

DATE: 29 February 1988  
A  
TO: I.D. Pirie  
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FROM: Graeme Evans  
SUJET  
SUBJECT: MONTH END - STUMP LAKE PROGRAM SUMMARY

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Phase 1 of the Stump Lake property has been completed except the detailed report which will follow on completion of the Phase 2 work at the end of 1988.

Grid Work - 52.65 kilometers of grid was established by the end of January.

Mag & VLF - 48.15 kilometers of a Proton Magnetometer survey crossed the structures with the Quartz veins on lines with a  $250^{\circ}$  bearing, over a strike length of 4.5 kilometers. The magnetic survey defined several strong anomalies along ore-bearing structures and the Stump Lake fault. Drilling has revealed these are Tertiary Basalt Dykes which have a close affinity to the vein systems.

VLF was carried out over the same lines using two stations (Seattle and Cutler, Maine). Seattle worked particularly well defining the Stump Lake Fault and a parallel fault close to the East Side of Stump Lake. VLF also outlined several weaker trending structures striking  $150 - 180^{\circ}$  which correlate with ore-bearing structures.

Drilling - From January 29th to February 18th Frontier Drilling completed seven NQ diamond drill holes for a total of 1097.6 m. The holes tested various zones over a strike length of 4.3 kilometers and 39 samples were sent for Assay for Cu, Pb, Zn, Ag, Au, and  $WO_3$ , and another 98 samples were sent for Lithogeochemical analysis.

The drilling supports the surface evidence of large areas of mineralization and alteration over the whole grid area. A surprising relationship is that mineralization occurred at the same time as the formation of the Tertiary Basalt Dykes. This is interesting since a high level Tertiary Epithermal system (Cindy) is known at the North end of Stump Lake and the Stump Lake property may be a deeper base metal rich part of this Epithermal system.

MONTH END - STUMP LAKE PROGRAM SUMMARYDrilling (continued)

Summary logs are attached but an outline of targets and results are as follows:

SL1 was planned to intersect a triple junction of the Tubal Cain, the King William and the Enterprise vein. The intersection was not hit but the Tubal Cain system was intersected as well as a large unknown parallel structure near the top of the hole.

Some better results:	103.7 - 105.5 m (1.8 m) Altered Zone	.033% Cu, .68% Zn, .68% Pb, 15.8 g Ag, .61 g Au
	155.4 - 156.6 m (1.2 m) Altered Zone	.053% Cu, .48% Zn, .65% Pb, 51.8 g Ag, 1.92 g Au
	284.0 - 286.6 m (2.6 m) Tubal Cain Zone	.051% Cu, .18% Zn, .15% Pb, 31.0 g Ag, .41 g Au

While values are not economic, it is encouraging that >15% of the hole was in alteration.

SL2 tested the junction of the Joshua and Tubal Cain system which was found to lie farther to the South yet. A large amount of parallel Tertiary Basalt Dykes parallel the vein systems and account for the magnetic high. Both vein systems were encountered but values are low.

<b>Joshua Zone</b>	50.7 - 56.9 m (6.2 m)	.014% Cu, .01% Zn, .01% Pb, 4.4 g Ag, .05 g Au, .023% WO <sub>3</sub>
<b>Tubal Cain</b>	76.5 - 78.2 m (1.7 m)	.018% Cu, .12% Zn, .10% Pb, 11.7 g Ag, .20 g Au, .014% WO <sub>3</sub>

MONTH END - STUMP LAKE PROGRAM SUMMARY

SL 3 tested the extension of the King William vein near a large N - S trending alteration zone.

Results were disappointing with only a thin alteration zone and a parallel Basalt Tertiary Dyke.

Results are:	62.5 - 64.3 m (1.8 m) Altered Zone	91ppm Cu, 79ppm Zn, 50ppm Pb, 14ppm Ag, 85ppb Au
	65.7 - 66.0 m (.3 m) Quartz Vein	95ppm Cu, 1384ppm Zn, 303ppm Pb, 53ppm Ag, 320ppb Au

SL4 tested the King William Vein North of the shaft. It intersected 3 subparallel alteration zones over the length of the hole, including the King William vein.

Results:	20.2 - 21.4 m (1.2 m) Altered Zone	.02% Cu, .10% Zn, .09% Pb, 4.2 g Ag, 1.52 g Au
	70.0 - 70.4 (.4 m) King William Vein	.037% Cu, .59% Zn, .50% Pb, 284.0 g Ag, 7.24 g Au

SL5 tested vein continuity near the Stump Lake Fault area and many zones of alteration were encountered. The best value was in a quartz vein.

