GEOLOGICAL SURVEY REPORT

POWELL LAKE PROPERTY

CUMBERLAND RESOURCES LIMITED

Powell Lake Claim Map

Thunder Bay Mining Division, Ontario

December 1985

Blair Kite,
Geologist

POWELL LAKE GEOLOGY

Table of Contents

Powell Lake Geology

INTRODUCTION

During the month of September, 1985, Cumberland Resources Limited of Thunder Bay, Ontario carried out a geological mapping and lithogeochemical sampling program on its 66 claim group in the Powell Lake Area of Ontario. The field crew consisted of two graduate geologists. Mr. Blair Kite was the party chief and Mr. Greg Charlton served as assistant geologist. The project was supervised by William McCrindle, P.Eng., geologist.

The claims are recorded in the name of Cumberland Resources Limited and owned 100% by Cumberland Resources.

This report is prepared to fulfil the requirements for assessment work.

The data contained in this report was derived from detailed field mapping on 100 meter spaced compass lines using hip chain distance measures.

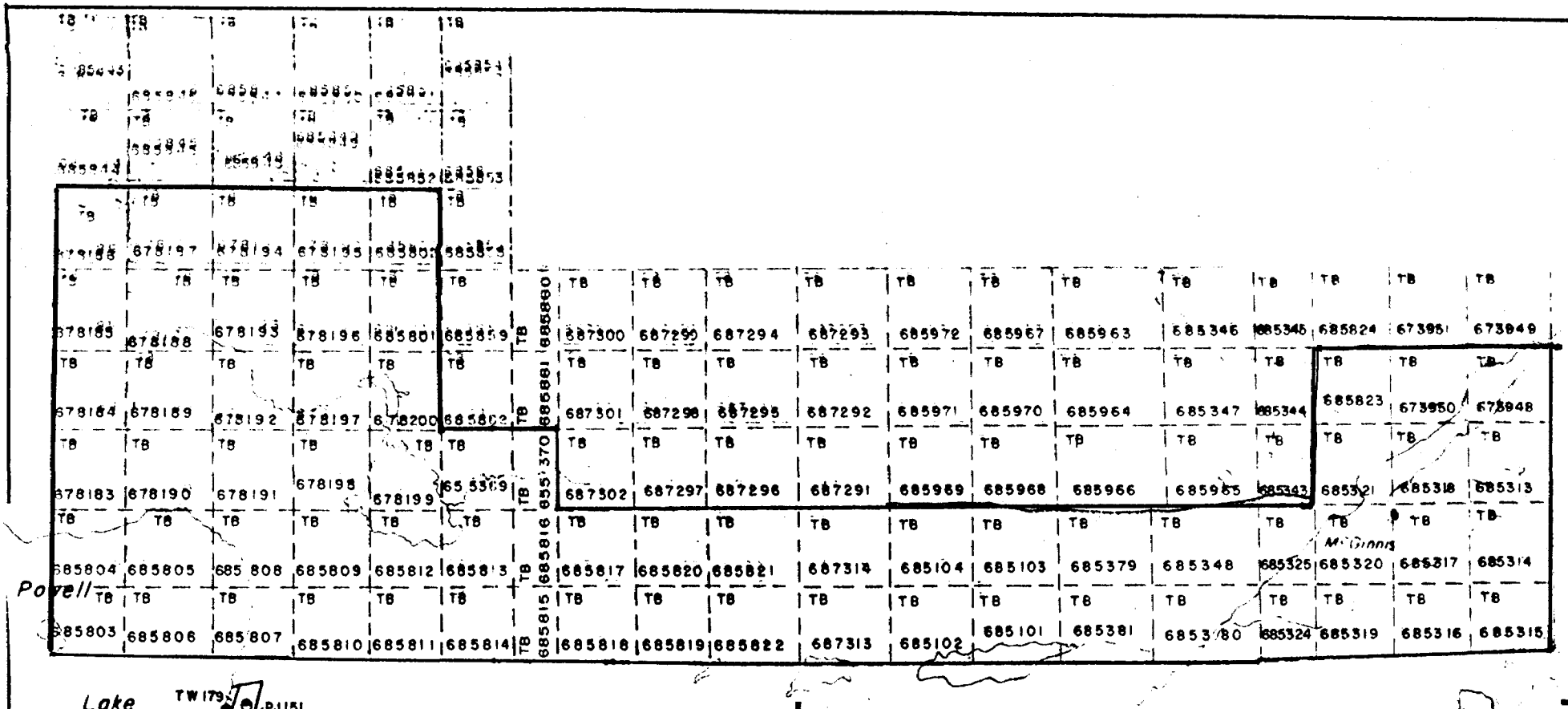
PROPERTY DESCRIPTION

The Powell Lake property consists of 66 contiguous unpatented mining claims, approximately 2640 acres. The claims are outlined on the Powell Lake claim map G 549,Thunder Bay Mining Division (See map A).

LOCATION AND ACCESS

This property is accessible only by float equipped plane from Kashebowie River Resort to McGinnis Lake on the eastern claims and to Powell Lake on the west side or by canoe. In the winter, access is possible from Great Lakes Forest Products Camp 517 road by snowmobile, a distance of 4 miles to the east boundary of the property.

Powell Lake is located approximately 75 miles due west of the city of Thunder Bay. The nearest supplies and accommodation are located in Thunder Bay. The nearest electrical power is on highway 11, 10 miles to the north. (see map B)



CUMBERLAND RESOURCES LIMITED

SHEBANDOWAN PROJECT

map title

CLAIM MAP

scale

1inch to 1/2 mile

date

JANUARY 1986

B KITE

map no.

A

The status of the mining claims are as follows:

Claim Numbers	No. of Claims	Recorded Date	Assessment work Date Due
Unpatented			
TB655369-655370	2	March 7,1983	March 7, 1986
TB673948	1	Feb.28,1983	Feb.28, 1986
TB673950	1	Feb.28,1983	Feb.28, 1986
TB678183-678200 incl.	18	March 7,1983	March 7, 1986
TB685101-685104 incl.	4	Feb.28,1983	Feb.28, 1986
TB685313-685321 incl.	9	Feb.28,1983	Feb.28, 1986
TB685324-685325	2	Feb.28,1983	Feb,28, 1986
TB685348	1	Feb.28,1983	Feb.28, 1986
TB685379-685381 incl.	3	Feb.28,1983	Feb.28, 1986
TB685801-685822 incl	22	March 7,1983	March 7, 1986
TB685823	1	Feb.28,1983	Feb.28, 1986
TB687313-687314	2	Feb.28,1983	Feb.28, 1986

PHYSIOGRAPHY AND VEGETATION

The Powell Lake claim group is located in the Superior Province of the Canadian Shield. Relief is low to moderate and consists of a series of steep northeast trending ridges. A prominent ridge occurs on the western shore of McGinnis Lake. The area north of Powell Lake is hummocky and becomes flat near the Wawiag River. The area between McGinnis and Powell Lakes is low and swampy. Outcrop exposure is generally good.

