AN ASSESSMENT REPORT SUMMARIZING THE 1993 PROGRAM OF GEOLOGICAL MAPPING GEOCHEMICAL SAMPLING AND ELECTROMAGNETIC SURVEY ON THE HILLSBAR #4 CLAIM - HARVIC GROUP AND FLO-GOLD CLAIM - HILLSBAR GROUP

HARVIC PROPERTY

NEW WESTMINSTER MINING DIVISION

LATITUDE: 49° 32'N. LONGITUDE: 121° 22'W.

N.T.S. 92 H/11W

6 KM. S.E. OF YALE, B.C. ON QUALARK CREEK.

PREPARED FOR OWNER:

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BY:

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1. **SUMMARY:**

Two consultants visited the Hillsbar #4 and Flo-Gold claims on Sept. 6 - 11, 1993, using helicopter support and conducted geological mapping, electromagnetic and geochemical surveys. A total of 204 samples were collected - 156 soils, 21 stream sediment and 27 rock chip/channel samples.

Geological mapping indicates the Hillsbar #4 and Flo-Gold claims area is underlain by northwest trending, moderately deformed, interbedded and structurally interbanded pelites of the Hozameen Group. The Hozamen Group comprises three mappable subdivisions, including; Unit A1 - phyllite,schist and slate; Unit A2 - chert with subordinant pelite bands; Unit A3 - greenstone with tuffaceous bands. The Hozameeen Group rocks are extensively fractured and are cut by north and northwest - trending shear faults. Weakly pyritic quartz sweats and veins are common on low and high angle dilatant zones in the pelitic units. In the eastern portion of the Flow-Gold claim, chert and greenstone units are intruded by north and northwest - trending quartz porphyry dykes. These dykes are assumed to be related to the Eocene aged, Mount Outran Plutons and appear to stope fault zones located west adjacent to the Hozameen Group - Cozuihalla Serpentine Belt fault contact. Aplite dykes are common on the Hillsbar #4 claim, associated with a lenticular intrusion of granodiorite.

The Hillsbar Drift and the Hillsbar Vein/Shear Zone were located, mapped and sampled. The Hillsbar Shear Zone is approximately 40 m wide and contains several quartz veins that have anomalous gold contents. The No. 3 Vein/Shear lies in the eastern portion of the larger structure, has a width of 5 m (say) and an indicated strike length of 65 m. Sampling of the No. 3 vein at three separate locations indicates a variable gold content, ranging from negligible to 6.85 GMT (0.20 oz gold/ton) over 0.5 m average width and 28.2 m strike length. The No. 3 Vein is continuous in the Adit/Crosscut but appears to be boudinage in both the Drift and Hillsbar Creek canyon exposures.

A single line of ground VLF-EM survey completed on the road, northwest and roughly ontrend with the Hillsbar Shear Zone, has located a strong

conductor in an overburden - covered area. The conductor probably indicates the northwest extension of the Shear Zone. The Hillsbar Shear Zone appears to have the best immediate exploration potential to host an economic gold deposit and further work is recommended.

Geochemical analysis of soil samples, collected at 50 m intervals above roads on the north and south sides of Qualark Creek, indicates six areas with anomalous gold content:

Anomaly #1 - located 200 m west of Hillsbar Adit, consists of 5 moderate to strongly anomalous soils (28-59 ppb gold) and one moderately anomalous silt sample, taken from a north - draining tributary.

Anomaly #2 - a single point soil anomaly at sample 17-371 (120 ppb), located on the north side of Qualark Creek, 250 m east of Hillsbar Adit with support from two moderate to intensely anomalous gold in silt samples, collected from Qualark Creek at sites 19-43 (50 ppb) and 19-44 (160 ppb), plus two weakly anomalous silts from tributaries entering Qualark Creek from the north.

Anomaly 3/3A - south of Qualark Creek, centered on Gold Run Creek, located downslope of the projected southeast trend of the gold in quartz veins within the Hillsbar Shear Zone.

Anomaly 4 - located 800 m east of the bridge on the north side of Qualark Creek. Upslope sampling in 1994 does not indicate a source in this direction. Source for the gold anomaly may be local or a dispersion from the Gold Run Creek, Anomaly 3, now isolated by Qualark Creek.

