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GEOPHYSICAL REPORT

ON

AIRBORNE MAGNETIC AND VLF-EM SURVEYS

FOR THE

KUROKO PROJECT

BRITTANIA AREA AND WHISTLER AREA

VANCOUVER MINING DIVISION

BRITISH COLUMBIA

BRITANNIA CLAIMS	: 25 km due west of Brittania, B.C. on Tetrahedron Mountain
	: 49° 123° NW
	: N.T.S. 92G/12E
WHISTLER CLAIMS	: 2.5 km north and 17.0 km west of the Village of Whistler, B.C.
	: 50° 123° SE 50° 122° SW
	: N.T.S. 92J/2W, 3E
WRITTEN FOR	: EUGENE A. DODD #1807-1450 West Georgia Street Vancouver, B.C., V6G 1T8
SURVEYED BY	: COLUMBIA GEOPHYSICIST SERVICES LTD. #1807-1450 West Georgia Street Vancouver, B.C., V6G 1T8
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DATED	: February 14, 1983

GEOTRONICS

GEOTRONICS SURVEYS LTD.
Engineering & Mining Geophysicists

VANCOUVER, CANADA

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SUMMARY

Low-level airborne magnetometer and VLF-EM surveys were carried out over 28 claims containing 527 units held by Eugene A. Dodd of Vancouver, British Columbia during the fall of 1982. The claims are located on Tetrahedron, 25 km due east of Britannia as well as to the immediate north and west of the Village of Whistler. The terrain is steep and mountainous with vegetation being fir, cedar and spruce trees. Access is gained by either helicopter of a series of 4-wheel drive logging roads from the Squamish-Whistler Highway. The purpose of the surveys was to aid in the mapping of geology as well as locate probable areas for the exploration of mineralization.

The area is underlain by metasedimentary and metavolcanic rocks of the Gambier Formation of Jurassic age, and granodiorites, quartz diorites, and diorites of the Cretaceous Coast Range Intrusives. There also occurs cappings of the Garibaldi Group volcanics of Pliocene to Recent age.

All of the major prospects of the area, two of which have developed into mines, occur within the Gambier Group roof pendants. The mineralization is usually sulphides of copper, lead, and zinc with significant to major values in gold and silver.

The airborne surveys were flown at about a 50-meter terrain clearance on contour-type lines as well as grid lines with a separation averaging about 200 meters. The instruments used were a Sabre Electronics proton precession magnetometer

and a Sabre Electronics VLF-EM receiver. The magnetic data were picked from the strip charts and contoured on a survey plan which the VLF-EM anomalies were plotted as well.

CONCLUSIONS

1. The Gambier Group metavolcanics and metasediments underlie all of the claim groups discussed within this report. This rock-group is very favourable to sulphide mineralization with gold and silver values.

2. The magnetic survey showed the Gambier Group to have a magnetically quiet signature which did not appear to be significantly different from that of the Coast Intrusives. The magnetic highs within both groups probably reflect magnetic flows or phases of each rock-group.

3. A few of Garibaldi Group volcanics was very successfully mapped by the airborne magnetic survey. It occurs on the IKG 1 to 5 Claims. No other flows or cappings were located.

4. Both the VLF-EM and magnetic surveys revealed lineations within all survey areas that are likely caused by fault, shear and/or contact zones. These usually are important as indicators of sulphide and native gold mineralization, especially where the lineations cross.

RECOMMENDATIONS

These are as follows:

1. Thorough prospecting and/or geological mapping.

2. Reconnaissance soil geochemistry sampling. The total sample picked up should be pulverized and not screened in order to preclude the screening out of courser gold.

3. Ground VLF-EM and magnetic surveys in selected areas as well as possibly low-frequency EM (such as MaxMin II EM system) and induced polarization.

4. Trenching and diamond drilling of promising targets resulting from the above work.

GEOPHYSICAL REPORT

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VANCOUVER MINING DIVISION

BRITISH COLUMBIA

INTRODUCTION AND GENERAL REMARKS

This report discusses the survey procedure, compilation of data and the interpretation of low-level airborne magnetic and VLF-EM surveys carried out over 28 claims comprising the Kuroko Project during October 1st to November 10th, 1982. The surveys were carried out by E.A. Dodd, instrument operator and project manager, and Lloyd Brewer, navigator, both of whom are of Columbia Geophysical Services Ltd.

The claims were staked over the Gambier roof pendants for gold, silver and copper mineralization which occurs within the very promising prospect of Maggie Mines Ltd. as well as within the long-running Britannia Mine (not running at present), and the Northair Mines.

The object of the two surveys was to aid in the geological mapping of lithology and structure for the purpose of exploration of this type of mineralization.

PROPERTY AND OWNERSHIP

The properties consist of 28 claims staked under the modified grid system, totalling 527 units described as follows and as shown on the two claim location maps (Figures 1 & 2).

