Robert's Copy
093G001

860426

PLACER DEVELOPMENT LIMITED

MEMORANDUM:

TO: R. Shklanka/S.J. Tennant DATE: 13 December 1982

FROM: R. Pinsent FILE: 93G/16E

RE: **NOOK Cu, Zn, (Ag) "MASSIVE SULPHIDE" PROSPECT**

Introduction:

The Nook property is a potential "Chu Chua-type" exhalative massive sulphide prospect in the Antler formation east of Prince George. The prospect is owned jointly by Vestor Explorations Ltd. and Comaplex Resources International Ltd.

Location and Access:

The Nook property, of approximately 150 units, is located on the east to southeast facing slope of an unnamed, wooded, knoll north Beaver Lake; a small pot-hole lake on Taspai Creek in N.T.S. area 93G/16E (Figure 1). The property is located approximately 45 km due east of Prince George and 5 km due south of Highway 16, which runs between Prince George and Edmonton.

The property is accessible from the main highway via a variety of logging and drill access roads.

History of Development:

The ground currently staked as the Nook Property was previously held by Noranda Exploration Co. Ltd. as their Loon and Fu-Hu property. Noranda originally staked the Loon claims to cover the source of an anomalous Cu rich, stream sediment sample. They conducted a preliminary soil survey on the Loon property in 1968 (assessment report 1633) and they followed up with an I.P. and Resistivity Survey in 1969 (assessment report 1952). The Company expanded the area of interest to include the surrounding Fu-Hu claims in 1970 and conducted further geochemical and ground geophysical (VLF-EM, I.P. and Resistivity) surveys (assessment report 2615). Noranda evidently drilled a weak I.P. anomaly in search of "porphyry copper-type" mineralization but the results of the programme were not filed for assessment purposes. The claims were allowed to lapse.

1600 - 1055 Dunsmuir Street, Vancouver, B.C. (604) 682-7082 Telex 04-55181
Mailing Address: P.O. Box 49330, Bentall Postal Station, Vancouver, B.C., Canada V7X 1P1

Vestor Explorations Ltd. staked the Nook claims in 1979 following a regional stream sediment sampling programme. The Company holds a half interest in the property which is held in conjunction with Comaplex Resources International Ltd. The Joint Venture partners optioned the property, along with a number of other exploration targets, to Campbell Resources Inc. in 1980.

Campbell Resources Inc. conducted a major exploration programme on the Nook property in 1980. They conducted a preliminary Max-Min II EM survey in February of 1980 prior to flying the property with Apex Airborne EM 33 and Magnetometer system at the end of March. They cut a major grid on the property in April and conducted ground geophysical (Max Min II EM and VLF EM) geological and geochemical surveys in May and June. The Company then commenced a seven hole diamond drill programme at the end of May; prior to completion of the ground evaluation. The drill targets were chosen largely on the basis of the airborne geophysical survey and they gave essentially negative results. Most of the geophysical targets appeared to be caused by inter-formational contacts and/or graphitic horizons in argillaceous sediments. The property reverted to the Joint Venture partners in 1981.

Questor Surveys Ltd. conducted an Airborne EM survey over the Nook property, on behalf of the owners, in 1982 and the soil grid has been extended up the hill towards the west to include a series of moderate EM anomalies identified by the Questor survey. The geophysical anomalies do not appear to have a coincident geochemical response.

Regional Geology

The Nook property, as mapped, is underlain by the Antler formation of the Mississipian to younger Slide Mountain Group, (MSM, Figure 2). This formation consists largely of grey and buff chert, argillite, basalt and related pyroclastic rocks (G.S.C. Map 41-1960, Figure 3). The Antler formation is considered to be roughly analogous to the Fennel Formation south of Clearwater, and it was this analogy which brought Vestor Exploration Ltd. into the Willow Creek area in search of massive sulphide deposits comparable with the Chu Chua deposit near Barrier Lake.

1600 - 1055 Dunsmuir Street, Vancouver, B.C. (604) 682-7082 Telex 04-55181
Mailing Address: P.O. Box 49330, Bentall Postal Station, Vancouver, B.C., Canada V7X 1P1

The Slide Mountain Group east of Prince George appears to be cut by a number of north-south, northwest-southeast and northeast-southwest trending faults (figures 2 and 3). These appear to have down-dropped blocks of Upper Triassic to Lower Jurassic, Takla Group, andesite, basalt, tuff, breccia, conglomerate greywacke, shale and limestone (TJT; Figure 2) within the Slide Mountain Group. According to the regional map, (Figure 3), the east end of the Nook property may be underlain by Takla Group strata in fault contact with the Antler Formation.

Property Geology:

Campbell Resources Inc. mapped the Nook property at a scale of 1:2,500 in 1980. They recognized three cycles of volcanism in a rock package which strikes approximately north-south and dips towards the west.

The first volcanic cycle, which contains the I.P. anomaly drilled by Noranda, is poorly exposed and imperfectly known. The stratigraphic top includes rhyolite tuff, felsic agglomerate and siliceous sediment. The cycle is overlain by a sedimentary unit which includes a variety of massive sandstones and siltstones with occasional interbeds of graphitic argillite, limestone and calcareous siltstone.

The second volcanic cycle is considered to be thrust eastward over the sedimentary package. It consists of a thick lower unit comprised of andesitic to dacitic flows and tuffs and a narrow upper unit (visible in one outcrop) comprised of rhyolitic agglomerate.

The third volcanic cycle, identified in the southwest corner of the property, appears to consist of a lower unit of subaerial andesitic rocks and an upper unit of more acid flows and pyroclastics, including bedded volcanic chert. The top of this unit lies to the west of the area mapped.

The structure of the map area appears to be fairly simple, although Campbell Resources have identified two types of fault cutting the property (a) north-south thrusts and (b) northeast-south west normal faults.