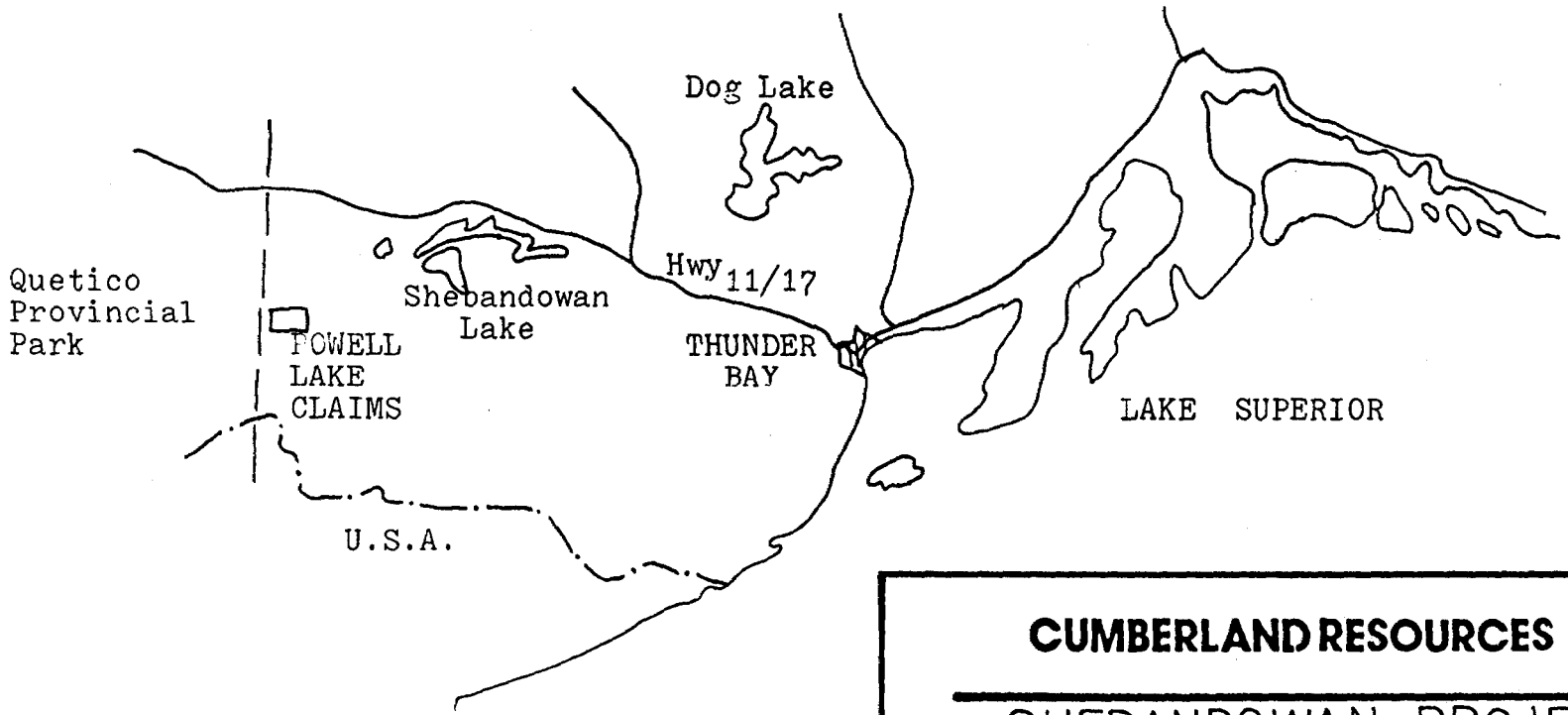
Vegetation consists of dense alder and poplar underbrush. Very large poplar, balsam, and birch are the predominant tree types in the area. Scattered spruce and cedar bogs are common.

Water is available from numerous lakes and streams in the immediate area.

HISTORY AND PREVIOUS WORK

The general area has been explored for precious, ferrous and non-ferrous metal bearing deposits since before the turn of the century. Inco's Shebandowan Mine is the only producing mine in this general region. Two former producers are the Moss Mine (gold) and the North Coldstream Mine (copper). The McGinnis Lake area has been prospected intensively during the 1960's and early 1970's for base metals and nickel. The area along the Knife Lake Fault received most of the attention. A few diamond drill holes testing geophysical targets found graphite and pyrite mineralization.

In 1983 Cumberland Resources Limited acquired 66 unpatented mining claims and subsequently contracted Aerodat Limited to conduct an airborne geophysical survey over this claim group. Results of this survey are on file at the Thunder Bay assessment files.



CUMBERLAND RESOURCES LIMITED

SHEBANDOWAN PROJECT

map title

LOCATION MAP

scale

1inch to 25miles

date

JANUARY 1986

B KITE Blair Kite

map no.

B

Powell Lake Geology

REGIONAL GEOLOGY

The Powell Lake claim group is underlain by rocks of Precambrain age. The claim group is described by F. R. Harris in Ontario Department of Mines Geological Report 85, "Geology of the Moss Lake Area",1970 and on map 2204.

The claim group is at the western end of the Shebandowan Archean Metavolcanic Belt. This belt extends from the Quetico Provincial Park boundary to MacGregor Township, east of Thunder Bay. The belt trends east-west and attains a maximum thickness of twenty-five kilometers.

The southern half of the belt is mainly mafic metavolcanics with local jasperite ironstone bands and occasional ultramafic sills and flows. Felsic to intermediate volcanic flows and pyroclastic rocks occur mainly in the northwestern part of the belt.(Schnieders and Stott, 1983)

Much of the recent exploration activity in this belt has focused on the Jalna Resources Limited Gold Creek property in Duckworth Township. (Patterson et al 1983)

Gold mineralization in the Shebandowan belt is related to deformation. All known occurrences of gold are found within or related to structural domains affected by a second deformational episode. Gold mineralization is a structurally late event within the northern portion of the belt. It occurs in fracture cleavage and shear zones in metamorphic rocks in or proximal to quartz feldspar porphyry intrusions. (Schnieders and Stott, 1983)

Proceeding east from Powell Lake, four distinct rock units are present in the claim group. These are the Powell Lake metavolcanics series; the Powell Lake granite; the McGinnis Lake metavolcanic series and the Myrt Lake batholith. The metavolcanics strike approximately northeast and dip steeply.

The Powell Lake metavolcanic series consists of fine grained, chloritic mafic to intermediate metavolcanics and felsic to intermediate metavolcanics. Primary features are rare. The rocks have been subjected to strong contact metamorphism from the granitic intrusions. Local amygdaloidal flows, tuffs and lapilli tuff have been recognized. Local silicification, quartz porphyry intrusions and carbonate alteration are present.

The Powell Lake granite is a typical granite body, up to 1/2 mile wide on the property. It separates the two metavolcanic series.