NAME	NO. UNITS	RECORD NO.	EXPIRY DATE
Tetra 1	20	1109 (11)	Nov. 10, 1984
Tetra 2	20	1110 (11)	Nov. 10, 1983
Tetra 3	20	1111 (11)	Nov. 10, 1983
Tetra 4	20	1112 (11)	Nov. 10, 1983
Total	80 Units		
IKG-1	20	1089 (11)	Nov. 10, 1983
IKG-2	20	1090 (11)	Nov. 10, 1983
IKG-3	10	1091 (11)	Nov. 10, 1984
IKG-4	20	1092 (11)	Nov. 10, 1984
IKG-5	20	1093 (11)	Nov. 10, 1983
IKG-6	18	1094 (11)	Nov. 10, 1984
IKG-7	20	1095 (11)	Nov. 10, 1984
IKG-8	20	1096 (11)	Nov. 10, 1983
IKG-9	20	1097 (11)	Nov. 10, 1984
IKG-10	20	1098 (11)	Nov. 10, 1983
IKG-11	15	1099 (11)	Nov. 10, 1983
IKG-12	20	1100 (11)	Nov. 10, 1983
IKG-13	20	1101 (11)	Nov. 10, 1983
IKG-14	12	1102 (11)	Nov. 10, 1983
IKG-15	20	1103 (11)	Nov. 10, 1983
IKG-16	12	1104 (11)	Nov. 10, 1983
IKG-17	20	1105 (11)	Nov. 10, 1983
IKG-18	20	1106 (11)	Nov. 10, 1984
IKG-19	20	1107 (11)	Nov. 10, 1984
IKG-20	20	1108 (11)	Nov. 10, 1984
Total	367 units		
Gold	20	1087 (11)	Nov. 10, 1984
Silver	20	1088 (11)	Nov. 10, 1984
Bride	20	1144 (2)	Feb. 3, 1985
Rainbow	20	1145 (2)	Feb. 3, 1985
Total	80 units		
Grand total	527 units		

The registered owner of the claims is Eugene A. Dodd of Vancouver, British Columbia.

LOCATION AND ACCESS

Tetra 1 - 4 Claims

- 25 km due west of Britannia, B.C. on Tetrahedron Mountain between Salmon Inlet and Howe Sound.
- Geographical coordinates are 49° 37' N latitude
  123° 34' W longitude

IKG 1 - 5 Claims

- 16 km due west of the Village of Whistler, B.C. on Callaghan Creek.
- Geographical coordinates are 50° 10' N latitude
  123° 10' W longitude

IKG 6 - 15 Claims

- 17 km northwesterly of the Village of Whistler, B.C. on Callaghan Lake, Soo, River and Madeley Creek.
- Geographical coordinates are 50° 12' to 14' N latitude
  123° 09' to 16' W longitude

IKG 16 - 20 Claims

- 3 km due north of the Village of Whistler, B.C. on Sixteen Mile Creek and Nineteen Mile Creek.
- Geographical coordinates are 50° 10' to 12' N latitude
  122° 58' W longitude

Gold, Silver, Bride and Rainbow Claims

- 10 km west of the village of Whistler, B.C. on Twenty-one Mile Creek.
- Geographical coordinates are 50° 10' N latitude
  123° 05' W longitude

To the Tetra 1 - 4 Claims, access is best by helicopter but can be gained by logging roads from Port Mellon on Howe

Sound or from Salmon Inlet.

To the remaining claims, access can be gained by various logging roads running northerly up the various creeks from Highway 99.

PHYSIOGRAPHY

The properties are located at the southeast end of the Pacific Ranges which is a physiographic unit of the Coast Mountains. In general, the topography is quite rough and steep. The elevations on the Tetra 1 - 4 Claims vary from 550 meters to 1,737 meters on Tertahedron Peak. The elevation of the Whistler area claims vary from 730 m on the IKG 16 Claim to 2,410 m on the peak of Callaghan Mountain which occurs on the IKG 15 Claim. On the other hand the IKG 1 to 6 Claims occur along the Callaghan Creek and Callaghan Lake valley which is broad with flat to moderate slopes.

The Tetra 1 - 4 Claims are drained by the tributaries of Rainy River on the east side of the property and by Thornhill Creek on the northwest corner of the property. The IKG 1 to 15 Claims are drained by the southeast-flowing Callaghan Creek. The IKG 16 to 20 Claims are drained by the southeast flowing Sixteen Mile and Nineteen Mile Creeks as well as two northerly-flowing tributaries of Soo River. The Gold, Silver, Bride and Rainbow Claims are drained by the south- and easterly-flowing Twentyone Mile Creek as well as a southerly flowing tributary of Callaghan Creek.

Most of the properties are forested by a heavy cover of Douglas fir, cedar, and hemlock. Some of this has been logged off leaving a dense brush of blueberry, devil's club, and slide willow. The treeline occurs at about the 1,680 meter

level ± 150 meters resulting in large areas of the properties unforested.

HISTORY OF PREVIOUS WORK

The claims, since they have been staked, have had no previous work done on them. Much of the ground in the Whistler area has previously been staked in the mid '70's during the Northair exploration period and therefore has been previously explored. In fact, Geotronics Surveys, under the writer's direction, carried out ground magnetic, VLF-EM and soil geochemistry surveys over a portion of the IKG 1 and 2 claims.

GEOLOGY

Much of the following is quoted from Timmins' and Sivertz's report on a similar airborne survey carried out in the Britannia-Squamish area. The geology of the survey area as well as its geological objectives are similar to the one under discussion within this report.

"The area is underlain by three major geologic units. The oldest unit is an assemblage of volcanic and sedimentary rocks, assigned by the Geological Survey of Canada to the Ganbier Group of Jurassic age. Various types of granitic rocks are in contact with the Gambier Group rocks. These belong to the Coast Intrusive Complex, of Cretaceous age. Overlying and intruding both older groups are lavas and dykes of late Tertiary to Recent age, belonging to the Garibaldi Group.

"The volcanic rocks of the Gambier Group range in composition from basaltic andesite (greenstone) to rhyolite. The greenstones are dominantly flows and sills with minor associated pyroclastic

units. The felsic rocks are mostly tuff and agglomerate with porphyritic domes or flows near volcanic 'centers'."