	49.6 - 50.1 m (0.5 m)	.098% Cu, .76% Zn, .13% Pb, 58.7 g Ag, .62 g Au
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SL6 tested the Jenny Long vein at a multiple intersection to the North of the Shaft. Large zones of alteration were encountered with a higher sulphide content, over a majority of the hole. The alteration is unusual in that it is intense chlorite-epidote alteration rather than the normal bleached clay-silica alteration. The Jenny Long Vein was intersected in the core of this alteration.

Assay results are awaited.

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SL7 tested the North extension of the Jenny Long Vein system. The hole was bounded by Tertiary Dyke swarms at either end with pyrite veinlets in strong chlorite-epidote alteration in the middle of the hole. This zone likely correlates to the Jenny Long vein and indicates its termination.

Again, Assay results are awaited.

Alteration - A brief examination indicates the altered zones are not as silicified as previously thought, but are bleached-clay altered zones with enhanced  $\text{SiO}_2$ ,  $\text{K}_2\text{O}$ ,  $\text{MgO}$  and depleted  $\text{Na}_2\text{O}$  and  $\text{Ba}$ . These zones often contain 5 - 10% disseminated pyrite and I.P. may work effectively defining these zones. Also, a few samples will be sent for XRD analysis in Phase 2.

Phase 2 will be conducted later in the summer consisting of:

- a) detailed grid mapping
- b) mapping and sampling underground workings
- c) lithogeochemical sampling of the surface
- d) possibly some I.P. testing
- e) diamond drill program (approximately 800 m) on specific targets
- f) compilation and a report

