

822254

KERR-ADDISON GOLD MINES LIMITED

SUITE 1600-BANK OF NOVA SCOTIA BUILDING
44 KING STREET WEST
TORONTO 1, ONTARIO

June 28, 1961.

MEMORANDUM:

To: Mr. W. S. Row

From: P. M. Kavanagh

Geological and Geophysical Reconnaissance Project
Houston Map Area, B. C.

Attached are Sirola's report and accompanying maps on the reconnaissance project which he, Williamson and an assistant, carried out during the period April 18th to May 25th this spring.

They investigated three particular sectors within the map-area, i.e. the Owen Lake sector in the southwest, the Topley in the right centre, and part of the eastern shore of Babine Lake in the northeast portion of the map-area. They did not discover any new mineralized zones. The work consisted of reconnaissance geological mapping, electromagnetic, self-potential, magnetic, and geochemical surveying.

Sirola considers that the only thing still of interest in the map-area is the 20 claim group of W. S. McGowan in the Owen Lake sector. You will recall that Sirola wanted to option that property at the commencement of the project but permission was refused pending the results of the project itself. During the work the region about McGowan's property was tested without encouragement. Sirola writes that no intrusives were found similar to the highly altered diorite which is the host for the mineralization on the McGowan ground.

The company Sirola was with previously had an option on McGowan's ground but only investigated 4 of the 20 claims. On those 4 claims they found self-potential anomalies to be caused by broad areas of disseminated pyrite which generally contained a narrow vein (8" to 14" wide) carrying appreciable values in either precious or base metals. (see the bottom of Page 4 and top of Page 5 of Sirola's report). In all instances the micro-diorite host rock was highly propylitized, sericitized and silicified. Sirola considers that the hope would be that somewhere within the intrusive a replacement deposit, rather than merely veins, could be found, and he recommends that an option be obtained in order to thoroughly check the other 16 claims in the property. However his Map No. 2 indicates that only about one-half of McGowan's property is underlain by the favourable intrusive. The 4 claims already tested therefore represent about 40% of potentially favourable ground. If this is the case, then I consider it unlikely that the other 60% or 6 claims have any better mineralization than is already known.

A		N
✓	W.S.R.	✓
	P.M.K.	✓
	G.H.M.	
	E.O.C.	
	H.A.P.	
	R.D.S.	
	B.C.B.	
	D.W.P.	
	G.P.R.	
	E.L.D.	
	J.B.	
	E.C.J.	

My recommendation is that I request Sirola to submit as much information as he can concerning the work he has already been connected with on McGowan's property. A study of that information may or may not indicate that any more work is justified.

A handwritten signature in cursive script, reading "Paul M. Kavanagh".

Paul M. Kavanagh
Chief Geologist- Exploration

PMK:ry

GEOLOGICAL & GEOPHYSICAL RECONNAISSANCE

HOUSTON MAP AREA 93-57

OMENICA MINING DIVISION, B.C.

July¹³, 1961

WILLIAM M. SIROLA

SUMMARY

A reconnaissance geophysical and geological programme was undertaken in the Houston area during the period April 18th to May 25th. The equipment used was the Crone 1800 c.p.s. E.M. unit, a Self-Potential unit and a Soil Testing kit which used ascetic acid as a solvent and rubenic acid as an indicator of copper.

The work was confined to three portions of the Houston area:

- a) Owen Lake
- b) Topley
- c) Babine Lake

The field work was done by one two-man team and the results may be summarized as follows:

- (1) No new mineralized zones were discovered.
- (2) Both the soil testing and self-potential equipment were effective over known deposits of disseminated sulphides, but none of the equipment detected narrow (1' to 4' wide) veins even when these appeared to contain up to 10% total sulphides.
- (3) The intrusive rocks of the area, with the exception of the older granites, appear to be the best host rocks for mineral deposits.
- (4) The most intense alteration was found in the micro-diorite stock at Owen Lake. Here the propylitization is quite pronounced. Little or no alteration was seen in the brief reconnaissance of the intrusives located 4 miles south west and 8 miles north west of Owen Lake.
- (5) The known mineralization at Owen Lake is clearly epithermal. The mineral criteria for this are the presence of chalcedony, rhodocrosite and barite. These criteria are reinforced by colloform structures, banding and crustification and the absence of higher temperature minerals.
- (6) The mineralization on Copper Island occurs in a small, monzonite stock roughly 1500' in diameter. The principal ore minerals are chalcopryrite and bornite. Minor amounts of pyrite, pyrrhotite and magnetite were seen.

A/

A 1927 Minister of Mines Report states that there are 8,000 tons of 0.8% Cu. in the deposit, but the current figure, quoted by Granby, is 22 million tons of 0.56% Cu.

The monzonite is surrounded by lavas of the Hazelton Group which are less resistant to erosion, with the result that the monzonite protrudes about 250' above the level of Babine Lake.

SCHEDULE OF ACCOMPANYING MAPS

- 1) Key Map: Scale 1" = 30.5 miles
 - 2) Key Map showing mineral claims and general geology at Owen Lake: Scale 1" = 1500'
 - 3) Self-Potential Reconnaissance of KA 1-8 Group, Owen Lake: Scale 1" = 400'
 - 4) Self-Potential Reconnaissance of KA 9-16 Group, Owen Lake: Scale 1" = 400'
 - 5) Self-Potential Profiles for KA 1-8 Group and KA 9-16 Group: Scale 1" = 200'
 - 6) E.M. Traverse - Duck Lake Road: Scale 1" = 300'

 - 7) Key Map, Topley Sector: Scale 1" = 1500'
 - 8) Self-Potential and E.M. Traverse of Red Top Claim, Topley Sector: Scale 1" = 100'
 - 9) Self-Potential Traverse on Golden Eagle Claim, Topley Sector: Scale 1" = 100'

 - 10) Geological Plan, Babine Sector, showing location of traverses: 1" = 1 mile
 - 11) Plan of S.P. Traverses on Copper Island: Scale 1" = 500'
 - 12) Plan of Geochemical Traverses on Copper Island: Scale 1" = 500'
 - 13) Plan of E.M. Traverses on Copper Island: Scale 1" = 500'
 - 14) Geochemical Traverse, East shore of Babine Lake, 1" = 500'
 - 15) Plans of ~~xxx~~^{seven} S.P. Traverses, Babine Lake, 1" = 500'
-

INTRODUCTION

A reconnaissance of certain portions of the Houston Map Sheet was undertaken in the interval April 18th to May 25th, 1961. The area covered by the Houston Map Sheet is located at Latitude 54° - 55° N. and Longitude 126° - 127° W. It is approximately midway between Prince George and Prince Rupert. The Canadian National Railway runs through the centre of the area.

The sectors chosen for reconnaissance were Owen Lake near the south west portion of the district, Topley in the right centre, and part of the eastern shore of Babine Lake in the north east corner.

PURPOSE

The purpose of the Survey, in the case of the Owen Lake and Topley sections, was to attempt to locate extensions of the promising known precious and base metal veins, and to explore the possibilities of larger replacement structures in those areas.

In the Babine Lake sector there is a large, drift covered area south east of MacDonald Island which looked like a logical target area for disseminated copper deposits, such as the one on Copper Island. The Copper Island deposit is known to contain 22 million tons of 0.56% Cu., within which there is believed to be a smaller tonnage of higher copper mineralization.

METHOD & PROCEDURE

In the Owen Lake area, the most favourable ground is within the heart of a micro-diorite stock. Part of this stock is covered by Crown Granted claims now held by Canadian Exploration of Vancouver, and part by Mr. W. S. McGowan of West Vancouver.

