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PROSPECTING AND GEOLOGICAL REPORT
ON THE
HAST MINERAL CLAIMS
Hastings Arm
Skeena Mining Division
British Columbia

NTS: 103P/12W
55°37.5'N 129°47'W

OWNER: LORNE B. WARREN

AUTHOR: N.C. CARTER, Ph.D. P.Eng.

DATE: MAY 8, 1995

FILMED

GEOLOGICAL BRANCH
ASSESSMENT REPORT

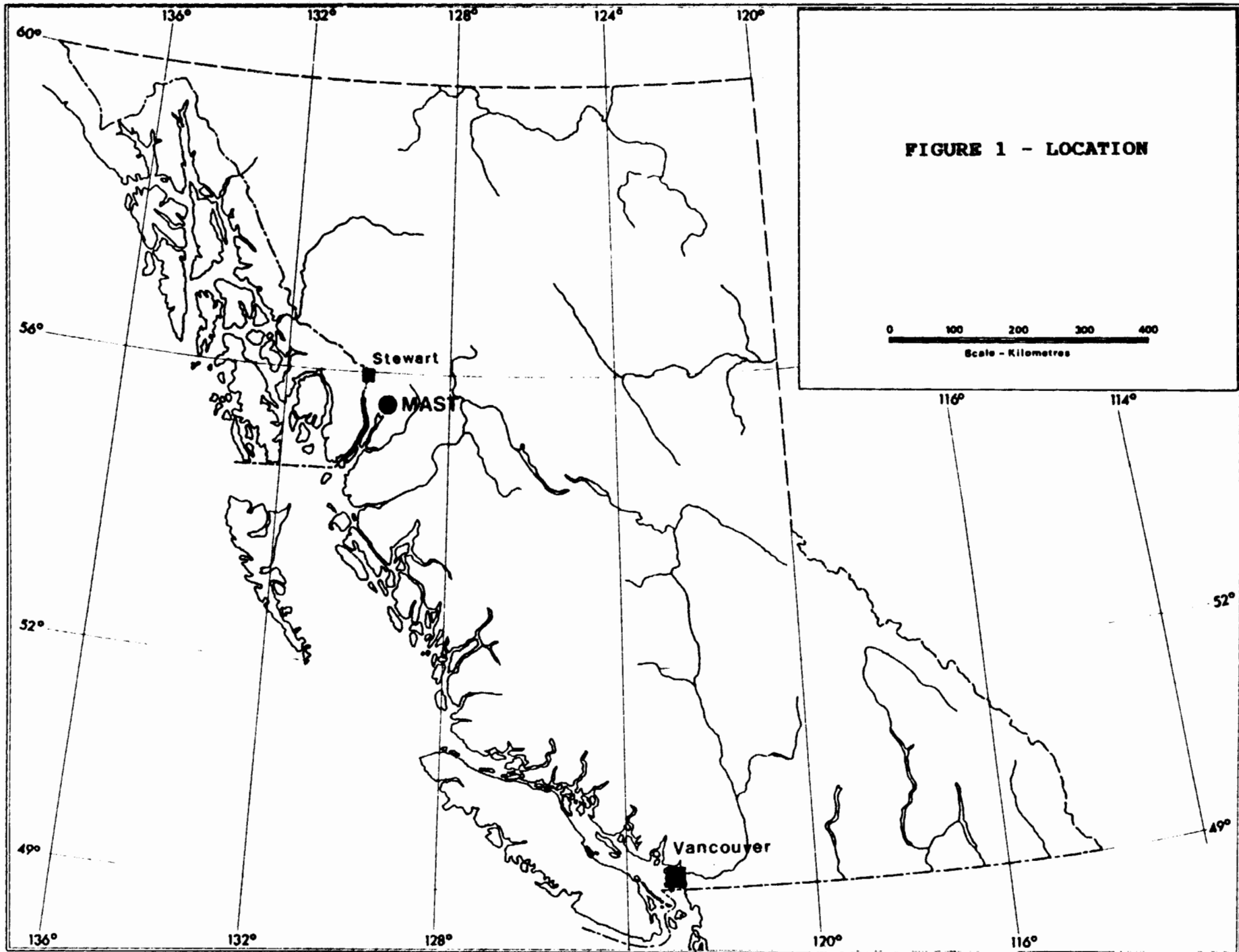
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INTRODUCTION

Location and Access

The MAST property is situated on tidewater at the head of Hastings Arm 37 km south-southeast of Stewart in northwestern British Columbia (Figure 1). The geographic centre of the four mineral claims is at latitude 55°37.5' North and longitude 129°47' West in NTS map-area 103P/12W (Figure 2).

Access is by helicopter from Stewart or by boat from the end of road at Kitsault on Alice Arm, some 40 km southeast of the property.

Mineral Property

The MAST property consists of four 2-post mineral claims registered in the name of Lorne B. Warren (Figure 3). Details of the mineral claims are as follows:

<u>Claim Name</u>	<u>Units</u>	<u>Record Number</u>	<u>Date of Record</u>
MAST 1	1	323599	February 17, 1994
MAST 2	1	323600	" "
MAST 3	1	323601	" "
MAST 4	1	323602	" "

History

Initial exploratory work in the area of the present MAST mineral claims, conducted prior to 1934, included prospecting, the excavation of 22 hand trenches and the driving of 2 short adits and bedrock sampling (Mandy, 1934).

