

ASSESSMENT REPORT

GEOLOGY AND PROSPECTING
OF THE
KODAH # 1 CLAIMS (15 UNITS)
AND
KODAH 2 CLAIMS (2 UNITS)

OMINECA MINING DIVISION

TOODOGGONE RIVER AREA

**GEOLOGICAL BRANCH
ASSESSMENT REPORT**

by

W. JAMES CRAWFORD

10,952

LOCATION:

57°21' N Latitude
127°17' W Longitude
N.T.S. 94E/6W

OWNER/OPERATOR: SEREM LTD.

DATES WORK PERFORMED: August 5-9, 12, 14, 15, 1982
September 9, 10, 14, 1982

DATE OF REPORT: SEPTEMBER 1982

TABLE OF CONTENTS

	<u>Page</u>
INTRODUCTION	1
GEOLOGY	4
PROSPECTING	7
ALTERATION AND MINERALIZATION	9
RECOMMENDATIONS	10
REFERENCE	10
STATEMENT OF EXPENDITURES - Kodah #1 (15 units)	11
- Kodah 2 (2 units)	12
CERTIFICATE OF QUALIFICATIONS	13

APPENDIX - Kodah #1 and 2 Assay Results

LIST OF FIGURES

Figure 1. Kodah Claims, Location Map (1:250,000)	3
Figure 2. Kodah #1 and 2 Claims and Grid Lines (1:10,000)	In Pocket
Figure 3. Kodah Claims (North) Geology (1:5000)	5
Figure 4. Kodah Claims (South) Geology and Sample Geochemistry (1:5000)	6
Figure 5. Kodah Claims (North) Sample Geo- chemistry (1:5000)	8

INTRODUCTION

The Kodah claims are located at 57°21' North latitude and 127°17' West longitude near the mouth of Lawyers Creek on the Toodoggone River. Access is by helicopter from Serem's Lawyers camp, 6 kilometres to the southeast. From Lawyers camp, an 18-kilometre access road leads over a 2000-metre high pass to the Sturdee River airstrip. The 1630-metre long airstrip is regularly used by Hercules aircraft from Smithers, 280 kilometres to the south.

The Kodah claims lie in the Spatsizi Plateau area and cover a west facing slope between Lawyers Creek and a 1613-metre high hill. Treeline is at 1600 metres. A mixed spruce-jackpine forest with some dense buckbrush, and near the south border a few open meadows, covers the property. A bulldozer could easily be walked downslope from the head of Cliff Creek on the Lawyers property (P. Tegart, personal communication, 1982). The northern part of the property is covered by a jackpine forest on sand plains and volcanic bedrock. The bedrock is cut by north-trending linear stream cuts and deeper glacial meltwater channels. The only helicopter pad is situated at 18+00N on the baseline beside the Kennco 1973 drill site.