"The Gambier Group rocks in the Squamish area host a large number of mineral deposits and showings. The largest deposits, known collectively as the Britannia Mine, were of great importance to the economy of British Columbia through most of this century. Many smaller deposits are known but have yet to be proven commercially viable. Descriptions of the Britannia Mine and other deposits follow.

(a) Britannia Mine.

"The following is an abstract from a paper entitled "Deformed Mesozoic Volcanogenic Cu-Zn Sulfides in the Britannia District, British Columbia" by J.T. Payne, J.A. Bratt, and B.G. Stone and published in Economic Geology, Vol. 75, pp 700 - 721.

"The Britannia copper-zinc sulfide deposits, previously described as having formed from hydrothermal solutions emplaced into foliated host rocks, are re-interpreted as volcanogenic in origin and to have been deposited from hydrothermal and exhalative solutions related to contemporaneous dacitic volcanism and then deformed during later shearing and faulting. Massive sulfide deposits occur near the upper contact of coarse dacitic tuff. Anhydrite, barite and chert form related exhalative deposits.

"Several periods of inhomogeneous strain produced a broad zone of S-Tectonites, the Britannia shear zone, which contain all of the known orebodies; metamorphic assemblages are those of lower greenschist facies of regional metamorphism. Sulfide textures are similar to metamorphic and deformational textures described in the literature. During ore formation

and later shearing, the rocks were chemically altered with increases in K_2O, SiO_2, and H_2O, and decreases in CaO and total Fe. Following major metamorphism, dacite dykes were intruded into the sheared rocks and were controlled by foliation; sulfides were remobilized into late quartz veins during emplacement of dacite dykes.

"A major system of late faults developed subparallel to the foliation.

"A pre-deformation reconstruction suggests that the orebodies are segments of two original massive sulfide deposits; this requires a near-vertical displacement along one fault zone followed by sub-horizontal offset with right-lateral displacement of several thousand feet."

(b) Maggie Mines Ltd. Property

"Pyrite, pyrrhotite, chalcopyrite, sphalerite, and galena are the principal sulfide minerals. The mode of occurrence of gold and silver which have been reported in important quantities is unknown to the writer.

"The sulfide minerals occur in several forms. Pyrite and pyrrhotite are frequently disseminated in some of the volcanic and volcaniclastic units, although not necessarily together. Observations suggest that the principal occurrence of the base metal sulfides is in association with silicified zones.

"Reports and news releases from the Maggie Mines property indicate the presence of significant intersections of copper, lead, zinc, and silver mineralization indicated by drilling carried out within a possible massive sulfide bearing volcanic

belt sub parallel to and approximately six kilometers northeast of the Britannia Mine area."

(c) McVicar Crown Grants

"Mineralization on the McVicar grants consists of lenses, veins, stockworks, and breccias containing chalcopyrite, sphalerite, and galena as the dominant ore minerals. The showings are located on the north flank of Mt. Baldwin, in a belt of rhyodacite volcanic rocks. They occur along a more or less sheared belt about one kilometer long, Several are of high grade, with values in copper, zinc, lead, and to a lesser extent, silver. Considerable diamond drilling over the past 50 years by different operators has apparently confirmed that the showings are discontinuous and of erratic grade. Nonetheless the property is an important one with major mineralized structures which may yield economic discoveries in the future."

(e) Other Mineralization

"Massive pyrite with small amounts of chalcopyrite is found in lenses and shears in the upper Ray Creek valley west of Mt. Mulligan. These showings have been explored off and on for years. Similar geological conditions exist on the northeast flank of Mt. Mulligan where large areas of andesite and dacite are sheared into quartz sericite and quartz chlorite schists. The sheared rocks contain abundant pyrite and occasional veinlets and irregular zones of quartz and carbonate with associated chalcopyrite and sphalerite. Fracture controlled quartz, pyrite, magnetite, and chalcopyrite mineralization is found on the ridge between Sookum Creek and the Mamquam River. Pyrrhotite and chalcopyrite are found in veinlets near Sky Pilot Creek west of the Maggie Mines property, and in Sky Pilot cirque. Quartz-carbonate veins in altered

quartz diorite contain small amounts of pyrite and chalcopyrite on the south flank of Paul Ridge, and abundant pyrite is found in a faulted area on the southeast flank of this ridge. Shear zones along the east wall of the Raffuse Creek valley contain pyrite, chalcopyrite, sphalerite, and rare galena. The dacite agglomerates in this area contain clasts and lenses of hematite rich iron formation."

To the above, the writer would like to add the Northair Mines property which occurs in the Whistler area just south of the Gold and Silver Claims. It was in production from the mid '70's until recently when it was shut down. It contains gold, silver, lead, and zinc mineralization within metavolcanics of a Gambier Group roof pendant.

SURVEY PROCEDURE

The survey was contour-flown in rugged areas and grid-flown in flatter areas at an average line spacing of 200 meters. The main bird terrain clearance was 50 meters. Navigation was visual, using 1:50,000 scale N.T.S. maps blown up to 1:10,000. The flying was difficult, due to the rugged and varied terrain, but the chief navigator, Mr. Lloyd Brewer, who had previously done much of the claim staking in the area, was able to draw on his experience to overcome numerous navigational pitfalls. He carried out his duties in a thoroughly diligent and professional manner.

The aerial platform used to conduct this survey was a Bell Jet Ranger III helicopter owned and operated by Corporated Helicopters Ltd. and piloted by Mr. Jim Logue. He was chosen over other operators in the province because of his rotary-wing experience and his familiarity with the mountainous terrain west and north of Howe Sound.