6+75E

# STUMP LAKE

SL#2

1500  
LOOKING N

1505

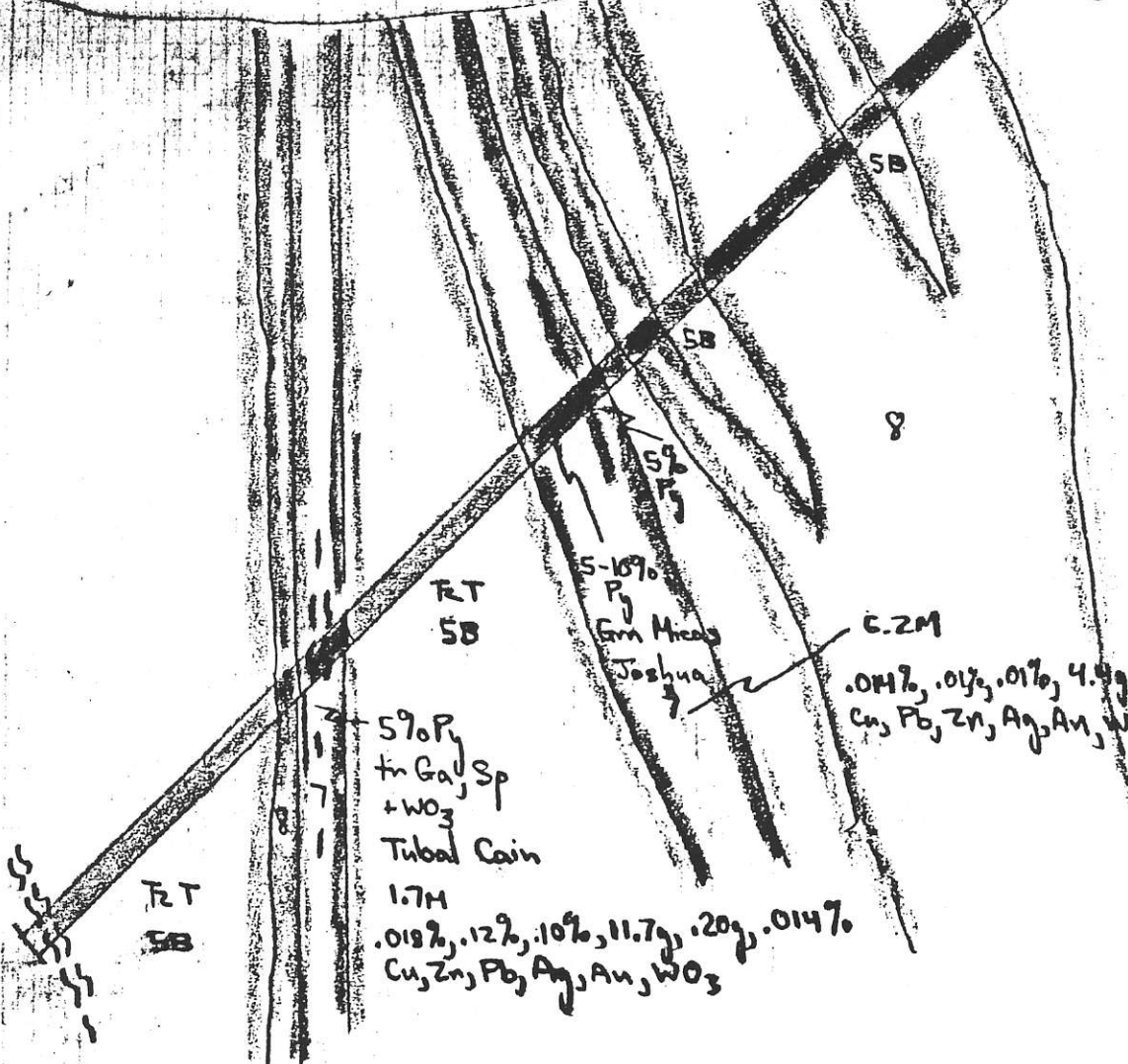
7+50E

SL#2  
(±45°)  
848 M



W/B

RT -  
SB



- 800M

RT  
SB

5-16%  
P<sub>2</sub>  
Em Mead  
Joshua

C.ZM

.04%, .01%, .01%, 4.4%, .05%, .023%  
Cu, Pb, Zn, Ag, Au, WO<sub>3</sub>