There is no record of any subsequent work on what was

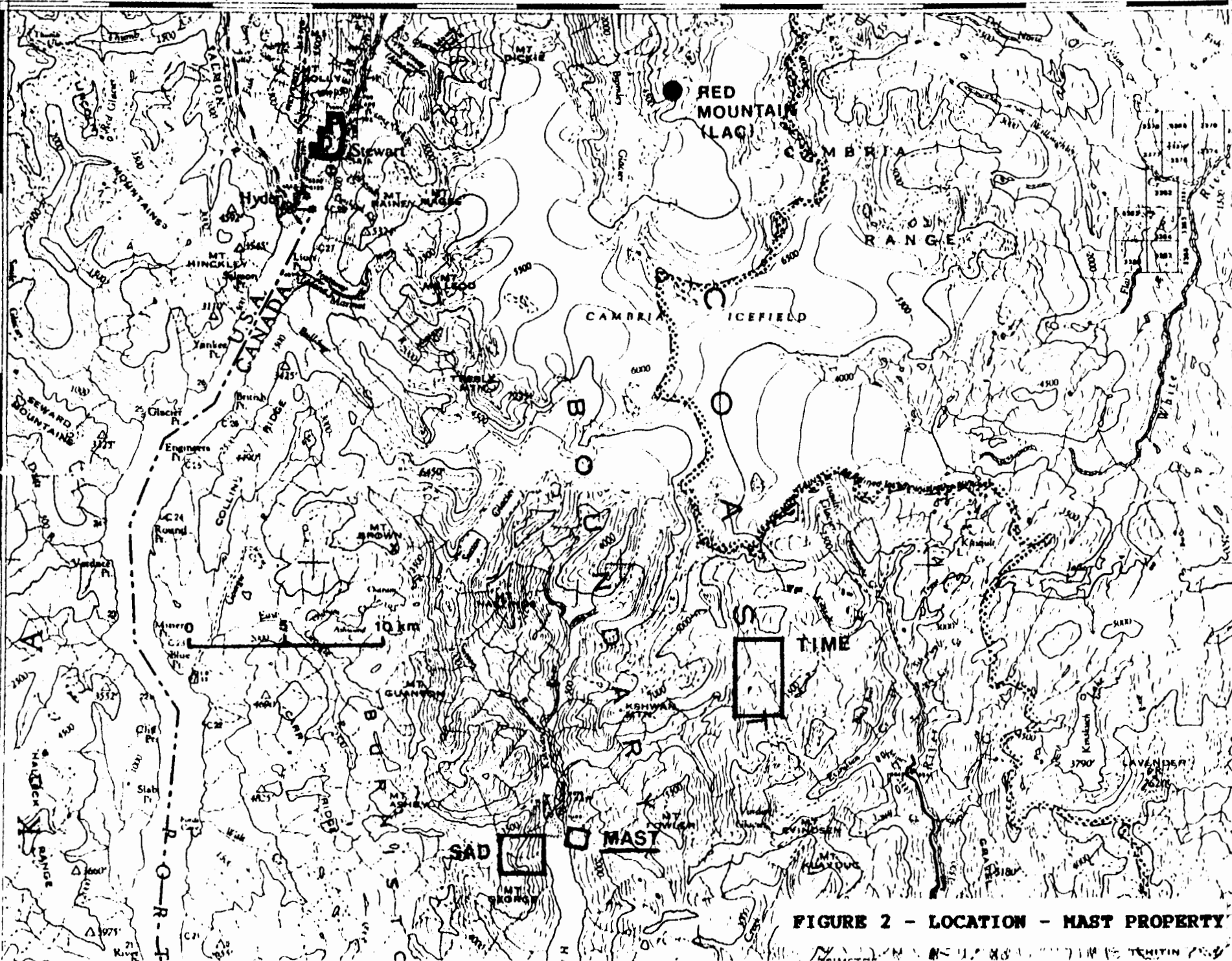


FIGURE 2 - LOCATION - MAST PROPERTY

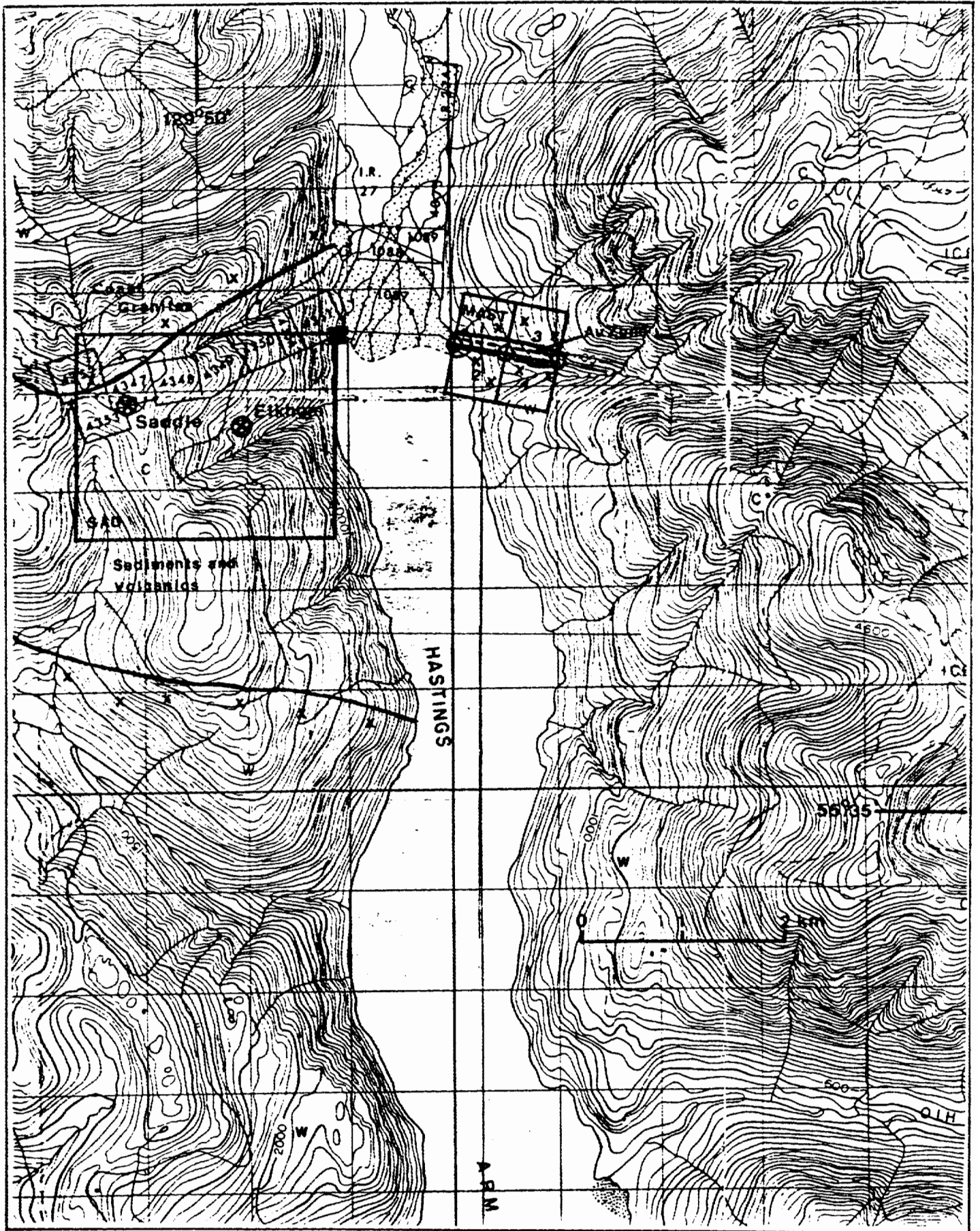


FIGURE 3 - MAST MINERAL CLAIMS

known as the Mastodon property, probably due to some confusion as to its precise location. Current Minfile maps show the location (103P 020) to be some 5 km south of the present claims.

Present Status

The four MAST mineral claims were located by Lorne B. Warren February 17, 1994. A preliminary prospecting program, carried out on September 24, 1994 by Lorne B. Warren and Chris Warren under the supervision of the writer, included partial rehabilitation of an trail believed to lead to the area of the old workings.

Time constraints, mainly an incoming tide making a helicopter landing at tidewater impossible, resulted in the collection of only one bedrock sample from apparently part of the earlier reported mineralized zone.

GEOLOGY AND MINERALIZATION

Physical Setting

The MAST mineral claims cover an area extending easterly from tidewater on Hastings Arm to an elevation of 240 metres above sea level (Figures 3 and 4). Topography in the area of the claims is more subdued relative to other areas east and west of Hastings Arm, with the notable exception of the deeply incised canyon marginal to the drainage in the central

and southern property area.

The area of the claims is typical of near sea level conditions on the north coast, featuring heavy timber and locally dense undergrowth.

Regional Geological Setting

The MAST property, situated within and near the eastern margin of the Coast Plutonic Complex, is principally underlain by granitic rocks of Tertiary and possibly older age.

The property is midway between the Stewart and Alice Arm mineral districts. Major past producing mines of the region include the Premier and Big Missouri gold-silver deposits, Dolly Varden and Torbrit silver deposits, Granduc massive sulphide deposits and the Kitsault porphyry molybdenum deposit south of Alice Arm.

The Red Mountain gold property, now owned by Barrick Gold Corp. and situated 38 km north of the MAST claims, includes at least four en-echelon northwest trending zones of semi-massive sulphides. These are hosted by Hazelton Group felsic and pyritic volcanic rocks marginal to the middle Jurassic Goldslide granodiorite pluton which was investigated for molybdenum mineralization in the 1960's.

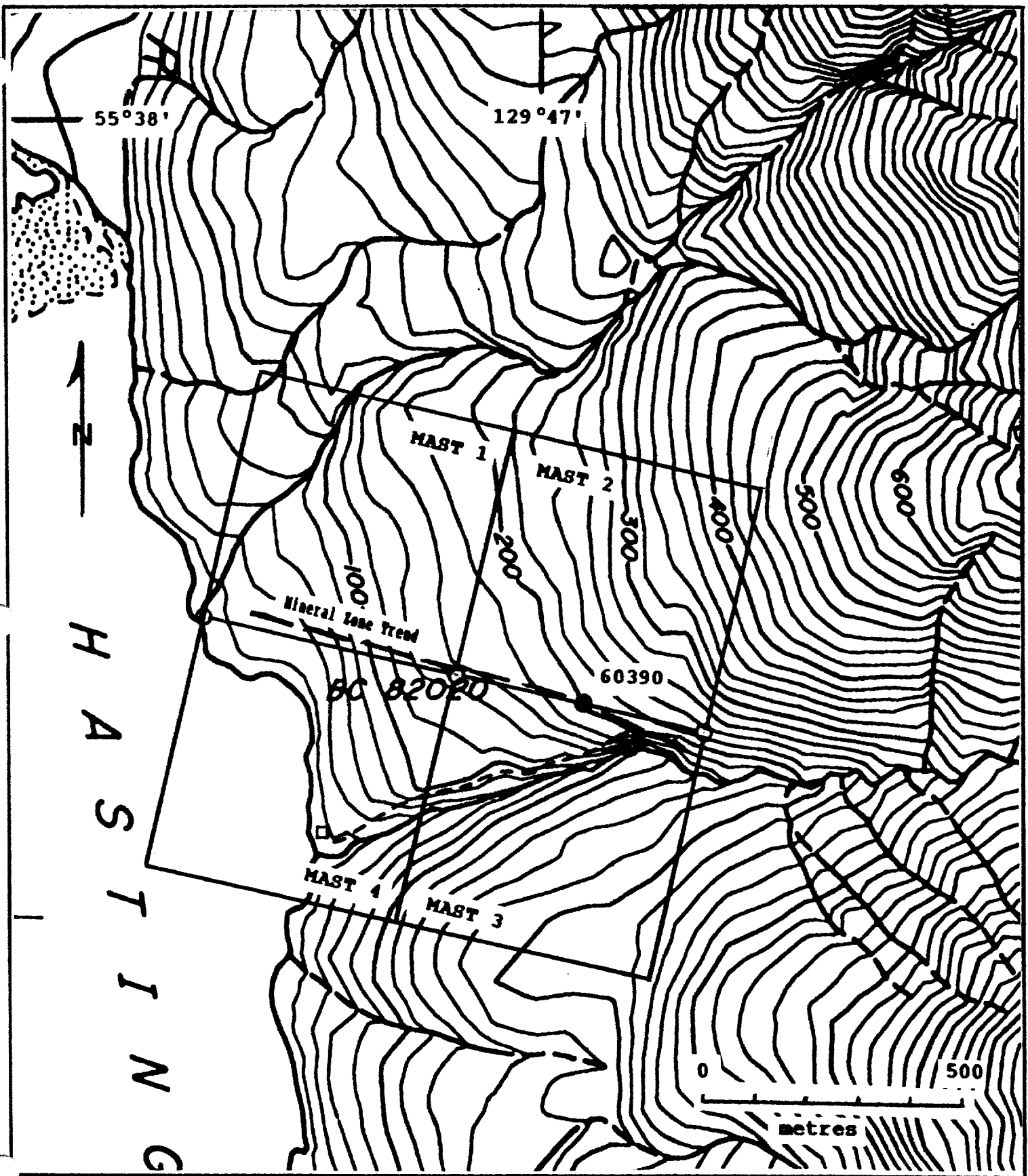
Published reserves for the Red Mountain gold deposits total 2.5 million tonnes grading 12.69 g/t (0.37 oz/ton)

gold. A resource of between 2 and 3 million ounces gold has been estimated for the Red Mountain property.

Property Geology and Mineralization

The MAST property is principally underlain by Coast granitic rocks. These include a linear, west-northwest trending screen or roof pendant of metamorphosed sedimentary rocks which reportedly (Mandy, 1935 - Appendix II) is between 30 and 60 metres wide and has been traced over a strike length of more than 600 metres. This zone of partially digested country rocks is cut by quartz veins, veinlets and silicified areas which are up to 2.5 metres wide and contain variable amounts of pyrite, sphalerite and minor galena. Investigation of this zone prior to 1934 included a number of hand trenches and two short adits along a 500 metres strike length of the mineralized zone (Appendix II). Reported gold values (Mandy, 1934) range from trace to 11 g/t over a 0.5 metre width and include several samples with values of 3.5 g/t gold over widths of between 0.3 and 1.5 metres.

Figure 4 shows the apparent location of this mineralized zone. One sample (60390), collected along the claims location line (Figure 4) consisted of silicified, granitized country rock containing finely disseminated pyrite, galena and sphalerite. Complete sample results are contained in Appendix



**FIGURE 4 - MAST CLAIMS -
 MINERALIZED TREND AND SAMPLE LOCATION**

I; a summary of these is as follows:

<u>Sample No.</u>	<u>Au(ppb)</u>	<u>Ag(ppm)</u>	<u>Cu(ppm)</u>	<u>Pb(ppm)</u>	<u>Zn(ppm)</u>
60390	995	37.1	777	8905	1582

CONCLUSIONS AND RECOMMENDATIONS

Previous work on the MAST claims indicates good strike continuity for the mineralized zone developed in a linear roof pendant of metasediments within granitic rocks of the Coast Plutonic Complex. Consistent gold values have been obtained from a number of hand trenches and two adits over a strike length of 500 metres.

Limited recent work confirms that the current MAST claims cover the area of the previously reported mineralized zone and additional exploratory work is definitely warranted.

COST STATEMENT**Wages**

- September 24 -

L.B. Warren - 0.5 day @ \$250	\$125.00
C. Warren - 3 days @ \$140	<u>\$70.00</u>
	\$195.00

Transportation

Helicopter - 0.5 hours	\$405.00
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Analytical Costs

1 rock sample @ \$19.53	\$19.53
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Report Preparation

N.C. Carter - 1 day @ \$400	\$400.00
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TOTAL EXPENDITURES	\$1,019.53
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REFERENCES

- Carter, N.C. and Grove, E.W.(1972): Geological Compilation of the Stewart, Anyox, Alice Arm and Terrace Areas, B.C. Ministry of Energy Mines and Petroleum Resources Preliminary Map No. 8.
- Mandy, J.T.(1935): Mastodon in British Columbia Minister of Mines Annual Report for 1934, pp. B12-14.
- _____ (1936): Mastodon in British Columbia Minister of Mines Annual Report for 1935, p. B26.

STATEMENT OF QUALIFICATIONS**Lorne B. Warren**

- 1963 - Geological Assistant - Mastodon Highland Bell Mines Ltd. - Dome Mtn. Area - Smithers
- 1964 - Geological Assistant - Phelps Dodge Corp. - Stikine
- 1965 - Prospector and geological assistant - Native Mines Ltd. - Bridge River area
- 1966-1971 - Field technician and line cutter-pro prospector - Manex Mining Ltd. - Smithers area
- 1971-1979 - Field supervisor - Granby Mining Corp. - Smithers
- 1979 - Present - President of CJL Enterprises Ltd., Kengold Mines Ltd. and Angel Jade Mine Ltd. - prospecting and contract mining services

Chris Warren

- 1990 - completed Smithers Bush Skills course; geological assistant at Duckling Creek
- 1991 - assisted in Bush Skills course; line cutting at Johanson Lake
- 1992 - Contract claim staking
- 1993 - Loader operator at placer operation, contract claim staking
- 1994 - Placer testing, Manson Creek area, magnetometer surveys, prospector's assistant

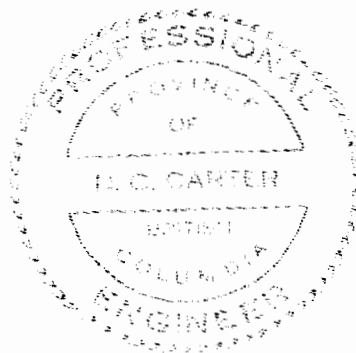
AUTHOR'S QUALIFICATIONS

I, NICHOLAS C. CARTER, of 1410 Wende Road, Victoria, British Columbia, do hereby certify that:

1. I am a Consulting Geologist, registered with the Association of Professional Engineers and Geoscientists of British Columbia since 1966.
2. I am a graduate of the University of New Brunswick with B.Sc.(1960), Michigan Technological University with M.S.(1962) and the University of British Columbia with Ph.D.(1974).
3. I have practised my profession in eastern and western Canada and in parts of the United States for more than 25 years.
4. Geological comments of the MAST property are based on my personal observations and the prospecting program described in the foregoing report was completed under my supervision.



N.C. Carter, Ph.D. P.Eng.



Victoria, B.C.
May 8, 1995

APPENDIX I
Analytical Results

COMP: N C CARTER
 PROJ: BAND MAST SAD TIME
 ATTN: N.C. Carter

MIN-EN LABS — ICP REPORT
 705 WEST 15TH ST., NORTH VANCOUVER, B.C. V7M 1T2
 TEL:(604)980-5814 FAX:(604)980-9621

FILE NO: 4S-0283-RJ1
 DATE: 94/10/06
 * rock * (ACT:F31)

SAMPLE NUMBER	AG PPM	AL %	AS PPM	B PPM	BA PPM	BE PPM	BI PPM	CA %	CD PPM	CO PPM	CU PPM	FE %	K %	LI PPM	MG %	MN PPM	MO PPM	NA %	NI PPM	P PPM	PB PPM	SB PPM	SR PPM	TH PPM	TI %	V PPM	ZN PPM	GA PPM	SN PPM	W PPM	CR PPM	Au-Fire PPB
60381	.1	.69	332	1	74	2.9	9	2.22	.1	27	18	12.01	.15	19	1.10	1105	6	.02	59	1100	24	55	643	1	.01	62.0	45	1	1	4	40	1
60382	.1	.34	458	3	65	2.3	8	.55	.1	7	21	9.20	.26	6	.29	235	77	.04	63	1080	34	22	158	3	.01	22.6	125	1	2	6	125	11
60383	.1	.66	1	1	94	1.6	7	2.39	.1	9	26	4.28	.15	18	1.09	1110	3	.03	19	1840	35	20	390	1	.01	104.7	61	2	1	5	35	1
60384	.1	.31	932	1	70	1.4	7	2.82	.1	16	17	3.14	.28	3	.52	3051	3	.02	18	1620	50	38	553	2	.01	19.8	68	1	1	3	22	7
60385	.1	.87	1	1	197	1.9	8	1.82	.1	11	21	4.68	.52	19	1.14	887	4	.02	20	1830	34	26	295	2	.01	75.7	75	3	1	4	18	6
60386	.1	.09	674	1	54	.8	7	9.66	.1	3	7	2.22	.09	1	.11	3051	21	.01	18	250	223	137	578	1	.01	9.3	1019	1	1	5	91	6
60387	.6	1.14	1	18	91	2.6	9	1.06	.1	13	76	6.56	.52	27	1.26	601	5	.02	124	5420	62	29	578	5	.01	61.1	137	4	1	7	82	13
60388	.1	.54	648	1	54	3.1	10	3.35	.1	20	56	>15.00	.08	17	.96	1457	1	.02	61	700	46	60	837	1	.01	57.6	44	1	1	3	38	10
60389	22.8	.28	8957	1	63	1.1	17	.29	>100.0	3	26	3.41	.41	1	.07	54	2	.01	11	1650	1120	42	52	5	.01	10.3	157	1	1	5	91	274
60390	37.1	.23	283	1	47	.9	12	.09	.1	15	777	3.22	.25	3	.28	285	5	.01	14	290	8905	40	10	4	.01	15.4	1582	1	1	7	137	995
60391	>200.0	.08	462	33	7	.9	151	.02	>100.0	34	>10000	2.94	.03	2	.06	165	18	.01	21	450	>10000	610	38	3	.01	5.7	>10000	1	2	148	30	2665
60392	>200.0	.11	458	3	6	.8	203	.03	>100.0	20	>10000	2.40	.03	2	.10	133	21	.01	14	470	>10000	363	33	4	.01	11.9	>10000	3	2	83	67	229
60393	182.1	.43	288	79	15	1.6	47	.03	>100.0	37	6473	4.64	.10	14	.46	669	26	.01	27	570	>10000	66	57	3	.01	34.4	>10000	1	3	304	132	3440
60394	53.9	.57	94	1	4	1.9	16	.04	>100.0	26	1857	6.15	.01	10	.71	947	8	.01	24	190	>10000	44	24	2	.01	36.0	>10000	1	3	3	105	73
60395	2.5	.20	52	1	14	.3	4	1.06	69.1	4	79	1.02	.10	4	.19	893	8	.01	11	170	377	7	8	1	.01	14.2	4159	1	1	11	234	25
60396	3.6	.47	154	1	62	1.3	10	.22	.1	6	89	3.13	.11	13	1.24	233	5	.03	53	410	193	15	34	3	.09	79.0	299	9	1	12	189	71
60397	6.4	.81	1	1	47	1.4	5	.24	.1	5	76	2.51	.17	30	1.78	436	6	.02	28	860	457	25	39	3	.01	69.7	239	8	1	8	101	394
60398	47.8	.41	25	1	68	.8	7	.55	.1	7	216	1.90	.10	12	.83	470	6	.02	65	640	437	112	60	2	.03	88.3	499	4	1	12	197	35
60399	3.4	.67	1	1	103	.9	16	.60	.1	9	90	3.80	.11	14	1.10	238	5	.10	33	810	98	18	66	1	.19	85.8	97	6	1	9	117	19
60400	1.2	.87	1	1	247	1.7	6	1.35	.1	8	81	3.37	.24	22	1.51	818	5	.01	57	550	104	26	115	3	.01	47.3	378	7	1	6	61	4

MAST PROPERTY - ROCK SAMPLE

APPENDIX II

**J.T. Mandy Report on the Mastodon Property
B.C. Minister of Mines Annual Report, 1934**

Early in 1929 the *Bonanza* ore-body, about 3 miles southerly from Anyox, which had been under development for some time, was brought into production and an aerial tramway from this deposit to the smelter constructed. Although the structure of this ore-body is not quite clear, it appears to be a shear-zone in biotite and hornblende-schist (possibly an altered andesite) near the contact of this rock with argillite. As is the case with the *Hidden Creek* deposits, numerous dykes of basic, acid, and dioritic character cut through the formation in an east-west direction and intersect the ore-body. In the shaft on the north side of Bonanza creek a pronounced fault striking north-westerly and dipping 70 degrees south-westerly intersects the northerly continuity of the zone. The ore-zone seems to occupy a portion of a flat anticlinal fold striking north-south. The segment south of the fault, on which mining is being carried out, dips from 10 to 15 degrees west and steepens to a dip of about 30 degrees west about 500 feet southerly from the outcrop, at the same time diminishing in width and increasing in grade. To the east the structural continuity is not clear. This zone has been developed on both the north and south sides of Bonanza creek and shows widths of from about 10 to 90 feet, varying in accordance with the flattening or steepening of the dip. The best development of ore seems to occupy the central portion of the zone where there are ore-widths up to 70 feet, with the best grade developed along widths of from 10 to 40 feet on the foot-wall side. In the zone, bands of solid sulphides (pyrite with chalcopyrite) several feet in width are separated by belts of chloritic schists also containing ore. These sections of the best ore are irregular in shape and sometimes occupy the locality of "rolls" in the zone, which may also possibly be inter-zonal and unconformable to the walls of the zone.

