R E P O R T

O N

GRID A

MAGNETOMETER AND ELECTROMAGNETIC SURVEYS
STOCK TOWNSHIP
DISTRICT OF COCHRANE
PORCUPINE MINING DIVISION
ONTARIO

November 21, 1980

W. G. Wahl Limited

W. G. WAHL LIMITED

CONSULTANTS: GEOLOGY - GEOPHYSICS

350 BAY ST. - 10TH FLR. - TORONTO, CANADA M5H 2S6
TEL. (416) 363-8761 - CABLE: WAHLCO - TORONTO

November 21, 1980

Mr. J. A. Harquail
President
Surveymin Limited
330 Bay Street
Suite 1107
Toronto, Ontario
M5H 2S8

Dear Mr. Harquail:

Submitted herewith is our report entitled:

GRID A

MAGNETOMETER AND ELECTROMAGNETIC SURVEYS
STOCK TOWNSHIP
DISTRICT OF COCHRANE
PORCUPINE MINING DIVISION
ONTARIO

The Pipestone Fault zone was further defined during the course of the ground geophysical surveys. Magnetically, the fault zone is characterized by the sharp magnetic susceptibility contrast exhibited by the two adjacent rock units, the metasediments to the south and the metavolcanics and gabbroic rocks to the north. Conductivity along the fault zone is generally unremarkable.

In light of the proven structural significance of the Pipestone fault System as a known channel way for gold bearing mineralizing solutions, it is recommended that additional ground geophysical investigations be carried out in the vicinity of the Pipestone Fault in order to further define the magnetically inferred location of the fault. The ground geophysics would consist of several selected I.P. profiles carried out across the fault zone in an attempt to define possible disseminated sulfide zones (<5% sulfides). The ground geophysics will be followed up by detailed section diamond drilling along the fault trace.

