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REPORT ON THE OTTO TOWNSHIP PROPERTY
LARDER LAKE MINING DIVISION
FOR
FERNAND RIVARD

2.14688

S.J. Carmichael Consultants
Kirkland Lake, Ontario

2.1032
Qual.

January 20, 1992
NTS 42/SE
OPAP # OP91-063

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SUMMARY

This report on the Otto Township property has been prepared by S.J. Carmichael, B.Sc., FGAC at the request of Fernand Rivard, P.O. Box 1091, Kirkland Lake, Ontario. This report is intended to complete the OPAP reporting obligations, of which Mr. Rivard has applied for, and been accepted for a total sum of $10,000.00 (ten thousand dollars). Mr. Rivard's OPAP grant number is OP91-063. The grant was approved on June 29, 1991.

This report will also be submitted to the Ministry of Northern Development and Mines for assessment credits.

The property comprises ten contiguous staked claims with a total area of 400 acres. The claims are located in the north-central portion of Otto Township, District of Timiskaming, Larder Lake Mining Division, approximately six kilometres west of Kirkland Lake and two kilometres south of the town of Swastika.

Previous work on the claims includes that by Chavigny Gold Mines Limited (1948) who completed 3 diamond drill holes. Since then, the claims have been worked by Mr. Rivard who has completed two diamond drill holes and power stripping in 1989-1990.

This years program, covered in this report, included line cutting, geological mapping, magnetometer and VLF-EM surveys aimed at pin-pointing a series of airborne INPUT anomalies. A number of interesting VLF anomalies corresponding to the airborne survey were located, one of which is along strike of a 0.107 oz/ton Au/13.0' intersection in Rivard drill hole OT-89-1. Most of the other anomalies are real and probably represent mineralized shear zones, worthy of diamond drilling or stripping. Geological mapping indicates that two distinct chemical rock suites exist on the property, those belonging to ultramafic basaltic komatiites, and those belonging to tholeiitic to calk-alkaline basalts. These units have been both cross and strike faulted, some of which may be mineralized resulting in the VLF anomalies. It is highly recommended that these structures be tested by a combination of diamond drilling and stripping.

Total expenditures this year were $10,078.48 with a proposed budget of $14,500.00 for next years program.

Report on the Otto Township Property
Larder Lake Mining Division
for
Fernand Rivard

INTRODUCTION

This report on Fernand Rivard's Otto Township mining exploration property has been prepared by S.J. Carmichael at the request of Mr. Rivard. It is a geological assessment of the property intended to fulfil both OPAP and assessment requirements. An appropriate exploration program and budget has been included for additional OPAP funding.

Information on the property is derived from the records of the Ministry of Northern Development and Mines and publications by the Ontario Geological Survey. The author of this report completed both the geological mapping and VLF-EM surveys and supervised the magnetometer survey. All work on the claims was performed between July 23 and November 11, 1991.

PROPERTY LOCATION ACCESS AND FACILITIES

The Rivard claim group is located in the north central portion of Otto Township (NTS 41A/SE), District of Timiskaming and within the Larder Lake Mining Division, approximately six kilometres west of Kirkland Lake. Access to the property is through Culver Park, located immediately west of the town of Swastika. A narrow trail, reconditioned by Mr. Rivard leads southeast a distance of two kilometres to the claims. The Blanche River flows through the south portion of the group and a beaver pond located in the middle of the property provides an ample water supply for diamond drilling.

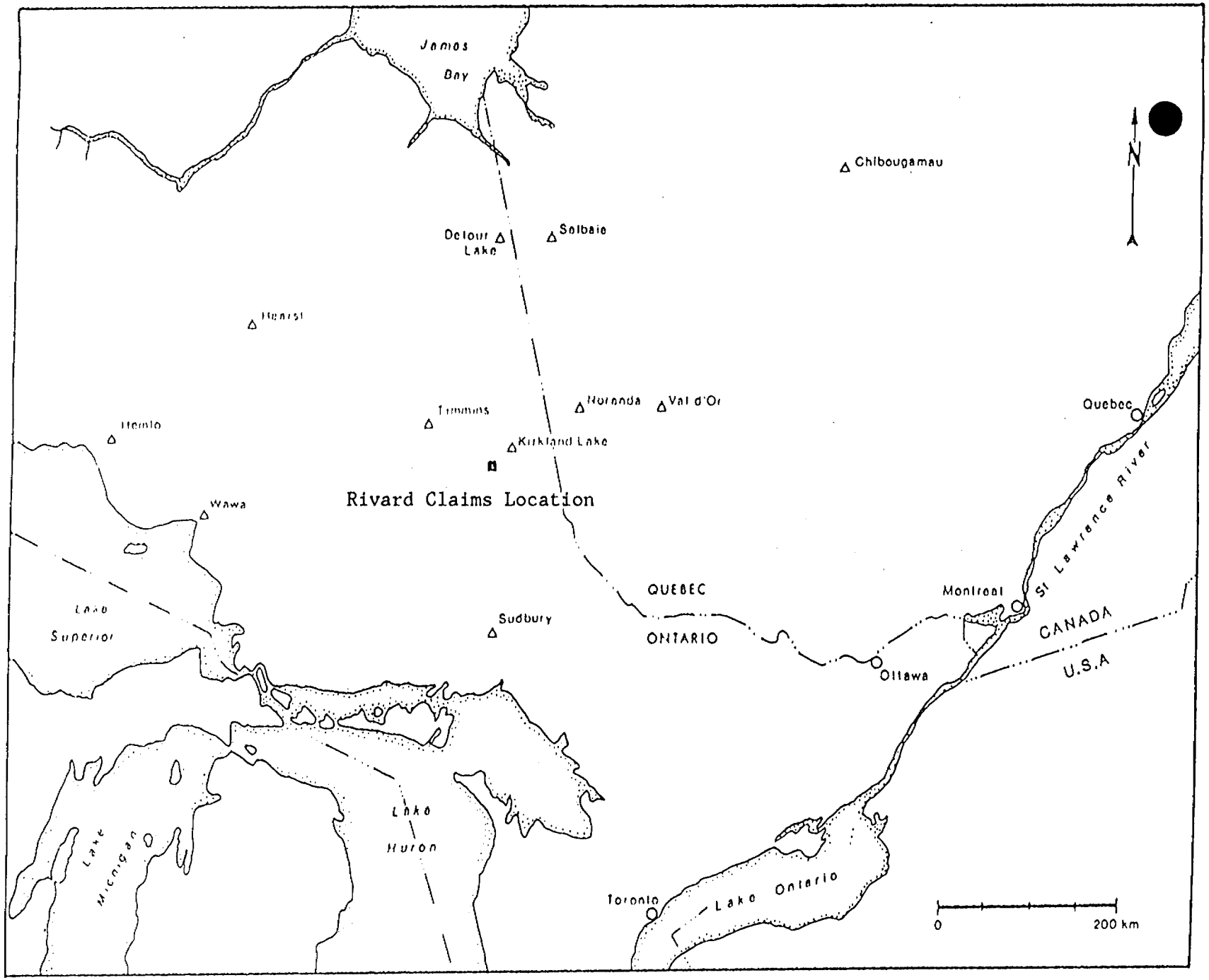


Figure 1 General Location Plan

TOPOGRAPHY

The north section of the group is covered by rocky bedrock exposures with a 200′ south-facing cliff located just north of the baseline. The central portion is covered by lacustrine clay deposits cut by several deep ravines. These ravines were dry in the fall but may be active with running creeks during spring runoff. Bedrock exposure occurs over the south portion towards the Blanche River. Murdock Creek empties into the Blanche River at the east boundary of the claims.

LAND TENURE AND OWNERSHIP

The Otto Township property comprises 10 staked contiguous unsurveyed mining claims with a total area of approximately 400 acres. The claim numbers, recorded dates and applied assessment credits are listed in the following table:

CLAIM NUMBER	RECORDED DATE	APPLIED CREDITS	COMMENTS
L-982689	July 12, 1987	$3080.00	Requires $400.00 by July 12, 1995
L-982690	July 21, 1987	$2200.00	Requires $400.00 by July 21, 1993
L-982691	July 21, 1987	$3080.00	Requires $400.00 by July 21, 1995
L-982692	July 21, 1987	$2200.00	Requires $400.00 by July 21, 1993
L-982693	July 28, 1987	$2200.00	Requires $400.00 by July 28, 1993
L-982694	July 22, 1987	$2772.00	Requires $400.00 by July 22, 1994
L-982695	July 25, 1987	$2200.00	Requires $400.00 by July 25, 1993
L-982696	July 25, 1987	$2200.00	Requires $400.00 by July 25, 1993
L-982697	August 10, 1987	$2200.00	Requires $400.00 by Aug. 10, 1993
L-982698	August 10, 1987	$2200.00	Requires $400.00 by Aug. 10, 1993

All claims will be in good standing upon the application of the 1991 work program.

PROPERTY HISTORY

The first government map published covering the present Rivard group was by J. Thomson, 1948 titled Geology of Teck Township and the Kenogami Lake Area, map No. 1946-1. The area was mapped again in 1967-68 by H. Lovell (Map No. 2239 - Eby-Otto Area). Lovell reported the outcrops to be basalt to andesite in composition with

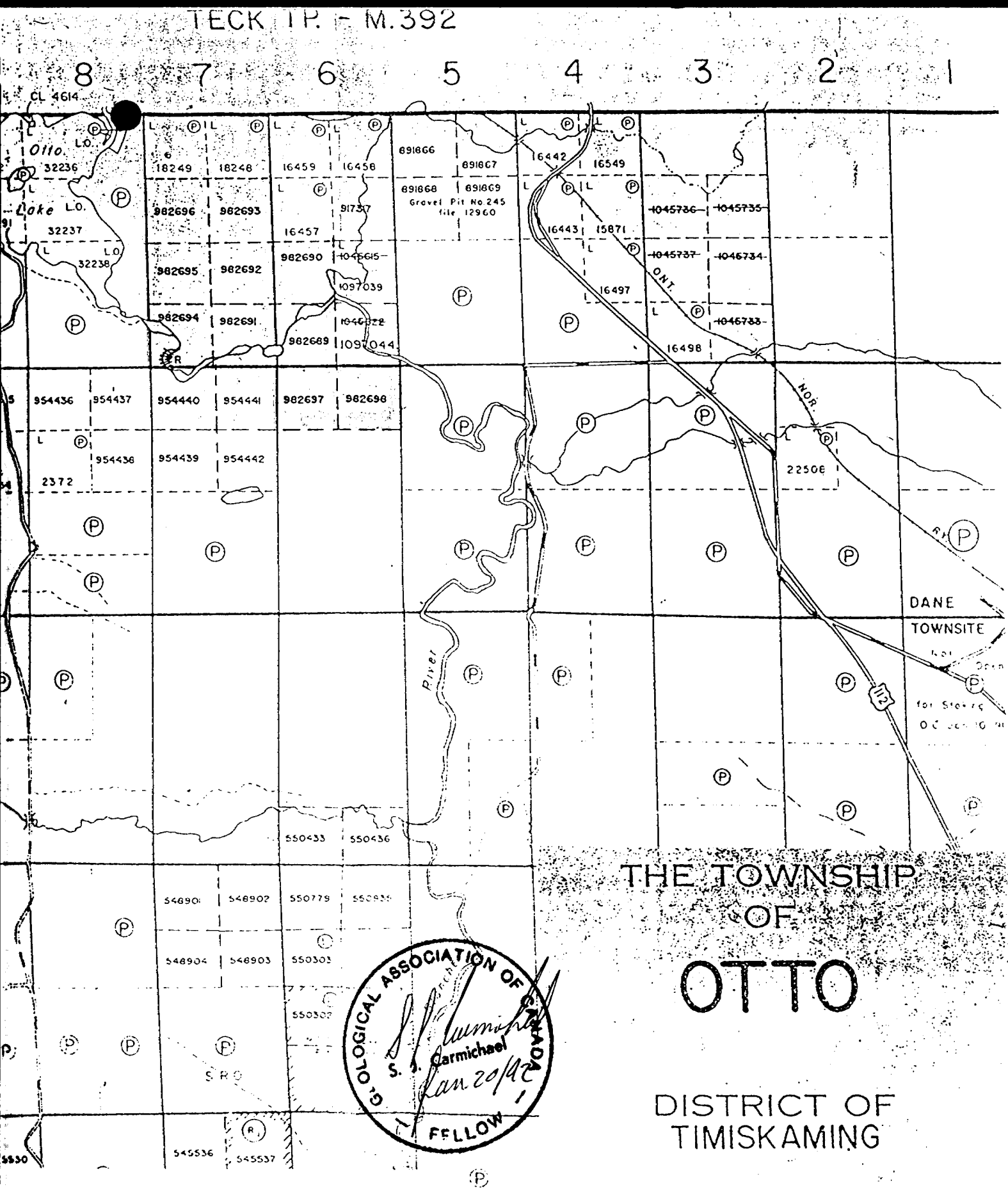


Figure 2

Claim Location Plan 1"=1/2 Mile

two northeast tending faults passing through the present claims. Further mapping by L.S. Jenson was completed in the late 1980's but never published.