The McGinnis Lake metavolcanic series consists of felsic rock types; banded and massive rhyolite, quartz sericite schists and quartz porphyritic units. Strong contact metamorphism is also present in this series. Primary features are rare. Local tuffs and lapilli tuff textures are present. Extensive mafic intrusive and felsic intrusive bodies occur within this series. Diorite, gabbro and amphibolite are present. At least three types of syenite intrusives are recognized. Quartz porphyry and quartz feldspar porphyry are present locally. Mylonitized felsic metavolcanics and diorite are present along the Knife Lake fault.

The Myrt Lake batholith is in fault contact with the McGinnis Lake metavolcanic series.

Only one top direction was made in the field. A small graded bed gave younging to the south. Harris (1970) found conflicting younging direction data.

PROPERTY GEOLOGY

POWELL LAKE SERIES

FELSIC TO INTERMEDIATE METAVOLCANICS

The felsic to intermediate metavolcanic rock type of the claim group are recrystallized and appear as schists and hornfels. Primary features are often not observable. Bedding is not common. Fragments and crystal fragments in pyroclastic rocks appear locally. These are often elongate parallel to foliation. In general these rock types are intermediate in composition and are chloritic, commonly grading into more mafic composition. Weathered surfaces are light grey to green, fresh surfaces are commonly darker in colour. Lapilli tuff and crystal tuff are the predominant rock types.

Hornfelsed flows and tuffs are fine grained to very fine grained and contain no recognizable primary features. Foliation is not well developed. The fabric is typically homogenous and massive. Local magnetite, pyrite and carbonate alteration are present.

Chlorite is a common constituent of the hornfelsed rock types. It seems likely that this chlorite is of a secondary or alteration origin.

Lapilli tuff and tuffaceous rocks are identified by the presence of fragments. Lapilli tuff contains fragments in the four millimetre to sixty-four millimetre size range. Tuffaceous fragments are less than four millimetres in size. These rock types are generally intermediate in composition. Matrix and fragment composition is similar. The matrix is typically fine-grained and chloritic. Fragments are elongate, subangular to subround in shape, are supported by the matrix and vary from seven to thirty percent of the rock. Fragment size varies from half a centimetre to four centimetres in length. Average fragment size is one and a half centimetres. Fragments of crystal tuff appear locally.

Crystal tuff contains quartz and feldspar crystals and crystal fragments. Quartz crystals or "eyes" are two to eight millimetres in size, rounded and make up ten percent of the rock. Feldspar crystals are subhedral, two to four millimetres in length and make up ten percent of the rock. Fragments appear locally. The matrix is chloritic and intermediate in composition, locally becoming more felsic. Magnetite and pyrite occur locally.

Feldspar quartz amphibole schist is a recrystallized metavolcanic rock. It is fine grained, homogenous and has a well developed foliation. Occasional small quartz eyes appear. Chlorite is common; carbonate alteration is also observable locally.

Rhyolite appears locally. It is very, fine grained to aphanetic and massive. Pyrite appears within the rhyolite locally as fine disseminated cubes.

Quartz eye rhyolite is siliceous, aphanetic with two millimetre quartz eyes.

INTERMEDIATE TO MAFIC METAVOLCANIC ROCKS

The intermediate to mafic metavolcanic rocks of the claim group occur in four north east trending bands. These bands occur in the western half of the claim group. A gradational relationship exists between these rock types and the felsic to intermediate rocks. Difficulty in field determinations of rock composition was encountered as a result of the gradational relationship. Few primary features are present in this rock type. Weak foliation is often developed.

Intermediate to mafic hornfelsed tuffs and flows appear as dark green with a fine grained homogenous texture. The amygdaloidal flow unit is very distinctive and easily recognized. It contains from five to fifteen percent ellipsoidal quartz amygdules. These amygdules vary from half to one centimetre in size. The rock is massive, homogenous and chloritic. It is green to dark green in colour.

Feldspar hornblende schist is the foliated equivalent of the intermediate to mafic hornfels. Primary features are rare. A well developed metamorphic fabric is typical. The rock is green to dark green in colour, fine to medium grained and contains twenty to thirty percent amphibole.

Intermediate to mafic tuff, lapilli tuff and crystal tuff are recognized by the presence of fragments and crystal fragments. Fragments and matrix have a similar composition. Fragments are commonly two centimetres in length and make up three to ten percent of the rock. The matrix supports the fragments and is fine grained, homogenous and often chloritic.

Crystal tuff and porphyritic flows are a minor rock type on the claim group. Typically it contains feldspar crystals and crystal fragments up to four millimetres in size. The two rock types are virtually indistinguishable and no attempt was made to differentiate them.

McGINNIS LAKE SERIES

The McGinnis Lake series underlies the eastern portion of the claim group. It is in intrusive contact with the Powell Lake granite and makes a fault contact with the Myrt Lake batholith. In general this series is more felsic, less chloritic and contains less sulphide mineralization than the Powell Lake series.

FELSIC TO INTERMEDIATE METAVOLCANICS ROCKS

Quartz sericite schist is of rhyolitic composition. It is very siliceous, homogenous to weakly foliated and contains siliceous fragments locally. Few primary features are recognizable. Locally the quartz sericite schist is fissile and contains up to 7% disseminated pyrite oriented along cleavage planes. Gossaned fractures are present locally. Local banding or lamination is present.

Feldspar quartz amphibole ± biotite schist is well foliated and varies from felsic to intermediate in composition. Local fragments up to one centimetre in size constitute up to five percent of the rock. The matrix is fine grained and equigranular. Foliation is defined by preferred orientation of mafic minerals. Banded rhyolite is compositionally similar to the feldspar quartz amphibole biotite schist. The rock contains bands to half a centimetre in width. They are compositionally differentiated into siliceous, sericitic bands and darker, more mafic bands. Local rare quartz eyes and feldspar crystals are present. The rock is typically siliceous; disseminated pyrite is common. The banding appears in some locations to be of metamorphic origin. Along the Knife Lake Fault at McGinnis Lake, the banded rhyolite appears to be a mylonite.

Feldspar amphibole schist is intermediate in composition and has a homogenous, foliated fabric. Local feldspar crystals and fragments are present. Local carbonitization occurs and iron carbonate is also observable.

Quartz porphyry rhyolite contains seven to twelve

percent quartz phenocrysts up to five millimetres in size. These are elongate and light blue in color. The matrix is very siliceous, aphanetic and has a weak foliation.

Tuff and lapilli tuff contain three to twelve percent fragments. Fragments are poorly sorted, elongate parallel to foliation and up to one centimetre in size.

Crystal tuff contains up to twenty percent feldspar and amphibole crystals and crystal fragments. Crystal size varies from two to five millimetres in size. The matrix is well foliated, fine grained and of intermediate composition.

MAFIC to INTERMEDIATE METAVOLCANIC ROCKS

Feldspar amphibole schist is a fine grained, well foliated mafic metavolcanic. It is dark green to black on fresh surface and locally is compositionally banded.

Tuff, lapilli tuff and debris flow appear typically with a mafic amphibole rich matrix supporting white felsic fragments. Fragments are often poorly sorted and appear up to three centimetres in length. Fragments are oriented parallel to foliation. Mafic crystal tuff and porphyritic flows appear locally and are restricted in lateral extent.