Anomaly #5 - located 1.3 Km southeast of Anomaly 3, on the south side of Qualark Creek. *Comprised of one moderately anomalous* (20-71; 32 ppb gold) and two weakly anomalous soils (17 ppb), plus a strongly anomalous silt from a south draining tributary of Qualark Creek. Source of the anomaly is presumed to be the southeast extension of the Hillsbar Shear Zone.

Anomaly #6 - located on the north side of Qualark Creek, southeast of Scour Creek, between samples 18-17 and 20-83. Source of the anomaly may be upslope, where quartz porphyry dykes intrude chert and greenstone bands, subjacent to the Coquihalla Serpentine Belt.

The author concludes that the soil anomalies are located downslope of three northwest-trending structural zones, each having good to excellent potential to host economic gold in quartz vein style deposits.
Further geochemical sampling, prospecting and mapping surveys are recommended for five of the known geochemical anomalies. Construction of a road from the McMaster Zone near Carolin Mine to connect with the Qualark Creek road system and rehabilitation of old roads will provide access for an excavator, to further explore the Hillsbar Shear/Vein Zone.

Respectfully Submitted,

MICHAEL BRADLEY, M.Sc., P.Geo.

TABLE OF CONTENTS

LISTS OF APPENDICES

LIST OF FIGURES

2. INTRODUCTION:

Two consultants travelled from Vancouver to Hope early on Sept. 6, 1993 and mobilized by helicopter to a clearing on a logging road on the north side of Qualark Creek, in the western portion of the Flow-Gold Claim. A tent camp was established to support a five day survey of the area. Purpose of the visit was to investigate the geology along Qualark Creek on Hillsbar #4, locate the Hillsbar Drift and extensions of the No. 3 Vein, locate another adit in the area of Vic's Creek, test the upslope continuity of 3, 1992 gold in soils anomalies, and conduct reconnaissance soil sampling, looking for gold anomalous zones north and south of Qualark Creeks.

Bedrock was mapped in exposures along road and creek cuts. Soil samples were collected at 50 m intervals above road cuts on the north and south sides of Qualark Creek and at 25 m intervals on lines established 100m upslope of gold anomalies located in the 1992 program.

7.5 Km. of topofil-compass grid was established in three grid areas of the Hillsbar #4 claim, west of the bridge across Qualark Creek, in support of a ground electromagnetic survey. Purpose of the surveys was to establish if the technique would locate conductors over bedrock in the vicinity of the Hillsbar Adit. In particular; to locate the extension of the Hillsbar Vein/Shear Zone and to try to locate a buried adit in the vicinity of Vic's Creek. Readings of relative field strength and tilt angle were collected at 5 m intervals over the three grids, utilizing the Seattle, Washington (NPG-18.6 KHz) VLF transmitter. The two men collected a total of 204 samples, including; 27 rock chip-channel samples, 156 soil samples and 21 stream sediment samples.

This report summarizes property geology, geochemical and litho-geochemical sample results for gold (see figures 5 and 6), detailed mapping/sampling on Qualark Creek and in Hillsbar Drift (see figure 7), 8) and results of the VLF-EM survey (see figures 9-11).

3. **LOCATION AND ACCESS:** The Hillsbar #4 and Flo-Gold claims are centered on Qualark Creek, east of the Fraser River, located 5 Km. straight line southeast of Yale township, B.C. and 19 Km. north of Hope,

B.C.. The area lies within N.T.S. sheet 92 H/11W, at Latitude 49°32'N and Longitude 121°22'W.

Access to the claim is by helicopters operating from nearby bases in Hope and Agassiz.

A network of logging roads dating to the early 1980's exists along major west flowing creeks on the Harvic Property, however; these have been washed out in numerous locations, cut banks are eroded and landings and right of ways are densely overgrown with alder. These roads are useful as trails but would require rehabilitation for use by a.t.v.'s or 4 x 4 vehicles, due to the steep terrain. The bridge across Qualark Creek, on the eastern boundary of the Hillsbar #4 claim, has been washed out. The mainline access from Hope to Qualark Creek is driveable by 4 x 4 vehicle to the south side of Suka Creek.

Hope is located at the junction of highways 1, 3 and 5 and is a major logistical center for rail traffic, logging and tourism in the area. The Canadian National Railway is located on the east side of the Fraser River and passes over Qualark Creek where it enters the Fraser. Electrical power is available at Yale, on the west side of the Fraser River.

