

882568

SUN VALLEY GOLD MINES LTD.

GEOLOGICAL REPORT

**EAST GOLD PROPERTY
TIDE LAKE, B.C.
SKEENA MINING DIVISION**

"SMF - VICTORIA, June '87"

NOVEMBER 1986

GEWARGIS GEOLOGICAL CONSULTING INC.
Exploration and Mining Geologists

GEOLOGY REPORT
ON THE
EAST GOLD PROPERTY
TIDE LAKE, B.C.

Skeena Mining Division
British Columbia
NTS 104B/8E
Latitude: 56°17'N
Longitude 130°04'W

FOR

Sun Valley Gold Mines Ltd.
P.O. Box 10019, Pacific Centre
3050 Toronto Dominion Bank Tower
Vancouver, B.C. V7Y 1A1

CONSULTANTS:

Gewargis Geological Consulting Inc.
Suite 405, 595 Howe Street,
Vancouver, B.C. V6C 2T5
Tel: (604) 687-6245

Author:

R. Wares, P. Eng.

Date:

November 12, 1986

ABSTRACT

A two-phase exploration program is recommended for the East Gold property. The initial phase, totalling \$133,000 comprises field work and limited drilling, while the second, contingent phase, comprises drilling, totalling \$142,000. Total estimated costs for both phases is \$275,000.

The Rollin Claims, or East Gold property, is located 36 kms north of Stewart, B.C. and consists of six claims. It has been subject to intermittent exploration and development from 1927 to 1965. A small tonnage of high grade material was produced from a high grade pod of galena, sphalerite, and pyrite, with some electrum, hosted in a pyritic and silicified envelope.

The property comprises variably altered siltstones, with quartz-pyrite sericite schists developed at the margins of faults that trend northwest. Some curving splay faults are present.

Pyritic replacement zones are found along north westerly trending shears. These are variable and up to 2.5m wide. They are often accompanied by an envelope of quartz veining. The zones pinch and swell where fault/shear zones intersect.

Continued ...

Surface and underground mapping shows that the high grade zone is located in a chimney-like, steeply plunging structure to the northwest at the intersection of two shear zones. Production records indicate grades of 6 - 8 oz/ton Au and 30-40 oz/ton Ag in this high grade zone.

Sampling of surface showings and structures underground, show assays, on surface of up to 0,404 oz/ton Au over 1.0 m. on surface. One other vein system assayed 0.216 oz/t Au over a 1.0m width. The sampling also shows a variable, widespread, geochemically anomalous zone in pyrite-sericite schists with gold-silver values which, though not of immediate economic interest, merit follow-up and examination.

A grab (character) sample from a high grade stock pile, assayed 12.854 oz/ton Au, and 30.31 oz/ton Ag, confirming the nature of the high grade pod.

Exploration should be carried out to complete the surface mapping (interrupted by heavy snow) and drill for down-dip extensions of the high grade pod. Other target areas, with a similar geology to the area with the high grade zone, should be drill tested.

-1-

1.0 INTRODUCTION

1.1 General

At the request of the directors of Sun Valley Gold Mines Ltd., a program was carried out on the Rollin Claims, also known as the East Gold property.

An initial examination had been carried out in 1986 (Gewargis 1986). This report recommended follow-up mapping and sampling to determine controls and distribution of high grade gold silver mineralization present on the property, and to recommend further work on the property.

The program was carried out between October 11 to October 20, 1986, after which heavy snowfall impeded surface examination.

The work was carried out under the supervision of R. Wares, P.Eng. with a field crew of two graduate geologists, G. Benmore and P. Elkins.

The work comprised emplacement of a survey grid, mapping and sampling on surface and underground.

-2-

1.2 Location

The East Gold Property or Rollins claim group, is located 36 kms north of Stewart, B.C. and 185 km north of Prince Rupert, B.C. The property is located in the Skeena Mining Division (NTS 104B/8E) (Figure 1).

1.3 Access

Access to the property is from Stewart, B.C., the regional supply centre, by the Granduc road. The (former) Granduc mill site is located 3.6 km south of the property.

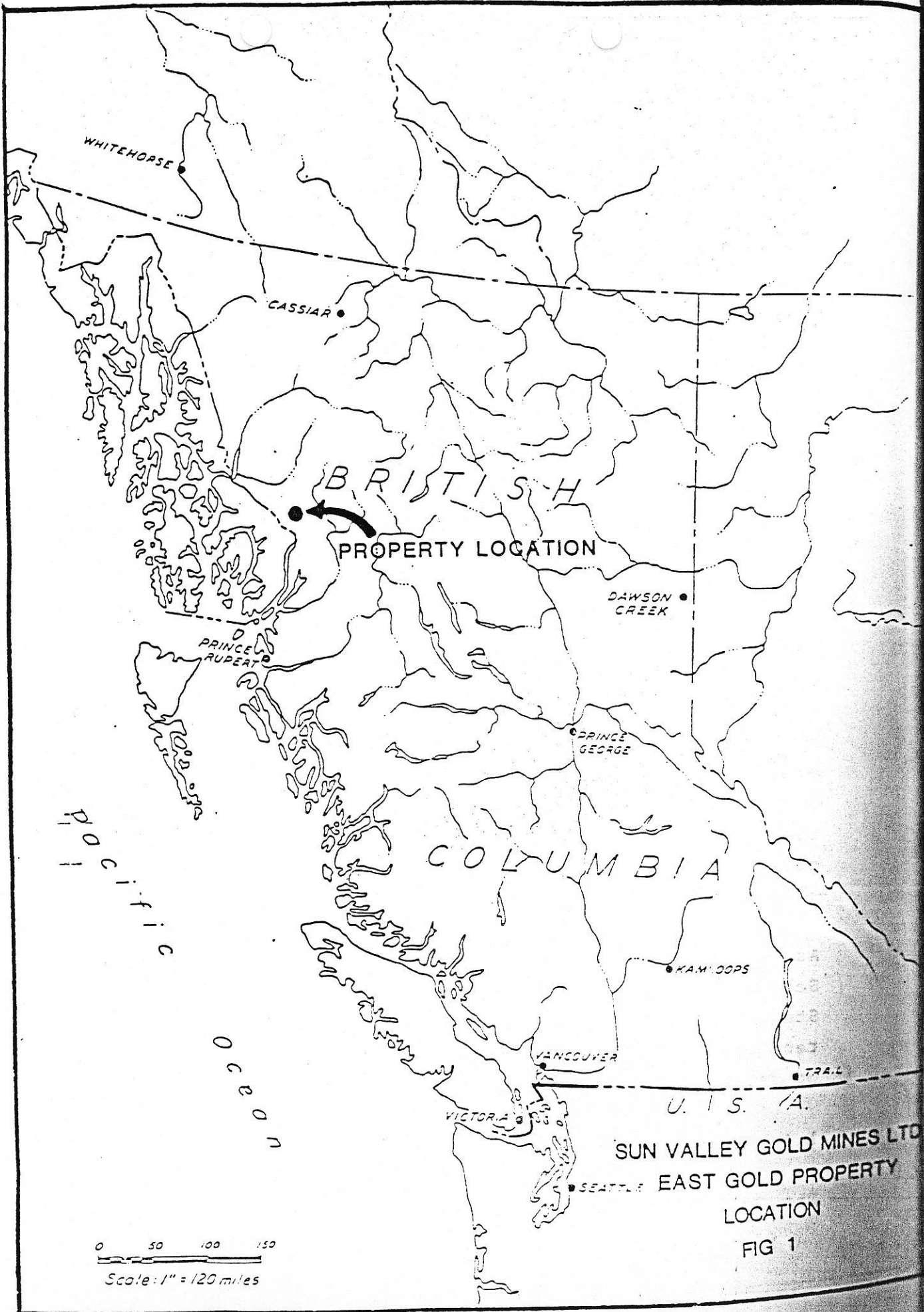
Air access is provided by the Tide Lake air strip, 1 km east of the property.

A poor quality road reaches the property from the air strip, by a bridge across the Bowser River. At the time of the examination, repairs to the bridge and some road rehabilitation was required for exploration access. Both the road and the bridge were constructed for access to the claim group. Within the claim group, road access is only to the workings.

As a result of cessation of mining at Granduc Mines and of Scottie Gold Mines (6 km south of East Gold) in 1984, the Stewart access road is no longer cleared in winter, rendering exploration from November to May, a higher cost operation than formerly prevailed.

1.4 Topography

The Rollin claim group is located at elevations from 600 m



-4-

to 900m above sea level, on the west side of the Tide Lake Valley.

Relief is moderate, the greatest part of the property comprising a bench at 730m to 800m elevation. Below 700m elevation, a veneer of varved lacustrine clay is present. Timber cover is moderate with lower elevations covered by slide alder.

1.5 Claim Status

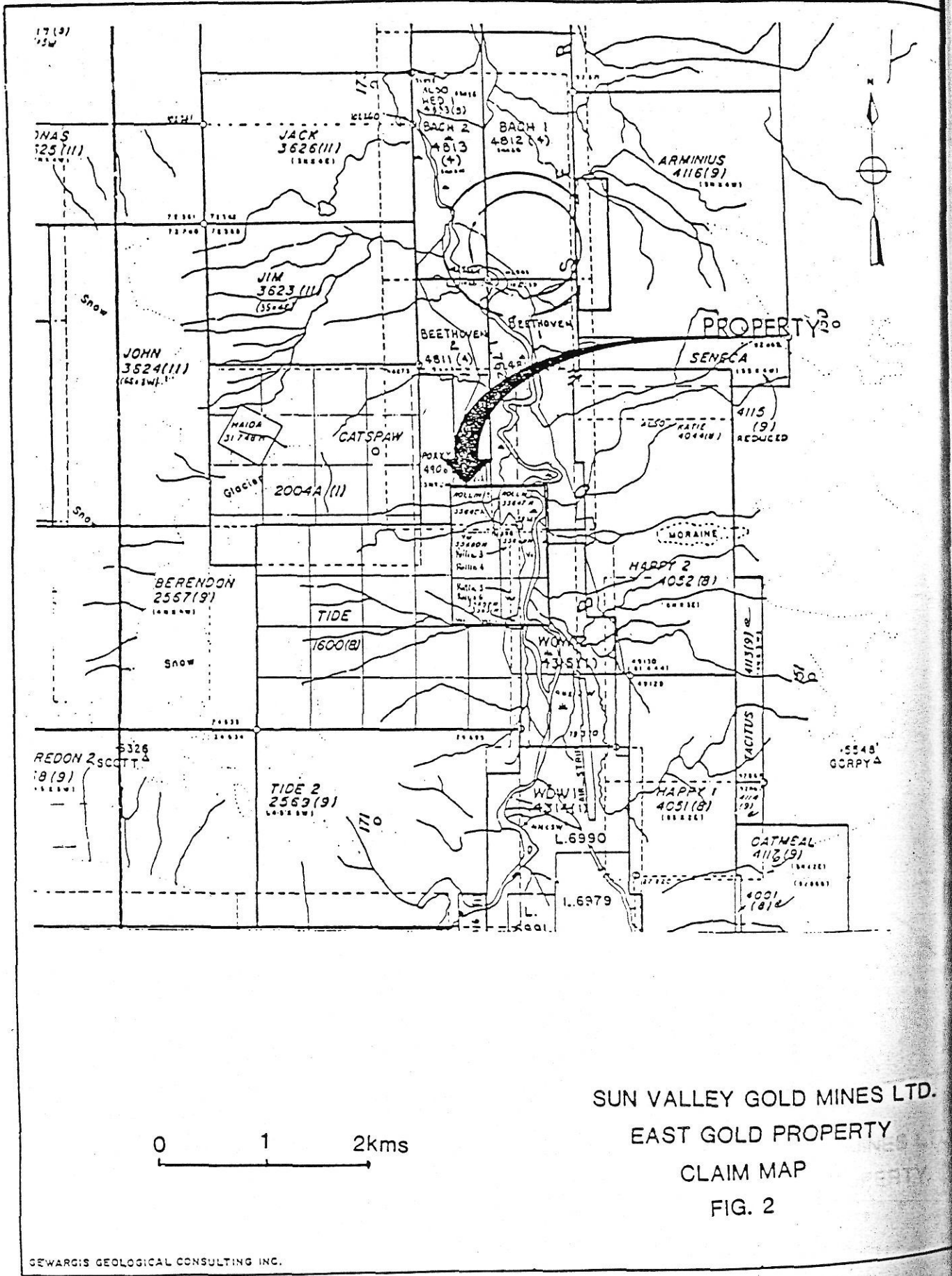
The East Gold Group comprises six (6) two-post claims staked in July 1970, to cover the (former) East Gold Claims (Figure 2).