1600 - 1055 Dunsmuir Street, Vancouver, B.C. (604) 682-7082 Telex 04-55181
Mailing Address: P.O. Box 49330, Bentall Postal Station, Vancouver, B.C., Canada V7X 1P1

Geophysics:

The initial Apex Airborne EM survey and the 1980 ground Max-Min II EM and VLF EM surveys over the eastern part of the property found many of the conductors previously identified by Noranda. Several are now recognized to be caused by inter-formational conductors and layers of graphitic argillite in the sedimentary unit at the top of the first volcanic cycle. The geophysical data appears to have been used in the construction of the geological map. Weak, north-south trending, VLF anomalies encountered by Noranda over the eastern half of the property have not been explained.

The Questor survey flown in 1982 clearly defined the thrust fault at the top of the sedimentary package and it encountered a broken anomaly (3a, 3b, 3c) immediately to the west of the existing grid. These anomalies, which may reflect the Noranda conductors, also remain untested. Questor encountered flight path control problems while conducting the survey and several key areas, including a significant geochemical anomaly, were not adequately covered by the survey.

Geochemistry:

Soil samples from the "B" horizon were collected at 25 m intervals on lines running west to east 100 m apart. The samples were subsequently analysed for Cu, Zn, and Ag and three geochemical anomalies were outlined.

Anomaly #1 is a linear (>100 ppm) Cu anomaly with some down hill dispersion which runs subparallel to the contact between the top of the sediment unit and the base of the second volcanic cycle. It is coincident with a series of subparallel moderate to weak HLEM geophysical anomalies, and it was partially tested by DDH N-80-3.

Anomaly #2 is a Cu (>100 ppm), Zn (>150 ppm) anomaly with considerable down slope dispersion. The anomaly appears to be derived from the andesitic rocks immediately above the thrust fault at the base of the second volcanic cycle. It was tested by DDHS N-80-1, N-80-2, and N-80-7.

Anomaly #3 is a Cu (>100 ppm), Zn (>150 ppm) and Ag (>1.0 ppm) anomaly located at the top of the second volcanic cycle. The anomaly terminates against a northeast-southwest trending cross fault in the north

1600 - 1055 Dunsmuir Street, Vancouver, B.C. (604) 682-7082 Telex 04-55181
Mailing Address: P.O. Box 49330, Bentall Postal Station, Vancouver, B.C., Canada V7X 1P1

and the Ag anomaly is recognized as being derived from spring water coming up the fault. The Cu and Zn anomalies show greater dispersion than the Ag anomaly. The anomalies remain untested. Significantly, they were not located above the fault.

Drilling

Most of the drilling carried out in 1980 was designed to test specific, strong, geophysical conductors. Most of the conductors proved to be caused by graphite rather than sulphide.

The three holes drilled to test the #2 geochemical anomaly encountered a variety of deformed volcanic strata above the basal thrust and locally graphitic sediments below. The first hole, (N-80-1) collared near the fault, encountered a minor amount of secondary, fracture controlled, limonite and malachite in the volcanic part of the section. The second hole, (N-80-2) stepped back to the west, also encountered a minor amount of malachite. One 0.3 m section of rhyolite tuff was found to be crusted with malachite and it ran 3.58% Cu and 0.29% Zn. The third hole (N-80-7) was barren throughout.

Drill hole N-80-3 was collared in tuffs and sediments immediately below the base of the second volcanic cycle at the north end of the #1 geochemical anomaly. It did not encounter significant mineralization. Similarily, N-80-4 was collared within the sedimentary package and it encountered barren graphitic sediment.

Drill holes N-80-5 and N-80-6 were drilled to test the geophysical anomaly which marks the top of the first volcanic cycle. The first hole, collared in sediment, had to be abandoned before reaching the anomaly. The second, however, encountered a pyritic zone in the felsic agglomerate at the contact. Despite poor recoveries, near the contact the first 1.0 m of pyritic felsic agglomerate was found to run 0.86% Cu and 0.10% Zn.

Discussion

The Nook property has been presented to Placer Development Limited as a target for possible Chu-Chua type "massive sulphide" mineralization in the Antler formation of the Slide Mountain Group east of Prince George. The property was evidently given a comprehensive, if not exhaustive, examination by Campbell Resoures Inc. in 1980 and the data show that the property encompasses three principal geochemical anomalies and several geophysical anomalies.

The lithologic assemblage observed on the property, as described by Campbell Resources, is distinctly anomalous for the Antler Formation and there is a possibility that all or part of the succession belongs to either the Takla Group or alternatively to the Proterozoic, Hadrynian, Kaza Group (equivalent to the Eagle Bay Formation), which is known to underlie the Slide Mountain Group (HK, Figure 2).

The drill programme conducted by Campbell Resources has shown that the strongest geophysical anomalies tested are caused by graphitic horizons in a sedimentary unit which is apparently located between two cycles of volcanism. There is evidence for Cu, Zn mineralization at the base of the sedimentary package, in a felsic agglomerate, but there is no coincident geochemical response and the extent of the mineralization is not known. There is nothing to suggest an economic deposit.

The #2 geochemical anomaly (Cu, Zn) is located above a unit of fractured volcanic rock immediately above the shallow (west) dipping thrust fault which marks the top of the sedimentary package. Weak, fracture controlled, secondary, mineralization in the volcanic unit occurs within the top 20 m of the land surface and the anomaly has been attributed to mineralization in a near-surface environment caused by ground water moving to surface along the plane of the interface between the permeable volcanic strata and the impermeable argillites. The same argument can be applied to the northern geochemical anomaly (#1; Cu). A drill hole collared in the sediment failed to account for the anomaly which is probably derived from factured volcanic rocks above the interface further up hill. This has not, however, been demonstrated.