4. CLAIMS STATUS: The Harvic Property lies within the New Westminster Mining Division and consists of 9 claims totalling 124 units within the Harvic and Hillsbar Groups. Upon acceptance of this report, submitted in support of work and P.A.C. credits of $14700.00 filed on Sept. 09, 1993, one years assessment is applied on six claims as follows:

CLAIM NAME	REGISTRATION NO.	UNITS	ANNIVERSARY DATE
	HARVIC CLAIM GROUP		
Hillsbar #4	320539	18	Aug. 31, 1994
Vic	235993	18	Sept.17, 1994
Hillsbar #2	236097	15	Jan. 18, 1995
John	3848	10	Jan. 18, 1994
Mike	3849	10	Jan. 18, 1994
	Total	71	
	HILLSBAR CLAIM GROUP		
Harry	235994	18	Sept.17, 1994
Hillsbar #1	236096	10	Jan. 18, 1995
Hillsbar #3	303818	5	Sept.10, 1994
Flow-Gold	303819	20	Sept.10, 1994
	Total	53	

All of the above claims are owned by Mr. V. Walters of Sechelt, B.C., who paid for the work completed in the 1993 program of work on the Hillsbar #4 and Flow-Gold claims.
The author personally saw the Legal Corner Post for the Hillsbar #3 and Flow-Gold claims, located atop Spider Peak and verifies that it was staked and marked in a proper fashion.

5. <u>HISTORY:</u> The area of interest first gained prominence with the discovery of placer gold on the Fraser River in 1856. Rapid mining of gravel bars along the River had recovered most of their wealth prior to 1874 when government commenced recording production. The presence of a higher percentage of coarser gold in the gravels adjacent to Yale, notably at Hills and Emory Bars, suggested a local source in the area. Intense prospecting of tributary creeks in the early 1870's produced small yields along Hidden, Siwash, and Hillsbar (now Qualark) creeks and colours in the Skagit River area and in tributaries of the Nahatlatch River.
By 1911 placer activity extended along the Coquihalla River and tributaries Ladner, Fifteen Mile, Sowaqua, Peers and Nine Mile creeks. Lode prospecting accompanying the placer mining lead to discovery of gold-bearing quartz veins in Siwash Creek valley in 1891 and the Roddick (1901), Ward (1905), Marvel (1906), Emigrant (1911), Emancipation (1915), and Aurum (1919) properties, in what came to be known as the Coquihalla Serpentine Belt. The belt was recognized in 1927 and actively prospected, after high-grade gold was found associated with serpentine on the Aurum property. Five properties in the belt produced 3,102 tons of ore containing 3,117 oz. of gold in the period 1916 - 1942.
Gold-bearing quartz veins were located on Qualark Creek in 1921 and staked as the "Gold" claim. By 1927 three tunnels were present, the longest had been driven 60 m. and crosscut 6 well defined quartz veins. Government sampling of the No. 3 vein in 1927 averaged $20.00/ton across 3 feet or 0.968 oz Au/ton (1927 price = $20.67/oz). Another sample collected across 3 feet ran 0.82 oz Au/ton.
The Qualark Creek area appears to have had little exploration from 1930 to 1974.

In 1975 Caroline Mines Ltd. optioned the Hillsbar property, conducted geological mapping, geochemical sampling and test pitting, then dropped the option in 1977. No assessment report is on file for this work.
In 1979 Cochrane Consultants surveyed and sampled the Hillsbar Adit and conducted a magnetometer survey over 2 east-west lines, following the logging roads located north and south-adjacent to Qualark Creek.
In 1982 the Hillsbar property was restaked as the Seka claims and Mix Resources Ltd. conducted soil sampling over 8.3 line kilometers of grid. The survey "indicated two possible zones of mineralization" (Sauer, 1982) but the report does not accurately locate the zones on maps.
In 1984 and 1985 extensive soil sampling and geological mapping was undertaken on the Holly claims, which covered the ground south of the Hillsbar Property from the ridgeline between Qualark and Suka Creeks, south across Suka Creek. Despite encouraging geochemical results no further work was recommended.
In 1990 H. Nicholson conducted a soil sampling and geological mapping traverse within the Harvic Group, along the Qualark Creek logging road from the western portion of the Al #1 claim, southwest through the John claim. Three small zones of elevated gold values in soils were located in areas underlain by Custer Gneiss/schist.
In 1991, the author conducted geochemical sampling and geological mapping within and west of Hillsbar Adit on the Al #1 (now Hillsbar #4) claim. Followup of several gold in soil anomalies was recommended.
In 1992, the author conducted geochemical sampling, geological mapping and magnetic survey on the Flo-Gold claim. Additional geochemical targets were generated for followup.

