E & B Explorations Ltd.

DRILL REPORT
GEORGIA 1 CROWN GRANTED CLAIM
STEWART, B.C.
SKEENA, M.D.
55°47'-55°55' & 130°05'-130°10'

'80-#611-#8547

BY

E & B EXPLORATIONS LTD.
#2900, 300 - 5th Avenue, S.W.
Calgary, Alberta T2P 3C4

Part 2 of 3

Prepared by: E.R. Kruchkowski, Project Geologist

Owners: Thai-Aaron Development Corporation Ltd.
Cannon Resources Ltd.
Michael Boyle

Date: APRIL, 1980

Submitted: August 25, 1980

E & B Explorations Ltd.

TABLE OF CONTENTS

LIST OF FIGURES

APPENDICES

Appendix I	Property History Report of The Minister of Mines, British Columbia 1914 to 1918 inclusive, 1922, 1928, 1929, 1932, 1933 and 1936 and Bulletin No. 1, 1932, Lode-Gold Deposits of British Columbia.
Appendix II	Drill Logs DDH GM-1 and DDH GGP-1 to GGP-5 inclusive.
Appendix III	Assay Results DDH GM-1 and DDH GGP-1 to GGP-5 inclusive.

SUMMARY

The Georgia 1 Crown granted claim, part of the Georgia Mine property is located about 13 kilometers south of Stewart, B.C. on the east side of the Portland Canal. The property lies on the eastern contact of the Coast Range Batholith intruding volcanics and sediments of the Hazelton Group.

Two shear patterns have been developed on the property: in a northwest direction and a later extensive cross fracturing and faulting in a northerly direction. Gold, silver, lead and zinc mineralization appears to be related to the later faulting and subsequent fissure filling. Gold bearing quartz veins are found both in the initial shears and in the subsequent cross fracture zones. Marked gold enrichment appears to be associated with areas of vein intersections.

During October to November, 1979, a total of 346.9 meters of BQ size diamond drilling was completed in six holes on the Georgia Gold Mine property. Two drill holes tested the intersections of the Main and Southwest vein; one tested the intersections of the Georgia and Southwest vein and three tested the intersection of the Southwest and the north faulted extension of the Georgia vein. Assay results from intersected quartz veins were low except for drill hole GGP-3 which intersected 0.96 oz. Au and 0.96 oz. Ag over a 1.45 meter interval along the Southwest vein. Mineralization along the South vein was extended north 300 meters where grab sample assays ranging from 0.032 to 0.68 oz. Au and 1.29 to 68.24 oz. Ag were obtained. Grab samples assaying up to 5.79 oz. Au were obtained on the southwest vein in the area of the Georgia vein.

Further exploration should be aimed at testing the zones of vein intersection particularly along the Southwest and Bullion veins. An exploration program utilizing trenching and sampling, detailed mapping of all shear, vein and fault structures and diamond drilling is recommended for defining any ore potential on the Georgia property.

This report summarizes previous mining activity and results of the 1979 diamond drilling program.

INTRODUCTION

Gold and silver mineralization postulated to be related to quartz filled shears and cross fracture zones was drill tested for tenor and possible depth extension.

During October to November 1979, a drill program tested the Southwest vein in the area of the Main and Georgia veins. This work utilized a BBS1 wireline diamond drill to complete 346.9 meters of BQ size drilling.

The work program was conducted by the following in two separate periods:

a) drilling by Raymond Drilling and Exploration Ltd. with R. Hrkac as supervising geologist and

b) drilling by Arctic Diamond Drilling Ltd. with M. Childs as supervising geologist.

Whole core analysis for Au and Ag were conducted every 0.3 meters on all quartz veins and sulphide rich zones intersected. Analyses were performed by Chemex Labs Ltd., Vancouver, British Columbia.

Drill hole locations, coordination and supervision was provided by E.R. Kruchkowski, geologist for E & B Explorations Ltd.

Location and Access

The Georgia Mine property is located at $55^{o}47'$ to $55^{o}50'$ latitude and $130^{o}05'$ to $130^{o}10'$ longitude, approximately 13 kilometers south of Stewart, B.C. in the Skeena Mining Division. The Georgia 1 Crown granted claim is part of a contiguous

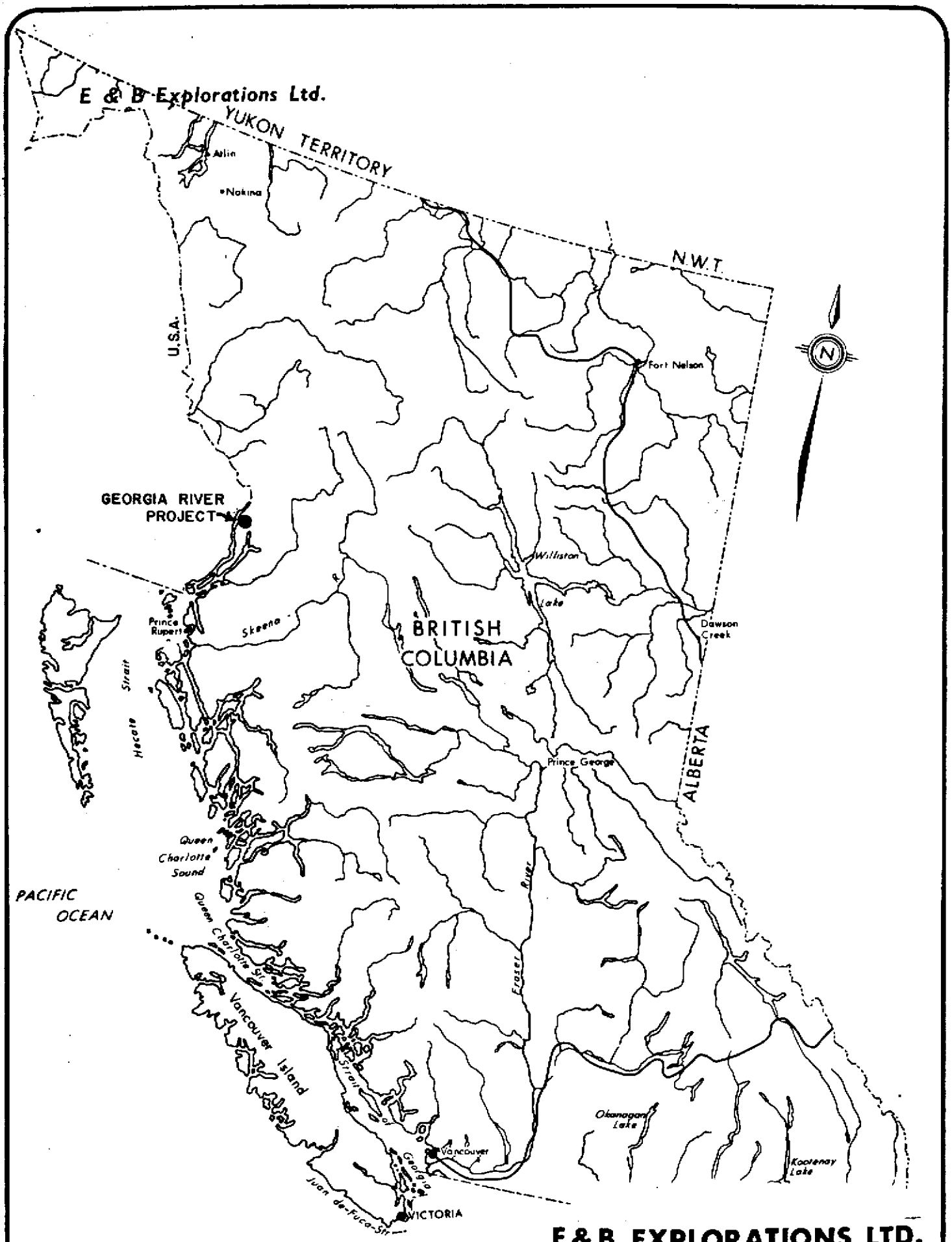


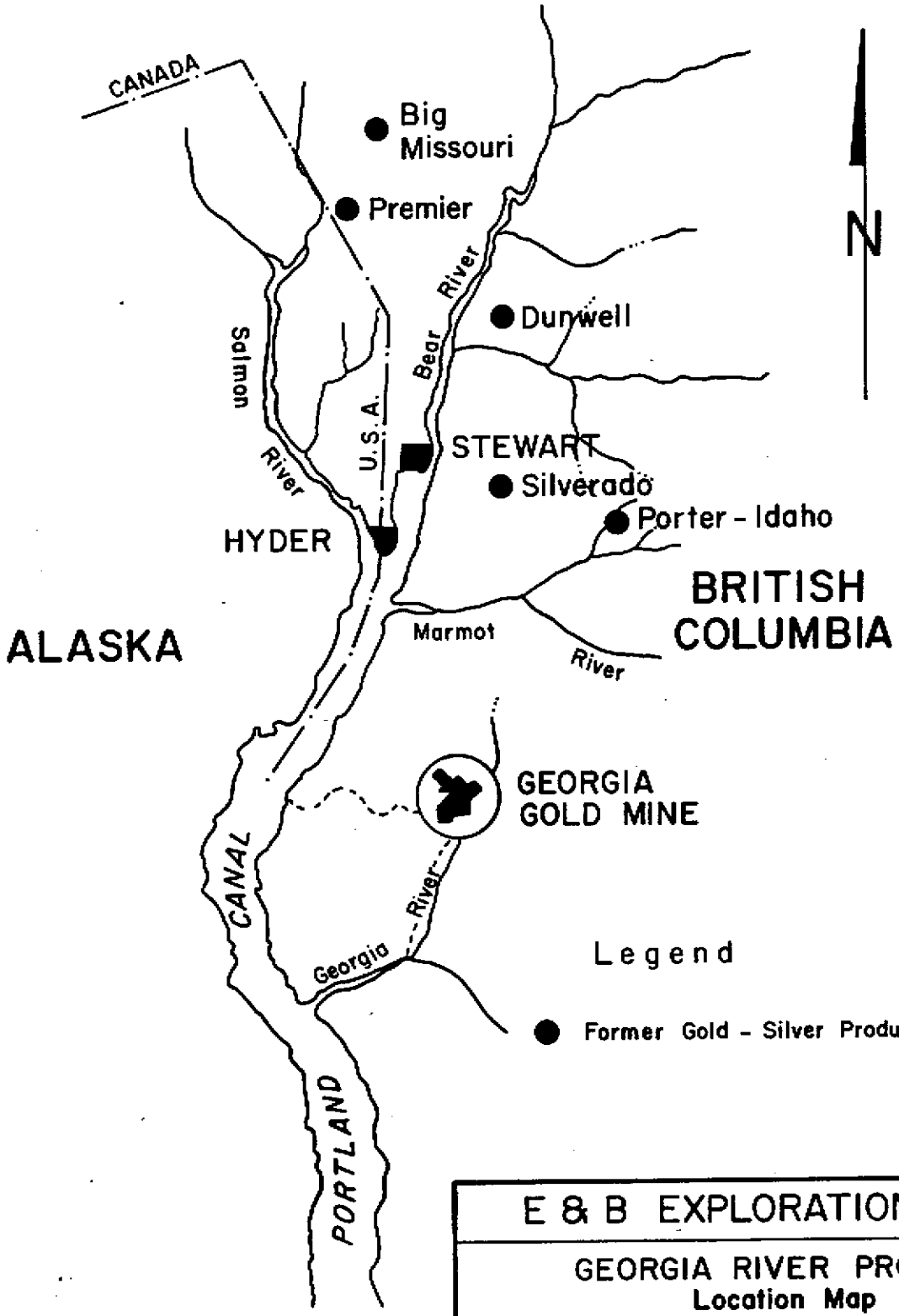
Fig 1

E&B EXPLORATIONS LTD.

GEORGIA RIVER PROJECT

BRITISH COLUMIA

E & B Explorations Ltd.



E & B EXPLORATIONS LTD.		
GEORGIA RIVER PROJECT **Location Map** GEORGIA GOLD MINE PROPERTY STEWART B. C.		
TO ACCOMPANY REPORT BY: E. R. KRUCHKOWSKI		
C.L.C. - DRAFTING VANCOUVER B.C.	SCALE 1 : 500	DATE: JULY 1980
	PROJECT No. 2141	FIGURE No. 2
	NTS 103-O/16W	DRAWN BY: C.L.C.

claim block encompassing the Colling Range on the east side of Portland Canal and Bullion Creek, a tributary of the Georgia River (Figure 1 and 2).

Access to the Georgia crown grant is via a Bell 206 helicopter based in Stewart. The Sun mineral claim is accessible via boat from Stewart.

An old wagon trail, 13 kilometers in length, built in 1928 from the mouth of the Georgia River has been eroded and overgrown.

Physiography and Topography

The property area lies within steep terrain typical of the Coast Range Mountains of British Columbia. The area is one of mountainous topography at a stage of early maturity. The east wall of Portland Canal rises abruptly from sea level to more than 1,180 meters on Colling Range. At 1,060 meters elevation the country changes from forested slopes to relatively gently rolling alpine slopes and meadows.

The project area has little glacial material present; outcrop forms up to 60 to 70 percent of the land surface and permanent snow occupies depressions and gullies. Maximum rock exposure occurs by October when most of the snow has melted. This snow hampers exploration as the vein systems generally have surface expressions in gullies.

Several small alpine lakes less than 100 meters in length are located in a mountain pass at the headwaters of a tributary of Bullion Creek.

Personnel and Operations

Personnel involved during the drill program were as follows:

E & B Explorations Ltd.
E.R. Kruchkowski - geologist 12 days

R. Hrkac - independent geologist 6 days
October 15 to 21, 1979

Can-Lake Explorations Ltd. 28 days
M. Childs - geologist
October 23 to November 20, 1979

Raymond Drilling and Exploration Ltd. mobilized out of Merritt, British Columbia to Stewart via truck. Raymond Drilling completed DDH GM-1 in the period October 5 to October 19, 1979; R. Hrkac logged and sampled the core from this hole.

Arctic Diamond Drilling Ltd. mobilized out of Whitehorse, Yukon Territory to Stewart via transport truck. Arctic completed DDH GGP-1 to 5 in the period October 29 to November 16, 1979; M. Childs logged and sampled the core from these holes.

All drill equipment was slung to the property utilizing a Vancouver Island Helicopter Bell 206 based in Stewart.

Raymond Drilling and R. Hrkac provided their own accomodations; all personnel involved in the project during work by Arctic Drilling were accomodated in a drill camp 100 meters west of GM-1 and GGP-1.

Supplies and materials for the job were purchased in Stewart and ferried in via the Bell 206 helicopter.

Property Ownership

The property consists of 8 crown grants registered in the name of Thai-Aaron Development Corporation Ltd., 26 crown-granted 2-post claims owned by Cannon Resources Ltd., and 4 MGS claims owned by Michael Boyle and 1 MGS claim owned by E & B Explorations Ltd.

The following claims form the Georgia Mine property (see Figure 2):

Name	Acres	Expiry Date
Crown-Grants:		
Gem	38.46	August 2, 1989
Gem #1	23.19	August 2, 1989
Goldfields #3	47.35	August 2, 1989
Top Fraction	26.46	August 2, 1989
Gold Fraction	46.64	August 2, 1989
Georgia	49.39	August 2, 1989
Georgia #1	46.71	August 2, 1989
Georgia #2	48.58	August 2, 1989
Reverted Crown-Grants:		
Gem Fraction	48.80	August 2, 1989
Goldfields	52.25	August 2, 1987
Goldfields #1	43.68	August 2, 1989
Goldfields #2	44.25	August 2, 1989
Goldfields #4	44.90	August 2, 1989
Goldfields #6	51.15	August 2, 1989
Jitney	11.68	August 2, 1989
September Fraction	19.85	August 2, 1989
Danny Fraction	7,83	August 2, 1989
June Fraction	41.00	August 2, 1989
June	41.43	August 2, 1989
June #1	25.80	August 2, 1989

Name	Acres	Expiry Date
Reverted Crown-Grants:		
June #2	35.58	August 2, 1989
June #3	39.03	August 2, 1989
June #4	52.25	August 2, 1989
June #5	34.85	August 2, 1989
June #6	28.93	August 2, 1989
June #7	37.78	August 2, 1989
June #8	12.53	August 2, 1989
June #9	39.08	August 2, 1989
June #10	1.85	August 2, 1989
Sovereign Fraction	8.50	August 2, 1989
Sovereign	51.60	August 2, 1989
Sovereign #1	36.28	August 2, 1989
Sovereign #2	51.43	August 2, 1989
MGS Claims:		
Sun #1	1,235.60	August 15, 1989
Mike #1	1,235.60	August 15, 1989
Mike #2	1,235.60	September 18, 1987
Mike #3	1,235.60	September 18, 1987
Pork Chop	370.70	June 26, 1981
Total	6,180.02	

Previous Work

Gold mineralization was first discovered in the area by Dan Hume and Jake Jarvis in 1910 who subsequently located the Georgia Gold claims.

During 1914 to 1918, development work by Georgia River Mining Company concentrated on the intersection of the Bullion vein with the Main vein and consisted of an adit driven along the Bullion vein for 400 feet,

a raise 35 feet to surface, a winze sunk 45 feet and a 35 foot cross cut west. Work indicated the Bullion vein as varying from 4 inches to 4 feet in width with high gold and appreciable silver values.

In 1924 Georgia River Gold Mines Ltd. was incorporated; a large number of adjoining claims were acquired and development work was performed from 1928 to 1931.

In 1933, reorganization occurred when Helena Gold Mines was formed and underground exploration consisting of drifting and diamond drilling was continued.

Underground development in the 1928 to 1934 period is summarized as follows:

1928 to 1929 - No.1 tunnel, No.2 tunnel, little tunnel and No.3 tunnel developed along the Southwest vein.

1932 - Crosscut from Bullion vein intersected Southwest vein and drifting continued north and south for distances of 180 and 130 feet respectively.

1933 - Drifting on Southwest vein and nine diamond drill holes aggregating 3,050 feet.

1934 - Work ceased on property.

In 1935 Gold Leasers Ltd. leased the property and conducted a limited amount of mining work. In 1936 a mill and mining facilities were erected and a total of 500 tons subsequently mined in 1937. The production of 500 tons yielded 329 ounces of gold, 410 ounces of silver and 7,301 pounds of lead for an average grade of 0.658oz. Au, 0.82 oz. Ag and 0.73 % Pb/ton.

Complete descriptions of work conducted with results are discussed in the included Minister of Mines Reports, British Columbia within Appendix I.

GEOLOGY

Regional Geology

The project area lies adjacent to and includes moderately folded volcanic and sedimentary rocks intruded by a succession of plutons of the Coast Crystalline Belt.

Within the Stewart area, Lower Jurassic Hazelton assemblage rocks include an extensive sequence of volcanic and sedimentary rocks unconformably overlain by Middle and Upper Jurassic Bowser assemblage rocks comprised of a series of non-marine and marine sediments with minor volcanics.

The volcanic rocks of the Hazelton assemblage include a variety of sandstones, conglomerates, and breccias as well as minor interrelated tuffs, siltstones and flow material. The Bowser formation includes volcanic sandstones, tuffs, siltstones and greywackes and occurring as isolated structural remnants.

Granodiorite is the dominant rock of the main Coast Crystalline Batholith with stocks and plutons generally varying from quartz monzonite, quartz diorite to granites.

Numerous dykes swarms varying in composition from granite, quartz monzonite, granodiorite and quartz diorite are located in the Stewart area.

Structurally, the Stewart area lies on the west flank of the American Creek Anticline a northerly trending, slightly arcuate regional structure truncated by intrusions of the Coast Crystalline Belt.

Regional metamorphism includes relatively low amphibolite facies minerals.

Local Geology

The section on local geology has drawn extensively on data within the 1936 British Columbia Report of the Minister of Mines and the brief visits by the author to the property.

An excerpt from the above report is included:

"The rocks underlying the area consist chiefly of altered crystalline andesitic flows (greenstone) and altered, probably tuffaceous, sediments. These rocks have been subjected locally to strong shearing movements and are altered to mica-schists, especially in the vicinity of major, north-striking fault-zones. This formation can be correlated with the Bear River series (Hazelton group) of probably lower to middle Jurassic age. Granitic dykes and tongues intrude this series of rocks extensively in the locality of the workings and showings. Structurally, the series in this locality comprises a triangular pendant-inclusion, about 12 miles wide along Portland Canal and extending for 13 miles eastward towards the head of Hastings Arm, lying within and contiguous to the eastern contact of the Coast Range granodiorite batholith. The intrusive granitic dykes and tongues are satellitic to the underlying batholith."

The cross cutting relationship of the quartz filled shears in the Hazelton rocks has been defined but not the granitic rocks. A quartz vein cutting a granitic outcrip on Goldfields No.3 crown grant has been observed but the relationship in the main workings is not evident. Figure 4 shows the plan of surface workings and geology.

Economic Geology

The gold-bearing quartz veins are found both in the shears and in the cross fracture zones. There are two distinct vein systems; wide shear zones striking north 40° west consisting of quartz and siliceous breccia (Main, Georgia and Gem veins), and narrower quartz filled fault fissures having a general northerly strike (Southwest, Bullion, Summit and Camp veins).

Marked enrichment appears to occur in the quartz filled fault fissures at points of vein intersection.

A brief description of the veins is as follows:

Main Vein - This vein consists of a large silicified shear zone striking 315° and dipping 55 to 65° to the southwest. The main vein is a siliceous replacement zone composed of layers of siliceous material separated by bands of schist with silicification gradually fading into country rocks. The zone has been traced along a strike length of 2,000 feet (650 meters) and exhibits an offset along the Bullion fault in the order of 200 feet 65 meters).

This vein has generally sparse mineralization consisting of pyrite and pyrrhotite and minor arsenopyrite.

Georgia Vein - This vein strikes parallel to the Main vein about 1,000 feet (300 meters) north and cuts across the Georgia and Georgia No.1 claims. It is exposed near the Southwest and Bullion veins over short distances. The Georgia vein appears to be offset in the order of 120 feet (37 meters) along the Southwest vein.

Gem Vein - The Gem vein strikes parallel to the Georgia vein approximately 500 feet (152 meters) to the north on the Gem Claim. This vein is exposed over a short interval west of the Southwest vein. A grab sample by Elwell in 1979 returned 0.134 oz/ton Au from the vein.

Bullion Vein - The Bullion vein is located along Bullion Creek and consists of mineralized quartz lenses along a fault zone. Vein material varies from four to thirty inches (0.1 to 0.76 meters) and is defined by drifting on two levels and exposure in the Creek bed. Erratic gold values in discontinuous lenses have been determined by work to date.

Southwest Vein - The Southwest vein lies 350 feet (107 meters) northwest of the Bullion vein and has been the most extensively explored by drifting on two levels. The vein is defined on the surface for 3,000 feet (914 meters) across the Georgia No.1 and Georgia No.2 claims and through a vertical range of about 1,200 feet (366 meters). The vein varies from 14 inches (0.36 meters) to over 3 feet (0.91 meters) and contains lenses of mineralization with high gold values. Production of 500 tons of vein material occurred in small stopes along this vein.

Summit Vein - The Summit vein located northwest of the Southwest vein shows a width of 6 feet (1.8 meters). High values are reported at the intersection with the Main vein. Grab samples taken by Elwell returned low assays along this vein.

Camp Vein - This vein is exposed in several localities on the southwest part of Georgia No.2 claim but no work appears to have been done on it.

The results of work to date indicate at least two possible ore shoots. The first of these occurs at the junction of the Main and Southwest veins with the following dimensions: 80 feet (24.4 meters) length with a width of 16 inches (0.4 meters) averaging 1.7 oz. Au/ton. The second possibility exists at the junction of the Main and Bullion vein where mineralization has been drifted on for a length of 135 feet (41 meters) varying in width from 4 inches (0.1 meters) to 12 inches (0.3 meters) and widening with depth over a vertical distance of at least 105 feet (32 meters). Spectacular free gold and high assay values were encountered in a raise and winze in this location.

The intersection of all vein systems particularly in the area of the Southwest and Georgia veins show good potential. Massive mineralization consisting of pyrite, pyrrhotite, galena and sphalerite in the creek bed over the Southwest vein show the following values: 4.18 oz. over 5 inches, 8.17 oz. over 9 inches and 11.5 oz. over 8 inches (sampling prior to 1937) and a grab sample yielding 5.83 oz. Au (E & B sampling 1979).

Mineralization was extended along the Southwest vein approximately 1,000 feet (300 meters) where several

grab samples yielded from 0.032 to 0.68 oz. Au to 1.29 to 68.24 oz. Ag. Mineralization was contiguous to a granodiorite dyke at the junction with the Southwest vein. The vein material was frost heaved and consisted of a carbonate and quartz rich breccia.

Cobbett Creek, parallel to Bullion Creek and the Southwest vein is most likely following a north trending fissure zone. This would add to the possibilities of proving up a number of small ore zones at the vein junctions.

DIAMOND DRILLING

A total of 346.9 meters of BQ size diamond drilling was completed; 38.1 meters by Raymond Drilling in DDH GM-1 and 308.8 meters by Arctic Drilling in DDH GGP-1 to GGP-5. Core recovery was in excess of 95 percent and all core is presently stored at the dump outside the upper tunnel portal.

Drilling intersected a series of volcanic rocks cut by generally sparsely mineralized quartz material. Figure 5 shows the location of all drill holes.

GM-1 intersected the Main vein at 10 to 24.69 meters which consisted of white quartz with 1 to 2 percent pyrrhotite, minor chalcopyrite and pyrite with inter-layered siliceous meta-volcanic rocks. Schistosity in the dark green chlorite to brown biotite schists indicated a steep dip to the southwest. Minor sulphide rich zones 1 millimeter wide were intersected. GM-1 intersected the north drift at the No.2 level approximately 15 meters from the north face.

GGP-1 intersected the Main vein from 7.47 to 12.80 meters in green meta volcanic rocks. The Southwest vein intersected at 19.05 to 21.64 meters and contained 1 to 3 percent arsenopyrite, pyrite,pyrrhotite with lesser sphalerite and galena.

Low values were intersected in all vein material even in the Southwest vein containing the galena and sphalerite.

Drill holes GGP-2 and 3 located at the junction of the Southwest and Georgia veins intersected quartz

rich zones. Hole GGP-3 intersected 1.45 meters of 0.96 oz. Au and 0.96 oz. Ag in a pyrite, pyrrhotite, arsenopyrite, galena and sphalerite bearing quartz zone, probably the Southwest vein. The hole was not drilled deep enough to intersect the Georgia vein. Hole GGP-2 probably intersected the north faulted extension of the Georgia vein but did not intersect the Southwest vein. Hole GGP-4 failed to intersect either vein. Rocks intersected in the holes consisted of steeply northwest dipping meta-volcanics probably andesite tuffs.

Low gold values were encountered in all quartz intersected except in GGP-3.

Hole GGP-5 intersected the Georgia vein and should have intersected the Southwest vein. Meta-volcanic rocks were encountered in drilling. Low gold values were obtained in the quartz intersected.

Figures 6 to 8 show geologic cross sections for DDH GM-1 and GGP-1 to GGP-5.

Figures 9 to 11 show assay sections for DDH GM-1 and GGP-1 to GGP-5.

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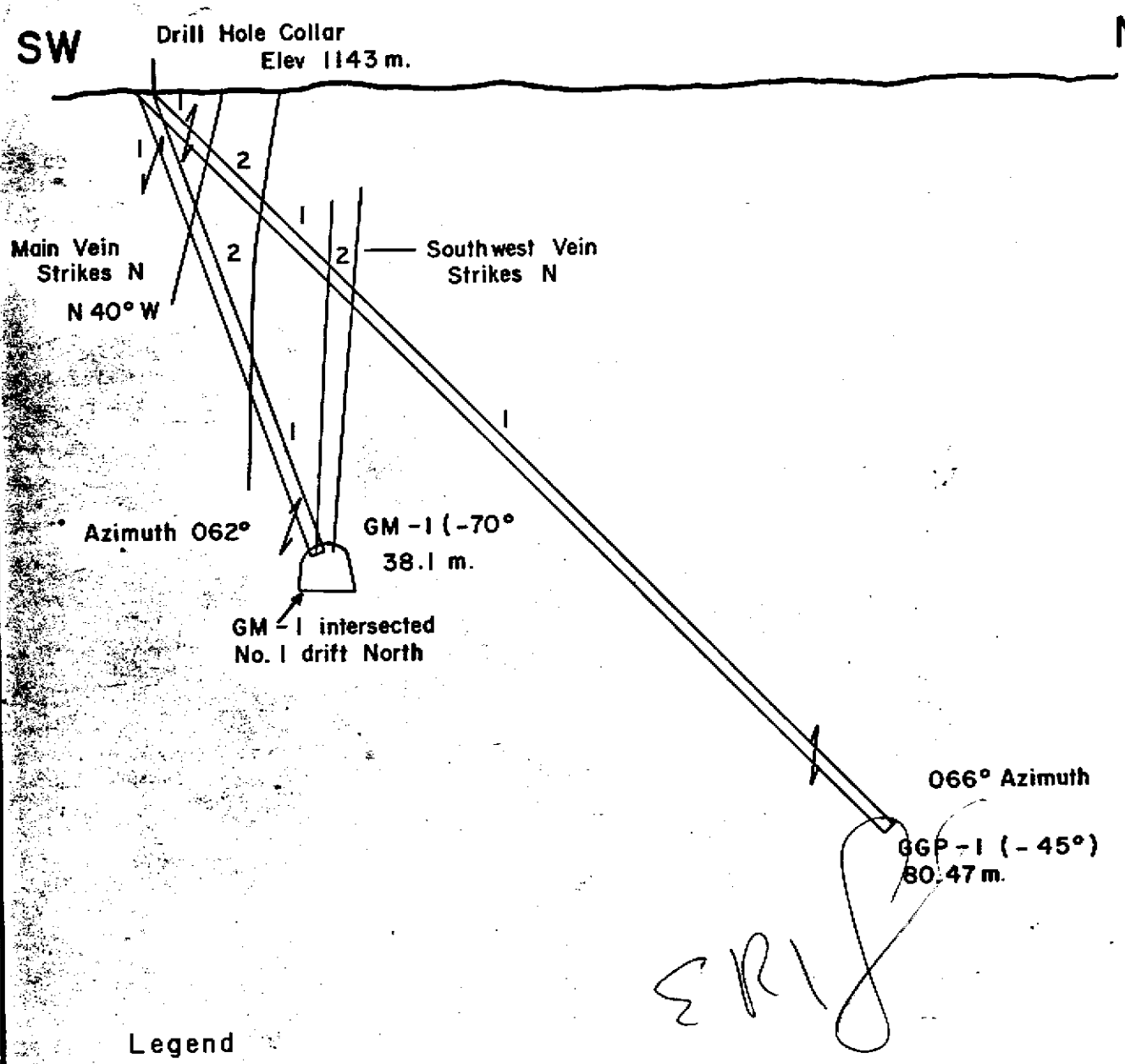

Legend

1 — Meta Volcanic - Finely banded, schistose tuffs and fragmentals

2 — Quartz Vein - Mineralized Qtz., includes tuff fragments

Geological Contact

Schistosity, Lineation

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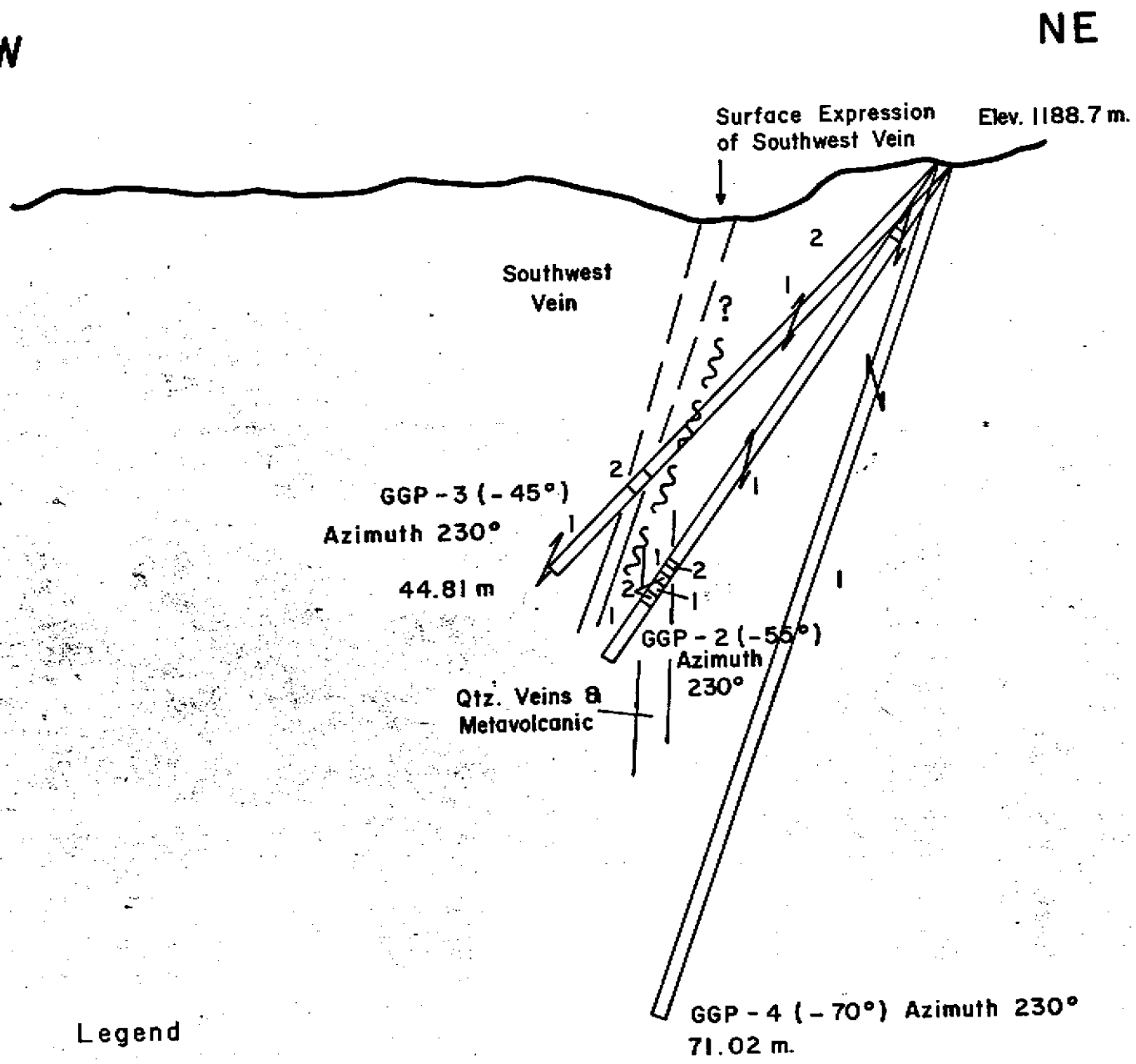
GEORGIA RIVER PROJECT

Geologic Cross Section DDH GM-1 & DDH GGP-1

TO ACCOMPANY REPORT BY: E.R. KRUCHKOWSKI

C.L.C. - DRAFTING VANCOUVER B.C.	SCALE 1 : 500	DATE: JULY 1980
	PROJECT No. 2141	FIGURE No. 6
	NTS 103 - O/16W	DRAWN BY: C.L.C.

E & B Explorations Ltd.



Legend

1 Meta Volcanic - Finely banded, schistose tuffs and fragmentals

2 Quartz Vein - Mineralized Qtz., includes tuff fragments

Geological Contact

Schistosity, Lineation

E & B EXPLORATIONS LTD.

GEORGIA RIVER PROJECT

Geologic Cross Section

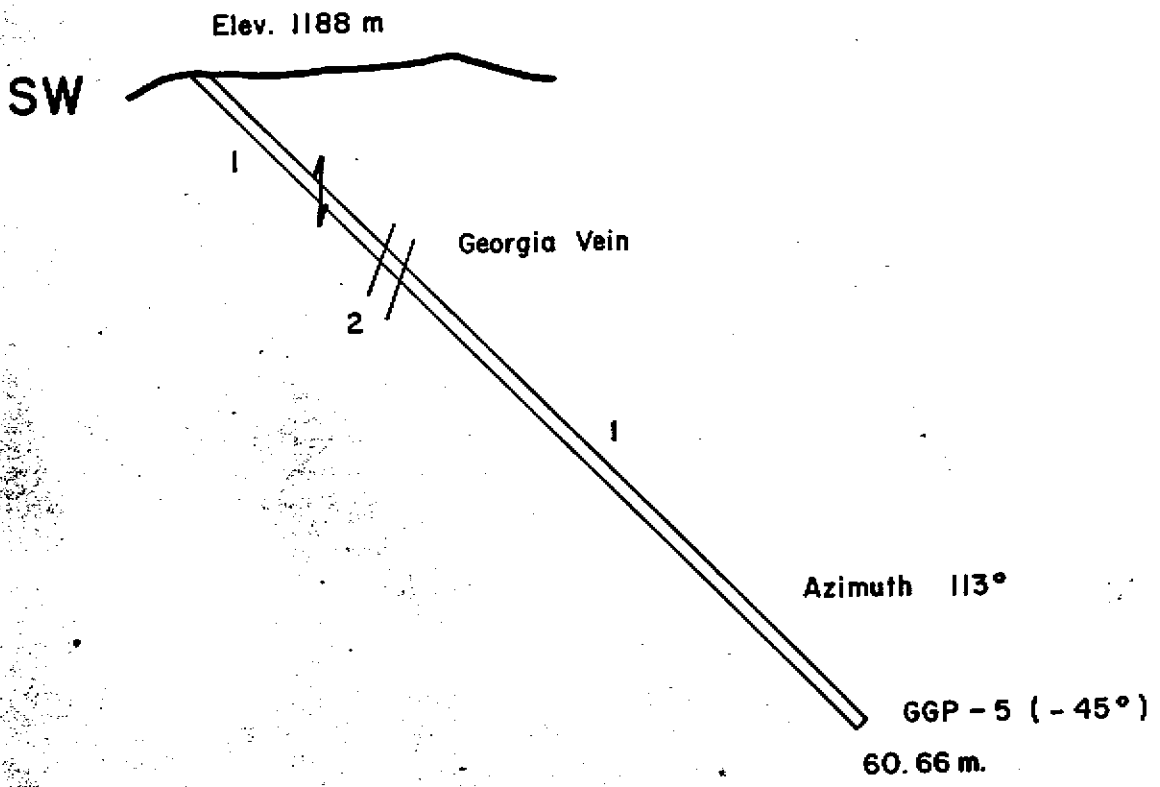
DDH GGP-2 - DDH GGP-4

TO ACCOMPANY REPORT BY: E. R. KRUCHKOWSKI

C. L. C. - DRAFTING
VANCOUVER B.C.

SCALE 1 : 500	DATE: JULY 1980
PROJECT No. 2141	FIGURE No. 7
NTS 103 - O/16W	DRAWN BY: C. L. C.

E & B Explorations Ltd.



Legend

1	Meta Volcanic - Finely banded, schistose tuffs and fragmentals
2	Quartz Vein - Mineralized Qtz., includes tuff fragments
/	Geological Contact
/	Schistosity, Lineation

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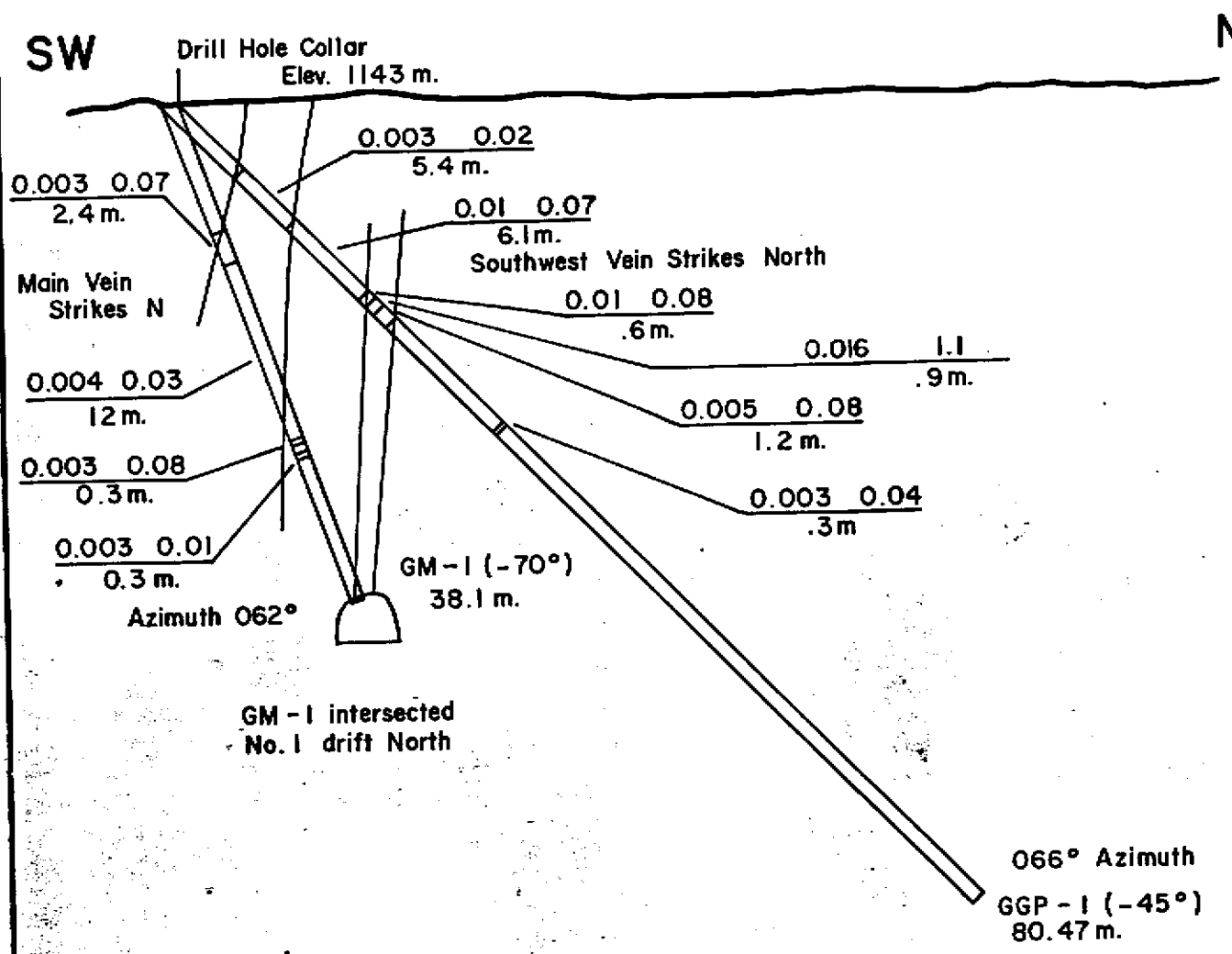
GEORGIA RIVER PROJECT
Geologic Cross Section
DDH GGP - 5

TO ACCOMPANY REPORT BY: E. R. KRUCHKOWSKI

C. L. C. - DRAFTING
VANCOUVER B.C.

SCALE 1 : 500	DATE: JULY 1980
PROJECT No. 2141	FIGURE No. 8
NTS 103 - O/16W	DRAWN BY: C. L. C

E & B Explorations Ltd.



Legend

Au	Ag
0.003	0.07

Interval - m.

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GEORGIA RIVER PROJECT

Assay Section

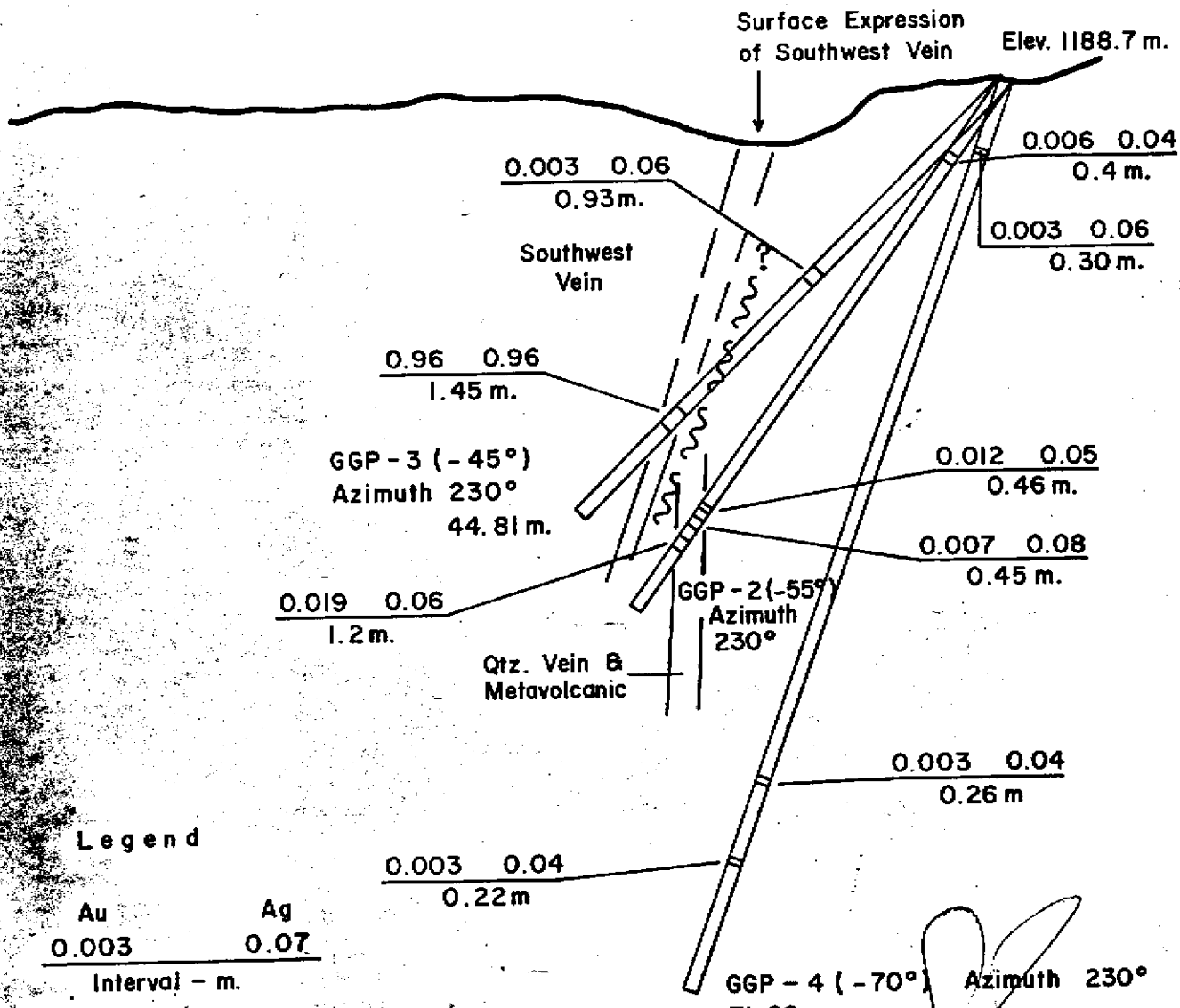
DDH GM-1 & DDH GGP-1

TO ACCOMPANY REPORT BY: E. R. KRUCHKOWSKI

C.L.C. - DRAFTING
VANCOUVER B.C.

SCALE 1 : 500	DATE: JULY 1980
PROJECT No. 2141	FIGURE No. 9
NTS 103-O/16W	DRAWN BY: C.L.C.

E & B Explorations Ltd.



Legend

Au	Ag
0.003	0.07

Interval - m.

E & B EXPLORATIONS LTD.

GEORGIA RIVER PROJECT

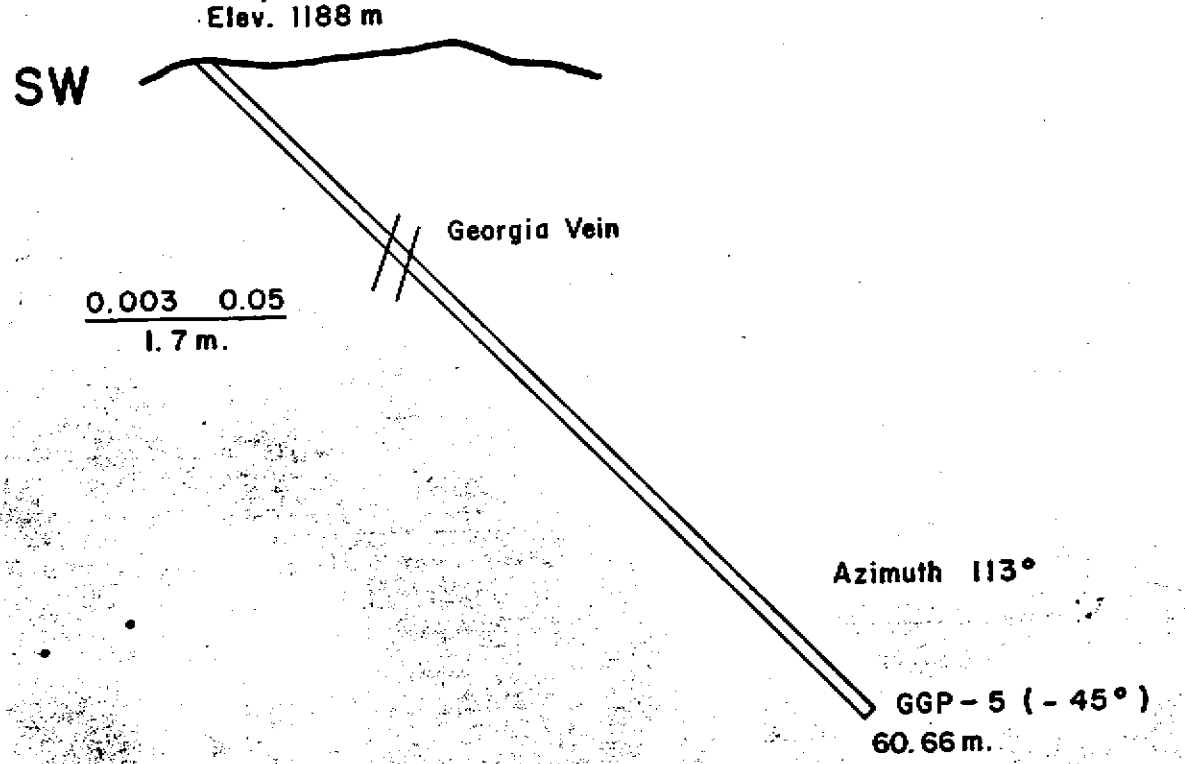
Assay Section

DDH GGP-2-DDH GGP-4

TO ACCOMPANY REPORT BY: E. R. KRUCHKOWSKI

C. L. C. - DRAFTING
VANCOUVER B.C.

SCALE 1:500	DATE: JULY 1980
PROJECT No. 2141	FIGURE No. 10
NTS 103-O/16W	DRAWN BY: C. L. C.



Legend

Au	Ag
0.003	0.07

Interval - m

E R K

E & B EXPLORATIONS LTD.

GEORGIA RIVER PROJECT

Assay Section

DDH GGP-5

TO ACCOMPANY REPORT BY: E. R. KRUCHKOWSKI

C. L. C. - DRAFTING
VANCOUVER B.C.

SCALE 1:500	DATE: JULY 1980
PROJECT No. 2141	FIGURE No. 11
NTS 103-O/16W	DRAWN BY: C. L. C.

CONCLUSIONS

The results of the 1979 drilling indicate that high grade gold and silver mineralization exists in narrow quartz veins. The mineralization appears to be associated with galena and sphalerite in areas of cross fracturing. Indications by previous workers suggested possible extension of mineralization along the north 40° west trending quartz veins (Main, Georgia, Gem). The 1979 program indicates that values are likely restricted to the north trending quartz filled fissure zones.

Preliminary field work indicates that the Bullion vein probably does not intersect the Georgia and Southwest vein but likely swings to the northeast paralleling the Southwest vein.

Cobbett Creek is most likely underlain by a north trending fissure parallel to the Southwest and Bullion vein.

The property has excellent potential for developing numerous small ore shoots at zones of cross fracturing.

Further exploration work should consist of detailed mapping, trenching and diamond drilling to adequately test the ore potential of the property.

RECOMMENDATIONS

1. Dewater No.3 level - digout caved in No.3 portal
   2 men for 7 days @ $150/day $1,050

2. Wash down the underground workings - map and sample the vein system - 3 levels.
   2 men for 10 days @ $150/day 3,000

3. Surface trenching and sampling
   Expose 5 veins - drill, blast muck and sample.
   4 men for 60 days @ $300/day 18,000

4. Geological mapping at scale 1:2500 includes drill supervision
   4 months @ $7,500/month 30,000

5. Diamond drilling on Southwest and Bullion veins
   2,500 feet @ $35/foot 87,500

E & B Explorations Ltd.

TOTAL COST

Personnel - 4 month program		
1 cook @ $50/day	$6,000	
4 senior assistants @ $75/day	36,000	
1 supervisory geologist	30,000	$72,000
Equipment Rentals		
Cobra and accessories @ $40/day	$ 4,800	
Water pump + 1,500 ft. of hose @ $25/day	3,000	
Camp gear and accessories @ $1,400/month	5,600	$13,400
Groceries and Fuel		
6 men @ $15/day for 4 months		10,800
Diamond Drilling		
2,500 feet @ $35/foot		87,500
Helicopter support		
90 hours @ $365/hour + 25/fuel		35,100
Assaying		
400 samples @ $20/sample		8,000
		$226,800

REFERENCES

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1915 - K71
1916 - K-85
1917 - F-66
1918 - K75-76
1922 - N65-66
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Elwell, J.P. 1979 — Progress Report # 2 on the Georgia Gold Mine, Stewart Area, Skeena Mining Division, B.C.

Grove, E.W. 1971 — Geology and Mineral Deposits of the Stewart Area, B.C. British Columbia Department of Mines and Petroleum Resources, Bulletin No.58.

Hemsworth, F.J. 1972 — Report on the Georgia Gold Mine, Stewart, B.C.

CERTIFICATE

I, EDWARD R. KRUCHKOWSKI, Geologist, residing at 23 Templeside Bay, North East, in the City of Calgary, in the Province of Alberta, hereby certify that:

1. I received a Bachelor of Sciences Degree in Geology from the University of Alberta, Edmonton, Alberta in 1972.

2. I have been practising my profession as an Exploration Geologist since 1972.

3. I am employed by E & B Explorations Ltd., at 2900 Cascade Building, 300 - 5th Avenue S.W., in the City of Calgary, in the Province of Alberta.

4. I hold no direct interest in, or expect to receive any of the benefits from the minerals property or properties described in this report.

5. The work described in this report was undertaken under my direct supervision.

DATED at the City of Calgary, in the Province of Alberta
This 25 day of August, A.D., 1980.

E.R. KRUCHKOWSKI, B. Sc.
Geologist

Province of
British Columbia
Ministry of Mines and
Petroleum Resources

MINERAL ACT

Statement of Exploration and Development

I, E&B Explorations Ltd. (Name)
2900, 300-5th Ave. S.W. (Address)
Calgary, Alberta
Valid subsisting F.M.C. No. 193077

Agent for Mike Boyle (Name)
Surrey, B.C. (Address)
Valid subsisting F.M.C. No. Not available pleas insert.

STATE THAT

1. I have done, or caused to be done, work on the Sun #1 (20 units) & Mike #2 (20 units) Mineral Claim(s)
Record No.(s) 1622 & 1721
Situate at the Cassiar District in the Skeena Mining Division,
to the value of at least 52,640.00 dollars. Work was done from the 20 day
of May 19 80, to the 24 day of July 19 80

2. The following work was done in the 12 months in which such work is required to be done:

(COMPLETE APPROPRIATE SECTION(S) A, B, C, D, FOLLOWING)

A. PHYSICAL (Trenches, open cuts, adits, pits, shafts, reclamation, and construction of roads and trails)

(Give details as required by section 13 of regulations.)	COST
TOTAL PHYSICAL	

B. PROSPECTING (Details in report submitted as per section 9 of regulations.)
(The itemized cost statement must be part of the report.)

	COST
TOTAL PHYSICAL AND PROSPECTING	

I wish to apply $_____ of this work to the claims listed below.

(State number of years to be applied to each claim and its month of record.)

(For C and D sections, please turn over.)

C. DRILLING (Details in report submitted as per section 8 of regulations.)
(The itemized cost statement must be part of the report.)

	COST

D. GEOLOGICAL, GEOPHYSICAL, GEOCHEMICAL
(Details in report submitted as per section 5, 6, or 7 of regulations.)
(The itemized cost statement must be part of the report.)
(State type of work in space below.)

Geological Surveys & Prospecting	52,640.00
TOTAL OF C AND D	52,640.00

Who paid for the above-described work? Name E&B Explorations Ltd.
Address 2900, 300-5th Ave. S.W.
Calgary, Alberta

Portable Assessment Credits (PAC) Withdrawal Request	AMOUNT
Amount to be withdrawn from owner(s) account(s):	
Name of Owner	
(May be no more than 30 per cent of value of the approved work submitted as assessment work in C and (or) D.) 1.	
2.	
3.	
4.	
TOTAL WITHDRAWAL	
TOTAL OF C AND (OR) D PLUS PAC WITHDRAWAL	

I wish to apply $ 52,000.00 of this work to the claims listed below.

(State number of years to be applied to each claim and its month of record.)

Sun #1 (20 units) recorded August 15, 1979, apply 8 years

Mike #2 (20 units) recorded August 18, 1979, apply 8 years

Value of work to be credited to portable assessment credit (PAC) account(s).

(May only be credited from the approved value of C and (or) D not applied to claims.)

	Name	AMOUNT
In owner(s) name.	1.	
	2.	
	3.	
In operator(s) name (person paying for the work).	1.	
	2.	
	3.	

John C. Lund
(Signature of Applicant)

John C. Lund
Vice-President Explorations
E&B Explorations Ltd.

MINERAL ACT

FORM 1

NOTICE TO GROUP

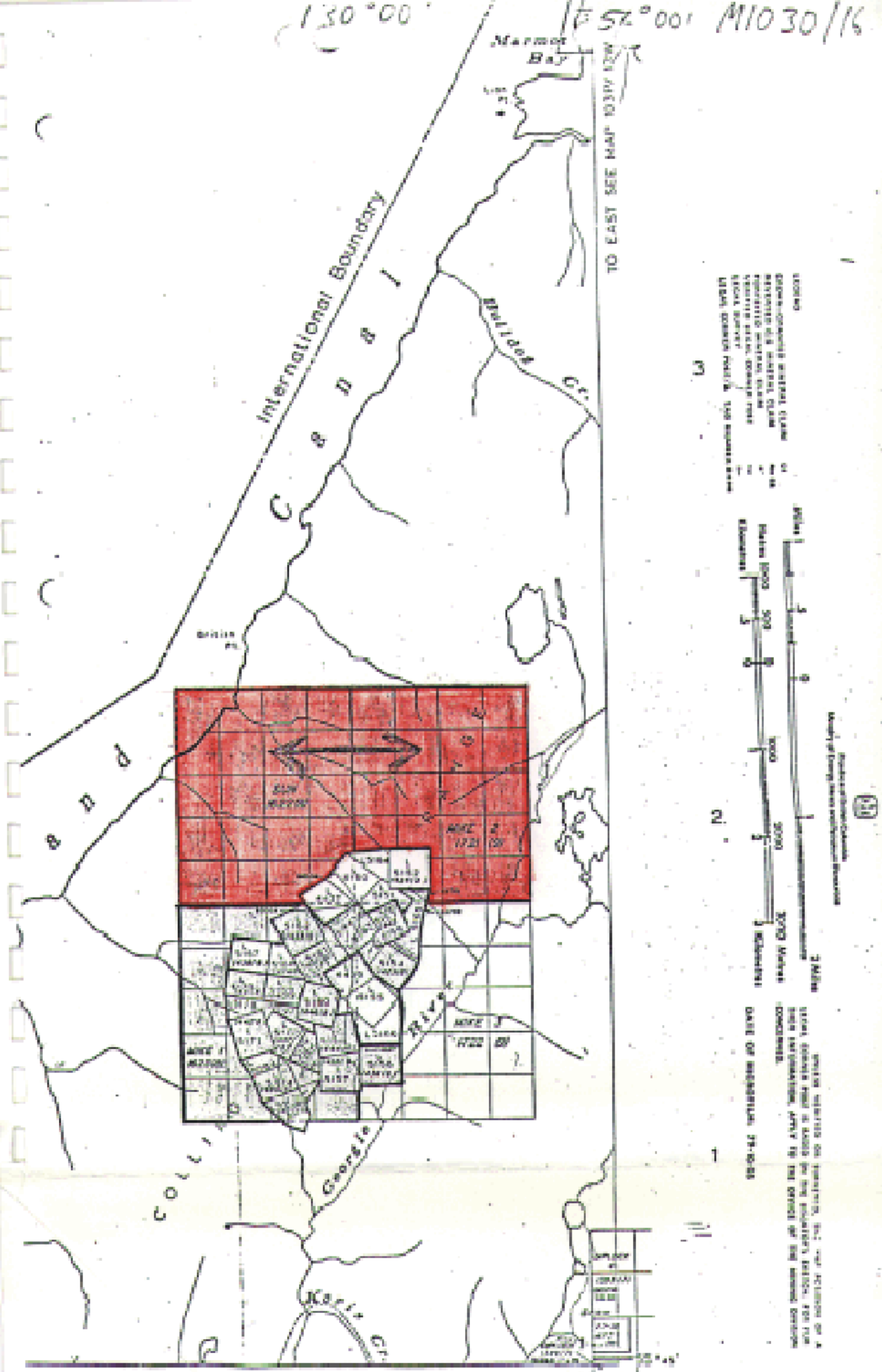
Mining Division Skeena Location British Columbia

Name of group Georgia River Map No. 1030/16E

We, the undersigned owners* of the following adjoining mineral claims, desire to group them according to the provisions of the *Mineral Act*:—

NAME OF CLAIM	No. of Units	Record No. or Lot No.	Month of Record	SIGNATURE OF OWNER*	Free Miner's Certificate No.
Sun #1	20	1622	08	Mike Boyle, Surrey	N.A. Please
Mike #2	20	1721	08	"	"
				E&B Explorations Ltd.	193077
				John C. Lund	168841
				Vice-President Explorations	

* May be signed by agent on behalf of owner.



'9E To South see Map 103O/9E

EUM RESOURCES

This map is prepared ...

Province of
British Columbia
Ministry of Mines and
Petroleum Resources

MINERAL ACT

Statement of Exploration and Development

1. Mike Boyle, Surrey, B.C.

I, E&B Explorations Ltd. (Name) Agent for 2. Cannon Resources Ltd. (Name)

2900, 300-5th Ave. S.W. (Address) 555 Howe Street (Address)

Calgary, Alberta T2P 3C4 Vancouver, B.C.

Valid subsisting F.M.C. No. 193077 Valid subsisting F.M.C. No. Not available please insert

STATE THAT

1. I have done, or caused to be done, work on the Please see attached list. Mineral Claim(s)

Record No.(s) 1623, 1429-1433, 1435-1448 & 4438 (Crown Grant)

Situate at the Cassiar District in the Skeena Mining Division,

to the value of at least 66,455.00 dollars. Work was done from the 15 day

of October 19 79, to the 20 day of November 19 79

2. The following work was done in the 12 months in which such work is required to be done:

(COMPLETE APPROPRIATE SECTION(S) A, B, C, D, FOLLOWING)

A. PHYSICAL (Trenches, open cuts, adits, pits, shafts, reclamation, and construction of roads and trails)

(Give details as required by section 13 of regulations.)	COST
TOTAL PHYSICAL	

B. PROSPECTING (Details in report submitted as per section 9 of regulations.)
(The itemized cost statement must be part of the report.)

	COST
TOTAL PHYSICAL AND PROSPECTING	

I wish to apply $_____ of this work to the claims listed below.

(State number of years to be applied to each claim and its month of record.)

(For C and D sections, please turn over.)

C. DRILLING (Details in report submitted as per section 8 of regulations.)
(The itemized cost statement must be part of the report.)

	COST
	66,455.00

D. GEOLOGICAL, GEOPHYSICAL, GEOCHEMICAL
(Details in report submitted as per section 5, 6, or 7 of regulations.)
(The itemized cost statement must be part of the report.)
(State type of work in space below.)

TOTAL OF C AND D	66,455.00

Who paid for the above-described work? Name E&B Explorations Ltd.
Address 2900, 300-5th Ave. S.W.
Calgary, Alberta

Portable Assessment Credits (PAC) Withdrawal Request	AMOUNT
Amount to be withdrawn from owner(s) account(s): Name of Owner	
(May be no more than 30 per cent of value of the approved work submitted as assessment work in C and (or) D.) 1.	
2.	
3.	
4.	
TOTAL WITHDRAWAL	
TOTAL OF C AND (OR) D PLUS PAC WITHDRAWAL	

I wish to apply $ 66,300.00 of this work to the claims listed below.
(State number of years to be applied to each claim and its month of record.)

APPLY 10 YEARS TO EACH OF THE FOLLOWING CLAIMS: Mike 1 (20 units) recorded Aug. 15/79, Goldfields 2 & Jitney (1 unit), June 7 & Sept. Fr. (1 unit), Danny Fr., Sovereign Fr. & Sovereign 1 (1 unit), June 8,9 & 10 (1 unit), Sovereign 2 (1 unit), Goldfields 5 (1 unit), Goldfields 6 (1 unit), Gem Fr. (1 unit), June (1 unit), June 1 (1 unit), June 2 (1 unit), June 3 (1 unit), June 4 (1 unit), June Fr. (1 unit), Goldfields 4 (1 unit), Goldfields 1 (1 unit), Sovereign (1 unit), June 5 (1 unit), June 6 (1 unit).
ALL OF THE ABOVE LISTED CLAIMS WITH THE EXCEPTION OF MIKE 1 WERE RECORDED ON AUGUST 2, 1979.

Value of work to be credited to portable assessment credit (PAC) account(s).

(May only be credited from the approved value of C and (or) D not applied to claims.)

	Name	AMOUNT
In owner(s) name.	1.	
	2.	
	3.	
In operator(s) name (person paying for the work).	1.	
	2.	
	3.	

John C. Lund
(Signature of Applicant)
John C. Lund
Vice-President Explorations

Province of
British Columbia
Ministry of Mines and
Petroleum Resources

MINERAL ACT

Statement of Exploration and Development

I, E&B Explorations Ltd. (Name)
2900, 300-5th Ave. S.W. (Address)
Calgary, Alberta

Valid subsisting F.M.C. No. 193077

Agent for Mike Boyle (Name)
Surrey, B.C. (Address)

Valid subsisting F.M.C. No. Not available pleas insert.

STATE THAT

1. I have done, or caused to be done, work on the Mike 3 (20 units) Mineral Claim(s)

Record No.(s) 1722

Situate at the Cassiar District in the Skeena Mining Division,

to the value of at least 26,320.00 dollars. Work was done from the 20 day of May 19 80, to the 24 day of July 19 80.

2. The following work was done in the 12 months in which such work is required to be done:

(COMPLETE APPROPRIATE SECTION(S) A, B, C, D, FOLLOWING)

A. PHYSICAL (Trenches, open cuts, adits, pits, shafts, reclamation, and construction of roads and trails)

(Give details as required by section 13 of regulations.)	COST
TOTAL PHYSICAL	

B. PROSPECTING (Details in report submitted as per section 9 of regulations.)
(The itemized cost statement must be part of the report.)

	COST
TOTAL PHYSICAL AND PROSPECTING	

I wish to apply $_____ of this work to the claims listed below.

(State number of years to be applied to each claim and its month of record.)

(For C and D sections, please turn over.)

C. DRILLING (Details in report submitted as per section 8 of regulations.)
(The itemized cost statement must be part of the report.)

	COST

D. GEOLOGICAL, GEOPHYSICAL, GEOCHEMICAL
(Details in report submitted as per section 5, 6, or 7 of regulations.)
(The itemized cost statement must be part of the report.)
(State type of work in space below.)

Prospecting & Geological Surveys	26,320.00
TOTAL OF C AND D	26,320.00

Who paid for the above-described work? Name E&B Explorations Ltd.

Address 2900, 300-5th Ave. S.W.
Calgary, Alberta

Portable Assessment Credits (PAC) Withdrawal Request

Amount to be withdrawn from owner(s) account(s):

Name of Owner	AMOUNT
(May be no more than 30 per cent of value of the approved work submitted as assessment work in C and (or) D.) 1.	
2.	
3.	
4.	
TOTAL WITHDRAWAL	
TOTAL OF C AND (OR) D PLUS PAC WITHDRAWAL	

I wish to apply $ 26,000.00 of this work to the claims listed below.

(State number of years to be applied to each claim and its month of record.)

Mike #3 (20 units) recorded September 18, 1979 apply 8 years

Value of work to be credited to portable assessment credit (PAC) account(s).

(May only be credited from the approved value of C and (or) D not applied to claims.)

	Name	AMOUNT
In owner(s) name.	1.	
	2.	
	3.	
In operator(s) name (person paying for the work).	1.	
	2.	
	3.	

(Signature of Applicant)

John C. Lund
Vice-President Explorations
E&B Explorations Ltd.

Province of
British Columbia
Ministry of Mines and
Petroleum Resources

MINERAL ACT

Statement of Exploration and Development

I, E&B Explorations Ltd. (Name)
2900, 300-5th Ave. S.W. (Address)
Calgary, Alberta

Agent for Cannon Resources Ltd. (Name)
555 Howe Street (Address)
Vancouver, B.C.

Valid subsisting F.M.C. No. 193077

Valid subsisting F.M.C. No. Not available please insert.

STATE THAT

1. I have done, or caused to be done, work on the Goldfields (1 unit) Mineral Claim(s)

Record No.(s) 1434

Situate at the Cassiar District in the Skeena Mining Division,

to the value of at least 1,300.00 dollars. Work was done from the 20 day

of May 19 80, to the 24 day of July 19 80

2. The following work was done in the 12 months in which such work is required to be done:

(COMPLETE APPROPRIATE SECTION(S) A, B, C, D, FOLLOWING)

A. PHYSICAL *(Trenches, open cuts, adits, pits, shafts, reclamation, and construction of roads and trails)*

(Give details as required by section 13 of regulations.)	COST
TOTAL PHYSICAL	

B. PROSPECTING (Details in report submitted as per section 9 of regulations.)
(The itemized cost statement must be part of the report.)

	COST
TOTAL PHYSICAL AND PROSPECTING	

I wish to apply $_____ of this work to the claims listed below.

(State number of years to be applied to each claim and its month of record.)

(For C and D sections, please turn over.)

C. DRILLING (Details in report submitted as per section 8 of regulations.)
(The itemized cost statement must be part of the report.)

	COST

D. GEOLOGICAL, GEOPHYSICAL, GEOCHEMICAL
(Details in report submitted as per section 5, 6, or 7 of regulations.)
(The itemized cost statement must be part of the report.)
(State type of work in space below.)

Prospecting & Geological Surveys	1,316.00
TOTAL OF C AND D	1,316.00

Who paid for the above-described work? Name E&B Explorations Ltd.
Address 2900, 300-5th Ave. S.W.
Calgary, Alberta

Portable Assessment Credits (PAC) Withdrawal Request		AMOUNT
Amount to be withdrawn from owner(s) account(s):	Name of Owner	
(May be no more than 30 per cent of value of the approved work submitted as assessment work in C and (or) D.)	1.	
	2.	
	3.	
	4.	
	TOTAL WITHDRAWAL	
	TOTAL OF C AND (OR) D PLUS PAC WITHDRAWAL	

I wish to apply $1,300.00 of this work to the claims listed below.

(State number of years to be applied to each claim and its month of record.)

Goldfields (1 unit) Recorded August 2, 1979, apply 8 years

Value of work to be credited to portable assessment credit (PAC) account(s).

(May only be credited from the approved value of C and (or) D not applied to claims.)

	Name	AMOUNT
In owner(s) name.	1.	
	2.	
	3.	
In operator(s) name (person paying for the work).	1.	
	2.	
	3.	

John C. Lund
(Signature of Applicant)

John C. Lund
Vice-President Explorations
E&B Explorations Ltd.

GEORGIA RIVER

Claim Name	No. of Units	Record Number	Recording Date
Mike #1	20	1623	August 15, 1979
Goldfields #2	1	1429	August 2, 1979
Jitney		1429	August 2, 1979
June #7	1	1430	August 2, 1979
September Fr.		1430	August 2, 1979
Danny Fr.	1	1431	August 2, 1979
Sovereign Fr.		1431	August 2, 1979
Sovereign #1		1431	August 2, 1979
June #8		1432	August 2, 1979
June #9	1	1432	August 2, 1979
June #10		1432	August 2, 1979
Sovereign #2	1	1433	August 2, 1979
Goldfields #5	1	1435	August 2, 1979
Goldfields #6	1	1436	August 2, 1979
Gem Fr.	1	1437	August 2, 1979
June	1	1438	August 2, 1979
June #1	1	1439	August 2, 1979
June #2	1	1440	August 2, 1979
June #3	1	1441	August 2, 1979
June #4	1	1442	August 2, 1979
June Fr.	1	1443	August 2, 1979
Goldfields #4	1	1444	August 2, 1979
Goldfields #1	1	1445	August 2, 1979
Sovereign	1	1446	August 2, 1979
June #5	1	1447	August 2, 1979
June #6	1	1448	August 2, 1979
Crown Grant - Georgia #1		4438	

MINERAL ACT

FORM 1

NOTICE TO GROUP

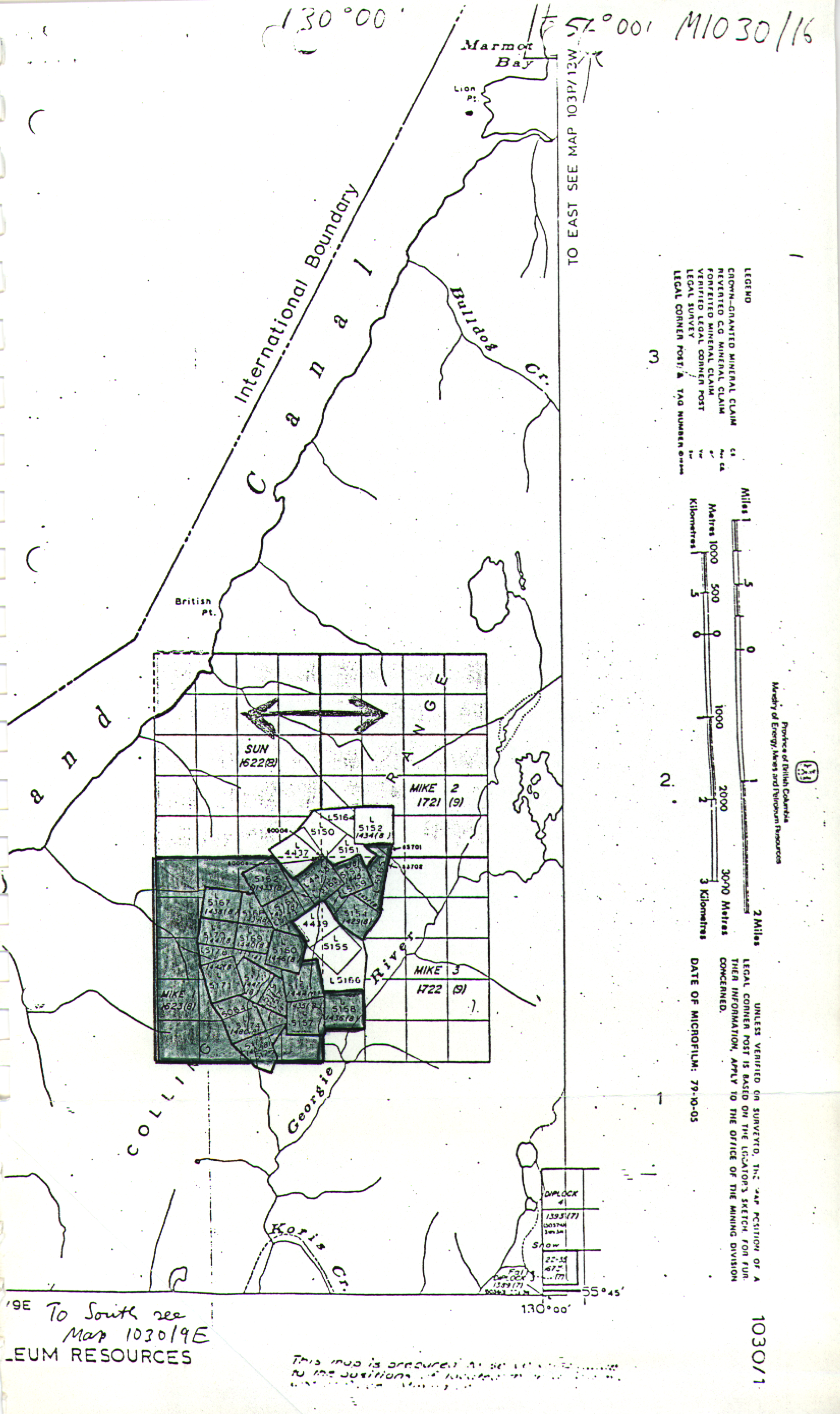
Mining Division Skeena Location British Columbia

Name of group Georgia River Map No. 1030/16E

We, the undersigned owners* of the following adjoining mineral claims, desire to group them according to the provisions of the *Mineral Act*:—

NAME OF CLAIM	No. of Units	Record No. or Lot No.	Month of Record	SIGNATURE OF OWNER*	Free Miner's Certificate No.
Mike #1	20	1623	08	Mike Boyle, Surrey	Not Available Please Insert
Goldfields #2		1429	08	Cannon Resources	N. A. Please Insert
Jitney	1	1429	08	"	"
June #7		1430	08	"	"
September Fr.	1	1430	08	"	"
Danny Fr.		1431	08	"	"
Sovereign Fr.		1431	08	"	"
Sovereign #1	1	1431	08	"	"
June #8		1432	08	"	"
June #9		1432	08	"	"
June #10	1	1432	08	"	"
Sovereign #2	1	1433	08	"	"
Goldfields #5	1	1435	08	"	"
Goldfields #6	1	1436	08	"	"
Gem Fr.	1	1437	08	"	"
June	1	1438	08	"	"
June #1	1	1439	08	"	"
June #2	1	1440	08	"	"
June #3	1	1441	08	"	"
June #4	1	1442	08	"	"
June Fr.	1	1443	08	"	"
Goldfields #4	1	1444	08	"	"
Goldfields #1	1	1445	08	"	"
Sovereign	1	1446	08	"	"
June #5	1	1447	08	"	"
June #6	1	1448	08	"	"
Crown Grant - Georgia #1		4438	-	Thai Aaron Dev. Corp. Ltd.	Not Available Please Insert
				E&B Explorations Ltd.	193077
				John C. Lund Vice-President Explorations	168841

* Must be signed by agent on behalf of owner.



130°00'
55°00'
M103O/16
Marmot Bay
Lion Pt.
TO EAST SEE MAP 103P/13W
International Boundary
Canal
Portland
Bulldog Cr.
British Pt.
RANGE
SUN 1622(8)
MIKE 2 1721 (9)
MIKE 3 1722 (9)
MIKE 1 1623(8)
L 5164
L 5152 1434(8)
L 5150
L 5151
L 4437
L 4439
L 5155
L 5166
L 5167
L 5162
L 5160
L 5171
L 5158
L 5157
L 5154
River
COLLINS
Georgie
Koris Cr.
DIPLOCK 4
1393(7)
Snow
55°45'
130°00'
To South see Map 103O/9E
EUM RESOURCES
LEGEND
CROWN-GRANTED MINERAL CLAIM
REVERTED C.G. MINERAL CLAIM
FORFEITED MINERAL CLAIM
VERIFIED LEGAL CORNER POST
LEGAL SURVEY
LEGAL CORNER POST & TAG NUMBER
Miles 1 .5 0 1 2 Miles
Metres 1000 500 0 1000 2000 3000 Metres
Kilometres 1 .5 0 1 2 3 Kilometres
Province of British Columbia
Ministry of Energy, Mines and Petroleum Resources
UNLESS VERIFIED OR SURVEYED, THE MAP POSITION OF A LEGAL CORNER POST IS BASED ON THE LOCATOR'S SKETCH. FOR FURTHER INFORMATION, APPLY TO THE OFFICE OF THE MINING DIVISION CONCERNED.
DATE OF MICROFILM: 79-10-05
103O/1

APPENDIX I

Property History
Report of the Minister of Mines,
British Columbia 1914 to 1918 inclusive,
1922, 1928, 1929, 1932, 1933 and 1936 and
Bulletin No.1, 1932, Lode Gold Deposits of
British Columbia

Report of the Minister of Mines,

British Columbia

1914

PORTLAND CANAL MINING DIVISION.

REPORT BY JOHN CONWAY, MINING RECORDER.

I have the honour to submit herewith my annual report for the Portland Canal Mining Division for the year ending December 31st, 1914.

Mining generally throughout this Division shows an improvement as compared with 1913. Several of the prominent properties are under bond to reliable parties, and prospects are looking bright for the coming year.

MAPLE BAY.

The several groups of claims owned by Collison & Noble, and the *Comstock* group, owned by the Messrs. Flewin, have been bonded to the Granby Consolidated Mining, Smelting, and Power Company, Limited. The work done by this company consisted of diamond-drilling, and I am informed that results were satisfactory.

GEORGIA RIVER.

The *Guggenheim* group consists of eight claims situated on the eastern slope of a mountain which lies between the North fork of Georgia river and Portland canal, approximately ten miles from Stewart.

The property at present is reached by a trail which zigzags up to the crest and down the other side of the mountain referred to. The natural site for a trail from the south is up the Georgia river, which empties into Portland canal some eight miles farther down, or over a low divide which separates the mountain on which the property is located from the adjoining one on the north. The formation in this vicinity, which is schistose in character, is uniform and appears to be in place.

There are several veins on the property carrying more or less mineralization. Chief amongst these is a large quartz ledge from 10 to 30 feet in width, exposed and traceable across the entire property. No great surface values have been obtained; in several places, however, where open-cuts have been made good gold values have been secured.

Intersecting the large vein a smaller vein occurs, which also gives promise of developing ore. Here, as well, gold values predominate. At two points on the small ledge referred to, where it intersects the larger, some ore is in evidence on the surface; this ore is said to have assayed from 6 to 8 oz. in gold and 15 to 25 oz. in silver; the quartz on the surface gave little or no values where mineralization was absent. As sinking on the small ledge could not be done owing to a small stream flowing over it at the point desired, a shaft was sunk in the hanging wall, in 1912, to a depth of 17 feet. A quartz-seam which was of no consequence at the surface widened out to 18 inches at the bottom, where some excellent high-grade ore was encountered. While the values were not uniform, considerable of the quartz which showed little mineralization gave good assays in gold.

A small crosscut was run to cut the small ledge, this being the original object in view, and at this point the quartz showed very little mineralization. An average across the ledge about 12 inches in width gave 2.4 oz. in gold and 4 oz. in silver.

In 1913 a tunnel was started some distance down the hill which would give considerable backs by the time it reached a point vertical under the shaft. This also had to be driven at the outset in the hanging-wall. In 1914 the tunnel was advanced to a distance of 55 feet from the portal, and had just encountered the ledge when work was discontinued for the season.

1914

E & B Explorations Ltd.

About 200 feet above the point of intersection on the first-mentioned or larger vein considerable work in the way of open-cuts was performed, assays of the ore ranging from 0.2 to 3.7 oz. in gold being obtained.

While the property is a promising one, still enough work has not been done to determine or indicate in any measure what can be expected.

The co-owners of the property, C. H. Dickie, Beaton & Hemsworth, are making arrangements to commence active development-work in the spring as soon as weather conditions permit.

MARMOT RIVER.

The *Emma Gordon* group, consisting of three claims, is situated on the shore-line of Portland canal just south of the mouth of Marmot river, and is owned by S. G. O. Chalmers and G. W. Bruggy. Twenty-five feet of tunnel has been driven and considerable amount of surface work has been done. A small trial shipment made to the Trail smelter gave the following assay values: Gold, 0.08 oz.; silver, 66.4 oz.; copper, 0.56 per cent.

Montana Group.—A leasing bond has been taken on this property by Angus McLeod and G. W. Bruggy. It was the intention of the lessees to make a shipment of high-grade ore in the fall, but smelting conditions would not warrant them in doing so.

SALMON RIVER.

The group of eight claims owned by the Salmon-Bear River Mining Company, Limited, was bonded in November to H. Robinson Plate, of New York. Mining operations commenced early in December with a force of ten men under the superintendency of N. L. Wimmler, M.E.

It is the intention of the management to use diamond-drills for prospecting the ground, and drills will be taken to the property over the snow-crust in March.

Big Missouri Group.—On the *Big Missouri* claim the crosscut tunnel started some time ago was extended 20 feet, but it will require at least another 25 feet to get under the ore-body showing on the surface. On the *Province* claim a tunnel was driven 15 feet, all in ore. On the *Golden Crown* claim the tunnel was extended a considerable distance, and on the *Union* claim an open-cut about 10 feet shows some ore.

This property is under bond to the Gastineau Mining Company, which is operating on a large scale in the vicinity of Juneau, Alaska. Diamond-drills will be used for proving up the ground and operations will commence early in the spring.

Yellowstone Group.—This group was under option to the Canadian Mining and Exploration Company, Limited. The work done by the company under the superintendency of W. J. Rolfe, M.E., consisted entirely of surface work, such as small shafts and trenches. The owners were notified three months after the expiration of the option that the company had decided not to continue development on the property.

The *Martha Ellen* group, owned by the Hercules Mines, Limited, was also under examination by Mr. Rolfe for the Canadian Mining and Exploration Company, Limited. The same character of work was done as on the *Yellowstone* group. It is the intention of the Hercules Mines, Limited, to install an oil-driven compressor on the property early in the spring.

The Indian Mines, Limited, reports 65 feet of drifting along the hanging-wall in No. 1 tunnel, and 25 feet of crosscutting in No. 1 tunnel.

Annual assessment only was done on the Cascade Falls Mining Company's property during the year.

Report of the Minister of Mines

British Columbia

1915

PORTLAND CANAL MINING DIVISION.

REPORT BY P. S. JOCE, MINING RECORDER.

I have the honour to submit herewith my annual report for the Portland Canal Mining Division for the year ending December 31st, 1915.

In the month of September John Conway resigned as Mining Recorder. Mr. Conway had been associated with Stewart for a number of years and had been Mining Recorder since 1910.

A number of new locations have been made and the assessment-work is being well kept up. On several properties, which have been bonded to reliable parties, work has been carried on during the summer, and on the *Rush* property, on Salmon river, work was continued to the end of the year.

GEORGIA RIVER.

Georgia River Property.—Development of this property was undertaken by the Georgia River Mining Company, Limited, on May 1st, 1915, and continued up to October 16th. Work was closed down at that time owing to the fact that a permanent camp had not as yet been established. It is the *intention to construct proper buildings this coming spring*, when development-work will be resumed. From seven to nine men were continuously employed during the summer.

There is now, in addition to considerable trenching and open-cut work, 315 feet of underground working on the property. There are several veins on the ground held by the company, but the chief showings *are to be found on the large quartz* vein called the "Main," and a smaller intersecting vein known as the "Bullion."

The principal working consists of a tunnel on the Bullion vein which is now advanced to the point of intersection, a distance of 245 feet beyond its portal. Here development bore excellent results, *considerable ore containing gold values being uncovered.*

At a point 115 feet from the portal of the tunnel a raise has been put up to connect with the shaft, which had been previously sunk, a total of 35 feet to the surface.

The development-work on the Main vein consists of stripping and several open-cuts. A crosscut also, 38 feet of which is in vein-matter, was driven at a point approximately 150 feet horizontally and 225 feet vertically from the intersection. The result of this work was very encouraging. A considerable portion of the vein was found to carry gold values, and, apart from this, a seam 18 inches in width contained some excellent free-gold ore. (Report furnished by W. Beaton, Esq.)

MARMOT RIVER.

On the property of Bruggy & Magee, the *Montana* group, consisting of seven claims, leased to Bruggy & McLeod, a 30-foot tunnel crosscutting the ledge was driven; a shaft also was sunk 20 x 20 feet. Sixteen tons of ore was taken out and shipped to the Tacoma smelter. A small aerial tram was erected to facilitate the handling of the ore. Forty feet of stripping was done on a new vein which produced values running over $100 in gold, silver, and lead.

SALMON RIVER.

The following *brief description of the Salmon-Bear River Mining Company's* property and the work that has been done during the past twelve months has been furnished by H. R. Plate:—

"I will not go into the geological features, as Mr. McConnell has given these in former reports.

"The property *is located about a mile and a half* from the International Boundary-line on *Cascade* creek, a tributary of the Salmon river, the distance from Stewart by trail being *about* eleven miles.

"*Geology.*—The rock formation in this section is greenstone, grading from the massive to schistose. *To the south of the Rush property (Salmon-Bear River Mining Company)* the granodiorite comes in contact with the greenstone, and on the property there is *what appears to be* an offshoot of the main diorite-mass that intrudes itself into the greenstone.

"*Ore-deposition.*—On both sides of the dyke for a distance of between 20 to 50 feet the wallrock has been *mineralized to some extent. The intensity of the* mineralization varies greatly where the zone has been exposed, there being spots that are almost solid sulphide ore, and again within a short distance from these the ore is quite sparse. The impregnation, or replacement,

Report of the Minister of Mines

British Columbia

1916

1916

SWAMP POINT.

"The limestone-quarry on the beach at Swamp point has been operated continuously during the year, an average of about 4,000 tons of rock being produced monthly. A new quarry is being opened up about half a mile from the beach. This necessitates a new railway and wharf, construction-work on which is almost completed. The railway will be operated by a 3½-ton gasolene locomotive with 4-ton ore-cars. About twenty men are employed at this point.

MAPLE BAY.

"At Maple bay in June last we started development-work on the *Star* claim by means of a 6- x 7-foot tunnel, which has been up to now driven some 350 feet. From the tunnel a 2-foot gauge railway has been constructed 4,000 feet to the beach, which will deliver ore from the mine-bunkers to a new wharf 700 feet long, which has also been built since June. In October we started development-work on the *Thistle* claim, a 6- x 7-foot tunnel being started here. A power plant has been installed at the beach, consisting of two 60-horse-power locomotive type boilers equipped for oil-burning. This furnishes power for a compressor of 750 cubic feet capacity. A 5-inch pipe-line extends from this plant to the mine. A 7-ton gasolene locomotive with 4-ton cars will handle ore from the bunkers to the wharf. A bunk-house and mess-house providing accommodation for sixty men has been built, together with three cottages, a general store and office, warehouse, blacksmith's shop, etc. Development-work has been carried on steadily at the *Star* claim, and the property is now almost ready to start shipping. The ore produced in these properties is quartz, with copper values. We have about 100 men working on the properties at this point."

GEORGIA RIVER.

Operations were resumed on the Georgia River group by the Georgia River Mining Company, Limited, in the month of May. A crew of from six to eight men was employed during the season. Development-work was somewhat handicapped, due to the lateness of the spring. The work this year was chiefly directed to advancing the tunnel on the *Bullion* vein; this tunnel is 302 feet in length, of which 117 feet was driven this year. On October 1st a contract was let to sink a winze on the first ore-shoot exposed in the tunnel, to a depth of 40 feet. The point where the winze starts is approximately 120 feet from the portal and about 40 feet vertical to the surface from the tunnel-level. Here the ore, which carries good gold values, was 10 inches in width. When the winze reached a depth of 22 feet the ore had widened out to 2 feet 6 inches, and in much of it considerable gold was visible. At the depth mentioned (22 feet) the ore, which inclined from the wall, went out into the other side of the winze. The winze was continued along the wall, which stands practically perpendicular, but at a depth of 35 feet so much water was encountered that it could not be handled with the means at hand; consequently, work was discontinued for the time being. At the bottom of the winze another seam of ore a few inches wide, inclining similarly to the ore occurrence above, was disclosed. Very little work was performed on the Main vein. An open-cut made on the Main vein near the top of the mountain, 2,000 feet or more from the intersection of the *Bullion* vein, exposed some very rich gold-quartz ore. The lateness of the season prevented any extensive development at this point. Another showing of the same kind of ore was uncovered at a point approximately 1,000 feet below the intersection. Owing to the promising results attendant on this work carried out, extensive development of both veins is now being projected.

MARMOT RIVER.

In the month of September the *Riverside* group, consisting of four claims—the *Riverside*, *Golden Star*, *Silver Dollar*, and *Wicktoria*—was purchased by Robert W. Martin. A crew of six men worked on this property from September to the end of October, when work was discontinued. Considerable exploration-work was done on the property and 20 feet of 5- x 7-foot tunnel has been recorded.

The *North Fork Basin* group, owned by Wood, Magee, and Fraser, consists of eight claims—the *North Fork Basin*, *Iron Mask*, *Crawford*, *Boldie*, *Prince*, *Copper*, *Mount Marmot*, and *Lucky Jim*—situated five miles from the mouth of the Marmot river, at an elevation of about 4,000 feet. Two hundred feet of tunnel was driven on this property during the past season. Work was

Report of Minister of Mines

British Columbia

1917

1917

E & B Explorations Ltd.

The mineralized portion of the Division is mainly confined to the eastern contact of the granodiorites of the Coast range and the sedimentaries, being identical with the formation at the head of Observatory inlet. (*See* McConnell's report, 1911, Dominion Geological Survey.) There are about 180 Crown-granted claims and 400 mineral claims in good standing up to the end of 1917.

This district has had a very important revival of mining activities during this year. In both the Bear River and Salmon River valleys development-work has been under way this winter which may have far-reaching results. The rather remarkable progress made by the *Bush* property, the discovery of an apparently large body of similar ore some three miles farther up the valley, and the renewed interest displayed by large mining corporations in the low-grade complex ores of the *Big Missouri* group assure the Salmon River valley of a thorough investigation during the coming year.

A great deal of development-work has been done by the Granby Consolidated Company and the Fernie-Spokane people, who are developing the *Bush* property on Salmon river. The Granby Company has been mining at Maple bay and Swamp point, procuring limestone at the latter point. At Maple bay the company has under option a group of claims owned by Noble, Collison, and others, from which was shipped 5,341 tons of siliceous ore carrying a small percentage of copper and small values in gold and silver, which was utilized for fluxing purposes at the Anyox smelter. The company also shipped from Swamp point 64,604 tons of limestone.

The old *Brown Alaska* group of claims at Maple bay is at present being developed by Spokane interests. I am informed that their recent work has been very encouraging.

Georgia River Mining Co.

Farther up the canal is the *Guggenheim* group, consisting of eight claims—*John D., Guggenheim, J. P. Morgan, Danny, Lookout, Summit, Charlotte,* and *Hillside*—none Crown-granted. They are owned by the Georgia River Mining Company and are under the management of C. H. Dickie, of Duncan, B.C. They are situated about nine miles up the Georgia river, on the west bank, along which a trail has been constructed for about four miles from the canal, on a grade of about 7 per cent. Georgia river flows into Portland canal about seventeen miles south of Stewart, at the head. Access to the property at present is from a point about eight miles from Stewart, from which the summit of the first range, 4,000 feet elevation, is reached in three miles, thence dropping 1,000 feet in another mile to the camp. The completion of the trail up Georgia river was recommended by me and approved by the Department of Mines, which appropriated a sufficient amount, but which was not utilized on account of the lateness of the season.

Little need be said supplementing reports of 1914 and 1916, other than to note the advance in results of development-work. There are several veins cropping on the surface, but all development has been concentrated in the *Bullion* tunnel, which is at an elevation of 3,450 feet. It has been driven on the vein for 390 feet, of which 132 feet is in ore which varies in width from 4 to 12 inches. The ore-shoot has been further proven by a raise of 35 feet through to the surface, from which bonanza ore was taken, and a further depth of 32 feet by winze from the bottom of the tunnel. The more or less sorted ore on the dump taken from the tunnel averages $47 a a ton in gold.

The "Big Showing" on the property is a quartz vein outcropping at intervals for a length of 1,200 to 1,500 feet. It varies from 10 to 20 feet in width and strikes about N. 50° W., intersecting the vein on which the tunnel has been driven at an angle of between 20 and 25 degrees. The intersection of the veins is not apparent in the tunnel, but should be found with little difficulty, from which point the big vein could be drifted on, securing a depth of 300 feet under its surface exposure. An average sample across 19 feet on the surface gave assay returns of $22 a ton in gold (private report).

A small milling plant is planned by the company, with the improvement of transportation facilities. The numerous high-grade quartz-lenses occurring in the argillites should be tempting to the leaser when milling is available.

The region farther up the river has had little or no prospecting.

Prince John Group.

This group consists of three claims—*Prince John No. 1, Prince John No. 2,* and *Prince John No. 3*—owned by Nesbitt & Archie, situated about three miles north of Stewart, on the west bank of Bear river. The owners had done about 90 feet of work in a crosscut tunnel before optioning the claims to the Granby Company. It is reported that 60 feet of the distance was in a low-grade copper ore. The Granby

Report of Minister of Mines

British Columbia

1918

1918

The Marmot river has had very little mining activity of any kind and was not examined this year. I am informed that there are a couple of properties that might get out a small tonnage for shipment if trail conditions were improved.

BEAR RIVER SECTION.*

Molly Group. This group of four claims—*Somme Fraction, Molly Fraction, Gulch Fraction,* and *Molly B.*—is situated on the east side of Bear river about half a mile from tide-water, just across the river from the town of Stewart. The claims are owned by J. W. Stewart, of Victoria, B.C., and associates. Part of the claims are on Indian reserve, but I believe arrangements have been made whereby the Indian owners are to be paid a 10-per-cent. royalty on the net proceeds of ore mined from the reserve.

The rock formation appears to be an altered greenstone, and in places a brownish, schistose-appearing rock resembling tuff. It is very close to the main granite range, and the mountain-side along here is full of isolated tongues of granite intruding through the general greenstone formation.

The showing consists of a vein, running N. 60° E. and dipping 60 degrees to the north, of about 10 feet in width, of quartz with which are associated garnetiferous silicates, epidote, and enclosures of a dark-green rock, probably hornblende, the whole suggesting a vein of contact metamorphic origin. It has been exposed by an open-cut at the edge of the river and a stripping of about 20 feet above to another small cut. The prominent mineralization is pyrite, with scattered chalcopyrite and molybdenite, the latter mainly contained in the greenish hornblendic rock, although it is more or less disseminated throughout the whole vein. It is a strong well-defined-looking ledge and should prove continuous, though it has not been traced any distance owing to the heavy overburden on the hill above, nor has sufficient work been done to form any opinion regarding it.

Without sampling, I would size the vein up to average about 2 per cent. molybdenite. There is about 5 tons piled on the dump, a sample of which was sent to Seattle dealers, who gave returns of 9 per cent. MoS_2, and for which a flat rate was offered of $117 a ton f.o.b. Stewart dock. On the whole, it is a good showing, well located for transportation, and having all the natural advantages of timber, water, and of being easily developed by tunnels. It is worth investigating for molybdenum, and, I understand, can be bought on reasonable terms.

Prince John Group. This group consists of nine claims—*Prince John No. 1* to *No. 9*, inclusive—owned by James Nesbitt and Andy Archie, of Stewart, B.C. The claims are situated on the west bank of Bear river about five miles above Stewart, on the opposite side of the river from the Portland Canal Short Line Railway. The work on the property consists of surface cuts, a crosscut tunnel, and some diamond-drilling done by the Granby Company, which had the property under option last winter. The tunnel, at an elevation of 2,350 feet, shows a cross-section as follows: From the mouth of the tunnel there is 30 feet of greenstone-schists to the ore-body; then 45 feet of schistose, slates, and argillites mineralized with chalcopyrite, disseminated throughout the slates and in narrow bands, veinlets, and small lenticular bunches lying in the bedding-planes and cross-fractures; beyond the mineralized zone is an acidic dyke 45 feet wide; then a width of 65 feet of slate and argillites to the face of the tunnel, slightly mineralized with chalcopyrite, but not of sufficient value for milling purposes, although further work by way of drifting should be done in this portion to further prove the grade of the ore. In the 45 feet of "vein" there are portions of a few feet in several places showing good copper ore, while the balance is more sparingly mineralized. Reliable samples across the ore-zone have given an average of 2 per cent. copper and $1 in gold and silver a ton.

The diamond-drilling by the Granby Company, I am told, was so unsatisfactory owing to the soft slips and fractures in the formation that it was abandoned, and the tunnel driven through the dyke and the portion beyond. The open-cuts on the surface expose the same conditions as shown in the tunnel. On account of the snow I was unable to get over the surface to any extent. Some free gold has been found farther south on the claims in small quartz veins.

The property is very advantageously situated from a mining and transportation standpoint, and, judging from the general appearance of all the showings, I think that insufficient explora-

* Memoir 32, Dominion Geological Survey, by R. G. McConnell.

work (*exact amount not available*) is done on the extension of the *Outsider* group vein, but, failing to develop a satisfactory ore-shoot, the option was thrown up and the plant dismantled.

Owing to the lateness of the season when I examined this section, I was unable to get over the higher showings on this property. However, from reliable maps and private reports I have gained some information which may be of interest. On the *Eagle* and *May Queen* claims a vein has been traced the full length of the claims, showing a width up to 45 feet. At an elevation of 2,300 feet a tunnel was driven 25 feet across the ore-body and a drift of 60 feet run on a strip of country-rock enclosed in the vein. Six samples from the 25-foot crosscut assayed from 1 to 3.5 per cent. copper. At the end line of the *May Queen* and *Eagle* there is 6½ feet of massive sulphides; 3 feet 3 inches from the foot-wall assaying 7.28 per cent. copper, and 3 feet 3 inches on the hanging-wall assaying 4.6 per cent. copper. About 300 feet farther along, at an elevation of 3,200 feet, the outcrop is 12 feet wide, averaging 2.7 per cent. copper. Five hundred feet farther along is an exposure 6 feet in width of solid sulphides.

At the intersection of the *Princess Alexandria* and the *Princess May* claims, at an elevation of 2,400 feet, there is an outcropping traced for 2,000 feet by open-cuts, and can be followed on the surface another 1,500 feet. A cross-vein from the *Anaconda* claim connects with this at an elevation of about 3,000 feet. The *Princess* vein will average lower grade than the *Eagle* vein. On the *Anaconda* there are two veins, the one mentioned as joining the *Princess* vein and a small, irregular, parallel one. The former averages about 2.4 per cent. copper for a width of 8½ feet.

On the *Thistle* claim another vein can be traced for 1,000 feet. A cut across the south end exposes it for a width of 17 feet; an average assay of three samples across it gave 3.4 per cent. copper. In the middle of this vein there is 5 feet 8 inches of ore assaying 8.2 per cent. copper.

On the *Blue Bell* claim two veins are exposed, striking N. 10° E. and dipping 45 degrees to the East. These extend along the face of a steep cliff and are from 1 to 3 feet wide, showing some good-grade copper ore. A tunnel was driven under them for a length of 360 feet, but failed to pick up the ore at depth.

Taking these showings altogether, their persistence, and average values in copper—there are no gold or silver values—there are good reasons to believe that further exploration will develop not only a tonnage of milling-grade ore, but probably shoots of shipping-ore. The property is most conveniently situated on tide-water. I expect to make an examination of these showings as early in the spring as conditions will permit.

Swamp Point. At Swamp point the Granby Consolidated Company has several claims from which they obtain the limestone for fluxing purposes. The property is well equipped and employs about thirty men the year round, under the superintendence of Roy Price. The production is about 250 tons of lime rock a day, which is hauled to the smelter in company scows.

Guggenheim Group. This group, consisting of eight claims—*John D.*, *Guggenheim*, *J. P. Morgan*, *Danny*, *Lookout*, *Summit*, *Charlotte*, and *Hillside*—is owned by the Georgia River Mining Company, whose registered office is in Duncan, B.C., and under the management of C. H. Dickie. Referring to the Minister of Mines' Reports for 1914, 1916, and 1917, there is no need of going into details of the property, and note will be made of only the work done and results obtained during the year.

The winze, which was down 35 feet, was continued to a depth of 42 feet. In the sinking of this winze the ore was left on the west side of it at about 22 feet from the top, following a small stringer from the east side to the bottom at 35 feet. This year the ore was again broken into and followed for 7 feet down. It was found to be 2 feet in width, about half quartz, and the balance the typical pyrrhotite of the property, a sample of it assaying 2.28 oz. gold and 3.74 oz. silver a ton. The *Bulletin* tunnel was extended 20 feet and a crosscut driven from the end of it 35 feet west toward the "Big Showing." There is no ore showing in the face of the tunnel nor in the crosscut.

The Department of Mines assisted in extending the trail up the Georgia river towards the property. The repairs and improvements on the old portion of the trail were heavier than anticipated; consequently the amount provided for new trail was not sufficient to complete it through to the mine, although the most difficult portion is over. There are about three miles yet to build.

More settled conditions will no doubt permit of the equipment and further development of this property for production.

Report of Minister of Mines

British Columbia

1922

1922

property would be of special importance to the Stewart country, as it would mean the operation of the Portland Canal Short Line Railway and its extension to Bear River pass, where the property is situated, thus putting a further distance of 6 miles along the Bear river on the railway and bringing all that country beyond the Bear River divide within range of transportation.

The Government dock at Stewart has been enlarged, but is still inadequate for the amount of freight and ore being handled.

PORTLAND CANAL (PROPER) SECTION.

This section consists of the country bordering Portland canal on the east, from its mouth just north of Pearce island to its head at Stewart, and is a portion of the Portland Canal Mining Division, with which it should not be confused.

Outsider Group. This group, consisting of eight claims, was briefly described in last year's report. The property was bonded this year by the Granby Consolidated and contracts let in the fall for raising and drifting, which will keep a crew of men employed throughout the winter. There is a small water-power development plant on the property, but this will be replaced in the spring by a plant suitable for production, and ore will be shipped to the smelter at Anyox early in the season. The ore is a pyritized quartz, carrying an average of possibly 2 per cent. copper, and will be utilized as a flux.

Maple Bay Groups.—There are several groups here, owned by the original stakers, W. Noble, of Stewart, and associates. About twenty-two claims constitute the holdings, which are amongst the oldest stakings in this Division. The showings were described in last year's report, page 59.

Gloria Group. I have not examined this ground, but it is described as lying at the head of Bull Dog creek, up the Georgia river. A specially limited company, called the Gloria Mining Company, Limited, was incorporated in November, with a capitalization of $250,000, divided into 2,500 shares of $100 par value. The registered office is in Vancouver.

Georgia River Mining Co. This company at one time owned eight claims known as the *Guggenheim* group. At present all surplus claims have been dropped and the company's holdings now consist of two claims. They are situated on the west bank of Georgia river, about 9 miles from its mouth, which is 17 miles down Portland canal from Stewart. About 5 miles of trail was built by the Government up the river from the canal. The workings are at an elevation of 3,450 feet.

A considerable amount of work had been done on this property previous to the last two years. The main working is a drivage of over 400 feet, known as the "Bullion tunnel," following a quartz vein from 4 to 12 inches wide, contained in an argillite country-rock. In this work the vein was encountered at 55 feet from the portal, and the ore was drifted on for a distance of 125 feet, varying from 4 to 12 inches in width of pyritized quartz, carrying gold values, and in places showing free gold. The ore-shoot was further proven by a raise of 35 feet through to the surface, in which some very high-grade gold ore was found. A little farther along a winze has been sunk 45 feet. The winze was started on about 10 inches of good ore, which was followed down for 22 feet, the quartz dipping out of the winze to the west at this point. A small stringer coming in from the east side was then followed down to 35 feet, where the winze was turned west, picked up the main quartz vein, which was about 24 inches wide here, and a further 7 feet was sunk on it. The vein at the bottom of the winze is a little over 2 feet wide, about half quartz and the balance pyrrhotite, the heavier sulphide assaying 2.28 oz. in gold and 3.7 oz. in silver to the ton. A grab sample of the dump, representing a more or less sorted ore from the workings on the vein, assayed $47 in gold to the ton.

A crosscut at the face of the tunnel was driven west, toward the big vein, a distance of 25 feet. Neither the cut nor the last 200 feet in the tunnel show any values. To the west of the tunnel a big vein of quartz has been exposed on the surface by open-cuts. It outcrops at intervals for a distance of from 1,200 to 1,500 feet and varies in width from 10 to 20 feet. Its strike is N. 50° W. (mag.) and the small vein about N. 30° W. They should have intersected in the Bullion tunnel, but it was not apparent. However, a little crosscutting should pick up the big vein, on which a depth of 300 feet could be obtained with a little drifting.

There are a number of small rich veins, more or less paralleling each other, on the property, which would prove valuable "sweeteners" if a tonnage of milling-grade ore could be developed in the big vein. I think this property and vicinity worth some investigation.

Swamp Point.—The lime-quarries operated here for several years by the Granby Consolidated have been closed down.

MARMOT RIVER SECTION.

(*See* contour and mining property map of Salmon, Bear, and Marmot rivers accompanying this report.) This section takes in the area drained by the North and South forks of the Marmot river, which empties into the south side of Portland canal about 4 miles below Stewart, from which point it is reached by boat.

There is a fine pack-trail from the beach to the forks of the river about 2½ miles, where there is a good cabin. The trail branches, following each fork of the river, on the South fork up to the foot of the glacier, a distance of 3 miles, and on the North fork up along the glacier for about 3 miles. The elevation at the foot of the South Fork glacier is 1,375 feet. The trail up the North fork has been rebuilt and has now a good grade up to an elevation of 4,000 feet. This area is therefore one of the most accessible in the Division. The mountains are very precipitous and at certain times of the winter there is danger from snowslides above the forks.

The Coast Range granites extend about 3 miles up from tide-water, or about to the forks; beyond this on the North fork and on the north side of the South fork, except for a narrow strip, is in the contact-zone. There are a number of small high-grade showings in this area and it looks as if several would develop into small profitable shippers. It would be a good leasing country. The majority of the claim-owners have been actively prospecting and developing them all summer, and, from reports, I think this section is very promising. A trail is needed from the upper side of the South Fork glacier to serve the claims located up Magee pass and on the mountain north of the pass. A serviceable trail could be put in for approximately $500.

When the tonnage of shipping-ore justifies it, a good sleigh-road can without difficulty be built from the beach to the foot of the main glacier, a distance of 6 miles. North Fork ores could also then be brought down to the forks and hauled to the beach.

Patricia Group.

This group is owned by H. C. Magee, of Stewart, and Vancouver associates, and includes five mineral claims—*Patricia*, *Silver Link*, *Pat*, *Iron Mask*, and *Monarch*—situated about 4 miles from tide-water on the north side of the main or South branch of the river. It lies west of and adjoining the *Montana* group. There is a good pack-horse trail from the beach to the camp. At an elevation of 1,000 feet, or about 500 feet above the camp, a tunnel has been driven 80 feet in solid granite, following a small quartz-filled fissure from 6 to 12 inches wide. The quartz is mineralized with galena and pyrite, in places solid sulphides, in which the chief value is gold, the galena carrying small silver values. The best-grade ore is pyritized quartz, ranging up to $90 all values, of which $80 is in gold. The present face of the tunnel shows only the slip with a thin seam of barren quartz. Further work will be done in advancing the tunnel. The edge of the granite is about 500 feet north of this point, and it would seem reasonable to expect that the vein and mineralization would be continuous and probably improve in size and values as the contact is approached. The ore from this vein could probably be mined in a small way at a profit.

A cabin was built this year on the top of the bluff at an elevation of 2,600 feet, to be used while exploring the showings on the higher ground north of the granite-contact. The present trail is very steep, but by carefully cruising out a route and using short switch-backs a horse-trail could be put in from the main trail to the upper camp. The main geological feature of the higher ground is a light-grey dyke, about 30 feet wide, at an elevation of 3,200 to 4,200 feet, striking N. 65° E. (mag.) and dipping 61° N.W. into the hill. I judge this to be about paralleling the granite-contact, which is probably several hundred feet south of it. Some prospecting has been done along both walls of the dyke by open-cutting.

In McKechnie creek, at 3,200 feet elevation, a few shots have been put in on the lower or foot-wall side of the dyke, exposing a mineralization at this point for a width of 20 feet or more. The rock appears to be an altered greenstone, in which are small veinlets of quartz running in all directions, the whole well mineralized with pyrite, with which is associated some chalcopyrite. The average value would evidently be low. At a point 200 feet farther east, and probably 50 feet greater elevation, an open-cut has been put in, crossing 12 feet of well-pyritized quartz showing traces of copper and galena. The bottom of the cut looks fairly well and values

Report of Minister of Mines

British Columbia

1928

Mountain Boy group may be new to the public, it is one of the oldest locations in the Portland Canal Division.

The construction of the railway as far as the Bear River-Nass divide will greatly facilitate the development of all properties in the Bear River valley, and undoubtedly will induce a number of prospectors to explore the mountain east of the divide. As a matter of fact, a number of prospectors have already located in this section in anticipation of the railway's construction. Other prospectors are going into the Nass valley by way of the Salmon River divide and Tide lake. Several groups of claims have been located in the vicinity of Tide lake, and a block of fifty-seven claims was located in the upper part of the Nass valley by representatives of the Consolidated Mining and Smelting Company of Canada.

Georgia River Section.

Pedro Georgia River Syndicate.

This syndicate was formed about July, 1928, to develop a block of sixteen claims lying on the east side of Georgia river between 4½ and 5 miles from Portland canal. The syndicate consists of 1,500 units, which are offered to the public at $10 per unit. The upper camp is on the east side of Georgia river, immediately below the point where the main trail crosses the river the second time. A new camp has been built on the same side of the river, but about a mile lower down. Supplies are taken across the river on a cable, as the cabin is on the opposite side of the river from the main trail.

Crossing a small creek-bed just north of the upper cabin is a very narrow north-westerly striking vein in greenstone, along which a tunnel has been driven for about 150 feet. A little galena was found along the drift, but nothing of commercial importance is indicated.

A second showing is situated a little north of the lower cabin and 400 or 500 feet above it in elevation. At this point, approximately 50 feet of underground work has been done on a lens of quartz from 20 to 25 feet long and up to 4 feet wide. The lens strikes about north-west, south-east, and dips to the south-west. It is paralleled on the foot-wall side, at a distance of 2 or 3 feet, by a strong shear-zone or fault. On the west side of this shear and just a few feet from the tunnel is a quartz vein striking apparently east-west, or nearly straight up and down the hill. The lower end of the vein bends southerly into the shear-zone, suggesting that the vein has been faulted along this zone. Apparently nothing has been done to prospect this vein, but is worth a few open-cuts at least, for some quartz veins in the Georgia River section carry good gold values.

The most important showing from present indications is quite near the lower cabin, at an elevation of about 1,050 feet. A 40-foot cut has exposed a wide zone of mineralized greenstone. The mineralization is quite strong over a width of 10 feet in the north end of the cut. A sample from a 5-foot section of this 10 feet assayed: Gold, trace; silver, 1 oz. to the ton; copper, 1.3 per cent. The remaining 5 feet should contain similar values. Although this material may not be of commercial grade, it contains sufficient values to justify considerably more work being done along the strike of the zone.

Georgia River Gold Mines, Ltd. (N.P.L.).

This company was incorporated in April, 1925, with a capitalization originally of $1,000,000, but the present authorized capital is $3,000,000, divided into 3,000,000 shares of the par value of $1 each. According to the original prospectus, a part of the company's present holdings were purchased from the Georgia River Mining Company, Limited (N.P.L.), for 150,000 shares and the remaining holdings were purchased for additional shares.

Operations on the property have been at a standstill for a number of years, apparently because of a lack of funds, but the recent revival of interest in mining has made it possible to finance the enterprise. The company seems to have considerable cash on hand and has started a programme of development which should determine the real merits of the property. Most of the 1928 summer season was taken up with trail and camp construction, delaying the beginning of actual underground work till late in the fall. With assistance from the Department of Mines, the first 4 miles of trail were reconstructed where necessary and 4 miles of new trail were built to the property. As soon as this was finished lumber was rushed in for camp-construction and supplies taken in for the winter's operations.

Although the property was visited in the fall, the workings and showings were not examined in detail, partly because underground work had not yet commenced, but chiefly because very

little has been done since the property was described by G. A. Cuthier in the 1922 Annual Report. This description is given below for the convenience of those who may not have the 1922 Report:—

"The main working is a drivage of over 400 feet, known as the 'Bullion tunnel,' following a quartz vein from 4 to 12 inches wide, contained in an argillite country-rock. In this work the vein was encountered at 55 feet from the portal, and the ore was drifted on for a distance of 135 feet, varying from 4 to 12 inches in width of pyritized quartz, carrying gold values, and in places showing free gold. The ore-shoot was further proven by a raise of 35 feet through to the surface, in which some very high-grade gold ore was found. A little farther along a winze has been sunk 45 feet. The winze was started on about 10 inches of good ore, which was followed down for 22 feet, the quartz dipping out of the winze to the west at this point. A small stringer coming in from the east side was then followed down to 35 feet, where the winze was turned west, picked up the main quartz vein, which was about 24 inches wide here, and a further 7 feet was sunk on it. The vein at the bottom of the winze is a little over 2 feet wide, about half quartz and the balance pyrrhotite, the heavier sulphide assaying 2.28 oz. in gold and 3.7 oz. in silver to the ton. A grab sample of the dump, representing a more or less sorted ore from the workings on the vein, assayed $47 in gold to the ton.

"A crosscut at the face of the tunnel was driven west, toward the big vein, a distance of 35 feet. Neither the cut nor the last 200 feet in the tunnel show any values. To the west of the tunnel a big vein of quartz has been exposed on the surface by open-cuts. It outcrops at intervals for a distance of from 1,200 to 1,500 feet and varies in width from 10 to 20 feet. Its strike is N. 50° W. (mag.) and the small vein about N. 30° W. They should have intersected in the Bullion tunnel, but it was not apparent. However, a little crosscutting should pick up the big vein, on which a depth of 300 feet could be obtained with a little drifting.

"There are a number of small rich veins, more or less paralleling each other, on the property, which would prove valuable 'sweeteners' if a tonnage of milling-grade ore could be developed in the big vein. I think this property and vicinity worth some investigation."

North Country Mining Co., Ltd. This company was organized by a group of Dakota business-men to develop a large group of claims located along the ridge east of the divide between Bulldog creek and Georgia river. In 1927 the company's holdings consisted of fourteen claims and two fractions—*Gloria Nos. 1* to *8*, *Julia Nos. 1* to *4*, *Peggy Nos. 1* and *2*, and *Glory Fraction Nos. 1* and *2*—but since then the *Glory Extension* group seems to have been added to their holdings. This last group of eight claims—*Glory Extension Nos. 1* to 8—belonged to A. Linke, of Hyder, who is in charge of the North Country Mining Company's operations, but it seems that he has turned them over the North Country Mining Company to strengthen their position.

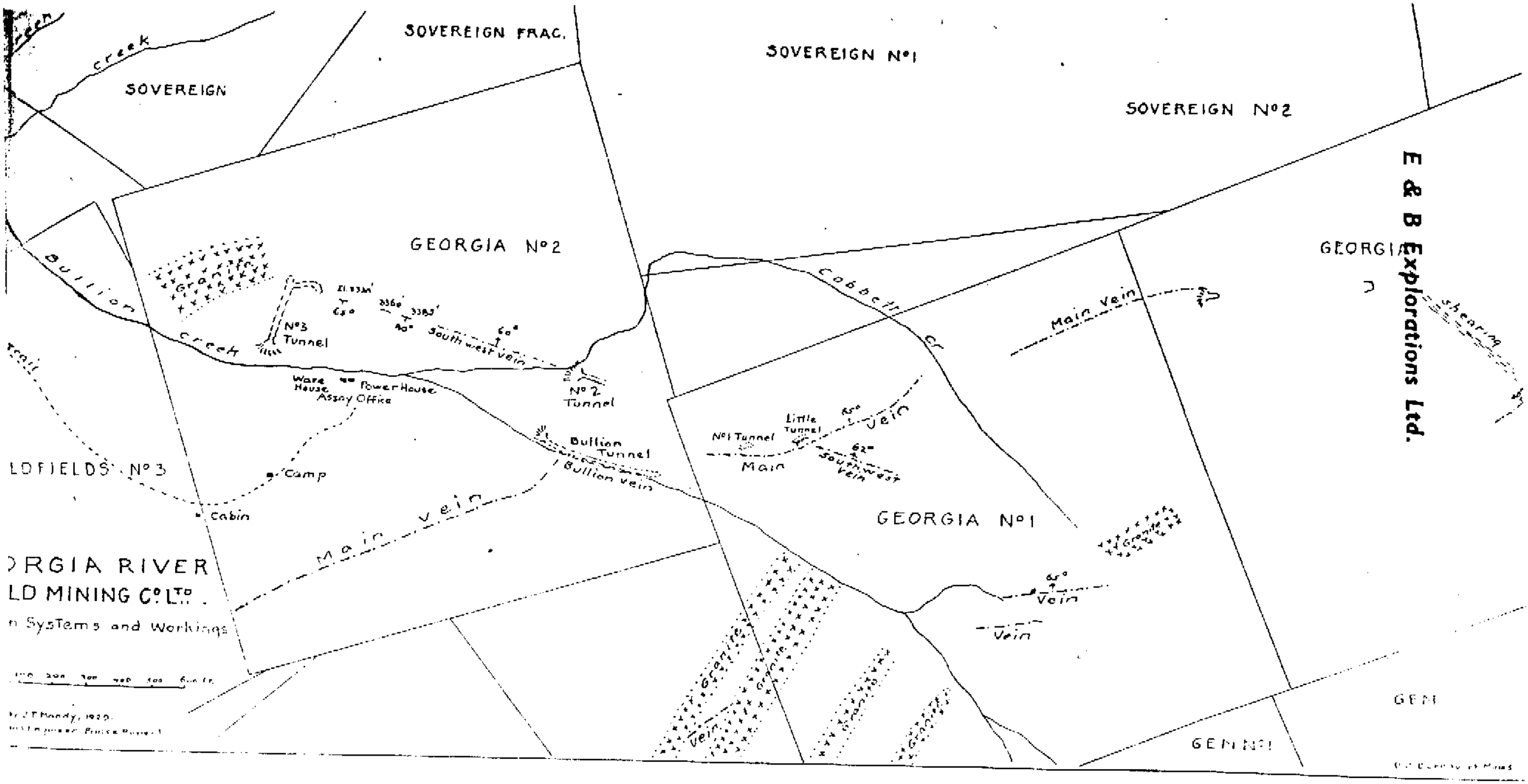
Routes into the upper section of the Georgia River valley are not at all good at present, but they are being improved. The route most commonly used is a very poor foot-trail which leaves Barnt point, on Portland canal, and crosses the 3,300-foot ridge between the canal and Georgia river. A new trail is being constructed up Bulldog creek and into the upper end of the valley, and a horse-trail has been built from Portland canal up the Georgia river about 8 miles to the Georgia River Gold property.

In spite of the fact that all supplies have been packed on men's backs at a cost of 15 cents a pound, more than 1,200 feet of underground work has been done on the company's ground. Most of this work has been done on the claims at the north end of the valley, where mineralized showings had been found in the batholithic rocks. (See 1927 Annual Report.) On finding neither commercial ore nor encouraging prospects in the northern group of claims, attention has been directed to prospecting the southern or *Glory Extension* group. The principal showings on this group are on the east side of the valley, opposite the upper end of the more southerly of the two larger lakes in the valley. Unlike the northern showings, most of these are in a series of highly metamorphosed sediments, tuffs, and greenstones, apparently an inclusion in the batholith. In a large open-cut on the trail, about 150 feet above the valley-floor, just where the trail turns uphill to the camp-site, is a narrow quartz vein, from 6 inches to a foot in width, striking a little west of north (ast.) and dipping steeply to the east into the hill. A 1-foot sample across the vein on the south side of the cut assayed: Gold, 2.6 oz. to the ton; silver, 2.5 oz. to the ton. Although the vein is small, the values are well worth following. Linke's assays from the same

Report of Minister of Mines

British Columbia

1929


SOVEREIGN FRAC.
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creek
E & B Explorations Ltd.
GEORGIA Nº2
GEORGIA
Granite
Bullion
Creek
Nº3 Tunnel
South west vein
Nº2 Tunnel
Ware House
Power House
Assay Office
Trail
LDFIELDS Nº3
Camp
Cabin
Bullion Tunnel
Bullion vein
Main vein
Cobbett Cr
Main Vein
Shearing
Nº1 Tunnel
Little Tunnel
Vein
Main
Southwest Vein
GEORGIA Nº1
Granite
Vein
Vein
ORGIA RIVER
LD MINING Cº Lᵀᴰ
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GEM
GEM Nº1

definitely defined its attitude. The accurate projection of this vein to the tunnel-level cannot therefore be accurately calculated. Nothing has been encountered in the tunnel that conforms to the "Banded vein" outcrop.

At about 1,000 feet in, however, isolated bunches of zinc-blende were encountered associated with a somewhat indefinite structure. The tunnel discloses a gradual change of the formation attitude from an easterly dip at the portal to a westerly dip at the face. Where the attitudes of exposed veins can be definitely determined they conform in dip, more or less, to the bedding of the formation. On the surface, formation exposures contiguous to the "Banded vein" indicate a westerly dip of about 45°, conforming to the westerly dip of the bedding-planes towards the tunnel-face. Should the "Banded vein" conform to this 45° westerly dip it would be encountered on the tunnel horizon at approximately 1,500 feet in.

It is possible that the ore encountered at the 1,000-foot point may be the extension at depth of a surface showing at the head of the creek at altitude 3,650 feet. At the 1,880-foot point in the tunnel the structure has been drifted on to the north for 80 feet, with bunches of zinc-blende in quartz-calcite stringers showing at intervals. At 950 feet a crosscut has been started into the north side of the tunnel, where it is estimated this structure will be cut at 40 feet in. During the winter the first vein encountered in the tunnel will be drifted on to north and the second will be explored by drifting to the south. As the best mineralization encountered on the surface seems to lie to the south of the tunnel, it would seem logical to confine initial drifting to that direction where possible. Before advancing the crosscut tunnel any farther it is planned to determine the attitude of the "Banded vein" by additional surface work in the spring. This is a sound campaign of development.

This exploration of the *Sunrise* group is of much constructive benefit to the McGrath Mountain area. It will shed much light on the economic importance of the zinc-deposits of this locality.

PORTLAND CANAL MINING DIVISION.

The Portland Canal Mining Division embraces Portland canal, 70 miles long, the drainage areas of the Salmon and Bear rivers, the northerly drainage area of the Nass river, and that of the Unuk river. This area is approximately 7,000 square miles in extent, and, excepting the Unuk River section, is accessible from the town of Stewart at the head of the Portland canal.

This Division is the most active in the district from the standpoint of exploration and prospecting, and second in production. Certain phases of importance to the Division are dealt with in the summary of this report. The area has been very active during the past year and has attracted the interest of substantial companies for the development of its prospects. The possibility of obtaining hydro-electric power through the interest in the Division of the Power Corporation of Canada, and railway transportation through the acquisition of the Canadian North-eastern charter by the Consolidated Mining and Smelting Company of Canada, holds promise for the more rapid future development of the area. The scope and eventual progress of these undertakings has, however, not been announced by the companies concerned.

Prospecting has extended the known mineral area. Promising discoveries have been made at the head of American creek and across the Bear River pass into the Nass. The activity of the Consolidated Mining and Smelting Company in the outlying areas of the Bowser and Tide Lake sections and its thorough exploration of the *Big Missouri* and *George Copper* properties is a hopeful augury for additional future producers. The outlook for production from the *Premier* for some time to come is favourable, and the promise of the *B.C. Silver* as a new producer in the near future is bright.

Georgia River Section.

Georgia River Gold Mines, Ltd.

Active and efficient development was continued on this property during the year and will proceed throughout the winter months. Compressors and other equipment were installed, bunk-house and residence erected, and assay office, warehouse, and office put under construction. With the contemplated installation of an electric-lighting system the property will be one of the best equipped in the district.

Work is being concentrated on the driving of No. 3 tunnel to intersect the southerly end of a south-west vein. This tunnel starts as a crosscut in a westerly direction for 190 feet, where is turned northward for about 250 feet and then easterly, in which direction it had advanced out 80 feet without encountering the vein. In the surface open-cuts above this tunnel the

easterly dip of the vein and the indication of displacement by a northerly-striking shear-zone may have thrown the vein farther to the eastward than the position of the tunnel-face at the time of examination.

When the downward extension of the south-west vein is located it is planned to drift north-east to explore for the continuation at depth of the ore-shoot indicated in the surface cuts. The vein will then be drifted on to explore for ore-shoots towards No. 2 tunnel. The progress of this work will also involve crosscutting at depth for the Bullion vein and the intersection of that vein with the main vein.

The veins can be traced on surface for appreciable distances, with altitude variation of from 3,180 feet at No. 3 tunnel to 3,600 feet at No. 1 tunnel. Beyond this the main vein was traced to about altitude 4,000 feet, but snow on the higher elevations obscured its further possible tracing. *The main vein, which is apparently a silicified zone averaging about 14 feet wide, does not carry encouraging mineralization. A sample of the general character of this vein selected at 4,000 feet altitude assayed: Gold, trace; silver, trace.*

In No. 1 tunnel widths of from 4 to 30 inches have been drifted on for about 140 feet, with reported values of from 60 cents to $170.24 in gold and silver.

At the time of examination (middle of October) the face of No. 2 tunnel showed a sheared zone with quartz stringers, sparsely mineralized with pyrite.

The Bullion tunnel has been described in the 1922 Annual Report. The occurrence is in an *inclusion pendant of andesitic rocks of undetermined depth underlain by diorite.*

North Country Mining Co., Ltd.

This property is situated on the ridge east of the divide between Bulldog creek and Georgia river. It is reached by a very bad trail which leaves Burnt point, on Portland canal, and crosses the 3,300-foot ridge between the canal and Georgia river. Stores and material are packed in on men's backs at a cost of 15 cents a pound. Development is being concentrated on the following claims: *Glory, Glory Extension, Ventura,* and *Fortuna*. A. Luke is in charge.

At the time of examination work was being concentrated on driving two crosscuts through a hard metamorphosed argillite in an easterly direction. The lower one is just above the valley-level and was in 50 feet; the upper, about 100 feet higher up, was in 20 feet. Approximately 400 feet higher up the hill and some distance to the south a little work has been done in a gulch running down the face of the hill. The rock is mineralized in places, with small showings of zinc-blende, chalcopyrite, and traces of galena. In the same gulch and 150 feet higher up there is a drift in a northerly direction, which is in about 60 feet. Here also are patches of mineralization, consisting of pyrite and galena with a little arsenopyrite. Another small cut on the opposite side of the gulch also showed slightly mineralized matter.

Considerably farther south, possibly half a mile, and at about the same elevation as the above, there is a strong outcrop of quartzite, averaging 4 feet in width, crossing a deep gulch. I was unable to find any evidences of mineralization in it, but to the west there was a little zinc-blende and pyrite.

The apparent strike of the showings is north and south. The dip is vertical or steeply to the east. No ore of commercial value has been found so far. A log-built bunk-house is being put up close to the lower crosscut.

Just beyond the present end of Bulldog Creek trail is a difficult stretch along a vertical bluff. *Once that is passed there should be no difficulty in maintaining a reasonably even grade to the* top end of the valley, a distance by estimation of at least 3 miles.

Marmot River Section.

Porter-Idaho.

The ore-deposits of this property are described in former Annual Reports. *The property is now being operated by the Premier Gold Mining Company.*

The following information regarding the year's operations has been kindly supplied by D. L. Pitt, manager, Premier Gold Mining Company, Limited:—

"At *Porter-Idaho* an aggregate of 1,316 feet of drifting and raising was done during the year. This was accomplished in various tunnels and on various horizons. Some small and narrow shoots were outlined and will be mined later. Tunnels were also run into the *Porter-Idaho* ground from *Prosperity's* No. 3 level and some ore-bodies indicated.

"*Efforts were concentrated upon the completion of the Porter-Idaho tramway, which was completed early in September and put into operation. This work, along with the power-line*

E & B Explorations Ltd.

Report of Minister of Mines

British Columbia

1932

During the year prospecting has been particularly active in the American Creek section and some important discoveries of high-grade silver ore have been made. It is again urged that the older areas and properties in the vicinity of the Bear and Salmon River valleys be further prospected in detail, with the promise of additional discoveries and possibly more important ones than those on which work has already been expended. In the Unuk River area a noteworthy prospecting expedition by Stewart parties was carried out with the aid of aeroplane transportation, and resulted in an important discovery of a large gold-bearing replacement-zone which further accentuates the possibilities of this section of the eastern contact belt.

Georgia River Section.

Georgia River Gold Mines, Ltd.

(*See* previous Annual Reports.) A detailed description of the more recent workings was also given in Bulletin No. 1, 1932. During 1932 the crosscut from the *Bullion* tunnel is reported to have intersected the South-west vein, and drifting on it north and south for distances of 180 and 130 feet respectively has been carried out. The management reports that in this work the vein varies in width from a few inches to nearly a full face and is mineralized with chalcopyrite, pyrite, galena, and zinc-blende. A sample submitted from the vein where it was first intersected, showing a width of 2 feet and carrying the typical mineralization described, assayed: Gold, 2 oz. per ton; silver, 4 oz. per ton; lead, trace; zinc, 4.4 per cent. Work ceased on the property on November 30th. It is understood work will be continued as early in 1933 as weather permits, and will be devoted to further drifting and the excavation of a raise to explore the attitude and continuity of the indicated ore-shoot towards the upper tunnel.

In this area further work was also carried out on claims adjoining the Georgia River Gold Mines, Limited, property, and also on the *Montrose* and *Monday* groups respectively, situated towards the mouth of the Georgia river and in the Bulldog Creek area, and referred to in the 1931 Annual Report.

Marmot River Section.

Prosperity and Porter-Idaho.—These properties are described in previous Annual Reports and more especially in that for 1930. No mining was undertaken during 1932, but repairs to the aerial-tramway towers, damaged by slides during the preceding winter months, were carried out.

Marmot Engineer Syndicate.

The showings are described in the 1926, 1927, and 1930 Annual Reports. During 1932 George Bunn advanced the tunnel on the *Engineer Fraction* 6 feet and also carried out tracing, stripping, and open-cutting on a lead-zinc showing. On the *Engineer* claim a large open-cut showing crushed quartzose vein-matter, mineralized with chalcopyrite and pyrite, was squared up for tunnelling, which it is intended to carry out at this point in the future. A sample of ore from this locality submitted by G. Bunn, showing disseminated pyrite and pyrrhotite in a quartz gangue, assayed: Gold, 0.20 oz. per ton; silver, 2.2 oz. per ton. Another submitted sample from the lower showing mineralized with chalcopyrite and galena in a quartz gangue with some barite assayed: Gold, trace; silver, 13 oz. per ton.

Bear River Section.

Silverado.

Leasing operations have been carried out on this property by John Haahti, of Stewart, and a crew of three men. This work has been conducted from the upper tunnel at 3,688 feet and in the precipitous and dangerous terrain at 3,750 feet just below the glacier, where a small tunnel has been driven from the collar of a raise from the lower tunnel. In this tunnel a very fine showing 12 to 24 inches in width of solid galena, with much ruby silver, was exposed for a distance of 22 feet to the face and with a back of 20 feet. As this work is so close to the glacier, with continuously sloughing ice, the stoping of the ore-shoot to surface cannot be carried out without involving extreme risks. In the conduct of the work the high-grade ore was packed in sacks from the locality to the lower tunnel and the medium-grade ore dumped through the raise. At the portal of the lower tunnel necessary cobbing was undertaken and the sacked ore transported across the canyon by jig-back tram with a 700-foot span, from where it was taken down the hill by pack-train to seaboard. Two lots of 32 and 52 tons of high-grade silver ore had been shipped and about 50 tons, estimated to assay 300 oz. silver per ton, has been packed to seaboard. Due to adverse weather conditions and consequent hazard, operations closed for the season at the end of October.

E & B Explorations Ltd.

Report of Minister of Mines

British Columbia

1933

PORTLAND CANAL MINING DIVISION.

The geological features of this Division have been covered in previous Annual Reports, especially those for 1929 and 1930, and in Bulletin No. 1, 1932. During 1933 mining activities have shown a steady increase and opportunities for small-scale operations on high-grade silver or silver-gold ore-bodies were taken advantage of. The feature of 1933 has been the successful results achieved by lessees on high-grade silver-gold showings on the *Dunwell* and *Spider* properties, and on a good-grade gold-showing on the *Ben Ali* claim of the *Dunwell*. The success of these undertakings has done much to attract attention to the economic possibilities of many promising properties in the Stewart area when operated in a miner-like manner.

Detailed prospecting has been done on many of the old properties with good results. In this respect the *Dunwell*, *Ben Ali*, *Spider*, *Kenneth* (Argentine Syndicate), *United Empire*, *Ben Bolt*, *L.L. & H.*, *Lucky Dale*, *Unicorn*, *Salmon Gold*, *Troy*, and several properties in the Marmot River area may be mentioned. This type of work is particularly useful and the detailed prospecting of old properties in the known mineralized areas of the Bear and Salmon rivers has a good chance of being rewarded with additional discoveries of importance that would materially enhance the value of the properties and the commercial possibilities of the Stewart area. The concentration of such work in the known mineralized sections which are already served by road and trail facilities, and which have as yet been only superficially prospected, would bring surer, quicker, and more substantial development activities to the Stewart area than the dispersal of such work in sections of the Portland Canal of unknown possibilities and remote from transportation. There are sufficient attractive possibilities in the immediate vicinity of Stewart, as yet only very sparingly explored, to occupy the attention of prospectors for many years. Through the results achieved in the last three years the Stewart area has been placed on a sound foundation for steady future progress.

Georgia River Section.

Helena Gold Mines, Ltd.

(*See* previous Annual Reports under Georgia River Gold Mines, Limited.) A detailed description of recent workings is given in Bulletin No. 1, 1932, and in the 1932 Annual Report. Helena Gold Mines, Limited, was incorporated in 1933, with a capital structure of 2,000,000 shares of $1 par value, to acquire title and assets of the Georgia River Gold Mines, Limited. The office of the company is at 902 Credit Foncier Building, Vancouver.

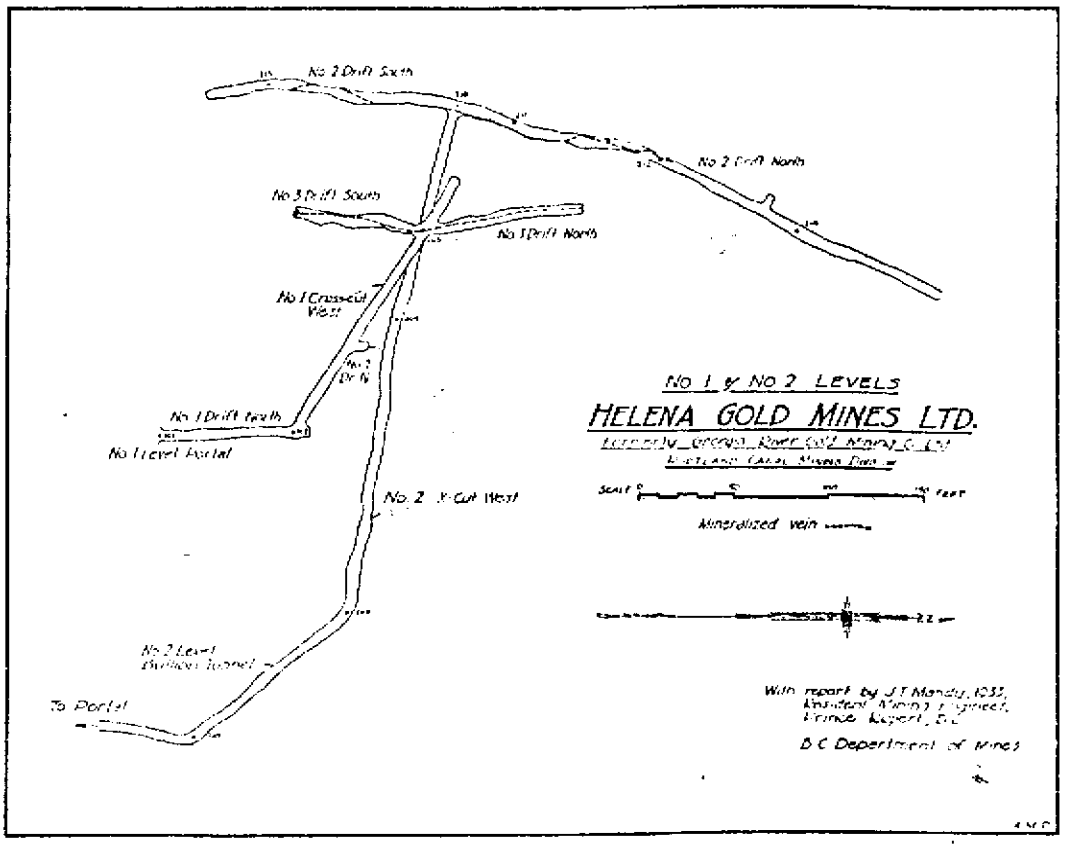
Seasonal exploration-work with a crew of eleven men was started by the company at the end of June and suspended in October. The work consisted of nine diamond drill holes aggregating about 2,050 feet, in which it is understood no values of importance were encountered. Underground work was concentrated in drifting on the south-west vein intersected in the cross-cut on *Bullion* tunnel-level at elevation 3,350 feet. The south drift on this level, about 125 feet long, shows for the first 90 feet a quartz vein, 1 to 14 inches wide, with fair but erratically distributed mineralization in a few places. Beyond this the vein pinches and the south-drift face shows a fracture only 3 inches wide. The north-drift showing is better, but still erratic in structure and mineralization, and for a length of about 125 feet the vein varies from 3 to 30 inches wide. In some places along this vein-length in the north drift good mineralization from which good gold values are reported can be seen. From this point to the face (at the time of examination, September 29th, 1933), about 150 feet farther, the vein consists of small lenses of barren quartz with calcite stringers, gradually diminishing to about 2 inches of barren quartz in the face. The north drift was being continued to penetrate the andesitic formation and explore for the mineralization showing on surface in the creek to the north.

Previous work on this vein in the No. 1 tunnel-level at 3,600 feet elevation showed vein-widths of 4 to 30 inches over a length of 65 feet in the south drift, and vein-widths of 5 to 8 inches over a length of 50 feet in the north drift, with good gold values reported. To correlate this small shoot with that in the *Bullion* tunnel requires raising and sub-level exploration. As this vein is narrow it does not promise large tonnage possibilities, and it should be pointed out that any possible stoping operations over practical mining widths would be accompanied by appreciable dilution of values, an important factor in valuing the mineral-showing.

The statement in a pamphlet issued concerning Helena Gold Mines, Limited, that "visible gold is frequently observed" is by no means substantiated by fact. Free or visible gold has

not been observed by the Resident Engineer; it is not a characteristic of the ore where such does occur; and it can be stated that if it has been observed by others it is of extremely rare occurrence. The small shoots of good-grade ore that have been uncovered show a characteristic mineralization of mainly galena, zinc-blende, pyrrhotite, and pyrite with gold values.

Since the last work, reported in Bulletin No. 1, 1932, No. 3 tunnel has been extended north of the raise to the *Bullion* tunnel-level, along the shear-structure, with a crosscut (No. 4 crosscut west) for about 40 feet to the west. In the southerly section of No. 3 tunnel, No. 1 crosscut east and No. 2 crosscut west and No. 2 drift north have also been driven. The work during 1933 was very efficiently carried out under the superintendency of J. C. McCutcheon.



Pedro Georgia River Syndicate.

(*See also* 1928 Annual Report.) This property includes sixteen claims, and although several showings are reported to occur on it the showing specially examined was the vein-structure located on the *Pedro* claim. This has been opened up by two tunnels, on which work was being continued. These tunnels explore a quartz vein which outcrops along the bed of a steep creek-gulch. The vein strikes S. 30° E. (mag.) and dips 50° west in a formation of andesitic volcanics intruded in places by granitic dykes. The upper tunnel, on a S. 37° E. (mag.) bearing and 90 feet long, is 1,000 feet above the Georgia River valley-bottom. The vein, intersected 6 feet from the portal, shows a width of 5.5 feet of quartz with sparse pyritic mineralization, rapidly diminishing to a generally barren and sheared fissure about 10 inches wide. The face of the drift is in feldspar porphyry, the vein showing a width of 14 inches of sheared material containing some blebs of quartz and calcite and a sparse impregnation of pyrite. At 12 feet from the portal a crosscut to the north intersects a quartz stringer 6 to 10 inches wide containing some pyrrhotite. This has been drifted on for 14 feet, showing an erratic vein-continuity with blebs of quartz and some cross-shearing. At this point there is a crosscut for 24 feet to the north-east along a small cross-fracture.

Report of Minister of Mines

British Columbia

1936

Company initiated intensive exploratory development-work which it is planned to continue throughout the winter. In the Queen Charlotte Islands exploratory development was continued on the *Skidegate-Southcoaster* and a limited amount carried out on the *Haida Gold*. Besides these operations, exploratory work by individual prospectors was carried out on many properties throughout the district.

Placer-gold mining and prospecting by individuals, syndicates, and companies has been very active in the Dease and Liard areas, and especially in the Atlin Division, where about 160 operations of various extent have proceeded.

Prospecting shows an increase over 1935 throughout the district. New discoveries of importance have been made in the Portland Canal and Atlin Divisions. In the Table Mountain section, McDame Creek area, Liard Division, a lode-gold discovery of interest on the *Volluay* group has been optioned by Consolidated Mining and Smelting Company of Canada. Further exploration of this showing is planned for the 1937 season.

The year 1936 has been one of the most active and progressive in the mining history of this district.

The writer desires to express his thanks to prospectors, operators, and all those with whom he has come in contact during the conduct of his work, for their co-operation.

LODE-GOLD DEPOSITS.

Portland Canal Area.

Helena Gold Mines, Ltd.

This company was incorporated in 1933, with an authorized capital structure of 2,000,000 shares of $1 par value, to acquire title and assets of Georgia River Gold Mines, Limited. In this reorganization the Georgia River Company received 800,000 Helena Gold Mines shares. Of these, the Georgia River shareholders received 750,000 shares on the basis of four old shares for one new, and 50,000 shares were set aside to cover liquidation expenses. Wellington Beaton is president and general manager and the registered office of the company is 901 Credit Foncier Building, 850 Hastings Street West, Vancouver.

In 1935, Gold Leasers, Limited, a private company, with an authorized capital of $25,000, made up of 2,000 Class A and 500 Class B shares, both of $10 par value, was formed for the purpose of leasing the property of Georgia River Gold Mines, Limited, from Helena Gold Mines, Limited, to December 31st, 1937. This agreement required Gold Leasers, Limited, to build a mill of not less than 10 tons daily capacity which was to become the property of the company at the termination of the lease. Gold Leasers, Limited, capital was later increased by $35,000 to a total of $60,000, a portion of which is to be sold to secure capital for construction of the mill. The executive offices of Gold Leasers, Limited, is at 902 Credit Foncier Building, Vancouver.

The property is composed of thirty-four Crown-granted mineral claims and fractions, about 1,227 acres, and is located in the Colling Range on the east side of Portland Canal, in the Portland Canal Mining Division, about 18 miles south of the village of Stewart and about 8 miles by trail from seaboard at the mouth of Georgia River.

The property is reached by launch from Stewart to the beach camp at the mouth of Georgia River, a distance of about 18 miles. From thence a pack-horse trail extends for about 6½ miles up the Georgia River Valley to the Cache Camp, elevation 1,225 feet, at the foot of the mountain. About 2½ miles of this stretch of the trail is puncheoned through muskeg, and to be efficient for pack-horse traffic additional stretches still require puncheoning. Along one or two short stretches of the first 5 miles the trail is narrow around steep rock hill-slopes. Between the beach and the Cache Camp several small streams are crossed by culverts and the Georgia River is crossed at about 1 mile and 5½ miles from the Beach Camp by bridges about 100 feet long. At the Cache the Georgia River is again crossed and the trail follows a circuitous and steep route for about 1½ miles to the mine camp at elevation 3,300 feet. Along the last mile of this stretch the trail is poorly located and follows a very steep grade requiring extensive rock-work in places.

The mineral deposits were discovered and staked in 1910 by Danny Hume, of Stewart. The Georgia River Gold Mines, Limited, was incorporated in 1925 with an authorized capital of $1,000,000, later increased to $3,000,000. Up to 1932 operations were conducted by the

Georgia River Company. Helena Gold Mines took over operation in 1933 and ceased in 1934. In 1935 a limited amount of mining-work was done by Gold Leasers, Limited, between August and December of that year. In the spring of 1936, lumber for mill-construction, and oil-supply, was packed in and in the late fall the mill building was constructed. No mining was done during 1936. (Annual Reports of the Minister of Mines for the years 1910 to 1912, 1914 to 1918, 1922 to 1924, 1928 to 1930, 1932, 1933, and Bulletin No. 1, 1932, "Lode-gold Deposits of British Columbia.")

The topography of the area incorporates the characteristic ruggedness of the Coast Mountains, of which the Colling Range is a local segment. The deep valley of Georgia River is bordered by steep and extensively bluffed slopes, generally heavily timbered with mainly spruce, hemlock, and cedar and thickly covered with underbrush. Timber-line is at about 3,200 feet altitude, and above this grassy slopes of more subdued inclination extend to the bluffed and domed ridges of the range-crest at between 5,000 and 6,000 feet elevation.

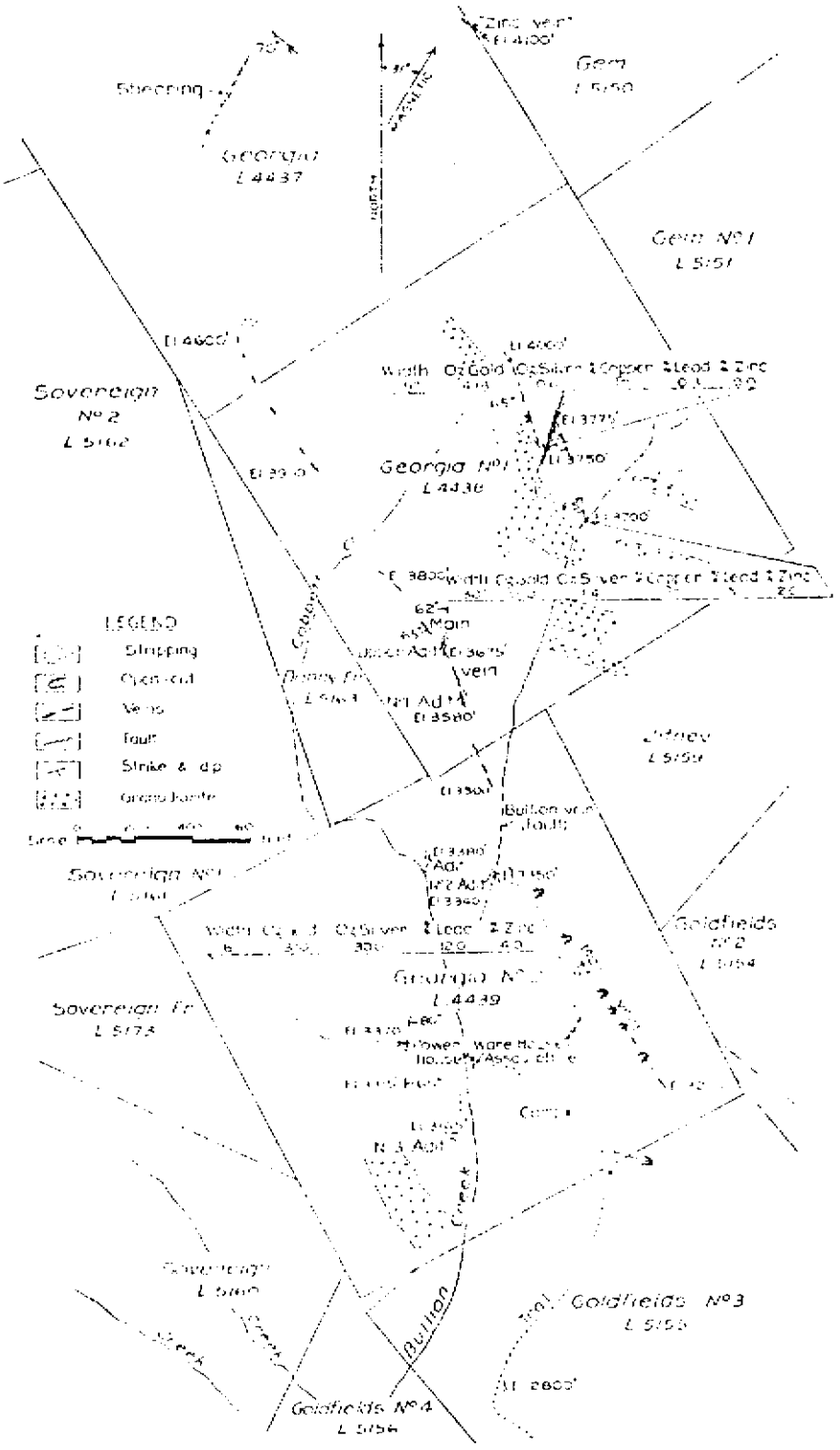
The rocks underlying the area consist chiefly of altered crystalline andesitic flows (greenstone) and altered, probably tuffaceous, sediments. These rocks have been subjected locally to strong shearing movements and are altered to mica-schists, especially in the vicinity of major, north-striking fault-zones. This formation can be correlated with the Bear River series (Hazelton group) of probably lower to middle Jurassic age. Granitic dykes and tongues intrude this series of rocks extensively in the locality of the workings and showings. Structurally, the series in this locality comprises a triangular pendant-inclusion, about 12 miles wide along Portland Canal and extending for 13 miles eastward towards the head of Hastings Arm, lying within and contiguous to the eastern contact of the Coast Range granodiorite batholith. The intrusive granitic dykes and tongues are satellitic to the underlying batholith.

The known mineral deposits are located between elevations of 2,800 and 4,600 feet around the central section and head of Bullion Creek. Bullion Creek in its headwaters section, which is the locality of the main workings, occupies a major fault-structure striking north 9 degrees east and dipping vertically and known as the "Bullion" vein. Striking at various angles between north and north-west towards and across the "Bullion" fault and dipping generally steeply west, a series of quartz-filled fractures occurs. The typical transverse veins vary in width from a few inches to about 4 feet. In the case of the "Main" vein, which differs in character from the smaller veins and resembles a quartz-replacement body, widths from 5 to about 20 feet are exposed. The transverse veins and the "Bullion" vein are locally well mineralized along short stretches with pyrrhotite, pyrite, sphalerite, galena, and some arsenopyrite. The "Main" vein is generally very sparsely mineralized chiefly with pyrrhotite. The best mineralization occurs at and around intersections of the transverse veins with the "Bullion" fault or with each other.

At elevation 2,800 feet, close to the trail and about half a mile from the camp, a quartz vein 10 to 18 inches wide has been exposed in a trench 3 feet deep and 30 feet long through clay overburden on the crest of the steep slope to Bullion Creek. This vein is mineralized in places with pyrite, galena, and sphalerite and should be traced to its possible intersection with the Bullion Creek fault.

The "Main" vein on the east side of Bullion Creek is traced along the 10-degree hill-slope, between elevation 3,200 and 3,350 feet in a north-westerly direction for 950 feet by natural exposure and a series of six open-cuts, showing generally barren quartz across widths of 4 to 8 feet. The vein is not continuous to or across Bullion Creek but is apparently faulted by the "Bullion" fault. On the west side of Bullion Creek the "Main" vein offset to the north about 200 feet is again naturally exposed along a distance of about 800 feet, with widths from 6 to 20 feet, between elevation 3,500 and 3,800 feet. About 400 feet to the north-west it is again exposed for about 500 feet between elevation 3,900 and 4,600 feet, showing widths from 5 to 7 feet of generally barren or very sparsely-mineralized quartz. Snow obscured tracing of the "Main" vein beyond this point. The vein dips generally between 65 to 75 degrees west and exhibits a fairly well-defined hanging-wall. It is a siliceous replacement-zone and the silicification gradually fades towards the foot-wall. A selected sample of the best mineralization observed in the surface exposures consisting of quartz, pyrrhotite, and pyrite assayed: Gold, trace; silver, trace.

Several small quartz veins striking between north-east and north-west, transverse to the "Bullion" fault, are exposed by natural outcrop or open-cutting in the vicinity of the main



Helena Gold Mines, Ltd. Plan of Surface Workings.

workings. The most extensive exploration has been confined to what is locally called the "South-west" vein. Detailed examination, however, indicates that the widely separated exposures of the so-called "South-west" vein, represent, most probably, a series of veins transverse to the "Bullion" fault and striking at acute angles to each other. This is especially evident in the underground workings. These veins show the best mineralization at intersections with each other and especially with the "Bullion" fault.

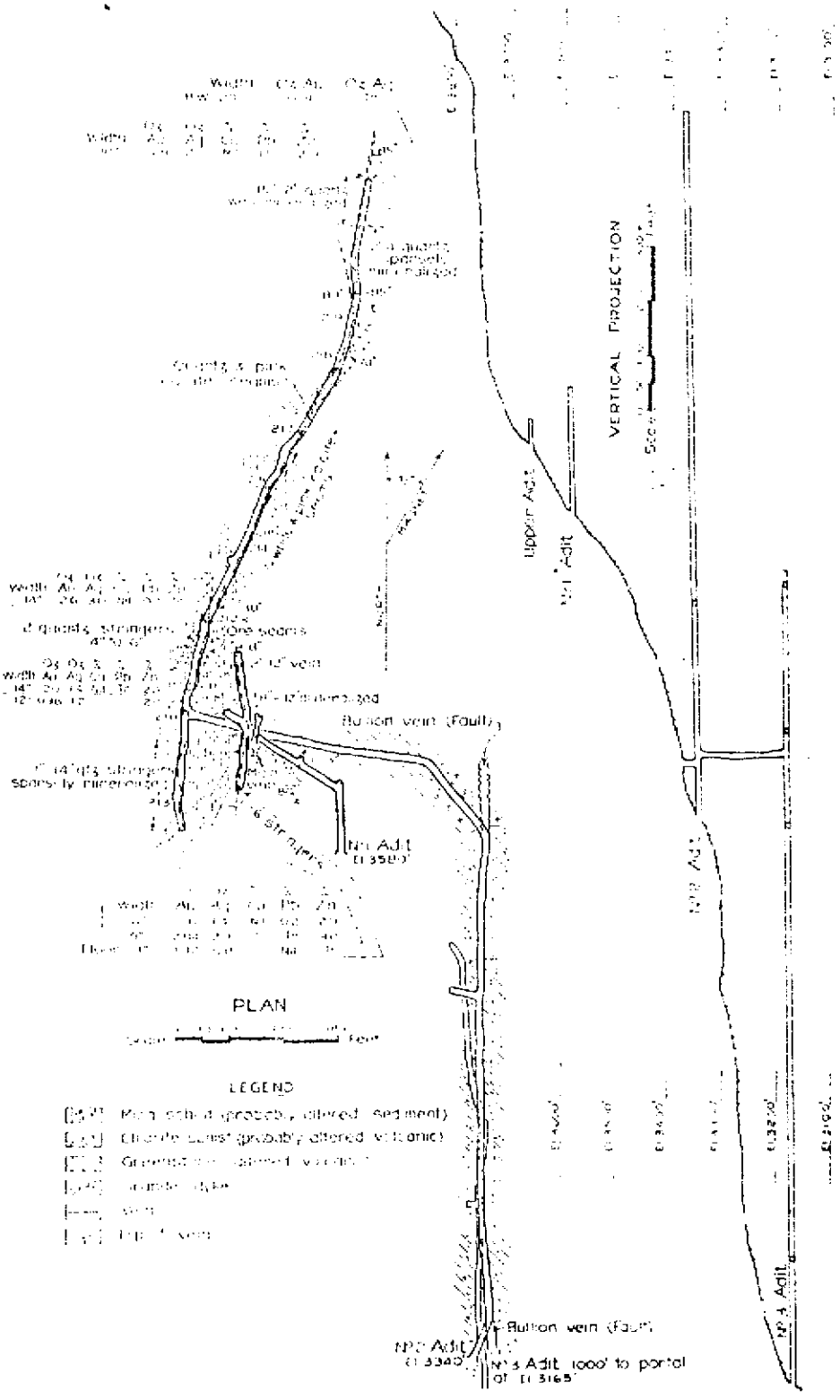
About 240 feet north-westerly from the portal of No. 3 adit, and at about 150 feet higher elevation, a series of open-cuts ("High-grade" cuts) along a distance of 200 feet between elevation 3,315 and 3,370 feet exposes a quartz vein ("South-west" vein) from 6 to 18 inches wide, striking north and dipping from 65 degrees to 80 degrees east. The vein in these cuts is well mineralized with galena, sphalerite, pyrrhotite, pyrite, and arsenopyrite, especially on the hanging-wall side. A selected sample of 6 inches of massive mineralization exposed on the hanging-wall side of the vein in the centre trench assayed: Gold, 13.10 oz. per ton; silver, 30 oz. per ton; lead, 12 per cent.; zinc, 4 per cent. This mineralization and vein have not been located by crosscutting from No. 3 adit-level. It is significant that this mineralization on the surface occurs at about the intersection of the vein with a fault, strike north, dip 60 degrees west, which shows in the crosscut from No. 3 adit-level. Drifting south along this fault and raising to the surface cuts to locate the continuation of the vein would be constructive. About 550 feet north of the "High-grade" cuts, an adit 90 feet long at elevation 3,380 feet exposes a shear 26 inches wide striking north and dipping vertically. The shear is very sparsely mineralized with pyrite and shows some quartz stringers. At elevation 3,675 feet, about 700 feet north of this showing, a quartz vein, 2 feet in width, strike north, dip 62 degrees west, is exposed at its intersection with the "Main" vein. An adit ("Upper" adit) 30 feet long, crosscutting the "Main" vein at this showing, exposes sheared greenstone with silicification across 30 inches mineralized with mainly pyrite and pyrrhotite. A sample across 30 inches of silicification in the face assayed: Gold, trace; silver, 0.2 oz. per ton.

At elevation 3,700 feet, 650 feet north-east of the "Upper" adit and contiguous to a granitic dyke, a quartz vein 30 inches wide, striking north 30 degrees west and dipping 65 degrees west, is exposed in the bed of Bullion Creek, cutting arenaceous argillite. At its intersection with the "Bullion" fault in the creek-bed, this vein is well mineralized in places with sphalerite and pyrite. A sample across 30 inches in the creek-bed assayed: Gold, 0.10 oz. per ton; silver, 1.4 oz. per ton; copper, trace; lead, *nil*; zinc, 2 per cent. This vein is traced north-west by natural exposure across a ridge sloping 30 degrees for a distance of 360 feet to intersection with another north-striking fault in the bed of a small tributary of Bullion Creek at elevation 3,775 feet. Here it is offset 120 feet to the south to elevation 3,750 feet, and can be traced on the west side of the fault for 320 feet to elevation 4,000 feet, where it is obscured by overburden. Several stringers, in places showing massive mineralization of pyrrhotite, sphalerite, pyrite, and some galena, occur in the creek-bed exposure in this locality. A representative sample of a typical stringer, 5 inches wide, assayed: Gold, 4.18 oz. per ton; silver, 0.6 oz. per ton; copper, trace; lead, 0.3 per cent.; zinc, 9 per cent.

The described mineral exposures are mainly in a rock-formation complex of sheared greenstone and tuffaceous sediments. To the north argillaceous sediments predominate. Several small discontinuous and lenticular showings have been located in this formation, amongst which is the so-called "Zinc" vein, located at an elevation of 4,100 feet and about 1,500 feet north of the last-described exposures. A shallow pit sunk on this showing was filled with water.

About 4,000 feet of underground work consisting of drifting and crosscutting, with raises of 150 feet between No. 3 and No. 2 ("Bullion") adits and 25 feet between No. 2 adit and the surface, has been carried out in five adits. The main underground workings are illustrated in the accompanying map.

No. 3 adit, at elevation 3,165, failed to intersect the vein exposed on the surface in the "High-grade" cuts. It then angles towards the "Bullion" fault, which is intersected at station 312 and followed for about 700 feet, showing intensive shearing with some quartz patches and stringers, and occasional sparse, lenticular mineralization with pyrrhotite, pyrite, and sphalerite. The best mineralization occurs 60 feet north of station 314 in a well-mineralized stringer 3 to 8 inches wide for a length of 30 feet. The rock formation on this level is mica-schist probably the result of alteration, partly of argillaceous sediments and partly of



Helena Gold Mines, Ltd. Plan and Vertical Projection of Main Workings.

altered andesitic volcanic rocks. In the raise on the "Bullion" fault-vein between No. 3 and No. 2 adits, a transverse vein 18 inches wide is intersected 48 feet below No. 2 adit.

No. 2 adit, at elevation 3,340 feet, intersects the "Bullion" fault-vein at 45 feet from the portal and continues northerly along it for 570 feet from the portal. The "Bullion" vein as exposed consists of irregular and lenticular masses of quartz from 2 to 4 feet wide, with generally sparse pyrrhotite, pyrite, sphalerite, and some galena, in a well-defined shear dipping vertically or steeply east in chloritic schist. A sample taken across 18 inches at 150 feet north of the winze to No. 3 adit, and representing the best mineralization exposed, assayed: Gold, 0.04 oz. per ton; silver, 0.6 oz. per ton.

Continuing for 570 feet from the portal, the working trends north-westerly through chloritic schist for 105 feet, then turns westerly through greenstone for 210 feet and mica-schist for 60 feet, to intersect a quartz vein. This vein is also exposed in No. 1 adit, 240 feet elevation above No. 2 adit. A sample across this vein, 12 inches wide at the point of intersection, and well mineralized with pyrrhotite, pyrite, some sphalerite and galena, assayed: Gold, 0.98 oz. per ton; silver, 12 oz. per ton; copper, *nil;* lead, trace; zinc, 2 per cent. From the point of intersection a drift south for 80 feet exposes a sparsely-mineralized quartz stringer 1 to 14 inches wide, with some lateral quartz-seams. North from the point of intersection a drift for 630 feet clearly indicates the occurrence of small intersecting transverse veins striking between north-west and north-east, with a tendency for the best mineralization to occur at points of intersection. A close examination shows that this drift follows several such veins which enter and leave the drift at acute angles along the east and west walls in a general rock formation of greenstone. This condition is illustrated in the accompanying map. In the first 500 feet of this drift two short sections of vein, well mineralized with pyrrhotite, pyrite, sphalerite, and some galena, are exposed. The first extends from station 210 for 30 feet north with a vein-width of 8 to 14 inches. A sample across 14 inches at the northern extremity of this section assayed: Gold, 2 oz. per ton; silver, 1.4 oz. per ton; copper, *nil;* lead, trace; zinc, 2 per cent. The second mineralized section with vein-widths from 3 to 30 inches commences 48 feet north of station 211 and extends for 28 feet to just north of station 212. A sample in this section, across 14 inches, 10 feet south of station 212, assayed: Gold, 2.60 oz. per ton; silver, 3 oz. per ton; copper, *nil;* lead, 0.2 per cent.; zinc, trace. It is of importance to note that between stations 210 and 212 the "Main" vein, striking north-west, should be intersected. It is, however, not evident in the drift or the main working to it. Continuing north-easterly for 360 feet beyond station 212, generally barren quartz and calcite stringers and seams are exposed.

At station 219 a well-defined quartz vein, 2 to 4 feet wide, striking north 11 degrees east and dipping 85 degrees easterly, is intersected and continues strongly for 150 feet to the face. For 52 feet from the face this vein is very well mineralized with massive pyrrhotite and pyrite, some sphalerite and galena, across widths of from 18 inches to 2 feet. A sample across 18 inches in the face assayed: Gold, 0.68 oz. per ton; silver, 2 oz. per ton; copper, *nil;* lead, 1.5 per cent.; zinc, 2 per cent. The character of this vein is similar to the described showings in the "Bullion" fault in the bed of Bullion Creek at elevation 3,750 feet, with which structure further work may possibly correlate it.

At elevation 3,580 feet, No. 1 adit intersects the "Main" vein 10 feet from the portal. This exposure is a characteristic siliceous zone, sparsely mineralized with pyrrhotite and pyrite. The adit continues northerly for 65 feet from the portal, and then turns north-westerly for 150 feet. At 122 feet along the north-westerly stretch a transverse quartz vein striking north and dipping steeply west is intersected. It has been drifted on to the south for 60 feet and varies from 4 to 26 inches in width, and is generally well mineralized with pyrrhotite, pyrite, sphalerite, and some galena for a length of 55 feet. Towards the face the vein disperses into several sparsely-mineralized stringers 1 to 6 inches wide which tends to come together towards the floor. The best width is at the intersection of the "Main" vein by the drift about 15 feet from the point of intersection. The following are assay results of samples taken in the south drift.

(1.) Across 16 inches, south of "Main" vein intersection, 12 feet from crosscut: Gold, 0.16 oz. per ton; silver, 1.4 oz. per ton; copper, *nil;* lead, 0.2 per cent.; zinc, 2 per cent.

(2.) Across 9 inches, 36 feet south of crosscut: Gold, 2.84 oz. per ton; silver, 2.9 oz. per ton; copper, *nil;* lead, trace; zinc, 3 per cent.

(3.) Across 13 inches in floor at face: Gold, 0.32 oz. per ton; silver, 0.8 oz. per ton; copper, *nil*; lead, *nil*; zinc, trace.

The vein has been drifted on to the north for a distance of 87 feet from the point of intersection. The vein as exposed in this drift is erratic and varies from 2 to 12 inches in width, with generally very sparse mineralization.

The No. 1 adit vein and mineralization cannot be definitely correlated with that exposed in the No. 2 adit north drift. It is possible, however, that such continuity may be established by means of raising and sub-levelling in this locality.

It is indicated by surface and underground exposures that the best possibilities for intensified mineralization occur at transverse vein-intersections with each other or with faults. Such places are indicated: (1) South of the present workings on No. 3 level, between that horizon and surface at the "High-grade" cuts; (2) in the locality of the present face of No. 2 level, between that horizon and surface; (3) northerly along the "Bullion" vein on the No. 2 level horizon.

Equipment on the property consists of residence, office, cook-house, sleeping accommodation, and stable at the Beach Camp. At the Cache there is a well-constructed cabin with cooking and sleeping equipment for four men, also a stable. The working camp is equipped with dining-room and bunk-house accommodation for about thirty men, office warehouse, and assay office. The plant consists of two units, made up of two 36–42 Petter semi-Diesel engines; two Gardner-Denver 212-cubic-foot compressors; air-pump and steel-sharpeners, together with electric-lighting equipment.

Salmon River Area, Portland Canal.

Bush Cobalt Mines, Ltd. (N.P.L.).

This company was incorporated on January 26th, 1929, under the laws of British Columbia. The authorized capital is $1,000,000, divided into 2,000,000 shares of the par value of 50 cents each. Of these, 500,000 non-assessable shares were issued to the Cobalt Syndicate, vendors of the *Cobalt* group, and 500,000 non-assessable shares to the Bush Consolidated Gold Mines, Incorporated, vendors of the *Exchange* group. O. B. Bush, Vancouver, is president of the company, and the registered office is at 375 Dunsmuir Street, Vancouver.

In November, 1935, the Cardinal Mining and Development Company, Limited, optioned a 55-per-cent. interest in the property of this company in consideration for the expenditure of $75,000 within three years, the work to commence early in 1936. In this respect no work was done on the property during 1936. (*See* Bush Consolidated Gold Mines, Limited.)

The property comprises eight Crown-granted mineral claims and fractions and one surveyed but not Crown-granted fraction. These consist of *Exchange Nos. 1, 2, 3, 4, 5*, being respectively Lots Nos. 1843, 1844, 1845, 1846, 1847, constituting the *Exchange* group, and the *Winner*, *Cobalt*, and *Cobalt No. 2*, being respectively Lots Nos. 4116, 4053, 4054, known as the *Cobalt* group. The property is located between 1,500 and 3,000 feet elevation on the east side of Cascade Creek, in the Upper Salmon River Valley, Portland Canal Mining Division, about 15 miles from seaboard at the village of Stewart. The claims adjoin the *Extension* group on the south and west, the *Sebakwe* group on the north and west, and the *Mineral Basin* and "*45*" groups on the east.

The property is reached by motor-road from Stewart and a branch trail about a quarter of a mile in length leads from this road at elevation 1,725 feet along a gentle hill-slope to the cabin at elevation 1,590 feet.

The cabin, 33 by 21 feet, is a two-story structure and in good condition. The main adit (lower) is situated at elevation 1,540 feet, about 450 feet north 8 degrees west of the cabin, on the 30-degree, partially-benched hill-slope to Cascade Creek and about 200 feet in elevation above the creek. A blacksmith-shop in bad condition is located at the portal of the main adit.

The exposed rock formation in and around the workings is a greenstone and tuff complex of the Bear River series, generally intensively jointed. Major jointing strikes north 30 degrees east and dips 60 degrees west, and minor jointing strikes north 60 degrees east and dips 50 degrees north-west. In places shearing along major joint-planes has occurred and the rocks are generally slightly pyritized. A feldspar-porphyry dyke striking north-west cuts across a steep draw between the upper (elevation 1,625 feet) and lower (elevation 1,540 feet) adits.

Very little surface exploration has been done on the property. This consists mainly of some stripping and open-cutting (now caved) along what appears to be a fault in a steep

Bulletin No.1, 1932
Lode-Gold Deposits of
British Columbia

as the *Eddy Pass*, *I.X.L.*, and *Eagle*, similar possibilities are indicated. On the *Copper Coin*, about 1 mile south, an interesting diamond-drilling exploration proposition is indicated to determine a possible gold-bearing content of the mineralized shear-zone as it passes from the schist, in which it outcrops, to the underlying quartz diorite. Intensive prospecting of Porcher island for high-grade gold-bearing veins is also well warranted.

PORTLAND CANAL MINING DIVISION.

Georgia River Gold Mines, Ltd.

This property is described in former reports cited in the tabulated summary, and more recently in those for the years 1928, 1929, and 1930. During 1931 operations were resumed on September 23rd with a crew of seven men and were suspended on November 12th. Work was concentrated on the extension of the *Bullion* tunnel (elevation 3,350 feet) with the objective of intersecting the south-west vein showing in the upper tunnel (elevation 3,665 feet) near its possible junction with the main or "Georgia" vein. It is estimated that about 80 feet further crosscutting should reach the objective. A crosscut was also commenced in No. 3 tunnel (elevation 3,170 feet), south of the raise connecting this tunnel with the *Bullion* tunnel, to explore the possibilities of the country towards the possible extension of the "Georgia" vein east of the present workings.

In the work completed since that described in the 1929 Annual Report, No. 3 tunnel has been continued over to the *Bullion* vein on this horizon and extended about 900 feet in a north-easterly direction and connected with the *Bullion* tunnel by a raise to the *Bullion* tunnel winze from a point about 80 feet south of No. 3 tunnel-face. The *Bullion* tunnel has been advanced about 300 feet, gradually turning west to get below the upper tunnel. In this work the drift on the *Bullion* vein on No. 3 level shows a well-defined shear-structure of varying but appreciable width carrying quartz lenses and stringers, with some pyrrhotite, pyrite, and occasionally sphalerite, in a black to brownish arenaceous argillite. Although this does not show the type of ore generally associated with high-grade values in this deposit, the structure should be systematically sampled to determine the possibility of shoots of mill grade. A crosscut to the west from No. 3 tunnel under the surface cuts in the south-west vein, and also one to the east, failed to pick up the vertical extension of this vein. In the face of No. 3 tunnel a pronounced transverse shear-structure striking N. 35° W. (mag.) intersects with the *Bullion* structure at an angle of 15°. At the intersection pronounced crushing and dragged quartz is evident, suggesting a possible dragging or partial dislocation of the *Bullion* vein north of No. 3 tunnel-face. This may possibly be correlated with similar evidence in the raise and winze connecting No. 3 tunnel with the *Bullion* tunnel, 80 feet south of No. 3 tunnel-face. Constructive information could be derived by extending the No. 3 tunnel-drift on the *Bullion* structure. This would not only explore this area and the possible extension of the *Bullion* structure on this horizon, but would also give about 170 feet additional back on the *Bullion* vein. It is also suggested that useful information with regard to possible mill-grade values could be derived from a systematically spaced sampling of the exposed vein-structures in the No. 3 and *Bullion* tunnels and also in the connecting raise. As the future of this property is dependent on a sufficient tonnage of mill-grade ore which might be found to occur in short shoots in the vein-structures, such information is of vital importance.

Big Missouri.

This property, also known as the Buena Vista Mining Company, which is being intensively explored and developed by the Consolidated Mining and Smelting Company of Canada, has been described in detail in former reports cited in the table. Exploration has consisted of diamond-drilling, crosscutting, drifting, and, during 1931, sampling by means of a 100-ton mill erected on the ground, for the purpose of determining possible commercial aspects of gold values erratically distributed in the quartz stringers and quartzose replacement of a quartz replacement zone in andesitic tuffs and flows.

During 1931 the mill-sampling exploration constituted the most important work. For this purpose crosscuts and drifts were excavated in drilled areas that showed encouraging values. In the most promising sections wide stope-sills were breast-stoped to a height of about 16 feet and mill-runs were carefully tabulated to correspond with mine localities. Important geological work was also carried out. Exploratory mining and test-milling was continued to about the middle of September with a crew of sixty-five men, when it was suspended to resume further diamond-drilling for the purpose of exploring for possible continuity of sections of possible commercial-grade ore indicated. No possibility that may lead to the development of either a large-tonnage low-grade or a medium-tonnage medium-grade gold-producer is being overlooked.

APPENDIX II

Drill Logs DDH GM-1
and
DDH GGP-1 to GGP-5 inclusive

E & B EXPLORATIONS LTD.

DRILL RECORD -- Georgia No. 1 C.G.

Coord. Approx. 18m N55°W of upper adit
Elev. 1128 m (aprox.)
Core Size BQ

Length 38.1 m
Azimuth 062°
Dip -70°

Project Georgia River Gold Project
Location L4438 - Stewart, B.C.NTS 103O/16W
Purpose To test down dip extension of 'Main Vein' in area of intersection with 'Southwest' vein.

Hole No. GM-1
Date Oct.10/79 - Oct. 11/79
Logged by R.A. Hrkac

METER From	METER To		DESCRIPTION	SAMPLE NUMBER	INTERVAL From	INTERVAL To	SAMPLE LENGTH	Run From	ASSAY TO		Loss	
0	2.4		Casing					0	2.4			
								2.4	5.48	3	0.1	
2.43	10.0		Schist; green to dark green chlorite schist and buff to dark brown					5.48	11.58			
			biotite (?) schist; schistosity at 40° to core axis; white quartz and					11.58	13.1	1.5		
			calcite bands parallel to schistosity; some pyrrhotite as blebs and					13.1	14.6	1.5		
			disseminated detail:					14.6	17.6	3.0		
2.43	3.96		Mottled green and brown schist					17.6	20.7	3.0		
3.96	4.26		Siliceous zone with pyrrhotite					20.7	23.7	3.0		
4.26	5.18		Brown schist					23.7	26.8	3.0		
5.18	5.79		Green schist					26.8	29.8	3.0		
5.79	7.01		brown schist					29.8	32.3	2.5		
7.01	10.0		green schist					32.3	32.9	0.6		
								32.9	34.4	1.5		
			At 10m contact irregular 40° to 50° to core axis					34.4	35.0	0.6	0.15	
								35.0	37.8	Rods	in No.1 .	
10	12.50		'Main Vein' - white quartz with 1 to 2% (pyrrhotite (11.28 to 11.88 pyrr-	23301B	10	10.3	.3			tunnel	2.8	
			hotite to 4%). minor chalcopyrite mixed with pyrrhotite, minor pyrite	23302B	10.3	10.6	.3	37.8	38.1	0.3	0.22	
			at 10.66 to 10.97 occasional specks of galena and sphalerite.	23303B	10.6	10.9	.3					
				23304B	10.9	11.2	.3	Recovery		91.4%		
12.50	13.72		Main Vein - approximately 50% white quartz and 50% siliceous pale green	23305B	11.2	11.5	.3					
			core with 1 to 2% magnetic pyrrhotite.	23306B	11.5	11.8	.3					
				23307B	11.8	12.1	.3					
[illegible]	17.37		[illegible]ain [illegible] - ap[illegible]ately 20% [illegible] qua[illegible] core [illegible]ly s[illegible]ous	[illegible]3308[illegible]	12.[illegible]	[illegible]4	[illegible]					

E & B EXPLORATIONS LTD.

DRILL RECORD --

Coord. _____

Elev. _____

Core Size _____

Length _____

Azimuth _____

Dip _____

Project GEORGIA RIVER GOLD PROJECT

Location _____

Purpose _____

Hole No. GM-1

Date Oct. 10-11/79

Logged by _____

METER From	METER To	DESCRIPTION	SAMPLE NUMBER	INTERVAL From	INTERVAL To	SAMPLE LENGTH	ASSAY
13.72	17.37	green, disseminated blebs and stringers of pyrite and magnetic pyrrhotite	23309B	12.4	13.4	1.0	
			23310B	13.4	14.4	1.0	
17.37	24.69	Main Vein - Medium to dark grey to grey-brown siliceous core; remnant	23311B	14.4	15.4	1.0	
		lineation at 40° to core axis; white quartz stringers common, 5% magnetic	23312B	15.4	16.4	1.0	
		pyrrhotite plus pyrite.	23313B	16.4	17.4	1.0	
			23314B	17.4	18.4	1.0	
24.69	38.1	Schist - light to dark brown biotite (?) schist interlayered with dark	23315B	18.4	19.4	1.0	
		green to black chlorite schist. Schistosity at 50° to core axis.	23316B	19.4	20.4	1.0	
		Pyrrhotite as blebs, 1 mm bands and finely disseminated. Detail:	23317B	20.4	21.4	1.0	
24.69	25.6	Mainly dark brown schist.	23318B	21.4	22.4	1.0	
25.6	25.9	White quartz with bands of brown schist; 4% pyrrhotite as blebs +	23319B	22.4	23.4	1.0	
		thin bands.	23320B	23.4	24.4	1.0	
5.9	26.2	Dark brown schist	23321B	25.6	25.9	.3	
26.2	26.5	Pale brown schist with quartz.					
26.5	26.8	Pale green core with pyrrhotite bands	23322B	26.5	26.8	.3	
26.8	27.43	Dark brown schist					
27.43	29.87	Dark green schist, fine diss. pyrrhotite					
29.87	32.3	Mainly dark brown schist with fine disseminated sulphide and some 1mm					
		sulphide bands.					
32.3	38.1	Dark green schist with wispy lineation @ 40°, minor fine disseminated					
		sulphide. END					
		Note, to 1 set) turn, 35. 37.8 ga.					

E & B Explorations Ltd.

CAN-LAKE EXPLORATIONS LIMITED

DRILL RECORD

Hole No. GGP-1
Project Georgia River
Length 80.47
Azimuth 066°
Dip 45°
Elev. 1143 m

Core Size BQ

Casing left in hole 16'

Date Started November 3, 1979 Date Completed November 9, 1979

Contractor Artic Diamond Drilling Logged by M. Childs

Tests None

Claim Georgia #1
Location Northern British Columbia
NTS 103 P/13 Grid
Lat. Coord
Long.

Purpose To test the intersection of the "Southwest" and "Main" veins

METRE FROM	METRE TO	ROCK TYPE	DESCRIPTION	SAMPLE NUMBER	INTERVAL FROM	INTERVAL TO	SAMPLE LENGTH	ASSAY
0	4.88	Overburden						
4.88	7.47	Metavolcanic	Dark grey to greenish grey fine grained tuff. Poorly developed schistosity at 60° to core axis. Quartz stringers (3mm) parallel to schistosity. Fractures irregular and exhibit limonitic stains on surfaces.					
7.47	12.80	Quartz Vein	White massive quartz vein. Incorporates angular disorientated fragments of dark grey fine grain tuff. 1 to 3% disseminated sulphide mineralization. Primarily pyrite, Arsenopyrite and pyrrhotite with trace sphalerite and galena. Upper contact gradational and irregular.	1-S-1 (samples 1-S-1 to 1-S-47 at 0.3 m)	7.47	7.77 (7.47 m to 21.64 m)	0.30	
12.80	19.05	Metavolcanic	Grey fine grained highly siliceous (50% quartz) tuff. Poorly developed irregular schistosity. 1 to 3% disseminated mineralization predominantly arsenopyrite, pyrrhotite, pyrite, with trace sphalerite and galena.					

METRE FROM	METRE TO	ROCK TYPE	DESCRIPTION	SAMPLE NUMBER	INTERVAL FROM	INTERVAL TO	SAMPLE LENGTH	ASSAY
19.05	21.64	Quartz Vein	White Massive quartz vein, incorporating angular inclusions of grey fine grain tuff. Disseminated sulphide mineralization 1 to 3% primarily arsenopyrite, pyrite, pyrrhotite with lesser sphalerite and galena.	1-S-47	21.34	21.64	0.30	
21.64	80.47	Metavolcanic E.O.H.	Dark grey to brownish grey, fine to medium grained fragmental tuff. Angular fragments up to 3mm. Poorly developed schistosity at 50° to core axis. Quartz stringers up to 5mm parallel to schistosity. White quartz vein from 113' to 114' contacts irregular.	1-S-48	34.44	34.75	0.31	

E & B Explorations Ltd.

CAN-LAKE EXPLORATIONS LIMITED

DRILL RECORD

Hole No. GG-2
Project Georgia River 1095
Length 47.85 m
Azimuth 230°
Dip 55°
Elev. 1188.7 m

Core Size BQ

Casing left in hole -

Date Started November 10, 1979 Date Completed November 11, 1979

Contractor Artic Diamond Drilling Logged by M. Childs

Tests None

Purpose

Claim Georgia I
Location Northern British Columbia
NTS 103 P/13 Grid -
Lat. Coord -
Long.

METRE FROM	METRE TO	ROCK TYPE	DESCRIPTION	SAMPLE NUMBER	INTERVAL FROM	INTERVAL TO	SAMPLE LENGTH	ASSAY
0	2.13	Overburden	-					
2.13	6.30	Metavolcanic	Dark grey to black fine grained tuff. Exhibits well developed fragment alignment at 15 to 20° to core axis. Quartz eyes 3mm. Minor quartz stringers (2mm) parallel to alignment.					
6.30	6.70	Quartz vein	White massive quartz vein, incorporates metavolcanic fragments. Minor Pyrrohite mineralization. Upper contact irregular, lower contact 20° to core axis.	2-S-1	6.30	6.70	0.40	
6.70	38.1	Metavolcanic	Dark grey to black fine grain tuff. Fragment alignment parallel to poorly developed schistosity at 20° to core axis. Minor Quartz stringers parallel to schistosity and crosscutting. Blocky core recovery 31.70 to 37.19. Brecciation, possible shear zone 37.19 to 38.10. Minor pyrite mineralization.					
38.1	38.55	Quartz vein	Grey to white quartz vein. Upper and lower contacts irregular 1% sulphide ...iner...tion...pmin...pyr...id p...ite.	2-S-2	38.10	38.32	0.22	
					38	38.55		

METRE FROM	METRE TO	ROCK TYPE	DESCRIPTION	SAMPLE NUMBER	INTERVAL FROM	INTERVAL TO	SAMPLE LENGTH	ASSAY
38.55	39.93	Metavolcanic	Dark grey, highly brecciated, fine grain tuff. Pyrite mineralization on fracture surfaces.					
39.93	40.38	Quartz vein	Grey to white massive quartz vein. Minor tuff inclusions 1% sulphide mineralization primarily pyrrhotite. Upper and lower contact irregular.	2-S-4	39.93	40.13	0.20	
				2-S-5	40.13	40.38	0.25	
40.38	41.0	Metavolcanic	Black fine grain argillaceous tuff. Well brecciated. Fracture surfaces exhibit waxy lustre and heavy pyrite mineralization. Fractures irregular.					
				2-S-6	41.0	41.3	0.30	
41.0	42.2	Quartz vein	Grey to white quartz vein. Minor tuff inclusions. 1 to 4% sulphide mineralization primarily pyrrhotite and pyrite. Contacts irregular.	2-S-7	41.3	41.6	0.30	
				2-S-8	41.6	41.9	0.30	
				2-S-9	41.9	42.2	0.30	
42.2	44.85	Metavolcanic	Dark grey to black fine grain brecciated tuff. Poorly developed lineation at 15° to core axis. Minor pyrite mineralization.					
			E.O.H.					

E & B Explorations Ltd.

CAN-LAKE EXPLORATIONS LIMITED

DRILL RECORD

Hole No. GGP-3
Project Georgia River 1095
Length 44.81
Azimuth 230°
Dip 45°
Elev. 1168.7 m

Core Size BQ
Casing left in hole -
Date Started November 11, 1979 Date Completed November 11, 1979
Contractor Artic Diamond Drilling Logged by M. Childs
Tests None
Purpose

Claim Georgia I
Location Northern British Columbia
NTS 103 P/13 Grid
Lat. Coord
Long.

METRE FROM	METRE TO	ROCK TYPE	DESCRIPTION	SAMPLE NUMBER	INTERVAL FROM	INTERVAL TO	SAMPLE LENGTH	ASSAY
0	4.88	Overburden						
4.88	34.30	Metavolcanic	Dark grey to black fine grained tuff. Poorly developed schistosity 15° to core axis. Quartz stringers < 3mm parallel to schistosity. Fractures at 0 to 20°. A section of pale greenish-grey siliceous tuff 19.72 to 20.88 m. Blocky recovery 29.26 to 30.0 representing a possible shear zone.	3-S-6	19.72	20.02	0.30	
				3-S-7	20.02	20.32	0.30	
				3-S-8	20.32	20.65	0.33	
34.30	35.75	Quartz Vein	White massive quartz vein. Upper contact distinct at 38°. 10 cm zone above contact appears to be leached 1 to 15% spotty disseminated sulphide mineralization. Predominantly pyrite pyrrhotite, Arsenopyrite trace galena and trace sphalerite. Inclusions of host rock.	3-S-1	34.3	34.6	0.30	
				3-S-2	34.6	34.9	0.30	
				3-S-3	34.9	35.2	0.30	
				3-S-4	35.2	35.5	0.30	
				3-S-5	35.5	35.75	0.25	
35.75	44.81	Metavolcanic	Black fine grained tuff. Poorly developed schistosity. Numerous quartz stringers parallel to schistosity at 15° to core axis.					

CAN-LAKE EXPLORATIONS LIMITED

DRILL RECORD

Hole No. GGP-4
Project Georgia River Property
Length 71.02
Azimuth 230°
Dip 70°
Elev. 1188.7 m

Core Size BQ
Casing left in hole -
Date Started November 11, 1979 Date Completed November 12, 1979
Contractor Artic Diamond Drilling Logged by M. Childs
Tests
Purpose

Claim Georgia I
Location Northern British Columbia
NTS 103 P/13 Grid
Lat. Coord
Long.

METRE FROM	METRE TO	ROCK TYPE	DESCRIPTION	SAMPLE NUMBER	INTERVAL FROM	INTERVAL TO	SAMPLE LENGTH	ASSAY
0	1.22	Overburden						
1.22	71.02	Metavolcanic	Black fine to medium grained tuff. Poorly developed schistosity at 15 to 25° to core axis. Quartz stringers ≤ 4mm parallel to schistosity. Fractures irregular. Quartz stringers at 6.25 m (2.54cm wide), 61.08 (8.0cm wide). Quartz vein 54.89 to 55.15. Barren of mineralization	4-S-1	6.25	6.55	0.30	
				4-S-2	61.08	61.30	0.22	
				4-S-3	54.89	55.15	0.26	

E & B Explorations Ltd.

CAN-LAKE EXPLORATIONS LIMITED

DRILL RECORD

Hole No. GGP-5
Project Georgia River
Length 60.66 m
Azimuth 113°
Dip 45°
Elev. 1188

Core Size BQ

Casing left in hole -

Date Started November 13, 1979 Date Completed November 14, 1979

Contractor Artic Diamond Drilling Logged by M. Childs

Tests

Purpose To test Georgia vein

Claim Georgia I
Location Northern British Columbia
NTS 103 P/13 Grid
Lat. Coord
Long.

METRE FROM	METRE TO	ROCK TYPE	DESCRIPTION	SAMPLE NUMBER	INTERVAL FROM	INTERVAL TO	SAMPLE LENGTH	ASSAY
0	3.05	Overburden						
3.05	16.30	Metavolcanic	Dark grey to black fine to medium grained tuff. Very poorly developed lineation 50° to core axis. Numerous quartz stringers parallel to lineation and crosscutting. Minor pyrite mineralization.					
				5-S-1	16.30	16.60	0.3	
16.30	18.00	Quartz vein	White massive quartz vein, 1 to 3% sulphide mineralization, predominantly pyrite and pyrrhotite. Inclusions of tuff in vein. Contact irregular.	5-S-2	16.60	16.90	0.3	
				5-S-3	16.90	17.20	0.3	
				5-S-4	17.20	17.50	0.3	
18.00	60.66	Metavolcanic	Dark grey to black fine to medium grained tuff. Numerous quartz stringers. Poorly developed lineation.	5-S-5	17.50	17.80	0.3	
				5-S-6	17.80	18.00	0.2	

E & B Explorations Ltd.

APPENDIX III

Assay Results
DDH GM-1 and DDH GGP-1
to DDH GGP-5

E & B Explorations Ltd.
CHEMEX LABS LTD.

212 BROOKSBANK AVE.
NORTH VANCOUVER, B.C.
CANADA V7J 2C1
TELEPHONE: [redacted] 984-0221
AREA CODE: 604
TELEX: 043-52597

- ANALYTICAL CHEMISTS - GEOCHEMISTS - REGISTERED ASSAYERS

CERTIFICATE OF ASSAY

CERTIFICATE NO. 67015
INVOICE NO. 34104
RECEIVED Nov. 19/79
ANALYSED Nov. 29/79

TO: Can Lake Explorations
c/o E & B Explorations Ltd.
3015 Shell Centre
400 4th Ave. S.W.
ATTN: Calgary, Alta.

PROJECT GEORGIA RIVER (Ed Krushkowski)

SAMPLE NO.	% Pb	% Zn	oz/ton Ag	oz/ton Au
GGP-1-S-1	< 0.01	0.01	0.09	< 0.003
2	< 0.01	< 0.01	0.07	< 0.003
3	< 0.01	< 0.01	0.01	< 0.003
4	< 0.01	< 0.01	0.01	0.014
5	< 0.01	< 0.01	0.01	< 0.003
6	< 0.01	< 0.01	0.01	< 0.003
7	< 0.01	< 0.01	0.01	< 0.003
8	< 0.01	< 0.01	0.01	< 0.003
9	< 0.01	< 0.01	< 0.01	< 0.003
10	< 0.01	< 0.01	< 0.01	< 0.003
11	< 0.01	< 0.01	< 0.01	< 0.003
12	< 0.01	< 0.01	< 0.01	< 0.003
13	< 0.01	0.04	0.01	< 0.003
14	< 0.01	< 0.01	0.01	< 0.003
15	0.06	0.05	0.12	< 0.003
16	< 0.01	< 0.01	0.01	< 0.003
17	< 0.01	< 0.01	0.01	< 0.003
18	< 0.01	0.01	0.01	< 0.003
19	< 0.01	< 0.01	< 0.01	0.013
20	< 0.01	< 0.01	0.03	0.007
21A	< 0.01	< 0.01	0.04	0.012
21B	< 0.01	< 0.01	0.03	0.006
22	< 0.01	< 0.01	0.06	0.034
23	< 0.01	< 0.01	0.07	0.016
24	< 0.01	< 0.01	0.09	0.004
25	< 0.01	< 0.01	0.09	0.006
26	< 0.01	0.01	0.09	0.024
27	< 0.01	0.01	0.06	0.008
28	< 0.01	< 0.01	0.07	0.006
29	< 0.01	< 0.01	0.09	0.026
30	< 0.01	< 0.01	0.09	0.016
31	< 0.01	< 0.01	0.09	0.016
32	< 0.01	< 0.01	0.06	0.014
33	< 0.01	< 0.01	0.06	0.012
34	< 0.01	< 0.01	0.07	0.020
35	< 0.01	< 0.01	0.06	0.004
36	< 0.01	< 0.01	0.04	< 0.003
37	< 0.01	< 0.01	0.04	< 0.003
38	< 0.01	< 0.01	0.07	0.003
GGP-1-S-39	< 0.01	< 0.01	0.07	0.012

CTA MEMBER CANADIAN TESTING ASSOCIATION

REGISTERED ASSAYER, PROVINCE OF BRITISH COLUMBIA

E & B Explorations Ltd.
CHEMEX LABS LTD.

212 BROOKSBANK AVE.
NORTH VANCOUVER, B.C.
CANADA V7J 2C1
TELEPHONE: [illegible] 984-0221
AREA CODE: 604
TELEX: 043-52597

• ANALYTICAL CHEMISTS • GEOCHEMISTS • REGISTERED ASSAYERS

CERTIFICATE OF ASSAY

CERTIFICATE NO. 67016
INVOICE NO. 34126
RECEIVED Nov. 19/79
ANALYSED Dec. 3/79

TO: Can-Lake Explorations
c/o E & B Explorations
300 5th AVe., S. W.
Calgary, Alta. T2P 3C4

ATTN: Ed. Kruchkowski

Project Georgia

SAMPLE NO. :	% Pb	% Zn	Oz/Ton Ag	Oz/Ton Au
GGP-1-S 40	< 0.01	0.01	0.10	0.008
41	0.81	0.16	2.19	0.004
42	0.02	< 0.01	0.41	0.010
43	< 0.01	< 0.01	0.64	0.036
44	< 0.01	< 0.01	0.10	0.004
45	< 0.01	< 0.01	0.07	0.003
46	< 0.01	< 0.01	0.07	0.004
47	< 0.01	< 0.01	0.09	0.008
GGP-1-S 48	< 0.01	< 0.01	0.04	< 0.003
GGP-2-S 1	< 0.01	< 0.01	0.04	0.006
2	< 0.01	0.02	0.04	0.008
3	< 0.01	< 0.01	0.06	0.016
4	< 0.01	0.02	0.07	0.004
5	0.02	0.06	0.09	0.010
6	0.01	0.07	0.07	0.018
7	< 0.01	0.11	0.04	0.008
8	< 0.01	0.02	0.04	0.026
GGP-2-S 9	< 0.01	0.03	0.10	0.024
GGP-3-S 1	0.75	0.37	2.04	1.510
2	0.16	0.52	2.41	3.064
3	0.01	0.02	0.04	0.034
4	< 0.01	0.01	0.04	0.008
5	0.02	0.01	0.15	0.158
6	0.01	0.01	0.06	0.003
7	< 0.01	0.01	0.06	< 0.003
GGP-3-S 8	< 0.01	0.01	0.06	< 0.003
GGP-4-S 1	< 0.01	< 0.01	0.04	0.003
2	< 0.01	< 0.01	0.04	< 0.003
GGP-4-S 3	< 0.01	< 0.01	0.04	< 0.003
GGP-5-S 1	< 0.01	< 0.01	0.04	< 0.003
2	0.03	0.07	0.07	< 0.003
3	< 0.01	< 0.01	0.03	< 0.003
4	< 0.01	< 0.01	0.01	< 0.003
5	< 0.01	< 0.01	0.09	< 0.003
GGP-5-S 6	< 0.01	0.01	0.06	< 0.003
GGP-R-S 1	< 0.01	< 0.01	0.01	< 0.003
2	< 0.01	< 0.01	0.07	0.004
3	3.68	0.65	8.81	5.794
GGP-R-S 4	0.06	0.01	0.17	0.026

CTA MEMBER CANADIAN TESTING ASSOCIATION

REGISTERED ASSAYER, PROVINCE OF BRITISH COLUMBIA

E & B Explorations Ltd.
CHEMEX LABS LTD.

212 BROOKSBANK AVE.
NORTH VANCOUVER, B.C.
CANADA V7J 2C1
TELEPHONE: [redacted] 984-0221
AREA CODE: 604
TELEX: 043-52597

• ANALYTICAL CHEMISTS • GEOCHEMISTS • REGISTERED ASSAYERS

CERTIFICATE OF ASSAY

CERTIFICATE NO. 66765

INVOICE NO. 33824

RECEIVED Oct. 22/79

ANALYSED Nov. 16/79

TO: E & B Explorations Ltd.
2900 Cascade Bldg.
300 - 5th Ave. S.W.
Calgary, Alta.

ATTN:

SAMPLE NO. :	oz/ton Silver	oz/ton Gold
23301B	0.04	< 0.003
23302	0.02	< 0.003
23303	0.01	< 0.003
23304	0.04	< 0.003
23305	0.06	< 0.003
23306	0.18	< 0.003
23307	0.10	< 0.003
23308B	0.10	< 0.003

CTA MEMBER CANADIAN TESTING ASSOCIATION

REGISTERED ASSAYER, PROVINCE OF BRITISH COLUMBIA

E & B Explorations Ltd.
CHEMEX LABS LTD.

212 BROOKSBANK AVE.
NORTH VANCOUVER, B.C.
CANADA V7J 2C1
TELEPHONE: 9[redacted] 984-0221
AREA CODE: 604
TELEX: 043-52597

- ANALYTICAL CHEMISTS - GEOCHEMISTS - REGISTERED ASSAYERS

CERTIFICATE OF ASSAY

CERTIFICATE NO. 66894
INVOICE NO. 34122
RECEIVED Nov. 5/79
ANALYSED Nov. 30/79

TO: E & B Explorations
3015 Shell Centre
400 - 4th Ave. S.W.
Calgary Alberta.
ATTN: T2P 0J4

SAMPLE NO. :	Oz/Ton Ag	Oz/Ton Au
23309	0.02	< 0.003
23310	0.01	0.003
23311	0.01	< 0.003
23312	0.01	< 0.003
23313	0.01	< 0.003
23314	0.01	< 0.003
23315	0.01	< 0.003
23316	0.02	0.003
23317	0.06	0.005
23318	0.12	0.020
23319	0.08	< 0.003
23320	0.02	< 0.003
23321	0.08	< 0.003
23322	0.01	< 0.003

CTA MEMBER CANADIAN TESTING ASSOCIATION

REGISTERED ASSAYER, PROVINCE OF BRITISH COLUMBIA

CHEMEX Labs Ltd.

CALGARY 2021 - 41 AVE. N.E. CALGARY, CANADA T2E 6P2
TELEPHONE (403) 276-9627 TELEX 038-25541
EDMONTON 6112 DAVIES ROAD, EDMONTON, CANADA T6E 4M8
TELEPHONE (403) 465-9877 TELEX 037-41596

CERTIFICATE OF ANALYSIS

• MINERAL • GAS • WATER • OIL • SOILS • VEGETATION • ENVIRONMENTAL ANALYSIS

E & D EXPLORATIONS

DATE NOVEMBER 21, 197

GEORGIA MINE

PROJECT NO. 8477-1-1355

GEOCHEMICAL ANALYSES

LOCATION	Pb %	Zn %	Ag oz/ton	Au oz/ton
GM 1	0.37	1.24	1.29	0.032
2	8.80	3.15	68.24	0.638

MEMBER CANADIAN TESTING ASSOCIATION

Certified by .....

British Pt.

UNITED STATES

CANADA

PORTLAND CANAL

Engineers Pt.

SUN
1622(8)

RANGE

MIKE 2
1721(9)

L 5150
L 5184
L 5152
1434(8)
L 4437
L 5151
L 5162
1433(8)
L 4438
L 5153
1445(8)
L 5165
L 5159
L 5167
1438(8)
L 5168
1439(8)
L 5161
1431(8)
L 5173
L 4439
L 5154
1429(8)
L 5170
1441(8)
L 5169
1440(8)
L 5160
1446(8)
L 5155
L 5178
1443(8)
1442(8)
L 5171
L 5172
1447
(8)
L 5158
1444(8)
L 5166
L 5179
L 5175
MIKE 1
1623(8)
L 5084
1435(8)
L 5157
L 5158
1436(8)
MIKE 3
1722(9)
L 5174
1480(8)
L 5177
1432(8)
5176

Part 2 of 3

MINERAL RESOURCES BRANCH
ASSESSMENT REPORT
8547
NO.

Georgia River

COLLING

E&B EXPLORATIONS LTD.

MINERAL DISPOSITON MAP

GEORGIA RIVER PROJECT

TO ACCOMPANY REPORT BY: E.KRUCHKOWSKI		
	Scale: 1:20000	Date: AUG 1980
	Project:	Figure: 3
	N.T.S. 103-O/16 W	Drawn by:

GEORGIA
L 4437

MAGNETIC North

Zinc Vein
El. 4100'

GEM
L 5150

Massive Pb, Zn, &
Qtz grab 1979
E & B

0.032 oz. Au
0.68 oz. Au

Locations
Approximate

Massive
Zinc Vein
4"

(1979 Results E & B)

GEM I
L 5151

Summit
Vein

El. 4600'

SOVEREIGN No. 2
L 5162

Main
Vein

El. 3900'

Georgia Vein

El. 4000'

65°

Southwest Vein

El. 3775'

5" 4.18 oz./ton Au
9" 8.17 oz./ton Au
8" 11.5 oz./ton Au
Prior to 1937

Southwest
Vein

Georgia
Vein

GEORGIA No. I
L4438

Grab 5.83 oz./ton Au
(1979 E & B)

85°

El. 3700'
Bullion
Vein

30"
0.10 oz./ton Au
1.4 oz./ton Ag

COBBETT CREEK

Possible Vein

El. 3800'

65°

Main
Vein

UPPER
ADIT

El. 3675'

DANNY Fr.
L 5163

No. 1 ADIT
El. 3580'

Bullion
Fault

JITNEY
L 5159

El. 3500'

Bullion
Vein

No. 2 ADIT
El. 3380'

El. 3350'

SOVEREIGN No. 1
L 5161

El. 3340

GOLDFIELDS No. 2
L 5154

Main
Vein

GEORGIA No. 2
L 4439

El. 3370'

80°

6"
13.0 oz./ton Au
30.0 oz./ton Ag

El. 3315'

65°

El. 3200'

Old
Mine
Camp

El. 3195'

No. 3 ADIT

Camp
Vein

CREEK

SOVEREIGN Fr.
L 5173

SOVEREIGN
L 5160

CREEK

CREEK

BULLION

Old Trail

△ El. 2800'

GOLDFIELDS No. 4
L 5156

GOLDFIELDS No. 3
L 5155

LEGEND

- Vein
- Fault
- Strike & Dip
- Adit
- Trench
- Granodiorite

Scale 1:2000

50 0 50 100 150 200

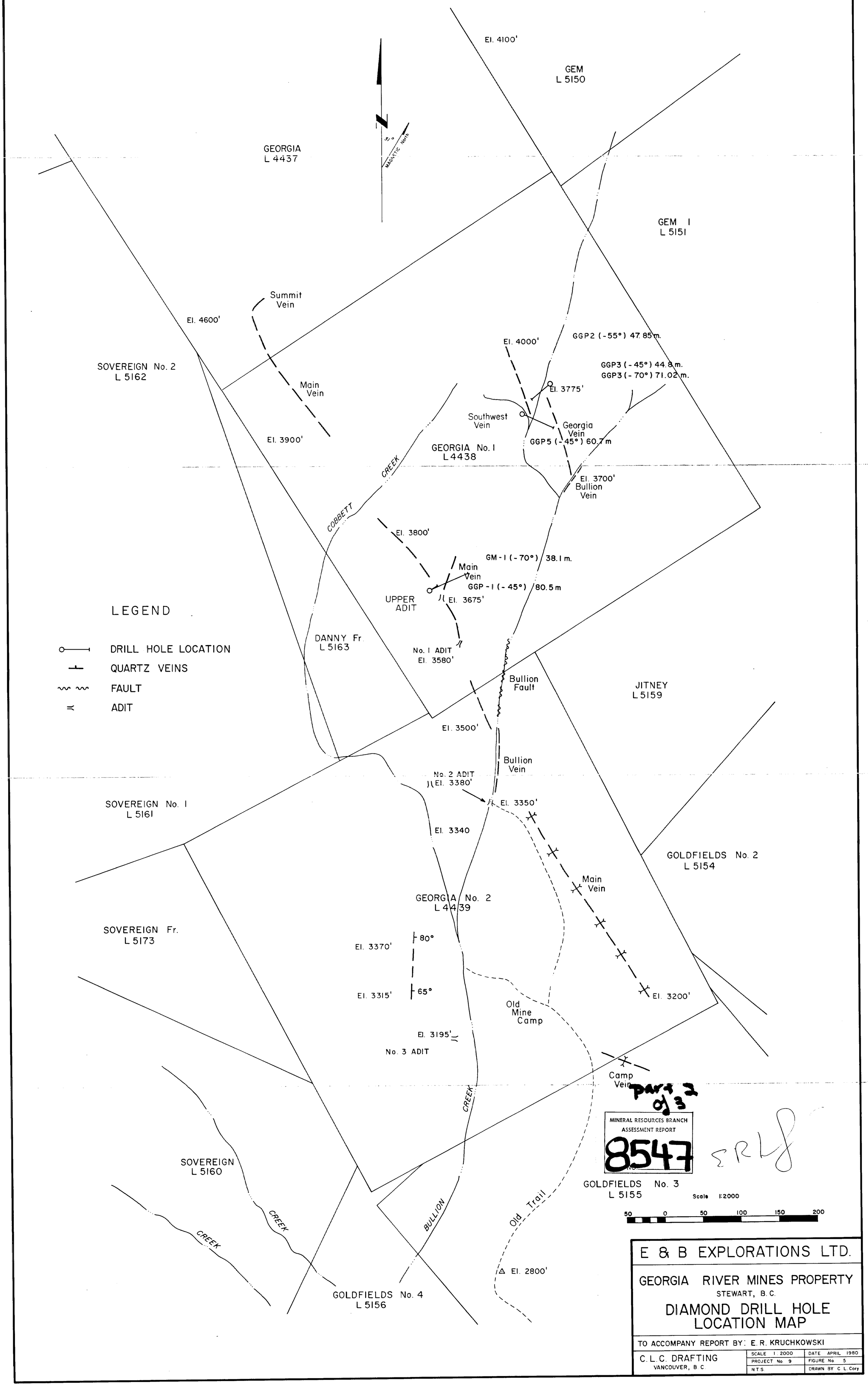
E & B EXPLORATIONS LTD.

GEORGIA RIVER MINES PROPERTY
STEWART, B. C.

PLAN OF SURFACE WORKING'S
AFTER B. C. MINES MINISTER REPORT 1936

TO ACCOMPANY REPORT BY: E. R. KRUCHKOWSKI

C.L.C. DRAFTING VANCOUVER, B. C.	SCALE 1:2000	DATE APRIL 1980
	PROJECT No 9	FIGURE No. 4
	NTS	DRAWN BY: C L Cory



MINERAL RESOURCES BRANCH
ASSESSMENT REPORT
8547

Part 2 of 3

E & B EXPLORATIONS LTD.

GEORGIA RIVER MINES PROPERTY
STEWART, B.C.

DIAMOND DRILL HOLE LOCATION MAP

TO ACCOMPANY REPORT BY: E. R. KRUCHKOWSKI

C.L.C. DRAFTING VANCOUVER, B.C.	SCALE 1:2000	DATE APRIL 1980
	PROJECT No 9	FIGURE No 5
	N.T.S.	DRAWN BY C L Cory