On June 4 1979, all interest in Rollin #1 to 6, was transferred from William McKay, the original locator, to R. McKay, E. Soucie and D. Halfyard, of Stewart, B.C.

TABLE I, CLAIM DATA

<u>Claim</u>	<u>Record #</u>	<u>Date Recorded</u>	<u>Standing</u>
Rollin #1	35647	July 22, 1970	July 22, 1987
Rollin #2	35648	July 22, 1970	July 22, 1987
Rollin #3	35649	July 22, 1970	July 22, 1987
Rollin #4	35650	July 22, 1970	July 22, 1987
Rollin #5	35651	July 22, 1970	July 22, 1987
Rollin #6	35652	July 22, 1970	July 22, 1987

Not all claim posts could be verified at the date of examination. Tags appear to have been destroyed.



SUN VALLEY GOLD MINES LTD.
 EAST GOLD PROPERTY
 CLAIM MAP
 FIG. 2

-6-

The Rollin claim group is under option to Sun Valley Gold Mines Ltd., of Vancouver, B.C.

1.6 Previous Work

The property has had a history of intermittent exploration and development since 1927 (originally it was called the Pioneer Group).

The property was optioned by Consolidated Mining and Smelting Co. of Canada in 1929 but the option was dropped in 1930. No data exists on results of the drilling program, or location of drill holes (BCDM, Annual Report, 1930).

An adit was driven in 1933 by the original owners of the property.

Shipments of small tonnages of high grade ore were made from the property at irregular intervals in the period from 1939 to 1965. Records of shipments (possibly incomplete) are outlined in Table II.

TABLE II, SHIPMENTS

<u>Year</u>	<u>Tons</u>	<u>Oz/Au</u>	<u>Oz/Ag</u>	<u>Grade Au (oz/t)</u>	<u>Grade Ag (oz/t)</u>
1949	6	105	1013	17.5	168.8
1950	17	868	1839	51.05	108
1952	1	38	55	38	55
1953	3	40	142	13.3	47.3
1954	2	66	129	33	64.5
1965	2	0	300.6	0	150.3

-7-

Figures are rounded in the BCDM reports. Shipments in 1933-1941 are not recorded but are known to have taken place.

The MINDEP records (BCDM) also reveal lead, zinc, and some copper accompanies the high grade gold-silver mineralization.

Since 1965, exploration has been sparse. Evidence of prospecting grids were encountered. No data exists on the results of, or originator of this program.

The property was examined from October 11 to October 20, 1986. An early, heavy snowfall cut short the evaluation program.

Heavy winter snowfall in the Tide Lake area, makes exploration outside the period, June to October, cost intensive and ineffective.

2.0 REGIONAL INFORMATION

2.1 Regional Geology

The regional geology of the property area has been described in a number of government reports and maps.

The British Columbia Department of Mines Annual reports have described both regional and property geology (BCDM, Annual Reports 1927, 1930, 1939, 1940, 1941, 1946, 1948, 1949, 1950, 1953, 1965).

-8-

More recent regional descriptions, or maps, have been that of Grove (1983, Salmon River - Unuk Map Sheet) and Alldrick (1983, 1985). Alldrick, in particular, has described the mineral deposits of the Stewart area in a stratigraphic context.

The essential features (Figure 3) are of a belt of elliptical, altered units that extend from the Silbak Premier area north to the Unuk River. The altered core zones comprise deformed, hydrothermally altered sediments and (lesser) volcanics, bounded to the west by a suite of granodiorites and quartz monzonites.

Structural and stratigraphic relationships are complex and need not be described here. The essential features are fault bounded, regional hydrothermal alteration zones that are the focus of precious metal mineralization.

2.2 Regional Pattern of Mineral Deposits

The Stewart area has an extensive history of mineral exploration and development. In recent years, the focus of both exploration, development and production has been on precious metal deposits.

Mineral deposits in the Stewart area have been comprehensively described by Grove (1971, 1983) and Alldrick (1983, 1985) (Figure 3).

Exploration in 1986, continued at a high level. Exploration focussed on the Newhawk property at Sulphurets Creek and the Westmin Resources property at Silbak Premier.

