FLAG RESOURCES LTD.

REPORT ON THE GEOLOGY AND EXPOLORATION OF SELECTED CLAIMS AND RELATED PROPERTIES IN RATHBUN, SCADDING AND MACKELCAN TOWNSHIPS, SUDBURY MINING DISTRICT, ONTARIO

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INTRODUCTION

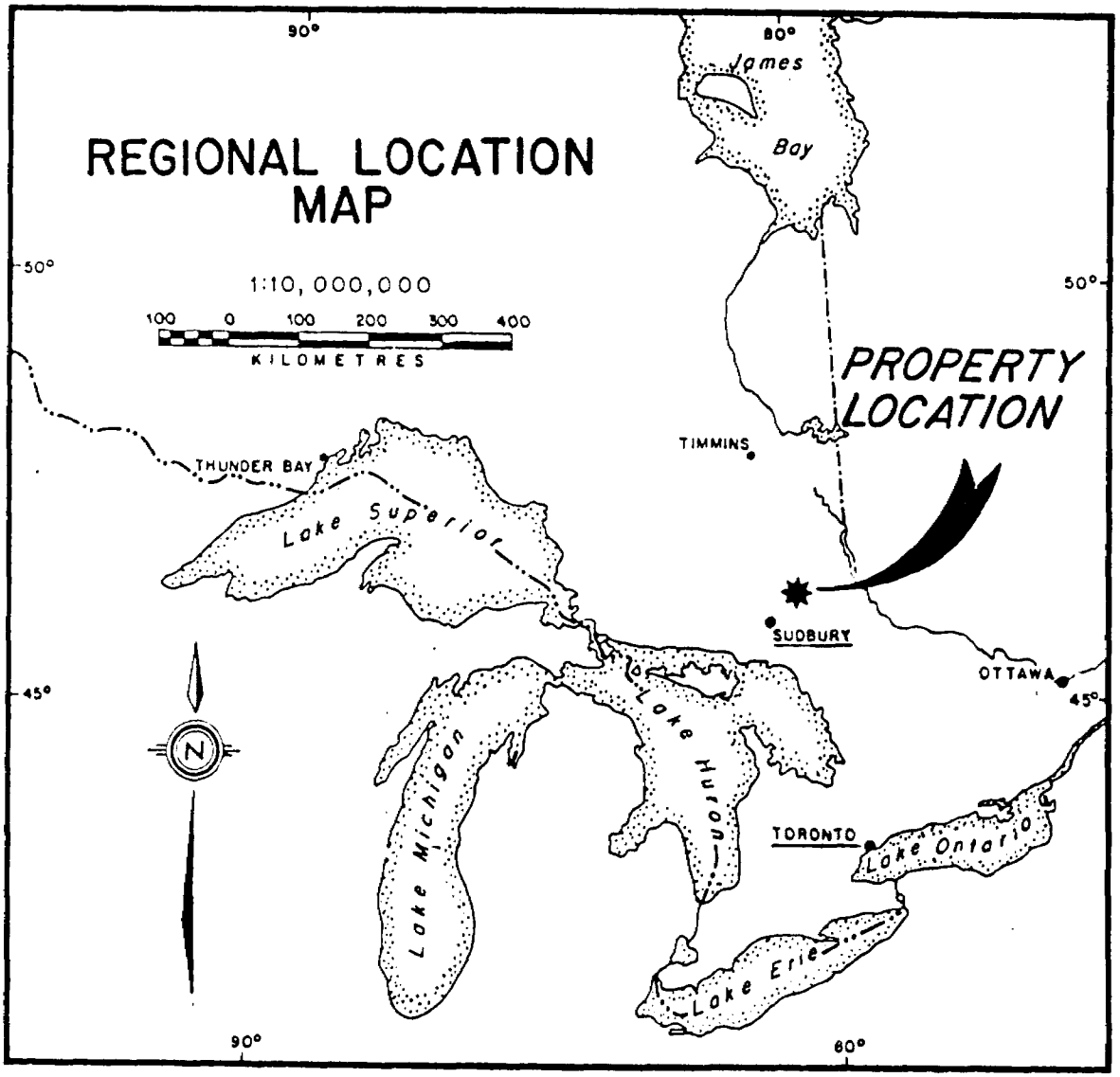
Location and Access

The Flag Resources claim group is comprised of 503 unpatented claims situated in Rathbun and Mackelcan Townships of the Sudbury Mining District. The claims may be accessed from Kukagami Lake Road which extends north from highway 17, 26 km east of Sudbury, Ontario. Claims not accessible by road can be reached by boat or float equipped aircraft. The aircraft may be chartered from Ramsey Lake Airways in Sudbury or from Loney's Sportsmans Lodge on Kukagami Lake.

Regional Geology

The Flag Resources claims are located in the Southern Structural Province which is dominated by Proterozoic rocks of the Huronian Supergroup. The Huronian Supergroup essentially consists of sequences of basinal platform sediments which have been interpreted to represent cyclical changes in climatic conditions (Roscoe, 1973). In the Flag claim group the Huronian Supergroup is represented by the Gowganda and Lorrain Formations. The Gowganda and Lorrain Formations have been intruded by Nipissing gabbro and Olivine gabbro of the Sudbury dyke swarm.

The Gowganda Formation is the oldest sequence of rocks outcropping in the Flag claim group. The Gowanda Formation is comprised of a heterogenous sequence of conglomerate, arkose, and greywacke. Massive to laminated greywackes predominate on the Flag claim group. The greywacke is generally green to greenish-grey, consisting of fine grained quartz and feldspar in a finer grained matrix of chlorite, epidote, opaques and rarely, carbonate. Where laminations occur, they are produced by quartz-feldspar layers alternating with thinner argillic beds rich in chlorite and mica (Dressler, 1982). Faceted dropstones


REGIONAL LOCATION MAP
1:10,000,000
100 0 100 200 300 400
KILOMETRES
PROPERTY LOCATION
90°
80°
James Bay
50°
50°
THUNDER BAY
Lake Superior
TIMMINS
SUDBURY
OTTAWA
45°
45°
N
Lake Michigan
Lake Huron
TORONTO
Lake Ontario
Lake Erie
90°
60°

composed of granitic or metavolcanic material are prevalent in the massive variety. These dropstones suggest a glacial origin for the Formation.

The Lorrain Formation quartzites and arkoses stratigraphically overlie the Gowganda Formation and predominate in the northern part of the claim area. Contacts between the two formations are usually sharp, however, a gradational contact with interlayered arkose and wacke was observed northeast of Thomas Lake. The Lorrain Formation consists of greyish-green arkose at its base and grades upwards into orthoquartzite. It is composed of 1.0-2.0 mm in diameter subrounded to subangular quartz and feldspar grains often rimmed by a fine sericote quartz and feldspar matrix. Opaques locally occur in the matrix and form fine beds which often accentuate sedimentary structures. Occassional discontinuous often lense-like paraconglomerate beds occur up to 1 metre thick.

The Gowganda and Lorrain Formations have been intruded by Nipissing dykes, sills and irregular shaped bodies. Whole Rock Rb/Sr age determinations have placed the age of the Nipissing intrusions at 2114±60 my and 2104±50 my by Fairbairn et al. (1969) and van Schmus (1965), respectively. Emplacement of the intrusions appears to have been controlled by pre-Nipissing structures and lithologic features (Dressler, 1982). In the Flag claim group it is evident that the less competent Gowganda Formation greywackes are more frequently intruded than the Lorrain Formation arkoses and quartzites. Over 95% of the Nipissing intrusions are composed of gabbro while the remainder consist of monzodiorite, quartz diorite, granodiorite and granite (Finn, 1981). Typically gabbro is equigranular with a uniform grain size of 1-3 mm. On the basis of mineralogy, colour, and texture it is possible to distinguish altered and unaltered types (Finn, 1981). Unaltered gabbro is greenish-brown; has a hypidiomorphic tecture and consists of two pyroxones and plagioclase (An 40-70)

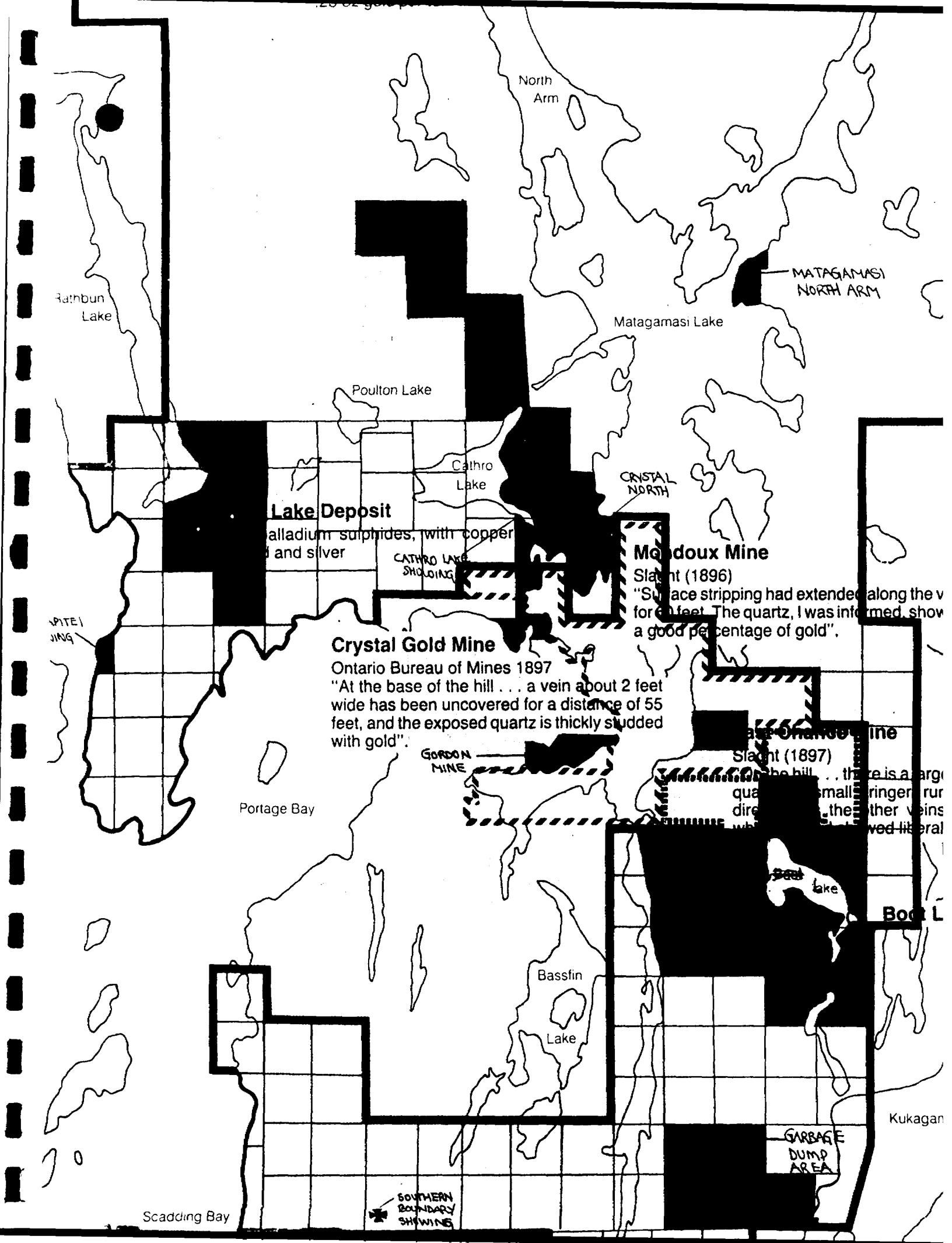
with minor quartz and pyrite. In contrast, altered gabbro is dark green; has an allotriomorphic texture and includes amphibole, plagioclase (An 10) and chlorite as major minerals.

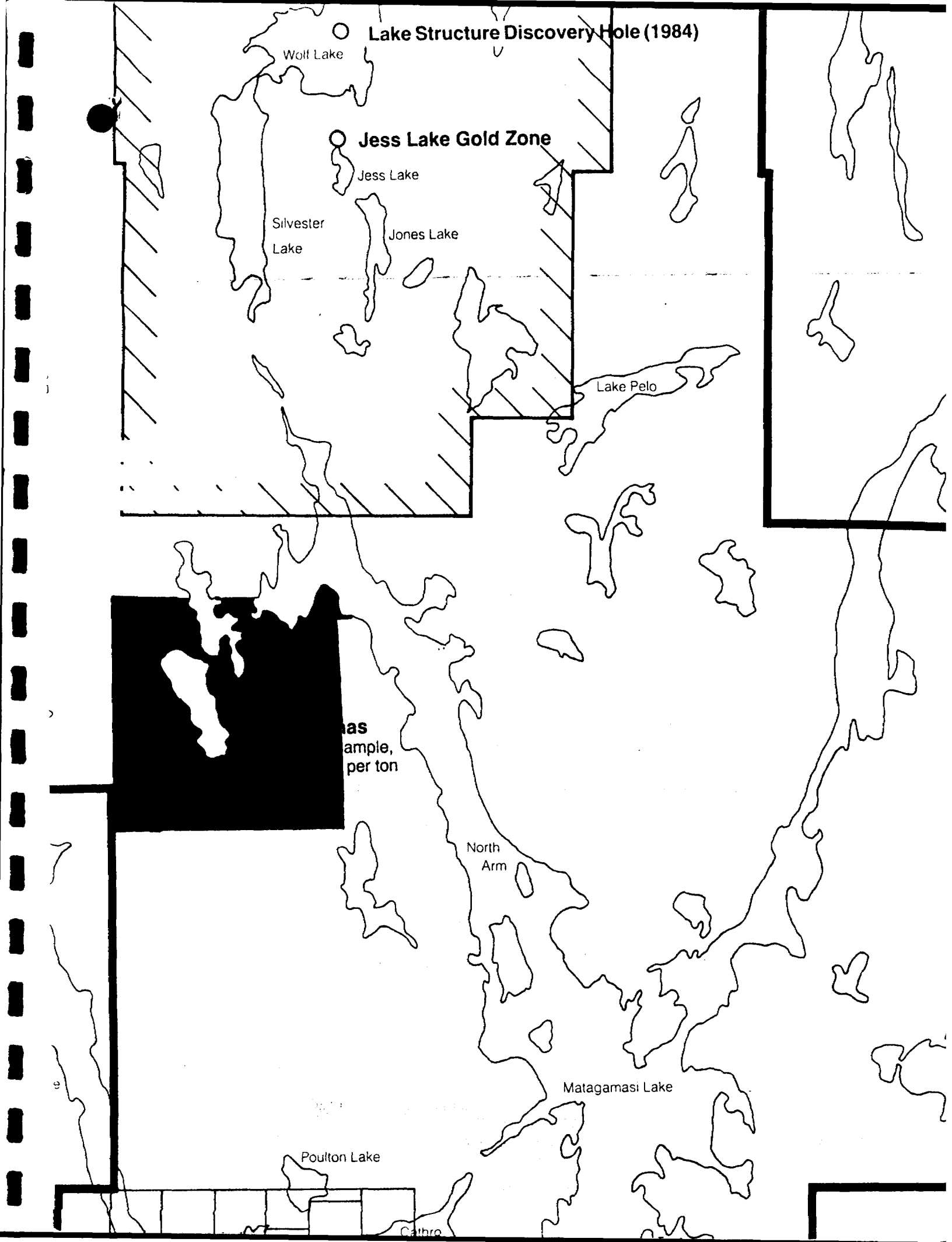
Sudbury-type breccias are common in the area surrounding the Sudbury Nickel Irruptive (Card, 1978). These breccias are somewhat of an enigma as they are composed of rounded clasts in a "swirly" flow banded matrix. The chemical compositions of the clasts and matrix are similar and, therefore, the milling process appears to have been in situ (Card, 1978). Dressler (1982) noted that the Sudbury breccias occur along stratigrphic contacts and in association with major faults. In the Flag claim area they are frequently found associated with faults as Dressler suggests. Because Sudbury breccias are associated with regional structures they are useful in indicating areas of potential mineralization.

The Flag claim group lies in an area of the Southern Structural Province characterized by flat lying, sedimentary rocks which have undergone lower to middle greenschist facies regional metamorphism (Card, 1978; Dressler, 1982). Despite the relative lack of deformation, the area has been extensively faulted. Subsequent to the emplacement of the Nipissing intrusions at least three major fault systems were activated in the map area along north-northwest and north-south trends (Finn, 1981). In several areas where alteration is pervasive these faults appear to have acted as conduits for the circulation of hydrothermal fluids (Finn, 1981).

The results of the present study indicate that the effects of faulting were more extensive than previously thought. Several new zones with intense shearing and/or brecciation have been found trending in the direction of regional structures. Within these zones are areas where metasomatism has altered the

composition of rocks to albite with minor ferroan dolomite, pyrite and quartz. It is these metasomatized areas that constitute the most favourable site for gold exploration.

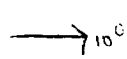
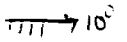

North Arm
Rathbun Lake
MATAGAMASI NORTH ARM
Matagamasi Lake
Poulton Lake
Cathro Lake
CRYSTAL NORTH
Lake Deposit
alladium sulphides, with copper
and silver
CATHRO LAKE SHOOING
Moodoux Mine
Slaght (1896)
"Surface stripping had extended along the v
for 6 feet. The quartz, I was informed, show
a good percentage of gold".
Crystal Gold Mine
Ontario Bureau of Mines 1897
"At the base of the hill . . . a vein about 2 feet
wide has been uncovered for a distance of 55
feet, and the exposed quartz is thickly studded
with gold".
GORDON MINE
Slaght (1897)
Portage Bay
Bassfin
Lake
Kukagan
GARBAGE DUMP AREA
SOUTHERN BOUNDARY SHOWING
Scadding Bay


Lake Structure Discovery Hole (1984)
Wolf Lake
Jess Lake Gold Zone
Jess Lake
Silvester Lake
Jones Lake
Lake Pelo
North Arm
Matagamasi Lake
Poulton Lake

MAP LEGEND

6	-	Sudbury olivine diabase	
5	-	Felsic Intrusives	
4	-	Mineralization,	4a: Pink albite metasomatite
			4b: Metasomatized laminated greywacke
			4c: Siliceous metasomatite
			4d: Chloritic ± pyrite ± quartz metasomatite breccia
3	-	Nipissing Gabbro,	3a: Unaltered
			3b: Altered
2	-	Lorrain Formation quartzite	
1	-	Gowganda Formation greywacke,	1a: Massive greywacke
			1b: Laminated greywacke
			1c: Arkosic greywacke
			1d: Cherty greywacke

SYMBOLS

	Bedding	▲	Sudbury breccia
	Quartz vein trend	△	Breccia (other than Sudbury breccia)
	Fractures and/or shearing		Swamp
	Lineation		Shaft
	Joints		Fault
	Cross beds	PT	Pseudotachylite
	Trench	G	Gossan
	Drill road	Py	Pyrite

SYMBOLS continued

— — —	Trail	Qtz	Quartz veining or sweats
— — — —	Claim line	Cpy	Chalcopyrite
————	Geological contact (confirmed)	Aspy	Arsenopyrite
—— ——	Geological contact (inferred)	CHL.	Chlorite
XXXXX	Beaver dam	Ab.	Albite
	Claim post (confirmed)	CARB	Carbonate
	Claim post (inferred)	Ep.	Epidote

BOOT LAKE

Location and Access

Boot Lake is located in Lots 2 to 5 inclusive and concessions II and III of Rathbun Township. The lake is accessed easily by walking along a cross country ski trail from a private road owned by Loney's Sportsman Lodge, which runs north from Kukagami Lake Road.

Previous Work

The following work is on file in the office of the Mining Recorder in Sudbury:

1) 1968 Kennco Explorations
   - Airborne E.M. and Radiometric surveys

2) 1982 Canadian Nickel Co. LTD.
   - Airborne E.M., magnetic and Radiometric survey

3) 1983 Canadian Nickel Co. LTD.
   - Geological mapping and assaying

The latter report by Canadian Nickel indicated that a magnetometer survey was carried out in 1982 but not filed for assessment. The survey delineated the general trend of the gabbro dykes. In addition, approximately 25 trenches were dug by Flag Resources in May 1985 and seven diamond drill holes were completed before our reconnaissance mapping was complete. The best assay from the drilling was 0.03 oz/ton Au. Copper is locally abundant in the area but copper assays from the drilling were not known to the writers.

Work Performed and Purpose

The purpose of mapping the Boot Lake area was to gain a better understanding of the geology and attitude of mineralized breccias discovered by A.E. Jerome Jr. in the fall of 1984. One week was spent mapping geology from a

baseline marked over an existing Canadian Nickel cut line. Lines were mapped running north and south from the baseline at 100 metre intervals. In addition, the baseline was extended to the McLaren Creek fault and geology mapped along the baseline and shoreline of the creek. Geology was also mapped along the Boot Lake shoreline and from east-west trending lines from Boot Lake.

Local Geology

The local geology of the Boot Lake area is comprised of six different lithologies: Gowganda Formation greywackes, Nipissing gabbro, Sudbury olivine diabase, Sudbury breccia, tan coloured albitite mineralization, and pyritiferous chloritic mineralized breccias. The Gowganda Formation greywackes are subdivided into massive, laminated and arkosic wacke units.

The country rock at Boot Lake is dominated by northeast striking greywacke which dips gently to the northwest. A large Nipissing gabbro dyke intrudes the greywacke to the west with two satellite dykes located south of Boot Lake. The Nipissing gabbro is rarely altered. Both greywacke and gabbro are subsequently intruded by an 80 metre wide northwest trending Sudbury olivine diabase dyke. The latter dykes are distinguishable from Nipissing by their high magnetite content and brown coloured weathered surfaces.

Two types of mineralization occur at Boot Lake. The first type is situated west of Boot Lake and trends northeast across the lake. The mineralization is composed of tan coloured Na-metasomatized greywacke which is locally brecciated and/or fractured and sheared. Fractures frequently trend in the same direction as the alteration. The alteration zone occurs as wide as 350 metres locally but contains large inclusions of unaltered and less altered greywacke. Sulphides occur erratically, an old trench situated on the west shore of Boot Lake has up to 20% sulphide consisting of predominantly pyrite with minor arsenopyrite. The

Second type of mineralization occurs erratically south of Boot Lake and is difficult to trace due to the presence of a large swamp. The mineralization is composed of brecciated and sheared greywacke with chlorite, milky white quartz, sulphide and less intense Na-metasomatism. Tourmaline is also locally present. Sulphides are dominated by pyrite, however, chalcopyrite and arsenopyrite are locally abundant. Arsenopyrite was massive along a shear in the easternmost trench. Fractures and shears are pervasive in the second type of mineralization and trend in all directions. The most common fracture direction, however, was northwest trending up the large swamp into Boot Lake.

Sudbury breccia is a common occurrence at Boot Lake. Sudbury breccia is found in the 4b type mineralization west of Boot Lake but not in the 4d type south of the lake. Sudbury breccia was, however, frequently observed south and west of the mineralization south of Boot Lake, trending in a north-south direction. Sudbury breccia was also not observed in Nipissing gabbro or Sudbury olivine diabase. However, an outcrop of Gowganda Formation greywacke adjacent to Nipissing gabbro was brecciated and contained gabbro clasts. Consequently, Sudbury breccia must occur in Nipissing diabase indicating a sin to post gabbro genesis.

Results and Recommendations

Thirty-nine samples were collected and sent for analysis from Boot Lake. Six samples were sent to Chemex Lab in Vancouver, B.C. for a 24 element quantitative I.C.P. analysis, Au, Pt and Pd. The remaining 35 samples were sent to a lab in Sudbury owned by Erana Mines LTD. These samples were run for Au and Cu determinations. The Au analyses were disappointing with values only as high as 0.022 oz/ton. Most samples, however, carried anomalous gold values. Platinum and palladium values were also low, but indicated slight enrichment of

up to 50 and 35 ppb respectively. Copper was found up to 5.8% but was usually less than 0.1%. The 5.8% value was returned from a purposely high-graded grab sample from the westernmost trench. The I.C.P. analysis failed to indicate economically significant elemental enrichment. Minor anomalies were indicated in Cu, V, Mn, Fe, Ni, Co, P and Na. The iron anomaly is due to pyrite. The other anomalous elements were consistent with anomalies observed on other properties in the area. The Na and K values were consistent with Crystal North and Wolf Lake, indicating a Na enrichment and corresponding depletion in K. The pink and/or tan colour is clearly due to Na-metasomatism.

It is discouraging that better gold values were not achieved at Boot Lake since several gold indicators are present. Breccias and shears with pyrite, arsenopyrite, minor chalcopyrite, chlorite, and milky white quartz are commonly associated with gold mineralization. The Na:K ratio, however, may indicate that the temperature regime was too low for gold mineralization. Consequently, three low priority drill targets should be considered. The first target is the intersection of the two structures containing mineralization in the centre of Boot Lake. Gold mineralization is often situated at the intersection of faults. The second target is a vertical hole in the tan Na-metasomatized greywacke. Perhaps at depth the pressure and temperature regimes were more favourable for Au mineralization during the mineralizing event. The third target is the only ore grade grab sample taken, 0.022 oz/ton Au and 5.8% copper, situated in the westernmost trench. We suggest that more sampling be done before drilling, however. The final recommendation is that mapping be continued to extend the albitite alteration zone to the northeast and assess its potential for mineralization.

SAMPLE DESCRIPTIONS

Sample Number	Elements Assayed	Description
		BOOT LAKE
A	Au, Pt, Pd, I.C.P.	4d sheared with massive Aspy
B	Au, Pt, Pd, I.C.P.	4d breccia & qtz veins
C	Au, Pt, Pd, I.C.P.	4d breccia with py
D	Au, Pt, Pd, I.C.P.	4d breccia with py
E	Au, Pt, Pd, I.C.P.	4d breccia with py
F	Au, Pt, Pd, I.C.P.	4d breccia with py & cpy
RG-001	Au, Cu	4d breccia with minor py & malachite
RG-002	Au, Cu	4d breccia with hairline chlorite fractures
RG-003	Au, Cu	4d pink altered & gossanous
RG-004	Au, Cu	4d breccia with minor diss. py
RG-005	Au, Cu	4b breccia sheared with qtz & diss. py
RG-006	Au, Cu	4b breccia with qtz veins
RG-007	Au, Cu	4b sheared and gossanous
RG-008	Au, Cu	4b breccia chloritic with diss. py & Aspy
RG-009	Au, Cu	4d chloritic with carbonate & py
RG-010	Au, Cu	4d breccia sheared with 7% Aspy & 3% py

continued...

SAMPLE DESCRIPTIONS

Sample Number	Elements Assayed	Description
		BOOT LAKE
RG-011	Au, Cu	4d breccia chloritic with qtz/carbonate veins& 3% Aspy
RG-012	Au, Cu	4d breccia chloritic with cpy, py, qtz
RG-013	Au, Cu	4d breccia chloritic with qtz
RG-014	Au, Cu	4d breccia chloritic & Na metasomatized
RG-015	Au, Cu	4d breccia with qtz, py, cpy, carbonate, malachite
RG-016	Au, Cu	4d breccia chlorotic with qtz/carbonate, py, Aspy
RG-017	Au, Cu	4d breccia with malachite, py, Aspy, qtz, chlorite
RG-018	Au, Cu	4d breccia with py, cpy, Aspy
RG-021	Au, Cu	4b breccia with chlorite
RG-022	Au, Cu	4b breccia with chloritic shears
RG-023	Au	4d breccia, pink clasts & chlorite matrix
BR-B-1	Au, Cu	4b breccia, 40% chlorite, py

continued...

SAMPLE DESCRIPTIONS

Sample Number	Elements Assayed	Description
		BOOT LAKE
BR-B-2	Au, Cu	4b breccia, qtz, chlorite, minor py
BR-B-3	Au, Cu	4b breccia with qtz, minor py
BR-B-4	Au, Cu	4b breccia with qtz, chlorite, minor py
BR-B-5	Au, Cu	1c with qtz, chlorite, minor sulfide
BR-B-6	Au, Cu	1a brecciated with qtz & chlorite
BR-B-7	Au, Cu	4b breccia with chlorite
BR-B-8	Au, Cu	4b breccia with Aspy, magnetite
BR-B-9	Au, Cu	4b with qtz
BR-B-10	Au, Cu	4b with qtz, Fe carbonate
BR-B-11	Au, Cu	4b breccia with qtz, carbonate, chlorite
BR-B-12	Au, Cu	4b breccia with qtz, carbonate, mica
BR-B-13	Au, Cu	4b with 10% cpy

THOMAS LAKE

Location and Access

Thomas Lake is located near the southern boundary of Mackelcan Township, approximately one kilometre west of the North Arm of Matagamasi Lake. The lake is now accessible from the Matagamasi branch of Kukagami Lake Road. Otherwise the lake is accessible by float equipped aircraft capable of short run take-offs or by canoe from Matagamasi Lake.

Previous Work

The only work on record in the Sudbury assessment files is an airborne V.L.F. and magnetometer survey flown by Flag Resources in 1980. There is an old shaft about 100 metres inland from the east shore of Thomas Lake and trenches are found around the shaft. Another airborne V.L.F. and magnetometer survey has recently been filed for assessment by Flag Resources.

Work Performed and Purpose

One week was spent mapping the geology from a 1.2 kilometre east-west trending baseline. Traverse lines were run north-south from the baseline at 100 metre intervals. The geology was also mapped along the shore of Thomas Lake, parts of Matagamasi Lake and the south end of the lake between Matagamasi and Thomas Lakes. The purpose in mapping the area was to investigate the mineral potential around Thomas Lake since a high airborne V.L.F. anomaly occurs over the lake and a high gold assay was returned from a quartz vein located in the shaft.

Local Geology

The geology of the Thomas Lake areas is dominated by an interdigitated contact between Lorrain Formation quartzites and the underlying Gowganda Formation greywackes. The Lorrain Formation quartzites dominate the north part

of the map and consist of thickly bedded dull grey quartzites. The Gowganda Formation greywackes dominate the south and can be divided into massive, laminated, cherty and arkosic wacke types.

The rocks in the Thomas Lake area are not appreciably deformed. Gentle folding occurs so that the attitudes of the strata are variable. Dips of the strata are predominantly less than 50°. Sudbury-type breccias are common in the area. The breccias form two parallel bands trending north to north-northwest. One such band trends down the west side of Thomas Lake and extends south of the lake. Another band occurs east of Thomas Lake on the southeast shore of the small lake between Thomas and Matagamasi Lakes and extends southeast. Fracturing and minor shearing are common in proximity to the Sudbury breccias. Fracturing of the non-brecciated material is rare, however, a large shear was noted on the east side of Thomas Lake trending northwest which may related to a shear north of Thomas Lake on a similar trend. The shaft east of Thomas Lake is also situated on this projected trend. The shear may also relate to the Sudbury Breccias located on the west side of Thomas Lake. Quartz veining is not prevalent, however, small stringers often occur along joints on the southeast shore of Thomas Lake, and on the south side of the swamp extending south from Matagamasi Lake. Anomalous gold values were returned from both areas but the stringers were only a few centimetres thick.

Summary and Recommendations

Although anomalous gold values were obtained in the Thomas Lake area they were too low for the size of the quartz stringers to warrant any further interest. The geology of the area shows little deformation favourable for gold mineralization. The only encouraging structure is the shear trending into Thomas Lake from the east shore which has a coinciding V.L.F. anomaly. It is

possible the shear is mineralizated and thus responsible for the airborne V.L.F. anomaly, however, no sulphides were visible on the shore. Consequently, a low priority reconnaissance lake bottom geochemistry survey is recommended to test this structure below the lake. A few samples can be taken in one day in order to either dismiss the area or justify further exploration. The other possible course of action would be to run ground E.M. on the lake in the winter in order to delineate the anomaly. Any course of action on Thomas Lake should be of low priority since other more favourable targets are known on the Flag Resources claim group.

SAMPLE DESCRIPTIONS

Sample Number	Elements Assayed	Description
		THOMAS LAKE
RG-030	Au	Qtz vein (4.0 cm) trace py along joint
RG-031	Au	Qtz vein (2.3 cm) in Sudbury breccia along joint
RG-032	Au	Qtz vein in 1b along joint
RG-033	Au	Qtz vein (3.0 cm) along joint & 1b with trace Aspy
BR-T-1	Au	Qtz vein, minor py
BR-T-2	Au	Qtz vein
BR-T-3	Au	Qtz vein, dark mineral (manganite?)
BR-T-4	Au	Qtz & chlorite
BR-T-5	Au	Qtz, Fe carbonate, minor py
BR-T-6	Au	Qtz & Fe carbonate
BR-T-7	Au	Qtz with Fe carbonate & chlorite
BR-T-8	Au	Qtz-carbonate with chlorite
BR-T-9	Au	Qtz-carbonate with chlorite
BR-T-10	Au	Qtz-carbonate with chlorite

MATAGAMASI NORTH ARM

Location and Access

The Matagamasi North Arm area is located where Matagamasi Lake branches off into the North Arm and McArthy Bay. The area mapped is in fact on the McArthy Bay side of the intersection and consists of four claims: 595217, 595218, 595230 and 595229 situated in the north part of Rathbun Township. The area is accessible by boat from the Matagamasi branch of Kukagami Lake Road, or by float equipped aircraft.

Previous Work

The only previous work on file at the Sudbury assessment office is an airborne V.L.F. and magnetometer survey flown in 1980.

Work Performed and Purpose

One field day was spent mapping the geology from fifty metre interval lines which ran north and south from an east-west trending baseline. The purpose of mapping the area was to investigate the occurrence of gold indicated on the government map by Dressler (1982).

Local Geology

The geology of the Matagamasi North Arm map consists of the contact between Nipissing gabbro and Lorrain Formation quartzite. The quartzites are grey and unaltered, however, one outcrop is extensively brecciated. Quartz veining also occurs near the contact with the gabbro. The Nipissing gabbro consists of both the altered and unaltered types. Altered gabbro is usually chloritized and saussueritized but is also locally stained pink. Pink alteration was usually observed in the feldspars but an outcrop in the north part of the map had a ubiquitous pink alteration along a shear. The area has been appreciably sheared evidenced by irregular quartz stringers which locally contain carbonate

throughout the gabbro. Shears which were not filled with quartz were also observed. These shears were dominantly chloritized and locally pyritic.

Results and Recommendations

Seven samples were taken and assayed for gold. No values greater than background were achieved. Despite the poor analyses it was later observed that the shearing and quartz veining in the gabbro are similar to that found south of the Crystal North Showing. Since pink alteration also occurred, another day of field mapping is required to investigate the potential for a Crystal North type mineralized zone.

SAMPLE DESCRIPTIONS

Sample Number	Elements Assayed	Description
		MATAGAMASI NORTH ARM
RG-051	Au	Qtz vein and chlorite 3b
RG-052	Au	3b + qtz stringer; trace py
RG-053	Au	4b type pink alteration in 3b + rare py
BR-M-1	Au	3b with qtz stringers
BR-M-2	Au	2 with qtz stringers and pink alteration
BR-M-3	Au	3b with qtz stringers
BR-M-4	Au	2 breccia with qtz cement and pink alteration

GORDON MINE

Location and Access

The Gordon Mine is located on an isthmus separating Lake Wanapitei from Matagamasi Lake in Lot 6, Concession III of Rathbun Township. The map area covers parts of mining claims 574982 and 808313. Easiest access is by following the Matagamasi branch of Kukagami Lake Road.

Previous Work

The following work is on record in the assessment files of the Mining Recorders office in Sudbury.

?	- trenching and a shaft
1981	R. Viitala
	- pine needle geochemistry study
1983	R. Viitala
	- ground V.L.F. and magnetometer surveys
1984	R. Viitala
	- one diamond drill hole

An airborne V.L.F. and magnetometer survey recently submitted for assessment by Flag Resources includes the Gordon Mine.

Work Performed and Purpose

The Gordon Mine area was examined in order to assess the potential of reported gold-bearing quartz veins on the property. The area was mapped at a scale of 1:1000 using a rough N-S trending baseline from which perpendicular lines were mapped at 100 m intervals. Shoreline geology was also included.

Local Geology

Massive and laminated Gowganda Formation greywacke are the only rock types in the vicinity of the Gordon Mine. In the centre of the map area trenches have

been excavated following quartz veins which strike E-W and dip steeply to the north. The veins vary in width, but all are less than 0.75 metres wide. Greywacke immediately adjacent to the veins has been altered to a slightly pinkish colour and is slightly pyritiferous.

A number of structural features were noted in the area. Shears are quite common and strike predominantly to the notheast with steep dips. Bedding also strikes roughly to the northeast, but dips in both directions. Sudbury breccias are common along the shore of Matagamasi Lake. Although the map area is limited the breccias appear to be trending to the northeast.

Results and Recommendations

Gold values obtained from a few quartz vein samples proved to be slightly anomalous. However, even the highest value (575 ppb) is far short of the grade required to make such small veins of interest. Previous examinations of the property by R. Viitala also failed to locate any promising mineralization. Therefore, it is not recommended that Flag Resources attempt to acquire the property.

SAMPLE DESCRIPTIONS

Sample Number	Elements Assayed	Description
		GORDON MINE
BR-G-1	Au	Qtz veins
RG-043	Au	1a altered beside qtz vein 1% py
RG-044	Au	Qtz carbonate vein
RG-045	Au	Qtz carbonate vein & silicified 1a country rock

LAST CHANCE MINE

Location and Access

The Last Chance Mine is located on claims owned by New Augarita Mines and are under an examination period before an intent to option by Flag Resources. The claims are located in Rathbun Township on the southeast shore of Matagamasi Lake, east of the Crystal Mine. The claims are accessible by float equipped aircraft or by boat from a government maintained landing on the Matagamasi branch of Kukagami Lake Road.

Previous Work

Assessment reports in the Sudbury office of the Mining Recorder indicate that the following work has been performed in the Last Chance claim area.

1) 1892 - trenching by J. Larose and H. Ranger
2) 1892 - shaft sunk to 35 ft and small mill erected
3) 1907-1935 - intermittent surface work
4) 1949 - 3 drill holes totalling 925 ft by Vanda Mines
5) 1968 - airborne E.M. and radiometric survey by Kennco Explorations
6) 1983 - geological assessment of property by H.D. McLeod
7) 1984 - 13 drill holes totalling 2000 ft by H.D. McLeod

A diamond drill hole denoted as hole 20 was observed on the property; therefore, subsequent drilling has been done in 1985. The 1984 drilling recorded in the assessment files indicates anomalous values of Ni, Pt and Au, however, no ore grade values or mineable widths were achieved.

Work Performed and Purpose

The purpose in investigating the Last Chance Mine was to assess the potential for mineralization in and around three old shafts on the property.

One field day was spent investigating the shafts and mapping the geology along an existing imperial grid.

Local Geology

The geology of the Last Chance Mine consists of a Nipissing gabbro dyke intruding Gowganda Formation sediments. Silicification, albitization, chloritization and quartz veining occur in fractures near the contacts. Two shafts were sunk on the western contact in quartz veins in the gabbro. The veins were essentially devoid of sulphides but contained appreciable carbonate, including rhodochrosite. Sulphides were, however, observed in the gabbro. A third shaft was sunk on the eastern contact of the gabbro in sheared heavily pyritized Gowganda greywacke. The sediments were intensely silicified and/or albitized and locally chloritized, containing up to 30% massive fine pyrite. Pyrite veins were also observed.

Results and Recommendations

Six samples were taken from the three shaft areas. The two shafts on the western contact returned only minor amounts of gold up to 20 ppb but 250 ppb platinum. The samples on the third shaft, located on the eastern contact, returned a highly anomalous value of gold up to 650 ppb and an enriched value in plantinum, 200 ppb. A 24 element quantitative I.C.P. analysis returned 2750 and 1350 ppm in cobalt and nickel respectively. Although anomalous values of gold, platinum, cobalt and nickel were achieved, at least 20 diamond drill holes were drilled on the showing. If significant mineralization is present New Augarita Mines should have encountered it.

New Augarita has done a significant amount of work on the Last Chance Mine, and were aware of the platinum potential. Based on only one day's examination of the area an option on the property is not warranted on the Last Chance Mine

part of the property. Albitites on the south part of the property are discussed in the Boot Lake section.

SAMPLE DESCRIPTIONS

Sample Number	Elements Assayed	Description
		LAST CHANCE MINE
BR-LC-1	Au	Qtz vein (barren)
RG-046	Au	Qtz vein & choritic & albitized 3b
RG-047	Au, Pt, Pd	3b with rhodochrosite
RG-048	Au	1a/e silicified with 5% py
RG-049	Au	1a/e albitized, pink with 10% py in veins
RG-050	Au, Pt, Pd, I.C.P.	1a/e silicified with 30% fine py

GARBAGE DUMP

Location and Access

The Garbage Dump map area is located in Lots 5 and 6, Concession I of Rathbun Township. The map includes all, or part of, mining claims 809131, 809126, 809125, 809130 and 809127. Easiest access to the area is by following Kukagami Lake Road to the garbage dump marked on the map.

Previous Work

The following work is on record in the Sudbury office of the Mining Recorder.

1) 1968 - airborne E.M. and radiometric survey by Kennco Explorations

2) 1982 - airborne E.M., magnetic and radiometric survey by Canadian Nickel Co. LTD.

Flag resources has also flown an airborne V.L.F. and magnetic survey in 1985 which has only recently been filed for assessment.

Work Performed and Purpose

The Garbage Dump area was of interest because of several outcrops of metasomatized greywacke evident along the road. In the Crystal North area similar rocks were found to be Au-bearing.

During September five man-days were spent mapping the area at a scale of 1:1000 using a rough 600 m long baseline striking 130°. While mapping 20 rock samples were collected for geochemical analysis.

Local Geology

The map area consists of a central zone of variably chloritized gabbro fringed by a zone of Na-metasomatized greywacke which grades into unaltered greywacke. In several areas the gabbro has been strongly chloritized along

shears trending NNW. Quartz veins, up to 40 cm wide, and minor chalcopyrite are often associated with the sheared zones.

The contact between the gabbro and metasomatized greywacke is quite sharp. In hand sample the metasomatite appears similar to that observed in the Crystal North area, except that sulphide was rare and there is less carbonate. Moving away from the gabbro contact the effects of metasomatism are diminished and the metasomatized greywacke grades into unaltered greywacke.

Results and Recommendations

Although the rock types appeared favourable for mineralization results of the geochemical analyses were not encouraging. In both the metasomatized greywacke and chloritized gabbro, Pt, Pd and Au occur at, or very near, background levels. As might be expected, Cu values are anomalous in samples with chalcopyrite. Since other areas of the Flag claim group appear more promising, no further work in the Garbage Dump vicinity is recommended at this time.

SAMPLE DESCRIPTIONS

Sample Number	Elements Assayed	Description
		GARBAGE DUMP
GD-1	Cu, Ni, Pt, PD, Au	3b with minor qtz along shears, 0.5% cpy
GD-2	Cu, Ni, Pt, Pd, Au	3b with minor qtz, < 0.5% cpy
GD-3	Cu, Ni, Pt, Pd, Au	3b with minor qtz, < 0.5% cpy
GD-4	Cu, Ni, Pt, Pd, Au	3b with qtz-carbonate along shears
GD-5	Au	4b with minor qtz veins
GD-6	Au	contact between 4b and 3b, minor qtz
GD-7	Au	3b, qtz-carbonate along shears
GD-8	Au	3b, spot of cpy, disseminated py < 1%
GD-9	Au	3b, 0.5% disseminated py
GD-10	Au	4b, minor carbonate, no sulphide
GD-11	Cu, Ni, Pt, Pd, Au	qtz-chlorite vein, < 0.5% cpy
GD-12	Au	4b, no sulphide
GD-13	Cu, Ni, Pt, Pd, Au	qtz-chlorite vein, cpy spots on wall rock
GD-14	Au	3b, 1-2% py
GD-15	Au	3b, from a shear, < 0.5% py
GD-16	Cu, Ni, Pt, Pd, Au	3b, minor qtz along shears, < 0.5% cpy & py

continued...

SAMPLE DESCRIPTIONS

Sample Number	Elements Assayed	Description
		GARBAGE DUMP
MDX	Au	4b/c with < 1% py
RG-079	Au, Pt, Pd	3b silicified with a sulphide stain
RG-080	Au, Pt, Pd	3b sheared intense carbonitization & chloritization
RG-081	Au, Pt, Pd	3b pink sheared & intensely carbonated
AJS-1	Au	1a altered 1% py
JSE *	Au	1a silicified

*Note: Sample from showing beside road east of garbage dump

SAMPLE DESCRIPTIONS

Sample Number	Elements Assayed	Description
		McLAREN LAKE
RG-067	Au, Pt, Pd	3b chloritic with pink metasomatism & trace py
BR-10	Au,	4a/2b pink quartzite or arkose with qtz

CRYSTAL GOLD MINE

Location and Access

The Crystal Gold Mine is located on a peninsula bordering the northeasatern side of Boland's Bay of Lake Wanapitei, in Lot 6 Concession IV of Rathbun Township. The mine area is covered by patented claims WD45 and WD44. Easiest access is by following the Matagamasi branch of Kukagami Lake Road to the portage between Boland's Bay and Matagamasi Lake. The mine workings are located on the left side of the road.

Previous Work

The following work is on record in the assessment files of the Sudbury district Mining Recorders office.

1890's	4 shafts
	- 100 ft, 40 ft, 24 ft, unknown
	- adit approximately 70 ft long
	- unknown amount of production
1944	Sylvanite Gold Mines
	- sampling along previously worked veins
1963-1970	Little A.G. Mines Ltd.
	- geophysical survey
	- diamond drilling

An airborne V.L.F. and magnetometer survey recently submitted for assessment by Flag Resources includes the Crystal Mine.

Work Performed and Purpose

The Crystal Mine area was examined in order to assess the potential of quartz veins from which an appreciable amount of gold was recovered during the 1890's. According to local prospectors mining of the veins ceased because of

water problems, rather than a lack of ore. Six man-days were spent mapping the area at 100 metre intervals perpendicular to a rough baseline trending east-west. Samples were collected from the veins and a newly discovered pink alteration zone.

Local Geology

The Crystal Mine workings are centered on quartz veins located near the contact between Nipissing gabbro and Gowganda greywacke. In the vicinity of the contact gabbro has been extensively silicified and chloritized. In a few localized areas metasomatism has given it a pinkish-purple colour. Greywacke is of the laminated type and locally has also been extensively altered.

The gold mineralization is associated with two east-west trending quartz vein systems. The northen vein is approximately 0.75 m wide and dips to the south. The largest shaft was sunk downdip on the vein. The southern vein is better exposed and appears to pinch and swell to a maximum of about 1.0 m. Chalcopyrite, pyrite and bornite are locally concentrated within the veins.

Approximately 60 m northeast of the mine workings a granite dyke trends north-east through Nipissing gabbro. This felsic intrusion is the largest observed in the Flag claim group.

On the eastern side of the small bay separating the mine workings from Matagamasi Lake Road, greywacke has been metasomatized to the pinkish colour observed in the Crystal North area. This metasomatite is also pyritic and Au-bearing.

Shearing is common throughout the mine area. Although a few shears strike east-west, most trend north northeast and dip steeply. Along the western margin of the peninsula numerous shears are associated with Sudbury breccias. In general the breccias appear to trend north-south.

Results and Recommendations

The results of the analyses confirmed that the quartz veins are Au-bearing, at least in the vicinity of the mine workings. All values obtainedfrom quartz vein material were anomalous and one was >10,000 ppb. However, in wall rock immediately adjacent to the veins, gold occurs only at background levels. Gold is also only at background levels in smaller veins away from the vicinity of the workings. These results are similar to those obtained in a more extensive study by Sylvanite Mines in 1940.

Metasomatite from the newly discovered area on the other side of the bay was also found to be significantly gold enriched. Gold occurs above background levels in all samples and two which returned values of 0.35 oz/ton and 0.578 oz/ton are significantly enriched. Outside the metasomatite, however, gold values are insignificant.

The results of the present study and the previous one by Sylvanite Gold Mines leave little doubt that a substantial amount of gold remains in quartz veins near the Crystal Mine. If water problems were the reason why mining was terminated, the mine would have to be regarded as a very good prospect, at least for small scale mining. However, it is located on patented land which is slated for development. Therefore, it is not likely that the ground could be acquired at a reasonable price . If the land was acquired a small dyke could be inexpensively built to isolate the shallow bay between the veins and the newly discovered alteration zone. Consequently, if values warranted, open pit mining could be easily done on the newly discovered alteration zone and continued along the veins.

SAMPLE DESCRIPTIONS

Sample Number	Elements Assayed	Description
		CRYSTAL MINE
RG-024	Au	1a silicified & pyrite adjacent qtz vein
RG-028	Au	Qtz vein with trace py & chloritic 1a
RG-029	Au	4a intense Na metasomatism with qtz/carbonate veins
RG-058	Au	1a/4b silicified
RG-059	Au	1a chloritic & sheared
RG-060	Au	4b with 1-2% py
RG-061	Au	Qtz vein
RG-062	Au	4b with qtz/carbonate veins
BR-C-1	Au	Qtz vein with 5% py
BR-C-5	Au	3 chloritized, adjacent to qtz vein
BR-C-6	Au	3 chloritized & sheared, adjacent to qtz vein
BR-C-7	Au	Qtz vein with ferroan dolomite, chlorite
BR-C-8	Au	Qtz vein with calcite, chlorite
BR-C-9	Au	Qtz vein with calcite, chlorite
BR-1	Au	Qtz vein

continued...

SAMPLE DESCRIPTIONS

Sample Number	Elements Assayed	Description
		CRYSTAL MINE
BR-2	Au	1a/4b with py
BR-3	Au	1a/4b with qtz stringers < 1% py
BR-4	Au	1a/4b with < 1% py
BR-5	Au	1a/4b sheared
BR-6	Au	Qtz vein
BR-7	Au	Qtz vein
BR-8	Au	Qtz vein
BR-9	Au	Qtz vein
J-1	Au, Ag	Qtz vein in 3b

CRYSTAL NORTH

Location and Access

The Crystal North property is located in lot 5, 6, and 7, concession IV of Rathbun Township and includes mining claims 586200, 586201, 586194, 586195, 586193, 577385, 577386, 577379, 577378, 577380, and 586193. The area is easily accessible by following the Matagamasi branch of Kukagami Lake Road to a small drill road on the right, approximately 500 metres past the Matagamasi Lake - Boland Bay (Lake Wanapitei) portage. The drill road proceeds into the claim group with branch roads, terminating at various drill sites.

Previous Work

The following work is on record in the assessment files of the office of the Mining Recorder in Sudbury.

1968	Mareast
	- electromagnetic survey over the western part of the claim area
1980	Flag Resources
	- Airborne V.L.F. and magnetometer survey
1980	R Viitala
	- Ground V.L.F. and EM Surveys
1983	R Viitala
	- Grab Sampling, 55 samples analyzed for gold

In the spring of 1985 Flag Resources drilled two diamond drill holes in altered gabbro at the south end of the claim group. No significant values were encountered. Flag Resources also flew another V.L.F. and magnetometer survey which has recently been submitted for assessment purposes.

Work Performed and Purpose

The Crystal North area was originally of interest because of reportedly Au-bearing quartz vein in chloritic gabbro exposed near the shore of Matagamasi Lake in mining claim 558642. During July ten man-days were spent mapping the area at a scale of 1:2000 using a rough E-W trending base line extending from Cathro Lake to Matagamasi Lake as reference points. As a result of the initial mapping, anomalous Au values were found in a previously unknown metasomalite zone trending 145°. Subsequently, the zone was resampled several times and the discovery area was remapped at a scale of 1:1000 using a baseline cut along the zone trend. Based on the results of the analyses five trenches were dug, blasted and sampled across the zone for a total of 280 metres. The trenches were located at 3+00mS, 2+25mS, 0+00, 0+75 mN and 100 mN. Further encouraging assays resulted in the drilling of the five holes totalling 1225 feet (371.5 metres). During the drilling period the baseline was extended 420 m to the SE and 2900 m to the NW. Lines were mapped perpendicular to the baseline at 100 metre intervals at a scale of 1:1000 and additional samples were taken.

Local Geology

Five different rock types were encountered within the Crystal North area. These include Gowganda Formation greywacke and arkose, Lorrain Formation quartzite, Nipissing gabbro, Na-rich metasomatite and Sudbury diabase dykes.

The southeast corner of the map area is dominated by locally chloritized Nipissing diabase. Where chloritization is intense, the diabase is cut by numerous quartz stringers and veins. A twenty-five metre wide zone of sheared, brecciated and metasomatized gabbro outcrops along the shore of Matagamasi Lake along the contact with Na-rich metasomatite. This apparently fault related zone strikes at 145° and appears to pinch and swell both horizontally and vertically. Gabbro outcrops within the zone are an easily recognizable pinkish-purple colour.

In the adjacent Gowganda greywacke the metasomatite zone is even more apparent. Between map areas B.L. 2+00S and B.L. 1+20N greywake has been completely altered to a pink igneous looking rock composed primarily of albite (often cleavlandite), with minor ferroan dolomite, quartz and pyrite, and accessory tourmaline and a green mica. Because they are highly resistant, metasomatite outcrops are relatively large and often steep sided. Contacts with the enclosing greywacke are sharp and margins of the metasomatite have a chilled texture. At map area B.L. 1+20N the zone appears to have been slightly faulted and is terminated by a small valley. Across the valley, at B.L. 1+70N, metasomatite bordered by fault breccia reappears on a steep cliff face. The metasomatite is cryptocrystalline and no longer has an igneous appearance. Despite complete recrystallization sedimentary features such as laminations have been retained. Pyrite is locally abundant in this rock type and small gossans are evident.

Approximately 300 metres northwest of point 0+00 the metasomatite zone becomes discontinuous and is often expressed only as highly sheared greywacke with Sudbury breccia. The shears generally strike NNW along the trend of the zone. On the northeast side of Cathro Lake the zone appears to have been faulted 160 m to the northeast where it is exposed in a large cliff face. Metasomatite outcrops in several areas with cliff along the fault breccias and Sudbury-type breccias. Northwest from the cliff the metasomatite appears infrequently and large outcrops of Sudbury-type breccia are common. Within the limited area of the map, no general trend is apparent for the breccia. Approximately 1950 m northwest of point B.L. 0+00 the baseline intersects a Sudbury olivine diabase dyke. This highly magnetic dyke dominates the map area for the next 500 m. The metasomatite zone was not encountered in the 400 m mapped on the other side of the dyke.

RESULTS AND RECOMMENDATIONS

With one exception, gold values from samples collected during the initial mapping period were low. The anomalous sample, BR-C-4, contained 1300 ppb gold and was from a large outcrop of pink 4a type metasomatite located at B.L. 0+00 on the map. All five samples collected during the subsequent resampling of the outcrop yielded anomalous gold values, including one of 0.221 oz/ton. Seventeen samples collected from the discovery outcrop and several metasomatite outcrops immediately to the north during the third resampling period were also all found to be anomalous. Five of these with gold values of 0.199 oz/ton, 0.223 oz/ton, 0.123 oz/ton, 0.304 oz/ton and 0.177 oz/ton are significantly enriched. Gold Values obtained from samples collected southeast of the discovery outcrop are anomalous, but overall notably lower. The two highest values were 0.25 and 0.004 oz/ton; all others were less than 500 ppb. Many of these samples were country rock or metasomatized gabbro.

Gold values obtained from cryptocrystalline metasomatized greywacke outcrops between B.L. 1+70N and B.L. 3+00N range from 137 ppb to 0.29 oz/ton. Although all values from the area are anomalous, they are relatively lower than those obtained from the central discovery area. North of B.L. 3+00 samples from the intermittent metasomatite outcrops yield gold values only slightly above, or at, background levels.

In order to check the accuracy of the original analyses several of the higher grade samples were reanalyzed by Assayers Limited. Generally the reanalysis yielded notably lower gold values. For example, a gold value of 0.1 oz/ton was obtained from a sample which originally assayed at 0.3 oz/ton. However, gold values for a few samples remained roughly the same or were even

slightly higher. From the results of the reanalyses it has been concluded that values obtained from the original lab tended to be somewhat inflated.