Exploration on the claims has been limited in the past. The only recorded work was by Chavigny Gold Mines Limited which completed three diamond drill holes. The first two were completed on present claim 982690 in July of 1948. The first hole was drilled at a dip of -80 deg. and a southwest azimuth. Altered greenstone was intersected throughout with alteration and shearing intersected from 403.8 to 407.0'. A fault was also intersected at 638.0' and widespread narrow carbonate stringers were intersected to the end of the hole which was drilled to a depth of 1043 feet. An assay of 0.04 oz/ton Au was reported from this hole in rusty altered greenstone from 202.0 to 202.5'. The second hole, drilled at a -70 deg. dip and an azimuth of 250 deg. reached a depth of 945' with negligible results. A third hole was drilled on present claim 982694 intersected a major fault with a sludge assay of 0.02 oz/ton Au from 230.0 to 237.5'. Details from this hole are lacking. All collars from the Chavigny drilling were located during the 1991 geological mapping program. The property remained dormant until being staked by Rivard in 1987. Rivard completed one drill hole (EX) in 1989 (OT-89-1) at 0+75E, 0+50S, close to the first two Chavigny holes. The Rivard hole intersected mixed komatiitic to tholeiitic flows and returned an assay on 0.107 oz/ton Au over 13.0'. Core recovery from this section was poor and the sample was from a composite chip sample. This assay could not be

reproduced from the remaining core leading to some question to its validity. Rivard also completed some stripping and washing in the area of 0+00, 4+00S which uncovered a series of faults, shears and interflow graphitic/carbonaceous sediments. No significant gold assays were found. In 1990, Rivard completed an additional drill hole located at 7+50W, 3+75S. No significant gold assays were reported from this hole.

Other projects active in the immediate area include those by Golden Crescent Resources, HSK Minerals, Jomi Minerals and Battle Mountain Gold. Previous producers in the area include the Golden Gate and Swastika Mines.

REGIONAL GEOLOGY

The Rivard claims are underlain by Archean meta-volcanics and sediments of the Larder Lake Group and close to, and perhaps part of the Skead Group. The prominent cliffs and ridges over the north half of the property are comprised of basaltic komatiite flows of the Larder Lake Group. To the south the volcanic chemistry changes to a tholeiitic to calk-alkalic, or a transitional change from the Larder Lake to Skead Group.

The Larder Lake Fault zone passes within 2 kilometres north of the Rivard claims.

PROPERTY GEOLOGY

Geological mapping of the Rivard claims was completed at a scale of 1:2500 Metric on grid lines cut at 100 m centres. The grid was cut on claims north of the Blanche River as the airborne INPUT survey indicated anomalies in this area.

Three distinct lithologies were mapped during the program. This include a massive to spinifex textured basaltic komatiite flows of the Larder Lake Group, transitional tholeiitic to calc-alkaline basalt, possibly part of the Skead Group and an intermediate diorite intrusive plug. Late diabase dikes cut all of the above lithologies. Stratigraphic indicators such as pillow tops and sedimentary bedding were poorly developed or absent from the property, however the volcanic stratigraphy appears to strike 100-120 deg. with a steep north dip.

A total of six samples were taken for whole rock analysis at Barringer Labs. in Toronto. Three of these were from the north half of the claims and three from the central and south portions. The results were then plotted on both Jenson Cation Plot and a Tholeiitic vs. Calc-Alkaline Ternary diagram. The results show that the north half of the property is underlain by basaltic komatiites, spinifex textured close to the cliff face parallel to the base line. As one moves north, the chemistry changes to a more tholeiitic basalt composition. The dark color of the basalt would indicate they are more Fe than Mg in composition.

The central and south portions of the property are characterised by basaltic flows lying within the Fe tholeiite field or within the calk-alkalic field but close the tholeiitic field. This would indicate the volcanics may be transitional from the calk-alkalic Skead Group and the more basic Larder Lake Group. These have been plotted as low Fe tholeiites due to their dark color and local erratic magnetism. The flows are generally massive, fine to medium

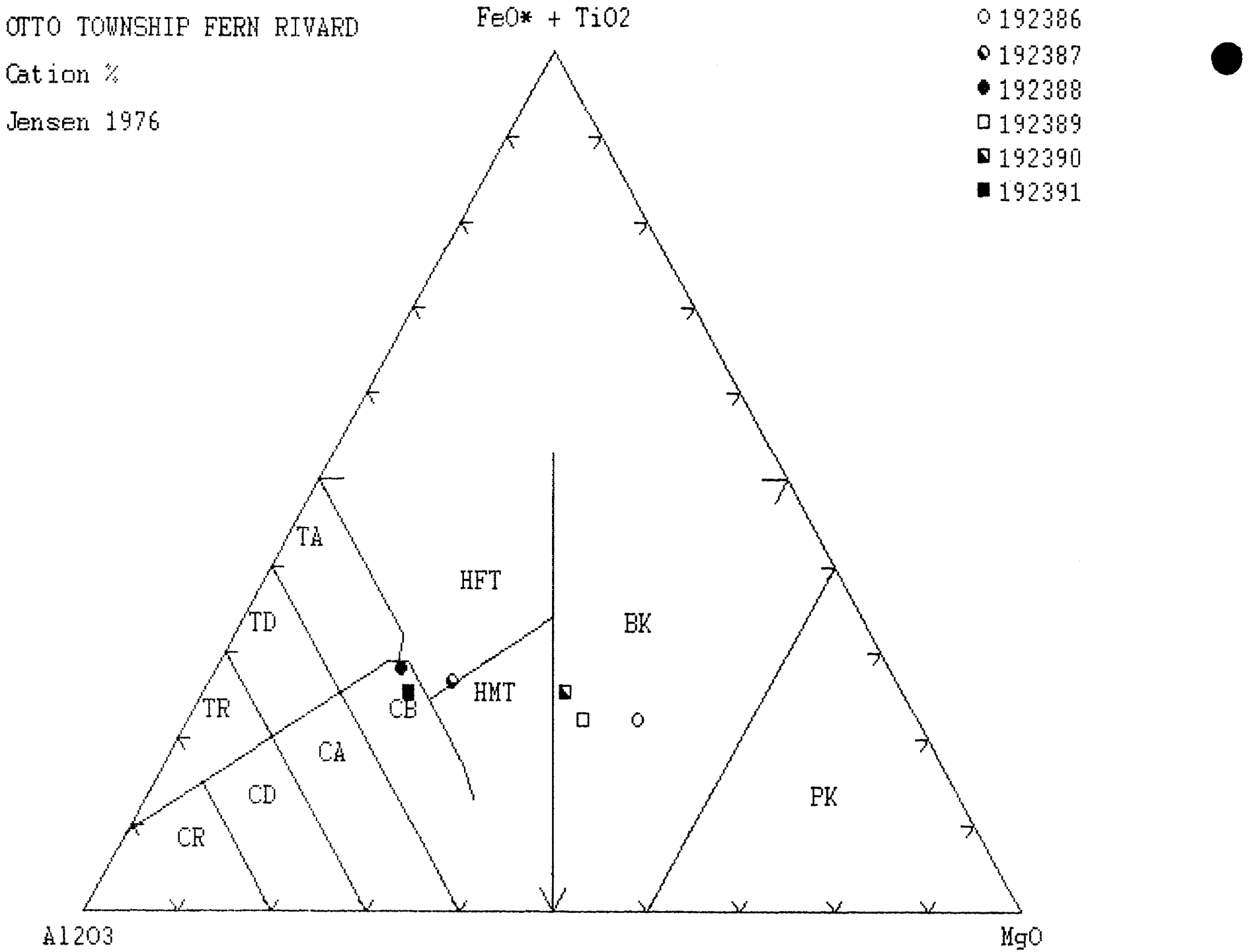

OTTO TOWNSHIP FERN RIVARD
Cation %
Jensen 1976
FeO* + TiO2
192386
192387
192388
192389
192390
192391
TA
HFT
TD
BK
HMT
TR
CB
CA
CD
CR
PK
Al2O3
MgO

FIGURE 3

grained, weakly to moderately fractured with quartz +- calcite stringers with local weak carbonatization close to shears and faults. One sequence of pillowed basalt was located on line 7+00W, 3+25S, however the pillows were poorly preserved and no reliable tops determination could be made.

A roughly oval to lensoidal diorite plug was located over the south central portion of the claims. This a medium to coarse grained unit with a similar color to the volcanics. The volcanic-intrusive contact is exposed a several locations, including the stripped area at 0+25W, 4+25S and line 0+00, 5+50S.

The first location has been cut by two major faults and shears which has disrupted the contact. The second location is within a highly sheared volcanic with almost talcose alteration. The intrusive, located within a few feet of the shear is pristine, medium grained with little alteration or fracturing. There is no magnetic signature to the intrusive, indicating that it may be even more intermediate in composition than a diorite.

Exposed faulting and shearing on the property is more of the cross-fault type rather than strike faulting. Two such faults were located during the mapping, both trending roughly north-south. The first, located on line 4+00W, 4+75S is up to 30' in width (as exposed) with sparry calcite alteration. No sulfide mineralization was observed. The second cross fault is located at 1+00W, 6+00S. This fault may be extended into the stripped area at 0+00, 0+25W. Similar faulting has been interpreted to occur over the west section of the property as indicated by the geophysical surveys.

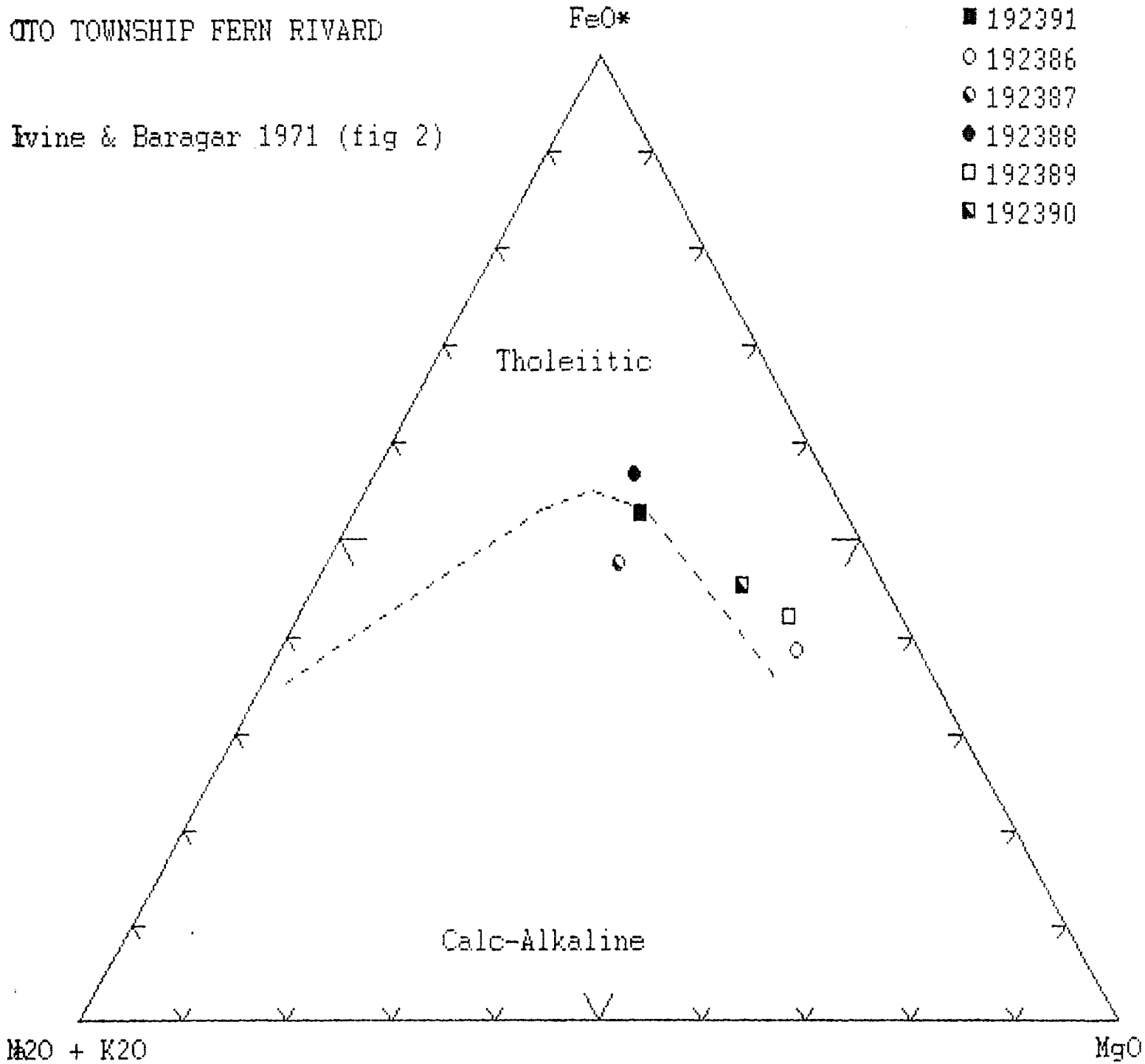

OTO TOWNSHIP FERN RIVARD
Irvine & Baragar 1971 (fig 2)
FeO*
192391
192386
192387
192388
192389
192390
Tholeiitic
Calc-Alkaline
Na2O + K2O
MgO

FIGURE 4

Strike faulting was observed in the above stripped area with associated sparry calcite mineralization with up to 1% pyrite. Previous sampling by Rivard of this fault returned low gold assays. Other strike faulting may have resulted in some of the VLF-EM anomalies. One particular interesting anomaly, 'B' is probably associated with a structure which is on strike of the Rivard drill hole OT-89-1 which intersected the "questionable" 0.107 oz/ton over 13' assay.

