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REPORT ON GEOLOGICAL AND

RADIOMETRIC SURVEY ON

MONMOUTH PROSPECT CLAIMS

CLAIMS: E.O. 335122 to 335127 incl.

E.O. 347396 to 347402 incl. E.O. 401975 to 401990 incl.

by

J. FARSTAD IMPERIAL OIL LIMITED JANUARY 13, 1975

INTRODUCTION

In 1972 and 1974 Imperial Oil Limited acquired 29 mining claims in the Tory Hill, Gooderham area of south eastern Ontario. During the summer and fall of 1974 geological mapping was done on the entire claim group and a radiometric survey was done on 16 of the claims. This report outlines the results of these surveys. The claims are as follows:

Claims: E.O. 335122 to 335127 incl.

E.O. 347396 to 347400 incl.

E.O. 401875 to 401990 incl.

Location: Monmouth Township

Recorded Holder: Reginald S. Brooks

and

Claims: E.O. 347401 and 347402

Location: Glamorgan Township

Recorded Holder: W.W. Kennedy

LOCATION AND ACCESS

The claims comprise lots 7 to 13 inclusive, and lot 15 of concession X, lot 10 of concession IX, and lots 7, 8, 9 (excluding a 300 foot strip along the east boundary), 10 (N½), and 11 of concession VIII of Monmouth Township, and lot 20 of concession IV of Glamorgan Township, Haliburton County.

The claims in Monmouth Township are easily accessible from Tory Hill by Highway 503, various secondary roads and an abandoned railway as shown in Figure 1. The claims in Glamorgan Township are accessible by Highway 507 and the Tamarack Lake Road from Gooderham as shown in Figure 2.

REGIONAL GEOLOGY

The claims are located along the south east flank of the Glamorgan Granite Gneiss Complex near its easternmost extension, and are underlain by rocks of the Grenville Supergroup. The regional trend of the rocks is northeast with a moderate dip to the southeast. For more detail one should refer to map No. 2174 of Monmouth Township, published by the Ontario Ministry of Natural Resources.

There is one known occurrence of radioactive mineralization on the claim group and one along the regional trend to the southwest in Monmouth Township. Both occurrences are associated with lime silicate rocks within the paragneisses of the Grenville Supergroup.

GEOLOGICAL MAPPING

The mapping of the claims in concession VIII and IX of
Monmouth Township was done during the period from July 1 to
July 21, 1974, using airphotos and previously cut base lines for
control. The results of this survey are presented in Figures

3 and 4. The claims in concession X of Monmouth Township
were surveyed over the period from September 15 to November 10,
1974, using flagged lines established during a contemporaneous
radiometric survey. The results are presented in Figures 5,
6 and 7. The claims in concession IV of Glamorgan Township
were mapped in the first week of November, 1974. The results are
shown in Figure 8.

is underlain predominantly by quartzite with some quartzofeldspathic paragneiss and amphibolite. Lenses of granitic and
syenitic pegmatite are present and isolated lenses and two
relatively continuous bands of marble and lime silicate rocks
exist. The northernmost band extends from the southwest corner
of the north half of lot 7 to the northeast corner of lot 10.

It is narrow and consists primarily of lime silicates. There
is little pure marble. The next south continuous band extends
from the southeast corner of lot 8 under the swamp to the west
of the large pond in concession X where it widens and continues
on to the northeast. Quartzo-feldspathic paragneiss is more
abundant in the far northwest and amphibolite in the southeast.

The southeastern section in Monmouth Township is underlain by crystalline near pure marble and large irregular bodies of equigranular granite. This granite has pegmatite phases. In the far southeast, syenite and nepheline syenite lenticular gneisses are the major rock type.

The claims in <u>Glamorgan Township</u> are underlain by gently dipping phlogopite marble and lenticular syenite gneisses.

The regional trend of northeast is maintained throughout most of the area. In the west of the north group of claims, the trend is just slightly east of north. Moderate dips are maintained over the area.

The oldest rocks are the paragneisses, quartzites, amphibolites and marbles of the area. They are the metamorphic equivalents of rocks of massive transgression. During metamorphism the granitic and syenitic rocks were inplaced as a result of partial melting.

RADIOMETRIC SURVEY

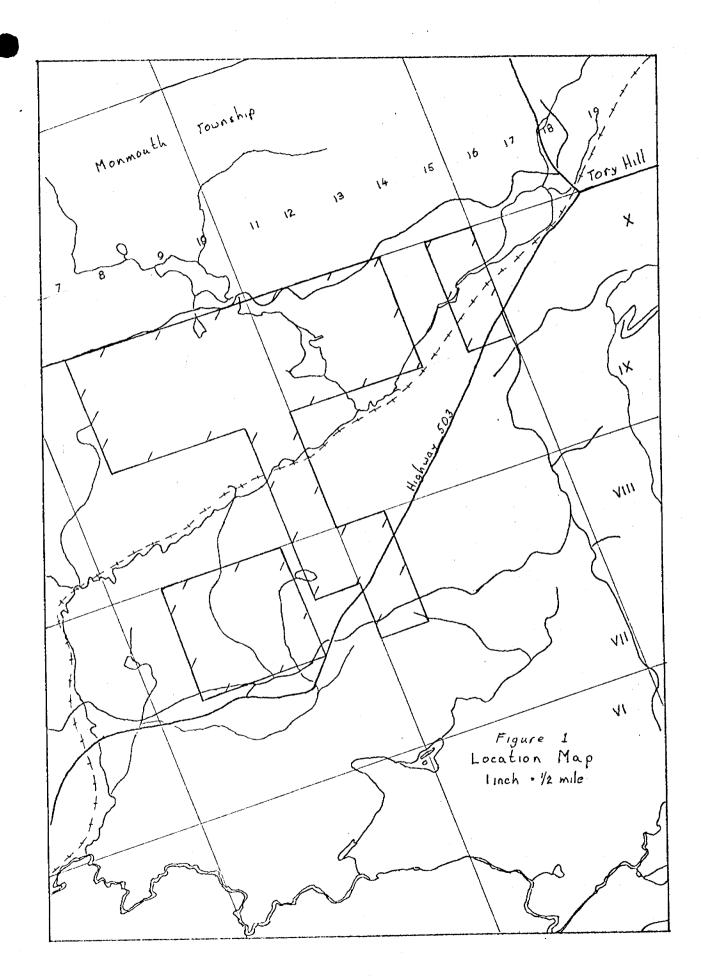
A radiometric survey using a hip mounted McPhar TV-1 scintillometer (instrument principles are described in the appendix) measuring total radiation was carried out on the 16 claims in concession X (claims E.O. 401975 to 401990 inclusive) over the period from September 15 to November 10, 1974. Cut and chained base lines were established for control and line spacing was 200 feet with a station interval of 50 feet. All stations were flagged and numbered. Approximately 33 line miles of survey was done.