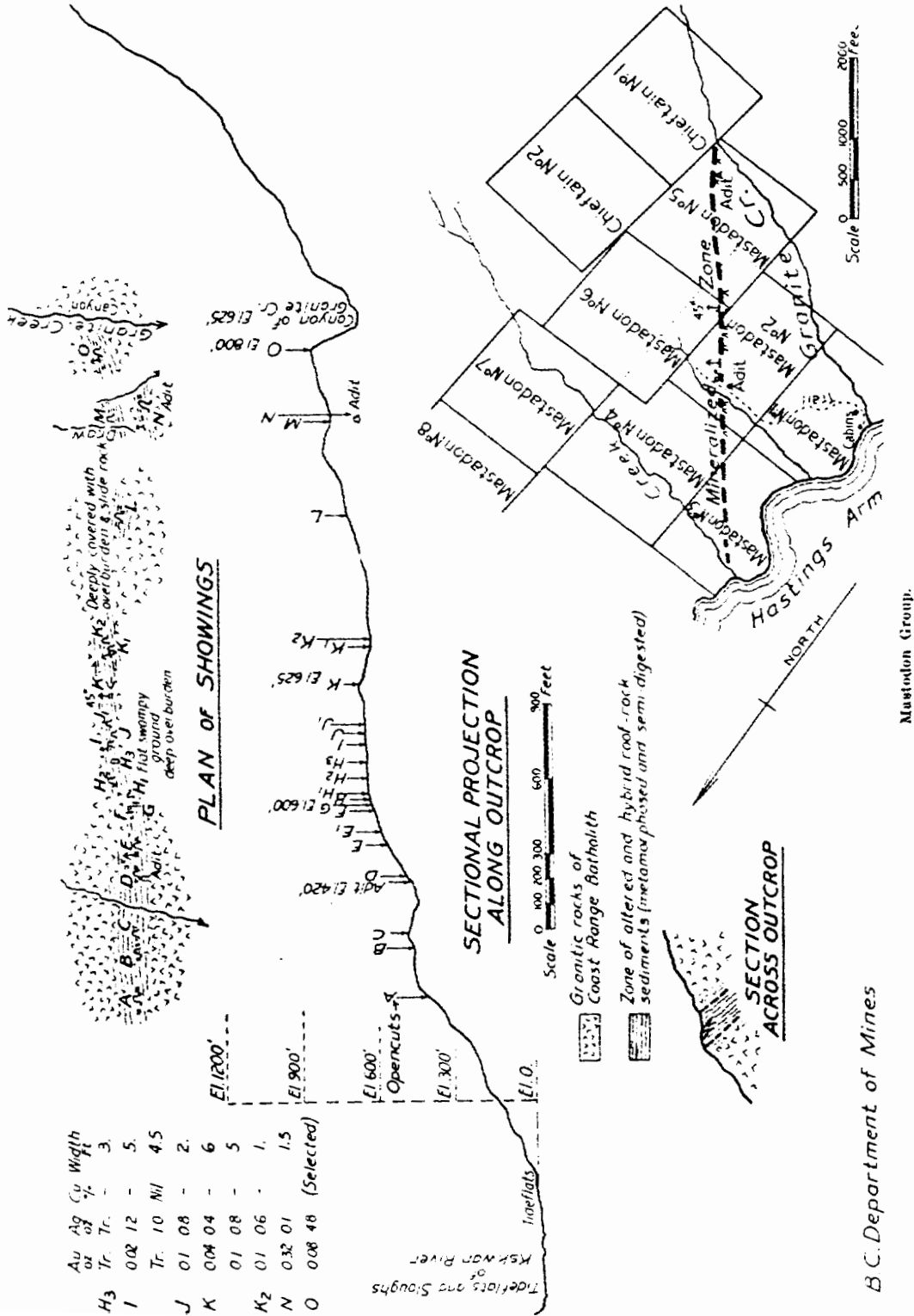
On the south side of Bonanza creek the deposit has been developed and practically mined out for a horizontal length of about 1,660 feet. Along the westerly margin of these workings the westerly dip of the structure steepens, with a corresponding restriction of the walls, but ore is seen to occur in places from 3 to 4 feet thick in the floor of the workings. Further exploration for a westerly continuity of ore-bodies similar to those which have been mined, where the dip of the structure may flatten again, would seem to be warranted. It would also appear that some possibilities may exist on the east side of the underground workings along the upward continuity of the dip. The *Bonanza* ore-body has also been developed through an incline shaft on the north side of Bonanza creek to the fault for a length of about 650 feet. Between the workings on the north and south sides of the creek there is a distance of approximately 370 feet in which no mining has been carried out.

During 1934 the continued low copper price has adversely affected the *Granby* operations at Anyox and the bulk of the blister-output has necessarily been stored. A generally lower tenor of ore has been met by a slight increase of tonnage to the mill, which towards the end of the year was treating about 5,200 tons of ore per day. The bulk of the mining in the latter part of the year was carried out on No. 4 ore-body between the 525 and 700 levels. No new ore developments of importance have materialized in the mine during the year. The practice of breaking a large ore-tonnage in one blast has materially assisted in achieving low costs in this operation. In the early part of December one of these blasts involving 500,000 or more tons of ore, mainly in pillars and sills of old stopes in No. 1 and No. 5 ore-bodies between the 385-foot level and surface, was carried out.

Production from *Bonanza* was continued at the rate of approximately 300 tons of ore per day. Operations were also continued in the *Granby Point* mine, from which an appreciable tonnage of gold-bearing siliceous ore was produced. About 1,100 men are employed at Anyox, with a pay-roll of \$135,000 per month. In view of the discouraging low copper price and outlook for this metal, at a shareholders' meeting held in December the directors were empowered to cease operations at any time in accordance with their discretion.

Mastodon.

This group is owned by Carl Ecklund, J. Flynn, W. Eve, and associates, of Anyox, and is located on the east side of Hastings arm, about 12 miles northerly of the town of Anyox. It is reached by launch from Anyox to the cabin on the shore at Granite creek, from where a trail of about half a mile in length leads to the workings between 400 and 800 feet altitude. The property consists of ten claims comprising the *Mastodon Nos. 1 to 8* and the *Chieftain Nos. 1 and 2*. The mineral occurrence consists of a siliceous replacement in what appears to be a narrow belt of altered semi-digested sedimentaries contained in the granitic rocks of the batholith. The altered sedimentary belt is possibly 100 to 200 feet wide. The siliceous replacement is from about 1 to 6 feet in width.



B.C. Department of Mines

Mastodon Group.

mineralized in places with pyrite, some sphalerite, and occasionally small amounts of galena. The quartz in which the mineralization occurs has an erratic and lenticular distribution in the form of veins and veinlets, patches and blebs, in the zone. Prospecting has been carried out by twenty-two trenches and shallow cuts along a distance of about 2,700 feet between elevations 400 and 850 feet. The best developments of quartz and mineralization occur in the central section at about elevation 600 feet along a distance of about 600 feet. The geological, structural, and topographical conditions and values are indicated on the accompanying map.

This group of four claims is owned by J. Flynn and associates, of Alice Arm, and is situated at an elevation of about 3,300 feet on the eastern slope of Saddle mountain at the head of Hastings arm. The occurrence consists of an ill-defined, partially silicified structure in andesitic rock and mica-schist, in places carrying alteration products of epidote and garnet. Sparse mineralization of pyrite, pyrrhotite, with some galena and sphalerite in places, occurs along small sections of silicification in narrow and discontinuous fractures. In 1929 some spectacular finely divided gold was discovered in an isolated pocket in a small open-cut. During 1934 work was continued in several trenches and open-cuts along a distance of about 600 feet which showed some silicification and pyrite mineralization. Samples from the best mineralized of these showings only showed traces of gold and silver.

KITSAULT RIVER SECTION.

Esperanza Mines, Ltd. (N.P.L.). This company is composed of 1,000,000 shares of \$1 par value, of which 510,050 are reported to have been issued. The head office is located at Victoria. The company controls the *Aldebaren*, *Black Bear*, and *I'll Chance It* Crown-granted claims and thirteen mineral claims held on location situated on Esperanza mountain, 1½ miles from the town of Alice Arm on the north side of the Dolly Varden Railway. The main showings are a series of erratic quartz veins carrying pockets and lenses of mainly silver-lead-zinc mineralization occurring in argillites of the Kitsault River formation between altitudes of about 300 and 2,000 feet.

The main showings were opened up by nine adits and in former years were worked intermittently by the locators and lessees. Since 1916 the records show ¹⁶⁵¹ tons of ore have been shipped from the property, giving a net return of ¹⁹¹ oz. of gold, ^{8,200} oz. of silver, and some copper. Lead and zinc are also contained in the ore, but the base-metal content is not generally given in the smelter returns. This type of high-grade shipping-ore occurs in short and erratic lenses and was generally mined when it was located, with the result that the development of ore reserves has been handicapped. The veins occur in a series of argillites and sandstones and have a general north-easterly but varying strike and also display marked variation in dip. The best ore seems to occur where the veins are crenulated into a series of "rolls." These "rolls" seem to be best developed where the veins are transverse to the bedding of the formation, but the veins also follow the bedding in places. Mineralization consists of pyrite, arsenopyrite, galena, sphalerite, grey copper, with some ruby and native silver, mainly in a quartz gangue. In places scheelite is known to occur, but is probably not in sufficient quantity to be of commercial importance.

Mining has been carried out in a haphazard and intermittent manner and these operations are described in former Annual Reports. During 1934 the driving of the "Alice" adit at elevation 1,730 feet was continued for the purpose of intersecting the "Alice" vein outcropping at about 65 feet higher elevation. At the time of examination this adit had been driven in a winding direction for about 114 feet, with the face heading south 67 degrees west, which location should be about 50 feet to the projection of the vein at this level. The "Alice" vein has been traced by open-cuts and stripping between elevations 1,798 and 1,850 feet for a distance of about 700 feet, striking north 40 degrees west and dipping about 70 degrees to the south-west. Along this stretch the vein shows a width of from 6 to 36 inches and is composed of quartz, pyrite, galena, sphalerite, some grey copper, and possibly some ruby silver. A sample along 8 feet of the most easterly cut and across a width of 3 feet assayed: Gold, 0.10 oz. per ton; silver, 75 oz. per ton; lead, 0.2 per cent.; zinc, 2 per cent. A composite sample of the stripped vein exposed 50 feet westerly of this cut across widths of from 6 to 22 inches and along a length of 56 feet assayed: Gold, 0.04 oz. per ton; silver, 22.5 oz. per ton; lead, 0.5 per cent.; zinc, trace. It is understood that work on the crosscut adit to this vein ceased before the vein was intersected.