

**REPORT ON A
COMBINED HELICOPTER-BORNE
MAGNETIC, ELECTROMAGNETIC, VLF-EM AND RADIOMETRIC SURVEY**

**PREMIER GOLD PROPERTY
STEWART, BRITISH COLUMBIA
SKEENA MINING DIVISION
NTS 104A/4, 104B/1**

**LATITUDE 56° 10'
LONGITUDE 130° 00'**

FOR

**OWNERS:
WESTMIN RESOURCES LIMITED
HOMESTAKE CANADA LTD.
TENAJON RESOURCES CORP.
PIONEER METALS CORPORATION**

**OPERATOR:
WESTMIN RESOURCES LIMITED**

BY

**Ian Johnson, Ph.D., P.Eng.
Consulting Geophysicist
Aerodat Limited
Mississauga, Ontario**

October 3, 1991

**GEOLOGICAL BRANCH
ASSESSMENT REPORT**

2092
21,993



Flight Path

Navigation and recovery using
 a Global Positioning System
 navigation system
 Average terrain clearance 60m
 Average line spacing 150m

Apparent Resistivity

Calculates from 4175 Hz
 constant EM response assuming
 a 200 m conductive layer.
 Contour Rg in Ohm·m at
 logarithmic intervals.
 Sensor elevation 60m

Map contours are built from
 those listed below

- 10:1 Ohm·m
- 2:5 Ohm·m
- 5:0 Ohm·m
- 5:0 Ohm·m

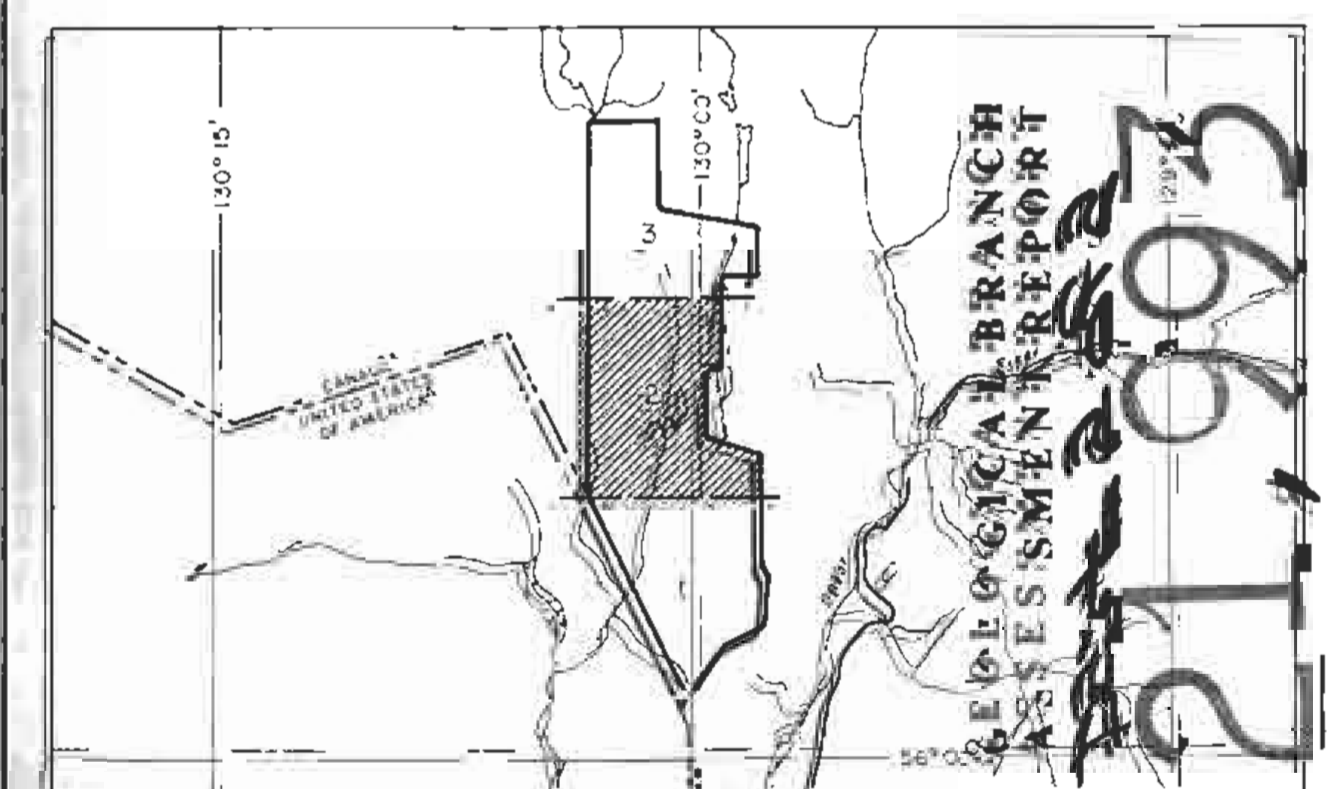
EM Anomalies

Conductivity thickness (m)

- 0 - 1
- 1 - 2
- 2 - 4
- 4 - 6
- 6 - 10
- 10 - 20
- 20 - 30
- 30 - 50
- 50 - 100
- 100 - 200
- 200 - 500
- 500 - 1000
- 1000 - 2000

○ 1000m
 ○ 2000m
 ○ 5000m
 ○ 10000m
 ○ 20000m
 ○ 50000m
 ○ 100000m
 ○ 200000m
 ○ 500000m
 ○ 1000000m

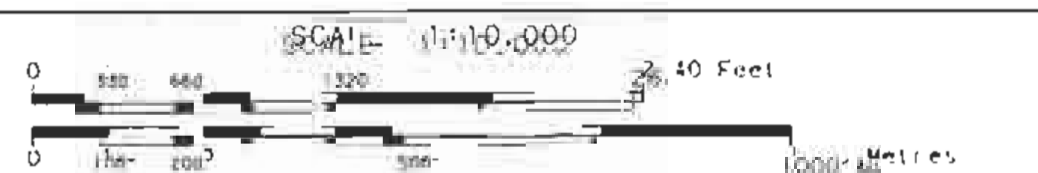
EM Anomaly Δ 4500 mV
 (phase shift) use 7 dem.
 Conductivity thickness
 1:2 mva (see logs)



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APPARENT RESISTIVITY CONTOURS (4175 Hz)

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	NTS No: NTS 104A/4, 104B/1
	MAP No: 7 J9152 - 2



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Flight Path

Navigation and recovery using
a Global Positioning System
Average Corridor Clearance 20m
Average Line Spacing 100m

VLF-EM

VLF-EM Total Field Intensity
in percent:

Station: NLK Flight(s) 1-12
24.5 kHz; Washington
Station: GMA Flight(s) 13-17
23.4 kHz; Hawaii

Sensor elevation 45m

Map contours are multiples of
those listed below:

- 2 %
- 16 %
- 50 %
- 250 %

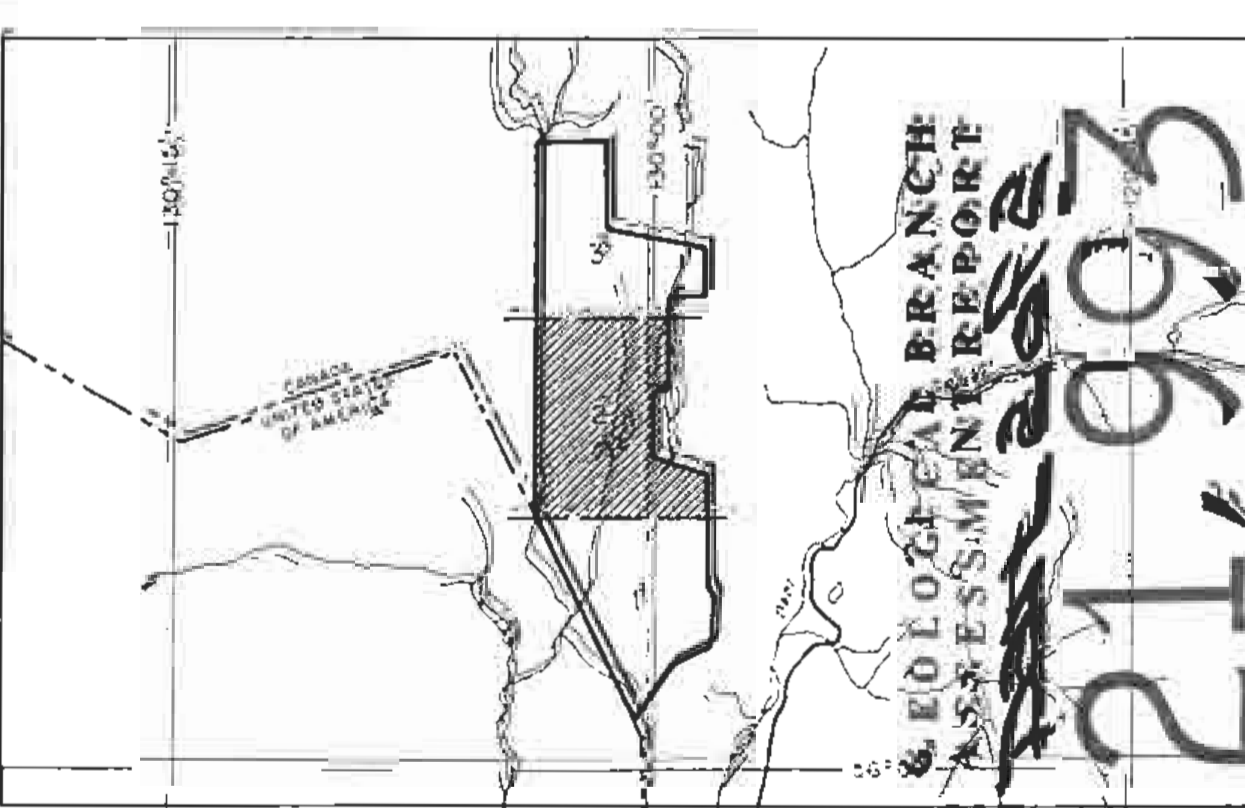
FM Anomalies

Conductivity Anomalous (mS)

- 0 - 1
- 1 - 2
- 2 - 3
- 3 - 4
- 4 - 5
- 5 - 10
- 10 - 20
- 2 - 20

Color of response
Magnetic Anomaly

■ Anomaly > 2500 mS
□ Anomaly 500 - 2500 mS
○ Anomaly 200 - 500 mS
○ Anomaly < 200 mS



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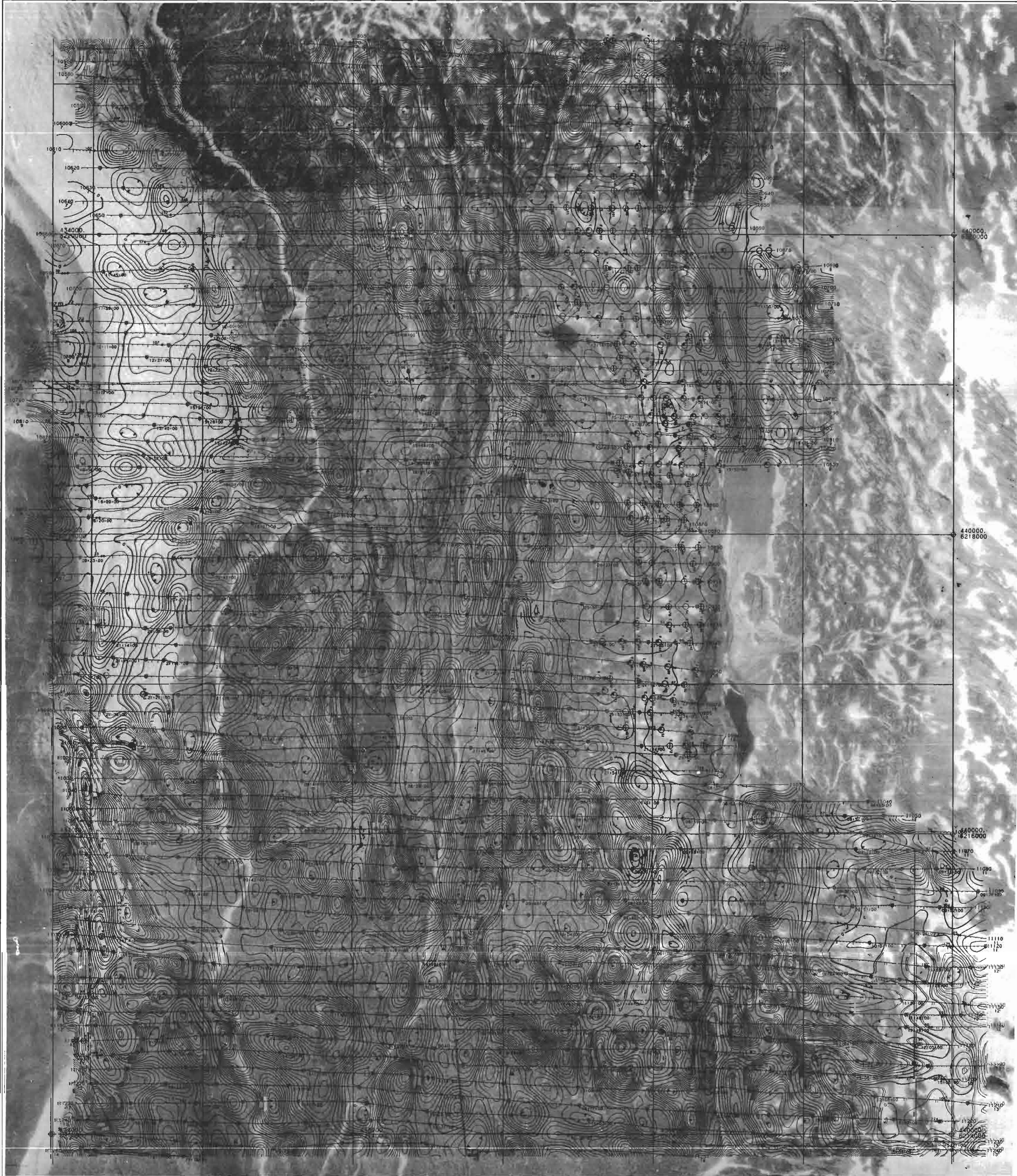
VLF-EM TOTAL FIELD CONTOURS (LINE CHANNEL)

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SCALE 1:10,000
0 500 1000 1500 2000 2500 3000 Feet
0 1 2 3 4 5 1000 METERS