Two new mineralized "showings" were located during the mapping. The first is a narrow 5 inch quartz vein mineralized with 1-2% malachite and trace chalcopyrite located at 6+75W, 1+25N. Two grab samples from the vein returned assays of 560 and 330 ppm Cu with trace gold. A second vein was located at 0+60E, 4+50S and is up to 12 inches in width. The contact wall with the volcanic is mineralized with up to 50% pyrite with the vein itself mineralized with trace to 1% malachite. A grab sample of the vein material assayed 69 ppm Cu and nil Au and a grab sample of the sulfide material assayed 330 ppm Cu and nil Au. Neither of these showings are significant. Pyrite mineralization associated with narrow shears and jointing are not uncommon, particularly within the basaltic komatiites, but are not significant.

1991 EXPLORATION PROGRAM

SUMMARY

The 1991 exploration program on the Rivard claims included 12.1 km of line cutting followed by geological mapping and 7.7 km of

magnetometer and 2 channels of VLF-EM surveying. Only the area north of the Blanche River was covered by line cutting as the purpose of the program was to locate on surface the source of the airborne INPUT anomalies, all of which are located north of the Blanche River. Because bedrock exposure over the north half of the property is better than 70-80% consisting of basaltic komatiite, this area was not covered by the magnetometer and VLF surveys.

A) Magnetometer Survey

A Geometrics proton precision magnetometer was used with readings taken every 25 meters. L0+00, 0+00 was used as a base station and set to 58,420 Gammas. The base station was read every two hours to allow corrections for diurnal fluctuations which never exceeded 100 gammas during any given day.

The results were then plotted in Autocad at a scale of 1:2500 metric at a contour interval of 200 gammas.

Magnetic relief on the property is low with a maximum reading of 3,500 gammas above background. One circular magnetic high occurs on line 4+00W, 6+25S which may be related to an intrusive. A weak magnetic high trending east southeast trough the middle of the claims may be a stratigraphic feature, perhaps associated with a slightly magnetic phase of a tholeiitic basalt. A relative magnetic low flanks the south border of the weak high and appears to be associated with pillowed calc-alkaline to tholeiitic basalt. Neither the diorite intrusive or the carbonaceous/graphitic sediments exhibit a magnetic signature. One other relative magnetic high over the extreme northeast 1/4 of the property is worth noting

as it seems to be associated with EM anomaly B which is on strike with the gold intersection in Rivard drill hole OT-89-1.

B) VLF-EM Survey

The VLF-EM survey was completed over the central and south portion of the grid with readings taken every 25 meters. A Phoenix VLF-II instrument was used with two frequencies recorded including the Seattle Washington station for east-west conductors and the Annapolis Maryland station for north-south trending conductors. The grid is not oriented ideally for the Annapolis station and thus just the raw data is presented in this report, however, this station did aid in identifying some north-northeast and northwest trending anomalies and helped in interpretation of the Seattle results.

The Seattle readings were Fraser Filtered and plotted in Autocad at a scale of 1:2500 metric. These were then contoured at intervals of 10, 20, and 40 units. The dip profiles are also plotted at a scale of 1cm = 12.5%.

A total of nine anomalies were located and are described below:

Anomaly A - Weak strength associated with a slight magnetic high. It may be continuous with anomaly B or the faulted extension of B. If so, this is a target for drilling as it is coincidental with the gold assay intersected in Rivard hole OT-89-1.

Anomaly B - Moderate strength near the Rivard drill hole, strongest on line 3+00E, 0+70S where it is coincidental with a magnetic high. A priority target for either drilling or stripping but does not appear to correlate with the airborne survey.

Anomaly C, C′ - Weak strength and follows a creek bed in clay overburden. Probably an overburden response.

Anomaly D - Weak to moderate strength, strongest on line 2+00W, 3+50S. No real magnetic correlation but may be related to 3 channel INPUT anomaly. May be either a mineralized shear zone or a narrow graphitic/carbonaceous sedimentary horizon.

Anomaly E - Moderate to strong conductor cutting across stratigraphy. Supported by results on Annapolis station. May be caused by a mineralized cross structure.

Anomaly F - May be the faulted extension of anomaly E. Weak strength, strongest on line 3+00W, 4+60S. May be caused by a mineralized shear zone.

Anomaly G - Weak strength, appears to be possibly related to the graphitic horizon.

Anomaly H - One line anomaly with no magnetic correlation.

Anomaly I - Weak strength, correlated with the magnetic high on line 4+00W, 6+50S, however there is no magnetic correlation to the east. The anomaly lies on a down slope towards the Blanche River and may be an overburden response.

Targets for diamond drilling or stripping in order of priority are:

1) Anomaly B (3+00E, 0+60S)

2) Anomaly E (7+00W, 4+40S)

3) Anomaly F (3+00W, 4+60S)

4) Anomaly D (2+00W, 3+20S)

CONCLUSIONS AND RECOMMENDATIONS FOR FURTHER WORK

Geological mapping and geophysical surveys over the Rivard Otto Township property has resulted in locating interesting targets worthy of a follow up exploration program. Additional work directed towards diamond drilling, and if possible, power stripping of four VLF-EM anomalies is highly recommended.

The priority target in this next phase should be drill testing of anomaly B which is along strike and correlated with the gold

intersection in Rivard drill hole OT-89-1. A second priority is anomaly E (the strongest) and anomalies D and F. Overburden over D and F does not appear to be deep and may be stripped for sampling. If the overburden is too deep, a series of short 200′ drill holes could effectively test the targets. A total proposed budget for such a program is estimated at $14,500 dollars including $1,000 of power stripping and 900′ of diamond drilling at $15.00/ft all in.

Respectfully Submitted

S. J. Carmichael

S.J. Carmichael, B.Sc., FGAC

GEOLOGICAL ASSOCIATION OF CANADA — FELLOW —

Appendix A

CERTIFICATE OF QUALIFICATIONS

I, Stewart J. Carmichael, of the Town of Kirkland Lake, in the District of Timiskaming, in the Province of Ontario, Canada, do hereby certify that:

1) *I am a consulting geologist with address 42 Rand Avenue East Kirkland Lake, Ontario, P2N 1X1.*

2) *I am a graduate of McMaster University, Hamilton, Ontario, having received the degree of Bachelor of Science, Geology from the Faculty of Science in 1982. I have since practised in the field of mineral exploration continuously since graduation.*

3) *I am a Fellow of the Geological Association of Canada.*

4) *I have no direct interest, nor do I expect to receive any interest in the Rivard claims.*

5) *In addition to my personal knowledge of the area, I have made use of the records of the Ministry of Natural Resources of Ontario, and of Mr. Rivard's records in the preparation of this report.*

Dated this 20 day of January, 1992

Stewart J. Carmichael

Stewart J. Carmichael, B.Sc., FGAC

Qual
2.7032

Appendix C

WHOLE ROCK AND ASSAY CERTIFICATES

File Name E:\GEOCHEM\OTTO.ROC
Date 1992 09:49:00

Sample	192391	192386	192387	192388	192389	192390
Northing	4+00N	2+25S	1+00S	3+00S	0+25N	3+00N
Easting	0+00E	3+00E	1+00W	8+00W	6+00W	6+90W
Symbol	6	1	2	3	4	5
Sym Colour	6	1	2	3	4	5
Rock Type	BASALT	BAS. KOMAT	BASALT	BASALT	BAS.KOMATI	BASALT
SiO_2	53.20	51.70	51.50	52.50	49.60	52.10
TiO_2	0.79	0.59	0.89	1.43	0.71	0.72
Al_2O_3	15.10	10.10	15.00	15.80	13.20	12.00
Fe_2O_3t	10.60	11.10	12.30	12.00	12.20	12.50
MgO	4.94	12.80	6.52	4.71	12.30	10.20
CaO	9.54	7.71	3.54	7.82	7.29	8.59
Na_2O	2.94	2.99	5.62	3.05	2.37	2.93
K_2O	0.61	0.03	0.03	0.40	0.44	0.45
P_2O_5	0.12	0.11	0.11	0.15	0.10	0.10
Total	97.84	97.13	95.51	97.86	98.21	99.59
LOI	1.75	1.85	4.00	1.10	2.45	1.15
Mg #	48.00	69.55	51.21	43.74	66.63	61.77
Cr	435	1040	2350	718	499	1040
Ni	101	233	338	105	241	123
Co	17	25	32	7	29	23
V	220	195	245	330	225	229
Cu	92	58	94	60	112	69
Pb	19	21	11	20	15	14
Zn	120	117	123	123	102	115
K	5064	249	249	3321	3653	3736
Ba	86	48	10	180	64	121
Sr	227	54	43	144	97	144
Zr	53	57	42	74	52	44
Ti	4730	3549	5330	8591	4232	4340
Be	0.90	0.90	1.00	1.40	0.90	0.90
Density	2.53	2.58	2.50	2.53	2.59	2.57

ACCURASSAY LABORATORIES

A DIVISION OF BARRINGER LABORATORIES LIMITED, REXDALE, ONTARIO
BOX 426
KIRKLAND LAKE, ONTARIO, CANADA P2N 3J1
TEL.: (705) 567-3361

President: Dr. GEORGE DUNCAN, M.Sc., Ph. D., C. Chem (Ont.), C. Chem (U.K.), M.C.I.C., M.R.S.C., A.R.C.S.T.

44428

Certificate of Analysis

November 15 1991

ASSOCIATION OF THE CHEMICAL PROFESSION OF ONTARIO — CHARTERED — Dr. G. Duncan — CHEMIST

Mr. Fern Rivard
Box 1091
Kirkland Lake, Ontario
P2N 2C9

Work Order # 911328
Project:

SAMPLE NUMBER Accurassay	Customer	Al2O3 ICAP %	Fe2O3 ICAP %	MgO ICAP %	CaO ICAP %	Na2O ICAP %
252087	192386 Basaltic komm	10.1	11.1	12.8	7.71	2.99
252088	192387 Fe thol/kale	15.0	12.3	6.52	3.54	5.62
252089	192388 Fe thol	15.8	12.0	4.71	7.82	3.05
252090	192389 Bas. komm.	13.2	12.2	12.3	7.29	2.37
252091	192390 Bas komm	12.0	12.5	10.2	8.59	2.93
252092	192391 calc basalt/Fe thl	15.1	10.6	4.94	9.54	2.94

SAMPLE NUMBER Accurassay	Customer	K2O ICAP %	TiO2 ICAP %	P2O5 ICAP %	SiO2 ICAP %	LOI FURN %
252087	192386	0.03	0.592	0.11	51.7	1.85
252088	192387	0.03	0.889	0.11	51.5	4.00
252089	192388	0.40	1.433	0.15	52.8	1.10
252090	192389	0.44	0.706	0.10	49.6	2.45
252091	192390	0.45	0.724	0.10	52.1	1.15
252092	192391	0.61	0.789	0.12	53.2	1.75

SAMPLE NUMBER Accurassay	Customer	Ag ICAP ppm	Ba ICAP ppm	Be ICAP ppm	Cd ICAP ppm	Co ICAP ppm
252087	192386	<1	48	0.9	<1	25
252088	192387	<1	10	1.0	<1	32
252089	192388	<1	180	1.4	<1	7
252090	192389	<1	64	0.9	<1	29
252091	192390	<1	121	0.9	<1	23
252092	192391	<1	86	0.9	<1	17

LF-30

Per: G. Duncan

CUSTOMER COPY

ACCURASSAY LABORATORIES

A DIVISION OF BARRINGER LABORATORIES LIMITED, REXDALE, ONTARIO
BOX 426
KIRKLAND LAKE, ONTARIO, CANADA P2N 3J1
TEL.: (705) 567-3361

President: Dr. GEORGE DUNCAN, M.Sc., Ph. D., C. Chem (Ont.), C. Chem (U.K.), M.C.I.C., M.R.S.C., A.R.C.S.T.