The writer had done previous work on four of the McGowan claims and had found that the self-potential method appeared to be the most useful exploration device. Three principal anomalies had been located by this method, and when these were stripped by bulldozer it was found that they resulted from broad areas of disseminated pyrite which usually contained a narrow vein carrying appreciable values in either precious or base metals. e.g. Trench No. 1 contained a 14" wide vein within a shear zone, and a grab sample/

from this material assayed 10.4 ozs. Au.; 35 ozs. Ag.; 6.91 Pb.; Trench No. 2 contained 5% pyrite but the 2" to 8" vein had been completely leached, leaving an open cavity which could not be sampled; Trench No. 3 had a 12" wide zone which assayed 5.05% Cu.; 1.3 ozs. Ag.; 0.02 ozs. Au. In each case the micro-diorite was thoroughly propylitized, sericitized and silicified. In other words, the alteration is most impressive and resembles that found in the porphyry coppers in the south west.

Patently, the veins themselves were too small to have produced significant anomalies, but the abundant pyrite produced strong self-potential currents.

Because of the impressive alteration, and because a geophysical method was applicable, it was felt that the Owen Lake area deserved further study. Kerr-Addison, however, did not wish to option the McGowan claims and our work was therefore limited to areas north of the Canex claims and south of the McGowan claims.

We attempted to use the Crone 1800 cycle E.M. equipment on the known mineralization on the Canex and McGowan ground but results with this equipment were negative. We therefore decided to resort to the self-potential equipment and, to a more limited degree, to the use of geochemistry, using the rubeanic acid technique which involves the use of ascetic acid as a solvent.

The same procedure was used in both the Topley and Babine Lake sectors.

PREVIOUS WORK

At Owen Lake, the first Gold/Silver veins were discovered in 1912 and intermittent work was done until 1930. In 1928 and 1929 2800 ft. of tunnel was completed and this work encountered 12 separate veins. These veins are described in the 1929 Minister of Mines Report as being typical shear zone replacements, varying from 4' to 11' in thickness. A limited amount of drifting was done but there is no record of production.

The Topley Camp was very active in the 1920's and 1930's and the mineralization was similar to that at Owen Lake except that it was somewhat higher in silver content.

In 1957 the Granby Organization diamond drilled the Copper Island deposit which was first described in the 1913 Minister of Mines Report.

As mentioned previously, the writer had worked in the Owen Lake sector in 1960.

GENERAL GEOLOGY

The bulk of the Houston Map Area is overlain by volcanics and sediments of the Hazelton Group. These are mesozoic in age. These rocks are intruded by the Coast Range granites and diorites and locally by rhyolites. The oldest rocks in the area are granites and these are confined to the north east part of the map. The south east portion of the map sheet is covered largely by post-eocene volcanics and this sector was therefore ruled out for exploration.

Very little is known about the structural geology of the region because of the fact that 75% of the area is drift covered. It is known, however, that in the vicinity of Tachek Mountain the sediments lie unconformably on the older granite and conformably below the overlying volcanic rocks.

RESULTS OF GEOPHYSICAL SURVEYS

OWEN LAKE SECTOR:

A group of 8 claims was staked due south of the McGowan Holdings, but the claims were not recorded because it was felt that a reconnaissance could be completed before recording was necessary. These claims were called the KA 1-8 Group and four self-potential traverses, accompanied by soil sampling, were completed. No anomalies were found by either method and the group was abandoned.

It was then decided to stake an additional 8 claims to the north of the Canex Group to provide additional prospecting ground. These were called the KA 9-16 Mineral Claims. Two self-potential and geochemical traverses were completed on this group and again the results were negative. Additional work was not done because of negative results and because it was felt that the remainder of the group had probably been fairly thoroughly prospected.

The traversing on the KA 1-8 Claims suggested that mineralization in the micro-diorite stock did not persist into the lavas to the south.

The limited traversing done on the KA 9-16 Group suggested that mineralization did not persist to the northern limits of the intrusive.

The only large block of promising ground blanketing the southern half of the micro-diorite belongs to W. S. McGowan. The term 'promising' is used because the micro-diorite is impressively altered, and because both precious and base metal values have been found in numerous veins within this intrusive. The hope would be that somewhere within the intrusive a replacement deposit might be found. The presence of the large pyritized zones on the McGowan ground augmented this possibility although previous work had located only narrow veins in the pyritic areas.

TOPLEY SECTION:

The same techniques were attempted in the Topley Camp, but the veins there were unresponsive to both geophysical methods and to geochemistry and no further work was done as a result.

BABINE LAKE PORTION:

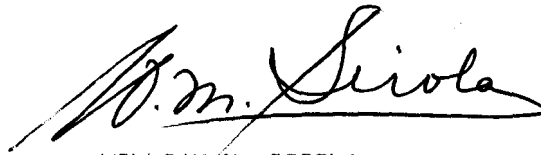
The disseminated copper deposit on Copper Island was unresponsive to the Crone E.M. equipment, but produced anomalies in excess of 300 millivolts by the self-potential method: The rubenic acid soil testing technique also worked extremely well. Consequently, it was decided to use these two methods in the Mainland area south east of the Island. A total of seven east/west traverses, starting at the shore of Babine Lake and extending eastward for distances of from $\frac{1}{2}$ -1 mile, were completed. No significant anomalies were found by either procedure and it is now considered doubtful that the area is underlain by the Coast Range type of intrusive which occurs on Copper Island, and which contains the copper mineralization. This belief cannot be substantiated, however, because the area is almost totally covered and the self-potential and geochemical methods could easily have missed a deposit if it were covered by a very thick mantle of overburden.

