42A01SE0054 OP92-123 OTTO

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

S.J. Carmichael Consultants
Kirkland Lake, Ontario

Sept. 1, 1992
NTS 42/SE
OPAP # OP92-123

42A01SE0054 OP92-123 OTTO

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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 Phillip Rivard, 59 Second St., 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 OP92-123. The grant was approved in June, 1992. A second grant was awarded to Mr. Rivard's partner, (50-50%) for an additional $10,000.00, the results of which will be covered in a second report upon completion of additional diamond drilling on the Otto Twp. property.

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.

In 1991, Mr. Rivard completed ground magnetometer, VLF-EM and geological mapping under the guidance of S.J. Carmichael Consultants. This work was also completed under an OPAP grant.

This years program, covered in this report, included an advanved VLF-EM survey termed Maxi-Probe. This is in effect a mobile VLF transmitter which measures 14 frequencies ranging from 42.968 kHz to 0.228 kHz. The use of multiple frequencies eliminates possible overburden anomalies defined by regular VLF-EM surveys.

A number of anomalies were verified by the Maxi-Probe survey, two of which were tested by diamond drilling. (2 holes totalling 212m, 1 hole abandoned at 13.7m.)

No significant metal values were intersected in either of the drill holes and further work on this section of the property is not recommended.

The total expenditures incurred during this phase of geophysics and diamond drilling is $11,543.50.

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

INTRODUCTION

This report on Phillip Rivard's Otto Township mining exploration property has been prepared by S.J. Carmichael at the request of Mr. Rivard. It is an assessment of recent exploration completed on the property and is intended to fulfil both OPAP and assessment requirements.

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 supervised the following drilling program. All work on the claims was performed between June 11 and August 14, 1992.

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.

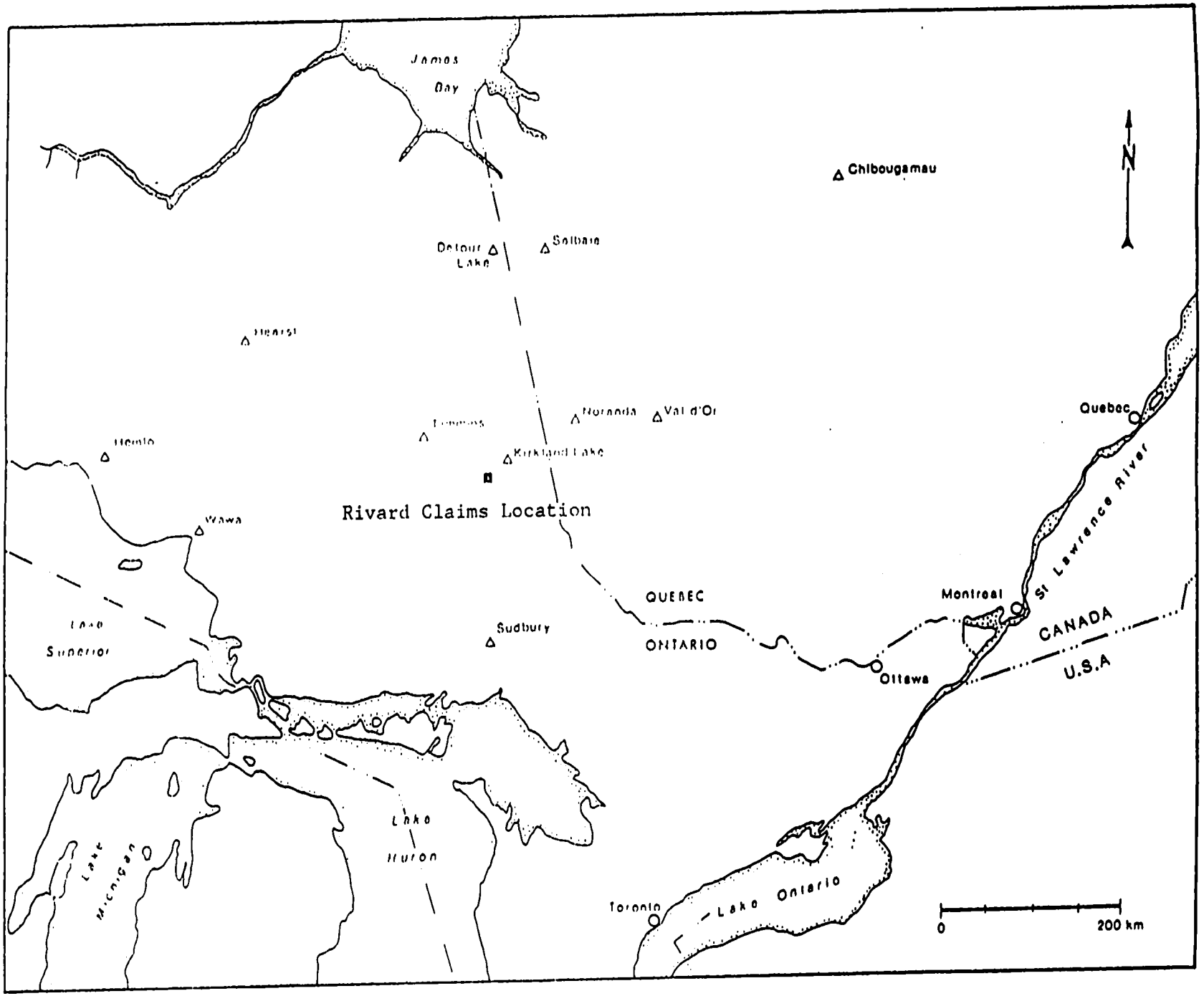


Figure 1 General Location Plan

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 run off. 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. The Maxi-Probe survey indicated that the overburden is generally less than thirty feet in depth over the entire property.

LAND TENURE AND OWNERSHIP

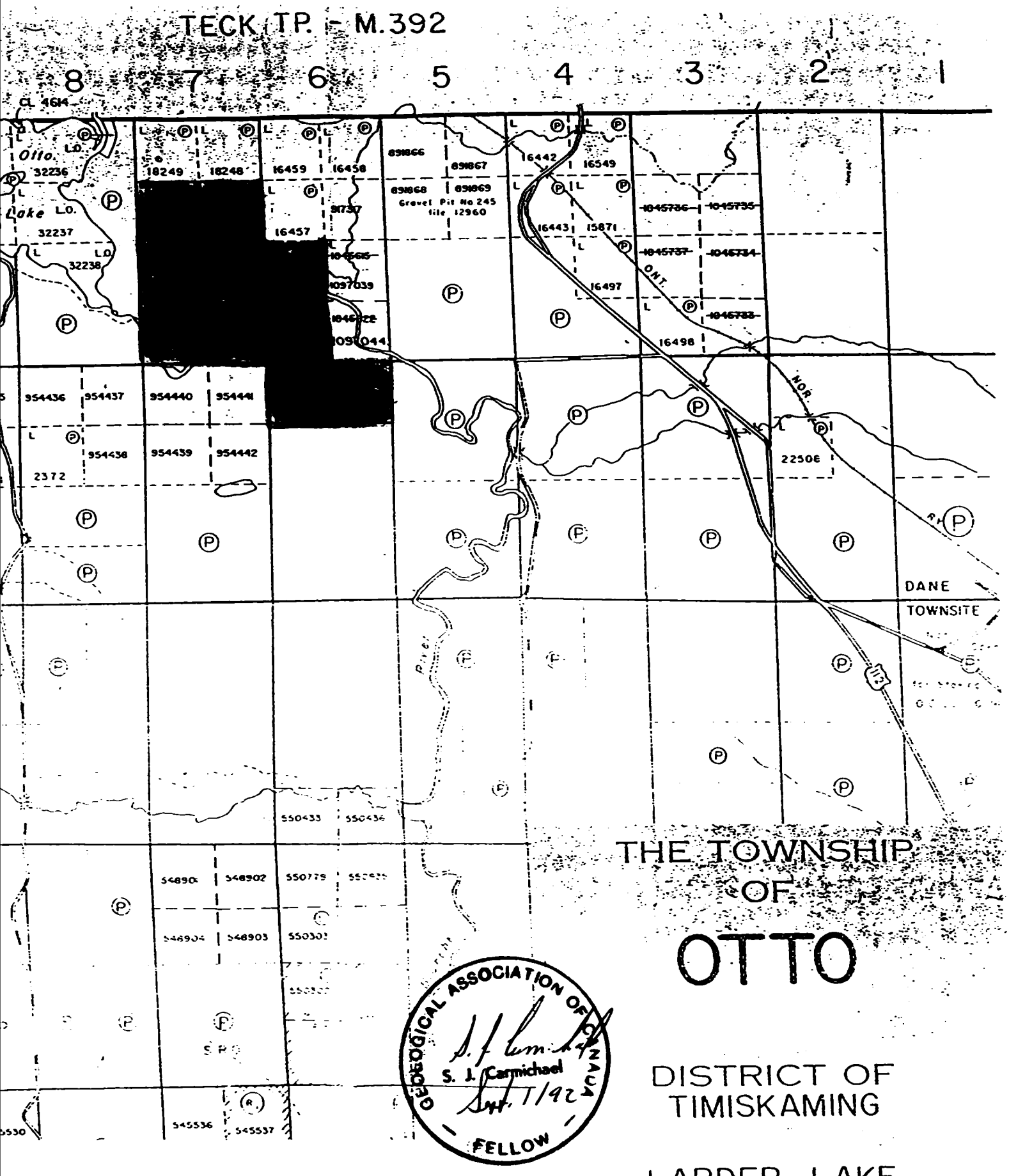
The Otto Township property comprises 10 staked contiguous unsurveyed mining claims with a total area of approximately 400 acres. The claim numbers, recorded dates and applied assessment credits are listed in the following table:

CLAIM NUMBER	RECORDED DATE	APPLIED CREDITS	COMMENTS
L-982689	July 12, 1987	N/A	In good standing until July 12, 1995
L-982690	July 21, 1987	N/A	In good standing until July 21, 1995
L-982691	July 21, 1987	N/A	In good standing until July 21, 1995
L-982692	July 21, 1987	N/A	In good standing until July 21, 1995
L-982693	July 28, 1987	N/A	In good standing until July 28, 1995
L-982694	July 22, 1987	N/A	In good standing until July 22, 1995
L-982695	July 25, 1987	N/A	In good standing until July 25, 1995
L-982696	July 25, 1987	N/A	In good standing until July 25, 1995
L-982697	August 10, 1987	N/A	In good standing until Aug. 10, 1995
L-982698	August 10, 1987	N/A	In good standing until Aug. 10, 1995

All claims will require $400.00 work in 1996. The programs completed under this year's OPAP program should maintain the claims until 1997.

PROPERTY HISTORY

The first government map published covering the present Rivard group was by J. Thomson, 1948 titled Geology of Teck Township and



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Figure 2

Claim Location Plan 1"=1/2 Mile

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 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. The mapping was completed in 1991.

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.

1992 EXPLORATION PROGRAM

SUMMARY

The 1992 exploration program on the Rivard claims included a total of 3.5 km of Maxi-Probe EM surveying followed by diamond drilling. Two Maxi-Probe anomalies were tested with three holes; two of which were completed for a total of 212m with one hole abandoned due to blocky ground at 13.7m. Both holes were located on line 7+00W on the west section of the property. Additional holes are currently being drilled over the east section of the property.

A) Maxi-Probe Survey

GEOEM Systems based in Toronto were contracted to test and verify a number of anomalies located by a VLF-EM survey completed during 1991. Due to the suspected nature of the overburden (clay), a

number of anomalies were thought to be caused by overburden response. Since I.P. methods are also suspect to conductive overburden, the Maxi-Probe method was chosen. A number of weak to strong anomalies were located, roughly coincident with both INPUT and VLF-EM responses. The results and pseudo-sections are included in section 2 of this report written by Dr. M. Ghosh, Ph.D., P. Eng.

B) Diamond Drilling

The first anomaly tested was on line 7+00W, 4+50S and was termed a strong anomaly. It is roughly coincident with a hole drilled by Chavigny Gold Mines Ltd. in 1948 which was reported to have intersected anomalous gold, although at a grade too low for further testing at the gold price of the day. ($35.00/oz)

Two holes were attempted to test the anomaly:

Hole No.	Lat.	Long.	Dip	Az.	Depth
OT1-92	7+00W	4+16S	-45 deg.	180 deg.	13.7m
OT2-92	7+00W,	4+12S	-45 deg.	180 deg.	83.2m

OT1-92 was abandoned at 13.7m due to blocky ground despite attempts to cement the hole.

OT2-92 intersected basalt followed by intercalated siltstone, graphitic shale and basaltic komatiite with local weak talc/chlorite alteration. The sections of graphitic shale were weakly brecciated with quartz/calcite stringers and trace to 4% disseminated pyrite. Core recovery through the graphitic sections was less than ideal at 20-39% recovery. No significant metal values were intersected although the graphitic sections were weakly mineralized with minor sphalerite blades.

A second Maxi-Probe anomaly was tested centred on line 7+00W, 0+25N and was termed a moderate strength anomaly. It also occurs roughly along strike of the gold intersection in OT-89-1 possibly representing a mineralized shear at a mafic-ultramafic contact, the ultramafics to the north.

The location of this hole is:

Hole No.	Long.	Lat.	Dip	Az.	Depth
OT3-92	7+00W,	0+20S	-45 deg.	000	129.0m

This hole intersected basaltic komatiite to 52.90m followed by basalt; probably a Mg-tholeiite. A section of weak alteration with 2% pyrite was intersected from 33.84-35.98m within the komatiite. It seams unlikely that either the mineralized section or the ultramafic-mafic contact caused the Maxi-Probe anomaly, thus the cause of this anomaly remains to be determined. No significant gold assays were intersected.

B) Conclusions and Recommendations

Further work on this section of the Rivard property is not recommended. The strong Maxi-Probe anomaly on the south portion of line 7+00W appears to have been caused by barren graphitic shale. The moderate anomaly to the north remains unexplained, perhaps caused by operator error due to the steep topography north of the baseline.

Further work on the property will be determined by the drilling results obtained over the east section of the property.

Respectfully Submitted

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

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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 1 day of September, 1992

Stewart J. Carmichael

Stewart J. Carmichael, B.Sc., FGAC

Appendix B

LIST OF EXPENDITURES

A) DIRECT COSTS

1) Labour, 20 days at $100.00/day	*$2,000.00*
2) Helper	*900.00*
3) Maxi-Probe Survey	*4,280.00*
4) Geological Consultant)	*500.00*
5) Assays	*374.44*
6) Fuel	*606.74*
7) Drill Equipment	*1,031.51*
8) Repairs	*1,496.92*
9) Supplies	*281.66*
Total	*$11,471.27*

B) INDIRECT COSTS

1) Float	*$72.23*
Total	*$72.23*

TOTAL DIRECT AND INDIRECT COSTS *$11,543.50*

Appendix C

DIAMOND DRILL LOGS

FERN RIVARD OPAP

DIAMOND DRILL RECORD

Co-ords -416.0 N -700.0 E

Azimuth: 180.0

Dip: -45.0

Elevation 1000.0

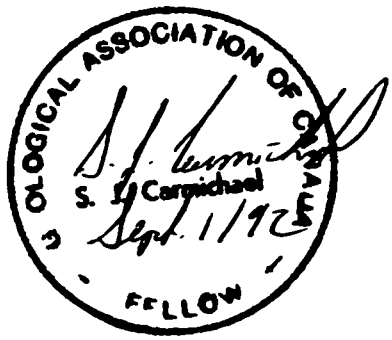
Length: 13.7

HOLE NO.: OT1-92

Property: OTTO OPAP
Purpose: Test Maxi-Probe Anomaly
Drilled by: F. Rivard
Date Started: June 25, 1992
Date Completed: July 8, 1992
Logged by: S.J. Carmichael, July 20, 1992
Core Size: EQ, 7/8 inch
Claim Number: L-982694

Dip Tests

from (m)	to (m)	Description	Sample No.	from (m)	to (m)	Length (m)	AU PPB	Au-2 oz/ton
.00	1.52	CASING						
1.52	13.70	BASALT Dark green fine-grained basalt. Non-magnetic. Core is blocky and broken throughout. 13.70 End of Hole. Hole terminated due to caving. Casing Pulled. Core stored at Rivard residence.						



Co-ords -412.0 N -700.0 E

Azimuth: 180.0

Dip: -45.0

Elevation 1000.0

Length: 83.2

FERN RIVARD OPAP

DIAMOND DRILL RECORD

HOLE NO.: OT2-92

Property: OTTO RIVARD

Purpose: Test Maxi-Probe Anomaly

Drilled by: Fern Rivard

Date Started: July 9, 1992

Date Completed: July 16, 1992

Logged by: S.J. Carmichael, July 20, 1992

Core Size: EX

Claim Number: L-982694

Dip Tests

from (m)	to (m)	Description	Sample No.	from (m)	to (m)	Length (m)	AU PPB	Au-2 oz/ton
.00	2.74	CASING						
2.74	27.13	BASALT Dark green fine to medium-grained massive basalt. Weakly fractured with quartz +- calcite stringers and minor veins. Basalt is non-magnetic. Becoming finer-grained and grey in color down section at 14.0m.						
4.57	5.49	2' of ground core.						
6.49	8.02	Weakly carbonatized with 1% pyrite, 75% recovery.	192392	6.49	8.02	1.53	7.0	n/a
			192393	8.02	8.72	.70	<5.0	n/a
8.72	9.30	1 inch quartz vein at 8.93m, dip 45 deg. To C.A. 4-5% finely disseminated pyrite from 8.72-9.06', trace remainder of section.	192394	8.72	9.30	.58	<5.0	n/a
12.13	12.91	1' of ground core, 5% disseminated pyrite from 12.20-12.32m.	192395	12.13	12.81	.68	<5.0	n/a
14.02		Becoming lighter grey in color, possibly andesitic.						
16.16	16.77	Ground core.						
16.77		1 inch quartz vein, dip 48 degrees to C.A., barren.						
17.68	19.21	Increase in facturing, 2-3% disseminated blebs of pyrite in hairline fractures.	192396	17.68	19.21	1.53	<5.0	n/a
19.21	20.73	As above, 1-2% pyrite.	192397	19.21	20.73	1.52	7.0	n/a
25.92	26.22	Very fine-graind and silicious with buff coloration. Possible flow top. 1/2 inch quartz vein at 26.0m, dip 60 degrees to C.A. Trace to 1% pyrite.	192398	25.92	26.22	.30	5.0	n/a
27.13	30.18	BRECCIATED BASALT Dull green fragmented basalt, possible flow top. Fragments are sub-rounded to angular, up to 1cm in size. Minor hematite stringers throughout.						

from (m)	to (m)	Description	Sample No.	from (m)	to (m)	Length (m)	AU PPB	Au-2 oz/ton
30.18	31.16	SILTSTONE Buff laminated siltstone and breccia. Highly fractured with 2% quartz +- carbonate stringers. Weakly carbonatized with 2-4% disseminated pyrite.	192399	30.18	31.16	.98	<5.0	n/a
31.16	31.71	GRAPHITIC SHALE Black intercalated graphitic/carbonaceous shale and volcanic. 25% core recovery.						
31.71	33.54	CARBONATED ULTRAMAFIC Dark green to black ultramfic. Highly carbonated with calcite flooding +- quartz. Weak foliation at 26 degrees to C.A. 2% disseminated pyrite throughout. Unit may be an altered basaltic komatiite.						
		31.71 32.77 As above.	192400	31.71	32.77	1.06	8.0	n/a
		32.77 33.54 As above, graphitic breccia from 32.84-32.93m.	224501	32.77	33.54	.77	7.0	n/a
33.54	34.51	BRECCIATED GRAPHITIC SHALE Black fine graphitic shale. Highly fractured and brecciated with quartz +- calcite stringers. 4% disseminated pyrite as blebs and stringers. Trace to.25% sphalerite in fractures.	224502	33.54	34.51	.97	9.0	n/a
34.51	36.89	MAFIC INTRUSIVE Dark green fine-grained massive dike. Non-magnetic.						
36.89	39.94	GRAPHITIC SHALE Black weakly laminated graphitic shale, 5% pyrite throughout. 20% core recovery.	224503	36.89	39.94	3.05	12.0	n/a
39.94	47.10	BASALTIC KOMATIITE Dark olive green basaltic komatiite. Weakly to moderately talcose with 15-20% carbonate flooding with minor quartz. Alteration is close to talc-chlorite-schist.						
47.10	50.40	MAFIC INTRUSIVE Fine-grained non-magnetic diabasic dike.						
50.40	83.23	BASALTIC KOMATIITE Continuation of unit above dike. 73.64 Weak shear, dip 18 degrees to C.A. 79.60 1 inch mafic syenite vein, dip 55 degrees to C.A. 83.23 End of Hole. Casing Pulled.						

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from (m)	to (m)	Description	Sample No.	from (m)	to (m)	Length (m)	AU PPB	Au-2 oz/ton
		Core Stored At Rivard Residence.						
		Additional Assays.						
		32.77-33.54 0.05% Zn, 2 ppm Ag.						
		33.54-34.51 0.06% Zn, <2 ppm Ag.						
		36.89,39.94 0.05% Zn, 1 ppm Ag.						

FERN RIVARD OPAP

DIAMOND DRILL RECORD

Co-ords -20.0 N -700.0 E

Azimuth: 360.0

Dip: -45.0

Elevation 1000.0

Length: 129.0

HOLE NO.: OT3-92

Property: OTTO RIVARD
Purpose: Test Maxi-Probe Anomaly
Drilled by: Fern Rivard
Date Started: July 18, 1992
Date Completed: August 9, 1992
Logged by: S.J. Carmichael, August 12, 1992
Core Size: EX, IEX
Claim Number: L-982695

Dip Tests

from (m)	to (m)	Description	Sample No.	from (m)	to (m)	Length (m)	AU PPB	Au-2 oz/ton
.00	14.02	CASING						
14.02	33.84	BASALTIC KOMATIITE Dark green chloritic basaltic komatiite. Possible flow top (polysuturing) throughout. Weakly talcose in sections. Weakly to moderately fractured with calcite/chlorite stringers. Core is blocky and broken throughout with 90% recovery.						
33.84	35.98	MINERALIZED ZONE Possible mafic dike. Dark green to green-grey on color. Fine-grained. Generally more massive than above volcanics. 10-15% quartz+-calcite stringers and flooding throughout. Mineralized with 2-4% disseminated pyrite. 33.84 35.06 Trace pyrite from 33.84-34.30m, increasing to 2% remainder of section. 35.06 35.98 4% finely disseminated pyrite throughout.	224504 224505	33.84 35.06	35.06 35.98	1.22 .92	<5.0 7.0	n/a n/a
35.98	52.90	BASALTIC KOMATIITE Continuation of upper volcanic sequence. Polysuturing more evident. 52.59 52.90 Silicified with quartz flooding from 52.50-52.84m, dip 52 deg. To C.A. Trace to 1% fine pyrite.	224506	52.59	52.90	.31	14.0	n/a
52.90	128.96	BASALT Dark green fine to medium-grained Mg-tholeiite. Slightly lighter green in color than the basaltic komatiite. Massive with a lack of polysuturing. Upper contact with the ultramafics may be gradational. Unit locally is spherulitic with short sections of flow						

from (m)	to (m)	Description	Sample No.	from (m)	to (m)	Length (m)	AU PPB	Au-2 oz/ton
		top breccia to 65.55m.						
	56.56	1/2 inch quartz vein, dip 14 deg. To C.A.						
77.90	82.77	Coarser-grained phase.						
	96.01	Change in core size to IEX (1 inch).						
109.76	111.13	Basalt, 1-2% dissemnated pyrite throughout.	224507	109.76	111.13	1.37	17.0	n/a
116.01	117.38	Weak local silicification with 1% disseminated pyrite and pyrite blebs.	224508	116.01	117.38	1.37	<5.0	n/a
117.38	118.90	2% quartz stringers, trace pyrite.	224509	117.38	118.90	1.52	30.0	n/a
118.90	119.82	As above.	224510	118.90	119.82	.92	6.0	n/a
119.82	120.73	Weak silicification, 1-2% finely disseminated pyrite.	224511	119.82	120.73	.91	25.0	n/a
120.73	122.04	Possible healed fault at 120.88m with 2 inches of brecciated quartz flooding. Trace to 1% dissemianted pyrite throughout.	224512	120.73	122.04	1.31	13.0	n/a
	128.96	End of Hole.						

Casing Pulled.
Core Stored At Rivard Residence.
SLUDGE ASSAYS.
67.07-70.12m 10 PPB.
70.12-73.17m 21 PPB.
73.17-76.22M 38 PPB.
76.22-79.27M 14 PPB.

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Appendix D

ASSAY CERTIFICATES

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.

45631

Certificate of Analysis

03192

Rivard, Mr. Fern
876 Gov't Rd. W.
Chaput Hughes, Ontario
P0K-1A0

July 22 92

Work Order # : 920263
Project :

SAMPLE NUMBERS Accurassay	Customer	Gold ppb	Gold Oz/T	
258883	192392	7	<0.001	
258884	192393	<5	<0.001	
258885	192394	<5	<0.001	
258886	192395	<5	<0.001	
258887	192396	<5	<0.001	
258888	192397	7	<0.001	
258889	192398	<5	<0.001	
258890	192399	5	<0.001	
258891	192400	<5	<0.001	
258892	224501	8	<0.001	
258892	224501	7	<0.001	Check
258893	224502	9	<0.001	
258894	224503	12	<0.001	
258894	224503	12	<0.001	Check

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

LF-30

Per: G. Duncan

ORIGINAL

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.

45636 # Certificate of Analysis

Rivard, Mr. Fern
876 Gov't Rd. W.
Chaput Hughes, Ontario
P0K-1A0

July 23 92

Work Order # : 920263
Project :

SAMPLE NUMBERS		Silver	Zinc
Accurassay	Customer	ppm	ppm
258892	224501	2	490
258893	224502	<1	630
258894	224503	1	470

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

Per: G. Duncan

LF-30

ORIGINAL

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45861

Certificate of Analysis

Rivard, Mr. Fern
P.O. Box 1091
KIRKLAND LAKE, Ontario
P2N 3L1

August 14 92

Work Order # : 920287
Project :

SAMPLE NUMBERS Accurassay	Customer	Gold ppb	Gold Oz/T	
259175	224504	<5	<0.001	
259176	224505	7	<0.001	
259177	224506	14	<0.001	
259178	224507	17	0.001	
259179	224508	<5	<0.001	
259180	224509	30	0.001	
259181	224510	6	<0.001	
259182	224511	25	0.001	
259183	224512	9	<0.001	
259183	224512	13	<0.001	Check

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

LF-30

Per: G. Duncan

ORIGINAL

Swastika Laboratories

A Division of Assayers Corporation Ltd.

Assaying - Consulting - Representation

Established 1928

Geochemical Analysis Certificate

2W-0788-RG1

Company: **F. RIVARD**

Date: AUG-06-92

Project:

Copy 1. BOX 1091 KIRKLAND LAKE, ONT. P2N 3L5

Attn:

We hereby certify the following Geochemical Analysis of 4 SLUDGES samples submitted JUL-31-92 by .

Sample Number	Au PPB
7237	10
7238	21
7239	38
7240	14

Certified by G. Pelow

P.O. Box 10, Swastika, Ontario P0K 1T0

Telephone (705) 642-3244. FAX (705) 642-3300

Swastika Laboratories

A Division of Assayers Corporation Ltd.

Assaying - Consulting - Representation

Established 1928

Geochemical Analysis Certificate

2W-0645-RG1

Company: **F. RIVARD**

Date: JUL-03-92

Project:

Attn:

We hereby certify the following Geochemical Analysis of 1 SLUDGE samples submitted JUL-02-92 by .

Sample Number	Au PPB
7192	7

Certified by Donna Gardner

P.O. Box 10, Swastika, Ontario P0K 1T0

Telephone (705) 642-3244. FAX (705) 642-3300

Established 1928

Swastika Laboratories

A Division of Assayers Corporation Ltd.

Assaying - Consulting - Representation

Geochemical Analysis Certificate

2W-0651-RG1

Company: F. RIVARD

Date: JUL-08-92

Project:

Attn:

We hereby certify the following Geochemical Analysis of 1 SLUDGE samples submitted JUL-03-92 by .

Sample Number	Au PPB
7193	17

Certified by Donna Gardner

P.O. Box 10, Swastika, Ontario P0K 1T0

Telephone (705) 642-3244. FAX (705) 642-3300

GEOEM INC.

5468 DUNDAS STREET WEST
SUITE 701,
TORONTO, ONTARIO
CANADA M9B 6E3

42A01SE0054 OP92-123 OTTO

FACSIMILE: (416) 234-1564

RESULTS OF

MAXI-PROBE E.M. SURVEY

AT

OTTO TWP., ONTARIO

FOR

FERN RIVARD

June, 1992

by: GEOEM INC.

GEOEM INC.

5468 DUNDAS STREET WEST
SUITE 701,
TORONTO, ONTARIO
CANADA M9B 6E3

TELEPHONE: (416) 234-6822
FACSIMILE: (416) 234-1564

July 7, 1992

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

RE: MAXI-PROBE E.M. Survey in Otto Twp., Ontario

Dear Mr. Rivard:

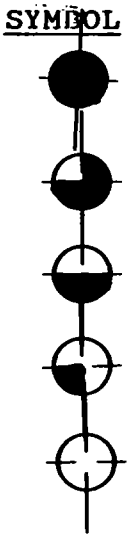
At your request, GEOEM INC. has carried out a high-resolution MAXI-PROBE E.M. survey on your property at Otto Twp., Ontario on six cut lines, 7W, 6W, 2W, 1E, 2E &3E. This survey was carried out during four days in the later part of June 1992.

The survey was performed using a frequency range of 100 to 50,000 Hertz and a spacing of 150 metres between the transmitter & receiver to obtain good data down to 150 metres on this property. The transmitter was kept to the north, which is the preferred dip direction, to obtain better coupling with the conductors.

The survey results have been presented in two forms: one is the E.M. Profile of tilt-angles & the other is the Pseudo-section in color of apparent resistivity against the frequency-depth scale. The survey results show a number of interesting conductors having various types of conductivities.

...../2

The conductors detected in the survey have been classified as follows:

SYMBOL		Conductor Type
	-	Excellent
	-	Good
	-	Medium
	-	Weak
	-	Minor

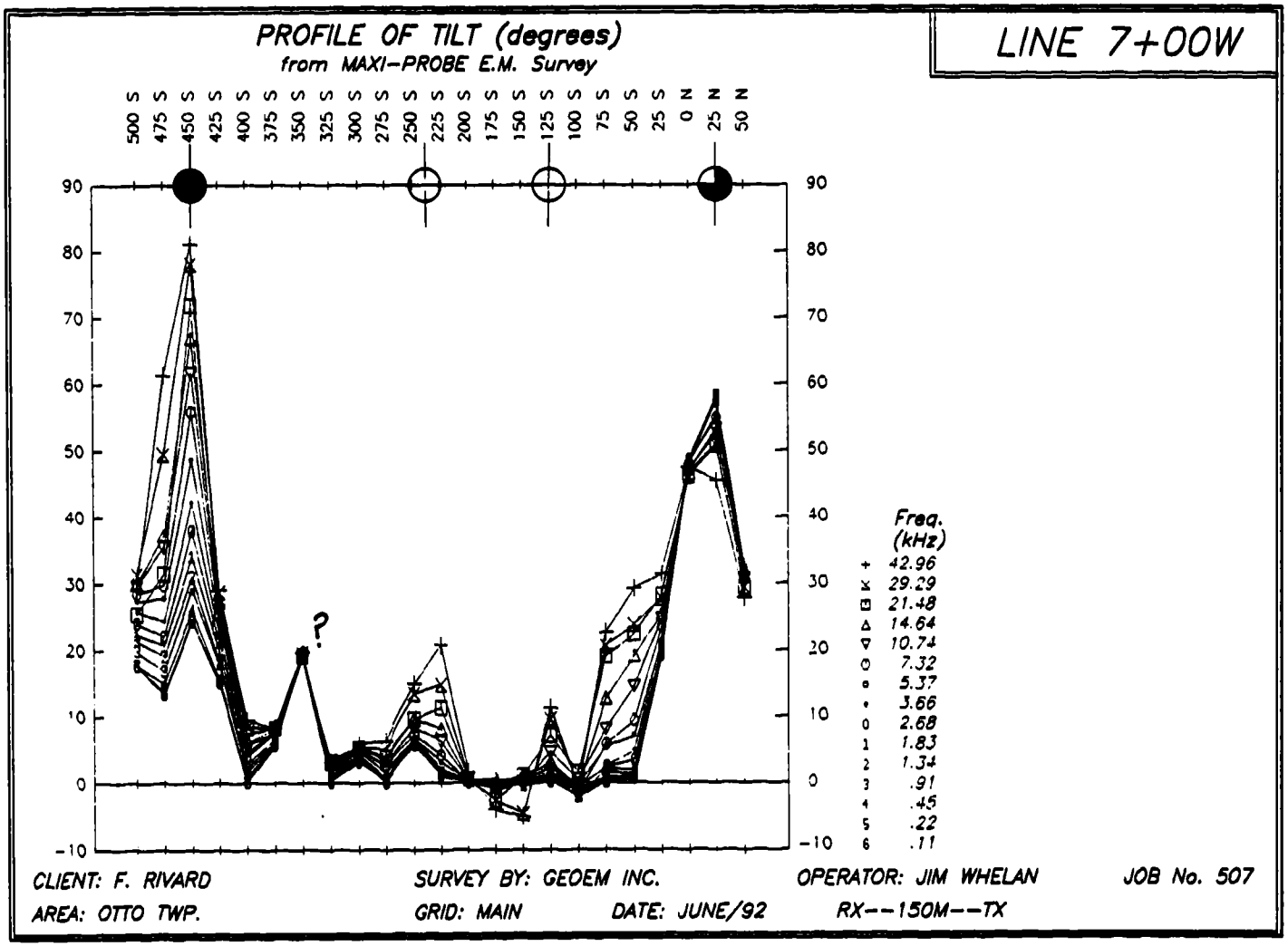
Each conductor identified on a line has been designated by one of the above symbols at its probable location. The excellent conductors have conductivity which may represent the massive sulphide or graphite targets. The minor, weak and medium conductors would represent shear-zone type structures. Shear-zones containing sulphide build-up will show somewhat higher conductivity. However, often gold is hosted in the silicified material at the shear-zones. This silicification is extremely resistive which shows only a weak or minor conductor anomaly. The good conductor classified in this survey might correspond to large fault zones or sulphides, or graphites.

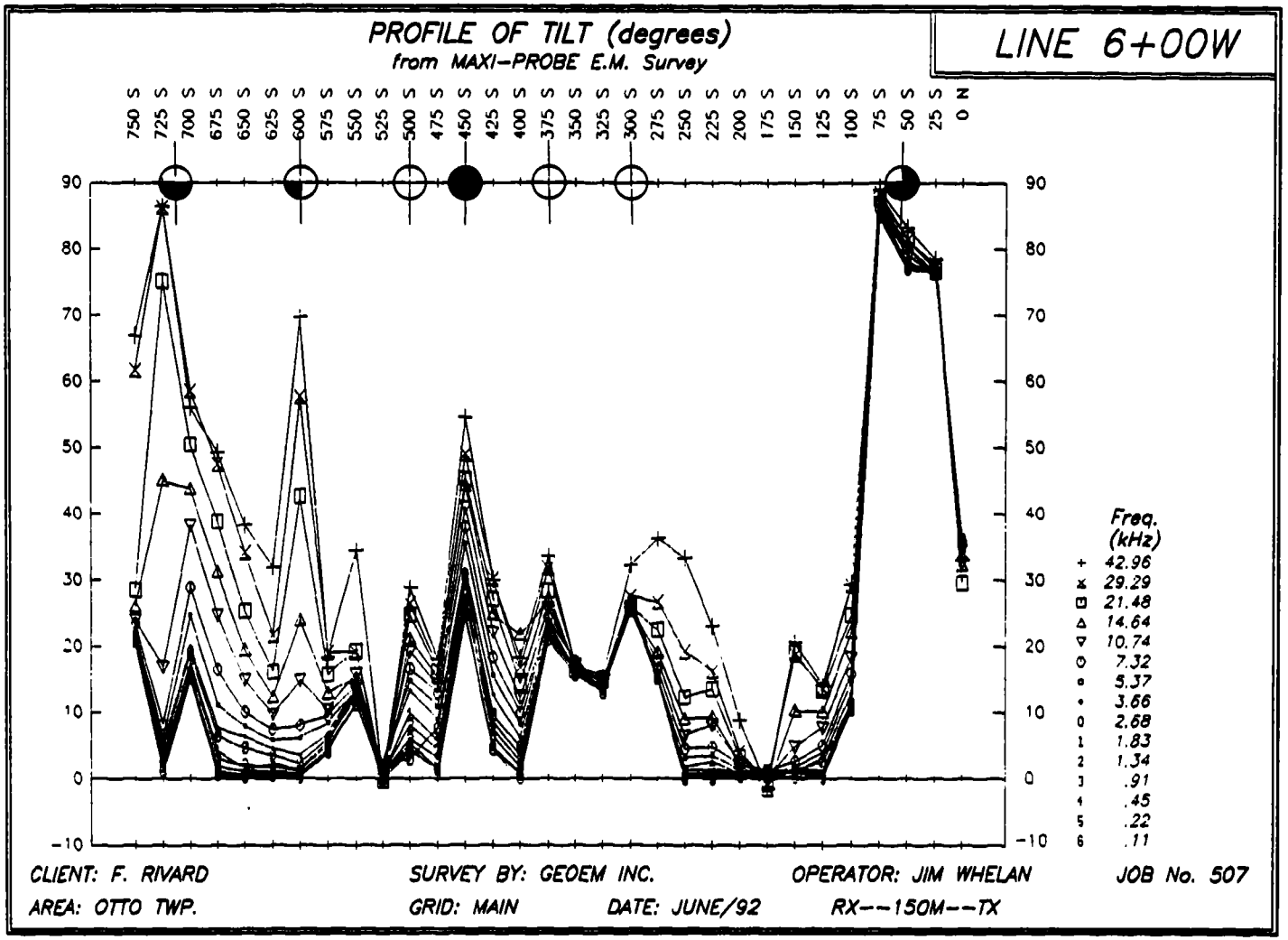
This property seems to have potential for both massive sulphide or gold. If initial drilling shows encouraging results, then it would be worth while to survey the entire property at 100 metre line spacing.

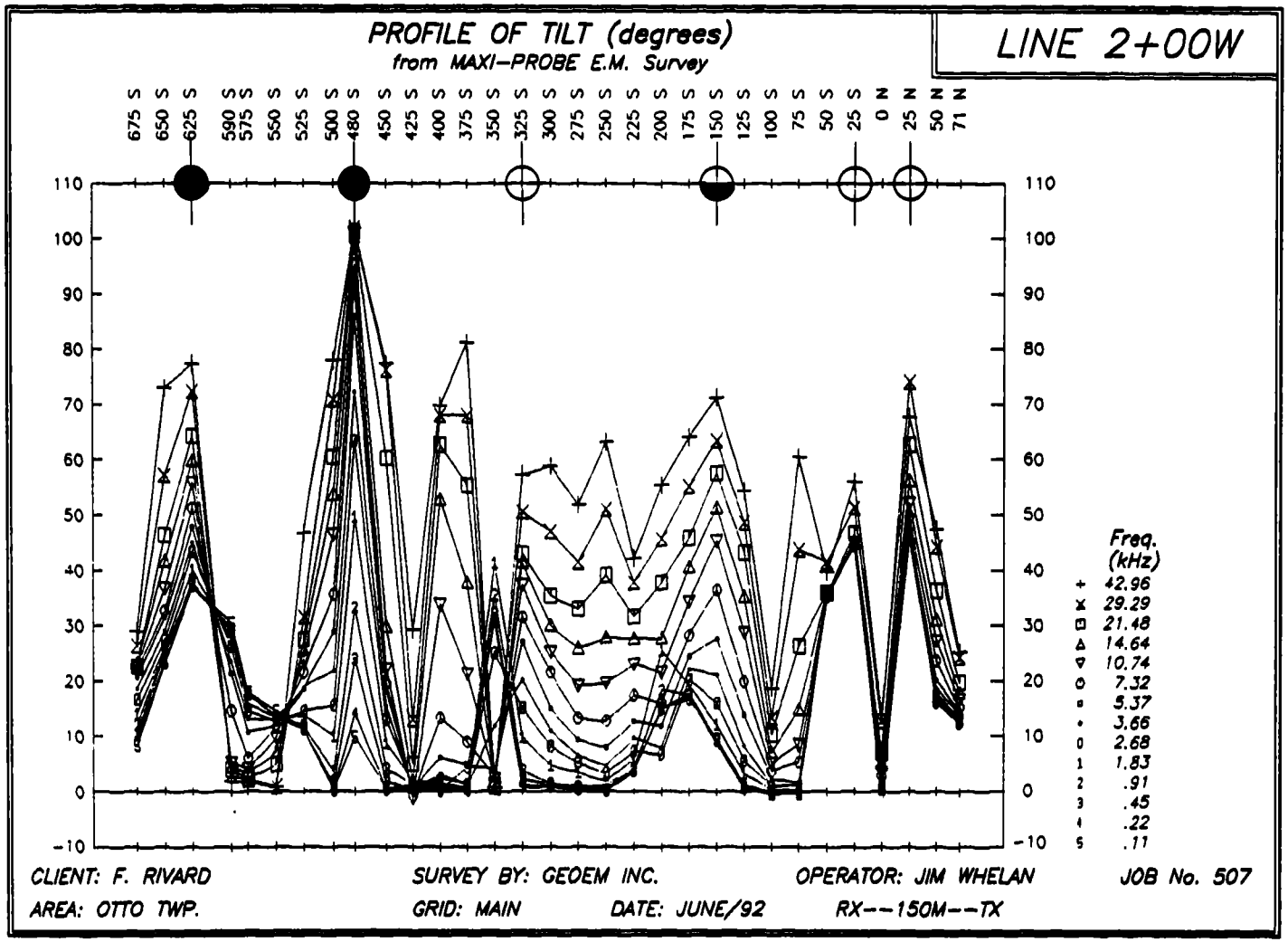
Good Luck!

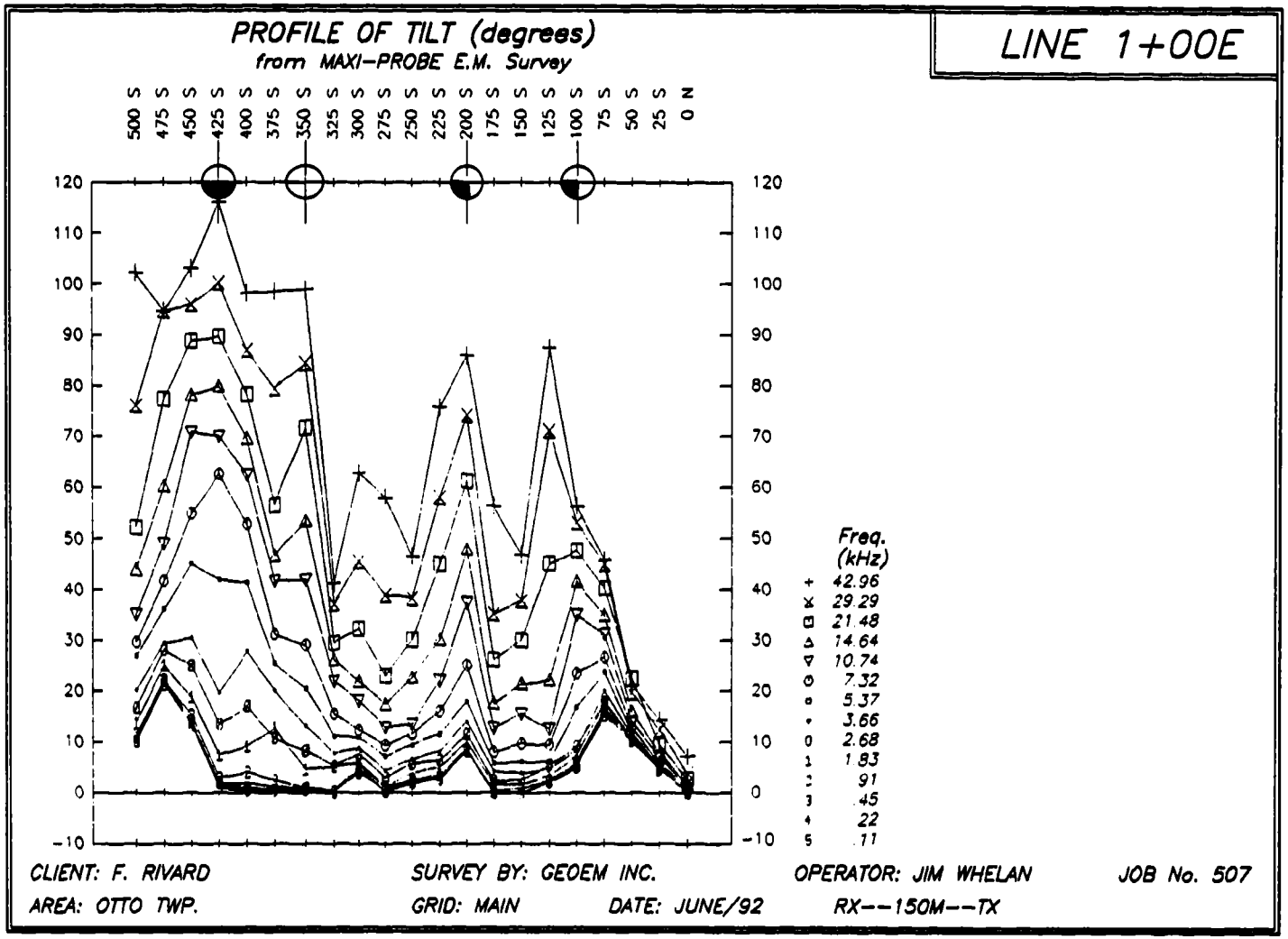
Yours sincerely
GEOEM INC.

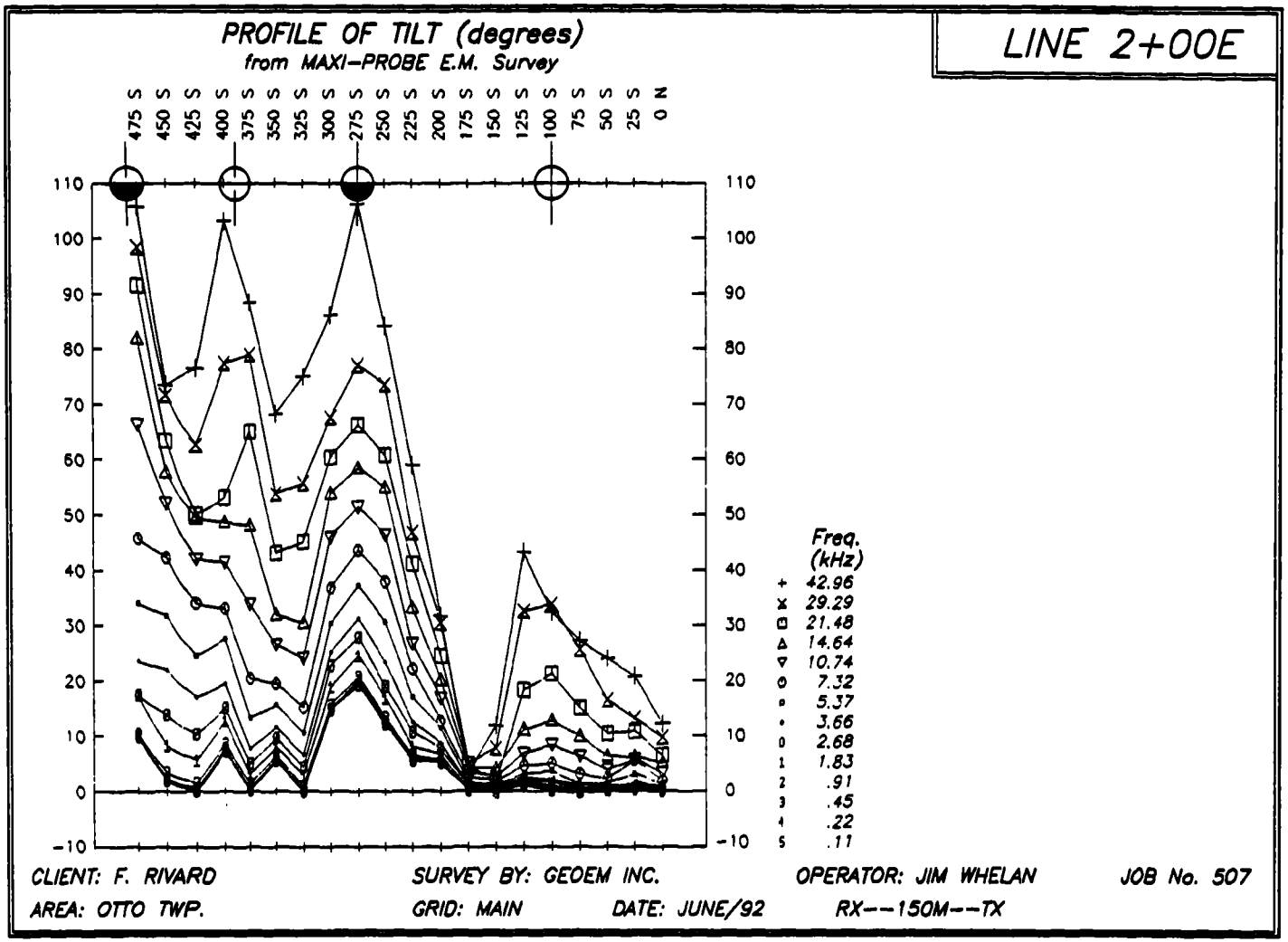
Dr. Mrinal K. Ghosh, Ph.D., P. Eng.


PROFILE OF TILT (degrees)
from MAXI-PROBE E.M. Survey
LINE 7+00W
500 S 475 S 450 S 425 S 400 S 375 S 350 S 325 S 300 S 275 S 250 S 225 S 200 S 175 S 150 S 125 S 100 S 75 S 50 S 25 S 0 N 25 N 50 N
90 80 70 60 50 40 30 20 10 0 -10
?
Freq. (kHz)
+ 42.96
K 29.29
□ 21.48
△ 14.64
▽ 10.74
○ 7.32
e 5.37
• 3.66
0 2.68
1 1.83
2 1.34
3 .91
4 .45
5 .22
6 .11
CLIENT: F. RIVARD
SURVEY BY: GEOEM INC.
OPERATOR: JIM WHELAN
JOB No. 507
AREA: OTTO TWP.
GRID: MAIN
DATE: JUNE/92
RX--150M--TX


PROFILE OF TILT (degrees)
from MAXI-PROBE E.M. Survey
LINE 6+00W
750 S 725 S 700 S 675 S 650 S 625 S 600 S 575 S 550 S 525 S 500 S 475 S 450 S 425 S 400 S 375 S 350 S 325 S 300 S 275 S 250 S 225 S 200 S 175 S 150 S 125 S 100 S 75 S 50 S 25 S 0 N
90 80 70 60 50 40 30 20 10 0 -10
Freq. (kHz)
+ 42.96
x 29.29
□ 21.48
△ 14.64
▽ 10.74
○ 7.32
e 5.37
• 3.66
0 2.68
1 1.83
2 1.34
3 .91
4 .45
5 .22
6 .11
CLIENT: F. RIVARD
SURVEY BY: GEOEM INC.
OPERATOR: JIM WHELAN
JOB No. 507
AREA: OTTO TWP.
GRID: MAIN
DATE: JUNE/92
RX--150M--TX


PROFILE OF TILT (degrees)
from MAXI-PROBE E.M. Survey
LINE 2+00W
675 S
650 S
625 S
590 S
575 S
550 S
525 S
500 S
480 S
450 S
425 S
400 S
375 S
350 S
325 S
300 S
275 S
250 S
225 S
200 S
175 S
150 S
125 S
100 S
75 S
50 S
25 S
0 N
25 N
50 N
71 N
110
100
90
80
70
60
50
40
30
20
10
0
-10
Freq. (kHz)
+ 42.96
x 29.29
□ 21.48
△ 14.64
▽ 10.74
○ 7.32
▫ 5.37
• 3.66
0 2.68
1 1.83
2 .91
3 .45
4 .22
5 .11
CLIENT: F. RIVARD
SURVEY BY: GEOEM INC.
OPERATOR: JIM WHELAN
JOB No. 507
AREA: OTTO TWP.
GRID: MAIN
DATE: JUNE/92
RX--150M--TX

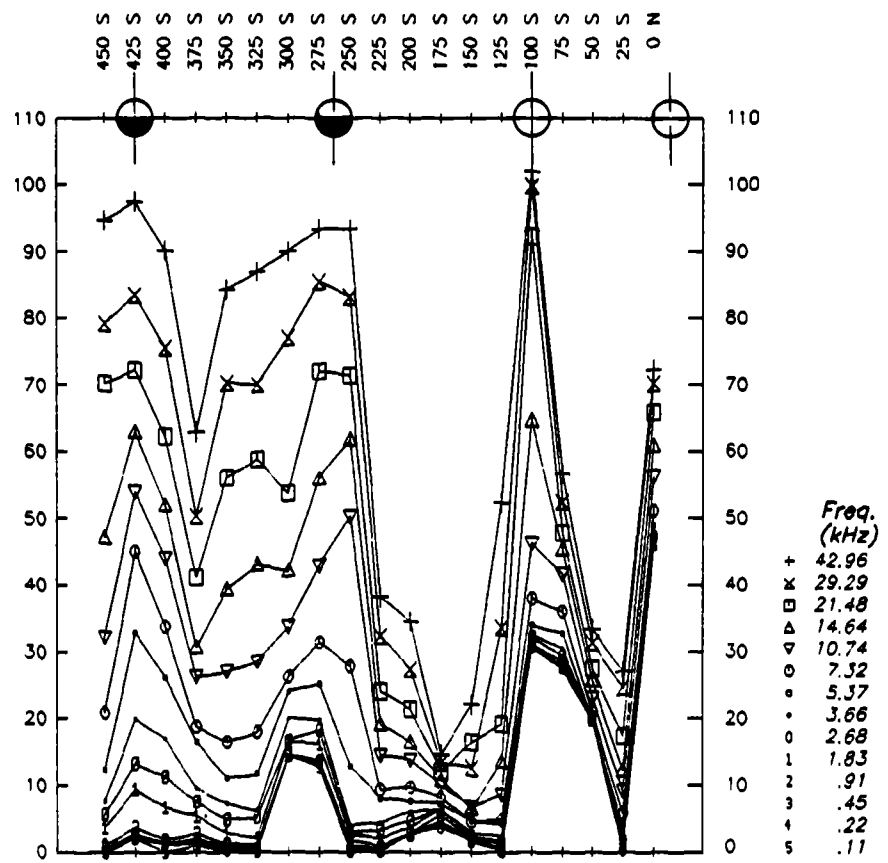

PROFILE OF TILT (degrees)
from MAXI-PROBE E.M. Survey
LINE 1+00E
500 S
475 S
450 S
425 S
400 S
375 S
350 S
325 S
300 S
275 S
250 S
225 S
200 S
175 S
150 S
125 S
100 S
75 S
50 S
25 S
0 N
120
110
100
90
80
70
60
50
40
30
20
10
0
-10
Freq. (kHz)
+ 42.96
× 29.29
□ 21.48
△ 14.64
▽ 10.74
○ 7.32
▫ 5.37
• 3.66
0 2.68
1 1.83
2 .91
3 .45
4 .22
5 .11
CLIENT: F. RIVARD
SURVEY BY: GEOEM INC.
OPERATOR: JIM WHELAN
JOB No. 507
AREA: OTTO TWP.
GRID: MAIN
DATE: JUNE/92
RX--150M--TX


PROFILE OF TILT (degrees)
from MAXI-PROBE E.M. Survey
LINE 2+00E
475 S
450 S
425 S
400 S
375 S
350 S
325 S
300 S
275 S
250 S
225 S
200 S
175 S
150 S
125 S
100 S
75 S
50 S
25 S
0 N
110
100
90
80
70
60
50
40
30
20
10
0
-10
Freq. (kHz)
+ 42.96
× 29.29
□ 21.48
△ 14.64
▽ 10.74
⊙ 7.32
◦ 5.37
• 3.66
0 2.68
1 1.83
2 .91
3 .45
4 .22
5 .11
CLIENT: F. RIVARD
SURVEY BY: GEOEM INC.
OPERATOR: JIM WHELAN
JOB No. 507
AREA: OTTO TWP.
GRID: MAIN
DATE: JUNE/92
RX--150M--TX

PROFILE OF TILT (degrees)

from MAXI-PROBE E.M. Survey

LINE 3+00E



Freq. (kHz)	
+	42.96
x	29.29
□	21.48
△	14.64
▽	10.74
⊙	7.32
e	5.37
•	3.66
0	2.68
1	1.83
2	.91
3	.45
4	.22
5	.11

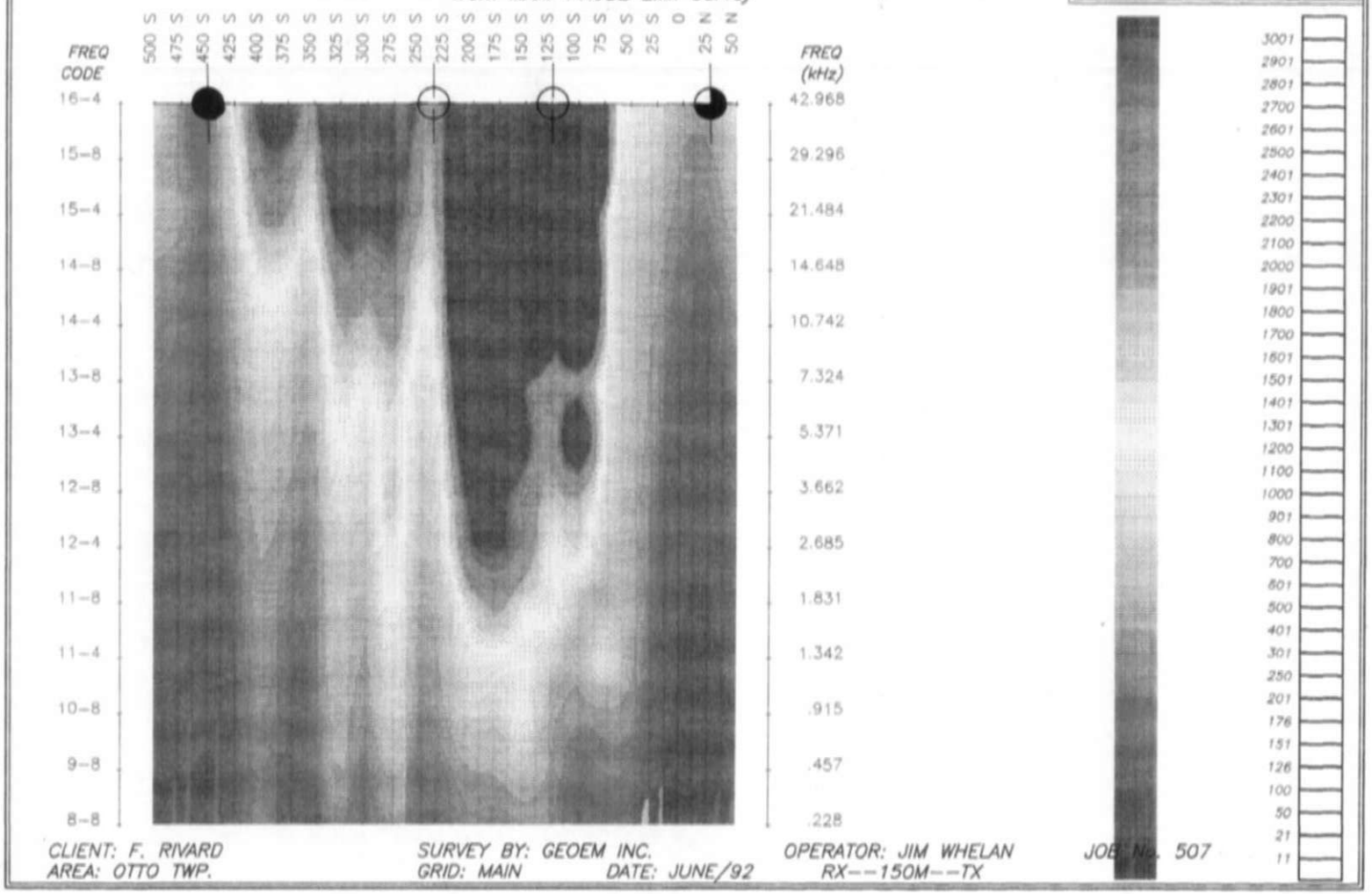
CLIENT: F. RIVARD — SURVEY BY: GEOEM INC. — OPERATOR: JIM WHELAN — JOB No. 507

AREA: OTTO TWP. — GRID: MAIN — DATE: JUNE/92 — RX--150M--TX

PSEUDO-SECTION OF APP. RESISITIVITY (ohm-metres)

from MAXI-PROBE E.M. Survey

LINE 7+00W

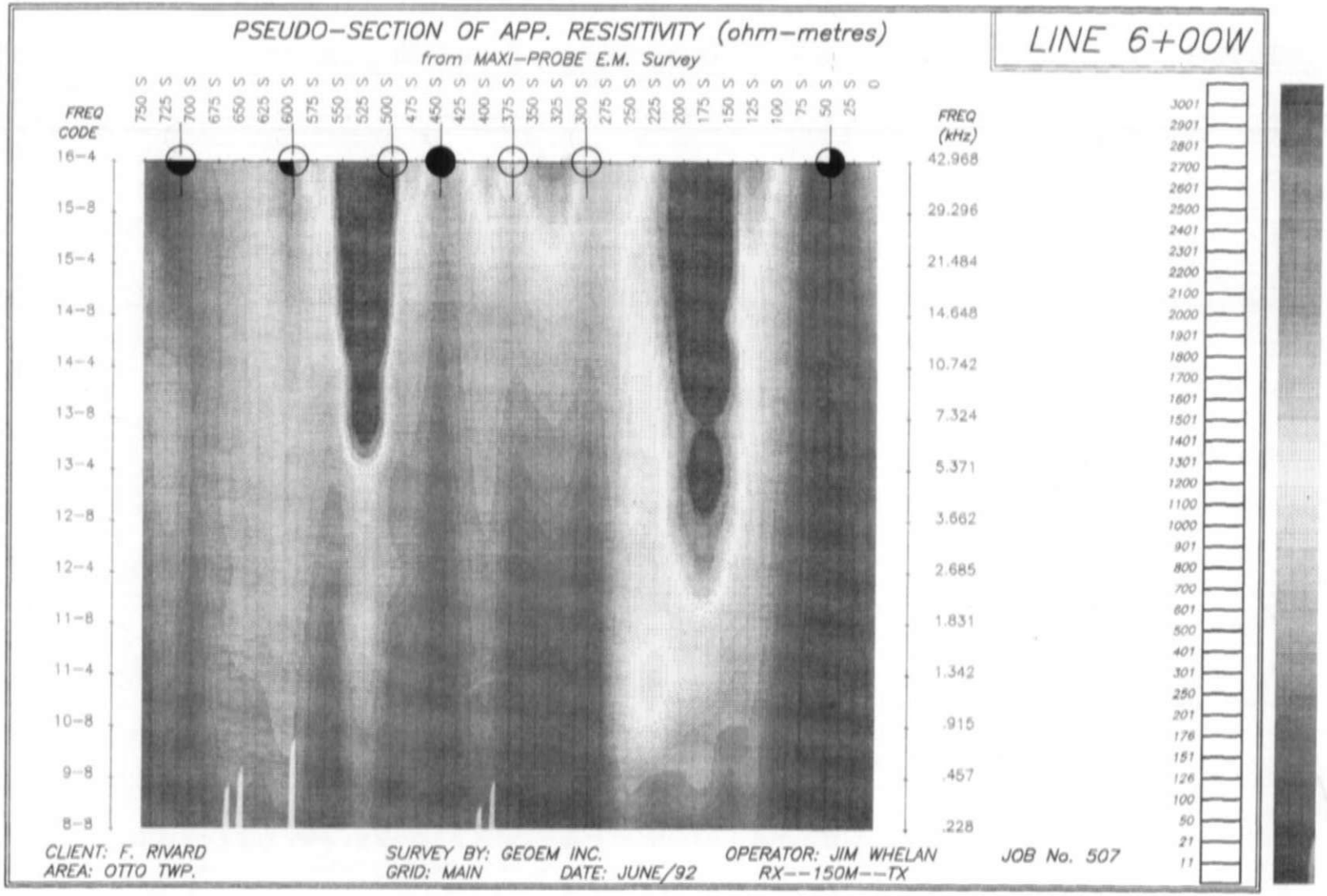


CLIENT: F. RIVARD
AREA: OTTO TWP.

SURVEY BY: GEOEM INC.
GRID: MAIN DATE: JUNE/92

OPERATOR: JIM WHELAN
RX--150M--TX

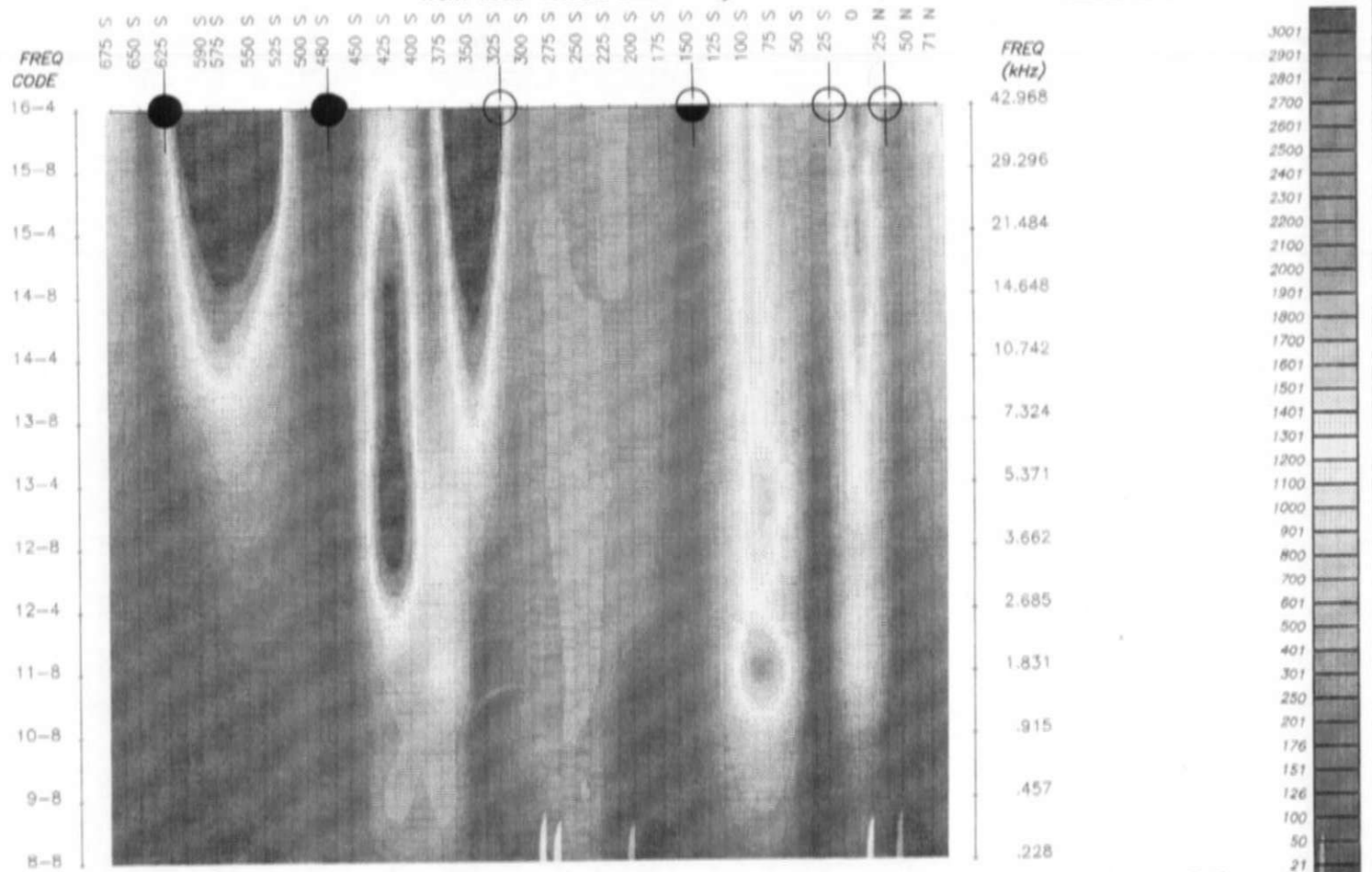
JOB No. 507


PSEUDO-SECTION OF APP. RESISITIVITY (ohm-metres)
from MAXI-PROBE E.M. Survey
LINE 6+00W
FREQ CODE
16-4
15-8
15-4
14-8
14-4
13-8
13-4
12-8
12-4
11-8
11-4
10-8
9-8
8-8
750 S
725 S
700 S
675 S
650 S
625 S
600 S
575 S
550 S
525 S
500 S
475 S
450 S
425 S
400 S
375 S
350 S
325 S
300 S
275 S
250 S
225 S
200 S
175 S
150 S
125 S
100 S
75 S
50 S
25 S
0
FREQ (kHz)
42.968
29.296
21.484
14.648
10.742
7.324
5.371
3.662
2.685
1.831
1.342
.915
.457
.228
3001
2901
2801
2700
2601
2500
2401
2301
2200
2100
2000
1901
1800
1700
1601
1501
1401
1301
1200
1100
1000
901
800
700
601
500
401
301
250
201
176
151
126
100
50
21
11
CLIENT: F. RIVARD
AREA: OTTO TWP.
SURVEY BY: GEOEM INC.
GRID: MAIN
DATE: JUNE/92
OPERATOR: JIM WHELAN
RX--150M--TX
JOB No. 507

PSEUDO-SECTION OF APP. RESISITIVITY (ohm-metres)

from MAXI-PROBE E.M. Survey

LINE 2+00W



CLIENT: F. RIVARD
AREA: OTTO TWP.

SURVEY BY: GEOEM INC.
GRID: MAIN
DATE: JUNE/92

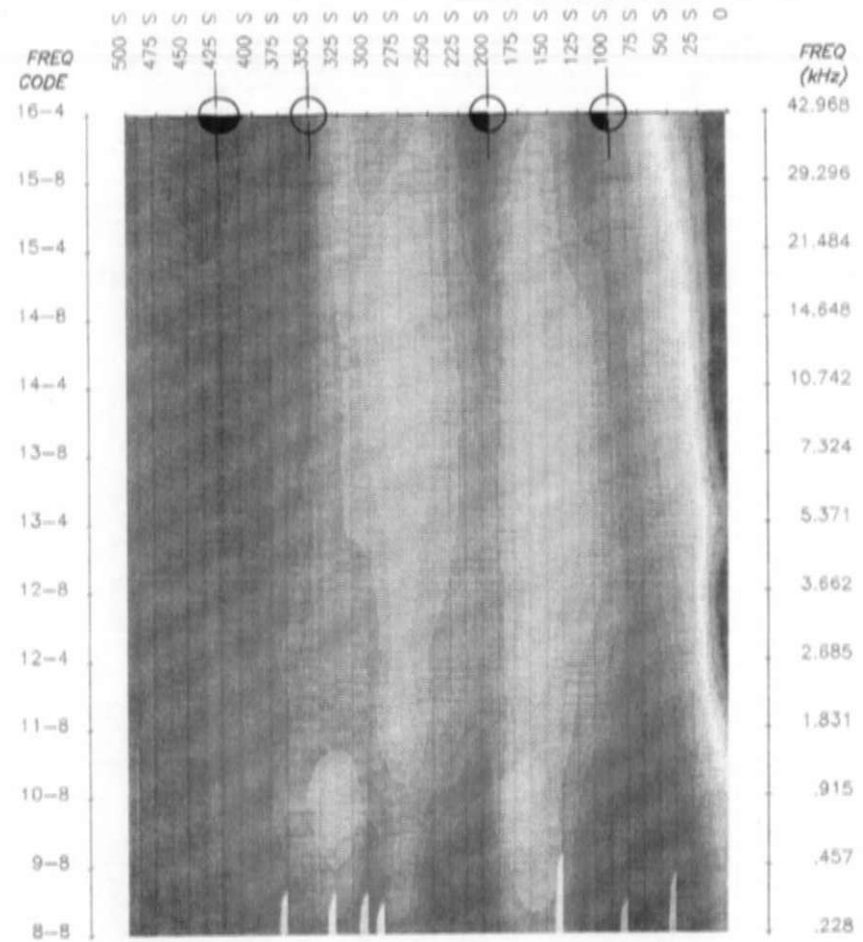
OPERATOR: JIM WHELAN
RX--150M--TX

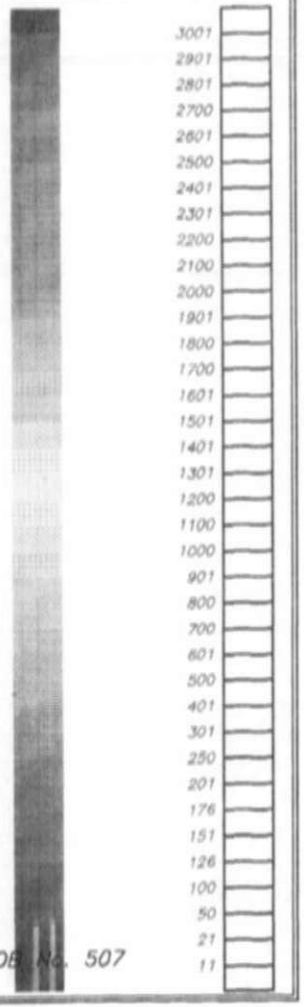
JOB No. 507

PSEUDO-SECTION OF APP. RESISITIVITY (ohm-metres)

from MAXI-PROBE E.M. Survey

LINE 1+00E





CLIENT: F. RIVARD
AREA: OTTO TWP.

SURVEY BY: GEOEM INC.
GRID: MAIN
DATE: JUNE/92

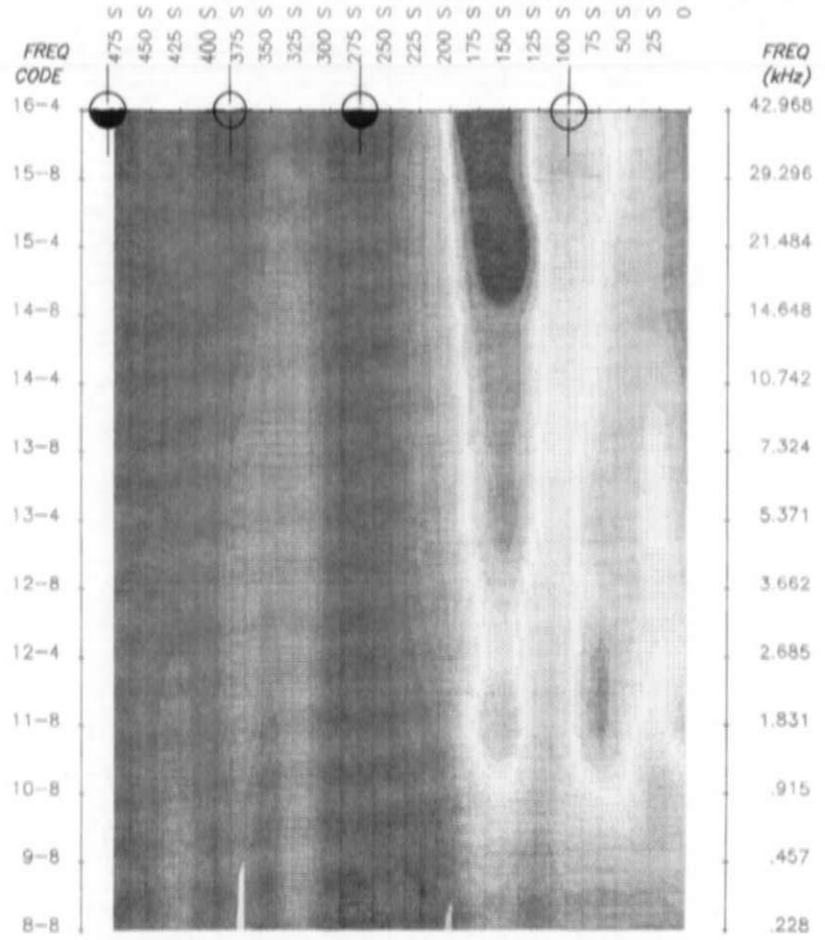
OPERATOR: JIM WHELAN
RX--150M--TX

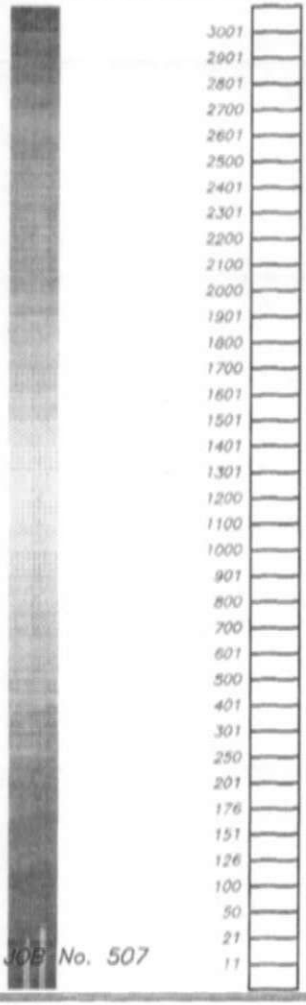
JOB No. 507

PSEUDO-SECTION OF APP. RESISITIVITY (ohm-metres)

from MAXI-PROBE E.M. Survey

LINE 2+00E





CLIENT: F. RIVARD
AREA: OTTO TWP.

SURVEY BY: GEOEM INC.
GRID: MAIN
DATE: JUNE/92

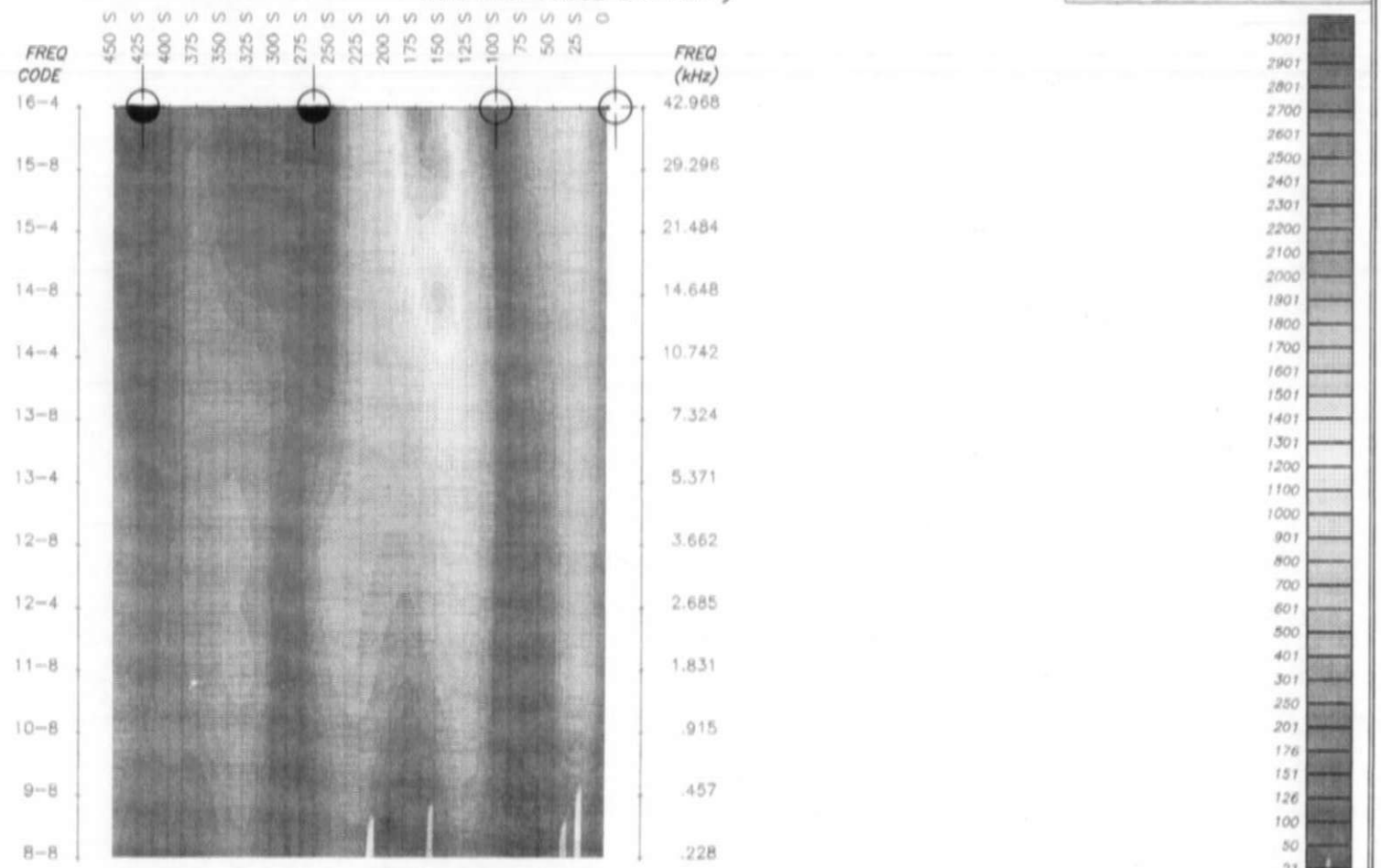
OPERATOR: JIM WHELAN
RX--150M--TX

JOB No. 507

PSEUDO-SECTION OF APP. RESISITIVITY (ohm-metres)

from MAXI-PROBE E.M. Survey

LINE 3+00E



CLIENT: F. RIVARD
AREA: OTTO TWP.

SURVEY BY: GEOEM INC.
GRID: MAIN
DATE: JUNE/92

OPERATOR: JIM WHELAN
RX--150M--TX

JOB No. 507

LEGEND

FELSIC TO INTERMEDIATE INTRUSIVE ROCKS

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

MAFIC TO ULTRAMAFIC INTRUSIVE ROCKS

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

SEDIMENTS

[5] 5 Unsubdivided
5a Greywacke
5b Chert
5c Graphitic shale
5d Conglomerate
5e Sandstone
5f Shale

FELSIC METAVOLCANICS

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

INTERMEDIATED METAVOLCANICS

[3] 3 Unsubdivided
3a Massive andesitic flows
3b Pillowed andesitic flows
3c Andesitic tuff and lapilli tuff
3d Andesitic breccia

MAFIC METAVOLCANICS

[2 | 2'] Fe Mg
2 Unsubdivided
2a Massive flows
2b Pillowed flows
2c Massive to well foliated coarse-grained flows
2d Variolitic flows
2e Tuff and lapilli tuff
2f Flow-top breccia

ULTRAMAFIC METAVOLCANICS

[1] 1 Unsubdivided
1a Massive, polysutured 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. 12cm — Quartz Vein With Width
- 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

GEOLOGICAL ASSOCIATION OF CANADA — S. J. Carmichael — Sept. 11/92 — FELLOW

SCALE 1:2500

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: OP92-123
DATE: JAN. 1992	DRAWN BY: S.J.C.	REVISED: AUGUST, 1992 DRAWING NO. 1

42A01SE0054 OP92-123 OTTO

SECTION LOOKING WEST
CLAIM L-982694

5+00S

4+00S

1000

900

CENTRE OF VLF-EM ANOMALY

CENTRE OF MAXI-PROBE ANOMALY

416.00S 700.00W

412.00S 700.00W

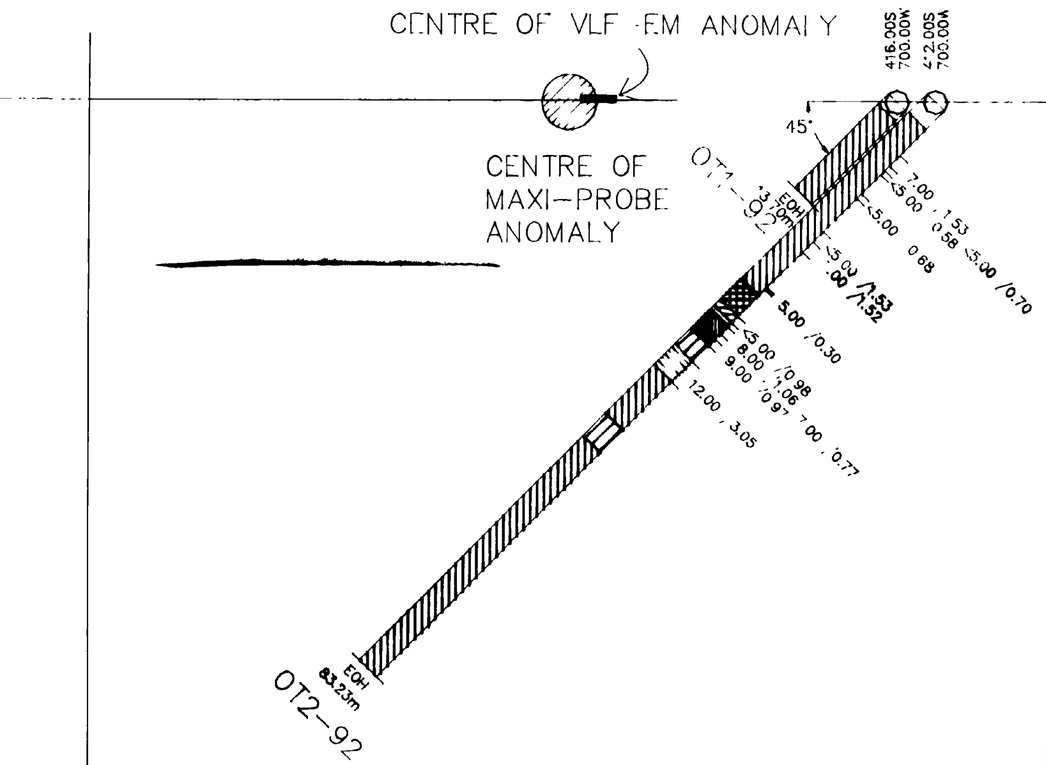
45°

OT1-92

EOH 33.10m

OT2-92

EOH 83.23m



LEGEND

CASE CASING

ROCK CODES

SEDIMENTARY UNITS

GRAPHITIC SHALE

BRECCIATED GRAPHITIC SHALE

SILTSTONE

VOLCANIC UNITS

BASALTIC KOMATIITE

CARBONATED ULTRAMAFIC

BASALT

BRECCIATED BASALTIC

MINERALIZED ZONE

MAFIC INTRUSIVE

ALL ASSAYS ARE IN PPB Au/SAMPLE LENGTH (m)

SCALE 1:500

10 0 20 40

METRES

GEOLOGICAL ASSOCIATION OF CANADA
S. J. Carmichael
Sept. 1/92
FELLOW

S.J. CARMICHAEL CONSULTANTS

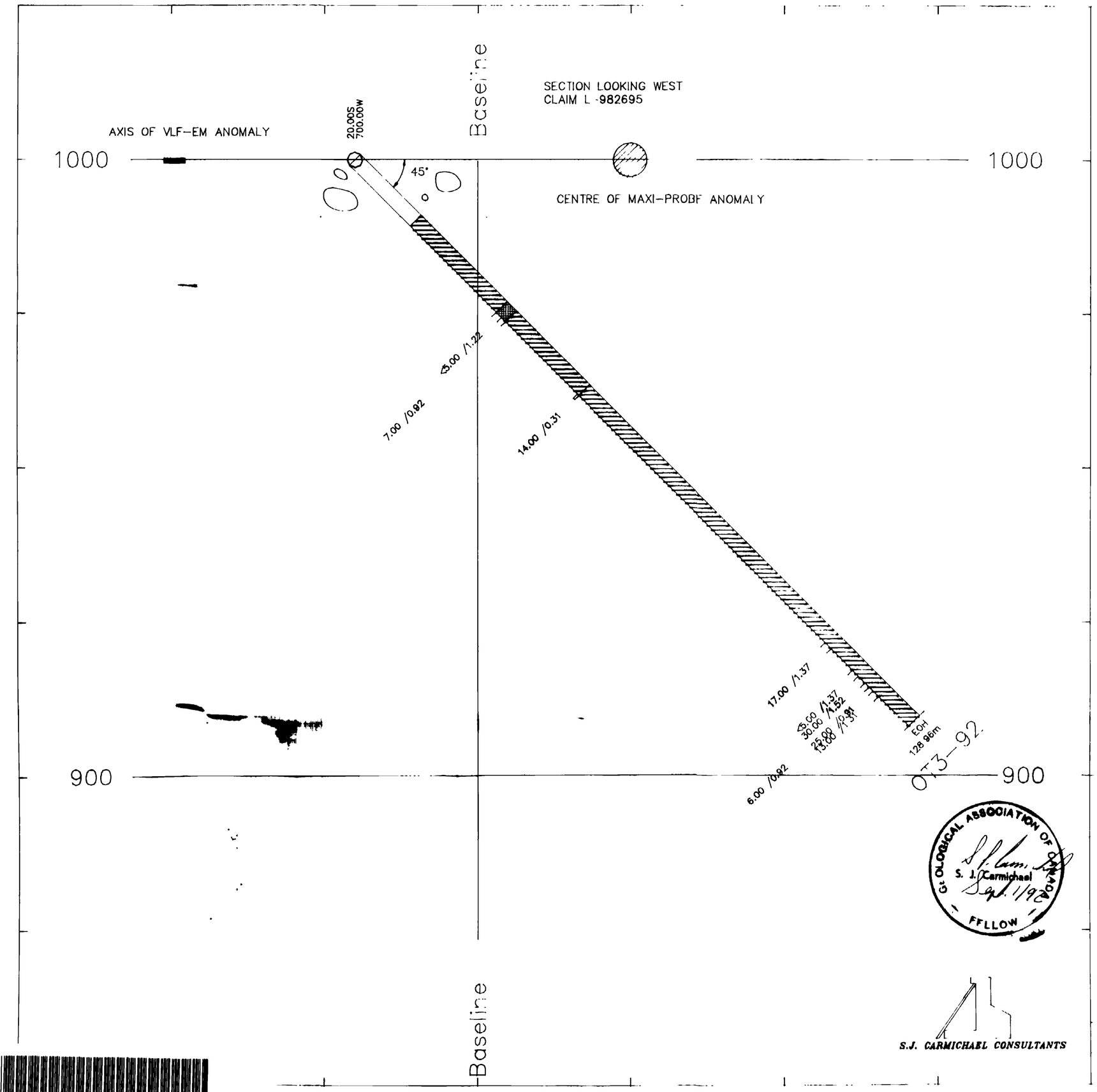
OTTO TWP. PROPERTY

DRILL HOLE SECTION 7+00W
DRILL HOLES OT1-92, OT2-92
SECTION LOOKING WEST

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

NTS: 42 A/SE	SCALE: 1:500 Metric	REVISED:
PROJECT: OP92-123	DRAWN BY: S.J.C	DATE: Sept., 1992
		DRAWING No. 2

42A01SE0054 OP92-123 OTTO



GEOLOGICAL ASSOCIATION OF CANADA
S. J. Carmichael
Sept. 11/92
FELLOW

S.J. CARMICHAEL CONSULTANTS

LEGEND

CASE CASING

ROCK CODES

SEDIMENTARY UNITS

GRAPHITIC SHALE

BRECCIATED GRAPHITIC SHALE

SILTSTONE

VOLCANIC UNITS

BASALTIC KOMATIITE

CARBONATED ULTRAMAFIC

BASALT

BRECCIATED BASALT

MINERALIZED ZONE

MAFIC INTRUSIVE

ALL ASSAYS ARE IN PPB Au/SAMPLE LENGTH (m)

SCALE 1:500

10 0 20 40

METRES

OTTO TWP. PROPERTY

DRILL HOLE SECTION 7+00W
DRILL HOLE OT3-92
SECTION LOOKING WEST

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

NTS: 42 A/SE	SCALE: 1:500 Metric	REVISED:
PROJECT: OP92-123	DRAWN BY: S.J.C.	DATE: AUGUST, 1992
		DRAWING No. 3

42A01SE0054 OP92-123 OTTO