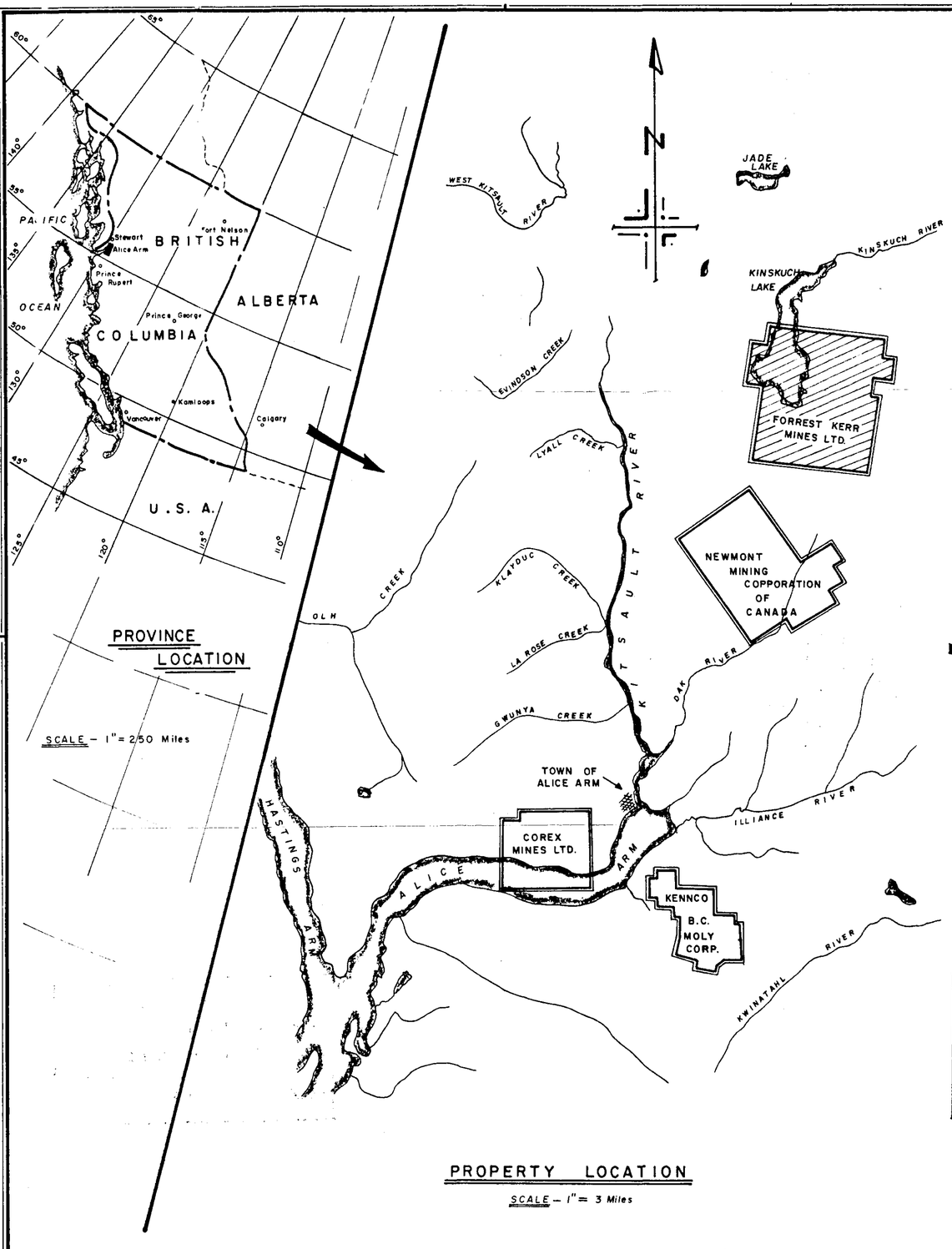
Scale

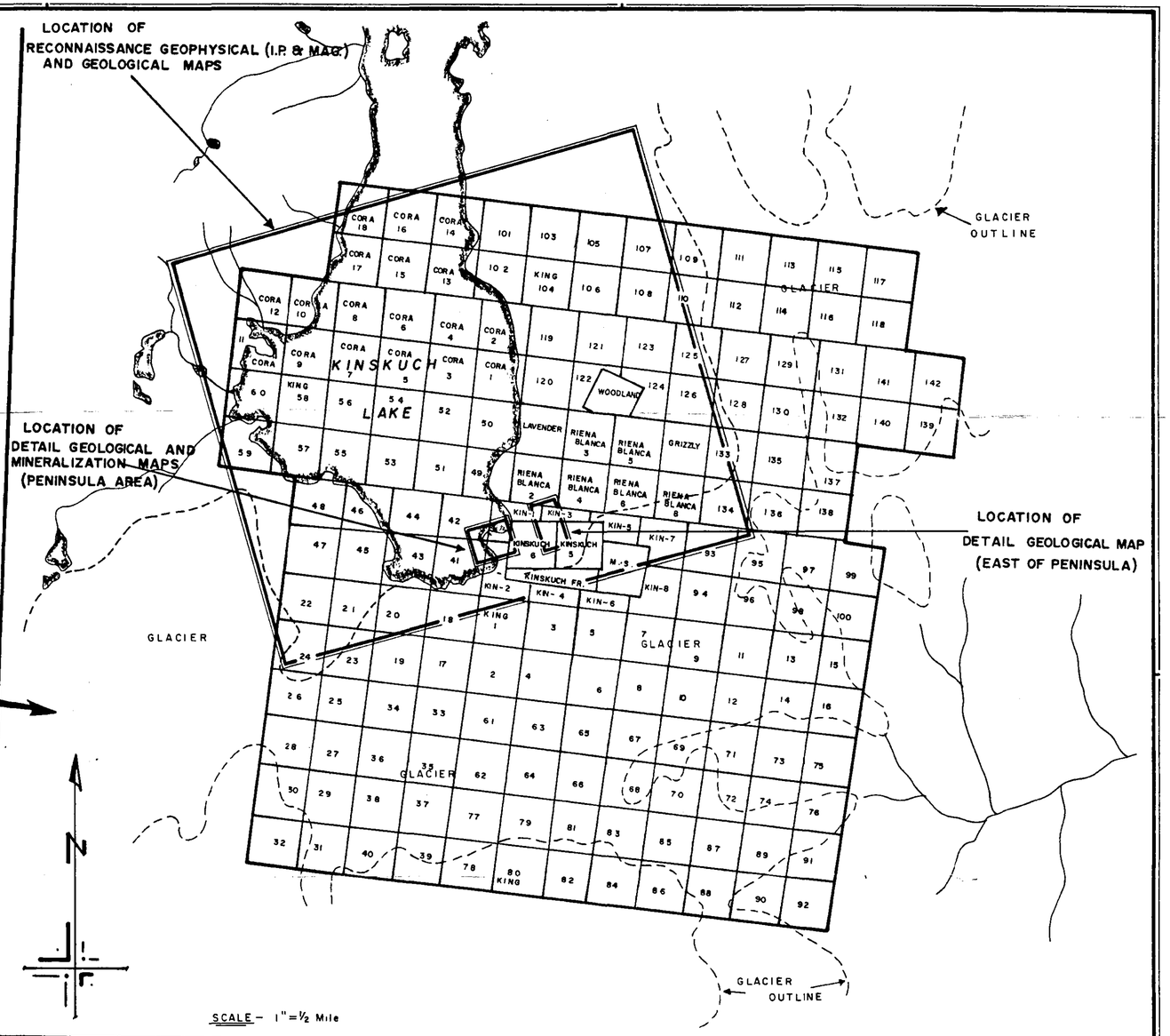
40 20 0 40 80 120 160 FEET

One Inch = Forty Feet

Geologist E. AMENDOLAGINE

Drawn by D.A. GRANT





Department of Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 712 MAP #5

(5)

TO ACCOMPANY REPORT BY E.B. NICHOLLS
DATED SEPT. 16, 1965

CLAIM MAP

FORREST KERR MINES LIMITED

712 2/12

ALICE ARM - BRITISH COLUMBIA

SKEENA MINING DIVISION

LOCATION MAP

SULMAC EXPLORATION SERVICES LIMITED

D.A.G.