44429

Certificate of Analysis

November 15 1991

Mr. Fern Rivard
Box 1091
Kirkland Lake, Ontario
P2N 2C9

Work Order # 911328
Project:

SAMPLE NUMBER Accurassay	Customer	Cr ICAP ppm	Cu ICAP ppm	Mo ICAP ppm	Mn ICAP ppm	Ni ICAP ppm
252087	192386	1040	58	<20	1420	233
252088	192387	2350	94	<20	1860	338
252089	192388	718	60	<20	1820	105
252090	192389	499	112	<20	1240	241
252091	192390	1040	69	<20	1420	123
252092	192391	435	92	<20	1670	101

SAMPLE NUMBER Accurassay	Customer	Pb ICAP ppm	Sr ICAP ppm	V ICAP ppm	Zn ICAP ppm	Zr ICAP ppm
252087	192386	21	54	195	117	57
252088	192387	11	43	245	123	42
252089	192388	20	144	330	123	74
252090	192389	15	97	225	102	52
252091	192390	14	144	229	115	44
252092	192391	19	227	220	120	53

ASSOCIATION OF THE CHEMICAL PROFESSION OF ONTARIO
CHARTERED
Dr. G. Duncan
CHEMIST

Per: G. Duncan

LF-30

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ACCURASSAY LABORATORIES

A DIVISION OF BARRINGER LABORATORIES LIMITED, REXDALE, ONTARIO

BOX 426

KIRKLAND LAKE, ONTARIO, CANADA P2N 3J1

TEL.: (705) 567-3361

President: Dr. GEORGE DUNCAN, M.Sc., Ph. D., C. Chem (Ont.), C. Chem (U.K.), M.C.I.C., M.R.S.C., A.R.C.S.T.

44345

Certificate of Analysis

Rivard, Mr. Fernand
Box 1091
Kirkland Lake, Ontario
P2N 2C9

November 6 91

Work Order # : 911327
Project :

SAMPLE NUMBERS Accurassay	Customer	Gold ppb	
252082	192381	<5	
252083	192382	<5	
252084	192383	<5	
252085	192384	23	
252086	192385	7	
252086	192385	<5	Check

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CHEMIST

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44346

Certificate of Analysis

Rivard, Mr. Fernand
Box 1091
Kirkland Lake, Ontario
P2N 2C9

November 8 91

Work Order # : 911327
Project :

SAMPLE NUMBERS Accurassay	Customer	Copper ppm
252082	192381	330
252083	192382	69
252084	192383	98
252085	192384	560
252086	192385	330

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Appendix B

LIST OF EXPENDITURES

A) DIRECT COSTS

1) Labour, 17 days at $100.00/day	*$1,700.00*
2) Report Preparation, 2 days	*200.00*
3) Line Cutting	*3,000.00*
4) Geological Mapping (consultant)	*1,605.00*
5) VLF-EM Survey (consultant)	*1,050.00*
6) Magnetometer Survey (equipment rental)	*160.50*
7) Assays	*259.48*
8) Fraser Filtering of VLF Data (consultant)	*214.00*
9) Autocad Work (consultant)	*856.00*
10) Whole Rock Analysis (consultant)	*107.00*
11) Final Report	*802.50*
Total	*$9,954.48*

B) INDIRECT COSTS

1) Meals	*85.00*
2) Travel (ATV and Truck)	*39.00*
Total	*124.00*

TOTAL DIRECT AND INDIRECT COSTS	*$10,078.48*

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MINING LANDS BRANCH

Clive Stephenson
Geoscience Approvals Section
Mining Lands Branch
933 Ramsey Lake Road
6th Floor
Sudbury, Ontario
P3E 6B5

Oct.13/92

RE: File 2.14688, Notice of Deficiency, Subsection 6(3) MAR

Dear Mr. Stepheson

Revision 1) Further to our phone call on Oct.13, the raw VLF data is presented along with the Fraser Filter data on the same map. The raw data is located to the left of the line, the Fraser Filter data to the right of the line. I have included photo copies of the field notes which may be added to the report.

Revision 2) The Geometrics G-826 Proton Precision Magnetometer has an accuracy of +- 10 gammas when held on a staff. Machine repeatability was checked every 4 stations and the base station (Line 0+00, 0+00) was checked every 1-1.5 hrs.

Revision 3)Unit 6(f) Diabase. Fine grained magnetic diabase. Aphanitic with a slight brown weathering. The dikes trend east-northeast and were found to cut the ultramafic flows.

Unit 1(b) Spinifex Textured Flow. This unit is located immediately on top of the cliff face north of the baseline. The bladed olivine crystals are rarely greater than 1cm in length and poorly developed, consistent with a basaltic komatiite.

Unit 1(c) Ultramafic pyroclastics. Better described as basaltic komatiite flow top breccia. Typical sub-rounded flow fragments up to 6" in diameter set in a fine chloritic groundmass, rarely with hyaloclastite. The texture is not as well developed as would be found in a Mg-tholeiitic flow top breccia.

Unit 2(f) Flow Top Breccia. Generally associated with pillowed basalt located in the southwest portion on the property. This unit comprises subrounded pillow fragments up to 12" in length set in a groundmass of chloritic fine-grained basaltic tuff and hyaloclastite. This unit is best observed in drill hole OT-90-1.

Please add these descriptions as an addendum to the Rivard report.

Yours truly,

S.J. Carmichael, B.Sc., FGAC

No. .....

Date ..... Page .....

Station	Time	R_1	R_2		
2E 4+75		58177		+6	58183
4+50		58099			58105
4+25		58005			58011
4+00	11:57	58107	58106		58111
3+75		58193			58199
3+50		58054			58060
3+25		58080			58086
3+00		58061		+3	58064
2+75		58364			58369
2+50		58144			58147
2+25		58055			58058
2+00	12:26	58356	58356		58359
1+75		58507			58510
1+50		58364			58367
1+25		58029			58032
1+00		57908			57911
0+75		57962			57965
0+50		58036			58039
0+25		58087			58090
0+00	12:14	58145	58145		58148
Base Station	12:21	58419	58419		

No. .....

Date ..... Page .....

Station	Fs.	Dip
[illegible]	23	14N
[illegible]	25	3N
[illegible]	22	4S
[illegible]	20	2N
[illegible]	20	10N
[illegible]	23	6N
[illegible]	27	2N
[illegible]	24	0
[illegible]	23	0
[illegible]	26	2S
[illegible]	24	12S
[illegible]	21	20S
[illegible]	16	15S
[illegible]	15	6N
[illegible]	20	14N
[illegible]	23	8N
[illegible]	24	0
[illegible]	21	4S
[illegible]	25	7S
[illegible]	20	7S

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No. .....

Date ..... Page .....

L Station	Time	R_1	R_2		
8+00E ala	11:26	57880	57881	+10	57891
0+25S		58614			58624
0+50S		59083			59094
0+75S		59198			59208
1+00S		58337			58347
1+25S		57729			57739
1+50S		59032			59042
1+75S		57723		+6	57729
2+00S	11:34	58745	58745		58751
2+25S		58043			58048
2+50S		58098			58104
2+75S		58140			58146
8+00S		58490			58496
3+25S		58359			58365
3+50S		58408			58414
3+75S		58435			58441
4+00S	11:43	58308	58308		58314
4+25S		58305			58311
4+50S		58204			58210
4+75S		58462			58468
5+00S					
5+25S					
5+50S					
5+75S					

No. 80a H.le

Date ..... F1 ..... Page .....

Station	F.S.	dip
[illegible]	15	10S
[illegible]	16	16S
[illegible]	16	22S
weak?	26	12S
[illegible]	26	20N
	20	10N
[illegible]	17	7N
[illegible]	15	6S
[illegible]	17	6S
[illegible]	20	4S
weak?	21	0
[illegible]	21	2N
[illegible]	20	5S
[illegible]	21	10S
[illegible]	24	2S
weak?	24	0
weak?	26	0
	25	2N
	23	10N
	19	4N

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Date ..... Page .....

Station	Time	R_1	R_2	+11	
8+00W, 4+00S	10:21	57717	57718		57729
3+75S		57721			57732
3+50S		57805			57816
3+25S		57935			57946
3+00S	10:28	57906	57907		57918
2+75S		58061			58072
2+50S		58986		+12	58998
2+25S		57992			58004
2+00S	10:34	58115	58115		58127
1+75S		58234			58246
1+50S		58244			58256
1+25S		58522			58534
1+00S	10:41	58448	58449		58436
0+75		58442			58454
0+50		58027			58039
0+25		58140			58152
0+00	10:47	58335	58336		58348
Base Station	11:00	58407	58408		58420

No. .....

Date ..... Page .....

Mark	F_1 S.	F_1 D.P	F_2 S	F_2 D.P
	13	30S	17	12W
	11	28S	16	0
	9	24S	15	6W
	10	17S	14	4W
	10	10S	14	4W
	11	6S	15	2W
	13	0	15	0
	14	0	16	0
	14	6N	16	4E
	14	14N	19	2E
	14	13N	16	2E
	15	18N	16	7E
	16	20N	16	7E
	20	22N	17	7E
	24	10N	18	6E
	22	3N	20	4E
	23	0	19	0

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Date Nov. 11/91 Page

Station	Time	R_1	R_2		
Baseline 0+00	9:07	58413	58413	+7	58420
7+00W 0+25N		58254		11	58261
0+00	9:35	58373	58374	+10	58384
0+25S		58291			58301
0+50S		58248			58258
0+75S	0	58472			58482
1+00S	9:42	58207	58207		58217
1+25S		58162			58172
1+50S		58068			58078
1+75S	9:48	58053			58063
2+00		58030	58032		58041
2+25		58180			58190
2+50S		58003		+11	58013
2+75		57995			58005
3+00S	9:54	56388	56383	+6	56391
3+25		57947			57957
3+50S		57810			57880
3+75S		57825			57835
4+00S	10:01	57831	57831	+11	57842
4+25S		57742			57753
4+50S		57772			57783
4+75S		58209			58220
10:10		57856	57856		57867

No. 540 264

Date Page

Station	F_1 F.S.	F_1 Dip	F_2 F.S.	F_2 Dip
[illegible]				
7+00W 0+25N	23	18 S	20	8W
[illegible]	27	14S	21	8W
[illegible]	28	8S	21	4W
[illegible]	48	0	24	0
[illegible]	44	22N	23	18E
[illegible]	25	28N	20	20E
[illegible]	23	25N	18	18E
[illegible]	18	22N	17	16E
[illegible]	16	18N	17	12E
[illegible]	15	12N	15	13E
[illegible]	14	6N	16	10E
[illegible]	13	2N	15	3E
[illegible]	13	0	16	5E
[illegible]	13	5S	16	6E
[illegible]	12	12S	16	4E
[illegible]	13	20S	15	4E
[illegible]	13	24S	16	2E
[illegible]	14	28S	16	0
[illegible]	21	26S	18	0
[illegible]	29	7N	21	8
[illegible]	20	14N	17	8E
[illegible]	19	7N	16	5E

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Date ..... Page .....

Station	Time	R_1	R_2	-60	
6+00W, 6+00S		58155			58095
6+00S	1:45	58647	58646		58586
5+75S		58389			58329
5+50S		58518	p.f		58458
5+25S		58646			58586
5+00S	1:54	57944	57945		58884
4+75S		57990			57930
4+50S		57872			57812
4+25S		57832			57772
4+00S	2:02	57900	57899	-74	57825
3+75		58000			57926
3+50S		57154			57680
3+25S		58035			57961
3+00S	2:10	58047	58045		57972
2+75S		58101			58027
2+50S		58112			58038
2+25S		58229			58155
2+00	2:17	58266	58272		58194
1+75S		58446			58372
1+50S		59092			59018
1+25S		58717			58643
1+00S	2:25	58394	58395		58321
0+75S		58281			58207
0+50S		58167			58093
0+25S		58179			58005

S. 2+43 58448 58495 Combo

No. .....

Date ..... Page .....

	F_1 T.S.	F_1 D.p	F_3 T.S.	F_3 D.p
[illegible]	27	18N	31	20E
[illegible]	22	23N	24	20E
[illegible]	38	22N	28	22E
[illegible]	30	20N	24	26E
[illegible]	48	12N	42	12E
[illegible]	50	0	50	2E
	40	15S	48	20W
	27	24S	42	34W
	22	05S	36	26W
	19	25S	29	0
	20	18S	26	9E
	17	13S	23	11E
	17	4S	03	15E
	17	0	21	16E
	19	4N	23	15E
	20	8N	20	14E
	21	14N	24	17E
	23	16N	22	18E
	26	18N	23	20E
	31	20N	25	23E
	35	12N	23	16E
	38	13N	28	16E
	54	10N	38	[illegible]
	50	2S	30	2E
	38	18S	29	4W

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No. a.k.

Date ..... Page .....

Station	Time	R_1	R_2		
5+00W, 2+50S		58246		-37	58219
2+75S		58223			58191
3+00S	12:40	58213	58215		58182
3+25S		58083			58059
3+50S		58049			58017
3+75S		58043			58011
4+00S	12:46	57966	57966		57934
4+25S		59931			59899
4+50		57891			57859
4+75S		57945			57913
5+00		NSA	Cliff		
5+25S	12:57	58189	58183		58151
5+50S		58361		-46	58315
5+75S		58259			58213
6+00S	1:03	58232	58232		58186
6+25S		58361			58315
6+50S		58106			58060
6+75S		58040			57994
7+00S	1:10	57931	57930		57884
6+00W 7+50S		58045			57999
7+25S		58060			58014
7+00S	1:37	58128	58126	-60	58067
6+75S		58203			58143
6+50S		58192			58132

No. .....