5% P<sub>2</sub>  
to Ga, Sp  
+ WO<sub>3</sub>  
Tubal Cain

RT  
SB

1.7M  
.018%, .12%, .10%, 11.7%, .20%, .014%  
Cu, Zn, Pb, Ag, Au, WO<sub>3</sub>

20N  
102.9

- 750M

STUMP LAKE

SL# 3

1:500

(LOOKING N)

SECTION 8+50S

6+00E

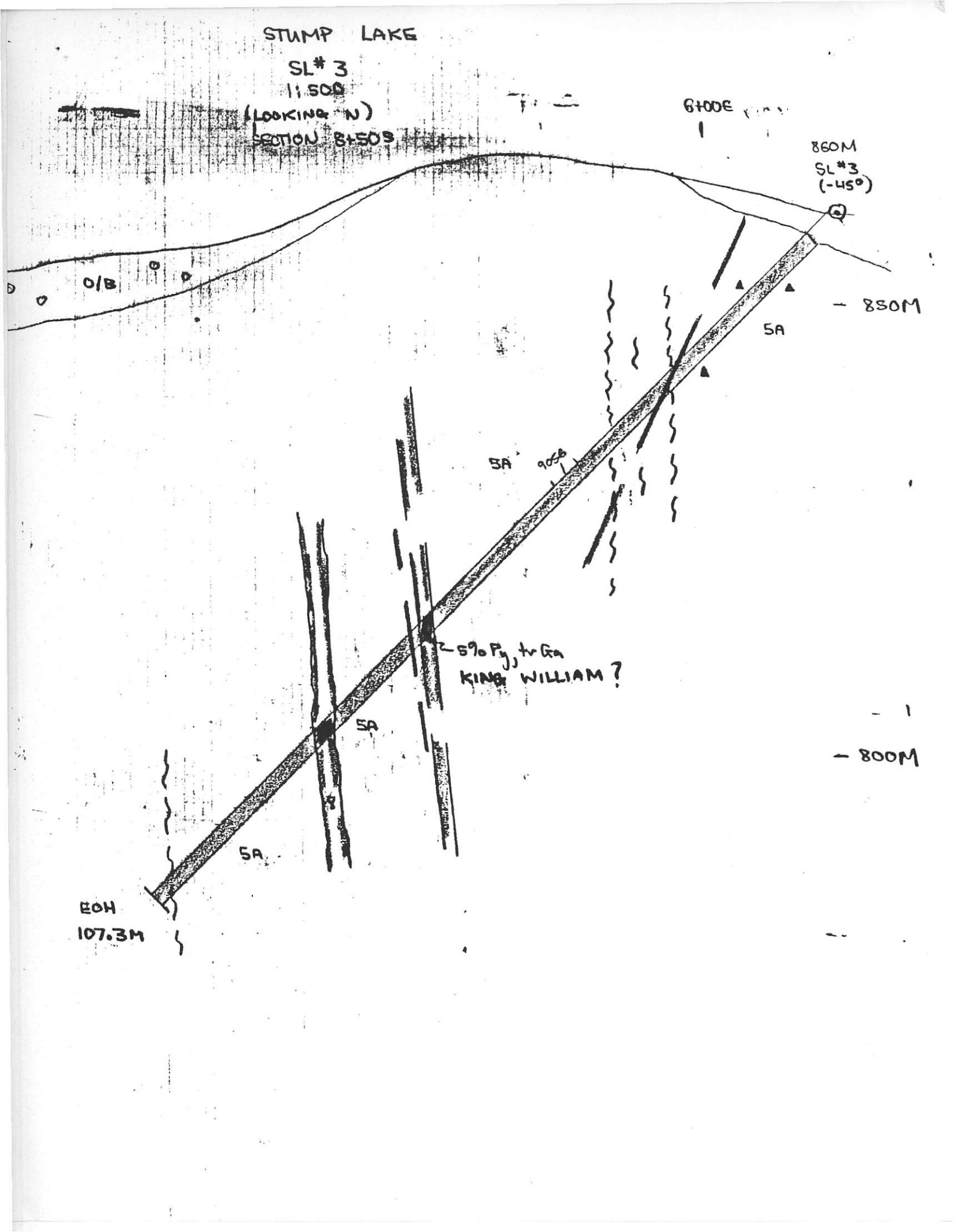
860M  
SL#3  
(-45°)