Mr. Eugene Dodd, President of Columbia Geophysical Services Ltd., was the instrument operator and project supervisor.

A two-meter bird was fitted with a magnetometer coil and two omni-directional EM receivers and towed beneath the helicopter on a 10-meter cable.

Airspeed was a constant 60 K.P.H. Creek valleys and canyons were penetrated thoroughly. The slow airspeed provided safety, detailed coverage of boxed-in areas, and consistency of data retrieval, which is critical in rugged terrtain. Increased airspeed would increase the inconsistency of the results.

The project supervisor, Mr. Dodd, has over 14 years of experience in conducting aerial magnetic, electromagnetic, and radio-metric surveys from fixed- and rotary-wing aircraft, under all types of terrain conditions.

INSTRUMENTATION AND THEORY

a) Magnetic Survey

The magnetic data are detected using a nuclear free precession proton magnetometer, manufactured by Sabre Electronic Instruments Ltd., of Burnaby, B.C. The magnetometer measures the total count of the earth's magnetic field intensity with a sensitivity of one gamma. The data are recorded on magnetic tape and a 12 cm analog strip chart.

The magnetic patterns obtained from a regional airborne survey are directly related to the distribution of magnetite in the survey area. However, the geology cannot be deduced from isomagnetic maps by simply assuming that all magnetic

highs are underlain by gabbro or ultramafic rocks, and that all magnetic lows are caused by limestone or chert. The problem with such simplistic approach is that magnetite is not uniformly distributed in any type of rock. Other problems arise from the fact that most geologic terrains have rocks of high susceptibility superimposed on less 'magnetic' rocks, and vice versa. Cultural features such as powerlines, pipelines and railways also complicate matters. So many variables can be involved that it may be impossible to make a strictly accurate analysis of the geology of an area from magnetic data alone. The researcher must make use of other data such as geological, photogeological and electromagnetic information in combination with magnetic data to make accurate geological analyses.

b) VLF-EM Survey

A two frequency omni-directional receiver unit, manufactured by Sabre Electronic Instruments Ltd., of Burnaby, B.C., was used for the VLF-EM survey. The transmitters used are NLK Arlington (Seattle) Washington, operating on 24.8 KHz, and Annapolis, Maryland, transmitting at 19.0 KHz. These signals are used due to their ideal orientation with respect to northwest and east-west geological structures, and their good signal strengths. The measurement taken during the survey is the variation in the horizontal component of the signal strength.

The VLF (Very Low Frequency) method uses powerful radio transmitters set up in various parts of the world for military communications. These powerful transmitter can induce electric currents in conductive bodies thousand of kilometers away from the radio source. The induced currents set up secondary magnetic fields which can be detected at surface through deviations in the normal VLF field. The VLF method is inexpen-

sive and can be a useful initial tool for mapping structure and prospecting. Successful use of the VLF requires that the strike of the conductor be in the direction of the transmitting station so that the lines of magnetic field from the transmitter cut the conductor. Thus, conductors with northeast to southeast strikes will respond to Annapolis transmissions, while conductors striking south-southeast to east-northeast will respond to Seattle transmissions. Conductors striking southeast may respond to both stations, giving coincident field strength peaks.

The theory of VLF-EM interpretation is quite simple. Conductors are located at field strength maxima. In the Howe Sound area, one may assume that a Seattle field strength peak represents a conductor with a generally northwest-southeast trend, and an Annapolis peak will be a conductor with an east-west trend. This, of course, only applies to conductors with clearly linear trends and cannot be assumed for single line anomalies.

It is impossible to determine the quality of conductors with any reliability, using field strength data alone. The question of linearity is in doubt if the conductor does not appear to cross the adjacent flight lines. The relatively high frequency results in a multitude of anomalies from unwanted sources such as swamps, creeks and cultural debris. However, the same characteristic also results in the detection of poor conductors such as faults, shear zones, and rock contacts, making the VLF-EM a powerful mapping tool.

The interpretive technique requires information from magnetic surveys, air photo analyses, and ground traverses to aid in discrimination between important and unwanted anomalies. Even armed with this information the interpreter can easily be misled.

DATA REDUCTION AND COMPILATION

The observant magnetic total field was recorded on analogue strip charts. These were played-back together with audio recordings containing fiducial markers, and the fiducial markers were transferred to the strip charts. The fiducial markers were identified with topographic features along the flight lines.

The magnetic data was taken from the strip charts and plotted on 5 sheets each at a scale of 1:10,000 (1 cm = 100 m). An index of the sheets showing what claims each covers is shown on Figures 1 and 2. The data was then contoured at a 200-gamma interval.

The VLF-EM anomalies were taken from the strip charts and plotted on the sheets with the magnetics. For each anomaly, a heavy line along the flight line was drawn showing its half-width and perpendicular to this line was drawn a short line showing the peak of the anomaly. An 'S' or an 'A' designated the anomaly as being from the Seattle transmitter or the Annapolis transmitter.

A question mark on the anomaly indicates that it could be caused by terrain. The survey areas were quite rugged causing numerous VLF-EM anomalous responses most of which was easily sorted out as being caused by terrain. However, some were difficult to sort out and these were therefore plotted with a question mark.

Strong anomalies were plotted with exclamation marks and strong anomalies superimposed on anomalies that may be caused by terrain were plotted with both explamation marks and question marks. Anomalies without any marks indicate average

responses.

DISCUSSION OF RESULTS

The magnetic response within all 5 sheet areas is, in general, very quiet having a range of about 400 gammas. This is not surprising considering that the Gambier Group metavolcanics and metasediments underlie most of the claims. In the writer's experience, the magnetic field of this group is uniform and quiet.