The results of the 24 element ICP showed that the metasomatized rocks are very Na enriched and K depleted. Ag, Cu, As, Co, Ni, P and B values also proved to be variably anomalous.

As a result of numerous ore grade values returned from the surface sampling it was decided to drill five shallow diamond drill holes to test the structure at depth. The first was targeted on the discovery outcrop where several values over 0.2 oz/ton Au were obtained. The second hole was targeted 40 m northwest of the first hole at an outcrop yielding a value of 0.3 oz/ton Au. The third hole was drilled 200 metres northeast of hole CN-85-2 targeted on a value of 0.29 oz/ton Au returned from a breccia containing 40% pyrite. The fourth hole (CN-85-4) was drilled 35 metres northwest of CN-85-3 targeted on a suspected cross fault which terminates the metasomatite zone. It was later decided to drill the fifth hole slightly deeper than the previous four holes. DDH CN-85-5 was targeted on the last outcrop o_n surface in a valley where the character of mineralization changed from 4a to 4b type metasomatite breccia on the other side. Drilling in the valley gave the hole an additional 10 metres depth than hole CN-85-2 and more than 30 metres depth than hole CN-85-3. A suspected cross fault also made the target more favourable.

The drilling at Crystal North was very disappointing considering the very good values achieved on surface. CN-85-1 returned a value of only 0.014 oz/ton over 1 metre, although all samples over the 34.3 metre intersection returned trace amounts of gold. The best value from CN-85-2 was only 0.036 oz/ton, although higher values were encountered in the 52.6 metre intersection than in the first hole. Hole CN-85-3 returned the drilling programs best value of

0.050 oz/ton gold and 0.3 oz/ton silver. The mineralized zone was 38.8 metres wide with values of at least trace amounts of gold. An 8 metre interval averaged 0.03 oz/ton gold. The fourth hole returned a 39.3 metre intersection in which the best assay was 0.022 oz/ton gold. The fifth hole was particularly disappointing, although the hole went through the target area the metasomatite breccia zone was only a few metres wide being largely replaced by Sudbury breccia. Only trace amounts of gold were returned. In addition to gold assays a few silver assays and a 24 element quantitative ICP analysis were done. Silver assays were low, only as high as 0.3 oz/ton, and the ICP analysis indicated elemental enrichment in Na, Ag, P, Co, Ni and Fe with a corresponding depletion in K. A similar result to those returned on the surface samples.

Although very disappointing, drilling indicated the presence of gold in a wide zone, occurring as wide as 55 metres on surface. Geochemistry and mineralogy indicate that the metasomatite zone is composed largely of albite, often cleavlandite, with feroan dolomite, quartz, microcline pyrite, chlorite and accessory tourmaline chalcopyrite apatite and an unidentified green coloured mica. The albite-chlorite association is indicative of a low temperature mineral assemblage. Microcline veins carrying pyrite were observed in a thin section of the mineralized rock. This and since greater depth usually involves higher temperature and pressure regimes suggests a more favourable environment for gold deposition may occur at depth. Thus, a diamond drill hole is recommended setting up on the projected surface expression of the highest assay from CN-85-3. A hole should be drilled down dip in the centre of the metasomatite and drilled as deep as possible. Although drilling a structure down dip can be construed as unethical it is necessary in this case to test whether gold enrichment increases with depth. If favourable values were encountered at depth, angle holes could then be targeted with the minimum of cost.

SAMPLE DESCRIPTIONS

Sample Number	Elements Assayed	Description
		CRYSTAL NORTH
RG-026	Au	3b chloritic and brecciated & qtz trace py
RG-027	Au	5 40 cm granitic dyke
RG-063	Au	4a 1% py
RG-064	Au	4a < 1% py
RG-065	Au	4a < 1% py
RG-066	Au	4a trace py
BR-C-2	Au	4a < 1% py
BR-C-3	Au	4a < 1% py
BR-C-4	Au	4a < 1% py, coarse carbonate rhombs
CN-1	Au	4a < 1% py
CN-2	Au	4a < 1% py, coarse carbonate rhombs
RG-068	Au	4a with 3% diss. py & carbonate
RG-069	Au, I.C.P.	4a with 5% diss. py
RG-070	Au	4a with trace py
RG-071	Au	4a with trace py & minor carbonate
RG-072	Au	4a chloritic

continued...

SAMPLE DESCRIPTIONS

Sample Number	Elements Assayed	Description
		CRYSTAL NORTH
RG-073	Au	4a fine grained with trace py
RG-074	Au	4a with trace py
RG-075	Au	4a with chloritic stringers & qtz/carbonate vein 1-2% py
RG-076	Au	4a with trace py
RG-077	Au, Ag, Cu	4a with 2-3% py in veins & carbonate, qtz stringers
RG-078	Au	4b with 3% py & green mica along fractures
CN-3	Au	4a with 2% py & carbonate rhombs
CN-4	Au	4a with trace py
CN-5	Au	4a with trace py
CN-6	Au	4b with 2% py & green mica
CN-7	Au	4a with < 1% py
CN-8	Au	4a with < 1% py
CN-9	Au	4a with < 1% py
CN-10	Au	4a with < 0.5% py

continued...

SAMPLE DESCRIPTIONS

Sample Number	Elements Assayed	Description
		CRYSTAL NORTH
CN-11	Au	4a with 1% py
CN-12	Au	4b with 2% py
CN-13	Au, Pt, Pd, I.C.P.	4b with 3% py
CN-14	Au	4b with breccia clasts, < 1% py
SM-1	Au, Pt, Pd, I.C.P.	4a with 2-3% py in veins & carbonate, qtz veins
A	Au	3b pink albitization
B	Au	3b silicified & pink albitized trace py & qtz stringers
C	Au	3b silicified, albitized & carbonated with qtz stringers
D	Au	4c siliceous rock with 3% py
E	Au	qtz vein & fault breccia country rock
F	Au	3b/1b fault breccia with chlorite filled shears
G	Au	3b/1b breccia with pink metasomatite patches
H	Au	4a with qtz stringers & trace py
I	Au	1a silicified sheared brecciated & albitized

continued...

SAMPLE DESCRIPTIONS

Sample Number	Elements Assayed	Description
		CRYSTAL NORTH
J	Au	4a minor carbonate & trace diss. py
K	Au	4a with carbonate & 1-2% py
L	Au	rock taken from roadside enroute to Sudbury
M	Au	1a/4c breccia albitized with trace diss. py
N	Au	4a with coarse carbonate & 1-2% diss. py
O	Au	4a with coarse carbonate, qtz stringers & 1-2% py
P	Au	4a with 1-2% diss. py
Q	Au	4a with up to 5% py (diss. & in veins)
R	Au	4a with carbonate rhombs & 1% py
S	Au, Pt, Pd, I.C.P.	4a with carbonate & < 1% py
T	Au	4a with carbonate rhombs & 0.5% py
U	Au	1b breccia very chloritic with trace py
V	Au	1b sheared
W	Au	4b with coarse carbonate rhombs & 1% py
X	Au	4b with coarse carbonate rhombs & 1-2% py
Y	Au	4b breccia with carbonate & 3% py

continued...

SAMPLE DESCRIPTIONS

Sample Number	Elements Assayed	Description
		CRYSTAL NORTH
Z	Au	4b/2b breccia with < 1% py
AA	Au	4b/c pyritiferous shears with up to 40% py
CN-15	Au	1b, < 1% py
CN-16	Au	4a with qtz stringers, carbonate rhombs, < 1% py
CN-17	Au	4a < 1% py in small fractures
AJ-1 *	Au	
AJ-2 *	Au	
AJ-3 *	Au	
AJ-4 *	Au	
AJ-5 *	Au	
AJ-6 *	Au	
AJ-7 *	Au	

Note:

* Sample taken by A.E. Jerome Jr. on the mineralized zone between Cathro and Matagamasi Lakes. Exact sample locations and mineralization descriptions are not known

continued...

SAMPLE DESCRIPTIONS

Sample Number	Elements Assayed	Description
		CRYSTAL NORTH
AJ-8 *	Au	
AJ-9 *	Au	
AJ-10*	Au	
AJ-11	Au	4b breccia trace suphides
AJ-12	Au	1a silicified & sheared with minor patchy pink stain 1% py
AJ-13	Au	4b within pink quartzite with qtz veins
AJ-14	Au	4b fine Na-metazomatized greywacke
AJ-15*	Au	
BB	Au	4b breccia with 10% py
CC	Au	4c albitized & siliceous greywacke with 3% py
DD		4c albitized & siliceous greywacke with 2% py

Note:

* Sample taken by A.E. Jerome Jr. on the mineralized zone between Cathro and Matagamasi Lakes. Exact sample locations and mineralization descriptions are not known

continued...

SAMPLE DESCRIPTIONS

Sample Number	Elements Assayed	Description
		CRYSTAL NORTH
RG-100	Au	4c/b pink siliceous rock with chloritic hairline fractures
RG-101	Au	4c pink siliceous rock with minor carbonate
RG-102	Au	4c/b pink siliceous rock with carbonate rhombs & green mica
RG-103	Au	4a/c pink siliceous rock with trace py
RG-104	Au	4b/c pink siliceous rock with chlorite & trace py
RG-105	Au	3b/c pink feldspathic rock with chlorite fractures
RG-106	Au	4c with diss. carbonate rhombs & trace py
RG-107	Au	4c/b siliceous & albitized < 1% py
RG-108	Au, Cu	4b with fine qtz stringers
RG-109	Au	4a with qtz stringers & carbonate
RG-110	Au, Cu	4a pink metasomatite
CN-18	Au	1a silicified, qtz stringers, < 1% aspy

continued...

SAMPLE DESCRIPTIONS

Sample Number	Elements Assayed	Description
		CRYSTAL NORTH
CN-19	Au	1a intensely silicified with pink stain
CN-20	Au	1a intensely silicified with pink stain & qtz along joints
CN-21	Au	2b with trace aspy
CN-22	Au	2b pink with carbonate & trace py
CN-23	Au	2 with carbonate & trace py
CN-25	Au	2 with minor py
CN-26	Au	4c/b with chlorite & carbonate, trace py & carbonate
CN-27	Au	4b within pink quartzite with qtz veins
CN-28	Au	1a silicified
CN-13-30W	Au	4b with < 1% py
CN-13-31W	Au	4b with < 1% py
CN-13-32W	Au	4b with < 1% py
CN-15-45W	Au	4b with 1% py
CN-15-46W	Au	4ab with < 1% py

continued...

SAMPLE DESCRIPTIONS

Sample Number	Elements Assayed	Description
		CRYSTAL NORTH
CN-15-47W	Au	4b with 2% py
CN-15-60W	Au	4c with 1% py
CN-15-61W	Au	4b with < 0.5% py
CN-16-39W	Au	greyish arkose with 1% py, chlorite
CN-1225 -30E	Au	4b with < 0.5% py, minor chlorite
CN-28	Au	1a silicified, < 0.5% py
CN-29	Au	1a silicified, carbonate rhombs, 0.5% py
CN-30	Au	4b, carbonate rhombs, > 1% pyrite
CN-31	Au	4c with 2-3% py, some qtz
CN-32	Au	4a/b with < 1% py
CN-18-50E	Au	4b with < 0.5% py, 10% chlorite
CN-20-90E	Au	1a float with 2% py
CN-23-83E	Au	1a with < 0.5% py, chlorite
CN-34	Au	4b with < 1% py
CN-35	Au	4b with 1% py

continued...

SAMPLE DESCRIPTIONS

Sample Number	Elements Assayed	Description
		CRYSTAL NORTH
CN-36	Au	4b with < 1% py
CN-37	Au	4b with 1% py
CN-38	Au	4a/b with < 1% py
CN-39	Au	4a/b with 0.5% py
CN-40	Au	1c with < 1% py
CN-41	Au	1c with < 1% py
CN-42	Au	1c conglomerate, < 0.5% py
300-2-30	Au	1a with < 0.5% py, highly chloritized
300-6-9	Au	1a chloritic, some pink alteration
300-12-5	Au	1a chloritic, minor qtz, < 0.5% py
300-18-2	Au	1a chloritic, some pink alteration, < 0.5% py
300-24-5	Au	4b no sulphide
300-30-5	Au	4b no sulphide
300-41-5	Au	1a chloritic, qtz stringers
300-48-5	Au	1a chloritic, qtz-carb. stringers
300-56-5	Au	

continued...

SAMPLE DESCRIPTIONS

Sample Number	Elements Assayed	Description
		CRYSTAL NORTH
300-62-5	Au	altered diabase, slightly pinkish
300-68-5	Au	altered diabase, chloritic, slighly pinkish
L225S 0+43E	Au	4b breccia with 2% py
L225S 0+45E	Au	4b breccia with 5% py
L225S 0+47E	Au	4b breccia with 2% py
L225S 0+49E	Au	4b breccia with 2% py
L225S 0+52E	Au	4c/b with minor pyrite
L300S 0+48E	Au	3b chloritic with minor pink feldspars
L300S 0+52E	Au	3b chloritic with minor pink feldspars

continued

SAMPLE DESCRIPTIONS

Sample Number	Elements Assayed	Description
		CRYSTAL NORTH
L300S		
0+62E	Au	4c/d albitized greywacke with pyrite
L225S		
0+40E	Au	1a silicified < 1% py
L225S		
0+42E	Au	4b breccia with 2% py
L225S		
0+44E	Au	4b breccia with 5% py
L225S		
0+46E	Au	4b breccia with 5% py
L225S		
0+48E	Au	4b breccia with 2% py
L225S		
0+50E	Au	4b breccia with 1% py
L225S		
0+52E	Au	4c/b with minor py

continued

SAMPLE DESCRIPTIONS

Sample Number	Elements Assayed	Description
		CRYSTAL NORTH
L225S		
0+54E	Au	1a with trace py
L225S		
0+56E	Au	1a with trace py
R-01	Au	4b
R-02	Au	4b tan colored fine grained albitized with
R-03	Au	4b < 1% py
NAI	Au	4a metasomatite from island in Lake Matagamasi
1501-1663	Au (Ag) (Cu)	All from drilling (see logs)

The following assays are from samples assayed at either Erana Mines in Sudbury, or Assayers Ontario Ltd. in Mississauga in which no certificate of analysis was received. The assays were given over the telephone from either Sidney Mischuck or Murdo McLeod. The written certificates are available at the Flag Resources Office in Calgary.

Sample #	Au ppb	Ag ppm	Cu ppm
RG-100	59		
RG-101	79		
RG-102	115		
RG-103	72		
RG-104	<5		
RG-105	85		
RG-106	159		
RG-107	62		
RG-108	570	0.2	33
RG-109	31	0.6	52
RG-110	445		
CN-18	72		
CN-19	7		
CN-20	66		
CN-21	48		
CN-22	69		
CN-23	<5		

continued...

Sample #	Au ppb	Ag ppm	Cu ppm
CN-25	69		
CN-26	24		
CN-27	41		
CN-28	52		
L225S-0+43E	164		
L225S-0+45E	273		
L225S-0+47E	327		
L225S-0+49E	109		
L225S-0+52E	0.249 oz/ton		
L225S-0+40E	50		
L225S-0+42E	150		
L225S-0+44E	100		
L225S-0+46E	200		
L225S-0+48E	100		
L225S-0+50E	50		
L225S-0+52E	100		
L225S-0+54E	100		
L225S-0+56E	200		
L300S-0+48E	109		
L300S-0+52E	54		

RATHBUN LAKE

Location and Access

Several mineralized showings, many rich in platinum group elements, are located on the 'Wanapitei Nipissing Intrusion'. The most important of these is the Rathbun Lake Showing located in Rathbun Township in lots 9 and 10 of concession IV. The Rathbun Lake showing includes all or part of claims 808908, 080907, 808906, 808905, 808912, 808913, 808941 and 808940. The area is accessible by four wheel drive or walking along a two kilometre winter road extending west from the Matagamasi branch of Kukagami Lake Road. Rathbun Lake is also accessible by float equipped aircraft.

Three smaller showings on the Wanapitei intrusion were also visited. A small pit is situated on the shore of Cathro Lake in claim 808928, lot 6 concession IV. The showing is accessible from the Crystal North drill access road extending east from the Matagamasi branch of Kukagami Lake Road. A small trappers trail leads off the access road to Cathro Lake where the south shore can be followed to the pit. The second showing occurs on the shore of Lake Wanapitei in claim 808990, lot 10 concession III of Rathbun Township. The showing is located approximately 50 metres inland from the lake, and is accessible by boat or float equipped aircraft. The showing is also accessible by walking via the Rathbun Lake showing grid, following the north-south baseline to 400 metres south and walking approximately 1 kilometre due west. A third showing is located on the Wanapitei Intrusion along the southern boundary of the Flag claim group, in Scadding Township. The showing is accessible by walking approximately 50 metres due west from the terminus of a logging road, extending north from just west of where the Matagamasi branch diverges from Kukagami Lake Road.

Previous Work

The following work is on record in the assessment files of the Sudbury District Mining Records office.

RATHBUN LAKE

1920's?	- shaft - 45 ft deep with 73 ft of crosscutting
1954	Dolmac Mines
	- magnetometer and electromagnetic surveys
1955	Dolmac Mines
	- shaft dewatered
	- 3 diamond drill holes in the shaft area for a total of 370 ft
1956	Dolmac Mines
	- 11 diamond drill holes ranging from 160 ft to 370 ft
1958	Dolmac Mines
	- 12 diamond drill holes ranging from 40 ft to 60 ft; six located near the shaft and six 250 ft to the northeast
1963	Waco Petroleum
	- 6 diamond drill holes in the shaft area for a total of 1005 ft
1967	Mareast
	- magnetometer and electromagnetic surveys
	- 2 diamond drill holes 423 ft and 425 ft, located east of the map area but within the Flag claim group

1966, 1968 and 1971	Norlex Mines Limited and Burco Explorations Limited
	- 8 diamond drill holes in the shaft area for a total of 2750 ft

CATHRO LAKE

??	- pit dug by unknown parties
1967	Mareast
	- magnetometer and electromagnetic syrveys

WANAPITEI SHOWING

??	- trenches dug by unknown parties

SOUTH BOUNDARY SHOWING

- no work is indicated

An airborne V.L.F. and magnetometer survey covering all the showings has recently been submitted for assessment by Flag Resources.

Work Performed and Purpose

RATHBUN LAKE

The Rathbun Lake area is of interest because of a small, but very high grade, Cu-Ni-Pt-Pd-Au-Ag occurrence located at the southeastern end of Rathbun Lake. The mineralogy, geochemistry and structure of the occurrence indicate that the mineralization is hydrothermal in origin (Rowell, 1984). To investigate the possibility that similar structurally controlled mineralization may be nearby, the area was mapped at a scale of 1:2000 and 65 grab samples were collected for geochemical analysis. In August six man-days were spent mapping the area along lines at 100 metre intervals perpendicular to a rough baseline. The baseline centered on the shaft and trends at 030°. An additional four man-days were spent mapping in November using N-S and E-W baselines cut near the

shaft for the purpose of a magnetometer survey. A. Jerome Jr. conducted the magnetometer study in order to investigate magnetic anomalies noted in an airborne geophysical survey of the area and because titano magnetite has been reported in the mineralization around the shaft (Dressler, 1982).

CATHRO LAKE

A morning was spent sampling the excavated rock from the pit on Cathro Lake and shoreline geology was mapped to link it to the Crystal North map area. The purpose in investigating the Cathro Lake showing was to sample gabbro mineralized with chalcopyrite, pyrite and pyrrhotite reported by A.E. Jerome Jr. and believed to be similar to the Rathbun Showing.

WANAPITEI SHOWING

The Wanapitei showing was visited to investigate chalcopyrite pyrrhotite and pyrite mineralization in an old trench reported by A.E. Jerome Jr. The showing was sampled and briefly mapped in a day.

SOUTHERN BOUNDARY

The Southern Boundary showing was visited to investigate mineralization observed by A.E. Jerome Jr. while staking claims. A few hours were spent collecting samples and prospecting around altered gabbro containing appreciable chalcopyrite, pyrrhotite and pyrite.

Local Geology

The map areas are dominated by the Wanapitei Nipissing type intrusion. Approximately 98% of the intrusion is composed of gabbronorite, while the remainder consists of monzodiorite, quartz diorite, granodiorite and granite (Finn, 1981). In general, the gabbronorite is quite fresh, except where faults have acted as conduits for circulating hydrothermal fluids. In these localities the mineralogy has been altered to chlorite, hornblende, quartz, epidote and albite.

Of the minor rock types monzodiorite is the most notable. Usually, it occurs in narrow lense-shaped pegmatitic bands within gabbronorite. These lenses consist of amphiboles, up to 5 cm long, in a matrix of white to pinkish feldspar (Dressler, 1982). Chalcopyrite and pyrite are occasionally disseminated throughout. Although sulphide content is generally <0.5%, isolated sections with up to 20% sulfide have been noted.

To the north, the Wanapitei intrusion is bordered by Gowganda greywacke. The greenish-grey greywacke consists of fine grained quartz and feldspar in a matrix of chlorite, epidote and opaques (Dressler, 1982). Along the gabbronorite-greywacke contact metamorphic effects consist only of a slight baking of greywacke within a few metres of the contact (Finn, 1981). In a few localized areas the greywacke contains weakly disseminated pyrrhotite chalcopyrite and pyrite.

Although the region has not undergone significant folding, several major faults were active subsequent to the emplacement of the Wanapitei intrusion (Dressler, 1982). Two north-northwest trending Onaping System Faults bound the intrusion on the southwest and northeast margins. East of the intrustion, the McLaren Creek Fault trends north-south along Matagamasi Lake.

A recent airborne V.L.F. and magnetometer survey indicates that a large magnetic anomaly trends NNW along Rathbun Lake. Field evidence suggest that a fault continues along a linear valley which extends from Portage Bay across the map area and up Rathbun Lake. Along the course of the valley the gabbronorite-greywacke contact has been significantly displaced.

Shearing occurs throughout much of the map area and may be locally intensive. Most shears trend in the same direction as the regional structures. In areas where shearing is extensive the gabbronorite is highly altered and is locally sulphide bearing.

At the southern end of Rathbun Lake a precious metal rich Cu-Ni sulphide occurrence (Rathbun Lake showing) is associated with extensive shearing and jointing. Most of the occurrence has been excavated, however, exploration reports indicated that sulphide mineralization was massive in a zone approximately 12 m long by 0.3 to 0.6 m wide (Koulomzine, 1955). Disseminated sulphides surrounding the zone increased the mineralized width to about 3 m.

In the vicinity of the shaft the mineralogy of the gabbronorite has been altered by hydrothermal fluids. Silicification, chloritization and saussuritization have reduced primary silicates to relicts in a gangue dominated by chlorite, quartz, biotite and saussuritized plagioclase.

Chalcopyrite and pyrite are the principal sulphide minerals, while millerite, arsenopyrite, magnetite and covellite occur as accessories. Pd occurs in the bismuthotelluride minerals merenskyite, michenerite, kotulskite and temagamite. Pt resides in the arsenide sperrylite and Au occurs as exsolved blebs in pyrite (Rowell, 1984).

Pd values average 20,829 ppb and are relatively high in all samples. Pt is more heterogeneously distributed and averages 9736 ppb. Au values also fluctuate markedly and average 3053 ppb. Values for Cu and Ni average 0.27 and 9.33%, respectively.

Several new areas with disseminated sulfide and/or magnetite mineralization were found in the map area. These occurrences are also associated with altered gabbronorite. However, the alteration is not as intensive as at Rathbun Lake and usually involves uralitization rather than chloritization. The new occurrences also differ in that chalcopyrite is associated with pyrrhotite rather than pyrite.

At Cathro Lake disseminated chalcopyrite, pyrite and pyrrhotite locally comprise up to 5% of the altered gabbronorite. The Wanapitei showing had up to 10% disseminated sulphides composed of the same three minerals. The southern boundary was similarly mineralized in chalcopyrite, pyrrhotite and pyrite and in one locality sulphides were up to 10% of the rock. In all three showings the sulphide mineralization occurred in sheared and altered gabbronorite. Mineralization could not be traced beyond the immediate vicinity of the respective showings.

Results and Recommendations

Geochemical analyses of samples from the Rathbun Lake occurrence confirmed the precious metal enrichment described in previous reports (cf. Dressler, 1983; Rowell, 1984). In several sampes P.G.E. values exceed the 10,000 ppb maximum detection limit. The results also showed that samples with the highest precious metal content are not necessarily those with the most sulphide. Therefore Pt and Pd are not necessarily associated with the sulphides.

Most precious metal values for samples from the new chalcopyrite-pyrrhotite occurrences are generally in hundreds, rather than thousands, of ppb. Pt values range from <50 to 400; Pd from 70 to 375 and Au from 80 to 880 ppb. However, the southern boundary showing returned values as high as 280 ppb Au, 350 Pt and 2700 ppb Pd. These lower values suggest that the precious metals are preferentially associated with chalcopyrite-pyrite mineralization in chloritic alteration zones.

The results of the ground magnetometer survey showed that the Rathbun Lake style of mineralization is not detectable using magnetics since there are no magnetic highs associated with the shaft or dump area. In contrast, the Sudbury dykes are immediately apparent. In the limited area examined the results

correlate well with an earlier, more extensive, magnetometer survey by Koulomzine (1954) and the airborne survey flown by Flag. Both Koulomizine and the airborne magnetometer survey indicate a very strong magnetic anomaly trending north-northwest along the east shore of Rathbun Lake. This anomaly is on trend with a fault which runs south-southeast from Rathbun Lake to Portage Bay. All three magnetometer surveys also detected a large magnetic high west of the shaft area. Although previous workers drilled this latter anomaly the magnetic high remains unexplained. Past workers were looking for mineralization associated with massive sulphides such as that found in the shaft. From our mapping and sampling program it was discovered that high precious metal values do not necessarily occur with abundant sulphides. Since the drill logs of past workers indicated that altered gabbro with disseminated sulphides were not assayed, it is quite possible that disseminated precious metal mineralization was missed.

The following recommendations are based on the results of the mapping and sampling program and on geophysical data obtained from Koulomizine (1954) and Flag Resources.

1. A lake bottom geochemical survey is recommended along Rathbun Lake in order to investigate the origin of the large magnetic anomaly over Rathbun Lake detected by Koulomizine and the Flag Resources airborne survey. The anomaly follows the trend of a fault which extends from Rathbun Lake to Portage Bay. In sheared and altered areas along the fault precious metals are associated with Cu-Ni sulfide showings (ie. the Rathbun Lake occurrence). Since sulphide mineralization is often associated with magnetic anomalies, the extension of the fault into Rathbun Lake provides an excellent exploration target. By defining areas along the anomaly where

elements of interest are concentrated, the survey will pinpoint promising drill targets. The magnetic anomaly on the east shore of Rathbun Lake indicated by Koulomzine was only substantiated by two tranverse lines. Magnetometers are now much more precise than those used in the 1950's. Consequently, it is recommended that a magnetometer survey be conducted at the same time as the lake bottom survey in order to precisely locate the anomaly for drill targets.

2. A geochemical soil survey is recommended for the Wanapitei intrusion. During the limited mapping and sampling program several previously unknown precious metal enriched sulphide showings were discovered well away from the Rathbun Lake shaft. All of the new showings are associated with fault related shears and joints which have acted as conduits for hydrothermal fluids. Because the sheared rock has been altered, much of it has been eroded and is no longer exposed in outcrop. It has been shown that magnetometer and V.L.F. surveys thus far have not detected additional Rathbun Lake type mineralization. A soil orientation survey was conducted during the first mapping program. The results of this survey clearly show that soils over the shaft area and a small showing east of the shaft are enriched in Cu, Ni, Pt and Pd. Both the Ao horizon (humus) and the B horizon (enriched soil) were sampled. The humus samples returned higher values than the B horizon soils. Consequently, a soil survey using the Ao horizon should be conducted sampling every 25 metres on 100 metre interval lines from the existing cut baselines. Further geological mapping should also be undertaken, especially along the projected trend of the fault trending from Rathbun Lake.

SAMPLE DESCRIPTIONS

Sample Number	Elements Assayed	Description
	RATHBUN LAKE & RELATED PROPERTIES	
RG-034	Au, Pt, Pd, I.C.P.	3b with massive cpy & py 60%
RG-035	Au, Ag, Pt, Pd	3b with sulphide along a joint
RG-036	Au, Ag, Pt, Pd	3b with 50% py & cpy
RG-037	Au, Ag, Pt, Pd	3b with 35% py & 1-2% cpy
RG-038	Au, Ag, Pt, Pd, Cu, Ni	3b with chloritic slickensides
RG-039	Au, Ag, Pt, Pd, I.C.P.	3b with pink alteration, 3% diss. py, cpy, aspy.
RG-040	Au, Ag, Pt, Pd, Cu, Ni	3b altered black with 4% diss. py & cpy
RG-041	Au, Ag, Pt, Pd, Cu, Ni	3b/a weakly chloritic 1-2% diss. py & cpy
RG-042	Au, Pt, Pd, I.C.P.	3b altered black with diss. py & cpy
RG-054	Au, Ag, Pt, Pd, Cu Ni	3b choritic, unidentified shiny silver mineral, high specific gravity
BR-W-1	Au, Pt, Pd, Cu, Ni	3b chloritic with 2% diss. py

continued...

SAMPLE DESCRIPTIONS

Sample Number	Elements Assayed	Description
		RATHBUN LAKE & RELATED PROPERTIES
RG-1000	Au, Pt, Pd, Cu, Ni	3a/b weakly chloritic hairline chloritic slips
RG-1001	Au, Pt, Pd, Cu, Ni	3b chloritic, minor pink feldspars with trace py
RG-1002	Au, Pt, Pd, Cu, Ni	3b chloritic with unidentified bluish mineral
RG-1003	Au, Pt, Pd, Cu, Ni	3b chloritic with 1% diss. po
RG-1004	Au, Pt, Pd, Cu, Ni	3b with pink feldspars, trace po
RG-1005	Au, Pt, Pd, Cu, Ni	3b chloritic with trace py
RG-1006	Au, Pt, Pd, Cu, Ni	3b chloritic with 1% diss. py, po & cpy & unidentified bluish mineral
RG-1007	Au, Pt, Pd, Cu, Ni	3b chloritic & sauseritized 1% diss. po, py & cpy & unidentified bluish mineral
RG-1008	Au, Pt, Pd, Cu, Ni	3b chloritic with unidentified bluish silver mineral
RG-1009	Au, Pt, Pd, Cu, Ni	3b chloritic, pink stain trace unidentified bluish mineral
RG-1010	Au, Pt, Pd, Cu, Ni	3b chloritic trace py high specific gravity

continued...

SAMPLE DESCRIPTIONS

Sample Number	Elements Assayed	Description
		RATHBUN LAKE & RELATED PROPERTIES
RG-1011	Au, Pt, Pd, Cu, Ni	3b chloritic trace py high specific gravity
RG-1012	Au, Pt, Pd, Cu, Ni	3b chloritic pink stain trace py & unidentified bluish mineral
RG-1013	Au, Pt, Pd, Cu, Ni	3b chloritic hairline fractures trace py
RG-1014	Au, Pt, Pd, Cu, Ni	3b chloritic & epidotized, fractured trace py & cpy
RG-1015	Au, Pt, Pd, Cu, Ni	3b very chloritic unidentified bluish mineral
W-5	Au, Pt, Pd, Cu, Ni	3a/b medium grained with 1% po & cpy
W-6	Au, Pt, Pd, Cu, Ni	3a/b medium to coarse grained < 0.5% po
W-7	Au, Pt, Pd, Cu, Ni	3a/b coarse grained < 0.5% po
W-8	Au, Pt, Pd, Cu, Ni	3a/b medium grained 1% po & cpy
R-13-1	Au, Pt, Pd, Cu, Ni	1a with 1% po
R-13-2	Au, Pt, Pd, Cu, Ni	1a with < 0.5% py
R-13-3	Au, Pt, Pd, Cu, Ni	3a pegmatitic with < 0.5% po & cpy
R-13-4	Au, Pt, Pd, Cu, Ni	3a coarse grained with < 0.5% sulphide
R-13-5	Au, Pt, Pd, Cu, Ni	3b pegmatitic with < 0.2% cpy

continued...

SAMPLE DESCRIPTIONS

Sample Number	Elements Assayed	Description
RATHBUN LAKE & RELATED PROPERTIES		
R-13-6	Au, Pt, Pd, Cu, Ni	3b pegmatitic with < 0.1% sulphide
R-17-1	Au, Pt, Pd, Cu, Ni	3b medium to coarse grained, 5% po & cpy
R-17-2	Au, Pt, Pd, Cu, Ni	3b pegmatitic with 4-5% po & 2-3% cpy
R-17-3	Au, Pt, Pd, Cu, Ni	3b pegmatitic with 1-2% po & 1% cpy
400S-250E	Au, Pt, Pd, Cu, Ni	3b pegmatitic with magnetite & 10% py locally
450S-250E	Au, Pt, Pd, Cu, Ni	3b crumbly rock, carbonatized
525S-275E	Au, Pt, Pd, Cu, Ni	3b chloritic with magnetite
550E-250S	Au, Pt, Pd, Cu, Ni	3b chloritic 1-2% mt
600E-250S	Au, Pt, Pd, Cu, Ni	3b chloritic with mt
650E-250S	Au, Pt, Pd, Cu, Ni	3b chloritic with mt
SB-1*	Au, Pt, Pd, Cu, Ni	3b 10% combined sulphide, cpy, py, po
SB-2*	Au, Pt, Pd, Cu, Ni	3b 5% diss. combined sulphide, cpy, py, po
SB-3*	Au, Pt, Pd, Cu, Ni	3b 2% diss. combined sulphide, cpy, py, po
RG-082**	Au, Pt, Pd	3b chloritic trace cpy & po along joints

Note:

* from Wanapitei gabbro at southwest corner of property

** from Wanapitei gabbro intrusion at Poulton Lake

continued...

SAMPLE DESCRIPTIONS

Sample Number	Elements Assayed	Description
RATHBUN LAKE & RELATED PROPERTIES		
RG-083**	Au, Pt, Pd	1b near contact with 3b, 1% diss. py
RG-055***	Au, Ag, Pt, Pd, Cu Ni	3b fractured & chloritic with 2% po, 1% cpy & 2% py
RG-056***	Au, Ag, Pt, Pd, Cu Ni	3b chloritic with 2% cpy & po, 1% py
RG-057***	Au, Ag, Pt, Pd, Cu Ni	3b chloritic with 2% cpy & po, 1% py
WA-01°	Au, Ag, Pt, Pd, Cu Ni	3b chloritic with up to 10% combine sulphides including cpy, po, py
WA-02°	Au, Ag, Pt, Pd, Cu Ni	
WA-03°	Au, Ag, Pt, Pd, Cu Ni	

Note:

** from Wanapitei gabbro intrusion at Poulton Lake

*** from Wanapitei gabbro intrusion at Cathro Lake

° Wanapitei intrusion showing by Lake Wanapitei

continued...

SAMPLE DESCRIPTIONS

Sample Number	Elements Assayed	Description
RATHBUN LAKE & RELATED PROPERTIES		
WA-04°	Au, Ag, Pt, Pd, Cu Ni	3b chloritic 1-2% diss. cpy, po & py
WA-05°	Au, Ag, Pt, Pd, Cu Ni	3b
LO+00mN -5+00E†	Au, Pt, Pd, Cu, Ni	B horizon soil
LO+12mN -0+00E†	Au, Pt, Pd, Cu, Ni	B horizon soil
LO+70mN -0+12mE†	Au, Pt, Pd, Cu, Ni	B horizon soil
LO+00N -5+00E†	Au, Pt, Pd, Cu, Ni	Ao (Humus) soil
LO+12N -0+00E†	Au, Pt, Pd, Cu, Ni	Ao (Humus) soil
LO+70N-0 -0+10E†	Au, Pt, Pd, Cu, Ni	Ao (Humus) soil

Note:

° Wanapitei Lake intrusion showing by Lake Wanapitei

† Rathbun Lake mineralization soil orientation survey

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Canada L4Z 1R5

Telephone:(416) 890-0310

CERTIFICATE OF ANALYSIS

O : COOKSVILLE STEEL LTD.

510 HENSALL CIRCLE
MISSISSAUGA, ONTARIO
L5A 1Y1

ATTN: SID MISCHUCK

** CERT. # : A8512095-001-A
INVOICE # : I8512095
DATE : 20-MAY-85
P.O. # : NONE

Sample description	Prep code	Au ppb FA+AA	Pt ppb	Pd ppb
A	205	315	<50	35
B	205	40	<50	<10
C	205	55	50	20
D	205	<5	<50	15
E	205	<5	50	25
F	205	5	<50	35

Chemex Labs Ltd.

Analytical Chemists • Geochemists • Registered Assayers

450 Matheson Blvd. E. No. 54
Mississauga, Ontario
Canada L4Z 1R5

Telephone:(416) 890-0310

CERTIFICATE OF ANALYSIS

TO : COOKSVILLE STEEL LTD.

510 HENSALL CIRCLE
MISSISSAUGA, ONTARIO
L5A 1Y1

ATTN: SID MISCHUCK

** CERT. # : A8512096-001-A
INVOICE # : I8512096
DATE : 22-MAY-85
P.O. # : NONE

Sample Description	Mo ppm (ICP)	W ppm (ICP)	Zn ppm (ICP)	P ppm (ICP)	Pb ppm (ICP)	Bi ppm (ICP)	Cd ppm (ICP)	Co ppm (ICP)
	1	<10	47	420	10	<2	<0.5	800
	<1	<10	<1	200	6	6	0.5	20
	6	<10	3	255	16	5	1.0	93
	<1	<10	<1	425	6	<2	<0.5	10
	<1	<10	<1	555	8	<2	<0.5	7
	<1	<10	<1	820	10	<2	<0.5	58

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Mississauga, Ontario
Canada L4Z 1R5

Telephone:(416) 890-0310

CERTIFICATE OF ANALYSIS

TO : COOKSVILLE STEEL LTD.

510 HENSALL CIRCLE
MISSISSAUGA, ONTARIO
L5A 1Y1

ATTN: SID MISCHUCK

** CERT. # : A8512096-001-I
INVOICE # : I8512096
DATE : 22-MAY-85
P.O. # : NONE

ample escription	Ni ppm (ICP)	Ba ppm (ICP)	Fe % (ICP)	Mn ppm (ICP)	Cr ppm (ICP)	Mg % (ICP)	V ppm (ICP)	Al % (ICP)
	240	35	15.90	160	115	2.59	106	5.54
	11	60	7.44	144	170	1.16	194	7.43
	51	30	5.41	2210	34	6.29	32	0.73
	9	55	1.40	675	175	1.22	87	7.48
	18	80	1.32	162	180	1.01	68	6.13
	66	45	1.30	260	180	1.38	140	7.37

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Mississauga, Ontario
Canada L4Z 1R5

Telephone:(416) 890-0310

CERTIFICATE OF ANALYSIS

TO : COOKSVILLE STEEL LTD.

510 HENSALL CIRCLE
MISSISSAUGA, ONTARIO
L5A 1Y1

ATTN: SID MISCHUCK

** CERT. # : A8512096-001-(
INVOICE # : I8512096
DATE : 22-MAY-85
P.O. # : NONE

Sample Description	Be ppm (ICP)	Ca % (ICP)	Cu ppm (ICP)	Ag ppm AAS	Ti % (ICP)	Sr ppm (ICP)	Na % (ICP)	K % (ICP)
	<0.5	0.08	31	<0.2	0.081	57	2.39	0.31
	<0.5	0.78	285	<0.2	0.302	54	6.36	0.10
	<0.5	14.00	36	<0.2	0.021	94	0.80	0.10
	<0.5	1.93	7	<0.2	0.163	56	7.66	0.34
	<0.5	2.28	<1	<0.2	0.197	91	4.31	0.26
	<0.5	1.05	580	<0.2	0.191	68	6.39	0.31

July 11/85
File No 606

Assay Report for Flag Res.

Sample No.	Description	Au oz/ton	Cu %
RG-001		.002	.042
RG-002		TRACE	.005
RG-003		TRACE	.013
G-004		TRACE	.008
RG 005		TRACE	.007
RG-006		.002	.012
RG-007		TRACE	.009
G 008		TRACE	.003
G-009		TRACE	.019
-010		TRACE	.012
-011		.010	.013
-012		TRACE	.085
-013		TRACE	.012
-014		TRACE	.055
-015		TRACE	.545
-016		TRACE	.075
-017		TRACE	.023
-018		TRACE	.090
-021		TRACE	.003
-022		TRACE	.010
-B-1		TRACE	.024
B-2		TRACE	.006
B-3		TRACE	.025
B-4		TRACE	.009

Sample #	Description	Au oz/ton	Cu %
BR-B-5		TRACE	.006
BR-B-6		TRACE	.006
BR-B-7		TRACE	.027
BR-B-8		TRACE	.041
BR-B-9		TRACE	.022
BR-B-10		TRACE	.005
BR-B-11		TRACE	.006
BR-B-12		TRACE	.006
BR-B-13		.022	5.770

Billing 33 samples assayed for Au & Cu at 15.50/sample = $511.50

$2.00 charge in addition to above fees to cover handling & preparation
$2.00 X 33 = $66.00

TOTAL $577.50

Chemex Labs Ltd.

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450 Matheson Blvd. E. No. 54
Mississauga, Ontario
Canada L4Z 1R5

Telephone:(416) 890-0310

CERTIFICATE OF ANALYSIS

'O : FLAG RESOURCES LTD.

550 - 6TH AVE., S. W. SUITE 1250
CALGARY, ALBERTA
T2P 0S2

** CERT. # : A8514642-002-A
INVOICE # : I8514642
DATE : 11-AUG-85
P.O. # :

ATTN: MURDO McLEOD, CC: ROBIN GOAD, LONDON, ONTARIO

Sample description	Prep code	Ag ppm	Au ppb FA+AA	Pt ppb	Pd ppb
RG-038	208	0.5	30	350	365
RG-039	208	0.8	335	1100	6900
RG-040	208	1.4	380	3100	>10000
RG-041	208	0.6	35	300	250
RG-042	208	--	3050	250	6900
RG-043	208	--	20	--	--
RG-044	208	--	<5	--	--
RG-045	208	--	185	--	--
RG-046	208	--	55	--	--
RG-047	208	--	<5	250	25
RG-048	208	--	200	--	--
RG-049	208	--	130	--	--
RG-050	208	--	650	200	20
RG-051	208	--	<5	--	--
RG-052	208	--	<5	--	--
RG-053	208	--	<5	--	--
RG-054	208	0.5	<5	400	40
RG-055	208	1.4	90	250	70
RG-056	208	2.3	175	350	130
RG-057	208	2.0	110	300	85

Chemex Labs Ltd.

Analytical Chemists • Geochemists • Registered Assayers

450 Matheson Blvd. E. No. 54
Mississauga, Ontario
Canada L4Z 1R5

Telephone:(416) 890-0310

CERTIFICATE OF ASSAY

O : FLAG RESOURCES LTD.

550 - 6TH AVE., S. W. SUITE 1250
CALGARY, ALBERTA
T2P 0S2

** CERT. # : A8514642-001-A
INVOICE # : I8514642
DATE : 11-AUG-85
P.O. # :

ATTN: MURDO McLEOD, CC: ROBIN GOAD, LONDON, ONTARIO

Sample description	Prep code	Cu %	Ni %
BR-C-1	208	--	--
BR-C-2	208	--	--
BR-C-3	208	--	--
BR-C-4	208	--	--
BR-C-5	208	--	--
BR-C-6	208	--	--
BR-C-7	208	--	--
BR-C-8	208	--	--
BR-C-9	208	--	--
BR-G-1	208	--	--
BR-LC-1	208	--	--
BR-M-1	208	--	--
BR-M-2	208	--	--
BR-M-3	208	--	--
BR-M-4	208	--	--
BR-T-1	208	--	--
BR-T-2	208	--	--
BR-T-3	208	--	--
BR-T-4	208	--	--
BR-T-5	208	--	--
BR-T-6	208	--	--
BR-T-7	208	--	--
BR-T-8	208	--	--
BR-T-9	208	--	--
BR-T-10	208	--	--
BR-W-1	208	0.34	0.01
RG-023	208	--	--
RG-024	208	--	--
RG-026	208	--	--
RG-027	208	--	--
RG-028	208	--	--
RG-029	208	--	--
RG-030	208	--	--
RG-031	208	--	--
RG-032	208	--	--
RG-033	208	--	--
RG-034	208	15.10	--
RG-035	208	6.30	0.28
RG-036	208	0.79	0.16
RG-037	208	2.04	2.12

CTA

Chemex Labs Ltd.

Analytical Chemists • Geochemists • Registered Assayers

450 Matheson Blvd. E. No. 54
Mississauga, Ontario
Canada L4Z 1R5

Telephone:(416) 890-0310

CERTIFICATE OF ASSAY

TO : FLAG RESOURCES LTD.

550 - 6TH AVE., S. W. SUITE 1250
CALGARY, ALBERTA
T2P 0S2

** CERT. # : A8514642-002-A
INVOICE # : I8514642
DATE : 11-AUG-85
P.O. # :

ATTN: MURDO McLEOD, CC: ROBIN GOAD, LONDON, ONTARIO

Sample description	Prep code	Cu %	Ni %
RG-038	208	0.05	0.03
RG-039	208	--	--
RG-040	208	1.44	0.58
RG-041	208	0.06	0.02
RG-042	208	--	--
RG-043	208	--	--
RG-044	208	--	--
RG-045	208	--	--
RG-046	208	--	--
RG-047	208	--	--
RG-048	208	--	--
RG-049	208	--	--
RG-050	208	--	--
RG-051	208	--	--
RG-052	208	--	--
RG-053	208	--	--
RG-054	208	<0.01	<0.01
RG-055	208	0.35	0.09
RG-056	208	0.83	0.18
RG-057	208	0.69	0.12

Chemex Labs Ltd.

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212 Brooksbank Ave.
North Vancouver, B.C.
Canada V7J 2C1

Telephone:(604) 984-0221
Telex: 043-52597

CERTIFICATE OF ANALYSIS

TO : FLAG RESOURCES LTD.
Dept. of Geology
Univer. of West. Ontario
550 - 6TH AVE., S. W. SUITE 1250
CALGARY, ALBERTA
London, Ontario
T2P 0S2
N6A 5B7.

✓

ATTN: MURDO McLEOD, CC: ROBIN GOAD

** CERT. # : A8514644-001-A
INVOICE # : I8514644
DATE : 12-AUG-85
P.O. # :

Sample description	Prep code	Cu ppm	Ni ppm	Au ppb FA+AA	Pt ppb	Pd ppb	
L0+00mN 5+00E	201	28	24	<5	250	20	--
L0+12mN 0+00E	201	20	21	<5	<50	10	--
L0+70mN 0+10mE	201	28	27	<5	<50	20	--
L0+00N 5+00E	201	278	300	<5	300	50	--
L0+12N 0+00E	201	365	390	<5	200	90	--
L0+70N 0+10E	201	780	450	<5	250	145	--

Certified by Hart Bechler .....

CTA

Chemex Labs Ltd.

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Mississauga, Ontario
Canada L4Z 1R5

Telephone:(416) 890-0310

CERTIFICATE OF ANALYSIS

TO : FLAG RESOURCES LTD.

550 - 6TH AVE., S. W. SUITE 1250
CALGARY, ALBERTA
T2P 0S2

** CERT. # : A8514643-001-A
INVOICE # : I8514643
DATE : 19-AUG-85
P.O. # :

ATTN: MURDO McLEOD, CC: ROBIN GOAD, LONDON, ONTARIO

Parameter Description		Sample # 1	Sample # 2	Sample # 3	Sample # 4
Sample preparation code		214	214	214	214
Mo ppm	(ICP)	<1	9	<1	60
U ppm	(ICP)	<10	<10	<10	<10
Zn ppm	(ICP)	<1	32	15	<1
V ppm	(ICP)	<10	355	185	40
Pb ppm	(ICP)	40	20	6	2
Bi ppm	(ICP)	110	<2	<2	<2
Cd ppm	(ICP)	<0.5	<0.5	<0.5	<0.5
Co ppm	(ICP)	400	131	99	2750
Ni ppm	(ICP)	5940	1270	4840	1350
Ba ppm	(ICP)	45	20	200	130
Fe %	(ICP)	22.50	6.65	8.82	19.60
Mn ppm	(ICP)	395	385	480	33
Cr ppm	(ICP)	140	150	155	220
Mg %	(ICP)	1.76	5.22	3.51	0.21
W ppm	(ICP)	85	123	195	172
Al %	(ICP)	4.69	8.85	9.67	7.39
Be ppm	(ICP)	<0.5	0.5	1.0	3.5
Ca %	(ICP)	0.76	0.80	1.30	0.12
Cu ppm	(ICP)	>10000	2530	>10000	69
Ag ppm	AAS	17.0	1.0	1.8	1.0
Ti %	(ICP)	0.282	0.234	0.436	0.246
Sr ppm	(ICP)	73	11	85	65
Na %	(ICP)	1.61	3.96	2.57	5.35
K %	(ICP)	0.27	0.94	2.36	1.82

Sample description information
Sample # 1 RG-034
Sample # 2 RG-039
Sample # 3 RG-042
Sample # 4 RG-050

Preparation code description
214 Received as pulp

CTA

ASSAY REPORT

ATOMIC ABSORPTION

FOR FLAG RESOURCES

DATE: August 26, 1985

FILE NO. 267

SAMPLE NO.	DESCRIPTION.	Au- OZ/TON	Ag - OZ/TON	Cu %	Co %	Pb %	Zn %	Mo %
BR-1		.357						
BR-5		214.29 ppb						
BR-6		128.57 ppb						
BR-8		428.57 ppb						
BR-9		.125						
RG-058		300.00 ppb						
RG-060		.039						
RG-064		171.43 ppb						
RG-065		.221						
RG-066		214.29 ppb						
BR-3		.058						
CN-1		342.86 ppb						
RG-062		.019						
RG-063		.024						
CN-2		.068						
RG-059		214.29 ppb						
BR-7		471.43 ppb						
BR-2		171.43 ppb						
BR-4		.032						
RG-061		.045						

ERADA MINES.

ASSAY REPORT

ATOMIC ABSORPTION

FOR FLAG RESOURCES

DATE: August 28, 1985

FILE NO. 628

SAMPLE NO.	Au - ppb	Au - OZ/TON	Ag - OZ/TON	Cu %	Co %	Pb %	Zn %	Mo %
XG-069		.127						
XG-070	205.72	(.006)						
XG-071		.304						
XG-072	247.06	(.007)						
XG-073	170.00	(.005)						
XG-074	247.06	(.007)						
XG-075		.177						
XG-076		.017						
XG-077		.049	.032	.010				
XG-078	423.53	(.012)						
XG-068		.233						
N-3		.198						
N-4	171.43	(.005)						
N-5	137.15	(.004)						
N-6		.022						
N-7		.021						
N-8	317.64	(.009)						

ERANA MINES.

AUG. 30/85
FILE # 629

ASSAY REPORT FOR FLAG RESOURCES

SAMPLE #	DESCRIPTION	Au (oz/ton)	Au(ppb)
A			211.76
B			247.06
C			458.82
D			423.53
E			247.06
F			70.59
G			211.76
H			176.47
I			
J			176.47
K		.036	
L			176.47
M			247.06
N			247.06
O			141.18
P			141.18
Q		.038	
R		.074	
S		.136	
T		.027	
U		.099	
V			282.35
W		.291	
X			529.41

SAMPLE #	DESCRIPTION	Au (oz/ton)	Au ppb
Y		.030	
Z			247.06
AA			458.82

BILLING:

27 SAMPLES ASSAYED ~~FOR FOR~~
Au @ $11.50 / SAMPLE = $310.50 ~~$~~

$3.00 CHARGE PER SAMPLE, IN ADDITION TO ABOVE FEE. TO COVER HANDLING AND PREPARATION = $81.00

TOTAL = $391.50 ~~$~~

Chemex Labs Ltd.

Analytical Chemists • Geochemists • Registered Assayers

212 Brooksbank Ave.
North Vancouver, B.C.
Canada V7J 2C1

Telephone:(604) 984-0221
Telex: 043-52597

CERTIFICATE OF ANALYSIS

: FLAG RESOURCES LTD. **

550 - 6TH AVE., S. W. SUITE 1250
CALGARY, ALBERTA
T2P 0S2

CORRECTED COPY

CERT. # : A8514642-001-A
INVOICE # : I8514642
DATE : 3-SEP-85
P.O. # :

ATTN: MURDO McLEOD, CC: ROBIN GOAD, LONDON, ONTARIO

Sample description	Prep code	Ag ppm	Au ppb FA+AA	Pt ppb	Pd ppb		
BR-C-1	208	--	>10000	--	--	--	--
BR-C-2	208	--	90	--	--	--	--
BR-C-3	208	--	55	--	--	--	--
BR-C-4	208	--	1300	--	--	--	--
BR-C-5	208	--	10	--	--	--	--
BR-C-6	208	--	5	--	--	--	--
BR-C-7	208	--	<5	--	--	--	--
BR-C-8	208	--	<5	--	--	--	--
BR-C-9	208	--	5	--	--	--	--
BR-G-1	208	--	575	--	--	--	--
BR-LC-1	208	--	5	--	--	--	--
BR-M-1	208	--	<5	--	--	--	--
BR-M-2	208	--	5	--	--	--	--
BR-M-3	208	--	<5	--	--	--	--
BR-M-4	208	--	<5	--	--	--	--
BR-T-1	208	--	<5	--	--	--	--
BR-T-2	208	--	<5	--	--	--	--
BR-T-3	208	--	<5	--	--	--	--
BR-T-4	208	--	<5	--	--	--	--
BR-T-5	208	--	1950	--	--	--	--
BR-T-6	208	--	<5	--	--	--	--
BR-T-7	208	--	5	--	--	--	--
BR-T-8	208	--	5	--	--	--	--
BR-T-9	208	--	5	--	--	--	--
BR-T-10	208	--	<5	--	--	--	--
BR-W-1	208	--	20	<50	600	--	--
RG-023	208	--	5	--	--	--	--
RG-024	208	--	55	--	--	--	--
RG-026	208	--	5	--	--	--	--
RG-027	208	--	<5	--	--	--	--
RG-028	208	--	<5	--	--	--	--
RG-029	208	--	>10000	--	--	--	--
RG-030	208	--	5	--	--	--	--
RG-031	208	--	115	--	--	--	--
RG-032	208	--	5	--	--	--	--
RG-033	208	--	140	--	--	--	--
RG-034	208	--	1530	**685	>10000	--	--
RG-035	208	2.6	3730	>10000	>10000	--	--
RG-036	208	1.0	3970	450	2950	--	--
RG-037	208	2.8	5500	9000	>10000	--	--

Certified by .....