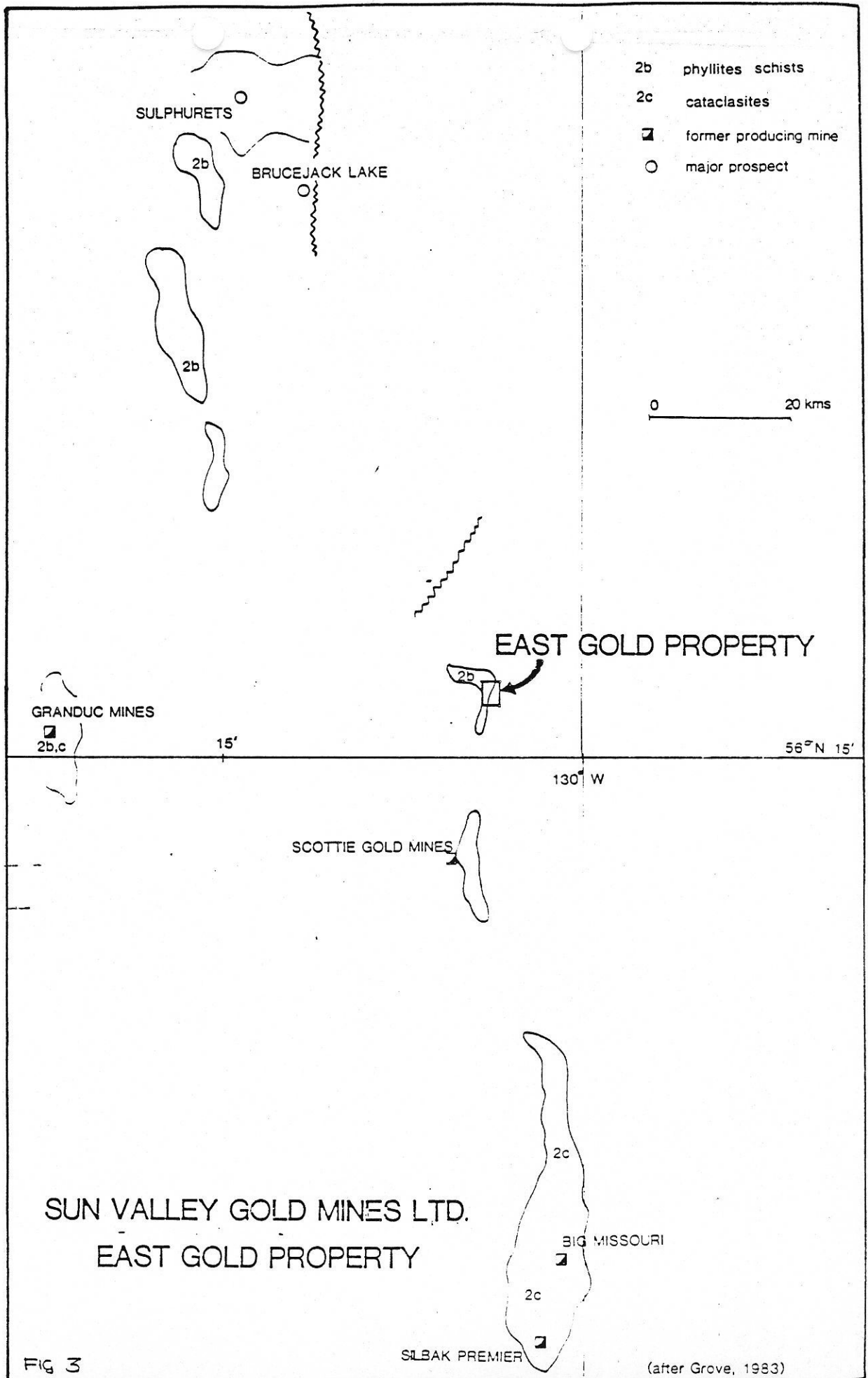


FIG 3

(after Grove, 1983)

-10-

In the area of the Rollin claim group, the Scottie Gold Mines (a former producer) is located six kilometers to the south, while Granduc, a base metal (Cu) mine, is located 15 km to the west.

The essential features of mineral deposits are the location at and close to regional core zones of hydrothermal alteration. Superimposed upon these are more local alteration and deformation, giving rise to a suite of precious metal deposits in particular.

Alldrick has shown evidence for at least six classes of deposits, ranging from stratabound base and precious metal deposits to contact related structurally controlled precious metal deposits. There is a range of age of deposition of these deposits.

The dominant type is structurally controlled precious metal deposits, with variable gold-silver ratios. These form both high grade vein deposits and larger, more diffuse, low grade targets.

3.0 GEOLOGY

3.1 General Geology

Aspects of the general geology of the Rollin claim group have been described in B.C.D.M. reports (noted above) and by Alldrick (1985).

A complete examination of the property in October, 1986, was precluded by an early, heavy snowfall.

-11-

The essential features are a pervasive, widespread and variable alteration of the siltstone/sandstone units to quartz-sericite schists, with recognizable bedding units. Bedding is generally westerly striking with steep south dips. (Figure 4).

Within this broad sequence, zones of weakly, or partly altered zones are noted, e.g., Line 5+00S, 2+00E, and 2+50N, 0+50W.

More pronounced alteration is evident in three broad zones (Figure 4) from Line 4+00S, 0+00 to Line 3+50S, 2+00W, 2+00S, Baseline to 1+50S, 2+00W, and 0+00, Baseline to 0+50N, 1+00W.





The pronounced alteration is marked by a development of quartz sericite schists, quartz veining and pervasive cleavage, that has obliterated bedding traces.

Pyrite is widespread as a trace constituent of altered meta-sediments, imparting a pronounced discoloration to the rock units.

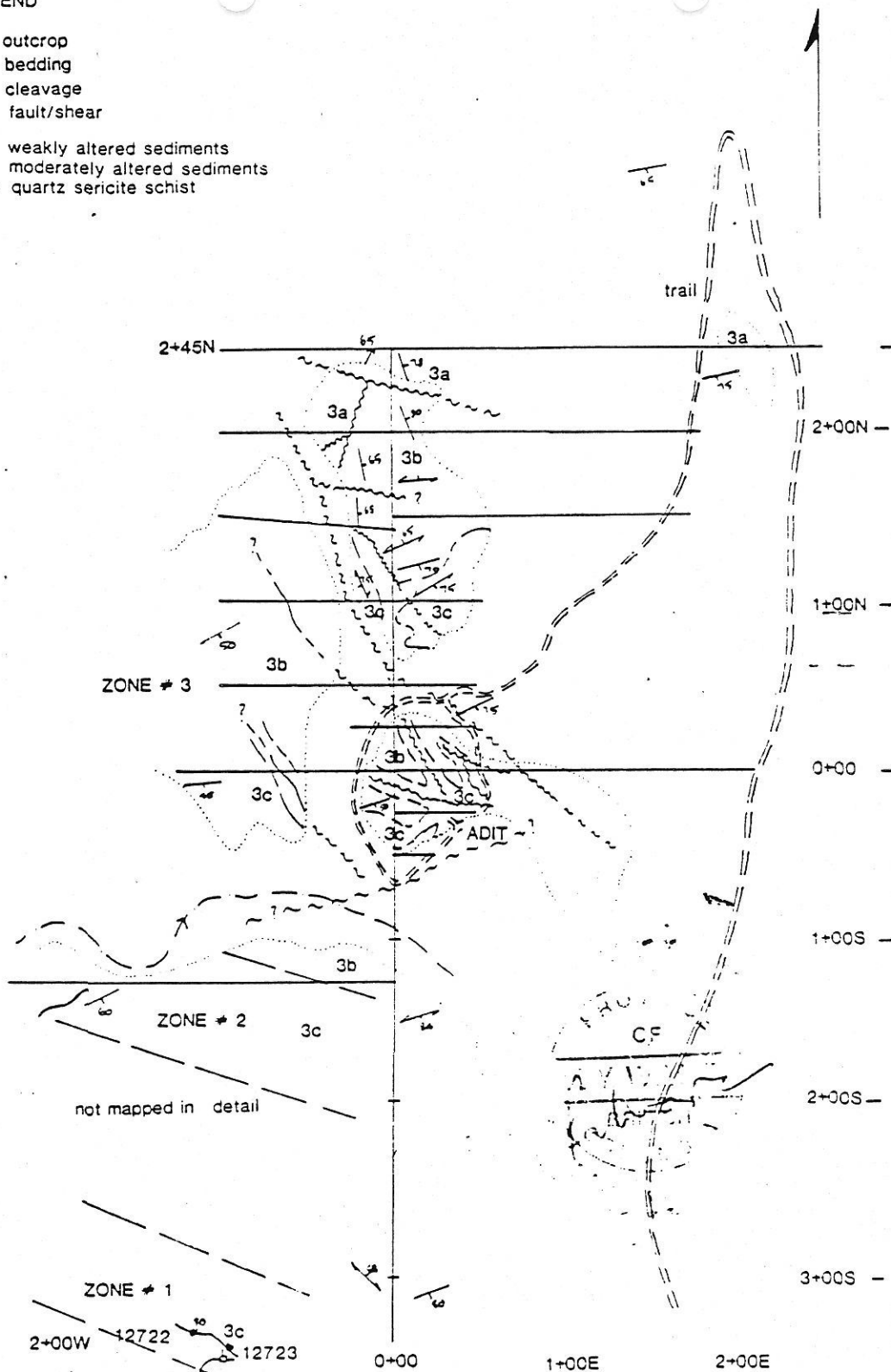
Within the three zones, described above, pyrite is more abundant in linear, replacement zones along the north westerly trending shear zones. Widths of the pyrite zones range from 0.1 m to 2.5 m. They generally carry an envelope of micro quartz veins, in the sericite schist deformed zone.

The areas with the greatest development of quartz-pyrite zones are in zone # 2 and in zone #3.

LEGEND

-  outcrop
-  bedding
-  cleavage
-  fault/shear

- 3a weakly altered sediments
- 3b moderately altered sediments
- 3c quartz sericite schist



not mapped in detail

ZONE # 1
 2+00W 12722 3c 12723
 1.0m pyrite zone
 claim post 1+00W

SUN VALLEY GOLD MINES LTD	
EAST GOLD PROPERTY	
GENERAL GEOLOGY	
NTS 10-48/8E	DRAWN RW
DATE NOV.36	FIG.4

0 100m

-13-

In zone #2, replacement and veining is more pronounced than elsewhere on the property.

The zone #3, which hosts the underground workings, the pyrite zones occur in arcuate splay faults from the main 140° trending fault pattern.

3.2 Detailed Geology

Detailed mapping was carried out in the central part of zone #3. Objectives were to establish the pattern of alteration and control of the high grade mineralization in the East Gold workings.

The area (Figure 5) forms two zones with structural contrasts. The northern zone, from 0+75N northwards does not exhibit any pronounced northwesterly shear zones.

It has occasional quartz-sericite schists with a bedding parallel to cleavage. Quartz veining is less pronounced and generally sparse. The pervasive alteration in this area has not obliterated lithological variations. It appears to diminish in intensity northwards in the outcrop.

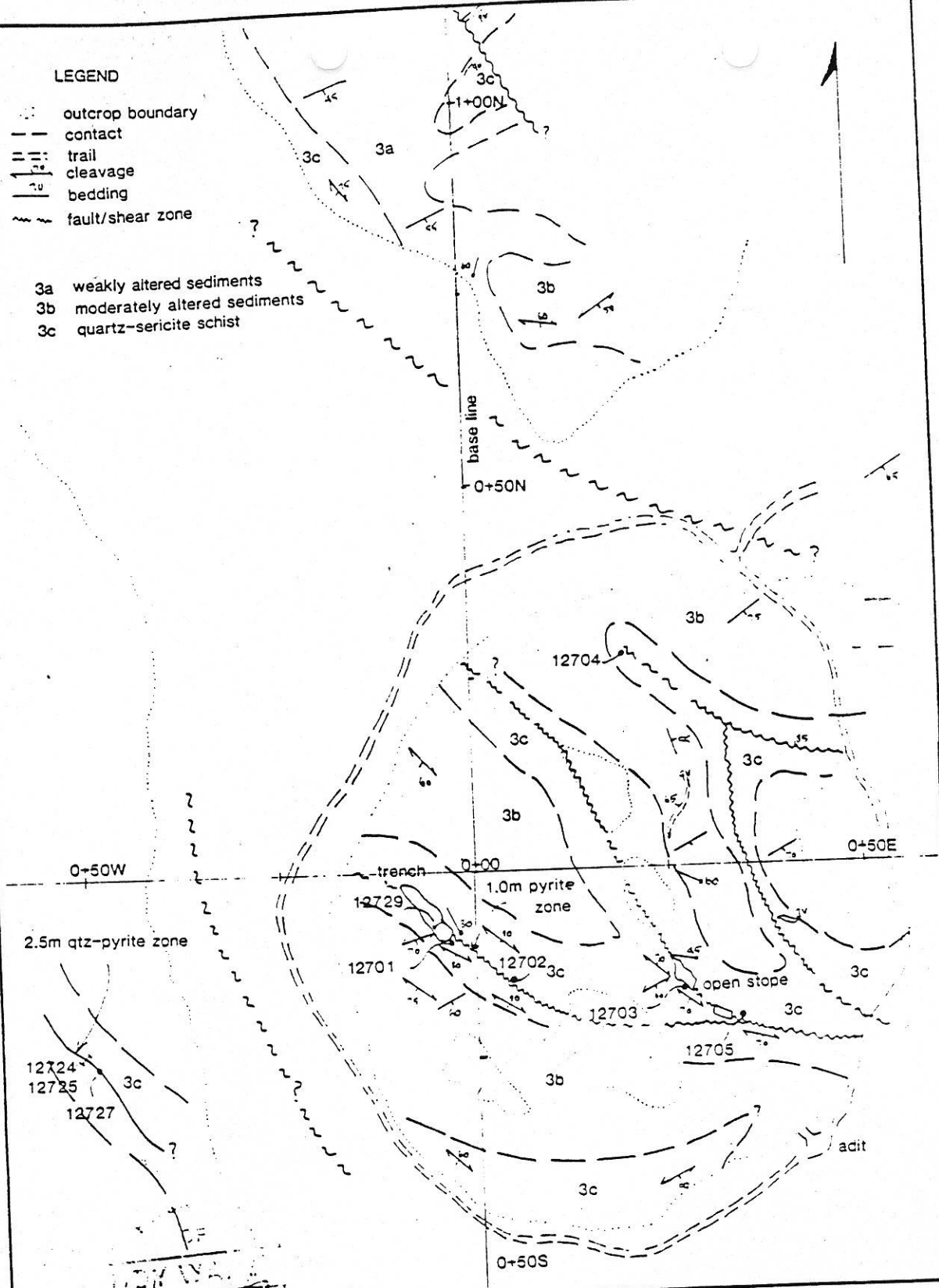
Some kink banding is present near minor shear zones.

The southern zone is structurally more complex. It appears to be separated by a fault from the northern zone. In this area, alteration is more pervasive, bedding is partly obliterated, and pronounced northwesterly trending shears are present. A characteristic is an envelope of fracture cleavage parallel to the shears, obliterating previous

LEGEND

- outcrop boundary
- contact
- trail
- cleavage
- bedding
- fault/shear zone

- 3a weakly altered sediments
- 3b moderately altered sediments
- 3c quartz-sericite schist

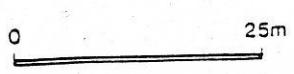
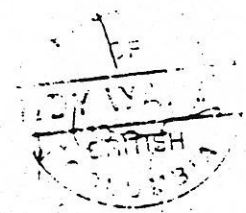


12724
12725
12727

12729
12701
12702

12704

12703
12705



SUN VALLEY GOLD MINES LTD.	
EAST GOLD PROPERTY	
DETAILED GEOLOGY	
NTS 1048/8E	DRAWN RW
DATE NOV. 86	FIG. 5

-15-

bedding and bedding parallel cleavages.

The secondary cleavage appears to be concomitant with enhanced alteration that has obliterated lithological variations. This is particularly evident near the open stope at 0+20S, 0+25E.

Within outcrops, rafts of units with recognizable bedding are separated by zones with pervasive secondary cleavage.

Within the zone, there are two predominant shear zones. The dominant trend is a steep 140° trending shear zone with curving splay zones, trending 110° , that curve and merge into the dominant 140° zone. This is clearly displayed on the main outcrop at 0+00, 0+25S.

Some later, but minor, 070° trending faults are present, but with minor displacement.

Sulphide mineralization is widespread in this zone. Scattered trace pyrite is present in the sediments. Linear zones along the faults exhibit pinching and swelling of pyrite replacement zones, ranging from 0.2m to 2.5m in width.

The wider zones appear, on present evidence, to develop at intersections of splay faults with the dominant 140° shear.

On surface, mineralization, comprises pyrite with a vuggy, weathered core zone. In veins wider than 1.0 m, the central massive pyrite core is replaced outwards by banded pyrite

-16-

rich sericite-pyrite schists, itself replaced outwards by scattered pyrite and a quartz stringer envelopes.

At 0+20S, 0+30W, a pyritic replacement zone up to 2.5 m wide is present.

Elsewhere in the zone, fault controlled quartz veins are present, up to 1.0 m wide. Likewise they exhibit linear pinch and swell structures. Larger quartz veins do not carry more than trace pyrite.

Historical data show that high grade gold/silver values occur in sphalerite-galena replacements within the pyritic zones. No sphalerite or galena was observed on surface.

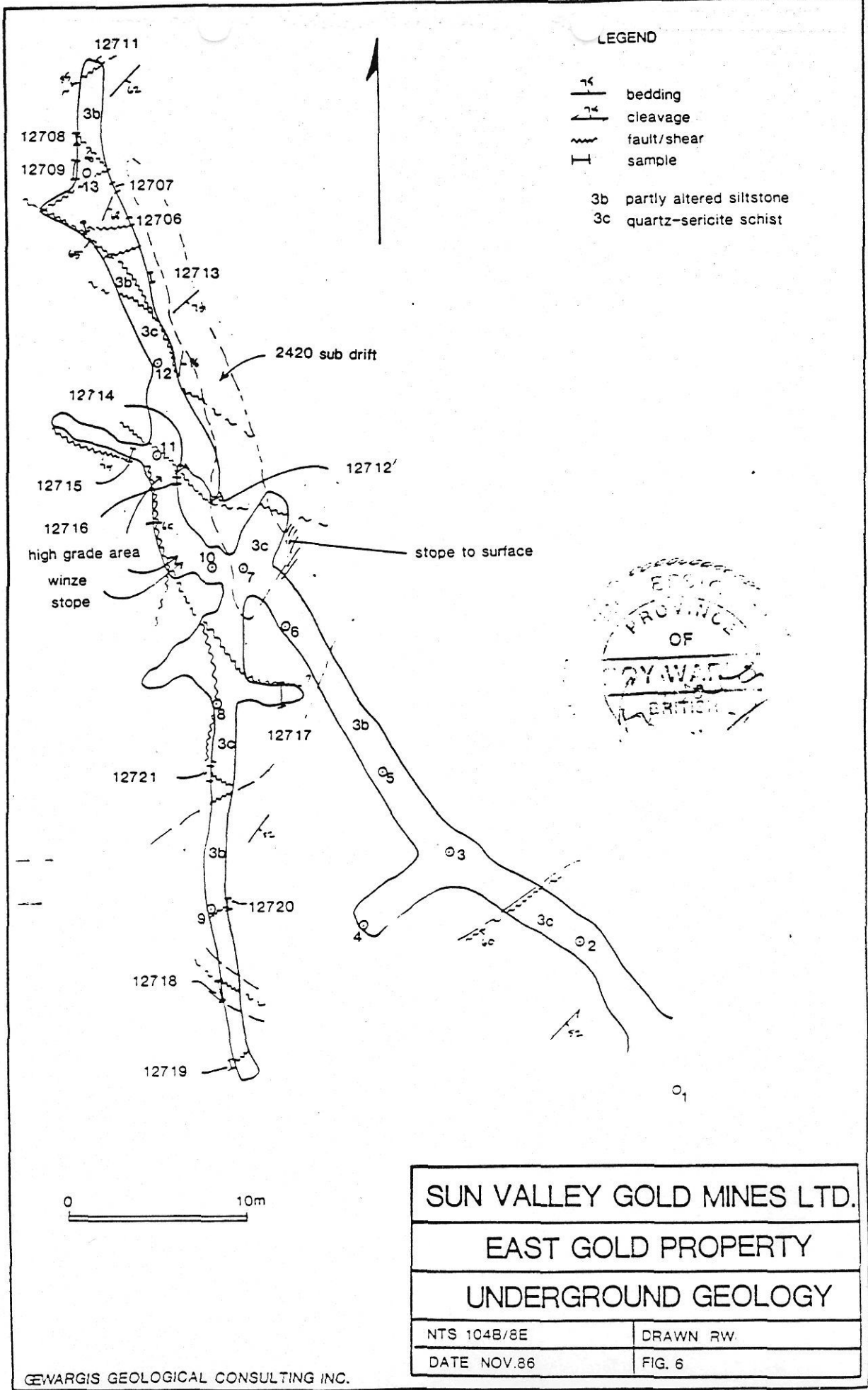
Cleavage mullions formed by splay/fault intersections (and paralleling sulphide zones) appear to have a consistent steep north westerly plunge. (Wares, 1986)

3.3 Underground Geology





Some mapping and sampling was carried out in the East Gold workings (Figure 6).

The mapping clearly revealed kernels of partly altered sediments separated by quartz-sericite schists, where bedding traces had been obliterated.

From stations #1 to 6 and #8 to 9, the dominant structure is bedding trace faults, trending 070°, with narrow, variable quartz veins.



LEGEND

-  bedding
-  cleavage
-  fault/shear
-  sample

- 3b partly altered siltstone
- 3c quartz-sericite schist



SUN VALLEY GOLD MINES LTD.	
EAST GOLD PROPERTY	
UNDERGROUND GEOLOGY	
NTS 104B/8E	DRAWN RW.
DATE NOV.86	FIG. 6

-18-

From station #6 to #11, a considerable degree of structural complexity is evident. The dominant element is a 150° trending (and curvilinear) shear with a 120° splay.

From this area, a stope to surface was driven (60 ft height) and a winze stope to depth 40 ft (?). This area was the focus of high grade gold/silver mineralization within the pyritic envelope. The high grade zone appears to have been on the hanging wall of the fault zone (150° trend).

From station #11 to #13, the dominant structures are 140° trending shears, parallel to and splaying into the main structure. Several podiform and variable quartz veins are present. Bedding traces become more evident from Station #12 northwards.

There is no evidence of any underground drilling.

The high grade zone appears to form a chimney-like structure, plunging steeply to the northwest.

4.0 SAMPLING PROGRAM

4.1 Surface Sampling

A comprehensive sampling program on surface was not completed because of heavy snowfall.

Sample locations are on Figures 4 and 5 and sample data in Appendix A-2.

-19-

In zone #1, Sample #12722 assayed 0.216 oz/ton Au and 5.54 oz/ton Ag chip sample over a 1.0m width. Sample #12723, a 1.0m chip sample from an adjacent trench, assayed 0.010 oz/ton Au and 0.67 oz/ton Ag. Little exploration work had previously been carried out in this area.

In zone #3, Samples #12724 and 12725 (2.0m + 1.2m) across a pyrite zone, assayed 0.004 oz/ton Au, 0.42 oz Ag/t, and 0.008 oz/ton Au and 1.49 oz/ton Ag. A grab sample of heavy pyrite mineralization assayed (Sample #12727) 0.008 oz/ton Au and 1.06 oz/ton Ag. Samples elsewhere on this vein were not collected.

On the main outcrop, (Sample #12701) a 2m chip across a vein, assayed 0.026 oz/ton Au, while a 3 ft chip across the central pyrite rock core assayed (Sample #12729) 0.404 oz /ton Au.

Samples 12702 and 12703, a 0.8m qtz vein and a 2.5m sericite envelope, all assayed low gold values. Sample 12704, a 1.3m chip across a shear, assayed 0.016 oz/ton Au and 0.70 oz/ton Ag.

Sample 12705, a 2.5m chip across an intense pyrite-sericite schist assayed 0.008 oz/ton Au and 0.34 oz/ton Ag.

4.2 Underground Sampling

Sampling of quartz veins and wallrock was carried out underground (Figure 6).

-20-

Samples of vein and wallrock (12706 to 12721) showed gold values in the range of trace to 0.062 oz/ton Au and silver values from 0.11 to 0.98 oz/ton Ag.

Samples 12712, 12714 to 12716, from veins and wallrock in the vicinity of the high grade stake did not show any significant values (Appendix A-2).

Because of flooding of the winze and unstable conditions in the stope to surface, no samples of high grade material in place could be obtained.

Samples 12730 and 12731 were grab, character samples from a high grade stock pile and were not "in place". They were assayed to confirm the character of the high grade zone.