The major cause of VLF-EM anomalies, as a rule, are geologic structures such as fault, shear and breccia zones. It is therefore logical to interpret VLF-EM anomalies to likely be caused by these structural zones. Of course, sulphides may also be a causitive source. But in the writer's experience, when VLF-EM anomalies correlate with sulphide mineralization, the anomalies are usually reflecting the structure associated with the mineralization rather than the mineralization itself. There is some variation in intensity from one VLF-EM anomaly to the next. This is not only due to the conductivity of a causitive source, but also the direction it strikes relative to the direction to the transmitter. In other words, those conductors lying closer to the same direction as the direction to the transmitter can be picked up easier than those that are lying at a greater angle. Depending upon its conductivity, a conductor may not be picked up at all if it's at too great an angle.

Lineal trends considered to be indicative of geological structure have been drawn on each sheet taking into account:

a) Magnetic lows which are often caused by the magnetite within the rock being altered by geological structural processes.

b) VLF-EM anomalies which more often than not are reflecting structure.

c) Topographic depressions such as creek valleys which are usually caused by structure.

Structure is often important for the emplacement of mineralizing fluids especially where lineations intersect.

It should also be pointed out that the VLF-EM anomalies may be indicating sulphide mineralization directly. This would hold true whether the VLF-EM anomalies occur on lineal trends or whether they are simply 1-line anomalies.

Individual comments on each of the sheets are given as follows:

1) Sheet 1; IKG 6 to 15 Claims

The central part of this group to the immediate north of Callaghan Lake is underlain by a magnetic high. It is probably a reflection of a particular volcanic flow of the Gambier Group metavolcanics, possibly one that is more basic in composition. Other possible causes are Garibaldi Group volcanics or a magnetic intrusive just below the surface of the Gambier Group volvanics.

The magnetic low within the northeast corner of the survey area correlates directly with a rock-unit of Miocene age described by Woodsworth to be andesitic to basaltic flows and breccia as well as minor dacite. It is somewhat surprising that this rock-unit is reflected by a magnetic low.

The lineations are more concentrated within the magnetic

high zones simply because the magnetic field varies considerably more than the rest of the survey area. This enables the lineations to be drawn in more easily and does not mean the rest of the survey area is devoid of geological structure; especially considering there are numerous VLF-EM anomallies throughout the survey area.

2) Sheet 2; IKG 1 to 5 Claims

The prominent part of the magnetic field within this map area is a strong magnetic high striking northerly and northwesterly through the center of the survey area. This high correlates directly with a rock-unit described by Woodsworth to be Garibaldi Group olivine basalt flows of Pleistocene age.

The lineations strike only in two directions, northeasterly and northwesterly.

The number of VLF-EM responses is somewhat limited with only three considered to not be caused by terrain. These occur on the eastern part of the IKG 4 Claim.

3) Sheet 3; Gold, Silver, Bride, Rainbow Claims

The magnetic highs on this map-sheet occur for the most part within the diorites, granodiorites, and quartz diorite of the Coast Intrusives. They are probably reflecting magnetite-enriched zones within these rock-types.

The crescent-shaped high within the center of the claim group correlates directly with the contact between the Gambier Group rocks and the Coast Intrusive diorite.

4) Sheet 4; IKG 16 to 20 Claims

This map-area is characterized by a magnetic field that is very quiet. Possibly, therefore, Gambier Group metasediments are predominant. The low-order highs within the southwest corner and the northeast corner may be reflecting volcanic members of the same rock group.

The lineations are significantly stronger over the western part of this group.

5) Sheet 5; Tetra 1 to 4 Claims

The contact between the Coast Intrusive quartz diorites and the Gambier Group rocks strikes north-northwesterly through the center of the property through Tetrahedron Peak. The magnetic signature of the two rock-types appears to be quite similar.

The small high occurring within the southwest corner may be a remnant capping of Garibaldi volcanics but is more likely a more magnetic flow of the Gambier volcanics.

The lineations as well as the VLF-EM response indicate the area to the immediate west and north of Tetrahedron Peak is of particular interest.

Respectfully submitted,
GEOTRONICS SURVEYS LTD.

David G. Mark,
Geophysicist

February 14, 1983

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GEOPHYSICIST'S CERTIFICATE

I, DAVID G. MARK, of the City of Vancouver, in the Province of British Columbia, do hereby certify:

That I am a Consulting Geophysicist of Geotronics Surveys Ltd., with offices located at #403-750 West Pender Street, Vancouver, British Columbia.

I further certify:

1. That I am a graduate of the University of British Columbia (1968) and hold B.Sc. degree in Geophysics.

2. I have been practising my profession for the past 15 years and have been active in the mining industry for the past 18 years.

3. That I am an active member of the Society of Exploration Geophysicists and a member of the European Association for Exploration Geophysicists.

4. This report is compiled from data obtained from airborne magnetic and VLF-EM surveys carried out under by Columbia Geophysical Services Ltd. under the supervision of E.A. Dodd during the period from October 1st to November 10th, 1982.

5. I have no direct or indirect interest in any of the claims mentioned within this report, nor do I expect to receive any interest therein as a result of writing this report.

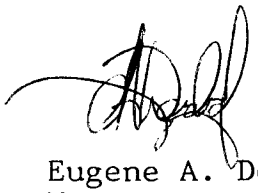
David G. Mark,
Geophysicist

February 14, 1983

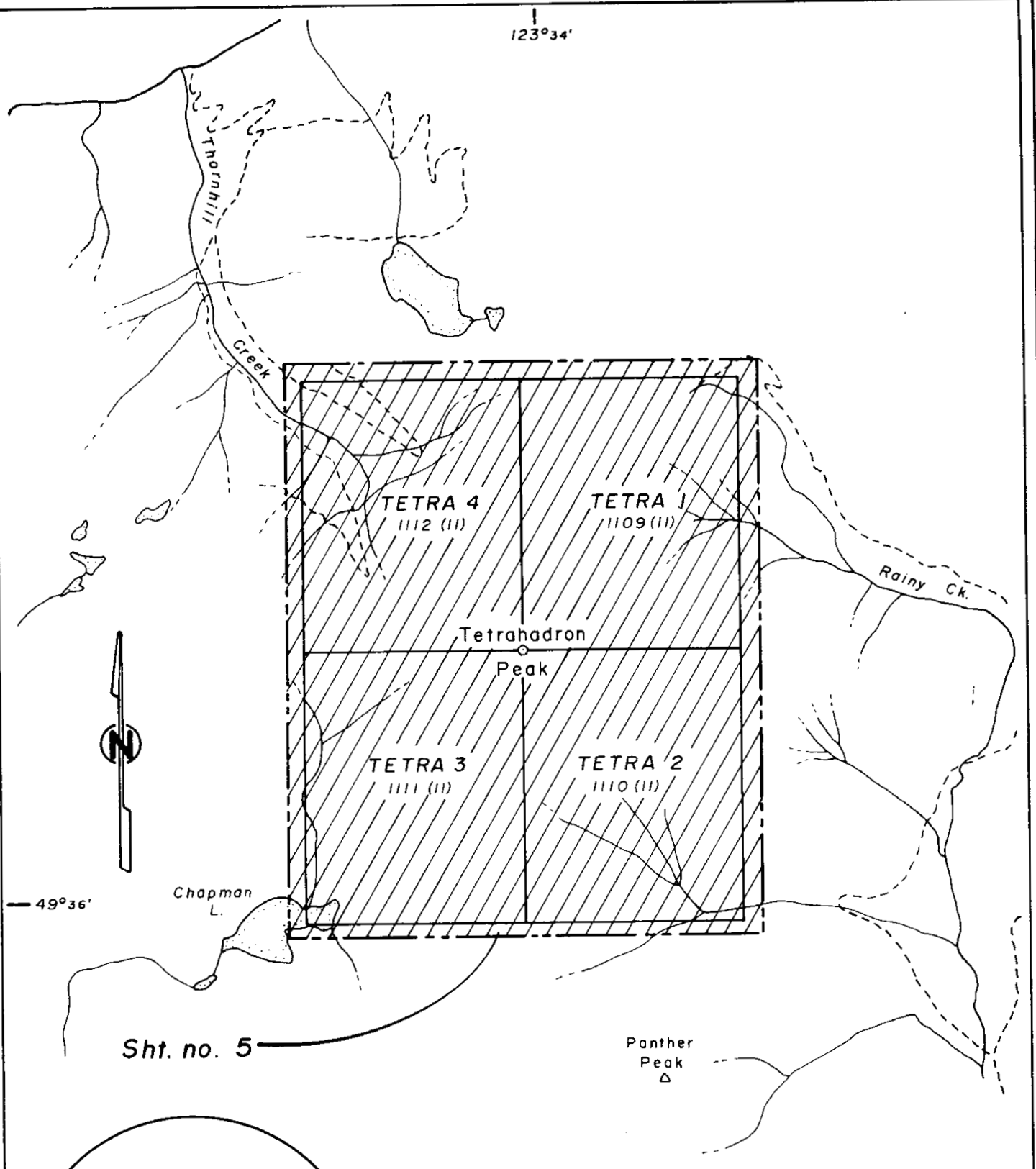
AFFIDAVIT OF COSTS

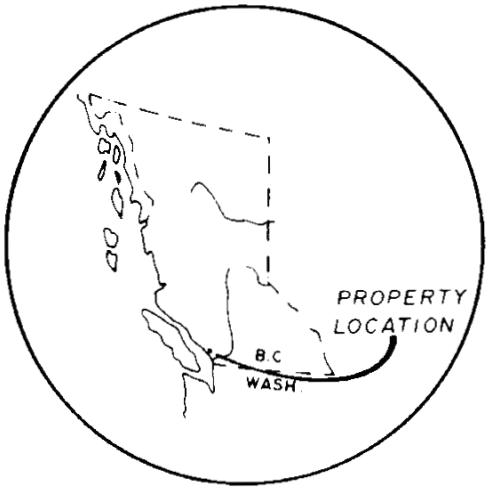
This is to certify that I, Eugene A. Dodd, Manager of Columbia Geophysicist Services Ltd. carried out airborne magnetic and VLF-EM surveys between the dates of October 1st to November 10th, 1982 over the claims listed below in the Britannia and Whistler areas of the Vancouver Mining Division, British Columbia for the value of $100/km. The total number of km flown over each group with the value of the surveys are as follows:

1)	IKG 1 to 15 Claim	364.8 km	$ 36,480
2)	IKG 16 to 20 Claims	155.2 km	15,520
3)	Gold, Silver, Bride Rainbow Claims	156.2 km	15,620
4)	Tetra 1 to 4 Claims	114.8 km	11,480
		791.0 km	$ 79,100