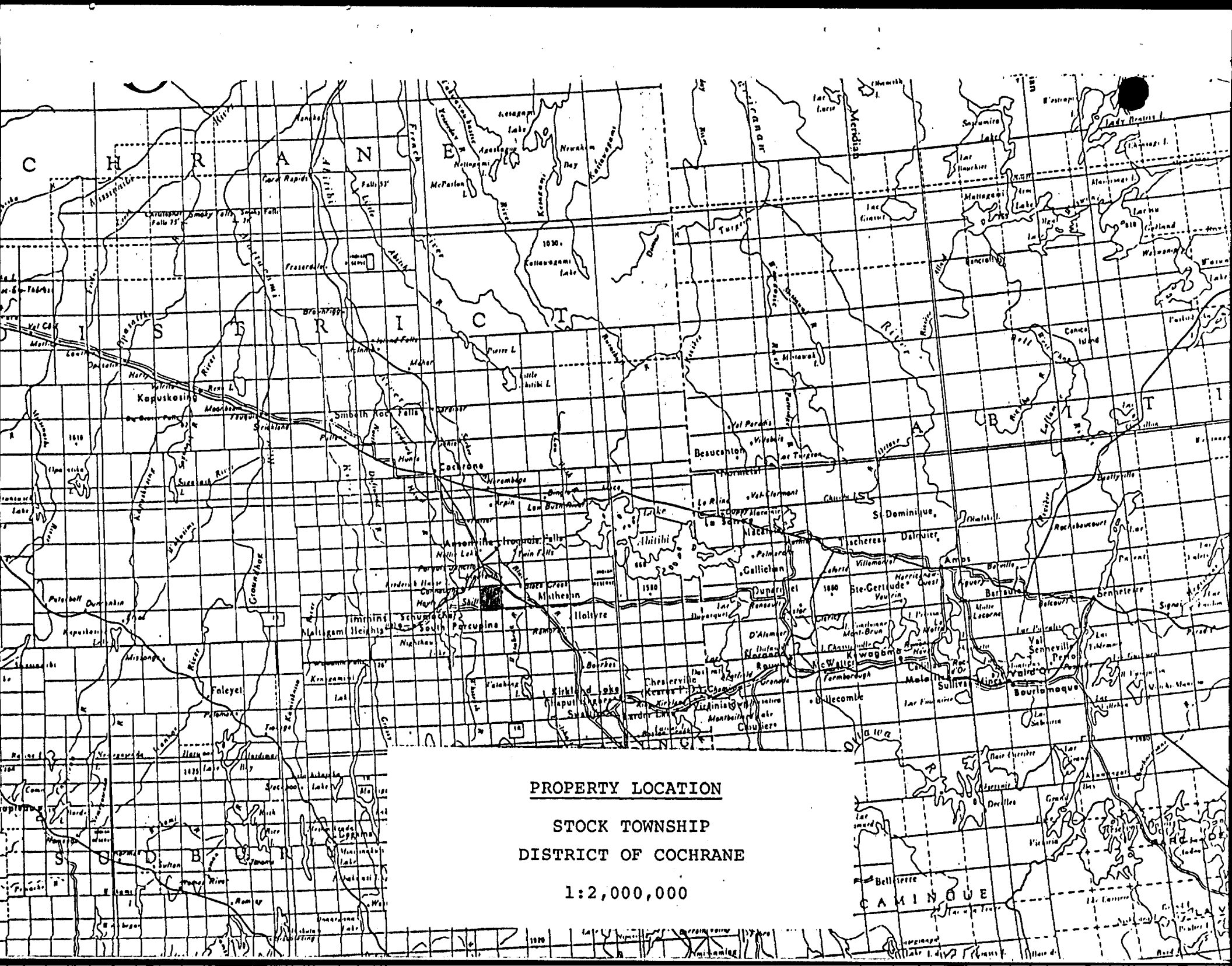
GENERAL

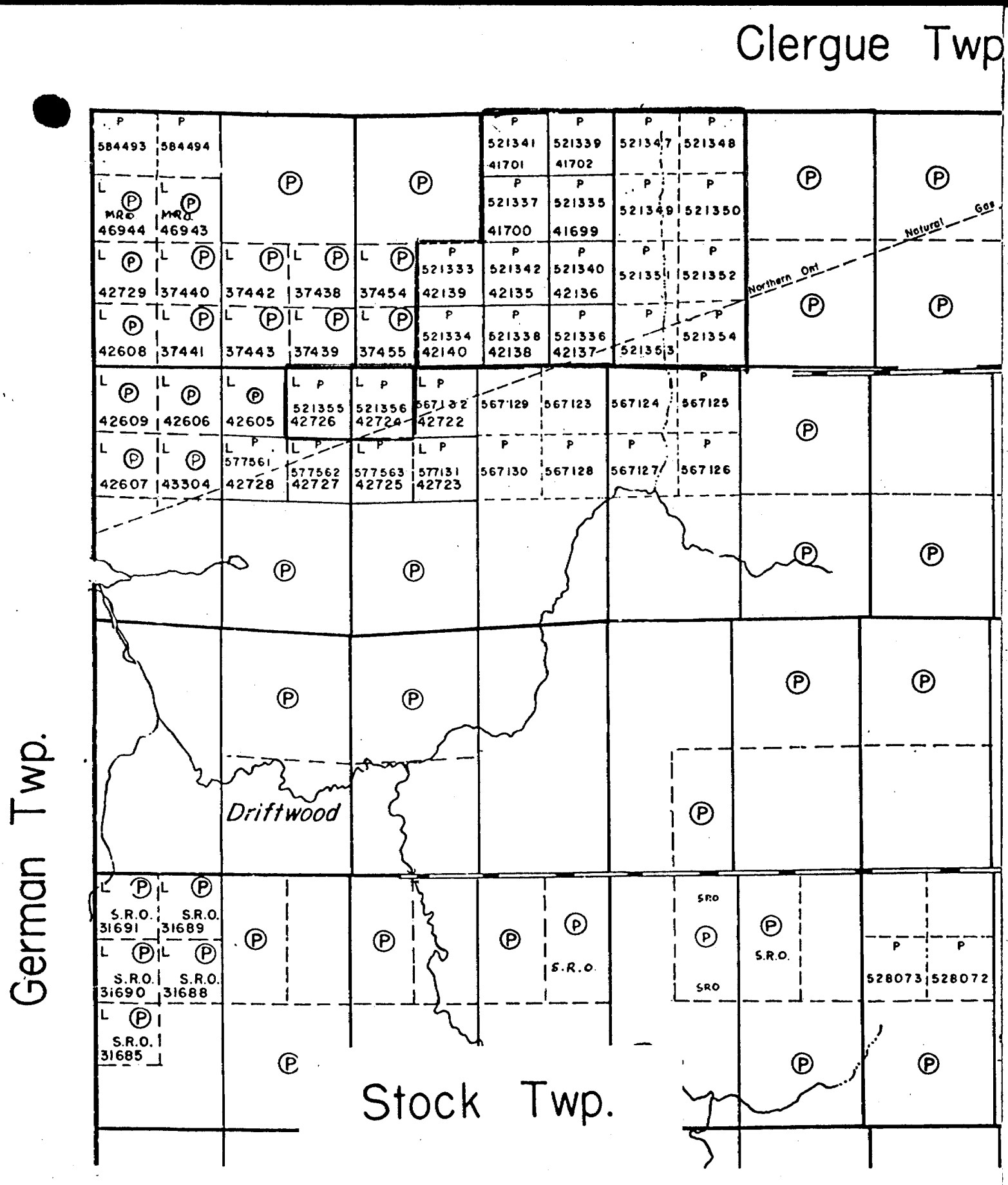
The following geophysical report details the results of the ground magnetometer and electromagnetic surveys undertaken by W. G. Wahl Limited on behalf of Surveymin Limited.

