82-5-66-13913

ASSESSMENT REPORT

GEOLOGICAL AND GEOCHEMICAL SURVEY

ON THE

SAPPHO 83 GROUP OF CLAIMS

N.T.S. 82E/2E

49°00'32"N Lat. 118°42'W Long.

GREENWOOD MINING DIVISION

Graham Gill
Noranda Exploration Company, Limited
(no personal liability)
May 15, 1985 - June 12, 1985

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85-566

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ABSTRACT

During the period between May 15, 1985 to June 12, 1985 geological and geochemical surveys were conducted on the Sappho 83 group of claims by Noranda Exploration Company, Limited.

Geological mapping was done on both the 1984 Sappho grid (see Assessment Report on the Geology & Geochemistry of the Sappho 83 group of claims, 1984) and the extension of the latter which was established during this report period (see Drawing #1 for location of 1984 + 1985 grids). The geochemical survey was carried out on the 1985 grid only but interpretation of the geochemistry is based on both the 1984 and 1985 geochemical results.

Thus, assessment work filed in this report applies to the geological survey conducted in 1985 on the entire Sappho grid and to the geochemical survey done on the 1985 grid only.

INTRODUCTION

1. Location and Access

The Sappho 83 group of claims is comprised of 72 units in the Greenwood Mining Division on N.T.S. Mapsheet 82E/2E. The property is located approximately 8 km south of Greenwood, B.C. and 5 km east of Midway, B.C. It is situated within the Midway Range of the Monashee Mountains.

Access to the property is obtained via the Norwegian Creek access road which runs 3 km east from Highway 3 where it intersects Norwegian Creek. A 200 m walk up an old wagon trail puts one on the northern section of the Sappho grid.

2. Topography and Physiography

The Sappho 83 claim group lies on the eastern flank of Rusty Mountain and Mount McLaren of the Monashee Mountains and is drained by McCaren and Gidon Creeks in the north and by Norwegian and Hyppolite Creeks in the south. Steepness of the terrain ranges from moderate to flat with much of the flatter areas in the western claim units being used for rangeland. Mature forests cover the creek valleys and all of the eastern claim area.

Maximum relief of the claim group is 600 m with a maximum elevation of 1,370 m.

3. Previous Work

Exploration work on the Sappho 83 group of claims and surrounding area has been documented sporadically since 1909.

Listed below in chronological order are the workings and some of the results of companies which have worked this area in the past.

1909 Small pits, cuts and shafts put in by numerous prospectors.

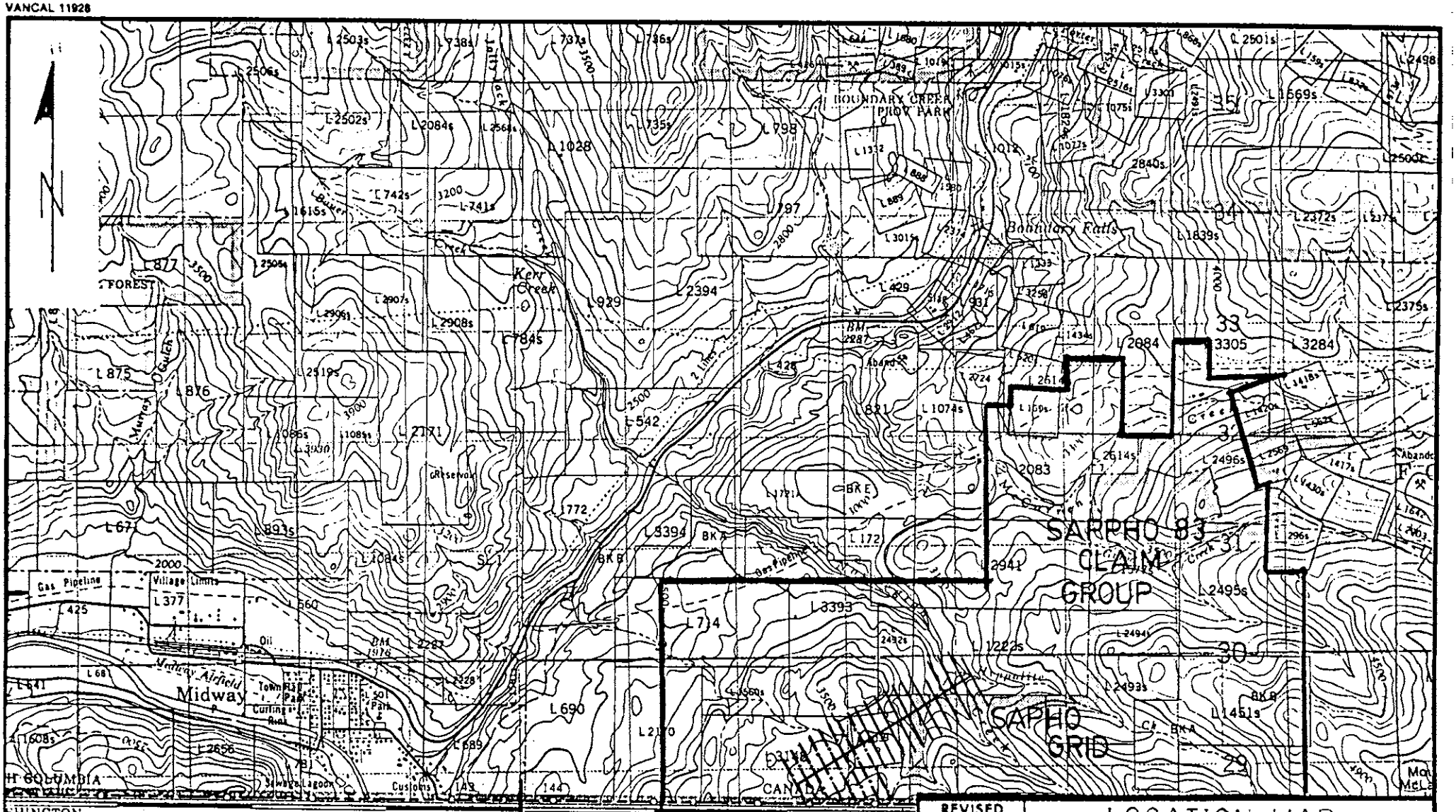
1916-17-18 112 tons of ore was shipped to be smelted which graded 1.8 oz/ton Ag and 5.6% Cu. In all, 197 oz. of silver and 13,580 pounds of copper were yielded.

1927-28 10 tons of ore was mined out of a 50' tunnel in the area of the present PT #1 claim. A sample of chalcopyrite-pyrite ore assayed 3.2% Cu and 0.03 oz/ton platinum from this tunnel.

1963-64 Triform Mining Ltd. and Coast Exploration Ltd. conducted geophysical surveys and completed 2,300' of trenching and 1.580' of diamond drilling in the vicinity of the main "Sappho" showings.

1967 Silver Standard Mines Ltd. conducted geological mapping, rock geochemical surveys, magnetometer surveys and 1,800' of trenching.

VANCAL 11928



GREENWOOD

SIMILKAMEEN DIVISION OF YALE LAND DISTRICT

BRITISH COLUMBIA

Scale 1:50,000 Échelle

Miles 1 0 1 2 3 Milles

Metres 1000 0 1000 2000 3000 4000 Mètres

REVISED

LOCATION MAP

SAPPHO 83 GROUP

PROJ. No. 15	SURVEY BY:	DATE: SEPT. 3/85
N.T.S. 82E/2	DRAWN BY: DGG	SCALE: 1:50,000
DWG. No.	**NORANDA EXPLORATION**	
	OFFICE: VANCOUVER	

1975 The PT #1 claim was staked by George O.M. Stewart of Greenwood, B.C. Trenching + consequent rock geochemistry confirmed assay results obtained earlier of 0.02 - 0.06 oz/ton platinum.

1978 McIntyre Mines obtained high grade copper mineralization within the pyroxenite. This zone also contained 0.044 oz/ton platinum.

1981 Kettle River Resources Limited obtained the property and began geological mapping and sampling.

1984 Geological and geochemical surveys were carried out by Noranda Exploration Company, Limited after a joint venture agreement between the latter and Kettle River Resources was reached in 1982.

4. Owner - Operator

Fifty-two of the 72 units comprising the Sappho 83 group of claims are owned by Kettle River Resources Limited of Greenwood, B.C. The remaining 20 units of the claim group are owned by Noranda Exploration Company, Limited of 1050 Davie Street, Vancouver, B.C. Noranda is the sole operator of the property.

The following is a list of Sappho 83 group of claims to which assessment work is being filed.

Claim Name	Owner	Record #	Units	Anniversary Date
Afton	Kettle River	2280	16	June 17, 1986
Ingerbelle	Resources Ltd.	2773	16	July 3, 1986

Below is a list of the remaining claims in the Sappho 83 group of claims.

