

Geological and Geophysical Report

Anthony Claims, Mount Donaldson

Vancouver, M. D.

For: Seatac Resources Inc.

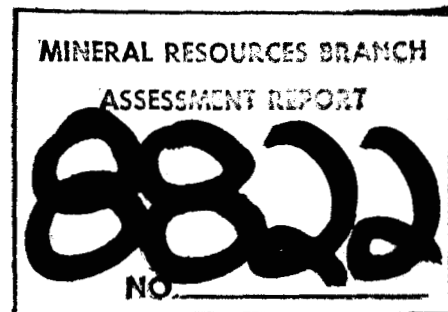
by

R.E. Renshaw, Consulting Geologist

8 Nov. 1980

49 -43 , North Latitude

123 -30 , West Latitude



INDEX

Letter of Transmittal.....1
Summary.....2
Property.....3
Location and Access.....3
Physiography.....3
Work Program.....3
Geology.....4
Mineral Zones.....4
Geophysical Surveys
 Magnetometer Instrument.....5.
 Magnetometer Survey.....6
 Electromagnetic VLF Survey.....6
Conclusions.....6

APPENDICES

A Certificates of Qualification.....Back

R.E. Renshaw

Tom O'Brien

Allen Abel

MAPS

Location.....1
Regional Geology.....2
Local Geology.....3
Grid Map 1:1000.....4
 1:400.....5
Magnetometer Contour.....6
Electromagnetic Readings.....7
Electromagnetic Contours.....8

W-7-82

R.E. Renshaw, Ba. Sc.
Consulting Geologist
1002 W. 7th. Suite 102
Spokane, Wash. 99204

Nov. 8, 1980

Seatac Resources Inc.
621 - 602 W. Hastings St.,
Vancouver, B.C.

RE: Mount Donaldson "Anthony Group" Claims,
Vancouver Mining Division, British Columbia.

Geological and Geophysical Report, Mount Donaldson,
B.C., $49^{\circ} 43' N - 123^{\circ} 27' 30'' W$. Owner: Seatac
Resources Inc.

Dear Sir;

I am pleased to submit for your information, this report of the results of the geological mapping and geophysical surveys carried out between August 8 to Aug. 13, 1980. This report has been prepared for submission as assessment work of geological mapping, geophysical surveys in accordance with the recommendations of T. Kikuchi, P. Eng. in his report of Nov. 12, 1979 submitted to Seatac Resources Inc. The work was carried out by the writer and assistants.

Technical references relating to the Anthony Claims can be seen in various Minister of Mines reports from 1876 up to 1971.

SUMMARY:

This report encompasses a combined ground magnetometer and electro-magnetometer survey carried out over the most prolific area of the 8 unit lode property of Seatac Resources Inc.

A program of grid picket station controls was established and due attention was given to the placement of the grid as precipitous topographic features precluded a conventional grid pattern. The survey grid was tailored to the known geology as well; the writer having been acquainted with this property for many years. The stations were established at 100' separations.

The results proved successful as the writer will suggest a stronger effort to an area of the property formerly neglected as the main target of concentration area.

PROPERTY:

The area covered by the geological survey and the combined magnetometer and electromagnetometer survey is over the area between Slippery Lake and Smithe Lake where most of the known mineral occurrences are found. The Anthony Group is comprised of 8 units. The claims were staked by right of location by Anthony Schretlen of Vancouver and sold by bill of sale to Seatac Resources Inc.

<u>CLAIM</u>	<u>NO. OF UNITS</u>	<u>RECORD NO.</u>	<u>EXPIRY DATE</u>
Anthony 1 - 8	8	321 - 328	* Oct. 23, 1980

* Assessment work was submitted at Vancouver on Oct. 29, 1980 and 3 years work was recorded pending receipt of this report on the geophysical - geological section D.

LOCATION AND ACCESS:

The Anthony Group is located at Mount Donaldson, Vancouver Mining Division, New Westminster Land District. The Geographic co-ordinates are 123° 27' west and 49° 43' north. The claims are located between 4100 at Smithe Lake and 5500 at the summit of Mount Donaldson.

The property can be reached by helicopter 35 air miles from Vancouver. An alternate route is via Salmon Inlet and by logging road along Sechelt Creek and up the west slope of Mount Donaldson by a logging road to Slippery Lake.

PHYSIOGRAPHY:

The two lakes atop Mount Donaldson are geomorphically cirque lakes with steep walls and eroded ridges. The vegetation is sparse and found on the ridges of these lakes with mostly spruce and cedar.

To the east of Mount Donaldson, the land slopes abruptly to Clowhom Lakes.

WORK PROGRAM:

The main adit at the shore line of Smithe Lake was cleaned out as parts of the roof material had caved. A trail and picket grid was established with 100' station over 6 lineal miles over the area of the quartz swarm system and geological mapping along with a magnetometer (MF-1 Fluxgate) and a Scopes EM Survey was carried. Photo geological interpretation was used in aiding the mapping.

GEOLOGY:

The interpretation of the geological formations of the area are given on map 42 - 1963, Squamish Sheet compiled by H.H. Bostock, 1963.

The subject area lies within the Coast Range Batholithic complex that is predominately quartz-biotite granite. The granite is medium grained, with a light grey colour. The quartz and feldspar of equal granular size. The mafic mineral found is biotite. To the west side of Slippery Lake, hornblende diorite is found and it is probably a differentiation phase of the biotite granite.

The important unit found is the muscovite granite or a sericitized phase of the biotite granite. It is within this unit that sulphides are found as blebs and disseminations. The sericite bodies are found as a large mass, incorporating xenoliths of biotite granite but cross sections of the former drilling shows the sericite as separate en echelon elipsoidal bodies at 45° to vertical. It would appear that these masses are a late stage of the intrusion and all the potentially economic mineralization has been in this unit. The 1967 drilling results and core still on the property confirms a correlation between the sericite and the copper-gold silver mineralization.

The quartz swarm system has 3 sets of quartz veins in parallel to the joint system with one area as a large quartz mass. The copper minerals found in the quartz veins are bornite, chalcocite, tetrahedrite and minor cuprite. Oxidize copper is found as malachite and azurite. These are 4 veins on the walls of Smithe Lake trending east-west. Another system occurs between Smithe Lake and Slippery Lake on the saddle. There is a large quartz mass in the area of the muscovite intrusion.

