

2 parts

GEOLOGICAL AND GEOCHEMICAL REPORT

on the

GOLD STAR AND EASTERN STAR CLAIMS

Situated 5 air miles north-east of

Terrace, B.C.

Omenica M.D.

Latitude $54^{\circ} 38' N.$ Longitude $128^{\circ} 30' W.$

N.T.S. 103 $\frac{I}{9W}$ $54^{\circ} 128^{\circ} NE$

owned by

GOLD STAR MINES LTD.

by

D. R. Cochrane, P.Eng.

October 2, 1967.

Vancouver, B. C.



GEO-X SURVEYS

VANCOUVER, CANADA

1090
Ltd.

1090

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INTRODUCTION:

Between March 23rd, 1967 and August 31st, 1967, an exploration programme was conducted on the Eastern Star and Gold Star claims owned by Gold Star Mines Ltd. and located near Terrace, in the Omineca M.D., northwestern B.C. Linecutting, prospecting and geochemical surveys were conducted by Gold Star personnel under the author's supervision. The processing and compilation of data took place by Geo-X Surveys Ltd. personnel. Geological control and surveys were performed by the author between June 20th to 25th, and August 28th to 31st, 1967. This report describes the exploration programme and presents and discusses the results.

LOCATION and ACCESS:

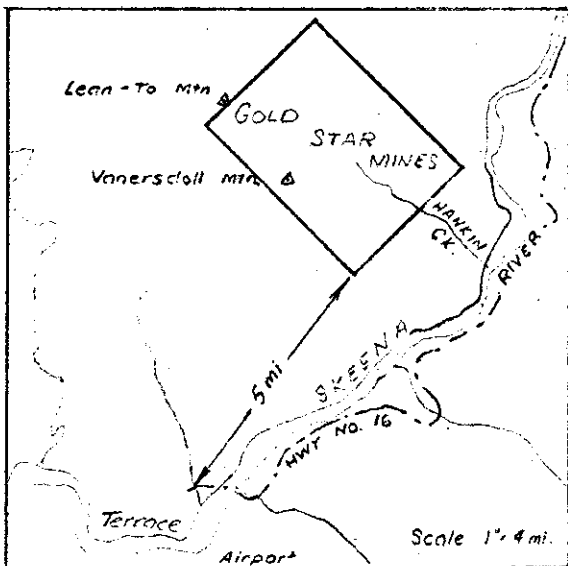
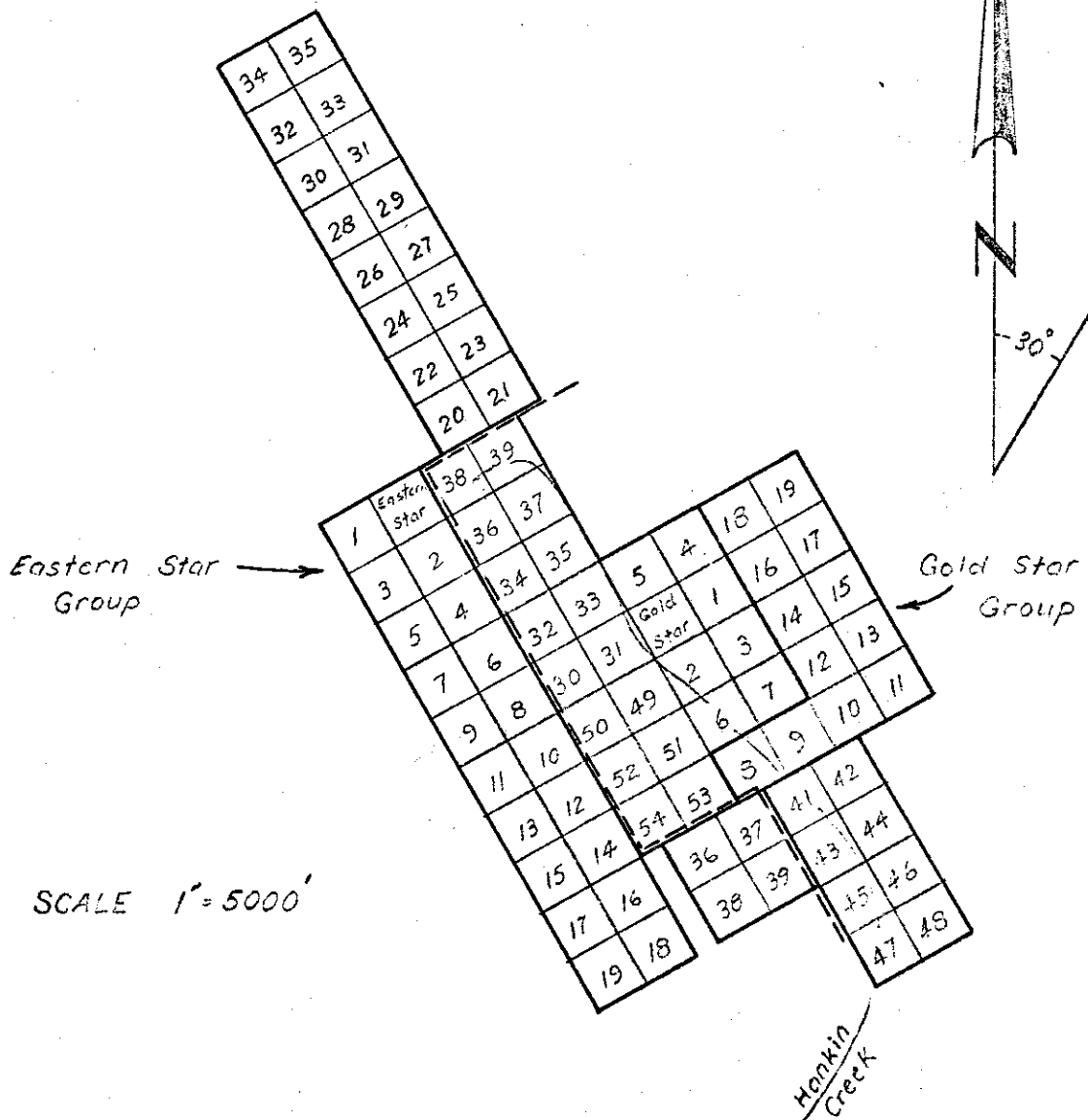
The property is centered on Hankin (formerly Phillips) Creek, a southeastwardly flowing tributary of the Skeena River, in the Nass Mountain range. It is six air miles northeast of the town of Terrace in northwestern B.C. Claims are accessible by trail by proceeding northeast from Terrace, seven miles along the CNR rail way on the north side of the Skeena River, and two miles up Hankin Creek, on an old trail, to the campsite. A heliport has been constructed near the campsite and provides easy access by helicopter from the Terrace airport. (see fig.1-Location Map).

CLAIMS and OWNERSHIP:

The property consists of 84 contiguous, full-sized located claims situated in the Hankin Creek valley, Omenica M.D., and owned outright by Gold Star Mines Ltd. (NPL), registered office at 789 West Pender Street, Vancouver, B.C.

The following table summarizes pertinent claim data:

<u>Claim Name:</u>	<u>Record No.:</u>	<u>Ann. Date:</u>	<u>Group:</u>
Gold Star 8-19 incl.	39993-40004 incl.	Jun. 7	A
Gold Star 2, 3	33395-33396	Sept.27	B
Gold Star 6, 7	33399-33400	Sept.27	B
✓ Gold Star 41-54 incl.	49251-49264		B
Eastern Star 8-19 incl.	to be assigned		B
Eastern Star 36-39 "	to be assigned		B
Gold Star	33393	Sept.27	C
Gold Star 1	33394	Sept.27	C
Gold Star 4, 5	33397, 33398	Sept.27	C
Gold Star 30-37 incl.	44413-44430 incl.	Sept. 2	C
Gold Star 38, 39	44497, 44498	Sept.14	C
Eastern Star	to be assigned		C
Eastern Star 1-7 incl.	to be assigned		C
Eastern Star 20-35 "	to be assigned		C



GS GOLD STAR MINES LTD. N.P.L.

Claim and General Location
Maps of the GOLD STAR and
EASTERN STAR Claim Group
Ominica M. D.

GEO-X SURVEYS LTD.

Date: Sept 1, 1967

Drawn by: A.M.G.

FIGURE 1&2

GЕOMORPHOLOGY:

The Terrace area lies within the confines of the Coast Mountain Range. It is characterized by high mountain peaks and deeply incised stream valleys. Lean-to Mountain (5065') and Kitselas Mountain (4884') are the highest points in the vicinity, and the confluence of Hankin Creek and the Skeena River (900') is the lowest point. Hankin Creek has a moderate gradient, falling 2,000 feet in just over three miles. However, the valley flanks and side streams are steep, with elevation differences of nearly 3,000 feet in less than one mile. Below tree line, between three and four thousand feet, the claims are extensively covered with mature hemlock, with scattered stands of balsam and red cedar.

PREVIOUS WORK:

Considerable prospecting and development work has been done in the Hankin Basin since the early 1900's. The present Gold Star Group covers two old properties on the southwest slope of Kitselas Mountain in the Hankin Creek valley. Both prospects (the Copper King Group and the Nugget Group) were owned and developed in the early 1900's by Pete Brusk and associates and are described in early Minister of Mines reports ^{*(1)} and in G.S.C. Memoirs 205 and 329 (2,3).

Much of Bruski's work consisted of driving short adits on quartz veins containing copper sulphides, and traces of galena.

On April 4th, 1967 30 line miles of airborne magnetometer work was completed on the Gold Star Group. Results are discussed in an April, 1967 assessment work report (4).

During 1965 and 1966 prospecting of the area was done by Mr. G. Rolph, Mr. C. Heppner, and Mr. W. Thain Gold Star Mines Ltd. personnel.

1967 EXPLORATION PROGRAMME:

The exploration programme on the Eastern Star and Gold Star claims commenced on April 1st, 1967 and continued to August 31st, 1967. A breakdown of work done is contained in Appendix II and is further discussed below.

During April, May and the early part of June, Mr. G. Rolph and Mr. C. Heppner prospected, sampled and hand trenched portions of the Gold Star, and Gold Star #1 to #5 claims. Between June 20th and 25th, the author and three Gold Star Mines Ltd. personnel conducted preliminary geological, geophysical and geochemical orientation surveys

on the property in order to design a suitable surface exploration programme for the area. As a result, a ground control grid was laid out, with a magnetic east-west base line and magnetic north-south cross lines, spaced at 400-foot intervals along the base line and extending 600 feet on both sides of the baseline. The baseline was started in July, a camp was constructed and trenching and blasting by Gold Star personnel was started on the shear zone copper prospect and old adits on #3 Creek and considerable geochemical stream sediment sampling was completed. Early in August, the remainder of the linecutting and soil sampling was completed by a crew under the direction of A. Beaudoin. After processing of geological and geochemical information and compilation of data, the author visited the property August 28th to 31st, and several intermediate cross lines were established, others extended and soil samples collected to more accurately define previously located anomalies.