Claim Name	Owner	Record #	Units	Anniversary Date
Amber	Kettle River	3156	12	July 30, 1986
Wonderful	Resources Ltd.	2961	1	Dec. 3, 1986
Sappho #1	" "	2281	1	June 17, 1986
Sappho #2	" "	2282	1	June 17, 1986
Sappho #3 Fr.	" "	2732	1	June 12, 1987
Sappho #4 Fr.	" "	2733	1	June 12, 1987
Sappho #5 Fr.	" "	2731	1	June 12, 1987
PT #1	" "	43	2	June 10, 1990
Alki	Noranda Exploration Company, Limited	Tag # 60499	20	Aug. 27, 1986

5. Economic Potential

From past workings and results as well as mapping and geochemical surveys done by Noranda Exploration in 1984, the prospect of good copper-silver ± platinum mineralization exists in this area. All work done between May 15 and June 12, 1985 was carried out in an effort to establish if the known mineralization had enough continuity and grade to be considered economically feasible.

SUMMARY OF WORK DONE

Geology

Geological mapping at a scale of 1:2500 was conducted along 13.95 km of grid line. This detailed mapping was done over both the 1984 Sappho grid and the newly cut 1985 extension of the same grid. Mapping covered an approximate area of 1.14 square kilometers.

See Claim and Grid Location Map (Drawing #1) for positioning of the 1984 and 11985 Sappho grids.

Geochemistry

The geochemical survey carried out on the Sappho 83 group of claims consisted of taking soil and rock samples. Soil sampling was done on the 1985 grid only. The total number of samples and elements analyzed for each are listed below.

Soils: 210 samples analyzed for Cu, Zn, Pb, Ag, As, Au.

Rocks: 16 samples analyzed for Cu, Ag, Au.
2 of the 16 rocks were analyzed for Pt and Pd.

Linecutting

5.45 line kilometers of grid was cut and chained to establish control for mapping and geochemical and geophysical surveys on the property.

Claims Worked

All work during the report period was done on the Afton (2280), Ingerbelle (2773), Sappho #1 (2281), Sappho #3 Fr. (2732), Sappho #4 Fr. (2733), and the PT #1 claims of the Sappho 83 group of claims.

DETAILED TECHNICAL DATA

Geology

Purpose

Mapping at a scale of 1:2500 was carried out over 13.95 km of grid line including both the grid cut in 1984 and the extension of the latter which was

established during the period of May 15 to June 12, 1985. Mapping was done in order to delineate any extension to the southwest of the known mineralized areas on the PT #1 claim and to determine the source of a Cu (Zn) soil anomaly outlined by Noranda in 1984.

Regional Geology

The area surrounding and including the Sappho 83 group of claims is underlain by two major packages of rocks which are in fault contact with each other. A major arcuate Tertiary-post Tertiary aged fault (McCarren Creek fault - G.S.C. Map 1500A) striking north-northeast has uplifted Jurassic greenstones, flow breccias and associated black phyllites on the east side of the junction of Hyppolite and Norwegian Creeks. A large stock of Cretaceous or Early Tertiary aged quartz-feldspar and quartz porphyry has intruded these Jurassic units to the north and has been cut off by the fault itself. Small plugs of Tertiary diorite and diorite porphyry have also intruded the Jurassic andesites and phyllites in numerous locations in this area.

To the west of the McCarren Creek fault lie downfaulted, massive Tertiary andesite and trachyte flows plus a section of epiclastic breccia of the Klondike Mountain Formation which sits conformably on the former.

See G.S.C. Map 1500A from Paper 79-29, 1983 for reference.

Local Geology

Generally, the geology of the Sappho area is dominated by sediments and volcanics which have been intruded and in part metamorphosed by large volume Tertiary intrusives. Metamorphism of the sediment-volcanic package and older intrusives is well within greenschist facies limits. Older gneissic rocks are apparently of higher grade metamorphism.

Ages and stratigraphic position of the rock units are sketchy due to poorly defined contact relationships.

Copper mineralization was mostly commonly observed in the showings and apparently occurred along with coarse grained phases of the Tertiary intrusives.

Ten rock types were observed in the grid area. Detailed descriptions of each are as follows:

Unit 1: Consists of a series of biotite schists and chert beds. The schist contains medium grains of feldspar (white), quartz and biotite. Foliation, perhaps remnant bedding, is well developed and usually shows tight folding or crenulations on a small scale. The cherts occur as thick, white horizons within the schist which occasionally reveal bedding. Both rock types are brecciated with the cherts being the more brittle of the two. In both rock types the clasts may be rotated somewhat but the fabric of the rock is

developed by foliations and/or bedding within the clasts and not due to the orientation of the clasts. Both rock types area very weakly mineralized with pyrite. The overall unit is a probable equivalent to the Knob Hill Group to the north.

Unit 2: Is essentially a massive quartzo-feldspathic gneiss. The precursor to which may have been a series of feldspathic quartz arenites. The age and stratigraphy are not evident; they may be an older sequence related to Unit 1 which was brought up as a roof pendant within the granitic intrusion (Unit Five).

Greenstones, probably andesitic flows, and black, locally hematized argillites comprise Unit Three and Four respectively. They are considered to be of the same age.

The greenstones are the dominant rock type on the grid. They are found to carry copper mineralization when in contact with late phase (coarse grained) Tertiary monzo-diorite intrusives. The rock is generally featureless with flow banding or bedding being indistinguishable. Local hydration to serpentinite occurs with chloritic coated slickensides and fracture fillings being evident. Fracture density increases with proximity to the Tertiary intrusions which suggests that the fractures are intimately associated with fault or shear bounded contacts between the latter and the greenstones.

Secondary minerals such as epidote and calcite are common within the greenstone package although the calcite may be primary in part. Local zones containing small amphibole (hornblende) phenocrysts up to 1 mm long were noted and are interpreted as being primary constituents of a porphyritic flow assemblage whose boundaries were not clearly evident.

Besides the copper mineralization seen in the greenstones, pyrite, pyrrhotite and magnetite occur sporadically throughout the rock. Small pits and shafts have been dug by past prospectors in these vicinities and seem to be somewhat associated with the presence of the large monzodiorite stock located on the grid. Other small showings of similar mineralization within the greenstones do not have any apparent association with such a mineralizing event.

Black argillite and minor cherts are found in contact with the greenstones in two locations on the grid and well developed foliation trends to the northeast.

The age of the entire sequence (Units 4 & 5) is probably Permian or older as it has been correlated with rocks of the Attwood Formation to the north by Church (1984).

Unit 5: Is a coarse grained porphritic granite which contacts the greenstones in the northeast portion of the grid. Large feldspar phenocrysts (> 1 cm) are surrounded by chlorite and amphibole minerals which constitute the matrix. The age of the intrusion is likely Cretaceous due to its close compositional association with rocks of the Nelson intrusives.

Three Tertiary intrusives (Units six, seven and eight) were identified along with an extrusive (Unit nine) of similar composition on the grid. Two

of the three intrusives are differentiated equivalents of the main or first phase monzo-diorite body ,which dominates the centre of the grid. This main phase consists of a fine pink-brown matrix with abundant 1 mm, pink, potassium feldspar microphenocrysts. Other identified minerals were amphibole and minor biotite. contact relationships are discordant and in some cases fault controlled. Smaller satellite bodies of similar composition occur throughout the study area. There is good evidence that suggests that this first phase was emplaced along major fault planes. This is exemplified by the occurrence of the monzo-diorite in linear trends (especially between Lines 59+00E + 62+00E) and its discordant contact with brecciated units.

This major intrusive event was followed by a later stage, coarsely porphyritic monzo-diorite (syeno-diorite) phase (Unit 7) and an amphibole lamprophyre intrusive (Unit 8).

The coarse grained intrusives contains 3-7 cm long and 0.5 cm wide, white feldspar phenocrysts with slightly subparallel alignment of these crystals. The matrix contains medium grained biotite, muscovite, minor quartz and possibly amphibole minerals. This rock type occurs in intimate association with the main Sappho showings. Internal fracturing within this rock type revealed copper mineralization in the main Sappho showing west of line 68+00E.

The lamprophyre intrusive occurs as small dykes in the vicinity of the main Sappho showing. The rock is notably porphyritic containing large, euhedral hornblende phenocrysts up to 1.5 cm long. The matrix is composed of fine mafic minerals, plus calcite. Intense contact metamorphism of the greenstones and the earlier phase intrusive occur with the latter two intrusive phases.

A trachytic-latite flow in the north end of the grid may be the extrusive equivalent of the Tertiary intrusions.

A polymictic breccia occurs as the youngest rock type on the grid (Unit 10). Chert, argillite, andesite or greenstone, quartz and carbonate clasts were identified. Bedding trends 240^{o} and dips 55^{o} to the north. The fabric is developed by bedding (orientation) of the clasts and not by their internal textures. The unit may represent reworking of a breccia zone or fault scarp developed during initial faulting of the area. Intrusive fragments were not found within the breccia.

MINERALIZATION AND ROCK GEOCHEMISTRY

The Sappho area contains two major mineralized zones with other minor showings scattered throughout the area. The two major showings located on Line 6800E, Station 7100N and Line 7000E, Station 7150E respectively. Trenching and pitting mark the sites.