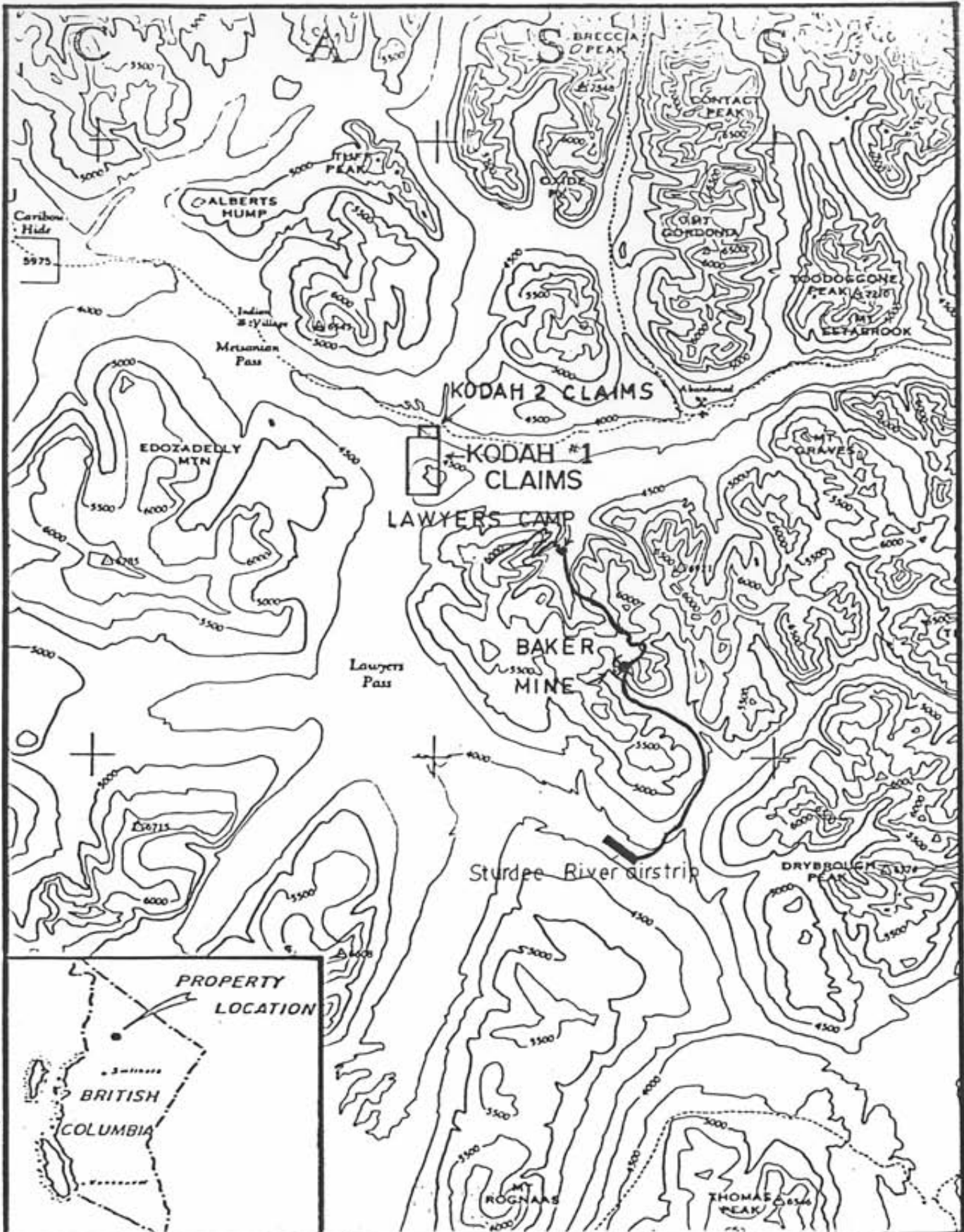
The Toodoggone climate is typical of the northern interior plateau with mild summers and snowy winters. Cool showery weather with snow flurries can be expected in early fall, although not nearly as frequent or severe as in the surrounding mountains.

The Kodah claims were originally staked by Kennco Explorations (Western) Ltd. During 1971-1973, Kennco ran a soil geochemical grid, did limited geological mapping, ran a magnetometer survey, and drilled one shallow diamond

drill hole under a 0.5-metre quartz vein at 18+00N. In August 1978, Serem Ltd. staked the lapsed Kodah #1 claims. They were recorded on September 28, 1978. On September 13, 1982, the Kodah 2 claims were added (Figure 1).

Claim Name	Record No.	No. of Units	Date Staked	Date Recorded	Expiry Date
Kodah #1	1448	15	Aug. 31/78	Sep. 28/78	Sep. 28/85
Kodah 2	4761	2	Sep. 13/82	Sep. 20/82	Sep. 20/85

During 1979 and 1981, Serem ran a new grid and did limited soil and rock chip geochemical sampling. Assessment and evaluation work during the 1982 season included establishment of a larger metric grid (Figure 2). The 33 kilometres of grid lines run by hip chain and compass by Dan MacIsaac and Mike Cullen have 60-metre line spacing and 50-metre stations. (The north cross-lines were rerun using 60-metre spacings.) Geologic mapping was done on a 1:5000 scale. Prospector Elmer DeBock collected over 150 samples for silver/gold assay at Serem's Smithers' laboratory.