GEOCHEMICAL STREAM SEDIMENT SAMPLING PROGRAMME:

A total of approximately 80 geochemical stream sediment samples have been collected on and around the Gold Star and Eastern Star claims. Sampling crews utilized consecutively numbered geochemical sample bags and numbered and flagged each sample site so that sample locations could be revisited. Stream sediments were collected from the center of the streams if possible and several tablespoonfuls

were collected with plastic spoons and placed in the bags. Samples were air dried, crated and shipped to Vancouver. Analysis of 19 samples for Cu, Mo and Pb were completed at the laboratory of Coast Eldridge, and 62 samples were analyzed for Cu, Mo and Pb at the Vancouver laboratory of Bondar-Clegg and Co. The analytical procedure is described in Appendix IV.

Geochemical stream sediment (silt sampling) plans are presented in Figures 3, 4 and 5 (in map pocket). Significant silt anomalies are defined as stream silt samples containing abnormally high concentration of particular elements. In this particular case we are dealing with an isolated drainage system which contains high copper concentration, moderate molybdenum concentration and moderately low lead concentration in the stream sediments. A summary of part of the results (in ppm) is presented below:

<u>Element:</u>	<u>Number:</u>	<u>Arithmetic Average:</u>	<u>Maximum:</u>	<u>Minimum:</u>
Cu	62	92	500	7
Mo	62	4	30	1
Pb	62	13	29	6

In order to priority rate silt sample results the following categories were established:

<u>Metal:</u>	<u>Background:</u>	<u>Weakly Anomalous:</u>	<u>Mod. Anomal.</u>	<u>Highly Anoml.</u>
Cu	-75	75 - 99	100-124	+125
Mo	-4	4 - 6	7 - 11	+11
Pb	-10	10 - 24	25 - 49	+50

The following creeks were found to contain highly anomalous copper values in stream sediments:

- a) #4 Creek from its confluence with Hankin Creek to elevation 2845 on #4 Creek. The highest value encounter was a 500 ppm Cu on claim Gold Star #3;
- b) Lower portion of #5 Creek from the shear zone, copper showing to it's confluence with Hankin Creek;
- c) Lower portion of #6 Creek;
- d) On Hankin Creek, 400 feet upstream from its confluence with #6 Creek;
- e) A small side stream drawing east in the little basin area on claim Gold Star #33.

The following areas were found to contain highly anomalous molybdenum values in stream sediments:

- a) The lower portion of #5 Creek below the shear zone, where values up to 18 ppm were encountered;
- b) The lower portion of #6 Creek where values of up to 30 ppm were encountered.

Lead values were quite low, however a 29 ppm Pb was located on #5 Creek approximately 1,500 feet upstream from the shear zone.

GEOCHEMICAL SOIL SAMPLING PROGRAMME:

On June 23rd and 24th, the author and G. Rolph excavated three test pits on the property for purposes of soil horizon mapping and sampling. A descriptive table of the soil profiles and their copper content follows:

Pit #1- 80 cm deep, apparently non-mineralized bedrock and located at 2+00 E on the base line:

<u>Horizon:</u>	<u>Depth:</u>	<u>Description:</u>	<u>PPM Cu:</u>
A ₀	0-7.5	Forest litter, humus	3
A ₁	5.7-10.0	Light grey leached pebble clay	12
upper B	10-30	yellow to red brown boulder clay	29
lower B	30-80	compact grey boulder clay	52

Pit #2 - 180 cm deep, over sheared and slightly mineralized bedrock (shear zone prospect) located at 0+00 on base line.

A ₀	0-2.5	Forest litter, humus	27
A ₁	2.5-6	Leached grey boulder clay	24
Upper B	6-20	Rusty yellow brown boulder clay	84
Lower B	20-90	Hard compact boulder clay	96
"	90-180	Grey boulder clay	61

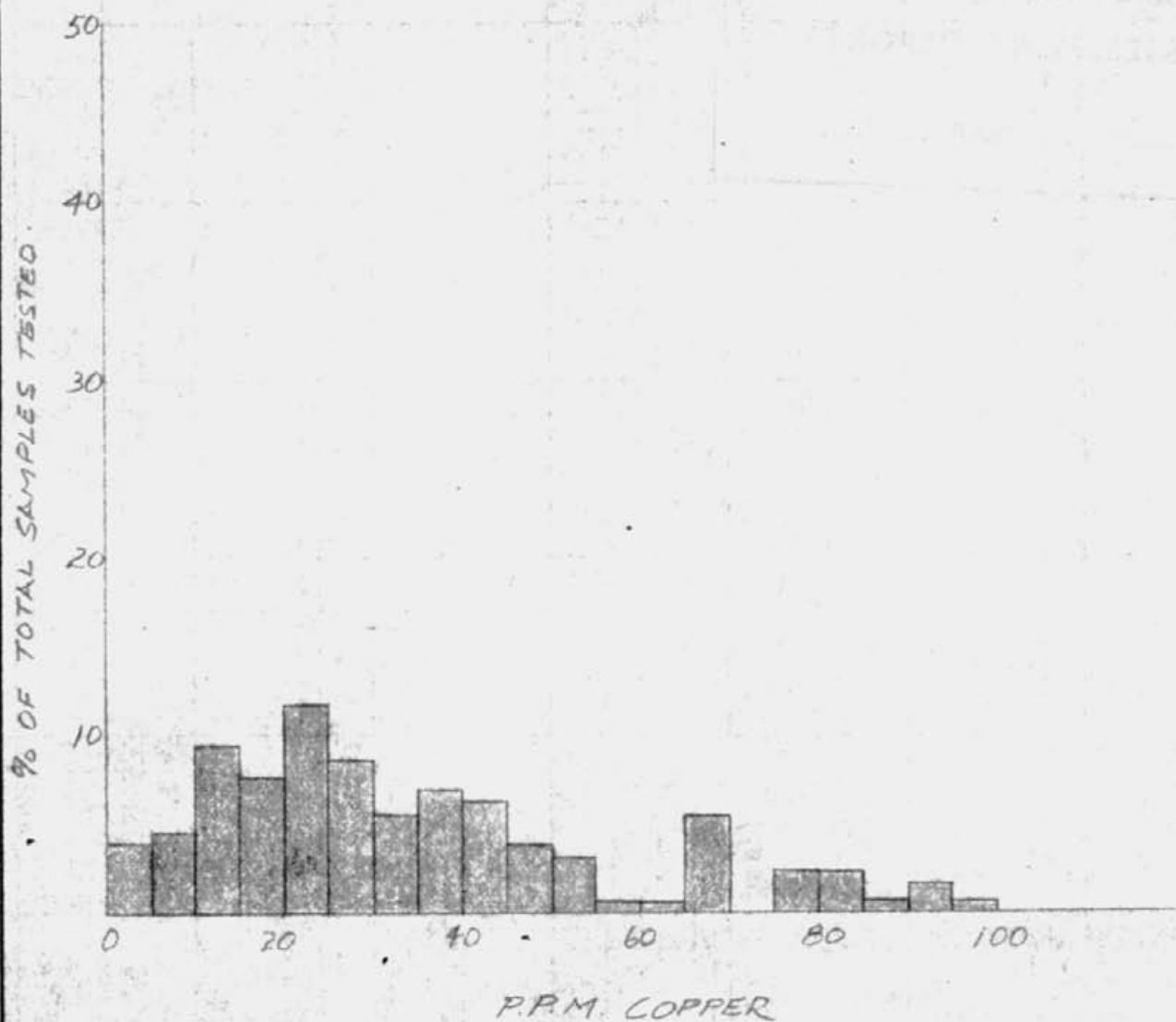
Pit #3 - 90 cm deep over apparently non-mineralized bed-rock, and located at 3+00W on the base line:

A ₀	0 - 7.5	Forest litter, humus	14
A ₁	7.5-10	White, very fine pebbled soil	8
Upper B	10-41	Loose, gravelly dark brown soil	26
Lower B	41-90	Compact grey boulder clay	48

On the basis of the above results, a soil sampling programme was recommended, and A₀ horizon samples and Upper B horizon samples were collected at sample sites and analyzed for Cu and Mo. The results of the soil sampling survey are presented in plan, in Figures 8 to 11 inclusive (in map pocket).

Frequency histograms were prepared of the copper content in 115 Upper B horizon soil samples (Figure 6) and the molybdenum content in 115 Upper B horizon soil samples (Figure 7).

The copper histogram is quite symmetrical, with a mode of 20 to 25 ppm copper, a threshold of near 60 ppm. Three small families above threshold are present, one between 65 and 70 ppm, a second between 75 and 80, and a third (not shown) rather diffuse and above 100 ppm.