The survey showed several anomalous zones associated with pegmatite and skarn outcrops as shown on maps Fig. 9, 10 and 11.

RECOMMENDATIONS

Areas of anomalous radioactivity underlain by pegmatite and marble should be further prospected.

John Farstad



GENERAL DESCRIPTION AND APPLICATIONS OF THE MCPHAR MODEL TV-T GAMMA RAY SPECTROMETER

The gamma ray detecting principle lies in the sodium iodide crystal.

Gamma rays entering the crystal, interact with the crystal atoms, resulting in free electrons and light emission. The optically coupled photomultiplier converts the light emission to electrical pulses. The magnitudes of the electrical pulses bear a relationship to the energy levels of the intercepted gamma rays.

Various radioactive elements have characteristic gamma energy spectrums. The nature of the spectrum for a given element can be used to advantage in identifying it in the presence of other radioactive elements. Fig. 2 shows spectral curves for the three main elements of interest in radioactive surveys; potassium, uranium and thorium.

Thorium emits gamma rays with energy levels exceeding 2.5 Mev. The highest energy radiation from potassium is about 1.6 Mev. The three vertical lines marked T1,T2 and T3 show the location of the threshold settings of the TV-1 spectrometer after the instrument has been calibrated. Threshold T3 at 2.5 Mev. allows only those electrical pulses to be registered whose amplitudes correspond to gamma rays with energy levels above 2.5 Mev. T2 similarly responds to gamma energy levels above 1.6 Mev. When both thorium and uranium are present during a measurement, then the reading at T2 contains

counts resulting from both elements whereas T3 contains counts from thorium only.

It is possible then, to subtract the count in the T2 reading, leaving the count from uranium only. The count representing thorium in the T2 reading is a fixed multiple of the T3 reading. In the TV-1 spectrometer, this multiple is 3.5. That is, the count in T2 due to uranium is T2 - 3.5T3. A thorium calibrating source and calibration procedure, provided with the instrument, ensures that this is always the case.