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Flight Path

Navigation and recovery using
a Global Positioning System
navigation system
Average lateral clearance 60m
Average line spacing 100m

Vertical Gradient

Vertical Magnetic Gradients
calculated from the 1984 IGR
magnetic intensity in nT/m
Caesium high sensitivity
magnetometer
Sensor elevation 85m

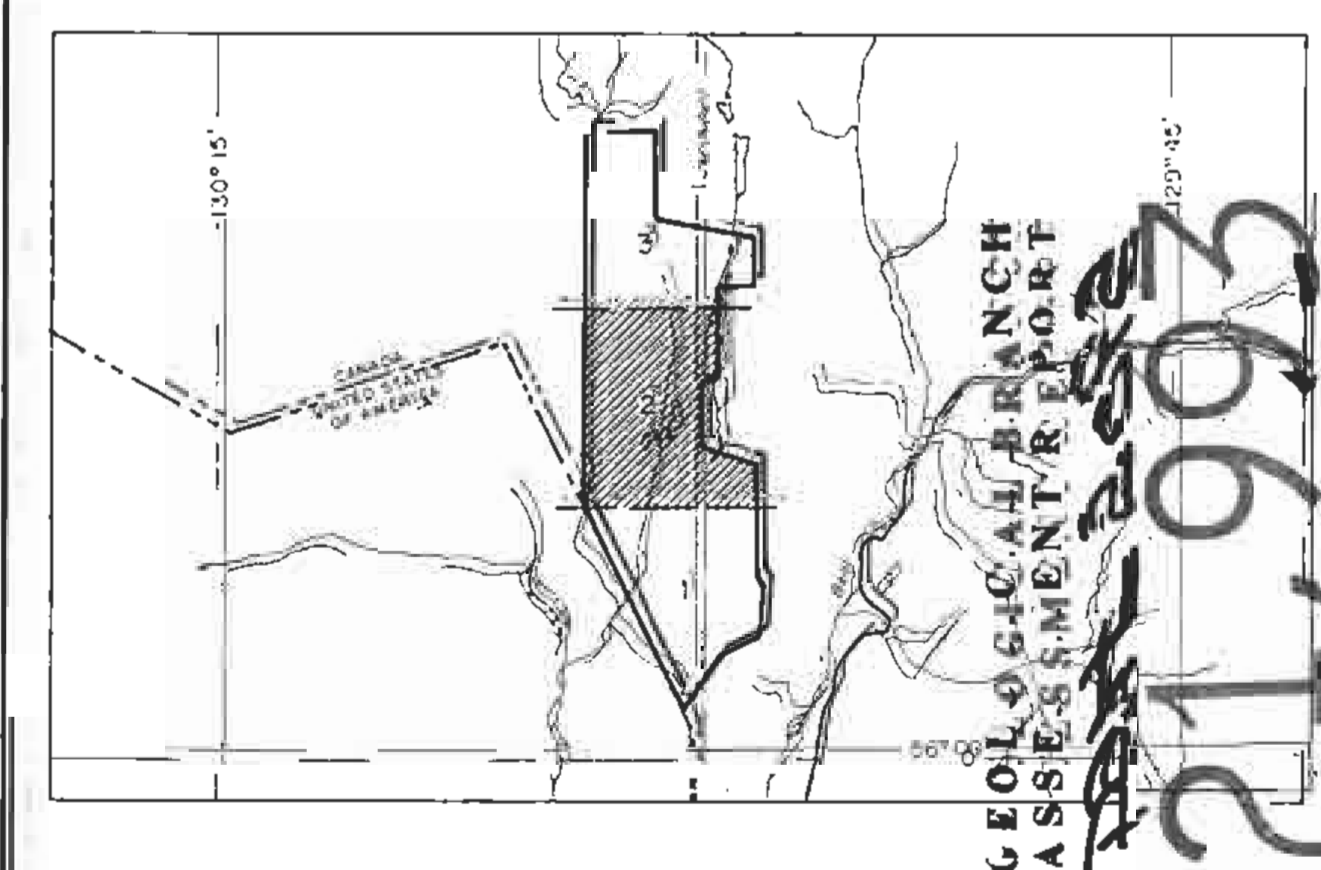
Map contours are multiples of
those listed below

- 1.00 nT
- 5.00 nT
- 25.00 nT
- 100.0 nT

EM Anomalies

Conductivity response (nS/m)

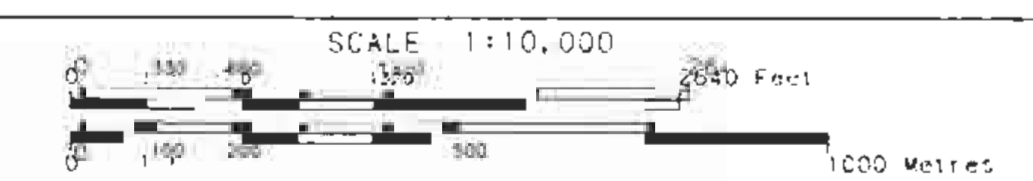
- 0-1
- 1-2
- 2-3
- 3-4
- 4-5
- 5-30
- 30+
- 0-100% response
anomalous
- EM Anomaly A, 400 Hz
Liquate amplitude 100m
Conductivity response
(200m line spacing)



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CALCULATED VERTICAL MAGNETIC GRADIENT

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Flight Path

Navigation and recovery using a Global Positioning System (GPS) navigation system.
 Average terrain clearance 65m
 Average line spacing 100m

Magnetics

Total Field magnetic intensity Contour 1 nT
 System type sensitivity magnetometer
 Sensor elevation 45m

Map contours are multiples of those listed below

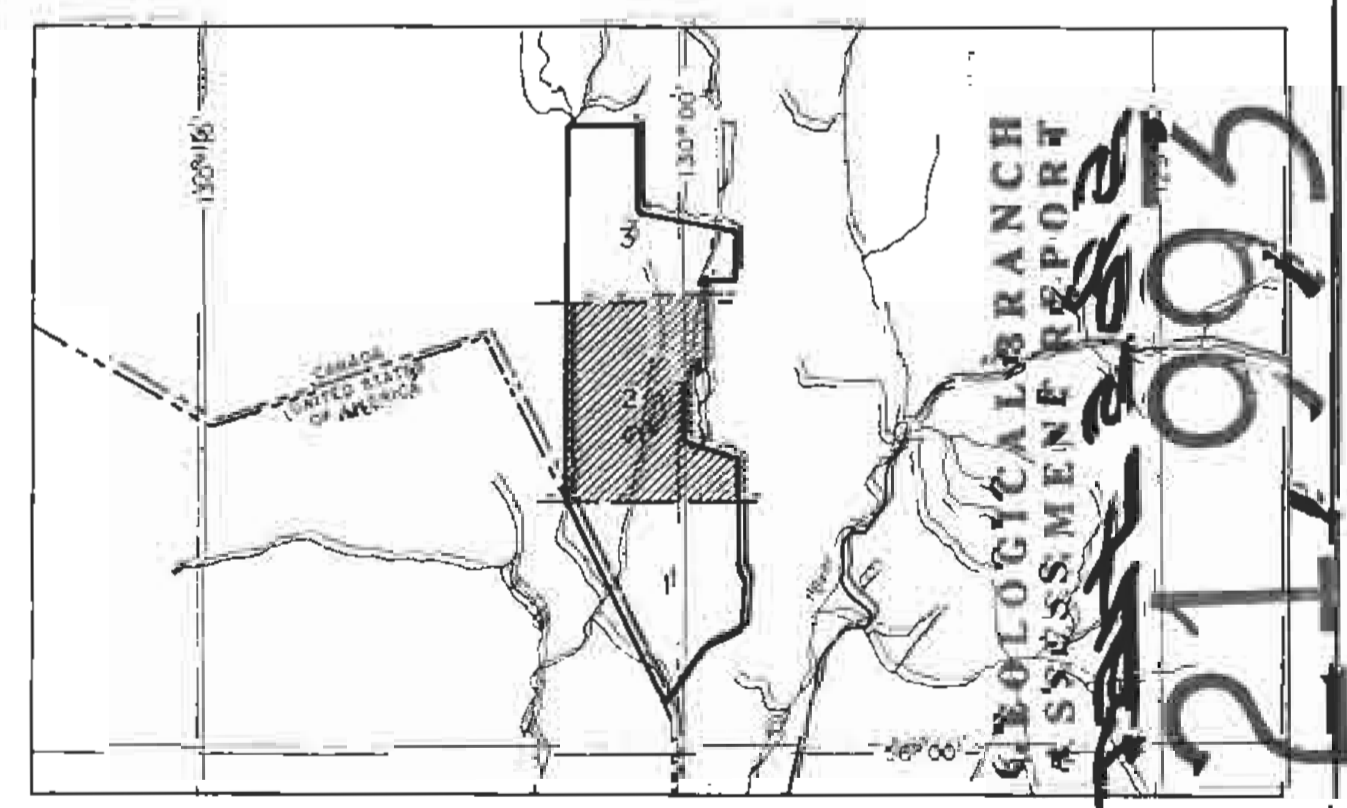
2 nT
10 nT
50 nT
250 nT
1000 nT

EM Anomalies

Conductivity (mhos/m)

- 0 - 1
- 1 - 2
- 2 - 4
- 4 - 8
- 8 - 16
- 16 - 32
- 32 - 64
- 64 - 128

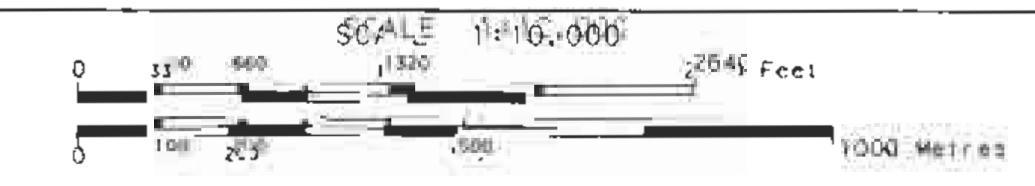
EM Anomaly 4500 Hz
 Sphere radius 7 cm
 Conductivity (mhos/m)
 1-2 mhos (see code)



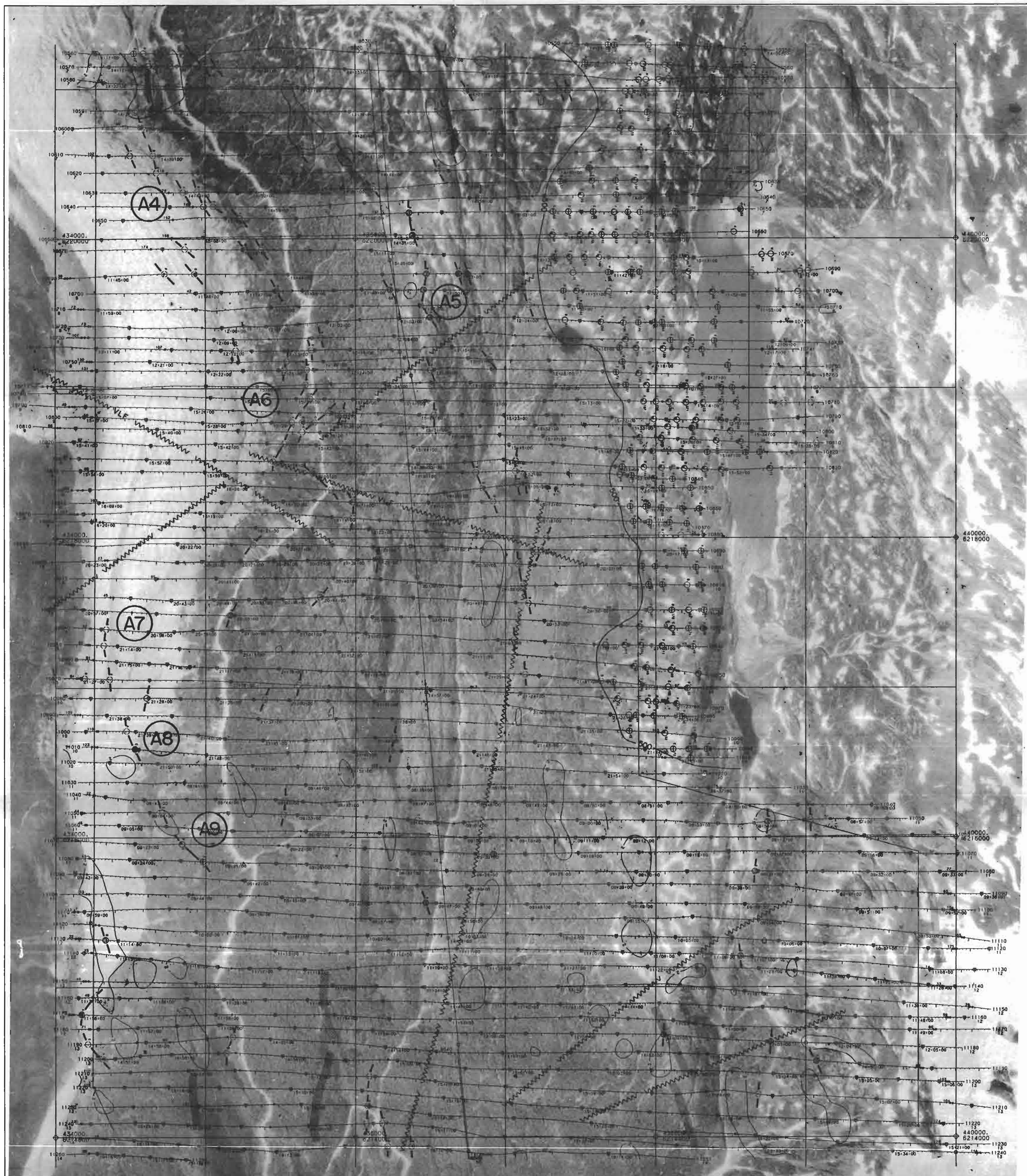
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TOTAL FIELD MAGNETIC CONTOURS

