ASSESSMENT REPORT ON THE JOSH MINERAL CLAIMS

Iskut River Area
Liard Mining Division
NTS 104B / 10W
56°38'North Latitude
130°48' West Longitude

Prepared for:

YUMA GOLD MINES LTD.

Prepared by:

T. CAMERON SCOTT, BSc, FGAC

December 1990

ASSESSMENT REPORT ON THE JOSH MINERAL CLAIMS

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SUMMARY

A field exploration program comprising geological mapping, prospecting, trenching and rock, soil and stream geochemical sampling was conducted on the Josh property between August 25 and September 3, 1990. A field crew of four, including the writer, investigated three areas on the property and a) completed 4.135 line kilometers of survey line; b) collected 144 soil samples, 9 silt samples and 29 rock samples; c) drilled, blasted and mucked three trenches for a total volume of 15.8 cubic meters; and d) mapped and prospected related work areas.

Sampling and mapping of the Northeast Grid on the Josh 4 claim revealed the presence of an east/west-trending zone of anomalous Au (365ppb) As (21ppm) Cu (122ppm), Pb (78ppm) and Zn (338ppm) values reporting from soil samples collected on a survey grid. This anomaly is nearly coincident with an interpreted intrusive-sedimentary contact as indicated by geological mapping. Previous airborne electromagnetic surveys have indicated the presence of a conductor in the area.

In the Southwest Zone of the Josh 3 claim, three trenches were constructed by drilling, blasting and hand-mucking on mineralized structures indicated by previous field work. Trenches 90-01 and 90-02 followed up on work performed in 1989 adjacent to Trench TR-R-89-01 where a quartz breccia cuts through skarn developed in metasediments. Although the results in part corroborated the 1989 findings, the results were discouraging. Trench 90-03 was constructed on a two-meter-wide zone of quartz veining in metasediments, some 850 meters north of Trench 90-01. While one sample reported 1275ppm Pb, all other samples reported metal values well within background levels for the rocks sampled. Rock samples from a quartz-carbonate stringer zone approximately 85 meters west of Trench 90-03 reported encouraging base metal values due to the presence of galena and sphalerite; however, gold values were only in the order of 200ppb.

Anomalous Au, Cu and Zn values reported from soil samples taken along a contour line in the scree to the south of Trench 90-03. The results suggest that the skarns developed in the metasediments at the periphery of the main syenodiorite intrusion may contain elevated levels of Au.

Prospecting along the eastern boundary of Josh 3 yielded a piece of quartz float containing fine-grained, sooty sulphides which, upon analysis, report a gold content of 870ppb.

Further work is recommended for the Northeast Grid area, to consist of grid expansion, mapping, geochemical sampling, a VLF-EM survey, and trenching to evaluate the mineralized potential of the area. Continued geochemical sampling and prospecting is recommended for previously unexplored areas of the Josh property. No new work is recommended for the Southwest Zone.

1.0 INTRODUCTION

This report on the Josh Claims was prepared at the request of Yuma Gold Mines Ltd. of 827 West Pender Street, Vancouver British Columbia. It describes the field work carried out on the Josh Claims between August 25 and September 3, 1990. The writer supervised the work in the field, which was facilitated by the employ of a three-man field crew and logistical support supplied by Equity Engineering Ltd. of Vancouver.

1.1 Location, Access and Physiography

The Josh mineral claims are located on the east flank of the Coast Range Mountains, six kilometers southeast of the confluence of Snippaker Creek and the Iskut River, in northwestern British Columbia (Figure 1). Stewart is approximately 100 kilometers to the southeast, and Wrangell, Alaska is about 100 kilometers to the west of the property. The Josh claims lie within the Liard Mining Division at latitude 56°38' north, longitude 130°48' west, on NTS mapsheet 104B/10W.

Access to the property is by helicopter from the Bronson Creek gravel airstrip, located approximately 16 kilometers to the west. Daily scheduled flights to the strip from Smithers, Terrace and Wrangell have been available during the field season using a variety of fixed wing aircraft.

The Josh claims cover the peak and northwestern flanks of an un-named mountain which rises above 1800 meters in elevation, extending downwards to Snippaker Creek at 350 meters elevation. Major drainages are U-shaped, whereas smaller side creeks tend to be steeply cut. Active glaciation is prevalent above treeline which approximates the 1200-meter contour. The upper reaches of the area are covered with alpine vegetation. Lower slopes are

generally covered by a variety of conifers with an undergrowth of devil's club. More open areas and steeper slopes contain dense slide alder growth. Both summer and winter temperatures are moderate with over 200 centimetres of annual precipitation.

1.2 Claim Status

Records of the British Columbia Ministry of Energy,Mines and Petroleum Resources indicate that the following claims (Figure 2) are owned by Gulf International Minerals Ltd. Separate documents indicate that the claims are presently under option to Yuma Gold Mines Ltd.

Claim Name	*Record Number*	*# of Units*	*Record Date*	*Expiry Date*
Josh	2581 (9)	20	83Sep13	90Sep13
Josh 2	2551 (10)	20	83Oct13	90Oct13
Josh 3	2552 (10)	20	83Oct13	91Oct13
Josh 4	2552 (10)	20	83Oct13	90Oct13

A statement of Exploration and Development for work performed on the above claims was filed on Yuma Gold Mines Ltd.'s behalf on September 13, 1990.

1.3 Exploration History

Mineralization in the area now covered by the Josh mineral claims was first located by Newmont Mining Corporation of Canada Ltd. in 1963. During 1964, Newmont carried out an airborne magnetic survey and some surface exploration work, but allowed the claims to lapse. The lapsed claims ere relocated in 1969 and subsequently were purchased in 1970 by Skyline Explorations Ltd. During the period 1970 to 1972, Skyline carried out surface exploration including geological mapping, linecutting, geochemical soil sampling and hand trenching. Previous exploration on the property was directed towards the

discovery of porphyry copper/molybdenum mineralization.

The Josh mineral claims were restaked on behalf of Gulf International Minerals Ltd. in 1983. During that year, airborne magnetic and electromagnetic surveys were completed over the property by Placer Development Limited. The same year, ground exploration by Gulf included geological mapping, prospecting, rock sampling and stream sediment sampling (Scott, 1983). Gulf carried out follow-up geological mapping, trenching, rock sampling and contour soil sampling in 1985 (Caulfield and Ikona, 1985).

In 1987, Redwood Resources Inc. acquired an option on the property from Gulf and proposed a comprehensive geological investigation for the entire claim block. Unfortunately, financial problems of Redwood delayed start of the program until the fall of the year and by late October inclement weather conditions caused suspension of work prior to completion of the proposed program (Scott and Ikona, 1988). Redwood maintained the option during 1988 and 1989 but only minimal funds for assessment purposes were expended completing limited soil and rock geochemical sampling and trenching over one of the known mineralized areas (Dewonk and Raven, 1988/89). The option was subsequently relinquished with Gulf becoming the sole owner of the claims.

In early 1990, Yuma was granted an option to earn an interest in the Josh property and financed the work described herein.

1.4 Regional Geology

Government mapping of the general geology in the Iskut River area (Kerr, 1929, GSC Maps 9-1957 and 1418-1979) has proven to be incomplete and unreliable. Subsequent

mineral exploration studies have greatly enhanced the lithological and stratigraphic knowledge of this geo-entity known as the 'Stewart Complex' (Grove, 1986).

Grove (1986) defines the Stewart Complex in the following manner:

> *"The Stewart Complex lies along the contact between the Coast Plutonic Complex on the west, the Bowser Basin on the east, Alice Arm on the south and the Iskut River on the north."*

Within the Stewart Complex, the oldest rock unit consists of Palaeozoic crenoidal limestone overlying metamorphosed sedimentary and volcanic members. This oceanic assemblage has been correlated with the Cache Creek Group.

Unconformably overlying the Palaeozoic limestone unit are Upper Triassic, Hazelton Group, island arc volcanics and sediments. These rocks have informally been referred to as 'Snippaker Volcanics'. Grove (1981) correlates this assemblage to the Unuk River Formation of the Stewart Complex, whereas other writers match this group with the time-equivalent Stuhini Volcanics. Monotis fossils have been recognized on the north slope of Snippaker Peak and west of Newmont Lake, 20 kilometers to the north, giving an age of Late Triassic. It is within these rocks that several of the more prominent deposits of the region occur (Figure 3).

Grove reports an unconformable contact between Carboniferous and Middle Jurassic strata on both sides of Snippaker Ridge, north of Snippaker Peak. The same unconformable relationship between these major rock units appears to extend from Forrest Kerr Creek west, along the Iskut River, to the Stikine River junction. Present interpretation suggests an east/west-trending thrust

along the axis of the Iskut River which, like the King Salmon Thrust Fault, pushed up and over to the south.

Following the Iskut River thrust faulting, the entire region was overlain by Middle Jurassic Hazelton Group volcanic-sedimentary rocks named the 'Betty Creek Formation' by Grove in 1986.

The batholithic Coast Plutonic Complex intrusions in the Iskut region are of Cretaceous and Tertiary age. Composition varies from quartz monzonite and granodiorite to granite. Satellitic, sub-volcanic, acidic porphyries may be important in the localization of mineralization.

Quaternary and Tertiary volcanics occur to the east along the Iskut River near Forrest Kerr Creek and north at Hoodoo Mountain.

1.5 Property Geology

The Josh mineral claims are underlain by a succession of limestone, volcanics and related sediments of probable Palaeozoic and Mesozoic age which have been intruded by elements of the Coast Plutonic Complex, and extensively deformed (Figure 4).

A thick bed of Permian, light grey, banded, crinoidal limestone (Unit 2) provides a marker horizon from the northwest to the southeast across the property. Carbonaceous andesitic volcanics form a minor portion of this unit.

Overlying the limestone is a thick sequence of andesitic volcanic breccias (Unit 3), characterized in part by clasts of limestone up to 10 centimetres in length, and containing minor tuff and argillite beds. Rare acidic

members may be due to intense silicification near intrusives. A conspicuous rhyolitic unit (Unit 1) which occurs on the western boundary of Josh 3 may be a sill or flow representing a differentiated phase of the andesitic volcanism.

A syenodiorite porphyry of the Lehto batholith (Unit 4) intrudes the volcaniclastics and sediments. It is characterized by one to one and one-half centimetre hornblende phenocrysts, and one- to five-centimetre pink orthoclase phenocrysts in a medium-grained, subhedral matrix, distinctly lacking in quartz. The main body strikes northeasterly across the Josh and Josh 4 claims. Both north and south contacts are obscured by overburden, but the syenodiorite porphyry appears to crosscut the stratified rock units, forming both sills and dykes within them.

Granodiorite (Unit 5) forms near-vertical, northeasterly-trending dykes within the syenodiorite porphyry. It is characterized by a leucocratic, fine-grained matrix which contains minor one- to three-millimetre biotite grains. The three- to 30-meter-wide dykes form conspicuous resistant ridges.

1.6 Mineralization

As previously reported by Scott and Ikona (1988) and corroborated by Dewonk and Raven (1989), the Josh property displays four mineralized environment which are categorized as:

(a) actinolite/epidote/garnet skarns, containing varying amounts of pyrite, chalcopyrite, sphalerite and magnetite in calcareous volcanics adjacent to syenodiorite contacts;

(b) quartz stockworks weakly developed in syenodiorite intruded by granodiorite dykes and containing trace amounts of chalcopyrite and molybdenite;

(c) quartz breccias (with associated skarns) containing massive pyrite and chalcopyrite with minor amounts of bornite, sphalerite, galena and sphalerite. The skarns may contain pyrrhotite and are often auriferous;

(d) quartz fissures which intermittently cut through most rock units and contain patchy galena, sphalerite, chalcopyrite and pyrite, but to date report negligible gold values.

The skarn-associated quartz breccias appear to be the most attractive exploration target, even though mapping and sampling to date has shown them to be of limited extent and as yet of probable sub-economic grades (Figure 4).

1.7 Property Geophysics

In 1983, the property was subjected to airborne magnetic and electromagnetic surveys carried out by Dighem Survey as requested by Placer Development Limited (BC Geological Branch, Assessment Report 11,306). An interpretation of the results is shown in Figure 5.

2.0 SUMMARY OF WORK DONE

During the period August 25 to September 3, 1990, work was carried out under the writer's supervision at the request of Yuma Gold Mines Ltd. Logistical support and a field crew of three were supplied by Equity Engineering Ltd. of Vancouver.

The field work was carried out on three areas of the Josh Property (Figure 4) and comprised 4.135 line kilometers of survey line, 144 soil samples, 9 silt samples, 29 rock samples, and 3 trenches drilled, blasted and mucked for a total volume of 15.8 cubic meters.

The distribution of work performed by claim and area is summarized in Table 2. Sample collection techniques, analytical procedures, assay results and rock sample descriptions are contained in the Appendices.

Josh Claims - Summary of 1990 Work

Claim/Area	*Type of Work*	*Amount of Work*
Josh 3 Eastern Boundary	Prospecting	6 rock samples
Josh 4 Northeast Grid	Linecutting Flagged line Soil geochemistry Stream geochemistry Rock geochemistry Geological mapping	0.66 km) 3.26 line 3.00 km) kilometers 109 samples 9 samples 7 samples Grid area
Josh 3 Southwest Zone	Flagged line Soil geochemistry Trenching - drill, blast & muck Rock geochemistry Geological mapping	0.875 line kilometers 35 samples 15.8 cubic meters 16 samples Trench areas

3.0 DETAILED TECHNICAL DATA

The work performed on the Josh property was intended to evaluate areas previously not explored by way of prospecting, to determine the causative source of the airborne electromagnetic conductor which occurs near the northeast corner of the Josh 4 claim and to continue the evaluation of mineral occurrences of the Southwest Zone on the Josh 3 claim.

3.1 Prospecting

A portion of the heretofore unexplored eastern boundary of the Josh 3 claim was prospected (Figure 6). The extremely precipitous terrain and proximity to hanging glaciers greatly inhibited helicopter access and mobility over the ground.

The area is underlain by andesitic volcanics and calcareous rock units which have been intruded by elements of the syenodiorite intrusive complex observed elsewhere on the property. Skarn development is evident. Six rock samples (numbers 485913 - 485918) were collected and submitted for 30-element ICP analyses. Pyrite and chalcopyrite were commonly observed in the generally gossanous rocks. A float sample, number 485916, of comb-textured quartz recovered adjacent to the claim boundary reported to be distinctly anomalous at 870 ppb gold. This sample and number 485915 are also anomalous in copper, reporting values of 963 ppm and 2101 ppm respectively.

3.2 Northeast Grid - Geology & Geochemistry

A grid comprising 0.66 kilometers of cut baseline and 3.00 kilometers of flagged line was constructed in a heavily timbered area thought to overly the causative source of the electromagnetic conductor shown to occur at the extreme northeast corner of the Josh 4 claim (Figure 4). The topography is dominated by near-vertical cliffs in excess of 30 meters high, parallel to the baseline at 49+00N which necessitated a tie-line be constructed at 48+90N (Figure 5). Also of note is a 50- to 100-meter wide zone of flat, somewhat swampy, ground which is adjacent to the south side (base) of the cliffs. The soil of this zone is alluvial, comprising pebble gravels, sand and silt beneath a thin layer of solum which is

generally less than 0.2 meters in depth. A small, marshy opening occurs in the forest cover to the east of Line 39+00E. To the south of 48+00N, the ground elevations increase with a gentle to moderate, 10° to 20° slope. Soil sampling has shown that much of this area is also covered with alluvium beneath a solum of variable thickness.

Geological mapping of the grid area indicates the scarp-like cliffs on hills to the north of the tie-line comprise outcroppings of leucocratic, hornblende-bearing intrusive rock. Textures change dramatically without evidence of contacts from equigranular to strongly porphyritic. Megacrysts of white to pink potassic feldspars are common. The composition of the intrusive varies from granite to quartz monzonite. Epidote commonly occurs on hairline fractures with slightly bleached selvages.

South of the main intrusive mass, the outcrops of rock are small and uncommon, occupying less than 5% of the area. Mapping indicates the area to be underlain by a sequence of silicified andesitic volcanics, white to buff recrystallized limestone, and interbedded sediments comprised of chert, cherty siltstone, siltstone, black, argillite, and minor volcanic and limestone components. Towards the south end of Line 35+00E, outcroppings disclose the intrusion of quartz monzonite into limestone with little alteration save recrystallization of the limestone.

In general, rock alteration is limited to the development of minor chlorite and epidote with silicification of volcanics proximal to the main intrusive mass. Sulphide mineralization is also sparse. Where observed, it occurs as pyrite in concentrations of less than 1%.

With the limited amount of outcrop, structural relationships within the sedimentary package are uncertain. The scarp-like cliffs strongly suggest a faulted contact between the main intrusive mass and the sedimentary sequence to the north; however, as noted above, the relationship is, in part, intrusive.

Samples of soil, spare stream sediments and various rocks collected from the grid area were submitted for geochemical analysis. The sampling methods, rock sample descriptions, analytical procedures, tabulated results and statistical evaluations of the results are contained in the Appendices.

Upon evaluation of the geochemical results, the distribution of the metals, Au, As, Cu, Pb and Zn appeared to best describe the geochemical nature of the grid area with respect to the search for gold and base metal mineralization within the grid area. These distributions are illustrated in Figures 8 through 12 for soils, Figure 13 for stream sediments and Figure 7 for rock samples.

3.3 Southwest Zone - Geology, Trenching and Rock and Soil Sampling

This area of the Josh property has received most of the attention in past work programs. This was primarily due to the apparent potential for the discovery of auriferous mineralization in environments similar to those yielding success on other properties and to the relative ease of mobility on the ground facilitating mapping and sampling. The 1990 work program in this area focused on the continuing evaluation of mineralized areas indicated by previous work. It comprised geological mapping, trenching, rock sampling and reconnaissance soil

sampling. The geology of the area and location of work performed is shown in Figure 14.

The area of the Orequest trench, TR-R-89-1, (Dewonk and Raven, 1989) was re-examined with emphasis put on extending the zone of mineralization encountered in the trench and on the location of the source of the low order Au soil anomaly also delineated in 1989. Trench 90-01 was constructed 10.5 meters south of mineralization in TR-R-90-01 in an attempt to reveal an extension of the mineralization (Figure 15). Drilling, blasting and hand mucking excavated a pit 6 X 1 X 1 meters. The mineralized extension was not uncovered. Two large composite samples of blasted rock were submitted for analyses. The material consisted of actinolite-epidote-garnet skarn containing in excess of 5% disseminated pyrrhotite. The area of the low order Au anomaly was prospected and was found to be covered with a considerable thickness of fine syenodiorite scree. No outcrop was found and material could not be trenched effectively because of the 25° slope which caused continual sloughing. However, a subcropping of skarn containing specular hematite in a narrow discontinuous frothy quartz vein 10 centimeters wide was located in the scree 81.5 meters and 195° from TR-90-01. Trench TR-90-02, 8 X 1 X 0.6 meters was constructed on this zone. The host rock was similar to that of TR-90-01. Two composite samples of skarn material were taken. The hematitic material was sampled separately. Figure 15 shows the location of the trenches, the geology of the area and sample analyses for Au, As, Cu, Pb and Zn. The TR-R-89-01 showing was also remapped and sampled. These results are shown in Figure 16.

Trench 90-03, 5 X 1 X 1 meter, was constructed on a northeasterly-trending quartz vein approximately 850 meters north of TR-90-01. Four channel samples were

taken across the zone. The zone appears as a quartz flood in crushed metasediments and skarn. Sulphides observed included less than 1% pyrite and a trace of galena. This trench and the analytical results of sampling are shown in Figure 17.

At the contact zone between porphyrite granodiorite and altered volcanics approximately 85 meters west of TR-90-03 minor sphalerite, galena and pyrite were observed associated with quartz carbonate stringers. Four rock samples were collected for analysis from this zone.

A reconnaissance soil sampling line 850 meters long was constructed from the vicinity of TR-90-03 in a southerly direction towards TR-90-01. The material sampled was invariably talus fines. The analytical results for Au, As, Cu, Pb and Zn contained within samples RS0+00 to 8+50 are shown in Figure 18. The total results are contained in the Appendices.

4.0 INTERPRETATION OF RESULTS AND DISCUSSION

4.1 Northeast Grid

The work carried out in 1990 on the Northeast Grid was designed to detect the causative source of an airborne electromagnetic conductor located by a previous survey. Geological mapping has disclosed that a mass of quartz monzonite lies in close proximity to calcareous and pelitic sediments containing minor components of volcanics and intrusive rocks. The outcrop pattern suggests that an east/west contact, either intrusive or faulted, occurs along a relative topographic low between 48+00N and 49+00N on the grid. The contrast between the main rock types, especially if the contact is faulted, may in itself be the causative source of the conductor.