**KODAH CLAIMS
LOCATION MAP**



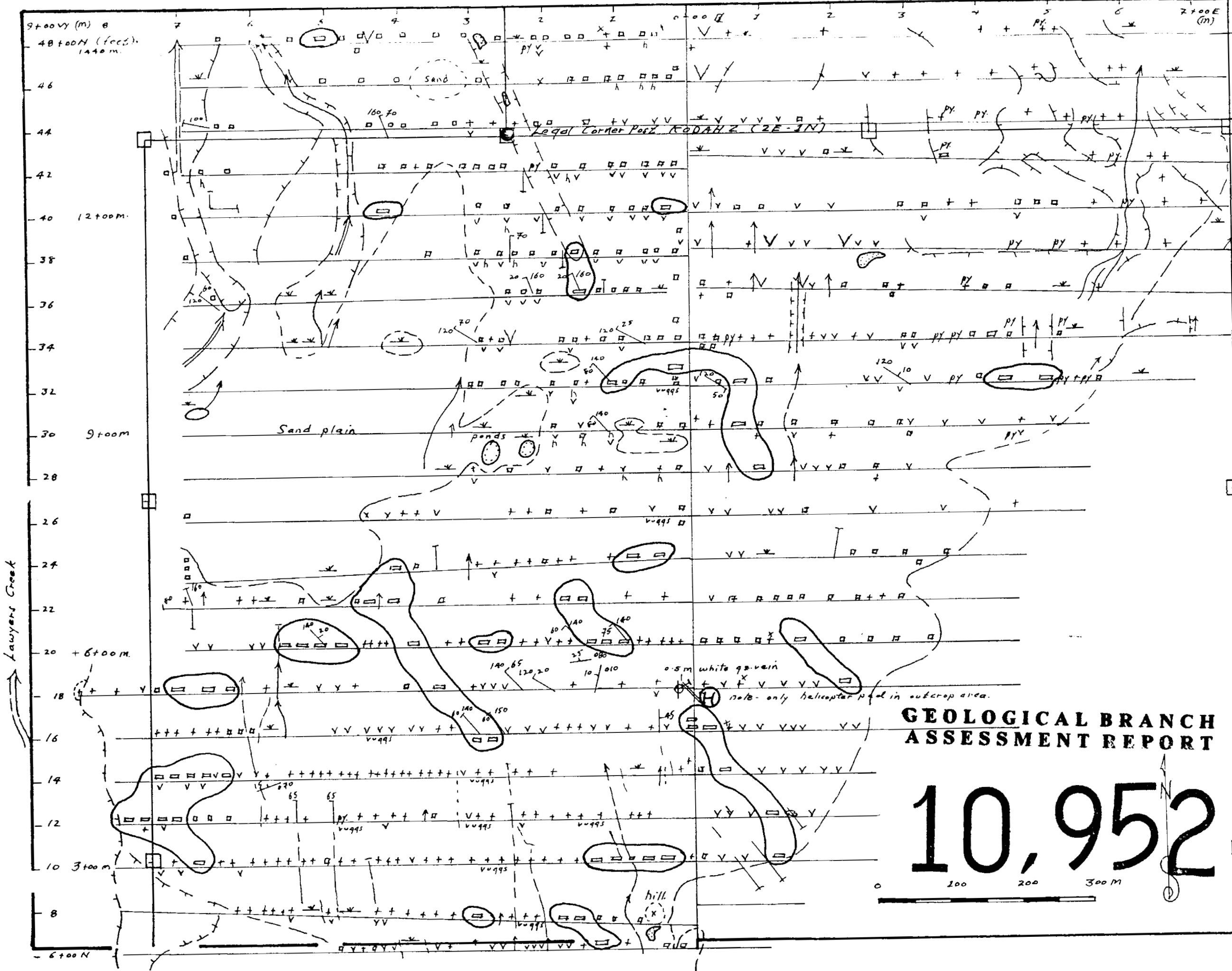
SCALE: 1:250,000

FIGURE: 1

GEOLOGY

The Kodah property is underlain by andesitic tuffs of the Toodoggone "volcanics" of Carter, 1971 (Figures 3 and 4). The tuffs weather a monotonous dull pink colour, so much time was spent in searching for unweathered outcrops under moss and uprooted trees. Fresh outcrops show a dull pinkish to greenish-coloured andesite crystal tuff with some breccia textures, especially on the north baseline. A belt of notably unaltered pink "hypabyssal" trachyandesites cross the property. The hypabyssal rocks have aureoles of pale green, pyritic, andesite crystal tuffs. Zoned plagioclase phenocrysts in the tuffs show calcic cores with epidote alteration and much epidote in the groundmass. The volcanic unit probably corresponds to Carter's quartz-feldspar porphyry unit, especially as the underlying pyroclastic lavender tuff unit is exposed in the next side canyons down the Toodoggone River.

The green andesites consist essentially of pink hematitic plagioclase, in places zoned, dark green chlorite and a matrix of chlorite and epidote. More calcic cores of the plagioclase phenocrysts are often replaced by epidote.



- Lower & Middle Jurassic
'Toodoggone Volcanic Rocks'
- pink quartz-feldspar porphyry 46
 - pale pink andesite tuff 42
 - + green andesite tuff 40
 - Y pale green andesite tuff 38
 - X purple tuff 36
 - V green volcaniclastic breccia 34
 - h hematitic clasts 32
 - outcrop area 30
 - geologic contact 28
 - scarp 26
 - swamp 24
 - streams 22
 - pond 20
 - (H) helicopter pad 18
 - ⊕ diamond drill hole 16