Date ..... F_1 ..... F_2 ..... Page .....

Station	FS.	Dip	FS.	Dip	
[illegible]	18	15 N	15	30E	
[illegible]	17	8 N	19	20E	
[illegible]	17	4N	20	23E	
[illegible]	16	0	14	30E	
[illegible]	17	15S	15	34E	
[illegible] ?	22	0	25	7E	
	26	6S	21	6W	
	21	10S	21	10W	
	26	15S	19	12W	Gullwing Fault
	29	4N	20	6W	
	NSA	Cliff			
	23	7S	19	15W	
	28	11S	22	17W	
	38	12S	25	8W	
	40	2N	29	2W	
	40	8N	29	2E	
	31	10N	28	5E	
	28	12N	27	6W	
	26	11N	26	26W	
	27	11N	38	28W	
	27	7N	48	18W	
	25	2N	44	2E	
	24	8N	38	8E	
	24	8N	42	12E	

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No. .....

Date ..... Page .....

Station	Time	R_1	R_2		
4100W 2+25S	11:21	58269			58265
2+00S	11:23	57927	57926		57922
1+75		58073			58069
1+50		58307			58302
1+25		58110			58106
1+00	11:31	58007	58008	-4	58004
0+75S		58007			58003
0+50S		57894			57890
0+25		57979			57975
0+00	11:38	58313	58314	-6-4	58310
0+25N		58084			58080
B.S. 0+00	11:48	58424	58423		58420
3100W 0+25N		58262		-18	58244
0+00	12:17	58332	58332		58314
0+25S		58294			58276
0+50S		57926			57908
0+75S		58263			58245
1+00S	12:23	58481	58477		58460
1+25S		58689			58671
1+50S		58532			58514
1+75S		59173			59155
2+00S	12:30	58988	58910		58892
2+25S		59390		-32	59358

No. .....

Date ..... Page .....

Station	F_1 F.S.	F_1 Dip	F_2 F.S.	F_2 Dip	
[illegible]	31	16 N	02	22E	
[illegible]	41	10N	27	16E	
[illegible]	44	5N	26	4E	Golley ridge
[illegible]	48	3 N	25	0	
[illegible]	40	18S	21	12W	
[illegible]	31	8 S	18	6W	
[illegible]	28	20S	16	5W	
[illegible]	24	21S	16	12W	
[illegible]	22	12S	15	10W	
[illegible]	27	3S	16	4W	
[illegible]	25	10S	15	0	
[illegible]	19	22S	13	4E	
[illegible]	23	15S	14	6W	
[illegible]	01	10S	12	7W	
[illegible]	24	15S	14	12W	
[illegible]	30	6S	15	6W	
[illegible]	30	8S	17	4W	
[illegible]	31	10N	15	10E	
[illegible]	27	19N	14	22E	
[illegible]	25	17N	13	24E	
[illegible]	21	23N	14	28E	
[illegible]	19	20N	10	2[illegible]E	

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No. .....

Date ..... O.k ..... Page .....

Station	Time	e_1	R_2		
3+00W 5+00S		57680		-1	57679
5+75S		57770			57769
6+00S	10:31	58049	58049		58040
6+25S		58062		-2	58060
6+50S		57980			57978
4+00W 7+00S	10:44	58633	58636		58632
6+75S		59197			59195
6+50S		59494			59492
6+25		60061			60059
6+00	10:53	58989	58989		58987
5+75		58084			58082
5+50		58024			58022
5+25		58227			58225
5+00S	11:00	57838			57836
4+75S		57903		-3	57900
4+50S		57975			57972
4+25S		57907			57904
4+00S	11:07	57983	57983		57980
3+75		58168			58165
3+50		58121			58118
3+25		58148			58145
3+00	11:15	58195	58195		58192
2+75		58332			58329
2+50		58547			58544

No. .....

Date ..... F_1 ..... F_2 ..... Page .....

Station	F.S.	Dip	F.S.	Dip
[illegible]	22	17S	15	28W
[illegible]	28	15S	21	24W
[illegible]	38	7S	21	10W
[illegible]	40	5N	23	2W
[illegible]	30	8N	25	3E
[illegible]			16 ~~11~~	
	23	16N	16	11E
	26	20N	17	12E
	40	15N	21	6E
	25	2N	20	7W
	30	8N	21	5W
	30	4S	22	7W
	24	9S	20	17W
	22	5S	19	10W
	22	0	21	10W
	27	14N	22	18W
	43	2N	19	10W
	22	20S	19	7W
	21	4S	19	6W
	25	8N	20	5W
	30	4S	26	17E
	20	7S	24	36E
	21	7N	24	32E
[illegible]	24	14N	23	30E
[illegible]	28	18N	26	22E

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No. GTTO Rivard

Date Nov. 9/91 Page

Station	Time	R_1	R_2		
BS 0+00 LO	9:17	58420	58420	0	58410
L 3100W 0+50N		58356		0	58356
0+25N		58707			58707
0+00	9:46	58804	58804		58809
0+25		58405			58405
0+50S		58207			58209
0+75S		58503			58503
1+00S	9:52	57947	57947		57947
1+25S		57915			57915
1+50S		57850			57850
1+75S		58293			58293
2+00S	10:00	58165	58165		58165
2+25S		58041		-1	58040
2+50S		57862			57861
2+75S		57764			57763
3+00S	10:07	58500	58501		58500
3+25S		58736			58735
3+50S		58254			58253
3+75S		57984			57984
4+00S	10:14	58125	58125		58125
4+25		58103			58103
4+50		58003			58003
4+75		57906			57906
5+00S	10:22	57897	57893		57894
5+25		57813			[illegible]

No.

Date Page

Station	F_1 FS	F_1 Dip	F_2 FS	F_2 Dip	
~~BS~~	~~27~~	~~15S~~	~~24~~	~~7E~~	
[illegible]	27	15S	24	7E	
[illegible]	38	5S	23	10E	
[illegible]	25	0N	23	15E	
[illegible]	22	10S	24	10E	
[illegible]	27	7S	27	2E	
	28	2N	27	4W	
	27	6N	25	0	
	27	5S	24	5W	
	27	6S	26	7W	
	30	4S	25	5W	gulley
	36	5N	28	6E	
	28	6N	31	6E	
	28	6N	28	9E	
	28	12N	28	14E	
	23	5N	28	8E	
	25	10S	25	8E	
	20	8N	22	6E	
	24	7N	20	7E	
	22	6S	20	5E	
	22	20S	18	2E	
	48	4S	18	6W	
[illegible]	31	16N	16	14W	
[illegible]	25	14N	18	14W	
[illegible]	21	0	17	20W	

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Station	Time	R_1	R_2		
4+75S		58469		-70	58399
4+50S		58223			58153
4+25S		58363			58293
4+00S	2:26	58971	58723		58777
3+75S		58462			58392
3+50S		58709			58639
3+25S		58313			58243
3+00S	2:34	58576	58468	-112	58356
2+75		58390			58228
2+50		58167			58055
2+25		58485			58373
2+00S	2:42	58396	58568		58370
1+75		58265			58153
1+50S		58242			58130
1+25		58741			58629
1+00S	2:49	58687	58387		58425
0+75S		58242			58130
0+50S		58577			58465
0+25S		58178			58066
0+00	2:55	58464	58481		58331
0+25N		58736			58624
0+50N		58157			58045
0+71N	3:00	58160			58048
BS 0+00	3:06	58560	58552	58556	

No. .....

Date ..... Page .....

Sta.	F_1 F.S.	F_1 Dip	F_2 F.S.	F_2 Dip	
[illegible]	32	12N	23	0	
[illegible]	54	4N	25	2E	
[illegible]	25	12S	23	14E	
[illegible]	24	4N	24	14E	
[illegible]	27	16N	05	14E	
[illegible]	44	16N	25	10E	
[illegible]	28	13S	28	2E	
[illegible]	27	4S	26	2E	c. lleg
[illegible]	28	0	25	2W	
weak	31	5N	24	4W	
[illegible]	27	13S	22	10W	
[illegible]	30	4S	20	12W	
[illegible]	26	4S	22	8W	
[illegible]	31	2S	23	6W	
[illegible]	28	8S	24	7W	
[illegible]	25	5S	23	4W	
[illegible]	25	2S	22	0	
[illegible]	24	0	27	4E	
[illegible]	24	10N	22	4E	
[illegible]	29	18N	22	4E	
[illegible]	38	8N	25	7E	
weak	37	5S	26	12E	
[illegible]	25	16S	25	15E	
[illegible]					
[illegible]					

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No. .....
Date ..... Page .....

Station	Time	R_1	R_2		
1+00W 2+75S		58409		+22	58431
2+00	1:24	58414	58357		58405
3+25S		58310			58332
3+50S		58416			58438
3+75S		58478			58500
4+00S	1:32	58616	58328	-20	58452
4+25S		58028			58000
4+50S		58411			58391
4+75		58483			58463
5+00	1:41	58932	58603		58748
5+25S		58321			58301
5+50S		58503			58483
5+75		58279			58259
6+00S	1:50	58517	58513		58495
6+25S		58385			58365
6+50S		58664			58641
6+75S		58160			58140
L2 100W 6+50S		58341		-76	58271
6+25		58413			58343
6+00S	2:08	58069	58362		58145
5+75		58459			58389
5+50		58508			58438
5+25S		58568			58498
5+00	2:16	58335	58388		58292

No. .....
Date ..... Page .....

St	F_1 F.S	F_1 Dip	F_2 F.S.	F_2 Dip
	33	18N	24	9E
	31	8N	22	10E
	30	4N	20	3E
	37	4S	23	3E
	44	10N	26	16E
	30	13N	21	22E
	35	3N	20	19E
	50	18N	20	18E
	30	22N	18	18E
	26	15N	17	13E
	26	2S	26	8E
	36	14N	19	13E
	25	12N	18	20E
	24	0	18	20E
	30	2N	20	10E
	29	8N	21	2E
	29	6N	23	2E
	37	14N	22	6E
	40	4S	21	0
	25	15S	17	6W
	23	2S	20	0
	27	5N	21	1E
	28	6N	21	1W
	29	13N	22	3W

No. .....

Date ..... Page .....

Station	Time	R_1	R_2		
40+00 0+25N		58632			
0+50N		58020			
0+75		58404			
1+00	12:31	58163	58224	+60	
1+25		58386			
1+50		58116			
1+00W 1175N		58189			58249
1+50N		58468			58528
1+25N		58386			58446
1+00N	12:46	58497	58141		58379
0+75N		58447			58507
0+50N		57992		+60	58052
0+25N		58204	—		58264
0+00	12:54	58361	58308		58394
0+25S		58412			58472
0+50S		58162			58222
0+75S		58142		+60	58202
1+00S	1:02	58437	57897	+22	58689
1+25S		58269			58289
1+50S		58235			58257
1+75S		58451			58473
2+00S	1:11	58465	58289		58399
2+25S		58454			58476
2+50S		58655			58677

No. .....

Date ..... Page .....

	F_1		F_2	
	F.S.	Dip	F.S.	Dip
	26	15S	21	18W
	26	4S	23	16W
	28	6N	22	10W
	31	2N	24	3W
	35	0	26	0
	38	6S	27	4E
	29	4N	27	12E
	27	1N	28	13E
	27	4S	29	8E
	28	7S	26	7E
	30	6S	23	2W
	27	8S	19	17W
	30	16S	25	19W
	40	0	30	3W
	45	0	31	0
	48	12N	38	7E
	35	10N	30	10E
	30	12N	30	24E
	28	5S	26	20E
	36	2S	26	14E
	31	8N	26	12E
	27	8S	27	10E
	40	2N	26	3E
	38	6N	26	6E

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No. .....
Date ..... Page .....

	Time	R_1	R_2		
0+00	6+25S		58406		
	6+00	11:06	58114	57829	
	5+75		58185		
	5+50S		58596		
	5+25		58262		
	5+00	11:14	58410	58393	
	4+75		58457		
	4+50		58120		
	4+25		58248		
	4+00	11:23	58155	58231	
	3+75		58329		
	3+50		58150		
	3+25		58558		
	3+00	11:31	58319	58052	
	2+75S		58427		
	2+50S		58564		
	2+25S		58451		
	200	NSA			
	1+75	NSA			
	1+50S		58104		
	1+25S		58193		
	1+00S	11:52	58495	58459	
	0+75		58293		
	0+50		58117		
	0+25		58367		
	0+00	12:01	58526	58251 / 58071	58283

No. .....
Date ..... Page .....