When one considers the geochemical distribution of metals in the soils within the grid area, an obvious zone of possibly anomalous and anomalous values for all metals is seen to coincide with the contact area and the topographic low. These elevated levels may be due only to the down-hill dispersion of metals which, upon leaching from bedrock to the south, have accumulated in an area of poor drainage. On the other hand, the elevated levels may be derived from leaching of skarn-type mineralization developed along an intrusive contact with the calcareous sediments covered with overburden. Both cases are supported by the lack of mineralization observed in the few outcroppings investigated, the low rock geochemical values and the presence of anomalous soil conditions where no outcrops exist, such as the As-Cu-Zn anomaly at Line 37+00E / 46+75N and Au-As-Cu-Zn anomalies between 46+75N and 48+00N on Lines 35+00E, 36+00E and 37+00E. The former case may have formed a zone of conductive overburden or a conductive fault while the latter may have formed a zone of conductive bedrock due to the presence of sulphide mineralization. Either case could possibly result in the conductor encountered by the airborne survey.

4.2 Southwest Zone

The results of rock sampling in the vicinity of the Southwest Zone were discouraging with respect to gold content. While the resampling of the quartz breccia mineralization in TR-R-89-01 compared well, that is, 485902:0.196 oz/ton Au vs. 45432:0.155 oz/ton Au, and 485905:0.140 oz/ton Au vs. 45427:0.147 oz/ton Au, the values are over relatively narrow widths from a discontinuous zone, and as such are of little economic importance at this time. Of particular geochemical interest, however, is the high bismuth content in samples high in gold and lead.

The samples taken from trench TR-90-01 returned very low gold values and suggest that little gold is associated with pyrrhotite in the skarn environments of this area. The samples from Trench TR-90-02 reported elevated values of 300 to 600ppb Au, including the hematite-rich sample at 200ppb Au. Trench 90-03 reported negligible gold content form samples 484355 to 484358. The sample from the Pb-Zn-bearing quartz/carbonate stringer zone in the contact area west of TR90-03 also reported only slightly elevated Au content in the 80 to 200ppb range.

Examination of the analytical results for the reconnaissance soil lines from RS0+00 to 8+50 discloses a general decrease in most metal values. Distinctly elevated values for Au, As, Cu, Pb and Zn within the first twelve samples of the series appears to reflect the closeness of the sample line to the main intrusive-sedimentary contact in the vicinity of Trench 90-03, while the lower values towards the end of the series may reflect the geochemical background within the intrusive terrain, distal to the contact. Minor elevations within the series possibly reflect proximity to minor pendants of metasediments and metavolcanics within the intrusive terrain.

5.0 CONCLUSIONS AND RECOMMENDATIONS

The following conclusions and recommendations are based on results of the 1990 field work on the Josh mineral claims and data accumulated to date.

(a) The causative source for the airborne electromagnetic anomaly in the vicinity of the Northeast Grid was not confirmed. A program of ground geophysics will be necessary to establish its position before the source can be postulated.

(b) The geological and geochemical work on the Northeast Grid has disclosed the presence of a geological environment favourable for the emplacement of gold and associated base metals. The coincident anomalies of Au, As, Cu, Pb and Zn are worthy of follow-up work.

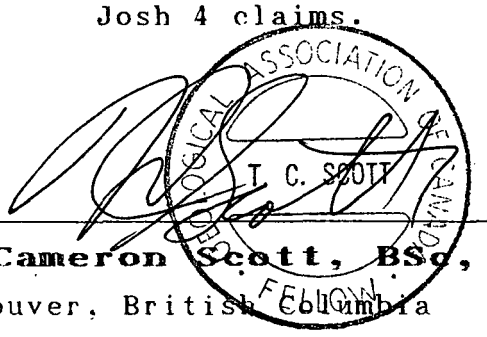
(c) Work in the Southwest Zone failed to reveal gold occurrences of economic significance. The elevated concentrations of gold in skarn and soils adjacent to the intrusive-metasedimentary contact suggests that future exploration work should concentrate on areas of skarn development, perhaps along the main metasedimentary-volcanic trend to the east of the Southwest Zone and in the area of skarn development on the Josh claim to the north. Work on the Southwest Zone itself should be suspended as the potential for a significant gold or base metal deposit within the predominantly intrusive terrain appears limited.

(d) The significance of bismuth within the auriferous mineral deposits of the Iskut River area should be researched as it may be a useful pathfinder element in future exploration work on the property.

(e) Much of the unexplored area within the boundaries of the Josh Property is in heavily timbered, steep terrain or in rugged, precipitous, alpine terrain. Adequate evaluation of these regions will be costly. Exploration programs with minimal funding will be relatively inefficient due to the high cost of logistical support on the property. In future, exploration programs with a budget of less than $100,000 should be avoided.

(f) The 1990 field work has shown that new areas of mineral potential can be found on the Josh Property. It is recommended that future work on the Josh Property include enlargement of the Northeast Grid to the south and west,

and continue with a program of soil geochemistry, geological mapping and rock sampling. A ground-based VLF-EM survey should also be conducted over the grid area. Examination of soil anomalies should include trenches to bedrock if feasible. Reconnaissance soil sampling on grid lines or along contours should be carried out on the unexplored areas of the Josh and Josh 4 claims.

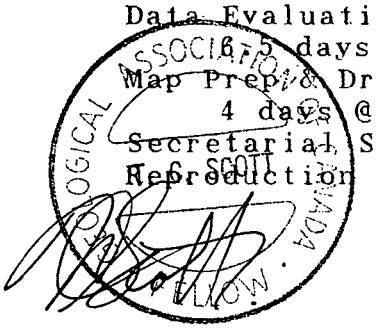


T. Cameron Scott, BSc, FGAC
Vancouver, British Columbia
December 10, 1990

(Jsh/Rpt.TCS)

6.0 STATEMENT OF EXPENDITURES

Professional Fees & Wages		
T. Cameron Scott, Project Geologist		
9.5 days @ $350	$3,325.00	
Henry J. Awmack, P.Eng.		
.25 days @ $375	93.75	
Mark O'Dea,Geologist		
9 days @ $250	2,250.00	
Donald A. McInnes, Project Manager		
1.75 days @ $300	525.00	
David Hicks, Sampler		
10 days @ $200	2,000.00	
Leona Hickey, Bull Cook		
.25 day @ $160	40.00	
Bill Johnson, Sampler		
9 days @ $200	1,800.00	$10,033.75
Equipment Rentals		
Handheld Radios		
4 for 9 days @ $5	$ 180.00	
Rock Drill		
5 days @ $60	300.00	
Fly Camp		
36 mandays @ $20	720.00	
Other Accommodation	31.25	1,231.25
Chemical Analysis		
Silt Samples		
8 @ $15.69	$ 116.56	
Soil Samples		
145 @ $15.61	2,263.05	
Rock Geochemical Samples		
31 @ $17.39	539.09	2,918.70
Expenses		
Materials & Supplies	$ 823.92	
Printing & Reproductions	42.97	
Camp Food	1,142.67	
Helicopter	4,739.57	
Telephone Long Distance	9.93	
Freight	166.03	
Travel	988.40	
Geochemical Supplies	200.00	
Aircraft Charters	2,010.00	
Courier and Telefax	23.25	
Expediting	340.47	10,487.21
Report Preparation		
Data Evaluation & Report Writing		
6.5 days @ $350	$ 2,275.00	
Map Prep'n & Drafting		
4 days @ $200	800.00	
Secretarial Support	250.00	
Reproduction & Binding	125.00	3,450.00
		$28,120.91



7.0 STATEMENT OF QUALIFICATIONS

I, T. CAMERON SCOTT, of 3340 West King Edward Avenue, Vancouver, British Columbia, DO HEREBY CERTIFY:

1. THAT I am a self-employed consulting geologist with offices in my home;

2. THAT I am a graduate of the University of British Columbia where I did obtain my BSc in Geology;

3. THAT I am a Fellow of the Geological Association of Canada;

4. THAT my primary employment since 1963 has been in the field of mineral exploration, mainly as field and project geologist;

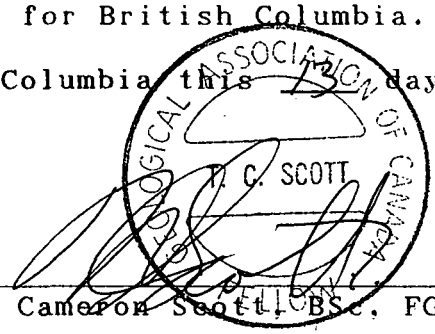
5. THAT my experience has covered a wide range of geological environments and has allowed considerable familiarization with geophysical and geochemical techniques;

6. THAT this report is based on data supplied by Yuma Gold Mines Ltd., on my work on the Josh property between August 25 and September 3,1990, and on data generated through field work on the Josh property and adjacent areas between 1983 and the present; and

7. THAT I have no interest in the Josh property or in securities of Yuma Gold Mines Ltd., nor do I expect to receive any.

I consent to the use by Yuma Gold Mines Ltd. of this report in a Prospectus or Statement of Material Facts or any other such document as may be required by the Vancouver Stock Exchange or the Office of the Superintendent of Brokers for British Columbia.

DATED at Vancouver, British Columbia this 13th day of December, 1990.



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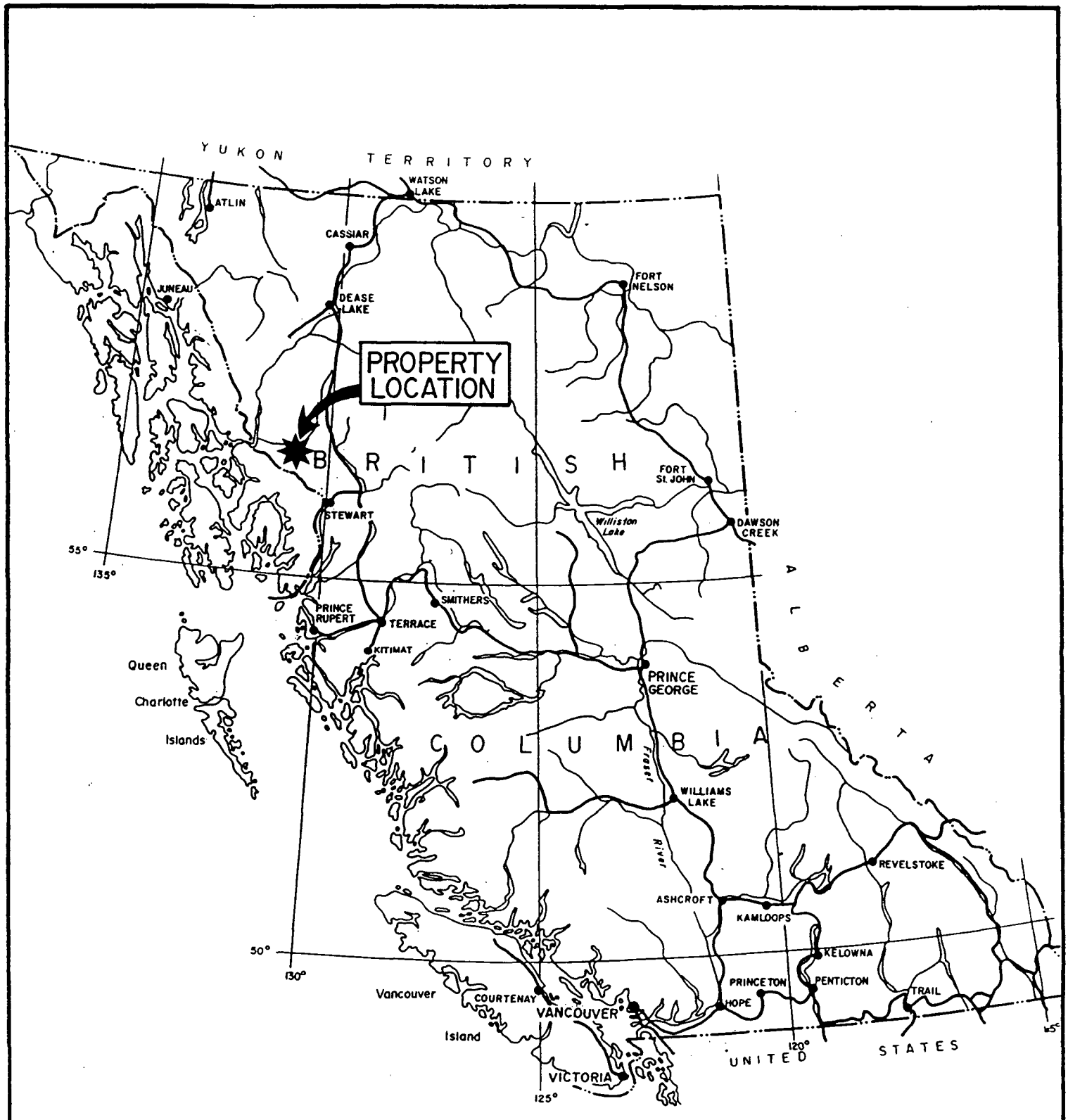


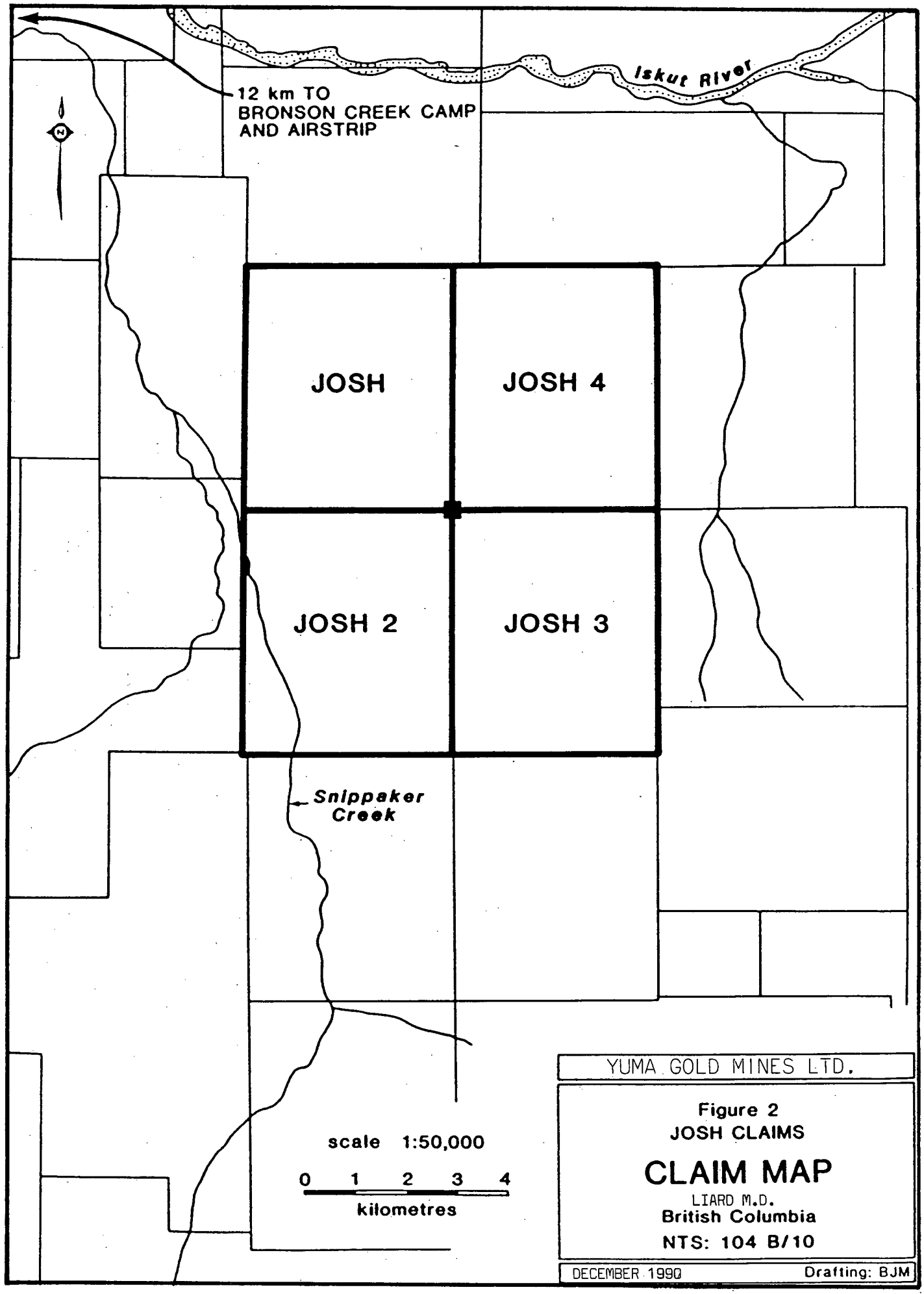
YUMA GOLD MINES LTD.

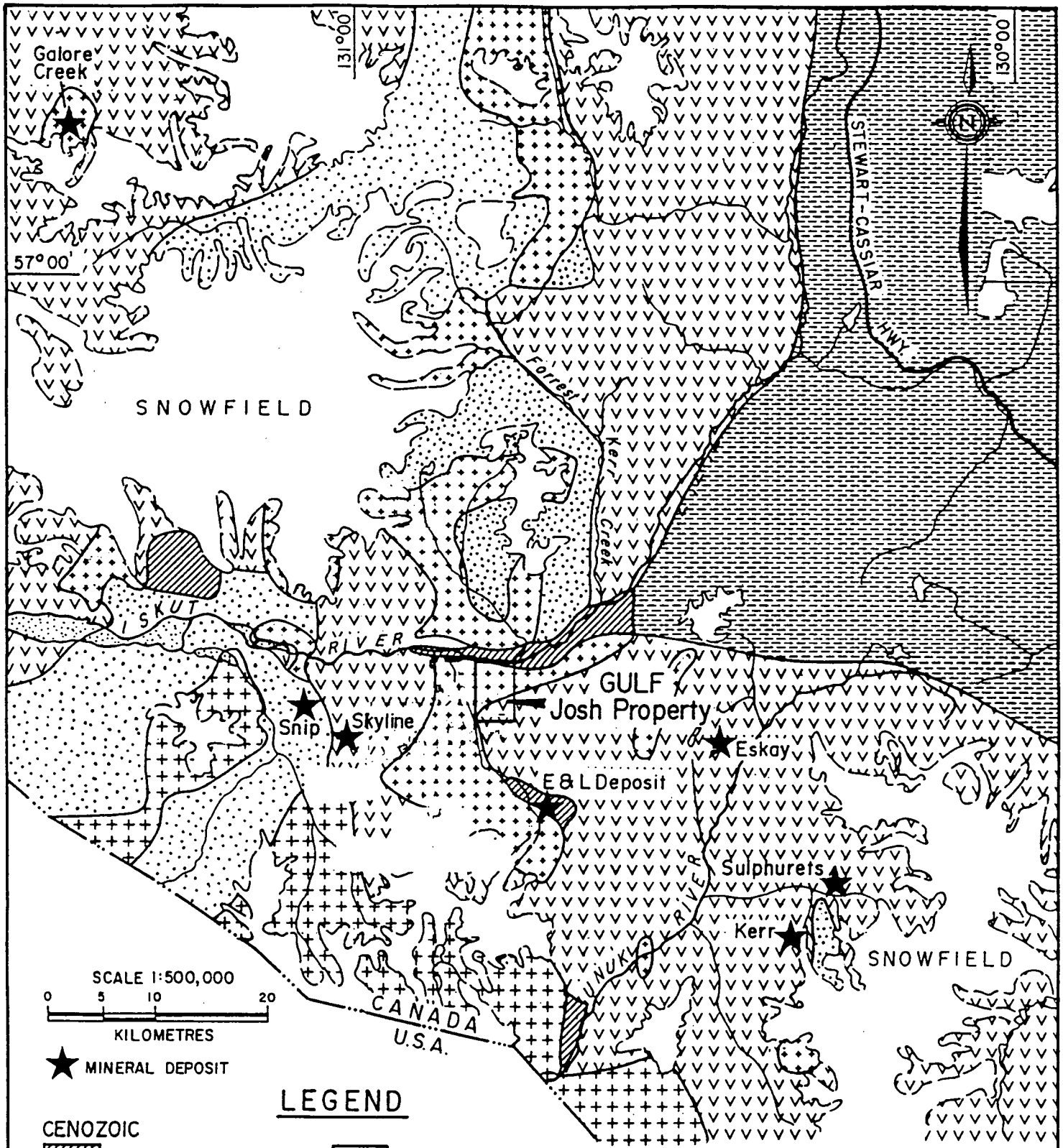
JOSH PROPERTY

PROPERTY LOCATION MAP

LIARD MINING DIVISION, B.C.

Drawn	N.T.S.	Date.	Figure.
J.W.	104B 10	DEC. 1990	1.