Showing "A" (see Geology Map, Drawing #) is essentially copper mineralization hosted in altered greenstone and early phase monzodiorite. The mineralizing event appears to be the late phase, coarse grained monzodiorite.

Chalcopyrite, pyrite and minor pyrrhotite and magnetite occur in fracture zones within the intrusives and greenstones. These greenstones have been

altered to biotite, amphibole, epidote, chlorite and calcite in the vicinity of the later stage, coarse grained monzodiorite. The economic minerals also occur disseminated throughout the zones of alteration in both the greenstones and the monzodiorite and as small massive pods. Biotite alteration of the monzodiorite by the coarse grained, late phase monzodiorite also seems to be associated with the mineralizing event.

Small zones of skarnified greenstones similar to Showing "B" (described below) were found sporadically throughout the same area.

See Appendix 11 for rock description and geochemical results pertaining to sample numbers 83001, 83002, 83003, 83004, 83005, 83006 and 83009 which were taken at Showing "A".

Showing "B" is essentially a skarn zone in greenstone where it contacts the main intrusive monzodiorite phase. Coarse grained monzodiorites were not found in outcrop although they were noted in trench piles.

The skarn zone consists of intensely altered and highly fractured greenstones and minor monzodiorite. Chlorite, calcite, epidote and hematite are quite common with trace amounts of amphibole and biotite minerals. The monzodiorite occurs as small pods which may have been emplaced into the greenstones along fault zones. They (intrusives) are quite hard to distinguish in the areas of intense alteration.

Chalcopyrite occurs as massive pods or lenses up to 20 cm long. It also occurs with pyrite, pyrrhotite and magnetite in small massive lenses and along major fracture systems. The entire zone exhibits moderate malachite and azurite staining. Major mineralized fractures trend 182° and dip 75° to the east. See Appendix 11 for descriptions and results of rock samples 83013, 83014, 83015, and 83016.

A third, although minor skarn zone bearing pyrite and chalcopyrite was observed in a trench at 69+75N, 68+75E where the contact between greenstones and monzodiorite is located. Intense alteration (epidote) of both rock types above is found in close proximity to outcroppings of the coarse grained monzodiorite (samples 83010).

In other areas of the grid, small, weakly mineralized quartz and calcite veins plus fracture zones were found in greenstones and monzodiorites. Minor pyrite and pyrrhotite were found in these systems.

DETAILED TECHNICAL DATA

Geochemistry

PURPOSE: A total of 210 soil and 16 rock samples were collected on the 1985 Sappho grid in order to determine the extent of an east-west trending Cu (Zn) geochemical anomaly found in 1984 by Noranda and to follow-up the possibility of a southwest striking continuation of the mineralization in the Sappho showings ("A" + "B").

TECHNIQUES: Soil sampling of the A & B soil horizons was completed along

a flagged, metric grid consisting of a 0.8 km long baseline (azimuth 60°) and 8 winglines totalling 4.65 km. Winglines were spaced 100 m apart and samples were taken at 25 m intervals. Sampling was done with the aid of a shovel to a depth of 15-30 cm and then placed in brown 3 1/2" x 6 1/8" open-ended Kraft envelopes for shipping and storage.

Rock specimens were collected as grab and chip samples from various locations on the grid whenever mineralization occurred or a favourable representative rock type was encountered.

All samples were sent to Noranda's geochemical laboratory at 1050 Davie Street, Vancouver, B.C.

Appendix I is a flow sheet of analytical techniques used in the Noranda laboratory. Appendix II is a list of all soils and rock samples with descriptions (where applicable) and geochemical results.

DISCUSSION OF RESULTS

Geochemical results and descriptions of both soils and rocks are listed in Appendix II. Drawings 3, 4, 5 and 6 as well as the geology map, Drawing 2 show locations and results of these samples. In cases of anomalous soil results the drawings have been contoured based on threshold and first, second + third order anomalies obtained by statistical methods.

Gold and Arsenic

The gold and arsenic results were extremely low ranging from a minimum and maximum of 100 ppb Au and 1-44 ppm As. Only one spot anomaly of As returned a high value of 44 ppm but because of the remaining low As and Au values these elements have been determined of little significance to this study and have not been contoured. Drawing 6 presents both elements' values on a grid map.

Copper

All soil samples taken on the Sappho grid were analyzed for copper. Threshold and first and second order anomalies were derived by statistics and determined to be 50 ppm, 90 ppm and 130 ppm respectively. These values have been contoured on Drawing #3.

Three main anomalous zones have been outlined by the geochemical survey. The first is centered on Lines 6100E to 6400E and Stations 68+75N to the Canada - U.S.A. border on all 4 lines. This anomaly trends northeastward with a central core of over 200 ppm and is underlain by greenstones.

The remaining two copper anomalies lie on Lines 6800E and 7000E. Both correspond to the showings "A" & "B". In both cases the anomalies are underlain by the contact zone between the greenstones and monzodiorites. In the area of showing "A" the copper anomaly mimics the location of the coarse grained monzodiorite (Unit 7) suggesting a direct correlation between the latter and the copper mineralization in this local.

Other spot anomalies of copper were revealed in sporadic locations on the grid and were found to he underlain by both the greenstones and larger monzodiorite unit.

Zinc

All soil samples taken on the Sappho grid were analyzed for zinc. Threshold and anomalous results were derived at by means of statistics. The mean and first, second and third order anomalies were determined to be 57 ppm, 70 ppm, 85 ppm and 100 ppm respectively. These values have been contoured and are shown on Drawing #1.

Three anomalous zones were revealed by this survey. The first zone is concentrated on the most eastern sections of Lines 6200E, 6300E, 6400E, 6500E and 6600E and is underlain by black argillites and possibly the contact zone between the latter and the greenstones. Values in this E-W trending zone are generally quite low.

The third anomalous zone is located on Line 7600E and Stations 66+50N to 68+50N. This area is underlain by greenstones with a maximum value of 130 ppm Zn. Unfortunately there appears to be no continuation along strike within this zone.

Lead

Threshold and first, second and third order anomalies for lead were derived at y statistical methods and found to be 4.0 ppm, 7.0 ppm, 10.0 ppm and 13.0 ppm respectively. All samples taken between May 15 and June 12, 1985 were analyzed for Pb.

Five very low anomalous zones were revealed using geochemical analysis. The first zone is centered on Lines 5900E and 6000E and trends northeast. This area is underlain by biotite schist and chert interbeds. A value of 22 ppm (highest value obtained on the grid) was found in this area.

The second zone lies on Line 6300E at Stations 69+25N and 69+75N and is underlain by greenstones. This zone also reveals high values for this grid of 18 and 22 ppm but lacks continuity.

Anomaly 3 is centered on Line 6700E on and just east of the baseline. This zone also has a lack of continuity but is associated with the monzodiorite-greenstone contact and anomalous zinc and silver values.

The fourth anomalous zone is located to the west of the baseline on Lines 6700E, 6800E, 6900E, 7000E and 7100E. This zone (Drawing #5 may not be as big as delineated since Pb values are found to be sporadic and occur in areas underlain by various rock types such as those mapped in Showing "B", monzodiorite and the breccia zone.

The fifth and final zone has been revealed to be on a northwest-southeast trend overlying monzodiorite rocks on the easternmost extensions of Lines 6700E, 6800E, 6900E, 7000E and 7100E. Again, values for this area as for the rest of the grid are quite low and reveal no significant zinc showings.

Silver

All samples taken were analyzed for silver. Threshold and anomalous values were determined statistically and found to be 0.3 ppm, 0.4 ppm, 0.5 ppm and 0.6 ppm respectively. Only two weak anomalous zones were outlined by this survey plus a number of spot anomalies.

The first anomaly is located on Lines 6000E to 6400E on the east side of the baseline. The zone appears to trend northeast-southwest to east-west and is underlain by greenstones. This anomaly is also coincident with one of the above mentioned copper anomalies. The highest value for silver (0.8 ppm) was found in this area.

A small northwest trending silver anomaly appears along Line 6800E and is also semi-coincidental with two of the minor lead anomalies. This zone, however, has no strike continuity and reveals relatively low values.

The last anomalous area worth mentioning appears in the area of Line 7000E overlying the Sappho showing "3" where anomalous results in Cu, Zn and Pb were also obtained.

Other insignificant spot anomalies of silver were found in areas underlain by argillite, biotite schist, greenstone and monzodiorite.

Contours of the silver values are presented on Drawing #5.

INTERPRETATION

Below is listed a brief outline of the possible sequence of geological events which have led to the formation of the Sappho geology (Drawing #2) and mineralized areas as seen today.