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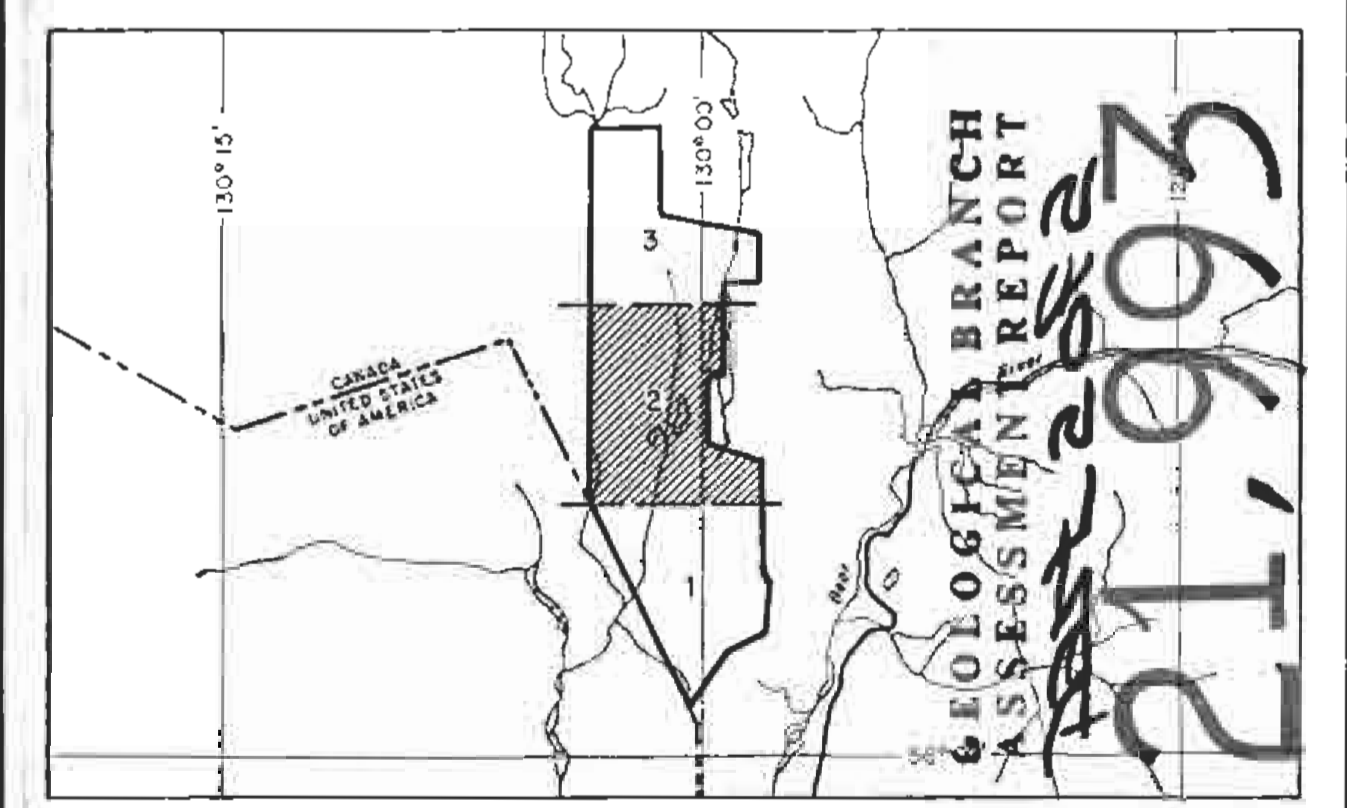
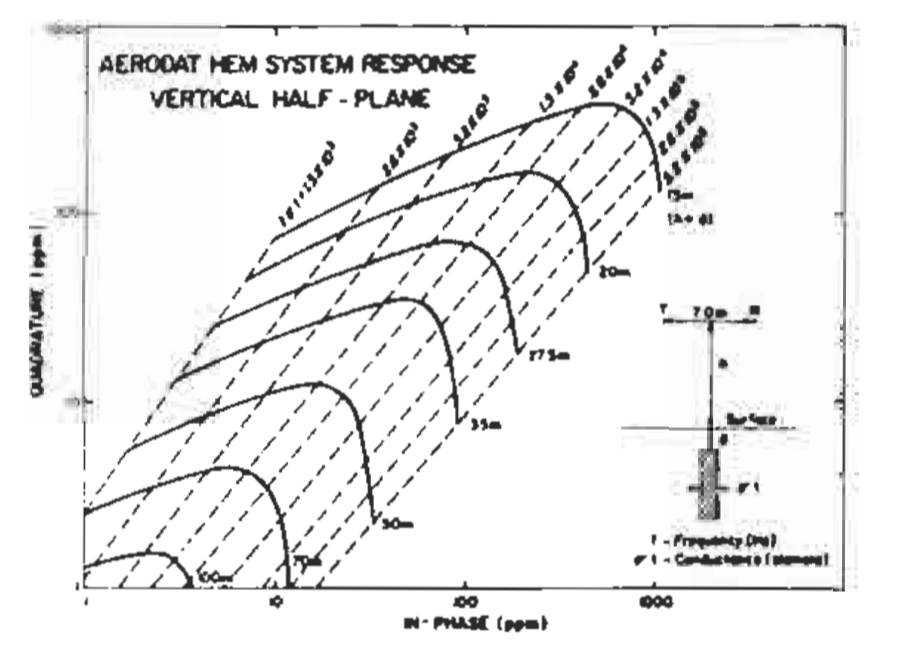
AERODAT LIMITED DATE: JULY 1991
 NTS No: NTS 104A/4, 104B/1
 MAP No: 4 J9152 - 2



Flight Path
 Navigation and recovery using a Global Positioning System (GPS) navigation system.
 Average terrain clearance 60m
 Average line spacing 100m

EM Anomalies
 Conductivity Thickness (mcs)
 0 - 1
 1 - 2
 2 - 4
 4 - 8
 8 - 15
 15 - 30
 > 30
 Cultural response
 Magnetic Anomaly
 EM Anomaly A, 4800 Hz
 Conductivity thickness 7.50m
 Conductivity thickness 1.2 mcs. (see code)

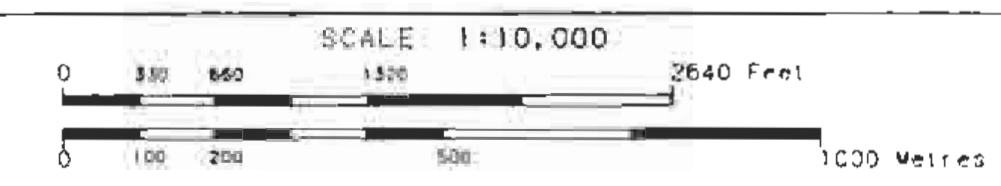
INTERPRETATION LEGEND
 Conductor Axis
 42 nT/m VG Contour Line
 Possible Fault (VG)
 Possible Fault (VLF)
 500 ohm.m Apparent Resistivity Contour Line
 VLF Conductor Axis
 (A1) Target Area



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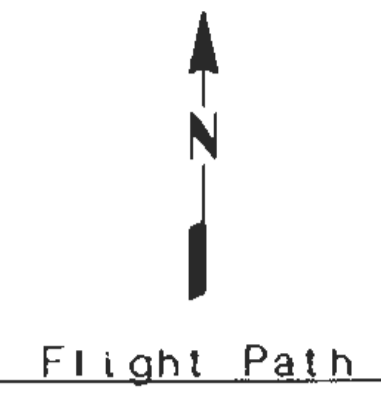
INTERPRETATION

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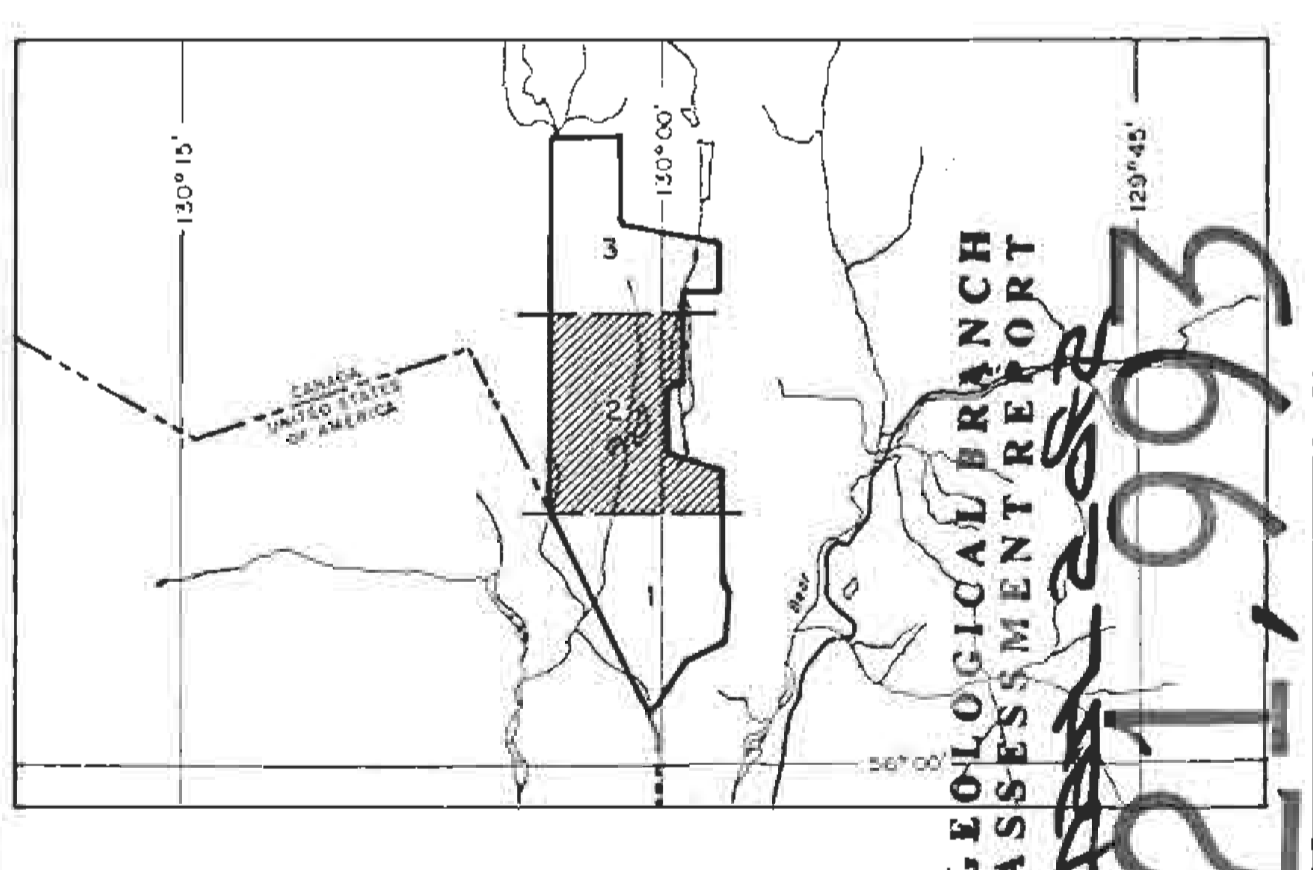
DATE: JULY 1991
 NIS No: NIS 104A/4, 104B/1
 MAP No: 3 J9152 - 2



Navigation and recovery using a Global Positioning System (GPS) navigation system.
Average terrain clearance 60m
Average line spacing 100m

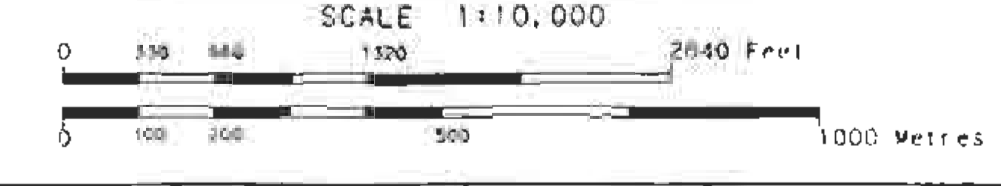
EM Anomalies

- Conductivity Thickness (mhos)
- 0 - 1
- 1 - 2
- 2 - 4
- 4 - 8
- 8 - 15
- 15 - 30
- + 30
- Cultural response
- Magnetic Anomaly
- △ EM Anomaly A, 4800 Hz channel amplitude 7.0mV
- △ Conductivity thickness 1-2 mhos (see code)