CONCLUSIONS & RECOMMENDATIONS

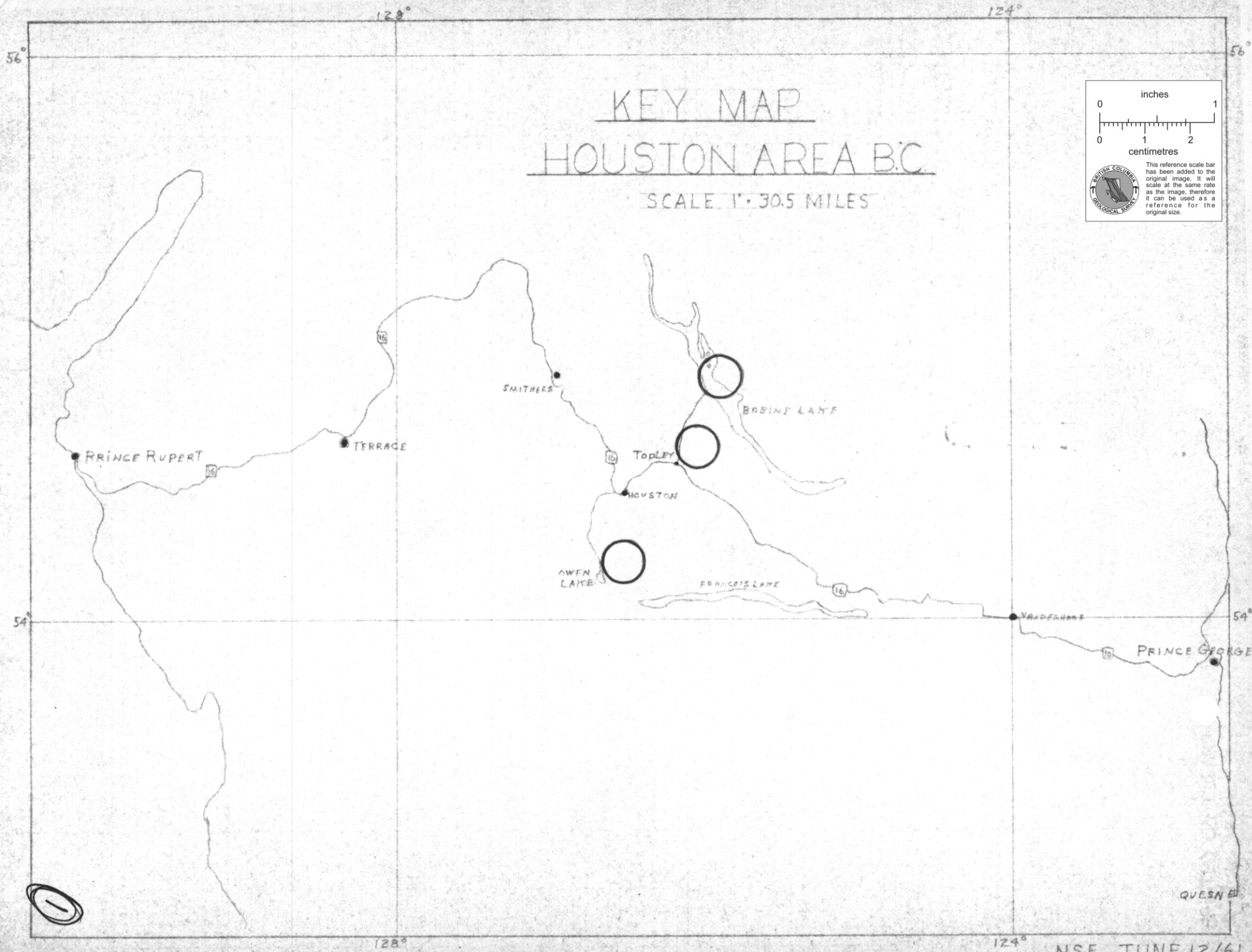
The reconnaissance work suggests that:

- (1) The small, vein type structures in the Owen Lake and Topley Mining Camps are not detectable by standard geophysical techniques, but would possibly be detectable by high frequency E.M. methods.
- (2) Where copper mineralization occurs in some quantity and is not too deeply buried by glacial drift the soil testing technique appears to be quite useful.
- (3) The self-potential method is obviously functional in disseminated deposits containing less than 10% total sulphides which are close to the surface.
- (4) At Owen Lake the intrusive rocks appear to be the best hosts for mineralization. The extreme alteration of the micro-diorite would be an immediate clue to any Prospector or Geologist.
- (5/

- (5) Other intrusive bodies were examined during the reconnaissance. One of these was 4 miles south west of Owen Lake and the other was 8 miles north west of Owen Lake. Neither of these intrusives displayed the type of alteration found at Owen Lake, nor are there any known mineralized zones either in, or near, these intrusives. The more southerly of the two intrusive masses is similar in composition to the one at Owen Lake, the other is a fairly typical granite.
- (6) The McGowan property should be given further consideration because:
- a) Large pyritized zones have been found in hydro-thermally altered porphyritic rocks. While associated precious or base metal content thus far has been minor, only 4 out of the total of 20 claims have been explored.
 - b) A very inexpensive option arrangement can be made with Mr. McGowan.
 - c) The property is most amenable to geophysics because of light overburden.





WILLIAM M. SIROLA.



57



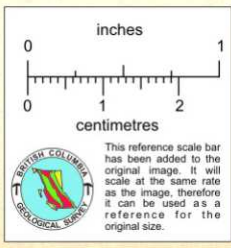
 MICRO-DIORITE STOCK
 VOLCANIC OUTCROP

KEY MAP
SHOWING
MINERAL CLAIMS
OWEN LAKE B.C.

JAN 30/60 T.J.W.
REVISED JUNE 12/61 NSE

SCALE 1 IN 1500 FT

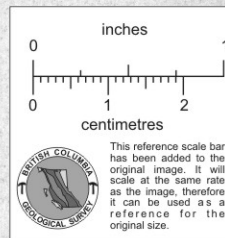
Map No 2



K.A. 1-8 GROUP - OWEN LAKE, B.C.

SELF POTENTIAL RECONNAISSANCE AREA

SCALE 1" = 400'



-1 -26 -21 -29 -19 -22 -25 -23 -18 -13 -2

0 -2 22 -5 6 -1 -4 0 -12 13 -3 -4 -14 -8 -6 -12 -1 -6 6 -5 -14 0

LINE 01003

KA4

KA1

KA6

2

2

3

-19

6

-6

1

1

20 2 -2 3 6 6 2 4 4 -6 -20 -13 -4 -10 0 0 15 13 -3 -12

LINE 91003

3

-3

-2

-15

-5

KA5-1

KA5 KA4

KA4 KA2

KA7

KA6 KA3

KA3 KA1

-1

5

10

-1

3

3

5

-1

-1

-11

20

23

15

11

25

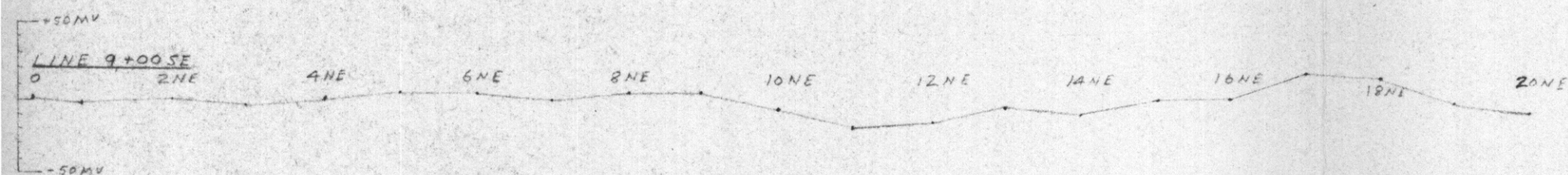
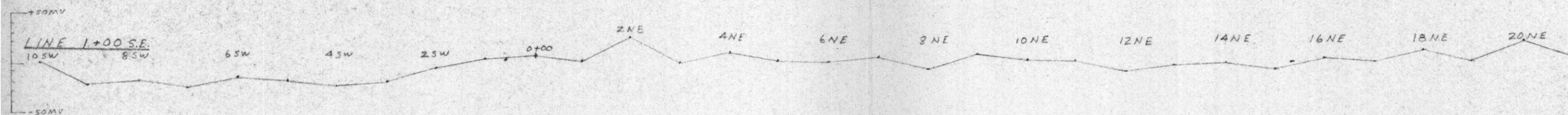
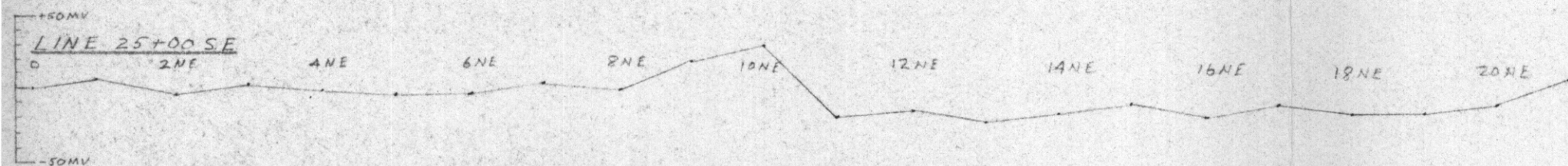
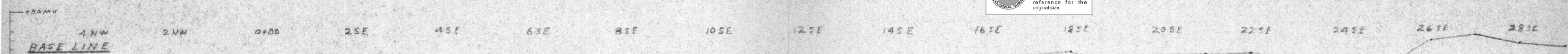
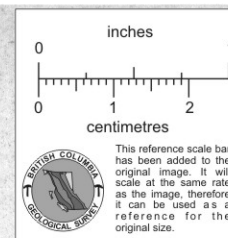
-9 -19 -11 -17 -18 -19 -11 -15 7 14 -33 -30 -37 -31 -29 -33 -25 -31 -29 -6