- sediments of unit one and two were deposited, tilted and eroded.
- volcanism which produced the greenstones was associated with or closely followed the development of the sedimentary package.
- deposition of the argillites was coincident with the above
- intrusion of the coarse granite (Unit 5) may have caused some local deformation and low grade metamorphism
- deep-seated faulting occurred causing intense fracturing of Units 1-5 and possible down dropping of the southeast portion of the grid
- intrusion of the monzodiorite took place during or following the faulting event causing widespread greenschist metamorphism and further fracturing. This event also consentrated minor amounts of Cu, Zn, Pb, and Ag mineralization within the greenstone-monzodiorite contact
- later staged, copper bearing, coarse grained monzodiorite and lamprophyre dykes intruded the greenstones and monzodiorites
- skarnification took place as a result of the above. Copper mineralization originating from both the greenstones and coarse grained monzodiorite was concentrated in the areas of showings "A & B"
- subsequent erosion of uplifted rocks to the north produced the polymicfic breccia (Unit 10) which lies unconformably over the monzodiorites
- erosion continued and created the geological picture present today.

Geochemical anomalies of Cu, Pb, Zn and Ag were outlined by the survey completed over the entire Sappho grid. Overall values were quite low although several slight anomalous zones were outlined.

The zone located on the west side of the baseline on Lines 6700E, 6800E, 6900E, 7000E and 7100E was anomalous in Cu, Zn, Pb and Ag and can be explained by the fact that mineralized coarse grained monzodiorites have intruded the greenstones and monzodiorites in the area of showing "A". The anomaly over showing "B" probably results from the same type of intrusion (not seen in outcrop) or from the contact of the monzodiorites and greenstones where other small anomalies occur on the grid. Contouring of the copper and zinc values defines the location of these showings very well. Disturbance of the ground due to trenching and pits in this area also enlarges the geochemical anomaly.

Another large northeast-southwest trending geochemical anomaly is present to the east of the baseline on Lines 6100E, 6200E, 6300E and 6400E. Anomalous results of Cu, Ag and minor Pb were obtained. This zone may be explained by the fact that this particular section of the greenstones was enriched in these elements at the time of deposition and/or a concentrating effect provided by unexposed monzodiorite or coarse grained monzodiorite may be responsible.

Minor Pb-Zn anomalies are evident in ground underlain by biotite schist, greenstones and monzodiorites. Silver is also coincident in some of these zones but these anomalies appear to be only slightly higher than background values deemed as having no economic significance.

Geochemical results of the rock samples taken indicates that significant copper mineralization occurs within the coarse grained monzodiorite and any rock type (greenstone and monzodiorite) in close proximity to these late stage intrusives. chalcopyrite, pyrite, and pyrrhotite are all observed within this rock type and occur as fracture fillings, pods, lenses, and concentrated disseminations in areas of alteration due to the emplacement of the coarse grained monzodiorites.

Hornblende lamprophyre dykes mapped in the area of the showings also contain slightly anomalous copper and silver values. Therefore it appears that the main mineralized areas on the property are controlled by both the later stage lamprophyrye dykes, coarse grained monzodiorites and ground preparation due to intense faulting and fracturing.

CONCLUSIONS

- mainly copper and minor zinc, lead and silver mineralization in the area of showings "A & B" on the Sappho grid are a direct result of intense ground preparation followed by the emplacement of mineral bearing, late staged coarse grained monzodiorites and lamprophyres which have also acted as a concentrating effect.

- mineralization in these showings occurs in the late phase intrusives as well as in areas of high density fractures and intense alteration (skarnification) of the country rocks (greenstones and monzodiorites).

- geochemical results are very low in this area possibly due to improper

soil horizon sampling.

- soil anomalies contoured seem to be only slightly higher than threshhold values and occur in all rock types.

- spot Cu, Pb, Zn and Ag anomalies are found in the greenstones and monzodiorites and slightly more concentrated near the contact of the two rock types.

- spot Pb, Zn and Ag anomalies are evident in the biotite schist.

- the extrusive trachyte-latite unit only exhibits a spot Pb anomaly

- due to poor geochemical values obtained on the grid a geophysical E.M. and magnetometer survey would be worthwhile in further delineating the possible southwest extension of the mineralized showings.

- major fault intersections and coarse grained, late phase monzodiorites would make for good exploration tools in the search for similar mineralization in this area.

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APPENDIX I

ANALYTICAL METHOD DESCRIPTIONS

FOR GEOCHEMICAL ASSESSMENT REPORTS

ANALYTICAL METHOD DESCRIPTIONS FOR GEOCHEMICAL ASSESSMENT REPORTS

The methods listed are presently applied to analyse geological materials by the Noranda Geochemical Laboratory at Vancouver.

Preparation of Samples

Sediments and soils are dried at approximately 80°C and sieved with a 80 mesh nylon screen. The -80 mesh (0.18 mm) fraction is used for geochemical analysis.

Rock specimens are pulverized to -120 mesh (0.13 mm). Heavy mineral fractions (panned samples * from constant volume), are analysed in its entirety, when it is to be determined for gold without further sample preparation.

Analysis of Samples

Decomposition of a 0.200 g sample is done with concentrated perchloric and nitric acid (3:1), digested for 5 hours at reflux temperature. Pulps of rock or core are weighed out at 0.4 g and chemical quantities are doubled relative to the above noted method for digestion.

The concentrations of Ag, Cd, Co, Cu, Fe, Mn, Mo, Ni, Pb, V and Zn can be determined directly from the digest (dissolution) with a conventional atomic absorption spectrometric procedure. A Varian-Techtron, Model AA-5 or Model AA-475 is used to measure elemental concentrations.

Elements Requiring Specific Decomposition Method:

Antimony - Sb: 0.2 g sample is attacked with 3.3 ml of 6% tartaric acid, 1.5 ml conc. hydrochloric acid and 0.5 ml of conc. nitric acid, then heated in a water bath for 3 hours at 95°C. Sb is determined directly from the dissolution with an AA-475 equipped with electrodeless discharge lamp (EDL).

Arsenic - As: 0.2 - 0.3 g sample is digested with 1.5 ml of perchloric 70% and 0.5 ml of conc. nitric acid. A Varian AA-475 equipped with an As-EDL is used to measure arsenic content in the digest.

Barium - Ba: 0.1 g sample digested overnight with conc. perchloric, nitric and hydrofluoric acid; Potassium chloride added to prevent ionization. Atomic absorption using a nitrous oxide-acetylene flame determines Ba from the aqueous solution.

Bismuth - Bi: 0.2 g - 0.3 g is digested with 2.0 ml of perchloric 70% and 1.0 ml of conc. nitric acid. Bismuth is determined directly from the digest with an AA-475 complete with EDL.

Gold - Au: 10.0 g sample is digested with aqua regia(1 part nitric and 3 parts hydrochloric acid). Gold is extracted with MIBK from the aqueous solution. AA is used to determine Au.

Magnesium - Mg: 0.05 - 0.10 g sample is digested with 4 ml perchloric/nitric acid (3:1). An aliquot is taken to reduce the concentration to within the

range of atomic absorption. The AA-475 with the use of a nitrous oxide flame determines Mg from the aqueous solution.

Tungsten - W: 1.0 g sample sintered with a carbonate flux and thereafter leached with water. The leachate is treated with potassium thiocyanate. The yellow tungsten thiocyanate is extracted into tri-n-butyl phosphate. This permits colourimetric comparison with standards to measure tungsten concentration.

Uranium - U: An aliquot from a perchloric-nitric decomposition, usually from the multi-element digestion, is buffered. The aqueous solution is exposed to laser light, and the luminescence of the uranyl ion is quantitatively measured on the UA-3 (Scintrex).

* N.B. If additional elemental determinations are required on panned samples, state this at the time of sample submission. Requests after gold determinations would be futile.

LOWEST VALUES REPORTED IN PPM

Ag - 0.2	Mn - 20	Zn - 1	Au - 0.01
Cd - 0.2	Mo - 1	Sb - 1	W - 2
Co - 1	Ni - 1	As - 1	U - 0.1
Cu - 1	Pb - 1	Ba - 10	
Fe - 100	V - 10	Bi - 1	

EJvL/ie
March 14, 1984

APPENDIX II

GEOCHEMICAL RESULTS & DESCRIPTIONS

NORANDA VANCOUVER LABORATORY

PROPERTY/LOCATION:Sappho grid CODE :8506-016

Project No. :115 Sheet:1 of 4 Date rec'd:Jun 14
Material :Soil Geol.:J.K. Date compl:Jun 21
Remarks :

Values in PPM, except where noted.