The third geochemical anomaly (#3, Cu, Zn, Ag) has implicitely been attributed to two sources by Campbell Resources. The Ag content is recognized to be derived from a spring which is controlled by a discordant cross fault. This displays a pronounced, topographically controlled, down-hill dispersion train which is superimposed on a broader Cu, Zn anomaly. The later is attributed to in-situ mineralization of an acid volcanic unit at the top of the second volcanic cycle. In outcrop this appears to be represented by one outcrop of rhyolite

1600 - 1055 Dunsmuir Street, Vancouver, B.C. (604) 682-7082 Telex 04-55181
Mailing Address: P.O. Box 49330, Bentall Postal Station, Vancouver, B.C., Canada V7X 1P1

agglomerate. The Cu, Zn anomaly is discordant to stratigraphy and contains at least an element of downhill dispersion. The anomaly may be caused by either Cu (+minor Zn, Ag) mineralization at the top of the acid volcanic unit or by mineralizing springs which come to surface along a 150 m length of contour at the top of the acid volcanic unit. Either way, the potential, although untested, appears to be limited.

The suggestion that the anomalies are tranported does not, in itself, deny the eistence of a "massive sulphide" deposit on the Nook property. The EM conductors, identified by the Questor Survey to the west of the main grid are potential up-slope targets. They do not, however, display an associated surface goechemical anomaly.

The conclusion is that the property is underlain by suitable rocks capable of hosting a massive sulphide deposit and that these rocks are cut by two sets of faults; both of which appear to have acted as channels for fluids carrying anomalous Cu, Zn and Ag. The source of the mineralization remains unknown.

The only options available are (1) to drill out from the mineralization at the top of the first volcanic cycle (2) define by geophysics and then drill the Cu, Zn anomaly at the top of the second volcanic cycle and (3) to define by ground geophysics and then drill the Questor anomalies located up the hill to the west. These options are not rated very highly as (a) the first option requires blind drilling without either geochemical or discernable geophysical support; (b) the second option (to test the #3 geochemical anomaly) looks suspiciously like testing a downhill dispersion anomaly associated with a known fault controlled spring system and (c) the third option is to drill the Questor anomalies which are not supported by the geochemical anomalies.

Recommendations

I would not recommend that Placer Development Ltd. option the Nook property at this time. If the owners are able to find further encouragement on the property we should be prepared to review the data.

RHP

R.H. Pinsent

RHP/cs

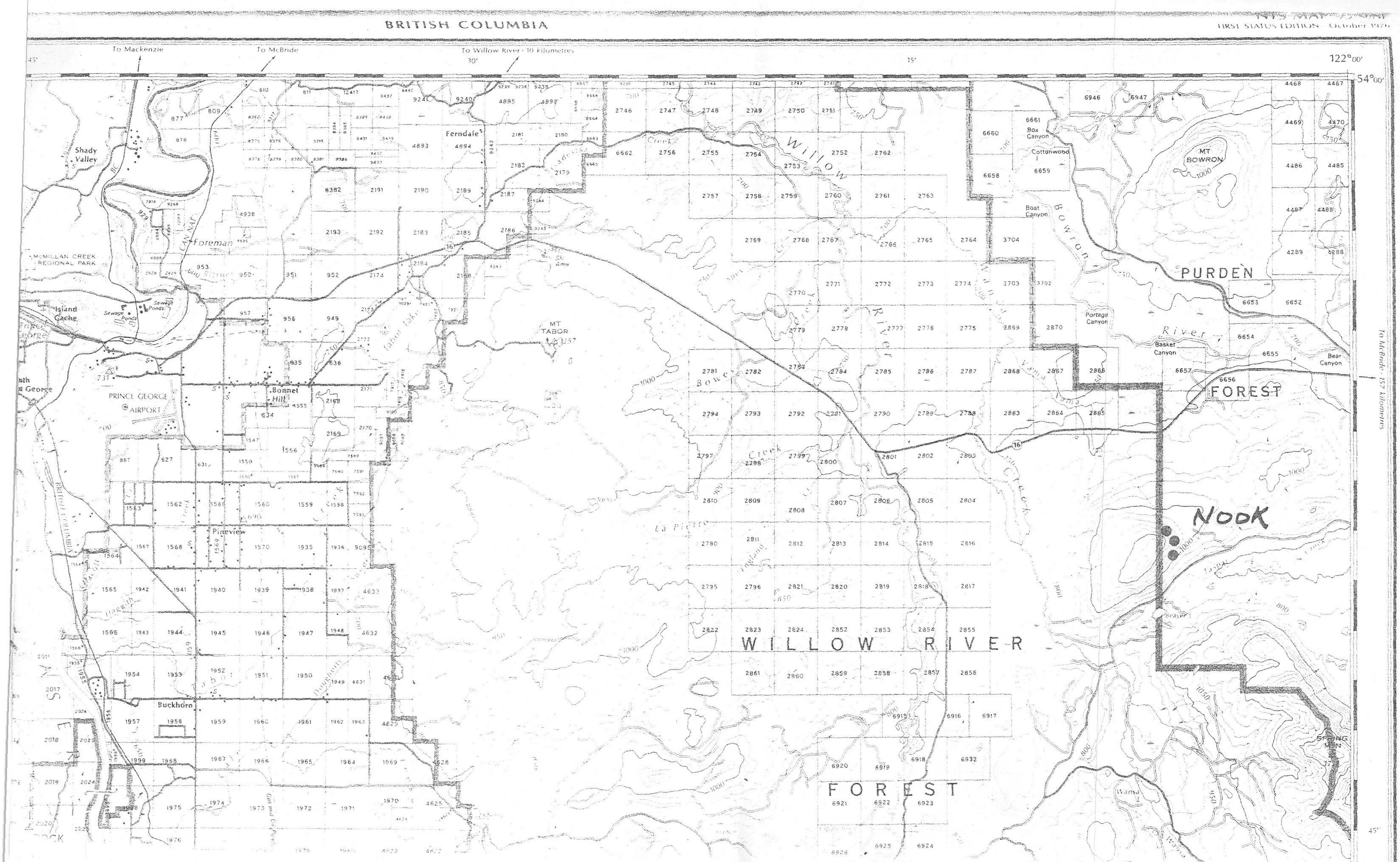


FIGURE I 1:125,000

NOOK PROPERTY

FIGURE 2

LEGEND

CENOZOIC

QUATERNARY

PLEISTOCENE AND RECENT

| 14 | Till, gravel, sand, clay, and silt |

TERTIARY

MIOCENE AND/OR LATER

ENDAKO GROUP

| 13 | Basalt, andesite, related tuff and breccia |

MIOCENE (?)