Frequency Histogram of 115 upper "B" Soil Samples

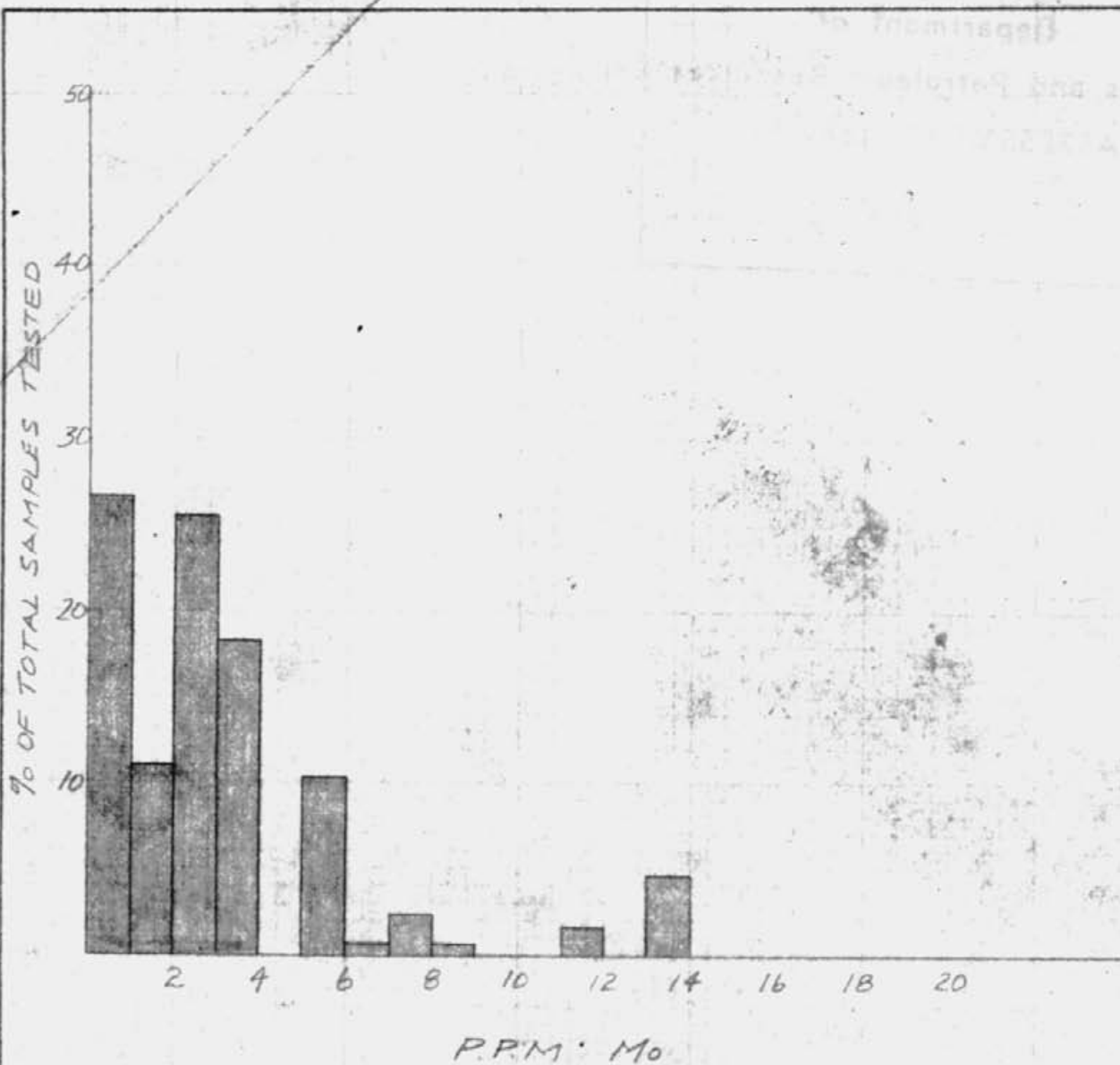
FIGURE 6

Title: Frequency Histogram - CU.
 Prop: Gold Star Mines Ltd.
 Drawn: B.A.C. Date: Sept. 12, 1967
 Checked: B.A.C. Date: Sept. 12, 1967



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Frequency Histogram of 123 upper "B" Soil Samples

FIGURE 7

Title: Frequency Histogram - MO.
 Prop: Gold Star Mines Ltd.
 Drawn: B.A.C. Date: Sept. 12, '67
 Checked: D.A.C. Date: Sept. 12, '67



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627 HORNBY ST., VANCOUVER 1, B.C.

The molybdenum histogram is bimodal, the first mode at 1 ppm and the second at 3 ppm. Threshold is 10 ppm. A small anomalous family is developed around 14 ppm.

Figure 8 presents the results of the copper content in the A₀ horizon, and Figure 9 the copper content of the Upper B horizon.

A₀ zone copper anomalies are quite sharp, with normal background below 10 ppm, anomalies over 30 ppm, and maximum values of 133 ppm. B horizon anomalies (+100 ppm) are more diffuse than +30 ppm A₀ zone anomalies; however, the anomalous areas correspond well. Four A₀ zone anomalies were encountered, the largest being in the Cabin Creek - #6 Creek area (anomaly 2). The largest B horizon anomaly is situated between #4 and #5 Creeks where values up to 450 ppm Cu were encountered.

Figure 10 presents the results of the molybdenum content in the Upper B soil horizon.

Molybdenum anomaly 1 is well developed in A₀ and B horizons and is centered in the heliport area, near camp. Values up to 48 ppm Mo in the A₀ horizon and 70 ppm Mo in the B horizon were encountered. Molybdenum anomaly 2 is featured only by B horizon results as no determinations were made on many A₀ horizon samples due to lack of enough material to analyze. Anomaly 2 is located between #5 and #6

Creeks, lies immediately above copper Anomaly #1, and is close to the granodiorite volcanic contact.

LOCAL GEOLOGY:

The Gold Star Group is underlain by two dominant groups of rocks. The oldest sequence is a series of intermediate volcanics including various phases of andesite and andesite feldspar porphyry. They exhibit a diversity of alteration and metamorphism. The volcanic sequence on #6 Creek show signs of migmatization and were therefore classified of quartz-biotite gneisses. In contrast, the sequence on #2 Creek is relatively unmetamorphosed and original structures such as amygdules, crude pillows and flow banding are still recognizable. In general, the andesite porphyry contains subhedral plagioclase phenocrysts up to 3 cm long, but normally 1-2 cm long, in a dark, fine-grained matrix. The phenocrysts are largely altered to sericite and saussurite, at 2500 feet elevation between No.'s 3 and 4 Creeks, and the rock contains considerable fine-grained euhedral magnetite. Fairly fresh andesite porphyry was observed near the confluence of #6 and Cabin Creeks. It is sheared and silicified at the junction of the main trail and #5 Creek, in and about the shear zone copper prospect.

The second dominant rock group is a medium-grained grey-pink biotite granodiorite with several related phases. The granodiorite can be observed at the confluence of Hankin and #6 Creeks, and between #5 and #4 Creeks, above 2500 feet. Normally the granodiorite contains minor disseminated magnetite and minor accessory minerals such as apatite. The granodiorite is gneissic near its contact with the andesites, and quite fine grained occasionally in porphyritic dykes and sills. Cobbles of granodiorite float containing disseminated chalcopyrite is prevalent on #4 Creek.

ECONOMIC GEOLOGY:

Three classes of mineral occurrences were investigated on the Gold Star Group. The first class are narrow quartz veins which, in general, contain blebs of chalcopyrite, pyrite or bornite and occasionally chalcocite. Minor galena or specular hematite is sometimes associated. Characteristically the quartz veins contain patchy, low to moderate gold values, low silver values and moderate to high copper values.

The second class of occurrences are those associated with faults and shear zones. They are often more or less silicified, altered, and contain disseminated and fracture filling pyrite, chalcopyrite, bornite or chalcocite.

The third class of metallic mineral occurrences are those with very little alteration or silicification and containing disseminated chalcopyrite. The host rock is either massive andesite, andesite porphyry, or granodiorite. Many of the copper occurrences are close to, or associated with, dykes or small stocks of granodiorite.

A description of various showings and old workings follows. Numbers refer to locations plotted on accompanying geological map (Figure 12).^m

1. "Shear Zone" copper prospect. Located at the junction of the main trail and #5 Creek. A small adit and rock bluff shows a sheared and altered andesite porphyry which contains patches of disseminated bornite in an area approximately 12 feet wide and of undetermined length. Outside the shearing, in the creek bottom, massive andesite and andesite porphyry contains minor disseminated chalcopyrite.

2. On #4 Creek at elevation 2380 feet. In the creek bed and on canyon bluffs, a medium grained andesite contains copper stain and disseminated chalcopyrite. A chipped channel sample over 18 feet ran 0.12% copper.

3. On the northwest fork of #3 Creek at elevation 2350 feet. A six foot deep, partially caved adit exposes a fault zone striking $60^{\circ}(*)$ and dipping 60° north, and is intersected by a series of almost horizontal, one-inch wide quartz veins. Some excellent specimens of disseminated chalcocite and bornite are observable near the fault.

4. At the "Y" in #3 Creek at elevation 2050 feet. Several narrow, almost flat lying narrow quartz veins occur in the creek bottom. The veins contain blebs of chalcocite. A narrow (12 foot thick) fine grained granodiorite sill (?) is exposed just above the veins.

5. On the southeast branch of #3 Creek, elevation 2300 feet and about 600 feet above the Y in #3 Creek. Two quartz veins approximately 2" wide strike 65° and dip 60° north. Veins contain massive bornite and minor euhedral disseminated magnetite. The host rock is slightly sheared fine grained to medium grained andesite.

6. On #2 Creek at elevation 1870 feet. A 1 inch to 6 inch wide quartz vein is exposed across the creek and in an adit on the north bank of the creek. The vein strikes 15° , dips $27^{\circ}W$ and contains massive blebs of chalcocite with minor specular hematite. The country rock is fine grained andesite.

(*)Note: The geological strikes are given as true azimuths. The magnetic declination used was 29° east.

7. 2260 adit, elevation 2260 feet, near #6 Creek, and at elevation 2330 feet, above the adit. A quartz vein approximately 2 feet wide is exposed by open cuts. The vein strikes 55° and dips steeply northwesterly, and contains galena, chalcopyrite and pyrite. A sample across 2.5 feet ran: 0.34 oz. Au/ton; 1.10 oz. Ag/ton and 1% copper (I) 1928 P.C-145. In the adit, about 100 vertical feet below the pits and vein, evidently an attempt was made to intersect the vein in 200 feet of drifting.

8. On Cabin Creek at elevation 1770 feet. A series of fine grained granodiorite dykes intrude metavolcanics. The host rocks contain scattered chalcopyrite.

9. Confluence of #6 and Hankin Creeks. A caved portal is visible on the south east bank of #6 Creek. An unaltered granodiorite, with minor sulphides is observable on the dump.

10. On Hankin Creek, approximately 250 feet downstream from #6 Creek, on the northeast bank. An adit and winze has been driven in a sheared andesite with bornite on fracture planes and disseminated in the country rock. A grab sample from the adit contained 0.58% Cu.

#1 adit

11. On #6 Creek at elevation 1650 feet, there is an adit about 30 feet in, driven on a few quartz stringers containing minor pyrite. The host rock is metavolcanic. 25 feet upstream there is a second short adit driven on a 4-inch wide silicified zone containing schalcopyrite. The vein strikes 330° and dips 80° northeast.

12. On #6 Creek at elevation 1880 feet there is a 25-foot adit in southeast bank, driven on a quartz vein 14 inches wide, striking 65° and dipping 25° south. The vein contains patches of chalcopyrite. A sample taken by the author from just inside the portal, and on the face contained 0.06 oz. Au/ton.

13. On #5 Creek, elevation 1765 feet. Small pit in the side of creek exposing quartz stringers with irregular blebs of pyrite. Country rock is andesite porphyry.

14. On #5 Creek, elevation 1965 feet. Sloughed portal. Dump contains quartz vein material 1 to 4 inches wide with good quantities of chalcopyrite.