T.T. No.	SAMPLE No.	Cu	Zn	Pb	Ag	As	PPB Au	NTS	GCI
2	59E-68.75N	34	46	4	0.4	10	10	82E/2	484
3	69	52	40	2	0.2	4	10		
4	69.25	44	60	4	0.2	2	10		
5	69.5	40	64	2	0.2	4	10		
6	69.75	32	60	4	0.2	2	10		
7	70	30	56	6	0.2	2	10		
8	70.25	30	56	6	0.2	1	10		
9	70.5	32	54	4	0.2	4	10		
10	70.75	34	64	4	0.2	10	10		
11	71	38	66	6	0.2	1	10		
12	71.25	54	78	8	0.2	8	10		
13	71.5	34	60	12	0.2	4	10		
14	71.75	68	74	6	0.2	6	10		
15	72	38	58	4	0.2	6	10		
16	72.25	40	58	4	0.2	8	10		
17	72.5	26	50	2	0.2	10	10		
8	72.75	50	66	2	0.2	18	10		
19	59E-73N	38	60	6	0.2	8	10		
20	60E-68.25N	36	40	2	0.2	10	10		
21	68.5	44	44	2	0.2	4	10		
22	68.75	54	44	2	0.2	2	10		
23	69	44	72	4	0.2	1	10		
24	69.25	34	66	2	0.4	1	10		
25	69.5	30	58	2	0.2	2	10		
26	69.75	32	58	6	0.4	2	10		
27	70	32	56	2	0.4	4	10		
28	71	30	56	6	0.4	4	10		
29	71.25	38	64	20	0.4	2	10		
30	71.5	28	54	2	0.4	1	10		
31	71.75	32	64	8	0.2	4	10		
32	72	32	58	2	0.2	.1	10		
33	72.25	30	58	2	0.2	6	10		
34	72.5	44	62	2	0.2	4	10		
35	72.75	24	58	6	0.2	6	10		
36	60E-73N	20	54	6	0.2	1	10		
37	61E-67.50E	74	58	4	0.2	1	10		
38	67.75	56	60	2	0.2	1	10		
39	68	62	54	2	0.2	1	10		
40	68.25	80	60	2	0.4	1	10		
41	68.5	46	40	2	0.2	2	10		
42	68.75	42	50	4	0.2	1	10		
43	69	66	42	2	0.4	4	10		
44	69.25	46	58	2	0.4	1	10		
45	69.5	32	50	2	0.4	1	10		
46	69.75	34	50	2	0.4	1	10		
47	70	44	56	2	0.4	4	10		
48	70.25	30	58	4	0.4	1	10		

T.T. No.	SAMPLE No.	PPB Cu	Zn	Pb	Ag	As	Au
49	70.5	28	62	8	0.2	1	10
50	70.75	46	66	6	0.2	1	10
51	71	22	54	2	0.2	4	10
52	71.25	32	58	2	0.2	10	10
53	71.5	26	62	6	0.2	6	10
54	71.75	26	58	2	0.2	8	10
55	72	40	56	2	0.2	8	10
56	72.25	26	50	2	0.2	12	10
57	72.5	28	50	2	0.4	4	10
58	72.75	26	50	2	0.4	10	10
59	61E-73N	26	50	2	0.2	8	10
60	62E-67N	130	82	2	0.4	4	10
61	67.25	60	60	4	0.4	10	10
62	67.5	150	64	2	0.6	2	10
63	67.75	190	60	2	0.4	4	10
64	68	270	60	2	0.6	2	10
65	68.25	250	68	2	0.6	1	10
66	68.5	230	60	2	0.6	2	10
67	68.75	86	52	2	0.4	1	10
68	69	52	44	2	0.4	1	10
69	69.25	40	40	2	0.4	4	40
70	69.5	46	46	2	0.4	4	10
71	69.75	54	60	2	0.4	2	10
72	70	44	50	4	0.4	4	10
73	70.25	38	50	2	0.4	1	10
74	70.5	38	50	2	0.4	1	10
75	70.75	28	58	2	0.4	1	10
76	71	48	48	2	0.4	8	10
77	71.25	30	58	2	0.2	1	10
78	71.5	30	58	4	0.2	6	10
79	71.75	30	58	4	0.2	4	10
80	72	28	60	6	0.4	1	10
81	72.25	34	64	4	0.2	12	10
82	72.5	40	64	2	0.2	8	10
83	72.75	38	62	2	0.2	8	10
84	62E-73N	38	62	4	0.4	10	10
85	63E-66.25N	160	78	2	0.4	4	10
86	66.5	180	76	2	0.2	4	10
87	66.75	92	60	2	0.2	1	10
88	67	170	100	2	0.2	1	10
89	67.25	120	80	2	0.4	1	10
90	67.5	190	64	2	0.4	6	10
91	67.75	160	50	2	0.6	14	10
92	68	230	52	2	0.8	6	10
93	68.25	250	56	2	0.6	8	10
94	68.5	160	54	2	0.4	8	10
95	68.75	120	54	2	0.6	10	10
96	69	58	40	2	0.2	1	10
97	69.25	64	42	22	0.2	2	10
98	69.5	46	44	2	0.2	6	10
99	69.75	64	68	18	0.2	4	10
00	CHECK NL-5	26	68	74	1.4	52	-
101	70	46	60	2	0.4	4	10
102	70.25	64	54	2	0.2	6	10
103	70.5	50	54	2	0.2	8	10
104	63E-70.75N	40	46	2	0.2	8	10

T.T. No.	SAMPLE No.	PPB Cu	PPB Cu	PPB Pb	PPB Ag	PPB As	PPB Au
105	63E-71N	36	38	2	0.2	4	10
5	71.25	44	40	2	0.2	10	10
107	71.5	38	66	4	0.2	4	10
108	71.75	30	62	8	0.2	4	10
109	72	34	68	8	0.2	4	10
110	72.25	36	70	6	0.2	10	10
111	72.5	46	86	2	0.2	6	10
112	72.75	44	90	10	0.2	44	10
113	63E-73N	38	76	4	0.2	14	10
114	64E-65.5N	38	140	4	0.2	10	10
115	65.75	28	88	2	0.4	8	10
116	66	66	70	2	0.2	10	10
117	66.25	62	66	2	0.2	2	10
118	66.5	38	60	2	0.2	8	10
119	66.75	40	54	2	0.2	6	10
120	67	50	58	2	0.2	8	10
121	67.25	46	58	2	0.4	10	10
122	67.5	50	64	2	0.2	12	10
123	67.75	74	56	2	0.2	4	10
124	68	220	58	2	0.4	10	10
125	68.25	100	48	2	0.2	4	10
126	68.5	58	50	2	0.2	14	10
127	68.75	44	42	2	0.4	2	10
128	69	46	40	2	0.4	8	10
129	69.25	64	40	2	0.4	10	10
130	69.5	58	44	2	0.4	6	10
1	69.75	64	58	2	0.4	6	10
132	70	80	60	2	0.2	8	10
133	70.25	64	42	2	0.2	6	10
134	70.5	76	42	2	0.2	4	10
135	70.75	30	60	2	0.2	2	10
136	71	32	56	8	0.4	10	10
137	71.25	32	48	4	0.4	6	10
138	71.5	30	48	2	0.2	6	10
139	71.75	26	48	2	0.2	4	10
140	72	40	56	6	0.2	20	10
141	72.25	58	50	2	0.4	12	10
142	72.5	44	62	2	0.2	6	10
143	72.75	40	64	4	0.2	6	10
144	64E-73N	46	68	4	0.4	10	10
145	65E-65N	36	78	2	0.2	4	10
146	65.25	18	56	2	0.4	1	10
147	65.5	30	74	2	0.4	6	10
148	65.75	34	58	2	0.4	2	10
149	65E-66N	54	60	2	0.4	4	10
2	65E-66.25N	32	54	2	0.2	12	10
3	66.5	34	70	2	0.2	10	10
4	66.75	34	58	2	0.2	10	10
5	67	38	50	2	0.2	8	10
6	67.25	24	64	6	0.2	12	10
7	67.5	24	62	6	0.2	18	10
8	67.75	26	50	2	0.2	16	10
9	68	60	58	2	0.2	12	10
10	68.25	64	56	2	0.2	8	10
11	68.5	50	40	2	0.2	16	10
12	68.75	44	48	2	0.2	14	10

T.T. No.	SAMPLE No.	Cu	Zn	Pb	Ag	As	PPB Au
13	65E-69N	42	40	2	0.2	14	10
[illegible]	69.25	70	42	2	0.2	12	10
15	69.5	60	38	2	0.2	16	10
16	69.75	62	58	2	0.2	12	10
17	70	130	68	2	0.2	10	10
18	70.25	46	52	2	0.2	10	10
19	70.5	34	56	2	0.2	12	10
20	70.75	24	54	2	0.2	14	10
21	71	22	50	2	0.2	14	10
22	71.25	24	58	2	0.2	8	10
23	71.5	20	54	4	0.2	12	10
24	71.75	28	54	2	0.2	6	10
25	72	34	66	4	0.2	10	10
26	72.25	32	72	4	0.2	12	10
27	72.5	40	72	2	0.4	12	10
28	72.75	34	64	4	0.2	16	10
29	65E-73N	28	68	4	0.2	14	10
30	66E-64.25N	36	80	2	0.2	14	10
31	64.5	34	58	2	0.2	8	10
32	64.75	44	80	2	0.2	12	10
33	65	64	64	2	0.2	6	10
34	65.25	30	54	2	0.2	10	10
35	65.5	24	48	2	0.2	8	10
36	65.75	26	66	2	0.2	10	10
37	66	34	68	2	0.2	8	10
38	66.25	44	66	2	0.2	12	10
[illegible]	66.5	50	66	2	0.2	8	10
40	66.75	48	62	2	0.2	6	10
41	67	48	58	2	0.2	10	10
42	67.25	52	56	2	0.2	12	10
43	67.75	34	50	4	0.2	12	10
44	68	44	48	2	0.2	6	10
45	68.25	56	46	2	0.2	8	10
46	68.5	56	44	2	0.2	12	10
47	68.75	60	48	2	0.2	8	10
48	69	80	50	2	0.2	10	10
49	69.25	110	58	2	0.4	8	10
50	69.5	56	68	2	0.2	12	10
51	69.75	40	60	4	0.2	6	10
52	70	42	62	2	0.2	10	10
53	70.25	36	42	2	0.2	10	10
54	70.5	50	60	2	0.2	12	10
55	70.75	30	56	2	0.2	12	10
56	71	34	58	2	0.2	8	10
57	71.25	22	56	4	0.2	14	10
58	71.5	24	68	4	0.2	8	10
59	71.75	26	56	2	0.2	10	10
60	72	30	56	2	0.2	10	10
61	72.25	40	60	4	0.4	16	10
62	72.5	32	52	2	0.4	16	10
63	72.75	18	30	2	0.2	14	10
[illegible]	66E-73N	28	58	2	0.2	22	10