CTA

ASSAYERS (ONTARIO) LIMITED

33 CHAUNCEY AVENUE TORONTO, ONTARIO M8Z 2Z2 · TELEPHONE (416) 239-3527

Certificate of Analysis

Certificate No. MI-932/ # 4275 Date: September 4, 1985

Received Sept 3/85 19 Samples of Rock

Submitted by Flag Resources 1985 Ltd. Att'n: Mr. S. Miszczuk

Sample No.	Au ppb	Pt ppb	Pd ppb
RG-067	<5	<30	<5
079	5	<30	<5
080	<5	<30	<5
081	<5	<30	<5
082	<5	<30	<5
RG-083	<5	<30	<5
CN- 9	1070		
10	215		
11	1355		
12	81		
13	3050		
CN-14	22		
AA	455		
BB	20		
CC	200		
DD	340		
Q	505		
BR-10	5		
SM-1	2995		

ASSAYERS (ONTARIO) LIMITED

Per _____

J. van Engelen Mgr.

ASSAYERS (ONTARIO) LIMITED
33 CHAUNCEY AVENUE TORONTO, ONTARIO M8Z 2Z2 · TELEPHONE (416) 239-3527

Certificate of Analysis

Certificate No. MI-939/ #4287 Date: September 9, 1985

Received Sept 5/85 2 Samples of Pulps

Submitted by Flag Resources 1985 Ltd. Att'n: Mr. Sidney Miszczuk

"SEMI" MULTI-ELEMENT ANALYSIS RESULTS IN %

	S	RG069		S	RG069
Ag	<.001	<.001	Ni	.003	.003
As	.03	.03	Pb	<.001	<.001
B	.02	.003	Sb	<.001	<.001
Ba	.001	.002	Se	<.001	<.001
Be	<.001	<.001	Sn	<.001	<.001
Bi	<.001	<.001	Sr	<.001	<.001
Cd	.001	.001	Te	<.001	<.001
Ce	<.001	<.001	Th	<.001	<.001
Co	.02	.03	U	<.001	<.001
Cr	.003	.002	V	<.001	<.001
Cu	.005	.004	W	<.001	<.001
Hg	.005	.005	Y	<.001	<.001
La	<.001	<.001	Zn	.003	.001
Mo	<.001	<.001	Zr	.014	.013
Nb	<.001	<.001			

			Na_2O	8	10
Al_2O_3	6.6	9.7	K_2O	.38	.36
Fe_2O_3	2.2	3.8	TiO_2	.01	.007
CaO	.8	1.0	MnO	.02	.02
MgO	.47	.42	P_2O_5	.05	.07

ASSAYERS (ONTARIO) LIMITED

Per _____

J. van Engelen Mgr.

ASSAYERS (ONTARIO) LIMITED
33 CHAUNCEY AVENUE TORONTO, ONTARIO M8Z 2Z2 · TELEPHONE (416) 239-3527

Certificate of Analysis

Certificate No. MI-932/ #4287 Date: September 9, 1985

Received Sept 3/85 2 Samples of Pulps

Submitted by Flag Resources 1985 Ltd. Att'n: Mr. Sidney Miszczuk

"SEMI" MULTI-ELEMENT ANALYSIS RESULTS IN %

	SM-1	CN-13		SM-1	Cn-13
Ag	<.001	<.001	Ni	.001	.005
As	.009	.05	Pb	<.001	<.001
B	<.001	.004	Sb	<.001	<.001
Ba	.002	.001	Se	<.001	<.001
Be	<.001	<.001	Sn	<.001	<.001
Bi	<.001	<.001	Sr	<.001	<.001
Cd	.001	.002	Te	<.001	<.001
Ce	<.001	<.001	Th	<.001	<.001
Co	.02	.01	U	<.001	<.001
Cr	.002	.002	V	.002	<.001
Cu	.002	.003	W	.001	<.001
Hg	.005	.005	Y	<.001	<.001
La	<.001	<.001	Zn	<.001	<.001
Mo	<.001	<.001	Zr	.015	.010
Nb	<.001	<.001			

Al_2O_3	12	7.1	Na_2O	12	10
Fe_2O_3	2.7	5.6	K_2O	.30	.17
CaO	1.5	.49	TiO_2	.005	.01
MgO	.60	.19	MnO	.26	.02
			P_2O_5	.08	.14

ASSAYERS (ONTARIO) LIMITED

Per _____

J. Van Engelen Mgr.

ASSAYERS (ONTARIO) LIMITED
33 CHAUNCEY AVENUE TORONTO, ONTARIO M8Z 2Z2 · TELEPHONE (416) 239-3527

Certificate of Analysis

Certificate No. MI-946/02/ #4299 Date: September 12, 1985

Received 4 Samples of Pulps

Submitted by Flag Resources 1985 Ltd. Att'n: Mr. Sidney Miszczuk

Sample No.	Pt ppb	Pd ppb
CN 13	<30	5
Sm 1	<30	<5
RG 069	<30	<5
S	<30	<5

ASSAYERS (ONTARIO) LIMITED

Per _____

J. van Engelen Mgr.

ASSAYERS (ONTARIO) LIMITED

33 CHAUNCEY AVENUE TORONTO, ONTARIO M8Z 2Z2 TELEPHONE (416) 239-3527

Certificate of Analysis

Certificate No. MI-946/ #4299 Date: September 12, 1985

Received 21 Samples of Rock

Submitted by Flag Resources 1985 Ltd. Att'n: Mr. Sidney Miszczuk

Sample No.	Au ppb	Pt ppb	Pd ppb
K 01	234	<30	18
K 02	186	<30	14
K 03	103	<30	10
ML	145	<30	<5
CN 15	107		
CN 16	345		
CN 17	303		
NAI 01	76		
AJ 01	59		
02	103		
03	352		
05	414		
06	1620		
07B	697		
08	2145		
09	1115		
10	176		
11	259		
13	210		
14	103		
AJ 15	740		
AJ-12	138		

ASSAYERS (ONTARIO) LIMITED

Per _____

J. van Engelen Mgr.

BELL - WHITE ANALYTICAL LABORATORIES LTD.
P.O. BOX 187, HAILEYBURY, ONTARIO TEL: 672-3107

Certificate of Analysis

NO. 20136 **DATE:** October 1, 1985

SAMPLE(S) OF: Core(35) Rock(17) **RECEIVED:** September 1985

SAMPLE(S) FROM: Mr. Robin Goad for Flag Resources.

Sample No.	Oz. Gold
1501	Trace
2	Trace
3	Trace
4	Trace
5	0.014
6	Trace
7	Trace
8	Trace
9	Trace
1510	0.006
1	0.008
2	0.016
3	0.008
4	Trace
5	0.018
6	0.010
7	Trace
8	Trace
9	Trace
1520	Trace
1	Trace
2	Trace
3	Trace
4	Trace
5	Trace
6	Trace
7	Trace

Sample No.	Oz. Gold
1528	Trace
9	Trace
1530	Trace
1	Trace
2	Trace
3	Trace
4	Trace
5**	Trace
AJS-1	Trace
J-1 **	0.118***
CN-13-30W	Trace
CN-13-31W	Trace
CN-13-32W	Trace
CN-15-45N	Trace
CN-15-46W	Trace
CN-15-47W	Trace
CN-15-61W	Trace
CN-15-60W	Trace
CN-16-39W	0.002*
CN-1225-30E	Trace
CN-28	Trace
CN-29	Trace
CN-30	Trace
CN-31	Trace
CN-32	Trace

* Estimated.

** Samp. No. 1535 - 0.02 Oz. Silver
** Samp. No. J-1 - 0.02 Oz. Silver

*** Checked.

BELL-WHITE ANALYTICAL LABORATORIES LTD.

PER _____

BELL-WHITE ANALYTICAL LABORATORIES LTD.
P.O. BOX 187, HAILEYBURY, ONTARIO TEL: 672-3107

Certificate of Analysis

NO. 20573 DATE: October 3, 1985

SAMPLE(S) OF: Core(53) Rock(1) RECEIVED: September, 1985

SAMPLE(S) FROM: Mr. Robin Goad for Flag Resources Ltd.

Sample No.	Oz. Gold	Sample No.	Oz. Gold
1536	Trace	1563	Trace
7	Trace	4	Trace
8	Trace	5	Trace
9	Trace	6	Trace
1540	Trace	7	0.016
1	Trace	8	0.010
2	Trace	9	0.036
3	Trace	1570	0.008
4	Trace	1	0.012
5	Trace	2	0.012
6	Trace	3	Trace
7	Trace	4	Trace
8	Trace	5	Trace
9	Trace	6	Trace
1550	Trace	7	0.004
1	Trace	8	0.002*
2	0.004	9	Trace
3	Trace	1580	Trace
4	Trace	1	Trace
5	Trace	2	0.002*
6	Trace	3	0.006
7	Trace	4	0.004
8	Trace	5	Trace
9	Trace	6	Trace
1560	Trace	7	Trace
1	Trace	8	Trace
2	Trace	CN-18-50E	Trace

* Estimated.

IN ACCORDANCE WITH LONG-ESTABLISHED NORTH AMERICAN CUSTOM, UNLESS IT IS SPECIFICALLY STATED OTHERWISE GOLD AND SILVER VALUES REPORTED ON THESE SHEETS HAVE NOT BEEN ADJUSTED TO COMPENSATE FOR LOSSES AND GAINS INHERENT IN THE FIRE ASSAY PROCESS.

BELL-WHITE ANALYTICAL LABORATORIES LTD.

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BELL-WHITE ANALYTICAL LABORATORIES LTD.
P.O. BOX 187. HAILEYBURY, ONTARIO TEL: 672-3107

Certificate of Analysis

NO. 22235 **DATE:** October 10, 1985

SAMPLE(S) OF: Core(39) Rock(12) **RECEIVED:** October, 1985

SAMPLE(S) FROM: Robin Goad for Flag Resources Ltd.

Project: Crystal North

Sample No.	Oz. Gold	Sample No.	Oz. Gold	Gold ppb
1616	Trace	1642	Trace	
7	Trace	3	Trace	
8	Trace	4	Trace	
9	0.002*	5	0.010	
1620	0.004	6	Trace	
1	0.002*	7	Trace	
2	Trace	8	Trace	
3	0.004	9	Trace	
4	Trace	1650	Trace	
5	Trace	1	Trace	
6	0.002*	2	0.002*	
7	0.022	3	Trace	
8	0.020	4	Trace	
9	0.012			
1630	Trace	300-2-30		55
1	0.004	300-6-9		17
2	Trace	300-12-5		21
3	Trace	300-18-2		14
4	Trace	300-24-5		11
5	Trace	300-30-5		10
6	Trace	300-41-5		7
7	Trace	300-48-5		12
8	0.008	300-56-8		11
9	Trace	300-62-5		8
1640	Trace	300-68-5		14
1	Trace	J-S-E		8

* Estimated.

BELL-WHITE ANALYTICAL LABORATORIES LTD.

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BELL - WHITE ANALYTICAL LABORATORIES LTD.
P.O. BOX 187, HAILEYBURY, ONTARIO TEL: 672-3107

Certificate of Analysis

NO. 22196 DATE: October 10, 1985

SAMPLE(S) OF: Core(39) RECEIVED: October, 1985

SAMPLE(S) FROM: Robin Goad for Flag Resources Ltd.

Sample No.	Gold ppb
CN-20-90E	14
CN-23-83E	8
CN-34	206*
CN-35	84
CN-36	81
CN-37	23
CN-38	43
CN-39	106*
CN-40	21
CN-41	26
CN-42	11
M-D-X	8

* Checked.

BELL-WHITE ANALYTICAL LABORATORIES LTD.

PER _____

BELL-WHITE ANALYTICAL LABORATORIES LTD.
P.O. BOX 187. HAILEYBURY, ONTARIO TEL: 672-3107

Certificate of Analysis

NO. 22196 Page 1 of 2 DATE: October 10, 1985

SAMPLE(S) OF: Core(39) RECEIVED: October, 1985

SAMPLE(S) FROM: Robin Goad for Flag Resources Ltd.

Sample No.	Oz. Gold	Oz. Silver
1589	Trace	
1590	Trace	
1	Trace	
2	Trace	
3	Trace	
4	Trace	
5	Trace	
6	0.002*	
7	0.042	0.03
8	0.042	
9	0.036	
1600	0.050	0.03
1	0.002*	
2	0.008	
3	0.020	Trace
4	Trace	
5	Trace	
6	Trace	
7	Trace	
8	Trace	
9	Trace	
1610	0.012	
1	0.010	
2	Trace	
3	Trace	Trace
4	Trace	Trace
5	Trace	

* Estimated.

(Cont'd.)

IN ACCORDANCE WITH LONG-ESTABLISHED NORTH AMERICAN CUSTOM, UNLESS IT IS SPECIFICALLY STATED OTHERWISE GOLD AND SILVER VALUES REPORTED ON THESE SHEETS HAVE NOT BEEN ADJUSTED TO COMPENSATE FOR LOSSES AND GAINS INHERENT IN THE FIRE ASSAY PROCESS.

BELL-WHITE ANALYTICAL LABORATORIES LTD.

PER

Chemex Labs Ltd.

Analytical Chemists • Geochemists • Registered Assayers

450 Matheson Blvd. E. No. 54
Mississauga, Ontario
Canada L4Z 1R5

Telephone:(416) 890-0310

CERTIFICATE OF ANALYSIS

TO : COOKSVILLE STEEL LTD.

510 HENSALL CIRCLE
MISSISSAUGA, ONTARIO
L5A 1Y1

** CERT. # : A8517347-001-A
INVOICE # : I8517347
DATE : 21-OCT-85
P.O. # :

CC: FLAG RESOURCES, CALGARY, CC: ROBIN GOAD, LONDON, ONT.

Parameter Description			Sample # 1
Sample preparation code			214
?	ppm	(ICP)	11
	ppm	(ICP)	<10
?	ppm	(ICP)	<1
	ppm	(ICP)	>10000
?	ppm	(ICP)	10
1	ppm	(ICP)	<2
?	ppm	(ICP)	<0.5
?	ppm	(ICP)	465
1	ppm	(ICP)	220
a	ppm	(ICP)	25
~	%	(ICP)	5.72
?	ppm	(ICP)	120
?	ppm	(ICP)	105
<	%	(ICP)	0.38
	ppm	(ICP)	50
1	%	(ICP)	8.74
?	ppm	(ICP)	<0.5
?	%	(ICP)	2.15
?	ppm	(ICP)	47
?	ppm	AAS	0.8
1	%	(ICP)	0.389
7	ppm	(ICP)	63
?	%	(ICP)	7.35
	%	(ICP)	0.72

Sample description information
Sample # 1 1663

Preparation code description
214 Received as pulp

CTA

Chemex Labs Ltd.

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212 Brooksbank Ave.
North Vancouver, B.C.
Canada V7J 2C1

Telephone:(604) 984-0221
Telex: 043-52597

CERTIFICATE OF ASSAY

TO : COOKSVILLE STEEL LTD.

510 HENSALL CIRCLE
MISSISSAUGA, ONTARIO
L5A 1Y1

** CERT. # : A8517346-001-A
INVOICE # : I8517346
DATE : 23-OCT-85
P.O. # :

CC: FLAG RESOURCES, CALGARY, CC: ROBIN GOAD, LONDON, ONT.

Sample description	Prep code	Au FA oz/T					
1655	207	<0.002	--	--	--	--	--
1656	207	0.002	--	--	--	--	--
1657	207	<0.002	--	--	--	--	--
1658	207	<0.002	--	--	--	--	--
1659	207	<0.002	--	--	--	--	--
1660	207	<0.002	--	--	--	--	--
1661	207	<0.002	--	--	--	--	--
1662	207	0.006	--	--	--	--	--
1663	207	0.010	--	--	--	--	--

Registered Assayer, Province of British Columbia

Chemex Labs Ltd.

Analytical Chemists • Geochemists • Registered Assayers

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North Vancouver, B.C.
Canada V7J 2C1

Telephone:(604) 984-0221
Telex: 043-52597

CERTIFICATE OF ASSAY

) : FLAG RESOURCES LTD. **

550 - 6TH AVE., S. W. SUITE 1250
CALGARY, ALBERTA
T2P 0S2

ATTN: M. McLEOD CC: ROBIN GOAD

CERT. # : A8515344-001-A
INVOICE # : I8515344
DATE : 2-SEP-85
P.O. # : NONE

Sample description	Prep code	Au FA oz/T					
RG-029	214	0.578	--	--	--	--	--

Registered Assayer, Province of British Columbia

ASSAYERS (ONTARIO) LIMITED
33 CHAUNCEY AVENUE TORONTO, ONTARIO M8Z 2Z2 · TELEPHONE (416) 239-3527

Certificate of Analysis

Certificate No. MI-939/ #4277 Date: September 6, 1985

Received Sept 5/85 18 Samples of Rejects

Submitted by Flag Resources 1985 Ltd. Att'n: Mr. Sidney Miszczuk
c.c. Mr. Robin Gold

Sample No.	Au ppb	Sample No.	Au ppb
RG-061	1289	CN - 2	1500
062	448	CN - 3	1370
063	713	R	1090
065	2430	S	2030
068	2080	U	1627
069	3400	W	1834
071	3280		
RG-075	1586		
BR- 1	1275		
3	1400		
4	1500		
BR- 9	3900		

ASSAYERS (ONTARIO) LIMITED

Per _____

J. van Engelen Mgr.

Chemex Labs Ltd.

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212 Brooksbank Ave.
North Vancouver, B.C.
Canada V7J 2C1

Telephone:(604) 984-0221
Telex: 043-52597

CERTIFICATE OF ANALYSIS

TO : COOKSVILLE STEEL LTD.

510 HENSALL CIRCLE
MISSISSAUGA, ONTARIO
L5A 1Y1

DEPT. OF GEOLOGY**
UNIV. OF WESTERN ONT.
LONDON, ONT.
N6A 5B7

CERT. # : A8517345-001-A
INVOICE # : I8517345
DATE : 23-OCT-85
P.O. # :

CC: FLAG RESOURCES, CALGARY, CC: ROBIN GOAD, LONDON, ONT.

Sample description	Prep code	Cu ppm	Ag ppm	Ni ppm	Au ppb FA+AA	Pt ppb	Pd ppb
GD-01	205	825	--	56	50	<50	<5
GD-02	205	670	--	65	30	<50	<5
GD-03	205	845	--	57	70	<50	<5
GD-04	205	170	--	112	<5	<50	<5
GD-05	205	--	--	--	<5	--	--
GD-06	205	--	--	--	<5	--	--
GD-07	205	--	--	--	50	<50	<5
GD-08	205	--	--	--	10	<50	<5
GD-09	205	--	--	--	15	<50	<5
GD-10	205	--	--	--	<5	--	--
GD-11	205	49	--	40	<5	<50	<5
GD-12	205	--	--	--	<5	--	--
GD-13	205	3700	--	36	5	50	<5
GD-14	205	--	--	--	10	--	--
GD-15	205	--	--	--	<5	<50	<5
GD-16	205	150	--	115	<5	<50	<5
JS-01	205	--	--	--	<5	--	--
JS-02	205	--	--	--	<5	--	--
JS-03	205	--	--	--	15	--	--
JS-01 + R-01	205	--	--	--	5	--	--
R-01	205	--	--	--	20	--	--
R-02	205	--	--	--	20	--	--
R-03	205	--	--	--	35	--	--
WA-01	205	7000	3.9	2700	870	150	210
WA-02	205	5200	2.2	2150	330	50	215
WA-03	205	8100	4.7	2830	880	400	375
WA-04	205	4000	3.2	325	340	<50	250
WA-05	205	850	0.3	500	80	<50	100

Certified by ..Hart Bichler.....

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North Vancouver, B.C.
Canada V7J 2C1

Telephone:(604) 984-0221
Telex: 043-52597

CERTIFICATE OF ANALYSIS

TO : COOKSVILLE STEEL LTD.

510 HENSALL CIRCLE
MISSISSAUGA, ONTARIO
L5A 1Y1

** CERT. # : A8517346-001-A
INVOICE # : I8517346
DATE : 23-OCT-85
P.O. # :

CC: FLAG RESOURCES, CALGARY, CC: ROBIN GOAD, LONDON, ONT.

Sample description	Prep code	Cu ppm	Ag ppm				
1655	207	--	--	--	--	--	--
1656	207	--	--	--	--	--	--
1657	207	--	--	--	--	--	--
1658	207	--	--	--	--	--	--
1659	207	--	--	--	--	--	--
1660	207	--	--	--	--	--	--
1661	207	--	--	--	--	--	--
1662	207	12	0.1	--	--	--	--
1663	207	--	--	--	--	--	--

Certified by ..Ian Bichler.....

CTA

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Mississauga, Ontario
Canada L4Z 1R5

Telephone:(416) 890-0310

CERTIFICATE OF ANALYSIS

TO : COOKSVILLE STEEL LTD.

510 HENSALL CIRCLE
MISSISSAUGA, ONTARIO
L5A 1Y1

ATTN: SID MISCHUCK CC: MURDO McLEAD & ROBIN GOAD

** CERT. # : A8518501-001-A
INVOICE # : I8518501
DATE : 3-DEC-85
P.O. # : NONE

Sample description	Prep code	Cu ppm	Ni ppm	Au ppb FA+AA	Pt ppb	Pd ppb
400S 250E	205	1280	175	35	50	80
450S 250E	205	103	26	<5	<50	<10
525S 275E	205	123	16	<5	<50	<10
550E 250S	205	91	24	<5	<50	<10
600E 250S	205	102	21	<5	<50	<10
650E 250S	205	78	18	<5	<50	<10
R-13-1	205	35	32	<5	<50	<10
R-13-2	205	22	45	<5	<50	<10
R-13-3	205	375	35	50	<50	20
R-13-4	205	193	67	<5	<50	<10
R-13-5	205	115	33	<5	<50	<10
R-13-6	205	310	45	<5	<50	<10
R-17-1	205	215	78	<5	<50	<10
R-17-2	205	3650	440	150	<50	40
R-17-3	205	690	240	5	<50	20
RG-1000	205	130	47	<5	<50	<10
RG-1001	205	128	44	<5	<50	<10
RG-1002	205	120	41	<5	<50	<10
RG-1003	205	207	70	5	<50	<10
RG-1004	205	14	18	<5	<50	<10
RG-1005	205	98	33	<5	<50	<10
RG-1006	205	205	63	<5	<50	<10
RG-1007	205	550	80	<5	<50	10
RG-1008	205	118	38	<5	<50	<10
RG-1009	205	130	55	<5	<50	<10
RG-1010	205	40	46	<5	<50	20
RG-1011	205	200	65	<5	<50	20
RG-1012	205	125	31	<5	<50	<10
RG-1013	205	115	39	<5	<50	<10
RG-1014	205	94	59	<5	<50	<10
RG-1015	205	187	41	<5	<50	<10
SB-1	205	7900	2000	230	350	2450
SB-2	205	7250	2600	280	350	2700
SB-3	205	1350	670	50	50	810
W-5	205	2300	700	180	50	160
W-6	205	155	54	<5	<50	<10
W-7	205	410	103	<5	<50	10
W-8	205	115	43	15	<50	10

DIAMOND DRILL RECORD

NAME OF PROPERTY: CRYSTAL NORTH

HOLE NO.: CN - 85 - 1 LENGTH: 70.7 m (232')

LOCATION: CLAIM # EGE 926 RATHBUN TWP LOT 6 CON III

LATITUDE: DEPARTURE:

ELEVATION: AZIMUTH: 030° DIP: 45°

STARTED: 22/09/85 FINISHED: 23/09/85

FOOTAGE	DIP	AZIMUTH	FOOTAGE	DIP	AZIMUTH

HOLE NO. 1 SHEET NO. 1

REMARKS:

LOGGED BY ROBIN GOAD

FOOTAGE FROM	FOOTAGE TO	DESCRIPTION	SAMPLE NO.	% SULPHIDES	SAMPLE FOOTAGE FROM	SAMPLE FOOTAGE TO	SAMPLE FOOTAGE TOTAL	ASSAYS %	ASSAYS %	ASSAYS OZ/TON	ASSAYS OZ/TON	
0	2.1 m (7')	CASING										
2.1 m (7')	12.8m (42')	GOWGANDA FORMATION GRAYWACKE. 2.1 m (7') - 12.8 m (42') MASSIVE GRAYWACKE (1a.) - Typical massive dark gray graywacke without dropstones & weakly chloritic. Frequent hairline fractures occurring with random orientation & occasionally quartz filled. Minor bedding can be locally seen represented by thin purple siliceous interbeds which are particularly fractured. 3.7 m (12') chloritic slip with 1.0 cm ellipsoidally shaped quartz sweat. 4.1 m (13'6") blocky core. 4.4 m (14' 5") 0.5 cm quartz stringer with chlorite along the boundaries with traces of chalcopyrite oxidizing to malachite. 7.5 m (24' 6") 1.0 cm concordant quartz stringer with minor chloritic alterations of the adjacent graywacke. The quartz is locally vuggy. 7.5 m (24' 6") bedding is 50° to core axis.										
12.8 m (42')	60.5 m (198.44')	MINERALIZED ZONE 12.8 m (42') - 30.8 m (101') CONTACT ZONE - Zone of intense chloritization &/or silicification in highly fractured &/or brecciated Gowganda graywacke. The alteration increases with depth transgressing from chloritization to silicification and albitization. The brecciation also increases with depth transgressing from fracturing. Minor pink staining accompanies the more intense albitization.										

DIAMOND DRILL RECORD

NAME OF PROPERTY CRYSTAL NORTH
HOLE NO. CN - 85 - 1 LENGTH 70.7 m (232')
LOCATION
LATITUDE DEPARTURE
ELEVATION AZIMUTH 030° DIP -45°
STARTED 22/09/85 FINISHED 23/09/85

FOOTAGE	DIP	AZIMUTH	FOOTAGE	DIP	AZIMUTH

HOLE NO. 1 SHEET NO. 2
REMARKS

LOGGED BY ROBIN GOAD

FOOTAGE FROM	FOOTAGE TO	DESCRIPTION	SAMPLE NO.	SAMPLE % SULPHIDES	SAMPLE FOOTAGE FROM	SAMPLE FOOTAGE TO	SAMPLE FOOTAGE TOTAL	ASSAYS %	ASSAYS %	ASSAYS Au OZ/TON	ASSAYS OZ/TON
		MINERALIZED ZONE (CONTINUED) The fractures are mostly filled with chlorite &/ or white &/ or pink carbonate and locally quartz or albite. 12.8 m (42') - 21.3 m (70') locally intense chloritization and carbonitization with light green bleaching. 21.3 m (70') - 21.9 m (72') intense brecciation with fragments generally < 4 cm - clasts supported in chloritized graywacke matrix. 26.5 m (87') - 30.8 m (101') Intense brecciation and alteration locally chloritized &/ or silicified &/ or albitized.										
		26.5 m (87') - 27.1 m (89') Silicified angular fragments < 1 mm - 1.0 cm in a chloritic matrix with frequent chloritic fracturing.	1501		26.5	27.5	1.0 m			trace	
		27.1 m (84') - 28.3 m (93') Brecciation and alteration similar to above with pink albitization overprinting many of the siliceous fragments occurring up to 3 cm.	1502		27.5	28.5	1.0 m			trace	
		28.3 m (93') - 29.5 m (96' 10") Highly fractured and silicified breccia with frequent chloritic fractures.	1503		28.5	29.5	1.0 m			trace	
		29.5 m (96' 10") - 29.6 (97') Pink albitization overprinting intensely silicified breccia. The pink alteration occurs in the matrix and on the perimeters of silicifed fragments.	1504		29.5	30.8	1.3 m			trace	
		29.6 m (97') - 30.8 m (101') Intensely sheared and chloritized. 30.5 m (100') Chloritic slickenslides.									
		30.8 m (101') - 44.8 m (147') PINK METASOMATITE OR ALBITIC MICROBRECCIA	1505		30.8	31.8	1.0 m			.014	
		- Coarse pink to green and pink massive rock (microbrecciated) &/or brecciated, massive, pink rock composed dominantly of albite and carbonate with minor quartz,	1506		31.8	32.8	1.0 m			trace	

DIAMOND DRILL RECORD

NAME OF PROPERTY CRYSTAL NORTH
HOLE NO. CN - 85 - 1 LENGTH 70.7 m (232')
LOCATION
LATITUDE DEPARTURE
ELEVATION AZIMUTH 030° DIP 45°
STARTED 22/09/85 FINISHED 23/09/85

FOOTAGE	DIP	AZIMUTH	FOOTAGE	DIP	AZIMUTH

HOLE NO. 1 SHEET NO. 3
REMARKS

LOGGED BY ROBIN GOAD

FOOTAGE FROM	FOOTAGE TO	DESCRIPTION	SAMPLE NO.	SULPHIDES %	FOOTAGE FROM	FOOTAGE TO	FOOTAGE TOTAL	ASSAYS AU %	ASSAYS %	ASSAYS AU oz/TON	ASSAYS oz/TON	
		PINK METASOMATITE OR ALBITE MICROBRECCIA (CONTINUED) chlorite, epidote, tourmaline and pyrite. Minor Potassium feldspar occurs along fractures. Individual grains average about 5.0 mm to finer, intergrown with minor quartz and carbonate with chlorite, tourmaline, epidote and potassium feldspar occurring in fractures. Green mica also locally occurs. Pyrite occurs finely disseminated throughout the rock or along fractures, where it is disseminated or forms continuous bands. Throughout the metasomatite, the pyrite content is about 1% but increases to 10% locally in fracture fillings. Carbonate occurs as greenish rhombs up to several cm or as white spots or flecks making up as much as 5% of the rock. Albite can be seen frequently in radiating or star and radiating crystal habit as coarse as 1 cm probably in the form of cleavelandite or nearly pure sodium feldspar. Micro-brecciation is almost pervasive with coarse albite patches and finer albite, chlorite and minor epidote filling the matrix. Coarse fault breccias also occur with angular fragments up to 5.0 cm of the metasomatite in a siliceous &/or chloritic matrix. Arsenopyrite locally occurs, as does tourmaline.										
		35.5 m (116' 6") - 35.7 m (117) Abundant chlorite in breccia matrix.	1507		32.8	33.8	1.0 m			trace		
		38.4 m (126') - 39 m (128') Patchy brick-red stain with frequent siliceous and chlorite-filled fractures. From 2 - 5% pyrite occurs locally concentrated along fractures.	1508		33.8	34.8	1.0 m			trace		
			1509		34.8	35.8	1.0 m			trace		
			1510		35.8	36.8	1.0 m			.006		
			1511		36.8	37.8	1.0 m			trace		
			1512		37.8	38.8	1.0 m			trace		
		39 m (128') - 39.5 m (129' 6") Locally, stain is redder with several 2.0 cm quartz sweats, chlorite-filled fracturing and carbonate rhombs, highly	1513		38.8	39.8	1.0 m			trace		

DIAMOND DRILL RECORD

NAME OF PROPERTY CRYSTAL NORTH
HOLE NO. CN - 85 - 1 LENGTH 70.7 m (232')
LOCATION
LATITUDE DEPARTURE
ELEVATION AZIMUTH 030° DIP 45°
STARTED 22/09/85 FINISHED 23/09/85

FOOTAGE	DIP	AZIMUTH	FOOTAGE	DIP	AZIMUTH

HOLE NO. 1 SHEET NO. 4
REMARKS

LOGGED BY ROBIN GOAD

FOOTAGE FROM	FOOTAGE TO	DESCRIPTION	SAMPLE NO.	SAMPLE % SULPHIDES	SAMPLE FOOTAGE FROM	SAMPLE FOOTAGE TO	SAMPLE FOOTAGE TOTAL	ASSAYS Au %	ASSAYS Au %	ASSAYS Au OZ/TON	ASSAYS Au OZ. TON
		PINK METASOMATITE OR ALBITE MICROBRECCIA (CONTINUED) fractured with sulphides concentrated along the fractures. Sulphides locally 2% with minor, very fine arsenopyrite ?? (Possibly, very fine visible gold) ??									
		40.0 m (131.2') 2.5 cm band of hydrothermal breccia consisting of rounded fragments up to 0.5 cm in a fine siliceous matrix oriented about 20° to the core axis.	1514		39.8	40.8	1.0 m			trace	
		41.3 m (135' 6"0 - 41.8 m (137') Light pink clots (likely carbonate rhombs) occur from 0.5 to 4 cm in diameter, highly fractured, with pyrite locally concentrated to 3%.	1515		40.8	41.8	1.0 m			trace	
			1516		41.8	42.8	1.0 m			trace	
			1517		42.8	43.8	1.0 m			trace	
		42.2 m (138' 6") 10 cm sulphides which increase to 10% locally (occurring in a band).	1518		43.8	44.8	1.0 m			trace	
		44.8 m (147') - 57.5 m (188' 9") CHLORITIC METASOMATITE MICROBRECCIA									
		- Gradational contact from intensely pink stained metasomatite breccia to more chloritized metasomatite microbreccia. Rock essentially as before with coarse patches of albite surrounded by finer (almost milled in appearance) albite with heavy chloritization along fractures and in the matrix. Sulphides are not as evident but may be just finer grains i. e. generally less than 1% pyrite. Decrease in carbonate also occurs.	1519		44.8	45.8	1.0 m			trace	
			1520		45.8	46.8	1.0 m			trace	
			1521		46.8	47.8	1.0 m			trace	
			1522		47.8	48.8	1.0 m			trace	
			1523		48.8	49.8	1.0 m			trace	
			1524		49.8	50.8	1.0 m			trace	
		45.7 m (150') Blocky core.									
		46.2 m (151' 6") Blocky core.	1525		50.8	51.8	1.0 m			trace	
		47.9 (157') Blocky core.									
		48.1 m (157' 8") 2 to 0.5 cm pink carbonate stringers 45° to core axisperiod.	1526		51.8	52.8	1.0 m			trace	
		54 m (177') - 54.7 m (179' 5") 2 cm wide band of hydrothermal breccia with an irregular contact, consisting of fine rounded fragments about 0.2 cm on average and as coarse as 1.0 cm in a fine black matrix	1527		52.8	53.8	1.0 m			trace	
			1528		53.8	54.8	1.0m			trace	

ANGRIDGES - TORONTO - 366-1168

DIAMOND DRILL RECORD

NAME OF PROPERTY: CRYSTAL NORTH
HOLE NO.: CN - 85 - 1 LENGTH: 70.7 m (232')
LOCATION:
LATITUDE: DEPARTURE:
ELEVATION: AZIMUTH: 030° DIP: 45°
STARTED: 22/09/85 FINISHED: 23/09/85

FOOTAGE	DIP	AZIMUTH	FOOTAGE	DIP	AZIMUTH

HOLE NO. 1 SHEET NO. 5
REMARKS:

LOGGED BY: ROBIN GOAD

FOOTAGE FROM	FOOTAGE TO	DESCRIPTION	SAMPLE NO.	SAMPLE % SULPHIDES	SAMPLE FOOTAGE FROM	SAMPLE FOOTAGE TO	SAMPLE FOOTAGE TOTAL	ASSAYS %	ASSAYS %	ASSAYS Au OZ/TON	ASSAYS Ag OZ/TON
		CHLORITIC METASOMATITE MICROBRECCIA (CONTINUED)									
		- Breccia fragments are larger than the diameter of the core at 54.2 m. (This breccia may be a small band of the Sudbury breccia.)	1529		54.8	55.8	1.0 m			trace	
		54.9 m (180') - 56.6 m (185' 7") Blocky core.	1530		55.8	56.8	1.0 m			trace	
		56.6 m (185' 7") - 57.5 m (188' 9") 0.9 m band or fragment of silicified &/or albitized massive Gowganda Formation graywacke extensively microfractured with multiple hairline fractures often parallel to the core axis.	1531		56.8	57.8	1.0 m			trace	
		57.5 m (188' 9") - 58.5 m (191' 9") PINK METASOMATITE MICROBRECCIA									
		- Highly fractured typical pink metasomatite microbreccia consisting of pink-stained albite cleavelandite with minor quartz and chlorite. Frequent 0.25 to 3.0 cm, randomly oriented, highly fractured carbonate rhombs occur. Frequent fine bands of hydrothermal breccia occur in a regular pattern especially at 58.1 m.	1532		57.8	58.8	1.0 m			trace	
			1533		58.8	59.8	1.0 m			trace	
			1534		59.8	60.8	1.0 m			trace	
		58.35 m - 58.55 m Fine gray fault gouge occurs with fine ≤ 0.5 cm angular to rounded fragments in a fine clay-like fault gouge matrix defining the lower contact of the zone.									
		58.5 m (191.9') - 60.5 m (198.4') CONTACT ZONE									
		- Intensely, brecciated and silicified with albitized graywacke with minor pink stain around the siliceous fragments. The matrix is locally chloritized. The breccia is clast supported with angular to sub-angular fragments up to 3.0 cm in a chloritic and siliceous matrix.	1535		26.5	60.8	34.3 m			COMPOSITE trace	0.02

DIAMOND DRILL RECORD

NAME OF PROPERTY CRYSTAL NORTH
HOLE NO. CN - 85 - 1 LENGTH 70.7 m (232')
LOCATION
LATITUDE DEPARTURE
ELEVATION AZIMUTH 030° DIP 45°
STARTED 22/09/85 FINISHED 23/09/85

FOOTAGE	DIP	AZIMUTH	FOOTAGE	DIP	AZIMUTH

HOLE NO. 1 SHEET NO. 6
REMARKS

LOGGED BY ~~ROBIN COAD~~

FOOTAGE FROM	FOOTAGE TO	DESCRIPTION	SAMPLE NO.	SAMPLE % SULPHIDES	SAMPLE FOOTAGE FROM	SAMPLE FOOTAGE TO	SAMPLE FOOTAGE TOTAL	ASSAYS %	ASSAYS %	ASSAYS OZ/TON	ASSAYS OZ/TON
60.5 m (198.4)	70.7 m 232')	GOWGANDA FORMATION GRAYWACKE - 60.5 m (198.4') - 70.7 m (232') ALTERED MASSIVE GRAYWACKE. - Greenish-gray silicified &/or albitized massive graywacke with occasional dropstones < 1.0 cm - 5.0 cm in diameter. Rock is highly fractured and altered and locally blocky. 63.6 m (208' 6") - 0.5 cm zone of 2-3% disseminated pyrite. 64.3 m (210.9') healed hairline fracturing. 65.7 m (215.5') healed hairline fracturing. 67.1 m (220') - 5.0 cm rectangular clast - highly chloritized with several 0.5 cm carbonate rhombs. 68.0 m (223') - 10 cm of intense silicification and bleaching. 69.2 m (227') - 69.7 m (228.5') 3.0 cm fault breccia cuts core sub-parallel to core axis. Less than 0.5 cm rounded clasts occur in a fine black matrix (may be Sudbury breccia). 70.4 m (231') - 70.7 m (232') Local shearing about 35° to core axis. In the shear zone, the clasts are stretched to 1.0 cm. 70.7 m (232') END OF HOLE									

DIAMOND DRILL RECORD

NAME OF PROPERTY CRYSTAL NORTH
HOLE NO. CN - 85 - 2 LENGTH 59.6 m (195' 6")
LOCATION [illegible]
LATITUDE ______ DEPARTURE ______
ELEVATION ______ AZIMUTH 030° DIP 45°
STARTED 23/09/85 FINISHED 25/09/85

FOOTAGE	DIP	AZIMUTH	FOOTAGE	DIP	AZIMUTH

HOLE NO. 2 SHEET NO. 1
REMARKS ______

LOGGED BY ROBIN GOAD

FOOTAGE		DESCRIPTION	SAMPLE					ASSAYS			
FROM	TO		NO.	% SULPHIDES	FOOTAGE FROM	FOOTAGE TO	TOTAL	%	%	Au OZ/TON	OZ/TON
0	3.1 m (10'4")	CASING									
3.1m (10' 4")	9.45 m (31')	MINERALIZED ZONE - 3.1 m (10' 4") - 9.45 m (31') CONTACT ZONE. Intensely fractured &/or brecciated, albitized and chloritized, massive gray graywacke. Local intense shearing with occasional quartz sweats with minor pink staining occurs in breccia matrix. Locally albitized fragments are stained. 3.4 m (11' 3"0 - 4.1 m (13' 6") Zone of quite extensive brecciation and shearing with albitization occurs. Breccia consists of angular fragments of albitized graywacke up to 1.5 cm in a siliceous matrix. Extensive shearing occurs up to 20° to the core axis.	1536		3.3	4.3	1.0 m			trace	
		4.1 m (13' 6"0 - 5.2 m (17') Zone is locally chloritic with frequent quartz sweats. 4.7 m (15' 4") Blocky core.	1537		4.3	5.3	1.0 m			trace	
		5.2 m (17') - 6.7 m (22') Intensive fracturing and brecciation with albitization and minor bleaching. Fragments of breccia are greater than diameter of core with chlorite in the matrix. 6.7 m (22') 2.0 cm band of hydrothermal breccia occurs with irregular contacts. Rounded clasts occur in a siliceous matrix.	1538		5.3	6.3	1.0 m			trace	
		6.8 m (22' 4") - 7.3 m (24') Hairline fracture shearing occurs 10° to core axis. 7.3 m (24') Minor blocky core.	1539		6.3	7.3	1.0 m			trace	
		7.3 m (24') - 9.4 m (31') Intense brecciation and albitization bleaching rock light green/gray. Minor pink staing occurs in matrix and locally on fragment boundaries. Angular fragments up to greater than the diameter of the core are found in an intensely chloritized matrix.	1540		7.3	8.3	1.0 m			trace	

DIAMOND DRILL RECORD

NAME OF PROPERTY CRYSTAL NORTH

HOLE NO. CN - 85 - 2 LENGTH 59.6 m (195' 6")

LOCATION

LATITUDE DEPARTURE

ELEVATION AZIMUTH 030° DIP 45°

STARTED 23/09/85 FINISHED 25/09/85

FOOTAGE	DIP	AZIMUTH	FOOTAGE	DIP	AZIMUTH

HOLE NO. 2 SHEET NO. 2

REMARKS

LOGGED BY ROBIN GOAD

FOOTAGE FROM	FOOTAGE TO	DESCRIPTION	SAMPLE NO.	SAMPLE SULPHIDES	SAMPLE FOOTAGE FROM	SAMPLE FOOTAGE TO	SAMPLE FOOTAGE TOTAL	ASSAYS Au %	ASSAYS %	ASSAYS Au oz/ton	ASSAYS oz/ton
		CONTACT ZONE (CONTINUED)									
		- 7.9 m (26') Blocky core. 8.2 m (29') Core is locally vuggy likely the result of dissolution of carbonate. 9.45 m (31') - 11.5 m (37' 8") PINK METASOMATITE MICROBRECCIA	1541		8.3	9.4	1.1 m			trace	
		- Highly fractured pink metasomatite breccia is composed of albite and pure sodium albite (cleavelandite) intergrown with carbonate and minor quartz micro-brecciated with abundant chlorite in the matrix, freq-ent albitized, healed fractures occur in random orientation. Pyrite occurs as interstitial filling and is weakly disseminated. 11.5 m (37' 8") - 14.0 m (46') CHLORITIC METASOMATITE MICROBRECCIA	1542		9.4	10.4	1.0 m			trace	
			1543		10.4	11.4	1.0 m			trace	
			1544		11.4	12.4	1.0 m			trace	
			1545		12.4	13.4	1.0 m			trace	
		- Breccia as above, however, abundant chlorite occurs in the microbreccia matrix. Pink staining is markedly decreased with only minor staining of the microbreccia clasts. Pyrite mainly much less than 1% but is locally concentrated up to 2% and carbonate rhombs are less abundant than in the pink metasomatite microbreccia. Clasts are mainly less than 1.0 cm, but occur up to greater than the diameter of the core. 14.0 m (46') - 16.6 m (54' 5") PINK METASOMATITE MICROBRECCIA	1546		13.4	14.4	1.0 m			trace	
		- Gradational contact with pink metasomatite microbreccia composed of albite, often cleavelandite variety intergrown with minor quartz and carbonate rhombs generally less than 0.5 cm. Rock is highly fractured where fractures are filled with albite &/or chlorite and occasional epidote and tourmaline as well as pyrite.	1547		14.4	15.5	1.0 m			trace	
			1548		15.4	16.4	1.0 m			trace	

DIAMOND DRILL RECORD

NAME OF PROPERTY CRYSTAL NORTH
HOLE NO. CN - 85 - 2 LENGTH 59.6 m (195' 6")
LOCATION
LATITUDE DEPARTURE
ELEVATION AZIMUTH 030° DIP -45°
STARTED 23/09/85 FINISHED 25/09/85

FOOTAGE	DIP	AZIMUTH	FOOTAGE	DIP	AZIMUTH

HOLE NO. 2 SHEET NO. 3
REMARKS
LOGGED BY ROBIN GOAD

FOOTAGE FROM	FOOTAGE TO	DESCRIPTION	SAMPLE NO.	SAMPLE % SULPHIDES	SAMPLE FOOTAGE FROM	SAMPLE FOOTAGE TO	SAMPLE FOOTAGE TOTAL	ASSAYS %	ASSAYS %	ASSAYS Au oz/TON	ASSAYS oz/TON
		PINK METASOMATITE MICROBRECCIA (CONTINUED)									
		- Pyrite content is generally less than 1% but is locally concentrated, especially within fractures in the carbonates.	1549		16.4	17.4	1.0 m			trace	
		14.5 m (47.6') 7 cm locally intense fracturing with a high concentratiom of angular and fractured carbonate rhombs followed by 25 cm of intensely silicified &/or albitized rock which is bleached light grey/pink with densely concentrated fine carbonate rhombs.									
		16.6 m (54' 5") -- 31.2 m (102.3') CHLORITIC METASOMATITE MICROBRECCIA									
		This is typical metasomatite microbreccia composed of albite intensely microbrecciated and fractured with abundant chlorite occurring in the microbreccia matrix and fractures.	1550		17.4	18.4	1.0 m			trace	
			1551		18.4	19.4	1.0 m			trace	
		Pyrite and carbonate content decreases. Pyrite is generally less than 1% but locally concentrated to about 2%. Occasional carbonate rhombs occur between 0.5 and 1.0 cm in size. Patches of chlorite occur randomly up to 1.0 cm.									
		18.3 m (60') - 18.7 m (61.3') A 40 cm band of lightly fractured pink-stained pink metasomatite occurs where fractures are essentially normal to the core axis.	1552		19.4	20.4	1.0 m			.004	
		24.5 m (80.4') A 30 cm band of fault breccia occurs.	1553		20.4	21.4	1.0 m			trace	
		25.4 m (83.1') Locally intense fracturing with abundant chlorite occurs along the fractures.	1554		21.4	22.4	1.0 m			trace	
		25.4 m (83.1') - 26.4 m (86.6') Locally intensely brecciated and fractured with pink stain occurring along fractures.	1555		22.4	23.4	1.0 m			trace	
			1556		23.4	24.4	1.0m			trace	

DIAMOND DRILL RECORD

NAME OF PROPERTY: CRYSTAL NORTH
HOLE NO.: CN - 85 - 2 LENGTH: 59.6 m (195' 6")
LOCATION:
LATITUDE: DEPARTURE:
ELEVATION: AZIMUTH: 030° DIP: 45°
STARTED: 23/09/85 FINISHED: 25/09/85

FOOTAGE	DIP	AZIMUTH	FOOTAGE	DIP	AZIMUTH

HOLE NO. 2 SHEET NO. 4
REMARKS:

LOGGED BY: ROBIN GOAD

FOOTAGE FROM	FOOTAGE TO	DESCRIPTION	SAMPLE NO.	SAMPLE % SULPHIDES	SAMPLE FOOTAGE FROM	SAMPLE FOOTAGE TO	SAMPLE FOOTAGE TOTAL	ASSAYS %	ASSAYS %	ASSAYS Au oz/ton	ASSAYS oz/ton
		26.6 m (87.2') Blocky core.									
		26.9 m (88.2) - 28.2 m (92.5') Frequent irregular bands of fault breccia approximately 20 to 30 cm wide are found. These are composed of albitized fragments less than 1.0 cm in a chloritic fault gouge matrix.	1557		24.4	25.4	1.0 m			trace	
			1558		25.4	26.4	1.0 m			trace	
			1559		26.4	27.4	1.0 m			trace	
		28.4 m (93.1') Blocky core.									
		31.2 m (102.3') - 55.9 m (195' 6") PINK METASOMATITE MICROBRECCIA	1560		27.4	28.4	1.0 m			trace	
		- Pink rock dominantly composed of albite often occurring as cleavelandite i. e. radiating fibrous crystals with crystals up to 1.0 cm. Albite is intergrown with minor quartz and carbonate with carbonate occurring from 1% to 60% of the rock and occurring in up to 4 cm grains but generally < 0.5 cm. Locally the rock is highly fractured with pink staining often concentrated in fractures where potassium feldspar, epidote, quartz and minor tournaline occur. Pyrite is disseminated throughout the core, but is particularly concentrated along fractures forming 1.0 cm bands of massive pyrite. Disseminated trace arsenopyrite occurs locally.	1561		28.4	29.4	1.0 m			trace	
			1562		29.4	30.4	1.0 m			trace	
			1563		30.4	31.4	1.0 m			trace	
			1564		31.4	32.4	1.0 m			trace	
			1565		32.4	33.4	1.0 m			trace	
			1566		33.4	34.4	1.0 m			trace	
			1567		34.4	35.4	1.0 m			.016	
		33.3 m(109.2')0.2 - 1 cm quartz stringers occur at 45° and 85° to the core axis.	1568		35.4	36.4	1.0 m			.010	
		33.4 m coarse patches of pyrite fill grain boundary interstices. Locally less chlorite is present.									
		33.9 m (111.2') - 38.0 m (124.6') Intensely fractured metasomatite often albitized is found with cleavelandite which is typically coarse grained up to 1.0 cm particularly at 34.2 m.	1569		36.4	37.4	1.0 m			.036	
			1570		37.4	38.4	1.0 m			.008	
		35.7 m (117.1') 10.0 cm irregular band of hydrothermal breccia is oriented about 40° to the core axis. It consists of rounded clasts in a siliceous granular matrix.									