LINE 051003

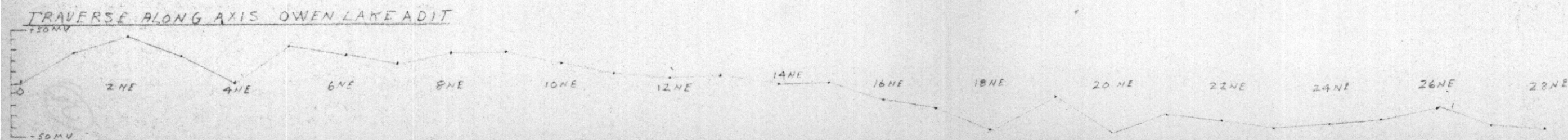
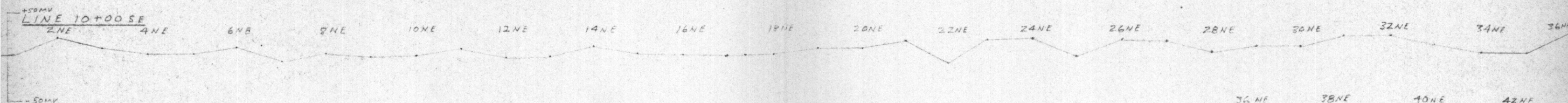
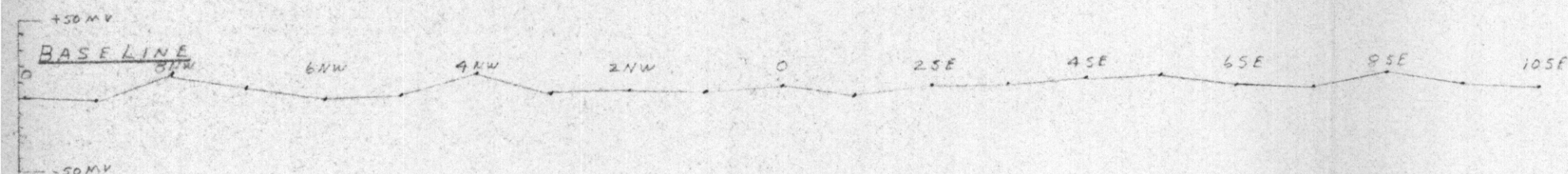
RECONNAISSANCE SELF POTENTIAL SURVEY

KA 1-8 GROUP

SCALE 1" = 200'



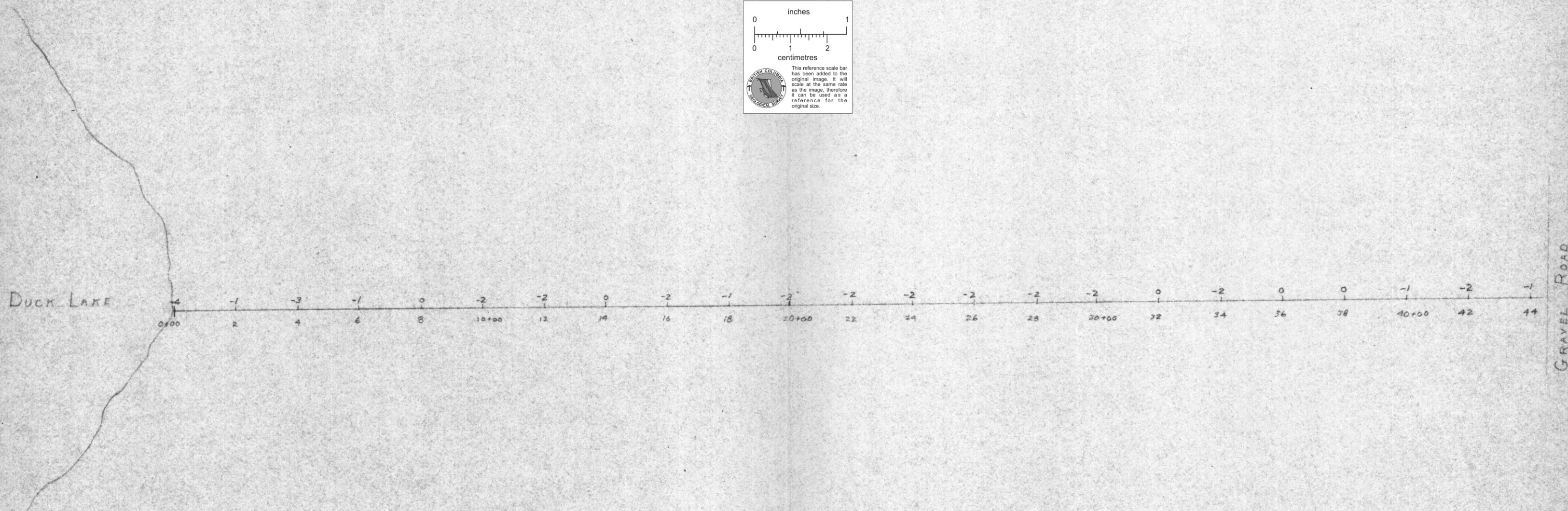
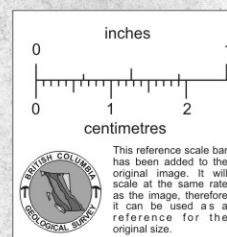
KA 9-16 GROUP



EM SURVEY - DUCK LAKE ROAD TO MAIN ROAD

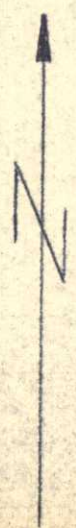
S.W. CORNER HOUSTON MAP SHEET 671A

SCALE 1" = 300'

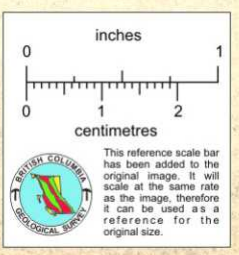


RED TOP
(TOPLEY RICHFIELD)

GOLDEN EAGLE

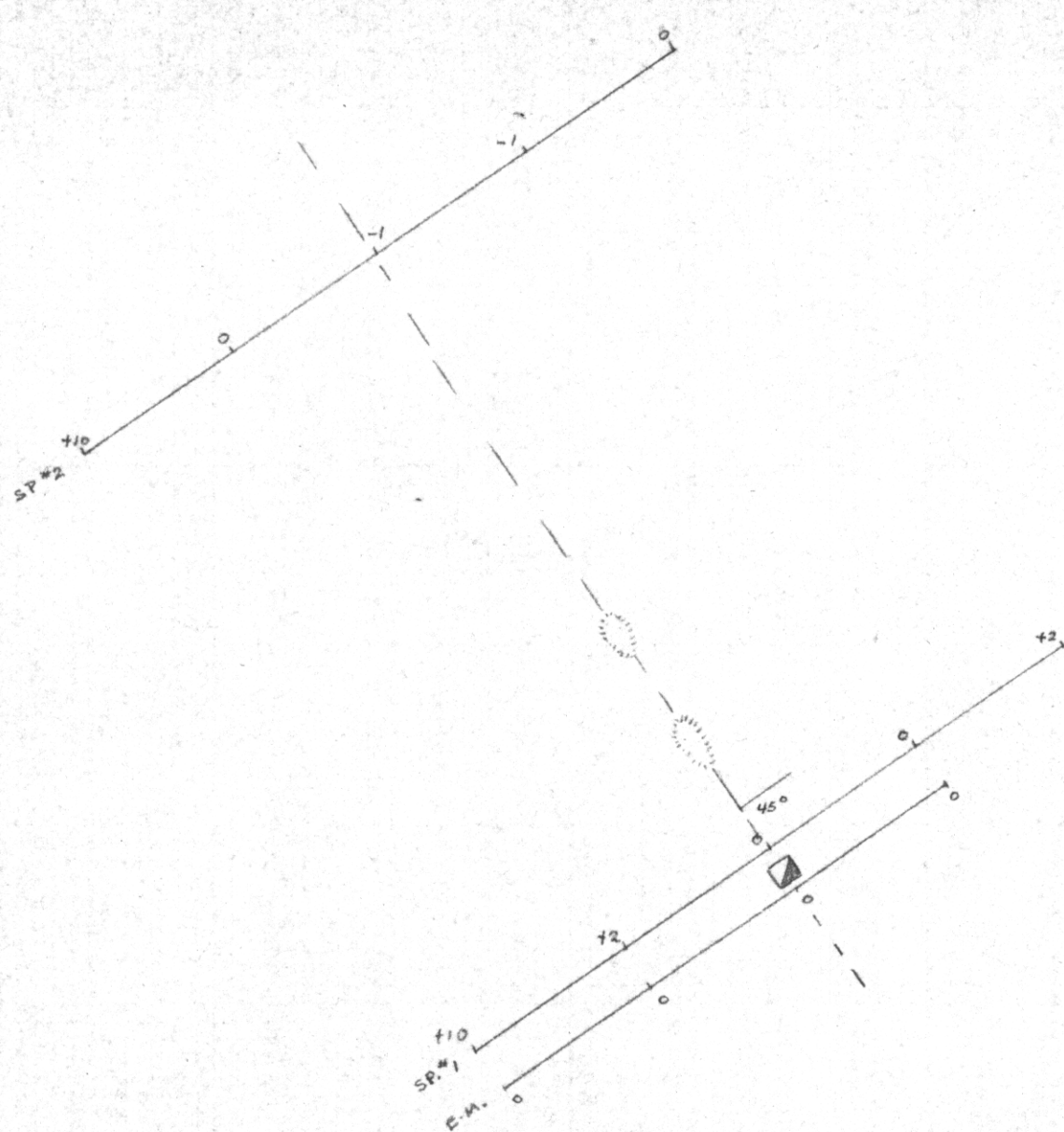
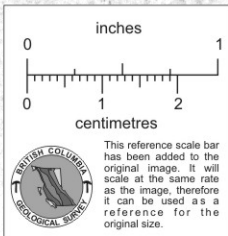


7



KEY CLAIM MAP TOPLEY CAMP

NSE JUNE 13/61



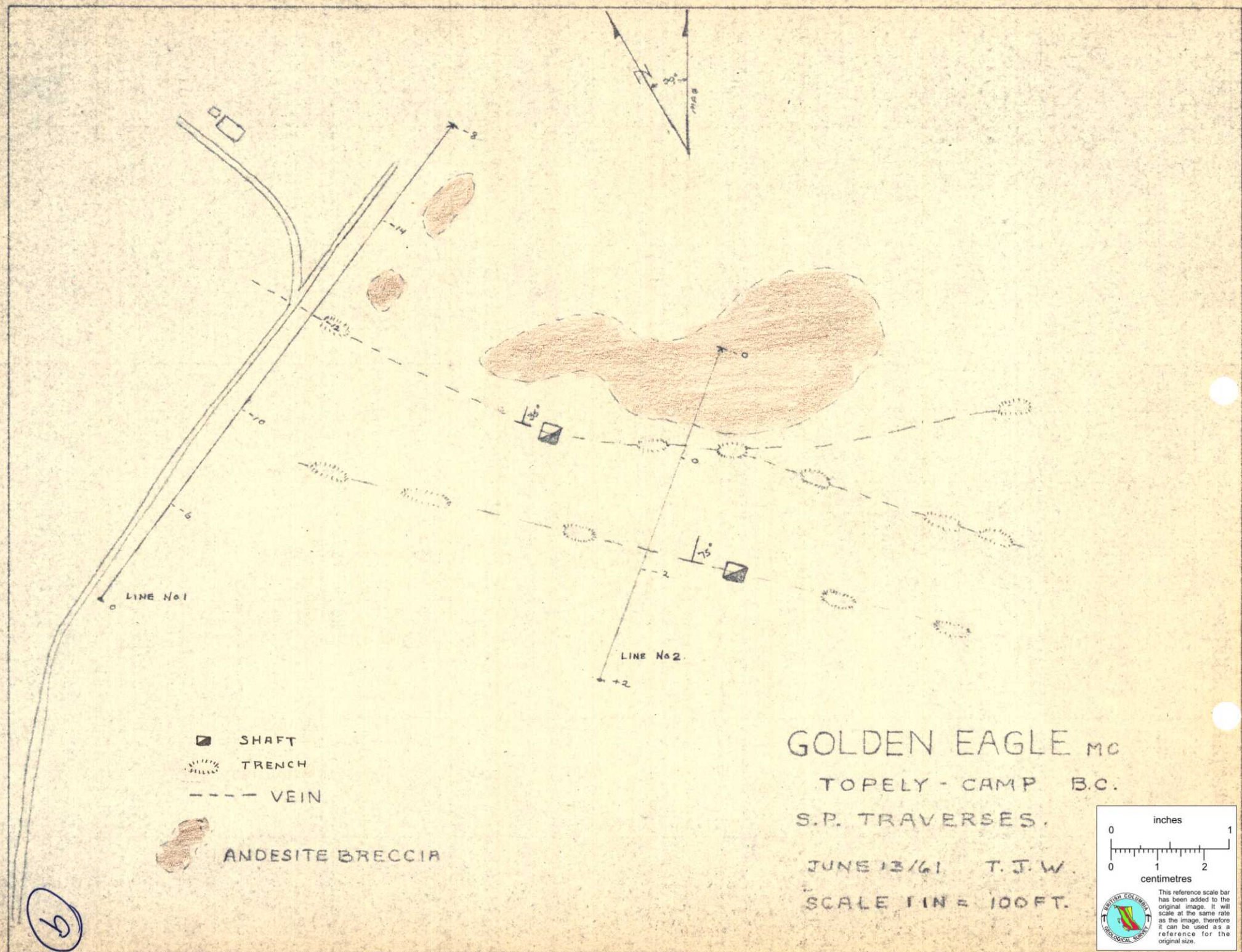
RED TOP MC
TOPELY CAMP B.C.
S.P. & E.M. TRAVERSES
JUNE 13/61 T.J.W.
SCALE 1 IN = 100 FT

----- 5' QUARTZ VEIN 10% PYRITE
MINOR GALENA AND SPHALERITE.



TRENCH
SHAFT.



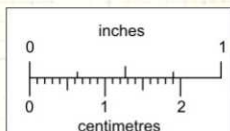


- HEAVILY DRIFT COVERED
- RHYOLITE ARKOSE MINOR GRANITE
- RHYOLITE
- OLDER GRANITE
- ANDESITE - ANDESITE BRECCIA
RHYOLITE

----- S.P. AND SOIL SAMPLE TRAVERSES

① Rock samples -

BABINE LAKE
EL 2220'



This reference scale bar has been added to the original image. It will scale at the same rate as the image, therefore it can be used as a reference for the original size.

SCALE 1 IN = 1 MILE

MAY 19/61

T. WILLIAMSON.

10

COPPER ISLAND.

S.P. TRAVERSE MAY 6/61

BY T. WILLIAMSON - N. ELLIOTT.

SCALE 1 IN = 500 FT

N

■ DIORITE ? (PORPHYRITIC)

■ VOLCANICS

SWAMPY GROUND

--- CREEK

-100

BLACK
BEAR
NOR 2

NOR 2

NOR 2

NOR 2

NOR 2

NOR 2

NOR 2

NOR 2

NOR 2

NOR 2

NOR 2

NOR 2

NOR 2

NOR 2

NOR 2

NOR 2

NOR 2

NOR 2

NOR 2

NOR 2

NOR 2

NOR 2

NOR 2

NOR 2

NOR 2

NOR 2

NOR 2

NOR 2

NOR 2

NOR 2

NOR 2

NOR 2

NOR 2

NOR 2

NOR 2

NOR 2

NOR 2

NOR 2

NOR 2

NOR 2

NOR 2

NOR 2

NOR 2

+366

+450

+440

+493

+509

+485

+471

+478

-8

-25

-25

-11

-17

-54

-33

-155

-166

-276

-25

-10

-32

-120

+171

+120

+171

+120

+171

+120

+171

+120

+171

+120

+171

+120

+171

+120

+171

+120

+171

+120

+171

+120

+171

+120

+171

+120

NORA 3

NORA 2

MOUSE CR

BEA 6

NORA 1

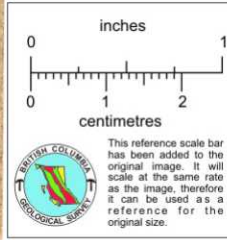
LYNX CR

◇ DRILL CORE STACK

BABINE LK

2220 EL.

BABINE LK



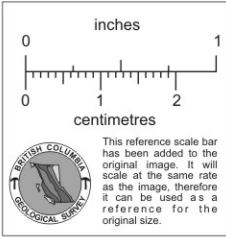
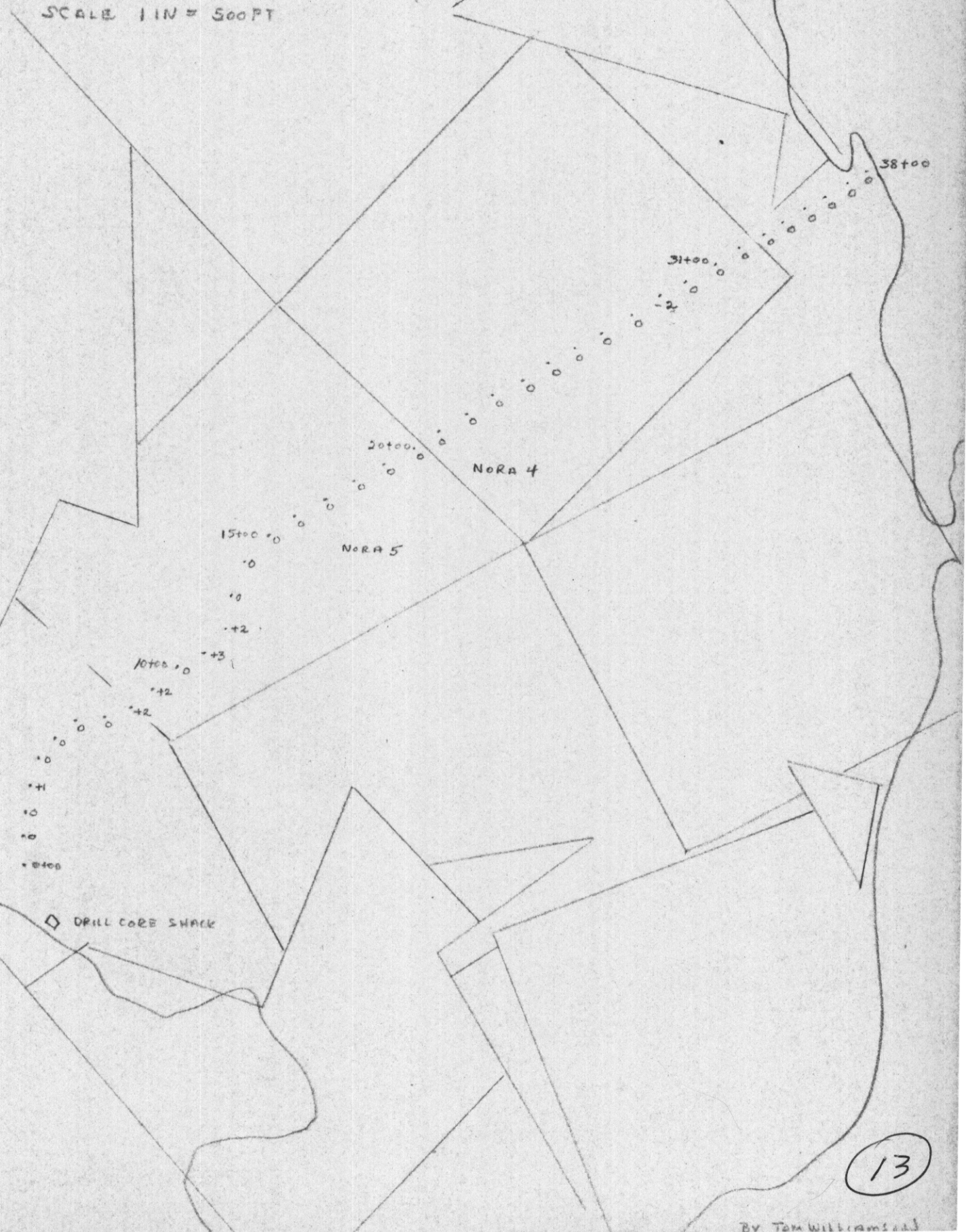
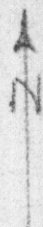
④



This reference scale bar has been added to the original image. It will scale at the same rate as the image, therefore it can be used as a reference for the original size.

2

COPPER ISLAND
E.M. TRAVERSE
BY T WILLIAMSON & M ELLIOTT
MAY 5/61
SCALE 1 IN = 500 FT



GEOCHEM - TRAVERSE
EAST SHORE BABINE LAKE
MAY 7/61

SCALE 1" = 500 FT.

(4)

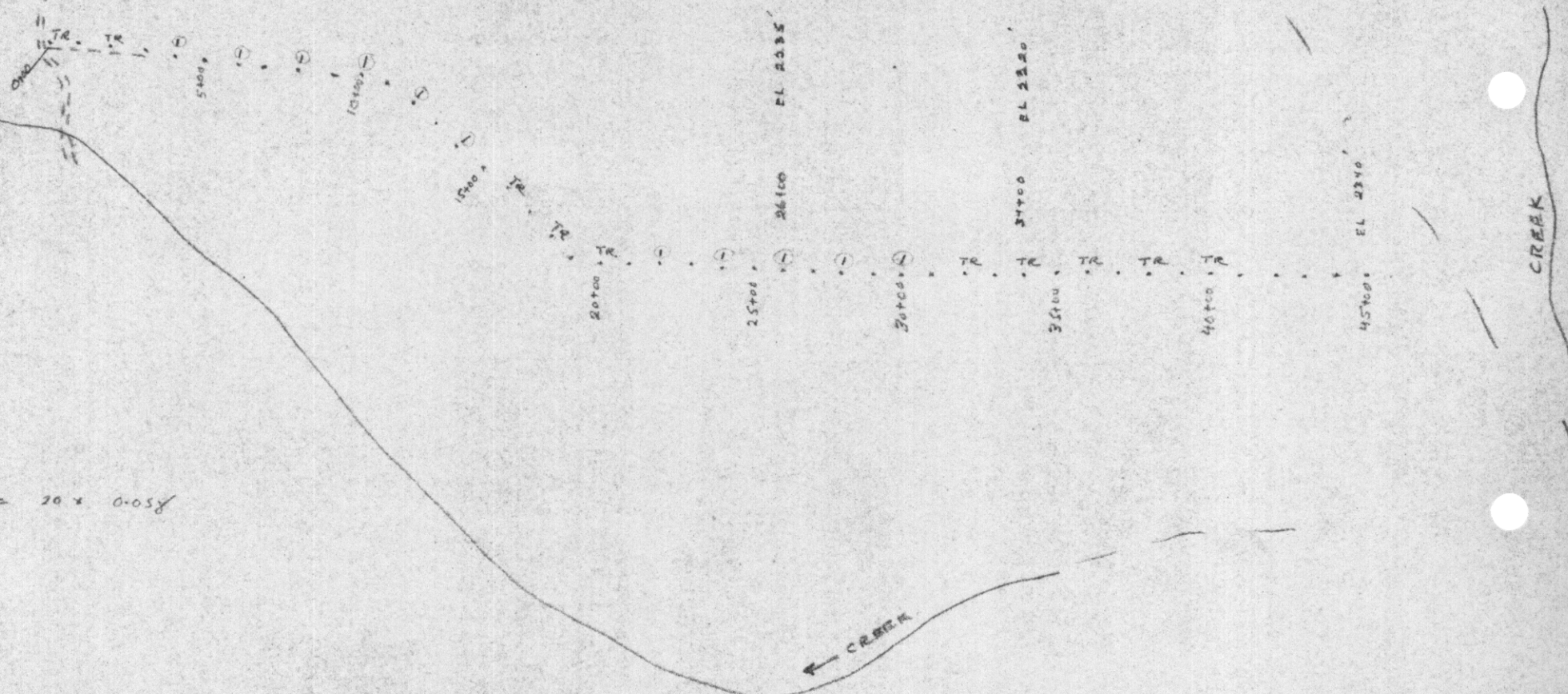


BABINE
LAKE
EL 2220'

HEAVY OVERBURDEN

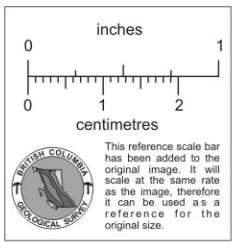
GRANITE

STAR PLANNER MILLS
LOG CAMP



① = 20 x 0.058

(41)

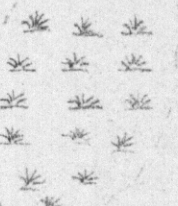


XX GRANITE

LITTLE
RIDGE



Camp



LINE NO 3

156

LINE NO 2

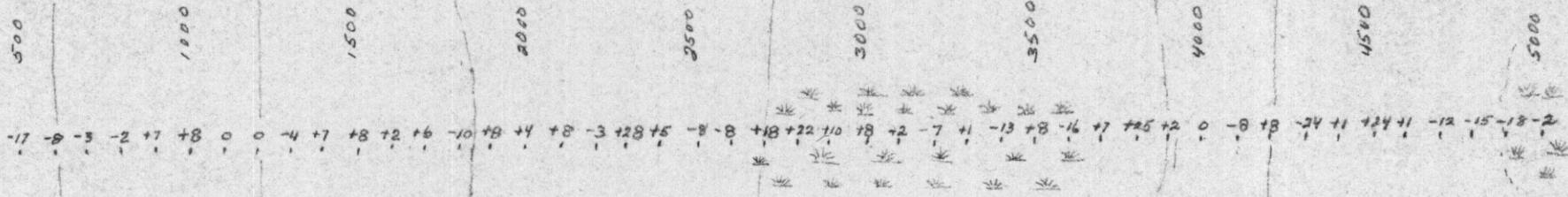
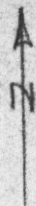
TOTAL DISTANCE 5200'

SCALE 1" = 500 FT
May 12/61

126 -10 +8 +30 +16 +7 +1 -2 -2 -1 0 +1 -3 +4 0
15+00 25+00 30+00 35+00 40+00 45+00 50+00
XX GRANITE
block

-12 -3 +10 +27 +9 -5 -10 +21 0 -3 -10 -16 +6 +22 +6 0

0 = -16 F165 13610w CORRECTED -



2230' 2220' 2210' 2200' 2190' 2180' 2170' 2160' 2150' 2140' 2130' 2120' 2110' 2100' 2090' 2080' 2070' 2060' 2050' 2040' 2030' 2020' 2010' 2000' 1990' 1980' 1970' 1960' 1950' 1940' 1930' 1920' 1910' 1900' 1890' 1880' 1870' 1860' 1850' 1840' 1830' 1820' 1810' 1800' 1790' 1780' 1770' 1760' 1750' 1740' 1730' 1720' 1710' 1700' 1690' 1680' 1670' 1660' 1650' 1640' 1630' 1620' 1610' 1600' 1590' 1580' 1570' 1560' 1550' 1540' 1530' 1520' 1510' 1500' 1490' 1480' 1470' 1460' 1450' 1440' 1430' 1420' 1410' 1400' 1390' 1380' 1370' 1360' 1350' 1340' 1330' 1320' 1310' 1300' 1290' 1280' 1270' 1260' 1250' 1240' 1230' 1220' 1210' 1200' 1190' 1180' 1170' 1160' 1150' 1140' 1130' 1120' 1110' 1100' 1090' 1080' 1070' 1060' 1050' 1040' 1030' 1020' 1010' 1000' 990' 980' 970' 960' 950' 940' 930' 920' 910' 900' 890' 880' 870' 860' 850' 840' 830' 820' 810' 800' 790' 780' 770' 760' 750' 740' 730' 720' 710' 700' 690' 680' 670' 660' 650' 640' 630' 620' 610' 600' 590' 580' 570' 560' 550' 540' 530' 520' 510' 500'

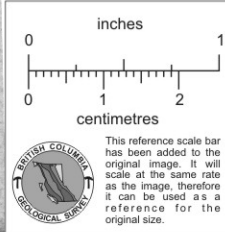
No OUTCROPS

ALL WINDFOLLS OVER RIFE FOREST AND SWAMPS -
MUCH DEVILS CLUB -

15c

LINE No 3 TOTAL DISTANCE 5000'

may 13/61
SCALE 1IN = 500FT
T. WILLIAMS



N

0 = -14 - FIGS BELOW CORRECTED

SMALL LAKE

BABINE PK.

EL 2220

OLD LOG BARN

No outcrops -

WINDFALL FOREST DEVILS CLUTS -
SWAMPS -

2220 EL

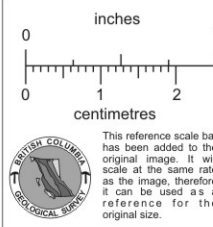
(15 d)
(p 51)

LINE NO 4 - TOTAL DISTANCE 2200'

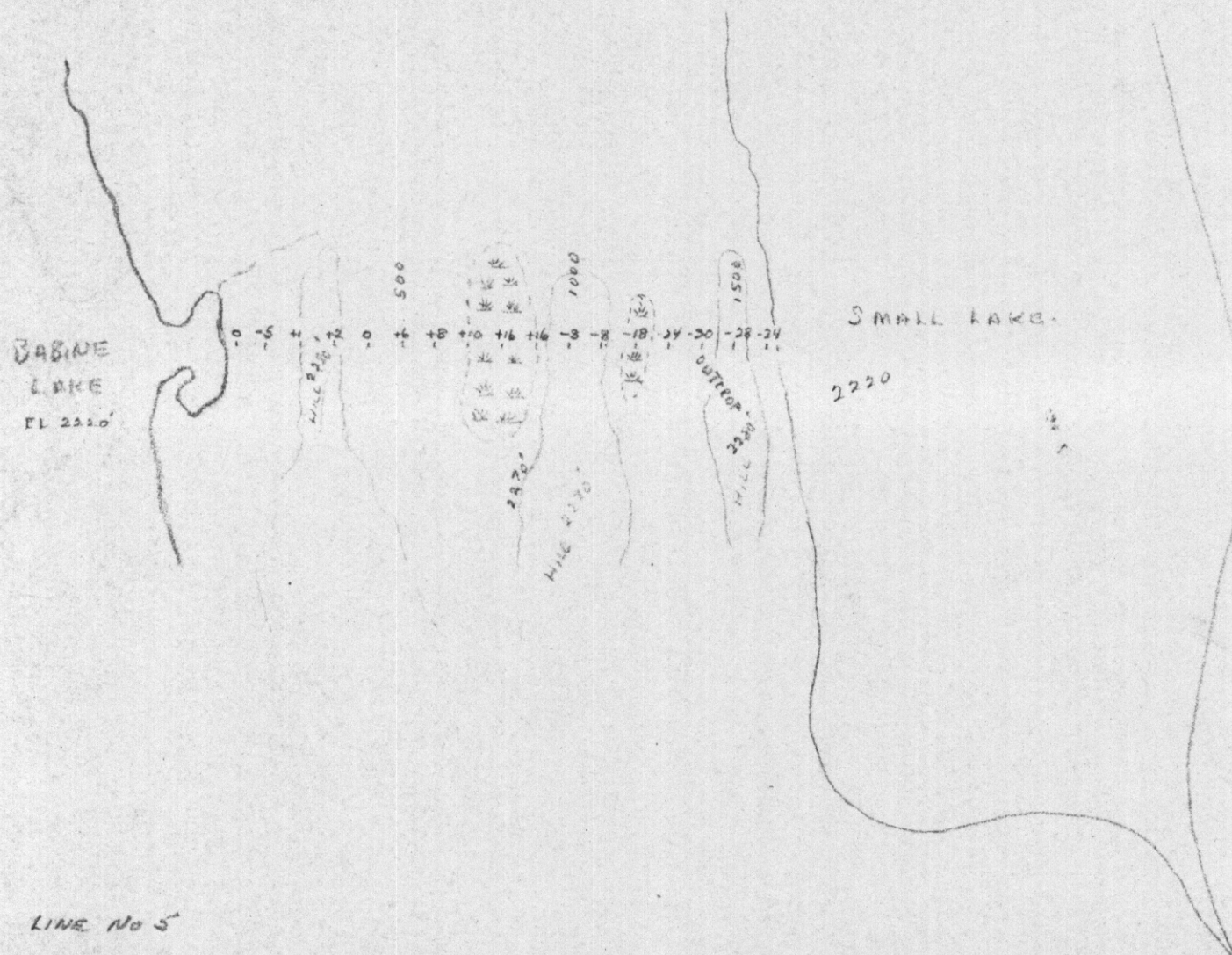
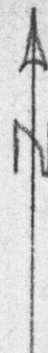
SCALE 1 IN = 500 FT.

MAY 13/61

T. WILLIAMSON



0 - 16 - FIGS - CORRECTED



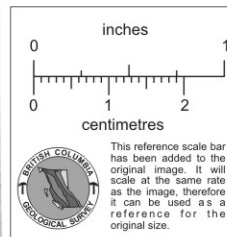
LINE No 5

TOTAL DISTANCE 1600'

SCALE 1 IN = 500 FT.

MAY 14/61

T. WILLIAMSON

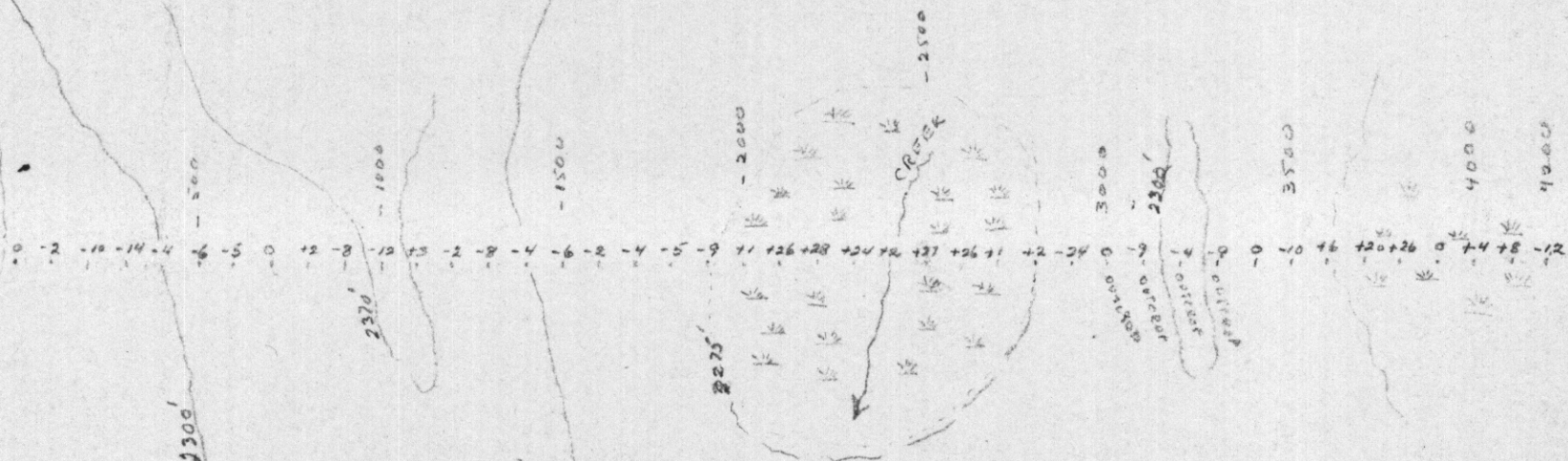


0 = -16. FIGS CORRECTED.



BABINE
LAKE -

FL 2220'



SWAMPS - WINDFALLS - DEVILS CLUB -

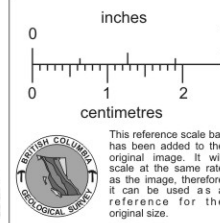
MAY 15/61

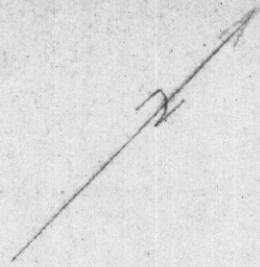
SCALE 1 IN = 500 FT

T. WILLIAMS.

TOTAL DISTANCE 4200'

(15)
LINE 6





-16=0 PERS CORRECTED-

2 -4 +4 -2 +2 0 -2 -16 -4 -3 +4 0 +2 -3 -5 +2 +4 -5 -10 -6 -3

SABINE
LAKE
EK 2220

BUCK BRUSH (THORNS)

DEVILS CLUB - WINDFALLS -

may 15/61

(159)

LINE NO 7

TOTAL DISTANCE 2000'

SCALE 1 IN = 500 FT.
T WILLIAMSON