NORANDA EXPLORATION COMPANY, LIMITED

N.T.S. 82 E, 2 1/2

PROPERTY Sapho Grid

DATE Aug 15, 1985

SAMPLE REPORT

SAMPLE NO.	LOCATION & DESCRIPTION	TYPE	WIDTH	~~ASSAYS~~							SAMPLED BY
				Au	Au	Ag		Pt			
3001	67+50E, 71+00N major fracture zone in very coarse, porphyritic syenodiorite. Zone is rubbly, carries Cpy, Py	Grab		✓	✓	✓		✓			
3002	67+50E, 71+00, minor Cpy in coarse, porphyritic syenodiorite, concentrated in small fractures	Grab		✓							
3003	67+50E, 71+00. Intensely altered greenstone to chlorite, amphibole, and biotite, minor Cpy Py and Po.			✓							
3004	67+75E, 70+75N. Altered greenstone to chlorite, biotite, in vicinity of coarse syenodiorite porphyry. Small, massive Cpy, Py, Po pods	Grab		✓							
3005	67+75E 70+50N, coarse, syenodiorite porphyry, with traces of very altered greenstone, minor Cpy, Py.	Grab		✓							
3006	Quartz vein in greenstone 67+45E, 70+50N	Grab		✓							
3007	Coarse hornblende, lamprophyre 67+85E, 69+90N	Grab		✓	✓	✓		✓			
3008	Coarse hornblende lamprophyre 67+35E 70+85N.	Grab		✓	✓	✓		✓			
3009	Biotite, amphibole alteration in monzodiorite with minor small pods of Cp and accompanying Py 68+10E, 71+00N	Chip	2m	✓	✓	✓					
3010	Altered greenstone, ham pit, likely contact with intrusive, Cpy, Py	Grab		✓	✓	✓					

NORANDA EXPLORATION COMPANY, LIMITED

2/2

N.T.S. 52L-2

PROPERTY Sapho

DATE Aug 15, 1985

SAMPLE REPORT

SAMPLE NO.	LOCATION & DESCRIPTION	TYPE	WIDTH	~~ACCAPS~~ Eccram Cu	Au	Ag		Pb			SAMPLED BY
3011	Altered monzodiorite - diorite with minor py. 68E 70+60N	Grab		✓	✓	✓			1		
012	Alteration zone between contact of coarsely porphyritic syenodiorite, monzodiorite and greenstone, mineralization is in greenstone, cpy. 68E 69+90N	Grab		✓	✓	✓					
3013	massive cpy in altered greenstone and stain. Massive pods up to 4-7cm 70E 71+50N	Grab		✓	✓	✓					
014	Greenstone stain and minor altered diorite pods, with chlorite, calcite, hematite with minor massive cpy pods and stringers 70E, 71+50N	Chip	3m	✓	✓	✓					
3015	Copper bearing fractures in greenstone stain fracture 20° dipping 75, 70E, 71+50N	Chip	1m	✓	✓	✓					
3016	Greenish stain with minor disseminated cpy, py, po 70E, 71+50N	Chip	3m	✓	✓	✓					

APPENDIX III

STATEMENT OF COSTS

NORANDA EXPLORATION COMPANY, LIMITED

STATEMENT OF COST

PROJECT SAPPHO 83 GROUP DATE September 4, 1985

TYPE OF REPORT Geology & Geochem

a) Wages:

No. of Days	28			
Rate per Day	$ 88.44			
Dates From:	May - June 1985			
Total Wages	28	x	$ 88.44	2,476.33

b) Food and Accomodation:

No of days	28			
Rate per day	$ 45.00			
Dates From:	May - June 1985			
Total Cost	28	x	$ 45.00	1,260.00

c) Transportation:

No of days	18			
Rate per day	$ 41.67			
Dates From:	May - June 1985			
Total Cost	18	X	$ 41.67	750.00

d) Instrument Rental:

Type of Instrument

No of days

Rate per day $

Dates From:

Total Cost X $

Type of Instrument

No of days

Rate per day $

Dates From:

Total Cost X $

f)	Analysis (See attached schedule)	1,575.00
g)	Cost of preparation of Report	
	Author	150.00
	Drafting	150.00
	Typing	75.00
h)	Other: Contractor	
Total Cost		$6,436.33

e)	Unit costs for	Geochem	
	No of days		
	No of units	210 Samples	
	Unit costs	15.96 / Sample	
	Total Cost	210 x 15.96	3,350.88
	Unit Costs for	Geology	
	No. of Days	20	
	Unit Costs	154.27 / Manday	
	Total Cost	20 X 154.27	3,085.45
			$6,436.33

NORANDA EXPLORATION COMPANY, LIMITED

(WESTERN DIVISION)

DETAILS OF ANALYSES COSTS

PROJECT: SAPPHO 83 GROUP

ELEMENT	NO. OF DETERMINATIONS	COST PER DETERMINATION	TOTAL
Cu	210	1.60	336.00
Pb	210	.60	126.00
Zn	210	.60	126.00
As	210	.60	126.00
Ag	210	.60	126.00
Au	210	3.50	735.00
			$1,575.00

APPENDIX IV

STATEMENT OF QUALIFICATIONS

STATEMENT OF QUALIFICATIONS
****

I, D. Graham Gill of the City of Vancouver, Province of British Columbia, hereby certify that:

I am a geologist residing at 1272 - 52nd. Street, Delta, B.C.

I have graduated from the University of British Columbia in 1983 with a B.Sc in geology.

I have worked in mineral exploration since 1979.

I have been employed by Noranda Exploration Company, Limited since May, 1983.

D. Graham Gill

D. Graham Gill

STATEMENT OF QUALIFICATIONS

I, Robin N. Adair, of the city of Calgary, do here by certify that;

I am a graduate of the University of Alberta, with a Bachelor of Science Degree in Geology.

I am a member in good standing of the Canadian Society of Petroleum Geologists and the American Association of Petroleum Geologists.

I have been a temporary employee with Noranda Exploration Company, Limited since May, 1980.

Robin N. Adair

Robin N. Adair

Senior Geological Assistant
Noranda Exploration Company Limited (N.P.L.)