The property is situated in the northwest corner of Stock Township, District of Cochrane, and is accessible by truck south from the village of Monteith or north from the village of Shillingdon on Highway 577, then east on a concession road between Concession V and VI, a distance of 6 km, to the claim group.

The Stock Township property consists of the following twenty unpatented mining claims, all of which have been duly recorded with Mr. E. Craig, Mining Recorder, Porcupine Mining Division.

P. 521333 - N.E.¼, S½, Lot 10, Conc. VI, Stock Township.
P. 521334 - S.E.¼, ", " ", " ", " " .
P. 521335 - S.E.¼, N½, " 9, " ", " " .
P. 521336 - S.E.¼, S½, " ", " ", " " .
P. 521337 - S.W.¼, N½, " ", " ", " " .
P. 521338 - S.W.¼, S½, " ", " ", " " .
P. 521339 - N.E.¼, N½, " ", " ", " " .
P. 521340 - N.E.¼, S½, " ", " ", " " .
P. 521341 - N.W.¼, N½, " ", " ", " " .
P. 521342 - N.W.¼, S½, " ", " ", " " .
P. 521347 - N.W.¼, N½, " 8, " ", " " .
P. 521348 - N.E.¼, ", " ", " ", " " .
P. 521349 - S.W.¼, ", " ", " ", " " .
P. 521350 - S.E.¼, ", " ", " ", " " .
P. 521351 - N.W.¼, S½, " ", " ", " " .


PROPERTY LOCATION
STOCK TOWNSHIP
DISTRICT OF COCHRANE
1:2,000,000



CLAIM MAP

(2 inches to 1 mile)

P. 521352 - N.E.¼, S½, Lot 8, Conc. VI, Stock Township.
P. 521353 - S.W.¼, ", " ", " ", " " .
P. 521354 - S.E.¼, ", " ", " ", " " .
P. 521355 - N.E.¼, N½, " 11, " V, " " .
P. 521356 - N.W.¼, ", " 10, " ", " " .

LINE CUTTING

The line cutting was conducted under the direct supervision of Mr. Gordon McIntosh, Timmins, Ontario, during the period from September 22, 1979 to September 28, 1979. The survey grid consisted of 1.21 miles of baseline trending 80° and 13.78 miles of grid line trending 170° on the northern block, and 0.45 miles of baseline trending E-W and 1.72 miles of grid line trending N-S on the southwest block. All grid lines were established at four hundred foot intervals along the entire baseline. One hundred foot stations were established on all lines.

MAGNETOMETER SURVEY

The magnetometer survey was carried out by R. Harwood of W. G. Wahl Limited during the period from August 26 to September 1, 1980, employing a Scintrex MP-2 total field proton precession magnetometer in conjunction with a Scintrex MBS-2 total field magnetic base station attached to a Simpson M2750 strip chart recorder.

The magnetic data was observed at a 50 foot station interval on all lines of the established grid. The data was

corrected for diurnal fluctuations, reduced to a local datum and presented as a contoured interpretation of these data.

MAXMIN II HORIZONTAL LOOP ELECTROMAGNETIC SURVEY

The horizontal loop electromagnetic survey was carried out by Mr. J. Palladini of W. G. Wahl Limited during the period from August 26 to September 1, 1980, employing an Apex Parametrics MaxMin II horizontal loop survey unit in the maximum coupled mode. The inphase and quadrature response parameters were recorded at 444 Hz and 1777 Hz utilizing a 600 foot coil separation and a 100 foot station interval. These data are presented in profile form.