12 km TO
BRONSON CREEK CAMP
AND AIRSTRIP
Iskut River
JOSH
JOSH 4
JOSH 2
JOSH 3
Snippaker
Creek
scale 1:50,000
0 1 2 3 4
kilometres
YUMA GOLD MINES LTD.
Figure 2
JOSH CLAIMS
CLAIM MAP
LIARD M.D.
British Columbia
NTS: 104 B/10
DECEMBER 1990
Drafting: BJM



LEGEND

CENOZOIC

- Recent basalt flows
- Early Tertiary felsic intrusives, primarily quartz monzonite

MESOZOIC

- Cretaceous and Tertiary intrusives, felsic to intermediate
- Middle to Upper Jurassic Bowser Lake Group clastic sediments
- Upper Triassic to Upper Jurassic volcanics and sediments, Hazelton and Stuhini Groups

PALEOZOIC

- Permian and older clastic, limestone and volcanic rocks and metamorphic equivalents; includes metamorphic rocks of unknown age.

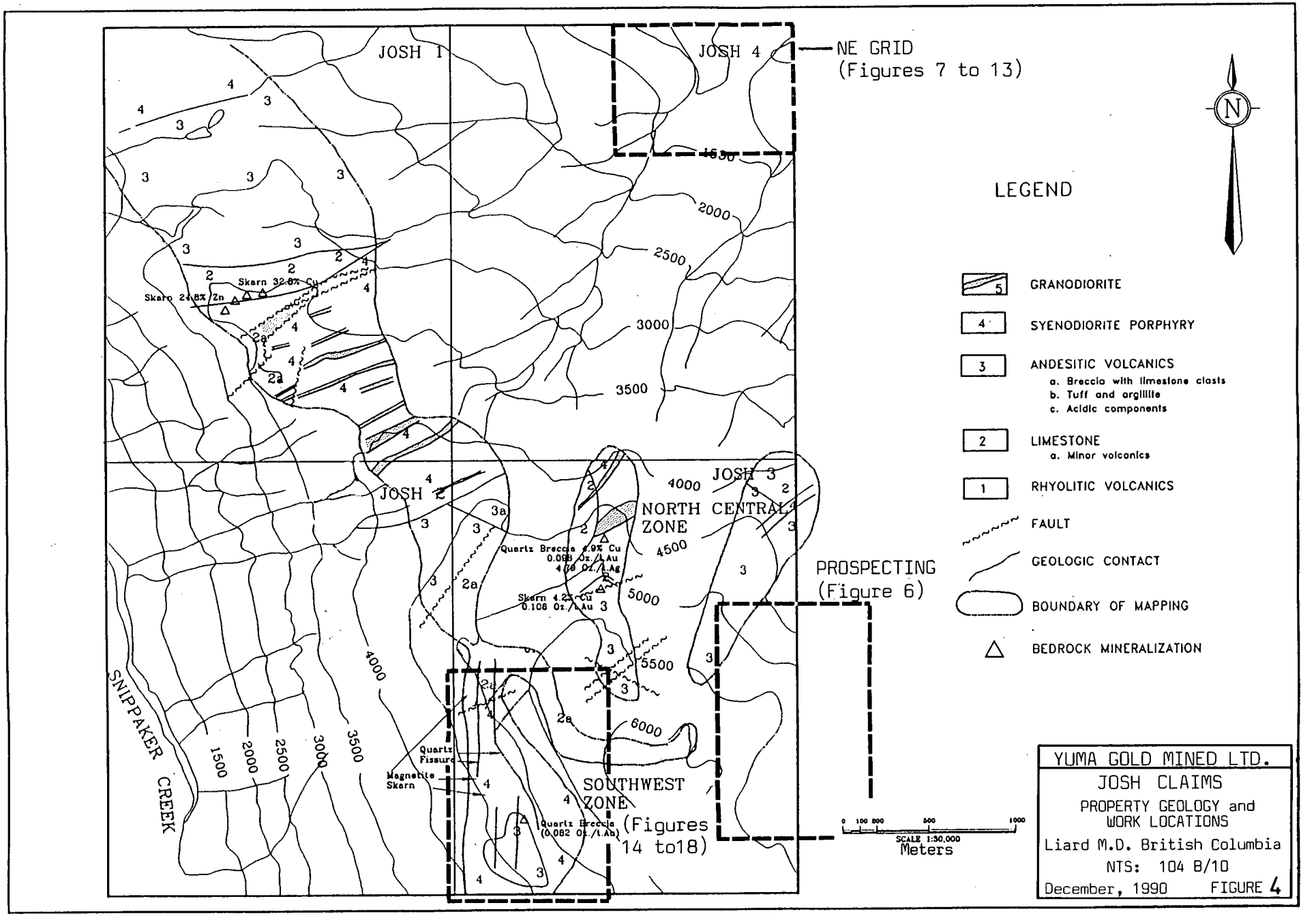
Geology interpreted from G.S.C. Map 11-1971, Telegraph Creek; Equity Preservation Corp., Stewart-Sulphurets-Iskut Map 1988; and from Pamicon Developments Ltd. field maps

YUMA GOLD MINES LTD.

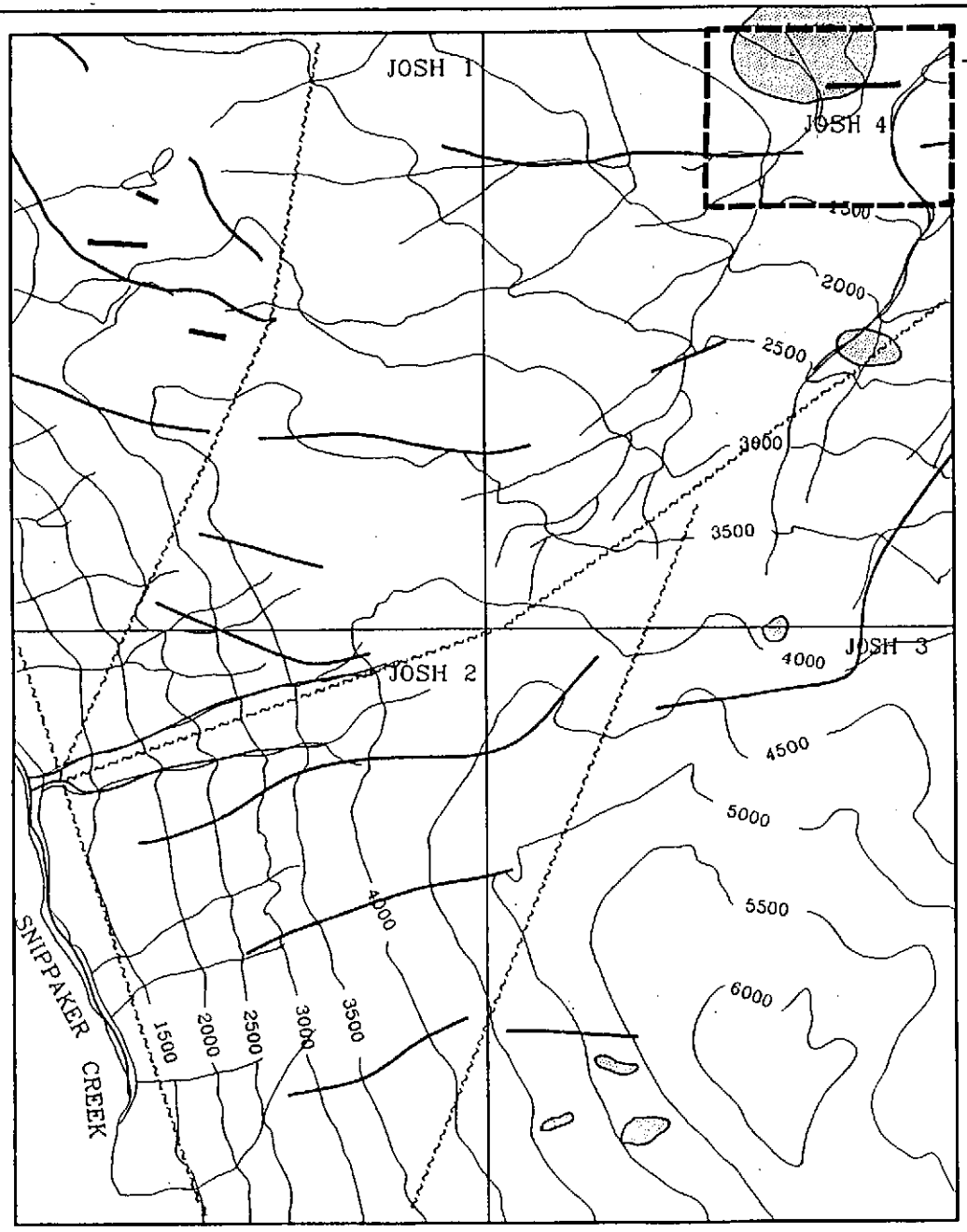
SIMPLIFIED REGIONAL GEOLOGY

LIARD MINING DIVISION, B.C.

Drawn.	N.T.S.	Date	FIG.
J.W.	103, 104	DEC. 1990	3



(After: Derry, Michener, Booth & Wahl, 1990)



JOSH NE Grid Area
(See: Figures 7 to 13)

N

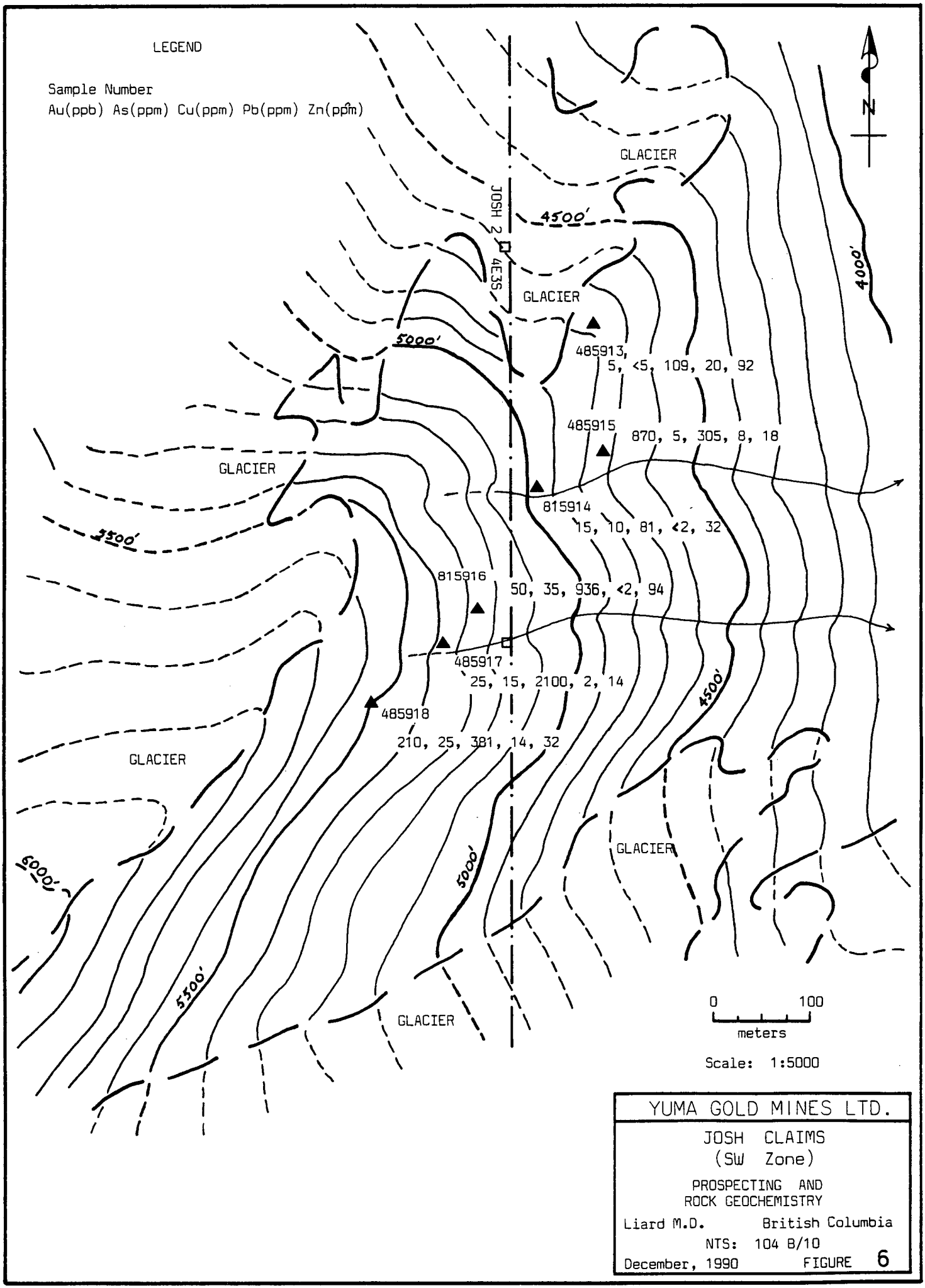
LEGEND

- Conductive Responses
- Magnetic Trends
- Fold or Fault Structure
- Soil / Silt Geochemical Anomaly (>50 ppb Au) (after Pamicon Developments Ltd.)

(After: Derry, Michener, Booth & Wahl 1990; based on Interpretation of DIGHEM Airborne Survey, 1983)

0 100 200 500 1000
SCALE 1:30,000
Meters

YUMA GOLD MINES LTD.
JOSH CLAIMS
PROPERTY GEOPHYSICS
Liard M.D. British Columbia
NTS: 104 B/10
December, 1990 FIGURE 5



YUMA GOLD MINES LTD.

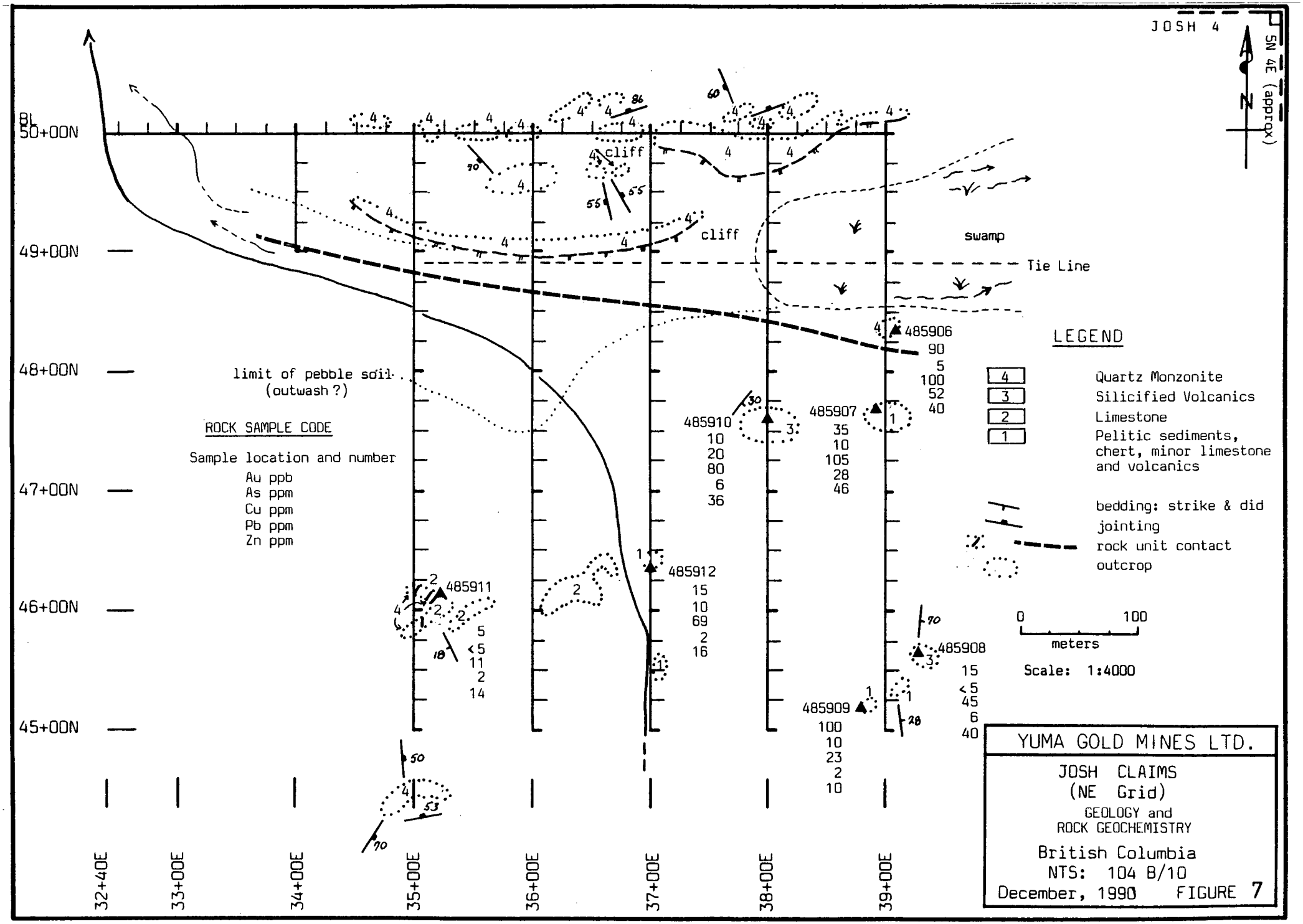
JOSH CLAIMS
(SW Zone)