**GEOLOGICAL BRANCH
ASSESSMENT REPORT**

10,952

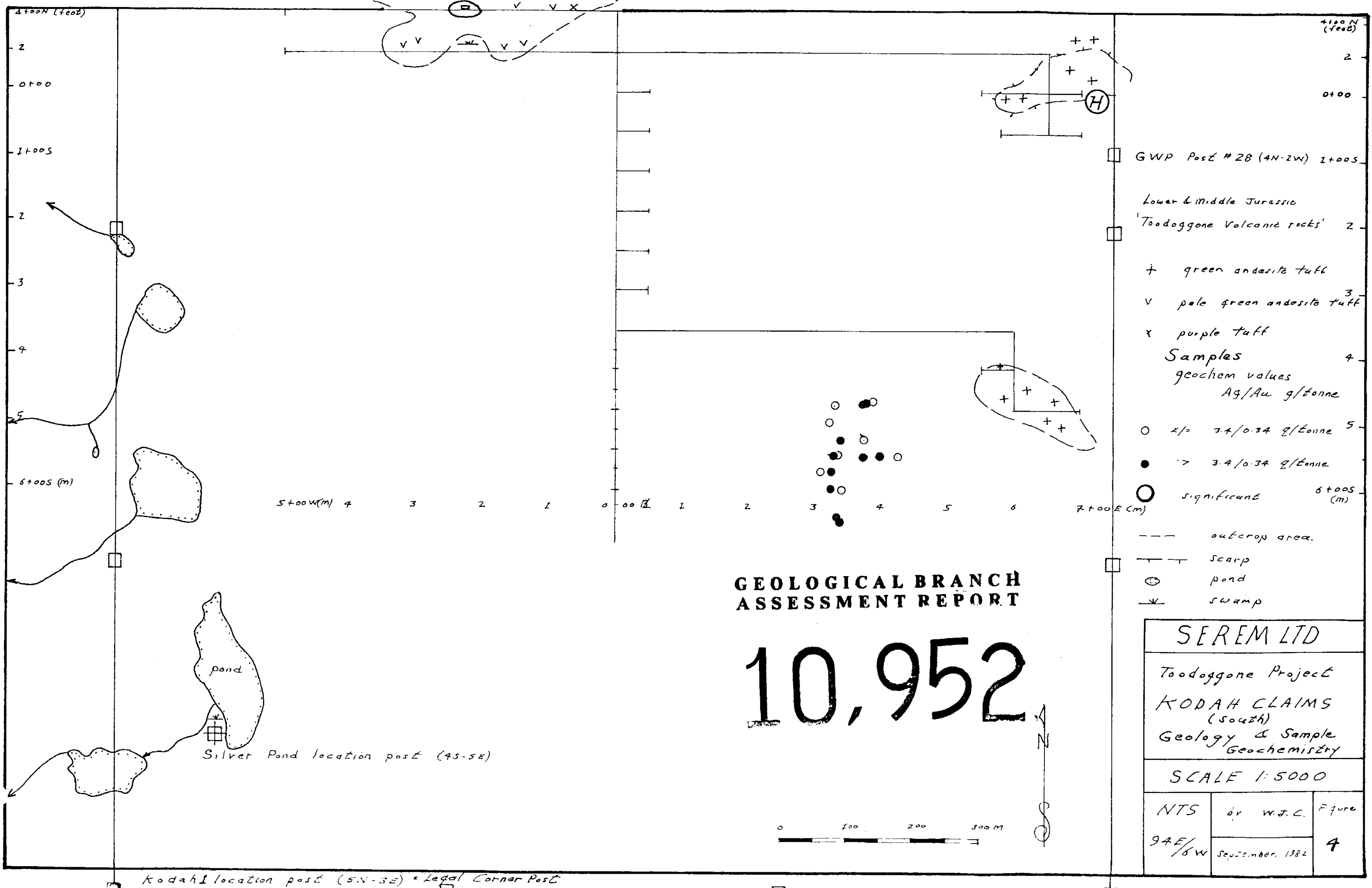


SEREM LTD.

Toodoggone Project
KODAH CLAIMS
(north)
Geology

SCALE 1:5000

NTS	by W.J.C.	Figure
94E/ 6W	September, 1982	3



- GWP Post # 28 (4N-2W) 1+005
- Lower & Middle Jurassic
- 'Toodoggone Volcanic rocks' 2
- + green andesite tuff
- v pale green andesite tuff 3
- x purple tuff
- Samples 4
- geochem values
- Ag/Au g/tonne
- 2/ = 3.4/0.34 g/tonne 5
- 7 3.4/0.34 g/tonne
- significant 6+005 (m)
- outcrop area.
- |— scarp
- ⊙ pond
- ~ swamp

**GEOLOGICAL BRANCH
ASSESSMENT REPORT**

10,952



SEREM LTD		
Toodoggone Project		
KODAH CLAIMS (south)		
Geology & Sample Geochemistry		
SCALE 1:5000		
NTS	by W.J.C.	Figure
94E/6W	September, 1982	4