LEGEND

1984 GRID

1985 GRID

GEOLOGICAL BRANCH
ASSESSMENT REPORT

13,913

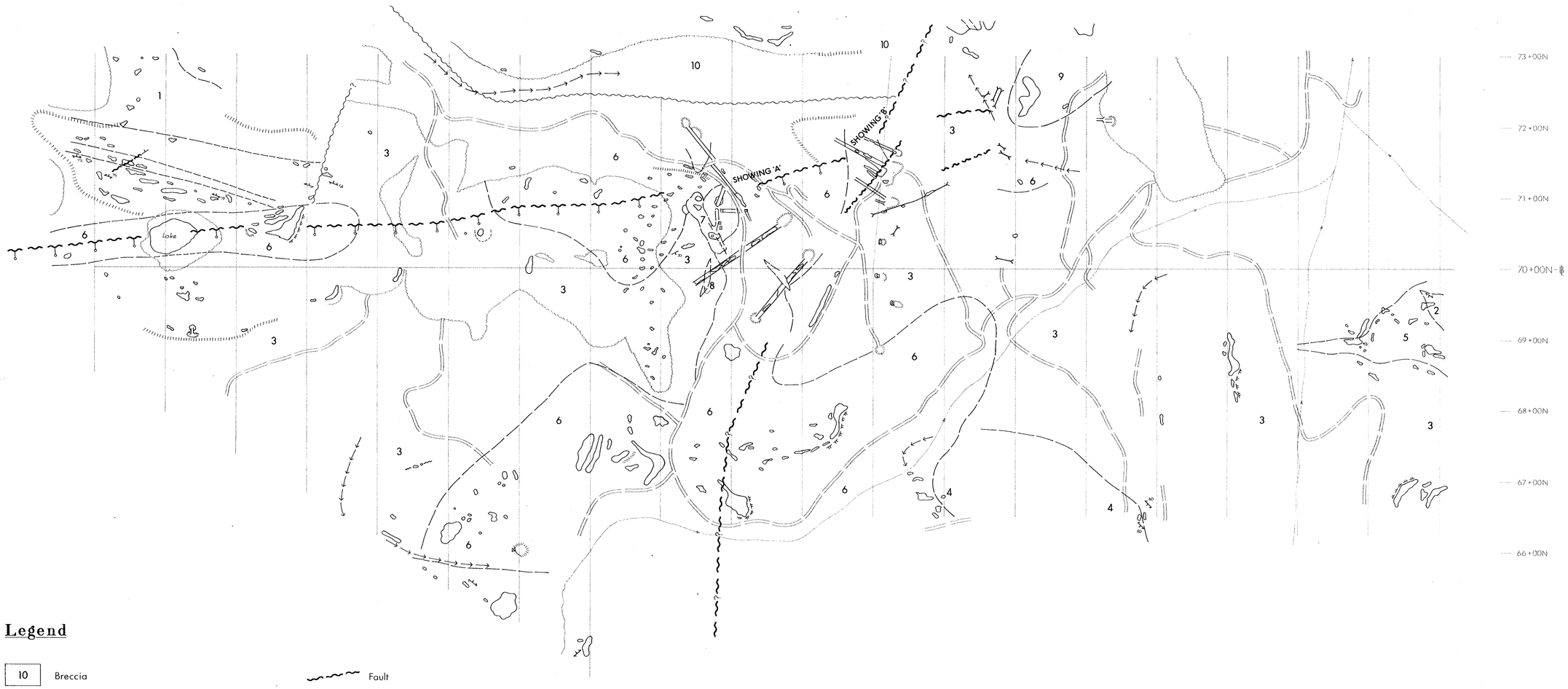
claim boundaries and Legal Corner Post
Taken From a 1:12,000 topographic claim map.

SCALE: 0 100 1000 meters

REVISED	SAPPHO 83 CLAIM GROUP
	CLAIM MAP & GRID LOCATION
PROJ. No. 15	SURVEY BY: J.K. DATE: JUNE 1984
N.T.S. 82E/2	DRAWN BY: W.M. SCALE: 1:12,000
DWG. No. 1	NORANDA EXPLORATION
	OFFICE VANCOUVER

L.59+00E L.60+00E L.61+00E L.62+00E L.63+00E L.64+00E L.65+00E L.66+00E L.67+00E L.68+00E L.69+00E L.70+00E L.71+00E L.72+00E L.73+00E L.74+00E L.75+00E L.76+00E L.77+00E L.78+00E

73+00N 72+00N 71+00N 70+00N 69+00N 68+00N 67+00N 66+00N



Legend

10	Breccia
9	Trachyte
8	Lamprophyre
7	Very Coarse Monzodiorite
6	Fine-Medium Monzodiorite
5	Granite
4	Argillite
3	Greenstone
2	Quartzo-Feldspathic Gneiss

META-COMPLEX

1	Biotite Schist, Chert

Fault
Normal Fault, showing hanging wall down
Geological Contact
Uncomformable Contact
Pit
Trench
Adit
Creek (showing direction of flow)
Road
Tree Line
Gully

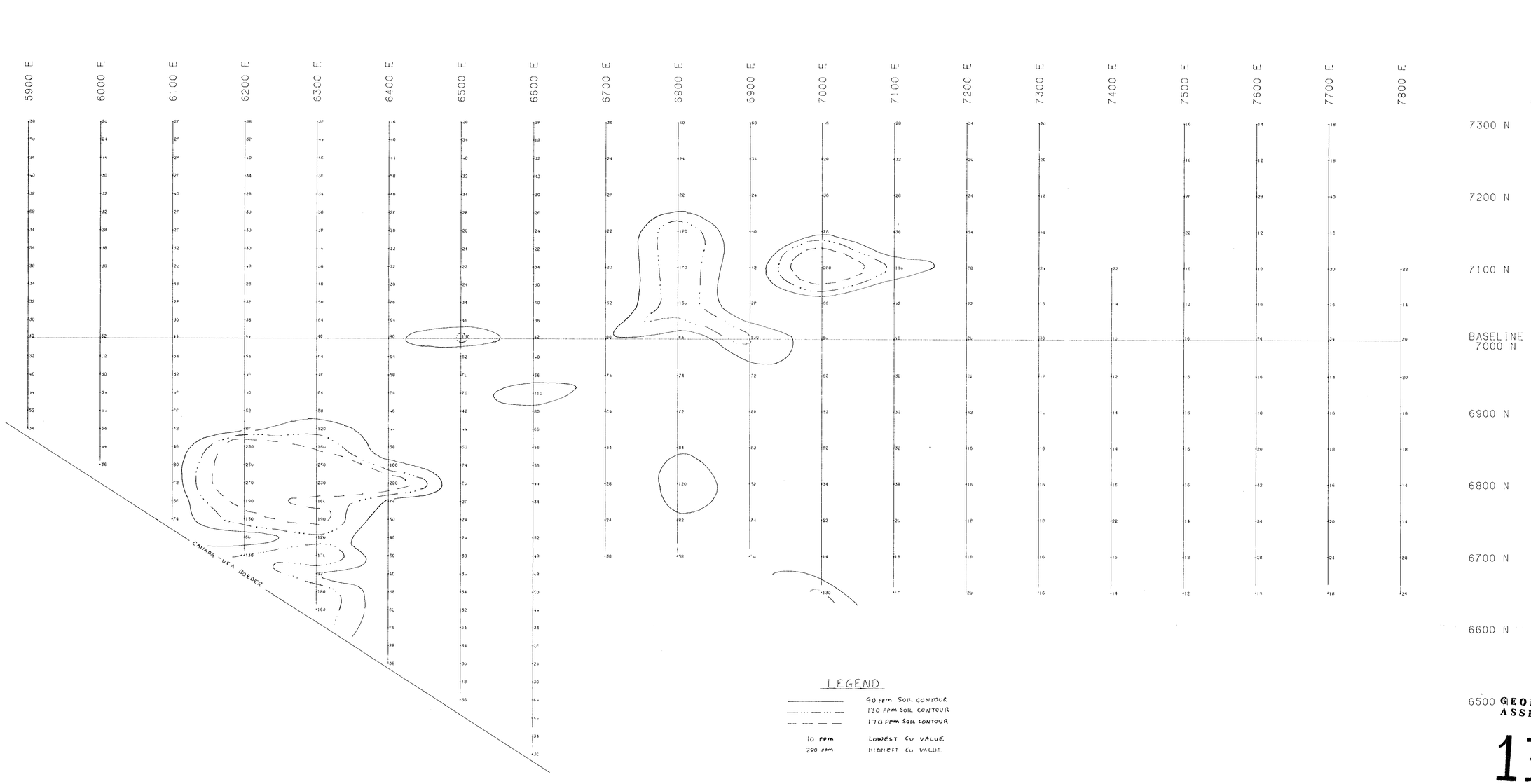
GEOLOGICAL BRANCH
ASSESSMENT REPORT

13,913

SCALE
1:2500

Metres 50 0 50 100 150 200 250 Metres

REVISED	GREENWOOD
	SAPPHO GEOLOGY
PROJ. No. 1-15	SURVEY BY: R.A. & D.G.G. DATE: Sept./85
N.T.S. 82E/2	DRAWN BY: [illegible] SCALE: 1:2500
DWG. No. 2	NORANDA EXPLORATION
	OFFICE: Vancouver



LEGEND

———	90 ppm SOIL CONTOUR
—·—·—	130 ppm SOIL CONTOUR
— — —	170 ppm SOIL CONTOUR
10 ppm	LOWEST CU VALUE
280 ppm	HIGHEST CU VALUE

119° 42'
49° 00' 06"