15. On #5 Creek, elevation 2075 feet. Small adit (8 feet deep) on northwest side of creek. Quartz biotite gneiss host rock with quartz vein approximately 10 inches wide containing pyrite bands and minor chalcopyrite. A grab sample of vein material, taken by the author, ran trace gold.

16. Elevation 2000 feet on #5 Creek, nicknamed pitch 'em seam, and located in a deep gorge immediately below a +100 foot falls. Cu stain on west wall, and slight disseminated chalcopyrite in andesite under the falls.

17. Elevation 2500 feet, on #4 Creek. Considerable copper stain in andesite that has sloughed off of east wall of creek.

SUMMARY AND RECOMMENDATIONS:

Between March 24th and August 31st, 1967, a surface exploration programme was conducted on 84 Gold Star and Eastern Star claims, owned by Gold Star Mines Ltd., and situated six air miles northeast of Terrace, British Columbia.

The exploration programme consisted of geochemical silt sampling, linecutting, trenching and blasting, geochemical soil sampling and geological surveys.

The claims cover two old mining properties, the Copper King and Nugget claims, on which several test pits and adits were driven in the 1920's and 1930's, on narrow quartz veins containing copper and low to moderate gold values.

Recent exploration has located five copper soil anomalies, the largest being 1200 feet long, between 100 and 300 feet wide and containing a copper content of over 100 ppm in the B soil horizon.

Two molybdenum soil anomalies were located, the largest being over 800 feet long and approximately 200 feet wide and containing Mo values in the B soil horizon between 13 and 70 ppm.

Due to the precipitous nature of the country, considerable downslope migration of metals has taken place, distorting and enlarging areas of interest.

Continued investigation of the copper and molybdenum soil anomalies should take place in addition to up slope investigation onto claims Gold Star 14 and 16.

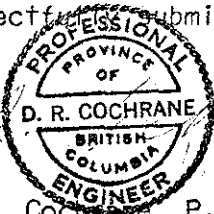
The following programme is recommended:

1. Trenching and stripping of copper anomalies 1, 2, 3, 4 and 5;
2. Trenching and stripping of molybdenum anomalies 1 and 2;

3. Extension of linecutting grid up slope onto claims Gold Star No.'s 14 and 16, and the establishment of a parallel tie line to the original base line between 2000 and 2800 feet north of the base line.

4. Continued prospecting and silt sampling within the Hankin Creek basin, in areas not yet examined.

Respectfully submitted,


D. R. COCHRANE, P.Eng.

October 2nd, 1967
Vancouver, B.C.

APPENDIX I

BIBLIOGRAPHY

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APPENDIX II

Personnel, Occupations and Dates Worked:

The following personnel were employed on the Gold and Eastern Star claim groups by Gold Star Mines Ltd., field office P.O. Box 1608, Terrace, B.C., on the dates set out below:

<u>Name</u>	<u>Occupation</u>	<u>Dates</u>	<u>Man Days</u>
G. Rolf	Prospecting & Sampling	April 1-15	15
	" "	April 24-25	2
	" "	May 1-2	2
	Geochemical Sampling	July 1	1
	Prospecting & Sampling	July 16-Aug. 4	20
W. Thain	Linecutting, Trenching, Blasting	Jun.21-Aug.4	45
	Soil Sampling	Aug.29-31	3
V. Macpherson	Prospecting & Sampling	July 1	1
V. Smith	Linecutting	July 28-31	4
C.C. Molleson	Trenching & Blasting	July 28-31	4
	" "	Aug. 5-8	4
M. Reynolds	Camp preparation	Jun.30-July 9	10
	Stripping & Trenching	July 9-18	10
	Helioport	July 19-21	3
J. Zenyk	Geochemical Silt Sampling	July 21-28	8
	" " "	July 4--7	4
	" " "	Aug. 4--8	5
T. Wells	Linecutting, Soil Sampling	Aug.28-31	4
J. Feller	Prospecting	Aug. 31	1
C. Heppner	Prospecting, Trenching	April 24-25	2
	" "	May 1-2	2
	Linecutting, Soil Sampling	Jun.20-29	10
	Field Supervision	July 1-31	31
	" "	Aug. 1-27	27
	Geology, Geochemical Siltting	Aug. 28-31	4
	Sub-total		222

APPENDIX II - continued

Geo-X Surveys Ltd. are the geological and geochemical consultants for Gold Star Mines Ltd., as per two contracts, the first dated June 12 (See Item 7, Appendix III) and the second dated July 26 (See Items 8, 9 and 10, Appendix III).

The following is a personnel time breakdown, Contract One, for engineering services:

<u>Name</u>	<u>Occupation</u>	<u>Dates</u>	<u>Man Days</u>
		Bal. Forward	222
D.R. Cochrane	P.Eng. Property Exam.	July 19-24	6
	Data processing	July 4--5	2
	" "	July 13,20,21	3
B.A. Cochrane	Student - Data Proc.	June 16($\frac{1}{2}$) 19($\frac{1}{2}$)	
		22($\frac{1}{2}$) 26-29	5 $\frac{1}{2}$
	Data processing	July 4-5,12,14.	4

The following is a personnel time breakdown, Contract Two, for engineering services:

D.R. Cochrane	Data Processing	Aug. 1, 11($\frac{1}{2}$) 22, 28($\frac{1}{2}$)	3
	Field Examination	Aug. 28-31	4
D.M. Fritz	Data Processing	Aug. 21($\frac{1}{2}$)	$\frac{1}{2}$
B.A. Cochrane	Data Processing	Aug. 26($\frac{1}{2}$), 27	1 $\frac{1}{2}$
T. Hunt	Data Proc., Calc.	Aug. 27	1

As per contract between A. Beaudoin and Gold Star Mines Ltd. (See Item 11, Appendix III).

A. Beaudoin	Soil Sampling	Aug. 1-5	6
T. Wells	Line Cutting	Aug. 1-5	6
C. Wookey	Line Cutting	Aug. 1-5	6
	Total		<u>270$\frac{1}{2}$</u>

APPENDIX III

The following costs were incurred during the March 24 to August 31, 1967 exploration programme, on the following claim groups:

A. Definition of Claim Groups

1. Group A consists of the following claims:

Gold Star No. 8 to Gold Star No. 19, inclusive.

2. Group B consists of the following claims:

Gold Star Nos. 2 & 3, 6 & 7, 49 to 54, 41 to 48:

Eastern Star Nos. 8 to 19, 36 to 39.

3. Group C consists of the following claims:

Gold Star, Gold Star 1, 4, 5, 30 to 37, 38, 39:

Eastern Star, Eastern Star Nos. 1 to 7, 20 to 35.

B. Cost Breakdown

<u>Item</u>	<u>Group A</u>	<u>Group B</u>	<u>Group C</u>
1. Wages	\$ 638.48	\$1,809.07	\$2,021.95
2. Linecutting & Soil Sampling (by contract Aug. 1-5)	118.57	335.95	375.48
3. On site accommodation-board	83.55	236.73	264.58
4. On site transportation ('copter)	58.71	166.36	185.93
5. Geochemical Supplies	2.59	7.34	8.20
6. Geochemical Analysis:			
Aug. 4-14 silt samples 3-metal	6.82	19.32	21.58
Aug.10-42 silt samples 3-metal	16.16	45.82	51.21
Aug.29-256 soil samples 2-metal	78.44	222.26	248.42
June 20-16 silt samples 3-metal	6.16	17.45	19.51
7. Engineering services (by contract June 12, 1967)	221.42	627.38	701.20
8. Engineering services (field supervision) Aug.28-31	85.71	242.80	271.49
9. Engineering services (data processing) Aug. 1-28	128.56	364.25	407.19
10. Technical services - geochemical calculation, data processing	23.77	67.35	75.27
11. Administration - Mar.23-Aug.31	251.06	711.38	795.08
Totals	<u>\$1,720.00</u>	<u>\$4,873.46</u>	<u>\$5,447.09</u>

BONDAR-CLEGG & COMPANY LTD.

1500 PEMBERTON AVENUE, NORTH VANCOUVER. B.C.

Phone 988-5315

September 20, 1967

Geo-X Surveys Ltd.
627 Hornby Street
Vancouver 1, B.C.

Dear Sirs:

The following analytical work was performed on geochemical soil samples submitted by Geo-X Surveys Ltd. for Goldstar Mines Ltd.

<u>Date</u>	<u>Report No.</u>	<u>Number of Samples</u>	<u>Elements</u>
June 14, 1967	2- 23-7	16	Cu Pb Mo
July 26, 1967	2- 77-7	4	Cu Pb Mo
Aug. 7, 1967	2-100-7	42	Cu Pb Mo
Aug. 23, 1967	2-133-7	256	Cu Mo
Sept. 20, 1967	2-173-7	193	Cu Mo

The following procedures were followed:

All samples were heated in an infra-red oven until dry. The samples were then sifted using an 8 inch -80 mesh stainless steel sieve. The -80 mesh fraction was retained for analysis and the oversize was rejected. A DWL-2 Model torsion balance was used to weigh 0.200 gms of the sample.

Molybdenum was extracted from the sample by fusion with approximately 1.0 gm of potassium pyrosulphate flux. The potassium pyrosulphate melt was dissolved in 10 mls of 1N HCl and a 5 ml aliquot used for subsequent analysis. The

Geo-X Surveys Ltd.

- 2 -

September 21, 1967


5 ml aliquot was treated with 1 ml of a 5% ammonium thiocyanate solution, and reduced with 1 ml of 10% stannous chloride solution. The molybdenum was then extracted from the aqueous phase with 0.5 ml of isopropyl ether and the resultant colour complex compared to a known set of standards.

Copper and lead were extracted from the sample by addition of 1.5 ml nitric acid and 0.5 ml hydrochloric acid and heating in a water bath at 95°C for 2.5 hrs. The solution was diluted to 10 mls using 8.0 mls of demineralized water. Subsequent analysis was performed on the Techron Model A.A.-4 atomic absorption spectrophotometer.

Copper at a wavelength of 3247 A^o
Lead at a wavelength of 2171 A^o

I certify that to the best of my knowledge the foregoing analytical procedures were used for analysis of your geochemical soil samples.

Yours very truly,



Ken Valcamp, Dipl. T.

BONDAR-CLEGG & COMPANY LTD.