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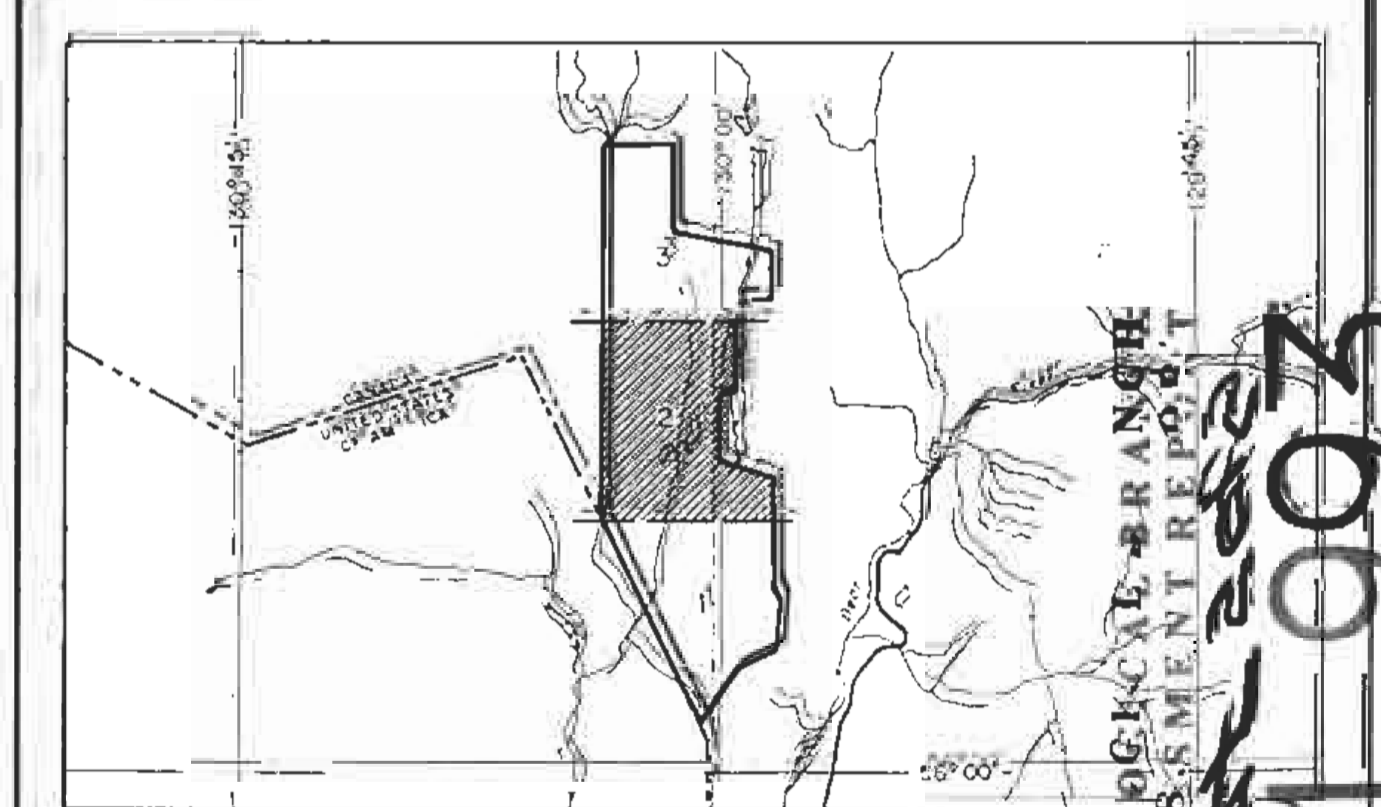
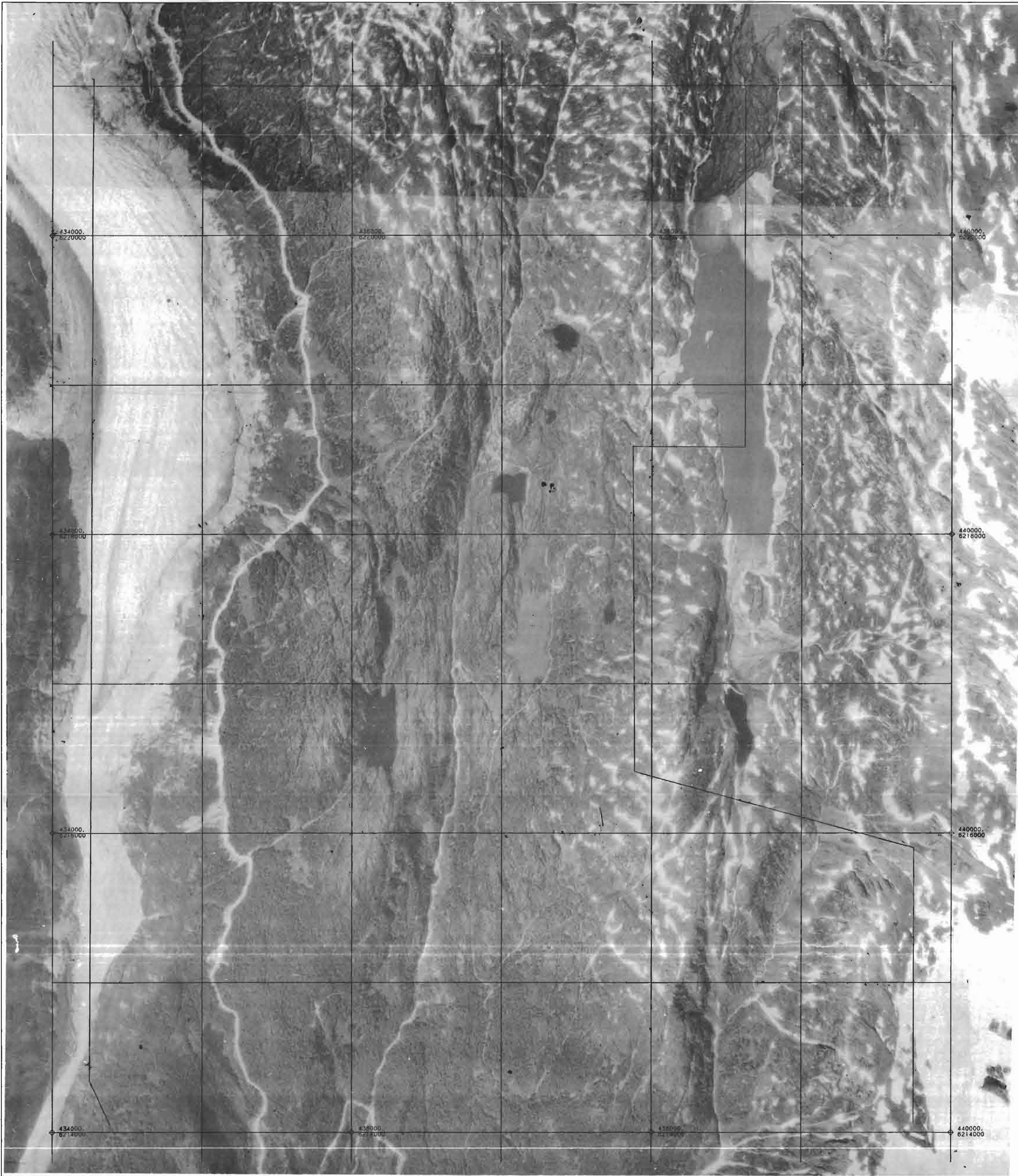
FLIGHT PATH
PREMIER GOLD PROJECT
BRITISH COLUMBIA



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DATE: JULY 1991
N/S No: NTS 104A/4, 104B/1
MAP No: 2 J9152 - 2

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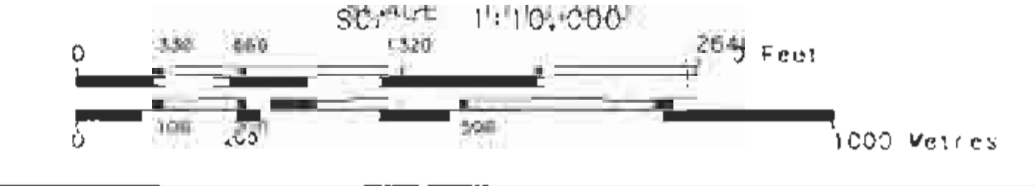


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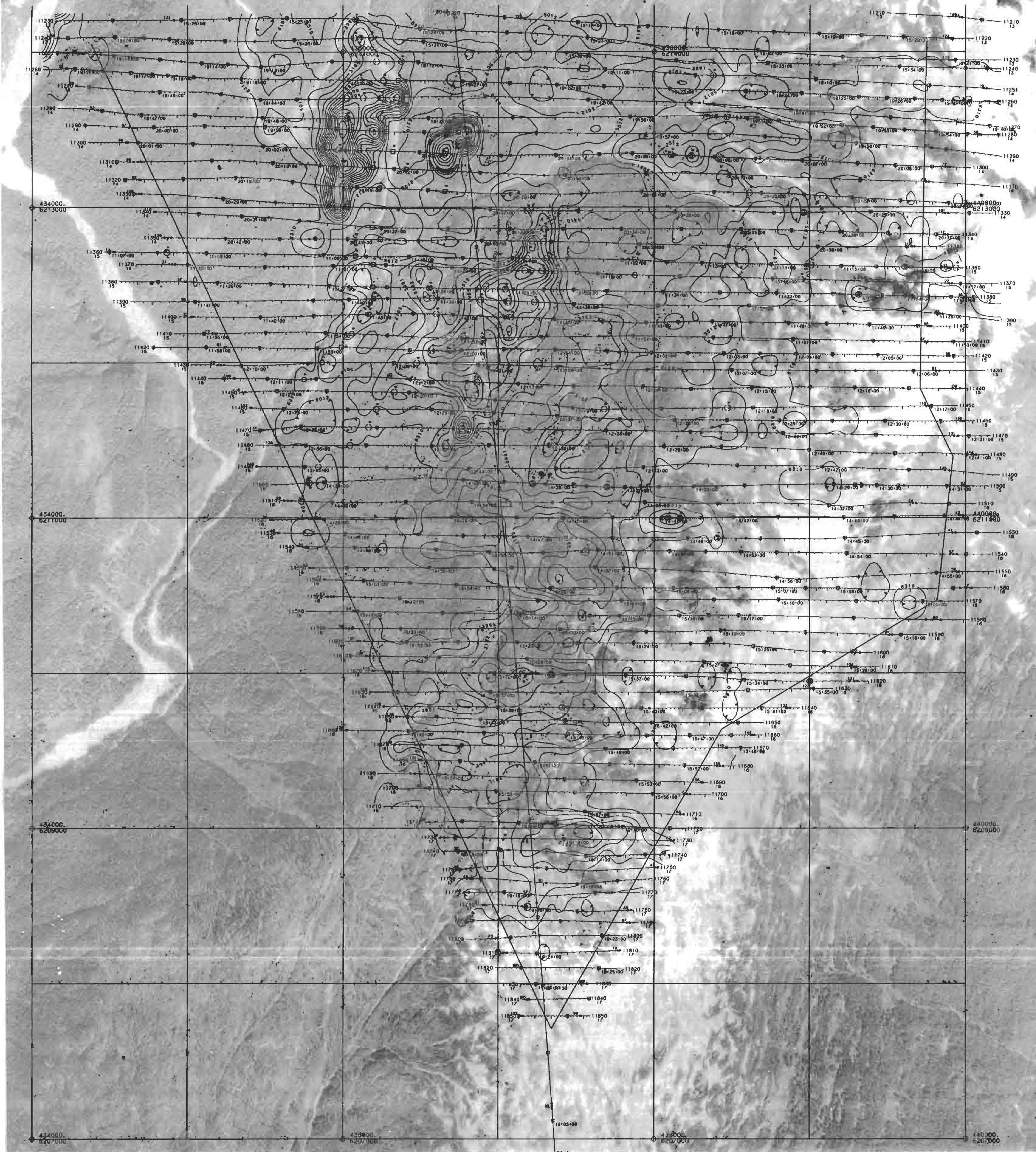
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BASE MAP

PREMIER GOLD PROJECT
 BRITISH COLUMBIA



	DATE: JULY 1991
	MAP No: 1
	J9152 - 2



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Flight Path

Navigation and recovery using a Global Positioning System (GPS) navigation system.
 Average terrain clearance 50m
 Average line spacing 100m

Apparent Resistivity

Calculated from 4175 Hz coplanar EM response assuming a 200 m conductive layer.
 Contouring in ohm m at logarithmic intervals.
 Sensor elevation 30m

Map contours are multiples of those listed below

- 0.1 log(ohm m)
- 0.5 log(ohm m)
- 1.0 log(ohm m)
- 5.00 log(ohm m)

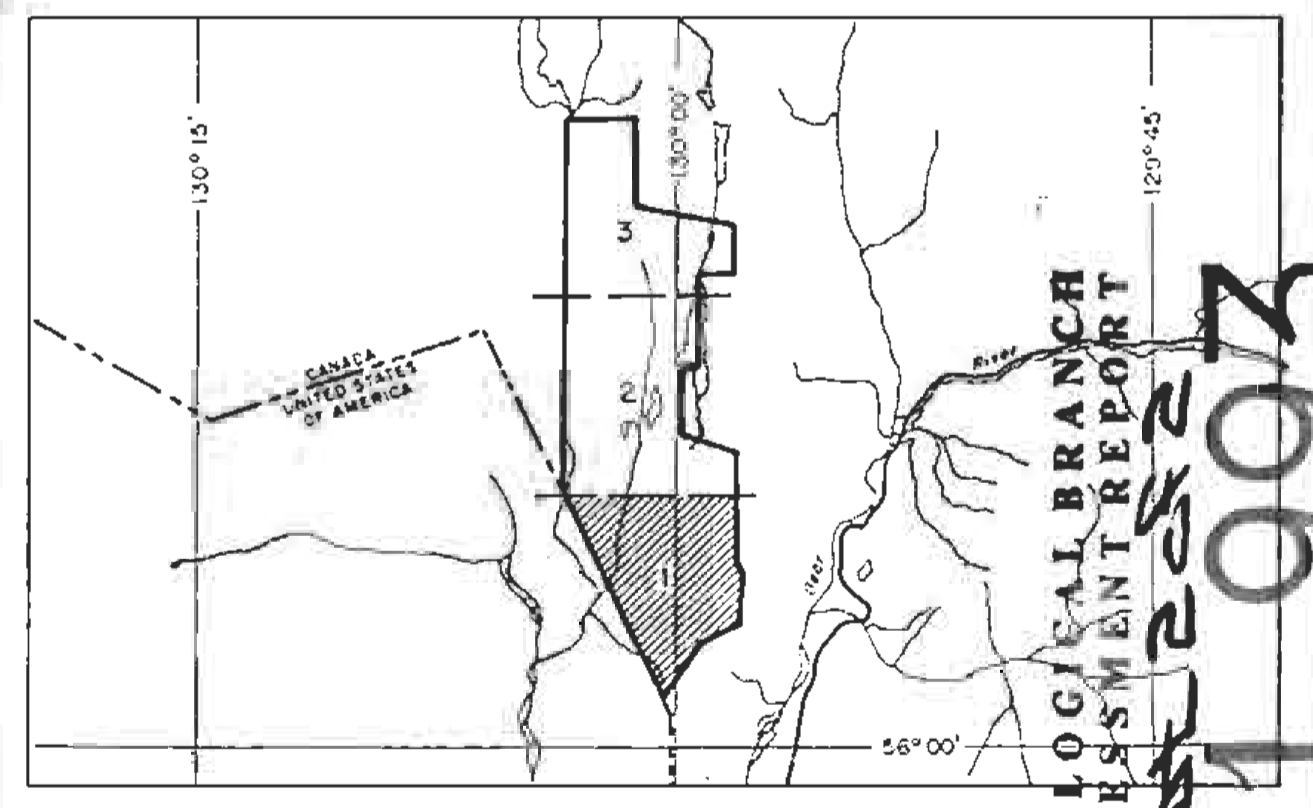
EM Anomalies

Conductivity Thickness (mcs)

- 0 - 1
- 1 - 2
- 2 - 4
- 4 - 8
- 8 - 15
- 15 - 30
- 30 - 50

□ Cultural response
 ⊙ Magnetic Anomaly

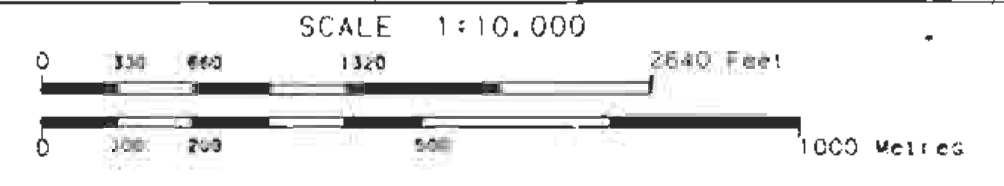
EM anomaly: 4, 400 Hz
 (depths are 1/100th of 700m
 conductivity thickness
 1/2 mode "less good")