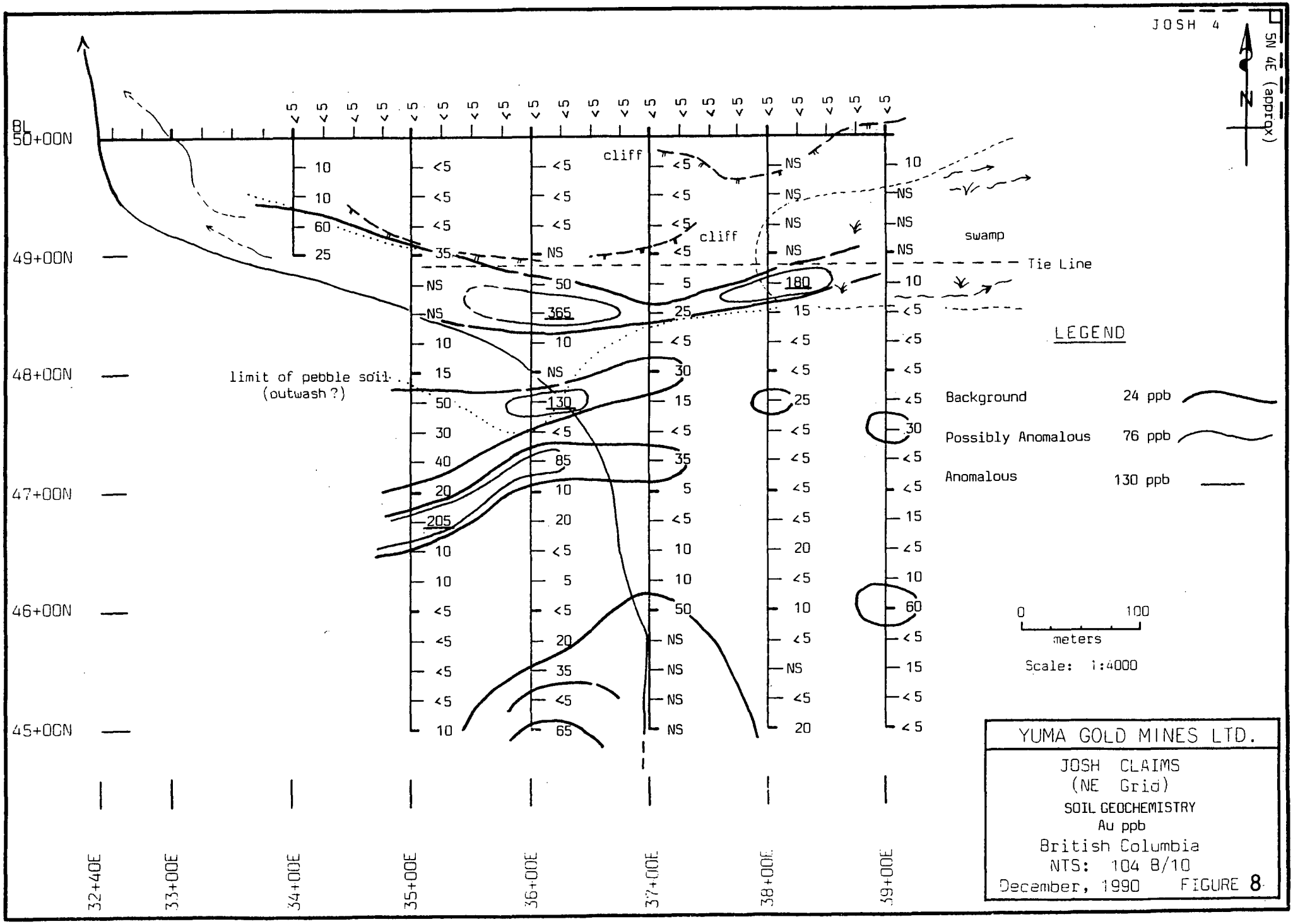
PROSPECTING AND
ROCK GEOCHEMISTRY

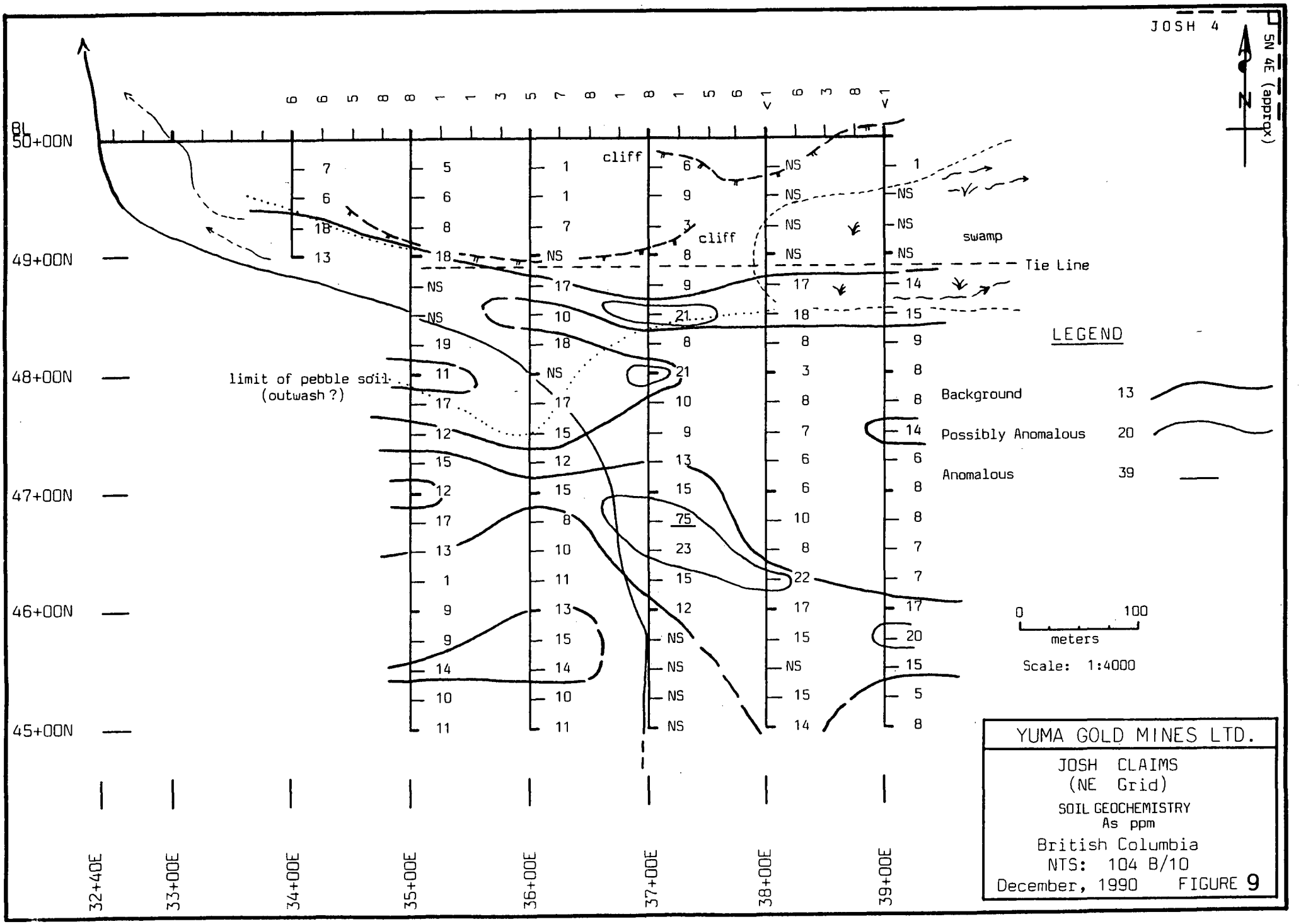
Liard M.D. British Columbia

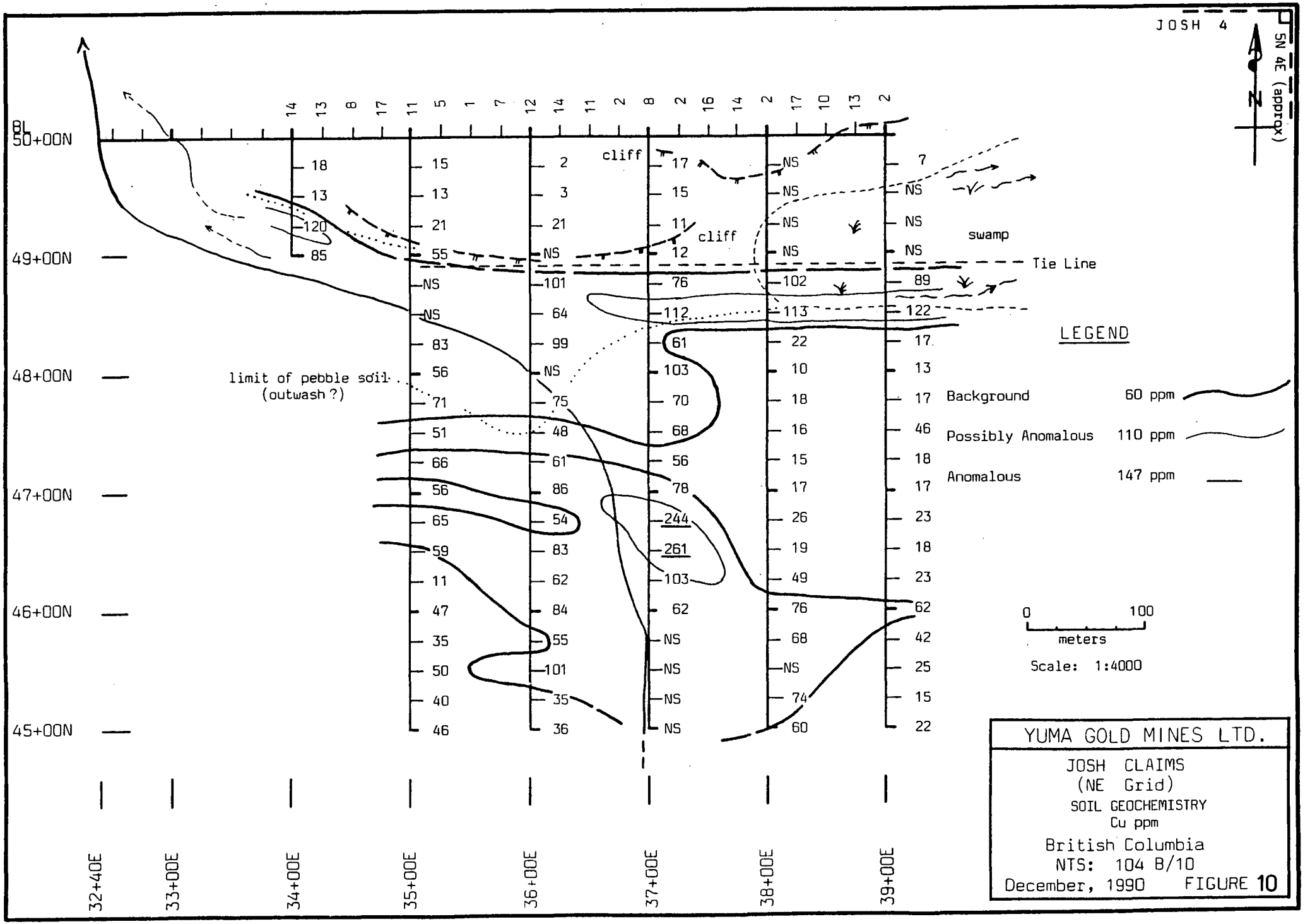
NTS: 104 B/10

December, 1990 FIGURE 6


JOSH 4
N 4E (approx)
BL
50+00N
49+00N
48+00N
47+00N
46+00N
45+00N
cliff
cliff
swamp
Tie Line
limit of pebble soil
(outwash ?)
ROCK SAMPLE CODE
Sample location and number
Au ppb
As ppm
Cu ppm
Pb ppm
Zn ppm
485906
90
5
100
52
40
485907
35
10
105
28
46
485908
15
<5
45
6
40
485909
100
10
23
2
10
485910
10
20
80
6
36
485911
5
<5
11
2
14
485912
15
10
69
2
16
LEGEND
4 Quartz Monzonite
3 Silicified Volcanics
2 Limestone
1 Pelitic sediments, chert, minor limestone and volcanics
bedding: strike & did
jointing
rock unit contact
outcrop
0
100
meters
Scale: 1:4000
32+40E
33+00E
34+00E
35+00E
36+00E
37+00E
38+00E
39+00E
YUMA GOLD MINES LTD.
JOSH CLAIMS
(NE Grid)
GEOLOGY and
ROCK GEOCHEMISTRY
British Columbia
NTS: 104 B/10
December, 1990 FIGURE 7

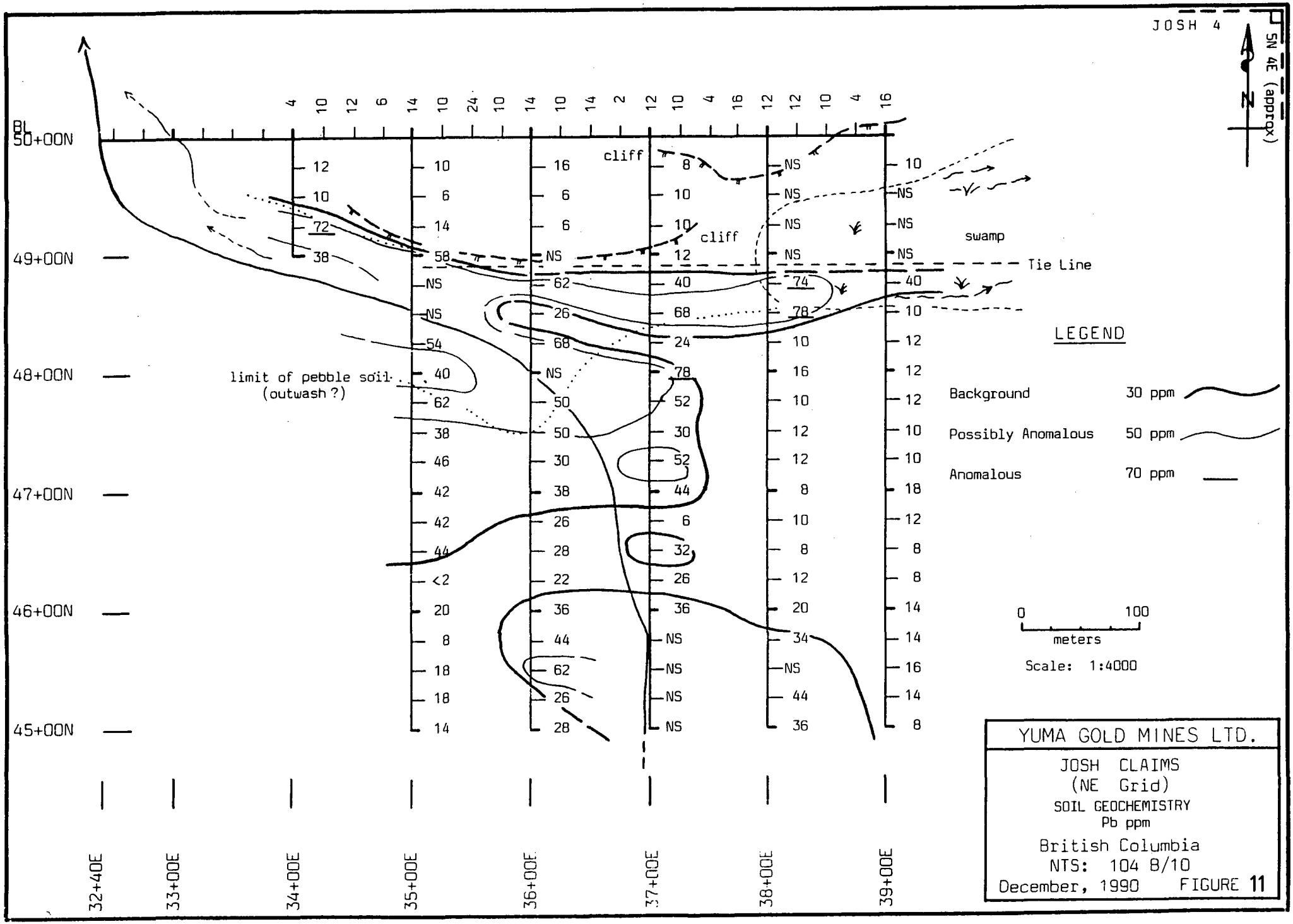

JOSH 4
N
SN 43 (approx)
BL
50+00N
49+00N
48+00N
47+00N
46+00N
45+00N
cliff
cliff
swamp
Tie Line
limit of pebble soil
(outwash ?)
LEGEND
Background 24 ppb
Possibly Anomalous 76 ppb
Anomalous 130 ppb
0
100
meters
Scale: 1:4000
32+40E
33+00E
34+00E
35+00E
36+00E
37+00E
38+00E
39+00E
YUMA GOLD MINES LTD.
JOSH CLAIMS
(NE Grid)
SOIL GEOCHEMISTRY
Au ppb
British Columbia
NTS: 104 B/10
December, 1990 FIGURE 8

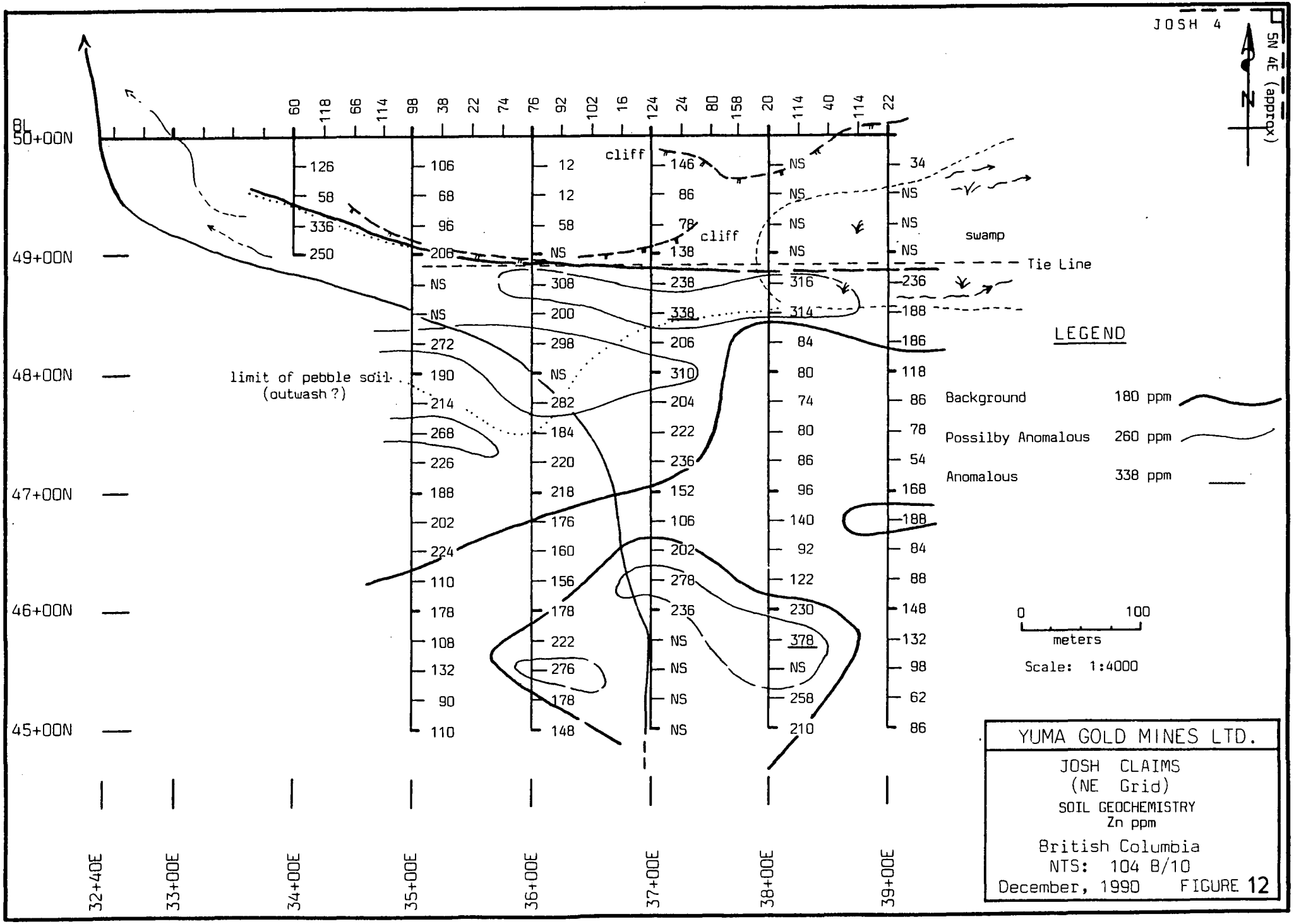

JOSH 4
N 4E (approx)
BL
50+00N
49+00N
48+00N
47+00N
46+00N
45+00N
cliff
cliff
swamp
Tie Line
limit of pebble soil
(outwash ?)
LEGEND
Background 13
Possibly Anomalous 20
Anomalous 39
0 100
meters
Scale: 1:4000
32+40E
33+00E
34+00E
35+00E
36+00E
37+00E
38+00E
39+00E
YUMA GOLD MINES LTD.
JOSH CLAIMS
(NE Grid)
SOIL GEOCHEMISTRY
As ppm
British Columbia
NTS: 104 B/10
December, 1990 FIGURE 9

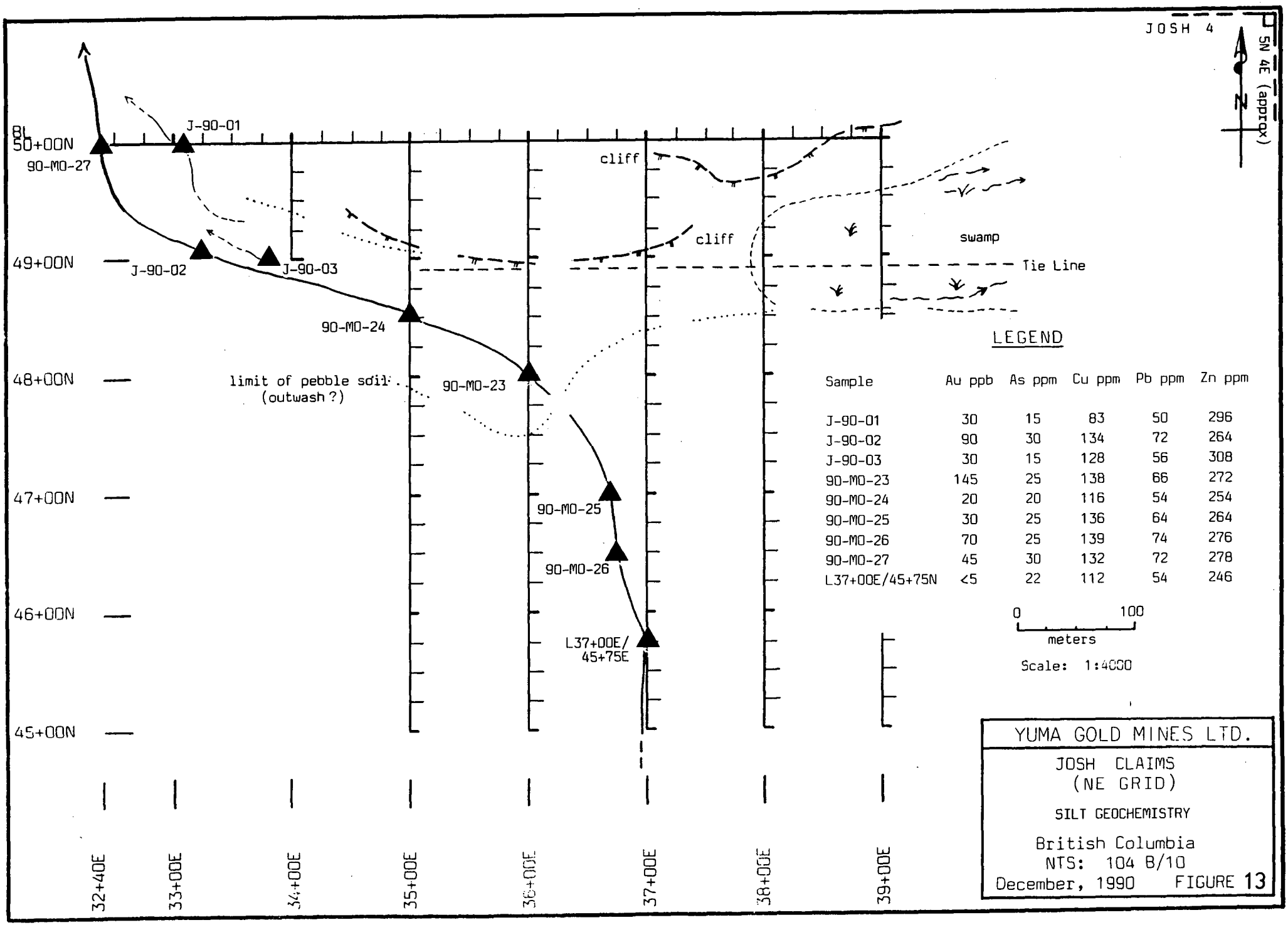


YUMA GOLD MINES LTD.