METASEDIMENTARY ROCKS

Local bands of iron formation and banded chert are present in the McGinnis Lake series. Iron formation is massive and magnetite rich. Chert locally contains fine disseminated pyrite. The metasediments make up a small component of this series and are laterally restricted.

MAFIC INTRUSIVE ROCKS

Both the McGinnis Lake and Powell Lake series are intruded by mafic intrusive rocks. Gabbro - diorite is the dominant mafic intrusive. It is medium grained, massive and has a good characteristic igneous texture. Near the Knife Lake Fault, on the western side of McGinnis Lake, the gabbro-diorite has been sheared. It appears as a finer grained mafic rock similar to the mafic metavolcanics. The presence of augened feldspar crystals was used to classify this rock as a sheared gabbro-diorite.

FELSIC INTRUSIVE ROCKS

-Syenite Intrusive Rocks

Syenite intrusive rocks were found to intrude the McGinnis Lake series. Age relationships between this and the other intrusive rock types is not known.

Syenite porphyry contains feldspar phenocrysts up to one centimetre in size. They are pink, occasionally zoned and comprise up to forty-five percent of the rock. The matrix is felsic and very fine grained.

Biotite and hornblende syenite contain feldspar crystals of similar size and composition. The matrix is dark in colour and contains a large amount of biotite or hornblende.

Syenite occurs in dykes and sills up to three metres in width and extends for tens of metres.

-Granite

Two granite intrusions, the Powell Lake granite and the Myrt Lake batholith occur on the property. Both appear as massive coarse to medium grained rocks with characteristic granitic composition and texture. Local pegmatite was observed.

-Quartz Feldspar Porphyry, Quartz Porphyry and Feldspar Porphyry

Quartz feldspar, quartz and feldspar porphyritic intrusive rocks occur in both the Powell Lake and McGinnis Lake metavolcanic rocks. Quartz eyes are blue in color, approximately three millimetres in size and comprise up to seven percent of the rock. Feldspar crystals are subhedral to euhedral four millimetres in size and comprise up to twenty percent of the rock. The matrix is massive, siliceous and very fine grained. Disseminated pyrite, up to ten percent appears locally.

STRUCTURE

Foliation in the metavolcanic rocks strikes north east to east. It dips steeply to the north in the Powell Lake series and steeply south in the McGinnis Lake series. Bedding is rare. When observed, bedding strikes northeast and dips steeply from vertical to the north.

Faulting is the dominant structural feature. Several steep ridges in the Powell Lakes series are believed to be northeast trending faults. The Knife Lake fault marks the contact between the McGinnis Lakes series and the Myrt Lake granite. This fault can be traced for sixty miles. (Harris, 1970)

Small shear zones, up to twenty centimetres wide were encountered occasionally. Often these shears contained pyrite and/or magnetite.

ALTERATION AND MINERALIZATION

Pyrite mineralization was encountered in the metavolcanic rocks. Typically pyrite occurs in amounts from two to seven percent as small disseminated cubes. Several small pyritic shear zones, less than half a metre wide occur in the Powell Lake series. Pyrite commonly comprises up to seven percent of the quartz porphyry and quartz feldspar porphyry intrusive rocks. This mineralization is more prevalent in the Powell Lake series.

Carbonitization is prevalent in the Powell Lake series.

CONCLUSIONS

Pyrite mineralization in the porphyry intrusive units and shear zones, carbonate alteration of the Powell Lake series and the northeast trending faults defined by the steep ridges on the claim group are good indicators of gold mineralization. Gold in the Shebandowan belt is known to be structurally controlled and related to quartz porphyry intrusives. (Schnieders and Stott,1983)

RECOMMENDATIONS

1) The claims underlain by granite east of McGinnis Lake and between the two metavolcanic series are of little economic interest and should be dropped.

2) A grid, based on the McGinnis Lake reconnaissance grid should be cut to facilitate lithogeochemical sampling and geophysics.

3) A lithogeochemical sampling program for gold mineralization should be carried out along grid lines at fifty metre spacing. All shear zones and porphyritic units should be sampled.

4) Ground geophysics should be conducted to outline and trace faults and shear zones.

5) Detailed mapping should be conducted over the resulting geochemical and geophysical anomalies for the purpose of determining good trenching and drill targets.

BIBLIOGRAPHY

1. G. M. Stott and B. R. Schnieders, 1983: Gold Mineralization in the Shebandowan Belt and its relation to Regional Deformation Patterns; The Geology of Gold in Ontario, OGS Misc. Paper 110, ed. by A.C. Colvine.

2. G.C. Patterson, et al, 1984: Shebandowan Area, Report of Activities, 1984, Regional and Resident Geologists, ed. by C. R. Kustra.

3. F.R. Harris, 1970: Geology of the Moss Lake Area, Ontario Department of Mines and Northern Affairs, Geological Report 85.

QUALIFICATIONS

I, Blair Kite, of 74 Winnipeg Avenue, Thunder Bay, Ontario hereby certify:

1. I am a graduate of Lakehead University (1981) and hold an Honours B.Sc.degree in geology.

2. I have been employed in my profession by various mining companies during university and for three years since graduation.

3. I am presently employed as a geologist with Cumberland Resources Limited, Thunder Bay, Ontario.

4. The information contained in this report was obtained from personal field traversing and the various publications listed in the bibliography.

5. I am a member of the Canadian Institute of Mining and Metallurgy.

dated at Thunder Bay, Ontario

December 20, 1985

Blair Kite

Blair Kite

Geologist

900

Mining Lands Section

File No 2.8906

Control Sheet

TYPE OF SURVEY

____ GEOPHYSICAL

__✓__ GEOLOGICAL

____ GEOCHEMICAL

____ EXPENDITURE

MINING LANDS COMMENTS:

P. Hurst

Signature of Assessor

Feb 20/86.

Date

lgd

March 24, 1986

Your File: #7
Our File: 2.8906

Mining Recorder
Ministry of Northern Development and Mines
435 James Street South
P.O. Box 5000
Thunder Bay, Ontario
P7C 5G6

Dear Madam:

RE: Notice of Intent dated February 28, 1986
Geological Survey on Mining Claims TB 655369, et al, in the Powell Lake Area

---

The assessment work credits, as listed with the above-mentioned Notice of Intent, have been approved as of the above date.

Please inform the recorded holder of these mining claims and so indicate on your records.

Yours sincerely,

J.C. Smith, Supervisor
Mining Lands Section

Whitney Block, 6th Floor
Queen's Park
Toronto, Ontario
M7A 1W3

Telephone: (416) 965-4888

SH/mc

cc: Cumberland Resources Limited
74 Winnipeg Avenue
Thunder Bay, Ontario
P7B 3P9
Attention: Blair Kite

Mr. G.H. Ferguson
Mining & Lands Commissioner
Toronto, Ontario

Resident Geologist
Thunder Bay, Ontario

Encl.