DISCUSSION

The ground magnetometer survey extended and further defined the regional geology as mapped by the Ontario Division of Mines and presented on Map No. 2205.

The Pipestone Fault, believed to transect the central portion of the property, was mapped at 3+00N on line 0 through to 5+50S on line 64W in the northern block and line 20+00W at 12+50N and 24+00W at 11+00N in the southwestern block, trending approximately N80^{o}E.

The fault zone itself is defined by the sharp magnetic susceptibility contrast exhibited by the metasediments mapped south of the fault zone and by the intermediate to mafic meta-volcanic sequence mapped north of the fault zone. The meta-

sediments are characterized by low uniform magnetic relief in the range of 250 - 450nT which is in sharp contrast to the 450 - 800nT associated with the metavolcanic sequence. Lying with the metavolcanic sequence are several major lenticular magnetic expressions of up to 3,000nT, all of which are thought to be the mappable expression of metamorphosed mafic rocks, possibly gabbro or diorite intrusive bodies.

The electromagnetic survey identified three anomalous conductive zones, two of which are classified as cultural anomalies, ie. anomalies whose causative bodies are man-made.

Conductor C-1:

Conductor C-1 transects the southern portion of both the north block and the southwest block, and identifies a buried section of the Trans-Canada Pipeline.

Conductor C-2:

Conductor C-2 lies roughly parallel to and 3,500 feet north of Conductor C-1 from lines 0 through 28W, then swings southwesterly to line 24+00W in the southwest block, at a point 1,000 feet north of the baseline. This is the mappable expression of a power transmission line.

Conductor C-3:

Conductor C-3 is located on line 4W at 8+50N and line 8W at 8+50N and has been interpreted to be a bedrock rise.

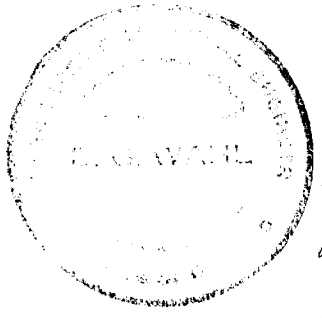
CONCLUSIONS

The Pipestone Fault zone was further defined during the course of the ground geophysical surveys. Magnetically, the fault zone is characterized by the sharp magnetic susceptibility contrast exhibited by the two adjacent rock units, the metasediments to the south and the metavolcanics and gabbroic rocks to the north. Conductivity along the fault zone is generally unremarkable.

RECOMMENDATIONS

In light of the proven structural significance of the Pipestone Fault System as a known channel way for gold bearing mineralizing solutions, it is recommended that additional ground geophysical investigations be carried out in the vicinity of the Pipestone Fault in order to further define the magnetically inferred location of the fault. The ground geophysics would consist of several selected I.P. profiles carried out across the fault zone in an attempt to define possible disseminated sulfide zones (<5% sulfides). The ground geophysics will be followed up by detailed section diamond drilling along the fault trace.

All of which is respectfully submitted.



Sincerely yours,
W. G. WAHL LIMITED

D. G. Wahl, P.Eng.
Consulting Engineer

DGW/pl

Ontario

Ministry of Natura

900

GEOPHYSICAL – GEOLOGIC. TECHNICAL DATA

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

Type of Survey(s) GEOPHYSICAL

Township or Area STOCK TOWNSHIP

Claim Holder(s) SURVEYMIN LIMITED

1107 - 330 Bay St., Toronto

Survey Company W. G. WAHL LIMITED

Author of Report D. G. WAHL, P.Eng

Address of Author 1000 - 350 Bay St., Toronto

Covering Dates of Survey September 22, 1979 to November 21, 1980
(linecutting to office)

Total Miles of Line Cut 17.17 mi.

SPECIAL PROVISIONS CREDITS REQUESTED

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

ENTER 20 days for each additional survey using same grid.

	DAYS per claim
Geophysical	
--Electromagnetic	20
--Magnetometer	40
--Radiometric	
--Other	
Geological	
Geochemical	

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

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

DATE: Nov 21/80 SIGNATURE: _____
Author of Report or Agent

Res. Geol. _____ Qualifications 63.2859

Previous Surveys

File No.	Type	Date	Claim Holder
			ND

MINING CLAIMS TRAVERSED
List numerically

(prefix) (number)

P	✓	521333	1/4
P	✓	521334	1/4
P	✓	521335	✓
P	✓	521336	✓
P		521337	✓
P	✓	521338	1/4
P	✓	521339	1/4
P	✓	521340	✓
P	✓	521341	
P	✓	521342	✓
P	✓	521347	1/4
P	✓	521348	1/4
P	✓	521349	✓
P	✓	521350	✓
P	✓	521351	✓
P	✓	521352	✓
P	✓	521353	1/4
P	✓	521354	1/4
P	✓	521355	1/2
P	✓	521356	1/2

20×20 = 400 ÷ 23. = 17

If space insufficient, attach list

TOTAL CLAIMS 20

OFFICE USE ONLY

837 (5/79)

GEOPHYSICAL TECHNICAL DATA

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

Number of Stations MAG-1813 MaxMin-818 Number of Readings MAG-1813 MAXMIN 444Hz-1636 1777Hz-1636

Station interval MAG - 50 ft ; MAXMIN-100ft Line spacing 400 ft.

Profile scale 1 in = 50 %

Contour interval 100 nT

MAGNETIC

Instrument SCINTREX MP-2

Accuracy -- Scale constant ± 1 nT

Diurnal correction method Relative time interpolation based on strip chart recording

Base Station check-in interval (hours) SCINTREX MBS-2

Base Station location and value Baseline - grid line intercepts were standardized to base station reading

ELECTROMAGNETIC

Instrument APEX PARAMETRICS MAXMIN II

Coil configuration Co-planar, maximum coupled mode

Coil separation 600 ft

Accuracy ± 1 %

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

Frequency 444 Hz and 1777 Hz (specify V.L.F. station)

Parameters measured In-phase and Out-of-phase

GRAVITY

Instrument

Scale constant

Corrections made

Base station value and location

Elevation accuracy

INDUCED POLARIZATION RESISTIVITY

Instrument

Method ☐ Time Domain ☐ Frequency Domain

Parameters -- On time Frequency

-- Off time Range

-- Delay time

-- Integration time

Power

Electrode array

Electrode spacing

Type of electrode

P-521341
P-521339
P-521347
P-521348
P-521337
P-521335
P-521349
P-521350
P-521333
P-521342
P-521340
P-521351
P-521352
P-521334
P-521338
P-521336
P-521353
P-521354
P-521355
P-521356
HYDRO LINE
GAS LINE
LAKE

L 64 W | L 60 W | L 56 W | L 52 W | L 48 W | L 44 W | L 40 W | L 36 W | L 32 W | L 28 W | L 24 W | L 20 W | L 16 W | L 12 W | L 8 W | L 4 W | L 0 W

36+00N | 34+00N | 32+00N | 30+00N | 28+00N | 26+00N | 24+00N | 22+00N | 20+00N | 18+00N | 16+00N | 14+00N | 12+00N | 10+00N | 8+00N | 6+00N | 4+00N | 2+00N | 0+00 B.L. | 2+00S | 4+00S | 6+00S | 8+00S | 10+00S | 12+00S | 14+00S | 16+00S | 18+00S | 20+00S | 22+00S | 24+00S | 26+00S

13+30N | 12+00N | 10+00N | 8+00N | 6+00N | 4+00N | 2+00N | 0+00 B.L.

24+00W | 20+00W | 16+00W | 12+00W | 8+00W | 4+00W | 0+00

LOCATION MAP
1:5,000,000

INDEX MAP
1:250,000

SURVEYMIN LIMITED

STOCK TWP. PROJECT

DRAWN BY: J.P.
TRACED BY:
APPROVED:
N.T.S. 42 A/10
DWG. NO. GRID "A"
REV.
REV.
REV.
OCT. 1980
REV.

TOTAL FIELD PROTON MAGNETOMETER SURVEY
(background 59,000nT)

WG. WAHL LIMITED | SCALE 1" = 200'

200

L64W L60W L56W L52W L48W L44W L40W L36W L32W L28W L24W L20W L16W L12W L8W L4W L0W

36+00N
34+00N
32+00N
30+00N
28+00N
26+00N
24+00N
22+00N
20+00N
18+00N
16+00N
14+00N
12+00N
10+00N
8+00N
6+00N
4+00N
2+00N
0+00 B.L.
2+00S
4+00S
6+00S
8+00S
10+00S
12+00S
14+00S
16+00S
18+00S
20+00S
22+00S
24+00S
26+00S

13+00N
11+00N
9+00N
7+00N
5+00N
3+00N
1+00N
0+00 B.L.