JOSH CLAIMS
(NE Grid)
SOIL GEOCHEMISTRY
Cu ppm
British Columbia
NTS: 104 B/10
December, 1990 FIGURE 10


JOSH 4
SN 43 (approx)
N
BL
50+00N
49+00N
48+00N
47+00N
46+00N
45+00N
cliff
cliff
swamp
Tie Line
limit of pebble soil
(outwash ?)
LEGEND
Background 30 ppm
Possibly Anomalous 50 ppm
Anomalous 70 ppm
0 100
meters
Scale: 1:4000
32+40E
33+00E
34+00E
35+00E
36+00E
37+00E
38+00E
39+00E
YUMA GOLD MINES LTD.
JOSH CLAIMS
(NE Grid)
SOIL GEOCHEMISTRY
Pb ppm
British Columbia
NTS: 104 8/10
December, 1990 FIGURE 11


JOSH 4
N
SN 4E (approx)
50+00N
49+00N
48+00N
47+00N
46+00N
45+00N
32+40E
33+00E
34+00E
35+00E
36+00E
37+00E
38+00E
39+00E
cliff
cliff
swamp
Tie Line
limit of pebble soil (outwash ?)
LEGEND
Background 180 ppm
Possilby Anomalous 260 ppm
Anomalous 338 ppm
0 100
meters
Scale: 1:4000
YUMA GOLD MINES LTD.
JOSH CLAIMS
(NE Grid)
SOIL GEOCHEMISTRY
Zn ppm
British Columbia
NTS: 104 B/10
December, 1990 FIGURE 12



LEGEND

Sample	Au ppb	As ppm	Cu ppm	Pb ppm	Zn ppm
J-90-01	30	15	83	50	296
J-90-02	90	30	134	72	264
J-90-03	30	15	128	56	308
90-MO-23	145	25	138	66	272
90-MO-24	20	20	116	54	254
90-MO-25	30	25	136	64	264
90-MO-26	70	25	139	74	276
90-MO-27	45	30	132	72	278
L37+00E/45+75N	<5	22	112	54	246

0 100
meters

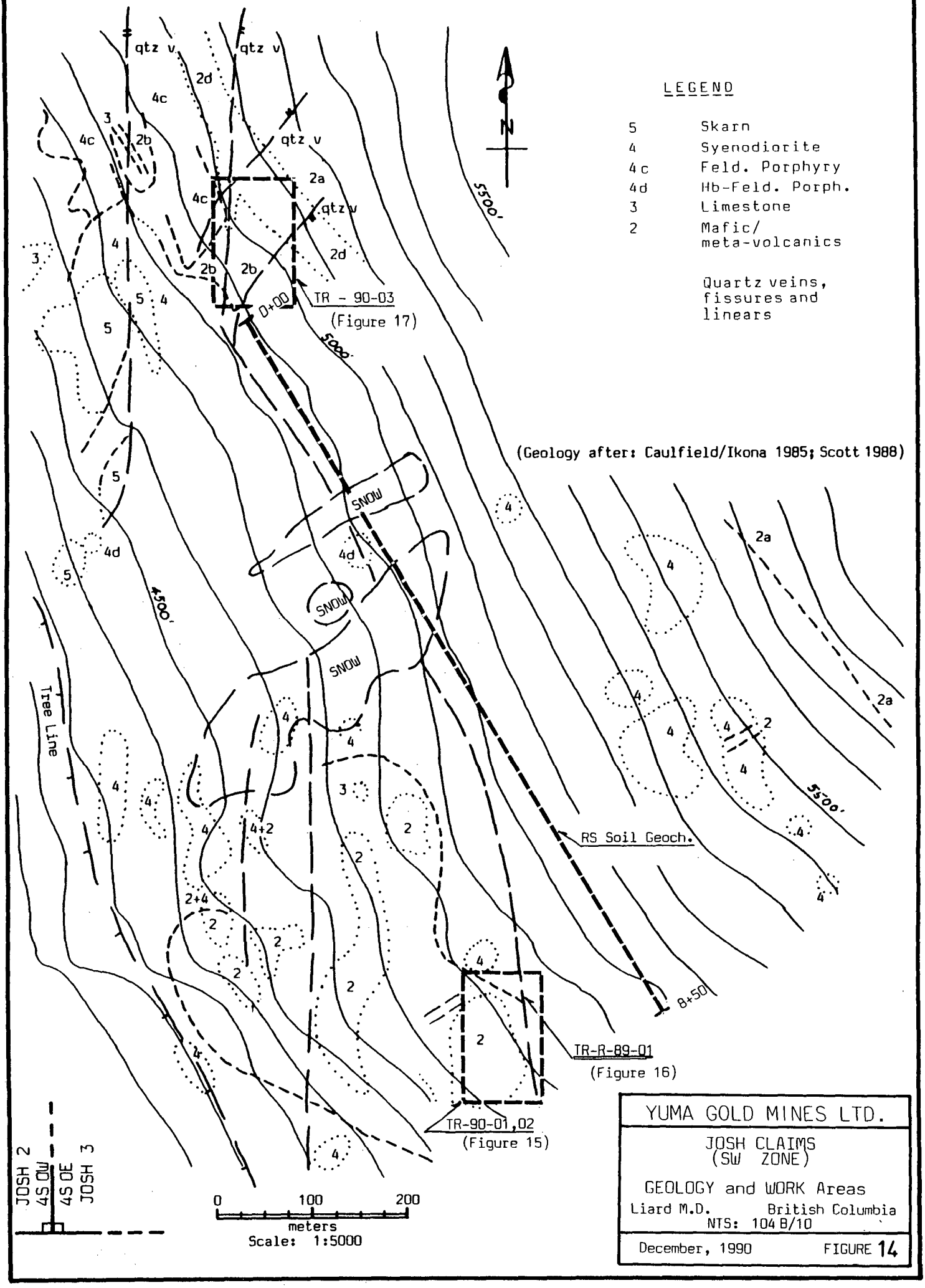
Scale: 1:4000

YUMA GOLD MINES LTD.

JOSH CLAIMS
(NE GRID)

SILT GEOCHEMISTRY

British Columbia
NTS: 104 B/10
December, 1990 FIGURE 13

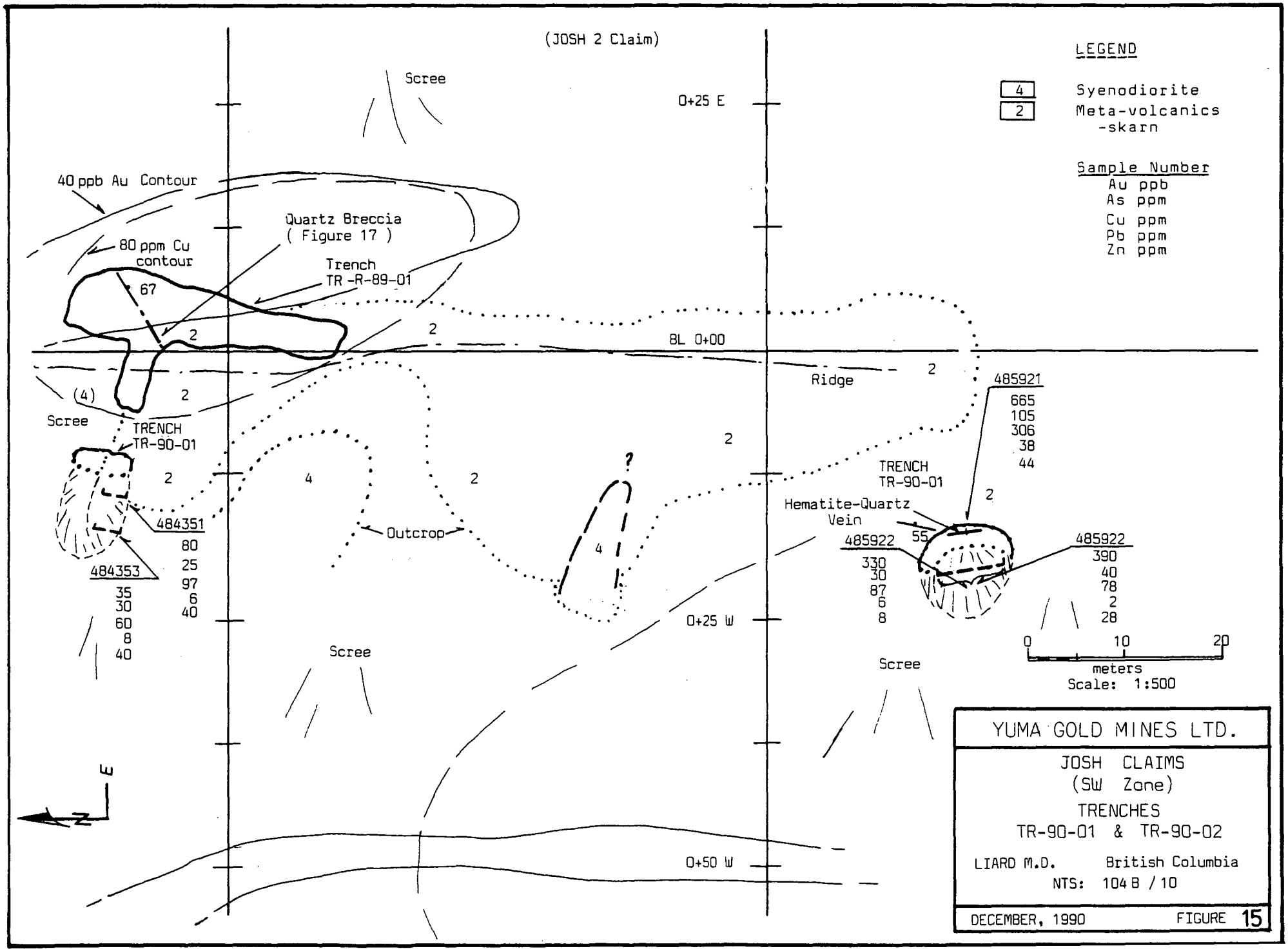


YUMA GOLD MINES LTD.

JOSH CLAIMS
(SW ZONE)

GEOLOGY and WORK Areas
Liard M.D. British Columbia
NTS: 104 B/10

December, 1990 FIGURE 14

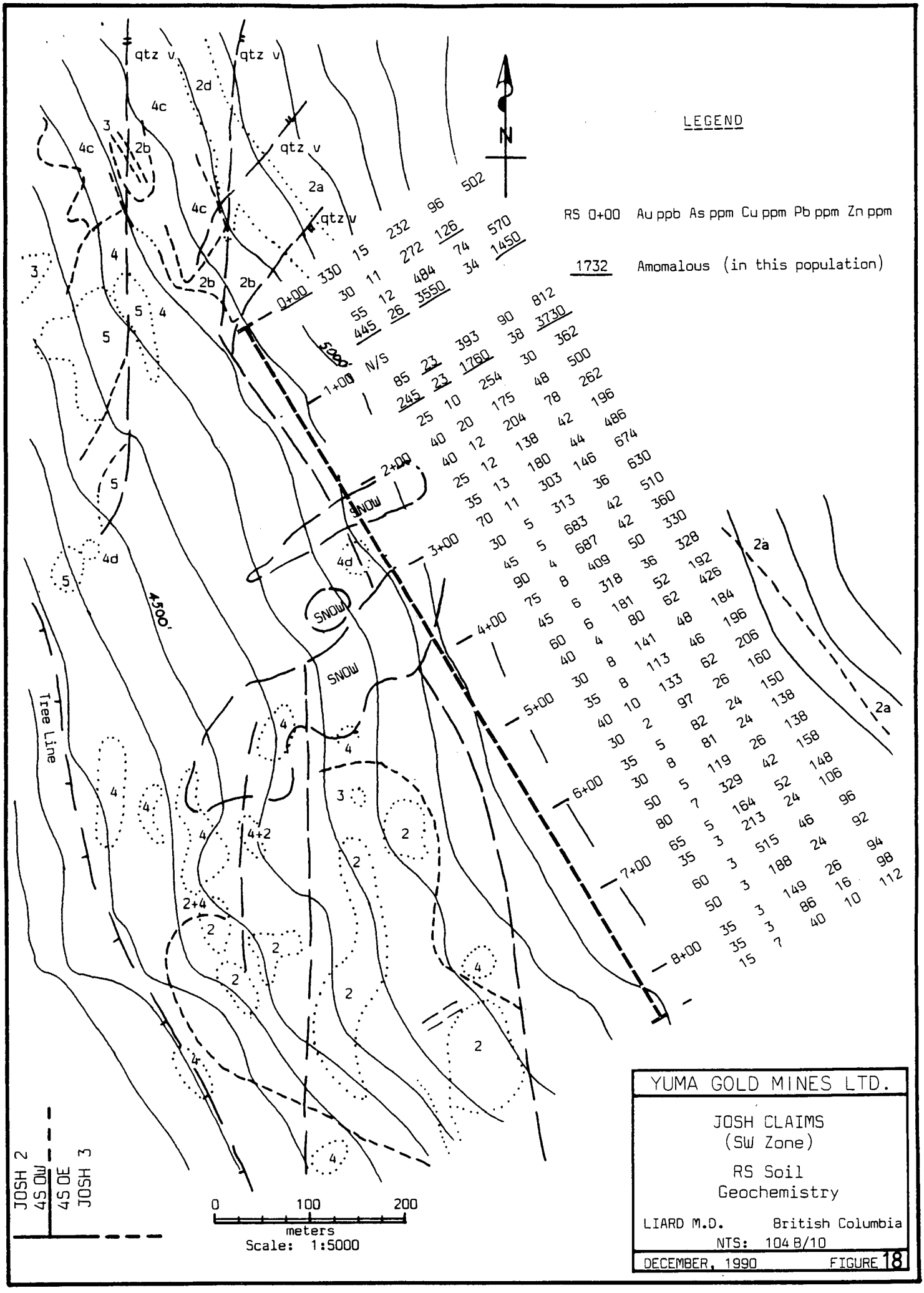


YUMA GOLD MINES LTD.

JOSH CLAIMS
(SW Zone)
TRENCHES
TR-90-01 & TR-90-02

LIARD M.D. British Columbia
NTS: 104 B / 10

DECEMBER, 1990 FIGURE 15



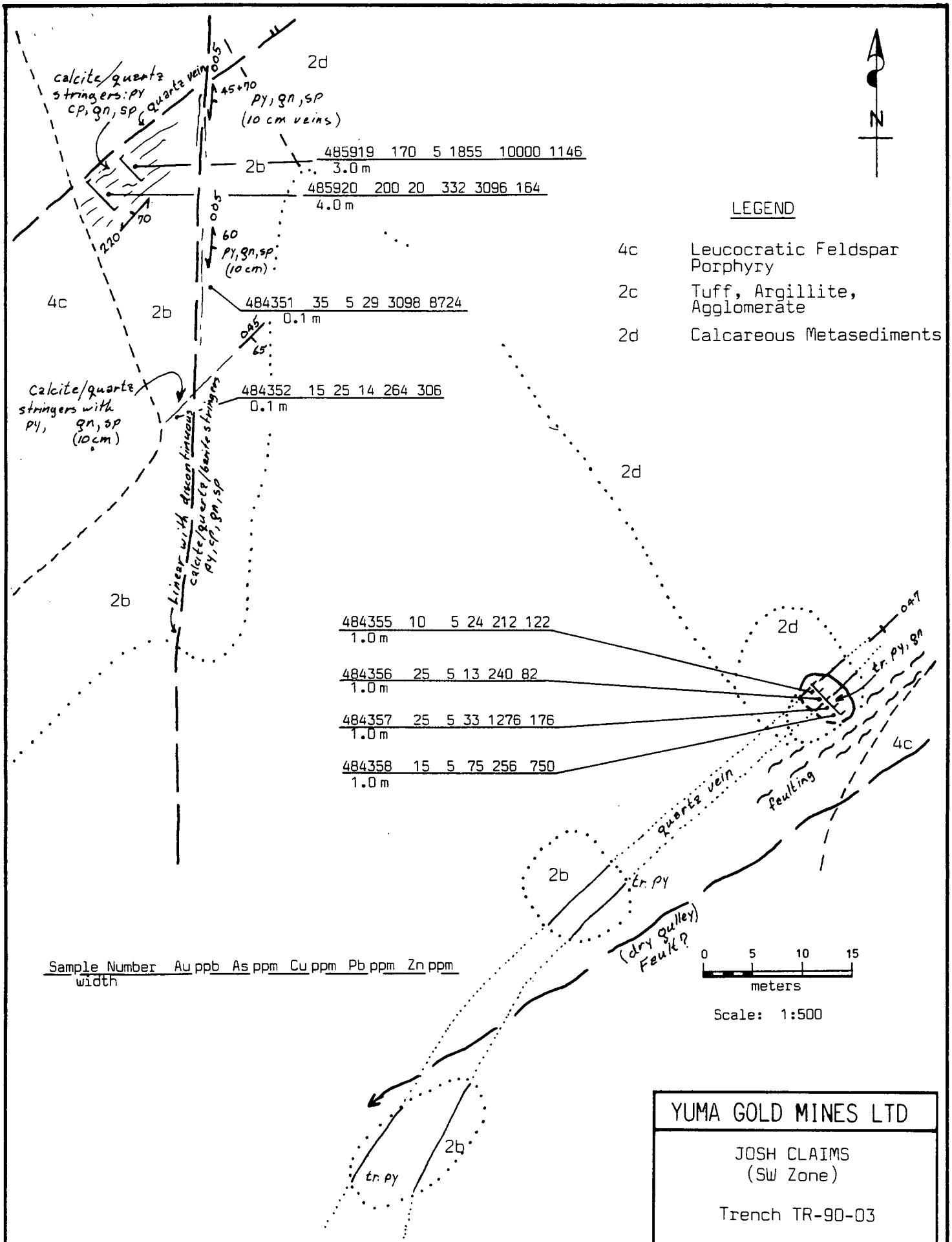
YUMA GOLD MINES LTD.

JOSH CLAIMS
(SW Zone)

RS Soil
Geochemistry

LIARD M.D. British Columbia
NTS: 104 B/10

DECEMBER, 1990 FIGURE 18

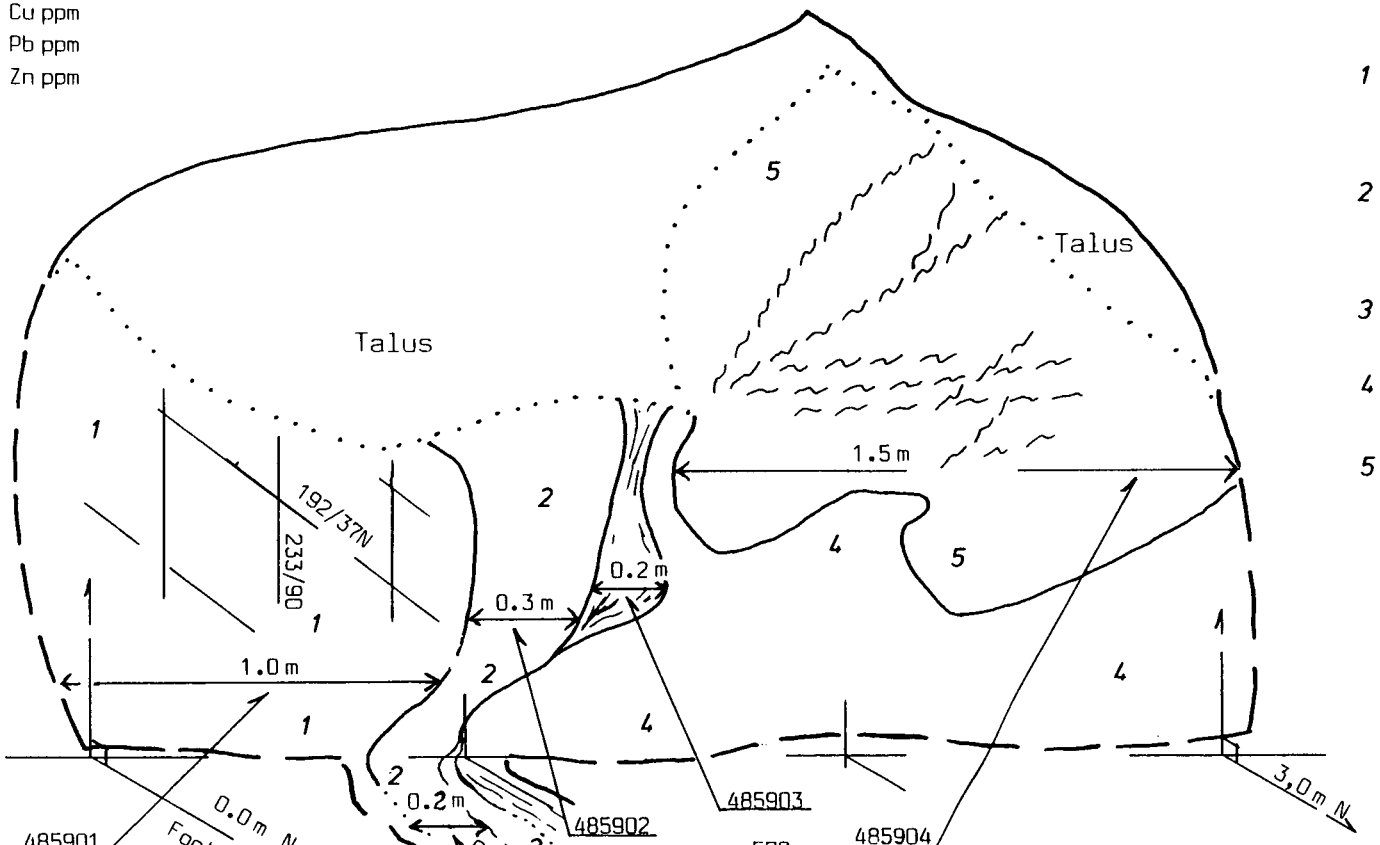


YUMA GOLD MINES LTD	
JOSH CLAIMS (SW Zone)	
Trench TR-90-03	
LIARD M.D.	British Columbia
NTS: 104 B/10	
DECEMBER, 1990	FIGURE 17

SAMPLE NUMBER

Au ppb
As ppm
Bi ppm
Cu ppm
Pb ppm
Zn ppm

PROFILE (looking west)



	485901	485902	485903	485904	485905
Au ppb	60	6110	570	65	4530
As ppm	10	5	5	5	426
Bi ppm	2	254	44	2	
Cu ppm	164	9090	1750	325	
Pb ppm	28	6680	142	56	
Zn ppm	134	194	272	72	

LEGEND

1 Intensely fractured, orange jarosite/ankerite altered with no visible sulphides

2 Pervasively altered + chlorite - sulphide rich (cp,py,gn,sp, mg,mc,az)

3 Well developed fault gouge of Mn-oxide and clay

4 Intensely fractured; Mn-oxide, minor jarosite and limonite

5 Massive si,he.cl,ep altered zone containing trace sulphides and well developed shear fractures; he/si stringers and specular hematite.