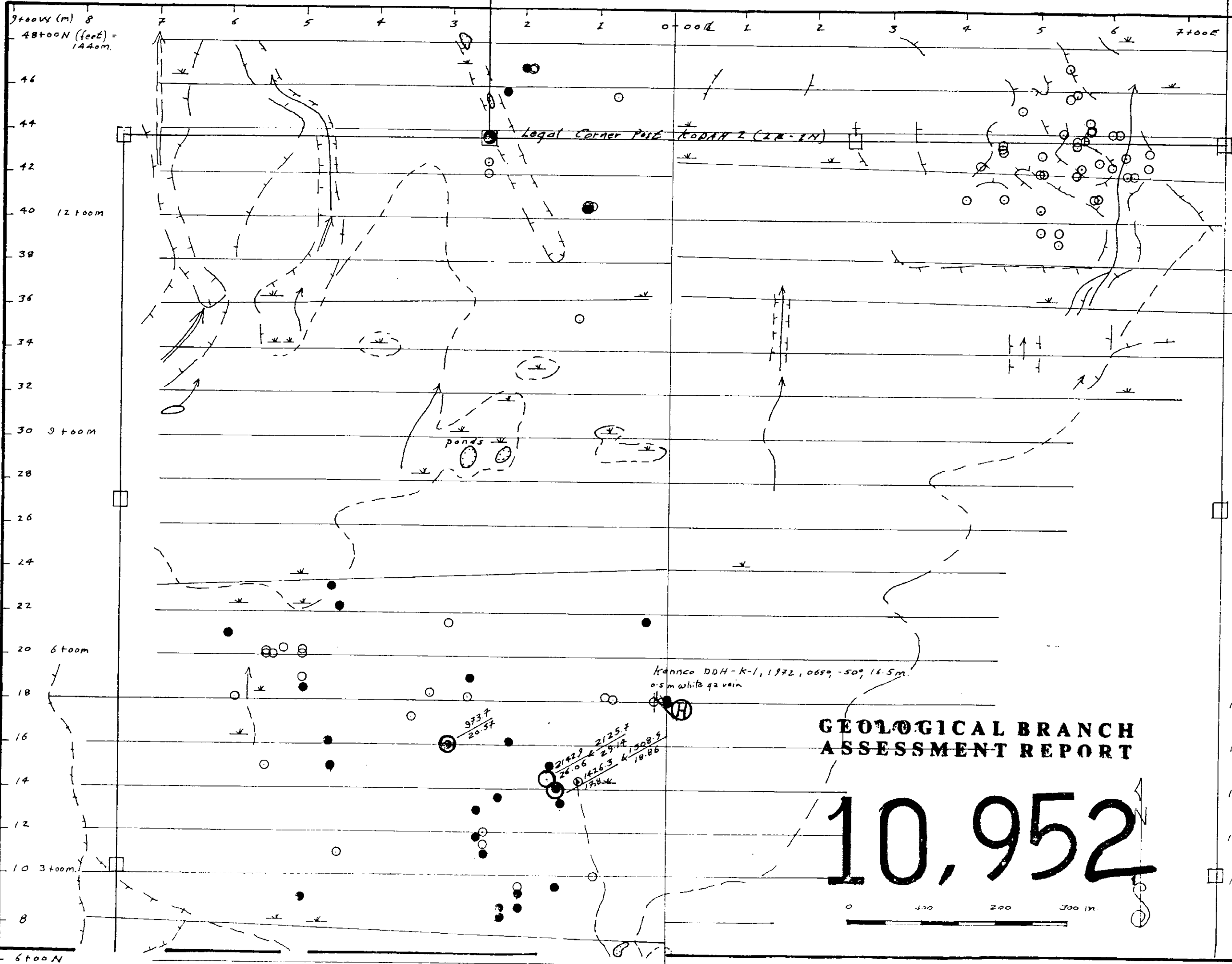
Kodah location post (5N-3E) = Legal Corner Post

Silver Pond location post (4S-5E)

PROSPECTING

Prospector Elmer DeBock collected 161 samples of which 133 were sent to the Smithers' laboratory for silver/gold assay. Sample localities are plotted on Figures 4 and 5. Of the 133 samples assayed, 52 contained over 3.4/0.34 grams/tonne silver/gold (the lower detection limit of assay). Three samples showed significantly high values of 973.7/20.57, 1426.3/1.78, and 2142.9/26.06 grams/tonne silver/gold at 16+00N and 3+00W, 14+40N and 1+60W, and 13+90N and 1+50W, respectively. Check assays for the two most significant results yielded 1508.5/18.86 and 2125.7/29.4 grams/tonne silver/gold. These specimens contain rebrecciated grey chalcedony, in contrast to the white quartz veinlets and "bleached" pyritic and altered pale-green tuffs which yielded only low values.

Samples were assayed by atomic absorption at the Serem laboratory in Smithers. The laboratory is run by personnel from Min-En Laboratories in North Vancouver, B.C.