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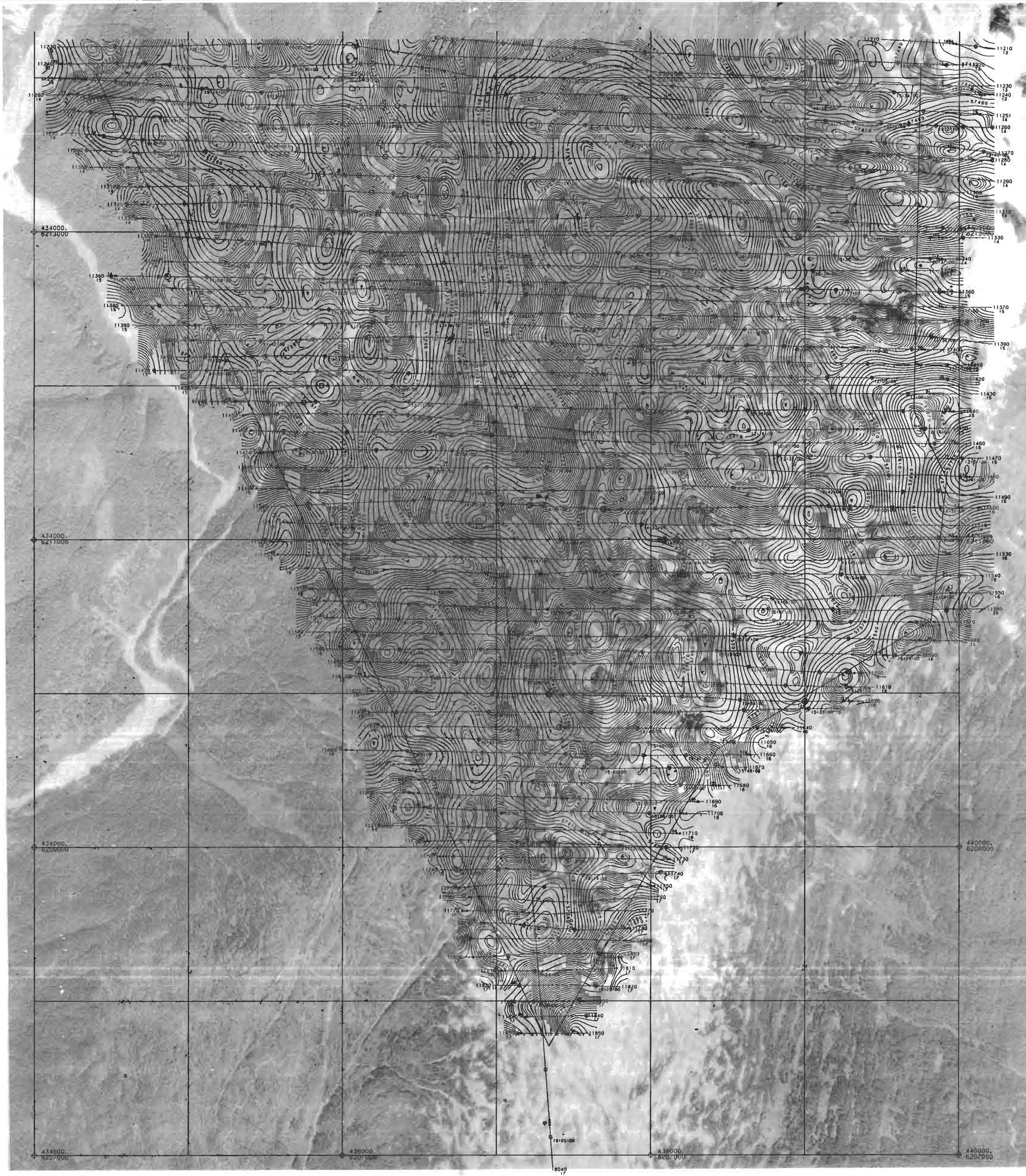
APPARENT RESISTIVITY CONTOURS (4175 Hz)

PREMIER GOLD PROJECT
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Flight Path

Navigation and recovery using a Global Positioning System (GPS) navigation system.
Average terrain clearance 60m
Average line spacing 100m

Magnetics

Total Field Magnetic Intensity Contours in nT.
Cesium high sensitivity magnetometer.
Sensor elevation 45m

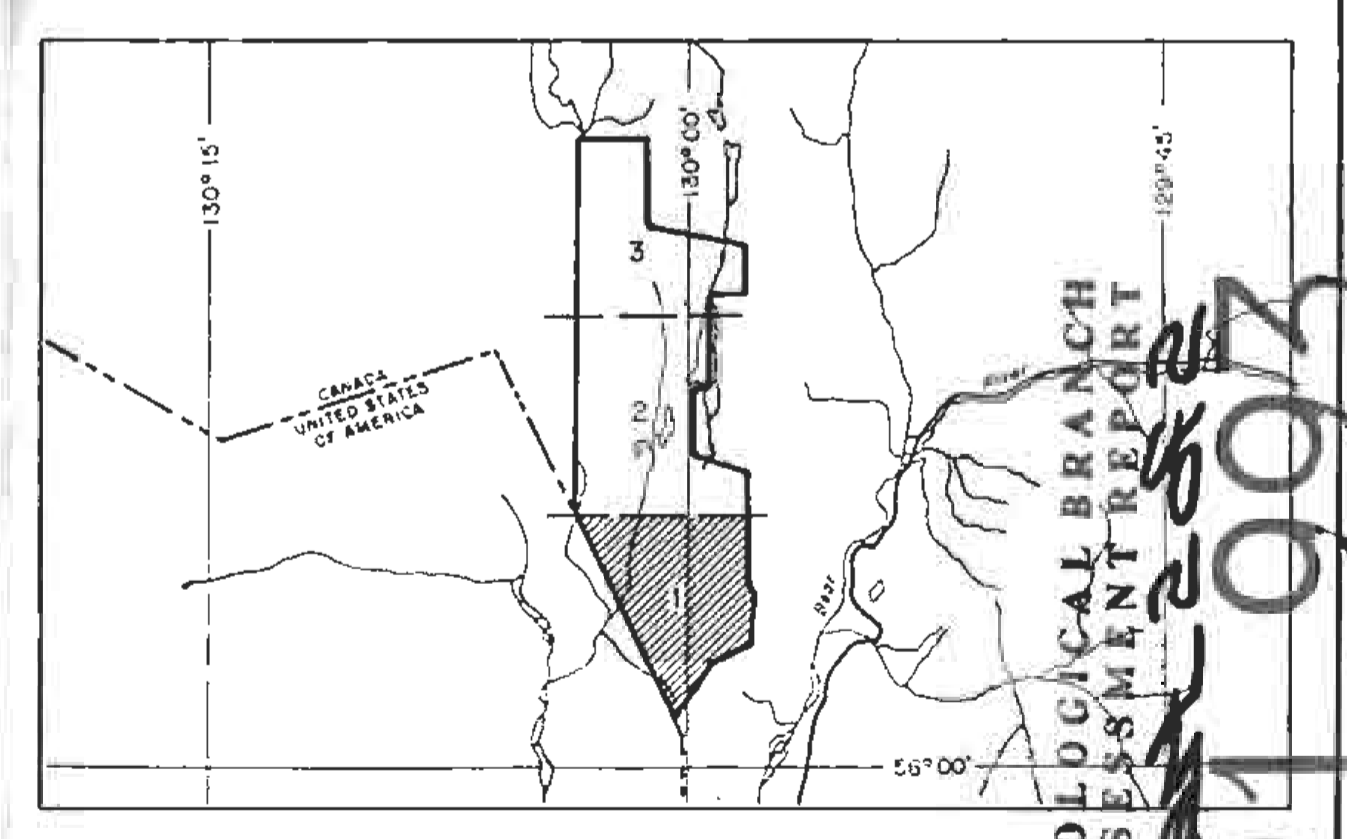
Map contours are multiples of those listed below

—	2 nT
—	10 nT
—	50 nT
—	250 nT
—	1000 nT

EM Anomalies

Conductivity Thickness (mohm)

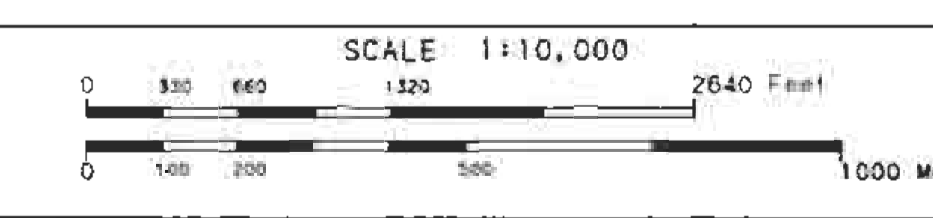
- 0 - 1
- 1 - 2
- 2 - 4
- 4 - 8
- 8 - 16
- 15 - 30
- 1 - 30
- Cultural response
- ⊙ Magnetite Anomaly
- ⊙ EM Anomaly, A. 4800 Hz (change amplitude 7 cm, Conductivity thickness 1/2 time base code)



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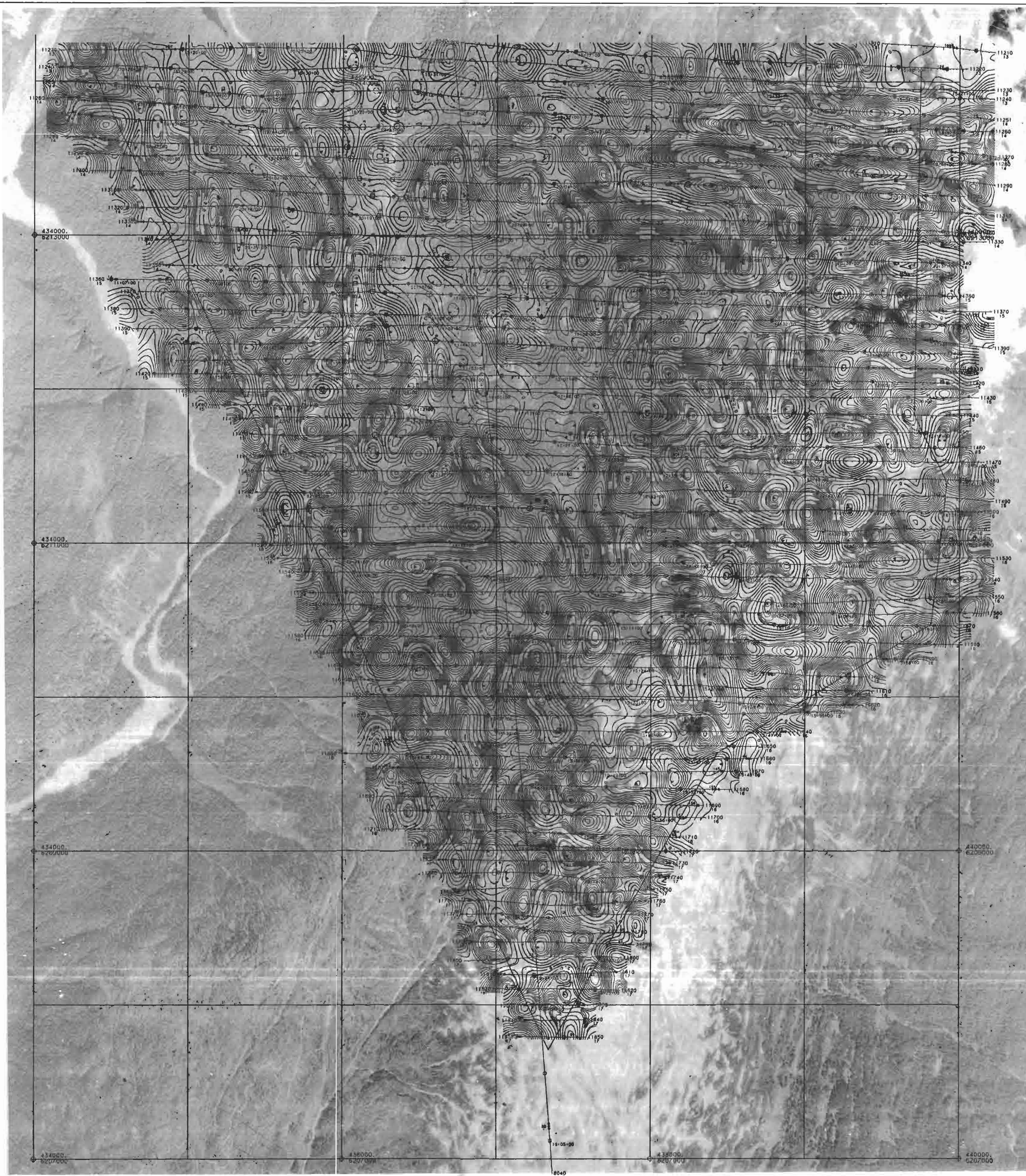
TOTAL FIELD MAGNETIC CONTOURS

PREMIER GOLD PROJECT
BRITISH COLUMBIA



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DATE: JULY 1991
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Flight Path

Navigation and recovery using a Global Positioning System (GPS) navigation system.
Average terrain resistance 60%
Average line spacing 100m