0 1.0
meters

Scale: 1:20

YUMA GOLD MINES LTD.

JOSH CLAIMS
(SW Zone)

Trench TR-R-89-01

LIARD M.D. British Columbia
NTS: 104 B/10

DECEMBER, 1990 FIGURE 16

APPENDIX I

BIBLIOGRAPHY

BIBLIOGRAPHY

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Dewonk, B. and Barnes, B. (1988): Trenching and Rock Sampling Report on the Josh, Josh 2, 3 and 4 Claims, Iskut River Area, British Columbia; Assessment Report.

Dewonk, B. and Raven, W. (1989): Assessment Report on the Redwood Resources Inc. Josh Mineral Claims.

Scott, T.C. (1983): Geological, Geochemical and Prospecting Report on the Josh Claims; unpublished report for Gulf International Minerals Ltd.

Scott, T.C. and Ikona, C.K. (1988): Geological Report on the Josh Mineral Claims; unpublished report for Redwood Resources Inc.

APPENDIX II

ROCK SAMPLE DESCRIPTIONS

Property : Josh NTS : Date : 11/30/90

Sample No.	Location		Type		Alteration	Sulphides	Oxides	Host	Au (ppb)	Ag (ppm)	As (ppm)	Cu (ppm)	pb (ppm)	Zn (ppm)
484351	Elevation: 1490 m Orientation: 005 / 60 E	N E	Select	Sample Width : 10 cm True Width : 10 cm	CL,EP	1%GL,3%PY,.5%SP	LI	Metasediments	35.	0.0	0.	29.	3098.	8724.
Comments : Quartz-calcite vein with trace barite.														
484352	Elevation: 1490 m Orientation: 045 / 65 E	N E	Select	Sample Width : 10 cm True Width : 10 cm	CL	8%PY	HE,LI	Metasediments	15.	1.4	25.	14.	264.	306.
Comments : Silicified gash.														
484353	Elevation: 1460 m Orientation: /	N E	Chip	Sample Width : 3 m True Width : 3 m	EP, GARNET, ACTINOLITE	5%PO	GE,MN,LI	Actinolite/epidote skarn	35.	0.0	30.	60.	8.	40.
Comments : TR90-01- composite of 50 pieces from rubble pile.														
484354	Elevation: 1460 m Orientation: /	N E	Chip	Sample Width : 3 m True Width : 3 m	ACTINOLITE,GARNET,EP	5%PO	GE,MN,LI	Actinolite/epidote skarn	80.	0.0	25.	97.	6.	40.
Comments : TR90-01 - composite of 50 pieces from rubble pile.														
484355	Elevation: 1525 m Orientation: 045 / 80 E	N E	Channel	Sample Width : 1 m True Width : 1 m	CA,CL,EP	TRPY	LI, SIDERITE	Metasediments	10.	1.8	0.	24.	212.	122.
Comments : TR90-03- 0-1.0 metres quartz vein.														
484357	Elevation: 1525 m Orientation: 045 / 80 E	N E	Channel	Sample Width : 1 m True Width : 1 m	CA,CL,EP	TRGL,TRPY	LI, SIDERITE	Metasediments	25.	4.2	5.	33.	1276.	176.
Comments : TR90-03- 2 to 3 metres of metasediments, minor skarn.														

Property : Josh NTS : Date : 11/30/90

Sample No.	Location :		Type : Channel	Alteration :	CA,CL,CY,EP	Au	Ag	As	Cu	pb	Zn
		N		Sulphides :	TRPY	(ppb)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
		E									
484358	Elevation: 1525 m		Sample Width : 1 m	Oxides :	LI	15.	0.6	0.	75.	256.	750.
	Orientation: 045 / 80 E		True Width : 1 m	Host :	Metasediments						

Comments : TR90-01 - 3-4 metres of metasediments with minor skarn.

EQUITY ENGINEERING LTD. ROCK SAMPLE DESCRIPTIONS

Property : Josh NTS : Date : 11/30/90

Sample No.	Location :		Type :	Alteration :		Au	Ag	As	Cu	pb	Zn
	N			Sulphides :		(ppb)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
485901	Elevation: 4900 m	Sample Width : 100 cm		Oxides :	HE,JA	60.	0.0	10.	164.	28.	134.
	Orientation: /	True Width : m		Host :	Intrusive?						

Comments : Taken from old Orequest trench. Highly fractured and rubbly zone.

Sample No.	Location :		Type :	Alteration :		Au	Ag	As	Cu	pb	Zn
	N			Sulphides :		(ppb)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
485902	Elevation: 4900 m	Sample Width : 30 cm		Oxides :	JA,MC,MN	6110.	124.2	5.	9091.	6676.	194.
	Orientation: 057 / 60 S	True Width : m		Host :	Quatrz flooded intrusive						

Comments : Second sample from trench. Quartz has a sucrosic texture. Zone is variable in width and orientation. Possibly adjacent to a fault.

Sample No.	Location :		Type :	Alteration :		Au	Ag	As	Cu	pb	Zn
	N			Sulphides :		(ppb)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
485903	Elevation: 4900 m	Sample Width : 2 m		Oxides :	JA,MN	570.	4.2	10.	1748.	142.	272.
	Orientation: /	True Width : 2 m		Host :	?						

Comments : Protolith is unrecognizable. Stone is intensely fractured. Sample consists, in part, of clay gouge. Most likely a fault zone.

Sample No.	Location :		Type :	Alteration :		Au	Ag	As	Cu	pb	Zn
	N			Sulphides :		(ppb)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
485904	Elevation: 4900 m	Sample Width : 1.5 m		Oxides :	HE	65.	0.6	5.	325.	56.	72.
	Orientation: /	True Width : >1.5 m		Host :	?						

Comments : Most massive rock exposed in trench. Contains fractures which are coated with earthy and specular hematite. Quartz and hematite stringers also present.

Sample No.	Location :		Type :	Alteration :		Au	Ag	As	Cu	pb	Zn
	N			Sulphides :		(ppb)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
485905	Elevation: 4900 m	Sample Width : 20 cm		Oxides :	JA,MC,MN	4530.	180.0	10.	10000	4530.	426.
	Orientation: 057 / 60 S	True Width : 20 cm		Host :	Quartz rich zone within trench						

Comments : Sample taken from the base of the trench, in the high grade quartz vein zone.

Sample No.	Location :		Type :	Alteration :		Au	Ag	As	Cu	pb	Zn
	N			Sulphides :		(ppb)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
485906	Elevation: ft	Sample Width : 3 m		Oxides :		90.	1.6	5.	100.	52.	40.
	Orientation: /	True Width : m		Host :	Medium grained equigranular granite.						

Comments : Taken on grid line 39+00E, at station 48+25. Outcrop consists of very massive hornblende bearing granite.

Property : Josh NTS : Date : 11/30/90

Sample No.	Location		Type	Alteration		Au (ppb)	Ag (ppm)	As (ppm)	Cu (ppm)	pb (ppm)	Zn (ppm)
	N		Grab	Sulphides	1%PY						
	E			Oxides							
485907	Elevation:	ft	Sample Width : 1.5 m			35.	0.4	10.	105.	28.	46.
	Orientation: 020 / 75 E		True Width : 1-2 m	Host	Cherty silts with minor chert interbeds.						

Comments : Contact between intrusive and cherty silts. Pyrite mineralization is bedding and fracture controlled. Taken at 47+50 on line 39+00. Sample includes pieces of intrusive near the contact.

Sample No.	Location		Type	Alteration		Au (ppb)	Ag (ppm)	As (ppm)	Cu (ppm)	pb (ppm)	Zn (ppm)
	N		Grab	Sulphides	1%PY						
	E			Oxides							
485908	Elevation:	ft	Sample Width : 2 m			15.	0.0	0.	45.	6.	40.
	Orientation: 005 / 70 E		True Width : 20 m	Host	Interbedded cherty silts and wackes						

Comments : Sediments contain quartz stringers and sulphide filled fractures.

Sample No.	Location		Type	Alteration		Au (ppb)	Ag (ppm)	As (ppm)	Cu (ppm)	pb (ppm)	Zn (ppm)
	N		Grab	Sulphides	1%PY						
	E			Oxides							
485909	Elevation:	ft	Sample Width : 2 m			100.	0.0	10.	23.	2.	10.
	Orientation: /		True Width : 7 m	Host	Chert						

Comments : Outcrop consists of massive chert with minor amounts of intrusive. Outcrop dimensions are 7m by 5m located at 45+25 along line 39+00E.

Sample No.	Location		Type	Alteration		Au (ppb)	Ag (ppm)	As (ppm)	Cu (ppm)	pb (ppm)	Zn (ppm)
	N		Grab	Sulphides	1%PO,1%PY						
	E			Oxides							
485910	Elevation:	ft	Sample Width : 1.5 m			10.	0.2	20.	80.	6.	36.
	Orientation: 034 / 80 SE		True Width : 10-15 m	Host	Silicified volcanics						

Comments : Buff to orange weathered, pervasively silicified rock. Either cherty sediments or silicified volcanics. Minor limestone intercalated with the unit.

Sample No.	Location		Type	Alteration		Au (ppb)	Ag (ppm)	As (ppm)	Cu (ppm)	pb (ppm)	Zn (ppm)
	N		Grab	Sulphides	TRPY						
	E			Oxides	HE						
485911	Elevation:	ft	Sample Width : 3 m			5.	0.0	0.	11.	2.	14.
	Orientation: /		True Width : m	Host	Limestone and intrusive						

Comments : Sample taken at contact between two lithologies. Bedding in the limestone is oriented at 135/18 W.

Sample No.	Location		Type	Alteration		Au (ppb)	Ag (ppm)	As (ppm)	Cu (ppm)	pb (ppm)	Zn (ppm)
	N		Grab	Sulphides	EP,CB						
	E			Oxides	TRPY						
485912	Elevation:	ft	Sample Width : 0.5 m		JA	15.	0.0	10.	69.	2.	16.
	Orientation: /		True Width : 2 m	Host	Black siltstone						

Comments : Outcrop contains CB filled fractures. Sampled on line 37+00E.

Sample No.	Location		Type	Alteration		Au (ppb)	Ag (ppm)	As (ppm)	Cu (ppm)	pb (ppm)	Zn (ppm)
	N		Grab	Sulphides	: <2%PY						
485913	Elevation: 1450 m		Sample Width : 3 m	Oxides	: MN,JA	5.	0.0	0.	109.	20.	92.
	Orientation: /		True Width : 10 m	Host	: Calcareous siltstones and wackes.						

Comments : One of many irregular slices of sediment caught up in the intrusive. Sediments fractured to poker chips. Located sample 88PGL010

Sample No.	Location		Type	Alteration		Au (ppb)	Ag (ppm)	As (ppm)	Cu (ppm)	pb (ppm)	Zn (ppm)
	N		Grab	Sulphides	: 1%PY						
485914	Elevation: 1540 m		Sample Width : 3 m	Oxides	: MN,JA	15.	0.0	10.	81.	0.	32.
	Orientation: 280 / 50 N		True Width : 10 m	Host	: Feldspathic wacke/arenite						

Comments : Unit extens up drainage for 100 metres or more. Well foliated. Foliation may be parallel to bedding.

Sample No.	Location		Type	Alteration		Au (ppb)	Ag (ppm)	As (ppm)	Cu (ppm)	pb (ppm)	Zn (ppm)
	N		Float	Sulphides	: TRCP,1%PY						
485915	Elevation: 1440 m		Sample Width : m	Oxides	:	870.	1.0	5.	305.	8.	18.
	Orientation: /		True Width : m	Host	: Comb textured quartz vein						

Comments : Specimen is 15cm wide and is blocky. Contains horizons of siliceous dark material which may contain fine grained sulfides.

Sample No.	Location		Type	Alteration		Au (ppb)	Ag (ppm)	As (ppm)	Cu (ppm)	pb (ppm)	Zn (ppm)
	N		Grab	Sulphides	: TRCP,2%MG,10-15%PY						
485916	Elevation: 1610 m		Sample Width : 1 m	Oxides	: JA	50.	2.0	35.	963.	0.	94.
	Orientation: /		True Width : m	Host	: Altered volcanics						

Comments : Isolated rusty zone adjacent to intrusive dyke. 2m by 3m exposure consisting of massive chloritized rock with euhedral pyrite localized along fractures. Outcrop consists, in part, of ferricrete.

Sample No.	Location		Type	Alteration		Au (ppb)	Ag (ppm)	As (ppm)	Cu (ppm)	pb (ppm)	Zn (ppm)
	N		Grab	Sulphides	: 1%CP,3%PY						
485917	Elevation: 1635 m		Sample Width : 40 cm	Oxides	: MC	25.	0.0	15.	2101.	2.	14.
	Orientation: 265 / 84 N		True Width : 40 cm	Host	: Quartz-carbonate vein zone.						

Comments : Resembles vein of float in sample 485915. CP occurs along a single 2mm wide seam within the vein. Minor ankeritic staining.

Sample No.	Location		Type	Alteration		Au (ppb)	Ag (ppm)	As (ppm)	Cu (ppm)	pb (ppm)	Zn (ppm)
	N		Grab	Sulphides	: TRCP,<5%PY						
485918	Elevation: 1680 m		Sample Width : 3 m	Oxides	: JA,MN,MC	210.	0.6	25.	381.	14.	32.
	Orientation: /		True Width : 3-4 m	Host	:						

Comments : Losenge of skarnified limestone. Rock ranges from frothy ferricrete texture to massive sucrosic green-white. Skarn is bordered by vuggy quartz-carbonate veins which contain traces of CP.

Sample No.	Location :		Type :		Alteration :		Au	Ag	As	Cu	pb	Zn
		N			Sulphides :		(ppb)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
485919	Elevation: 1540 m	E	Sample Width : 3 m		Oxides :	HE,JA,MC,MN	170.	66.6	0.	1855.	10000	1146.
	Orientation: 221 / 66 NW		True Width : 3 m		Host :	Altered intrusive						
Comments : Zone adjacent to 385920.												

Sample No.	Location :		Type :		Alteration :		Au	Ag	As	Cu	pb	Zn
		N			Sulphides :		(ppb)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
485920	Elevation: 1540 m	E	Sample Width : 4 m		Oxides :	MC,MN,JA	200.	5.6	20.	332.	3096.	1644.
	Orientation: 214 / 79 NW		True Width : 4 m		Host :	Altered intrusive						
Comments : Second sample on same structure												

Sample No.	Location :		Type :		Alteration :		Au	Ag	As	Cu	pb	Zn
		N			Sulphides :		(ppb)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
485921	Elevation: 1380 m	E	Sample Width : 1 m		Oxides :	HE,JA	665.	2.2	105.	306.	38.	44.
	Orientation: 005 / 55 E		True Width : 1 m		Host :	Frothy, pyritic quartz. White to light blue.						
Comments : Sampled scree from trench. Zone is exposed in trench across a vertical face. HE occurs as specularite.												

Sample No.	Location :		Type :		Alteration :		Au	Ag	As	Cu	pb	Zn
		N			Sulphides :		(ppb)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
485922	Elevation: 1380 m	E	Sample Width : 6 m		Oxides :	MN,JA	330.	0.0	30.	87.	6.	28.
	Orientation: 352 / 60 E		True Width : m		Host :	Altered volcanics						
Comments : White to light green, locally silicified. Loaded with sprays of a light coloured acicular mineral- probably tremolite/actinolite.												

Sample No.	Location :		Type :		Alteration :		Au	Ag	As	Cu	pb	Zn
		N			Sulphides :		(ppb)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
485923	Elevation: 1380 m	E	Sample Width : 6 m		Oxides :	MN,JA	390.	0.0	40.	78.	0.	28.
	Orientation: /		True Width : m		Host :	Altered volcanics						
Comments : Same as sample 485923												

APPENDIX III

SAMPLE HANDLING

SAMPLE HANDLING

Soil Samples

Collected from small pits dug in the solum with a mattock. The sample, preferably from the B horizon, was then placed in numbered, high wet-strength paper envelopes and air dried at camp. Parameters such as location, soil horizon, depth of sample colour, texture, slope and vegetation were recorded on forms for future use in evaluation of analytical results. All sample locations were marked with plastic flagging displaying the number of the sample.

Silt Samples

Collected from active regions of the streams and deposited in numbered, high wet-strength paper envelopes and air dried at camp. Parameters such as stream size, direction of flow, colour and texture of material, location were recorded on forms for future reference. All sample locations were marked with plastic flagging displaying the sample numbers.

APPENDIX IV

CERTIFICATES OF ANALYTICAL PROCEDURES AND CERTIFICATES OF ANALYSIS

Chemex Labs Ltd.

Analytical Chemists * Geochemists * Registered Assayers
212 Brooksbank Ave., North Vancouver
British Columbia, Canada V7J 2C1
PHONE: 604-984-0221

To: EQUITY ENGINEERING LTD.

207 - 675 W. HASTINGS ST.
VANCOUVER, BC
V6B 1N2

A9022731

Comments: ATTN: C. SCOTT CC: YUMA GOLD MINES LTD.

CERTIFICATE A9022731

EQUITY ENGINEERING LTD.

Project: JOSH
P.O. # : YUM90-01

Samples submitted to our lab in Vancouver, BC.
This report was printed on 19-SEP-90.

ROCK SAMPLES

SAMPLE PREPARATION

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION
205	31	Geochem ring to approx 150 mesh
294	31	Crush and split (0-10 pounds)
238	31	NITRIC-AQUA REGIA DIGESTION

* NOTE 1:

The 32 element ICP package is suitable for trace metals in soil and rock samples. Elements for which the nitric-aqua regia digestion is possibly incomplete are: Al, Ba, Be, Ca, Cr, Ga, K, La, Mg, Na, Sr, Ti, Tl, W.

ANALYTICAL PROCEDURES

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION	METHOD	DETECTION LIMIT	UPPER LIMIT
100	31	Au ppb: Fuse 10 g sample	FA-AAS	5	10000
922	31	Ag ppm: 32 element, soil & rock	ICP-AES	0.2	200
921	31	Al %: 32 element, soil & rock	ICP-AES	0.01	15.00
923	31	As ppm: 32 element, soil & rock	ICP-AES	5	10000
924	31	Ba ppm: 32 element, soil & rock	ICP-AES	10	10000
925	31	Be ppm: 32 element, soil & rock	ICP-AES	0.5	100.0
926	31	Bi ppm: 32 element, soil & rock	ICP-AES	2	10000
927	31	Ca %: 32 element, soil & rock	ICP-AES	0.01	15.00
928	31	Cd ppm: 32 element, soil & rock	ICP-AES	0.5	100.0
929	31	Co ppm: 32 element, soil & rock	ICP-AES	1	10000
930	31	Cr ppm: 32 element, soil & rock	ICP-AES	1	10000
931	31	Cu ppm: 32 element, soil & rock	ICP-AES	1	10000
932	31	Fe %: 32 element, soil & rock	ICP-AES	0.01	15.00
933	31	Ga ppm: 32 element, soil & rock	ICP-AES	10	10000
951	31	Hg ppm: 32 element, soil & rock	ICP-AES	1	10000
934	31	K %: 32 element, soil & rock	ICP-AES	0.01	10.00
935	31	La ppm: 32 element, soil & rock	ICP-AES	10	10000
936	31	Mg %: 32 element, soil & rock	ICP-AES	0.01	15.00
937	31	Mn ppm: 32 element, soil & rock	ICP-AES	5	10000
938	31	Mo ppm: 32 element, soil & rock	ICP-AES	1	10000
939	31	Na %: 32 element, soil & rock	ICP-AES	0.01	5.00
940	31	Ni ppm: 32 element, soil & rock	ICP-AES	1	10000
941	31	P ppm: 32 element, soil & rock	ICP-AES	10	10000
942	31	Pb ppm: 32 element, soil & rock	ICP-AES	2	10000
943	31	Sb ppm: 32 element, soil & rock	ICP-AES	5	10000
958	31	Sc ppm: 32 elements, soil & rock	ICP-AES	1	10000
944	31	Sr ppm: 32 element, soil & rock	ICP-AES	1	10000
945	31	Ti %: 32 element, soil & rock	ICP-AES	0.01	5.00
946	31	Tl ppm: 32 element, soil & rock	ICP-AES	10	10000
947	31	U ppm: 32 element, soil & rock	ICP-AES	10	10000
948	31	V ppm: 32 element, soil & rock	ICP-AES	1	10000
949	31	W ppm: 32 element, soil & rock	ICP-AES	10	10000
950	31	Zn ppm: 32 element, soil & rock	ICP-AES	2	10000

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V6B 1N2

Project : JOSH
Comments: ATTN: C. SCOTT CC: YUMA GOLD MINES LTD.

Invoice Date: 19-SEP-90
Invoice No. : I-9022731
P.O. Number : YUM90-01

CERTIFICATE OF ANALYSIS A9022731

SAMPLE DESCRIPTION	PREP CODE		Au ppb FA+AA	Ag ppm	Al %	As ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Co ppm	Cr ppm	Cu ppm	Fe %	Ga ppm	Hg ppm	K %	La ppm	Mg %	Mn ppm
484351	205	294	35	< 0.2	0.62	< 5	340	< 0.5	< 2	11.45	76.5	3	59	29	1.11	< 10	< 1	0.25	< 10	0.26	3430
484352	205	294	15	1.4	1.06	25	70	< 0.5	6	0.11	0.5	5	78	14	8.75	< 10	< 1	0.10	< 10	0.85	815
484353	205	294	35	< 0.2	0.24	30	90	< 0.5	2	4.61	< 0.5	< 1	17	60	8.48	< 10	< 1	< 0.01	< 10	0.12	750
484354	205	294	80	< 0.2	0.44	25	30	< 0.5	< 2	2.32	< 0.5	< 1	16	97	6.64	< 10	< 1	0.01	< 10	0.27	490
484355	205	294	10	1.8	0.19	< 5	70	< 0.5	4	0.07	< 0.5	< 1	131	24	2.79	< 10	< 1	0.07	< 10	0.02	70
484356	205	294	25	3.0	0.27	< 5	60	< 0.5	4	0.08	< 0.5	< 1	102	13	1.91	< 10	< 1	0.10	< 10	0.02	145
484357	205	294	25	4.2	0.33	5	100	< 0.5	10	0.08	1.0	< 1	123	33	3.43	< 10	< 1	0.15	< 10	0.02	140
484358	205	294	15	0.6	1.49	< 5	220	< 0.5	< 2	0.66	4.0	2	75	75	3.35	< 10	< 1	0.22	< 10	0.45	1050
485901	205	294	60	< 0.2	0.43	10	80	< 0.5	< 2	1.30	< 0.5	6	14	164	9.98	< 10	< 1	0.02	< 10	0.40	1600
485902	205	294	6110	124.0	0.48	5	20	< 0.5	254	2.52	1.5	7	97	9090	3.55	< 10	< 1	0.01	< 10	0.25	6090
485903	205	294	570	4.2	0.77	10	20	< 0.5	44	1.33	2.5	54	22	1750	6.40	< 10	< 1	0.02	10	0.94	>10000
485904	205	294	65	0.6	0.56	5	60	< 0.5	2	8.21	< 0.5	6	25	325	4.55	< 10	< 1	0.01	< 10	0.74	>10000
485905	205	294	4530	180.0	0.43	10	10	< 0.5	360	0.81	5.0	6	107	>10000	3.15	< 10	< 1	< 0.01	< 10	0.20	4090
485906	205	294	90	1.6	1.23	5	260	< 0.5	2	1.91	< 0.5	7	19	100	3.10	< 10	< 1	0.17	10	0.78	720
485907	205	294	35	0.4	2.64	10	110	< 0.5	2	1.01	< 0.5	6	46	105	4.71	10	< 1	0.19	< 10	1.48	525
485908	205	294	15	< 0.2	2.54	< 5	20	< 0.5	< 2	4.47	< 0.5	12	18	45	3.14	< 10	< 1	0.06	< 10	1.77	565
485909	205	294	100	< 0.2	0.37	10	30	< 0.5	2	1.39	< 0.5	2	81	23	1.31	< 10	< 1	0.18	10	0.23	515
485910	205	294	10	0.2	1.89	20	50	< 0.5	< 2	1.65	< 0.5	15	27	80	3.19	< 10	< 1	0.09	< 10	0.64	300
485911	205	294	5	< 0.2	0.59	< 5	120	< 0.5	< 2	10.30	< 0.5	3	17	11	2.40	< 10	< 1	0.31	< 10	1.55	1360
485912	205	294	15	< 0.2	0.76	10	100	< 0.5	< 2	0.17	< 0.5	3	127	69	2.04	< 10	< 1	0.18	< 10	0.19	155
485913	205	294	5	< 0.2	2.53	< 5	40	< 0.5	< 2	0.95	< 0.5	14	52	109	5.27	< 10	< 1	0.15	10	1.63	585
485914	205	294	15	< 0.2	1.83	10	20	< 0.5	< 2	0.90	< 0.5	10	51	81	3.95	< 10	< 1	0.12	10	1.36	240
485915	205	294	870	1.0	0.65	5	60	< 0.5	< 2	3.07	< 0.5	8	148	305	2.82	< 10	< 1	0.09	< 10	0.55	2570
485916	205	294	50	2.0	2.10	35	10	< 0.5	6	0.24	< 0.5	74	49	963	>15.00	< 10	< 1	0.03	10	0.79	730
485917	205	294	25	< 0.2	0.51	15	60	< 0.5	< 2	1.14	< 0.5	4	111	2100	2.67	< 10	< 1	0.16	< 10	0.23	1350
485918	205	294	210	0.6	0.91	25	30	< 0.5	4	7.36	< 0.5	19	54	381	9.43	< 10	< 1	0.17	< 10	1.09	>10000
485919	205	294	170	66.6	0.98	< 5	100	< 0.5	90	0.25	4.0	3	79	1855	3.63	< 10	< 1	0.26	< 10	0.34	1205
485920	205	294	200	5.6	0.90	20	580	< 0.5	4	1.50	29.0	2	61	332	1.61	< 10	< 1	0.40	10	0.28	2660
485921	205	294	665	2.2	0.20	105	40	< 0.5	24	0.10	< 0.5	2	145	306	8.96	< 10	< 1	0.02	< 10	0.06	330
485922	205	294	330	< 0.2	0.26	30	70	< 0.5	2	3.36	< 0.5	14	18	87	8.49	< 10	< 1	0.01	< 10	0.17	485
485923	205	294	390	< 0.2	0.34	40	140	< 0.5	2	4.68	< 0.5	6	21	78	9.38	< 10	< 1	< 0.01	< 10	0.22	645

CERTIFICATION: B. Caughlin

Chemex Labs Ltd.

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Page Number : 1-B
Total Pages : 1
Invoice Date: 19-SEP-90
Invoice No. : I-9022731
P.O. Number : YUM90-01

Project : JOSH
Comments: ATTN: C. SCOTT CC: YUMA GOLD MINES LTD.

CERTIFICATE OF ANALYSIS A9022731

SAMPLE DESCRIPTION	PREP CODE		Mo ppm	Na %	Ni ppm	P ppm	Pb ppm	Sb ppm	Sc ppm	Sr ppm	Ti %	Tl ppm	U ppm	V ppm	W ppm	Zn ppm
484351	205	294	< 1	< 0.01	2	160	3100	< 5	1	415	0.02	< 10	< 10	11	20	8720
484352	205	294	2	< 0.01	5	190	264	< 5	1	14	0.03	< 10	< 10	23	30	306
484353	205	294	5	< 0.01	< 1	130	8	< 5	< 1	2	< 0.01	< 10	< 10	3	110	40
484354	205	294	3	0.02	1	260	6	< 5	< 1	12	0.02	< 10	< 10	8	90	40
484355	205	294	15	< 0.01	1	110	212	< 5	< 1	5	< 0.01	< 10	< 10	4	70	122
484356	205	294	12	< 0.01	1	90	240	< 5	< 1	7	< 0.01	< 10	< 10	6	160	82
484357	205	294	17	0.01	1	230	1275	< 5	< 1	22	< 0.01	< 10	< 10	9	60	176
484358	205	294	14	0.01	2	560	256	< 5	1	137	0.01	< 10	< 10	17	30	750
485901	205	294	30	< 0.01	2	280	28	< 5	< 1	11	< 0.01	< 10	< 10	11	70	134
485902	205	294	18	< 0.01	1	20	6680	< 5	< 1	29	< 0.01	< 10	< 10	8	30	194
485903	205	294	7	0.02	6	240	142	< 5	< 1	43	< 0.01	< 10	< 10	20	50	272
485904	205	294	1	< 0.01	2	240	56	< 5	< 1	74	< 0.01	< 10	< 10	16	40	72
485905	205	294	19	< 0.01	3	< 10	4530	< 5	< 1	15	< 0.01	< 10	< 10	5	20	426
485906	205	294	< 1	0.04	1	1060	52	< 5	3	58	0.07	< 10	< 10	56	20	40
485907	205	294	< 1	0.17	9	1030	28	< 5	7	71	0.22	< 10	< 10	134	30	46
485908	205	294	< 1	0.13	7	710	6	< 5	5	82	0.25	< 10	< 10	112	30	40
485909	205	294	2	0.02	14	450	2	< 5	3	26	< 0.01	< 10	< 10	11	< 10	10
485910	205	294	< 1	0.12	9	800	6	< 5	4	40	0.30	< 10	< 10	72	20	36
485911	205	294	1	0.02	2	480	2	< 5	1	72	< 0.01	< 10	< 10	7	20	14
485912	205	294	5	< 0.01	35	270	2	< 5	2	5	< 0.01	< 10	< 10	18	< 10	16
485913	205	294	2	0.15	10	810	20	< 5	13	44	0.29	< 10	< 10	148	30	92
485914	205	294	2	0.08	9	740	< 2	< 5	13	25	0.29	< 10	< 10	146	20	32
485915	205	294	6	0.01	4	90	8	< 5	1	38	< 0.01	< 10	< 10	15	10	18
485916	205	294	8	< 0.01	24	790	< 2	5	5	11	0.09	< 10	< 10	57	120	94
485917	205	294	10	< 0.01	4	60	2	< 5	< 1	11	< 0.01	< 10	< 10	8	10	14
485918	205	294	10	0.01	6	180	14	5	2	47	< 0.01	< 10	< 10	15	80	32
485919	205	294	79	< 0.01	4	290	>10000	< 5	1	19	< 0.01	< 10	< 10	11	20	1145
485920	205	294	2	0.01	5	580	3100	< 5	< 1	42	< 0.01	< 10	< 10	9	10	1645
485921	205	294	65	< 0.01	3	140	38	< 5	< 1	4	< 0.01	< 10	< 10	9	420	44
485922	205	294	1	< 0.01	2	100	6	< 5	< 1	< 1	< 0.01	< 10	< 10	3	130	28
485923	205	294	3	< 0.01	< 1	90	< 2	< 5	< 1	1	< 0.01	< 10	< 10	3	150	28

CERTIFICATION: B. Caughlin

Chemex Labs Ltd.

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V6B 1N2

A9022755

Comments: CC: YUMA GOLD MINES LTD.

CERTIFICATE A9022755

EQUITY ENGINEERING LTD.

Project: JOSH
P.O. # : YUM90-01

Samples submitted to our lab in Vancouver, BC.
This report was printed on 20-SEP-90.

SOIL SAMPLES

SAMPLE PREPARATION

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION
201	135	Dry, sieve to -80 mesh
203	9	Dry, sieve to -35 mesh
205	9	Geochem ring to approx 150 mesh
217	1	Geochem ring entire sample
238	145	NITRIC-AQUA REGIA DIGESTION

ANALYTICAL PROCEDURES

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION	METHOD	DETECTION LIMIT	UPPER LIMIT
100	145	Au ppb: Fuse 10 g sample	FA-AAS	5	10000
13	145	As ppm: HNO3-aqua regia digest	AAS-HYDRIDE/EDL	1	10000
1005	145	Ag ppm: 9 element, soil and rock	ICP-AES	0.5	200
1929	145	Co ppm: 9 element, soil & rock	ICP-AES	1	10000
1931	145	Cu ppm: 9 element, soil & rock	ICP-AES	1	10000
1932	145	Fe %: 9 element, soil & rock	ICP-AES	0.01	15.00
1937	145	Mn ppm: 9 element, soil & rock	ICP-AES	5	10000
1938	145	Mo ppm: 9 element, soil & rock	ICP-AES	1	10000
1940	145	Ni ppm: 9 element, soil & rock	ICP-AES	1	10000
1004	145	Pb ppm: 9 element, soil and rock	ICP-AES	5	10000
1950	145	Zn ppm: 9 element, soil & rock	ICP-AES	2	10000

Chemex Labs Ltd.

Analytical Chemists * Geochemists * Registered Assayers
212 Brooksbank Ave., North Vancouver
British Columbia, Canada V7J 2C1
PHONE: 604-984-0221

To: EQUITY ENGINEERING LTD.

207 - 675 W. HASTINGS ST.
VANCOUVER, BC
V6B 1N2

Project : JOSH
Comments: CC: YUMA GOLD MINES LTD.

Invoice Date: 20-SEP-90
Invoice No. : I-9022755
P.O. Number : YUM90-01

CERTIFICATE OF ANALYSIS A9022755

SAMPLE DESCRIPTION	PREP CODE		Au ppb FA+AA	As ppm	Ag ppm	Co ppm	Cu ppm	Fe %	Mn ppm	Mo ppm	Ni ppm	Pb ppm	Zn ppm			
RS 0+00	201	238	330	15	< 0.5	17	232	6.81	2090	8	9	96	502			
RS 0+25	201	238	30	11	< 0.5	18	272	5.53	2410	6	9	126	570			
RS 0+50	201	238	55	12	< 0.5	23	484	5.74	3820	11	7	74	500			
RS 0+75	201	238	445	26	< 0.5	47	3550	>15.00	6140	63	12	34	1450			
RS 1+25	201	238	85	23	0.5	29	393	9.10	2160	5	15	90	812			
RS 1+50	201	238	245	23	< 0.5	20	1760	>15.00	1720	4	8	38	3730			
RS 1+75	201	238	25	10	< 0.5	21	254	5.84	2070	5	10	30	362			
RS 2+00	201	238	40	20	< 0.5	25	175	6.18	3170	7	10	48	500			
RS 2+25	201	238	40	12	< 0.5	27	204	5.75	2580	10	9	78	262			
RS 2+50	201	238	25	12	< 0.5	23	138	6.38	1925	9	6	42	196			
RS 2+75	201	238	35	13	< 0.5	23	180	7.39	2210	13	10	44	486			
RS 3+00	201	238	70	11	1.0	42	303	8.64	4290	20	13	146	674			
RS 3+25	201	238	30	5	< 0.5	27	313	7.45	2670	14	12	36	630			
RS 3+50	201	238	45	5	< 0.5	32	683	7.08	3460	29	9	42	510			
RS 3+75	201	238	90	4	< 0.5	31	687	8.43	1650	60	6	42	360			
RS 4+00	201	238	75	8	< 0.5	23	409	9.70	1510	68	7	50	330			
RS 4+25	201	238	45	6	< 0.5	34	318	6.91	2070	15	6	36	328			
RS 4+50	201	238	60	6	< 0.5	25	181	5.91	1695	16	3	52	192			
RS 4+75	201	238	40	4	< 0.5	76	80	5.39	8620	25	7	62	426			
RS 5+00	201	238	30	8	< 0.5	24	141	6.14	2570	11	8	48	184			
RS 5+25	201	238	35	8	< 0.5	26	113	6.29	2970	9	10	46	196			
RS 5+50	201	238	40	10	< 0.5	21	133	6.58	2900	8	9	62	206			
RS 5+75	201	238	30	2	< 0.5	23	97	5.63	2490	9	12	26	160			
RS 6+00	201	238	35	5	< 0.5	14	82	5.03	2150	9	5	24	150			
RS 6+25	201	238	30	8	< 0.5	11	81	5.05	1320	27	5	24	138			
RS 6+50	201	238	50	5	< 0.5	24	119	5.78	1650	8	15	26	138			
RS 6+75	201	238	80	7	< 0.5	25	329	6.46	1465	21	9	42	158			
RS 7+00	201	238	65	5	< 0.5	18	164	4.90	1705	15	7	52	148			
RS 7+25	201	238	35	3	< 0.5	17	213	5.27	1110	13	11	24	106			
RS 7+50	201	238	60	3	0.5	11	515	5.38	645	32	4	46	96			
RS 7+75	201	238	50	3	< 0.5	20	188	3.51	1185	11	2	24	92			
RS 8+00	201	238	35	3	< 0.5	10	149	3.74	1035	8	4	26	94			
RS 8+25	201	238	35	3	< 0.5	8	86	4.23	1105	6	4	16	98			
RS 8+50	201	238	15	7	< 0.5	6	40	4.48	990	3	8	10	112			
RS 8+75	201	238	10	7	< 0.5	12	121	6.08	1800	5	7	14	384			
L34+00E 49+00N	203	205	25	13	< 0.5	12	85	4.30	1200	1	9	38	250			
L34+00E 49+25N	201	238	60	18	< 0.5	17	120	4.98	1370	2	10	72	336			
L34+00E 49+50N	201	238	10	6	< 0.5	3	13	4.06	255	4	9	10	58			
L34+00E 49+75N	201	238	10	7	0.5	3	18	6.34	230	3	14	12	126			
L35+00E 45+00N	201	238	10	11	0.5	11	46	5.79	770	5	20	14	110			

CERTIFICATION: B. Caughlin

Chemex Labs Ltd.

Analytical Chemists * Geochemists * Registered Assayers
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PHONE: 604-984-0221

To: EQUITY ENGINEERING LTD.

207 - 675 W. HASTINGS ST.
VANCOUVER, BC
V6B 1N2

Project : JOSH
Comments: CC: YUMA GOLD MINES LTD.