	F1 F.S.	D.D	F2 F.S.	D.D	
	24	24S	17	6E	
	24	5S	18	8E	
	21	2N	21	10E	
	23	12N	21	20E	
	27	16N	21	16E	
	36	18N	21	8E	
	38	3S	22	2E	
	27	6S	21	4E	
	26	5N	20	10E	
	30	6N	20	11E	
	29	4N	20	10E	
	31	6N	20	5E	
	36	2N	20	4E	
	35	0	19	2E	
	27	4S	20	5E	Culley
	40	4N	22	2W	
	34	4S	20	4W	Pond
	NSA				
	NSA	2			
	29	6S	21	8E	
	35	3N	26	8E	
	38	2S	29	2E	
	42	0	28	6W	
	45	2S	29	3W	
	43	10S	27	12W	
	38	15S	23	20W	

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OCT 1992
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No. Nov. 6/91

Date 10:00 51837 57982 Page

	Time	R1	R2
Bc 0+00			
1+00E, 0+00	10:04	57901	57932
0+25S		58238	
0+50S		57995	
0+75S		57535	
1+00S	10:13	57854	57757
1+25S		57918	
1+50S		58320	
1+75S		58348	
2+00S	10:21	57696	58211
2+25S		57998	
2+50S		58473	
2+75S		57699	
3+00S	10:26	58132	58205
3+25S		58195	
3+50S		57833	
3+75S		58212	
4+00S	10:37	58044	58312
4+25S		58202	
4+50S		58454	
4+75S		58283	
5+00S	10:46	58021	57753
5+25S		58194	

Quartz vein
350/45°E

No. Southwest Anomaly

Date

F1 FS	F1 P-P	F2T FS	F2 P-P	
20	11S	19	2W	
26	19S	19	2W	
23	30S	17	2W	
34	20S	19	1W	
38	9S	21	3W	
30	0	22	11W	Gulley
32	3S	27	3W	
36	1S	28	4W	
36	0	27	0	
37	8N	24	2E	
30	8N	24	7E	
28	11N	21	6E	
25	0	18	2W	
30	8S	21	4W	
36	3S	22	0	
30	3S	21	4W	Gulley
40	2S	23	4W	Gulley
38	4N	23	7E	
38	8N	23	8E	
28	14N	22	10E	
27	13N	20	2E	
26	0	18	9E	

Ministry of Northern Development and Mines
Ontario

Report of Work Conducted After Recording Claim

Mining Act

NL

Transaction Number: W 9280 • 00134

DOCUMENT No.

personal information collected on this collection should be directed to Sudbury, Ontario, P3E 6A5, tele

be used for correspondence. Questions about and Mines, Fourth Floor, 159 Cedar Street,

14688

42A01SE0102 2.14688 OTTO

900

Instructions: • Please ty
• Refer to
Recorder.
• A separate copy of this form must be completed for each Work Group.
• Technical reports and maps must accompany this form in duplicate.
• Technical reports and maps must accompany this form.
• A sketch, showing the claims the work is assigned to, must accompany this form.

sment work or consult the Mining

Recorded Holder(s) FERNAND RIVARD P2N 2C9		Client No. 187868
Address 11 Gov. RD West Box 1091 KIRKLAND LAKE		Telephone No. 567-7344
Mining Division Larder Lake	Township/Area Otto Township	M or G Plan No. M379
Dates Work Performed From: July 23/91	To: Nov. 11/91	

Work Performed (Check One Work Group Only)

	Work Group	Type
	Geotechnical Survey	Magnetometer, VLF-EM, Geological Surveys
	Physical Work, Including Drilling	
	Rehabilitation	
	Other Authorized Work	
	Assays	
	Assignment from Reserve	

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Total Assessment Work Claimed on the Attached Statement of Costs $ 10,080.00

Note: The Minister may reject for assessment work credit all or part of the assessment work submitted if the recorded holder cannot verify expenditures claimed in the statement of costs within 30 days of a request for verification.

Persons and Survey Company Who Performed the Work (Give Name and Address of Author of Report)

Name	Address
Bert Hosick	17 McKelvie St, Kirkland Lake, Ont. P2N 2C9
Fernand Rivard	876 Government Rd W, Kirkland Lake
Stewart Carmichael	42 Rand Av East, Kirkland Lake, Ont.

(attach a schedule if necessary)

Certification of Beneficial Interest • See Note No. 1 on reverse side

I certify that at the time the work was performed, the claims covered in this work report were recorded in the current holder's name or held under a beneficial interest by the current recorded holder.

Date: July 13/92

Recorded Holder or Agent (Signature): F. Rivard

Certification of Work Report

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

Name and Address of Person Certifying: Stewart Carmichael 42 Rand Av. East Kirkland Lake, Ont

Telepone No. 705-567-7286

Date: July 13/92

Certified By (Signature): Stewart Carmichael

For Office Use Only

Total Value Cr. Recorded	Date Recorded	Mining Recorder	Received Stamp
$10,080.	July 14/92		LARDER LAKE MINING DIVISION '92 JUL 14 AM 8 50 RECEIVED
	Deemed Approval Date: Oct 12/92	Date Approved	
	Date Notice for Amendments Sent		

Work Report Number for Applying Reserve	Claim Number (see Note 2)	Number of Claim Units	Value of Assessment Work Done on this Claim	Value Applied to this Claim	Value Assigned from this Claim	Reserve: Work to be Claimed at a Future Date
	982696 96	1	772	1200		
	982693 96	1	772	1200		
	982695 96	1	1423	1200	223	
	982692 96	1	1423	1200	223	
	982690 96	1	1423	1200	223	
	982694 96	1	1423	800	623	
*	982691 96	1	1423	400	623	
*	982689 96	1	1423	400	623	
	982697 96	1	ϕ	1200		
	982698 96	1	ϕ	1200		
	10		10080	10,000	2538	
	Total Number		Total Value Work	Total Value	Total Assigned	Total Reserve

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Credits you are claiming in this report may be cut back. In order to minimize the adverse effects of such deletions, please indicate from which claims you wish to prioritize the deletion of credits. Please mark (✓) one of the following:

1. ☐ Credits are to be cut back starting with the claim listed last, working backwards.
2. ☐ Credits are to be cut back equally over all claims contained in this report of work.
3. ☑ Credits are to be cut back as prioritized on the attached appendix.

982689, 982691

In the event that you have not specified your choice of priority, option one will be implemented.

Note 1: Examples of beneficial interest are unrecorded transfers, option agreements, memorandum of agreements, etc., with respect to the mining claims.

Note 2: If work has been performed on patented or leased land, please complete the following:

I certify that the recorded holder had a beneficial interest in the patented or leased land at the time the work was performed.

Signature

Date

Ministry of Northern Development and Mines
Ontario

Ministère du Développement du Nord et des mines

Statement of Costs for Assessment Credit

État des coûts aux fins du crédit d'évaluation

Mining Act/Loi sur les mines

Transaction No./N° de transaction: W 9280 • 00134

DOCUMENT No.

Personal information collected on this form is obtained under the authority of the Mining Act. This information will be used to maintain a record and ongoing status of the mining claim(s). Questions about this collection should be directed to the Provincial Manager, Minings Lands, Ministry of Northern Development and Mines, 4th Floor, 159 Cedar Street, Sudbury, Ontario P3E 6A5, telephone (705) 670-7264.

Les renseignements personnels contenus dans la présente formule sont recueillis en vertu de la Loi sur les mines et serviront à tenir à jour un registre des concessions minières. Adresser toute quesiton sur la collece de ces renseignements au chef provincial des terrains miniers, ministère du Développement du Nord et des Mines, 159, rue Cedar, 4e étage, Sudbury (Ontario) P3E 6A5, téléphone (705) 670-7264.

1. Direct Costs/Coûts directs

Type	Description	Amount Montant	Totals Total global
Wages Salaires	Labour Main-d'oeuvre	1900	
	Field Supervision Supervision sur le terrain		1900
Contractor's and Consultant's Fees Droits de l'entrepreneur et de l'expert-conseil	Type: Line Cutting	3000	
	Geophysics	2120	
	Geological report	2775	7895
Supplies Used Fournitures utilisées	Type:		
Equipment Rental Location du matériel	Type: Magnetometer	1600	
			1600
	Total Direct Costs Total des coûts directs		11495

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2. Indirect Costs/Coûts indirects

** **Note:** When claiming Rehabilitation work Indirect costs are not allowable as assessment work.
Pour le remboursement des travaux de réhabilitation, les coûts indirects ne sont pas admissibles en tant que travaux d'évaluation.

Type	Description	Amount Montant	Totals Total global
Transportation Transport	Type: ATV & Truck	3900	
Food and Lodging Nourriture et hébergement	Meals	8500	
Mobilization and Demobilization Mobilisation et démobilisation			
	Sub Total of Indirect Costs Total partiel des coûts indirects		124.00
	Amount Allowable (not greater than 20% of Direct Costs) Montant admissible (n'excédant pas 20 % des coûts directs)		1240.00
	Total Value of Assessment Credit (Total of Direct and Allowable indirect costs) / **Valeur totale du crédit d'évaluation (Total des coûts directs et indirects admissibles)**		10080

Note: The recorded holder will be required to verify expenditures claimed in this statement of costs within 30 days of a request for verification. If verification is not made, the Minister may reject for assessment work all or part of the assessment work submitted.

Note : Le titulaire enregistré sera tenu de vérifier les dépenses demandées dans le présent état des coûts dans les 30 jours suivant une demande à cet effet. Si la vérification n'est pas effectuée, le ministre peut rejeter tout ou une partie des travaux d'évaluation présentés.

Filing Discounts

1. Work filed within two years of completion is claimed at 100% of the above Total Value of Assessment Credit.
2. Work filed three, four or five years after completion is claimed at 50% of the above Total Value of Assessment Credit. See calculations below:

Total Value of Assessment Credit	Total Assessment Claimed
× 0.50 =	

Remises pour dépôt

1. Les travaux déposés dans les deux ans suivant leur achèvement sont remboursés à 100 % de la valeur totale susmentionnée du crédit d'évaluation.
2. Les travaux déposés trois, quatre ou cinq ans après leur achèvement sont remboursés à 50 % de la valeur totale du crédit d'évaluation susmentionné. Voir les calculs ci-dessous.

Valeur totale du crédit d'évaluation	Évaluation totale demandée
× 0,50 =	

Certification Verifying Statement of Costs

I hereby certify:
that the amounts shown are as accurate as possible and these costs were incurred while conducting assessment work on the lands shown on the accompanying Report of Work form.

that as _____ I am authorized
(Recorded Holder, Agent, Position in Company)

to make this certification

Attestation de l'état des coûts

J'atteste par la présente :
que les montants indiqués sont le plus exact possible et que ces dépenses ont été engagées pour effectuer les travaux d'évaluation sur les terrains indiqués dans la formule de rapport de travail ci-joint.

Et qu'à titre de _____ je suis autorisé
(titulaire enregistré, représentant, poste occupé dans la compagnie)

à faire cette attestation.

Signature	Date
	July 13/92

Nota . Dans cette formule, lorsqu'il désigne des personnes, le masculin est utilisé au sens neutre.

0212 (04/91)

Ontario

Ministry of Northern Development and Mines

Ministère du Développement du Nord et des Mines

Geoscience Approvals Section
Mining Lands Branch
933 Ramsey Lake Road
6th Floor
Sudbury, Ontario
P3E 6B5

Telephone: (705) 670-5853
Fax: (705) 670-5863

Our File: 2.14688
Transaction #: W9280.00134

November 16, 1992

Mining Recorder
Ministry of Northern Development
and Mines
4 Government Road East
Kirkland Lake, Ontario
P2N 1A2

Dear Sir:

RE: Approval of Assessment Work on mining claims L 982693 et al. in Otto Township.

The Assessment Credits for Geology and Geophysics, sections 12 and 14 of the Mining Act Regulations, as listed with the original submission, have been approved as of NOVEMBER 12, 1992.

Please indicate this approval on the claim record sheets.

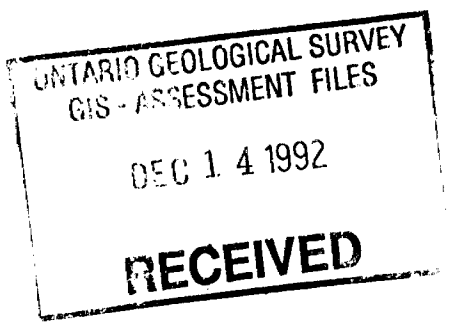
If you have any questions please call Clive Stephenson at (705) 670-5856.