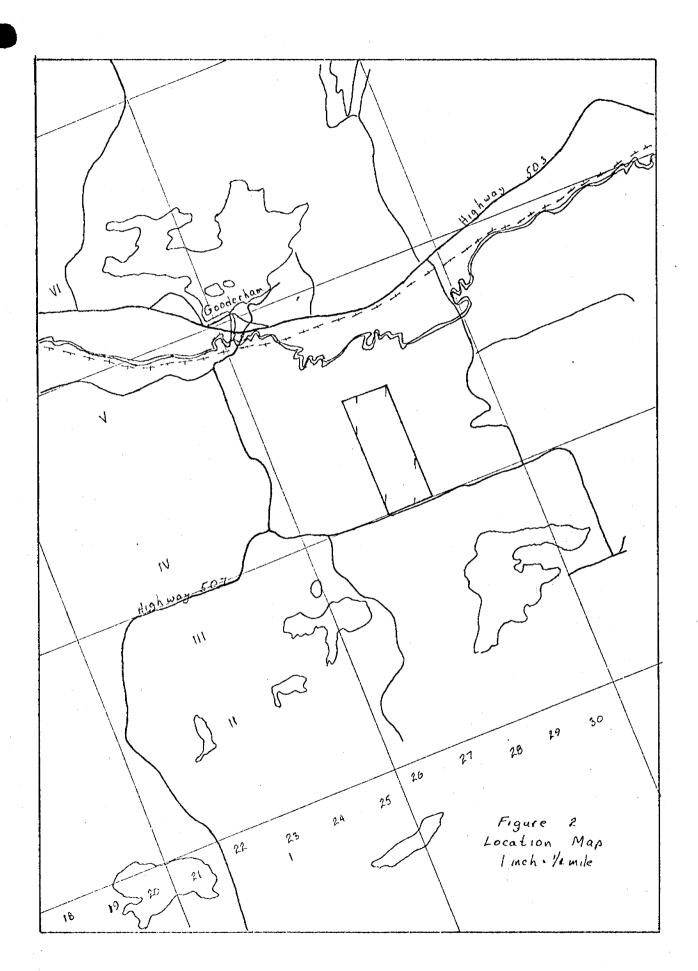
RTG:rn

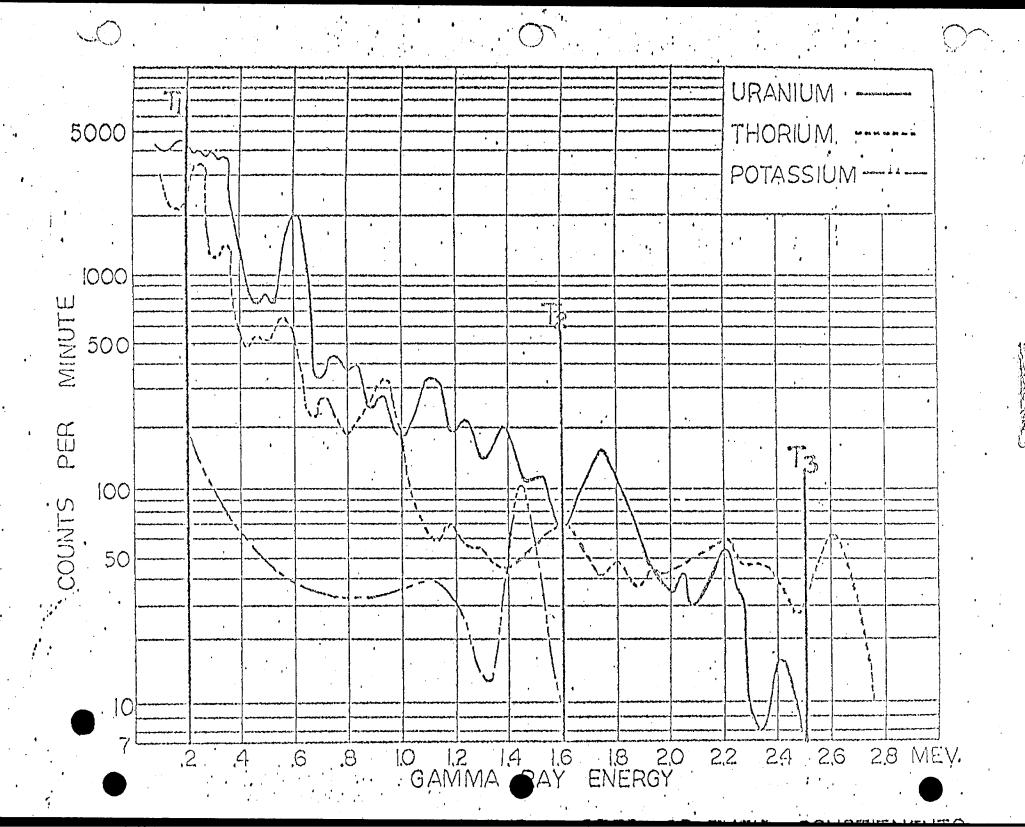
GEOPHYSICAL -- GEOLOGICAL -- GEOCHEMICAL TECHNICAL DATA STATEMENT

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TO BE ATTACHED AS AN APPENDIX TO TECHNIC. FACTS SHOWN HERE NEED NOT BE REPEATED I TECHNICAL REPORT MUST CONTAIN INTERPRETATION,	N REPORT
Type of Survey. GEO LOGICAL	
Township or Area MONNICUTH & CHAMCREAN	The second secon
Claim holder(s) R. S. Brocks	MINING CLAIMS TRAVERSED
FOR IMPERIAL OIL LIMITED	List numerically
Author of Report ZIA HASAN	T 1 22/-122 - 22/-12-2 12-3
Address 111 ST CLAIR AUG W. SORONTO	(prefix) (number)
Covering Dates of Survey July 1 to July 21,1974	E.V. 335122 - 335 127 bid. (prefix) (number) E.C. 347396-347402 bid.
Total Miles of Line cut 2.7.0	
SPECIAL PROVISIONS CREDITS REQUESTED Geophysical Electromagnetic ENTER 40 days (includes line cutting) for first surveyRadiometric additional survey using same grid. AIRBORNE CREDITS (Special provision credits do not apply to airborne surveys) Magnetometer Geochemical AIRBORNE CREDITS (Special provision credits do not apply to airborne surveys) Magnetometer Electromagnetic (enter days per claim) DATE: Author of Report or Agent	5.0. 347396 Staket - 41 Oct. 1972 Récers 26 - 3 Nov 1974
PROJECTS SECTION (0)	
Res. Geol. Previous Surveys 2, 308 Racijo & Linear Inc.	
Previous Surveys 21360 Ractio & Linecullyns	1
Checked bydate	
GEOLOGICAL BRANCH	
Approved by date	
GEOLOGICAL BRANCH	Note of the Property of the Pr
A	TOTAL CLAIMS





Approved by_



LECHNICAL

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PROJECTS UNIT

1975

ED

MINING RECORDERS OFFICE—TORUNTO

JAN 13 1975

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 Geological ar	nd Radiometric			<i>j.</i> 3
Township or Area Monmouth Tow	vnship			
Claim holder(s) W.W. Kennedy		_	MINING CLAIMS TRAVERSED	
Haliburton, Ontario			List numerically	
Author of Report John H.M. Fe	nrstad			
Address Peterborough		_ ····	(prefix)	(number)
Covering Dates of Survey. Sept	15 to Nov. 10, 1974	_	X.E.O	4019.75 Cove
Total Miles of Line cut 33	(linecutting to office)	_	× E.O.	401976 /3
Total Wiley of Time eat		_	E.O.	401977 /4
SPECIAL PROVISIONS CREDITS REQUESTED	DAYS per claim		E.O.	401978
	Geophysical		E.O.	401979
ENTER 40 days (includes line cutting) for first	Electromagnetic Magnetometer		E.O.	401980 4
survey.	–Radiometric <u>40</u>		X E.O.	401981
ENTER 20 days for each additional survey using	-Other	716	E.O.	401982 4
same grid.	Geochemical		E.O.	401983
AIRBORNE CREDITS (Special provision credits do not apply to airborne surveys)			E.O.	401984
	gneticRadiometric		E.O.	401985
Jan. 13, 1975 DATE: SIGN	ATURE: Author of Report or Agent	Z I	E.O.	401986
			E.O.	401987
PROJECTS SECTION Res. Geol. 2	Qualifications Tiles	_]	E.O.	401988
Previous Surveys	OEFICE \]	E.O.	401989
Checked by	MINING RECORDER'S OFFICE	_	E.O.	401990
GEOLOGICAL BRANCH	JAN 13 1975	 - -	Radiometr	iie
Approved by	date		X) marke (1 claims
GEOLOGICAL BRANCH	PECELIT		30 days	40 day
		-	TOTAL CLAIM	S16

date.

Show instrument technical data in each space for type of survey submitted or indicate "not applicable"

GEOPHYSICAL TECHNICAL DATA

GROUND SURVEYS Number of Stations___ _____Number of Readings_____ 50 feet Station interval___ 200 feet Line spacing_ Profile scale or Contour intervals_____ (specify for each type of survey) MAGNETIC Instrument____ Accuracy - Scale constant _____ Diurnal correction method_______ Base station location_____ **ELECTROMAGNETIC** Instrument_____ Coil configuration_____ Coil separation_____ Accuracy____ Fixed transmitter Method: ☐ 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 Time domain______ Frequency domain_____ Frequency_____Range____ Power____ Electrode array____ Electrode spacing_____ Type of electrode