Minor aplite dykes occur on the property as joint filling in the granite.

There has been some pyrite found in the unaltered biotite granites.

MINERAL ZONES:

The two areas of economic possibilities are the copper bearing quartz veins and the sericite mass with disseminated copper.

The main vein on the west side of Smithe Lake has a 90' adit and has been sampled many times in the past with averages of 4.5% Cu and 3 oz./t Ag with 0.1% Mo. About 200' south of the main adit a spectacular showing of molybdenite, bornite and chalcopyrite occurs with limited strike on the surface.

Some of the veins in the saddle contain minor amounts of bornite and chalcopyrite in the quartz. Chalcopyrite is disseminated in lenses within the quartz-sericite masses. As an aid to the localization of these zones, it was necessary to carry out a ground magnetometer and electromagnetometer survey to shed light on sub-surface trends and structure.

GEOPHYSICAL SURVEYS:

A combined magnetometer - electromagnetometer survey was carried out on the east part of the Anthony Claim Group between August 8 - 13, 1980.

MAGNETOMETER INSTRUMENT

The magnetometer survey was carried out using a MF-1 Fluxgate magnetometer. The specifications are as:

- | 1) Performance: | <u>RANGES</u> | <u>SENSITIVITY</u> |
|-----------------|---------------------------|--------------------|
| | 1,000 gammas full scale | 20 gammas/div |
| | 3,000 gammas full scale | 50 gammas/div |
| | 10,000 gammas full scale | 200 gammas/div |
| | 30,000 gammas full scale | 500 gammas/div |
| | 100,000 gammas full scale | 2000 gammas/div |
- 2) Accuracy: 1,000 to 10,000 gamma range + or - 0.5% full scale.
Above 10,000 gamma ranges + or - 1% full scale.
- 3) Readability: 5 gammas on the lowest scale
- 4) Dimensions: 6.5" x 3.5" x 12.5"
Instrument weight: 5.75 lbs.
Battery pack weight: 2.25 lbs.
- 5) Power Requirements: 12 - 1.5 v "C" cells, total voltage 18v.
- 6) Serial Number: 7905203

MAGNETOMETER SURVEY:

Reference stations were established on 0 + 00 on the Base Line and the instruments were set at 500 gammas for the vertical magnetic intensity. The survey was carried out on Aug. 8-13, 1980. The diurnal variations during the survey were corrected and compensated, using straight line time-ratio between control points.

The magnetic map is shown in the appendix: measures vertical component and all values are relative to normal background.

The survey shows general magnetic variation on the grid lines in the range of 400 and 1600 gammas with an average background value of 1000 gammas.

ELECTROMAGNETIC VLF SURVEY:

The Scintrex Scopas was employed to carry out the VLF EM Survey. The instrument used has the serial no. 10/023 SE 80, model 707011. The transmitting station used for the survey was Jim Creek, Washington U.S.A. KHZ 18.6. The method used was VLF with 100' stations and 400' line separation.

Contour maps are located in the appendix for the Azimuth, vertical field, Dip angle and a composite.

HORIZONTAL FIELD GAIN CONTROL SETTING:

The gain did not appear to be a significant conductive part of the grid. Consequently these readings were not computed.

VERTICAL FIELD:

The highest reading of 57 was obtained near the Baseline and the Ridge line.

DIP ANGLE:

In the central part of the surveyed area, the readings are constantly positive, probably due to the conductive surface. The real cross over is assumed to be located at the point of rapid decreasing rates of change in the areas of the quartz vein system. It takes place at the change point from positive to a negative number at 4 different places, associated with fracture fillings.

CONCLUSION:

- 1) The geophysical tests undertaken at the Seatac property have been of considerable value both as an aid to exploration and for obtaining geological information. The geophysical survey is considered to supply an excellent guide for the purposes of future drilling or tunneling.

- 2) The most important feature revealed by this survey outline the projection of the mineralized zone and on line 11 and baseline a large conductive zone is outlined by the Scopas reflecting a high vertical field and changes of azimuth.
- 3) The low magnetic areas west of Smithe Lake on the 2nd south line reflect a change in the rock type or a geologic structure, possibly faults or jointing. The magnetic high readings on the 2nd south line and ridge-line shows possible topographic highs or the mineralization in that area.
- 4) At the eastern extremity of the grid, the readings indicate low magnetics.
- 5) Both geological and geophysical evidence points to the junction of the base-line and ridge-line where the quartz swarm system is located and possibilities are to the eastward extension.
- 6) There seems to be a general correlation with the electromagnetometer and magnetometer coupled with the geology. The geophysics manifest the trend of the geologic features as well as indicate the possible entrapment of mineralized zones.

CONCLUSION:

The geological mapping and study provides that the mineralized area of Mount Donaldson exposed at the water level of Smith Lake although the most spectacular of the showings are tension fractures filled with quartz and copper bearing minerals post muscovite granite intrusion or segregation.

Although the past theories of a NW - SE trend has been generally accepted by my predecessors, it is my opinion that the East-West quartz swarms in the saddle between Mount Donaldson and Mount Sayward is by far the strongest lineaments according to my mapping. Most of the quartz veins are low yielding in mineralization, nevertheless, it provides evidence of a strong hydrothermal deposition which along its strike and down dip could manifest in stronger possibilities for mineralization. The muscovite granite phase intruded the biotite granite and along the periphery of the intrusive stock work. Later silica injections carrying mineralized solution fermented in the fracture patterns set up by the prior intrusion of muscovite granite.

It is my opinion that to the east of the quartz vein swarm down the slopes to Dempster Creek, further exploration should be directed. As the present company property doesn't cover the area of future direction, it is my opinion that it should be staked as soon as possible.

The geophysical results obtained from this survey, confirms that the area of concentration, contrary to past drilling and trenching should be to the east of the saddle between Mount Donaldson and Mount Sayward. The Seatac property is considered to be of favourable geologic and metallogenic environment for a potential commercial deposit with further testing and development work in accordance with the recommendations of the T. Kikuchi, P. Eng., report.