Ministry of Northern Development and Mines
Ontario

Technical Assessment Work Credits

File: 2.8906

Date: 1986 02 28

Mining Recorder's Report of Work No.: 7

Recorded Holder: CUMBERLAND RESOURCES LIMITED

Township or Area: POWELL LAKE AREA

Type of survey and number of Assessment days credit per claim	Mining Claims Assessed
Geophysical	
Electromagnetic _____ days	
Magnetometer _____ days	
Radiometric _____ days	
Induced polarization _____ days	TB 655369-70•
Other _____ days	678183 to 200 inclusive•
	685102 to 104 inclusive•
Section 77 (19) See "Mining Claims Assessed" column	685348-79-80-81•
	685801-02•
Geological 20 days	685818 to 823 inclusive•
Geochemical _____ days	687313•
Man days ☐ Airborne ☐	
Special provision ☒ Ground ☒	
☐ Credits have been reduced because of partial coverage of claims.	
☐ Credits have been reduced because of corrections to work dates and figures of applicant.	

Special credits under section 77 (16) for the following mining claims

15 DAYS
TB 673950
685101• . .
685321-24-25•
685808•

No credits have been allowed for the following mining claims

☐ not sufficiently covered by the survey ☐ insufficient technical data filed

The Mining Recorder may reduce the above credits if necessary in order that the total number of approved assessment days recorded on each claim does not exceed the maximum allowed as follows: Geophysical - 80; Geologocal - 40; Geochemical - 40; Section 77(19) - 60.

Ontario

Ministry of
Northern Development
and Mines

Mar 18/86

February 28, 1986

Your File #7
Our File: 2.8906

Mining Recorder
Ministry of Northern Development and Mines
435 James Street South
P.O. Box 5000
Thunder Bay, Ontario
P7C 5G6

Dear Madam:

Enclosed are two copies of a Notice of Intent with statements listing a reduced rate of assessment work credits to be allowed for a technical survey. Please forward one copy to the recorded holder of the claims and retain the other. In approximately fifteen days from the above date, a final letter of approval of these credits will be sent to you. On receipt of the approval letter, you may then change the work entries on the claim record sheets.

For further information, if required, please contact Mr. R.J. Pichette at (416) 965-4888.

Yours sincerely,

S.E. Yundt, Director
Land Management Branch

Mining Lands Section
Whitney Block, 6th Floor
Queen's Park
Toronto, Ontario
M7A 1W3

SH/mc

Encls.

cc: Cumberland Resources Limited
74 Winnipeg Avenue
Thunder Bay, Ontario
P7B 3P9
Attention: Blair Kite

Mr. G.H. Ferguson
Mining & Lands Commissioner
Toronto, Ontario

Ontario

Ministry of
Northern Development
and Mines

Notice of Intent
for Technical Reports

February 28, 1986

2.8906/7

An examination of your survey report indicates that the requirements of The Ontario Mining Act have not been fully met to warrant maximum assessment work credits. This notice is merely a warning that you will not be allowed the number of assessment work days credits that you expected and also that in approximately 15 days from the above date, the mining recorder will be authorized to change the entries on the record sheets to agree with the enclosed statement. Please note that until such time as the recorder actually changes the entry on the record sheet, the status of the claim remains unchanged.

If you are of the opinion that these changes by the mining recorder will jeopardize your claims, you may during the next fifteen days apply to the Mining and Lands Commissioner for an extension of time. Abstracts should be sent with your application.

If the reduced rate of credits does not jeopardize the status of the claims then you need not seek relief from the Mining and Lands Commissioner and this Notice of Intent may be disregarded.

If your survey was submitted and assessed under the "Special Provision-Performance and Coverage" method and you are of the opinion that a re-appraisal under the "Man-days" method would result in the approval of a greater number of days credit per claim, you may, within the said fifteen day period, submit assessment work breakdowns listing the employees names, addresses and the dates and hours they worked. The new work breakdowns should be submitted directly to the Land Management Branch, Toronto. The report will be re-assessed and a new statement of credits based on actual days worked will be issued.

Land Management

Ministry of Natural Resources
Ontario

Report of Work
(Geophysical, Geological, Geochemical and Expenditures)

#7 28906

Mining Act

Instructions: – Please type or print.
– If number of mining claims traversed exceeds space on this form, attach a list.
Note: – Only days credits calculated in the "Expenditures" section may be entered in the "Expend. Days Cr." columns.
– Do not use shaded areas below.

Filed: 655369

Type of Survey(s): Geology	Township or Area: Powell Lake Area (G-549)
Claim Holder(s): Cumberland Resources Limited	Prospector's Licence No.: T1303
Address: 74 Winnipeg Ave, Thunder Bay Ont P7B 3P9	
Survey Company: Cumberland Resources Limited	Date of Survey (from & to): 24 08 85 / 08 09 85 (Day / Mo. / Yr.) — Total Miles of line Cut:
Name and Address of Author (of Geo-Technical report): Blair Kite address as above.	

Credits Requested per Each Claim in Columns at right

		Days per Claim
Special Provisions: For first survey: Enter 40 days. (This includes line cutting) For each additional survey: using the same grid: Enter 20 days (for each)	Geophysical	
	- Electromagnetic	
	- Magnetometer	
	- Radiometric	
	- Other	
	Geological	20
	Geochemical	
Man Days: Complete reverse side and enter total(s) here	Geophysical	Days per Claim
	- Electromagnetic	
	- Magnetometer	
	- Radiometric	
	- Other	
	Geological	
	Geochemical	
Airborne Credits: Note: Special provisions credits do not apply to Airborne Surveys.		Days per Claim
	Electromagnetic	
	Magnetometer	
	Radiometric	

Mining Claims Traversed (List in numerical sequence)

Mining Claim Prefix	Mining Claim Number	Expend. Days Cr.
TB	655369	
	655370	
	683950	
	678183	
	678184	
	678185	
	678186	
	678187	
	678188	
	678189	
	678190	
	678191	
	678192	
	678193	
	678194	
	678195	
	678196	
	678197	
	678198	
	678199	
	678200	
	685101	
	685102	

Mining Claim Prefix	Mining Claim Number	Expend. Days Cr.
TB	685103	
	685104	
	685321	
	685324	
	685325	
	685348	
	685379	
	685380	
	685381	
	685801	
	685802	
	685808	
	685818	
	685819	
	685820	
	685821	
	685822	
	685823	
	687313	

Total number of mining claims covered by this report of work: 42

Expenditures (excludes power stripping)

Type of Work Performed:

Performed on Claim(s):

Calculation of Expenditure Days Credits

Total Expenditures: $ ÷ 15 = Total Days Credits

Instructions: Total Days Credits may be apportioned at the claim holder's choice. Enter number of days credits per claim selected in columns at right.

Date: Jan 28/86 — Recorded Holder or Agent (Signature): W McGuire

For Office Use Only

Total Days Cr. Recorded	Date Recorded	Mining Recorder
840	Feb. 5, 1986	Audrey M. Hayes
	Date Approved as Recorded	Branch Director
	Dec Revised Statement	

Certification Verifying Report of Work

I hereby certify that I have a personal and intimate knowledge of the facts set forth in the Report of Work annexed hereto, having performed the work or witnessed same during and/or after its completion and the annexed report is true.