SELF POTENTIAL		
		Range
		-
*		
Corrections made		
F		1
RADIOMETRIC		
Instrument	McPhar TV-1	
Values measured	gamma radiation in time c.	p.m.
Energy windows (levels)	total gamma energy spectrum	
Height of instrument	3 feet	Background Count 2000 c.p.m.
Size of detector	$1\frac{1}{4} \times 1$ inch	
Overburden	glacial thickness 0 to 3	0 feet
	(type, depth — include outcrop m	ap)
OTHERS (SEISMIC, DRILL	L WELL LOGGING ETC.)	
•		
•		
Additional information (for	understanding results)	
AIRBORNE SURVEYS		
Instrument(s)		
` '	(specify for each type of survey)	
Accuracy	(specify for each type of survey)	
Aircraft used	**************************************	7.614
Sensor altitude		
Navigation and flight path	recovery method	
Aircraft altitude		Line Spacing
Miles flown over total area.		Over claims only

GEOCHEMICAL SURVEY -- PROCEDURE RECORD

Total Number of Samples	ANALYTICAL METHODS				
Type of Sample(Nature of Material)					
Average Sample Weight	n n m				
Method of Collection	p. p. v.				
	Cu, Pb, Zn, Ni, Co, Ag, Mo, As,-(circle)				
Soil Horizon Sampled.	Others				
Horizon Development	Field Analysis (tests				
Sample Depth.	Extraction Method				
Terrain	·				
Drainage Development	· · · ·				
Estimated Range of Overburden Thickness	·				
	·				
	Reagents Used				
SAMPLE PREPARATION (Includes drying, screening, crushing, ashing)	Commercial Laboratory (tests				
	Name of Laboratory				
Mesh size of fraction used for analysis	Extraction Method				
	Analytical Method				
	Reagents Used				
General	General —				
-					

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IMPERIAL OIL LIMITED

Business Development 4. D. Harvie, Coordinator 111 St. Clair Avenue West, Toronto, Canada M5W 1K3

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January 16, 1975

TANDS ADMINISTRATION
BRANCH

File Ontario 19

Mr. J.R. McGinn
Director, Lands Administration Branch
Ministry of Natural Resources
Whitney Block, Room 1617
Queen's Park
Toronto, Ontario
M7A 1X1