Yours sincerely,



Ron C. Gashinski
Senior Manager, Mining Lands Branch
Mines and Minerals Division

CDS/jl
Enclosures:

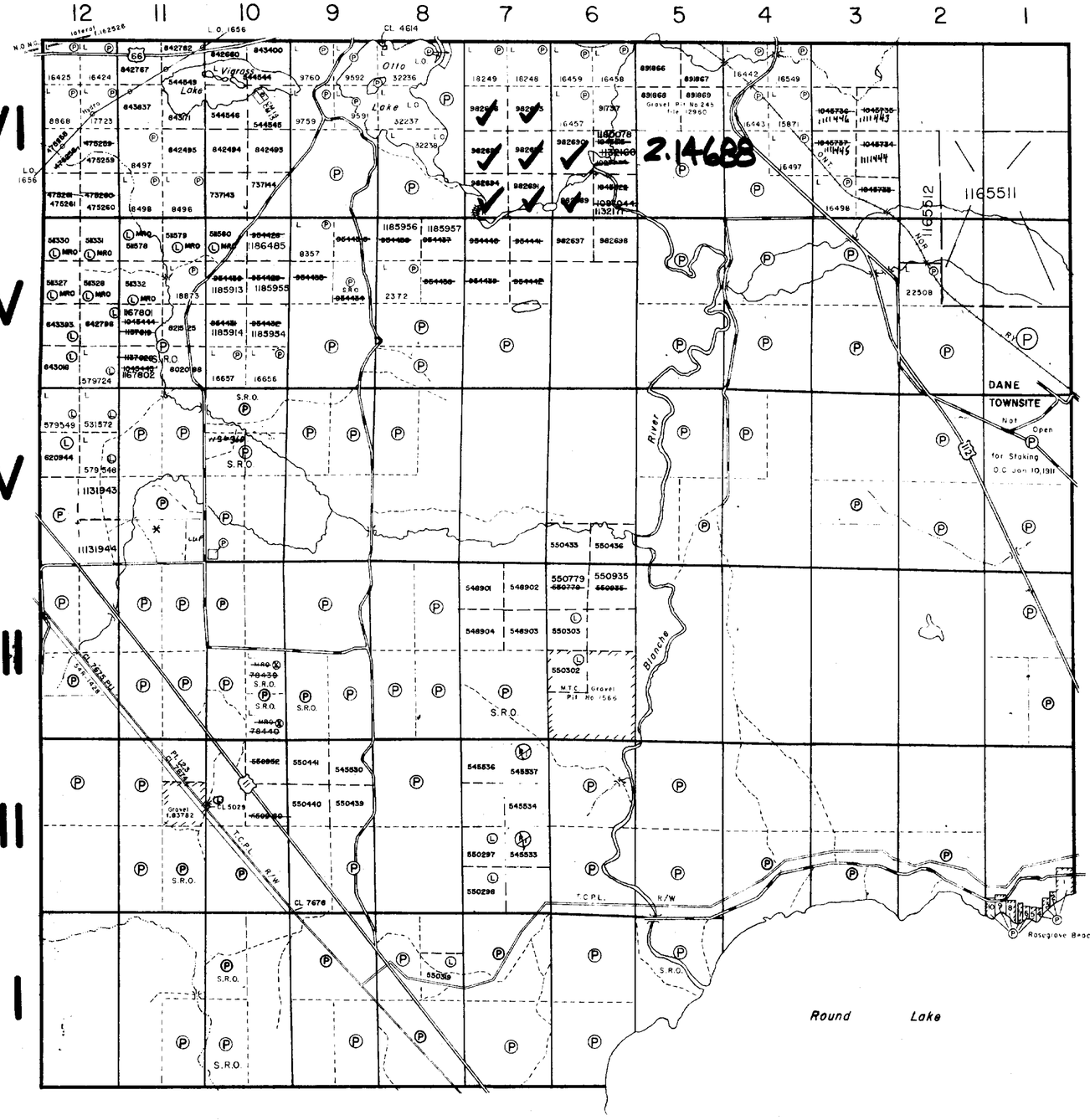


cc: Assessment Files Office
Toronto, Ontario

Resident Geologist
Kirkland Lake, Ontario

M.379 TWP OTTO

TECK TP. - M.392



THE TOWNSHIP
OF

OTTO

DISTRICT OF
TIMISKAMING

LARDER LAKE
MINING DIVISION

SCALE: 1-INCH=40 CHAINS

LEGEND

PATENTED LAND	● or (P)
CROWN LAND SALE	C.S.
LEASES	(L)
LOCATED LAND	Loc.
LICENSE OF OCCUPATION	L.O.
MINING RIGHTS ONLY	M.R.O.
SURFACE RIGHTS ONLY	S.R.O.
ROADS	
IMPROVED ROADS	
KING'S HIGHWAYS	
RAILWAYS	
POWER LINES	
MARSH OR MUSKEG	
MINES	
CANCELLED	C.
PATENTED S.R.O.	●

NOTES

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

(R1) SURFACE AND MINING RIGHTS WITHDRAWN FROM STAKING SEC. 36/80, W.9/86, JAN. 24, 1986
O-L26-90 NR OPENS W9/86 DEC. 14, 1990

✱ APPLICATION UNDER THE PUBLIC LANDS ACT SEC. 31 (b) OF THE MINING ACT

CL 5029 DISPOSITION OF CROWN LAND
Surface Rights Withdrawn under Sec. 36,
The Mining Act R.S.O. 1980, ORDER NO. W-01/91/ONT
(Trans Canada Pipeline Right of Way and Buffer
Zone particularly 40.25 meters or 132 ft. on
either side of centre line of right of way)

NOTICE OF FORESTRY ACTIVITY

THIS TOWNSHIP / AREA FALLS WITHIN THE _____
TIMISKAMING 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

PLAN NO. M-379

MINISTRY OF NORTHERN
DEVELOPMENT AND MINES

THE INFORMATION THAT APPEARS ON THIS MAP HAS BEEN COMPILED FROM VARIOUS SOURCES, AND ACCURACY IS NOT GUARANTEED. THOSE WISHING TO STAKE MINING CLAIMS SHOULD CONSULT WITH THE MINING RECORDER, MINISTRY OF NORTHERN DEVELOPMENT AND MINES, FOR ADDITIONAL INFORMATION ON THE STATUS OF THE LANDS SHOWN HEREON.

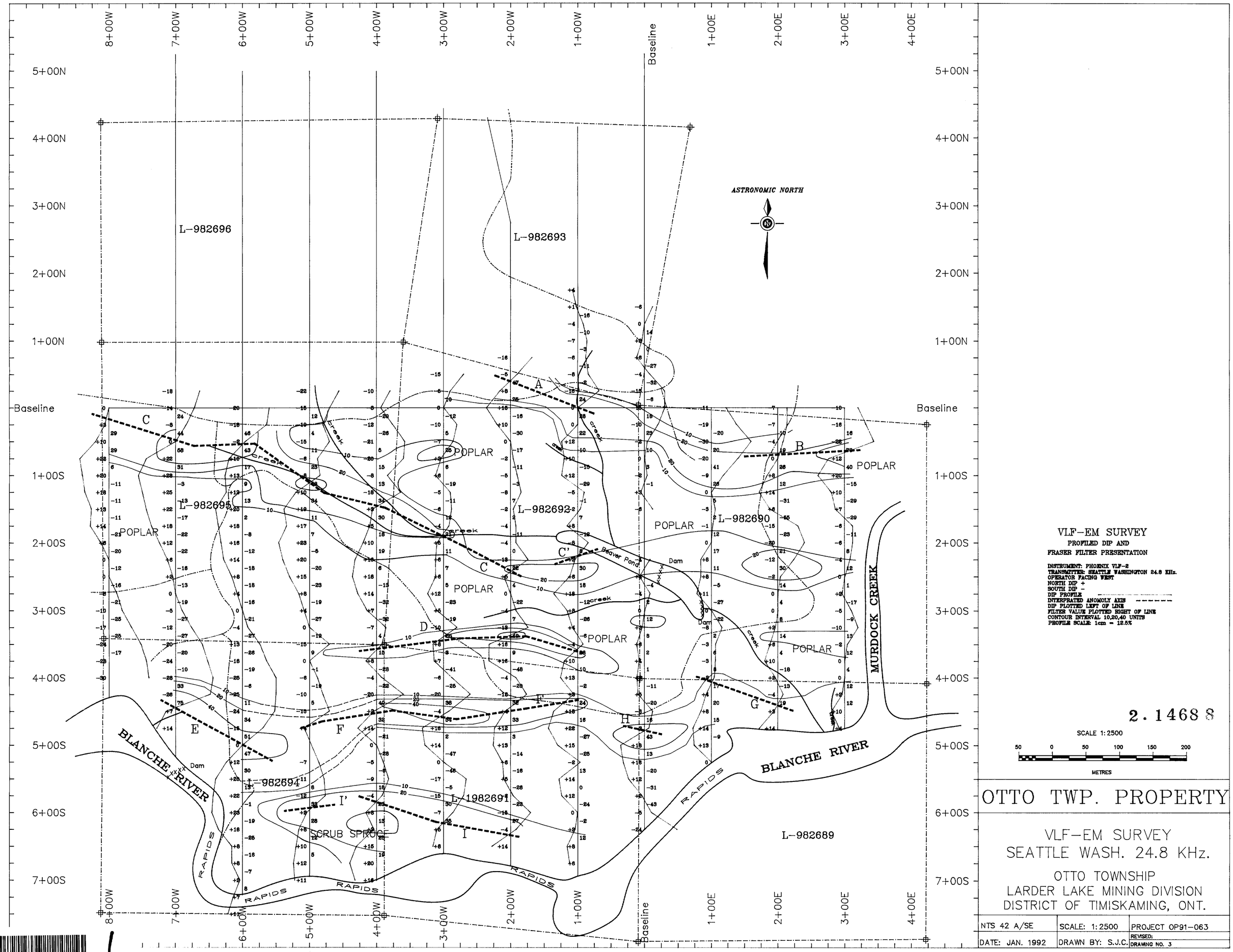
CIRCULATED NOV.3/88

42A01SE0102 2.14688 OTTO

200

TRIM LINE

M.379



VLF-EM SURVEY

PROFILED DIP AND
FRASER FILTER PRESENTATION

INSTRUMENT: PHOENIX VLF-2
TRANSMITTER: SEATTLE WASHINGTON 24.8 KHz.
OPERATOR FACING WEST
NORTH DIP +
SOUTH DIP -
DIP PROFILE
INTERPRETED ANOMOLY AXIS
DIP PLOTTED LEFT OF LINE
FILTER VALUE PLOTTED RIGHT OF LINE
CONTOUR INTERVAL 10,20,40 UNITS
PROFILE SCALE: 1cm = 12.5%

2.14688

SCALE 1:2500

50 0 50 100 150 200

METRES

OTTO TWP. PROPERTY

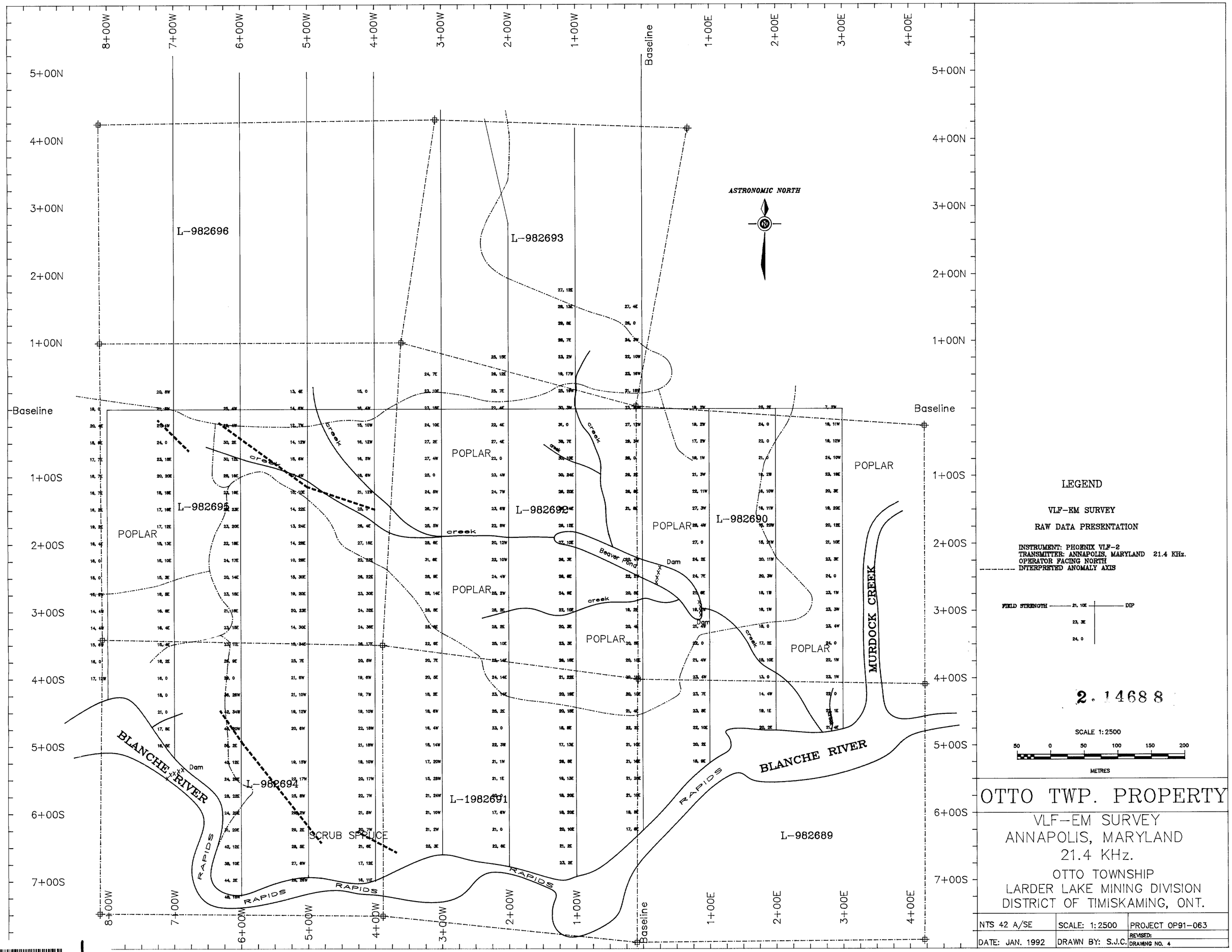
VLF-EM SURVEY
SEATTLE WASH. 24.8 KHz.