L24SW L20SW L16SW L12SW L8SW L4SW L0SW

P-521333
P-521334
P-521335
P-521336
P-521337
P-521338
P-521339
P-521340
P-521341
P-521342
P-521347
P-521348
P-521349
P-521350
P-521351
P-521352
P-521353
P-521354
P-521355
P-521356

C-1
C-2
C-3

HYDRO LINE
GAS LINE
CREEK
LAKE

C.P. 521350-1 336-6
C.P. 521350-2 336-5
C.P. 521350-3 336-4
C.P. 521350-4 336-3
C.P. 521350-5 336-2
C.P. 521350-6 336-1
C.P. 521351-1 335-5
C.P. 521351-2 335-4
C.P. 521351-3 335-3
C.P. 521351-4 335-2
C.P. 521351-5 335-1
C.P. 521351-6 335-0
C.P. 521352-1 334-5
C.P. 521352-2 334-4
C.P. 521352-3 334-3
C.P. 521352-4 334-2
C.P. 521352-5 334-1
C.P. 521352-6 334-0
C.P. 521353-1 333-5
C.P. 521353-2 333-4
C.P. 521353-3 333-3
C.P. 521353-4 333-2
C.P. 521353-5 333-1
C.P. 521353-6 333-0
C.P. 521354-1 332-5
C.P. 521354-2 332-4
C.P. 521354-3 332-3
C.P. 521354-4 332-2
C.P. 521354-5 332-1
C.P. 521354-6 332-0
C.P. 521355-1 331-5
C.P. 521355-2 331-4
C.P. 521355-3 331-3
C.P. 521355-4 331-2
C.P. 521355-5 331-1
C.P. 521355-6 331-0
C.P. 521356-1 330-5
C.P. 521356-2 330-4
C.P. 521356-3 330-3
C.P. 521356-4 330-2
C.P. 521356-5 330-1
C.P. 521356-6 330-0

LEGEND

In- Phase

Quadrature

Conductor Axis

C 43% 20% 0 20% 43% 65%

Or Rx 600' Rx or Tx

Tx-Rx Separation

Coil Separation Not to Scale

LOCATION MAP
1:9,000,000

INDEX MAP
1:250,000

SURVEYMIN LIMITED			
	STOCK TWP. PROJECT	DRAWN BY R.H.	REV.
	MAXMIN II	TRACED BY R.W.S.	REV.
	HORIZONTAL LOOP SURVEY	APPROVED	REV. OCT. 1980
	444 hertz	N.T.S. 42 A/10	REV.
	W.G.WAHL LIMITED	SCALE 1"=200'	DWG. NO. GRID "A"

210

L64W L60W L56W L52W L48W L44W L40W L36W L32W L28W L24W L20W L16W L12W L8W L4W L0W

36+00N
34+00N
32+00N
30+00N
28+00N
26+00N
24+00N
22+00N
20+00N
18+00N
16+00N
14+00N
12+00N
10+00N
8+00N
6+00N
4+00N
2+00N
0+00BL
2+00S
4+00S
6+00S
8+00S
10+00S
12+00S
14+00S
16+00S
18+00S
20+00S
22+00S
24+00S
26+00S

L24SW L20SW L16SW L12SW L8SW L4SW L0SW

P-521333 P-521334 P-521335 P-521336 P-521337 P-521338 P-521339 P-521340 P-521341 P-521342 P-521347 P-521348 P-521349 P-521350 P-521351 P-521352 P-521353 P-521354 P-521355 P-521356

C-1 C-2 C-3

HYDRO LINE

GAS LINE

GAS LINE

LAKE

CREEK

CREEK

LEGEND

In-Phase

Quadrature

Conductor Axis

60% 40% 20% 0 20% 40% 60%

Tx or Rx 600' Rx or Tx

Tx-Rx Separation
Coil Separation Not to Scale

LOCATION MAP
1:5,000,000

INDEX MAP
1:250,000

SURVEYMIN LIMITED		
STOCK TWP PROJECT	DRAWN BY R.H.	REV.
MAXMIN II	TRACED BY B.W.S.	REV.
HORIZONTAL LOOP SURVEY	APPROVED	REV. OCT 1980
1777 hertz	N.T.S. 42 A/10	REV.
W.G. WAHL LIMITED	SCALE 1"=200'	DWG. NO. GR10"A"

220