**GEOLOGICAL BRANCH
ASSESSMENT REPORT**

10,952

Samples

- geochem Ag/Au g/tonne values
- < 3.4 / 0.34 g/tonne
- > 3.4 / 0.34 g/tonne
- significant g/tonne
- outcrop area
- scarp
- pond
- * swamp

SEREM LTD

Toodoggone Project
KODAH CLAIMS
(North)
Sample geochemistry

SCALE 1:5000

NTS	by W.J.C	Figure
9AE/6W	September, 1982	5

ALTERATION AND MINERALIZATION

In prospecting the Kodah claims, the most abundant potential host rock for silver/gold mineralization appeared to be the pale green, often pyritic, andesitic crystal tuff facies. An analysis of 90 prospector's samples produced 34 quartz veins, 38 quartz veins in pale green tuffs, 10 bleached or silicified tuffs, and 8 quartz veins in grey andesites. Assay samples were taken from bleached and silicified, pyritic, gossanous areas, and white quartz veins. Veins ranged in width from 1 cm veinlets to the massive white 0.5 m thick vein at the Kennco drill site. However, assay values for the bleached pyritic, gossanous tuffs and white quartz veins yielded low silver/gold values. This appears to be general for pyritic gossans developed on "Toodoggone andesites" in the Lawyers area.

The few significant silver/gold values were obtained from breccia zones. These distinctive zones contain re-brecciated white quartz and especially dark grey chalcedony cut by hairline fractures, very reminiscent of the silver/gold mineralization in the Lawyers property adit.

RECOMMENDATIONS

Assay results show a low ratio of significant silver/gold values relative to the generally low 3.4/0.34 grams/tonne silver/gold background value for most of the 133 samples. Three showings of significantly high values, at 16+00N and 3+00W, 14+40N and 1+60W, and 13+90N and 1+50W, should be evaluated and carefully chip-sampled. Any possible structural extensions should be noted, sampled and mapped in detail.

The Kodah claims are at a relatively low elevation beside the Toodoggone River, and have an extensive area of outcrop. As a result, the climate is particularly warm for the Toodoggone area. Hence, an early start could be made in evaluating the Kodah property, prior to starting work on the Lawyers property.

REFERENCE

Carter, N.C. (1971): Toodoggone River Area, B.C., Ministry of Energy, Mines and Petroleum Resources, G.E.M. 1971, pp. 63-70.

STATEMENT OF EXPENDITURESKODAH #1 (15 units)Assays

116 rocks assayed for Au, Ag @ \$15.00	\$1,740.00	\$1,740.00
--	------------	------------

Wages

J. Crawford, S. Crawford, M. Vulimiri,
E. DeBock, M. Cullen, and D. MacIsaac.

Geological mapping and evaluation:

Aug. 5, 6, 7, 8, 9, 12, 14;
Sept. 10, 1982.

8 days @ \$120/day	\$ 960.00
1 day @ \$120/day	120.00
1 day @ \$150/day	150.00

Prospecting and rock sampling:

Aug. 7, 8, 9, 12, 14, 15;
Sept. 9, 10, 1982.

8 days @ \$102/day	\$ 816.00
--------------------	-----------

Grid Surveying:

Aug. 6, 7, 8, 9, 12, 1982.

5 days @ \$ 66/day	\$ 330.00
5 days @ \$ 58/day	<u>290.00</u>

\$2,666.00

Board, Lodging and Field Expenses

28 man-days @ \$52/day	\$1,456.00
------------------------	------------

Transportation

Helicopter: 3 hrs. 20 min. @ \$400 + \$169 (fuel)/hr	\$1,896.67
--	------------

Drafting and Report Preparation

J. Crawford, S. Crawford

3½ days @ \$110/day	\$ 385.00
Materials	<u>25.00</u>

\$ 410.00

Total

\$8,168.67

STATEMENT OF EXPENDITURESKODAH 2 (2 units)Assays

17 rocks assayed for Au, Ag @ \$15.00	\$ 255.00
---------------------------------------	-----------

Wages

J. Crawford, E. DeBock,
September 14, 1982.

Geological mapping and evaluation:

1 day @ \$120/day	\$120.00
-------------------	----------

Prospecting and rock sampling:

1 day @ \$102/day	<u>\$102.00</u>	\$ 222.00
-------------------	-----------------	-----------

Board, Lodging and Field Expenses

2 man-days @ \$52/day	\$ 104.00
-----------------------	-----------

Transportation

Helicopter: 20 minutes @ \$400 + \$169 (fuel)/hr	\$ 189.67
--	-----------

Drafting and Report Preparation

J. Crawford

1 day @ \$110/day	<u>\$ 110.00</u>
-------------------	------------------

Total	<u><u>\$ 880.67</u></u>
-------	-------------------------

CERTIFICATE OF QUALIFICATIONS

I, W. JAMES CRAWFORD, do hereby certify that:

1. I am a geologist employed by Serem Ltd., with offices at #300 - 535 Thurlow Street, Vancouver, British Columbia, V6E 3L2.
2. I am a graduate of:
The University of British Columbia, B.A.Sc.,
Geological Engineering.
The University of Washington, M.S. and Ph.D.,
Geology.
3. I have worked in mineral exploration in the Yukon and British Columbia since 1973.
4. This report is based on my geological field work on the Kodah claims, and field work carried out by Serem staff.
5. I have no financial interest in the claims covered by the report or in Serem Ltd.