5. **PHYSIOGRAPHY:** The Harvic property is located in the Cascade Mountains. The terrain of the Hope mapsheet is steep and rugged, with average elevations of 1220 m. Intense glaciation occurred in the area during the Pleistocene age. Mountains below 1830 m lay below the ice sheet and were rounded. Glaciation of valleys produced cirque headwalls and truncated spurs, U - shaped profiles and hanging side valleys; these features were further modified by recent temperate erosion.
Much of the drainage pattern in the mapsheet is controlled by north,

northwest and northeast trending, structures dominated by the Fraser Fault System, which has controlled Fraser River's watercourse above Hope.

The Harvic property extends from Suka Creek in the south to Siwash Creek in the north. Local mountains have elevations of approximately 1433 m, trend north and northwest and have rounded ridgelines above 1220 - 1370 m elevation. The mountains are deeply dissected by arcurate-shaped creeks draining northwest, to the east of the claims and west to southwest, within and west of the claims. The creeks occupy steeply U - shaped valleys with side slopes averaging 45°-50°. Qualark and Siwash creeks pass through steep canyons, near their mouths at Fraser River. The western portion of the Vic claim covers a large, steep, west to northwest - trending cirque headwall, forming a portion of the Fraser Canyon above Yale.

The valley of Qualark Creek was visited in the current study. Outcrop is common at creek level and above 920 m, perhaps averaging 30% by area. Below approximately 920 m elevation the creek has cut through a flat lying sequence of unconsolidated gravel, silt and sandy beds. These fluvial deposits may originate with Fraser River which subsequently cut to deeper levels in the Fraser Canyon due to tectonic uplift or post Pleistocene isostatic rebound. The sediments extensively mantle the steep bedrock paleotopography below 920 m elevation with perhaps 5 - 10% outcrop exposure located in creek beds and in other erosional windows. Qualark Creek valley was clear cut below 1220 m elevation in the early 1980's. High rainfall in the area has resulted in significant erosion of the steep slopes. A dense undergrowth of salal, devil's club and alder, together with young cedar and Douglas Fir, is revegetating areas adjacent to the active slides. Qualark Creek is choked at intervals with log jams and rock debris. Survey progress is hampered by steep, slippery terrain and the debris from logging and erosion.

7. <u>REGIONAL GEOLOGY:</u> (SEE FIGURE 3)

The geology of the Hope area was mapped in portions by the G.S.C. and graduate students of the University of B.C. in the period 1912 - 1969 and described in G.S.C. Paper 69-47 (Monger, 1969). The B.C. Department of Mines mapped the Coquihalla Gold Belt in the period 1982-1984; this work is described in B.C.M.E.M.P.R. Papers 1982-1, 1983-1, 1984-1 and 1985-1 (Ray, G.E.) and summarized in B.C.M.E.M.P.R. Open File Maps 1986/1A to 1G at a scale of 1:20000. Monger (1989) remapped parts of the Hope map sheet in the period 1984-1986 and compiled this work with that of numerous other authors in G.S.C. Map 41-1989, at a scale of 1:250000.

The geological features of the Hope map area are diverse and complicated by Mesozoic through Tertiary structures. The lithostructural interpretation of the Tertiary deformation is constrained by age dating of intrusions and fault relationships but remains controversial. The following is a brief review - the reader is referred to the above sources for a detailed explanation of the area's geology.

The Hope map area contains two contrasting geological and physiographic provinces: A. East of the Fraser-Pasayten Fault lies the Intermontane Belt; a region of lower topographic and structural relief within Quesnellia Terrane, comprised of predominantly subgreenschist metamorphic grade rocks. B. West of the Fraser-Pasayten Fault are two belts having high topographic and structural relief; the Cascade Belt (located east and south of the Fraser River) and Coast Belt (west and north of Fraser River). The north-northwest trending Cascade belt, in its southern part, comprises both a gneissic and granitic core flanked by belts of sedimentary and volcanic rocks. Further north the core is juxtaposed across the Hope Fault with granitic and amphibolite grade metamorphic rocks of the Coast belt. The difference in metamorphic grade between the two belts suggests to Monger (1969) a greater degree of uplift and erosion for the Coast Mountains than for the Cascades.