Name and Postal Address of Person Certifying: Blair Kite, 74 Winnipeg Ave Thunder Bay, Ont P7B 3P9

Date Certified: Jan 28, 1986 — Certified by (Signature): Blair Kite

1362 (81/9)

2.8906

655369	✓		685101	1/4	
70	✓		2	✓	
673950	1/4		3	✓	
678183	✓		4	✓	
84	✓		685321	1/4	
85	✓		24	1/4	
86	✓		25	1/4	
87	✓		48	✓	
88	✓		79	✓	
89	✓		80	✓	
90	✓		81	✓	
91	✓		685801	✓	
92	✓		2	✓	
93	✓		8	1/4	
94	✓		18	✓	
95	✓		19	✓	
96	✓		20	✓	
97	✓		21	✓	
98	✓		22	✓	
99	✓		23	✓	
200	✓		687313	✓	

Ministry of Northern Development and Mines

Ontario

Geophysical-Geological-Geochemical Technical Data Statement

File _____

TO BE ATTACHED AS AN APPENDIX TO TECHNICAL REPORT
FACTS SHOWN HERE NEED NOT BE REPEATED IN REPORT
TECHNICAL REPORT MUST CONTAIN INTERPRETATION, CONCLUSIONS ETC.

Type of Survey(s) Geology

Township or Area Powell Lake Area G 549

Claim Holder(s) Cumberland Resources Ltd

Survey Company Cumberland Resources Ltd

Author of Report Blair Kite

Address of Author 74 Winnipeg Ave Thunder Bay, Ont

Covering Dates of Survey August 25 to Sept 20, 1985
(linecutting to office)

Total Miles of Line Cut _____

SPECIAL PROVISIONS CREDITS REQUESTED

ENTER 40 days (includes line cutting) for first survey.

ENTER 20 days for each additional survey using same grid.

DAYS per claim

Geophysical
--Electromagnetic _____
--Magnetometer _____
--Radiometric _____
--Other _____
Geological 20
Geochemical _____

AIRBORNE CREDITS (Special provision credits do not apply to airborne surveys)

Magnetometer _____ Electromagnetic _____ Radiometric _____
(enter days per claim)

DATE: January 28/86 SIGNATURE: Blair Kite
Author of Report or Agent

2.8501

Res. Geol. _____ Qualifications _____

Previous Surveys

File No.	Type	Date	Claim Holder(s)

THUNDER BAY MINING DIVISION RECEIVED FEB 5 1986 AM 7/8/9/10/11/12/1/2/3/4/5/6 PM

MINING CLAIMS TRAVERSED
List numerically

If space insufficient, attach list

(prefix)	(number)
TB	655369
	655370
	673950
	678183
	678184
	678185
	678186
	678187
	678188
	678189
	678190
	678191
	678192
	678193
	678194
	678195
	678196
	678197
	678198
	678199
	678200
	685101 (See over)

TOTAL CLAIMS 42

OFFICE USE ONLY

837 (85/12)

GEOPHYSICAL TECHNICAL DATA

GROUND SURVEYS – If more than one survey, specify data for each type of survey

Number of Stations _____ Number of Readings _____

Station interval _____ Line spacing _____

Profile scale _____

Contour interval _____

MAGNETIC

Instrument _____

Accuracy – Scale constant _____

Diurnal correction method _____

Base Station check-in interval (hours) _____

Base Station location and value _____

_____

ELECTROMAGNETIC

Instrument _____

Coil configuration _____

Coil separation _____

Accuracy _____

Method: ☐ Fixed transmitter ☐ Shoot back ☐ In line ☐ Parallel line

Frequency _____
(specify V.L.F. station)

Parameters measured _____

GRAVITY

Instrument _____

Scale constant _____

Corrections made _____

_____

Base station value and location _____

_____

Elevation accuracy _____

INDUCED POLARIZATION RESISTIVITY

Instrument _____

Method ☐ Time Domain ☐ Frequency Domain

Parameters – On time _____ Frequency _____

– Off time _____ Range _____

– Delay time _____

– Integration time _____

Power _____

Electrode array _____

Electrode spacing _____

Type of electrode _____

SELF POTENTIAL

Instrument _____ Range _____

Survey Method _____

_____

Corrections made _____

_____

RADIOMETRIC

Instrument _____

Values measured _____

Energy windows (levels) _____

Height of instrument _____ Background Count _____

Size of detector _____

Overburden _____

(type, depth – include outcrop map)

OTHERS (SEISMIC, DRILL WELL LOGGING ETC.)

Type of survey _____

Instrument _____

Accuracy _____

Parameters measured _____

_____

Additional information (for understanding results) _____

_____

_____

AIRBORNE SURVEYS

Type of survey(s) _____

Instrument(s) _____

(specify for each type of survey)

Accuracy _____

(specify for each type of survey)

Aircraft used _____

Sensor altitude _____

Navigation and flight path recovery method _____

_____

Aircraft altitude _____ Line Spacing _____

Miles flown over total area _____ Over claims only _____

GEOCHEMICAL SURVEY – PROCEDURE RECORD

Numbers of claims from which samples taken _____

Total Number of Samples _____

Type of Sample _____
(Nature of Material)

Average Sample Weight _____

Method of Collection _____

Soil Horizon Sampled _____

Horizon Development _____

Sample Depth _____

Terrain _____

Drainage Development _____

Estimated Range of Overburden Thickness _____

SAMPLE PREPARATION
(Includes drying, screening, crushing, ashing)

Mesh size of fraction used for analysis _____

General _____

ANALYTICAL METHODS

Values expressed in: per cent ☐
p. p. m. ☐
p. p. b. ☐

Cu, Pb, Zn, Ni, Co, Ag, Mo, As,-(circle)

Others _____

Field Analysis (_____ tests)

Extraction Method _____

Analytical Method _____

Reagents Used _____

Field Laboratory Analysis

No. (_____ tests)

Extraction Method _____

Analytical Method _____

Reagents Used _____

Commercial Laboratory (_____ tests)