DIAMOND DRILL RECORD

NAME OF PROPERTY: CRYSTAL NORTH
HOLE NO.: CN - 85 - 2 LENGTH: 59.6 m (195' 6")
LOCATION:
LATITUDE: DEPARTURE:
ELEVATION: AZIMUTH: 030° DIP: 45°
STARTED: 23/09/85 FINISHED: 25/09/85

FOOTAGE	DIP	AZIMUTH	FOOTAGE	DIP	AZIMUTH

HOLE NO. 2 SHEET NO. 6
REMARKS:
LOGGED BY: ROBIN GOAD

FOOTAGE FROM	FOOTAGE TO	DESCRIPTION	SAMPLE NO.	SAMPLE % SULPHIDES	SAMPLE FOOTAGE FROM	SAMPLE FOOTAGE TO	SAMPLE FOOTAGE TOTAL	ASSAYS Au %	ASSAYS %	ASSAYS oz/ton	ASSAYS oz/ton
		MICROBRECCIA (CONTINUED) 36.3 m (119.1') 10.0 cm band of hydrothermal breccia as previously described is found. 36.5 m (119.7') 10.0 cm band where pyrite occurs up to concentrations of 10% as an irregular fracture-filling band. 36.8 m (120.7') A narrow band of hydrothermal breccia is composed of the rounded clasts in a granular siliceous matrix. 37.0 m (121.4') A 1.0 cm quartz stringer is oriented at 50° to the core axis. The stringer contains massive sooty tourmaline. 37.2 m (122') - 37.9 m (124.3') Frequent bands of hydrothermal breccia are composed of 0.5 cm siliceous rounded clasts in a granular siliceous matrix. 37.5 m (123') 5.0 cm quartz vein occurs with a light green stain likely due to chlorite or green mica. 39.3 m (128.9') Fracture is filled with about 10% pyrite over 10.0 cm.	1571		38.4	39.4	1.0 m			.012	
		39.4 m (129.2') - 40.3 m (132.2') Patchy hydrothermal breccia has an irregular distribution. It is composed of < 0.5 cm rounded, sub-angular clasts in a granular siliceous matrix. 40.5 m (132.8') 5% pyrite is found locally over 10 cm. 40.1 m (131.5') - 55.2 m (181.1') Evenly disseminated tan-colored carbonate rhombs comprise 35 - 60% of the rock. These rhombs are up to 3.0 cm wide. 41.8 m (137.1') Locally, 5% pyrite is found over 5.0 cm. 42.0 m (137.8') Locally, 5% pyrite is found over 5.0 cm. 43.9 m (144') - 44.4 m (145.6') Highly fractured rock with fractures occurring at random orientation. Most of the fractures are albitized with frequent irregular	1572		39.4	40.4	1.0 m			.012	
			1573		40.4	41.4	1.0 m			trace	
			1574		41.4	42.4	1.0 m			trace	
			1575		42.4	43.4	1.0 m			trace	
			1576		43.4	44.4	1.0 m			trace	

DIAMOND DRILL RECORD

NAME OF PROPERTY: CRYSTAL NORTH
HOLE NO.: CN - 85 - 2 LENGTH: 59.6 m (195' 6")
LOCATION:
LATITUDE: DEPARTURE:
ELEVATION: AZIMUTH: 030° DIP: 45°
STARTED: 23/09/85 FINISHED: 25/09/85

FOOTAGE	DIP	AZIMUTH	FOOTAGE	DIP	AZIMUTH

HOLE NO. 2 SHEET NO. 6
REMARKS:

LOGGED BY ROBIN GOAD

FOOTAGE FROM	FOOTAGE TO	DESCRIPTION	SAMPLE NO.	SAMPLE % SULPHIDES	SAMPLE FOOTAGE FROM	SAMPLE FOOTAGE TO	SAMPLE FOOTAGE TOTAL	ASSAYS %	ASSAYS %	ASSAYS Au oz/ton	ASSAYS oz/ton
		MICROBRECCIA (CONTINUED) bands of hydrothermal breccia and < 1% fine tourmaline needles. 44.4 m (145.6') Fracture occurs at 10° to the core axis containing locally 5% pyrite, minor carbonate and minor tourmaline.	1577		44.4	45.4	1.0 m			.004	
		44.8 m (146.9') A 1.0 cm band of massive pyrite is essentially normal to the core axis around the band 10% disseminated pyrite occurs.	1578		45.4	46.4	1.0 m			.002	
		44.9 m (147.3') - 45.5 m (149.2') Carbonate stringers cut the core at 70° - 90° to the core axis with minor, associated, disseminated pyrite.	1579		46.4	47.4	1.0 m			trace	
		45.8 m (150.2') Extensive healed fractures are filled with albite and run mainly normal to the core axis.	1580		47.4	48.4	1.0 m			trace	
		45.8 m (150.2') - 48.8 m (160.1') Coarse pyrite rhombs are found with disseminated pyrite about 3% of the rock	1581		48.4	49.4	1.0 m			TRACE	
		49.1 m (161.0') Coarse carbonate rhombs up to > 5.0 cm occur with disseminated pyrite concentrated up to 10% and a massive sulphide stringer 0.5 cm wide which cuts the core at 25° to the core axis.	1582		49.4	50.4	1.0 m			.002	
		49.8 m (163.3') - 50.5 m (165.6') Very fine-grained albitite metasomatite is bleached tan in color with local coarse carbonate rhombs and 10% disseminated pyrite.									
		51.4 m (168.6') - 51.7 m (169.6') Five quartz carbonate stringers 0.3 - 1.0 cm occur at 45° and 80° to the core axis.	1583		50.4	51.4	1.0 m			.006	
		51.9 m (170.2') - 52.3 m (171.5') Frequent dark-colored, randomly oriented fractures are filled with albite, pyrite, and tourmaline. Locally, pyrite occurs up to 20%.	1584		51.4	52.4	1.0 m			.004	
		52.5 m (172.2') - 53.9 m (176.8') Fine-grained albitite metasomatite core is bleached light tan to pink tan.	1585		52.4	53.4	1.0 m			trace	

DIAMOND DRILL RECORD

NAME OF PROPERTY: CRYSTAL NORTH
HOLE NO.: CN - 85 - 2 LENGTH: 59.6 m (195' 6")
LOCATION:
LATITUDE: DEPARTURE:
ELEVATION: AZIMUTH: 030° DIP: -45°
STARTED: 23/09/85 FINISHED: 25/09/85

FOOTAGE	DIP	AZIMUTH	FOOTAGE	DIP	AZIMUTH

HOLE NO. 2 SHEET NO. 7
REMARKS:

LOGGED BY: ROBIN GOAD

FOOTAGE FROM	FOOTAGE TO	DESCRIPTION	SAMPLE NO.	SAMPLE % SULPHIDES	SAMPLE FOOTAGE FROM	SAMPLE FOOTAGE TO	SAMPLE FOOTAGE TOTAL	ASSAYS Au %	ASSAYS %	ASSAYS oz/TON	ASSAYS oz/TON
		MICROBRECCIA (CONTINUED) The metasomatite is highly fractured mainly at 50° to the core axis with black streaks and patches of tourmaline. Pyrite occurs disseminated at concentrations of about 3%. 54.7 m (179.4') Local concentrations of about 5% pyrite occur along fractures. 55.1 m (180.7') Quartz stringer with tourmaline is 3.5 cm wide at 65° to core axis. 55.2 m (181.1') A 2.0 cm quartz stringer occurs with green mica along its perimeter. 55.2 m (181.1') - 55.9 m (183.3') Core is extensively brecciated and fractured with intense albitization. Angular, rounded clasts up to 4.0 cm occur in a dark chloritic and albitized matrix.	1586		53.4	54.4	1.0 m			trace	
			1587		54.4	55.9	1.5 m			trace	
55.9 m 183.3 '	59.6 m 195.5 '	GOWGANDA FORMATION GRAYWACKE 55.9 m (183.2') - 59.6 m (195.5') ALTERED MASSIVE GRAYWACKE. - Albitized to chloritized massive green/gray graywacke has occasional dropstones up to 5.0 cm. Larger dropstones are granitic and smaller dropstones < 0.5 cm are generally basaltic. Frequent, randomly oriented, hairline fractures occur filled with albite. 56.0 m (183.7') Patch of coarse pyrite is about 3.0 cm. 57.8 m (189.6') 0.5 cm pink, quartz/carbonate stringer is at 50° to the core axis. 57.9 m (190') 0.5 cm pink, quartz/carbonate stringer is at 55° to the core axis. 59.6 m (195' 6") END OF HOLE									

DIAMOND DRILL RECORD

NAME OF PROPERTY CRYSTAL NORTH

HOLE NO. CN - 85 - 3 LENGTH 47.3 m (155')

LOCATION CLAIM S66203 RATHBUN TWP. LOT 6 CON XII

LATITUDE _____ DEPARTURE _____

ELEVATION _____ AZIMUTH 055° DIP 45°

STARTED 28/09/85 FINISHED 30/09/85

FOOTAGE	DIP	AZIMUTH	FOOTAGE	DIP	AZIMUTH

HOLE NO. 3 SHEET NO. 1

REMARKS _____

LOGGED BY ROBIN GOAD

FOOTAGE FROM	FOOTAGE TO	DESCRIPTION	SAMPLE NO.	SAMPLE % SULPHIDES	SAMPLE FOOTAGE FROM	SAMPLE FOOTAGE TO	SAMPLE FOOTAGE TOTAL	ASSAYS Au %	ASSAYS %	ASSAYS OZ/TON	ASSAYS OZ/TON
0	2.1 m (7')	CASING									
2.1m (7')	21.3 m (69.8')	GOWGANDA FORMATION GRAYWACKE 2.1 m (7') - 21.3 m (69.8') ALTERED MASSIVE GRAYWACKE - Massive green chloritic graywacke with < 1% drop stones up to 8.0 cm composed of essentially granitic and basaltic material. Occassional purple silicieous bedding laminations occur 47° to core axis. Frequent dendritic and black fractures occur with main fracture about 25° to the core axis. Dendrites are present in irregular random orientation. 3.7 m (12') A two cm band exhibits purple stain and 20% pyrite. 4.7 m (15' 6") Shearing with minor bleaching and minor blocky core are present. 5.5 m (18') A three cm band of pink metasomatized siltstone cuts core at 52° to core axis. About three cm of shearing occurs on each side of this zone. 8.6 m (28.1') - 8.7 m (28.9') A ten cm band of zoned pink metasomatized siltstone is highly fractured with these fractures chlorite-filled in random orientation. 12.5 m (41') - 12.8 m (42') Blocky core. 13.4 m (44') - 13.5 m (44' 4") Core is locally brecciated and albitized composed of coarse angular fragments which don't exceed the diameter of the core and are clast-supported. 14.0 m (45' 10") - 14.2 m (46' 5") Blocky core with chloritic slickenslides on broken core surface and shearing at 60° to core axis. 14.5 m (47' 5") A 5.0 cm band is intensely brecciated and albitized. 14.8 m (48' 5") - 15.3 m (50' 2") Chlorite-filled fractures or shears are at 20° to core axis.	1589		8.2	9.2	1.0 m			trace	

LANGSTAFFS - TORONTO - 366 1168

FORM 1

DIAMOND DRILL RECORD

NAME OF PROPERTY CRYSTAL NORTH
HOLE NO. CN - 85 - 3 LENGTH 47.3 m (155')
LOCATION
LATITUDE DEPARTURE
ELEVATION AZIMUTH 055° DIP 45°
STARTED 28/09/85 FINISHED 30/09/85

FOOTAGE	DIP	AZIMUTH	FOOTAGE	DIP	AZIMUTH

HOLE NO. 3 SHEET NO. 2
REMARKS

LOGGED BY ROBIN GOAD

FOOTAGE FROM	FOOTAGE TO	DESCRIPTION	SAMPLE NO.	SAMPLE SULPHIDES %	SAMPLE FOOTAGE FROM	SAMPLE FOOTAGE TO	SAMPLE FOOTAGE TOTAL	ASSAYS Au %	ASSAYS Ag %	ASSAYS Au OZ/TON	ASSAYS Ag OZ/TON
		ALTERED MASSIVE GRAYWACKE (CONTINUED) Shears are locally brecciated and bleached due to quite intense albitization. 16.5 m (54') - 16.8 m (55') Chlorite-filled fractures are at 30° to core axis. 18.1 m (59.5') Chlorite-filled fractures are normal to core axis. 18.3 m (60' 1") - 18.5 m (60' 8") Blocky core. 18.7 m (61' 5") Chloritic fractures are normal to core axis. 20.1 m (66') - 20.4 m (67') Minor blocky core.										
20.3 m (69.8')	46.0 m (150.9')	MINERALIZED ZONE 21.3 m (69.8') - 22.3 m (75.1') CONTACT ZONE Intensely brecciated and fractured graywacke is intensely albitized and has local minor pink staining in the matrix and on fragment perimeters. 21.7 m (71.2') Intense fracturing. 22.0 m (72.2') A twenty cm band of hydrothermal breccia is at 15 ° to the core axis. 22.3 m (73.1') - 27.0 m (88.6') PINK/TAN METASOMATIZED SILTSTONE The fine-grained to cryptocrystalline sodium-rich, metasomatized siltstone is composed of a mosaic of intergrown albite crystals with carbonate rhombs occurring between 0.5 cm - 2 cm in size and in concentrations of up to 10% locally. Largely disseminated pyrite is present in amounts of from 1 - 30%. The rock is locally fractured and often filled with albite. The fractures frequently contain pyrite and green mica. 22.3 m (73.14') - 27.0 m (88.6') Cryptocrystalline, tan/gray sodium-rich, metasomatized siltstone is highly fractured containing fine white carbonate rhombs about 2.0 mm in size and locally coarse brown carbonate rhombs up to 3.0 cm (about 10% of the rock.)	1590		21.3	22.3	1.0 m			trace	
			1591		22.3	23.3	1.0 m			trace	
			1592		23.3	24.3	1.0 m			trace	
			1593		24.3	25.3	1.0 m			trace	
			1594		25.3	26.3	1.0 m			trace	
			1595		26.3	27.3	1.0 m			trace	

DIAMOND DRILL RECORD

NAME OF PROPERTY: CRYSTAL NORTH
HOLE NO.: CN - 85 - 3 LENGTH: 47.3 m (155')
LOCATION:
LATITUDE: DEPARTURE:
ELEVATION: AZIMUTH: 055° DIP: 45°
STARTED: 28/09/85 FINISHED: 30/09/85

FOOTAGE	DIP	AZIMUTH	FOOTAGE	DIP	AZIMUTH

HOLE NO. 3 SHEET NO. 3
REMARKS:
LOGGED BY: ROBIN GOAD

FOOTAGE FROM	FOOTAGE TO	DESCRIPTION	SAMPLE NO.	SAMPLE % SULPHIDES	SAMPLE FOOTAGE FROM	SAMPLE FOOTAGE TO	SAMPLE FOOTAGE TOTAL	ASSAYS %	ASSAYS %	ASSAYS Au OZ/TON	ASSAYS Au OZ/TON
		PINK/TAN METASOMATIZED SILTSTONE (CONTINUED) 10% of the rock. Local green rhombs occur which appear to be chlorite pseudomorphing (replacing) carbonate. The fractures are in random orientation and mostly albite-filled chlorite and occasional pink staining occurs which locally stain the rock brick-red. 22.3 m (73.1') - 24.5 m (79.7') Fractures have brick-red stain and most of them are oriented about 60° to the core axis. The rest are in random orientation. 22.8 m (74.8') - 23.0 m (75.4') Coarse pink metasomatite breccia band has 5% local pyrite in randomly oriented fractures some of which are filled with chlorite. 23.0 m (75.4') - 23.2 m (76.1') Blocky core with chloritic slickenslides occurring on many of the broken core surfaces. 23.3 m (76.4') - 24.3 m (79.7') One mm carbonate rhombs are pseudomorphed by chlorite. 23.6 m (77.4') - 23.8 m (78.1') Blocky core. 24.3 m (79.7') - 24.5 m (80.4') A band of pink metasomatite microbreccia is intensely fractured and locally red-stained &/or chlorite-filled. 27.0 m (88.6') - 46.0 m (150.9') METASOMATIZED SILTSTONE BRECCIA - Clast-supported breccia is composed of fragments of sodium-metasomatized siltstone (often bedded) angular-sub-rounded with clasts ◂ 1.0 mm to ▸ 30.0 mm. Occasional pink quartzite clasts also occur increasing with depth. The matrix is composed of albite, often containing chlorite, and quartz, green mica and minor tournaline. Carbonate rhombs occur both in the matrix and in the fragments as does pyrite which averages about 1%, but occurs locally up to 80% in a massive										

DIAMOND DRILL RECORD

NAME OF PROPERTY: CRYSTAL NORTH
HOLE NO.: CN - 85 - 3 LENGTH: 47.3 m (155')
LOCATION:
LATITUDE: DEPARTURE:
ELEVATION: AZIMUTH: 055° DIP: 45°
STARTED: 28/09/85 FINISHED: 30/09/85

FOOTAGE	DIP	AZIMUTH	FOOTAGE	DIP	AZIMUTH

HOLE NO. 3 SHEET NO. 4
REMARKS:
LOGGED BY: ROBIN GOAD

FOOTAGE FROM	FOOTAGE TO	DESCRIPTION	SAMPLE NO.	SAMPLE % SULPHIDES	SAMPLE FOOTAGE FROM	SAMPLE FOOTAGE TO	SAMPLE FOOTAGE TOTAL	ASSAYS %	ASSAYS %	ASSAYS Au oz/TON	ASSAYS Ag oz/TON
		METASOMATIZED SILTSTONE BRECCIA (CONTINUED) sulphide band. Carbonate varies from fine white flecks to dark brown carbonate rhombs. 28.0 m (91.8') - 28.3 m (92.8') Blocky core. 28.3 m (92.8') - 29.6 m (97.1') Intense fracturing occurring at 30° to core axis, filled with albite and locally chlorite with pyrite locally 10 %. 29.6 m (97.1') - 30.0 m (98.4') Local pink metasomatite microbreccia occurs with 5% pyrite. 30.0 m (98.4') - 30.3 m (99.4') Highly-fractured siltstone breccia with chlorite pseudomorphing carbonate rhombs. 30.6 m (100.4') 10.0 cm band of 10% pyrite. 30.7 m (100.7') - 31.2 m (102.3') Intensive hariline fracturing occurs in random orientation but frequently is normal to core axis. Most fractures are healed with albite and suplhides occur up to 10% locally. 31.7 m (104') - 34.6 m (113.5') Clast-supported breccia has almost no matrix. Angular clasts comprise 90% of the rock composed of sodium-metasomatized laminated siltstone. Occcasional patches of hydrothermal breccia cut the fault breccia composed of rounded clasts in a granular siliceous matrix with sulphides < 1%. 34.6 m (113.5') Thirty cm band of massive pyrite (i.e. about 80%) with minor quartz and pink metasomatite fills voids. 35.7 m (117.1') Pyrite content is up to 10% over ten cm. 35.7 m (117.1') - 37.2 m (122') Massive sodium-metasomatized siltstone or coarse breccia occur with pyrite < 10% and coarse carbonate rhombs occurring up to 5 cm across.	1596		27.3	28.3	1.0 m			.002	
			1597		28.3	29.3	1.0 m			.042	0.03
			1598		29.3	30.3	1.0 m			.042	
			1599		30.3	31.3	1.0 m			.036	
			1600		31.3	32.3	1.0 m			.050	0.03
			1601		32.3	3..3	1.0 m			.002	
			1602		33.3	34.3	1.0 m			.008	
			1603		34.3	35.3	1.0 m			.020	
			1604		35.3	36.3	1.0 m			trace	
			1605		36.3	37.3	1.0 m			trace	

DIAMOND DRILL RECORD

NAME OF PROPERTY: CRYSTAL NORTH
HOLE NO.: CN - 85 - 3 LENGTH: 47.3 m (155')
LOCATION:
LATITUDE: DEPARTURE:
ELEVATION: AZIMUTH: 055° DIP: 45°
STARTED: 28/09/85 FINISHED: 30/09/85

FOOTAGE	DIP	AZIMUTH	FOOTAGE	DIP	AZIMUTH

HOLE NO. 3 SHEET NO. 5
REMARKS:

LOGGED BY: ROBIN GOAD

FOOTAGE FROM	FOOTAGE TO	DESCRIPTION	SAMPLE NO.	SAMPLE % SULPHIDES	SAMPLE FOOTAGE FROM	SAMPLE FOOTAGE TO	SAMPLE FOOTAGE TOTAL	ASSAYS Au %	ASSAYS Ag %	ASSAYS Au OZ/TON	ASSAYS Ag OZ/TON
		METASOMATIZED SILTSTONE BRECCIA (CONTINUED)									
		37.2 m (122') - 38.3 m (125.6') Massive fine grained sodium-metasomatized siltstone occurs with up to 4.0 cm carbonate rhombs and 1% pyrite, which is either a large clast in the breccia or an area which has not been brecciated.	1606		37.3	38.3	1.0 m			trace	
			1607		38.3	39.3	1.0 m			trace	
		38.3 m (125.6') - 44.8 m (146.9') Coarse fault breccia is composed of clast-supported sodium-metasomatized laminated wacke and siltstone generally fine-grained to cryptocrystalline in an albitic matrix often exftensively fractured and accompanied by chloritiz-	1608		39.3	40.3	1.0 m			trace	
			1609		40.3	41.3	1.0 m			trace	
		ation.	1610		41.3	42.3	1.0 m			.012	
		40.7 m (133.5') - 40.9 m (134.1') Finer grained breccia with irregular patchy hydrothermal breccia is composed of rounded fragments in a matrix-supported granular albitic siliceous matrix.	1611		42.3	43.3	1.0 m			.010	
		40.9 m (134.1') 3.0 cm band of 3% green mica occurs.									
		41.7 m (136.8') 2.0 cm band of pyrite is oriented at 45° to the core axis.	1612		43.3	44.3	1.0 m			trace	
		42.2 m (138.4') 10 cm band of fine breccia occurs with irregular hydrothermal breccia cutting the mineralized breccia.	1613		44.3	45.3	1.0 m			trace	trace
		43.0 m (141') Patch of green mica occurs.									
		43.4 m (142.3') Patch of green mica occurs.	1614		45.3	46.0	0.7 m			trace	trace
		43.9 m (144') Patch of green mica occurs with 5% pyrite locally.									
		44.0 m (144.3') - 46.0 m (150.9') Finer-grained breccia is present with clasts about 1.0 cm and containing 5% pyrite. Pyrite increases to 15% locally. Intense fracturing and the orientation of the fragments are often 60° to the core axis.									
46.0 m (150.9')	47.3 m (155')	COWGANDA FORMATION GRAYWACKE									
		46.0 m (150.9') - 47.3 m (155') ALTERED MASSIVE GRAY WACKE. Shares contact with mineralized zone. Contact	1615		46.0	47.0	1.0 m			trace	

DIAMOND DRILL RECORD

NAME OF PROPERTY: CRYSTAL NORTH
HOLE NO.: CN - 85 - 3 LENGTH: 47.3 m (155')
LOCATION:
LATITUDE: DEPARTURE:
ELEVATION: AZIMUTH: 055° DIP: 45°
STARTED: 28/09/85 FINISHED: 30/09/85

FOOTAGE	DIP	AZIMUTH	FOOTAGE	DIP	AZIMUTH

HOLE NO. 3 SHEET NO. 6
REMARKS:

LOGGED BY: ROBIN GOAD

FOOTAGE FROM	FOOTAGE TO	DESCRIPTION	SAMPLE NO.	SAMPLE % SULPHIDES	SAMPLE FOOTAGE FROM	SAMPLE FOOTAGE TO	SAMPLE FOOTAGE TOTAL	ASSAYS %	ASSAYS %	ASSAYS Au OZ/TON	ASSAYS OZ/TON
		GOWGANDA FORMATION GRAYWACKE (CONTINUED) Is at 80° to the core axis. The massive, chloritic, green/gray graywacke has << 1% dropstone up to 30 cm across. These are composed of essentially basaltic material. 46.0 m (150.9') - 46.2 m (151.5') Twenty cm of brecciation occurs at the contact grading into fracturing then massive chloritized graywacke. 47.3 m (155') END OF HOLE									

DIAMOND DRILL RECORD

NAME OF PROPERTY: CRYSTAL NORTH
HOLE NO.: CN - 85 - 4 LENGTH: 52.1 m (177')
LOCATION: CLAIM [illegible] REMAINDER [illegible]
LATITUDE: _____ DEPARTURE: _____
ELEVATION: _____ AZIMUTH: 055° DIP: 45°
STARTED: 01/10/85 FINISHED: _____

FOOTAGE	DIP	AZIMUTH	FOOTAGE	DIP	AZIMUTH

HOLE NO. 4 SHEET NO. 1
REMARKS: _____
LOGGED BY: ROBIN GOAD

FOOTAGE FROM	FOOTAGE TO	DESCRIPTION	SAMPLE NO.	SAMPLE SULPHIDES %	SAMPLE FOOTAGE FROM	SAMPLE FOOTAGE TO	SAMPLE FOOTAGE TOTAL	ASSAYS AU %	ASSAYS %	ASSAYS OZ/TON	ASSAYS OZ/TON
0	2.1m (7')	CASING									
2.1m (7')	12.8 m (42')	GOWGANDA FORMATION GRAYWACKE 2.1 m (7') - 12.8 m (42') MASSIVE CHLORITIC ALTERED GRAYWACKE - Chloritized massive green/gray graywacke is present with very occasional dropstones up to 3.0 cm across which are composed of granitic and basaltic material. Fine < 1.0 mm white carbonate rhombs occur and increase to about 3% as the contact zone is approached. 2.2 m (7.3') Blocky core for 30 cm with minor ground core. 5.3 m (17.5') 1.0 cm band of albitized breccia is inclined 80% to the core axis. 5.5 m (18.0') One cm band of albitized breccia is inclined at 60° to the core axis. 5.8 m (19') - 6.1 m (20') Black dendritic hairline fracturing is present with the main fractures oriented at 10° to the core axis and randomly. 6.1 m (20.0') Fine carbonate rhombs start to occur. 6.4 m (21') Ten cm of black dendritic hairline fractures are evident branching from 10° to the core axis to randomly oriented dendrites. 6.5 m (21.5') Intense chloritization with alteration into the dropstones is present. Minor pink staining also occurs. 7.3 m (24') - 7.9 m (26') Numerous faint albitized hairline fractures trend mainly 60° to the core axis. 11.0 m (36.1') A 3.0 cm band of breccia with intensive fracturing (albitized) is oriented 40° to the core axis.									
12.8 m (48')	51.3m (163.3')	MINERALIZED ZONE 12.8 m (42') - 14.2 m (46.6) CONTACT ZONE Intensely fractured locally brecciated and albitized									

DIAMOND DRILL RECORD

NAME OF PROPERTY CRYSTAL NORTH
HOLE NO. CN - 85 - 4 LENGTH 52.1 m (177')
LOCATION
LATITUDE DEPARTURE
ELEVATION AZIMUTH 055° DIP -45°
STARTED 01/10/85 FINISHED

FOOTAGE	DIP	AZIMUTH	FOOTAGE	DIP	AZIMUTH

HOLE NO. 4 SHEET NO. 2
REMARKS

LOGGED BY ROBIN GOAD

FOOTAGE FROM	FOOTAGE TO	DESCRIPTION	SAMPLE NO.	SAMPLE % SULPHIDES	SAMPLE FOOTAGE FROM	SAMPLE FOOTAGE TO	SAMPLE FOOTAGE TOTAL	ASSAYS %	ASSAYS %	ASSAYS Au OZ/TON	ASSAYS OZ/TON
		CONTACT ZONE (CONTINUED) Massive graywacke is present with 3% < 1.0 mm white carbonate rhombs disseminated throughout the rock. The rock is light greenish/gray. The bleaching is due to albitization. Fractures are erratically distributed and often stained reddish-brown or are chloritic but ~~most~~ 35 albitized. 12.9 m (42.3') Local chloritic fractures are 75° to the core axis. 13.1 m (43') A 10.0 cm band of intense fracturing and minor brecciation is present. The fractures are filled with chlorite &/or stained brick-red. 13.3 m (43.6') Chloritic hairline fractures are oriented at 55° to the core axis. 13.6 m (44.6') A 2.0 cm band of hydrothermal breccia with weak pink albitization is present. 13.7 m (44.9') - 14.2 m (46.6') Intensive fracturing and brecciation increases in intensity as the contact with the albitites is approached. Fragments up to 3.0 cm (angular) occur in a fine white albitized matrix. Reddish-brown stain occurs in fractures and carbonate rhombs are locally pseudomorphed by chlorite. 14.2 m (46.6') - 51.3 m (168.3') SODIUM - METASOMATIZED SILTSTONE BRECCIA A sharp contact with sodium-metasomatized siltstone breccia is oriented at 55° to the core axis. Tan/pink cryptocrystalline albitite originating from intense metasomatization of siltstone or laminated wacke is intensely brecciated. This forms clast-supported breccia where angular-rounded clasts occur from < 1.0 mm to > 70 cm along the core axis. The clasts consist of metasomatite wacke and quartzite in a fine albititic &/or chloritic matrix. Carbonate occurs in matrix and in the fragments as fine white flecks to	1616		12.8	14.2	1.40m			trace	

LANGFORD'S TORONTO 366 1168
FORM 1

DIAMOND DRILL RECORD

NAME OF PROPERTY: CRYSTAL NORTH
HOLE NO.: CN - 85 - 4 LENGTH: 52.1 m (177')
LOCATION:
LATITUDE: DEPARTURE:
ELEVATION: AZIMUTH: 055° DIP: 45°
STARTED: 01/10/85 FINISHED:

FOOTAGE	DIP	AZIMUTH	FOOTAGE	DIP	AZIMUTH

HOLE NO. 4 SHEET NO. 3
REMARKS:

LOGGED BY: ROBIN GOAD

FOOTAGE FROM	FOOTAGE TO	DESCRIPTION	SAMPLE NO.	SAMPLE % SULPHIDES	SAMPLE FOOTAGE FROM	SAMPLE FOOTAGE TO	SAMPLE FOOTAGE TOTAL	ASSAYS Au %	ASSAYS Au %	ASSAYS Au OZ/TON	ASSAYS Au OZ/TON
		SODIUM - METASOMATIZED SILTSTONE BRECCIA (CONTINUED) coarse several centimeter rhombs. Pyrite is variable from < 1% to massive and green mica, epidote, and tourmaline commonly occur. Pink Lorrain quartzite fragments are commonly rounded and increase with depth. Intense fracturing occurs sporadically and is mostly albitized and locally chloritized. Hydrothermal breccias composed of rounded albitized fragments in a granular siliceous matrix occur randomly.	1617		14.2	15.2	1.0 m			trace	
			1618		15.2	16.2	1.0 m			trace	
		14.3 m (46.9') Intense fracturing at 30° to the core axis.	1619		16.2	17.2	1.0 m			0.002	
		14.5 m (47.6') Minor patchy green mica is evident. 14.9 m (48.9') 30 cm blocky core.	1620		17.2	18.2	1.0 m			0.004	
		16.5 m (54.1') - 17.6 m (57.7') Finely disseminated pyrite occurs in concentrations of up to 5% and green mica is locally concentrated to 3%.	1621		18.2	19.2	1.0 m			0.002	
		17.9 m (58.7') - 18.4 m (60.3') Finely disseminated pyrite occurs in concentrations of up to 5% and green mica is locally concentrated to 3%.	1622		19.2	20.2	1.0 m			trace	
		18.4 m (60.3') - 20.4 m (66.9') Laminated to massive, cryptocrystalline, tan colored rock is locally brecciated with minor tourmaline. One per cent pyrite occurs. This rock represents either a large clast with local brecciation for 2.0 m or only minor brecciation with lamination locally dislocated giving an almost perthitic appearance to the rock.	1623		20.2	21.2	1.0 m			0.004	
			1624		21.2	22.2	1.0 m			trace	
		20.4 m (66.9') A 30 cm band occurs with 10% pyrite and frequent randomly-oriented irregular bands of hydrothermal breccia from < 1.0 mm to 0.5 cm wide. 20.7 m (67.9') Offset 2.0 mm wide fracture is filled with green mica.	1625		22.2	23.2	1.0 m			trace	
		20.9 m (68.5') Pyrite concentration is locally 5% and fractures occur with tourmaline and green mica.	1626		23.2	24.2	1.0 m			0.002	

DIAMOND DRILL RECORD

NAME OF PROPERTY: CRYSTAL NORTH
HOLE NO.: CN - 85 - 4 LENGTH: 52.1 m (177')
LOCATION:
LATITUDE: DEPARTURE:
ELEVATION: AZIMUTH: 055° DIP: 45°
STARTED: 01/10/85 FINISHED:

FOOTAGE	DIP	AZIMUTH	FOOTAGE	DIP	AZIMUTH

HOLE NO. 4 SHEET NO. 4
REMARKS:

LOGGED BY: ROBIN GOAD

FOOTAGE FROM	FOOTAGE TO	DESCRIPTION	SAMPLE NO.	SAMPLE % SULPHIDES	SAMPLE FOOTAGE FROM	SAMPLE FOOTAGE TO	SAMPLE FOOTAGE TOTAL	ASSAYS %	ASSAYS %	ASSAYS Au OZ/TON	ASSAYS OZ/TON
		SODIUM - METASOMATIZED SILTSTONE BRECCIA (CONTINUED) 21.7 m (71.2') 30 cm of blocky core with frequent reddish-brown stain fractures at 45° to the core axis. 22.3 m (73.1') Frequent fractures at 45° to core axis. 22.7 m (74.5 ') - 27.2 m (89.2') Intense fracturing and minor brecciation is present with pyrite averaging 5% and green mica locally 1%. The green mica content locally is as high as 25%. 25.7 m (84.3') 10.0 cm band containing 25% pyrite at 60° to the core axis. 26.2 m (85.9') 20 cm band of pyrite averaging 10%. 26.8 m (87.9') 10 cm band of pyrite averaging 10%. 27.2 m (89.2') Pyrite concentration is locally 5%. 27.3 m (89.5') 15.0 cm of hydrothermal breccia is composed of rounded pink clasts up to 0.5 cm in a milky-white siliceous granular matrix. 27.5 m (90.2') - 51.2 m (167.9') Abundant pink Lorrain quartzite fragments become increasingly prevalent comprising about 20% of the breccia clasts. Other clast lithologies include albitized siltstone and laminated wacke from ⩽ 1.0 mm to ⩾ 40 cm. These are angular to rounded in a clast-supported albite matrix. Chlorite occurs locally in the matrix in concentrations up to 50%. Carbonate dominates in the clasts but also occurs in the matrix. Tourmaline and green mica plus minor epidote are present in various concentrations. Pyrite averages from 1 - 2 %. 29.0 m (95.1') Black hairline fractures are 70° to core axis. 31.0 m (101.7') - 33.8 m (110.9') As much as 5% chlorite is locally occurring in the matrix, in veinlets and in patches. 31.4 m (103') Up to 10% pyrite occurs locally over 10.0 cm.	1627		24.2	25.2	1.0 m			0.022	
			1628		25.2	26.2	1.0 m			0.020	
			1629		26.2	27.2	1.0 m			0.012	
			1630		27.2	28.2	1.0 m			trace	
			1631		28.2	29.2	1.0 m			0.004	
			1632		29.2	30.2	1.0 m			trace	
			1633		30.2	31.2	1.0 m			trace	

DIAMOND DRILL RECORD

NAME OF PROPERTY: CRYSTAL NORTH
HOLE NO.: CN - 85 - 4 LENGTH: 52.1 m (177')
LOCATION:
LATITUDE: DEPARTURE:
ELEVATION: AZIMUTH: 055° DIP: 45°
STARTED: 01/10/85 FINISHED:

FOOTAGE	DIP	AZIMUTH	FOOTAGE	DIP	AZIMUTH

HOLE NO. 4 SHEET NO. 5
REMARKS:

LOGGED BY: ROBIN GOAD

FOOTAGE FROM	FOOTAGE TO	DESCRIPTION	SAMPLE NO.	SAMPLE % SULPHIDES	SAMPLE FOOTAGE FROM	SAMPLE FOOTAGE TO	SAMPLE FOOTAGE TOTAL	ASSAYS %	ASSAYS %	ASSAYS Au oz/ton	ASSAYS oz/ton
		SODIUM - METASOMATIZED SILTSTONE BRECCIA (CONTINUED)									
		32.7 m (107.3') - 33.5 m (109.9') Pyrite averaging about 5% is locally concentrated up to 25% over 10.0 cm at 33.3 m. Reddish stain occurs around the sulphides.	1634		31.2	32.2	1.0 m			trace	
			1635		32.2	33.2	1.0 m			trace	
		33.8 m (110.9') - 36.5 m (119.7') Coarse breccia occurs as described previously. Highly fractured (often reddish stained) the breccia fractures are essentially normal to the core axis and occasionally chlorite-filled. Pyrite averages about 2% occurring in disseminations and in 1 - 2 mm fractures. Locally concentrations are up to 5%.	1636		32.2	34.2	1.0 m			trace	
			1637		34.2	35.2	1.0 m			trace	
		36.0 m (118.1') 5% pyrite occurs locally over 5.0 cm.	1638		35.2	36.2	1.0 m			0.020	
		36.7 m (120.4') 1 - 4 mm bands of powdery-black tourmaline.	1639		36.2	37.2	1.0 m			0.012	
		37.1 m (121.7') 1.0 cm quartz stringer occurs at 25° to the core axis.									
		38.1 m (125') Local minor blocky core.	1640		37.2	38.2	1.0 m			trace	
		38.5 m (126.3') Hairline fracturing filled with chlorite and pyrite cuts the rock at 55° to the core axis.									
		38.8 m (127.3') - 39.9 m (130.9') 10 cm quartz carbonate veinlets with 3% local pyrite are oriented at 70° to the core axis. Powdery black mineral occurs in the matrix (likely tourmaline).	1641		38.2	39.2	1.0 m			trace	
			1642		39.2	40.2	1.0 m			trace	
		41.9 m (137.4') 30 cm of 30% carbonate rhombs occur. The rhombs range from 1.0 mm to 5.0 mm.	1643		40.2	41.2	1.0 m			trace	
		43.1 m (137.9') - 44.0 m (144.3') Intense fracturing occurs with random orientation but most of it is at 50° to the core axis. Locally brick-red stain occurs with about 1% pyrite.	1644		41.2	42.2	1.0 m			trace	
		44.8 m (146.9') 2.0 mm quartz tourmaline stringer occurs at 45° to the core axis.	1645		42.2	43.2	1.0 m			0.010	
		45.3 m (148.6') 20 cm of light green bleaching due to	1646		43.2	44.2	1.0 m			trace	
			1647		44.2	45.2	1.0 m			trace	

DIAMOND DRILL RECORD

NAME OF PROPERTY: CRYSTAL NORTH
HOLE NO.: CN - 85 - 4 LENGTH: 52.1 m (177')
LOCATION:
LATITUDE: DEPARTURE:
ELEVATION: AZIMUTH: 055° DIP: 45°
STARTED: 01/10/85 FINISHED:

FOOTAGE	DIP	AZIMUTH	FOOTAGE	DIP	AZIMUTH

HOLE NO. 4 SHEET NO. 6
REMARKS:

LOGGED BY: ROBIN GOAD

FOOTAGE FROM	FOOTAGE TO	DESCRIPTION	SAMPLE NO.	SAMPLE % SULPHIDES	SAMPLE FOOTAGE FROM	SAMPLE FOOTAGE TO	SAMPLE FOOTAGE TOTAL	ASSAYS Au %	ASSAYS %	ASSAYS OZ/TON	ASSAYS OZ/TON
		SODIUM - METASOMATIZED SILTSTONE BRECCIA (CONTINUED) concentrations of green mica occurs. 45.8 m (150.2') Same as previously listed. 47.9 m (157.1') Up to 1% tourmaline occurs in matrix and along fractures. 48.4 m (158.7') - 48.8 m (160.1') 40 cm band of fault breccia is oriented at 65° to the core axis. It consists of angular fragments in a light gray fault gouge matrix. 1.0 cm of tourmaline forms a band at the lower contact. 50.2 m (164.7') Quartz/tourmaline stringer 2.0 mm thick is oriented at 70° to the core axis. 50.5 m (165.6') 3% local pyrite is present. 51.25 m (168.1') 5% local patchy chlorite is present.	1648		45.2	46.2	1.0 m			trace	
			1649		46.2	47.2	1.0 m			trace	
			1650		47.2	48.2	1.0 m			trace	
			1651		48.2	49.2	1.0 m			trace	
			1652		49.2	50.2	1.0 m			0.002	
			1653		50.2	51.2	1.0 m			trace	
51.3 m (168.3')	52.1 m (171')	ALTERED MASSIVE GRAYWACKE 51.3 (168.3') - 52.1 m (171') ALTERED MASSIVE GRAYWACKE. - Sharp contact is present oriented at 85° to the core axis. For the first 30 cm the graywacke is highly fractured and brecciated with intense albitization of massive graywacke grading into chloritized and locally bleached green/gray massive graywacke with sheared basaltic dropstones < 0.5 cm. 51.3 m (168.3') 30 cm of bleached light green graywacke with albite-filled hairline fractures. 51.4 m (168.6') 4.0 cm wide albitized band oriented 60° to the core axis. 51.5 m (169.2') - 52.1 m (171') Graywacke is chloritized. 51.9 m (170.2') Blocky core. 52.1 m (177') END OF HOLE	1654		51.2	52.1	0.9 m			trace	

DIAMOND DRILL RECORD

NAME OF PROPERTY: CRYSTAL NORTH
HOLE NO.: CN - 85 - 5 LENGTH: 141.8 m (465')
LOCATION: CLAIM S264053 RATHBUN TWP. SET 6 (EAST)
LATITUDE: _____ DEPARTURE: _____
ELEVATION: _____ AZIMUTH: 055° DIP: -45°
STARTED: _____ FINISHED: 09/10/85

FOOTAGE	DIP	AZIMUTH	FOOTAGE	DIP	AZIMUTH
81.4m	36°				
111.9m	35°				
141.8m	35°				

HOLE NO. 5 SHEET NO. 1
REMARKS: _____
LOGGED BY: ROBIN GOAD

FOOTAGE FROM	FOOTAGE TO	DESCRIPTION	SAMPLE NO.	SAMPLE % SULPHIDES	SAMPLE FOOTAGE FROM	SAMPLE FOOTAGE TO	SAMPLE FOOTAGE TOTAL	ASSAYS Au %	ASSAYS %	ASSAYS OZ/TON	ASSAYS Au OZ/TON
0	5.8 m (19')	CASING									
5.8m (19')	24.2 m (79.5')	GOWGANDA FORMATION GRAYWACKE 5.8 m (19') - 24.2 m (79.5') ALTERED MASSIVE GRAYWACKE - Chloritized massive green/gray graywacke is present with occasional dropstones and occasional fine bedding laminations often more siliceous. The core is often blocky with chloritic &/or carbonate slickenslides and fracture fillings. The Sudbury breccia of the Gowganda formation also locally occurs. 6.1 m (20') Blocky core. 6.7 m (22') 40 cm of microfracturing and minor microbrecciation is present. 8.4 m (27.5') Chloritic hairline microfracturing is oriented at 30° to the core axis. Dendritic branches are in random orientation. 8.5 m (27.9') Faint, fine bedding laminations are oriented at 50° to the core axis. 8.9 m (29.3') - 14.4 m (47.3') Extensive faint hairline fracturing and hydrothermal brecciation are present. These are filled with very fine white carbonate &/or chlorite. 9.3 m (30.3') A 30 cm band of faint brecciation is oriented at 65° to the core axis. About 20 cm of this brecciation is composed of < 1.0 cm fragments in a chloritic matrix while 10 cm has a carbonate matrix. 9.8 m (32') - 11.0 m (36') Randomly oriented chloritic fractures occur. 11.2 m (36.8') - 11.5 m (37.8') Blocky core is present with randomly oriented chloritic hairline fractures. 11.9 m (39') - 13.7 m (45') Blocky core contains a 1.0 cm band of hydrothermal breccia. Randomly oriented										

DIAMOND DRILL RECORD

NAME OF PROPERTY CRYSTAL NORTH

HOLE NO. CN - 85 - 5 LENGTH 141.8 m (465')

LOCATION

LATITUDE DEPARTURE

ELEVATION AZIMUTH 055° DIP 45°

STARTED FINISHED 09/10/85

FOOTAGE	DIP	AZIMUTH	FOOTAGE	DIP	AZIMUTH

HOLE NO. 5 SHEET NO. 2

REMARKS

LOGGED BY ROBIN GOAD

FOOTAGE FROM	FOOTAGE TO	DESCRIPTION	SAMPLE NO.	SAMPLE SULPHIDES	SAMPLE FOOTAGE FROM	SAMPLE FOOTAGE TO	SAMPLE FOOTAGE TOTAL	ASSAYS Au %	ASSAYS Au %	ASSAYS Au OZ/TON	ASSAYS Au OZ/TON
		GOWGANDA FORMATION GRAYWACKE (CONTINUED) Fractures are filled with carbonate &/or chlorite. At 12.8 m (42') a 1.0 cm tension gash is filled with carbonate. Dominant fractures are oriented at 20° to the core axis. 14.0 m (46') A 0.5 cm band of hydrothermal breccia is oriented at 20° to the core axis. 14.3 m (47') A 10.0 cm band of blocky core occurs. 15.2 m (50') - 16.0 m (52.6') Frequent randomly oriented carbonaceous, hairline fractures occur turning to blocky core. 16.2 m (53') Siliceous fine bedding is oriented at 40° to the core axis. 17.1 m (56') - 17.7 m (58') Randomly oriented carbonaceous hairline fractures turn to blocky core. 17.7 m (58') - 18 m (59') Microbrecciation with light green chloritic and carbonaceous bleaching is present. 19.2 m (63') Chloritic, dendritic fractures radiate from carbonate fractures oriented at 35° to the core axis. 19.4 m (63.5') Blocky core. 19.5 m (64') - 20.1 m (66') Stratabound chloritic fractures are oriented at 35° to the core axis. 20.1 m (66') Minor blocky core. 20.7 m (68') Local light green carbonate and chlorite bleaching occurs with minor bedding oriented at 40° to the core axis. 21.0 m (69') - 21.6 m (70.8') Faint clast-supported brecciation is present with clasts up to 2.0 cm. 21.9 m (72') - 22.6 m (74') Carbonate-filled fractures oriented at 10° and 85° to the core axis contain randomly oriented chloritic hairline fractures radiating from them.									

DIAMOND DRILL RECORD

NAME OF PROPERTY: CRYSTAL NORTH
HOLE NO.: CN - 85 - 5 LENGTH: 141.8 m (465')
LOCATION:
LATITUDE: DEPARTURE:
ELEVATION: AZIMUTH: 055° DIP: 45°
STARTED: FINISHED: 09/10/85

FOOTAGE	DIP	AZIMUTH	FOOTAGE	DIP	AZIMUTH

HOLE NO. 5 SHEET NO. 3
REMARKS:

LOGGED BY: ROBIN GOAD

FOOTAGE FROM	FOOTAGE TO	DESCRIPTION	SAMPLE NO.	SAMPLE % SULPHIDES	SAMPLE FOOTAGE FROM	SAMPLE FOOTAGE TO	SAMPLE FOOTAGE TOTAL	ASSAYS %	ASSAYS %	ASSAYS Au OZ/TON	ASSAYS Au OZ/TON
		GOWGANDA FORMATION GRAYWACKE (CONTINUED) 23.2 m (76') - 24.1 m (79.5') Intense fracturing (carbonaceous) oriented at 55° to the core axis is present with randomly oriented chlorite-filled fractures.									
21.2m (79.5')	51.8 m (170')	SUDBURY BRECCIA ± MASSIVE GOWGANDA GRAYWACKE - Typical Sudbury breccia is composed of rounded clasts in a swirly flow-banded matrix. Confirmed clasts are ≤ 3.0 cm in the matrix, but large clasts may occur which are difficult to differentiate from unbrecciated Gowganda formation. (These are ≥ 1.5 m across.) Rock is frequently extensively fractured and filled with carbonate &/or chlorite. About 1% disseminated pyrite occurs locally. 24.7 m (81') - 25.9 m (85') Carbonate slips occur at a low angle to or parallel to the core axis. 27.9 m (91.5') - 28.0 m (92') Blocky core. 28.1 m (92.3') Chloritic fractures 0.5 cm wide are oriented at 70° to the core axis with 10.0 cm of chlorite-filled fractures randomly oriented from the larger fracture. 30.2 m (99') A 20 cm band of extensive brecciation is present containing chlorite and carbonate fractures in a random orientation. 32.3 m (106') - 32.9 m (108') Extensive fracturing is filled with carbonate and chlorite and is oriented at 20° to the core axis. 33.1 m (108.5') A 1.0 cm quartz/carbonate stringer is oriented at 70° to the core axis. 34.0 m (111.75') - 34.3 m (112.5') Core is highly fractured with 3, 2 mm, pink, carbonate stringers oriented at about 50° to the core axis. These locally intersect the Sudbury breccia. 34.8 m (114.25') A 2mm carbonate stringer is oriented at 50° to the core axis.									

DIAMOND DRILL RECORD

NAME OF PROPERTY CRYSTAL NORTH
HOLE NO. CN -85 - 5 LENGTH 141.8 m (465')
LOCATION
LATITUDE DEPARTURE
ELEVATION AZIMUTH 055° DIP 45°
STARTED FINISHED 09/10/85

FOOTAGE	DIP	AZIMUTH	FOOTAGE	DIP	AZIMUTH

HOLE NO. 5 SHEET NO. 4
REMARKS

LOGGED BY ROBIN GOAD

FOOTAGE FROM	FOOTAGE TO	DESCRIPTION	SAMPLE NO.	% SULPHIDES	SAMPLE FOOTAGE FROM	SAMPLE FOOTAGE TO	TOTAL	ASSAYS %	%	Au OZ/TON	OZ/TON
		SUDBURY BRECCIA ± MASSIVE GOWGANDA GRAYWACKE (CONT'D) 35.0 m (114.75') A 2 mm carbonate stringer is oriented at 50° to the core axis. 35.2 m (115.5') A 2 mm carbonate stringer is oriented at 50° to the core axis. 36.0 m (118') Intensive fracturing filled with carbonate is oriented at 30° to the core axis. 36.3 m (119') A 2 mm carbonate stringer is oriented at 50° to the core axis. 37.4 m (122.75') - 37.7 m (123.6') 4 - 5, 2 mm, pink, carbonate stringers are oriented at 25° to the core axis. 37.8 m (124') - 38.8 m (127.3') The core is highly fractured with patches of chlorite up to 3 cm across in irregular orientation with minor carbonate bleaching. The rock is light green. The carbonate fractures are oriented at about 45° to the core axis and locally intersect the Sudbury breccia. 39.4 m (129.25') - 40.2 m (132') Minor blocky core. 40.9 m (134.25') Minor blocky core occurs for 10.0 cm with fine carbonate stringers. 41.0 m (134.5') 2.0 mm, pink, carbonate stringer is oriented at 50° to the core axis. 41.2 m (135') A 10.0 cm band of carbonated microbrecciation is oriented at 60° to the core axis. 41.4 m (135.75') - 41.6 m (136.6') Intensive fracturing is filled with carbonate &/or chlorite and oriented at 50° to the core axis. Conjugate pink carbonate stringers are oriented at 50° to the core axis in the opposite (perpendicular) direction. 42.5 m (139.3') - 42.8 m (140.4') Intensive fracturing and microbrecciation are oriented at 30° to the core axis. Hairline 1 mm fractures in random orientation										

DIAMOND DRILL RECORD

NAME OF PROPERTY: CRYSTAL NORTH
HOLE NO.: CN - 85 - 5 LENGTH: 141.8 m (465')
LOCATION:
LATITUDE: DEPARTURE:
ELEVATION: AZIMUTH: 055° DIP: -45°
STARTED: FINISHED: 09/10/85

FOOTAGE	DIP	AZIMUTH	FOOTAGE	DIP	AZIMUTH

HOLE NO. 5 SHEET NO. 5
REMARKS:

LOGGED BY ROBIN GOAD

FOOTAGE FROM	FOOTAGE TO	DESCRIPTION	SAMPLE NO.	SAMPLE % SULPHIDES	SAMPLE FOOTAGE FROM	SAMPLE FOOTAGE TO	SAMPLE FOOTAGE TOTAL	ASSAYS %	ASSAYS %	ASSAYS Au OZ/TON	ASSAYS Au OZ/TON
		SUDBURY BRECCIA ± MASSIVE GOWGANDA GRAYWACKE (CONT'D) are locally silicified and bleached. Tension gashes conjugate to the orientation of the microbreccation are oriented at 60° to the core axis. 43.2 m (141.8') - 44.0 m (144.25') The graywacke has a typical Sudbury breccia-type, flow-banded matrix. It is bleached to a faint green/gray due to chloritization. 44.4 m (145.75') A 2.0 mm, pink, carbonate stringer is oriented at 50° to the core axis with 30.0 cm of bleached Sudbury breccia on either side. 44.7 m (146.75') - 46.3 m (152') The rock is intensely fractured with chlorite &/or carbonate-filled fractures in random orientation; however, the principle fractures are at 30° to the core axis with finer dendritic fractures. 47.8 m (155.5') A 4.0 mm, pink carbonate stringer is oriented at 40° to the core axis. 47.7 m (156.5') - 47.9 m (157') Blocky core. 47.9 m (157') - 49.4 m (162') Intensive microfracturing and microbrecciation are mostly oriented at 40° to the core axis. These contain patches of intensive chloritization as wide as 30.0 cm. The latter 61.0 cm of core has a typical Sudbury breccia flow-banded matrix with rounded clasts generally < 1.0 cm. Minor blocky core is present. 49.5 m (162.5') - 50 m (164') Microbrecciation and fracturing are present with the principle fractures oriented at 35° to the core axis. Radiating fractures in random orientation are filled with chlorite &/or carbonate. 50.9 m (167') 1.0 mm, pink, carbonate stringers are oriented at 50°, 80°, and 15° to the core axis. 52.0 m (170.5') A 20.0 cm band of hydrothermal breccia									

DIAMOND DRILL RECORD

NAME OF PROPERTY CRYSTAL NORTH
HOLE NO. CN - 85 - 5 LENGTH 141.8 m (465')
LOCATION
LATITUDE DEPARTURE
ELEVATION AZIMUTH 055° DIP 45°
STARTED FINISHED 09/10/85

FOOTAGE	DIP	AZIMUTH	FOOTAGE	DIP	AZIMUTH

HOLE NO. 5 SHEET NO. 6
REMARKS

LOGGED BY ROBIN GOAD

FOOTAGE FROM	FOOTAGE TO	DESCRIPTION	SAMPLE NO.	SAMPLE % SULPHIDES	SAMPLE FOOTAGE FROM	SAMPLE FOOTAGE TO	SAMPLE FOOTAGE TOTAL	ASSAYS %	ASSAYS %	ASSAYS AU OZ/TON	ASSAYS OZ/TON
		SUDBURY BRECCIA ± MASSIVE GOWGANDA GRAYWACKE (CONT'D) cross-cuts the Sudbury breccia. Local patches of intensely chloritized Sudbury breccia are present.									
51.8m (170')	109.5 m (359.1')	GOWGANDA FORMATION GRAYWACKE 51.8 m (170') - 109.5 m (359.1') ALTERED MASSIVE GRAYWACKE - Dark greenish/gray massive graywacke with occasional dropstones up to 10.0 cm is composed mostly of granitic material and is often faceted. Frequent patches of Sudbury breccia occur with the typical swirly flow-banded matrix and fine rounded local clasts. Again, the Sudbury breccia is erratic in distribution which is due to either the presence of very large clasts in the breccia or an erratic sparse distribution. The latter is likely the case. The rock is locally intensely fractured with radiating to dendritic fractures often in random orientation. 52.6 m (172.5') Minor blocky core. 55.5 m (182') - 55.9 m (183.25') Typical Sudbury breccia is present. It has an irregular upper contact and a lower contact that is oriented at 40° to the core axis. 58.8 m (193') Faint typical Sudbury breccia is bleached light green and locally fractured. A 1.0 cm pyrite cube occurs at the upper contact. 60.1 m (197') - 60.5 m (198.5') Intensive fracturing is present. The fractures are filled with chlorite &/or carbonate with associated light green bleaching and 10.0 cm of blocky core. 60.7 m (199') - 66.2 m (217') Patchy, typical Sudbury breccia occurs with locally intensive fracturing filled with chlorite &/or carbonate bleaching. The rock is light green with occasional minor blocky core.									

DIAMOND DRILL RECORD

NAME OF PROPERTY: CRYSTAL NORTH
HOLE NO.: CN- 85 - 5 LENGTH: 141.8 m (465')
LOCATION:
LATITUDE: DEPARTURE:
ELEVATION: AZIMUTH: 055° DIP: 45°
STARTED: FINISHED: 09/10/85

FOOTAGE	DIP	AZIMUTH	FOOTAGE	DIP	AZIMUTH

HOLE NO. 5 SHEET NO. 7
REMARKS:

LOGGED BY ~~ROBIN GOAD~~

FOOTAGE FROM	FOOTAGE TO	DESCRIPTION	SAMPLE NO.	SAMPLE % SULPHIDES	SAMPLE FOOTAGE FROM	SAMPLE FOOTAGE TO	SAMPLE FOOTAGE TOTAL	ASSAYS %	ASSAYS %	ASSAYS Au OZ/TON	ASSAYS OZ/TON
		GOWGANDA FORMATION GRAYWACKE - ALTERED MASSIVE GRAYWACKE (CONTINUED) 64.5 m (211') Blocky core. 64.6 m (212') Blocky core. 66.5 m (218') - 67.2 m (220.5') Intense fracturing is filled with chlorite &/or carbonate in random orientation with minor bleaching. 72.0 m (236') - 72.4 m (237.3') Microbrecciation is present with angular local fragments < 1.0 cm in a bleached siliceous matrix. 73.8 m (242') Blocky core is present with carbonate occurring on broken surfaces. 73.8 m (242') - 74.2 m (243.5') Bleaching is present. 75.8 m (248.5') 30.0 cm of very faint microbrecciation is composed of fragments < 1.0 cm in a bleached carbonated and chloritic matrix. 10.0 cm of blocky core occurs with carbonate on the broken core surfaces. 76.8 m (252') - 78.8 m (258.5') Intensive fracturing occurs with minor patches of Sudbury breccia. The fractures are filled with chlorite &/or carbonate. Minor blocky core occurs with carbonate on the broken core surfaces. 78.7 m (258') - 79.6 m (261') Light green bleaching is present with << 1% pyrite. 79.9 m (262') - 80.5 m (264') Intensive fracturing is present in random orientation. 80.5 m (264') - 81.8 m (266') Locally, blocky core is present. Dioritic dropstones occur. 81.8 m (266') A 1.0 cm quartz stringer is oriented at 70° to the core axis. 81.5 m (266.5') 10.0 cm of blocky core is present. 81.6 m (267.75') Blocky core is locally ground. A 2.0 cm quartz stringer is oriented at 35° to the core axis.									

DIAMOND DRILL RECORD

NAME OF PROPERTY CRYSTAL NORTH
HOLE NO. CN - 85 - 5 LENGTH 141.8 m (465')
LOCATION
LATITUDE DEPARTURE
ELEVATION AZIMUTH 055° DIP 45°
STARTED FINISHED 09/10/85

FOOTAGE	DIP	AZIMUTH	FOOTAGE	DIP	AZIMUTH

HOLE NO. 5 SHEET NO. 8
REMARKS

LOGGED BY ROBIN GOAD

FOOTAGE FROM	FOOTAGE TO	DESCRIPTION	SAMPLE NO.	SAMPLE % SULPHIDES	SAMPLE FOOTAGE FROM	SAMPLE FOOTAGE TO	SAMPLE FOOTAGE TOTAL	ASSAYS %	ASSAYS %	ASSAYS Au OZ/TON	ASSAYS OZ/TON
		GOWGANDA FORMATION GRAYWACKE - ALTERED MASSIVE GRAYWACKE (CONTINUED) 83.3 m (274.8') - 85.1 m (279') Frequent chlorite &/or carbonate-filled fractures occur in a random distribution. 87.2 m (286') - 88.7 m (291') Frequent randomly oriented chlorite-filled fractures with associated light gray bleaching. 89.0 m (292') - 89.5 m (293.5') Blocky core is present with carbonate on broken core surfaces. 89.6 m (294') 10.0 cm of blocky core occurs. 90.2 m (296') - 90.7 m (297.5') Minor light gray bleaching with carbonate &/or chlorite-filled fractures occur in random orientation. 92.3 m (302.6') A carbonate-filled tension gash 2.0 cm wide is oriented at 25° to the core axis. 93.6 m (307') Tension gashes, sweats, and stringers become more frequent and are more frequently albitized. 93.7 m (307.5') - 94.5 m (310') Locally the rock is bleached and fractured at 40° to the core axis. The fractures are predominantly carbonate-filled. 95.7 m (313.8') - 95.8 m (314.25') A 13.0 cm band of pink metasomatite microbreccia occurs with a highly chloritized matrix containing < 1% pyrite. 97.4 m (319.6') A minor shear is oriented at 20° to the core axis with 4.0 cm quartz sweats following the shears. 98.2 m (222') Same as above. 100.0 m (328') A 1.0 cm shear oriented at 30° to the core axis is carbonate and chlorite-filled. 100.0 m (328') - 101.5 m (333') Blocky core is present with frequent carbonate-filled tension gashes oriented at 30° to 80° to the core axis. Blocky core fragments	1655		95.4	95.9	0.5 m			trace	

DIAMOND DRILL RECORD

NAME OF PROPERTY CRYSTAL NORTH
HOLE NO. CN - 85 - 5 LENGTH 141.8 m (465')
LOCATION
LATITUDE DEPARTURE
ELEVATION AZIMUTH 055° DIP -45°
STARTED FINISHED 09/10/85

FOOTAGE	DIP	AZIMUTH	FOOTAGE	DIP	AZIMUTH

HOLE NO. 5 SHEET NO. 9
REMARKS

LOGGED BY ROBIN GOAD

FOOTAGE FROM	FOOTAGE TO	DESCRIPTION	SAMPLE NO.	SAMPLE % SULPHIDES	SAMPLE FOOTAGE FROM	SAMPLE FOOTAGE TO	SAMPLE FOOTAGE TOTAL	ASSAYS Au %	ASSAYS %	ASSAYS OZ/TON	ASSAYS OZ/TON
		often have carbonate or chloritic slickenslides on broken surfaces. 108.4 m (355.6') A 1.0 cm quartz stringer is oriented at 70° to the core axis.									
109 .5m (359 .1')	110.5 m (362.4')	MINERALIZED ZONE 109.5 m (359.1') - 110.5 m (362.4') CONTACT ZONE - Siliceous and chloritized breccia is composed of siliceous &/or albitized fragments up to 4.0 cm in a chloritic matrix. Occasional carbonate stringers occur oriented at 70° to the core axis. Intense microfracturing occurs in random orientation. The zone is terminated by a 5.0 cm quartz stringer with ≤ 2.0 mm carbonate rhombs. Only a trace of pyrite is present.	1656		109.5	110.5	1.0 m			trace	
110 .5m (362 .4')	129.3 m (424.1')	GOWGANDA FORMATION 110.5 m (362.4') - 129.3 m (424.1') ALTERED MASSIVE GRAYWACKE - Chloritized massive green/gray graywacke is locally extensively fractured wherever chloritic fractures are in random orientation. Local granitic dropstones up to 5.0 cm occasionally occur. 113.4 m (372') A 0.5 cm quartz stringer is oriented at 55° to the core axis. 121.5 m (398.6') - 122.0 m (400.25') Blocky core is present with carbonate occurring on broken core surfaces and carbonate-filled fractures are present in random orientation. 122.6 m (402') A 3.0 mm quartz stringer with 3.0 mm of bleaching on either side is oriented at 56° to the core axis. 124.0 m (406.75') - 129.3 m (427.1') Extensive zones of blocky core are present with frequent chloritic slickenslides and carbonate on broken core surfaces. Extensive chloritization of the graywacke is evident.									