Monger (1989) separates the pre-late Mesozoic rocks of Hope map sheet into 5 lithotectonic terranes, listed below from east to west:

A. Intermontane Belt- Quesnellia Terrane: The belt comprises predominantly felsic to mafic volcanic and sedimentary facies rocks of the Upper Triassic Nicola Group, extensively cored by partly comagmatic Late Triassic-Early Jurassic intrusive rocks, including; granodiorite plutons, diorite of the Mount Lytton Complex and Hedley Intrusions, alkaline intrusions of the Copper Mountain Stock and Tulameen Complex and by Jurassic through Tertiary aged intrusive rocks. A northwest-trending basin, infilled by Cretaceous Spences Bridge Group intermediate to mafic volcanic and sedimentary rocks, is centered at Princeton, B.C.

B. Coast-Cascade Belt - Methow-Tyaughton Terrane: The terrane comprises: a. basal ophiolite - the Spider Peak Formation (Tsp) and associated ultramafics (PMu) of Triassic (?) age, together referred to as the Coquihalla Serpentine Belt, is overlain by b. fine-grained clastic sediments of the Lower-Middle Jurassic Ladner Group (JL) containing a subordinate intermediate to basic volcanic facies - the Dewdney Creek Formation (JD), overlain by c. a thin, Late Jurassic clastic succession - the Thunder Lake sequence (lJs), overlain by uppermost d. fine to coarse clastic sediments of the Lower Cretaceous to Upper Cretaceous Jackass Mountain (Kj) and Pasayten (KPw,v) Groups.

The terrane is cored by the Eocene Needle Peak Pluton (Egd) and associated small granodiorite stocks and overlain, in the Podunk Creek area, by intermediate to felsic pyroclastics and flows of the Coquihalla Formation (OMcv).

C. Coast-Cascade belts - Bridge River Terrane: The terrane is located east of Fraser River and is comprised of the Permian to Jurassic Hozameen Complex; a strongly deformed oceanic supracrustal sequence, subjected to greenschist grade metamorphism. The Complex is dominantly a fine clastic sequence, including chert and pelite with small undifferentiated intercalations of mafic volcanics, limestone, gabbro and ultramafics (PJH). A mafic volcanic facies (spilitized basalt - PJHv) is recognized in the central and eastern areas of the Complex, south of Squeah Mountain. The Hozameen Complex is correlative with the Bridge River Complex, located in the northwest of Hope map sheet and in the western areas of Ashcroft map sheet. Both complexes have associated small bodies of ultramafic rock and local gabbro (PJu) which assume mappable dimensions at intervals north of Suka Creek.

D. Coast-Cascade belts - Chilliwack Terrane: In the southwest corner of the Hope mapsheet and west of the metamorphic core of the Cascades lies a complexly folded and faulted, Devonian to Jurassic sequence. The oldest rocks are undifferentiated pelites, sandstone, minor conglomerate, mafic and felsic volcanics and carbonate of the Devonian to Permian Chilliwack Group (DPe). Stratigraphically above are pelites and sandstone of the Upper Triassic and Lower Jurassic Cultus Formation (TJc) and clastics of Upper Jurassic age (Jk).

E. Coast-Cascade belts - Harrison Lake Terrane: The terrane is located north of Fraser River and west of Harrison Lake. This middle Triassic to Lower Cretaceous succession comprises: a. a lower-most unit of siliceous argillites and mafic volcanics - the Camp Cove Formation (Tcc) is unconformably overlain by b. the Harrison Lake Formation (JH); a thick succession of mainly intermediate but locally felsic volcanics of Lower to middle Jurassic age, overlain by c. Mysterious Creek Formation(Jm) shales of the Middle and Upper Jurassic, overlain by d. Billhook Creek Formation intermediate volcaniclastics of Late Jurassic age, overlain by upper-most e. Penninsula Formation (JKp) sandstone and conglomerate, grading upwards into intermediate pyroclastics and flows of the Brokenback Hill Formation of Upper Jurassic (?) and Lower Cretaceous age.

The Harrison Lake Terrane is intruded by granodiorite plutons and stocks of Lower Jurassic, Oligocene and Miocene ages.