Respectfully submitted,

Vancouver, B.C.
November 8, 1980


R.E. Renshaw, B.Sc.
Consulting Geologist



A circular professional seal for R.E. Renshaw, a Professional Engineer in the Province of British Columbia. The seal features a rope-like border and contains the text: "PROFESSIONAL ENGINEER OF THE PROVINCE OF BRITISH COLUMBIA". The name "R. E. RENSHAW" is stamped across the center of the seal.

Appendix A

R.E. Renshaw, Ba. Sc.
1002 West 7th, Suite 102
Spokane, Washington 99204
(509) 455-8989

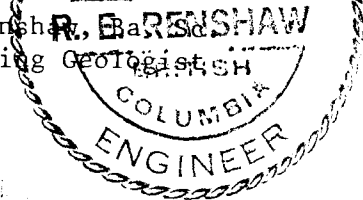
CERTIFICATE OF QUALIFICATION

- 1) I, R.E. Renshaw declare that I reside and maintain an office at the above address and at LG 153 - 890 W. Pender, Vancouver, B.C. V6E 1J9.
- 2) I am a graduate of the University of British Columbia with a degree of Bachelor of Applied Science in Geological Engineering. I have also taken post graduate studies in specialized courses in Geophysics and Economic Geology.
- 3) I have been practicing my profession as a Consulting Geologist since 1946 (34 years) and have just come out of retirement. My reinstatement as a Registered Professional Engineer for the province of British Columbia is pending.
- 4) This report is based upon my personal supervision by trained personnel.
- 5) I have no interest in the securities of Seatac Resources Inc., direct or indirect nor do I expect to receive any.

Respectfully submitted,

Vancouver, B.C.
November 8, 1980


R.E. Renshaw, Ba. Sc.
Consulting Geologist



Appendix A


Qualifications of Personnel

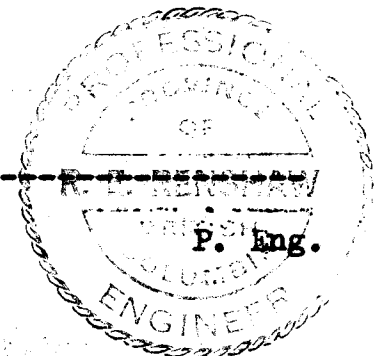
R.E Renshaw, B.Sc. Consulting geologist with numerous years of experience in all phases of exploration including geophysics, carried out the electromagnetic survey.

Thomas O'Brien Graduated from Sir William Collins Technical College, London, U.K. Experience as a prospector and mining contractor since 1975. Experience as geophysical technician since 1976 in Canada and United States. Carried out the magnetometer survey under R.E. Renshaw, Geological Consultant.

Allen Abel Mechanical technician, Technical College level U.K., 2 years previous geophysical experience. Assisted in carrying out the surveys under R.E. Renshaw, Geological Consultant.

The work was carried out under the directions of the consulting geologist for Seatac Resources Inc. and the above personnel worked in accordance to my instructions.





APPENDIX B

COST DISTRIBUTION

Cleaning out adit (20') 5' x 7', 3 men	\$ 1000.00
Helicopter	712.00
Supplies (3 men \$20.00/day x s)	360.00
Equipment Rental, supplies purchase, transportation	1000.00
Trail & Picket grid 100' station (6miles, 3 men)	2000.00
Geological mapping & consulting	3000.00
Geophysical Equipment Rental	450.00
Geophysical - magnetometer MF-1 Fluxgate	
- electromag Scintrex EM	
- geophysical report	
- geochem samples taken*	
- consulting	5312.00
TOTAL	<u>\$13834.00</u>

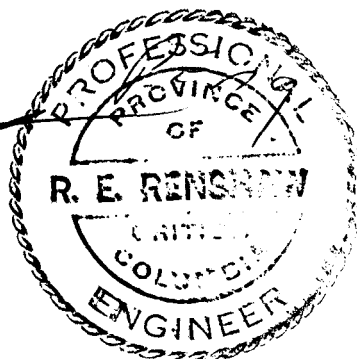
*Geochem survey not claimed as soil development was skimpy not consistent for B-1 horizon and many rock (chip) samples taken. The results would not be meaningful.

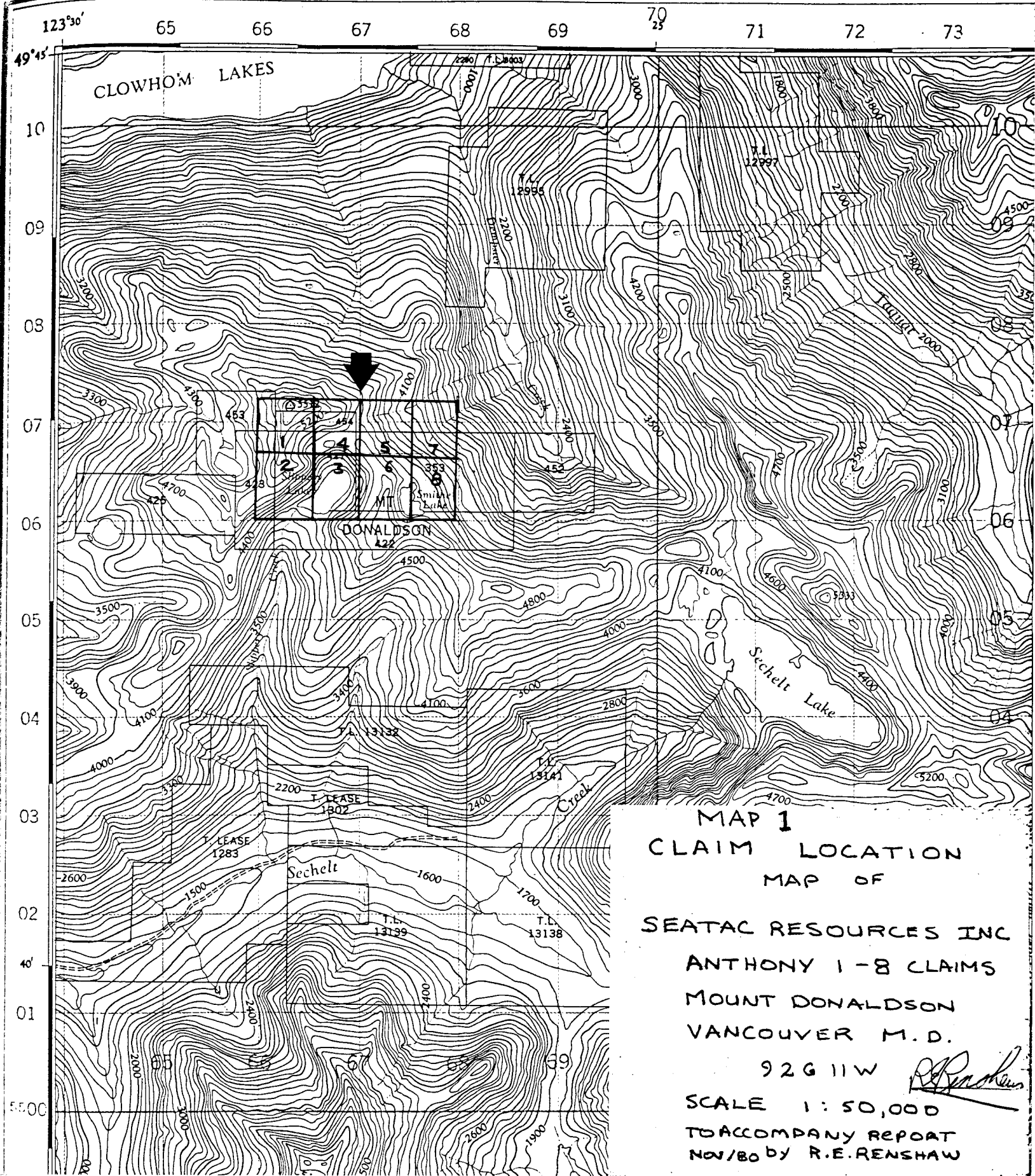
PERSONNEL: on the property Aug 8 - 13, 1980