DIAMOND DRILL RECORD

NAME OF PROPERTY CRYSTAL NORTH
HOLE NO. CN - 85 - 5 LENGTH 141.8 m (465')
LOCATION
LATITUDE DEPARTURE
ELEVATION AZIMUTH 055° DIP 45°
STARTED 09/10/85 FINISHED

FOOTAGE	DIP	AZIMUTH	FOOTAGE	DIP	AZIMUTH

HOLE NO. 5 SHEET NO. 10
REMARKS

LOGGED BY ROBIN GOAD

FOOTAGE FROM	FOOTAGE TO	DESCRIPTION	SAMPLE NO.	SULPHIDES	FOOTAGE FROM	FOOTAGE TO	FOOTAGE TOTAL	ASSAYS Au %	Ag %	Au OZ/TON	Ag OZ/TON
129.3m (424.1')	134.4m (440.8')	MINERALIZED ZONE 129.3 m (424.1') - 154.4 m (440.8') CONTACT ZONE - Siliceous, bleached, light green breccia is composed of up to 5.0 cm angular fragments in a chloritic siliceous &/or albitic matrix with minor pink to tan stain localized in the matrix and occasionally extending into fragment perimeters. Intensive and extensive fracturing occurs in random orientation. Carbonate rhombs < 2.0 mm are found disseminated in the zone. Frequent quartz eye-like siliceous sweats occur with about 2.0 mm - 5.0 mm cross-sections. At 136.3 m the rock is gradational to an intensely chloritized and albitized breccia with fracture shearing oriented at 20° to the core axis. Dendritic radiating finer fractures have a random orientation. The low 20° angle for the fractures may indicate that the zone is at a very low angle to the diamond drill hole.	7657		129.3	130.3	1.0 m			trace	
			7658		130.3	131.3	1.0 m			trace	
			7659		131.3	132.3	1.0 m			trace	
			7660		132.3	133.3	1.0 m			trace	
			7661		133.3	134.3	1.0 m			trace	
134.4m (440.8')	141.8 m (465')	GOWGANDA FORMATION GRAYWACKE 134.4 m (440.8') - 141.8 m (465') ALTERED MASSIVE GRAYWACKE. - Extensively chloritized, massive green/gray graywacke occurs with intensive chloritic fractures oriented at 20° - 45° to the core axis. Local microbrecciation is present. 138.2 m (453.4') - 141.1 m (463') Extensive chloritization occurs along frequent fractures and into the massive graywacke. 140.2 m (460') - 140.5 m (461') Frequent quartz stringers and tension gashes are oriented at 20° to the core axis. 140.8 m (462') Quartz sweats are oriented at 50° to the core axis. 140.8 m (462') - 141.8 m (465') The rock is intensely chloritized with light green bleaching and frequent									

DIAMOND DRILL RECORD

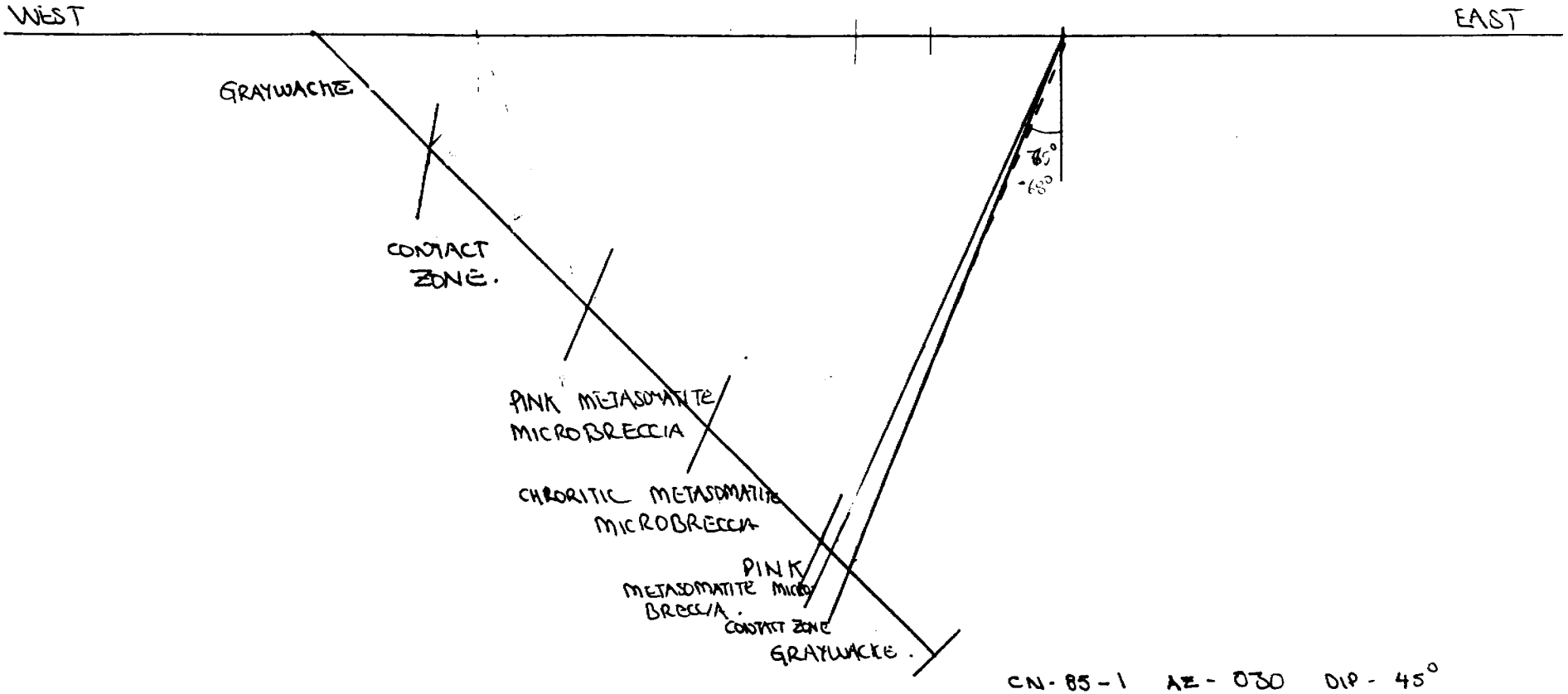
NAME OF PROPERTY CRYSTAL NORTH
HOLE NO. CN - 85 - 5 LENGTH 141.8 m (465')
LOCATION
LATITUDE DEPARTURE
ELEVATION AZIMUTH 055° DIP 45°
STARTED 09/10/85 FINISHED

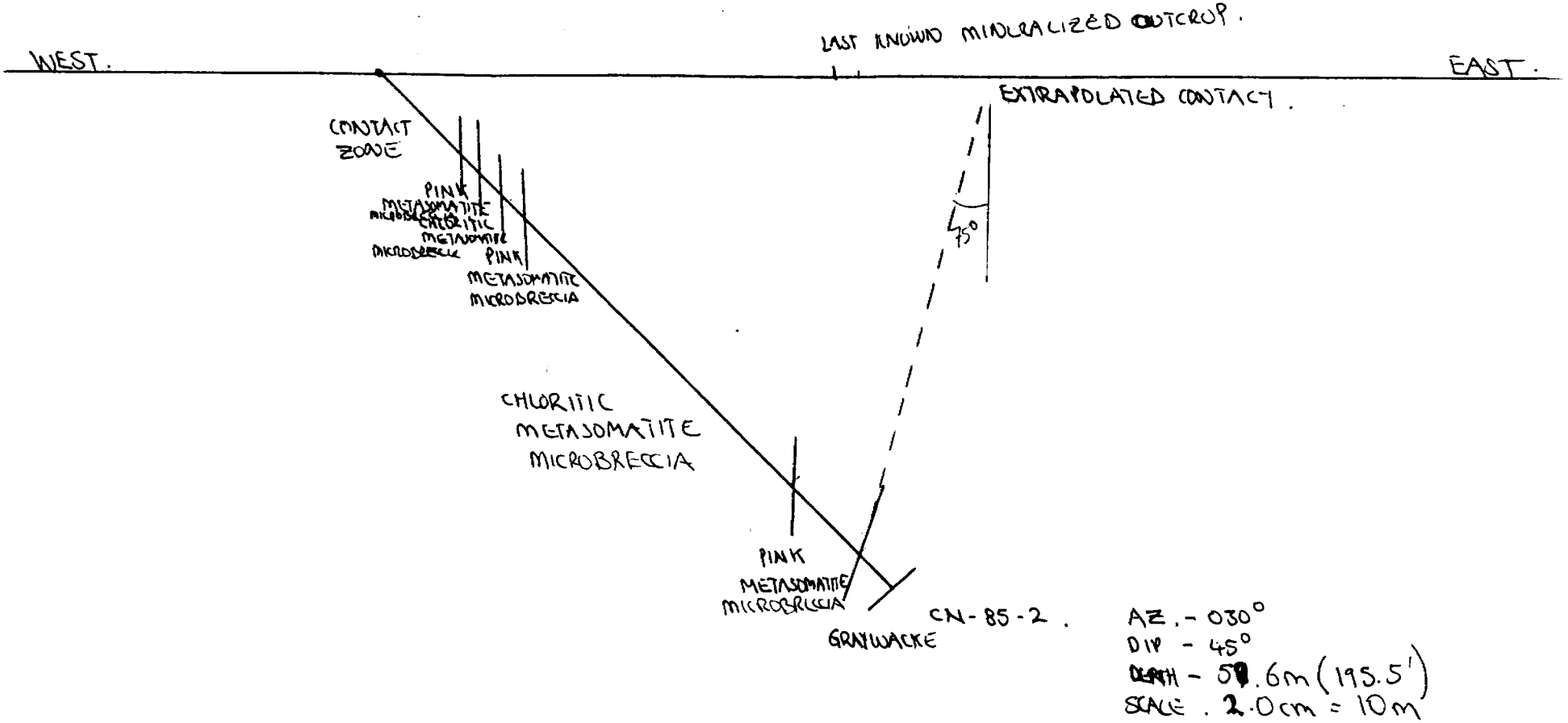
FOOTAGE	DIP	AZIMUTH	FOOTAGE	DIP	AZIMUTH

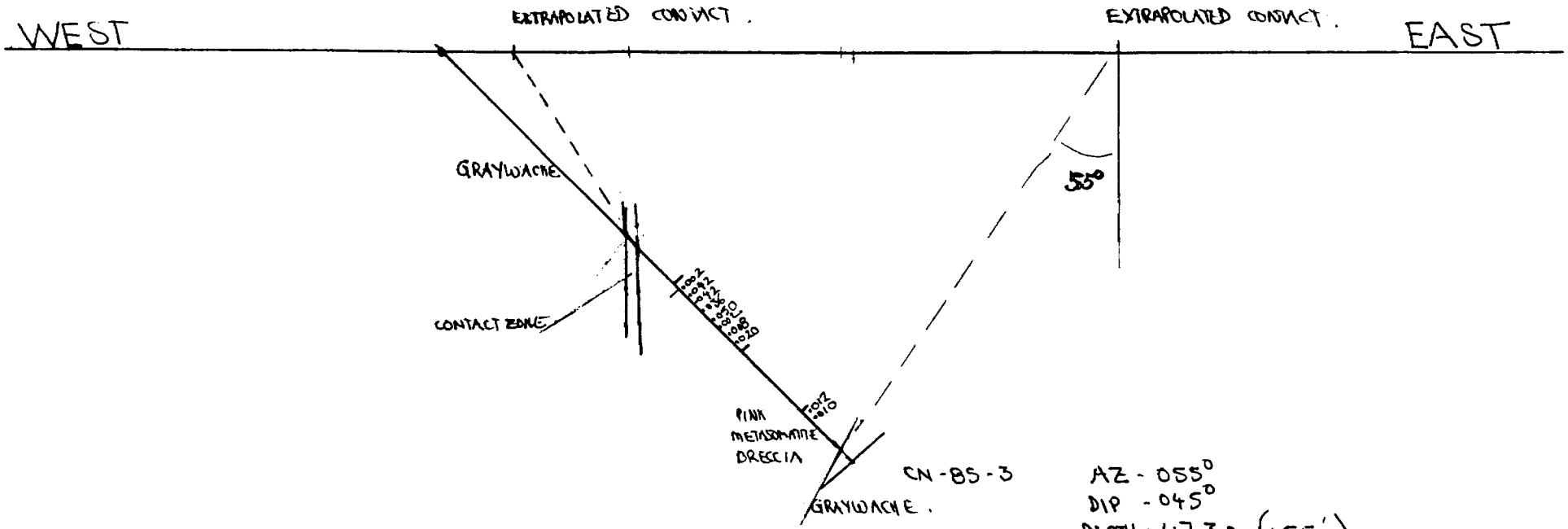
HOLE NO. 5 SHEET NO. 11
REMARKS

LOGGED BY ROBIN GOAD

FOOTAGE FROM	FOOTAGE TO	DESCRIPTION	SAMPLE NO.	SAMPLE % SULPHIDES	SAMPLE FOOTAGE FROM	SAMPLE FOOTAGE TO	SAMPLE FOOTAGE TOTAL	ASSAYS %	ASSAYS %	ASSAYS OZ/TON	ASSAYS OZ/TON
		GOWGANDA FORMATION GRAYWACKE - ALTERED MASSIVE GRAYWACKE (CONTINUED) faint carbonate bearing fractures oriented at 40° to the core axis. 141.8 m (465') END OF HOLE									

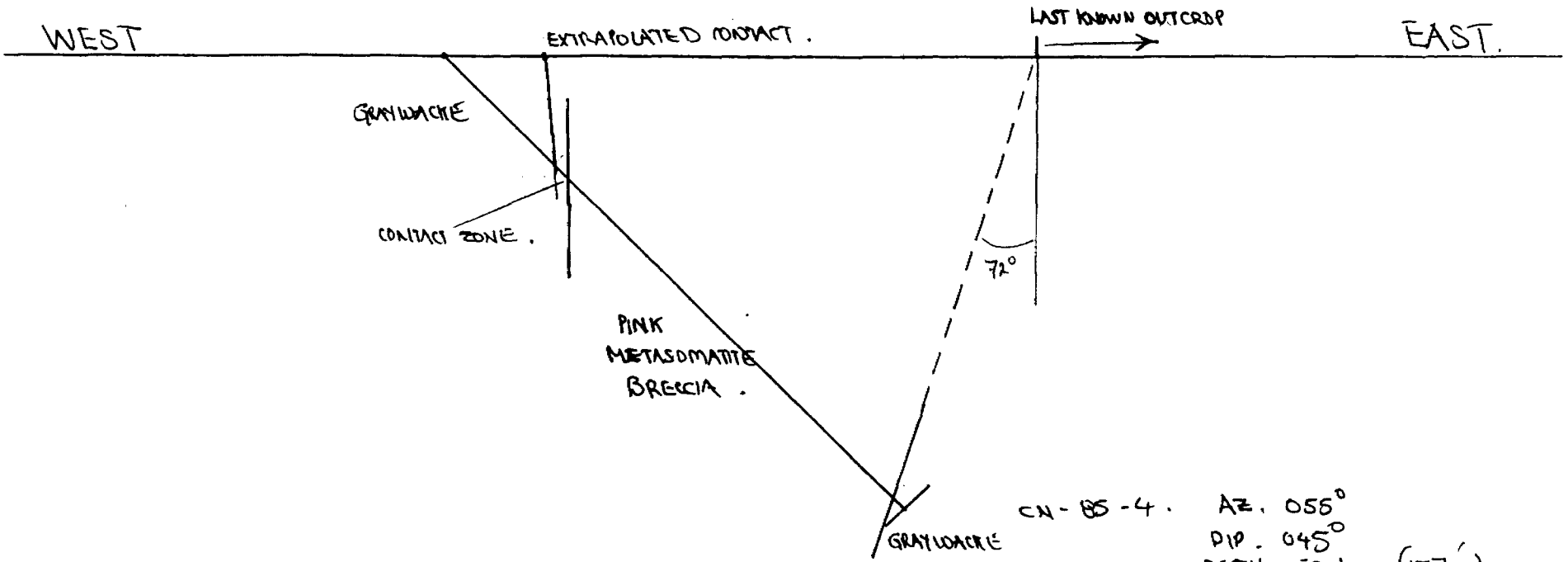

WEST
EAST
GRAYWACKE
CONTACT ZONE.
PINK METASOMATITE MICROBRECCIA
CHLORITIC METASOMATITE MICROBRECCIA
PINK METASOMATITE MICRO BRECCIA.
CONTACT ZONE
GRAYWACKE.
CN-85-1 AZ-030 DIP-45°
SCALE 2.0cm = 10m.
DEPTH = 70.7m (232')


WEST.
LAST KNOWN MINERALIZED OUTCROP.
EAST.
EXTRAPOLATED CONTACT.
CONTACT ZONE
PINK METASOMATITE MICROBRECCIA
CHLORITIC METASOMATITE MICROBRECCIA
PINK METASOMATITE MICROBRECCIA
75°
CHLORITIC METASOMATITE MICROBRECCIA
PINK METASOMATITE MICROBRECCIA
GRAYWACKE
CN-85-2.
AZ. - 030°
DIP - 45°
DEPTH - 59.6m (195.5')
SCALE. 2.0cm = 10m

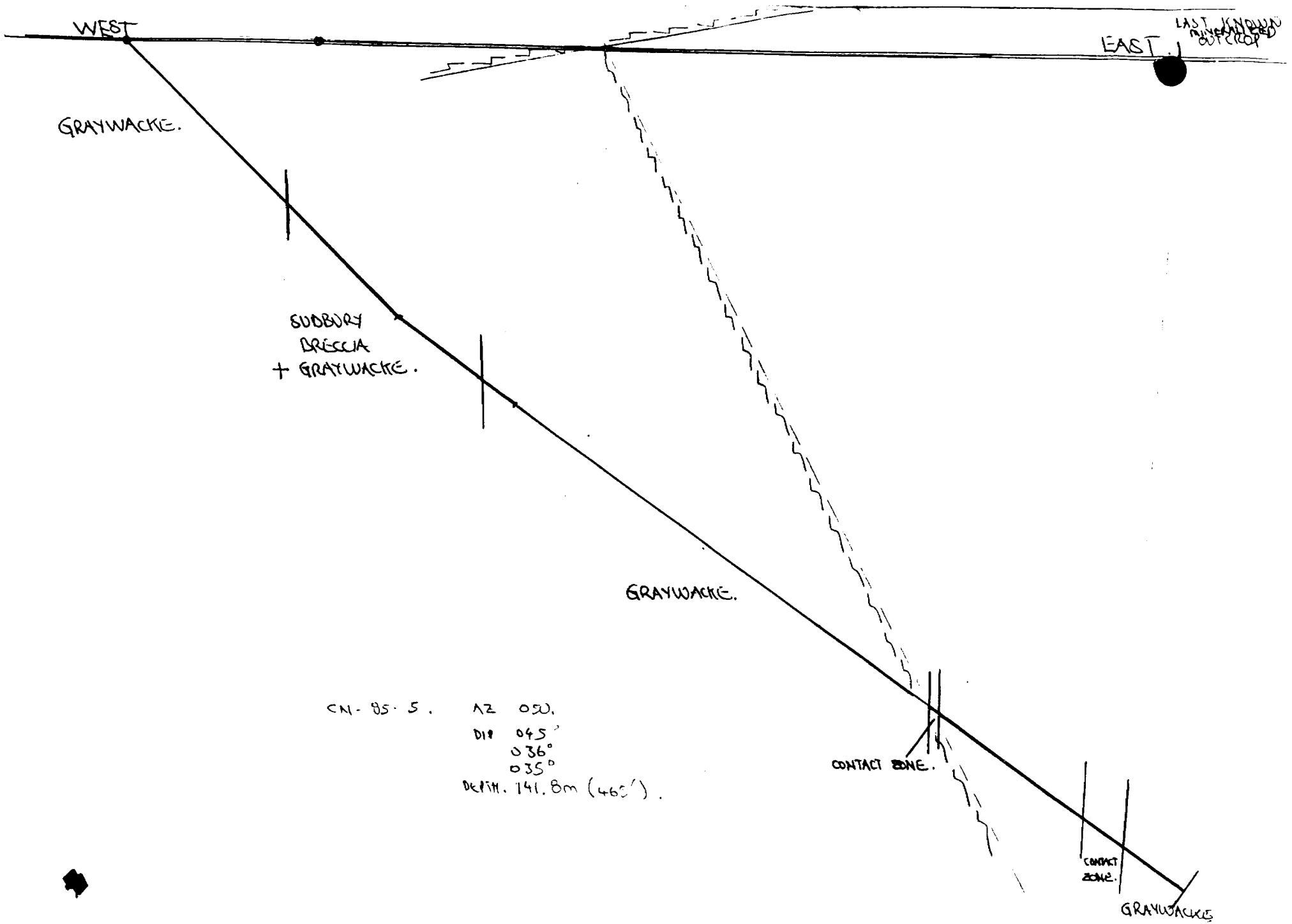


CN-85-3

AZ - 055°
DIP - 045°
DEPTH - 47.3m (155')
SCAE: 2cm = 10m



CN-85-4. Az. 055°
Dip. 045°
DEPTH 52.1m (177')
SCALE. 2cm = 10m.


WEST
EAST
LAST KNOWN MINERALIZED OUTCROP
GRAYWACKE.
SUDBURY BRECCIA + GRAYWACKE.
GRAYWACKE.
CONTACT ZONE.
CONTACT ZONE.
GRAYWACKE
CN-85-5. AZ 050.
DIP 045°
036°
035°
DEPTH. 141.8m (465').

Interpretation of the Airborne Magnetic and VLF - EM Surveys and Ground Magnetic Surveys, Southern Portion of the Wolf Lake Property, Mackelcan, Rathbun and Scadding Townships, Sudbury Mining District, Ontario.

for
Flag Resources, Limited.

by
Stuart Quirt, Ph. D.,
Consulting Geophysicist.
Toronto, Canada.

December, 1985.

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LIST OF MAPS IN POCKET

1. EXECUTIVE SUMMARY

During the 1985 field season, airborne magnetic and VLF - EM surveys were carried out over 216 claims in the southern portion of the Wolf Lake claims of Flag Resources Ltd., by Terraquest Inc. For this survey, a Cessna aircraft equipped with a GEM, proton precession magnetometer and a Herz, VLF - EM unit were utilized. The area was flown at an altitude of 100 meters along lines spaced at 200 meters. In addition, detailed ground magnetic surveys were performed over five selected grids within the area covered by the airborne work. The ground surveys were performed with a Scintrex proton precession magnetometer. The survey results have been plotted in line and colored contour maps. For the airborne magnetic data, the vertical field gradient was calculated and plotted.

Within the survey area, the north-south regional field variation of about 2000 gammas is due to the fact that the Wolf Lake Property lies on the southern flank of the Laundry Lake positive magnetic feature. Superimposed on the regional field are four northwest-southeast trending linear anomalies caused by olivine diabase dikes. A number of the positive magnetic anomalies in the map area are probably due to magnetic basement blocks that have been uplifted along faults. The results of the ground magnetic surveys confirm the existence of the features delineated in the airborne work.

Virtually all of the major geologically-mapped faults found in the map area exhibit a conductive VLF - EM response. A conductive response has also been observed over the clay sediments in Portage and Scadding Bays and in the bottoms of several of the lakes.

On the basis of the available geophysical information, five areas seem to warrant further investigation.

(1) The magnetic and VLF - EM anomalies parallel to the axis of Rathbun Lake should be detailed in ground magnetic and EM surveys. In addition, the magnetic anomaly defined in the survey of the south grid should be studied further.

(2) Detailed ground magnetic and EM surveys should be conducted over the airborne anomalies at St. Thomas Lake.

(3) At Boot Lake, and in area (7) to the east of Matamagasi Lake, where magnetic lows and airborne EM conductors were detected, the location and attitude of the conductors should be defined.

(4) EM conductor (16) should be detailed in a ground EM survey over its entire length.

2. INTRODUCTION

In this report, an integrated interpretation is presented for the airborne geophysical (Magnetic and VLF - EM) and ground geophysical (magnetic) results generated in the southern half of the Wolf Lake claims of Flag Resources during the field season of 1985.

The airborne geophysical data were produced by Terraquest Ltd., 905 - 121 Richmond St. W., Toronto, Ontario, between June 3 and October 29, 1985. The survey area was flown at an altitude of 100 meters along parallel north-south lines spaced at 200 meter intervals, on June 3, 1985. A Cessna 182 Aircraft equipped with a GEM, model GSM - 3BA, proton procession magnetometer and a Hertz, TOTEM 2A, VLF - EM unit were utilized. Precise instrument specifications are given by Terraquest (1985).

The ground magnetic surveys were carried out on regular grids having lines spaced at 25 or 50 meters. Station readings were taken at 25 meter intervals. A scintrex proton procession magnetometer was utilized during these ground surveys.

The data from the airborne surveys were processed and computer contoured by Dataplotting Services Inc. of Toronto to produce A) black and white contour maps of the total magnetic field, vertical magnetic gradient and VLF - EM results, and B) colored contour maps of the total magnetic field and vertical gradient. Additionally, a general interpretation map for the magnetic and VLF - EM data was plotted by Terraquest; however, for the purposes of the specific interpretation given in this report, this map was not utilized.

3. PROPERTY LOCATION AND ACCESS

Flag's Wolf Lake prospect is situated in Mackelcan, Rathbun and Scadding Townships in the District of Sudbury about 40 km northeast of the City of Sudbury (Figure 1). On the southwest, the claims are bounded by the east shoreline of Lake Wanapitei. The claim block occupies most of the quadrangle between 46 deg. 42 min. 30 sec. and 46 deg. 54 min. north latitude and 80 deg. 34 min. and 80 deg. 41 min. 30 sec. west Longitude (Figure 2). The areas covered by the airborne and ground surveys are plotted in Figure 2.

The claims surveyed were the following:

S. 577356 - S. 577376	(21)
S. 585332 - S. 585346	(17)
S. 585583 - S. 585589	(7)
S. 595875 - S. 595888	(14)
S. 808905 - S. 808914	(10)
S. 808922 - S. 808926	(5)
S. 808928 - S. 808941	(14)
S. 808989 - S. 809002	(14)
S. 809096 - S. 809156	(61)
S. 826221 - S. 826270	(50)
S. 830611 - S. 830613	(3)
Total	216

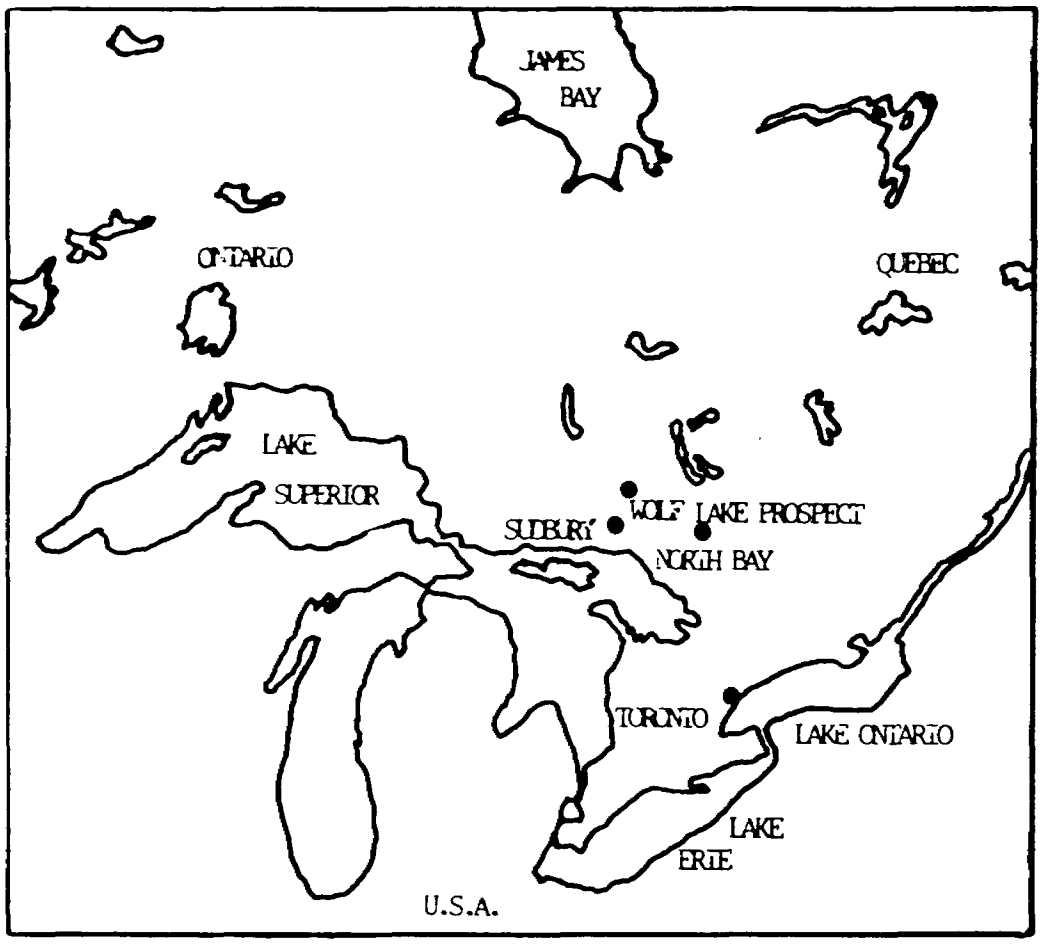

FIGURE 1: LOCATION MAP FOR THE WOLF LAKE PROSPECT

4. GEOLOGY

4.1 Lithology

The survey area has been described by Dressler (1982) and has been mapped at a scale of 1:31,680 in Ontario Geological Survey Maps 2450 and 2451. Portions of the survey area are also described in several unpublished theses eg. Finn (1981), Goad (1982) and Rowell (1984). The survey area is also included in Ontario Geological Survey regional compilation maps 2361 and 2491.

Within the southern portion of the survey area, the basal Gowganda Formation of the Cobalt Group outcrops. It consists of a heterogeneous sequence of conglomerate, arkose and graywacke. The predominant graywacke is green to greenish-gray and consists of fine-grained quartz and feldspar in a finer matrix of chlorite, epidote, opaques and minor carbonate (Rowell, 1984).

In the northern portion of the survey area, the dominant outcropping rock type is that of the Lorrain Formation of the Cobalt Group. It grades from feldspar-rich arkose at its base, to sub-arkose with abundant kaolinite in the center, to orthoquartzite at the top of the formation (Goad, 1982).

The Lake Wanapitei Nipissing Gabbro Intrusion outcrops in an open ring-shaped body to the north, east and south of Portage and Scadding Bays. The intrusion has yielded a K/Ar whole rock age of 2109 ± 40 million years (Rowell, 1984) which correlates well with Rb/Sr whole rock ages for other Nipissing rocks of 2160 ± 60 million years and 2150 ± 50 million years (Fairbairn et al, 1969; Van Schmus, 1965). About 98% of the outcropping intrusion is gabbronorite, but more felsic differentiates (including monzo diorite, quartz diorite, grandiorite and granite) are found chiefly near Portage Bay and at central Matagamasi Lake. Unaltered gabbronorite is greenish-brown having hypidiomorphic texture (Rowell, 1984). It consists volumetrically from 39 - 56% idiomorphic to allotriomorphic plagioclase (An 40-70), 15 - 35% xenomorphic to hypidiomorphic clinopyroxene, and 17 - 21% allotriomorphic orthopyroxene. Other primary minerals include

from 0.2 - 6% opaque mineral which is largely titaniferous magnetite (Dressler, 1982); however, commonly the titano-magnetite content is 1 - 2% by volume. In addition, green horneblende, biotite, apatite, sphene and quartz are present. Deuteric alteration of the Nipissing Gabbronorite (Dressler, 1982) has produced a dark green rock with sub-automorphic texture having as its chief constituents plagioclase (An 0 - 10), amphibole (actinolite), epidote and chlorite (Rowell, 1984). The pluton has been regionally metamorphosed to lower green schist facies according to Card (1978) and Dressler (1982); however, Finn (1981) has argued that most of the gabbronorite has been largely un-metamorphosed.

Several, vertical or nearly vertical, northwest-southeast trending, olivine diabase dikes that are probably part of the "Sudbury Swarm" transect the map area. These were intruded about 1410 ± 30 million years ago (Gates and Hurley, 1973; Dressler, 1982) and are largely restricted to zones containing less competent metasediments such as the Gowganda Formation (Dressler, 1981), although these dikes have been reported to intrude the Lorrain quartzites beneath Wolf Lake (Goad, 1982). Analysed samples of the olivine diabase have compositions that contain: from: 49 - 65% plagioclase (An 60 - 70), 4 - 22% augite, 3 - 23% olivine, 0.5 - 4% biotite and 2.7 - 22% titaniferous magnetite.

4.2 Structure

In the northern part of the map area, wide and open folds in the Lorrain Formation have north-south trending axes. An example of this is found in the north-south trending syncline which has its fold axis positioned between Laundry and Wolf Lakes. The north-south folding probably preceded the intrusion of the Lake Wanapitei Gabbronorite (Dressler, 1982). Re-folding along east-west axes may have followed (Finn, 1981; Rowell, 1984).

At least four directions of faulting are evident in the map area. These are:

1) North-northwest trending Onaping System Faults typified by the McLaren Lake-Wanapitei River and Washigami Lake-North Arm Faults;

2) North-south trending faults exemplified by the Laundry Lake-McLaren Creek Shear;

3) North-northeast trending faults such as the McCarthy Bay Fault; and

4) East-west shearing as seen in the Doon Lake Fault.

4.3 Economic Geology

Within the map area, there are at least nine known mineralized zones each of which is plotted in Figure 4. These are:

A) Rathbun Lake Occurence- Pt, Pd, Ag, Au, Cu and Ni.

B) Crystal Gold Mine - Au.

C) Mondoux Mine - Au.

D) Last Chance Mine - Au.

E) Boot Lake Showing - Au.

F) St. Thomas Showing - Au.

G) Jess Lake Gold Zone - Au.

H) No. 1, 2, 3, and Campsite Zones - Au.

I) Lake Structure Discovery Hole - Au.

5. SURVEY SPECIFICATIONS

5.1 Airborne Magnetic and VLF - EM Survey Instruments

The survey was carried out using a Cessna 182 Aircraft, registration C-FAKK which carries a magnetometer and a VLF electromagnetic detector.

The magnetometer used is a proton-precession instrument having the sensor element mounted in an extension of the right-wing tip. It's specifications are as follows:

Resolution:	0.5 gamma
Accuracy:	±1.0 gamma
Cycle Time:	1.0 second
Range:	20,000 - 100,000 gammas in 23 overlapping steps
Gradient tolerance:	up to 5,000 gammas/meter
Model:	GSM-8BA
Manufacturer:	GEM Systems Inc., 105 Scarsdale Rd., Don Mills, Ontario, M3B 2R5

The VLF - EM unit uses three orthogonal detector coils to measure: A) the total field strength of the time-varying EM field and, B) the phase relationship between the vertical coil and both the "along-line" coil (LINE) and the "cross-line" coil (ORTHO). The LINE coil is tuned to a transmitter station that is ideally situated at right angles to the flight lines, while the ORTHO coil transmitter should be in line with the flight lines. For this survey the transmitters utilized were Annapolis, Md., and Seattle, Wash., which transmit at 21.4 kHz and 24.8 kHz, respectively. The specifications for the airborne VLF - EM receiver are as follows:

Accuracy:	±1%
Reading Interval:	½ second
Model:	TOTEM 2A
Manufacturer:	Herz Industries, Toronto

The VLF sensor is mounted on the left wing tip extension. Other instruments employed were:

1) King KRA-10A radar altimeter
2) UDAS-100 data processor with a Digidata nine-track tape recorder, manufactured by Urtec Ltd., Markham, Ont.

3) A Geocam video camera and recorder for flight path recovery, manufactured by Geotech, Ltd., Markham, Ontario.

5.2 Airborne Survey Lines and Data

A) Line spacing: 200 meters

B) Line Direction: 360°

C) Terrain Clearance: 100 meters

D) Average ground speed: 156 km/hr

E) Data point interval:
Magnetic: 42 meters
VLF - EM: 21 meters

F) Tie line interval: 4 kilometers

G) Channel 1 (LINE): NSS Annapolis, Maryland-21.4 kHz

H) Channel 2 (ORTHO): NLK Seattle, Washington-24.8 kHz

I) Line km flown over total survey area: 650

J) Line km flown over claim groups: 475

5.2.1 Tolerances

A) Line spacing: Any gaps wider than twice the line spacing and longer than ten times the line spacing were filled in with a new line.

B) Terrain Clearance: Portions of the line which were flown above 125 meters for more than one kilometer were re-flown if safety considerations permitted it.

C) Diurnal magnetic variation: Less than twenty gammas deviation from a smooth background over a period of two minutes or less as seen on the base station analogue record.

D) Manoeuver noise: Approximately ± five gammas.

5.2.2. Photo-Mosaics

For navigating the aircraft and recovering the flight path, mosaics of aerial photographs were prepared from existing photos. In order to provide a semi-controlled base, the photos were laid down on a topographic map which had been photographically adjusted to the the photo scale. The laydown was then photographed and printed at the final map scale.

5.3 Ground Magnetic Surveys - Instruments, Lines and Data

The ground magnetic surveys were conducted utilizing a Scintrex proton precession magnetometer. Station readings were taken at 25 meter intervals along lines that were spaced at 25, 50 or 100 meter intervals depending on the survey grid. The line spacing employed was as follows:

Rathbun Lake - East Grid	50 meters
Rathbun Lake - South Grid	50 meters
Wanapitei Grid	25 meters
Poulton Lake Grid	100 meters
Cathro Lake Grid	25 meters

6. DATA PRESENTATION

6.1 Airborne Surveys

The data from the airborne magnetic and VLF - EM surveys were processed by Terraquest. The magnetic results were plotted in computer generated line and colored total magnetic field contour maps. In addition, the vertical magnetic gradient was computer calculated employing conventional published techniques and plotted as line and colored contour maps. The VLF - EM results were computer contoured. The geophysics was then combined in a single interpretation map. These maps are presented in Terraquest (1985).

6.2 Ground Magnetic Surveys

The total field data from each grid were plotted separately and hand contoured by the writer. These maps are included in the map pocket of this report as follows:

Figure 5 East Grid - Rathbun Lake
Figure 6 South Grid - Rathbun Lake
Figure 7 Wanapitei Grid
Figure 8 Poulton Lake Grid
Figure 9 Cathro Lake Grid

7. INTERPRETATION

7.1 Airborne Surveys

7.1.1 Government Magnetic Surveys

The survey area was flown by the Geological Survey of Canada in 1959 and 1960 and is covered by G.S.C. geophysics papers 1511 and 1512 and Maps 1511G and 1512G. These maps were produced from data gathered at a line spacing of 0.5 miles. Although they lack the detail of the current survey, several prominent magnetic features are evident in these maps (Figure 3).

1) A prominent, roughly circular, positive magnetic anomaly is centered over Laundry Lake, Mackelcan Township. This anomaly has an amplitude of about 4100 gammas which exceeds local background levels by approximately 2000 gammas. It forms the southwesterly perimeter of a much larger, northeast trending, elliptical, gravity-magnetic anomaly that extends from Mackelcan Township to Lake Temagami. The origin of this anomaly is not fully understood. It has been suggested that it may be caused by ferromagnesian-rich, intrusive cap-rocks situated at depths of approximately 15,000 feet (Barlow, 1985). This topic will be dealt with more thoroughly, by the writer, in a subsequent report.

2) A positive, 200 gamma, northwest-southeast trending linear anomaly, which cuts across the northern tip of Rathbun Lake and mid-Matagamasi Lake to Kukagami Lake, delineates a thick, approximately 250 meter wide, olivine diabase dike.

3) A positive, 100 gamma, south-east trending linear anomaly that extends from the southern shore of Scadding Bay across McLaren Lake and the north end of Ashigami Lake. This anomaly may also be due to an olivine diabase dike.

4) A positive, 100 gamma, elliptical anomaly is centered over the south-west corner of Bolands Lake which is probably caused by thickening in a narrow northwest-southeast trending olivine diabase dike.

5) A magnetic low of about 80 gammas amplitude is situated to the immediate east of Matagamasi Lake.

6) A magnetic low of about 60 gammas amplitude is located over the eastern shore of Boot Lake.

A more thorough discussion of these magnetic features is given in the following sections.

7.1.2 Terraquest's Magnetic Survey

The writer's interpretation of this airborne magnetic survey is presented in Figure 4. The contractor's interpretation of the survey is presented in Terraquest (1985).

Within the survey area the total magnetic field variation is about 2000 gammas over approximately 20 kilometers; that is, from 60,450 gammas in the north to 58,450 gammas in the south. This north-south regional decrease in the total field strength arises from the fact that the Wolf Lake property lies on the southern flank of the strong positive regional high extending from Laundry Lake northeast to Lake Temagami.

Superimposed on the regional field are four northwest-southeast trending linear anomalies that are caused by olivine diabase dikes and designated from 1 to 4 in Figure 4. These anomalies are more evident in Terraquest's magnetic gradient map which tends to resolve local features from the regional field. Only dikes 1 and 2 are clearly evident in the total magnetic field maps. The ferromagnetic character of the olivine diabase is probably due to its high titaniferous magnetic content which varies from 2.7% to 21.6% (Dressler, 1982, 1985).

Dike 1 is about 250 meters wide in outcrop and is essentially continuous from northwest to southeast. It has been interpreted to consist of five blocks separated by north-northwest and north-south trending faults. It is essentially vertical. It is a segment of a major regional dike (anomaly 2, Figure 3).

The dike 2 system has a very complex magnetic signature. Where it has been observed, it is from 25 to 30 meters wide.

However, in order to interpret its accompanying magnetic anomaly one has to assume that either the olivine diabase flowed into folds in the Gowganda metasediments to the east of the Lake Wanapitei Nipissing Gabbro Intrusion or that the dike branches and that these branches have been displaced along northwest and north-south trending faults. The latter interpretation has been plotted in Figure 4. In making this interpretation, it has been necessary to assume that several of the faults displacing the dike system do not extend beyond it.

Dike 3 is approximately 40 meters wide and essentially vertical. Its magnetic anomaly is such that it probably has been broken into a number of blocks along north and north-northwest trending faults. The regional aeromagnetic data (Figure 3) would seem to indicate that both dikes 2 and 3 have limited northwest to southeast extent and are largely limited to the survey area.

Very little of dike 4 was surveyed. However, it appears that it is part of a second major regional dike that traverses the survey area (anomaly 3, Figure 3).

A prominent magnetic anomaly (5) is associated with Rathbun Lake. The origin of this anomaly is unclear. In the vicinity of the lake gangue mineral in the Rathbun Lake Occurrence (A) containing as much as 42% titanomagnetite may be responsible for this anomaly. However, the source of most of it cannot be explained in this way unless the mineralization at Rathbun Lake extends beneath the entire lake. Alternative possible sources for the anomaly include: (a) a magnetite bearing shear zone(s) that run(s) the length of the lake and coincide with its axis or its east and west shorelines and (b) an offset dike similar to those found elsewhere around the perimeter of the Sudbury Basin. As several of these offset dikes are mineralized elsewhere in the Basin, this would make this magnetic anomaly a very attractive drill target.

A positive magnetic anomaly (6) is associated with the St. Thomas Showing (F). Although the elevated ferromagnetic content of the rocks could be related to the mineralization, this anomaly could also be due to the uplifting of magnetic basement rock along the faults indicated in Figure 4.

A number of the positive magnetic anomalies in the map area are probably due to the uplifting of magnetic basement blocks along geophysically and geologically indicated faults. Examples of these include anomalies 9, 10, 11, 12, 13, 14, and 15.

Two prominent magnetic lows are present in the survey area. (Both of these are also evident on the government maps, Figure 3.) The magnetic low (6) to the immediate east of Matagamasi Lake has no obvious origin in that it is caused by a ferromagnetically depleted zone that is not associated with reported alteration zone in the Gowganda Formation. It therefore warrants further geological investigation. The other magnetic low (7) to the immediate east of Boot Lake is associated with known mineralization and alteration of the host rocks.

In summary, the data collected in Terraquest's airborne magnetic survey indicate that magnetic anomalies 5, 6, 7, and 8 warrant further, more detailed, investigation.

7.1.3 Terraquest's VLF - EM Survey

The airborne VLF - EM survey was conducted with an instrument that has three orthogonal coils which eliminate manoeuvering noise and permit the measurement of the total VLF - EM field. This field has been plotted, contoured and interpreted by Terraquest (1985). The writer's interpretation of Terraquest's results is plotted in Figure 4.

In interpreting the VLF - EM results, it is important to note that the technique is sensitive to: (a) glacial, swamp and lake bottom clays and (b) conductors that are within ± 15° of paralleling the direction of the transmitter field originating at Annapolis, Md. Consequently, all of the conductors found in Portage and Scadding Bays and in the lakes within the map area are suspect unless additional

independent evidence supports their existence. Furthermore, conductive features such as the North Arm Fault, dike 1 and the faults in the vicinity of St. Thomas Lake, which have an azimuth approaching 154° are detected with an artificially enhanced response by the instrument.

Virtually all of the major geologically mapped faults found in the map area exhibit a conductive response. As was previously mentioned, this response is strongest for those shear zones that have azimuths approaching 154°. However, conductive zones have also been detected over the McLaren Creek and McCarthy Bay faults. In the case of the latter fault it is not clear whether it is the fault or clay sediments in McClaren Bay that have been detected.

Olivine diabase dike 1 is the only dike of sufficient continuity and width to have a distinct VLF - EM signature. Dikes 2 and 3 remain undetected while dike 4 has a weak anomaly associated with it.

Four of the VLF - EM anomalies are of primary interest. These are: (1) the strong conductor that runs down the axis of Rathbun Lake and coincides with the western edge of the magnetic anomaly and supports the contention that the lake is underlain by a fault or an offset dike.

(2) the conductor that traverses Boot Lake and indicates with the magnetics that a shear zone traverses the lake;

(3) the conductor trending northwest-southeast across St. Thomas Lake which coincides with faulting inferred from the magnetics.

(4) the northwest-southeast trending conductor (16) situated between Cathro and Rathbun Lakes lies just to the south of the graywacke-gabbro contact and may be related to alteration in the gabbro that could host mineralization as is the case at the Rathbun Lake Occurrence.

7.2 Ground Magnetic Surveys

7.2.1 Previous Work

Ground magnetic surveys were conducted in the vicinity of Rathbun Lake by Dolmac Mines and have been described by Koulomzine (1954). In this report he interpreted the magnetic data as indicating:

(1) the location of the contact between the Lake Wanapitei Nipissing Gabbro Intrusion and the Gowganda metasediments;

(2) the presence of two anomalously magnetic zones to the immediate east of the west and east shores of Rathbun Lake and parallelling them;

(3) the existence of a branching dike to the southwest of Rathbun Lake and coinciding with dike 2 in Figure 4;

(4) the presence of a third magnetic zone trending north-northwest from the branching dike (in a direction approximately parallel to that of the west shore of Rathbun Lake).

7.2.2 Ground Magnetic Surveys - Rathbun and Poulton Lakes

The Rathbun Lake South Grid (Figure 6), the Rathbun Lake East Grid (Figure 5) and the Poulton Lake Grid (Figure 8) tie together as illustrated in Figure 4. With the exception of the northwest corner of the Rathbun Lake South Grid, the survey lines are over the Lake Wanapitei Nipissing Gabbro. These three grids are relatively magnetically featureless except for the northwest and southwest corners of the Rathbun Lake South Grid.

In the northwest corner of the Rathbun Lake South Grid, three magnetic highs form a northeast-southwest trending linear anomaly along the contact between the Gowganda metasediments and the Lake Wanapitei Nipissing Gabbro. Koulomzine (1955) observed this anomaly but did not explain it. This anomaly could be due to a northeast-southwest trending offshoot of dike 2. However, its origin could also be a magnetite or pyrrhotite enriched zone along the contact between the gabbro and the metasediments. If the latter

is the case, it would be an excellent drill target.

The northwest-southeast striking linear anomaly in the southwest corner of the Rathbun Lake South Grid is caused by a segment of dike 2.

Each of these grids have scattered single station highs and lows that are probably due respectively to zones of local enrichment or depletion of ferromagnetic minerals in the gabbro. It seems unlikely that they are indicative of mineralization.

7.2.3 Ground Magnetic Survey - Cathro Lake

The location of this survey grid (Figure 9) is shown on Figure 4. The magnetic data have very little relief except for the positive 200 gamma anomaly centered at station 50S on line 100E. This anomaly is the western extremity of a major northwest-southeast striking anomaly that cuts across the western half of Cathro Lake. This anomaly is probably due to an uplifted basement block containing significant quantities of ferromagnetic minerals.

7.2.4 Ground Magnetic Survey - Wanapitei Lake

The principal magnetic feature of this grid is a northwest-southeast trending strong positive linear anomaly having from 500 to 1000 gammas of relief. This anomaly is caused by dike 3. The very positive single station anomaly at 25E and 50N could be due to an offshoot of dike 3.

8. CONCLUSIONS AND RECOMMENDATIONS

Although most of the pattern of magnetic anomalies in the survey area can be attributed to olivine diabase dikes, uplifted relatively magnetic basement blocks or the regional Laundry Lake magnetic anomaly, there are several magnetic features that could be of economic significance and therefore warrant further exploration. These magnetic anomalies are of greater interest if they are accompanied by viable VLF - EM conductors.

On the basis of the available geophysical information, five areas seem to warrant further investigation.

(1) The magnetic and VLF - EM anomalies parallel to the axis of Rathbun Lake should be detailed in ground magnetic and EM surveys. In addition, the magnetic anomaly defined in the survey of the south grid should be studied further by expanding the grid to the east and west to cover the entire airborne magnetic anomaly to the immediate south of the lake. The best definitions of the probable depth and attitude of the conductor beneath the lake probably would be obtained using the horizontal loop EM Maxmin system.

(2) Detailed ground magnetic and EM surveys should be conducted over the airborne anomalies at St. Thomas Lake.

(3) At Boot Lake and in area (7) to the east of Matamagasi Lake where magnetic lows and airborne EM conductors were detected, it would be worthwhile to accurately define the conductor location and attitude employing detailed ground EM survey techniques.

(4) EM conductor 16) should be detailed in a ground EM survey over its entire length.

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SUMMARY REPORT

ON THE

DIAMOND DRILL PROGRAM

Boot Lake Gold Prospect

Rathbun Township - Sudbury Area

Ontario

for

FLAG RESOURCES (1985) LIMITED

by

Frank P. Tagliamonte, P. Eng.
GEOLOGICAL ENGINEERING SERVICES
NORTH BAY
Ontario

February

1987

SUMMARY REPORT

ON THE

DIAMOND DRILL PROGRAM

BOOT LAKE GOLD PROSPECT

Rathbun Township, Sudbury Area

Ontario

for

FLAG RESOURCES (1985) LIMITED

*

INTRODUCTION AND SUMMARY

This report describes the results of a diamond drill program to explore silicified and mineralized breccia zones located to the south of Boot Lake in the southern portion of the Flag Resources (1985) Limited extensive claim holdings.

During May 1985 twenty-five rock trenches were opened up on surface showings of silicified and mineralized breccia in Gowganda-age greywackes. A program of seven diamond drill holes totalling 999 feet to test the zones at depth was completed on May 24th. The locations of the drill holes are superimposed on a portion of a geological map (see Figure 3) of the area prepared by Robin E. Goad and William F. Rowell, Consulting Geologists during May and June, 1985.

The drill program was directed and supervised by Murdo C. McLeod, Calgary, Alberta. Core logging and sampling was carried out by Frank P. Tagliamonte, P. Eng., North Bay.

This report was prepared at the request of and authorized by principals of FLAG RESOURCES (1985) LIMITED.

CONTENTS

Figures

DATA ATTACHED

1) Location Maps

2) Diamond Drill Hole Plan

3) Logs of Drill Holes BL85-1 to BL85-7.

COMPANY AND OWNERSHIP

FLAG RESOURCES (1985) LIMITED

Murdo C. McLeod, president
190 Aquitaine Tower
540 - 5th Avenue S.W.
CALGARY, Alberta
T2P 0M2

PROPERTY AND DESCRIPTION

Rathbun Township
Sudbury Mining Division
Sudbury Area, Ontario

Nineteen unpatented mining claims - S588129, S588341, S588346, S588349, S625160, S809140, S809141, S809145, S809146, S809147, S809148, S809149, S809150, S809151, S809152, S809153, S809154, S809155, S809156 - located in lots 3 to 5 inclusive concessions II and III.

LOCATION AND ACCESS (Figures 1 and 2)

Twenty-four miles northeast of Sudbury, Ontario.

Access to the area is easiest by trail from a private road owned by Loney's Sportsman Lodge, which runs north from the Kukagami Lake Road. The Kukagami Lake Road terminates at Kukagami Lake 14 miles north of its junction with Highway #17, 25 miles to the east of Sudbury.

PERSONNEL AND SERVICES

(May 1 to May 30, 1984)

1) Company (FLAG RESOURCES (1985) LIMITED)

Murdo C. McLeod, president
Calgary, Alberta.

2) Contractors

a) Stripping and Trenching
A.E. Jerome - Hamner,
Bulldozer and Operator - Coniston.

b) Diamond Drilling
Triangle Diamond Drilling - Lively.

c) Geological Mapping and Sampling
(May - June 1985)
Robin E. Goad - London
William F. Rowell - London

d) Geological Engineering Services
core logging.
Frank P. Tagliamonte, P. Eng.,
North Bay, Ontario.

e) Servicing
Sportsman Lodge - Meals & Lodging

f) Assaying and Analysis
Erana Mines Limited, Sudbury
Bell-White Laboratories, Haileybury

HISTORY

a) 1968 - Kennco Explorations
Airborne E.M and Radiometric
Surveys.

b) 1982 - Canadian Nickel Co. Ltd.
Airborne E.M., Magnetic,
Radiometric Surveys

c) 1983 - Canadian Nickel Co. Ltd.
Geological mapping and assaying;
Magnetometer Survey (??)

d) 1985 - May - Flag Resources (1985) Ltd.
25 Trenches
7 Diamond Drill Holes - 999 feet.

e) 1985 - May - June - Goad - Rowell
Consultants
Geological mapping
Sampling of trenches

GEOLOGY

Local - see Figure 3 - Photocopy from a map by Robin E. Goad and Bill F. Rowell, Consulting Geologists.

The area of interest is underlain by Gowganda Formation charcoal-grey greywackes with some interbeds of pink quartzite. Strikes are NEast and dips gentle to the NWest. Sudbury breccia occurs just to the south of Boot Lake in the central part of the area in a North-South striking zone. Silicified and mineralized breccias strike approximately northeast across several outcrops to the south of the east end of Boot Lake.