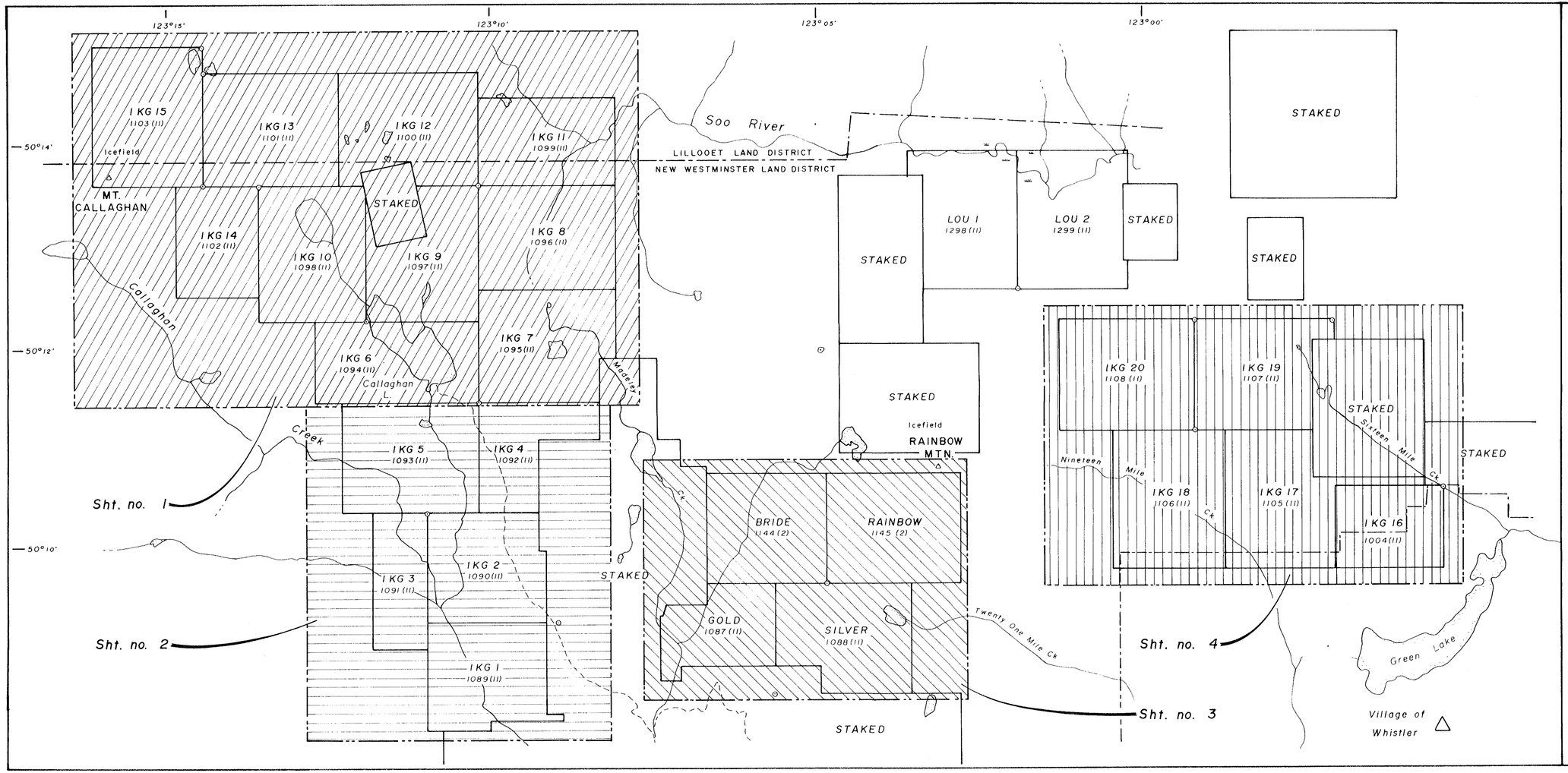
Eugene A. Dodd,
Manager





KUROKO PROJECT
CLAIM LOCATION MAP
TETRA 1, 2, 3, 4
WHISTLER, AREA
VANCOUVER M.D.

N.T.S. 92 G/12 E. 1:50,000 Fig. 1 Jan. 83 B.D.S.



1Km 0 1Km 2Km 3Km

N.T.S. 92 J/2 W-3 E

GEOLOGICAL BRANCH
ASSESSMENT REPORT

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KUROKO PROJECT

WHISTLER, B.C.

VANCOUVER M.D.

CLAIM LOCATION & MAP LOCATION INDEX

1:50,000 Fig. 2 Jan. 83 B.D.S.

LILLOOET LAND DISTRICT

NEW WESTMINSTER LAND DISTRICT

Icefield

Callaghan Lake

LCP IKG 15 1103 (11)

LCP IKG 14 1102 (11)

LCP IKG 10 1098 (11)

LCP IKG 6 1094 (11) IKG 7 1095 (11)

NSS 19.0 KHz Annapolis "A"

NLK 24.8 KHz Seattle "S"

LEGEND

Lineation produced from magnetic and E.M. results suggesting geological structure

Peak of anomaly

.5 – width of anomaly profile

Stronger than normal anomaly

Average anomaly

Questionable anomaly, possibly caused by terrain

Questionable anomaly with a stronger anomaly superimposed

Magnetic depression

Legal corner post

500 m 250 m 0 250 m 500 m 750 m 1 Km.

N.T.S. 92 J/3 E

GEOLOGICAL BRANCH ASSESSMENT REPORT

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KUROKO PROJECT

WHISTLER B.C.

CALLAGHAN LK. AREA

ISOMAGNETIC MAP

200 GAMMA CONTOUR INTERVAL

1:10,000 Sht no. 1 Jan. 83. B.D.S.

123° 11'

50° 11'

Callaghan Lk.

Callaghan Creek

L 5000
L 4700
L 4500
L 4200
L 4000
5500
4000
4500

L 9 a | L 9 | L 8 a | L 8 | L 7 a | L 7 | L 6 a | L 6 | L 5 a | L 5 | L 4 a | L 4 | L 3 a | L 3 | L 2 a | L 2 | L 1

IKG 2
1090 (11)
LCP
IKG 1
1089 (11)

NSS
19.0 KHz
Annapolis
"A"

NLK
24.8 KHz
Seattle
"S"

LEGEND

Lineation produced from magnetic and EM results suggesting geological structure	
Peak of anomaly	
.5-width of anomaly profile	
Stronger than normal anomaly	!
Average anomaly	
Questionable anomaly, possibly caused by terrain	?
Questionable anomaly with a stronger anomaly superimposed	!?
Magnetic depression	
Legal corner post	⊙

500m 250m 0 250m 500m 750m 1Km

NTS 92 J/3 E

GEOLOGICAL BRANCH
ASSESSMENT REPORT

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KUROKO PROJECT
WHISTLER B.C.
CALLAGHAN CK. AREA
ISOMAGNETIC MAP
200 GAMMA CONTOUR INTERVAL

1:10,000 Sht. no. 2 Jan. 83 B.D.S.

123° 05'

50° 10'

RAINBOW MTN.

L 5000

L 7000

L 6700

L 6500

L 6300

L 6000

L 5700

L 5500

L 5200

L 1

L 2

L 3

L 4

L 5

L 6

4000

5500

LCP

BRIDE 1144(2)

RAINBOW 1145(2)

Rainbow L

Twenty Mi Creek

LCP

GOLD 1187(11)

SILVER 1188(11)

L 12 B

L 11 B

L 10 B

L 9 B

L 8 B

L 7 B

L 6 B

L 5 B

L 4 B

L 3 B

L 2 B

L 1 B

L 3000

L 3200

L 3500

L 3700

L 4000

L 4200

L 4500

L 4700

L 5500

L 5200

LEGEND

Lineation produced from magnetic and EM results suggesting geological structure	
Peak of anomaly	
.5-width of anomaly profile	
Stronger than normal anomaly	!
Average anomaly	
Questionable anomaly, possibly caused by terrain	?
Questionable anomaly with a stronger anomaly superimposed	?!
Magnetic depression	
Legal corner post	

N

NSS 19.0 KHz Annapolis "A"

NLK 24.8 KHz. Seattle "S"

250m 0 250m. 500m. 750m.

N.T.S. 92 J/3 E

GEOLOGICAL BRANCH
ASSESSMENT REPORT

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KUROKO PROJECT

WHISTLER, B.C.

RAINBOW LK. AREA

ISOMAGNETIC MAP

200 GAMMA CONTOUR INTERVAL

1:10,000 Sht. no. 3 Jan. 83 B.D.S.

L 3700
L 3200
L 3000
L 3500
L 2500
L 2700
L 4200
L 4500
L 4700
L 5500
L 5000
L 4000
L 3500
L 3000
L 3200
2500
5000
Thornhill Ck.
Tetrahadron Peak
Chapman L.
TETRA 4 1112 (11)
TETRA 3 1111 (11)
TETRA 1 1109 (11)
TETRA 2 1110 (11)
49° 36'
123° 34'

LEGEND

- Lineation produced from magnetic and EM results suggesting geological structure
- Peak of anomaly
- .5-width of anomaly profile
- Stronger than normal anomaly: !
- Average anomaly
- Questionable anomaly, possibly caused by terrain: ?
- Questionable anomaly with a stronger anomaly superimposed: ?!
- Magnetic depression
- Legal corner post

N — NSS 19.0 KHz. Annapolis "A"

NLK 24.8 KHz. Seattle "S"

250m. 0 250m. 500m. 750m.

N.T.S. 92 G/12 E

GEOLOGICAL BRANCH
ASSESSMENT REPORT

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KUROKO PROJECT
WHISTLER, B.C.
TETRAHADRON PEAK
ISOMAGNETIC MAP
200 GAMMA CONTOUR INTERVAL

1:10,000 Sht. no. 5 Jan. 83 B.D.S.

123°01'

— 50° 10'

L 3800 · L 4500 · L 4800 · L 5000 · L 5500 · L 5200 · L 4000 · L 3500 · L 3000

LCP IKG 20 1108 (11) · LCP IKG 19 1107 (11) · LCP IKG 18 1104 (11)

Nineteen Mile Ck. · Sixteen Mile Creek

NSS 19.0 KHz Annapolis "A"

NLK 24.8 KHz Seattle "S"

WHISTLER RESORT MUNICIPALITY

GEOLOGICAL BRANCH
ASSESSMENT REPORT

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LEGEND

- Lineation produced from magnetic and EM results suggesting geological structure
- Peak of anomaly
- .5– width of anomaly profile
- Stronger than normal anomaly !
- Average anomaly
- Questionable anomaly, possibly caused by terrain ?
- Questionable anomaly with a stronger anomaly superimposed ? !
- Magnetic depression
- Legal corner post

500m 250m 0 250m 500m 750m 1Km

N.T.S. 92 J/3E-92 J/2W

KUROKO PROJECT
WHISTLER, B.C.
NINETEEN MI. CK. AREA
ISOMAGNETIC MAP
200 GAMMA CONTOUR INTERVAL

1:10,000 Sht. no. 4 Jan. 83 B.D.S.