| 12 | Conglomerate, sandstone, mudstone, lignite, and diatomite |

PALEOCENE (?) TO OLIGOCENE

| 11 | Andesite, basalt, breccia, and tuff; 11a, minor sediments |

| 10 | Rhyolite, dacite, trachyte, related tuff and breccia; minor sediments |

| 9 | Andesite, basalt, breccia, and tuff; minor rhyolite |

MESOZOIC

JURASSIC

MIDDLE JURASSIC

HAZELTON GROUP (in part)

| 8 | Green to dark grey andesite and basalt, related pyroclastic rocks, chert-pebble conglomerate, argillite, and greywacke |

LOWER JURASSIC AND (?) LATER

| 7 | 7A. TOPLEY INTRUSIONS: granodiorite, quartz diorite, diorite, biotite granite
7B. Quartz monzonite, monzonite, and granite; minor diorite
7C. Granodiorite, diorite, granite, minor gabbro |

TRIASSIC AND JURASSIC

UPPER TRIASSIC (?) AND LOWER JURASSIC (?)

| 6 | 6A. Eastern group: argillite, greywacke, green, grey, black, purple andesite and basalt and related tuffs and breccias; minor conglomerate and limestone
6B. Western group: chert-pebble conglomerate, red, brown, and black shale, greywacke; minor purple to green andesite |

TRIASSIC

POST-PERMIAN, PRE-UPPER TRIASSIC (?)

| 5 | Serpentinized peridotite, serpentinite |

PALAEOZOIC

PENNSYLVANIAN (?) AND PERMIAN

CACHE CREEK GROUP

| 3 \| 4 | 3. Black to dark grey ribbon chert, black argillite
4. Green to black basic volcanic rocks, grey limestone; minor argillite and chert; 4a, mainly grey limestone |

MISSISSIPPIAN (?)

SLIDE MOUNTAIN GROUP

| 2 | Grey and buff chert, argillite, basalt and related pyroclastic rocks; 2a, diabase |

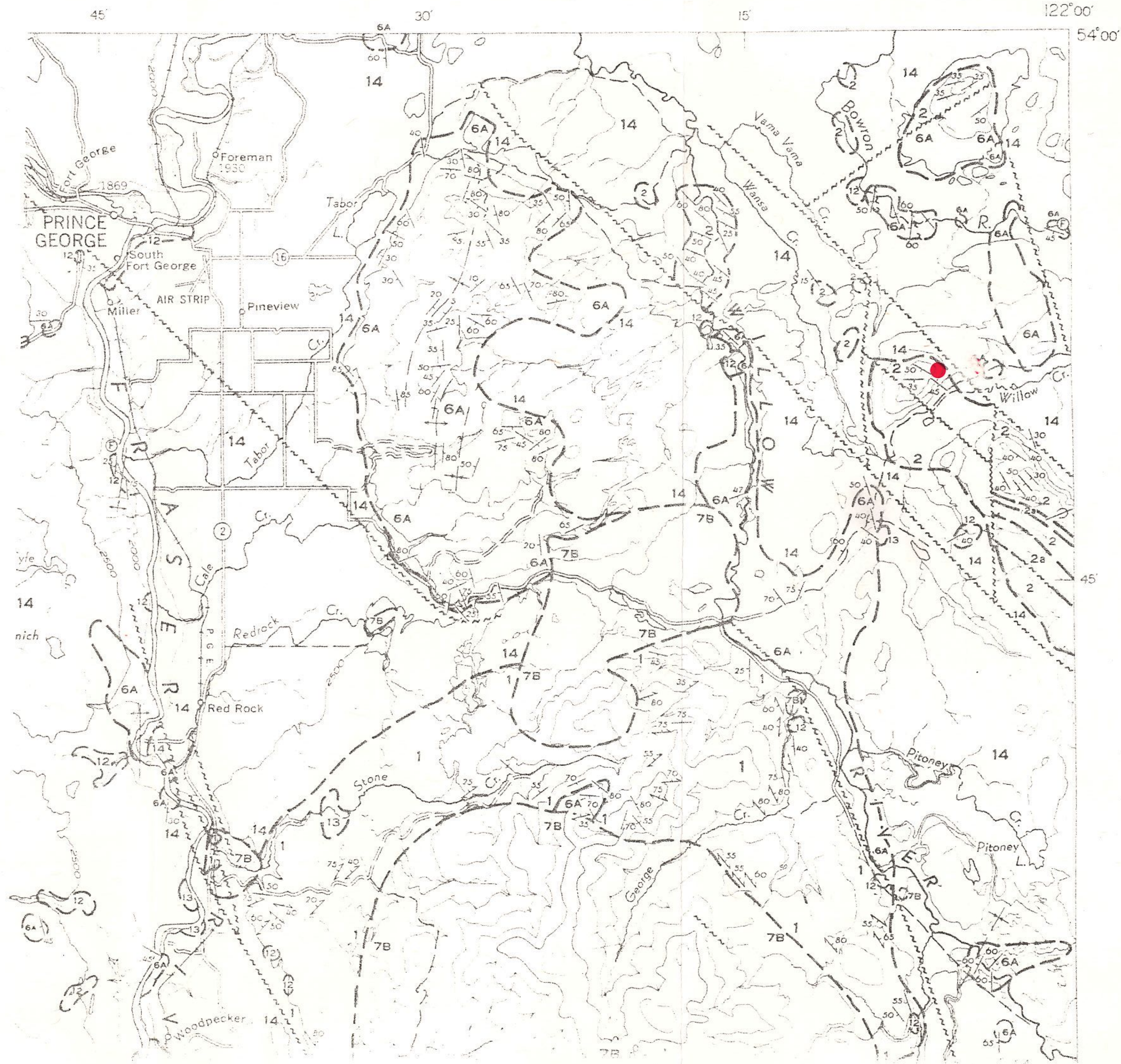
CAMBRIAN AND/OR LATER

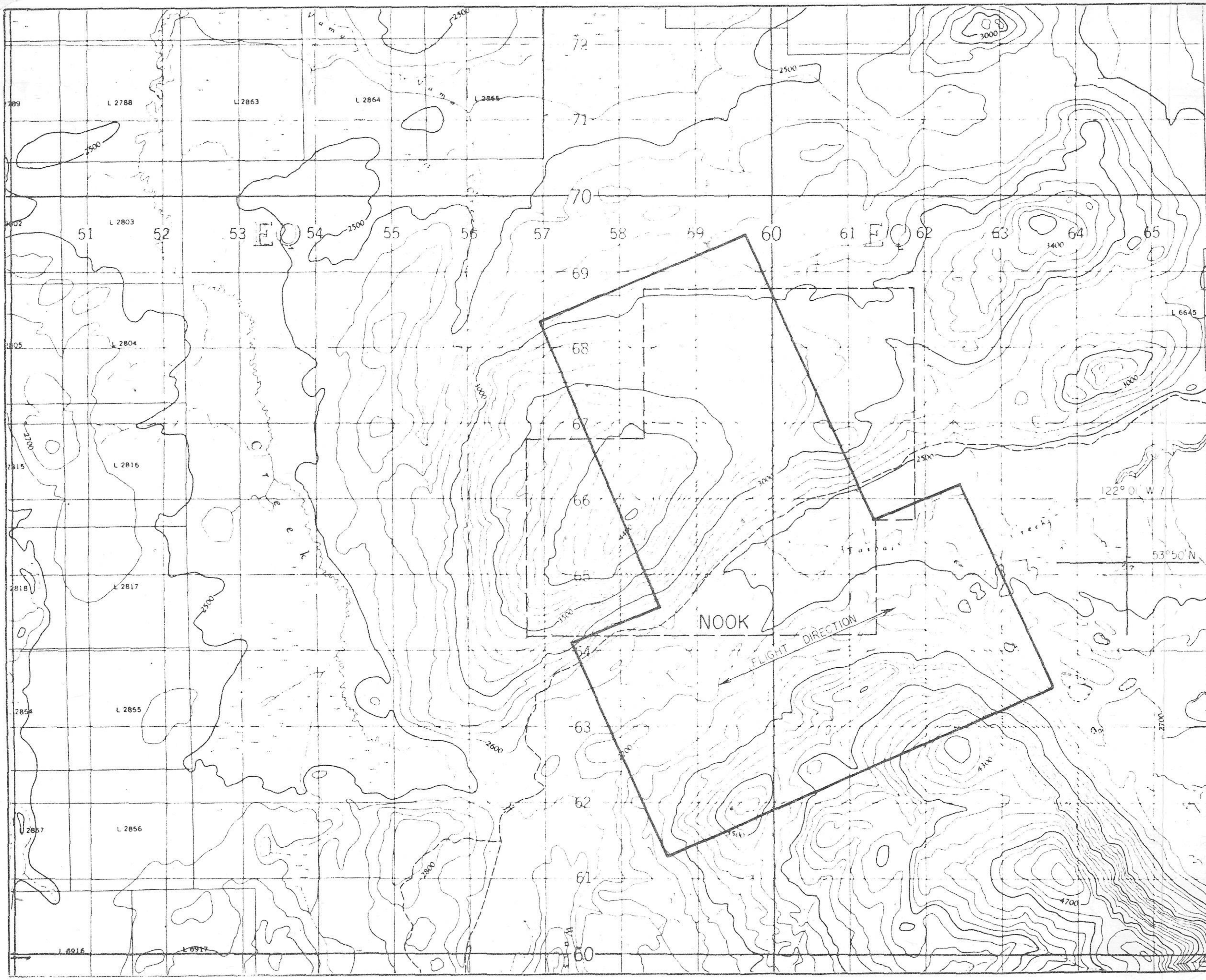
LOWER CAMBRIAN AND/OR LATER

CARIBOO GROUP

| 1 | Grey micaceous quartzite, black to dark grey phyllite and argillite; minor grey limestone |

ADVANCE EDITION SHEET 93 G





SURVEY & CLAIM LOCATION MAP

1 : 50,000

METRES 1000 500 0 1000 METRES

CONTOUR INTERVAL 100 FEET
DECLINATION 27°E.

NOOK PROJECT

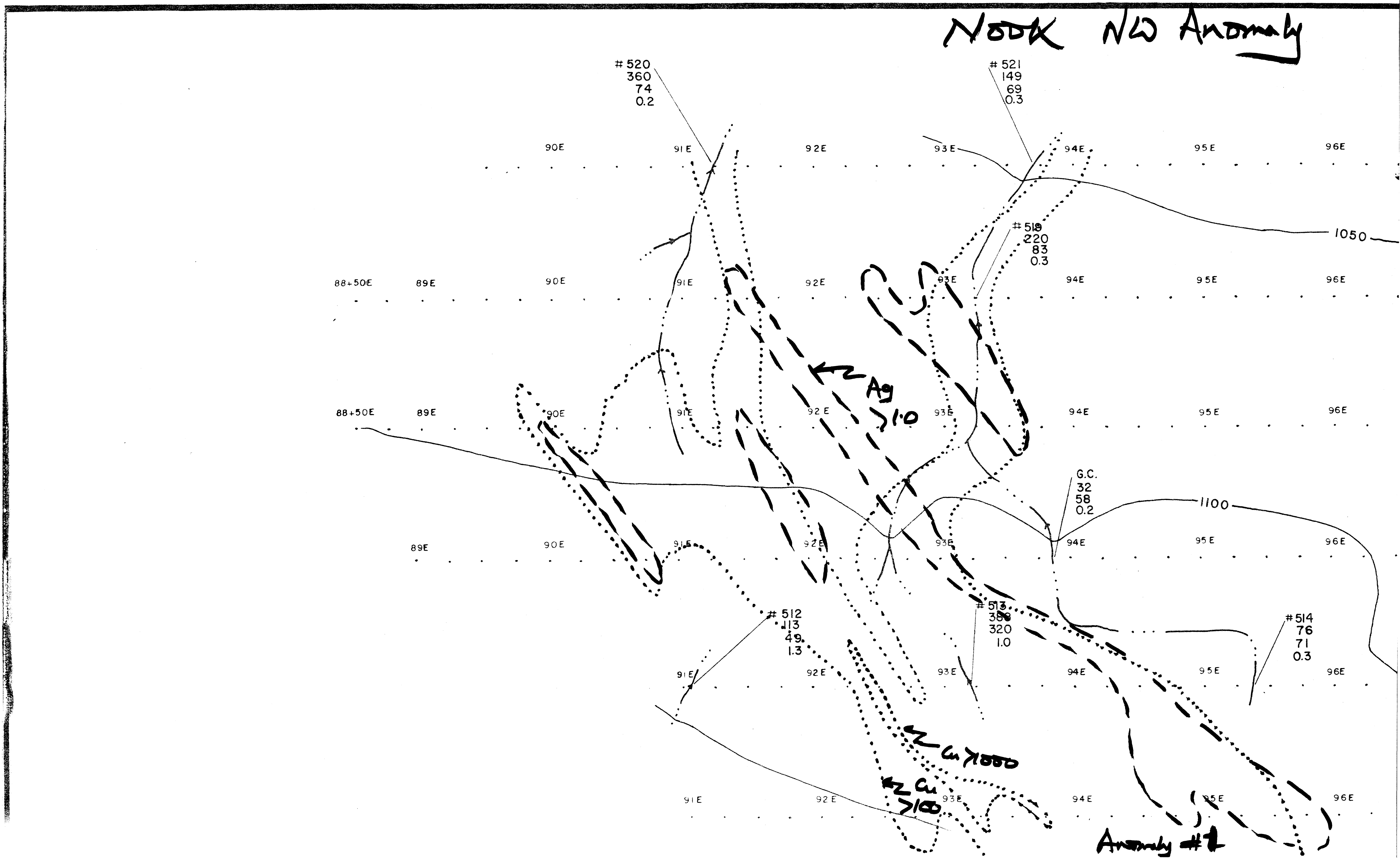
FIGURE 2B

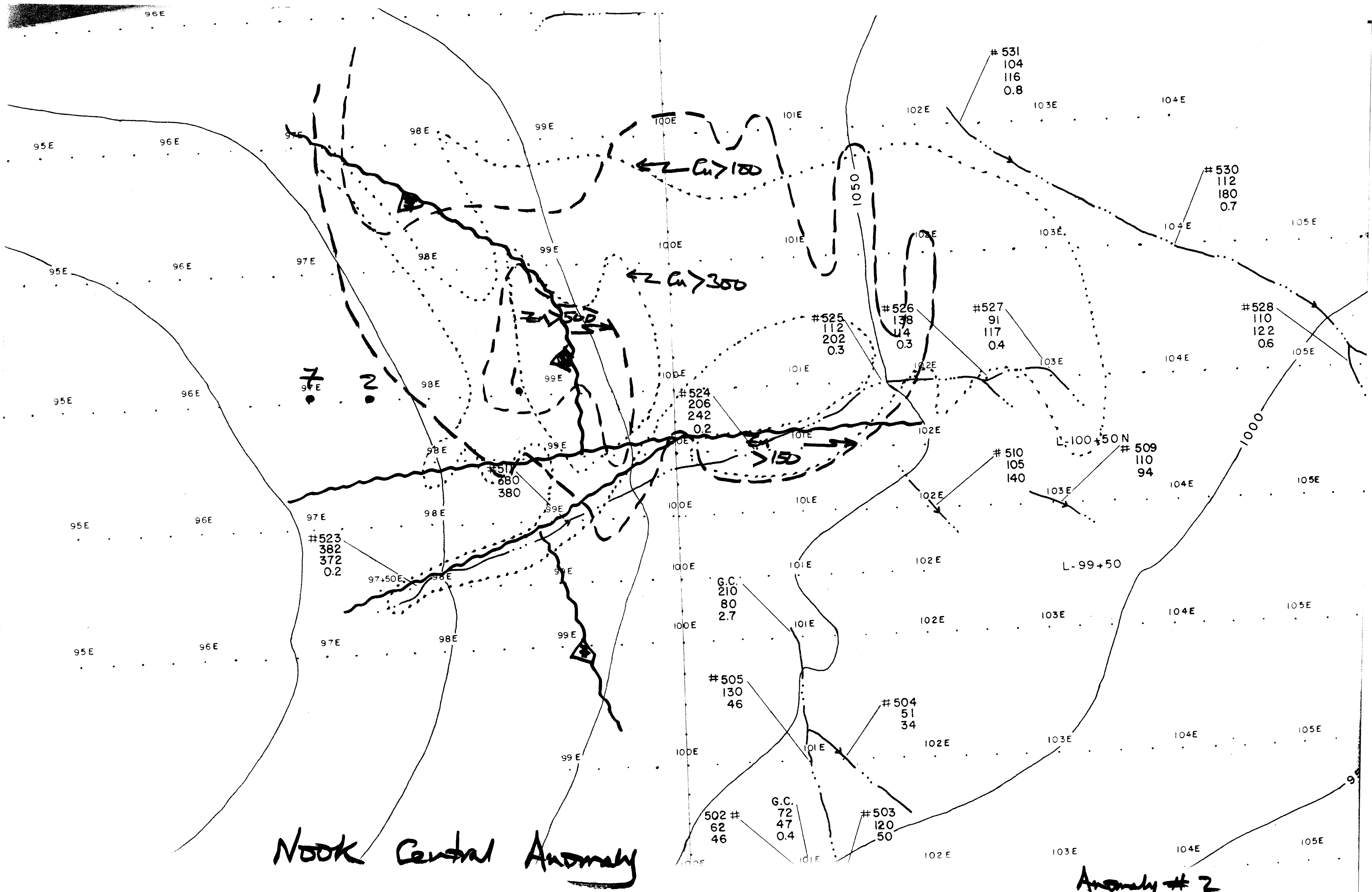
WANSA CREEK MAP SHEET

N.T.S. 93G/16E

PLAN No. 562/H80/F12

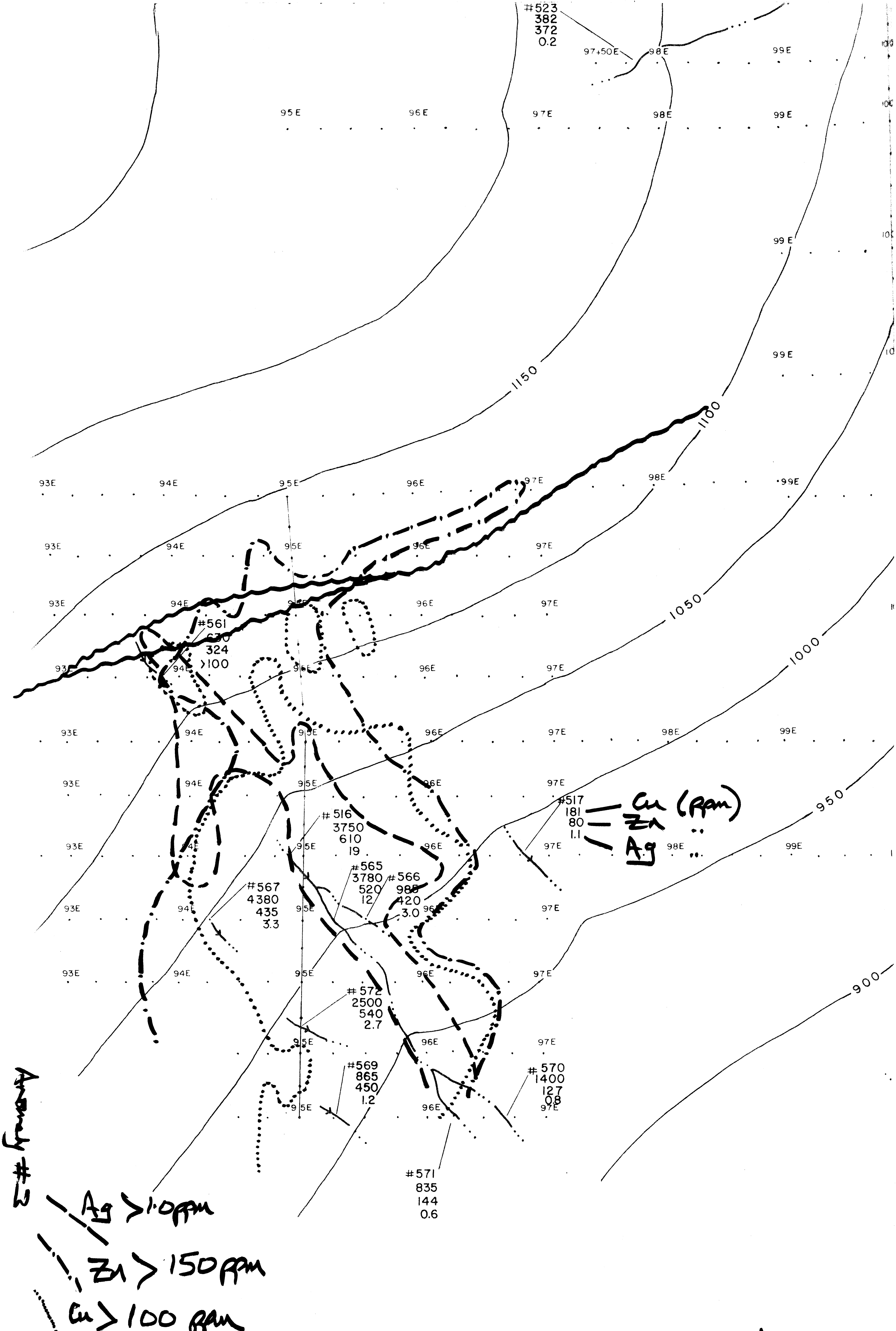
PRODUCED FROM NATIONAL N.T.S SERIES


Nook NW Anomaly
#520
360
74
0.2
#521
149
69
0.3
#519
220
83
0.3
G.C.
32
58
0.2
#512
113
49
1.3
#513
380
320
1.0
#514
76
71
0.3
1050
1100
Ag >1.0
Cu >1000
Cu >100
Anomaly #1
88+50E
89E
90E
91E
92E
93E
94E
95E
96E



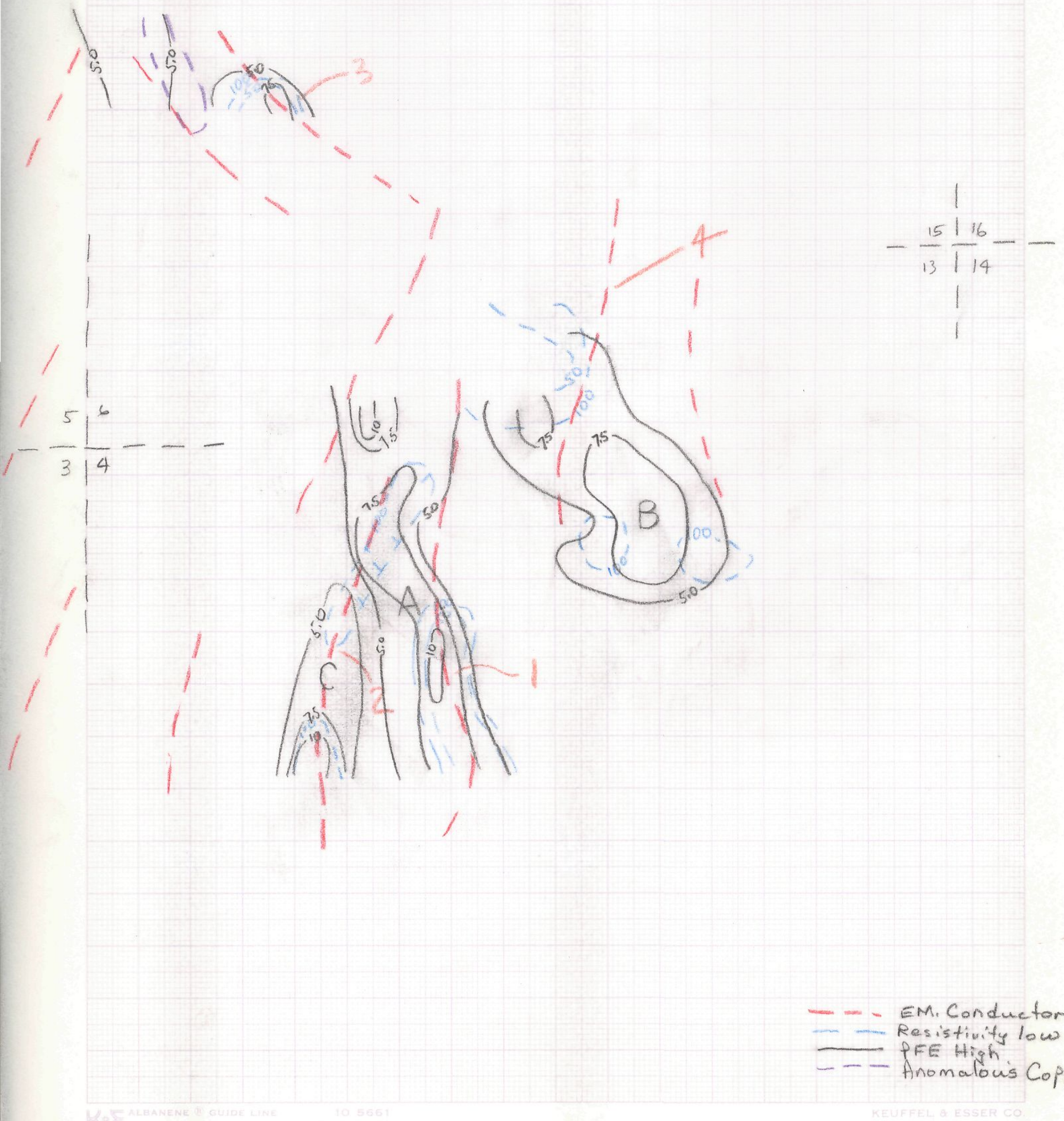
Nook Central Anomaly

Anomaly #2



Nook SW. Anomaly

Noranda G.P.&G.C.
Loon 1-16
Cariboo Mining Division



K+E ALBANENE ® GUIDE LINE 10 5661 MILLIMETERS KEUFFEL & ESSER CO. MADE IN U.S.A.

PLACER DEVELOPMENT LIMITED

December 16, 1982

Mr. J. Greig
Vestor Exploration Ltd.
166 - 10551 Shellbridge Way
Richmond, B.C.

Dear John:

I return your copy of the "Antler Project Summary Report" and the associated roll of maps which you left in our office for evaluation.

I have had an opportunity to review the data and I would certainly agree with you that you have an interesting property. The presence of three geochemical anomalies and an abundance of geophysical conductors suggests that there may be a significant source somewhere on the property. The question, of course, is where?

The exploration programme carried out by Campbell Resources Inc. appears to have been fairly comprehensive, although the company was obviously taken in, to a certain extent, by the presence of conductive graphitic argillites. I certainly accept their arguments for the secondary, transported, nature of the central geochemical anomaly and probably also for the northern anomaly. I am more interested in the southern anomaly which appears to have two components; a Cu, Zn component and a superimposed Ag component.

Although Placer Development Limited is not able to option the Nook property at this time, the company would be interested in taking a look at the southern anomaly sometime next summer, if that is convenient and the property is still available for option.

In the mean time thank you very much for submitting the data to Placer Development Ltd. I wish you well with the project and I would appreciate it if you would keep us in mind if there are any significant developments on the property.

I hope you have a happy Christmas and a prosperous New Year.

Yours truly,

PLACER DEVELOPMENT LIMITED

R.H. Pinsent

RHP/dd
Encl.

1600 - 1055 Dunsmuir Street, Vancouver, B.C. (604) 682-7082 Telex 04-55181
Mailing Address: P.O. Box 49330, Bentall Postal Station, Vancouver, B.C., Canada V7X 1P1