GEOLOGICAL BRANCH
ASSESSMENT REPORT

13,913

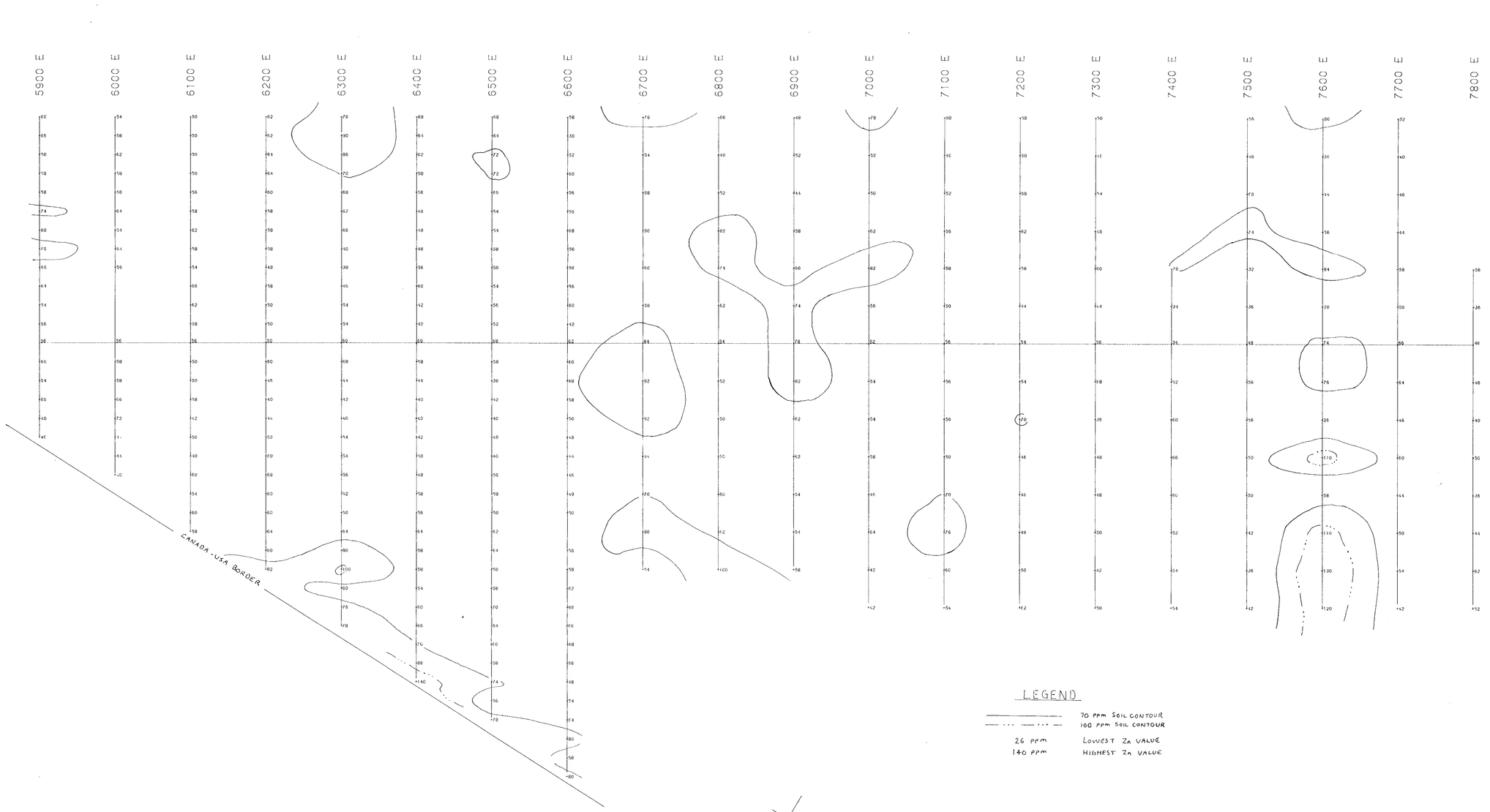
GREENWOOD SAPPHO GRID 1985

SOIL GEOCHEMISTRY
CU IN PPM.

PROJ. NO. 850415
N.T.S. 082E02
DWG. NO. 3

SURVEY BY: J.K.A. DATE: SEPT.5.1985
DRAWN BY: EDP/VAN SCALE: 1:2500

NORANDA EXPLORATION
OFFICE: VANCOUVER



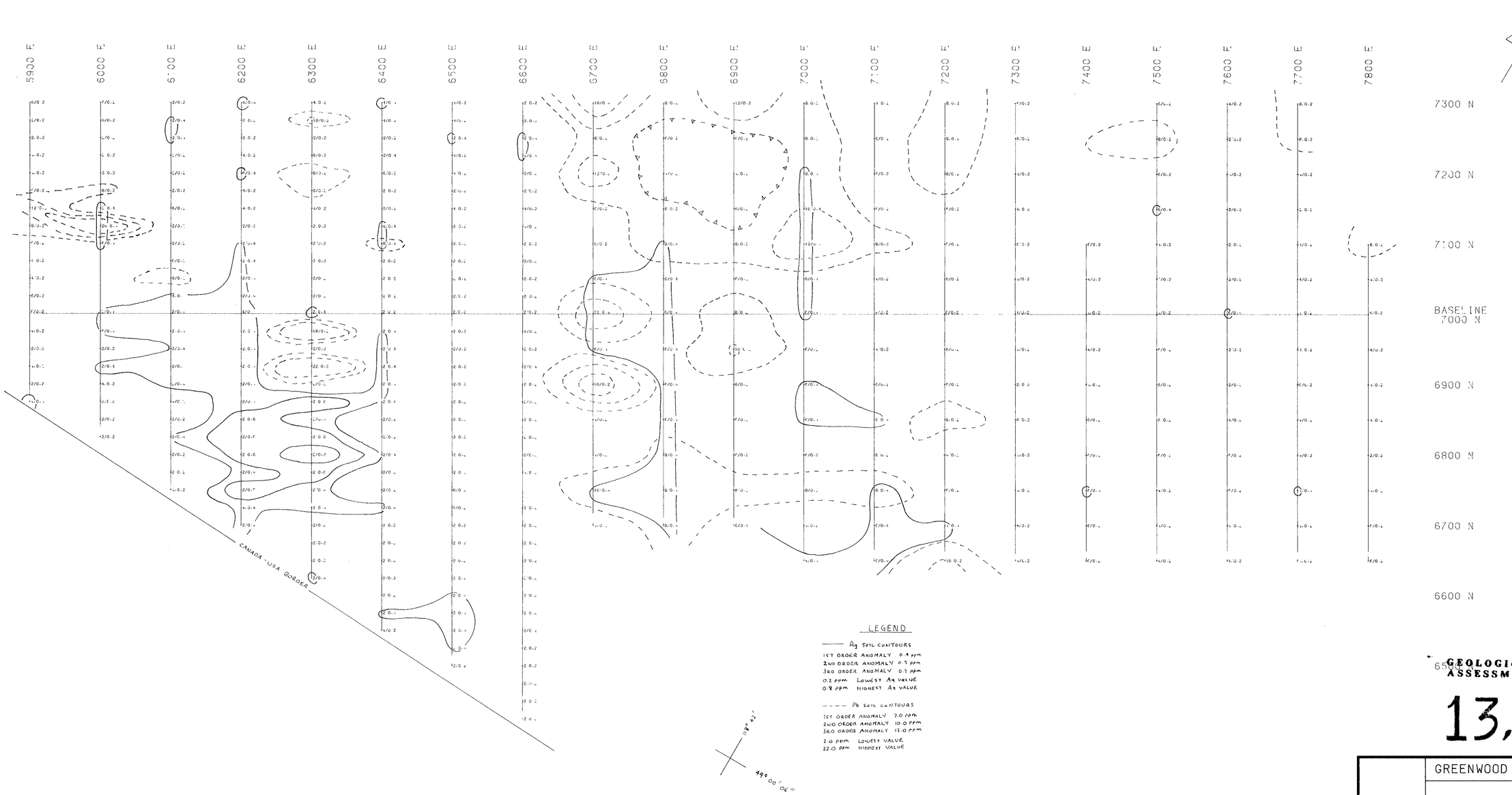
GREENWOOD SAPPHO GRID 1985

SOIL GEOCHEMISTRY
ZN IN PPM.

PROJ. NO. 850415
N.T.S. 082E02
DWG. NO. 4

SURVEY BY: J.K. DATE: SEPT. 4, 1985
DRAWN BY: EDP/VAN SCALE: 1:2500

NORANDA EXPLORATION
OFFICE: VANCOUVER



GEOLOGICAL BRANCH
ASSESSMENT REPORT

13,913

GREENWOOD SAPPHO GRID 1985

SOIL GEOCHEMISTRY
PB, AG IN PPM.

PROJ. NO. 850415
N.T.S. 082E02
DWG. NO. 5

SURVEY BY: J.K.S. DATE: SEPT. 5, 1985.
DRAWN BY: EDP/KAN SCALE: 1:2500

NORANDA EXPLORATION
OFFICE: VANCOUVER

5900 E | 6000 E | 6100 E | 6200 E | 6300 E | 6400 E | 6500 E | 6600 E | 6700 E | 6800 E | 6900 E | 7000 E | 7100 E | 7200 E | 7300 E | 7400 E | 7500 E | 7600 E | 7700 E | 7800 E

7300 N

7200 N

7100 N

BASELINE
7000 N

6900 N

6800 N

6700 N

6600 N

CANADA - USA BORDER

119° 42'

49° 00' 06"

GEOLOGICAL BRANCH
ASSESSMENT REPORT

13,913

GREENWOOD SAPPHO GRID

SOIL GEOCHEMISTRY
AS IN PPM. AU IN PPB.

PROJ. NO. 850415
N.T.S. 082E02
DWG. NO. 6

SURVEY BY: J.K. DATE: SEPT.4.1985.
DRAWN BY: EDF/VAN SCALE: 1:2500

NORANDA EXPLORATION
OFFICE: VANCOUVER