Vancouver, B.C.
September 1982

W. James Crawford.
W. James Crawford,
Geologist.

APPENDIX

Kodah #1 and 2 Assay Results

Kodah #1 and 2 Assay Results

<u>Coordinates</u>	<u>Silver</u>	<u>Gold</u>
	<u>(G/tonne)</u>	
4+00E, 5+50S	6.9	< 0.34
3+35E, 6+40S	3.4	< 0.34
3+80E, 4+75S	10.3	< 0.34
3+90E, 4+70S	< 3.4	< 0.34
3+25E, 5+00S	3.4	< 0.34
3+75E, 4+75S	6.9	< 0.34
3+40E, 6+50S	3.4	< 0.34
3+40E, 5+25S	41.1	1.03
3+25E, 6+00S	34.3	0.34
1+25W, 35+00N	3.4	< 0.34
1+12W, 40+53N	6.9	< 0.34
1+10W, 40+50N	3.4	< 0.34
2+50W, 42+50N	< 3.4	< 0.34
1+10W, 40+55N	3.4	< 0.34
2+50W, 42+00N	3.4	< 0.34
1+14W, 40+55N	6.9	< 0.34
1+15W, 40+57N	3.4	< 0.34
1+50W, 13+90N	1508.5	18.86
1+60W, 14+40N	2125.7	29.14
6+00W, 21+00N	61.7	7.20
0+00W, 18+10N	13.7	< 0.34
0+00W, 18+00N	6.9	< 0.34
4+60W, 23+25N	6.9	< 0.34
4+50W, 22+25N	20.5	< 0.34
5+00W, 18+50N	10.3	< 0.34
5+00W, 20+25N	< 3.4	< 0.34
2+70W, 19+00N	6.9	0.34
5+00W, 20+00N	< 3.4	< 0.34
3+00W, 21+50N	3.4	< 0.34

Continued ...

Kodah #1 and 2 Assay Results (Continued)

Coordinates	Silver (G/tonne)	Gold
5+25W, 20+25N	3.4	< 0.34
3+30E, 5+50S	17.1	1.37
3+10E, 5+75S	3.4	< 0.34
3+30E, 4+75S	< 3.4	< 0.34
3+40E, 6+00S	< 3.4	< 0.34
3+25E, 5+75S	20.6	1.03
3+35E, 5+45S	3.4	< 0.34
3+75E, 5+50S	6.9	< 0.34
4+25E, 5+50S	< 3.4	< 0.34
3+75E, 5+25S	3.4	0.69
2+30W, 13+50N	24.0	< 0.34
2+50W, 11+40N	6.9	< 0.34
4+65W, 16+00N	6.9	< 0.34
1+00W, 10+00N	3.4	< 0.34
2+60W, 12+95N	10.3	< 0.34
1+60W, 14+40N	2142.9	26.06
2+60W, 11+75N	6.9	< 0.34
4+60W, 15+00N	17.1	< 0.34
1+60W, 15+00N	44.6	< 0.34
0+30W, 21+50N	34.3	3.77
2+00W, 8+50N	6.9	< 0.34
5+00W, 9+00N	10.3	< 0.34
2+25W, 8+50N	27.4	0.34
2+00W, 9+20N	10.3	< 0.34
2+00W, 9+50N	3.4	< 0.34
4+50W, 11+00N	< 3.4	< 0.34
2+25W, 8+20N	6.9	< 0.34
1+50W, 9+50N	30.9	0.34
5+50W, 20+00N	3.4	< 0.34
5+40W, 20+00N	6.9	< 0.34
0+20W, 18+00N	6.9	< 0.34
2+75W, 18+10N	3.4	< 0.34

Continued ...