KV;ls

P.O.B.
LINE 1
LEAN-TO
MTN.
5060

P.O.B.
LINE 2

P.O.B.
LINE 3

P.O.B.
LINE 4

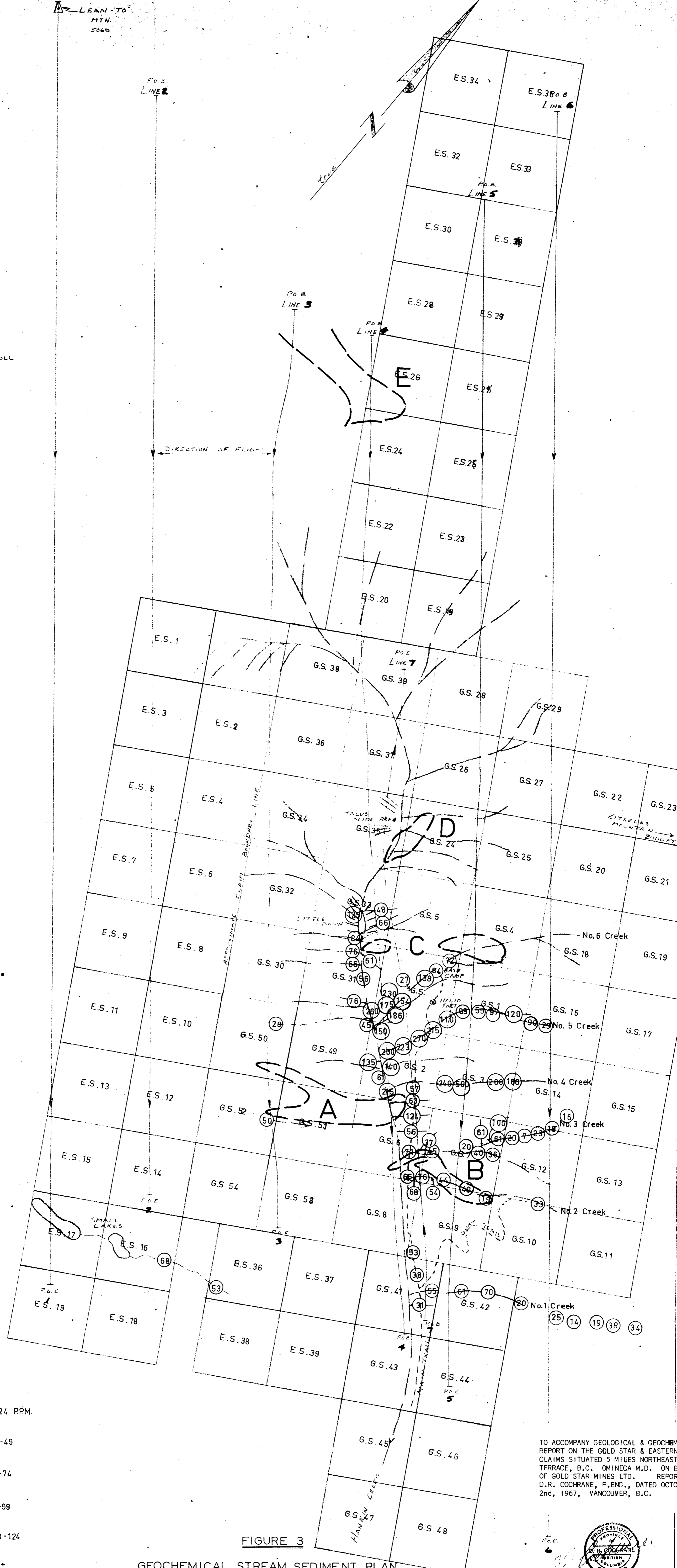
P.O.B.
LINE 5

P.O.B.
LINE 6

P.O.B.
LINE 7

MT.
VANARS DOLL
△
4662

DIRECTION OF FLIGHT



LEGEND

- 0-24 PPM.
- 25-49
- 50-74
- 75-99
- 100-124
- 125+

MAGNETIC
ANOMALY.

G.S. Gold Star Group

TO ACCOMPANY GEOLOGICAL & GEOCHEMICAL
REPORT ON THE GOLD STAR & EASTERN STAR
CLAIMS SITUATED 5 MILES NORTHEAST OF
TERRACE, B.C. OMINECA M.D. ON BEHALF
OF GOLD STAR MINES LTD. REPORT BY
D.R. COCHRANE, P.ENG., DATED OCTOBER
2nd, 1967, VANCOUVER, B.C.

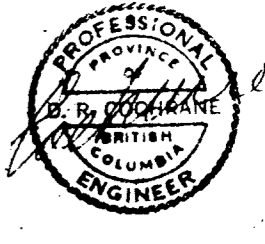


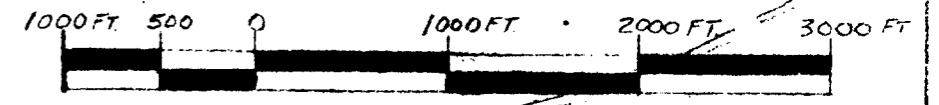
FIGURE 3

**GEOCHEMICAL STREAM SEDIMENT PLAN
COPPER PPM.**

GOLD STAR MINES LTD.

Drawn: B.A.C. Date: June 29, 1967
BASE MAP DRAWN BY: D.M.F.
DATE: APRIL 20, 1967

SCALE: 1 INCH = 1000 FEET



1090

SKENA RIVER **FIGURE 3**

P.O.B. LINE 1
LEAN-TO MTN.
5040

P.O.B. LINE 2

P.O.B. LINE 3

P.O.B. LINE 4

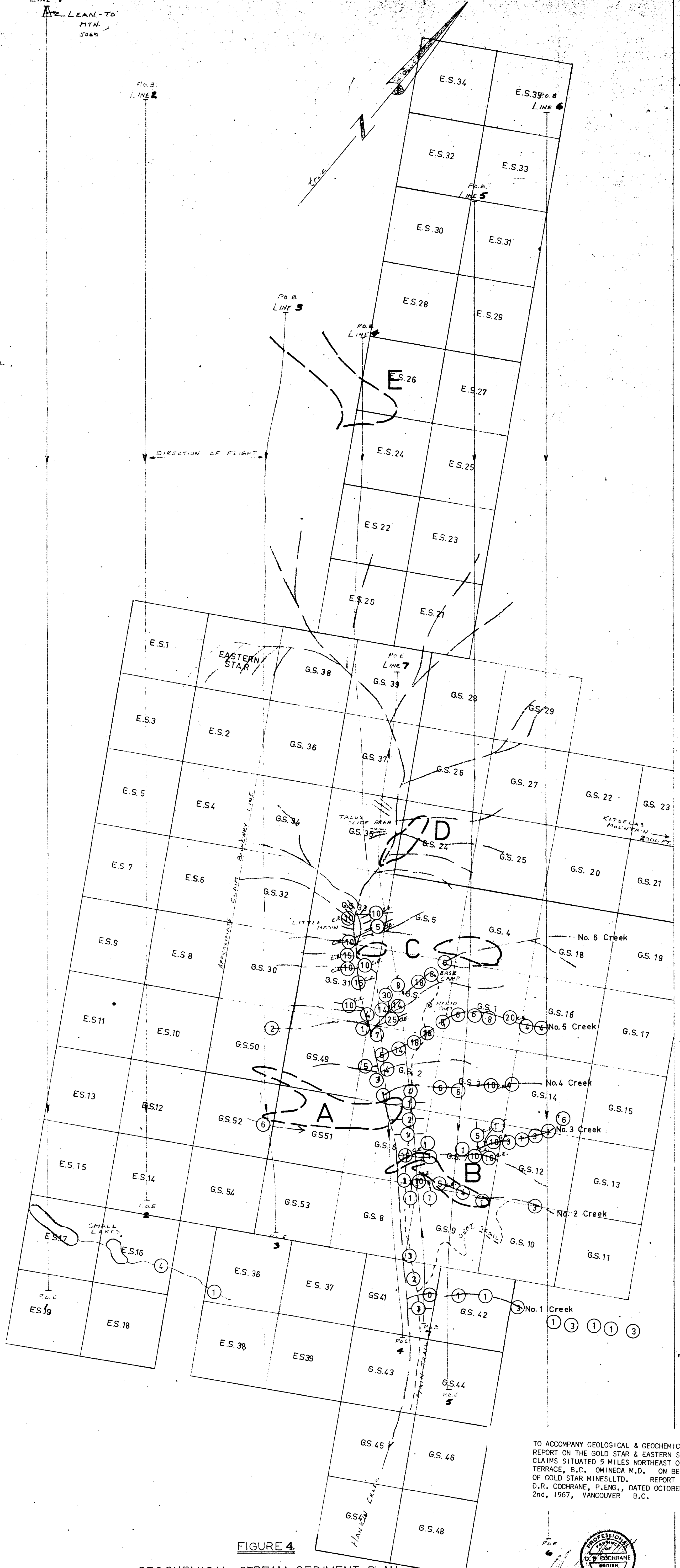
P.O.B. LINE 5

P.O.B. LINE 6

P.O.B. LINE 7

MT. VANARSDOLL
4662

DIRECTION OF FLIGHT



TO ACCOMPANY GEOLOGICAL & GEOCHEMICAL REPORT ON THE GOLD STAR & EASTERN STAR CLAIMS SITUATED 5 MILES NORTHEAST OF TERRACE, B.C. OMINICA M.D. ON BEHALF OF GOLD STAR MINES LTD. REPORT BY D.R. COCHRANE, P.ENG., DATED OCTOBER 2nd, 1967, VANCOUVER B.C.

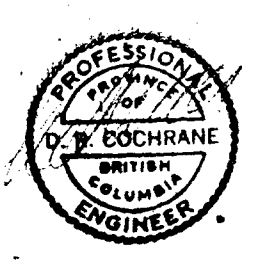
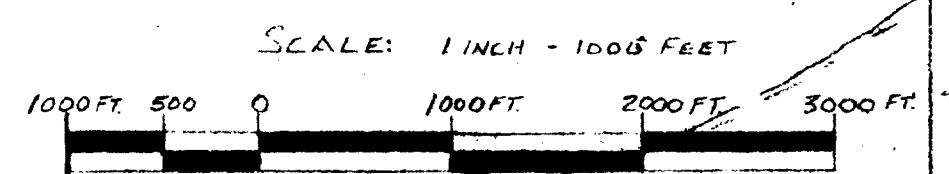


FIGURE 4
GEOCHEMICAL STREAM SEDIMENT PLAN
MOLYBDENUM P.P.M.

GOLD STAR MINES LTD.