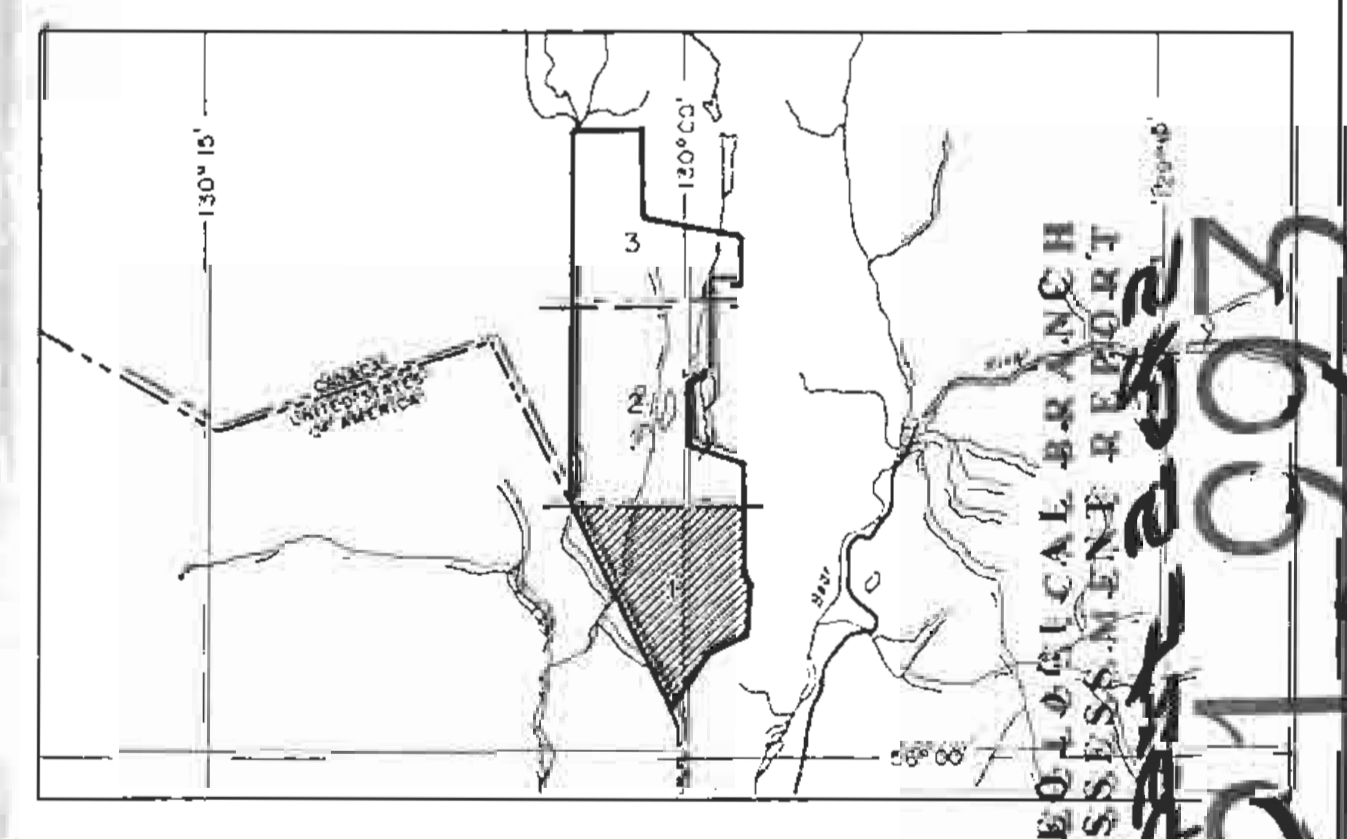
Vertical Gradient

Vertical Magnetic Gradient calculated from the total magnetic intensity in nT/m.
Design high sensitivity magnetometer.
Sensor elevation 45m

Map contours are multiples of
contour interval
0.2 m
1.00 m
2.00 m
25.00 m
100.0 m

EM Anomalies

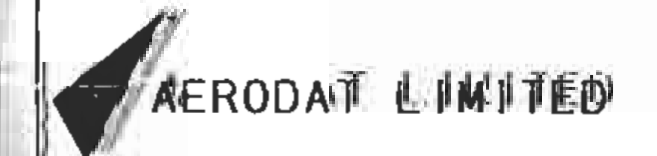
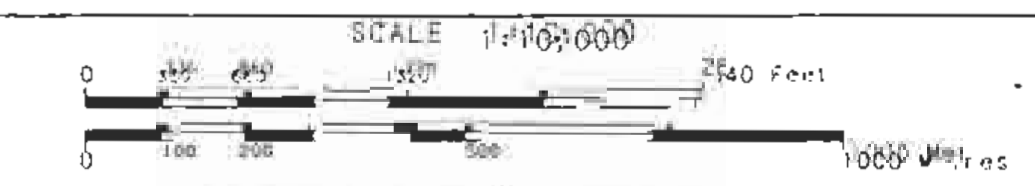
Conductivity Equivalent (mS/m)
0 - 1
1 - 2
2 - 4
4 - 8
8 - 15
15 - 30
30 - 50
50 - 100
EM Anomaly response
Magnetic Anomaly
EM Anomaly (mS/m) (see 7.2m)
Conductivity (mS/m) (see 7.2m)



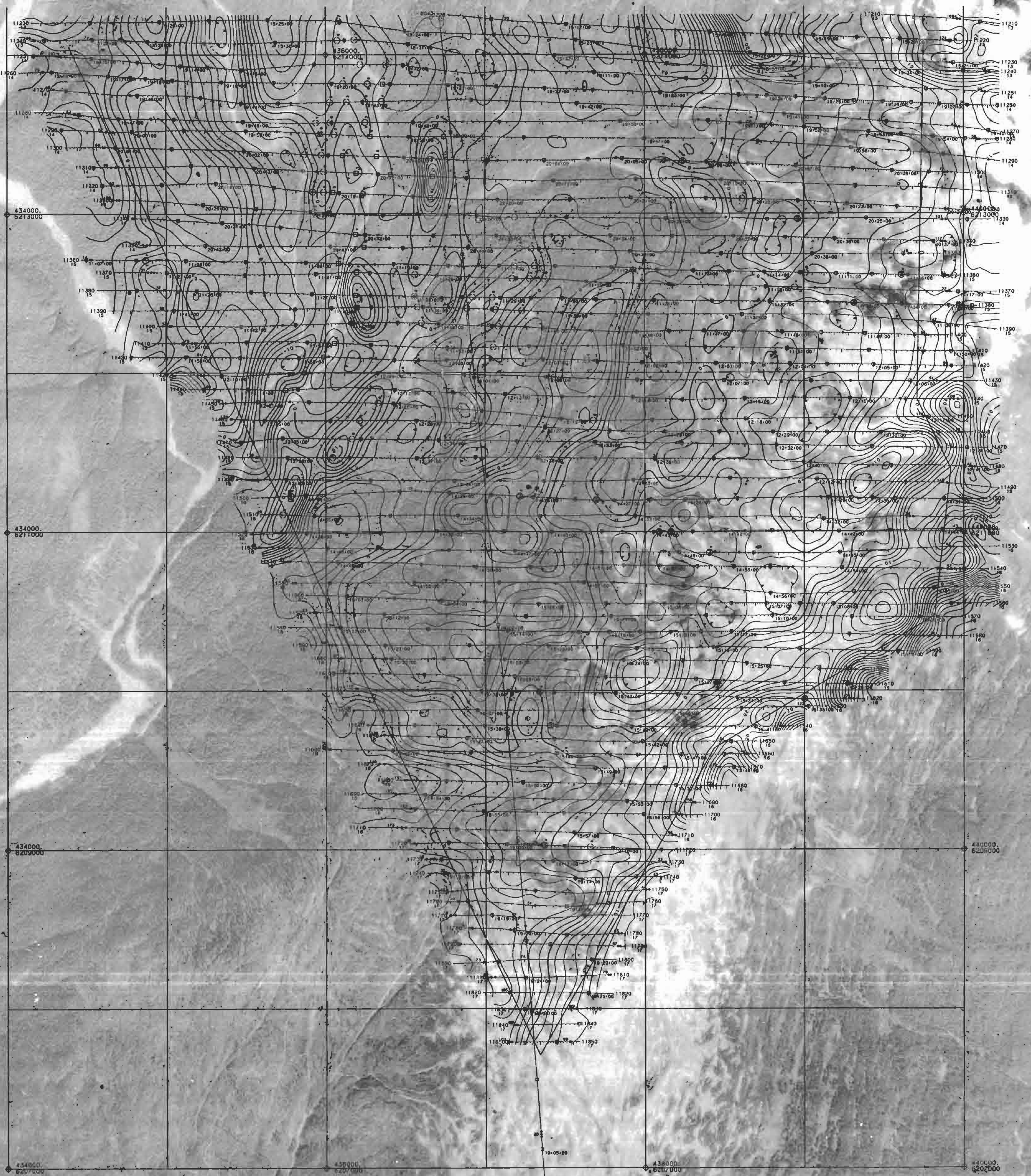
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CALCULATED VERTICAL MAGNETIC GRADIENT

PREMIER GOLD PROJECT
BRITISH COLUMBIA



DATE: JULY 1991
NFS No: NTS 104A/4, 104B/1
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Flight Path

Navigation and recovery using a Global Positioning System (GPS) navigation system.
Average flight clearance 60m
Average line spacing 100m

VLF-EM

VLF-EM Total Field Intensity in percent.
Station M.K. Flight(s) 1-14
Jim Creek, Washington
24.8 kHz
Station N.W. Flight(s) 15-17
Lusitana, Hawaii
29.4 kHz
Sensor elevation 45m
Map contours are multiples of those listed below

10 %
50 %
250 %

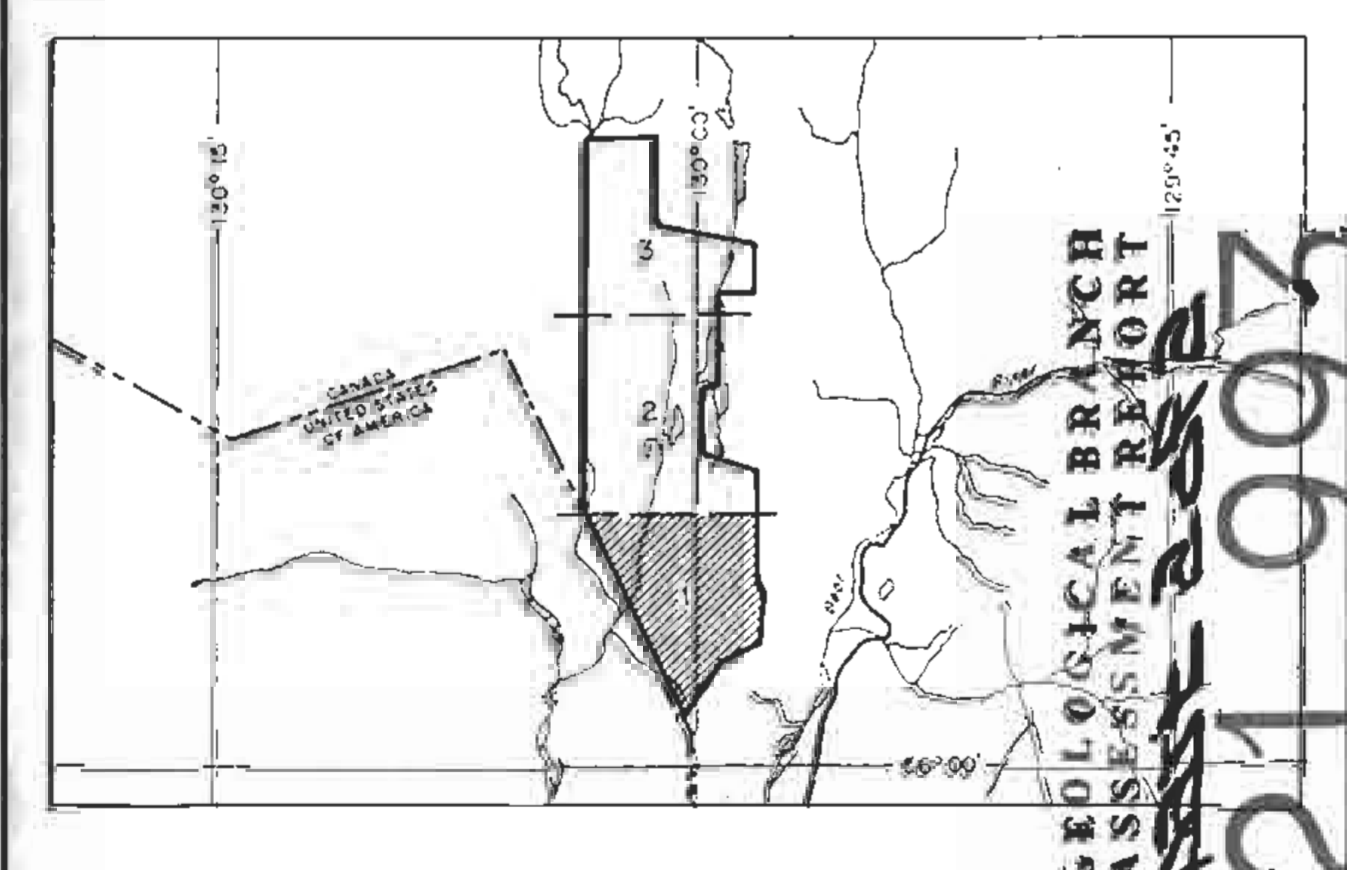
EM Anomalies

Conductivity Thickness (mhos):

- 0 - 1
- 1 - 2
- 2 - 4
- 4 - 8
- 8 - 15
- 15 - 20
- 20

□ Cultural response
● Magnetic Anomaly

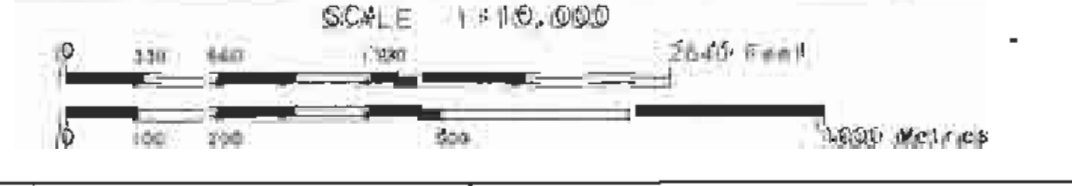
EM Anomaly A, 4600 Ft response amplitude / bank Conductivity thickness 172 mho (see note)



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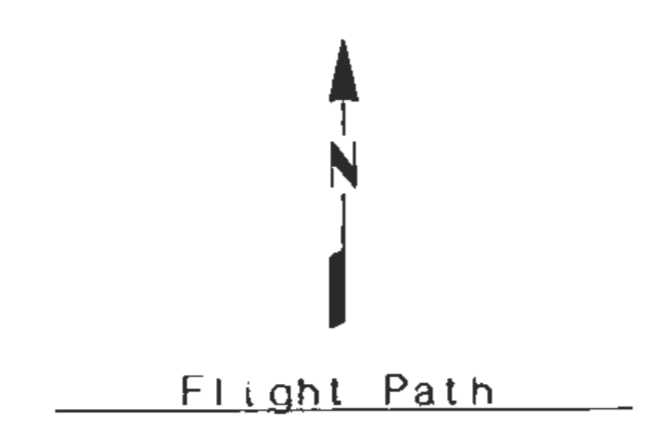
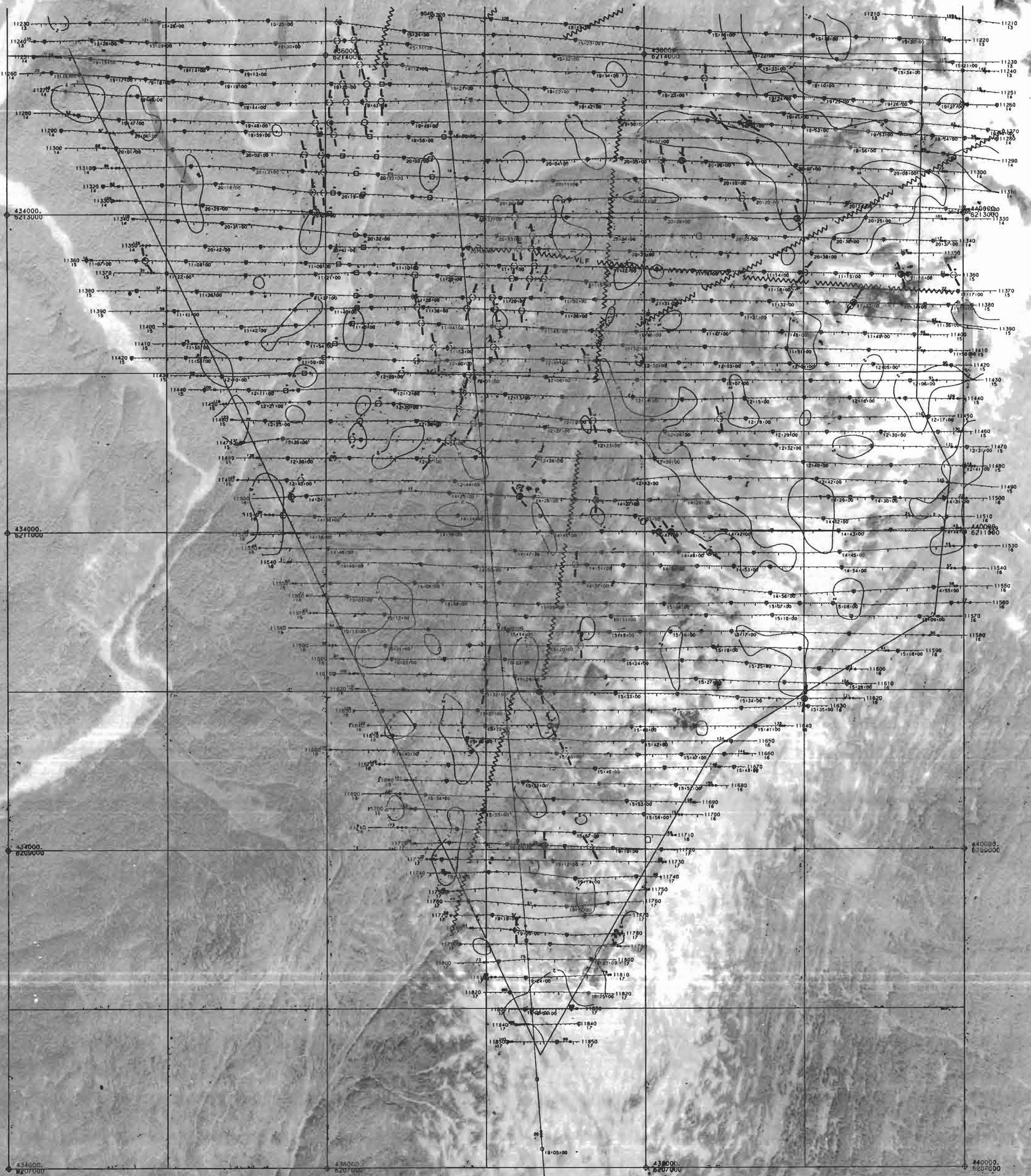
VLF-EM TOTAL FIELD CONTOURS (LINE CHANNEL)

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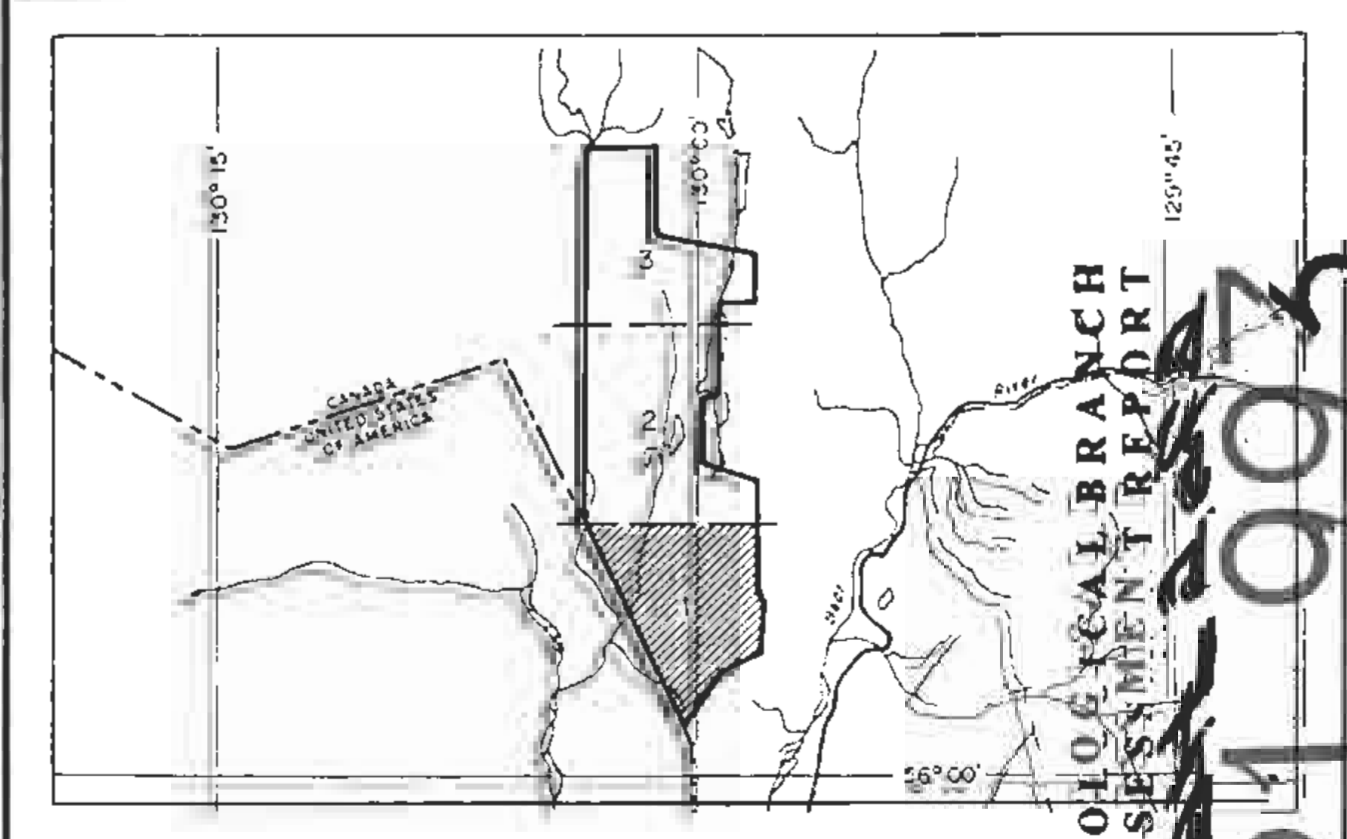
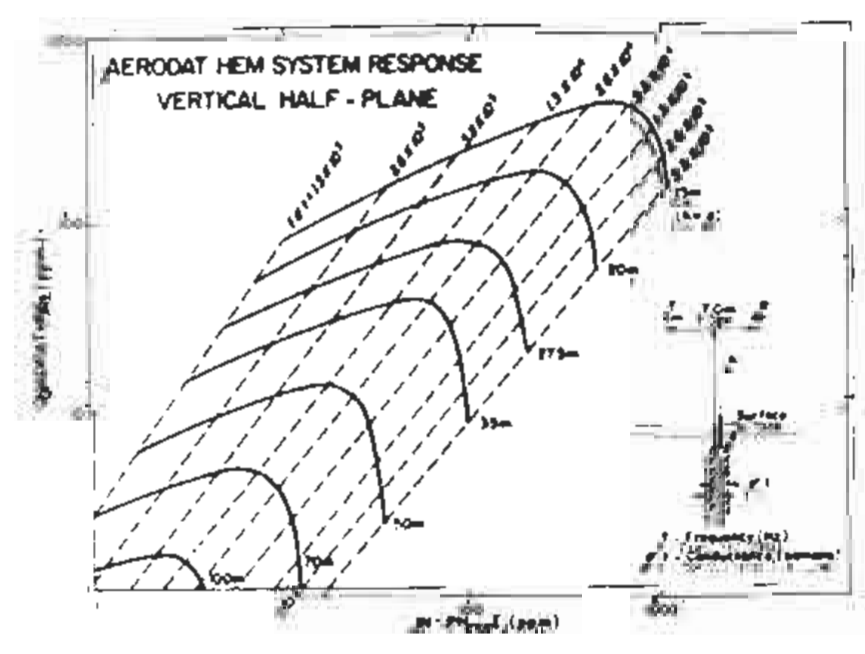
Refraction and recovery using
a Global Positioning System
navigation system.
Average terrain clearance 600'
Average line spacing 100m

FM Anomalies

- Contour Interval (Intensity in nT)
- 0 - 2
 - 2 - 4
 - 4 - 6
 - 6 - 8
 - 8 - 10
 - 10 - 12
 - 12 - 14
 - 14 - 16
 - 16 - 18
 - 18 - 20
 - 20 - 22
 - 22 - 24
 - 24 - 26
 - 26 - 28
 - 28 - 30
 - 30 - 32
 - 32 - 34
 - 34 - 36
 - 36 - 38
 - 38 - 40
 - 40 - 42
 - 42 - 44
 - 44 - 46
 - 46 - 48
 - 48 - 50
- Contour Interval 2 nT
○ Contour Interval 4 nT
○ Contour Interval 6 nT
○ Contour Interval 8 nT
○ Contour Interval 10 nT
○ Contour Interval 12 nT
○ Contour Interval 14 nT
○ Contour Interval 16 nT
○ Contour Interval 18 nT
○ Contour Interval 20 nT
○ Contour Interval 22 nT
○ Contour Interval 24 nT
○ Contour Interval 26 nT
○ Contour Interval 28 nT
○ Contour Interval 30 nT
○ Contour Interval 32 nT
○ Contour Interval 34 nT
○ Contour Interval 36 nT
○ Contour Interval 38 nT
○ Contour Interval 40 nT
○ Contour Interval 42 nT
○ Contour Interval 44 nT
○ Contour Interval 46 nT
○ Contour Interval 48 nT
○ Contour Interval 50 nT

INTERPRETATION LEGEND

- Conductor Axis
- 42 nT/m VG Contour Line
- Possible Fault (VG)
- Possible Fault (VLF)
- 500 m 500 m Apparent Resistivity Contour Line
- VLF Conductor Axis
- (A1) Target Area



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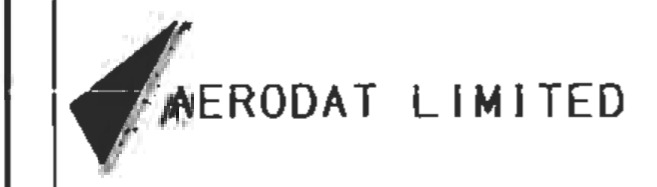
WESTMIN RESOURCES RESOURCES LTD.

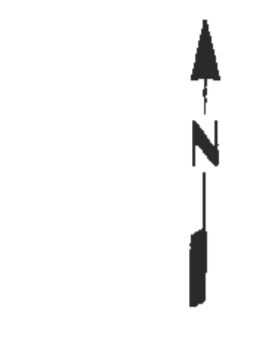
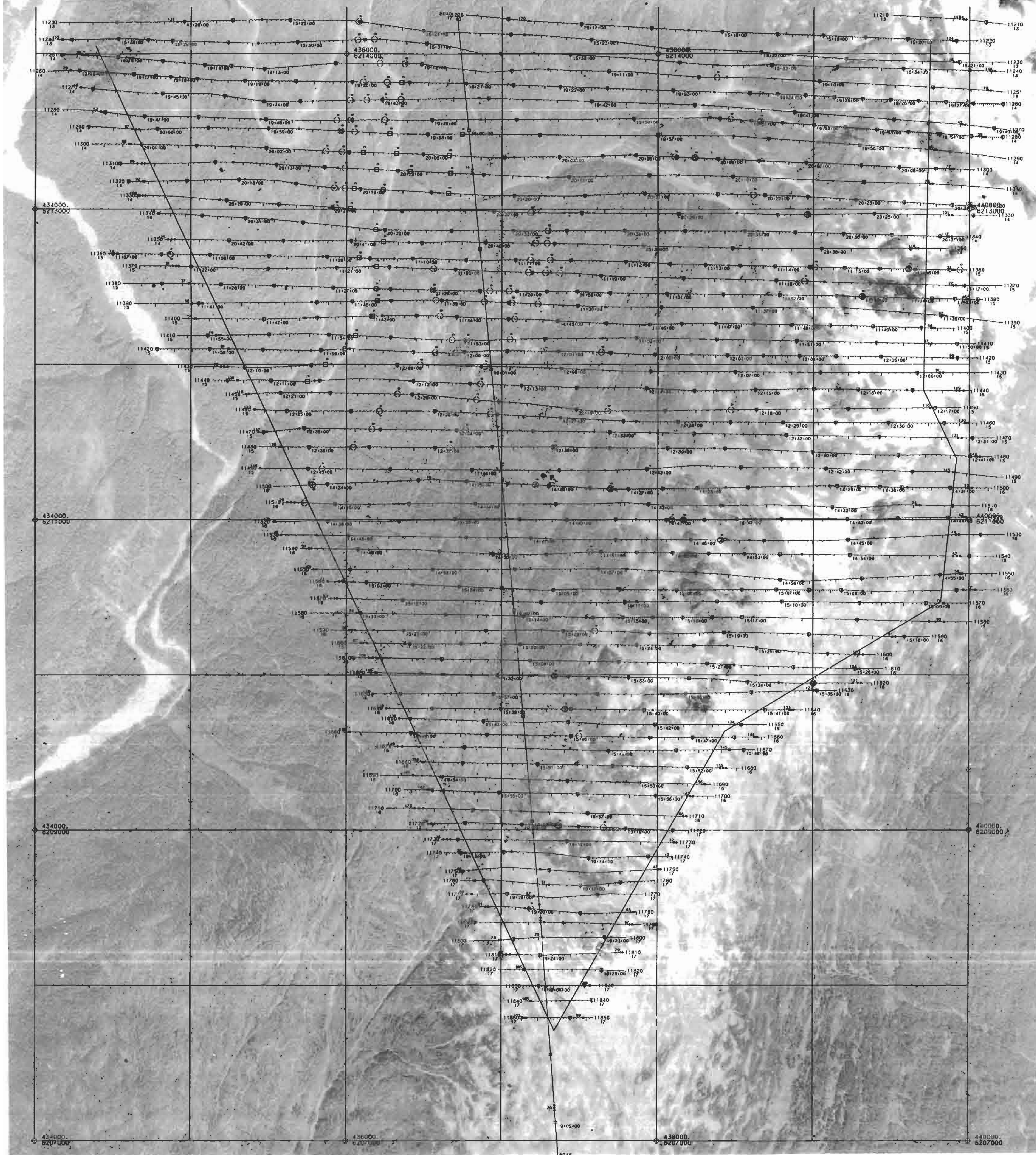
INTERPRETATION