Breccia - The breccia zones are composed mainly of angular fragments of charcoal-coloured greywacke, pink quartzite and white quartz cemented by milky-white quartz carbonate. Buff carbonate rhombs, chlorite, a pale green carbonate (?), tourmaline and Na-metasomatism are locally present.

Sulphide mineralization is present throughout the breccia zones but seldom in amounts in excess of 1% of the volume. A few narrow sections from 5% to 20% of the volume were seen. Sulphides are predominantly pyrite, however arsenopyrite and chalcopyrite are locally abundant. Pyrrhotite was identified in a few locations.

Drill core samples assayed for gold normally returned trace values, however a few were anomalous, normally less than 100 ppb. Two exceptions were as follows:
DDH BL85-3 - 33:0 to 34:0 - 1:0 - 0.03 ozs gold
DDH BL85-4 - 194.5 to 196.5 - 2:0 - 0.015 ozs gold

R.E. Goad and W.F. Rowell report from surface sampling: "The Au analyses were disappointing with values only as high as 0.022 oz/ton. Most samples, however, carried anomalous gold values". "Copper ---- was usually less than 0.1%".

EXPLORATION PROGRAM

Surface Work - (R.E. Goad & W.F. Rowell)

Thirty-nine samples were collected from twenty-five surface trenches and assayed for gold and copper. The gold analyses were low, the maximum value being 0.022 ozs/ton. Copper values were normally less than 0.1%.

Diamond Drilling - Summary of Results

BL85-1

5'.0 - 40'.0 - 50% of horizon brecciated greywacke - breccia contains 3%± pyrite, minor chalcopyrite and pyrrhotite. Gold values all trace except for 43 ppb over 9'.5.

40'.0 - 215'.0 - charcoal-grey, massive, fine-grained greywacke.

BL85-2

Essentially charcoal coloured fine-grained massive greywacke with scattered breccia zones to 22.0 feet core length. Very minor disseminated pyrite and chalcopyrite. Gold assays all trace.

BL85-3

0.0 - 59'.5 - Breccia zone - mixture of pink quartzite and greywacke fragments cemented by quartz-carbonate, chlorite and beige carbonate rhombs. Erratic patchy disseminated pyrite to a maximum of 5% of volume. Arsenopyrite and chalcopyrite locally. Gold values trace to 86 ppb per ton except: 33'.0 - 34'.0 (1'.0) - 0.03 ozs per ton.

59'.5 - 145'.0 - Massive quartzite and greywacke.

BL85-4

Breccia zone - random patchy mixture of unsorted angular quartzite fragments, milk white quartz-carbonate, ivory white and beige carbonate fragments. Minor chlorite, apple green carbonate (?), sparse pyrite. Random narrow concèntrations of pyrite, rare arsenopyrite and chalcopyrite. Gold values trace to 80 ppb per ton except: 194'.5 - 196'.2 - (2'.0) - 0.015 ozs/ton

BL85-5

0.0 - 75'.0 - Breccia - angular pink quartzite fragments with a white quartz-carbonate matrix. Some chlorite. Sparse fine disseminated pyrite; thin seams of chalcopyrite. Gold values very low to trace.
75'.0 - 143'.0 - Quartzite.

BL85-6

0.0 - 36'.5 - Breccia - pink quartzite fragments with white quartz, minor dark green chlorite and carbonate, 2% fine granular pyrite in thin seams and massive irregular patches. Locally up to 5% pyrite. Gold assays very low to trace.
36'.5 - 63'.0 - greywacke.

BL86-7

0.0 - 31'.0 - Breccia - pink quartzite and white quartz fragments in milk white quartz-carbonate and minor green chlorite matrix. Random patchy disseminated pyrite. Gold values very low to trace.
31'.0 - 76'.0 - quartzite.

SUMMARY AND CONCLUSIONS

Thirty-five surface trenches and seven diamond drill holes totalling 999 feet have explored weakly mineralized silicified breccia zones within Gowganda-age greywacke and quartzite. Some anomalous gold and copper values were obtained within the zones.

Conditions for gold mineralization are present within breccias and shears, associated with pyrite, arsenopyrite, minor chalcopyrite, chlorite and milky quartz. Most gold assays were trace, a few being anomalous to a maximum of 0.03 ozs per ton.

Breccia zones in the general area have been shown to contain gold values with economic potential, hence detailed exploration of the Boot Lake occurrences appears warranted.

RECOMMENDATIONS

The work to date be submitted for assessment credits and follow-up exploration considered.

R.E. Goad & W. F. Rowell recommend as follows:
"---- low priorty drill targets should be considered. The first is the possible intersection of two mineralized structures in the center of Boot Lake. Gold mineralization is often situated at the intersection of faults."

Respectfully submitted,

Frank P. Tagliamonte, P. Eng.
3 February 1978

GEOLOGICAL ENGINEERING SERVICES

NORTH BAY
Ontario

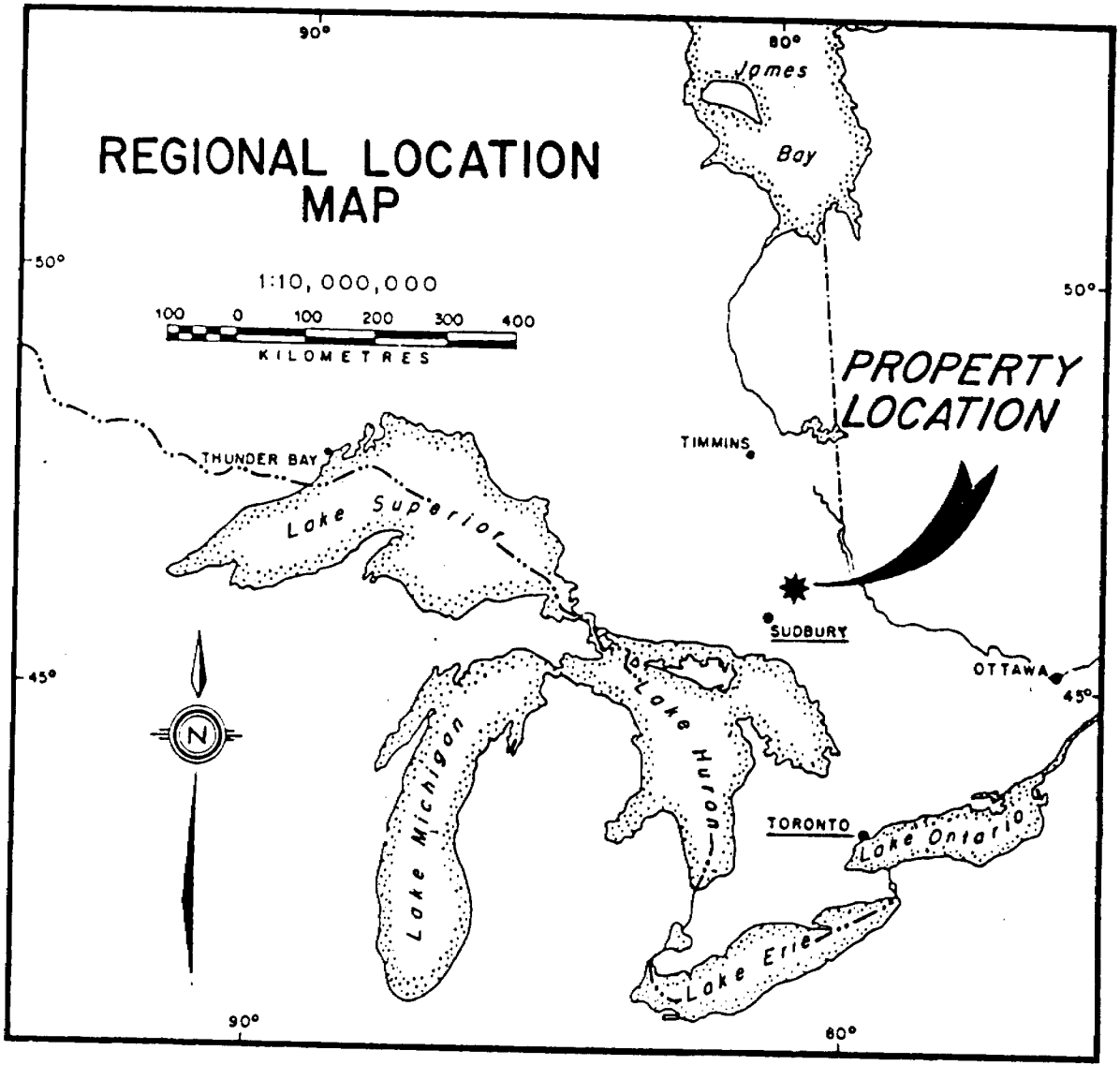

REGIONAL LOCATION MAP
1:10,000,000
100 0 100 200 300 400
KILOMETRES
90°
80°
James Bay
50°
PROPERTY LOCATION
TIMMINS
THUNDER BAY
Lake Superior
SUDBURY
OTTAWA
45°
N
Lake Michigan
Lake Huron
TORONTO
Lake Ontario
Lake Erie
90°
80°

FIGURE 1.

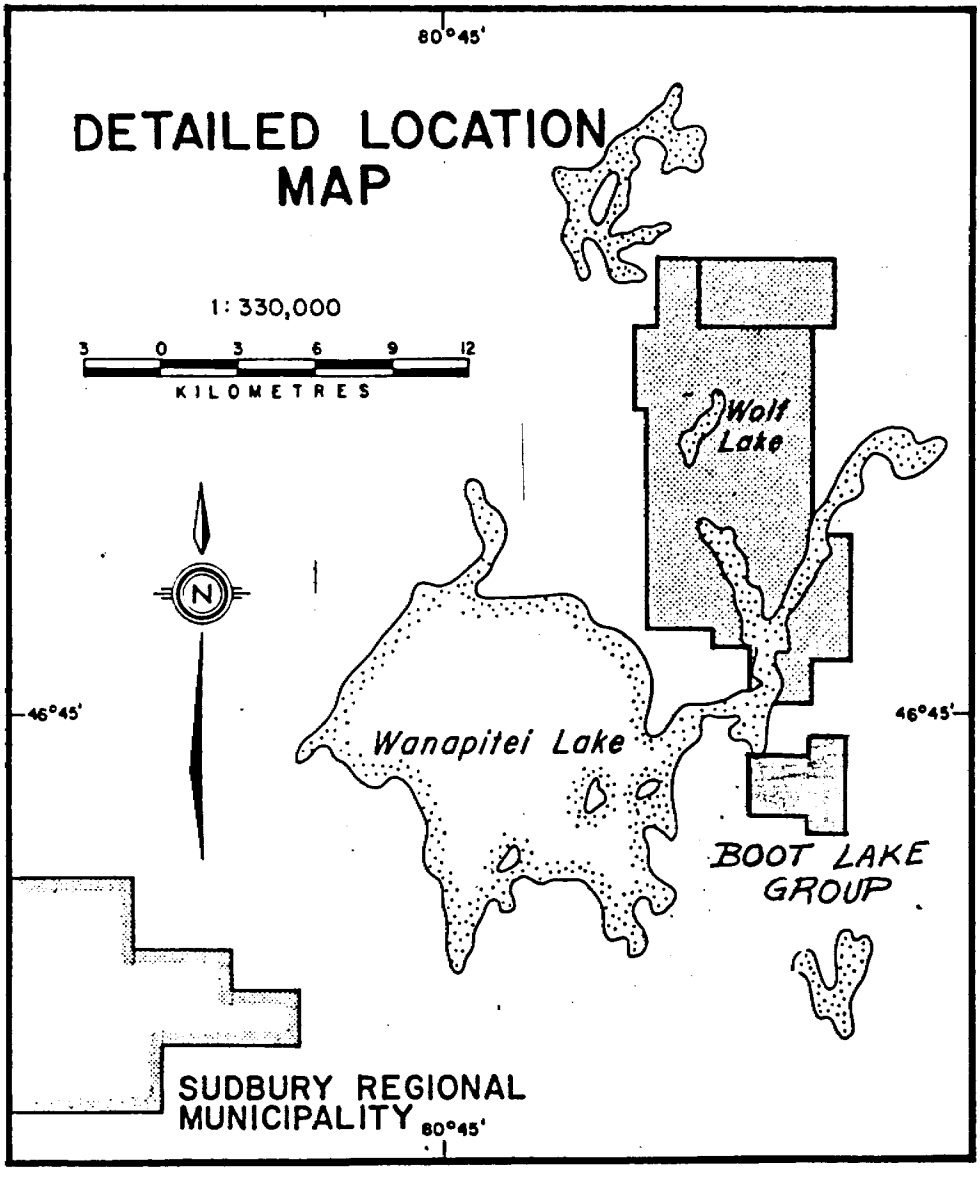
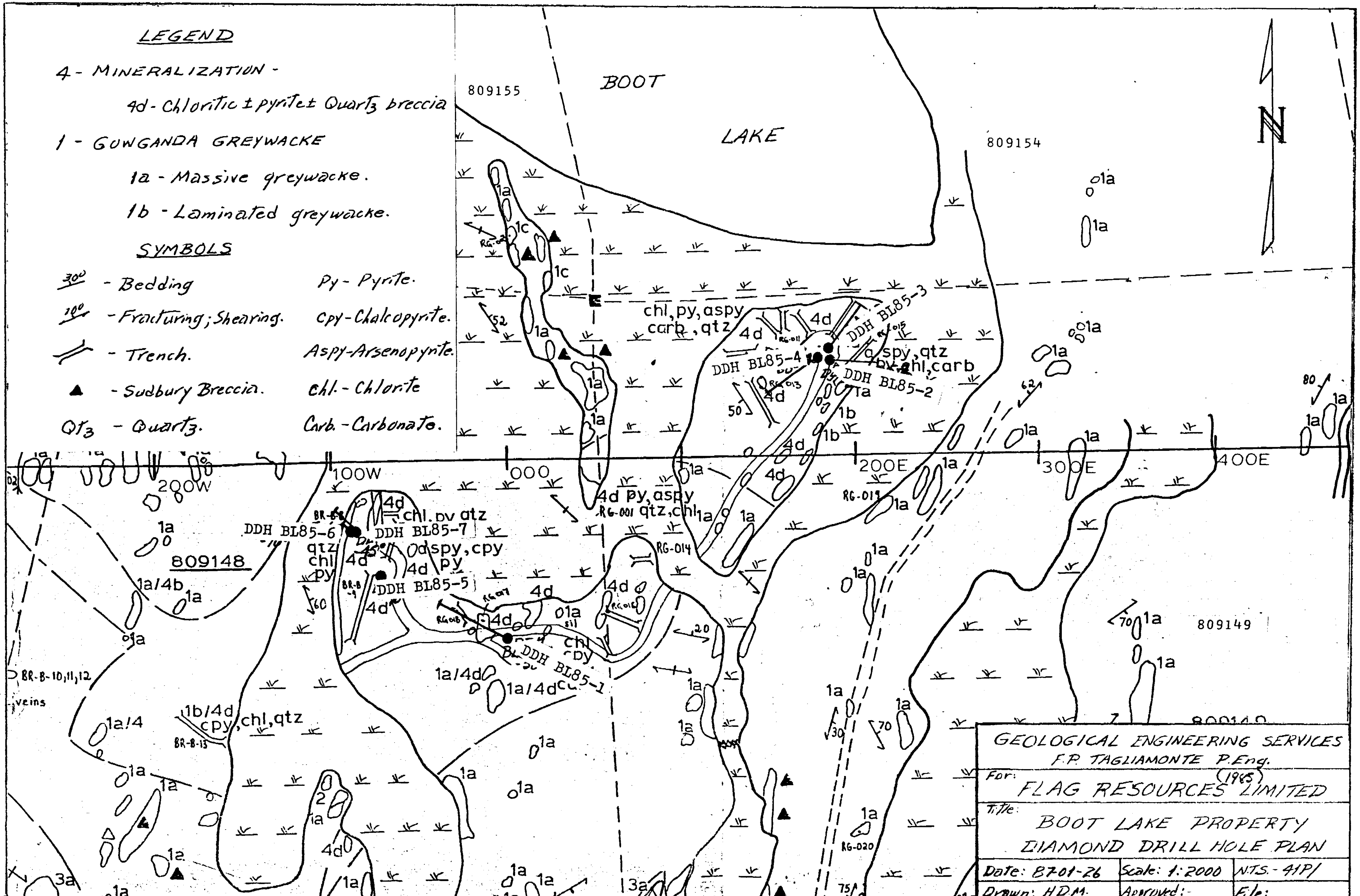

80°45'
DETAILED LOCATION MAP
1:330,000
3 0 3 6 9 12
KILOMETRES
Wolf Lake
N
46°45'
Wanapitei Lake
46°45'
BOOT LAKE GROUP
SUDBURY REGIONAL MUNICIPALITY
80°45'

FIGURE 2



LEGEND
4 - MINERALIZATION -
4d - Chloritic ± pyrite ± Quartz breccia
1 - GOWGANDA GREYWACKE
1a - Massive greywacke.
1b - Laminated greywacke.
SYMBOLS
30° - Bedding
10° - Fracturing; Shearing.
- Trench.
▲ - Sudbury Breccia.
Qtz - Quartz.
Py - Pyrite.
Cpy - Chalcopyrite.
Aspy - Arsenopyrite.
Chl. - Chlorite
Carb. - Carbonate.
BOOT
LAKE
809155
809154
809148
809149
100W
000
200W
200E
300E
400E
DDH BL85-1
DDH BL85-2
DDH BL85-3
DDH BL85-4
DDH BL85-5
DDH BL85-6
DDH BL85-7
chl, py, aspy
carb, qtz
spy, qtz
py, chl, carb
4d py, aspy
qtz, chl
chl, py, qtz
aspy, cpy
1b/4d
cpy, chl, qtz
veins
BR-B-10,11,12
BR-B-13
RG-001
RG-014
RG-019
RG-020
GEOLOGICAL ENGINEERING SERVICES
F.P. TAGLIAMONTE P.Eng.
For: FLAG RESOURCES (1985) LIMITED
Title: BOOT LAKE PROPERTY
DIAMOND DRILL HOLE PLAN
Date: 87-01-26
Scale: 1:2000
NTS - 41P/
Drawn: HDM
Approved:
File:

FIGURE 3.

D[illegible] 1985 Report

DIAMOND DRILL RECORD

NAME OF PROPERTY: CRYSTAL NORTH
HOLE NO.: CN - 85 - 1 LENGTH: 70.7 m (232')
LOCATION:
LATITUDE: DEPARTURE:
ELEVATION: AZIMUTH: 030° DIP: 45°
STARTED: 22/09/85 FINISHED: 23/09/85

FOOTAGE	DIP	AZIMUTH	FOOTAGE	DIP	AZIMUTH

HOLE NO. 1 SHEET NO. 1
REMARKS:

LOGGED BY: ROBIN GOAD

FOOTAGE FROM	FOOTAGE TO	DESCRIPTION	SAMPLE NO.	SAMPLE SPECIES	SAMPLE FOOTAGE FROM	SAMPLE FOOTAGE TO	SAMPLE FOOTAGE TOTAL	ASSAYS %	ASSAYS %	ASSAYS OZ/TON	ASSAYS OZ/TON
0	2.1 m (7')	CASING									
2.1 m (7')	12.8m (42')	GOWGANDA FORMATION GRAYWACKE. 2.1 m (7') - 12.8 m (42') MASSIVE GRAYWACKE (1a.) - Typical massive dark gray graywacke without dropstones & weakly chloritic. Frequent hairline fractures occurring with random orientation & occasionally quartz filled. Minor bedding can be locally seen represented by thin purple siliceous interbeds which are particularly fractured. 3.7 m (12') chloritic slip with 1.0 cm ellipsoidally shaped quartz sweat. 4.1 m (13'6") blocky core. 4.4 m (14' 5") 0.5 cm quartz stringer with chlorite along the boundaries with traces of chalcopyrite oxidizing to malachite. 7.5 m (24' 6") 1.0 cm concordant quartz stringer with minor chloritic alterations of the adjacent graywacke. The quartz is locally vuggy. 7.5 m (24' 6") bedding is 50° to core axis.									
12.8 m (42')	60.5 m (198.44')	MINERALIZED ZONE 12.8 m (42') - 30.8 m (101') CONTACT ZONE - Zone of intense chloritization &/or silicification in highly fractured &/or brecciated Gowganda graywacke. The alteration increases with depth transgressing from chloritization to silicification and albitization. The brecciation also increases with depth transgressing from fracturing. Minor pink staining accompanies the more intense albitization.									

DIAMOND DRILL RECORD

NAME OF PROPERTY CRYSTAL NORTH
HOLE NO. CN - 85 - 1 LENGTH 70.7 m (232')
LOCATION
LATITUDE DEPARTURE
ELEVATION AZIMUTH 030° DIP 45°
STARTED 22/09/85 FINISHED 23/09/85

FOOTAGE	DIP	AZIMUTH	FOOTAGE	DIP	AZIMUTH

HOLE NO. 1 SHEET NO. 2
REMARKS

LOGGED BY ROBIN GOAD

FOOTAGE FROM	FOOTAGE TO	DESCRIPTION	SAMPLE NO.	SAMPLE % SULPHIDES	SAMPLE FOOTAGE FROM	SAMPLE FOOTAGE TO	SAMPLE FOOTAGE TOTAL	ASSAYS %	ASSAYS %	ASSAYS Au OZ/TON	ASSAYS Au OZ/TON
		MINERALIZED ZONE (CONTINUED) The fractures are mostly filled with chlorite &/ or white &/ or pink carbonate and locally quartz or albite. 12.8 m (42') - 21.3 m (70') locally intense chloritization and carbonitization with light green bleaching. 21.3 m (70') - 21.9 m (72') intense brecciation with fragments generally ≤ 4 cm - clasts supported in chloritized graywacke matrix. 26.5 m (87') - 30.8 m (101') Intense brecciation and alteration locally chloritized &/ or silicified &/ or albitized.										
		26.5 m (87') - 27.1 m (89') Silicified angular fragments ≤ 1 mm - 1.0 cm in a chloritic matrix with frequent chloritic fracturing.	1501		26.5	27.5	1.0 m			trace	
		27.1 m (84') - 28.3 m (93') Brecciation and alteration similar to above with pink albitization overprinting many of the siliceous fragments occurring up to 3 cm.	1502		27.5	28.5	1.0 m			trace	
		28.3 m (93') - 29.5 m (96' 10") Highly fractured and silicified breccia with frequent chloritic fractures.	1503		28.5	29.5	1.0 m			trace	
		29.5 m (96' 10") - 29.6 (97') Pink albitization overprinting intensely silicified breccia. The pink alteration occurs in the matrix in the perimeters of silicifed fragments.	1504		29.5	30.8	1.3 m			trace	
		29.6 m (97') - 30.8 m (101') Intensely sheared and chloritized. 30.5 m (100') Chloritic slickenslides.									
		30.8 m (101') - 44.8 m (147') PINK METASOMATITE OR ALBITE MICROBRECCIA	1505		30.8	31.8	1.0 m			.014	
		- Coarse pink to green and pink massive rock (microbrecciated) &/or brecciated, massive, pink rock composed dominantly of albite and carbonate with minor quartz,	1506		31.8	32.8	1.0 m			trace	

DIAMOND DRILL RECORD

NAME OF PROPERTY CRYSTAL NORTH
HOLE NO. CN - 85 - 1 LENGTH 70.7 m (232')
LOCATION
LATITUDE DEPARTURE
ELEVATION AZIMUTH 030° DIP 45°
STARTED 22/09/85 FINISHED 23/09 35

FOOTAGE	DIP	AZIMUTH	FOOTAGE	DIP	AZIMUTH

HOLE NO. 1 SHEET NO. 3
REMARKS

LOGGED BY ROBIN GOAD

FOOTAGE FROM	FOOTAGE TO	DESCRIPTION	SAMPLE NO.	SAMPLE % SULPHIDES	SAMPLE FOOTAGE FROM	SAMPLE FOOTAGE TO	SAMPLE FOOTAGE TOTAL	ASSAYS Au %	ASSAYS %	ASSAYS OZ/TON	ASSAYS OZ/TON
		PINK METASOMATITE OR ALBITE MICROBRECCIA (CONTINUED) chlorite, epidote, tourmaline and pyrite. Minor Potassium feldspar occurs along fractures. Individual grains average about 5.0 mm to finer, intergrown with minor quartz and carbonate with chlorite, tourmaline, epidote and potassium feldspar occurring in fractures. Green mica also locally occurs. Pyrite occurs finely disseminated throughout the rock or along fractures, where it is disseminated or forms continuous bands. Throughout the metasomatite, the pyrite content is about 1% but it increases to 10% locally in fracture fillings. Carbonate occurs as greenish rhombs up to several cm or as white spots or flecks making up as much as 5% of the rock. Albite can be seen frequently in radiating or star and radiating crystal habit as coarse as 1 cm probably in the form of cleavelandite or nearly pure sodium feldspar. Micro-brecciation is almost pervasive with coarse albite patches and finer albite, chlorite and minor epidote filling the matrix. Coarse fault breccias also occur with angular fragments up to 5.0 cm of the metasomatite in a siliceous &/or chloritic matrix. Arsenopyrite locally occurs, as does tourmaline.									
		35.5 m (116' 6") - 35.7 m (117) Abundant chlorite in breccia matrix.	1507		32.8	33.8	1.0 m			trace	
		38.4 m (126') - 39 m (128') Patchy brick-red stain with frequent siliceous and chlorite-filled fractures. From 2 - 5% pyrite occurs locally concentrated along fractures.	1508		33.8	34.8	1.0 m			trace	
		39 m (128') - 39.5 m (129' 6") Locally, stain is redder with several 2.0 cm quartz sweats, chlorite-filled fracturing and carbonate rhombs, highly	1509		34.8	35.8	1.0 m			trace	
			1510		35.8	36.8	1.0 m			.006	
			1511		36.8	37.8	1.0 m			trace	
			1512		37.8	38.8	1.0 m			trace	
			1513		38.8	39.8	1.0 m			trace	

DIAMOND DRILL RECORD

NAME OF PROPERTY CRYSTAL NORTH

HOLE NO. CN - 85 - 1 LENGTH 70.7 m (232')

LOCATION

LATITUDE DEPARTURE

ELEVATION AZIMUTH 030° DIP 45°

STARTED 22/09/85 FINISHED 23/09/85

FOOTAGE	DIP	AZIMUTH	FOOTAGE	DIP	AZIMUTH

HOLE NO. 1 SHEET NO. 4

REMARKS

LOGGED BY ROBIN GOAD

FOOTAGE FROM	FOOTAGE TO	DESCRIPTION	SAMPLE NO.	SAMPLE % SULPHIDES	SAMPLE FOOTAGE FROM	SAMPLE FOOTAGE TO	SAMPLE FOOTAGE TOTAL	ASSAYS %	ASSAYS %	ASSAYS Au OZ/TON	ASSAYS Au OZ/TON
		PINK METASOMATITE OR ALBITE MICROBRECCIA (CONTINUED) fractured with sulphides concentrated along the fractures. Sulphides locally 2% with minor, very fine arsenopyrite ?? (Possibly, very fine visible gold) ??									
		40.0 m (131.2') 2.5 cm band of hydrothermal breccia consisting of rounded fragments up to 0.5 cm in a fine siliceous matrix oriented about 20°to the core axis.	1514		39.8	40.8	1.0 m			trace	
		41.3 m (135' 6"0 - 41.8 m (137') Light pink clots (likely carbonate rhombs) occur from 0.5 to 4 cm in diameter, highly fractured, with pyrite locally concentrated to 3%.	1515		40.8	41.8	1.0 m			trace	
			1516		41.8	42.8	1.0 m			trace	
		42.2 m (138' 6") 10 cm sulphides which increase to 10% locally (occurring in a band).	1517		42.8	43.8	1.0 m			trace	
		44.8 m (147') - 57.5 m (188' 9") CHLORITIC METASOMATITE MICROBRECCIA	1518		43.8	44.8	1.o m			trace	
		- Gradational contact from intensely pink stained metasomatite breccia to more chloritized metasomatite microbreccia. Rock essentailly as before with coarse patches of albite surrounded by finer (almost milled in appearance) albite with heavy chloritization along fractures and in the matrix. Sulphides are not as evident but may be just finer grains i. e. generally less than 1% pyrite. Decrease in carbonate also occurs.	1519		44.8	45.8	1.0 m			trace	
			1520		45.8	46.8	1.0 m			trace	
			1521		46.8	47.8	1.0 m			trace	
			1522		47.8	48.8	1.0 m			trace	
			1523		48.8	49.8	1.0 m			trace	
			1524		49.8	50.8	1.0 m			trace	
		45.7 m (150') Blocky core.									
		46.2 m (151' 6") Blocky core.	1525		50.8	51.8	1.0 m			trace	
		47.9 (157') Blocky core.									
		48.1 m (157' 8") 2 to 0.5 cm pink carbonate stringers 45° to core axisperiod.	1526		51.8	52.8	1.0 m			trace	
		54 m (177') - 54.7 m (179' 5") 2 cm wide band of hydrothermal breccia with an irregular contact, consisting of fine rounded fragments about 0.2 cm on average and as coarse as 1.0 cm in a fine black matrix.	1527		52.8	53.8	1.0 m			trace	
			1528		53.8	54.8	1.0 -			trace	

DIAMOND DRILL RECORD

NAME OF PROPERTY CRYSTAL NORTH

HOLE NO. CN - 85 - 1 LENGTH 70.7 m (232')

LOCATION

LATITUDE DEPARTURE

ELEVATION AZIMUTH 030° DIP 45°

STARTED 22/09/85 FINISHED 23/09/85

FOOTAGE	DIP	AZIMUTH	FOOTAGE	DIP	AZIMUTH

HOLE NO. 1 SHEET NO. 5

REMARKS

LOGGED BY ROBIN GOAD

FOOTAGE FROM	FOOTAGE TO	DESCRIPTION	SAMPLE NO.	SULPHIDES	FOOTAGE FROM	FOOTAGE TO	FOOTAGE TOTAL	ASSAYS %	%	Au OZ/TON	OZ/TON
		CHLORITIC METASOMATITE MICROBRECCIA (CONTINUED)									
		- Breccia fragments are larger than the diameter of the core at 54.2 m. (This breccia may be a small band of the Sudbury breccia.)	1529		54.8	55.8	1.0 m			trace	
		54.9 m (180') - 56.6 m (185' 7") Blocky core.	1530		55.8	56.8	1.0 m			trace	
		56.6 m (185' 7") - 57.5 m (188' 9") 0.9 m band or fragment of silicified &/or albitized massive Gowganda Formation graywacke extensively microfractured with multiple hairline fractures often parallel to the core axis.	1531		56.8	57.8	1.0 m			trace	
		57.5 m (188' 9") - 58.5 m (191' 9") PINK METASOMATITE MICROBRECCIA									
		- Highly fractured typical pink metasomatite microbreccia consisting of pink-stained albite cleavelandite with minor quartz and chlorite. Frequent 0.25 to 3.0 cm, randomly oriented, highly fractured carbonate rhombs occur. Frequent fine bands of hydrothermal breccia occur in a regular pattern especially at 58.1 m.	1532		57.8	58.8	1.0 m			trace	
			1533		58.8	59.8	1.0 m			trace	
			1534		59.8	60.8	1.0 m			trace	
		58.35 m - 58.55 m Fine gray fault gouge occurs with fine < 0.5 cm angular to rounded fragments in a fine clay-like fault gouge matrix defining the lower contact of the zone.									
		58.5 m (191.9') - 60.5 m (198.4') CONTACT ZONE									
		- Intensely, brecciated and silicified with albitized graywacke with minor pink stain around the siliceous fragments. The matrix is locally chloritized. The breccia is clast supported with angular to sub-angular fragments up to 3.0 cm in a chloritic and siliceous matrix.	1535		26.5	60.8	34.3 m			COMPOSITE	

DIAMOND DRILL RECORD

NAME OF PROPERTY CRYSTAL NORTH
HOLE NO. CN - 85 - 1 LENGTH 70.7 m (232')
LOCATION
LATITUDE DEPARTURE
ELEVATION AZIMUTH 030° DIP 45°
STARTED 22/09/85 FINISHED 23/09/85

FOOTAGE	DIP	AZIMUTH	FOOTAGE	DIP	AZIMUTH

HOLE NO. 1 SHEET NO. 6
REMARKS

LOGGED BY ~~ROBIN GOAD~~

FOOTAGE FROM	FOOTAGE TO	DESCRIPTION	SAMPLE NO.	SAMPLE % SULPHIDES	SAMPLE FOOTAGE FROM	SAMPLE FOOTAGE TO	SAMPLE FOOTAGE TOTAL	ASSAYS %	ASSAYS %	ASSAYS OZ/TON	ASSAYS OZ/TON	
60.5 m (198.4)	70.7 m (232')	GOWGANDA FORMATION GRAYWACKE - 60.5 m (198.4') - 70.7 m (232') ALTERED MASSIVE GRAYWACKE. - Greenish-gray silicified &/or albitized massive graywacke with occasional dropstones ≤ 1.0 cm - 5.0 cm in diameter. Rock is highly fractured and altered and locally blocky. 63.6 m (208' 6") - 0.5 cm zone of 2-3% disseminated pyrite. 64.3 m (210.9') healed hairline fracturing. 65.7 m (215.5') healed hairline fracturing. 67.1 m (220') - 5.0 cm rectangular clast - highly chloritized with several 0.5 cm carbonate rhombs. 68.0 m (223') - 10 cm of intense silicification and bleaching. 69.2 m (227') - 69.7 m (228.5') 3.0 cm fault breccia cuts core sub-parallel to core axis. Less than 0.5 cm rounded clasts occur in a fine black matrix (may be Sudbury breccia). 70.4 m (231') - 70.7 m (232') Local shearing about 35° to core axis. In the shear zone, the clasts are stretched to 1.0 cm. 70.7 m (232') END OF HOLE										

DIAMOND DRILL RECORD

NAME OF PROPERTY CRYSTAL NORTH

HOLE NO. CN - 85 - 2 LENGTH 59.6 m (195' 6")

LOCATION

LATITUDE DEPARTURE

ELEVATION AZIMUTH 030° DIP 45°

STARTED 23/09/85 FINISHED 25/09/85

FOOTAGE	DIP	AZIMUTH	FOOTAGE	DIP	AZIMUTH

HOLE NO. 2 SHEET NO. 1

REMARKS

LOGGED BY ROBIN GOAD

FOOTAGE FROM	FOOTAGE TO	DESCRIPTION	SAMPLE NO.	SAMPLE SYMBOLS	SAMPLE FOOTAGE FROM	SAMPLE FOOTAGE TO	SAMPLE FOOTAGE TOTAL	ASSAYS Au %	ASSAYS %	ASSAYS Au OZ/TON	ASSAYS OZ/TON
0	3.1 m (10'4")	CASING									
3.1m (10' 4")	9.45 m (31')	MINERALIZED ZONE - 3.1 m (10' 4") - 9.45 m (31') CONTACT ZONE. Intensely fractured &/or brecciated, albitized and chloritized, massive gray graywacke. Local intense shearing with occasional quartz sweats with minor pink staining occurs in breccia matrix. Locally albitized fragments are stained. 3.4 m (11' 3"0 - 4.1 m (13' 6") Zone of quite extensive brecciation and shearing with albitization occurs. Breccia consists of angular fragments of albitized graywacke up to 1.5 cm in a siliceous matrix. Extensive shearing occurs up to 20° to the core axis. 4.1 m (13' 6"0 - 5.2 m (17') Zone is locally chloritic with frequent quartz sweats. 4.7 m (15' 4") Blocky core. 5.2 m (17') - 6.7 m (22') Intensive fracturing and brecciation with albitization and minor bleaching. Fragments of breccia are greater than diameter of core with chlorite in the matrix. 6.7 m (22') 2.0 cm band of hydrothermal breccia occurs with irregular contacts. Rounded clasts occur in a siliceous matrix. 6.8 m (22' 4") - 7.3 m (24') Hairline fracture shearing occurs 10° to core axis. 7.3 m (24') Minor blocky core. 7.3 m (24') - 9.4 m (31') Intense brecciation and albitization bleaching rock light green/gray. Minor pink staing occurs in matrix and locally on fragment boundaries. Angular fragments up to greater than the diameter of the core are found in an intensely chloritized matrix.	1536		3.3	4.3	1.0 m			trace	
			1537		4.3	5.3	1.0 m			trace	
			1538		5.3	6.3	1.0 m			trace	
			1539		6.3	7.3	1.0 m			trace	
			1540		7.3	8.3	1.0 m			trace	

DIAMOND DRILL RECORD

NAME OF PROPERTY CRYSTAL NORTH

HOLE NO. CN - 85 - 2 LENGTH 59.6 m (195' 6")

LOCATION

LATITUDE DEPARTURE

ELEVATION AZIMUTH 030° DIP 45°

STARTED 23/09/85 FINISHED 25/09/85

FOOTAGE	DIP	AZIMUTH	FOOTAGE	DIP	AZIMUTH

HOLE NO. 2 SHEET NO. 2

REMARKS

LOGGED BY ROBIN GOAD

FOOTAGE FROM	FOOTAGE TO	DESCRIPTION	SAMPLE NO.	SAMPLE SPLITS	SAMPLE FOOTAGE FROM	SAMPLE FOOTAGE TO	SAMPLE FOOTAGE TOTAL	ASSAYS Au %	ASSAYS %	ASSAYS Au OZ/TON	ASSAYS OZ/TON
		CONTACT ZONE (CONTINUED)									
		- 7.9 m (26') Blocky core. 8.2 m (29') Core is locally vuggy likely the result of dissolution of carbonate. 9.45 m (31') - 11.5 m (37' 8") PINK METASOMATITE MICROBRECCIA	1541		8.3	9.4	1.1 m			trace	
		- Highly fractured pink metasomatite breccia is composed of albite and pure sodium albite (cleavelandite) intergrown with carbonate and minor quartz micro-brecciated with abundant chlorite in the matrix, frequent albitized, healed fractures occur in random orientation. Pyrite occurs as interstitial filling and is weakly disseminated. 11.5 m (37' 8") - 14.0 m (46') CHLORITIC METASOMATITE MICROBRECCIA	1542		9.4	10.4	1.0 m			trace	
			1543		10.4	11.4	1.0 m			trace	
			1544		11.4	12.4	1.0 m			trace	
			1545		12.4	13.4	1.0 m			trace	
		- Breccia as above, however, abundant chlorite occurs in the microbreccia matrix. Pink staining is markedly decreased with only minor staining of the microbreccia clasts. Pyrite mainly much less than 1% but is locally concentrated up to 2% and carbonate rhombs are less abundant than in the pink metasomatite microbreccia. Clasts are mainly less than 1.0 cm, but occur up to greater than the diameter of the core. 14.0 m (46') - 16.6 m (54' 5") PINK METASOMATITE MICROBRECCIA	1546		13.4	14.4	1.0 m			trace	
		- Gradational contact with pink metasomatite microbreccia composed of albite, often cleavelandite variety intergrown with minor quartz and carbonate rhombs generally less than 0.5 cm. Rock is highly fractured where fractures are filled with albite &/or chlorite and occasional epidite and tournaline as well as pyrite.	1547		14.4	15.5	1.0 m			trace	
			1548		15.4	16.4	1.0 m			trace	

DIAMOND DRILL RECORD

NAME OF PROPERTY CRYSTAL NORTH
HOLE NO. CN - 85 - 2 LENGTH 59.6 m (195' 6")
LOCATION
LATITUDE DEPARTURE
ELEVATION AZIMUTH 030° DIP -45°
STARTED 23/09/85 FINISHED 25/09/85

FOOTAGE	DIP	AZIMUTH	FOOTAGE	DIP	AZIMUTH

HOLE NO. 2 SHEET NO. 3
REMARKS
LOGGED BY ROBIN GOAD

FOOTAGE FROM	FOOTAGE TO	DESCRIPTION	SAMPLE NO.	SAMPLE % SULPHIDES	SAMPLE FOOTAGE FROM	SAMPLE FOOTAGE TO	SAMPLE FOOTAGE TOTAL	ASSAYS Au %	ASSAYS %	ASSAYS Au OZ/TON	ASSAYS OZ. TON
		PINK METASOMATITE MICROBRECCIA (CONTINUED)									
		- Pyrite content is generally less than 1% but is locally concentrated, especially within fractures in the carbonates.	1549		16.4	17.4	1.0 m			trace	
		14.5 m (47.6') 7 cm locally intense fracturing with a high concentratiom of angular and fractured carbonate rhombs followed by 25 cm of intensely silicified &/or albitized rock which is bleached light grey/pink with densely concentrated fine carbonate rhombs.									
		16.6 m (54' 5") - 31.2 m (102.3') CHLORITIC METASOMATITE MICROBRECCIA									
		This is typical metasomatite microbreccia composed of albite intensely microbrecciated and fractured with abundant chlorite occurring in the microbreccia matrix and fractures.	1550		17.4	18.4	1.0 m			trace	
			1551		18.4	19.4	1.0 m			trace	
		Pyrite and carbonate content decreases. Pyrite is generally less than 1% but locally concentrated to about 2%. Occasional carbonate rhombs occur between 0.5 and 1.0 cm in size. Patches of chlorite occur randomly up to 1.0 cm.									
		18.3 m (60') - 18.7 m (61.3') A 40 cm band of lightly fractured pink-stained pink metasomatite occurs where fractures are essentially normal to the core axis.	1552		19.4	20.4	1.0 m			.004	
		24.5 m (80.4') A 30 cm band of fault breccia occurs.	1553		20.4	21.4	1.0 m			trace	
		25.4 m (83.1') Locally intense fracturing with abundant chlorite occurs along the fractures.	1554		21.4	22.4	1.0 m			trace	
		25.4 m (83.1') - 26.4 m (86.6') Locally intensely brecciated and fractured with pink stain occurring along fractures.	1555		22.4	23.4	1.0 m			trace	
			1556		23.4	24.4	1.0m			trace	

DIAMOND DRILL RECORD

NAME OF PROPERTY: CRYSTAL NORTH
HOLE NO.: CN - 85 - 2 LENGTH: 59.6 m (195' 6")
LOCATION:
LATITUDE: DEPARTURE:
ELEVATION: AZIMUTH: 030° DIP: 45°
STARTED: 23/09/85 FINISHED: 25/09 85

FOOTAGE	DIP	AZIMUTH	FOOTAGE	DIP	AZIMUTH

HOLE NO. 2 SHEET NO. 4
REMARKS:

LOGGED BY: ROBIN GOAD

FOOTAGE FROM	FOOTAGE TO	DESCRIPTION	SAMPLE NO.	SAMPLE SULPHIDES %	SAMPLE FOOTAGE FROM	SAMPLE FOOTAGE TO	SAMPLE FOOTAGE TOTAL	ASSAYS %	ASSAYS %	ASSAYS Au OZ/TON	ASSAYS OZ/TON
		26.6 m (87.2') Blocky core.									
		26.9 m (88.2) - 28.2 m (92.5') Frequent irregular bands of fault breccia approximately 20 to 30 cm wide are found. These are composed of albitized fragments less than 1.0 cm in a chloritic fault gouge matrix.	1557		24.4	25.4	1.0 m			trace	
			1558		25.4	26.4	1.0 m			trace	
			1559		26.4	27.4	1.0 m			trace	
		28.4 m (93.1') Blocky core.									
		31.2 m (102.3') - 55.9 m (195' 6") PINK METASOMATITE MICROBRECCIA	1560		27.4	28.4	1.0 m			trace	
		- Pink rock dominantly composed of albite often occurring as cleavelandite i. e. radiating fibrous crystals with crystals up to 1.0 cm. Albite is intergrown with minor quartz and carbonate with carbonate occurring from 1% to 60% of the rock and occurring in up to 4 cm grains but generally ≤ 0.5 cm. Locally the rock is highly fractured with pink staining often concentrated in fractures where potassium feldspar, epidote, quartz and minor tournaline occur. Pyrite is disseminated throughout the core, but is particularly concentrated along fractures forming 1.0 cm bands of massive pyrite. Disseminated trace arsenopyrite occurs locally.	1561		28.4	29.4	1.0 m			trace	
			1562		29.4	30.4	1.0 m			trace	
			1563		30.4	31.4	1.0 m			trace	
			1564		31.4	32.4	1.0 m			trace	
			1565		32.4	33.4	1.0 m			trace	
			1566		33.4	34.4	1.0 m			trace	
			1567		34.4	35.4	1.0 m			.016	
		33.3 m(109.2') .2 - 1 cm quartz stringers occur at 45° and 85° to the core axis.	1568		35.4	36.4	1.0 m			.010	
		33.4 m coarse patches of pyrite fill grain boundary interstices. Locally less chlorite is present.									
		33.9 m (111.2') - 38.0 m (124.6') Intensely fractured metasomatite often albitized is found with cleavelandite which is typically coarse grained up to 1.0 cm particularly at 34.2 m.	1569		36.4	37.4	1.0 m			.036	
			1570		37.4	38.4	1.0 m			.008	
		35.7 m (117.1') 10.0 cm irregular band of hydrothermal breccia is oriented about 40° to the core axis. It consists of rounded clasts in a siliceous granular matrix.									

DIAMOND DRILL RECORD

NAME OF PROPERTY: CRYSTAL NORTH
HOLE NO.: CN - 85 - 2 LENGTH: 59.6 m (195' 6")
LOCATION:
LATITUDE: DEPARTURE:
ELEVATION: AZIMUTH: 030° DIP: 45°
STARTED: 23/09/85 FINISHED: 25/09/85

FOOTAGE	DIP	AZIMUTH	FOOTAGE	DIP	AZIMUTH

HOLE NO. 2 SHEET NO. 6
REMARKS:

LOGGED BY: ROBIN GOAD

FOOTAGE FROM	FOOTAGE TO	DESCRIPTION	SAMPLE NO.	SAMPLE % SULPHIDES	SAMPLE FOOTAGE FROM	SAMPLE FOOTAGE TO	SAMPLE FOOTAGE TOTAL	ASSAYS %	ASSAYS %	ASSAYS Au OZ/TON	ASSAYS Au OZ, TON
		MICROBRECCIA (CONTINUED) 36.3 m (119.1') 10.0 cm band of hydrothermal breccia as previously described is found. 36.5 m (119.7') 10.0 cm band where pyrite occurs up to concentrations of 10% as an irregular fracture-filling band. 36.8 m (120.7') A narrow band of hydrothermal breccia is composed of the rounded clasts in a granular siliceous matrix. 37.0 m (121.4') A 1.0 cm quartz stringer is oriented at 50° to the core axis. The stringer contains massive sooty tournaline. 37.2 m (122') - 37.9 m (124.3') Frequent bands of hydrothermal breccia are composed of 0.5 cm siliceous rounded clasts in a granular siliceous matrix. 37.5 m (123') 5.0 cm quartz vein occurs with a light green stain likely due to chlorite or green mica. 39.3 m (128.9') Fracture is filled with about 10% pyrite over 10.0 cm.	1571		38.4	39.4	1.0 m			.012	
		39.4 m (129.2') - 40.3 m (132.2') Patchy hydrothermal breccia has an irregular distribution. It is composed of < 0.5 cm rounded, sub-angular clasts in a granular siliceous matrix.	1572		39.4	40.4	1.0 m			.012	
		40.5 m (132.8') 5% pyrite is found locally over 10 cm.	1573		40.4	41.4	1.0 m			trace	
		40.1 m (131.5') - 55.2 m (181.1') Evenly disseminated tan-colored carbonate rhombs comprise 35 - 60% of the rock. These rhombs are up to 3.0 cm wide.	1574		41.4	42.4	1.0 m			trace	
		41.8 m (137.1') Locally, 5% pyrite is found over 5.0 cm.	1575		42.4	43.4	1.0 m			trace	
		42.0 m (137.8') Locally, 5% pyrite is found over 5.0 cm. 43.9 m (144') - 44.4 m (145.6') Highly fractured rock with fractures occurring at random orientation. Most of the fractures are albitized with frequent irregular	1576		43.4	44.4	1.0 m			trace	

DIAMOND DRILL RECORD

NAME OF PROPERTY CRYSTAL NORTH
HOLE NO. CN - 85 - 2 LENGTH 59.6 m (195' 6")
LOCATION
LATITUDE DEPARTURE
ELEVATION AZIMUTH 030° DIP 45°
STARTED 23/09/85 FINISHED 25/09/85

FOOTAGE	DIP	AZIMUTH	FOOTAGE	DIP	AZIMUTH

HOLE NO. 2 SHEET NO. 6
REMARKS
LOGGED BY ROBIN GOAD

FOOTAGE FROM	FOOTAGE TO	DESCRIPTION	SAMPLE NO.	SAMPLE % SULPHIDES	SAMPLE FOOTAGE FROM	SAMPLE FOOTAGE TO	SAMPLE FOOTAGE TOTAL	ASSAYS Au %	ASSAYS %	ASSAYS OZ/TON	ASSAYS OZ/TON
		MICROBRECCIA (CONTINUED) bands of hydrothermal breccia and ≤ 1% fine tournaline needles. 44.4 m (145.6') Fracture occurs at 10° to the core axis containing locally 5% pyrite, minor carbonate and minor tournaline.	1577		44.4	45.4	1.0 m			.004	
		44.8 m (146.9') A 1.0 cm band of massive pyrite is essentially normal to the core axis around the band 10% disseminated pyrite occurs.	1578		45.4	46.4	1.0 m			.002	
		44.9 m (147.3') - 45.5 m (149.2') Carbonate stringers cut the core at 70° - 90° to the core axis with minor, associated, disseminated pyrite.	1579		46.4	47.4	1.0 m			trace	
		45.8 m (150.2') Extensive healed fractures are filled with albite and run mainly normal to the core axis.	1580		47.4	48.4	1.0 m			trace	
		45.8 m (150.2') - 48.8 m (160.1') Coarse pyrite rhombs are found with disseminated pyrite about 3% of the rock	1581		48.4	49.4	1.0 m			TRACE	
		49.1 m (161.0') Coarse carbonate rhombs up to ≥ 5.0 cm occur with disseminated pyrite concentrated up to 10% and a massive sulphide stringer 0.5 cm wide which cuts the core at 25° to the core axis.	1582		49.4	50.4	1.0 m			.002	
		49.8 m (163.3') - 50.5 m (165.6') Very fine-grained albitite metasomatite is bleached tan in color with local coarse carbonate rhombs and 10% disseminated pyrite.									
		51.4 m (168.6') - 51.7 m (169.6') Five quartz carbonate stringers 0.3 - 1.0 cm occur at 45° and 80° to the core axis.	1583		50.4	51.4	1.0 m			.006	
		51.9 m (170.2') - 52.3 m (171.5') Frequent dark-colored, randomly oriented fractures are filled with albite, pyrite, and tournaline. Locally, pyrite occurs up to 20%.	1584		51.4	52.4	1.0 m			.004	
		52.5 m (172.2') - 53.9 m (176.8') Fine-grained albitite metasomatite core is bleached light tan to pink tan.	1585		52.4	53.4	1.0 m			trace	

DIAMOND DRILL RECORD

NAME OF PROPERTY: CRYSTAL NORTH
HOLE NO.: CN - 85 - 2 LENGTH: 59.6 m (195' 6")
LOCATION:
LATITUDE: DEPARTURE:
ELEVATION: AZIMUTH: 030° DIP: 45°
STARTED: 23/09/85 FINISHED: 25/09/85

FOOTAGE	DIP	AZIMUTH	FOOTAGE	DIP	AZIMUTH

HOLE NO. 2 SHEET NO. 7
REMARKS:

LOGGED BY: ROBIN GOAD

FOOTAGE FROM	FOOTAGE TO	DESCRIPTION	SAMPLE NO.	SAMPLE % SULPHIDES	SAMPLE FOOTAGE FROM	SAMPLE FOOTAGE TO	SAMPLE FOOTAGE TOTAL	ASSAYS %	ASSAYS %	ASSAYS Au OZ/TON	ASSAYS Au OZ/TON
		MICROBRECCIA (CONTINUED) The metasomatite is highly fractured mainly at 50° to the core axis with black streaks and patches of tourmaline. Pyrite occurs disseminated at concentrations of about 3%.	1586		53.4	54.4	1.0 m			trace	
		54.7 m (179.4') Local concentrations of about 5% pyrite occur along fractures.	1587		54.4	55.9	1.5 m			trace	
		55.1 m (180.7') Quartz stringer with tournaline is 3.5 cm wide at 65° to core axis. 55.2 m (181.1') A 2.0 cm quartz stringer occurs with green mica along its perimeter. 55.2 m (181.1') - 55.9 m (183.3') Core is extensively brecciated and fractured with intense albitization. Angular, rounded clasts up to 4.0 cm occur in a dark chloritic and albitized matrix.									
55.9 m 183.3 '	59.6 m 195.5 '	GOWGANDA FORMATION GRAYWACKE 55.9 m (183.2') - 59.6 m (195.5') ALTERED MASSIVE GRAYWACKE. - Albitized to chloritized massive green/gray graywacke has occasional dropstones up to 5.0 cm. Larger dropstones are granitic and smaller dropstones < 0.5 cm are generally basaltic. Frequent, randomly oriented, hairline fractures occur filled with albite. 56.0 m (183.7') Patch of coarse pyrite is about 3.0 cm. 57.8 m (189.6') 0.5 cm pink, quartz/carbonate stringer is at 50° to the core axis. 57.9 m (190') 0.5 cm pink, quartz/carbonate stringer is at 55° to the core axis. 59.6 m (195' 6") END OF HOLE									

DIAMOND DRILL RECORD

NAME OF PROPERTY CRYSTAL NORTH

HOLE NO. CN - 85 - 3 LENGTH 47.3 m (155')

LOCATION

LATITUDE DEPARTURE

ELEVATION AZIMUTH 055° DIP 45°

STARTED 28/09/85 FINISHED 30/09/85

FOOTAGE	DIP	AZIMUTH	FOOTAGE	DIP	AZIMUTH

HOLE NO. 3 SHEET NO. 1

REMARKS

LOGGED BY ROBIN GOAD

FOOTAGE FROM	FOOTAGE TO	DESCRIPTION	SAMPLE NO.	SAMPLE % SULPHIDES	SAMPLE FOOTAGE FROM	SAMPLE FOOTAGE TO	SAMPLE FOOTAGE TOTAL	ASSAYS Au %	ASSAYS %	ASSAYS OZ/TON	ASSAYS OZ/TON
0	2.1 m (7')	CASING									
2.1m (7')	21.3 m (69.8')	GOWGANDA FORMATION GRAYWACKE 2.1 m (7') - 21.3 m (69.8') ALTERED MASSIVE GRAYWACKE - Massive green chloritic graywacke with ≤ 1% drop stones up to 8.0 cm is composed of essentially granitic and basaltic material. Ocassional purple silicieous bedding laminations occur 47° to core axis. Frequent dendritic and black fractures occur with main fracture about 25° to the core axis. Dendrites are present in irregular random orientation. 3.7 m (12') A two cm band exhibits purple stain and 20% pyrite. 4.7 m (15' 6") Shearing with minor bleaching and minor blocky core are present. 5.5 m (18') A three cm band of pink metasomatized siltstone cuts core at 52° to core axis. About three cm of shearing occurs on each side of this zone. 8.6 m (28.1') - 8.7 m (28.9') A ten cm band of zoned pink metasomatized siltstone is highly fractured with these fractures chlorite-filled in random orientation. 12.5 m (41') - 12.8 m (42') Blocky core. 13.4 m (44') - 13.5 m (44' 4") Core is locally brecciated and albitized composed of coarse angular fragments which don't exceed the diameter of the core and are clast-supported. 14.0 m (45' 10") - 14.2 m (46' 5") Blocky core with chloritic slickenslides on broken core surface and shearing at 60° to core axis. 14.5 m (47' 5") A 5.0 cm band is intensely brecciated and albitized. 14.8 m (48' 5") - 15.3 m (50' 2") Chlorite-filled fractures or shears are at 20° to core axis.	1589		8.2	9.2	1.0 m			trace	

DIAMOND DRILL RECORD

NAME OF PROPERTY CRYSTAL NORTH
HOLE NO. CN - 85 - 3 LENGTH 47.3 m (155')
LOCATION
LATITUDE DEPARTURE
ELEVATION AZIMUTH 055° DIP 45°
STARTED 23/09/85 FINISHED 30/09/85

FOOTAGE	DIP	AZIMUTH	FOOTAGE	DIP	AZIMUTH

HOLE NO. 3 SHEET NO. 2
REMARKS

LOGGED BY ROBIN GOAD

FOOTAGE FROM	FOOTAGE TO	DESCRIPTION	SAMPLE NO.	SAMPLE % SULPHIDES	SAMPLE FOOTAGE FROM	SAMPLE FOOTAGE TO	SAMPLE FOOTAGE TOTAL	ASSAYS %	ASSAYS %	ASSAYS Au OZ/TON	ASSAYS OZ/TON
		ALTERED MASSIVE GRAYWACKE (CONTINUED) Shears are locally brecciated and bleached due to quite intense albitization. 16.5 m (54') - 16.8 m (55') Chlorite-filled fractures are at 30° to core axis. 18.1 m (59.5') Chlorite-filled fractures are normal to core axis. 18.3 m (60' 1") - 18.5 m (60' 8") Blocky core. 18.7 m (61' 5") Chloritic fractures are normal to core axis. 20.1 m (66') - 20.4 m (67') Minor blocky core.									
20.3 m (69.8')	46.0 m (150.9')	MINERALIZED ZONE 21.3 m (69.8') - 22.3 m (75.1') CONTACT ZONE Intensely brecciated and fractured graywacke is intensely albitized and has local minor pink staining in the matrix and on fragment perimeters. 21.7 m (71.2') Intense fracturing. 22.0 m (72.2') A twenty cm band of hydrothermal breccia is at 15 ° to the core axis. 22.3 m (73.1') - 27.0 m (88.6') PINK/TAN METASOMATIZED SILTSTONE: The fine-grained to cryptocrystalline sodium-rich, metasomatized siltstone is composed of a mosaic of intergrown albite crystals with carbonate rhombs occurring between 0.5 cm - 2 cm in size and in concentrations of up to 10% locally. Largely disseminated pyrite is present in amounts of from 1 - 30%. The rock is locally fractured and often filled with albite. The fractures frequently contain pyrite and green mica. 22.3 m (73.14') - 27.0 m (88.6') Cryptocrystalline, tan/gray sodium-rich, metasomatized siltstone is highly fractured containing fine white carbonate rhombs about 2.0 mm in size and locally coarse brown carbonate rhombs up to 3.0 cm (about 10% of the rock)	1590		21.3	22.3	1.0 m			trace	
			1591		22.3	23.3	1.0 m			trace	
			1592		23.3	24.3	1.0 m			trace	
			1593		24.3	25.3	1.0 m			trace	
			1594		25.3	26.3	1.0 m			trace	
			1595		26.3	27.3	1.0 m			trace	

DIAMOND DRILL RECORD

NAME OF PROPERTY: CRYSTAL NORTH
HOLE NO.: CN - 85 - 3 LENGTH: 47.3 m (155')
LOCATION:
LATITUDE: DEPARTURE:
ELEVATION: AZIMUTH: 055° DIP: 45°
STARTED: 28/09/85 FINISHED: 30/09/85

FOOTAGE	DIP	AZIMUTH	FOOTAGE	DIP	AZIMUTH

HOLE NO. 3 SHEET NO. 3
REMARKS:
LOGGED BY: ROBIN GOAD

FOOTAGE FROM	FOOTAGE TO	DESCRIPTION	SAMPLE NO.	SULPHIDES %	SAMPLE FOOTAGE FROM	SAMPLE FOOTAGE TO	SAMPLE FOOTAGE TOTAL	ASSAYS Au %	ASSAYS %	ASSAYS OZ/TON	ASSAYS OZ/TON
		PINK/TAN METASOMATIZED SILTSTONE (CONTINUED) 10% of the rock. Local green rhombs occur which appear to be chlorite pseudomorphing (replacing) carbonate. The fractures are in random orientation and mostly albite-filled chlorite and occasional pink staining occurs which locally stain the rock brick-red. 22.3 m (73.1') - 24.5 m (79.7') Fractures have brick-red stain and most of them are oriented about 60° to the core axis. The rest are in random orientation. 22.8 m (74.8') - 23.0 m (75.4') Coarse pink metasomatite breccia band has 5% local pyrite in randomly oriented fractures some of which are filled with chlorite. 23.0 m (75.4') - 23.2 m (76.1') Blocky core with chloritic slickenslides occurring on many of the broken core surfaces. 23.3 m (76.4') - 24.3 m (79.7') One mm carbonate rhombs are pseudomorphed by chlorite. 23.6 m (77.4') - 23.8 m (78.1') Blocky core. 24.3 m (79.7') - 24.5 m (80.4') A band of pink metasomatite microbreccia is intensely fractured and locally red-stained &/or chlorite-filled. 27.0 m (88.6') - 46.0 m (150.9') METASOMATIZED SILT STONE BRECCIA - Clast-supported breccia is composed of fragments of sodium-metasomatized siltstone (often bedded) angular-sub-rounded with clasts ◀ 1.0 mm to ▶ 30.0 mm. Occasional pink quartzite clasts also occur increasing with depth. The matrix is composed of albite, often containing chlorite, and quartz, green mica and minor tournaline. Carbonate rhombs occur both in the matrix and in the fragments as does pyrite which averages about 1%, but occurs locally up to 80% in a massive									

DIAMOND DRILL RECORD

NAME OF PROPERTY: CRYSTAL NORTH
HOLE NO.: CN - 85 - 3 LENGTH: 47.3 m (155')
LOCATION:
LATITUDE: DEPARTURE:
ELEVATION: AZIMUTH: 055° DIP: 45°
STARTED: 28/09/85 FINISHED: 30/09/85

FOOTAGE	DIP	AZIMUTH	FOOTAGE	DIP	AZIMUTH

HOLE NO. 3 SHEET NO. 4
REMARKS:
LOGGED BY: ROBIN GOAD

FOOTAGE FROM	FOOTAGE TO	DESCRIPTION	SAMPLE NO.	SAMPLE SPHERES	SAMPLE FOOTAGE FROM	SAMPLE FOOTAGE TO	SAMPLE FOOTAGE TOTAL	ASSAYS %	ASSAYS %	ASSAYS Au OZ/TON	ASSAYS Au OZ/TON
		METASOMATIZED SILTSTONE BRECCIA (CONTINUED) sulphide band. Carbonate varies from fine white flecks to dark brown carbonate rhombs. 28.0 m (91.8') - 28.3 m (92.8') Blocky core. 28.3 m (92.8') - 29.6 m (97.1') Intense fracturing occurring at 30° to core axis, filled with albite and locally chlorite with pyrite locally 10 %. 29.6 m (97.1') - 30.0 m (98.4') Local pink metasomatite microbreccia occurs with 5% pyrite. 30.0 m (98.4') - 30.3 m (99.4') Highly-fractured siltstone breccia with chlorite pseudomorphing carbonate rhombs. 30.6 m (100.4') 10.0 cm band of 10% pyrite. 30.7 m (100.7') - 31.2 m (102.3') Intensive hariline fracturing occurs in random orientation but frequently is normal to core axis. Most fractures are healed with albite and suplhides occur up to 10% locally. 31.7 m (104') - 34.6 m (113.5') Clast-supported breccia has almost no matrix. Angular clasts comprise 90% of the rock composed of sodium-metasomatized laminated siltstone. Occcasional patches of hydrothermal breccia cut the fault breccia composed of rounded clasts in a granular siliceous matrix with sulphides < 1%. 34.6 m (113.5') Thirty cm band of massive pyrite (i.e. about 80%) with minor quartz and pink metasomatite fills voids. 35.7 m (117.1') Pyrite content is up to 10% over ten cm. 35.7 m (117.1') - 37.2 m (122') Massive sodium-metasomatized siltstone or coarse breccia occur with pyrite < 10% and coarse carbonate rhombs occurring up to 5 cm across.	1596		27.3	28.3	1.0 m			.002	
			1597		28.3	29.3	1.0 m			.042	
			1598		29.3	30.3	1.0 m			.042	
			1599		30.3	31.3	1.0 m			.036	
			1600		31.3	32.3	1.0 m			.050	
			1601		32.3	3..3	1.0 m			.002	
			1602		33.3	34.3	1.0 m			.008	
			1603		34.3	35.3	1.0 m			.020	
			1604		35.3	36.3	1.0 m			trace	
			1605		36.3	37.3	1.0 m			trace	

DIAMOND DRILL RECORD

NAME OF PROPERTY CRYSTAL NORTH
HOLE NO. CN - 85 - 3 LENGTH 47.3 m (155')
LOCATION
LATITUDE DEPARTURE
ELEVATION AZIMUTH 055° DIP -45°
STARTED 28 09/85 FINISHED 30/09 85

FOOTAGE	DIP	AZIMUTH	FOOTAGE	DIP	AZIMUTH

HOLE NO. 3 SHEET NO. 5
REMARKS
LOGGED BY ROBIN GOAD

FOOTAGE FROM	FOOTAGE TO	DESCRIPTION	SAMPLE NO.	SAMPLE SULPHIDES %	SAMPLE FOOTAGE FROM	SAMPLE FOOTAGE TO	SAMPLE FOOTAGE TOTAL	ASSAYS %	ASSAYS %	ASSAYS Au OZ/TON	ASSAYS OZ/TON
		METASOMATIZED SILTSTONE BRECCIA (CONTINUED)									
		37.2 m (122') - 38.3 m (125.6') Massive fine grained sodium-metasomatized siltstone occurs with up to 4.0 cm carbonate rhombs and 1% pyrite which is either a large clast in the breccia or an area which has not been brecciated.	1606		37.3	38.3	1.0 m			trace	
			1607		38.3	39.3	1.0 m			trace	
		38.3 m (125.6') - 44.8 m (146.9') Coarse fault breccia is composed of clast-supported sodium-metasomatized laminated wacke and siltstone generally fine-grained to cryptocrystalline in an albitic matrix often exftensively fractured and accompanied by chloritization.	1608		39.3	40.3	1.0 m			trace	
			1609		40.3	41.3	1.0 m			trace	
			1610		41.3	42.3	1.0 m			.012	
		40.7 m (133.5') - 40.9 m (134.1') Finer grained breccia with irregular patchy hydrothermal breccia is composed of rounded fragments in a matrix-supported granular albitic siliceous matrix.	1611		42.3	43.3	1.0 m			.010	
		40.9 m (134.1') 3.0 cm band of 3% green mica occurs.									
		41.7 m (136.8') 2.0 cm band of pyrite is oriented at 45° to the core axis.	1612		43.3	44.3	1.0 m			trace	
		42.2 m (138.4') 10 cm band of fine breccia occurs with irregular hydrothermal breccia cutting the mineralized breccia.	1613		44.3	45.3	1.0 m			trace	
		43.0 m (141') Patch of green mica occurs.									
		43.4 m (142.3') Patch of green mica occurs.	1614		45.3	46.0	0.7 m			trace	
		43.9 m (144') Patch of green mica occurs with 5% pyrite locally.									
		44.0 m (144.3') - 46.0 m (150.9') Finer-grained breccia is present with clasts about 1.0 cm and containing 5% pyrite. Pyrite increases to 15% locally. Intense fracturing and the orientation of the fragments are often 60° to the core axis.									
46.0 m (150.9')	47.3 m (155')	GOWGANDA FORMATION GRAYWACKE									
		46.0 m (150.9') - 47.3 m (155') ALTERED MASSIVE GRAY WACKE. Shares contact with mineralized zone. Contact	1615		46.0	47.0	1.0 m			trace	

DIAMOND DRILL RECORD

NAME OF PROPERTY CRYSTAL NORTH
HOLE NO. CN - 85 - 3 LENGTH 47.3 m (155')
LOCATION
LATITUDE DEPARTURE
ELEVATION AZIMUTH 055° DIP 45°
STARTED 28/09/85 FINISHED 30/09/85

FOOTAGE	DIP	AZIMUTH	FOOTAGE	DIP	AZIMUTH

HOLE NO. 3 SHEET NO. 6
REMARKS

LOGGED BY ROBIN GOAD

FOOTAGE FROM	FOOTAGE TO	DESCRIPTION	SAMPLE NO.	SAMPLE SERIES	SAMPLE FOOTAGE FROM	SAMPLE FOOTAGE TO	SAMPLE FOOTAGE TOTAL	ASSAYS Au %	ASSAYS %	ASSAYS OZ/TON	ASSAYS OZ/TON
		GOWGANDA FORMATION GRAYWACKE (CONTINUED) Is at 80° to the core axis. The massive, chloritic, green/gray graywacke has << 1% dropstone up to 30 cm across. These are composed of essentially basaltic material. 46.0 m (150.9') - 46.2 m (151.5') Twenty cm of brecciation occurs at the contact grading into fracturing then massive chloritized graywacke. 47.3 m (155') END OF HOLE									

DIAMOND DRILL RECORD

NAME OF PROPERTY CRYSTAL NORTH

HOLE NO. CN - 85 - 4 LENGTH 52.1 m (177')

LOCATION

LATITUDE DEPARTURE

ELEVATION AZIMUTH 055° DIP 45°

STARTED 01/10/85 FINISHED

FOOTAGE	DIP	AZIMUTH	FOOTAGE	DIP	AZIMUTH

HOLE NO. 4 SHEET NO. 1

REMARKS

LOGGED BY ROBIN GOAD

FOOTAGE FROM	FOOTAGE TO	DESCRIPTION	SAMPLE NO.	SAMPLE % SULPHIDES	SAMPLE FOOTAGE FROM	SAMPLE FOOTAGE TO	SAMPLE FOOTAGE TOTAL	ASSAYS Au %	ASSAYS %	ASSAYS OZ/TON	ASSAYS OZ/TON	
0	2.1m (7')	CASING										
2.1m (7')	12.8 m (42')	GOWGANDA FORMATION GRAYWACKE 2.1 m (7') - 12.8 m (42') MASSIVE CHLORITIC ALTERED GRAYWACKE - Chloritized massive green/gray graywacke is present with very occasional dropstones up to 3.0 cm across which are composed of granitic and basaltic material. Fine ≤ 1.0 mm white carbonate rhombs occur and increase to about 3% as the contact zone is approached. 2.2 m (7.3') Blocky core for 30 cm with minor ground core. 5.3 m (17.5') 1.0 cm band of albitized breccia is inclined 80% to the core axis. 5.5 m (18.0') One cm band of albitized breccia is inclined at 60° to the core axis. 5.8 m (19') - 6.1 m (20') Black dendritic hairline fracturing is present with the main fractures oriented at 10° to the core axis and randomly. 6.1 m (20.0') Fine carbonate rhombs start to occur. 6.4 m (21') Ten cm of black dendritic hairline fractures are evident branching from 10° to the core axis to randomly oriented dendrites. 6.5 m (21.5') Intense chloritization with alteration into the dropstones is present. Minor pink staining also occurs. 7.3 m (24') - 7.9 m (26') Numerous faint albitized hairline fractures trend mainly 60° to the core axis. 11.0 m (36.1') A 3.0 cm band of breccia with intensive fracturing (albitized) is oriented 40° to the core axis.										
12.8 m (48')	51.3m (163.3')	MINERALIZED ZONE 12.8 m (42') - 14.2 m (46.6) CONTACT ZONE Intensely fractured locally brecciated and albitized										

DIAMOND DRILL RECORD

NAME OF PROPERTY CRYSTAL NORTH
HOLE NO. CN - 85 - 4 LENGTH 52.1 m (177')
LOCATION
LATITUDE DEPARTURE
ELEVATION AZIMUTH 055° DIP -45°
STARTED 01/10/85 FINISHED

FOOTAGE	DIP	AZIMUTH	FOOTAGE	DIP	AZIMUTH

HOLE NO. 4 SHEET NO. 2
REMARKS
LOGGED BY ROBIN GOAD

FOOTAGE FROM	FOOTAGE TO	DESCRIPTION	SAMPLE NO.	SAMPLE % SULPHIDES	SAMPLE FOOTAGE FROM	SAMPLE FOOTAGE TO	SAMPLE FOOTAGE TOTAL	ASSAYS %	ASSAYS %	ASSAYS Au OZ/TON	ASSAYS Au OZ/TON	
		CONTACT ZONE (CONTINUED) Massive graywacke is present with 3% ≪ 1.0 mm white carbonate rhombs disseminated throughout the rock. The rock is light greenish/gray. The bleaching is due to albitization. Fractures are erratically distributed and often stained reddish-brown or are chloritic but mainly albitized. 12.9 m (42.3') Local chloritic fractures are 75° to the core axis. 13.1 m (43') A 10.0 cm band of intense fracturing and minor brecciation is present. The fractures are filled with chlorite &/or stained brick-red. 13.3 m (43.6') Chloritic hairline fractures are oriented at 55° to the core axis. 13.6 m (44.6') A 2.0 cm band of hydrothermal breccia with weak pink albitization is present. 13.7 m (44.9') - 14.2 m (46.6') Intensive fracturing and brecciation increases in intensity as the contact with the albitites is approached. Fragments up to 3.0 cm (angular) occur in a fine white albitized matrix. Reddish-brown stain occurs in fractures and carbonate rhombs are locally pseudomorphed by chlorite. 14.2 m (46.6') - 51.3 m (168.3') SODIUM - METASOMATIZED SILTSTONE BRECCIA A sharp contact with sodium-metasomatized siltstone breccia is oriented at 55° to the core axis. Tan/pink cryptocrystalline albitite originating from intense metasomatization of siltstone or laminated wacke is intensely brecciated. This forms clast-supported breccia where angular-rounded clasts occur from ≪ 1.0 mm to ≫ 70 cm along the core axis. The clasts consist of metasomatite wacke and quartzite in a fine albititic &/or chloritic matrix. Carbonate occurs in matrix and in the fragments as fine white flecks to	1616		12.8	14.2	1.40m					

FORM 1

DIAMOND DRILL RECORD

NAME OF PROPERTY CRYSTAL NORTH
HOLE NO. CN - 85 - 4 LENGTH 52.1 m (177')
LOCATION
LATITUDE DEPARTURE
ELEVATION AZIMUTH 055° DIP 45°
STARTED 01/10/85 FINISHED

FOOTAGE	DIP	AZIMUTH	FOOTAGE	DIP	AZIMUTH

HOLE NO. 4 SHEET NO. 3
REMARKS
LOGGED BY ROBIN GOAD

FOOTAGE FROM	FOOTAGE TO	DESCRIPTION	SAMPLE NO.	SAMPLE % SULPHIDES	SAMPLE FOOTAGE FROM	SAMPLE FOOTAGE TO	SAMPLE FOOTAGE TOTAL	ASSAYS Au %	ASSAYS Au %	ASSAYS Au OZ/TON	ASSAYS Au OZ/TON	ASSAYS
		SODIUM - METASOMATIZED SILTSTONE BRECCIA (CONTINUED) coarse several centimeter rhombs. Pyrite is variable from ≤ 1% to massive and green mica, epidote, and tourmaline commonly occur. Pink Lorrain quartzite fragments are commonly rounded and increase with depth. Intense fracturing occurs sporadically and is mostly albitized and locally chloritized. Hydrothermal breccias composed of rounded albitized fragments in a granular siliceous matrix occur randomly.	1617		14.2	15.2	1.0 m					
		14.3 m (46.9') Intense fracturing at 30° to the core axis.	1618		15.2	16.2	1.0 m					
		14.5 m (47.6') Minor patchy green mica is evident.	1619		16.2	17.2	1.0 m					
		14.9 m (48.9') 30 cm blocky core.										
		16.5 m (54.1') - 17.6 m (57.7') Finely disseminated pyrite occurs in concentrations of up to 5% and green mica is locally concentrated to 3%.	1620		17.2	18.2	1.0 m					
		17.9 m (58.7') - 18.4 m (60.3') Finely disseminated pyrite occurs in concentrations of up to 5% and green mica is locally concentrated to 3%.	1621		18.2	19.2	1.0 m					
		18.4 m (60.3') - 20.4 m (66.9') Laminated to massive, cryptocrystalline, tan colored rock is locally brecciated with minor tourmaline. One per cent pyrite occurs. This rock represents either a large clast with local brecciation for 2.0 m or only minor brecciation with lamination locally dislocated giving an almost perthitic appearance to the rock.	1622		19.2	20.2	1.0 m					
			1623		20.2	21.2	1.0 m					
		20.4 m (66.9') A 30 cm band occurs with 10% pyrite and frequent randomly-oriented irregular bands of hydrothermal breccia from ≤ 1.0 mm to 0.5 cm wide.	1624		21.2	22.2	1.0 m					
		20.7 m (67.9') Offset 2.0 mm wide fracture is filled with green mica.	1625		22.2	23.2	1.0 m					
		20.9 m (68.5') Pyrite concentration is locally 5% and fractures occur with tourmaline and green mica.	1626		23.2	24.2	1.0 m					

FORM 1

DIAMOND DRILL RECORD

NAME OF PROPERTY: CRYSTAL NORTH
HOLE NO.: CN - 85 - 4 LENGTH: 52.1 m (177')
LOCATION:
LATITUDE: DEPARTURE:
ELEVATION: AZIMUTH: 055° DIP: 45°
STARTED: 01/10/85 FINISHED:

FOOTAGE	DIP	AZIMUTH	FOOTAGE	DIP	AZIMUTH

HOLE NO. 4 SHEET NO. 4
REMARKS:
LOGGED BY: ROBIN GOAD

FOOTAGE FROM	FOOTAGE TO	DESCRIPTION	SAMPLE NO.	SAMPLE SULPHIDES	SAMPLE FOOTAGE FROM	SAMPLE FOOTAGE TO	SAMPLE FOOTAGE TOTAL	ASSAYS %	ASSAYS %	ASSAYS Au OZ/TON	ASSAYS OZ/TON
		SODIUM - METASOMATIZED SILTSTONE BRECCIA (CONTINUED) 21.7 m (71.2') 30 cm of blocky core with frequent reddish-brown stain fractures at 45° to the core axis. 22.3 m (73.1') Frequent fractures at 45° to core axis. 22.7 m (74.5 ') - 27.2 m (89.2') Intense fracturing and minor brecciation is present with pyrite averaging 5% and green mica locally 1%. The green mica content locally is as high as 25%. 25.7 m (84.3') 10.0 cm band containing 25% pyrite at 60° to the core axis. 26.2 m (85.9') 20 cm band of pyrite averaging 10%. 26.8 m (87.9') 10 cm band of pyrite averaging 10%. 27.2 m (89.2') Pyrite concentration is locally 5%. 27.3 m (89.5') 15.0 cm of hydrothermal breccia is composed of rounded pink clasts up to 0.5 cm in a milky-white siliceous granular matrix. 27.5 m (90.2') - 51.2 m (167.9') Abundant pink Lorrain quartzite fragments become increasingly prevalent comprising about 20% of the breccia clasts. Other clast lithologies include albitized siltstone and laminated wacke from ≤ 1.0 mm to ≥ 40 cm. These are angular to rounded in a clast-supported albite matrix. Chlorite occurs locally in the matrix in concentrations up to 50%. Carbonate dominates in the clasts but also occurs in the matrix. Tourmaline and green mica plus minor epidote are present in various concentrations. Pyrite averages from 1 - 2 %. 29.0 m (95.1') Black hairline fractures are 70° to core axis. 31.0 m (101.7') - 33.8 m (110.9') As much as 5% chlorite is locally occurring in the matrix, in veinlets and in patches. 31.4 m (103') Up to 10% pyrite occurs locally over 10.0 cm.	1627		24.2	25.2	1.0 m				
			1628		25.2	26.2	1.0 m				
			1629		26.2	27.2	1.0 m				
			1630		27.2	28.2	1.0 m				
			1631		28.2	29.2	1.0 m				
			1632		29.2	30.2	1.0 m				
			1633		30.2	31.2	1.0 m				

DIAMOND DRILL RECORD

NAME OF PROPERTY: CRYSTAL NORTH
HOLE NO.: CN - 85 - 4 LENGTH: 52.1 m (177')
LOCATION:
LATITUDE: DEPARTURE:
ELEVATION: AZIMUTH: 055° DIP: 45°
STARTED: 01/10/85 FINISHED:

FOOTAGE	DIP	AZIMUTH	FOOTAGE	DIP	AZIMUTH

HOLE NO. 4 SHEET NO. 5
REMARKS:

LOGGED BY: ROBIN GOAD

FOOTAGE FROM	FOOTAGE TO	DESCRIPTION	SAMPLE NO.	SAMPLE % SULPHIDES	SAMPLE FOOTAGE FROM	SAMPLE FOOTAGE TO	SAMPLE FOOTAGE TOTAL	ASSAYS %	ASSAYS %	ASSAYS Au OZ/TON	ASSAYS Au OZ/TON
		SODIUM - METASOMATIZED SILTSTONE BRECCIA (CONTINUED)									
		32.7 m (107.3') - 33.5 m (109.9') Pyrite averaging about 5% is locally concentrated up to 25% over 10.0 cm at 33.3 m. Reddish stain occurs around the sulphides.	1634		31.2	32.2	1.0 m				
			1635		32.2	33.2	1.0 m				
		33.8 m (110.9') - 36.5 m (119.7') Coarse breccia occurs as described previously. Highly fractured (often reddish stained) the breccia fractures are essentially normal to the core axis and occasionally chlorite-filled. Pyrite averages about 2% occurring in disseminations and in 1 - 2 mm fractures. Locally concentrations are up to 5%.	1636		32.2	34.2	1.0 m				
			1637		34.2	35.2	1.0 m				
		36.0 m (118.1') 5% pyrite occurs locally over 5.0 cm.	1638		35.2	36.2	1.0 m				
		36.7 m (120.4') 1 - 4 mm bands of powdery-black tourmaline.	1639		36.2	37.2	1.0 m				
		37.1 m (121.7') 1.0 cm quartz stringer occurs at 25° to the core axis.									
		38.1 m (125') Local minor blocky core.	1640		37.2	38.2	1.0 m				
		38.5 m (126.3') Hairline fracturing filled with chlorite and pyrite cuts the rock at 55° to the core axis.									
		38.8 m (127.3') - 39.9 m (130.9') 10 cm quartz carbonate veinlets with 3% local pyrite are oriented at 70° to the core axis. Powdery black mineral occurs in the matrix (likely tourmaline).	1641		38.2	39.2	1.0 m				
			1642		39.2	40.2	1.0 m				
		41.9 m (137.4') 30 cm of 30% carbonate rhombs occur. The rhombs range from 1.0 mm to 5.0 mm.	1643		40.2	41.2	1.0 m				
		43.1 m (137.9') - 44.0 m (144.3') Intense fracturing occurs with random orientation but most of it is at 50° to the core axis. Locally brick-red stain occurs with about 1% pyrite.	1644		41.2	42.2	1.0 m				
			1645		42.2	43.2	1.0 m				
		44.8 m (146.9') 2.0 mm quartz tourmaline stringer occurs at 45° to the core axis.	1646		43.2	44.2	1.0 m				
		45.3 m (148.6') 20 cm of light green bleaching due to	1647		44.2	45.2	1.0 m				

DIAMOND DRILL RECORD

NAME OF PROPERTY: CRYSTAL NORTH
HOLE NO.: CN - 85 - 4 LENGTH: 52.1 m (177')
LOCATION:
LATITUDE: DEPARTURE:
ELEVATION: AZIMUTH: 055° DIP: 45°
STARTED: 01/10/85 FINISHED:

FOOTAGE	DIP	AZIMUTH	FOOTAGE	DIP	AZIMUTH

HOLE NO. 4 SHEET NO. 6
REMARKS:
LOGGED BY: ROBIN GOAD

FOOTAGE FROM	FOOTAGE TO	DESCRIPTION	SAMPLE NO.	SAMPLE % SULPHIDES	SAMPLE FOOTAGE FROM	SAMPLE FOOTAGE TO	SAMPLE FOOTAGE TOTAL	ASSAYS %	ASSAYS %	ASSAYS OZ/TON	ASSAYS OZ/TON
		SODIUM - METASOMATIZED SILTSTONE BRECCIA (CONTINUED) concentrations of green mica occurs. 45.8 m (150.2') Same as previously listed. 47.9 m (157.1') Up to 1% tourmaline occurs in matrix and along fractures. 48.4 m (158.7') - 48.8 m (160.1') 40 cm band of fault breccia is oriented at 65° to the core axis. It consists of angular fragments in a light gray fault gouge matrix. 1.0 cm of tourmaline forms a band at the lower contact. 50.2 m (164.7') Quartz/tourmaline stringer 2.0 mm thick is oriented at 70° to the core axis. 50.5 m (165.6') 3% local pyrite is present. 51.25 m (168.1') 5% local patchy chlorite is present.	1648		45.2	46.2	1.0 m				
			1649		46.2	47.2	1.0 m				
			1650		47.2	48.2	1.0 m				
			1651		48.2	49.2	1.0 m				
			1652		49.2	50.2	1.0 m				
			1653		50.2	51.2	1.0 m				
51.3 m (168.3')	52.1 m (171')	ALTERED MASSIVE GRAYWACKE 51.3 (168.3') - 52.1 m (171') ALTERED MASSIVE GRAYWACKE. - Sharp contact is present oriented at 85° to the core axis. For the first 30 cm the graywacke is highly fractured and brecciated with intense albitization of massive graywacke grading into chloritized and locally bleached green/gray massive graywacke with sheared basaltic dropstones ≤ 0.5 cm. 51.3 m (168.3') 30 cm of bleached light green graywacke with albite-filled hairline fractures. 51.4 m (168.6') 4.0 cm wide albitized band oriented 60° to the core axis. 51.5 m (169.2') - 52.1 m (171') Graywacke is chloritized. 51.9 m (170.2') Blocky core. 52.1 m (177') END OF HOLE	1654		51.2	52.1	0.9 m				

FORM 1

DIAMOND DRILL RECORD

NAME OF PROPERTY CRYSTAL NORTH
HOLE NO. CN - 85 - 5 LENGTH 141.8 m (465')
LOCATION
LATITUDE DEPARTURE
ELEVATION AZIMUTH 055° DIP -45°
STARTED FINISHED 09/10/85

FOOTAGE	DIP	AZIMUTH	FOOTAGE	DIP	AZIMUTH
81.4m	36°				
111.9m	35°				
141.8m	35°				

HOLE NO. 5 SHEET NO. 1
REMARKS

LOGGED BY ROBIN GOAD

FOOTAGE FROM	FOOTAGE TO	DESCRIPTION	SAMPLE NO.	SAMPLE % SULPHIDES	SAMPLE FOOTAGE FROM	SAMPLE FOOTAGE TO	SAMPLE FOOTAGE TOTAL	ASSAYS %	ASSAYS %	ASSAYS Au OZ/TON	ASSAYS Au OZ/TON
0	5.8 m (19')	CASING									
5.8m (19')	24.2 m (79.5')	GOWGANDA FORMATION GRAYWACKE 5.8 m (19') - 24.2 m (79.5') ALTERED MASSIVE GRAYWACKE - Chloritized massive green/gray graywacke is present with occasional dropstones and occasional fine bedding laminations often more siliceous. The core is often blocky with chloritic &/or carbonate slickenslides and fracture fillings. The Sudbury breccia of the Gowganda formation also locally occurs. 6.1 m (20') Blocky core. 6.7 m (22') 40 cm of microfracturing and minor microbrecciation is present. 8.4 m (27.5') Chloritic hairline microfracturing is oriented at 30° to the core axis. Dendritic branches are in random orientation. 8.5 m (27.9') Faint, fine bedding laminations are oriented at 50° to the core axis. 8.9 m (29.3') - 14.4 m (47.3') Extensive faint hairline fracturing and hydrothermal brecciation are present. These are filled with very fine white carbonate &/or chlorite. 9.3 m (30.3') A 30 cm band of faint brecciation is oriented at 65° to the core axis. About 20 cm of this brecciation is composed of < 1.0 cm fragments in a chloritic matrix while 10 cm has a carbonate matrix. 9.8 m (32') - 11.0 m (36') Randomly oriented chloritic fractures occur. 11.2 m (36.8') - 11.5 m (37.8') Blocky core is present with randomly oriented chloritic hairline fractures. 11.9 m (39') - 13.7 m (45') Blocky core contains a 1.0 cm band of hydrothermal breccia. Randomly oriented										

DIAMOND DRILL RECORD

NAME OF PROPERTY CRYSTAL NORTH

HOLE NO. CN - 85 - 5 LENGTH 141.8 m (465')

LOCATION

LATITUDE DEPARTURE

ELEVATION AZIMUTH 055° DIP 45°

STARTED FINISHED 09/10/85

FOOTAGE	DIP	AZIMUTH	FOOTAGE	DIP	AZIMUTH

HOLE NO. 5 SHEET NO. 2

REMARKS

LOGGED BY ROBIN GOAD

FOOTAGE FROM	FOOTAGE TO	DESCRIPTION	SAMPLE NO.	SAMPLE % SULPHIDES	SAMPLE FOOTAGE FROM	SAMPLE FOOTAGE TO	SAMPLE FOOTAGE TOTAL	ASSAYS Au %	ASSAYS %	ASSAYS OZ/TON	ASSAYS OZ/TON
		GOWGANDA FORMATION GRAYWACKE (CONTINUED) Fractures are filled with carbonate &/or chlorite. At 12.8 m (42') a 1.0 cm tension gash is filled with carbonate. Dominant fractures are oriented at 20° to the core axis. 14.0 m (46') A 0.5 cm band of hydrothermal breccia is oriented at 20° to the core axis. 14.3 m (47') A 10.0 cm band of blocky core occurs. 15.2 m (50') - 16.0 m (52.6') Frequent randomly oriented carbonaceous, hairline fractures occur turning to blocky core. 16.2 m (53') Siliceous fine bedding is oriented at 40° to the core axis. 17.1 m (56') - 17.7 m (58') Randomly oriented carbonaceous hairline fractures turn to blocky core. 17.7 m (58') - 18 m (59') Microbrecciation with light green chloritic and carbonaceous bleaching is present. 19.2 m (63') Chloritic, dendritic fractures radiate from carbonate fractures oriented at 35° to the core axis. 19.4 m (63.5') Blocky core. 19.5 m (64') - 20.1 m (66') Stratabound chloritic fractures are oriented at 35° to the core axis. 20.1 m (66') Minor blocky core. 20.7 m (68') Local light green carbonate and chlorite bleaching occurs with minor bedding oriented at 40° to the core axis. 21.0 m (69') - 21.6 m (70.8') Faint clast-supported brecciation is present with clasts up to 2.0 cm. 21.9 m (72') - 22.6 m (74') Carbonate-filled fractures oriented at 10° and 85° to the core axis contain randomly oriented chloritic hairline fractures radiating from them.									

DIAMOND DRILL RECORD

NAME OF PROPERTY: CRYSTAL NORTH
HOLE NO.: CN - 85 - 5 LENGTH: 141.8 m (465')
LOCATION:
LATITUDE: DEPARTURE:
ELEVATION: AZIMUTH: 055° DIP: 45°
STARTED: FINISHED: 09/10/85

FOOTAGE	DIP	AZIMUTH	FOOTAGE	DIP	AZIMUTH

HOLE NO. 5 SHEET NO. 3
REMARKS:

LOGGED BY: ROBIN GOAD

FOOTAGE FROM	FOOTAGE TO	DESCRIPTION	SAMPLE NO.	SAMPLE PHASES	SAMPLE FOOTAGE FROM	SAMPLE FOOTAGE TO	SAMPLE FOOTAGE TOTAL	ASSAYS Au %	ASSAYS %	ASSAYS OZ/TON	ASSAYS OZ/TON
		GOWGANDA FORMATION GRAYWACKE (CONTINUED) 23.2 m (76') - 24.1 m (79.5') Intense fracturing (carbonaceous) oriented at 55° to the core axis is present with randomly oriented chlorite-filled fractures.									
21.2m (79.5')	51.8 m (170')	SUDBURY BRECCIA ± MASSIVE GOWGANDA GRAYWACKE - Typical Sudbury breccia is composed of rounded clasts in a swirly flow-banded matrix. Confirmed clasts are ≤ 3.0 cm in the matrix, but large clasts may occur which are difficult to differentiate from unbrecciated Gowganda formation. (These are ≥ 1.5 m across.) Rock is frequently extensively fractured and filled with carbonate &/or chlorite. About 1% disseminated pyrite occurs locally. 24.7 m (81') - 25.9 m (85') Carbonate slips occur at a low angle to or parallel to the core axis. 27.9 m (91.5') - 28.0 m (92') Blocky core. 28.1 m (92.3') Chloritic fractures 0.5 cm wide are oriented at 70° to the core axis with 10.0 cm of chlorite-filled fractures randomly oriented from the larger fracture. 30.2 m (99') A 20 cm band of extensive brecciation is present containing chlorite and carbonate fractures in a random orientation. 32.3 m (106') - 32.9 m (108') Extensive fracturing is filled with carbonate and chlorite and is oriented at 20° to the core axis. 33.1 m (108.5') A 1.0 cm quartz/carbonate stringer is oriented at 70° to the core axis. 34.0 m (111.75') - 34.3 m (112.5') Core is highly fractured with 3, 2 mm, pink, carbonate stringers oriented at about 50° to the core axis. These locally intersect the Sudbury breccia. 34.8 m (114.25') A 2mm carbonate stringer is oriented at 50° to the core axis.									

DIAMOND DRILL RECORD

NAME OF PROPERTY CRYSTAL NORTH
HOLE NO. CN -85 - 5 LENGTH 141.8 m (465')
LOCATION
LATITUDE DEPARTURE
ELEVATION AZIMUTH 055° DIP 45°
STARTED FINISHED 09/10/85

FOOTAGE	DIP	AZIMUTH	FOOTAGE	DIP	AZIMUTH

HOLE NO. 5 SHEET NO. 4
REMARKS

LOGGED BY ROBIN GOAD

FOOTAGE FROM	FOOTAGE TO	DESCRIPTION	SAMPLE NO.	SAMPLE % SULPHIDES	SAMPLE FOOTAGE FROM	SAMPLE FOOTAGE TO	SAMPLE FOOTAGE TOTAL	ASSAYS %	ASSAYS %	ASSAYS OZ/TON Au	ASSAYS OZ/TON
		SUDBURY BRECCIA ± MASSIVE GOWGANDA GRAYWACKE (CONT'D) 35.0 m (114.75') A 2 mm carbonate stringer is oriented at 50° to the core axis. 35.2 m (115.5') A 2 mm carbonate stringer is oriented at 50° to the core axis. 36.0 m (118') Intensive fracturing filled with carbonate is oriented at 30° to the core axis. 36.3 m (119') A 2 mm carbonate stringer is oriented at 50° to the core axis. 37.4 m (122.75') - 37.7 m (123.6') 4 - 5, 2 mm, pink, carbonate stringers are oriented at 25° to the core axis. 37.8 m (124') - 38.8 m (127.3') The core is highly fractured with patches of chlorite up to 3 cm across in irregular orientation with minor carbonate bleaching. The rock is light green. The carbonate fractures are oriented at about 45° to the core axis and locally intersect the Sudbury breccia. 39.4 m (129.25') - 40.2 m (132') Minor blocky core. 40.9 m (134.25') Minor blocky core occurs for 10.0 cm with fine carbonate stringers. 41.0 m (134.5') 2.0 mm, pink, carbonate stringer is oriented at 50° to the core axis. 41.2 m (135') A 10.0 cm band of carbonated microbrecciation is oriented at 60° to the core axis. 41.4 m (135.75') - 41.6 m (136.6') Intensive fracturing is filled with carbonate &/or chlorite and oriented at 50° to the core axis. Conjugate pink carbonate stringers are oriented at 50° to the core axis in the opposite (perpendicular) direction. 42.5 m (139.3') - 42.8 m (140.4') Intensive fracturing and microbrecciation are oriented at 30° to the core axis. Hairline 1 mm fractures in random orientation										

FORM 1

DIAMOND DRILL RECORD

NAME OF PROPERTY CRYSTAL NORTH
HOLE NO. CN - 85 - 5 LENGTH 141.8 m (465')
LOCATION
LATITUDE DEPARTURE
ELEVATION AZIMUTH 055° DIP 45°
STARTED FINISHED 09/10/85

FOOTAGE	DIP	AZIMUTH	FOOTAGE	DIP	AZIMUTH

HOLE NO. 5 SHEET NO. 5
REMARKS
LOGGED BY ~~ROBIN GOAD~~

FOOTAGE FROM	FOOTAGE TO	DESCRIPTION	SAMPLE NO.	SAMPLE % SULPHIDES	SAMPLE FOOTAGE FROM	SAMPLE FOOTAGE TO	SAMPLE FOOTAGE TOTAL	ASSAYS %	ASSAYS %	ASSAYS Au OZ/TON	ASSAYS Au OZ/TON	
		SUDBURY BRECCIA ± MASSIVE GOWGANDA GRAYWACKE (CONT'D) are locally silicified and bleached. Tension gashes conjugate to the orientation of the microbrecciation are oriented at 60° to the core axis. 43.2 m (141.8') - 44.0 m (144.25') The graywacke has a typical Sudbury breccia-type, flow-banded matrix. It is bleached to a faint green/gray due to chloritization. 44.4 m (145.75') A 2.0 mm, pink, carbonate stringer is oriented at 50° to the core axis with 30.0 cm of bleached Sudbury breccia on either side. 44.7 m (146.75') - 46.3 m (152') The rock is intensely fractured with chlorite &/or carbonate-filled fractures in random orientation; however, the principle fractures are at 30° to the core axis with finer dendritic fractures. 47.8 m (155.5') A 4.0 mm, pink carbonate stringer is oriented at 40° to the core axis. 47.7 m (156.5') - 47.9 m (157') Blocky core. 47.9 m (157') - 49.4 m (162') Intensive microfracturing and microbrecciation are mostly oriented at 40° to the core axis. These contain patches of intensive chloritization as wide as 30.0 cm. The latter 61.0 cm of core has a typical Sudbury breccia flow-banded matrix with rounded clasts generally < 1.0 cm. Minor blocky core is present. 49.5 m (162.5') - 50 m (164') Microbrecciation and fracturing are present with the principle fractures oriented at 35° to the core axis. Radiating fractures in random orientation are filled with chlorite &/or carbonate. 50.9 m (167') 1.0 mm, pink, carbonate stringers are oriented at 50°, 80°, and 15° to the core axis. 52.0 m (170.5') A 20.0 cm band of hydrothermal breccia										

DIAMOND DRILL RECORD

NAME OF PROPERTY CRYSTAL NORTH
HOLE NO. CN - 85 - 5 LENGTH 141.8 m (465')
LOCATION
LATITUDE DEPARTURE
ELEVATION AZIMUTH 055° DIP 45°
STARTED FINISHED 09/10/85

FOOTAGE	DIP	AZIMUTH	FOOTAGE	DIP	AZIMUTH

HOLE NO. 5 SHEET NO. 6
REMARKS
LOGGED BY ROBIN GOAD

FOOTAGE FROM	FOOTAGE TO	DESCRIPTION	SAMPLE NO.	SAMPLE % SULPHIDES	SAMPLE FOOTAGE FROM	SAMPLE FOOTAGE TO	SAMPLE FOOTAGE TOTAL	ASSAYS %	ASSAYS %	ASSAYS Au OZ/TON	ASSAYS Au OZ/TON
51.8m (170')	109.5 m (359.1')	SUDBURY BRECCIA ± MASSIVE GOWGANDA GRAYWACKE (CONT'D) cross-cuts the Sudbury breccia. Local patches of intensely chloritized Sudbury breccia are present. GOWGANDA FORMATION GRAYWACKE 51.8 m (170') - 109.5 m (359.1') ALTERED MASSIVE GRAYWACKE - Dark greenish/gray massive graywacke with occasional dropstones up to 10.0 cm is composed mostly of granitic material and is often faceted. Frequent patches of Sudbury breccia occur with the typical swirly flow-banded matrix and fine rounded local clasts. Again, the Sudbury breccia is erratic in distribution which is due to either the presence of very large clasts in the breccia or an erratic sparse distribution. The latter is likely the case. The rock is locally intensely fractured with radiating to dendritic fractures often in random orientation. 52.6 m (172.5') Minor blocky core. 55.5 m (182') - 55.9 m (183.25') Typical Sudbury breccia is present. It has an irregular upper contact and a lower contact that is oriented at 40° to the core axis. 58.8 m (193') Faint typical Sudbury breccia is bleached light green and locally fractured. A 1.0 cm pyrite cube occurs at the upper contact. 60.1 m (197') - 60.5 m (198.5') Intensive fracturing is present. The fractures are filled with chlorite &/or carbonate with associated light green bleaching and 10.0 cm of blocky core. 60.7 m (199') - 66.2 m (217') Patchy, typical Sudbury breccia occurs with locally intensive fracturing filled with chlorite &/or carbonate bleaching. The rock is light green with occasional minor blocky core.										

DIAMOND DRILL RECORD

NAME OF PROPERTY CRYSTAL NORTH
HOLE NO. CN- 85 - 5 LENGTH 141.8 m (465')
LOCATION
LATITUDE DEPARTURE
ELEVATION AZIMUTH 055° DIP 45°
STARTED FINISHED 09/10 35

FOOTAGE	DIP	AZIMUTH	FOOTAGE	DIP	AZIMUTH

HOLE NO. 5 SHEET NO. 7
REMARKS
LOGGED BY ~~RGEIN GOAD~~

FOOTAGE FROM	FOOTAGE TO	DESCRIPTION	SAMPLE NO.	SAMPLE SULPHIDES	SAMPLE FOOTAGE FROM	SAMPLE FOOTAGE TO	SAMPLE FOOTAGE TOTAL	ASSAYS Au %	ASSAYS %	ASSAYS OZ/TON	ASSAYS OZ. TON
		GOWGANDA FORMATION GRAYWACKE - ALTERED MASSIVE GRAYWACKE (CONTINUED) 64.5 m (211') Blocky core. 64.6 m (212') Blocky core. 66.5 m (218') - 67.2 m (220.5') Intense fracturing is filled with chlorite &/or carbonate in random orientation with minor bleaching. 72.0 m (236') - 72.4 m (237.3') Microbrecciation is present with angular local fragments ≤ 1.0 cm in a bleached siliceous matrix. 73.8 m (242') Blocky core is present with carbonate occurring on broken surfaces. 73.8 m (242') - 74.2 m (243.5') Bleaching is present. 75.8 m (248.5') 30.0 cm of very faint microbrecciation is composed of fragments ≤ 1.0 cm in a bleached carbonated and chloritic matrix. 10.0 cm of blocky core occurs with carbonate on the broken core surfaces. 76.8 m (252') - 78.8 m (258.5') Intensive fracturing occurs with minor patches of Sudbury breccia. The fractures are filled with chlorite &/or carbonate. Minor blocky core occurs with carbonate on the broken core surfaces. 78.7 m (258') - 79.6 m (261') Light green bleaching is present with ≪ 1% pyrite. 79.9 m (262') - 80.5 m (264') Intensive fracturing is present in random orientation. 80.5 m (264') - 81.8 m (266') Locally, blocky core is present. Dioritic dropstones occur. 81.8 m (266') A 1.0 cm quartz stringer is oriented at 70° to the core axis. 81.5 m (266.5') 10.0 cm of blocky core is present. 81.6 m (267.75') Blocky core is locally ground. A 2.0 cm quartz stringer is oriented at 35° to the core axis.										

DIAMOND DRILL RECORD

NAME OF PROPERTY: CRYSTAL NORTH
HOLE NO.: CN - 85 - 5 LENGTH: 141.8 m (465')
LOCATION:
LATITUDE: DEPARTURE:
ELEVATION: AZIMUTH: 055° DIP: 45°
STARTED: FINISHED: 09/10/85

FOOTAGE	DIP	AZIMUTH	FOOTAGE	DIP	AZIMUTH

HOLE NO. 5 SHEET NO. 8
REMARKS:
LOGGED BY ROBIN GOAD

FOOTAGE FROM	FOOTAGE TO	DESCRIPTION	SAMPLE NO.	SAMPLE SULPHIDES	SAMPLE FOOTAGE FROM	SAMPLE FOOTAGE TO	SAMPLE FOOTAGE TOTAL	ASSAYS Au %	ASSAYS %	ASSAYS OZ/TON	ASSAYS OZ/TON
		GOWGANDA FORMATION GRAYWACKE - ALTERED MASSIVE GRAYWACKE (CONTINUED) 83.3 m (274.8') - 85.1 m (279') Frequent chlorite &/or carbonate-filled fractures occur in a random distribution. 87.2 m (286') - 88.7 m (291') Frequent randomly oriented chlorite-filled fractures have light gray bleaching. 89.0 m (292') - 89.5 m (293.5') Blocky core is present with carbonate on broken core surfaces. 89.6 m (294') 10.0 cm of blocky core occurs. 90.2 m (296') - 90.7 m (297.5') Minor light gray bleaching with carbonate &/or chlorite-filled fractures occur in random orientation. 92.3 m (302.6') A carbonate-filled tension gash 2.0 cm wide is oriented at 25° to the core axis. 93.6 m (307') Tension gashes, sweats, and stringers become more frequent and are more frequently albitized. 93.7 m (307.5') - 94.5 m (310') Locally the rock is bleached and fractured at 40° to the core axis. The fractures are predominantly carbonate-filled. 95.7 m (313.8') - 95.8 m (314.25') A 13.0 cm band of pink metasomatite microbreccia occurs with a highly chloritized matrix containing < 1% pyrite. 97.4 m (319.6') A minor shear is oriented at 20° to the core axis with 4.0 cm quartz sweats following the shears. 98.2 m (222') Same as above. 100.0 m (328') A 1.0 cm shear oriented at 30° to the core axis is carbonate and chlorite-filled. 100.0 m (328') - 101.5 m (333') Blocky core is present with frequent carbonate-filled tension gashes oriented at 30° to 80° to the core axis. Blocky core fragments	1655		95.4	95.9	0.5 m			trace	

DIAMOND DRILL RECORD

NAME OF PROPERTY CRYSTAL NORTH
HOLE NO. CN - 85 - 5 LENGTH 141.8 m (465')
LOCATION
LATITUDE DEPARTURE
ELEVATION AZIMUTH 055° DIP -45°
STARTED FINISHED 09/10/85

FOOTAGE	DIP	AZIMUTH	FOOTAGE	DIP	AZIMUTH

HOLE NO. 5 SHEET NO. 9
REMARKS
LOGGED BY ~~ROBIN GOAD~~

FOOTAGE FROM	FOOTAGE TO	DESCRIPTION	SAMPLE NO.	SAMPLE SULPHIDES %	SAMPLE FOOTAGE FROM	SAMPLE FOOTAGE TO	SAMPLE FOOTAGE TOTAL	ASSAYS %	ASSAYS %	ASSAYS Au OZ/TON	ASSAYS OZ/TON
		often have carbonate or chloritic slickenslides on broken surfaces. 108.4 m (355.6') A 1.0 cm quartz stringer is oriented at 70° to the core axis.									
109 .5m (359 .1')	110.5 m (362.4')	MINERALIZED ZONE 109.5 m (359.1') - 110.5 m (362.4') CONTACT ZONE - Siliceous and chloritized breccia is composed of siliceous &/or albitized fragments up to 4.0 cm in a chloritic matrix. Occasional carbonate stringers occur oriented at 70° to the core axis. Intense microfracturing occurs in random orientation. The zone is terminated by a 5.0 cm quartz stringer with ≤ 2.0 mm carbonate rhombs. Only a trace of pyrite is present.	1656		109.5	110.5	1.0 m			trace	
110 .5m (362 .4')	129.3 m (424.1')	GOWGANDA FORMATION 110.5 m (362.4') - 129.3 m (424.1') ALTERED MASSIVE GRAYWACKE - Chloritized massive green/gray graywacke is locally extensively fractured wherever chloritic fractures are in random orientation. Local granitic dropstones up to 5.0 cm occasionally occur. 113.4 m (372') A 0.5 cm quartz stringer is oriented at 55° to the core axis. 121.5 m (398.6') - 122.0 m (400.25') Blocky core is present with carbonate occurring on broken core surfaces and carbonate-filled fractures are present in random orientation. 122.6 m (402') A 3.0 mm quartz stringer with 3.0 mm of bleaching on either side is oriented at 56° to the core axis. 124.0 m (406.75') - 129.3 m (427.1') Extensive zones of blocky core are present with frequent chloritic slickenslides and carbonate on broken core surfaces. Extensive chloritization of the graywacke is evident.									

DIAMOND DRILL RECORD

NAME OF PROPERTY CRYSTAL NORTH
HOLE NO. CN - 85 - 5 LENGTH 141.8 m (465')
LOCATION
LATITUDE DEPARTURE
ELEVATION AZIMUTH 055° DIP 45°
STARTED FINISHED 09/10/85

FOOTAGE	DIP	AZIMUTH	FOOTAGE	DIP	AZIMUTH

HOLE NO. 5 SHEET NO. 10
REMARKS
LOGGED BY ROBIN GOAD

FOOTAGE FROM	FOOTAGE TO	DESCRIPTION	SAMPLE NO.	SAMPLE % SULPHIDES	SAMPLE FOOTAGE FROM	SAMPLE FOOTAGE TO	SAMPLE FOOTAGE TOTAL	ASSAYS %	ASSAYS %	ASSAYS Au OZ/TON	ASSAYS OZ/TON
129 .3m (424 .1')	134.4m (440.8')	MINERALIZED ZONE 129.3 m (424.1') - 154.4 m (440.8') CONTACT ZONE - Siliceous, bleached, light green breccia is composed of up to 5.0 cm angular fragments in a chloritic siliceous &/or albitic matrix with minor pink to tan stain localized in the matrix and occasionally extending into fragment perimeters. Intensive and extensive fracturing occurs in random orientation. Carbonate rhombs ≤ 2.0 mm are found disseminated in the zone. Frequent quartz eye-like siliceous sweats occur with about 2.0 mm - 5.0 mm cross-sections. At 136.3 m the rock is gradational to an intensely chloritized and albitized breccia with fracture shearing oriented at 20° to the core axis. Dendritic radiating finer fractures have a random orientation. The low 20° angle for the fractures may indicate that the zone is at a very low angle to the diamond drill hole.	1657		129.3	130.3	1.0 m			trace	
			1658		130.3	131.3	1.0 m			trace	
			1659		131.3	132.3	1.0 m			trace	
			1660		132.3	133.3	1.0 m			trace	
			1661		133.3	134.3	1.0 m			trace	
134.4 m (440 .8')	141.8 m (465')	GOWGANDA FORMATION GRAYWACKE 134.4 m (440.8') - 141.8 m (465') ALTERED MASSIVE GRAYWACKE. - Extensively chloritized, massive green/gray graywacke occurs with intensive chloritic fractures oriented at 20° - 45° to the core axis. Local microbrecciation is present. 138.2 m (453.4') - 141.1 m (463') Extensive chloritization occurs along frequent fractures and into the massive graywacke. 140.2 m (460') - 140.5 m (461') Frequent quartz stringers and tension gashes are oriented at 20° to the core axis. 140.8 m (462') Quartz sweats are oriented at 50° to the core axis. 140.8 m (462') - 141.8 m (465') The rock is intensely									

DIAMOND DRILL RECORD

NAME OF PROPERTY CRYSTAL NORTH
HOLE NO. CN - 85 - 5 LENGTH 141.8 m (465')
LOCATION
LATITUDE DEPARTURE
ELEVATION AZIMUTH 055° DIP 45°
STARTED 09/10/85 FINISHED

FOOTAGE	DIP	AZIMUTH	FOOTAGE	DIP	AZIMUTH

HOLE NO. 5 SHEET NO. 11
REMARKS

LOGGED BY ROBIN GOAD

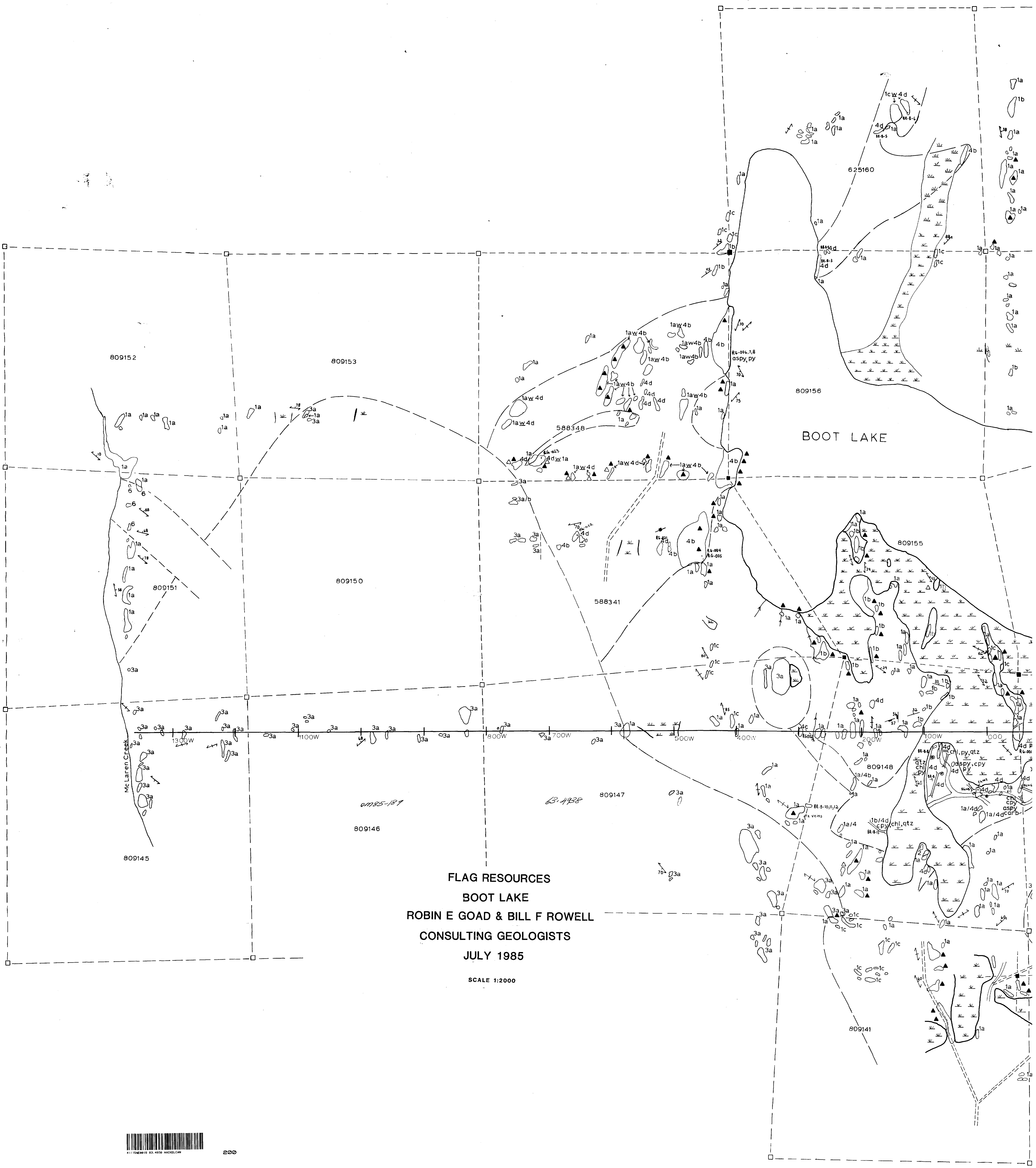
FOOTAGE FROM	FOOTAGE TO	DESCRIPTION	SAMPLE NO.	SAMPLE SLEEVES	SAMPLE FOOTAGE FROM	SAMPLE FOOTAGE TO	SAMPLE FOOTAGE TOTAL	ASSAYS %	ASSAYS %	ASSAYS OZ/TON Au	ASSAYS OZ/TON
		GOWGANDA FORMATION GRAYWACKE - ALTERED MASSIVE GRAYWACKE (CONTINUED) faint carbonate bearing fractures oriented at 40° to the core axis. 141.8 m (465') END OF HOLE									

OM 85-8-C-189

THIS SUBMITTAL CONSISTED OF VARIOUS REPORTS, SOME OF WHICH HAVE BEEN CULLED FROM THIS FILE. THE CULLED MATERIAL HAD BEEN PREVIOUSLY SUBMITTED UNDER THE FOLLOWING RECORD SERIES (THE DOCUMENTS CAN BE VIEWED IN THESE SERIES):

(1) DIAMOND DRILL REPORT AND LOGS, FLAG RESOURCES (1985) LTD. → SEE MACKELCAN TWP. D.D. REPORT (NO. 16) 0025, REPORT OF WORK #120 FOR 1985

(2) REPORT ON AIRBORNE MAGNETIC AND VLF-EM SURVEY, FLAG RESOURCES LTD; CHARLES Q. BARRIE, OCTOBER 1985 → SEE TORONTO OFFICE FILE #(2.8580) MACKELCAN-0026, REPORT OF WORK #53 FOR 1985



FLAG RESOURCES

BOOT LAKE

ROBIN E GOAD & BILL F ROWELL

CONSULTING GEOLOGISTS

JULY 1985

SCALE 1:2000

586765 586758 586755 586748 529170

586764 586759 586754 586749 529171

586763 586760 586753 586750 529172

586762 586761 586752 586751 579173

585333 585334 585335

THOMAS LAKE

MATAGAMASI LAKE

MATAGAMASI LAKE

600W 500W 400W 300W 200W 100W 000 100E 200E 300E 400E 500E 600E

N

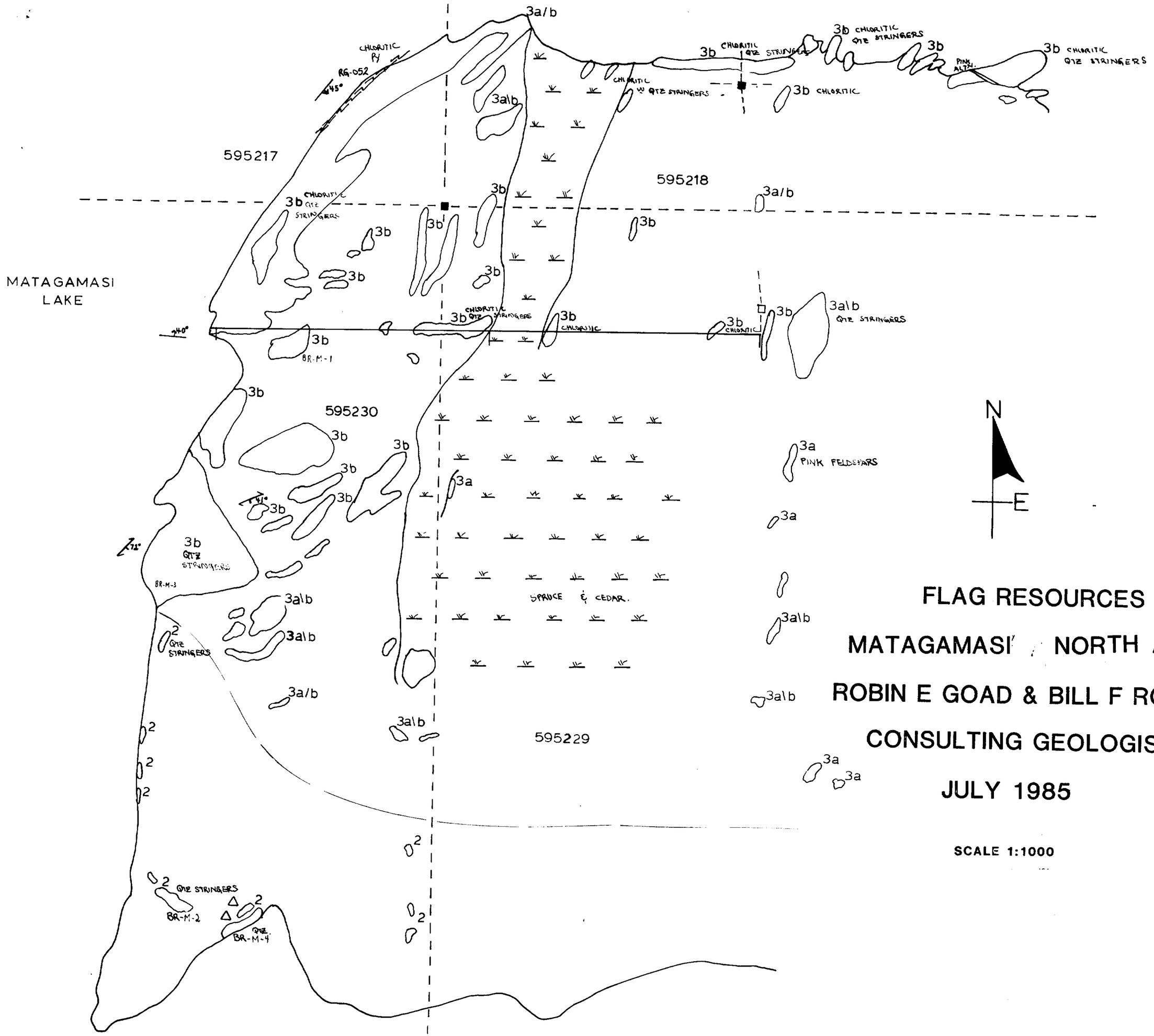
E

577400

FLAG RESOURCES
THOMAS LAKE
ROBIN E GOAD & BILL F ROWELL
CONSULTING GEOLOGISTS

JULY 1985

SCALE 1:2000



FLAG RESOURCES

MATAGAMASI NORTH ARM

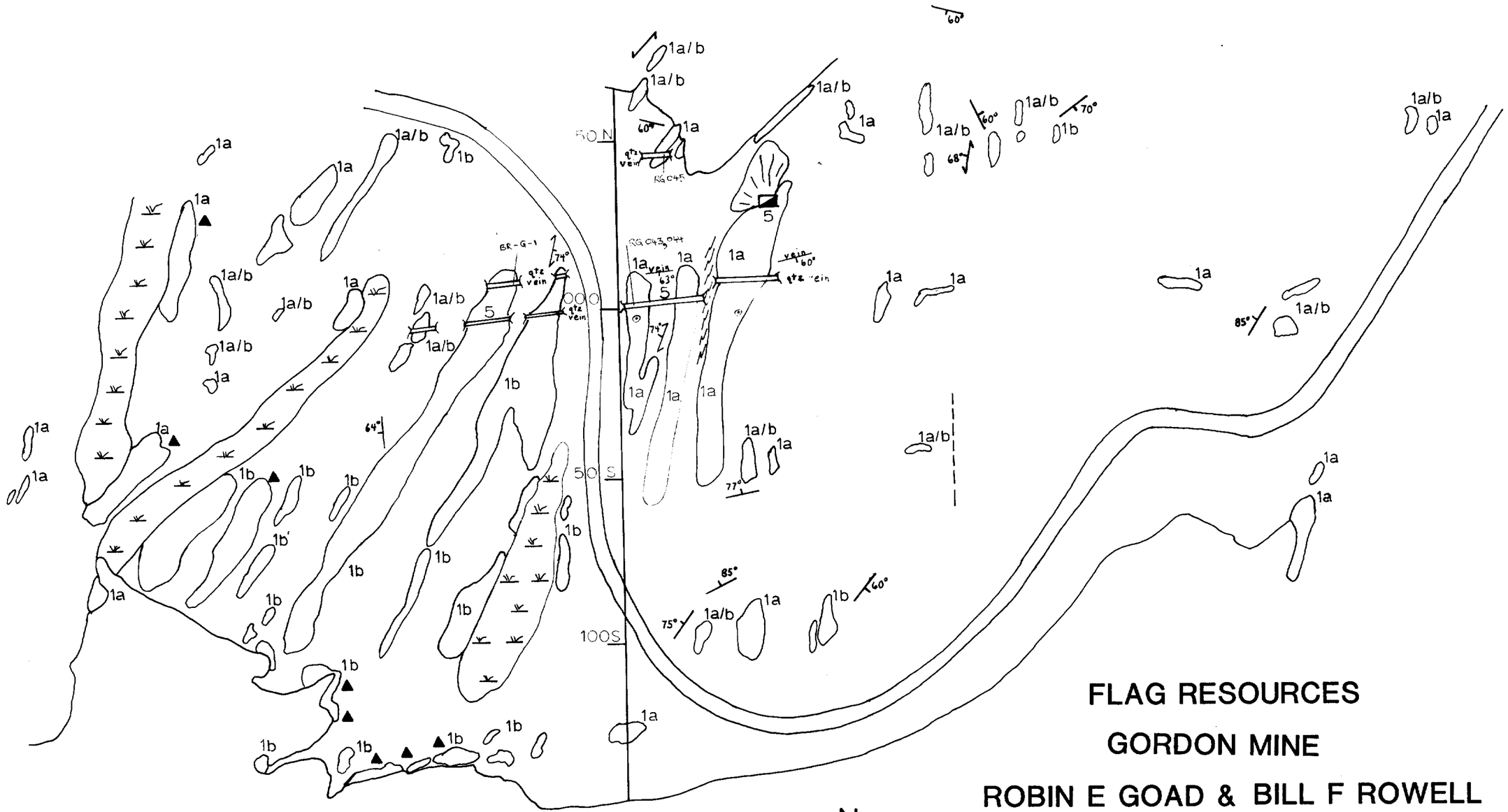
ROBIN E GOAD & BILL F ROWELL

CONSULTING GEOLOGISTS

JULY 1985

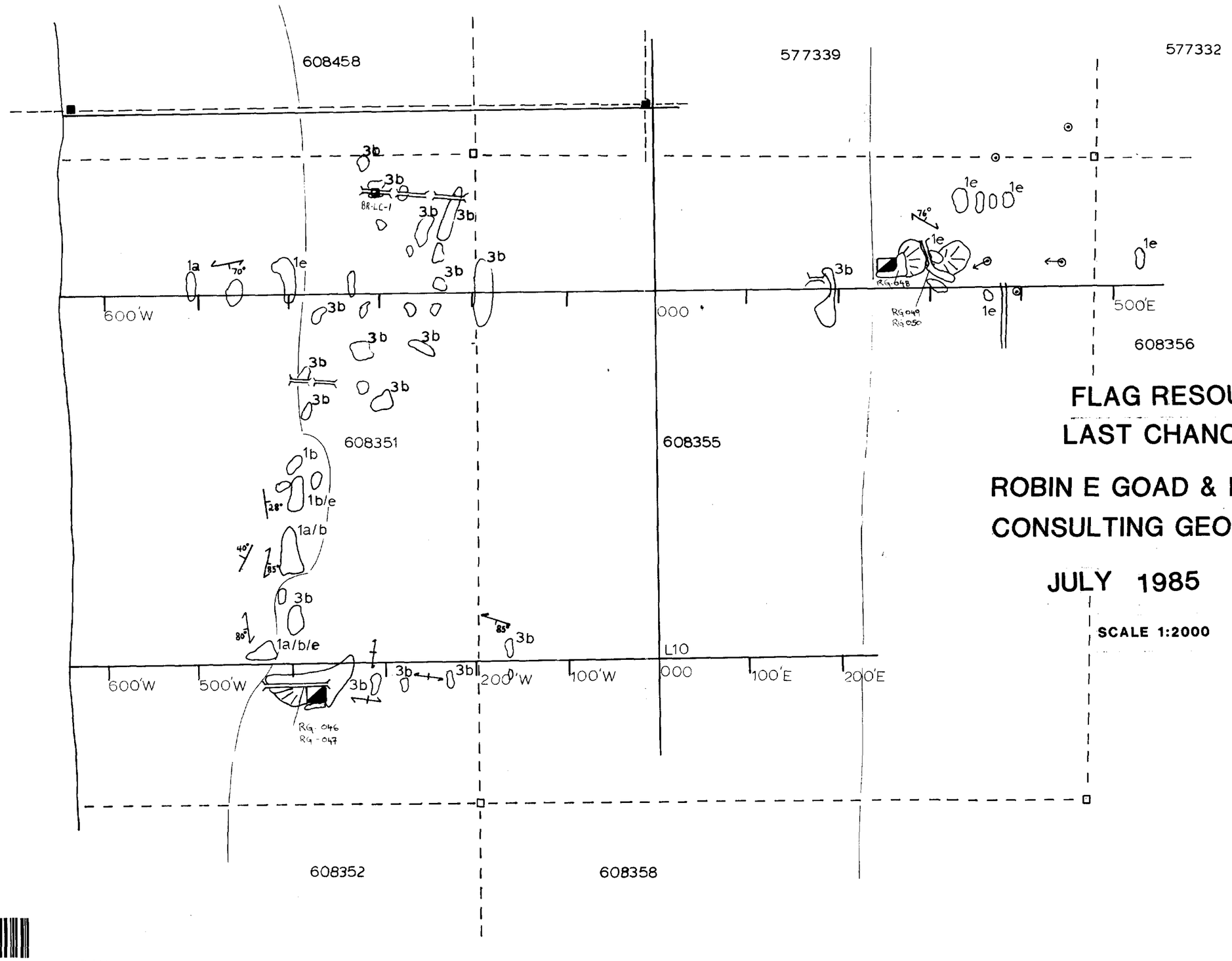
SCALE 1:1000

BOLAND'S LAKE
(LAKE WANAPITEI)



FLAG RESOURCES
GORDON MINE
ROBIN E GOAD & BILL F ROWELL
CONSULTING GEOLOGISTS
JULY 1985

SCALE 1:1000



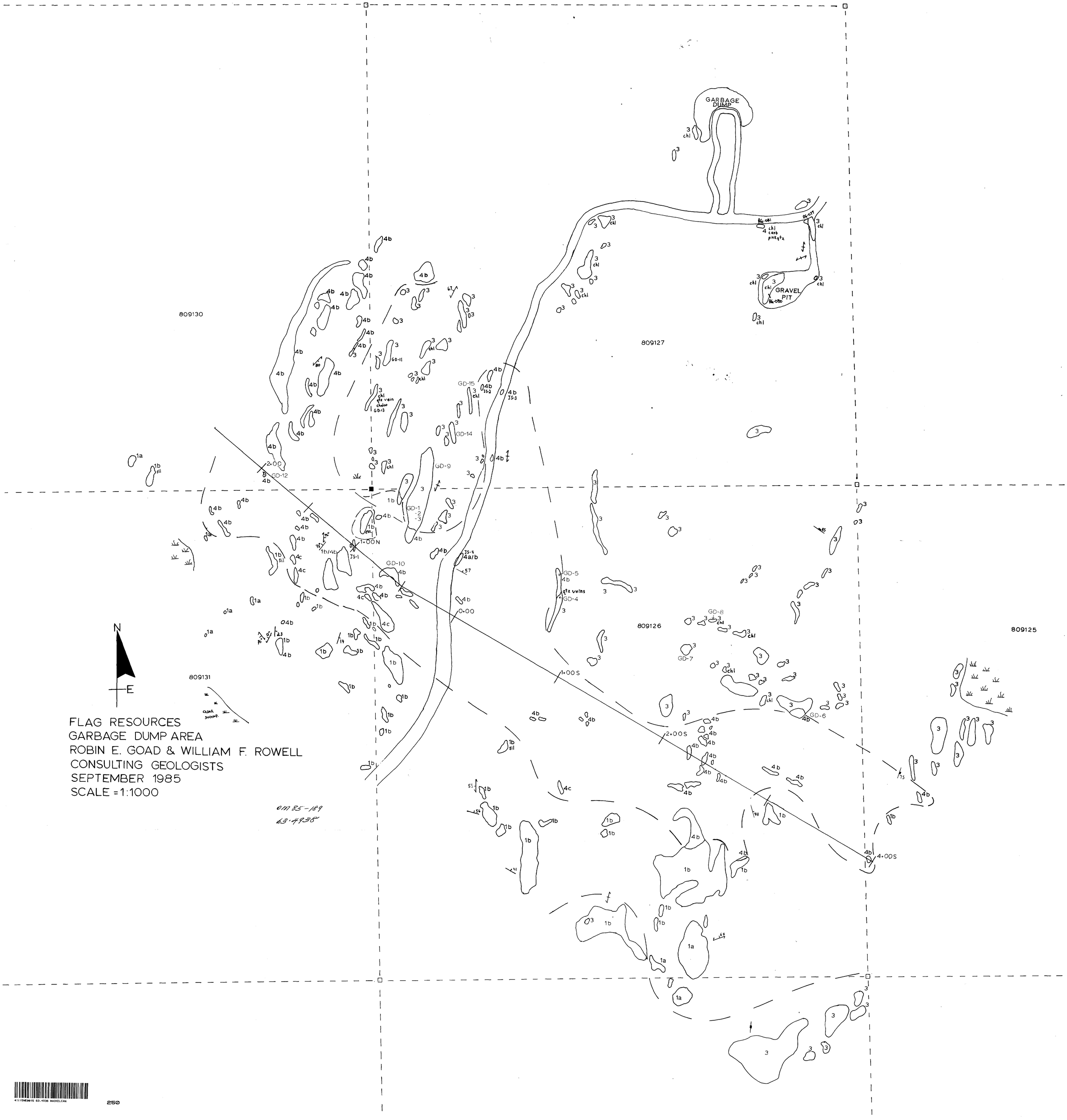
LAKE
MATAGAMASI

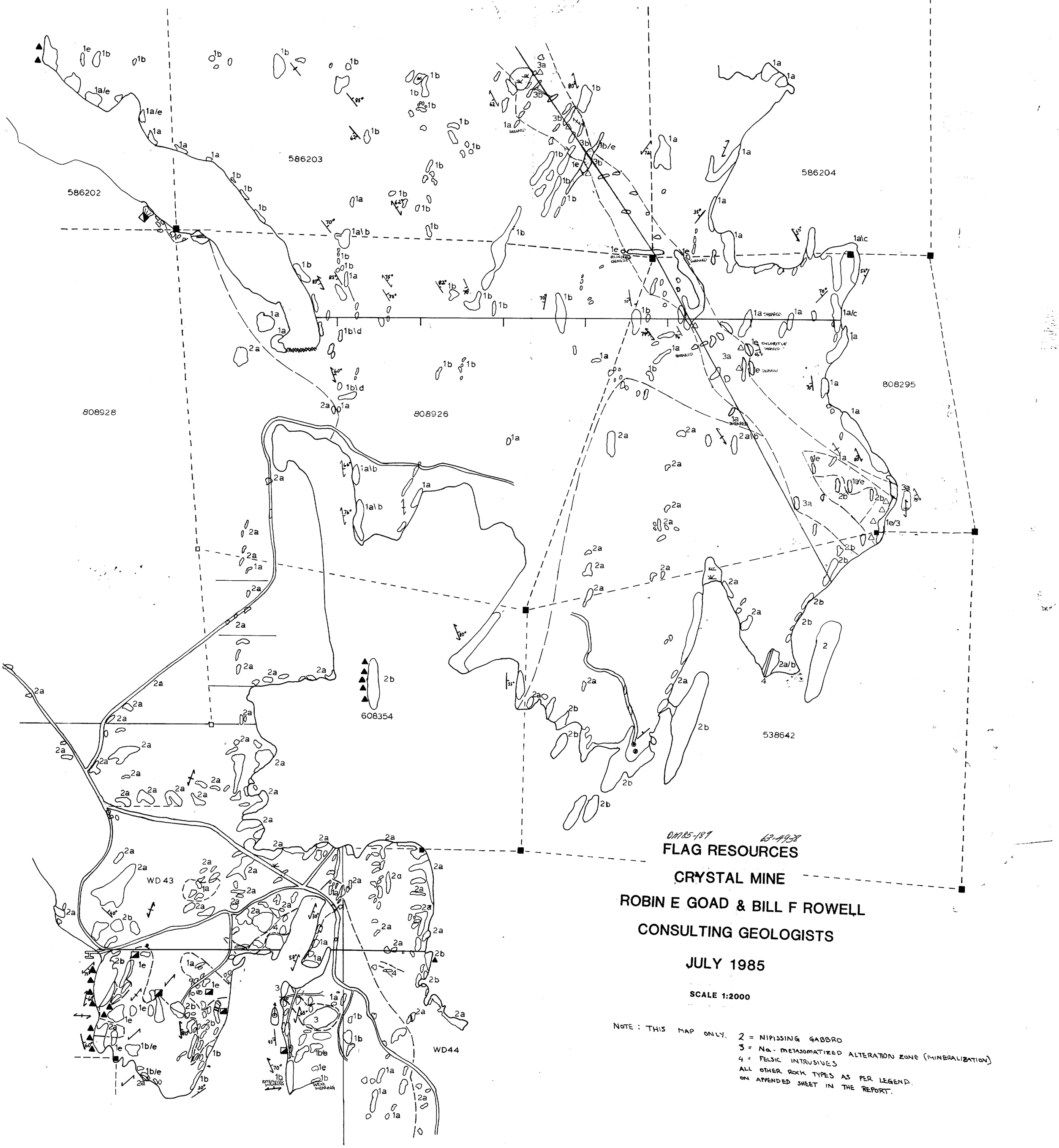
FLAG RESOURCES
LAST CHANCE MINE

ROBIN E GOAD & BILL F ROWELL
CONSULTING GEOLOGISTS

JULY 1985

SCALE 1:2000


GARBAGE DUMP
GRAVEL PIT
809130
809127
809126
809125
809131
GD-1
GD-2
GD-3
GD-4
GD-5
GD-6
GD-7
GD-8
GD-9
GD-10
GD-11
GD-12
GD-13
GD-14
GD-15
2+00
1+00N
0+00
1+00S
2+00S
4+00S
N
E
CEDAR SWAMP
FLAG RESOURCES
GARBAGE DUMP AREA
ROBIN E. GOAD & WILLIAM F. ROWELL
CONSULTING GEOLOGISTS
SEPTEMBER 1985
SCALE = 1:1000
OM 85-189
63.4938
250



Dm85-189 63.4938

FLAG RESOURCES

CRYSTAL MINE

ROBIN E GOAD & BILL F ROWELL

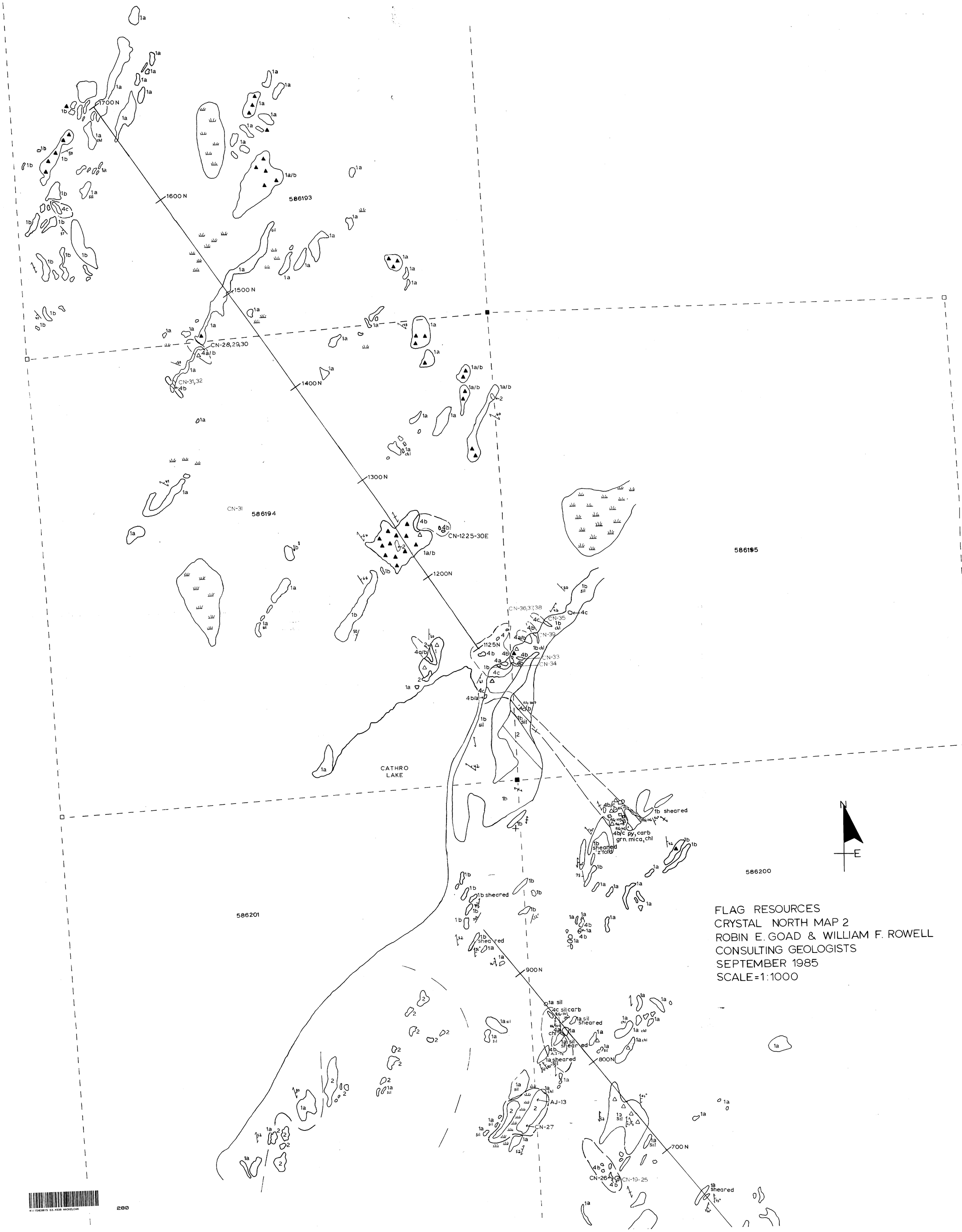
CONSULTING GEOLOGISTS

JULY 1985

SCALE 1:2000

NOTE : THIS MAP ONLY.
2 = NIPISSING GABBRO
3 = Na - METASOMATIZED ALTERATION ZONE (MINERALIZATION)
4 = FELSIC INTRUSIVES
ALL OTHER ROCK TYPES AS PER LEGEND ON APPENDED SHEET IN THE REPORT.

700 N
586200
1a sil sheared
1a sil
1a sheared
1b
1a sheared 600N
1a minor shearing
1a sheared
500 N
1b sil sheared
4b/a
py
1b sil sheared
1b sheared, sil. 400 N
1b sheared sil
qtz veins
586203
4b
300N
DDH 4
4b carb
DDH 3
1b 200N
DDH 5
100 N
4a py carb
DDH 2
DDH 1
1a sheared
100S
1a chl sheared
200S
3b chl py po
808926
608354
538642
3b qtz chl
270
41115NE0015 63.4938 MACKELCAN



FLAG RESOURCES
CRYSTAL NORTH MAP 3
ROBIN E. GOAD & WILLIAM F. ROWELL
CONSULTING GEOLOGISTS
SEPTEMBER 1985
SCALE = 1:1000

01785-189
63.4938

41115NE0015 63.4938 MACKELCAN

290

OM85-189
63.4938

FLAG RESOURES
CRYSTAL NORTH & CRYSTAL MINE
ASSAY MAP
ROBIN E. GOAD & WILLIAM F. ROWELL
CONSULTING GEOLOGISTS
JULY 1985
SCALE=1:2000

ALL GOLD VALUES >1 IN PPB
ALL GOLD VALUES <1 IN OZS/TON
Pt in PPB
Pd in PPB
Cu in %
Ni in %
Ag in PPM

808908

808907

808906

808905

808912

808913

808941

808940

RATHBUN LAKE

100E 200E 300E 400E 600E 700E 800E 900E 1000E

100N 200N 300N

100S 200S 300S 400S 500S 600S 700S 800S 900S 1000S 1100S

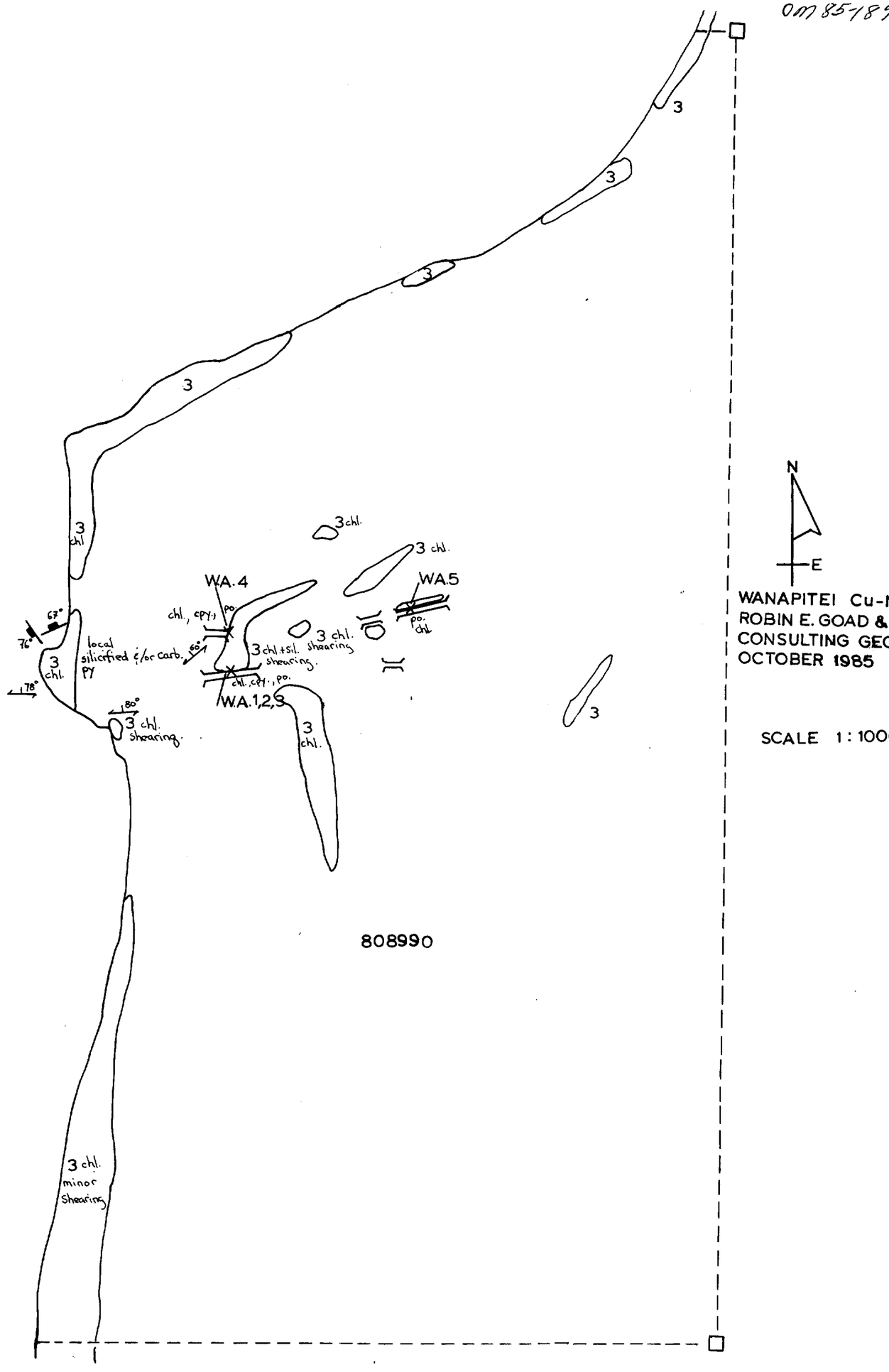
N

E

FLAG RESOURCES LTD.
ROBIN E. GOAD & WILLIAM F. ROWELL
CONSULTING GEOLOGISTS
RATHBUN LAKE MAP
JULY & NOVEMBER 1985
SCALE = 1:2000

085-189

63.4938



N

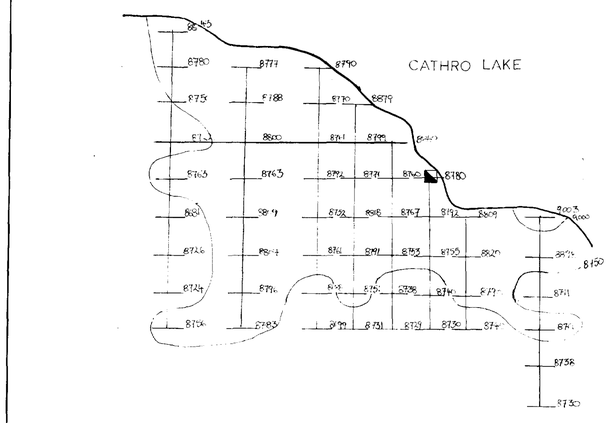
E

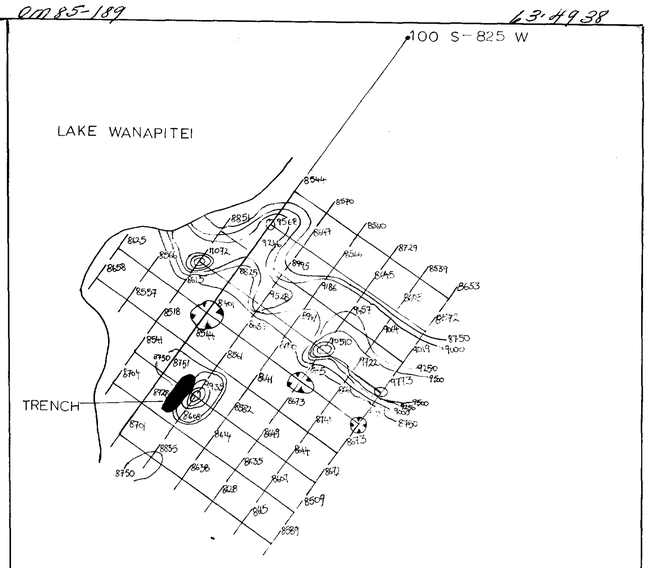
WANAPITEI Cu-Ni SHOWING
ROBIN E. GOAD & WILLIAM F. ROWELL
CONSULTING GEOLOGISTS
OCTOBER 1985

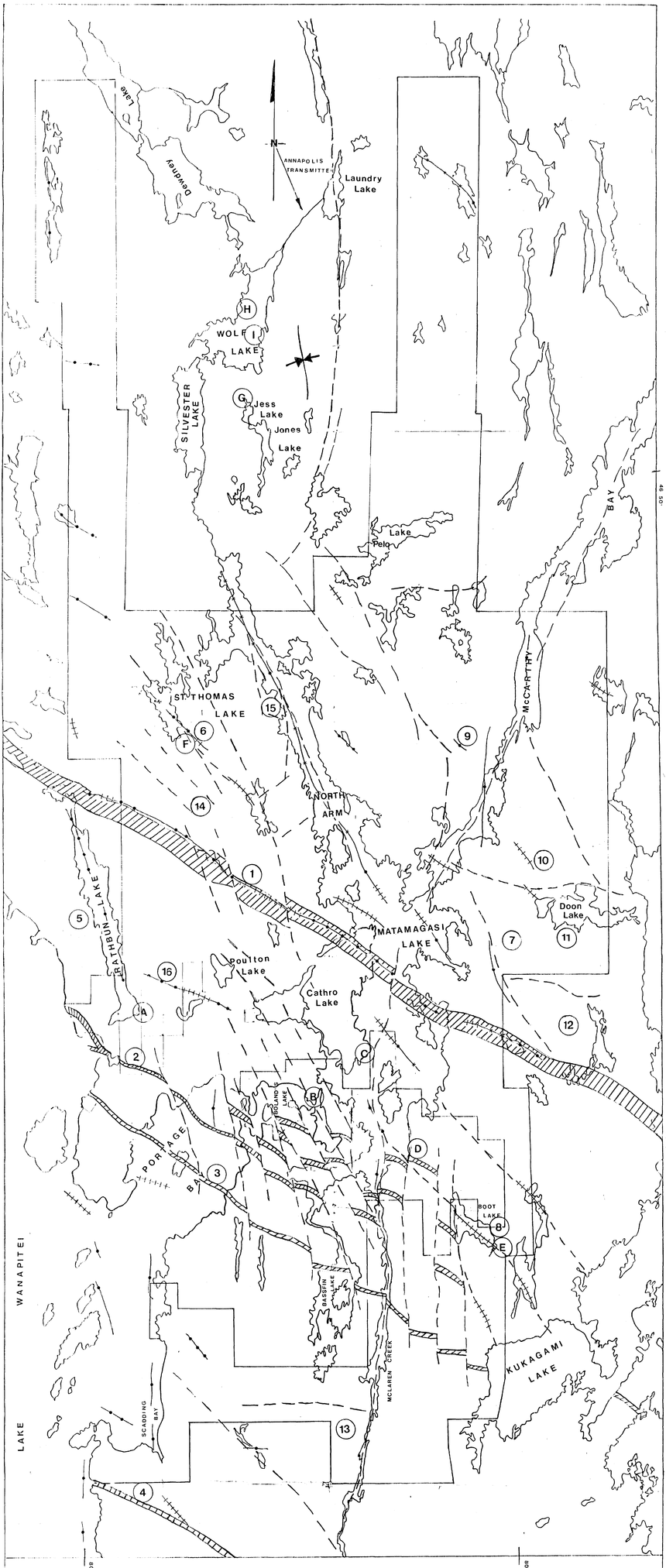
SCALE 1 : 1000

LAKE WANAPITEI

FLAG RESOURCES LTD
RATHBUN LAKE
MAGNETOMETER CONTOUR MAP
ROBIN E. GOAD & WILLIAM F. ROWELL
CONSULTING GEOLOGISTS
NOVEMBER 1985
SCALE = 1: 2000
CONTOUR INTERVAL = 250 γ
ALL VALUES + 50,000 γ
INSTRUMENT: SCINTREX M.P-2







FLAG RESOURCES LTD.

AIRBORNE GEOPHYSICAL INTERPRETATION

WOLF LAKE PROSPECT

SCALE 1:20,000

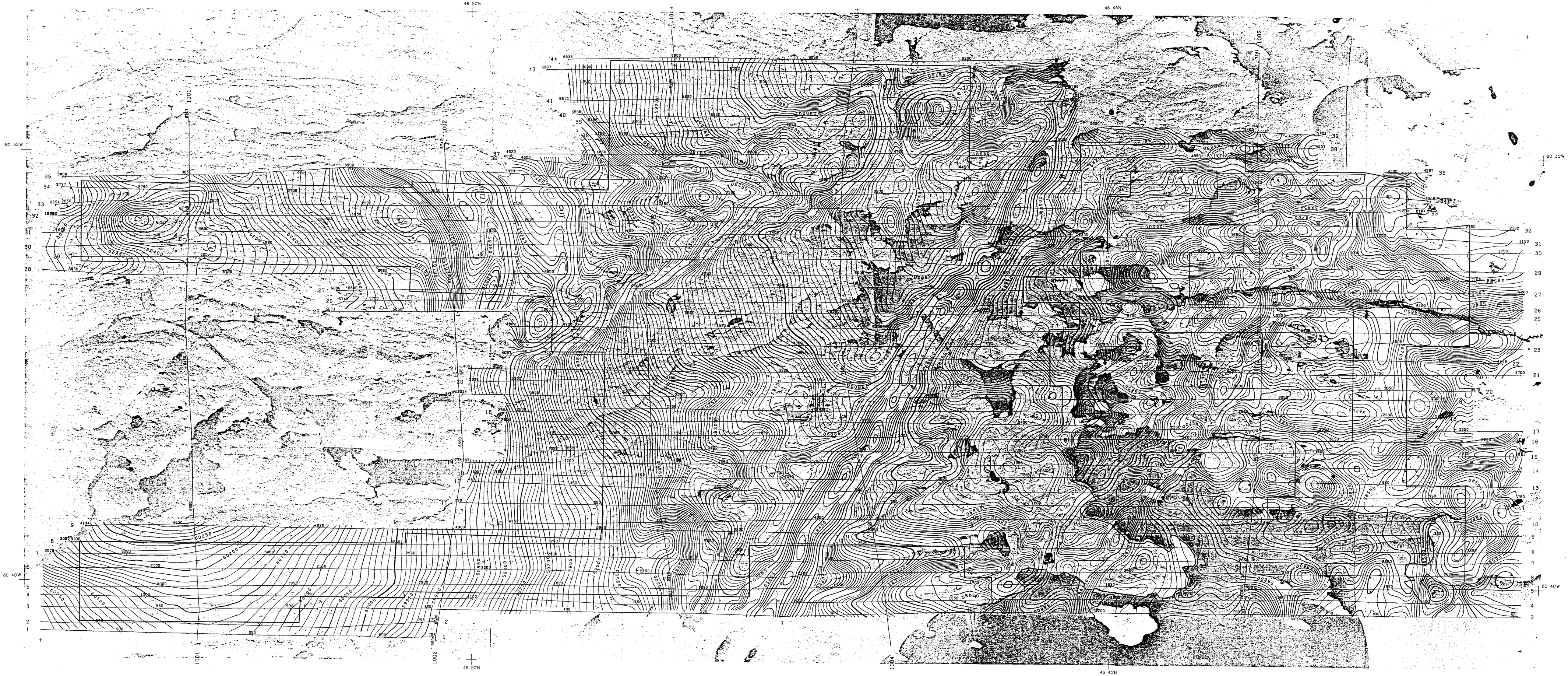
DECEMBER 1985

LEGEND

- Property Boundary
- Fault
- (4) Olivine - Diabase Dike
- (C) Mineral Showing

VLF - EM Conductor Axes

- Normal Quadrature
- Reverse Quadrature
- In Phase Only (no quadrature)



LEGEND

Terrain Clearance	100 meters
Line Spacing	200 meters
1000 gammas	
250 gammas	
50 gammas	
10 gammas	

FLAG RESOURCES LTD.

AIRBORNE MAGNETIC SURVEY
TOTAL MAGNETIC FIELD

WOLF LAKE GOLD PROJECT

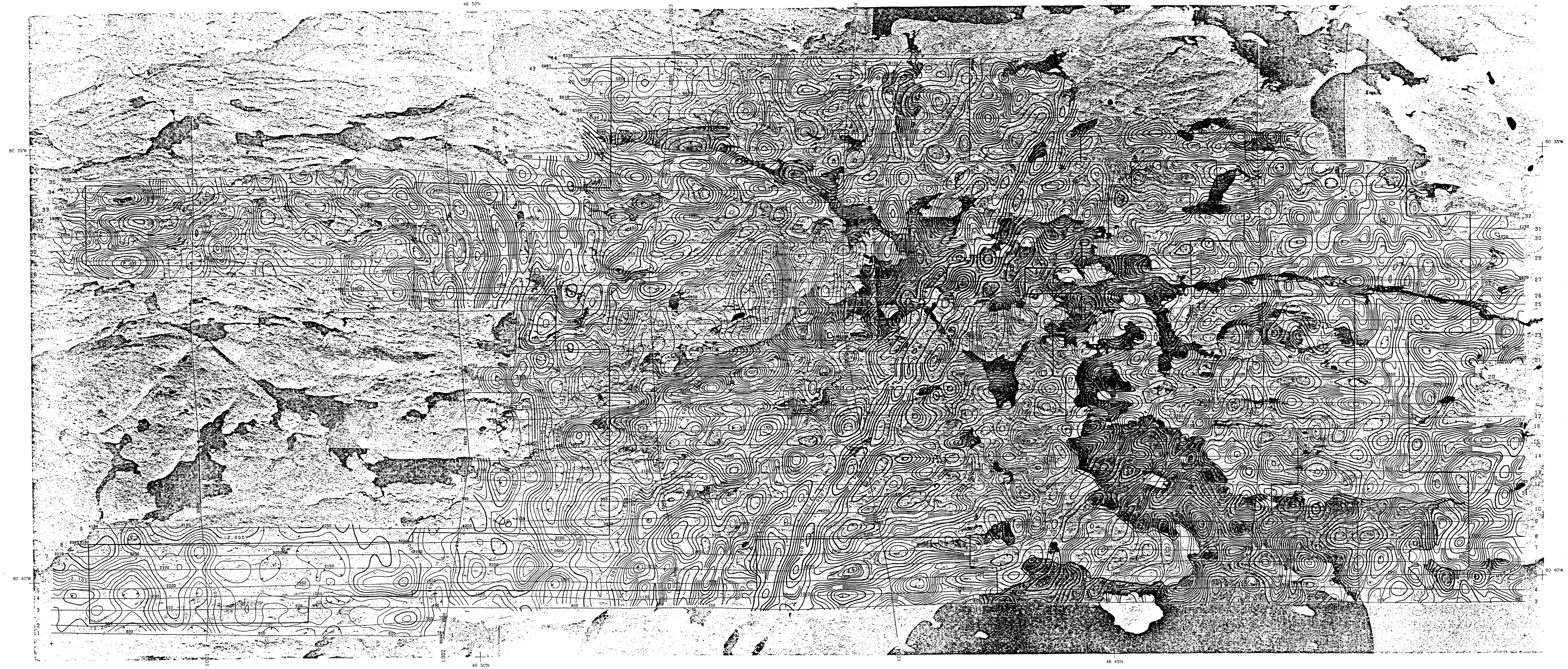
N.T.S. NO:	41 I/10 41 I/15	DRAWING NO.	T-5019-1
SCALE	1 : 20,000	DATE:	OCT. 1985

TERRAQUEST LTD.
TORONTO CANADA

350

CR85-184

63-1938



LEGEND

Terrain Clearance	100 meters
Line Spacing	200 meters
2,500 gammas / meter	
500 gammas / meter	
100 gammas / meter	
025 gammas / meter	

FLAG RESOURCES LTD.

AIRBORNE MAGNETIC SURVEY
VERTICAL MAGNETIC GRADIENT
Calculated From Total Field

WOLF LAKE GOLD PROJECT

N.T.S. NO:	41 1/10 41 1/15	DRAWING NO.	T-5019-2
SCALE	1 : 20,000	DATE:	OCT. 1985

TERRAQUEST LTD.
TORONTO, CANADA

LEGEND

Terrain Clearance	100 meters
Line Spacing	200 meters

Field Strength
50%
10%
2%

QUADRATURE
+10% -10%

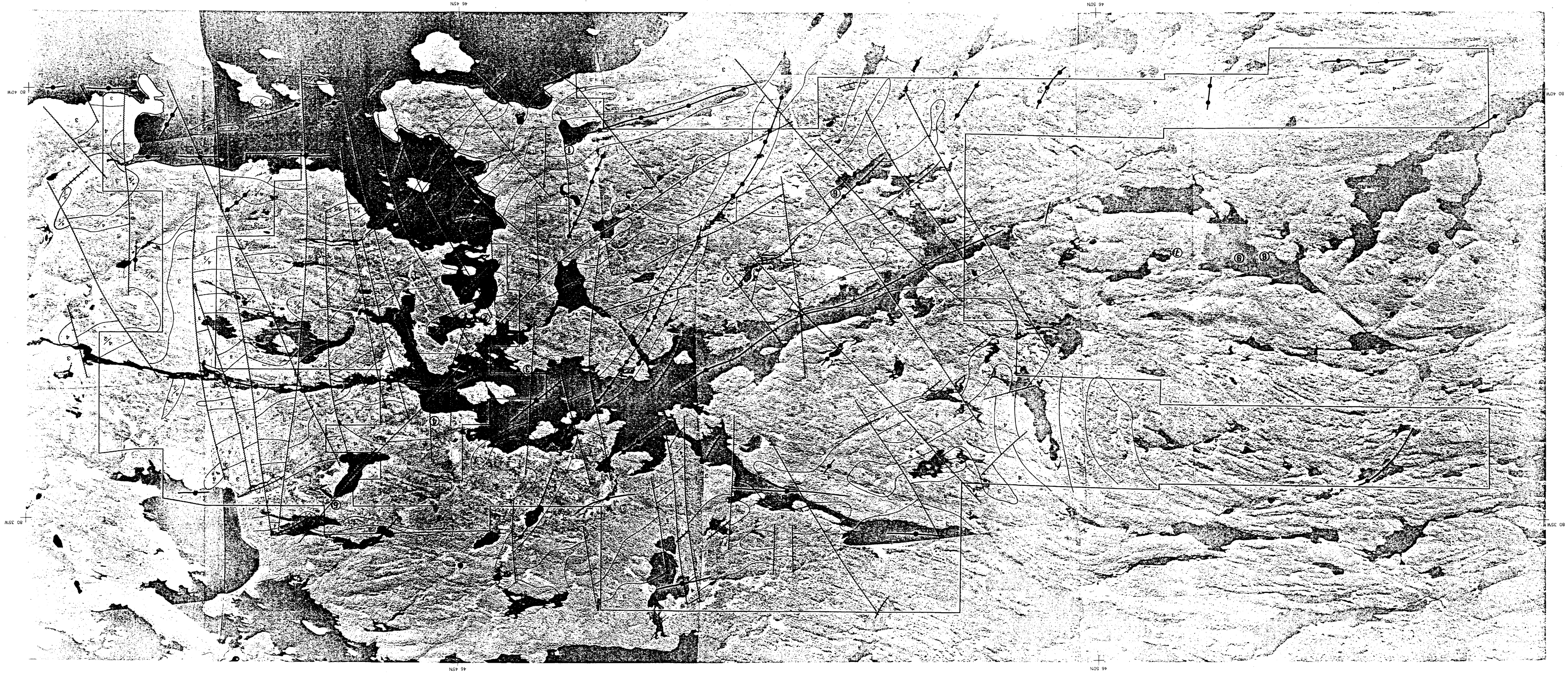
FLAG RESOURCES LTD.

AIRBORNE VLF-EM SURVEY
CONTOURS OF TOTAL FIELD STRENGTH
PROFILES OF QUADRATURE

WOLF LAKE GOLD PROJECT

N.T.S. NO:	41 I/10 41 I/15	DRAWING NO.	T-5019-3
SCALE	1 : 20,000	DATE:	OCT. 1985

TERRAQUEST LTD.
TORONTO CANADA



FLAG RESOURCES LTD.

INTERPRETATION

WOLF LAKE GOLD PROJECT

N.T.S. NO: 41 I/10 41 I/15	DRAWING NO. T-5019-4
SCALE 1 : 20,000	DATE: OCT 1985

TERRAQUEST LTD.
TORONTO CANADA

LEGEND

INTERPRETATION
- Contact
- Fault
- Property Boundary
- Normal quadrature
- Reverse quadrature
- In phase only (no quadrature)

VLF-EM Conductor Axes

LITHOLOGY
- 4 Noritic/gabbro - magnetic phases only
- 3 Weakly magnetic rocks which unit d: weakly magnetic basement rocks
- 2 Magnetic basement rocks
- ? Material Shownings or Deposits

VLF TRANSMITTER
Annapolis 21.4 kHz
157-A-A2

Terrain Clearance ..... 100 metres
Line Spacing ..... 200 metres

BOOT LAKE

FLAG RESOURCES

BOOT LAKE

ROBIN E GOAD & BILL F ROWELL

CONSULTING GEOLOGISTS

JULY 1985

SCALE 1:2000

588129

625160

588346

809156

588348

809155

809154

588341

809148

809147

809149

809141

809140

809146

63.4938

om85-189

586200

586199

586204

586203

808926

808295

538642

608354

N

E

FLAG RESOURCES
CRYSTAL NORTH MAP 1
ROBIN E. GOAD & WILLIAM F. ROWELL
CONSULTING GEOLOGISTS
SEPTEMBER 1985
SCALE = 1:1000

NOTE: SURFACE SAMPLES FROM THIS MAP ARE INDICATED ON THE CRYSTAL NORTH 1:2000 SCALE ASSAY MAP.

om85-189

63.4938

2700 N
2600 N
2500 N
2400 N
2300 N
2200 N
2100 N
2000 N
1900 N
1800 N
1700 N
CN-40,41,42
CN-25-80E
CN-20-90E
CN-23-80E
CN-18-50E
577386
577379
577378
577380
586193
Spruce Swamp
Spruce Swamp