Drawn: B.A.C. • Date: June 29, 1967
BASE MAP DRAWN BY: D.M.F.
DATE: APRIL 20, 1961



MAGNETIC ANOMALY

G.S. Gold Star Group

1090

SKEENA RIVER FIGURE 4

P.O.B. LINE 1
BEAN TO
MTN.
5069

P.O.B. LINE 2

P.O.B. LINE 3

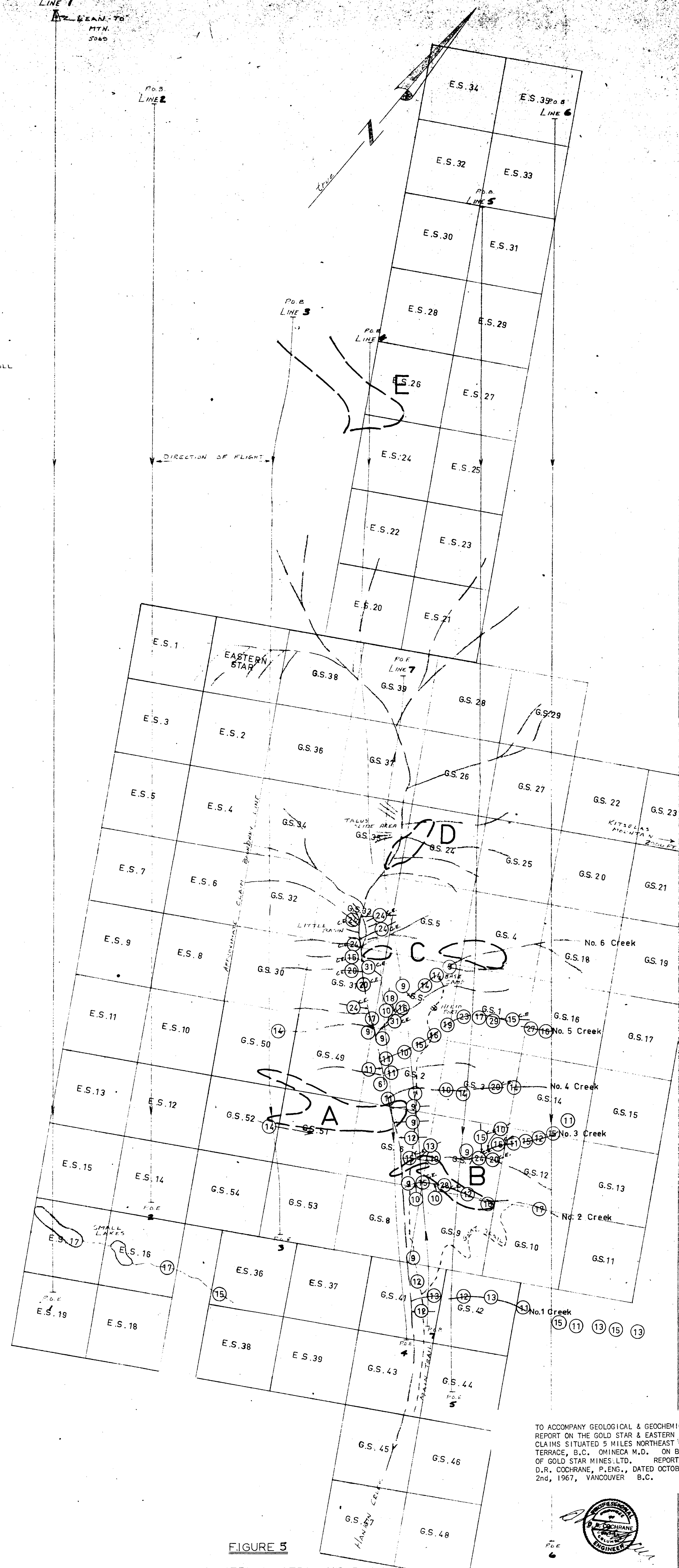
P.O.B. LINE 4

P.O.B. LINE 5

P.O.B. LINE 6

P.O.F. LINE 7

MT. VANARS DOLL
4662



TO ACCOMPANY GEOLOGICAL & GEOCHEMICAL REPORT ON THE GOLD STAR & EASTERN STAR CLAIMS SITUATED 5 MILES NORTHEAST OF TERRACE, B.C. OMINECA M.D. ON BEHALF OF GOLD STAR MINES LTD. REPORT BY D.R. COCHRANE, P.ENG., DATED OCTOBER 2nd, 1967, VANCOUVER B.C.

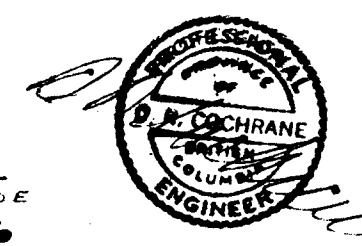


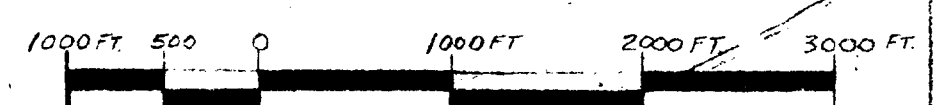
FIGURE 5

GEOCHEMICAL STREAM SEDIMENT PLAN
LEAD P.P.M.

GOLD STAR MINES LTD.

Drawn: B.A.C. Date: June 29, 1967
BASE MAP DRAWN BY: D.M.F.
DATE: APRIL 20, 1967

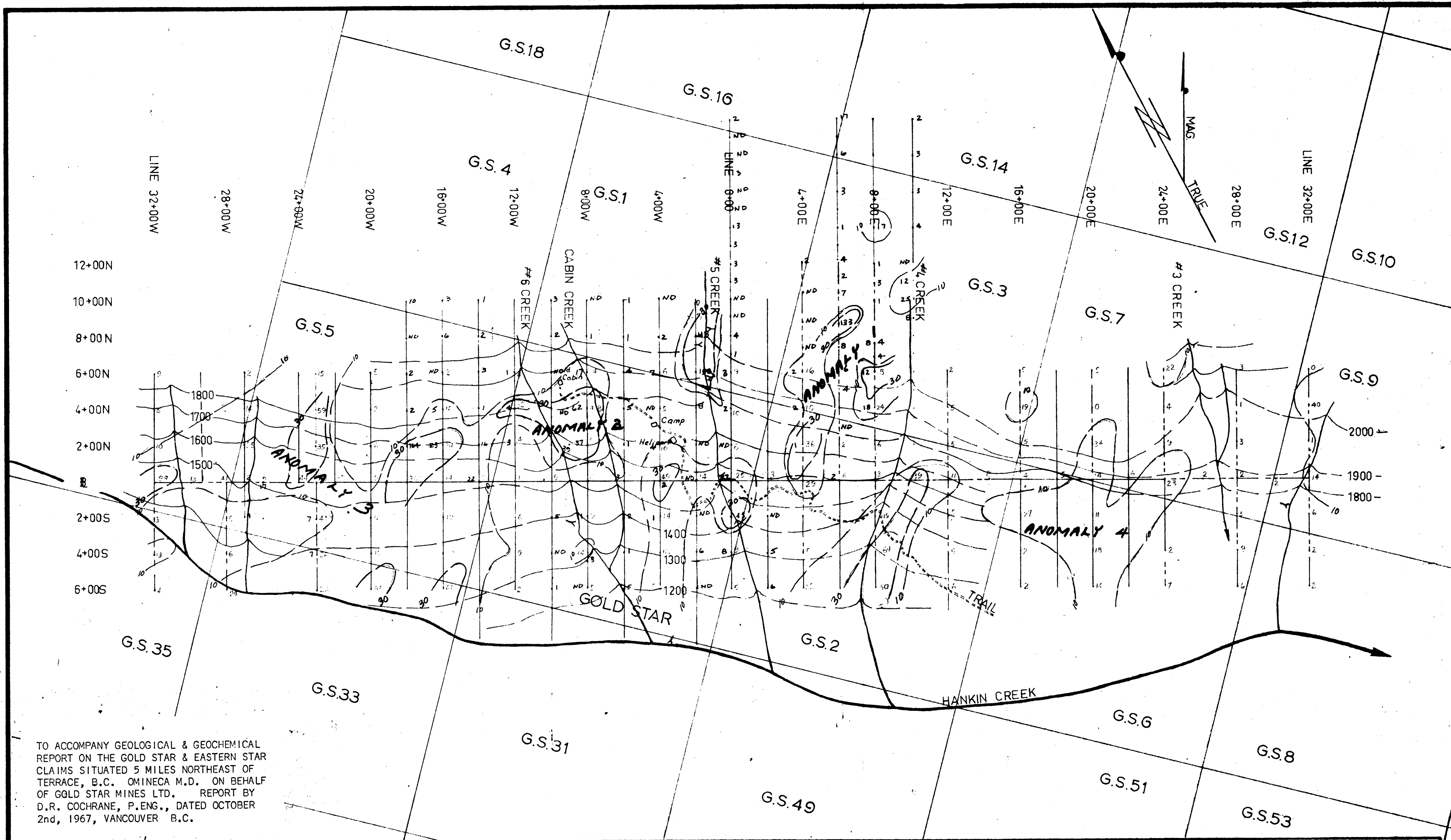
SCALE: 1 INCH = 1000 FEET



MAGNETIC ANOMALY
G.S. Gold Star Group

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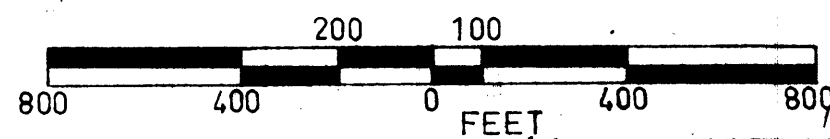
SKEENA RIVER FIGURE 5



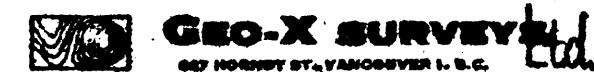
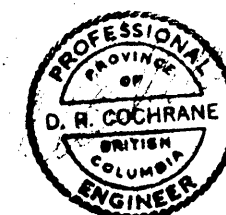
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EXISTING CUT LINES
 LINES TO CUT FOR DETAIL