Invoice Date: 20-SEP-90
Invoice No. : I-9022755
P.O. Number : YUM90-01

CERTIFICATE OF ANALYSIS A9022755

SAMPLE DESCRIPTION	PREP CODE		Au ppb FA+AA	As ppm	Ag ppm	Co ppm	Cu ppm	Fe %	Mn ppm	Mo ppm	Ni ppm	Pb ppm	Zn ppm			
L35+00E 45+25N	201	238	< 5	10	1.0	5	40	6.01	485	5	9	18	90			
L35+00E 45+50N	201	238	< 5	14	< 0.5	12	50	5.63	540	4	22	18	132			
L35+00E 45+75N	201	238	< 5	9	0.5	13	35	5.16	510	2	28	8	108			
L35+00E 46+00N	201	238	< 5	9	< 0.5	15	47	4.20	780	3	25	20	178			
L35+00E 46+25N	201	238	10	1	< 0.5	2	11	0.62	165	< 1	4	< 2	110			
L35+00E 46+50N	201	238	10	13	< 0.5	16	59	4.71	1200	2	8	44	224			
L35+00E 46+75N	201	238	205	17	< 0.5	18	65	4.28	1280	3	9	42	202			
L35+00E 47+00N	201	238	20	12	< 0.5	16	56	4.37	1145	1	8	42	188			
L35+00E 47+25N	201	238	40	15	< 0.5	17	66	4.52	1185	2	10	46	226			
L35+00E 47+50N	201	238	30	12	< 0.5	16	51	3.86	1225	1	7	38	268			
L35+00E 47+75N	201	238	50	17	< 0.5	22	71	4.69	1470	2	11	62	214			
L35+00E 48+00N	203	205	15	11	< 0.5	16	56	3.86	1235	1	11	40	190			
L35+00E 48+25N	201	238	10	19	< 0.5	18	83	4.45	1445	1	12	54	272			
L35+00E 49+00N	201	238	35	18	< 0.5	17	55	3.97	1405	2	8	58	206			
L35+00E 49+25N	201	238	< 5	8	0.5	4	21	7.93	260	2	20	14	96			
L35+00E 49+50N	201	238	< 5	6	< 0.5	5	13	6.76	210	3	13	6	68			
L35+00E 49+75N	201	238	< 5	5	0.5	4	15	5.01	195	2	16	10	106			
L36+00E 45+00N	201	238	65	11	< 0.5	12	36	4.20	790	1	12	28	148			
L36+00E 45+25N	201	238	< 5	10	< 0.5	15	35	3.73	920	3	26	26	178			
L36+00E 45+50N	201	238	35	14	< 0.5	18	101	4.41	1475	1	12	62	276			
L36+00E 45+75N	201	238	20	15	< 0.5	17	55	4.26	1285	1	8	44	222			
L36+00E 46+00N	201	238	< 5	13	< 0.5	15	84	4.45	1565	1	13	36	178			
L36+00E 46+25N	201	238	5	11	< 0.5	9	62	5.12	640	2	15	22	156			
L36+00E 46+50N	201	238	< 5	10	< 0.5	11	83	5.26	985	2	17	28	160			
L36+00E 46+75N	203	205	20	8	< 0.5	11	54	3.58	1215	< 1	9	26	176			
L36+00E 47+00N	201	238	10	15	< 0.5	19	86	4.61	1505	1	9	38	218			
L36+00E 47+25N	203	205	85	12	< 0.5	12	61	3.78	1285	< 1	10	30	220			
L36+00E 47+50N	201	238	< 5	15	< 0.5	15	48	3.96	1245	1	8	50	184			
L36+00E 47+75N	201	238	130	17	< 0.5	18	75	4.39	1365	1	10	50	282			
L36+00E 48+25N	201	238	10	18	< 0.5	18	99	4.54	1350	< 1	9	68	298			
L36+00E 48+50N	203	205	365	10	< 0.5	11	64	3.84	1145	< 1	9	26	200			
L36+00E 48+75N	201	238	50	17	< 0.5	15	101	4.18	1225	1	9	62	308			
L36+00E 49+25N	201	238	< 5	7	< 0.5	6	21	3.24	155	1	52	6	58			
L36+00E 49+50N	201	238	< 5	1	< 0.5	1	3	1.04	60	1	3	6	12			
L36+00E 49+75N	201	238	< 5	1	0.5	< 1	2	1.42	70	1	1	16	12			
L37+00E 45+75N	201	238	< 5	22	< 0.5	17	112	4.09	1050	1	11	54	246			
L37+00E 46+00N	201	238	50	12	< 0.5	16	62	3.92	1620	< 1	10	36	236			
L37+00E 46+25N	201	238	10	15	< 0.5	17	103	4.30	1480	3	40	26	278			
L37+00E 46+50N	201	238	10	23	< 0.5	16	261	5.45	1535	7	35	32	202			
L37+00E 46+75N	201	238	< 5	75	< 0.5	14	244	8.14	550	13	167	6	106			

CERTIFICATION: B. Caplan

Chemex Labs Ltd.

Analytical Chemists * Geochemists * Registered Assayers
212 Brooksbank Ave., North Vancouver
British Columbia, Canada V7J 2C1
PHONE: 604-984-0221

To: EQUITY ENGINEERING LTD.

207 - 675 W. HASTINGS ST.
VANCOUVER, BC
V6B 1N2

Project : JOSH
Comments: CC: YUMA GOLD MINES LTD.

Invoice Date: 20-SEP-90
Invoice No. : I-9022755
P.O. Number : YUM90-01

CERTIFICATE OF ANALYSIS A9022755

SAMPLE DESCRIPTION	PREP CODE		Au ppb FA+AA	As ppm	Ag ppm	Co ppm	Cu ppm	Fe %	Mn ppm	Mo ppm	Ni ppm	Pb ppm	Zn ppm			
L37+00E 47+00N	201	238	5	15	< 0.5	17	78	4.27	1315	1	28	44	152			
L37+00E 47+25N	201	238	35	13	< 0.5	17	56	4.14	1370	< 1	8	52	236			
L37+00E 47+50N	203	205	< 5	9	< 0.5	10	68	3.95	1185	< 1	10	30	222			
L37+00E 47+75N	203	205	15	10	< 0.5	10	70	3.75	1075	< 1	9	32	204			
L37+00E 48+00N	201	238	30	21	< 0.5	17	103	4.33	1430	1	11	78	310			
L37+00E 48+25N	203	205	< 5	8	< 0.5	9	61	3.91	1140	< 1	8	24	206			
L37+00E 48+50N	201	238	25	21	< 0.5	17	112	4.54	1490	1	8	68	338			
L37+00E 48+75N	203	205	5	9	< 0.5	11	76	3.87	1150	< 1	8	40	238			
L37+00E 49+00N	201	238	< 5	8	< 0.5	7	12	5.53	185	8	21	12	138			
L37+00E 49+25N	201	238	< 5	3	0.5	3	11	5.47	110	< 1	14	10	78			
L37+00E 49+50N	201	238	< 5	9	0.5	2	15	5.54	145	2	17	10	86			
L37+00E 49+75N	201	238	< 5	6	0.5	6	17	3.80	1015	2	17	8	146			
L38+00E 45+00N	201	238	20	14	< 0.5	14	60	4.44	1385	< 1	10	36	210			
L38+00E 45+25N	201	238	< 5	15	< 0.5	17	74	4.31	3590	5	15	44	258			
L38+00E 45+75N	201	238	< 5	15	< 0.5	14	68	4.68	1855	2	15	34	378			
L38+00E 46+00N	201	238	10	17	< 0.5	14	76	4.40	1505	3	36	20	230			
L38+00E 46+25N	201	238	< 5	22	< 0.5	7	49	4.52	550	3	29	12	122			
L38+00E 46+50N	201	238	20	8	< 0.5	4	19	4.95	410	1	20	8	92			
L38+00E 46+75N	201	238	< 5	10	< 0.5	10	26	4.67	820	2	31	10	140			
L38+00E 47+00N	201	238	< 5	6	< 0.5	7	17	4.06	475	2	28	8	96			
L38+00E 47+25N	201	238	< 5	6	0.5	3	15	4.67	220	3	21	12	86			
L38+00E 47+50N	201	238	< 5	7	0.5	4	16	4.81	165	3	15	12	80			
L38+00E 47+75N	201	238	25	8	< 0.5	4	18	5.20	295	2	17	10	74			
L38+00E 48+00N	201	238	< 5	3	1.0	2	10	5.48	290	3	4	16	80			
L38+00E 48+25N	201	238	< 5	8	0.5	3	22	6.53	305	4	12	10	84			
L38+00E 48+50N	201	238	15	18	< 0.5	16	113	4.41	1400	1	9	78	314			
L38+00E 48+75N	201	238	180	17	< 0.5	17	102	4.51	1510	1	9	74	318			
L39+00E 45+00N	201	238	< 5	8	0.5	9	22	4.56	575	1	23	8	86			
L39+00E 45+25N	201	238	< 5	5	0.5	3	15	6.14	245	6	10	14	62			
L39+00E 45+50N	201	238	15	15	< 0.5	6	25	6.62	415	4	15	16	98			
L39+00E 45+75N	201	238	< 5	20	< 0.5	10	42	4.84	970	3	21	14	132			
L39+00E 46+00N	201	238	60	17	< 0.5	10	62	4.31	1315	3	22	14	148			
L39+00E 46+25N	201	238	10	7	0.5	4	23	4.95	280	1	11	8	88			
L39+00E 46+50N	201	238	< 5	7	< 0.5	5	18	4.09	460	2	16	8	84			
L39+00E 46+75N	201	238	15	8	0.5	9	23	5.44	610	4	21	12	188			
L39+00E 47+00N	201	238	< 5	8	1.0	6	17	6.10	435	3	13	18	168			
L39+00E 47+25N	201	238	< 5	6	0.5	2	18	5.25	145	2	13	10	54			
L39+00E 47+50N	217	238	30	14	< 0.5	9	46	5.76	565	2	11	10	78			
L39+00E 47+75N	201	238	< 5	8	0.5	4	17	5.79	285	3	16	12	86			
L39+00E 48+00N	201	238	< 5	8	< 0.5	12	13	5.38	1075	4	16	12	118			

CERTIFICATION: B. Caplan

Chemex Labs Ltd.

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To: EQUITY ENGINEERING LTD.

207 - 675 W. HASTINGS ST.
VANCOUVER, BC
V6B 1N2

Project : JOSH
Comments: CC: YUMA GOLD MINES LTD.

Invoice Date: 20-SEP-90
Invoice No. : I-9022755
P.O. Number : YUM90-01

CERTIFICATE OF ANALYSIS A9022755

SAMPLE DESCRIPTION	PREP CODE		Au ppb FA+AA	As ppm	Ag ppm	Co ppm	Cu ppm	Fe %	Mn ppm	Mo ppm	Ni ppm	Pb ppm	Zn ppm			
L39+00E 48+25N	201	238	< 5	9	0.5	4	17	5.62	350	3	19	12	186			
L39+00E 48+50N	201	238	< 5	15	< 0.5	10	122	6.48	405	3	41	10	188			
L39+00E 48+75N	201	238	10	14	< 0.5	14	89	4.52	1185	3	10	40	236			
L39+00E 49+75N	201	238	10	1	0.5	< 1	7	4.16	85	4	3	10	34			
BL50+00N 34+00E	201	238	< 5	6	< 0.5	3	14	4.12	165	1	15	4	60			
BL50+00N 34+25E	201	238	< 5	6	0.5	3	13	6.75	265	1	11	10	118			
BL50+00N 34+50E	201	238	5	5	0.5	< 1	8	5.50	130	3	6	12	66			
BL50+00N 34+75E	201	238	< 5	8	< 0.5	3	17	6.56	165	1	23	6	114			
BL50+00N 35+00E	201	238	< 5	8	< 0.5	1	11	9.31	325	3	13	14	96			
BL50+00N 35+25E	201	238	< 5	1	0.5	< 1	5	7.90	100	2	6	10	38			
BL50+00N 35+50E	201	238	< 5	1	0.5	< 1	1	2.32	55	2	2	24	22			
BL50+00N 35+75E	201	238	< 5	3	< 0.5	4	7	2.32	700	1	16	10	74			
BL50+00N 36+00E	201	238	< 5	5	0.5	< 1	12	8.43	155	4	4	14	76			
BL50+00N 36+25E	201	238	< 5	7	0.5	2	14	6.99	200	2	16	10	92			
BL50+00N 36+50E	201	238	< 5	8	0.5	1	11	8.06	265	4	11	14	102			
BL50+00N 36+75E	201	238	< 5	1	< 0.5	3	2	1.32	75	< 1	4	2	16			
BL50+00N 37+00E	201	238	< 5	8	0.5	< 1	8	8.16	140	2	6	12	124			
BL50+00N 37+25E	201	238	< 5	< 1	< 0.5	2	2	2.91	100	1	3	10	24			
BL50+00N 37+50E	201	238	< 5	5	< 0.5	3	16	5.27	145	1	24	4	80			
BL50+00N 37+75E	201	238	< 5	6	0.5	5	14	5.81	290	3	21	16	158			
BL50+00N 38+00E	201	238	< 5	< 1	0.5	< 1	2	4.24	55	1	2	12	20			
BL50+00N 38+25E	201	238	< 5	6	0.5	8	17	5.89	225	2	35	12	114			
BL50+00N 38+50E	201	238	< 5	3	< 0.5	2	10	3.52	135	1	8	10	40			
BL50+00N 38+75E	201	238	< 5	8	< 0.5	7	13	4.89	280	1	26	4	114			
BL50+00N 39+00E	201	238	< 5	< 1	0.5	1	2	2.48	105	< 1	3	16	22			

CERTIFICATION: B. Caplin

Chemex Labs Ltd.

Analytical Chemists * Geochemists * Registered Assayers
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PHONE: 604-984-0221

To: EQUITY ENGINEERING LTD.

207 - 675 W. HASTINGS ST.
VANCOUVER, BC
V6B 1N2

A9022780

Comments: CC: YUMA GOLD MINES LTD.

CERTIFICATE A9022780

EQUITY ENGINEERING LTD.

Project: JOSH
P.O. # : YUM90-01

Samples submitted to our lab in Vancouver, BC.
This report was printed on 20-SEP-90.

SILT SAMPLES

SAMPLE PREPARATION

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION
201	8	Dry, sieve to -80 mesh
238	8	NITRIC-AQUA REGIA DIGESTION

* NOTE 1:

The 32 element ICP package is suitable for trace metals in soil and rock samples. Elements for which the nitric-aqua regia digestion is possibly incomplete are: Al, Ba, Be, Ca, Cr, Ga, K, La, Mg, Na, Sr, Ti, Tl, W.

ANALYTICAL PROCEDURES

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION	METHOD	DETECTION LIMIT	UPPER LIMIT
100	8	Au ppb: Fuse 10 g sample	FA-AAS	5	10000
922	8	Ag ppm: 32 element, soil & rock	ICP-AES	0.2	200
921	8	Al %: 32 element, soil & rock	ICP-AES	0.01	15.00
923	8	As ppm: 32 element, soil & rock	ICP-AES	5	10000
924	8	Ba ppm: 32 element, soil & rock	ICP-AES	10	10000
925	8	Be ppm: 32 element, soil & rock	ICP-AES	0.5	100.0
926	8	Bi ppm: 32 element, soil & rock	ICP-AES	2	10000
927	8	Ca %: 32 element, soil & rock	ICP-AES	0.01	15.00
928	8	Cd ppm: 32 element, soil & rock	ICP-AES	0.5	100.0
929	8	Co ppm: 32 element, soil & rock	ICP-AES	1	10000
930	8	Cr ppm: 32 element, soil & rock	ICP-AES	1	10000
931	8	Cu ppm: 32 element, soil & rock	ICP-AES	1	10000
932	8	Fe %: 32 element, soil & rock	ICP-AES	0.01	15.00
933	8	Ga ppm: 32 element, soil & rock	ICP-AES	10	10000
951	8	Hg ppm: 32 element, soil & rock	ICP-AES	1	10000
934	8	K %: 32 element, soil & rock	ICP-AES	0.01	10.00
935	8	La ppm: 32 element, soil & rock	ICP-AES	10	10000
936	8	Mg %: 32 element, soil & rock	ICP-AES	0.01	15.00
937	8	Mn ppm: 32 element, soil & rock	ICP-AES	5	10000
938	8	Mo ppm: 32 element, soil & rock	ICP-AES	1	10000
939	8	Na %: 32 element, soil & rock	ICP-AES	0.01	5.00
940	8	Ni ppm: 32 element, soil & rock	ICP-AES	1	10000
941	8	P ppm: 32 element, soil & rock	ICP-AES	10	10000
942	8	Pb ppm: 32 element, soil & rock	ICP-AES	2	10000
943	8	Sb ppm: 32 element, soil & rock	ICP-AES	5	10000
958	8	Sc ppm: 32 elements, soil & rock	ICP-AES	1	10000
944	8	Sr ppm: 32 element, soil & rock	ICP-AES	1	10000
945	8	Ti %: 32 element, soil & rock	ICP-AES	0.01	5.00
946	8	Tl ppm: 32 element, soil & rock	ICP-AES	10	10000
947	8	U ppm: 32 element, soil & rock	ICP-AES	10	10000
948	8	V ppm: 32 element, soil & rock	ICP-AES	1	10000
949	8	W ppm: 32 element, soil & rock	ICP-AES	10	10000
950	8	Zn ppm: 32 element, soil & rock	ICP-AES	2	10000

Chemex Labs Ltd.

Analytical Chemists * Geochemists * Registered Assayers
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PHONE: 604-984-0221

To: EQUITY ENGINEERING LTD.

207 - 675 W. HASTINGS ST.
VANCOUVER, BC
V6B 1N2

Project : JOSH
Comments: CC: YUMA GOLD MINES LTD.

Invoice Date: 20-SEP-90
Invoice No. : I-9022780
P.O. Number : YUM90-01

CERTIFICATE OF ANALYSIS A9022780

SAMPLE DESCRIPTION	PREP CODE		Au ppb FA+AA	Ag ppm	Al %	As ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Co ppm	Cr ppm	Cu ppm	Fe %	Ga ppm	Hg ppm	K %	La ppm	Mg %	Mn ppm
J-90-01	201	238	30	< 0.2	1.67	15	160	< 0.5	< 2	0.90	1.5	18	14	83	4.36	< 10	< 1	0.06	10	1.10	2450
J-90-02	201	238	90	1.0	1.40	30	150	< 0.5	< 2	2.65	2.0	22	12	134	4.40	< 10	< 1	0.05	< 10	1.05	1105
J-90-03	201	238	30	< 0.2	1.63	15	160	< 0.5	< 2	1.11	1.5	15	14	128	3.82	< 10	< 1	0.09	10	1.10	1275
90-MO-23	201	238	145	0.8	1.56	25	170	< 0.5	< 2	3.05	2.0	22	15	138	4.52	< 10	< 1	0.07	< 10	1.13	1185
90-MO-24	201	238	20	0.8	1.66	20	140	< 0.5	< 2	3.07	1.5	19	15	116	4.33	< 10	< 1	0.06	< 10	1.20	1195
90-MO-25	201	238	30	1.0	1.65	25	150	< 0.5	< 2	3.12	2.0	22	13	136	4.60	< 10	< 1	0.07	< 10	1.16	1185
90-MO-26	201	238	70	1.0	1.70	25	160	< 0.5	< 2	3.18	2.0	22	14	139	4.55	< 10	< 1	0.07	< 10	1.19	1220
90-MO-27	201	238	45	1.0	1.58	30	190	< 0.5	< 2	3.12	2.0	20	12	132	4.13	< 10	< 1	0.07	< 10	1.09	1230

CERTIFICATION: B. Caplin

Chemex Labs Ltd.

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PHONE: 604-984-0221

To: EQUITY ENGINEERING LTD.

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Project : JOSH
Comments: CC: YUMA GOLD MINES LTD.

Invoice Date: 20-SEP-90
Invoice No. : I-9022780
P.O. Number : YUM90-01

CERTIFICATE OF ANALYSIS A9022780

SAMPLE DESCRIPTION	PREP CODE		Mo ppm	Na %	Ni ppm	P ppm	Pb ppm	Sb ppm	Sc ppm	Sr ppm	Ti %	Tl ppm	U ppm	V ppm	W ppm	Zn ppm
J-90-01	201	238	3	0.02	11	1090	50	< 5	5	36	0.07	< 10	< 10	79	< 10	296
J-90-02	201	238	2	0.02	11	990	72	< 5	4	41	0.06	< 10	< 10	68	< 10	264
J-90-03	201	238	3	0.03	10	930	56	< 5	7	40	0.07	< 10	< 10	74	< 10	308
90-MO-23	201	238	2	0.02	11	940	66	< 5	5	50	0.09	< 10	< 10	77	< 10	272
90-MO-24	201	238	1	0.02	10	940	54	< 5	6	50	0.10	< 10	< 10	81	< 10	254
90-MO-25	201	238	1	0.02	11	940	64	< 5	6	55	0.11	< 10	< 10	81	< 10	264
90-MO-26	201	238	1	0.03	12	950	74	< 5	6	58	0.11	< 10	< 10	82	< 10	276
90-MO-27	201	238	2	0.02	11	960	72	< 5	6	57	0.10	< 10	< 10	75	< 10	278

CERTIFICATION: B. Caufield

APPENDIX V

STATISTICAL TREATEMENT OF DATA ON THE NORTHEAST GRID

STATISTICAL TREATMENT OF DATA
ON THE NORTHEAST GRID

After the analytical results for the soil samples from the Northeast Grid were plotted on their respective maps, the values were divided into two populations depending on bedrock geology: intrusive and sedimentary/volcanic terrain. The arithmetic mean ($\bar{x}$) and standard deviation (SD) for each population were computed. For the purpose of contouring, the arithmetic mean was equated to background, the arithmetic mean plus one standard deviation as possibly anomalous and the arithmetic mean plus two standard deviation as anomalous levels. The following is a summary of these computed parameters for the Northeast Grid. As the analytical values for soil samples underlain by intrusive terrain appeared to have little economic significance, only the parameters for sedimentary/volcanic terrain are tabulated and contoured.

	Au	As	Cu	Pb	Zn
Number of Samples	76	76	76	76	76
$\bar{x}$	27	13.1	60.5	30.3	182
SD	52.5	8.5	43.6	20.1	78.5
$\bar{x}$ + SD	76.7	21.6	104.1	50.4	260.5
$\bar{x}$ + 2SD	132.2	30.1	147.7	70.5	339.0

NOTE: Actual contour levels adjusted slightly to simplify interpretation.