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BRITISH COLUMBIA



DATE: JULY 1991
 NTS No: NTS 104A/4, 104B/1
 MAP No: 3 J9152 - 1

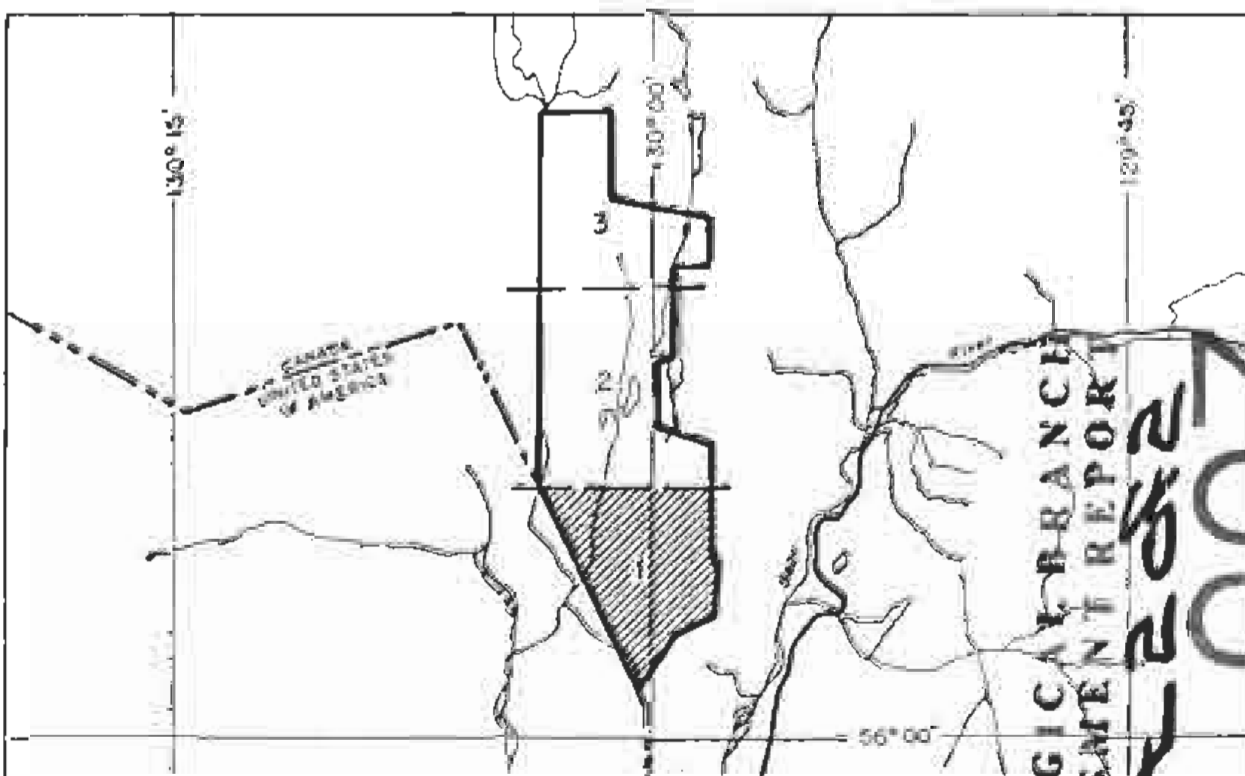




Flight Path
 Navigation and recovery using
 a Global Positioning (GPS)
 navigation system.
 Average terrain clearance 60m
 Average line spacing 100m

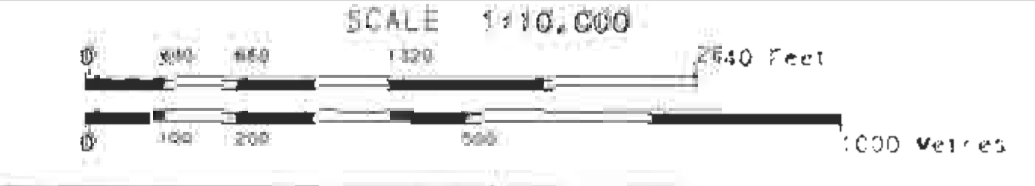
EM Anomalies

- Conductivity Indexes (mhos)
- 0 - 1
 - 1 - 2
 - 2 - 4
 - 4 - 8
 - 8 - 15
 - 15 - 30
 - 30 - 40
 - Cultural response
 - Magnetite Anomaly
 - EM anomaly 4, 4800 Hz response amplitude $\geq 10\mu\text{m}$ Conductivity Indexes (see map)



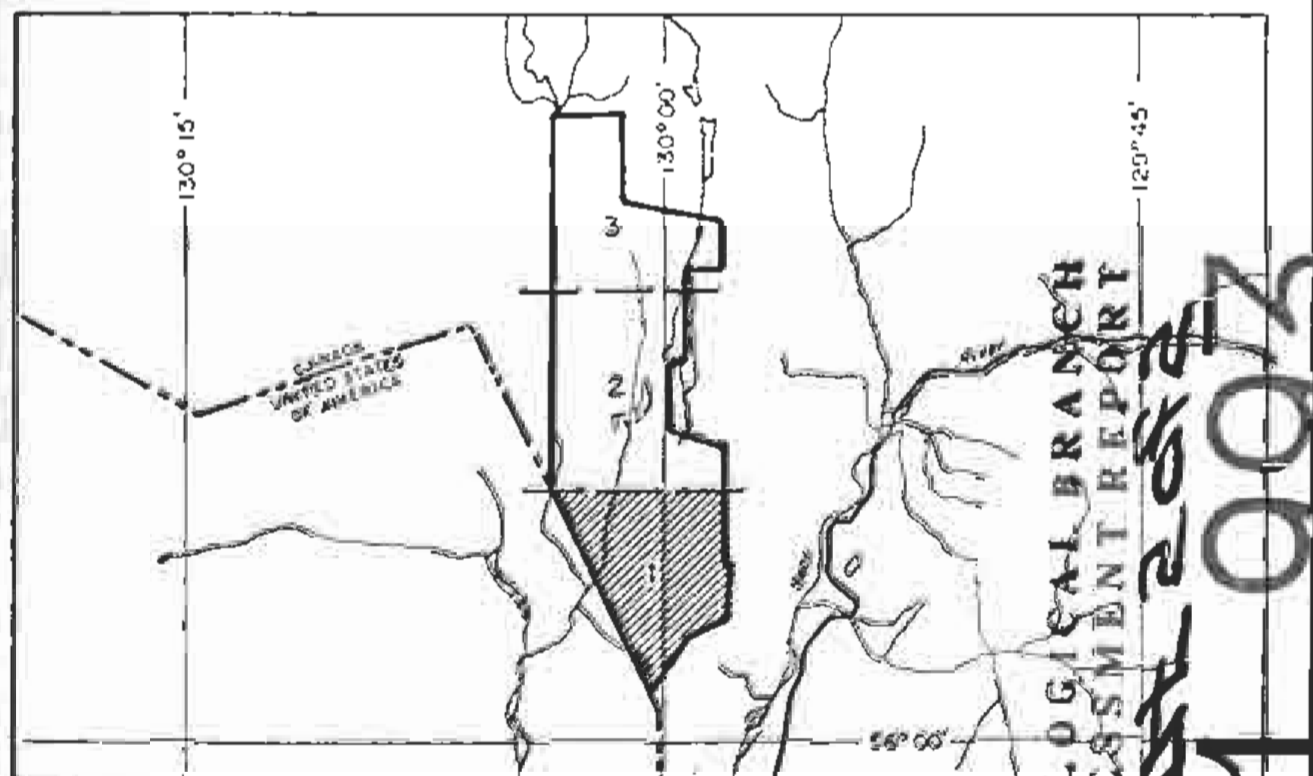
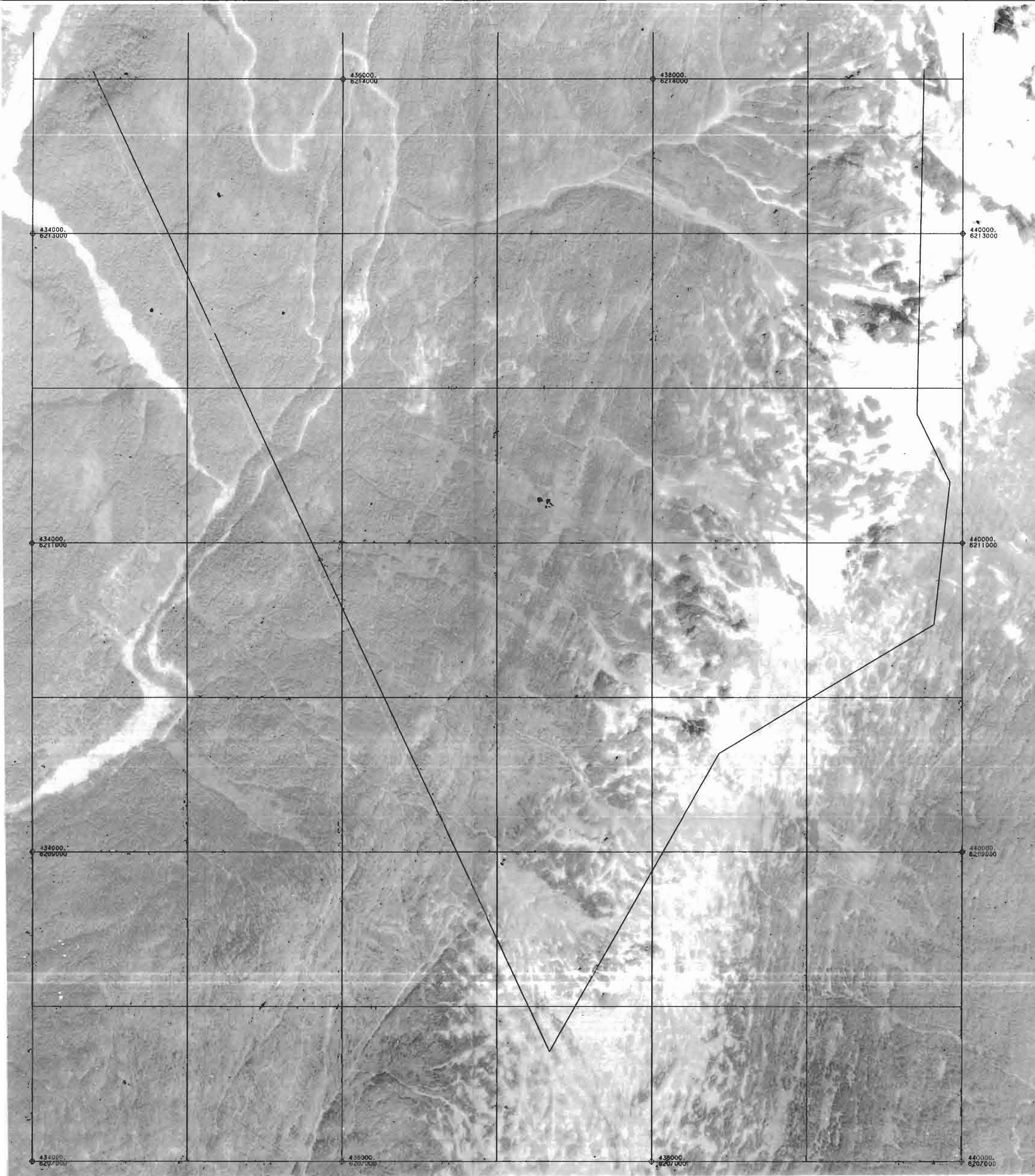
2009
 09/22
 Geological Branch
 Assessment Report

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FLIGHT PATH
PREMIER GOLD PROJECT
 BRITISH COLUMBIA



DATE: JULY 1991
 NTS No: NTS 104A/4, 104B/1
 MAP No: 2 J9152 - 1



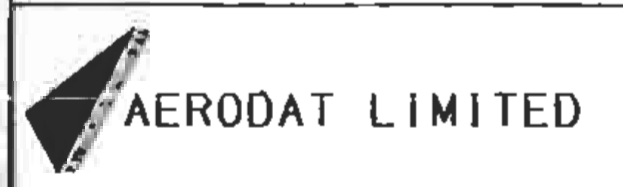
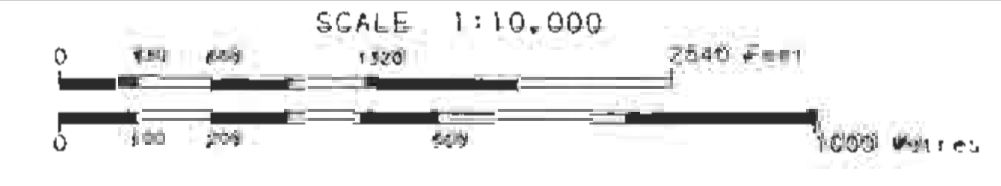


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WESTMIN RESOURCES RESOURCES LTD.

BASE MAP

PREMIER GOLD PROJECT
 BRITISH COLUMBIA



DATE:	JULY 1991
NTS No:	NTS 104A/4, 104B/1
MAP No:	1
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