Re: Claims E.O. 335122 et al,

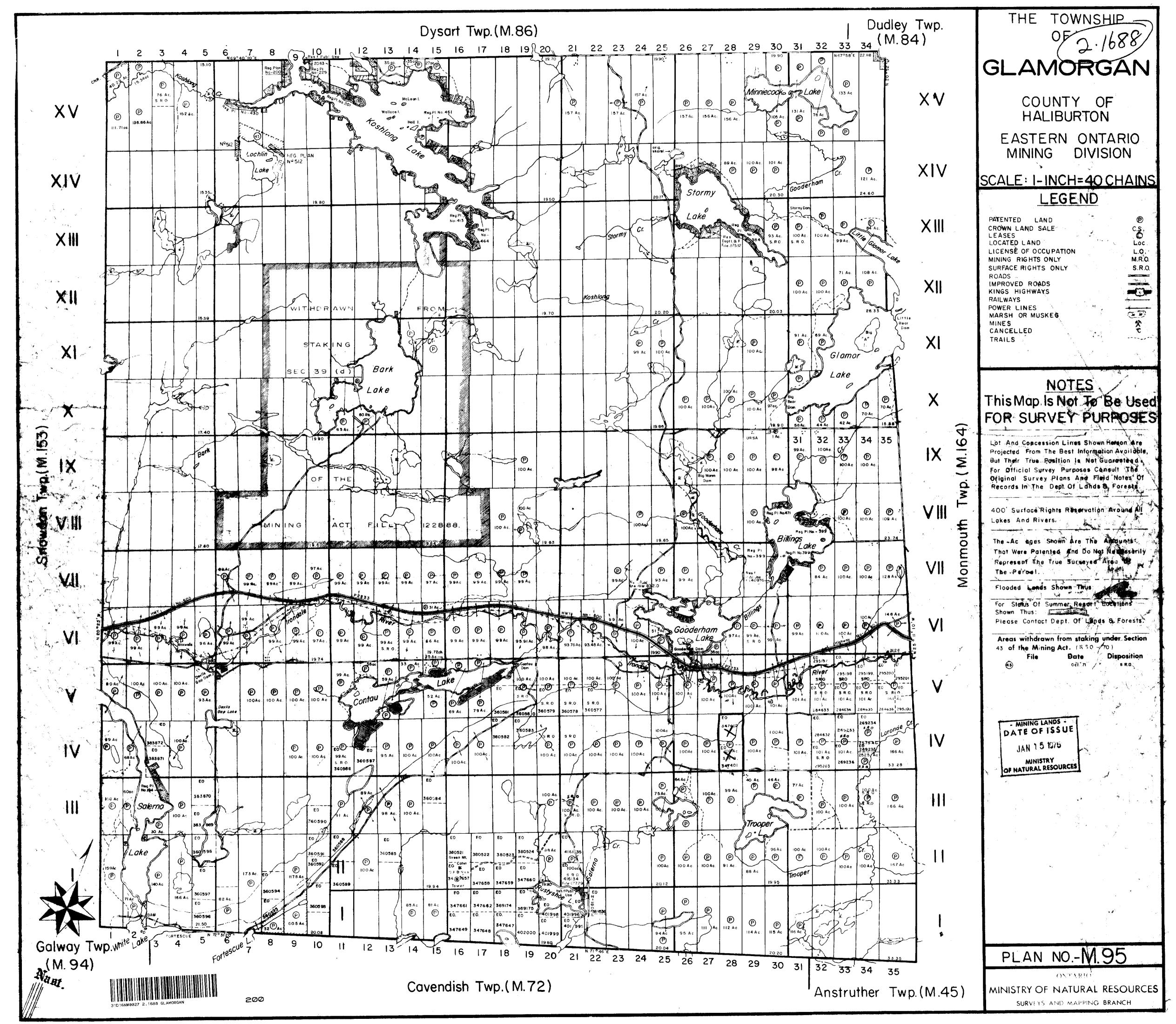
Monmouth Twp., Ontario

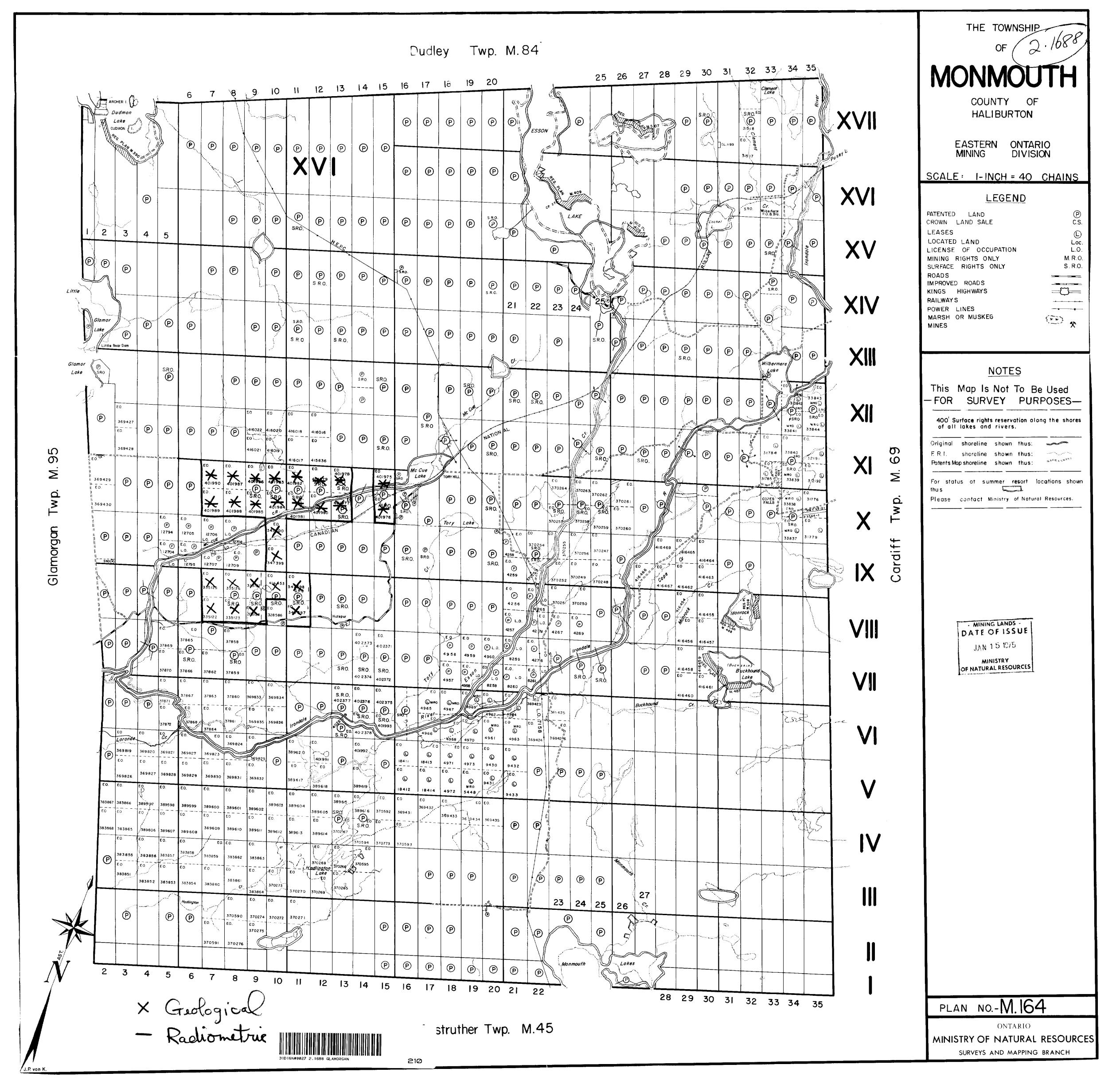
Dear Sir:

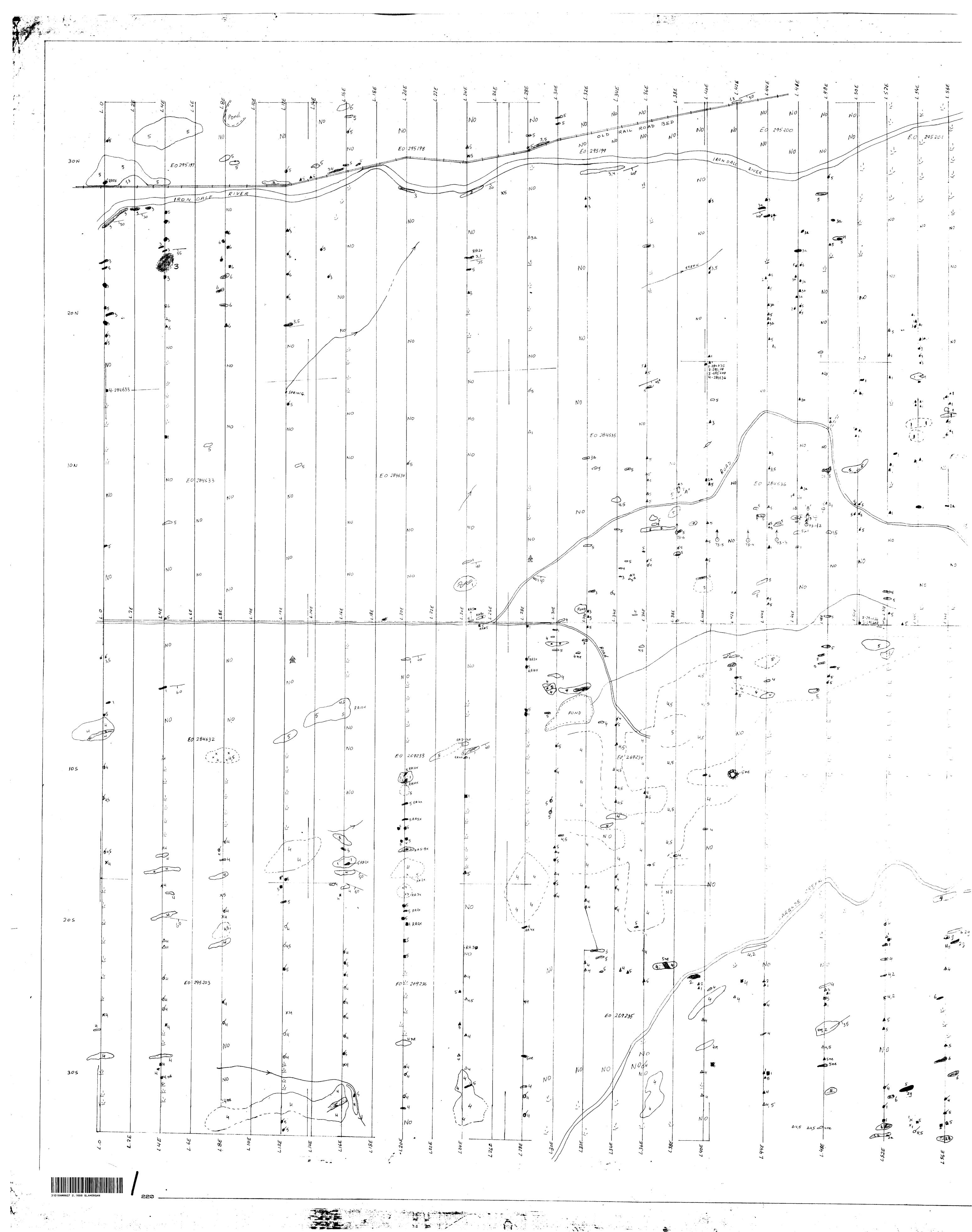
Two copies of a geological and radiometric survey report on the above claims was submitted to your office on January 13, 1975. There is an error on page 4 line 9 of the report. Enclosed are corrected copies of page 4 which should be substituted in the report.

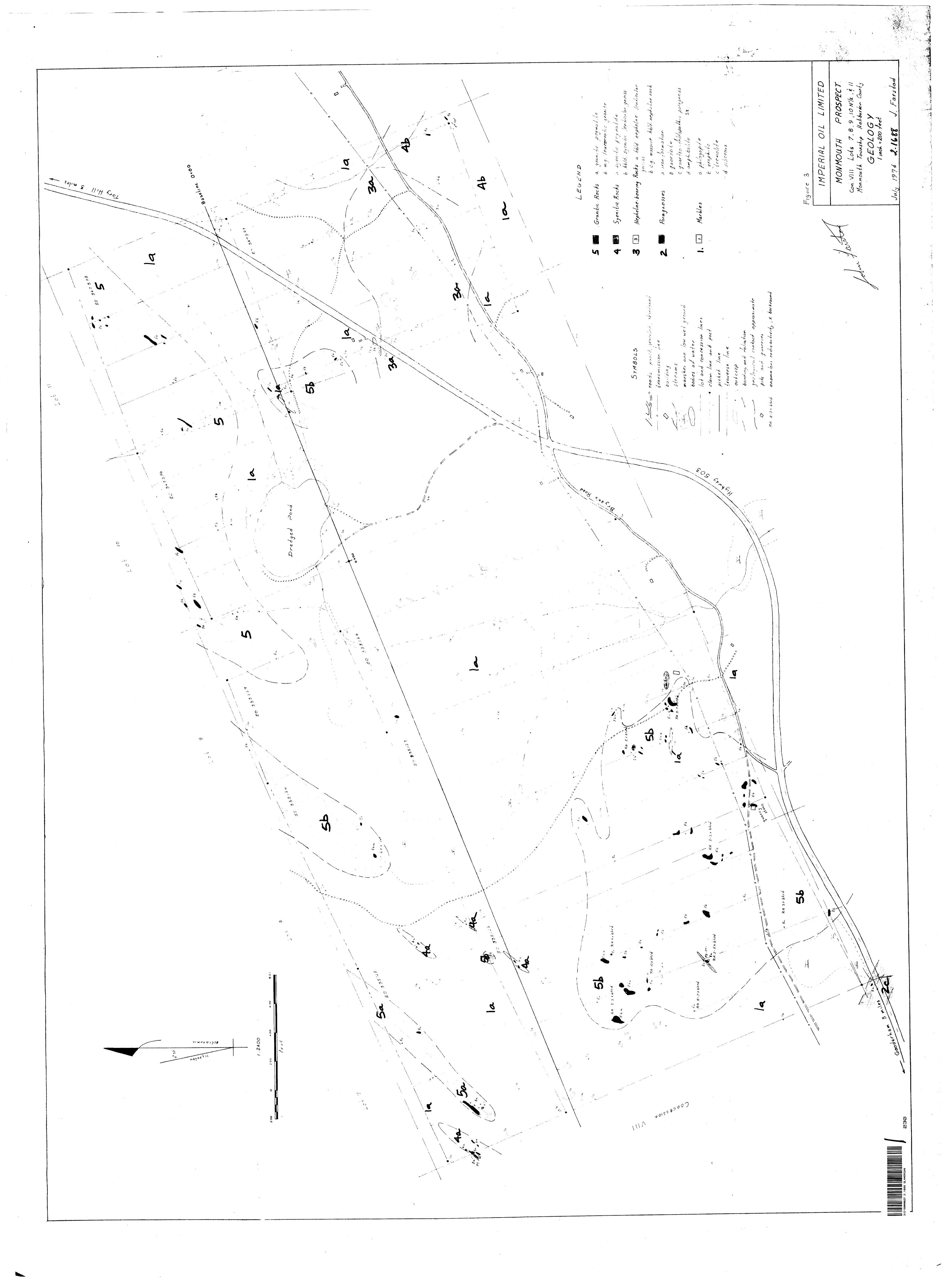
Yours very truly,

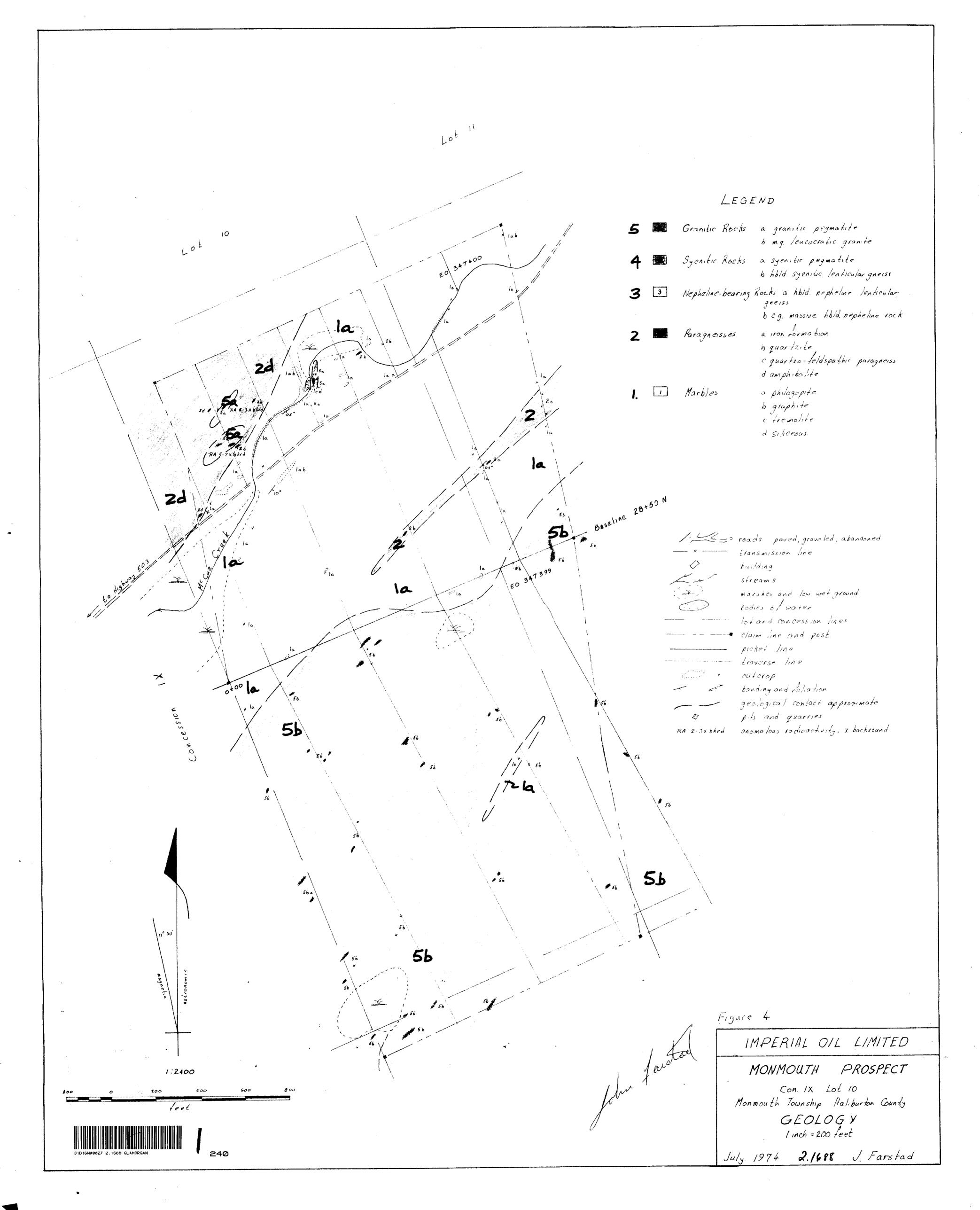
ZH/im Encl. Maran Zia Hasan









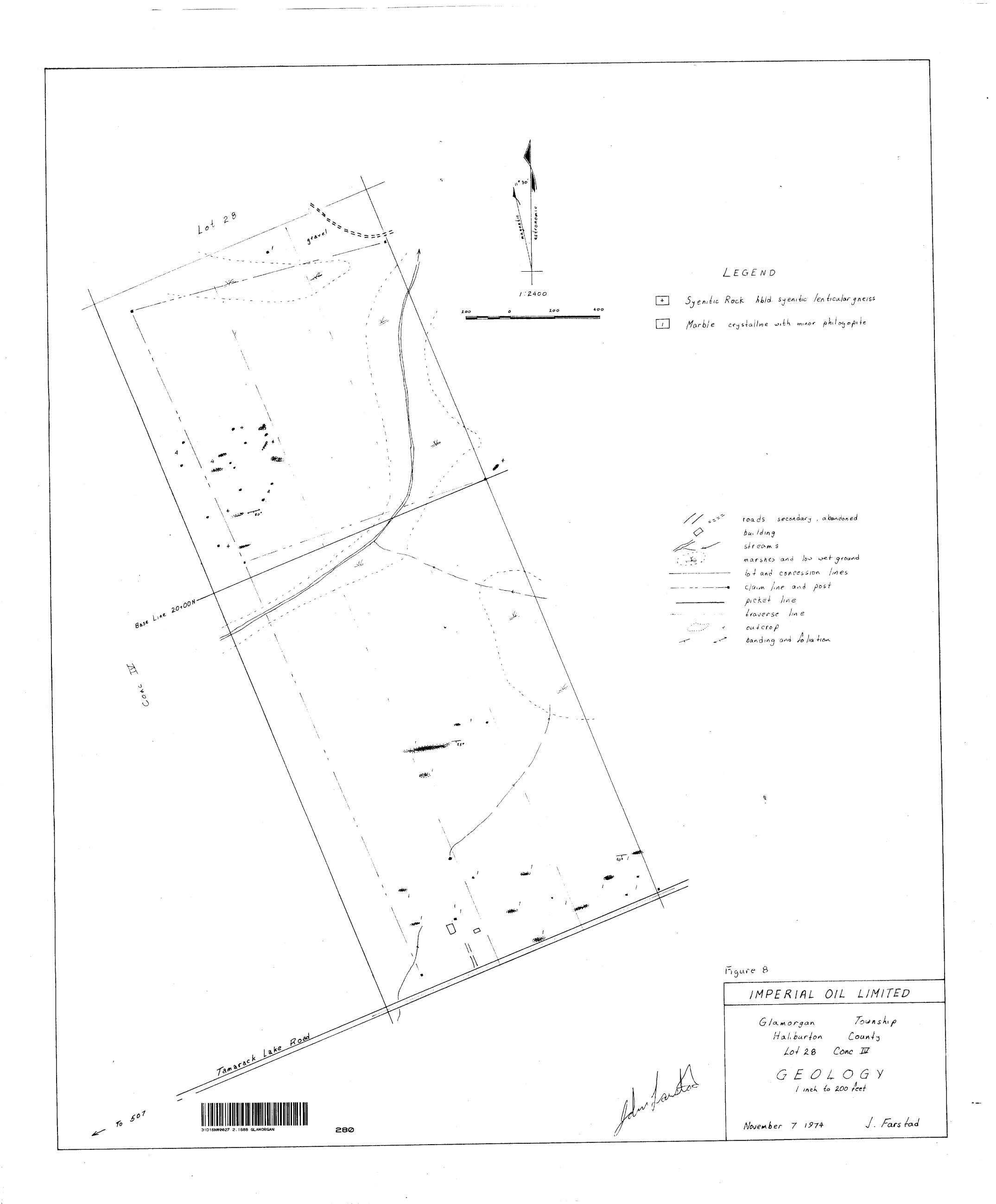


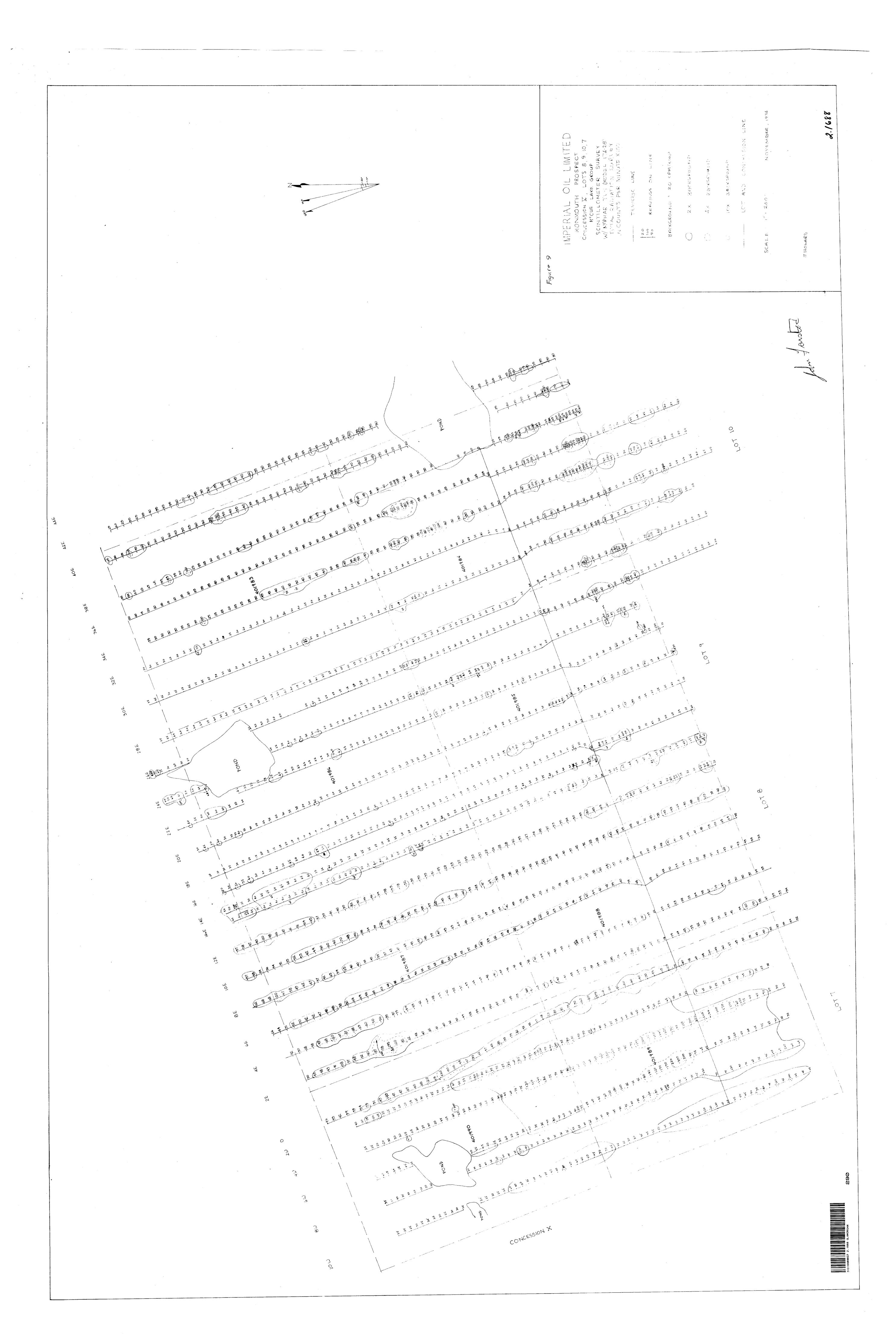
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Figure 7 IMPERIAL OIL LIMITED MONMOUTH PROSPECT McCUE LAKE GROUP GEOLOGY A: GRANITE PEGMATITE GRANITE b: LEUCORRATIC GRANITE SYENITE a: SYENITE PEGMATITE S b: QUARTZITE PARAGNEISS LC; QUARTZO-FELDSPATHE a: PHLOGOPITE MARBLE 6. GRAPHITE d: SILLICA C: DIOPSIDE ROAD PATH BUILDING STREAM MARSH, SWAMP (DEFINED) OUTCROP TRAVERSE LINE SCALE: 1" - 200" BATE: NOV. /74 B. Lowe 2./688





IMPERIAL OIL LIMITE MONMOUTH PROSPECT CONCESSION X, LOTS 11,12,13

MCCUE LAKE GROUP

SCINTILLOMETER SURVEY

W/ MCPHAR TV-1 (MODEL 174-28)

TOTAL RADIATION SURVEY
IN COUNTS PER MINUTE X100 100 ON THE STATE OF TH 30E 10F 19 19 40 CONCESSION X

CONCESSION Figure 11 IMPERIAL OIL LIMITED

MONMOUTH PROSPECT McCUE LAKE GROUP

SCINTILLOMETER SURVEY W/ MCPHAR TV-1 (MODEL 174-28) TOTAL RADIATION SURVEY IN COUNTS PER MINUTE X100

TRAVERSE LINE

60 READINGS ON LINE

BACKGROUND = 20 cpm (x100)

2x BACKGROWNS AX BACKGROOND

TOX BACKGROUND

--- LOT AND CONCESSION LINE

NOVEMBER , 1974

SCALE 1": 200'

J. HOWARD

2.1688