OTTO TOWNSHIP
LARDER LAKE MINING DIVISION
DISTRICT OF TIMISKAMING, ONT.

NTS 42 A/SE	SCALE: 1:2500	PROJECT OP91-063
DATE: JAN. 1992	DRAWN BY: S.J.C.	REVISED: DRAWING NO. 3

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210



LEGEND

VLF-EM SURVEY

RAW DATA PRESENTATION

INSTRUMENT: PHOENIX VLF-2
TRANSMITTER: ANNAPOLIS, MARYLAND 21.4 KHz.
OPERATOR FACING NORTH
INTERPRETED ANOMALY AXIS

FIELD STRENGTH —— 21, 10E —— DIP
23, 3E
24, 0

2.14688

SCALE 1:2500

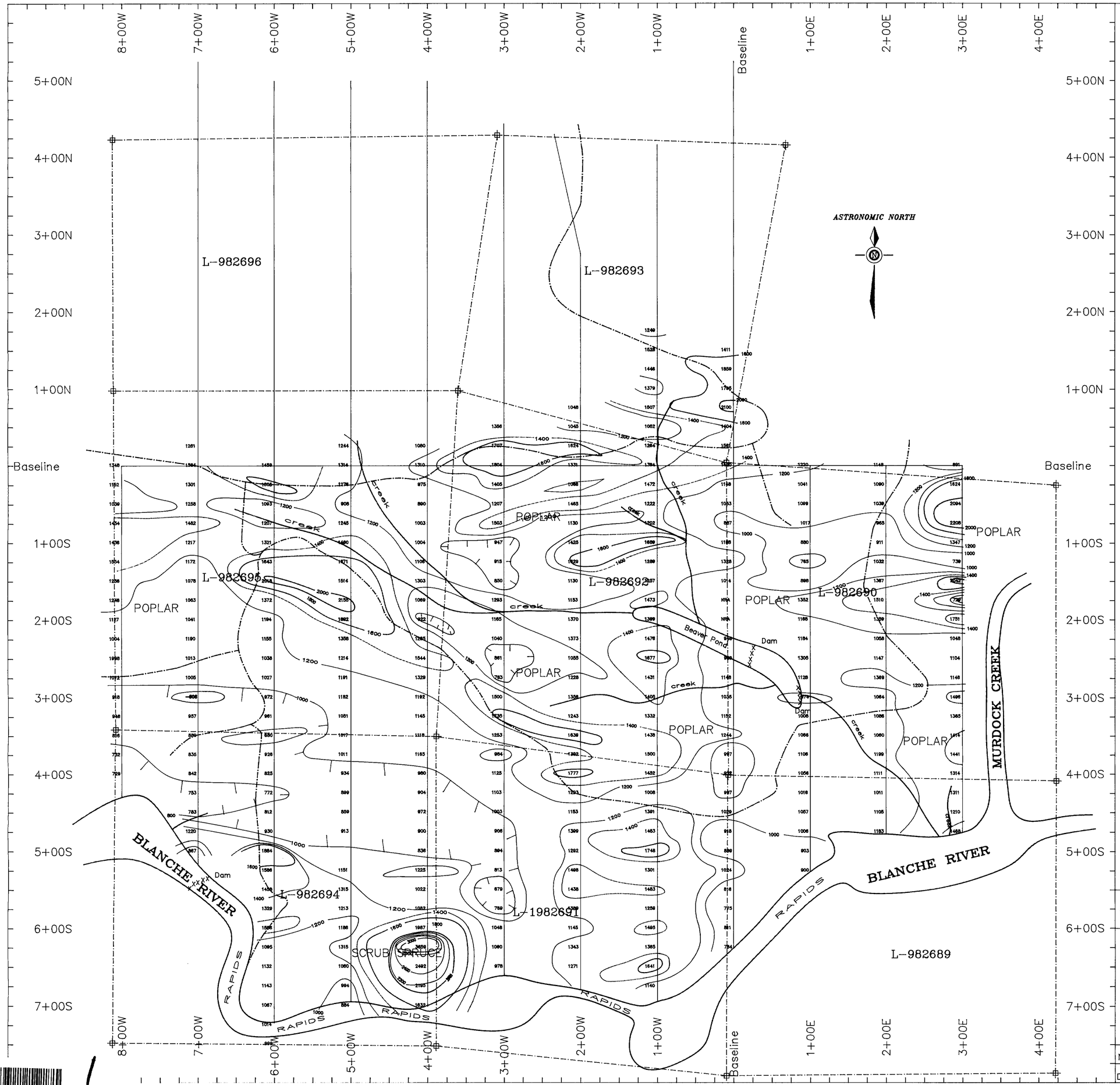
50 0 50 100 150 200
METRES

OTTO TWP. PROPERTY

VLF-EM SURVEY
ANNAPOLIS, MARYLAND
21.4 KHz.
OTTO TOWNSHIP
LARDER LAKE MINING DIVISION
DISTRICT OF TIMISKAMING, ONT.

NTS 42 A/SE	SCALE: 1:2500	PROJECT OP91-063
DATE: JAN. 1992	DRAWN BY: S.J.C.	REVISED: DRAWING NO. 4

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220



LEGEND

- 2,000+ Gamma Contour Interval
- 1,800 Gamma Contour Interval
- 1,600 Gamma Contour Interval
- 1,400 Gamma Contour Interval
- Magnetic Low

Contour Interval = 200 Gammas

Base Station – Line 0+00, 0+00
Set to 58,420 Gammas

57,000 Gammas Removed From All Stations

2.14688

SCALE 1:2500

50 0 50 100 150 200

METRES

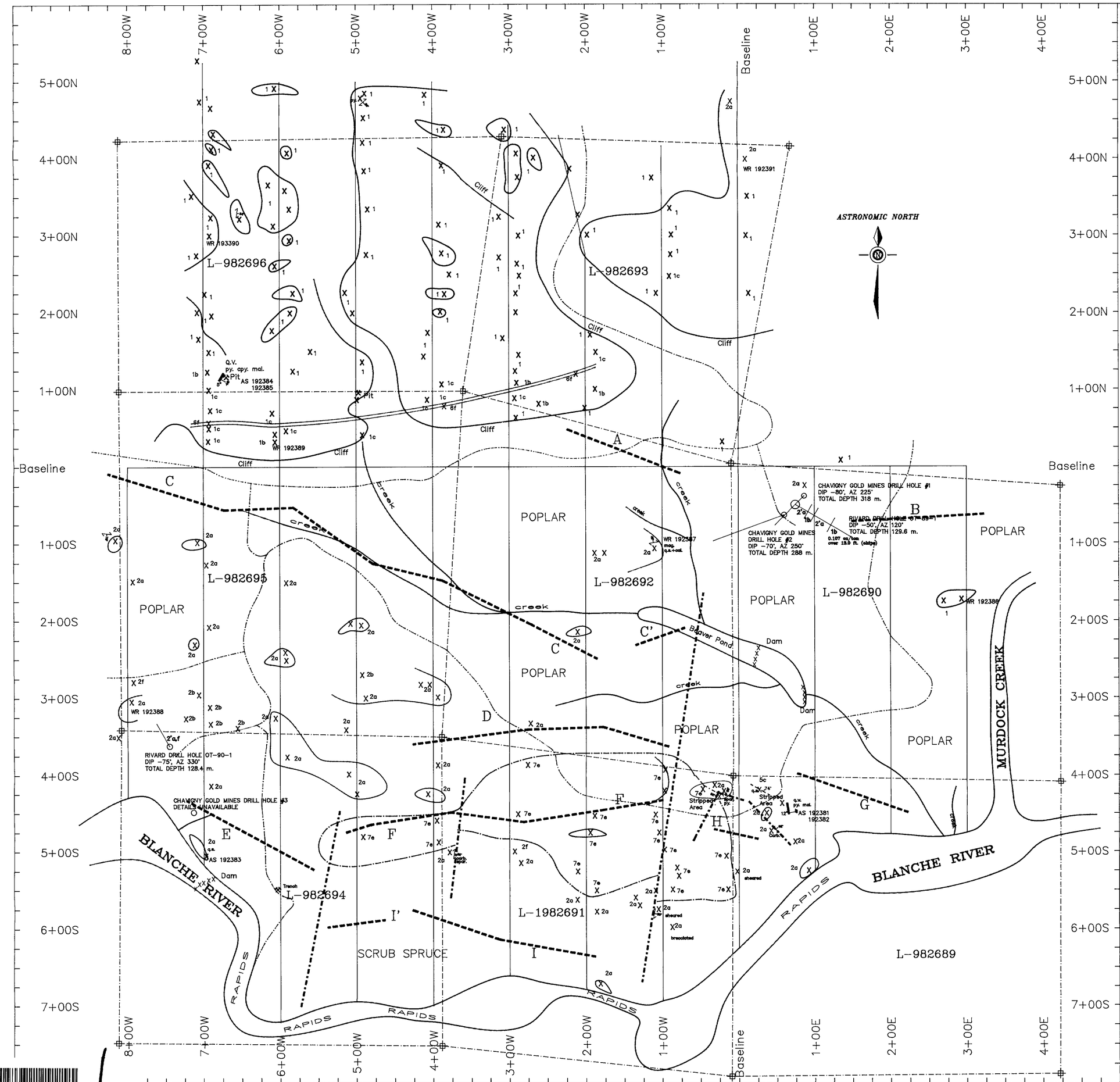
OTTO TWP. PROPERTY

MAGNETOMETER SURVEY

OTTO TOWNSHIP
LARDER LAKE MINING DIVISION
DISTRICT OF TIMISKAMING, ONT.

NTS 42 A/SE	SCALE: 1:2500	PROJECT OP91-063
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LEGEND

FELSIC TO INTERMEDIATE INTRUSIVE ROCKS

7 Undivided
7a Granite
7b Syenite
7c Feldspar Porphyry
7d Granodiorite
7e Diorite
7f Monzonite

MAFIC TO ULTRAMAFIC INTRUSIVE ROCKS

6 Undivided
6a Gabbro
6b Gabbro Anorthosite
6c Anorthosite
6d Pyroxenite
6e Peridotite
6f Diabase
6g Lamprophyre

SEDIMENTS

5 Undivided
5a Greywacke
5b Chert
5c Graphitic shale
5d Conglomerate
5e Sandstone
5f Shale

FELSIC METAVOLCANICS

4 Undivided
4a Rhyolite
4b Rhyolite breccia
4c Dacite
4d Dacite breccia

INTERMEDIATED METAVOLCANICS

3 Undivided
3a Massive andesitic flows
3b Pillowed andesitic flows
3c Andesitic tuff and lapilli tuff
3d Andesitic breccia

MAFIC METAVOLCANICS

2 2' Fe Mg
2 Undivided
2a Massive flows
2b Pillowed flows
2c Massive to well foliated coarse-grained flows
2d Porphyritic flows
2e Tuff and lapilli-tuff
2f Flow-top breccia

ULTRAMAFIC METAVOLCANICS

1 Undivided
1a Massive, polycustured serpentinized flows
1b Spinifex textured flows
1c Ultramafic pyroclastics
1d Talc-carbonate alteration

SYMBOLS

- Claim Post
- Claim Line
- Trail
- Creek
- Outcrop Boundary
- X — Small Outcrop or Station
- WR 192388 — Whole Rock or Assay Sample Location
- Strike and Dip of Foliation
- Strike and Dip of Bedding
- Geological Contact
- Fault
- q.s. — Quartz Stringers
- Q.V. — Quartz Vein With Width and Dip
- cal. — Calcite Stringers
- mag. — Magnetic Attraction
- py. — Pyrite
- cpy. — Chalcopyrite
- mal. — Malachite
- carb. — Carbonate Alteration
- spar. — Sparry Calcite
- Drill Hole
- Pit or Trench
- VLF-EM Anomaly

SCALE 1:2500 2.14688

50 0 50 100 150 200 METRES

OTTO TWP. PROPERTY

SURFACE GEOLOGY PLAN

OTTO TOWNSHIP
LARDER LAKE MINING DIVISION
DISTRICT OF TIMISKAMING, ONT.

NTS 42 A/SE	SCALE: 1:2500	PROJECT 0P91-063
DATE: JAN. 1992	DRAWN BY: S.J.C.	REVISED: DRAWING NO. 1

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