- 850M

- 800M

EOH  
107.3M

~ 59° P<sub>y</sub> to GA  
KING WILLIAM?



4+50E

STUMP  
LAKE  
SL #4  
1:500 (LOOKING N) 12+103 section

5+25E

880 M Elev  
(-45°)

.020, .09, .10, 4.2g, 152g - 1.2M  
Cu, Pb, Zn, Ag, Au

SB

- 850M

KING WILLIAM  
VEIN

10% Pb  
+ Cu, Sp  
100g

5A

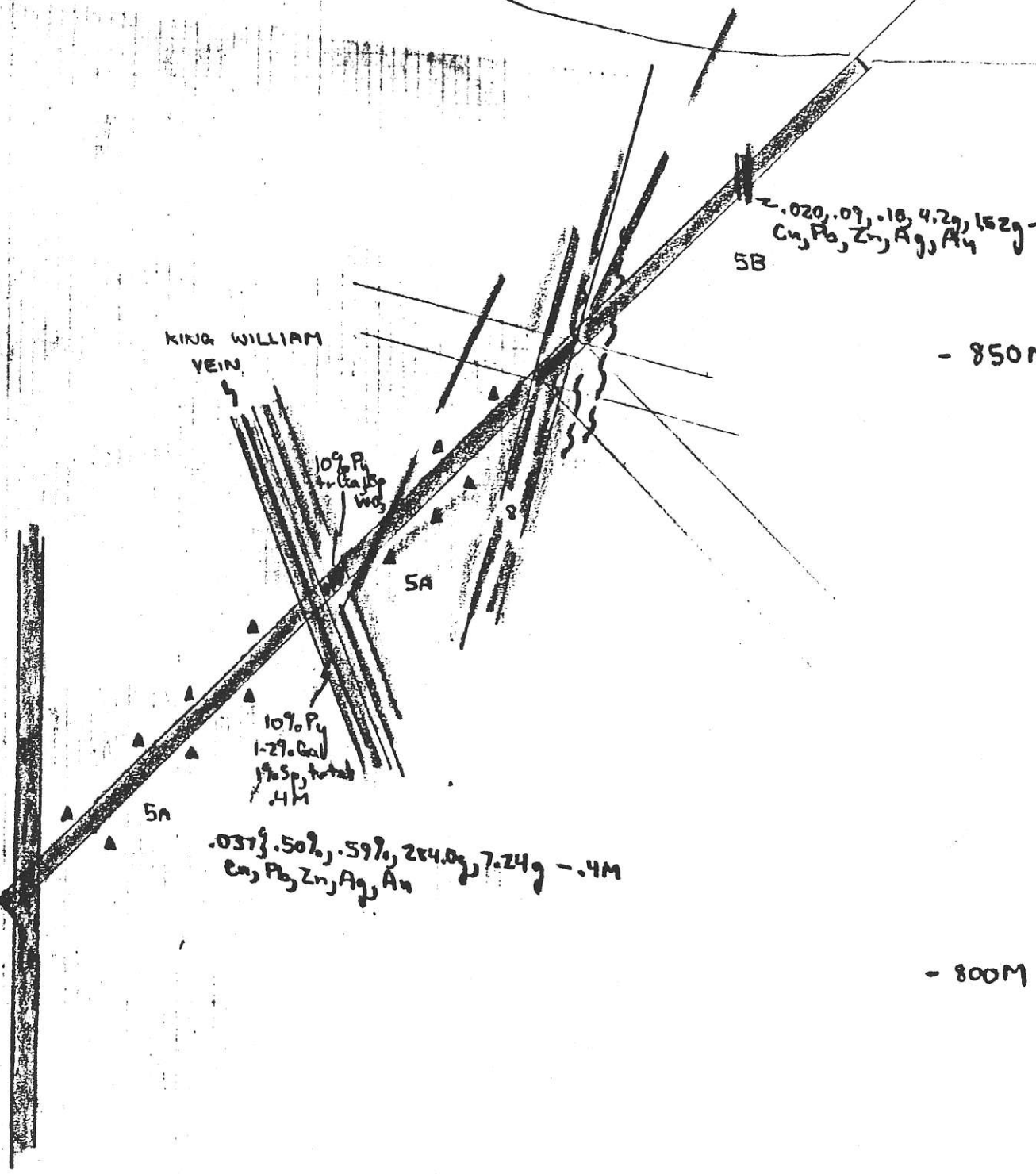