Sample 12730 assayed 1.20 oz/ton, 24.16 oz/ton Ag, and 12731, 12.854 oz/ton Au, 30-31 oz/ton Ag.

These samples confirm the character of the high grade zone mined (intermittently from 1933 to 1965. Fuller technical data is described in technical notes (Wares, 1986).

4.3 Summary of Sampling

The samples collected during the examination were not detailed enough to define all target zones for further work.

They do show that -

- a) the pyritic replacement zones are variable but carry local gold values of economic interest

-21-

- b) there is a broad anomalous gold content in wallrock samples and small veins. While the values are not of immediate economic interest, wallrock should be sampled as part of any (future) drilling program.
- c) quartz veins underground show likewise low but geochemically anomalous gold values, but no high values.
- d) grab, character samples from a high grade stockpile confirm the character of the high grade chimney.
- e) silver values show a high, distinctly anomalous character. Future work should investigate this.

-22-

5.0 SUMMARY

- The Rollin property (East Gold) is located 30 km north of Stewart, B.C. and located in the Skeena Mining Division (NTS 104B/8E).
- The property is located on the west side of Tide Lake Valley, 2.5 km north of the (former) Granduc mill site, at elevations from 600m to 900m above sea level.

Access to the property is by a poor quality road from the Tide Lake airstrip. This requires rehabilitation prior to (future) exploration work

The Rollin property is located on a regional altered zone. It is cut by a number of northwest trending shear zones that are the focus of deformation and alteration

- Pyritic replacement zones along these shear zones show variable widths. They are especially thickened at the junction of splay faults with the northwest trending shear
- The focus of previous exploration was on a chimney like zone of galena and sphalerite, enveloped in a pyrite zone of a splay fault junction
- Sampling, both surface and underground, shows some high values of economic interest and a wider, geochemically anomalous area with gold and silver values. Character samples confirm the nature of the high grade ore zone, previously mined.

6.0 CONCLUSIONS

- The evaluation program has demonstrated the control, distribution and pattern of sulphide mineralization on the Rollin claim group
- Though there is some variability in the shear zones that host sulphide mineralization, an exploration program to investigate further the economic potential is warranted
- The high grade zones are relatively small and require careful drilling to test down-dip and strike extensions.
- An exploration program should encompass further field mapping and drilling to test the extension of the high grade gold/silver zone.
- Because of climatic restraints, exploration would best be accomplished during the summer "weather window".
- A two-phase exploration program is recommended.
- Phase I, estimate cost \$133,000, would involve field work and limited drilling. A contingent, Phase II, program would cost \$142,000, and be primarily a drill program to test targets from Phase I. Total cost for both phases is estimated to be \$275,000.

PROVINCE
OF
ROY WARES
BRITISH
COLUMBIA

Roy Wares, P.Eng.

November 12, 1986

Dated

-24-

7.0 RECOMMENDED WORK PROGRAM

7.1 Objectives

- a) Map, in detail, sample and complete surface investigation of zone #1 and 2, not completed in the present evaluation.
- b) Survey and locate claim posts.
- c) drill target zones near the East Gold workings to test at depth the high grade chimney of gold-silver mineralization.
- d) drill and sample other pyritic shear zones and test the grade, variability and economic potential of the wallrock pyrite-sericite schists.

7.2 Program Analysis

Exploration in the Tide Lake area is effective in the months June to October. Outside the "weather window", induced costs are high for surface exploration more especially as road access during winter months is limited.

Phase I complete field mapping, survey in claim posts, drill selected target areas; 4-6 weeks, June to October.

Phase II extend drill sampling to the other areas define in Phase I; 6-8 weeks, August to October.

7.3 Cost Estimates

Phase I

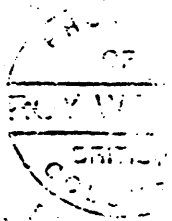
Surveying	\$ 1,000
Mapping/Sampling	2,000
Road repairs, drill site preparation (+ mob/demob of cat)	10,000
Drilling, (1500 ft) at \$25/ft	37,500
Core logging/supervision	3,000
Mob/demob (drill)	6,000
Truck rental, transport	2,500
R+B/camp cost	2,000
Helicopter support, 20 hrs/\$500 per hour	10,000
Assaying, 400 samples, \$20/sample	10,000
Geophysics (IP/VLF/others)	25,000
Mob/demob (crew)	5,000
Project management/supervison	5,000
Report preparation	<u>4,000</u>
Subtotal:	\$121,000
Contingencies:	+ 12,100
TOTAL:	<u><u>\$133,000</u></u>

-26-

Phase II

(Contingent upon recommendations in an engineering report)

Drilling, 3000 ft at \$25/foot	\$ 75,000
Supervision/logging	10,000
R+B/camp costs	3,000
Mob/demob (drill)	6,000
Drill site preparation, road construction	6,000
Helicopter support, 20 hrs/\$500/hr	10,000
Assaying, 400 samples, \$20/sample	8,000
Equipment rental	2,000
Project management/supervision	5,000
Report preparation	4,000
	<hr/>
Subtotal:	\$129,000
+10% Contingencies:	12,900
	<hr/>
TOTAL:	<u>\$143,000</u>



 R. Wares, P.Eng.

 November 12, 1986

 Dated

-31-

A-3 REFERENCES CITED

B.C. Department of Mines Annual Report: 1927, 1930, 1939, 1944, 1945, 1946, 1948, 1949, 1950, 1953, 1954, 1960, 1963, 1965.

Alldrick, D.J. (1983): Salmon River Project, Stewart, B.C. 104B/1 / B.C. Department of Mines and Petroleum Resources; Geological Field Work, 1982, Paper 1983.

Grove, E.W. (1983): Salmon River - Unuk River, map sheets, B.C. Department of Mines.

Alldrick, D.J. (1985): Stratigraphy and Petrology of the Stewart Mining Camp /B.C. Department of Mines & Petroleum Resources; Geological Field Work 1984, Paper 1985-1.

Gewargis, W.A. (1986): Geological Report, East Gold Mine, for Newport Venture Group.

Wares, R. (1986): Technical Notes, East Gold Property.