Name of Laboratory _____

Extraction Method _____

Analytical Method _____

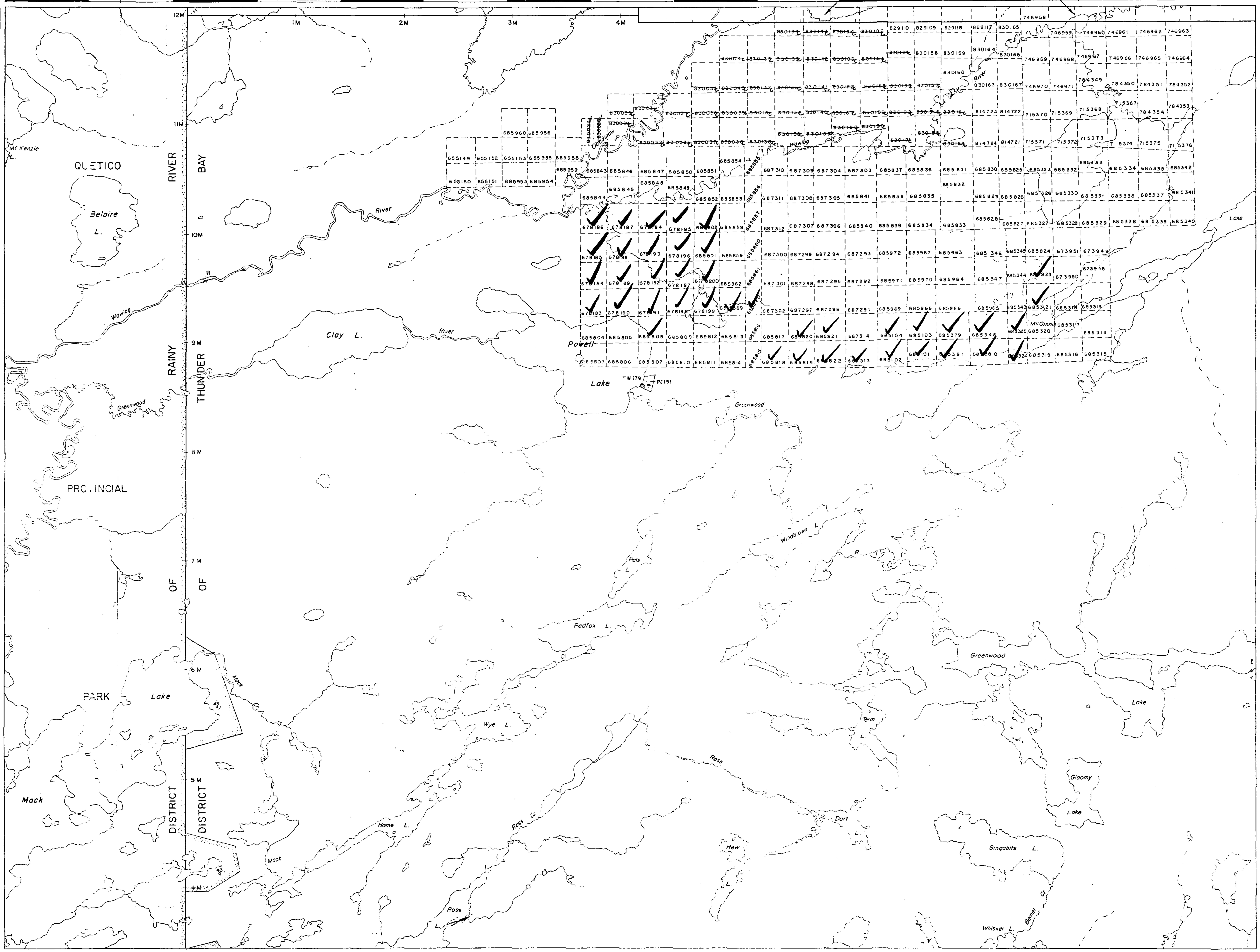
Reagents Used _____

General _____

68 5102
68 5103
68 5104
68 5321
68 5324
68 5325
68 5348
68 5379
68 5380
68 5381
68 5801
68 5802
68 5808
68 5818
68 5819
68 5820
68 5821
68 5822
68 5823
~~68 58~~
68 7313

TILLY LAKE G-562

MOSS TWP.
FOR STATUS REFER TO TWP. PLAN



McKENZIE LAKE G-541

NELSON LAKE G-745

SAGANAGONS LAKE G-555

52B07NW0039 2.8986 POWELL LAKE

200

REFERENCES

AREAS WITHDRAWN FROM DISPOSITION

S.R. – SURFACE RIGHTS   M.R. – MINING RIGHTS

Description	Order No.	Date	Disposition	File
	W41/73	31/8/73	S.R.&M.R.	18026

THUNDER BAY MINING DIVISION RECEIVED FEB 21 1986 AM PM 7|8|9|10|11|12|1|2|3|4|5|6

AREA WITHIN THE QUETICO PROVINCIAL PARK WITHDRAWN FROM STAKING.

LEGEND

- HIGHWAY AND ROUTE No.
- OTHER ROADS
- TRAILS
- SURVEYED LINES
  - TOWNSHIPS, BASE LINES, ETC
  - LOTS, MINING CLAIMS, PARCELS, ETC
- UNSURVEYED LINES
  - LOT LINES
  - PARCEL BOUNDARY
  - MINING CLAIMS ETC
- RAILWAY AND RIGHT OF WAY
- UTILITY LINES
- NON PERENNIAL STREAM
- FLOODING OR FLOODING RIGHTS
- SUBDIVISION OR COMPOSITE PLAN
- RESERVATIONS
- ORIGINAL SHORELINE
- MARSH OR MUSKEG
- MINES
- TRAVERSE MONUMENT

DISPOSITION OF CROWN LANDS

TYPE OF DOCUMENT	SYMBOL
PATENT, SURFACE & MINING RIGHTS	●
" , SURFACE RIGHTS ONLY	◓
" , MINING RIGHTS ONLY	◒
LEASE, SURFACE & MINING RIGHTS	■
" , SURFACE RIGHTS ONLY	⬒
" , MINING RIGHTS ONLY	⬓
LICENCE OF OCCUPATION	▼
ORDER-IN-COUNCIL	OC
RESERVATION	®
CANCELLED	⊗
SAND & GRAVEL	Ⓢ

NOTE: MINING RIGHTS IN PARCELS PATENTED PRIOR TO MAY 6, 1913, VESTED IN ORIGINAL PATENTEE BY THE PUBLIC LANDS ACT, R.S.O. 1970, CHAP. 380, SEC. 63, SUBSEC. 1

SCALE: 1 INCH = 40 CHAINS

FEET 0 1000 2000 4000 6000 8000
METRES 0 200 1000 2000 1 KM (2 KM)

AREA

POWELL LAKE

M.N.R. ADMINISTRATIVE DISTRICT
ATIKOKAN THUNDER BAY

MINING DIVISION
THUNDER BAY

LAND TITLES / REGISTRY DIVISION
RAINY RIVER THUNDER BAY

Ontario — Ministry of Natural Resources — Land Management Branch

Feb. 6, 1986

Date: DEC. 1981   Number: G-549

484904

Legend

7 Quartz Feldspar Porphyry

6 Syenite Intrusive Rocks
- 6a Biotite Syenite, Hornblende Syenite
- 6b Syenite Porphyry

5 Granite Intrusive Rocks

4 Mafic Intrusive Rocks
- 4a Gabbro, Diorite, Pyroxenite
- 4b "Sheared" Gabbro, Diorite

3 Metasediments
- 3a Chert, Banded Chert
- 3b Iron Formation

2 Felsic to Intermediate Metavolcanic Rocks
- 2a Quartz Sericite Schist
- 2b Feldspar Quartz Amphibole ± Biotite Schist
- 2bi Banded Rhyolite
- 2c Feldspar Amphibole ± biotite ± quartz Schist
- 2d Quartz Porphyry Rhyolite
- 2e Lapilli tuff - tuff
- 2f Crystal tuff