10% Pb  
1-29.6g  
1% Sp, total  
.4M

.037, .50g, .59g, 284.0g, 7.24g - .4M  
Cu, Pb, Zn, Ag, Au

SB

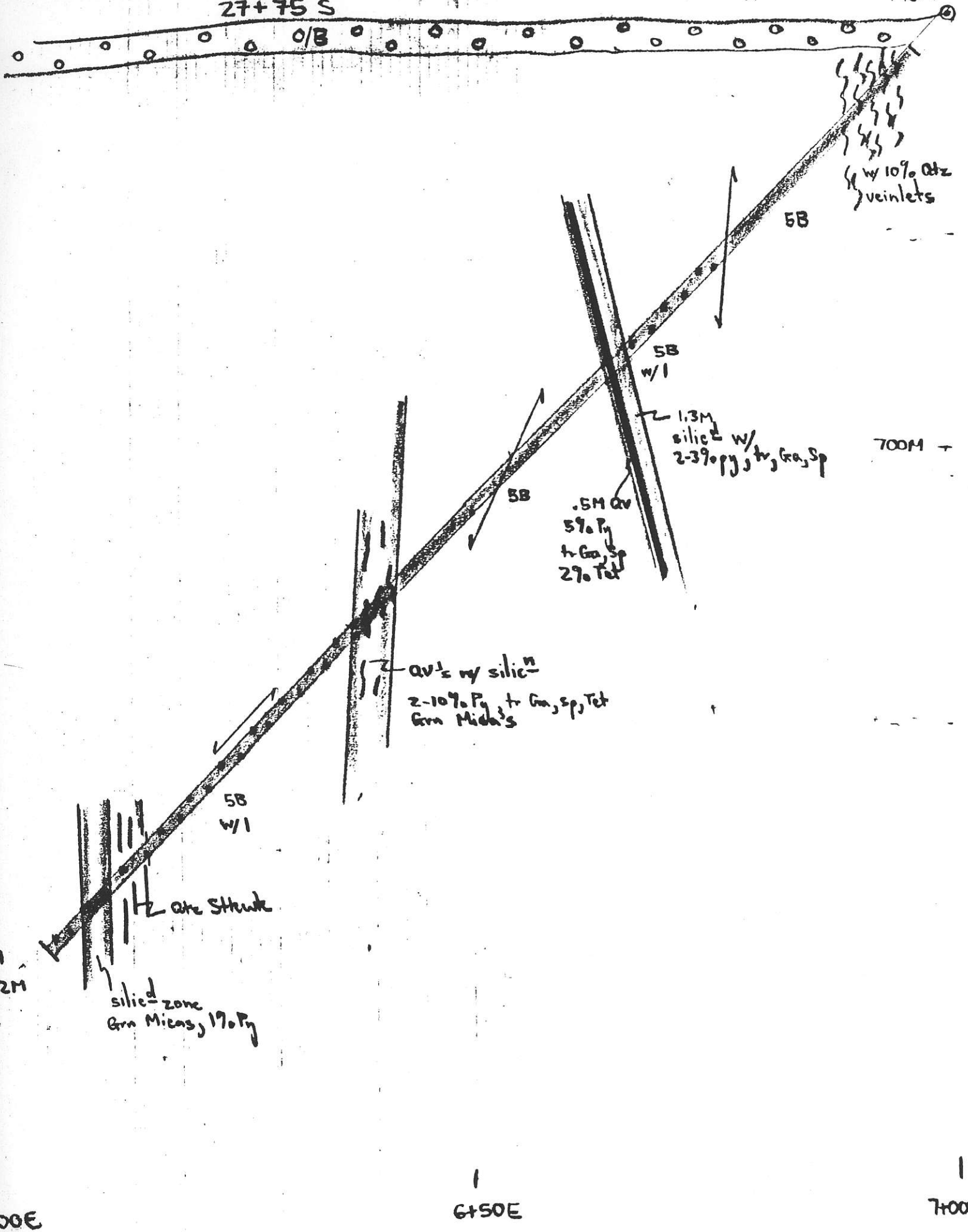
E.O.H.  
105.8M

- 800M



STUMP LAKE  
SL # 5  
1:500 (LOOKING N)  
27+75 S

SL 5  
(-45°)  
745M

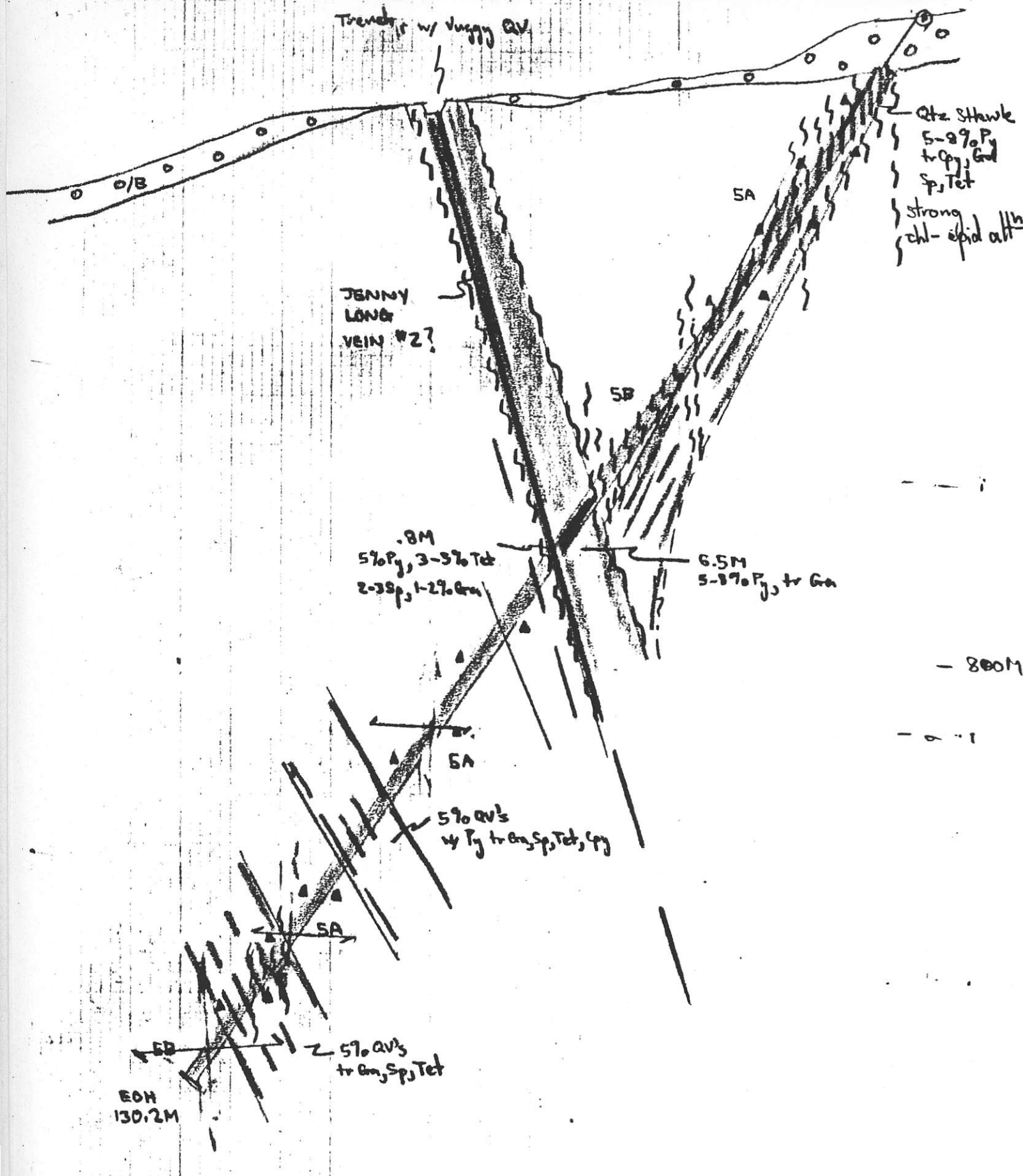




STUMP LAKE  
SL #6 (1:500 LOOKING N)

865 M  
SL #6 (-85°)

Trench w/ Vuggy QV



EDH  
130.2M

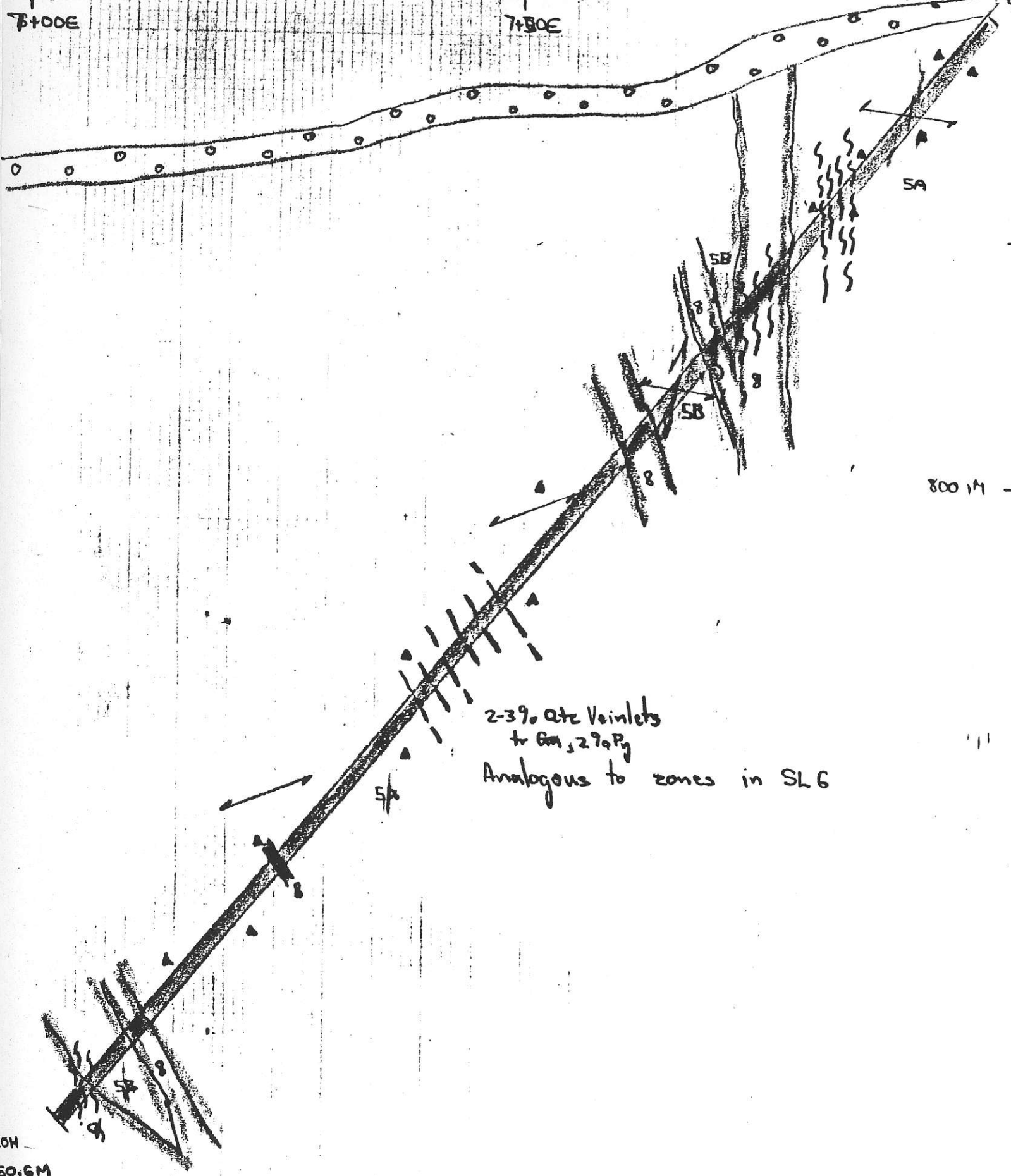
1:1000

STUMP LAKE  
SL# 7 (11500 LOOKING N)

8+00E SL-7  
850M (-50°)  
Elev

7+00E

7+50E



2-3% Qtz Veinlets  
to Gm, 2% Py  
Analogous to zones in SL 6

800 M

50H  
50.6M

SUMMARY SL-1

Location: 3+50S, 8+20E  
Azimuth: 250 Dip: -70

0-2.3	Casing
2.3-12.2	Nicola Basalt Tuff
12.2-34.6	Fault Zone with Tertiary Basalt Dykes (Magnetic)
34.6-91.6	Nicola Basalt Fl-Bx
91.6-93.1	Tertiary Basalt Dyke (Magnetic)
93.1-101.3	Nicola Basalt Fl-Bx
101.3-105.5	Silicified Zone with Qtz Veins 5-10% py, tr Ga, tr Sp, tr Cpy
105.5-153.8	Nicola Fl-Bx, Tuffs and minor seds with several .5-1.0m silicified zones.
153.8-157.1	Silicified zone with Quartz Veins
157.1-195.6	Nicola Basalt Fl-Bx
195.6-202.2	Fault Zone with silicification and Quartz Veins with green micas, 1-2% py
202.2-281.2	Nicola Basalt Tuff
281.2-297.2	Fault Zone with Silicification and Quartz Veins 2-5% py, tr Ga, tr Sp The Tubal Cain Vein System
297.2-324.7	Nicola Basalt Fl-Bx
324.7-335.9	Tertiary Basalt Dykes (Magnetic)
335.9-366.6 E.O.H.	Nicola Basalt Fl-Bx with minor Tertiary Basalt Dykes

SUMMARY LOG SL-2

Location: 9+50S, 7+50E  
Azimuth: 250 Dip: -45

0-3.5	Casing
3.5-16.9	Nicola Basalt Tuff
16.9-50.7	Tertiary Basalt Dyke Swarm (Magnetic)

SL-2 Con't

50.7-57.9 Silicified Zone with Quartz Veins and Green Micas  
5-10% py "Joshua Vein"

57.9-74.1 Nicola Basalt Tuff

74.1-78.2 Silicified Zone with Quartz Veins  
5% py, tr Ga, tr Sp "Tubal Cain Vein"

78.2-79.7 Tertiary Basalt Dyke (Magnetic)

79.7-103.9 Nicola Basalt Tuff  
E.O.H.

SUMMARY LOG SL-3

Location: 8+50S, 6+15E  
Azimuth: 250 Dip: -45

0-3.7 Casing

3.7-62.5 Nicola Basalt Fl-Bx and Tuff

62.5-64.3 Silicified Zone with Green micas  
5% py, tr Ga  
"King William Vein?"

64.3-77.9 Nicola Basalt Tuff

77.9-81.6 Tertiary Basalt Dyke (Magnetic)

81.5-107.3 Nicola Basalt Tuff  
Weak faulting.  
E.O.H.

SUMMARY LOG SL-4

Location: 12+10S, 5+25E  
Azimuth: 250 Dip: -45

0-8.6 Casing

8.6-40.4 Nicola Basalt Tuff

40.4-44.7 Fault Zone with Tertiary Basalt Dykes (Magnetic)

44.7-69.1 Nicola Basalt Fl-Bx and Tuff

69.1-70.9 Quartz Vein and Silicification  
10% py, tr Ga, tr Sp, tr Tet  
"King William Vein"

70.9-101.1 Nicola Basalt Fl-Bx

SL-4 Con't

101.1-104.2 Silicified Zone with Quartz Veins  
10% py, tr Ga, tr Sp, tr Tet

104.2-105.8 Nicola Basalt Tuff  
E.O.H.

SUMMARY LOG SL-5

Location: 27+75S, 7+00E  
Azimuth: 250 Dip: -45

0-4.9 Casing

4.9-48.3 Nicola Basalt Tuff +/- Sediment Fragments (Lmst, Siltstone)

48.2-50.6 Quartz Vein with Silicification  
3-5% py, tr Ga, tr Sp, tr Tet, tr WO3

50.6-80.9 Nicola Basalt Tuff

80.9-89.0 Silicified Zone with 5% Green Micas  
5% py, tr Ga, tr Tet

89.0-124.0 Nicola Basalt Tuff with sediment fragments

124.0-128.6 Silicified Zone with 5% green micas  
Tr py, tr gry sulphide?

128.6-133.2 Nicola Basalt Tuff with Sediment Fragments  
E.O.H.

SUMMARY LOG SL-6

Location: 42+00S, 7+20E  
Azimuth: 250 Dip: -55

0-6.1 Casing

6.1-38.0 Nicola Basalt Fl-Bx  
Zones with 3-8% py veinlets in strong chl-epid. alteration.

38.0-58.0 Nicola Basalt Tuff

58.0-65.4 Silicified Zone around the "Jenny Long Vein"  
64.5-65.4 the QV with 5% py, 3-5% tet?, 3% sp, 2% qa

65.4-125.8 Nicola Basalt Tuff  
Zones with 2-5% py veinlets in strong chl-epid. alteration.

125.8-130.2 Nicola Basalt Tuff

E.O.H.

#### SUMMARY LOG SL-7

Location: 41+00S, 8+00E  
Azimuth: 250 Dip: -50

0-3.1 Casing

3.1-35.1 Nicola Basalt Fl-Bx

35.1-42.8 Tertiary Basalt Dyke

42.8-44.7 Nicola Basalt Tuff

44.7-48.0 Tertiary Basalt Dykes

48.0-56.5 Nicola Basalt Tuff

56.5-61.2 Tertiary Basalt Dyke

61.2-136.0 Nicola Basalt Fl-Bx  
Zones with 2-3% py in strong chl-epid. alteration.

136.0-150.6 Tertiary Basalt Dykes

E.O.H.