R.E. Renshaw, Ba. Sc. Consulting Geologist

Thomas O'Brien Mining Contractor

Allen Abel Technician





MAP 1
 CLAIM LOCATION
 MAP OF
 SEATAC RESOURCES INC
 ANTHONY 1-8 CLAIMS
 MOUNT DONALDSON
 VANCOUVER M.D.
 92G 11W *R.E. Renshaw*
 SCALE 1:50,000
 TO ACCOMPANY REPORT
 NOV/80 BY R.E. RENSHAW



PLUTONIC ROCK

MESZOZOIC AND (7) CENOZOIC

CRETACEOUS AND EARLIER (mainly)

13 Undivided; 13a, leucocratic rocks; granodiorite, quartz monzonite, quartz diorite; minor granite and mesocratic rocks; 13b, leucocratic rocks; probably Tertiary; 13c, mesocratic and melanocratic rocks: quartz diorite, diorite, granodiorite; minor hornblende gabbro and leucocratic rocks

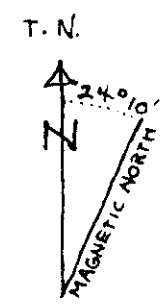
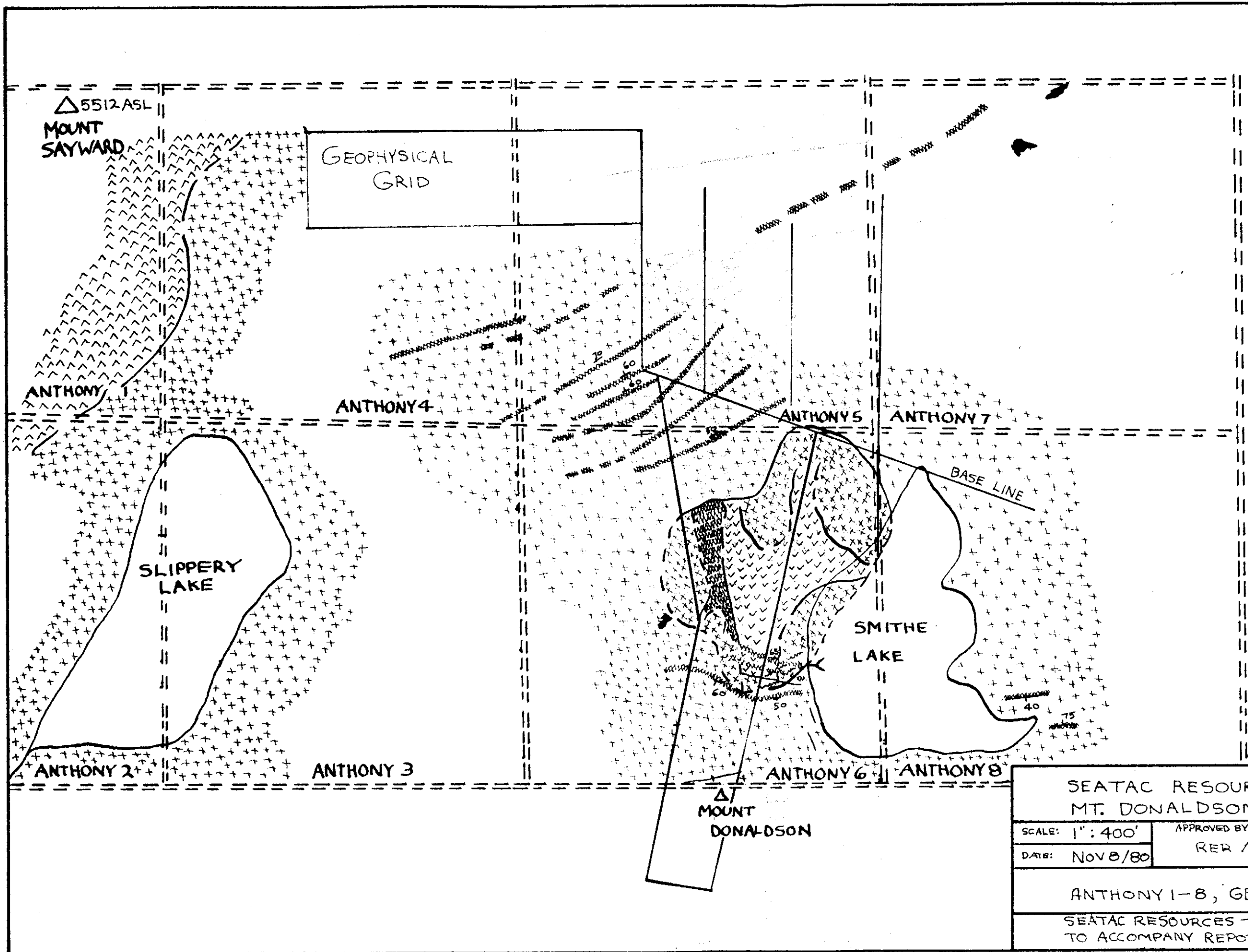
- Geological boundary (approximate)
- Limit of geological mapping
- Bedding, top known (inclined, top determined by pillows)
- Bedding, top unknown (inclined, vertical)
- Gneissosity, schistosity, foliation (inclined, vertical, dip unknown)
- Fault, shear zone (approximate)
- Syncline
- Glacial striae (direction of ice movement known, unknown)
- Fossil locality
- Mineral occurrence

MAP 2

REGIONAL GEOLOGICAL MAP OF

SEATAC RESOURCES INC
ANTHONY I-B CLAIMS
MOUNT DONALDSON
VANCOUVER M.D.

SCALE 1: 253,440
TO ACCOMPANY REPORT
by R.E. RENSHAW
NOV / 80



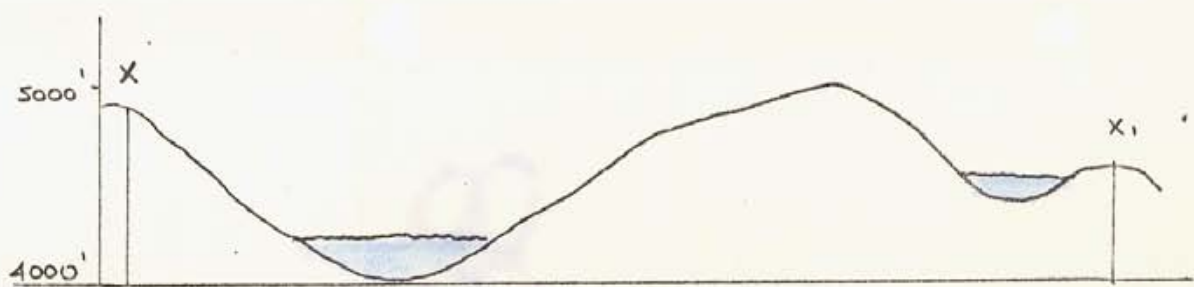
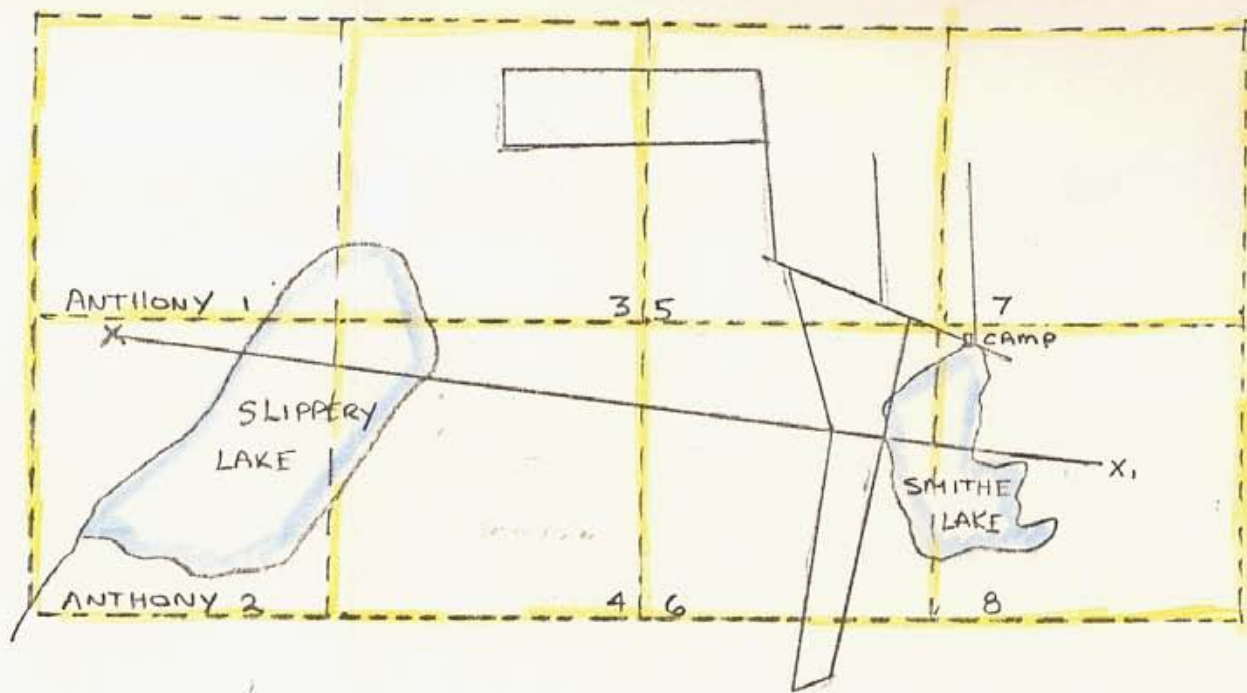
LEGEND

- ==== CLAIM BOUNDARY
- +++ BIOTITE GRANITE
- vvv MUSCOVITE GRANITE
- xxx HYBRID-SERICITE
- ||||| QUARTZ-VEIN EXPOSED
- QUARTZ-VEIN EXTRAPOLATED
- ||||| QUARTZ-MASS
- ^^^ DIORITE (RICH HORNBLende)
- Y ADIT
- XX BEDDING (INCLINE, VERTICAL)
- DEFINED CONTACT
- - - EXTRAPOLATED CONTACT
- ~~~~ FAULTING

MINERAL RESOURCES BRANCH
ASSESSMENT REPORT

0822

SEATAC RESOURCES INC. NO. _____		
MT. DONALDSON PROPERTY, B.C.		
SCALE: 1" : 400'	APPROVED BY: RER / ESA	DRAWN BY RER
DATE: NOV 8/80		REVISED RER
ANTHONY 1-8, GEOLOGICAL MAP		
SEATAC RESOURCES - R. E. RENSHAW TO ACCOMPANY REPORT BOSC		DRAWING NUMBER 3



MINERAL RESOURCES BRANCH
ASSESSMENT REPORT
8822
NO. _____

SEATAC RESOURCES INC		MAP 4
ANTHONY 1-8 CLAIMS		
MT. DONALDSON, B.C.		
SCALE: 1" = 1000'	APPROVED BY: RER	DRAWN BY RER
DATE: NOV 8/80		REVISED
GENERAL CLAIM MAP, GRID - GEOPHYSICAL, CAMP		
CROSS-SECTION BETWEEN X - X1		
BY: R.E. RENSHAW, BASC CONSULTING GEOLOGIST <i>RER</i>		DRAWING NUMBER REF: 92G11W BC DEPT MINE

X MOUNT SAYWARD



10N+25W
10N+24W
10N+23W
10N+22W
10N+21W
10N+20W
10N+19W
10N+18W
10N+17W
10N+16W
10N+15W
10N+14W
10N+13W
10N+12W

LINE 10 N

25W+9N
25W+8N
25W+7N
25W+6N

LINE 6 N

6N+24W
6N+23W
6N+22W
6N+21W
6N+20W
6N+19W
6N+18W
6N+17W
6N+16W
6N+15W
6N+14W
6N+13W
6N+12W

10N+11
10N+10
10N+9
10N+8
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10N+2
10N+1
0+11W
0+10W
0+9W
0+8W
0+7W
0+6W
0+5W
0+4W
0+3W
0+2W
0+1W
0+10N
0+9N
0+8N
0+7N
0+6N
0+5N
0+4N
0+3N
0+2N
0+1N

LINE AN

AN+8
AN+7
AN+6
AN+5
AN+4
AN+3
AN+2
AN+1

0 LINE

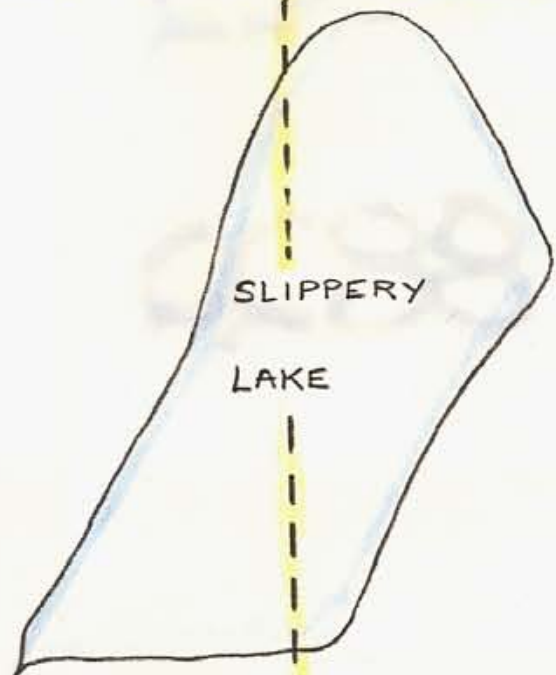
0+10N
0+9N
0+8N
0+7N
0+6N
0+5N
0+4N
0+3N
0+2N
0+1N

ANTHONY 1

ANTHONY 3

ANTHONY 5

ANTHONY 7



SLIPPY LAKE

11+15
11+25
11+35
11+45
11+55
11+65
11+75
11+85
11+95
11+05
A+1
A+2
A+3
A+4
A+5
A+6
A+7
A+8
A+9
A+10
A+11
A+12
B+1
B+2

11 LINE

RIDGE LINE

X MOUNT DONALDSON
RIDGE + 1
R17
R16
R15
R14
R13
R12
R11
R10
R9
R8
R7
R6
R5
R4
R3
R2

SMITHE LAKE

ANTHONY 8

BASE LINE
0+15
0+25
0+35
0+45
0+55
0+65
0+75
0+85
0+95

ANTHONY 2

ANTHONY 4

ANTHONY 6

NOTE: LINE 10 MARKED (11)

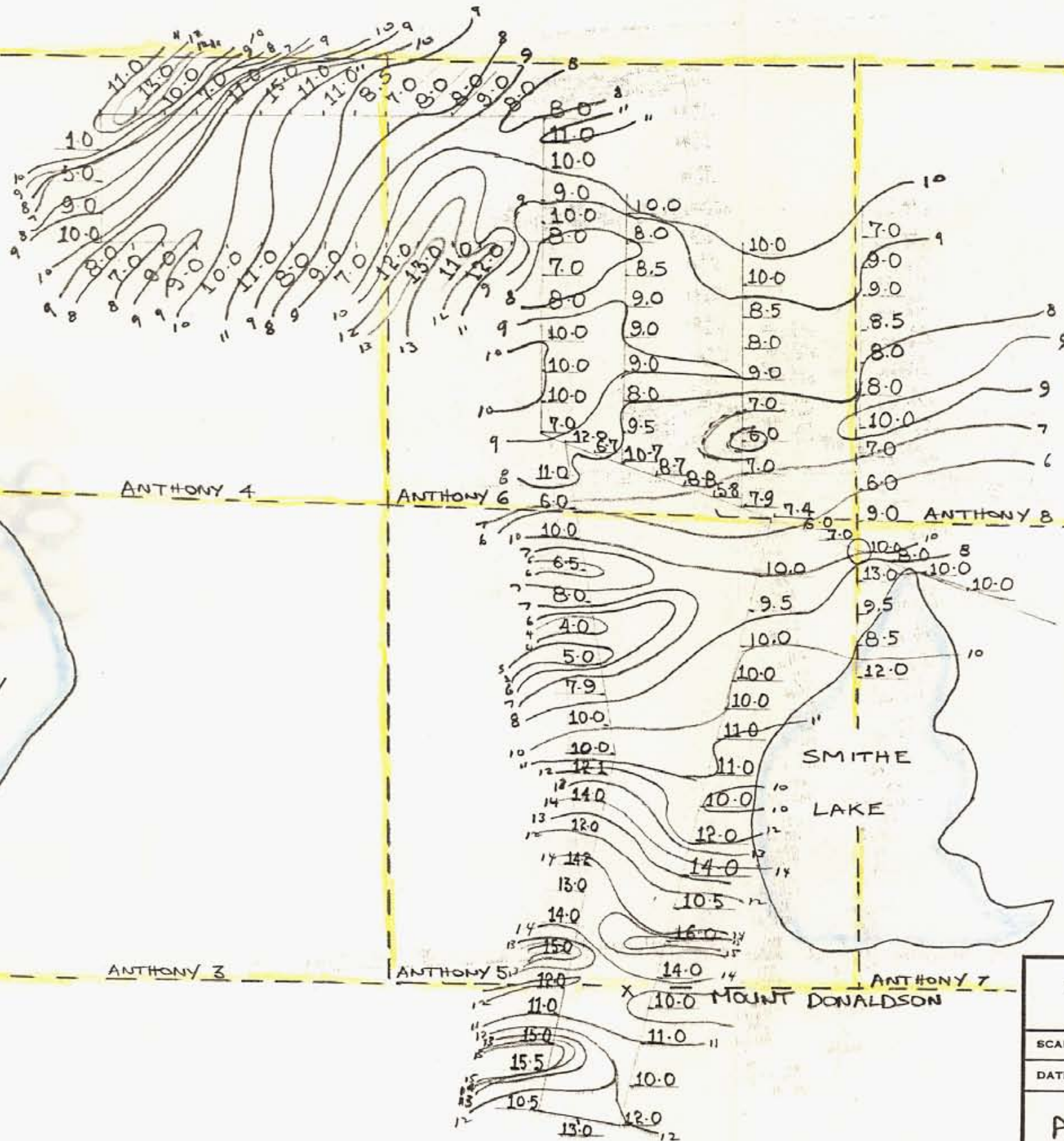
MINERAL RESOURCES BRANCH
ASSESSMENT REPORT

8822

NO. _____

SEATAC RESOURCES INC MT. DONALDSON PROPERTY B.C.		
SCALE: 1" : 400'	APPROVED BY: RER/ESA	DRAWN BY RER
DATE: NOV 8/80		REVISED REA
ANTHONY 1-8, GEOPHYSICAL GRID MAP STATIONS AT 100' SEPARATIONS		
SEATAC RESOURCES INC - R.F. RENSHAW Base TO ACCOMPANY REPORT NOV 8/80		DRAWING NUMBER 5

X MOUNT SAY WARD



MINERAL RESOURCES BRANCH
ASSESSMENT REPORT
8822
NO. _____

ANTHONY 1

ANTHONY 4

ANTHONY 6

ANTHONY 8

SLIPPERY LAKE

SMITHE LAKE

ANTHONY 2

ANTHONY 3

ANTHONY 5

ANTHONY 7

X MOUNT DONALDSON

SEATAC RESOURCES INC
MT. DONALDSON PROPERTY B.C.

SCALE: 1" : 400'

APPROVED BY:

DRAWN BY RER

DATE: NOV 8/80

RER / ESA

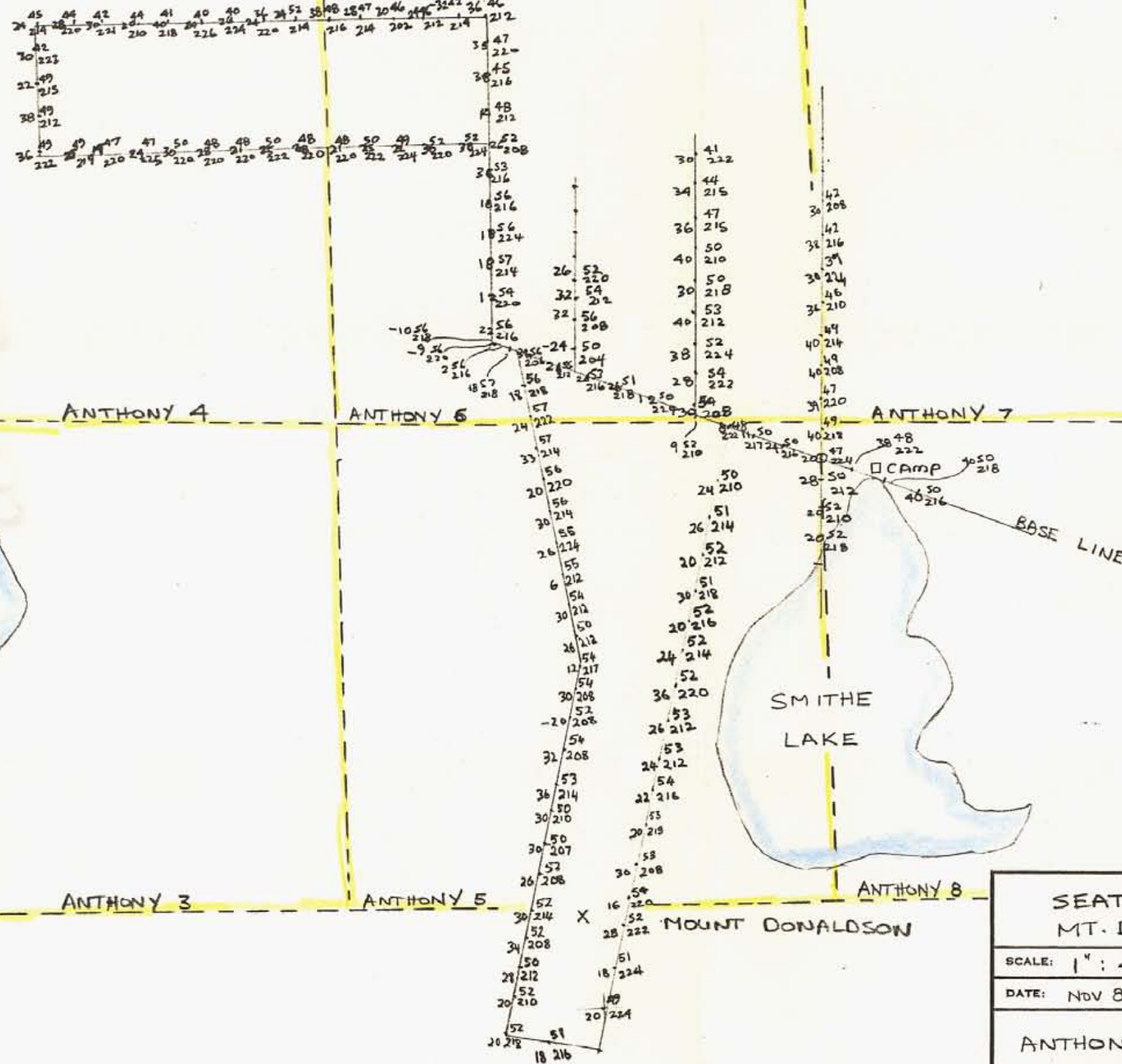
REVISED RER

ANTHONY 1-8, MAGNETOMETER SURVEY
READINGS 500 X UNITS

SEATAC RESOURCES - R.E. RENSHAW Base
TO ACCOMPANY REPORT NOV 8/80

DRAWING NUMBER
6

X MOUNT SAYWARD



MINERAL RESOURCES BRANCH
ASSESSMENT REPORT

8822
NO.

SEATAC RESOURCES INC
MT. DONALDSON PROPERTY B.C.

SCALE: 1" : 400'
DATE: NOV 8/80

APPROVED BY:
RER/ESA

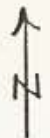
DRAWN BY RER
REVISED RER

ANTHONY 1-8, ELECTROMAGNETOMETER MAP

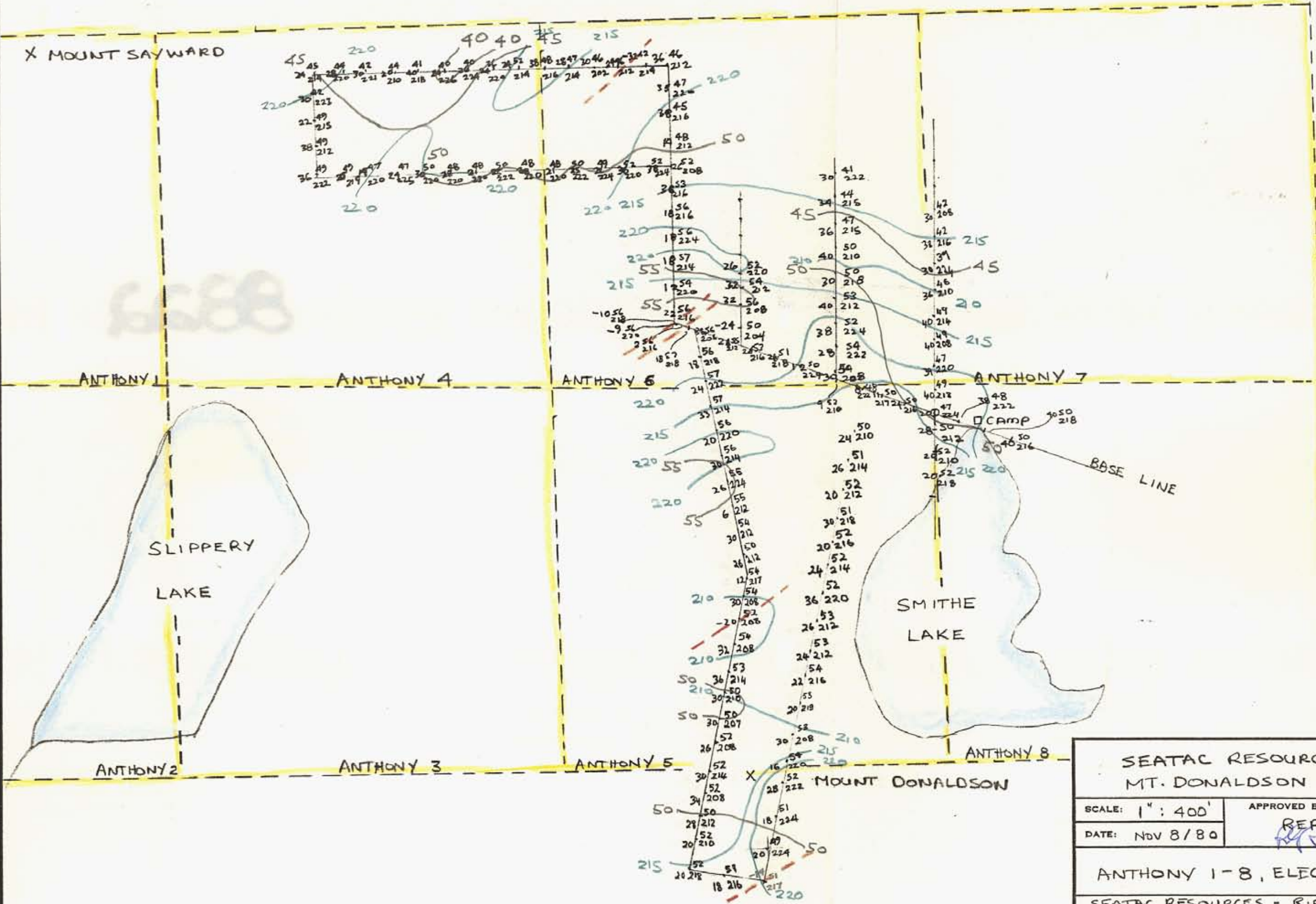
SEATAC RESOURCES - R.E. RENSHAW, B.Sc.
TO ACCOMPANY REPORT NOV 8/80

DRAWING NUMBER
7

X MOUNT SAYWARD



MINERAL RESOURCES BRANCH
 ASSESSMENT REPORT
8822
 NO. _____



LEGEND
 AZIMUTH INTERVAL 5° ———
 VERTICAL FIELD AS %
 INTERVAL IN 5% ———
 CONDUCTORS - - - - -

SEATAC RESOURCES INC MT. DONALDSON PROPERTY B.C.		
SCALE: 1" : 400'	APPROVED BY: RER/ESA	DRAWN BY RER
DATE: NOV 8/80		REVISED RER
ANTHONY 1-8, ELECTROMAGNETOMETER MAP		
SEATAC RESOURCES - R.E. RENSHAW, B.Sc. TO ACCOMPANY REPORT NOV 8/80		DRAWING NUMBER 8