1 Mafic Metavolcanic Rocks
- 1a Feldspar amphibole schist
- 1b tuff, lapilli tuff, debris flow felsic fragments, mafic matrix
- 1c Crystal tuff - porphyritic flow

Symbols

- Bedrock Outcrop: large, small
- Bedding: inclined, vertical
- Foliation: inclined vertical
- Fault
- Geological Contact: observed, infered
- Swamp
- Fragments observed in outcrop
- Claim Post: Found, Position assumed

Mineral Abbreviations
- py - Pyrite
- mt - magnetite
- go - gossan

100 50 0 100 200 300 Metres

CUMBERLAND RESOURCES LIMITED

SHEBANDOWAN PROJECT

McGINNISLAKE Area

Map title: Geology of McGINNIS LAKE AREA

Scale: 1:5,000

Date: August 1985

Geology by: B Kite

28906

N

2+00E 3+00E 5+00E 6+00E 7+00E 8+00E 9+00E 10+00E

0+00 1+00N 2+00N

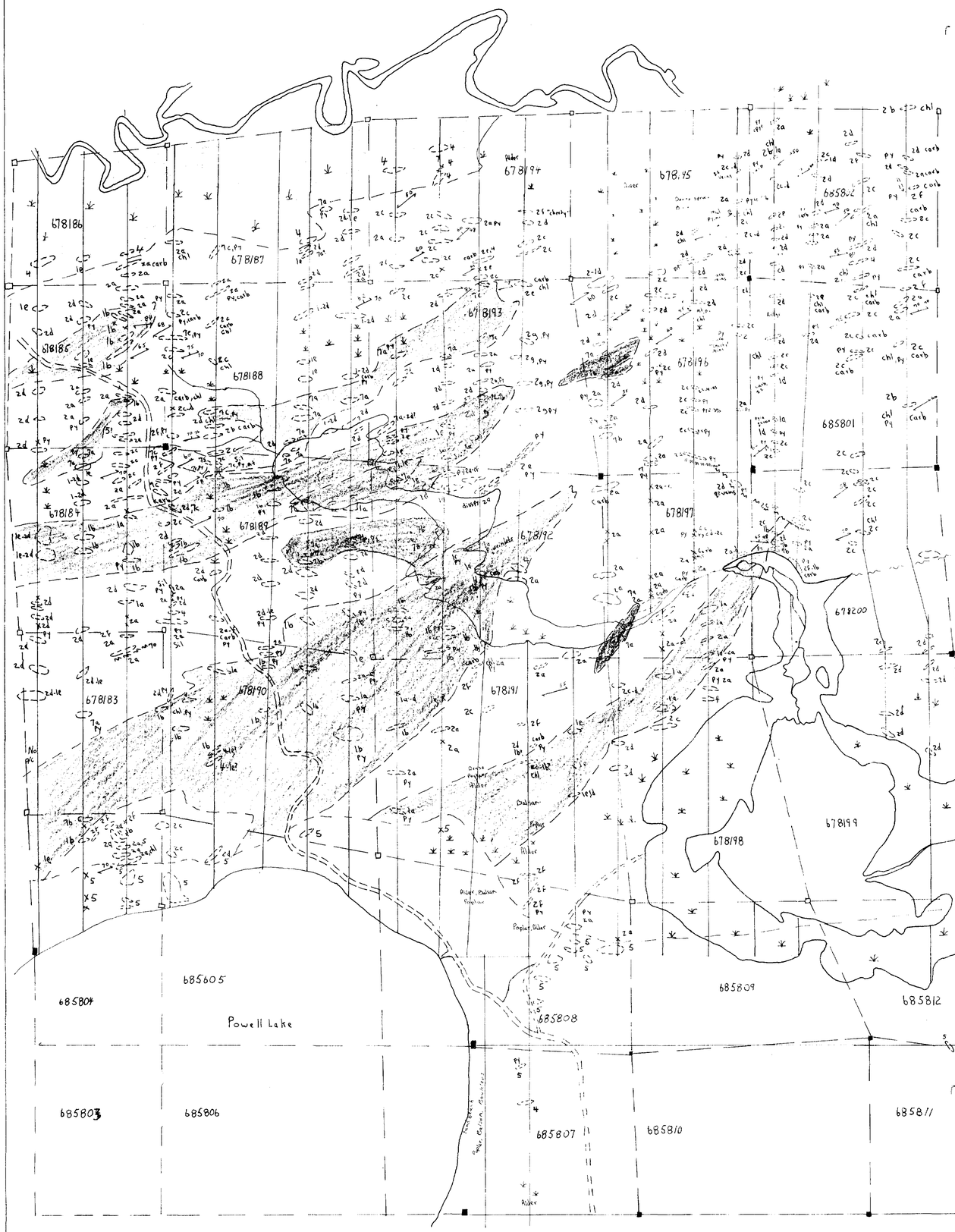
McGINNIS LAKE

685104 685103 685379 685348 685325 685823 683950 673948 685318 685313 685321 685320 685317 685314 685319 685316 685315 685381 685380 685324 685102 685101 687313 685822

Dense Poplar Balsam Alder

Birch Poplar

Lake



LEGEND

2 FELSIC PORPHYRITIC INTRUSIVES
- 7a Quartz Feldspar Porphyry
- 7b Feldspar Porphyry
- 7c Quartz Porphyry

5 GRANITE

4 MAFIC INTRUSIVE ROCKS
- Diorite, Gabbro

2 FELSIC TO INTERMEDIATE METAVOLCANICS
- 2a Intermediate to Felsic Hornfels: flows and tuffs
- 2b Intermediate Hornfels: chloritic flows and tuffs
- 2c Tuff - Lapilli tuff
- 2d Quartz Feldspar Crystal Tuff
- 2e Feldspar Quartz Amphibole Schist
- 2f Rhyolite
- 2g Quartz Eye Rhyolite

1 INTERMEDIATE TO MAFIC METAVOLCANICS
- 1a Intermediate to Mafic Hornfels: flows and tuffs
- 1b Intermediate to Mafic Amygdaloidal flow
- 1c Feldspar Amphibole Schist
- 1d Tuff - Lapilli Tuff
- 1e Crystal tuff - Porphyritic Flow

SYMBOLS

- Bedrock outcrop: large: small
- Bedding: inclined: vertical
- Foliation: inclined: vertical
- Fault
- Trench
- Trail
- Geological Contact: observed: inferred
- Claim Post: Found:
- Swamp

MINERAL ABBREVIATIONS

py	pyrite
mt	magnetite
carb	carbonate
qz	quartz
chl	chlorite

Scale: 0 100 200 300 400 meters

28906

CUMBERLAND RESOURCES LIMITED

SHEBANDOWAN PROJECT
POWELL LAKE AREA

title: GEOLOGY OF POWELL LAKE AREA	scale: 1:5000
	date: August 1985
	geology by: B KITE