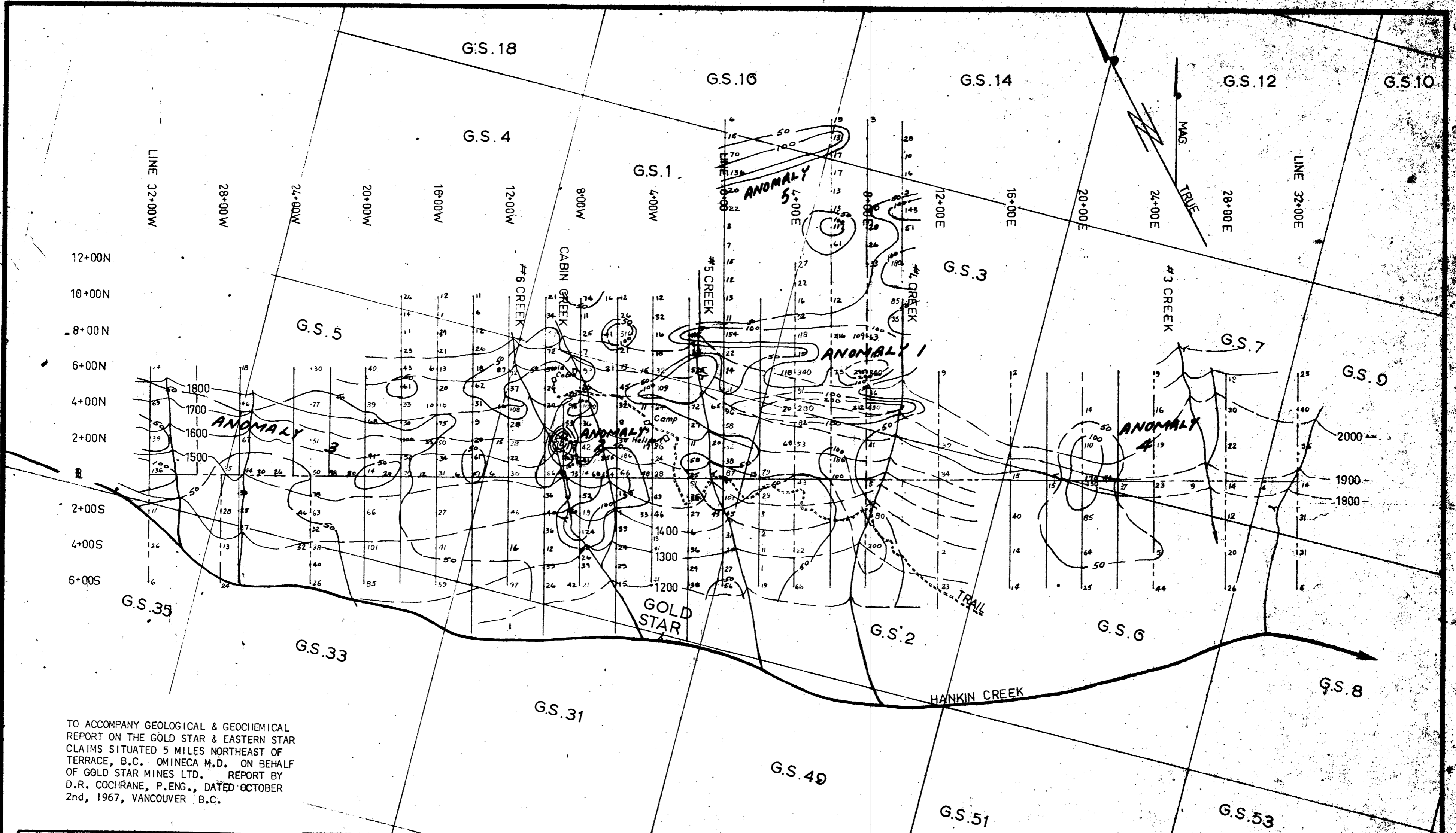


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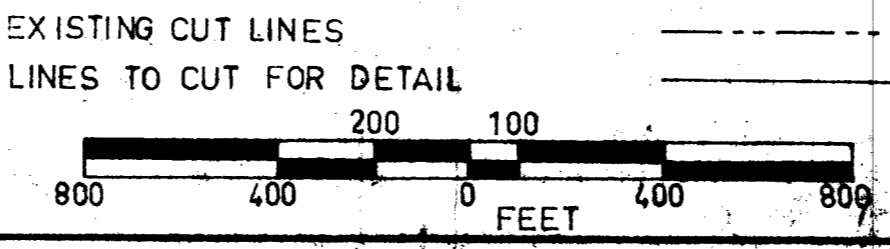


GEOCHEMICAL SOIL SAMPLING
 COPPER - PPM
 "A" HORIZON
 FIGURE 8

SCALE: 1" = 400'	DRAWN BY: A.M.G.
DATE: SEPT. 1, 1967	APPROVED BY:

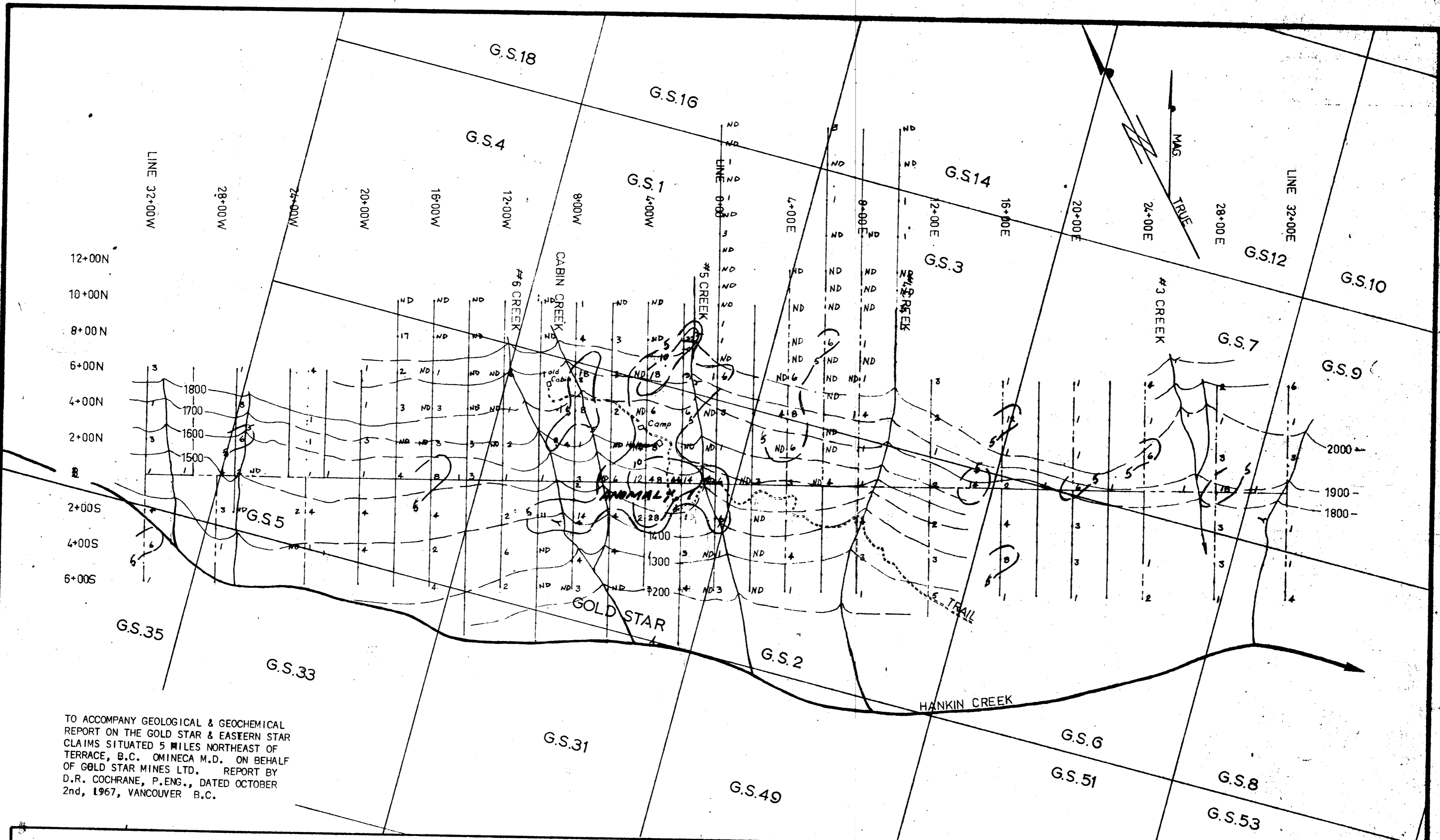


TO ACCOMPANY GEOLOGICAL & GEOCHEMICAL REPORT ON THE GOLD STAR & EASTERN STAR CLAIMS SITUATED 5 MILES NORTHEAST OF TERRACE, B.C. OMINECA M.D. ON BEHALF OF GOLD STAR MINES LTD. REPORT BY D.R. COCHRANE, P.ENG., DATED OCTOBER 2nd, 1967, VANCOUVER B.C.

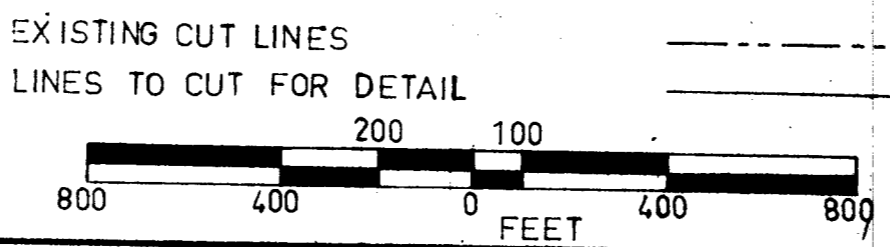


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GEO-X SURVEYS Ltd. <small>800 HORNBY ST., VANCOUVER, B.C.</small>	
GEOCHEMICAL SOIL SAMPLING	
COPPER - PRM	
"B" HORIZON	
FIGURE 9	
SCALE: 1" = 400'	DRAWN BY: A.M.G.
DATE: SEPT. 1, 1967	APPROVED BY:



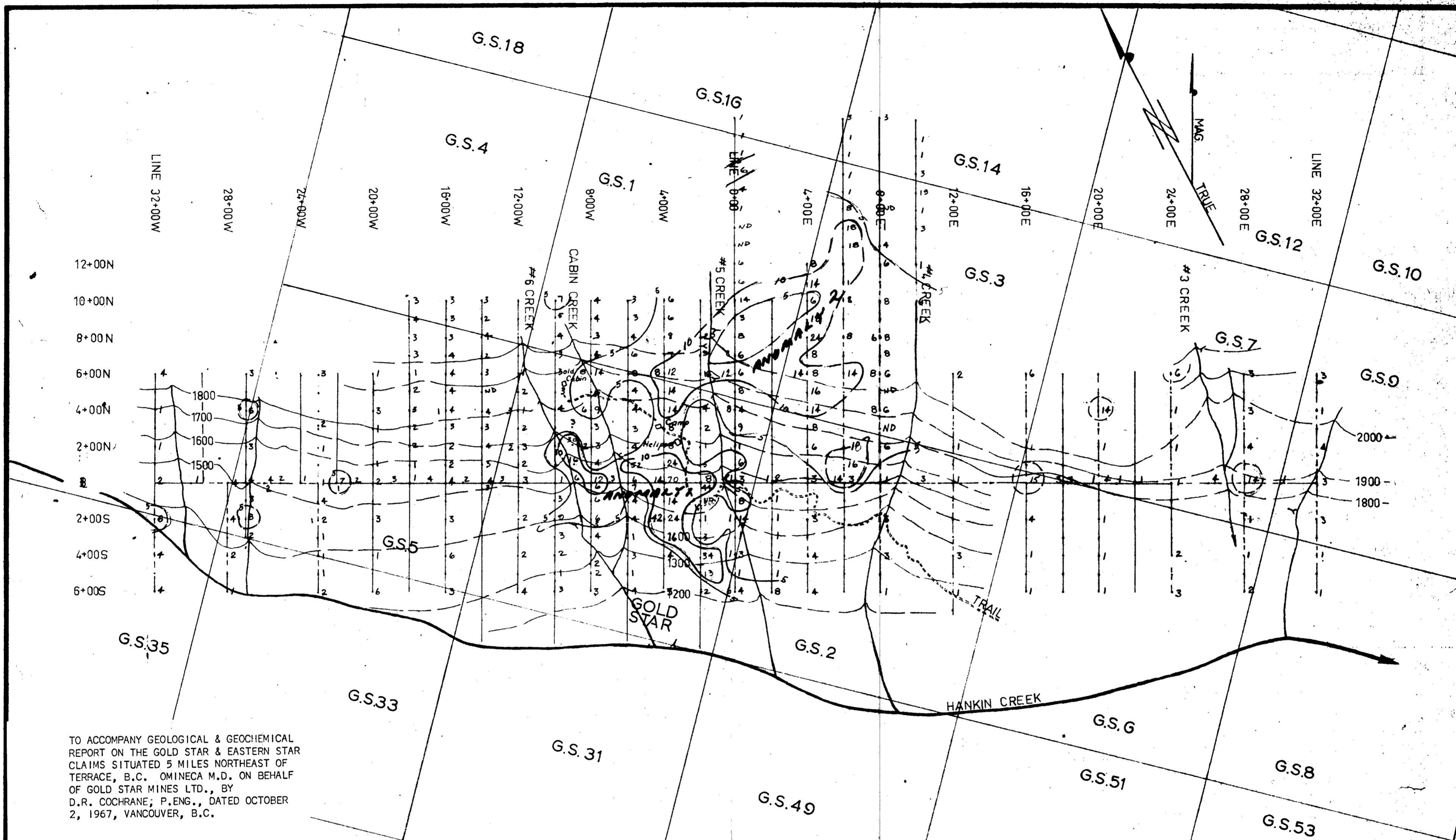
TO ACCOMPANY GEOLOGICAL & GEOCHEMICAL REPORT ON THE GOLD STAR & EASTERN STAR CLAIMS SITUATED 5 MILES NORTHEAST OF TERRACE, B.C. OMINECA M.D. ON BEHALF OF GOLD STAR MINES LTD. REPORT BY D.R. COCHRANE, P.ENG., DATED OCTOBER 2nd, 1967, VANCOUVER B.C.



GEO-X SURVEYS Ltd.
 60 HOBBS ST., VANCOUVER 1, B.C.

**GEOCHEMICAL SOIL SAMPLING
 MOLYBDENUM - PPM
 "A" HORIZON
 FIGURE 10**

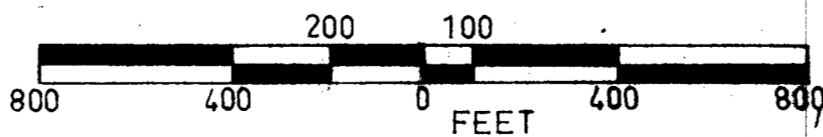
SCALE: 1" = 400'	DRAWN BY: A.M.G.
DATE: SEPT. 1, 1967	APPROVED BY:



TO ACCOMPANY GEOLOGICAL & GEOCHEMICAL REPORT ON THE GOLD STAR & EASTERN STAR CLAIMS SITUATED 5 MILES NORTHEAST OF TERRACE, B.C. OMINECA M.D. ON BEHALF OF GOLD STAR MINES LTD., BY D.R. COCHRANE; P.ENG., DATED OCTOBER 2, 1967, VANCOUVER, B.C.



EXISTING CUT LINES
LINES TO CUT FOR DETAIL

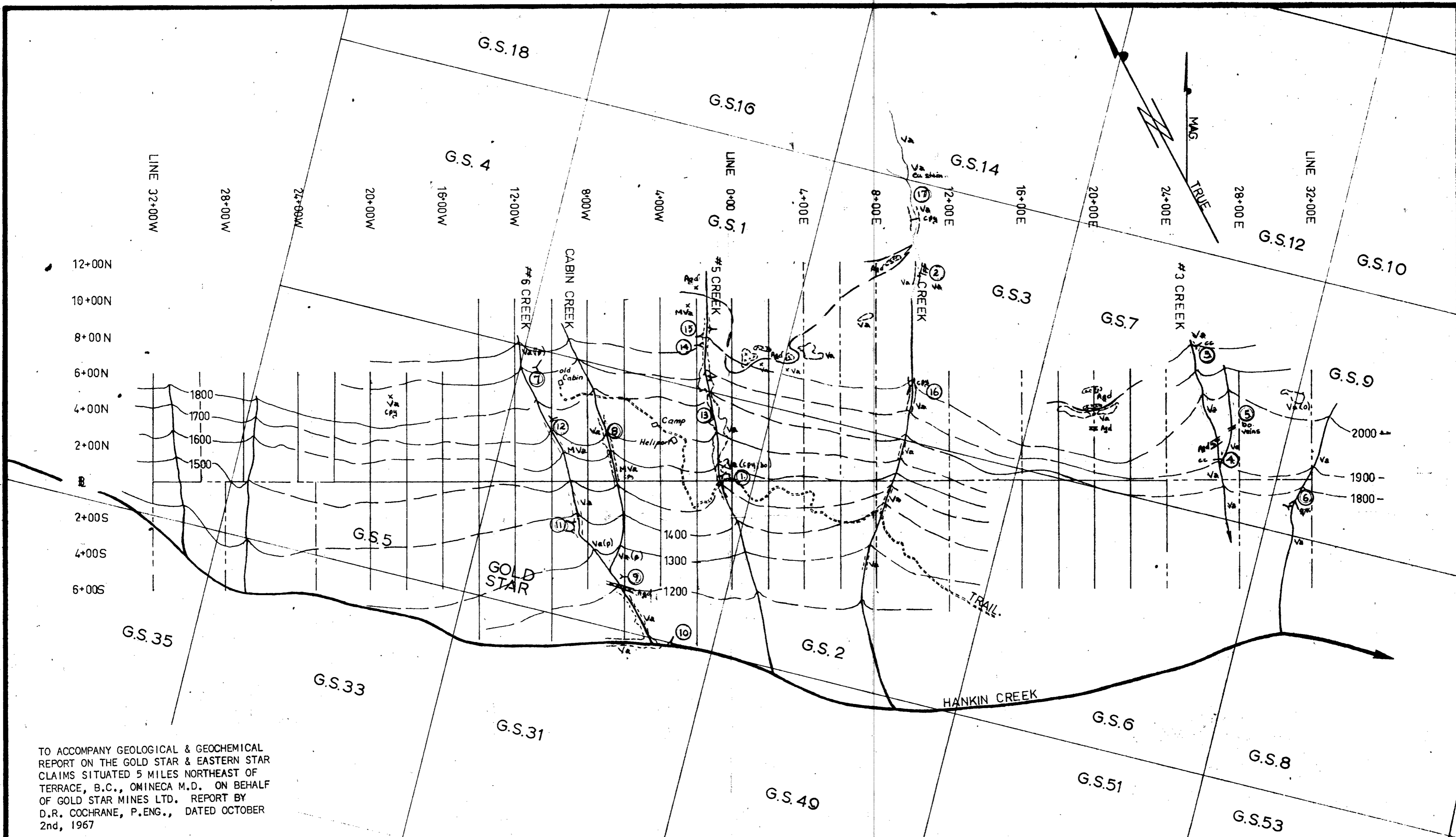


1090



GEOCHEMICAL SOIL SAMPLING
MOLYBDENUM - PPM
"B" HORIZON
FIGURE 11

SCALE: 1" = 400'	DRAWN BY: A.M.G.
DATE: SEPT. 1, 1967	APPROVED BY:

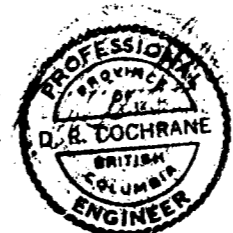
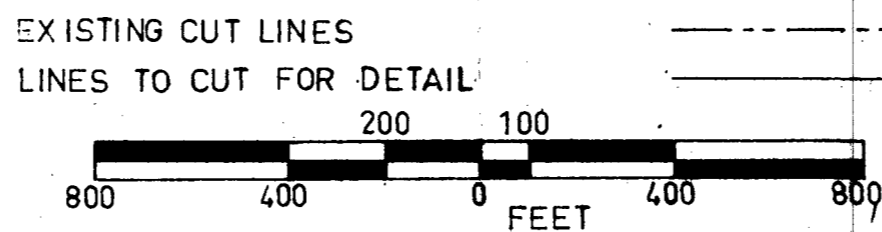


TO ACCOMPANY GEOLOGICAL & GEOCHEMICAL REPORT ON THE GOLD STAR & EASTERN STAR CLAIMS SITUATED 5 MILES NORTHEAST OF TERRACE, B.C., OMINCA M.D. ON BEHALF OF GOLD STAR MINES LTD. REPORT BY D.R. COCHRANE, P.ENG., DATED OCTOBER 2nd, 1967



LEGEND

- AGd - Grey bitite granodiorite, sometimes gneissic. (MGd)
- Va - Andesite, Va(o) indicates medium grained andesite. Sometimes inclusion of tuff (Vtf) and breccia (Vbx). Sometimes gneissic (M Va).
- Va(p) - Andesite feldspar porphyry
- adit
- geological contact
- vein - g.v.-quartz vein
- bo.-bornite
- cpy-chalcopyrite
- cc -chalcocite
- py -pyrite



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GEOLOGY
FIGURE 12

SCALE: 1" = 400'
DATE: SEPT. 1, 1967
DRAWN BY: A.M.G.
APPROVED BY: