2.12966

GEOLOGICAL REPORT

FOR TANNAHILL TOWNSHIP

September 1989

T. Obradovich

Introduction

The property was traversed on compassed and chained lines at 400 foot intervals establishing north-south grid lines off an east-west baseline. Existing data on the area was also used as a means of reference and location to tie in outcrops. The map included with this report is prepared on a scale of one inch equals five hundred feet.

Location

The claim block of interest is in the south west corner of Tannahill Township, District of Cochrane approximately 20 miles north east of Kirkland Lake, Ontario. An index map is shown on the attached 500 scale geology plan.

Highway 101 east of Matheson runs approximately 10 to 12 miles north of the property. A forestry access road through the center of Elliot township would be about 3 miles west of the claim block.

The easternmost claim touches Pinaws Lake. The lake is suitable for small float planes to land.

Previous Work

Reports to J.G.Golden 1938 and 1939 by E.S.MacCarthy and W.J.McDonagh respectively indicate various trenches across the property showed gold values from visible to tails, mostly with quartz-veining within shear zones in metabasalts and feldspar porphyry dykes. (described as syenite pegmatites by Jensen 1978, O.G.S. map 2367). Copies of these reports are included.

Geology

The rock types in the claim block consist of Precambrian (Archean) age volcanics of the Calc-alkaline chemical suite. They are basaltic to andesitic in composition and are mapped as massive flows, pillowed breccias, pyroclastic breccis and tuff.

The volcanics have been intruded by syenites and monzonites. Syenitic pegmatite dykes cross several of the metabasalt outcrops.

Metamorphism in the claim block varies from greenschist facies (low grade regional metamorphism) to amphibolite facies (medium grade). The increased metamorphic rank appears to be directly related to the felsic intrusive rocks.

One major north east trending regional fault crosses the north west corner of the claim block. According to the Ontario Geological Survey mapping (Map 2367), there is no outcropping of this fault in the claim area. An airborne electromagnetic survey map (Map 80610,1984) shows parallel alignment of a magnetic depression with this fault. This is illustrated on the attached 500 scale plan.

The 500 scale geology map was drawn using data from O.G.S. map 2367 (Tannahill-Dokis Townships,1977). The outcrops with mapped rock types and grade of metamorphism are indicated on this plan. The Airborne Electromagnetic Survey map (Map 80610) was overlain on the same map. It becomes apparent the circular high shown on the magnetic map relates to the felsic intrusives exposed in the central portion of the claim block. The increased grade of metamorphism from greenschist facies to the higher amphibolite facies grade also appears to correlate well with the influence of the intrusive syenites and monzonites.

Gold mineralization as shown on O.G.S. map 2367 occurs in outcroppings of syenite dyke-metabasalt north of the most intense metamorphism and in an area shown as a magnetic depression roughly parallel to the regional fault crossing the north west corner of the property.

Sulphide occurrences are noted in outcrops on the east and south portions of the property. These occurrences are also in the lower metamorphic (greenschist facies) area flanking the electromagnetic high and amphibolite halo.

There is a fair amount of rock exposures in the north and east parts of the map area. The outcroppings are fewer in the central area and especially the eastern area where the magnetic intensity and presumably metamorphic grade is greatest. If this area of highest magnetic intensity represents the center of the felsic dome, then it may have been the area that experienced the most intense fracturing and thus would have been most susceptible to weathering and erosion. This could explain the dearth of present outcroppings.

Geological Model and Hypothetical History

The volcanic rocks in this area are mostly massive flows, pillowed lavas, pillow breccias and pyroclastic breccia flows. The pyroclastic breccia units appear to have originated from the flanks of a volcano which Jensen (1978) assumes to have been located to the south of Tannahill township.

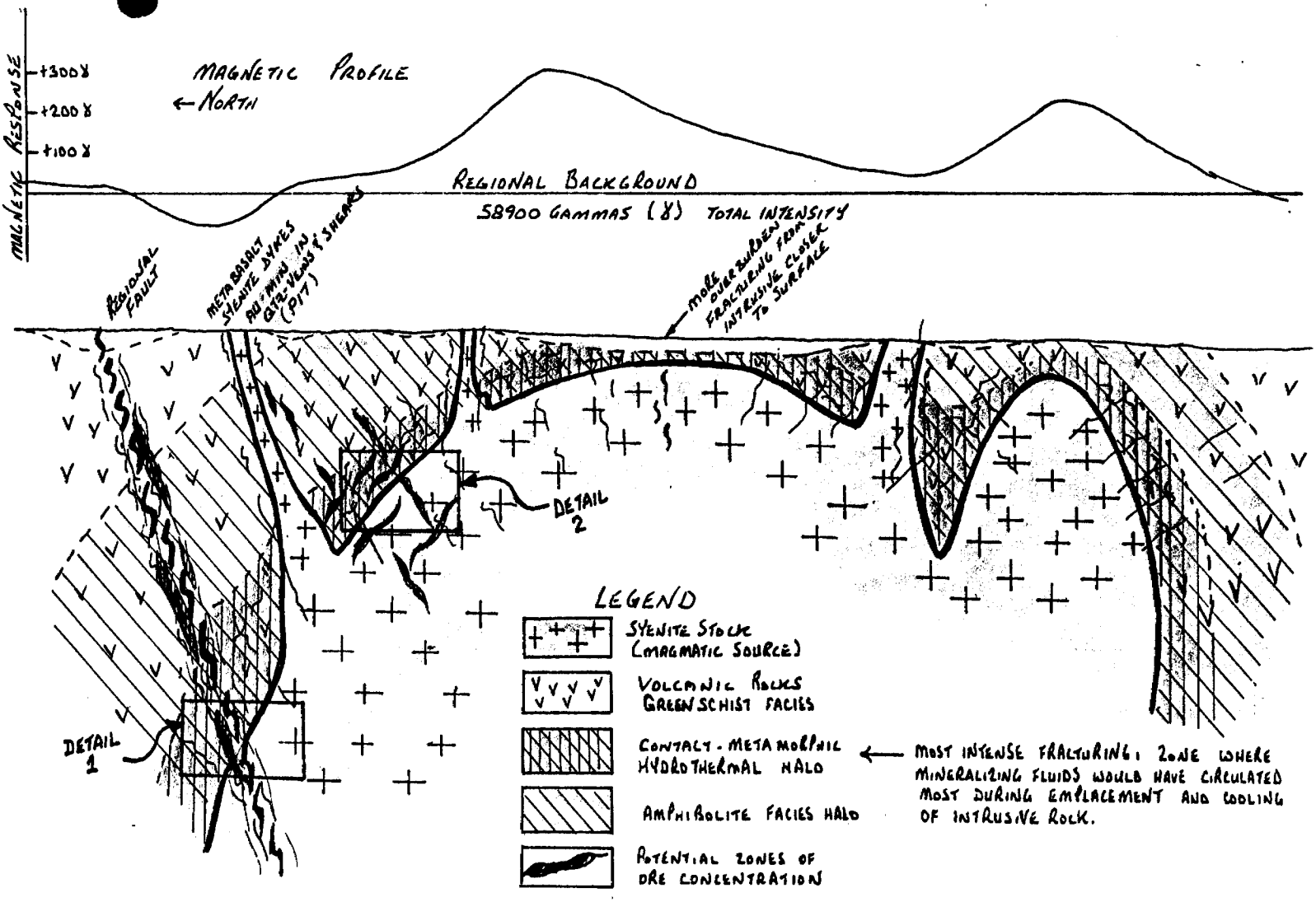
The area has been altered by low grade regional metamorphism to greenschist facies.

Later intrusive events in the form of a circular stock and series of dykes altered the volcanics from greenschist to amphibolite facies and caused the formation of the circular electromagnetic anomaly as shown on the attached map.

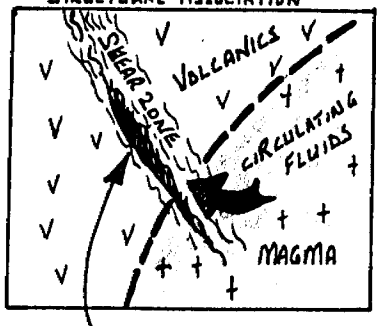
The intrusion of the stock structurally prepared the ground for gold mineralization, mobilization and concentration. The gold has been concentrated to some extent in shear zones near felsic dykes in the metabasalt units adjacent to the central plug. The intrusion of the stock may have fractured the surrounding volcanics and subsequently caused more rapid erosion. This fractured ground may be a place for even further gold emplacement. The obvious lack of outcrops in the area of most intense magnetism inversely tends to corroborate the theory that the ground was more heavily fractured and thus a suitable environment for gold deposition. There is gold exposed in outcrops, but a more profitable search might be made in projected zones of the higher alteration/fracture areas.

Refer to figures showing geological models and favourable sites for mineralizaton as proposed for this property.

TANNAHILL TOWNSHIP GOLD PROSPECT - GENERAL GEOLOGICAL MODEL

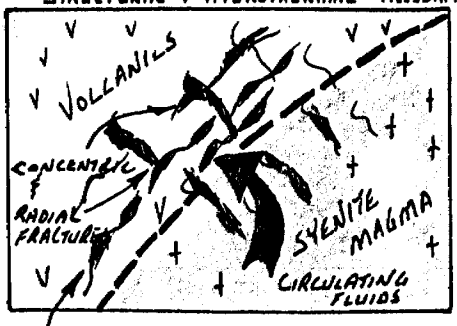


DETAIL 1
STRUCTURAL ASSOCIATION



POTENTIAL ORE SITE ALONG SHEAR ZONE OF REGIONAL FAULT ZONE. (FLUIDS FROM MAGMA CIRCULATE UP ALONG FAULT. CONCENTRATE GOLD.)

DETAIL 2
STRUCTURAL / HYDROTHERMAL ASSOCIATION



FRACTURES CAUSED BY EMPLACEMENT OF MAGMA PREPARES A PLACE FOR FLUIDS TO CIRCULATE AND INTRODUCE GOLD; OR TO LEACH GOLD FROM VOLCANICS; OR TO CAUSE GOLD TO PRECIPITATE FROM HYDROTHERMAL FLUIDS DUE TO PROPER CHANGE IN CHEMICAL AND/OR PRESSURE/TEMP. ENVIRONMENT.

R. LIGHTY
MARCH 87

Recommendations for Property Development and Exploration

1.) Assuming the increased regional metamorphic Amphibolite halo and corresponding magnetic high represents the reflection of a felsic stock, initial exploration should consist of a field check of the rock exposures. The area would be mapped looking for local structural features that would indicate the presence of a major domal structure in the central portion of the property.

2.) A geophysical Gravity survey in conjunction with a systematic check on overburden depth would possibly outline the extent and boundaries of the intrusive stock or stocks on the property. The margins or boundaries of the stocks would be likely areas for gold concentration. Knowing the boundary locations would give good targets for future drilling. It should be noted that the effectiveness of a gravity survey is quite dependent on knowing the depth of overburden in the area of interest.

A magnetic ground survey across the same grid system would refine the airborne electromagnetic contours and could help in the definition of major local structures that could be future drill locations.

Carrying out a systematic geophysical survey and depth of overburden check would require cutting a baseline and traverse lines across the property for survey stations. It would be good to cover both electromagnetic highs, and the major fault along the north west corner of the property. This would involve setting up a baseline about 6,000 feet with traverse lines up to 7000 feet long.

Information on the costs of setting up such a grid and doing a geophysical survey is currently being gathered.

3.) Setup a diamond drill program to systematically outline the extent and grade of gold mineralization. This program should only be considered after best targets are identified by surface structural mapping and after syenitic stock is outlined by gravity survey model.

A first stage drill program could be set up to validate and update original trenching work. This drilling would take place in the north west corner of property near trenches to follow the extension of the pegmatite dyke and shear zones where the gold values were originally found. Refer to Detail 1. on sketch previous page.

Sept 89

Qual 2.9232

Ministry of Northern Development and Mines
Ontario

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

Mining Act

DOCUMENT No. W8908.353

November 16

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.

Type of Survey(s): GEOLOGICAL SURVEY **2.12966**
Township or Area: TANNAHILL
Claim Holder(s): BILL GOLDEN 50% T.OBRADOVICH 50%
Prospector's Licence No.: K19837
Address: 19 COMFORT ST. KIRKLAND LAKE ONT. P2N 3A8
Survey Company: T.OBRADOVICH EXPLORATIONS
Date of Survey (from & to): 07 09 89 (Day Mo. Yr.) 20 09 89 (Day Mo. Yr.)
Total Miles of line Cut: BLAZED+LIBBAN
Name and Address of Author (of Geo-Technical report): T.OBRADOVICH 19 COMFORT ST. KIRKLAND LAKE ONT. P2N3A8

900

using the same grid: Enter 20 days (for each)	· Other	
	Geological	20
	Geochemical	

Man Days		Days per Claim
Complete reverse side and enter total(s) here	Geophysical	
	· Electromagnetic	
	· Magnetometer	
	· Radiometric	
	· Other	
	Geological	
	Geochemical	

Airborne Credits		Days per Claim
Note: Special provisions credits do not apply to Airborne Surveys.	Electromagnetic	
	Magnetometer	
	Radiometric	

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.

Claims Traversed (List in numerical sequence)

Mining Claim Number	Expend. Days Cr.	Mining Claim Prefix	Mining Claim Number	Expend. Days Cr.
918984	x?			
918985	x?			
918986	x?			
918987	✓			
918988	✓			
918989	✓			
918990	✓			
918991	x?			
918992	✓			
918993	✓			
918994	✓			
918996	x?			
918997	x?			
918998	✓			
918999	✓			
919000	✓			
919001	✓			
983195	✓			
983196	✓			

RECEIVED
NOV 16 1989
MINING LANDS SECTION

LARDER LAKE MINING DIV.
RECEIVED
OCT 11 1989
AM 8 25 PM

ONTARIO GEOLOGICAL SURVEY
ASSESSMENT FILES
OFFICE

APR 26 1990

Total number of mining claims covered by this report of work: 19

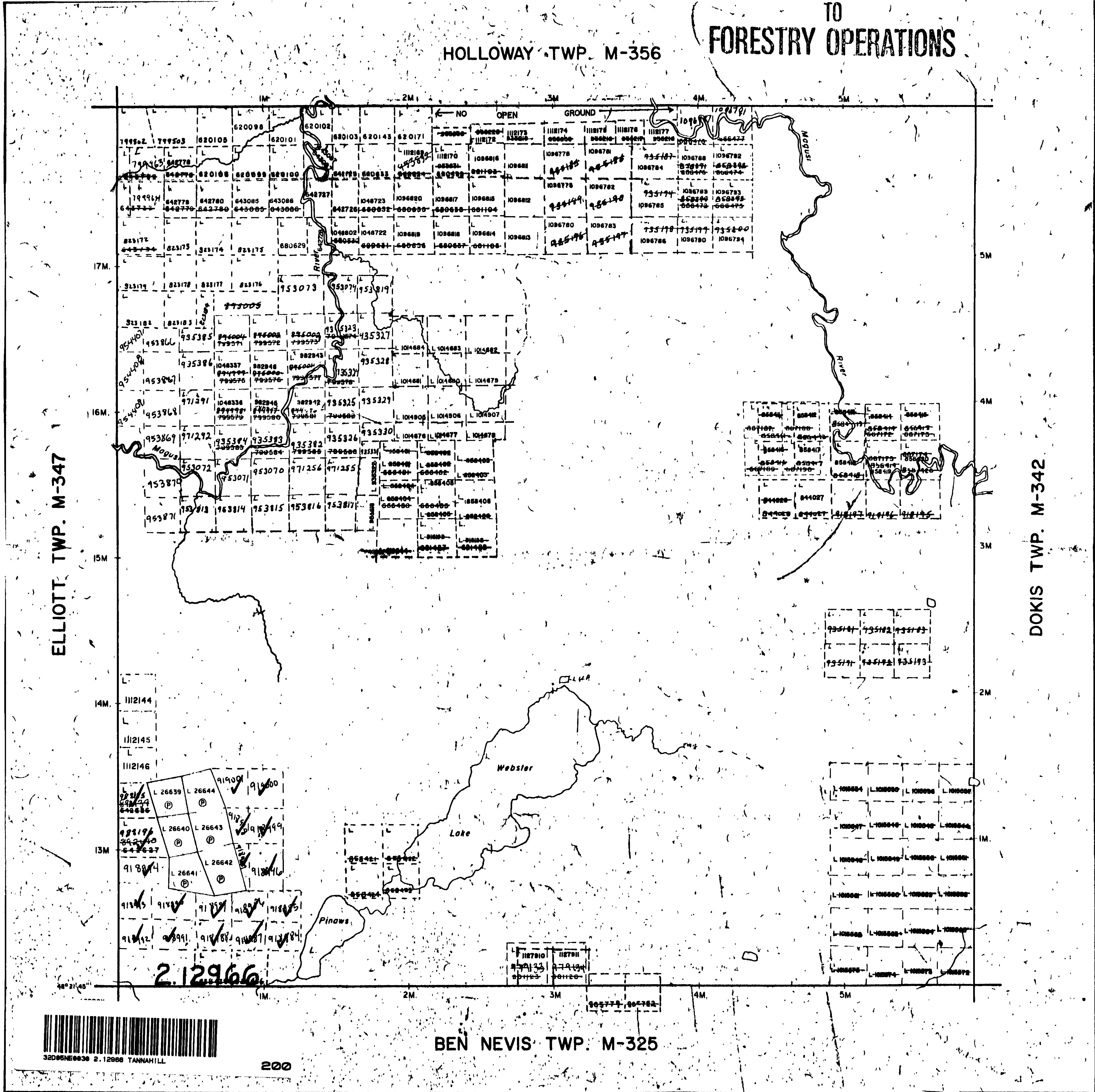
For Office Use Only
Total Days Cr. Recorded: 380
Date Recorded: Oct 11 '89
Date Approved as Recorded: April 24/90
Mining Recorder: [signature]
Branch Director: [signature]

Date: Sept. 28 89
Recorded Holder or Agent (Signature): [signature]

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: T.OBRADOVICH 19 COMFORT ST. KIRKLAND LAKE ONTARIO P2N 3A8 (60 Balsam Ave. P2N 1W6 567-4453)
Date Certified: Oct 1- 1989
Certified by (Signature): [signature]



200

NOTES:

400' surface rights reservation along the shores of all lakes and rivers

NOTICE OF FORESTRY ACTIVITY

THIS TOWNSHIP / AREA FALLS WITHIN THE ABITIBI MANAGEMENT UNIT AND MAY BE SUBJECT TO FORESTRY OPERATIONS. THE MNR UNIT FORESTER FOR THIS AREA CAN BE CONTACTED AT: P.O. BOX 129, SWASTIKA, ONT. P0K 1T0, 705-642-3222

LEGEND

PATENTED LAND	Ⓟ or ●
PATENTED FOR SURFACE RIGHTS ONLY	
LEASE	Ⓛ
LICENSE OF OCCUPATION	L.O.
CROWN LAND SALES	C.S.
LOCATED LAND	Loc.
CANCELLED	C.
MINING RIGHTS ONLY	M.R.O.
SURFACE RIGHTS ONLY	S.R.O.
HIGHWAY & ROUTE NO	
ROADS	
TRAILS	
RAILWAYS	
POWER LINES	
MARSH OR MUSKEG	
MINES	

used only with summer resort locations or where space is limited

TOWNSHIP OF

TANNAHILL

DISTRICT OF
COCHRANE

LARDER LAKE
MINING DIVISION

SCALE: 1 INCH = 40 CHAINS (1/2 MILE)

DR.	R.W. NOBLE	PLAN NO.	M-390
DATE	JAN 27, 72		

ONTARIO

MINISTRY OF NATURAL RESOURCES

SURVEYS AND MAPPING BRANCH

2.12966

TANNAHILL TOWNSHIP
GOLD PROSPECT

SOURCE DATA

1) Ontario Geological Survey 1972
Map 2367
Tannahill & Dokis Townships
Preliminary Compilation

2) Ontario Geological Survey, 1984
Map 80610
Airborne Electromagnetic Survey
Total Intensity Magnetic Survey

3) Tannahill Township Claim Map M-390

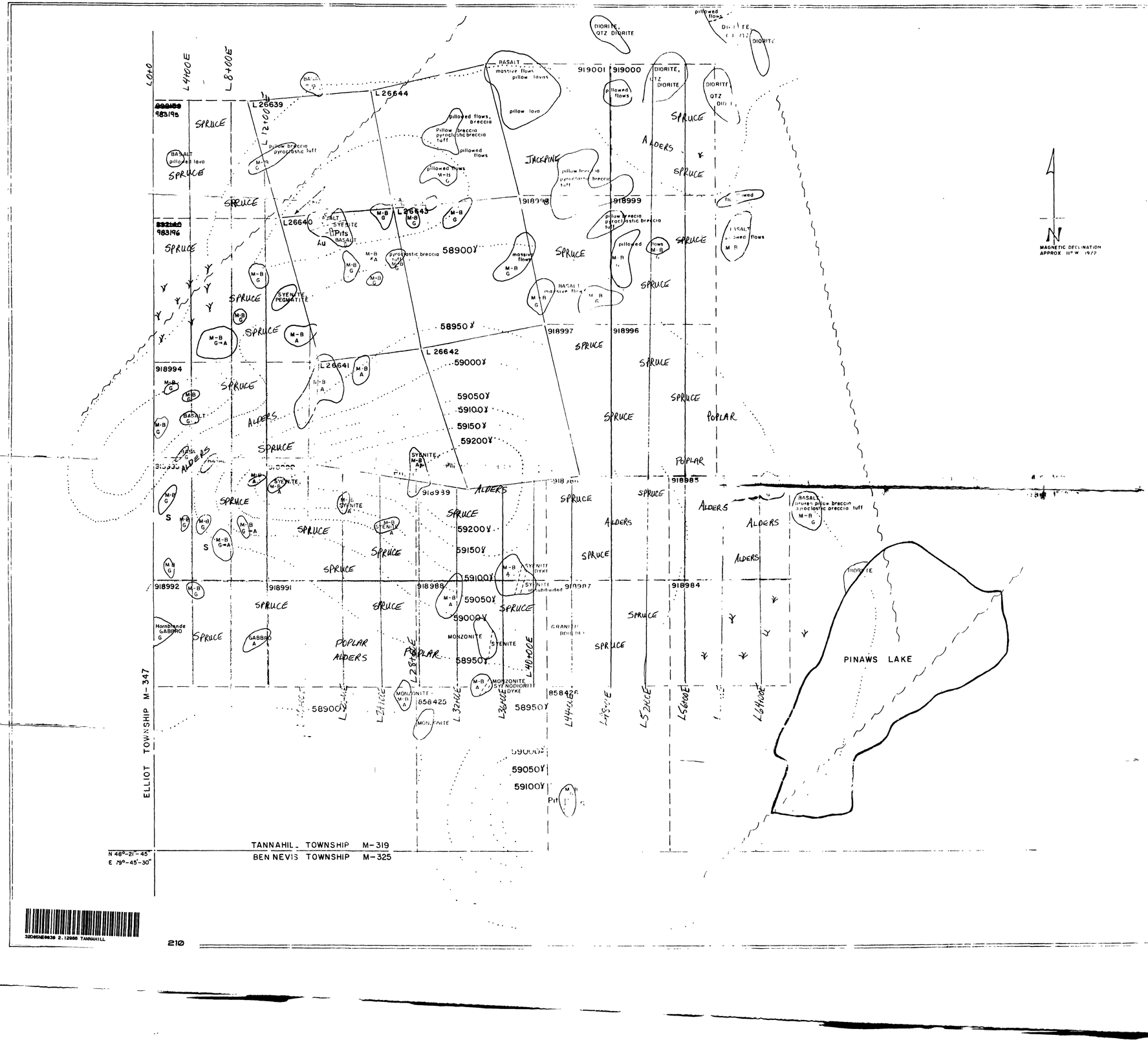
SYMBOLS

- OUTCROPPING
- FAULT INDICATED
- SCHISTOSITY INCLINED (60°)
- PIT, TRENCH LOCATION
- MAGNETIC CONTOUR LINE (Total Intensity)
- MAGNETIC DEPRESSION
- SWAMP

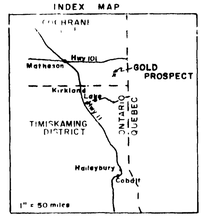
LEGEND

- FELSIC INTRUSIVES — SYENITE, MONZONITE, SYENODIORITE
- MAFIC INTRUSIVES — DIORITE, QUARTZ DIORITE, GABBRO
- M-B G — META-BASALTS, ANDESITIC VOLCANICS — GREENSCHIST FACIES METAMORPHISM
- M-B A — META-BASALTS, ANDESITIC VOLCANICS — AMPHIBOLITE FACIES METAMORPHISM

Scale 1" = 500'



INDEX MAP



T. Quadros
Sept 1989