Kodah #1 and 2 Assay Results (Continued)

Coordinates	Silver (G/tonne)	Gold
5+00W, 19+00N	< 3.4	< 0.34
3+25W, 18+25N	< 3.4	< 0.34
0+85W, 18+10N	< 3.4	< 0.34
5+50W, 20+10N	< 3.4	< 0.34
3+00W, 16+00N	973.7	20.57
5+90W, 18+10N	< 3.4	< 0.34
3+00W, 16+00N	20.6	< 0.34
3+50W, 17+25N	< 3.4	< 0.34
0+75W, 18+05N	< 3.4	< 0.34
2+15W, 16+15N	44.6	1.37
0+90W, 16+30N	< 3.4	< 0.34
2+15W, 16+10N	147.4	1.03
2+60W, 11+75N	17.1	1.03
1+50W, 13+90N	1426.3	17.83
2+50W, 12+00N	3.4	< 0.34
1+60W, 15+00N	44.6	4.46
2+50W, 11+00N	17.1	< 0.34
1+50W, 14+00N	37.7	0.34
5+50W, 15+00N	< 3.4	< 0.34
1+25W, 14+30N	< 3.4	< 0.34
1+45W, 13+30N	27.4	0.69
5+00E, 39+50N	6.9	2.74
5+25E, 39+00N	< 3.4	< 0.34
5+25E, 39+00N	< 3.4	< 0.34
5+75E, 41+00N	< 3.4	< 0.34
5+80E, 41+00N	< 3.4	< 0.34
5+00E, 43+00N	< 3.4	< 0.34
4+50E, 41+00N	< 3.4	< 0.34
4+00E, 41+00N	< 3.4	< 0.34
5+25E 'A', 39+00N	< 3.4	< 0.34
5+05E, 42+00N	< 3.4	< 0.34

Continued ...

Kodah #1 and 2 Assay Results

(continued)

<u>Coordinates</u>	<u>Silver</u>	<u>Gold</u>
	<u>(G/tonne)</u>	
5+00E, 43+10N	< 3.4	< 0.34
5+00E, 42+00N	3.4	< 0.34
5+00E, 40+50N	< 3.4	< 0.34
1+12W, 40+50N	3.4	< 0.34
5+50E, 44+00N	< 3.4	< 0.34
6+50E, 42+50N	< 3.4	< 0.34
5+30E, 44+00N	< 3.4	< 0.34
4+75E, 45+00N	< 3.4	< 0.34
4+50E, 43+50N	< 3.4	< 0.34
6+30E, 42+00N	< 3.4	< 0.34
6+20E, 42+00N	< 3.4	< 0.34
5+50E, 42+00N	< 3.4	< 0.34
6+50E, 42+50N	< 3.4	< 0.34
4+50E, 43+50N	< 3.4	0.69
6+50E, 43+50N	< 3.4	< 0.34
6+00E, 43+40N	< 3.4	< 0.34
6+00E, 43+50N	< 3.4	< 0.34
5+55E, 42+50N	< 3.4	< 0.34
5+80E, 43+00N	< 3.4	< 0.34
5+55E, 42+50N	< 3.4	< 0.34
6+20E, 43+00N	< 3.4	< 0.34
4+30E, 42+20N	< 3.4	< 0.34
4+50E, 43+55N	< 3.4	< 0.34
5+70E, 44+40N	3.4	< 0.34
5+70E, 44+45N	< 3.4	< 0.34
6+00E, 44+00N	< 3.4	< 0.34
6+10E, 44+00N	< 3.4	< 0.34
5+40E, 47+00N	< 3.4	< 0.34
5+70E, 44+50N	< 3.4	0.34
5+35E, 45+80N	< 3.4	< 0.34

Continued ...

Kodah #1 and 2 Assay Results (continued)

<u>Coordinates</u>	<u>Silver</u>	<u>Gold</u>
	<u>(G/tonne)</u>	
5+50E, 45+80N	< 3.4	< 0.34
5+60E, 43+80N	< 3.4	< 0.34
5+70E, 44+50N	< 3.4	0.34
5+40E, 45+70N	< 3.4	< 0.34
5+50E, 43+50N	< 3.4	< 0.34
6+20E, 42+00N	3.4	< 0.34
0+75W, 45+50N	13.7	< 0.34
2+25W, 45+75N	6.9	< 0.34
2+00W, 46+80N	6.9	< 0.34
1+90W, 46+75N	3.4	< 0.34
1+85W, 46+78N	< 3.4	< 0.34

G.W.P. 30
G.W.P. 28

AB H/od/Adom
46
22
44
42
40
38
36
34
32
30
28
26
24
22
20
18
16
14
12
10
8
6
4
2
0
-2
-4
-6
-8
-10
-12
-14
-16
-18
-20
-22
-24
-26
-28
-30
-32
-34
-36
-38
-40
-42
-44
-46
-48
-50
-52
-54
-56
-58
-60
60 S.M.

Legal Corner Post KODAH 2 (2E-1N)

Legal Corner Post Silver Road

Legal Corner Post KODAH 2 (3E-5N)

**GEOLOGICAL BRANCH
ASSESSMENT REPORT**

10,952

SEREM LTD

Toodoggone Project
KODAH 1 & 2 CLAIMS
CLAIM & GRID LINES

Scale 1:10,000

NTS	by W & C	Figure
2411 6W	September, 1982	2

0 100 200 300 400 500 600 m.