Coast-Cascade belts - Metamophic Rocks: A belt of lower greenschist to amphibolite metamorphic grade schists, is located east of Harrison Lake and west of the Fraser Fault System - Ross Fault lines. The metamorphic rocks have an uncertain protolith age but are believed to be in part correlative with dated, lower grade rocks to the east and west. The Cogburn Schist (PMc), of greenschist to amphibolite metamorphic grade, is said to lithologically resemble the Hozameen/Bridge River Complexes. The structurally highest metamophic rocks are amphibolite grade Settler Schists (Ms), which may derive from Jurassic and Triassic rocks of the Tyaughton-Methow Terrane. Associated gneissic rocks have been dated by U-Pb method and group into Late Triassic, mid Cretaceous and early Tertiary (Custer Gneiss) age.

The structural evolution of the Hope area is complex and subject to ongoing study. Each of the above Terranes represents volcanic arcs, oceanic crust and marine sediments, which are allochthonous to the North American craton and bounded by major faults. "Most uniquely Cordilleran crust was created in Jurassic to earliest Triassic time, probably by

structural stacking of rock units on discrete thrust faults and by folding and flow in a generally contractional regime and by addition of mantle-derived magmatic rock to the crust" (Monger, 1989). All Terranes had docked by mid Cretaceous time and orogeny, related to compressional tectonics, dominated through Tertiary time with regional uplift, strong folding, thrust and reverse faulting and local metamorphosing, migmatizing and granitic intrusion of all pre-mid Cretaceous rocks.
Following uplift, Tertiary extensional deformation, related to crustal thinning, dominated in the Cordillera. In Hope map sheet this period of extension is represented by transtension, probably related to wrench faulting, at approximately 50 Ma. The north to north-northwest trending Fraser Fault System (locally the Hope, B.C. and Straight Creek, Wa. Faults) is the major Tertiary structure, dextrally offsetting older northwest-trending structures by 80-100 Km., between 35-47 Ma. Ross Lake Fault, located 5 Km. east of and in part subparallel to Hope Fault, is an Eocene normal and/or dextral strike-slip fault.
Northeast trending faults, noteably Coquihalla Fault, are most prominent in Tyaughton-Methow Terrane and in meta-Nicola and Mount Lytton-Eagle Plutonc Complex. Movement was mainly dextral with a vertical component, occurring post-intrusion of the Needle Peak Pluton (48 Ma) and possibly post-extrusion of the Coquihalla volcanics (22 Ma.). Vedder Fault, south of Chilliwack and other small, northeast trending faults and linears in the Coast Range, may be associated with the Coquihalla Fault set.

8. <u>ECONOMIC GEOLOGY:</u> The Hope map sheet was a hive of placer activity in the late 1850's through 1870's, with most of the productive workings on gravel bars along Fraser River. As the bars became mined out in the 1870's exploration shifted to lode deposits. The area was explored for lode silver (Treasure Mountain) and gold deposits (Coquihalla belt), in the period 1880-present; for copper-nickel (Giant Mascot), from 1920-1958; for porphyry copper-molybdenum (Axe) and copper-gold (Copper Mountain), from the 1950's to present; for gold skarns (Hedley), 1900 to present; for epithermal gold-silver and for platinum (Tulameen Complex), in the 1980's and for volcanogenic massive sulphides (Seneca),

in the 1970's and 1980's. Two open pit mines are currently producing in the area: Similkameen Copper - an alkaline porphyry/skarn copper-gold deposit, located 12 Km. south of Princeton and Nickel Plate - an arsenical gold skarn, located at Hedley.

The Coquihalla gold belt (see Figure 3B) is located 4 Km east of Hillsbar Adit on Hillsbar #1 claim. The Belt has been extensively explored for lode gold deposits from the 1880's through the mid 1980's, culminating in production from the Idaho Zone at the Carolin Mine (1981-1984. Recent exploration of the McMaster Zone at Carolin and further south at the Emancipation Mine, have attempted to indicate sufficient ore to justify delineation drilling and small mine gold production.

The Coquihalla gold belt contains 5 former producers and 19 minor gold occurrences (Ray, 1983). The majority of the occurrences are gold - bearing quartz veins, hosted in quartz infilled tensional fractures. In contrast, gold mineralization at the Carolin Mine is an epigenetic mesothermal replacement style, with associated and possibly zoned sulphides, albite, quartz and gold, hosted in deformed Ladner Group metasediments, of Jurassic age. Age of gold mineralization at Carolin Mine is not precisely known but postdated tectonic overturning of the Ladner Group and apparently was pre-contempooraneous with upright to asymmetric folding.

Gold occurrences of the Coquihalla gold belt cluster along the eastern edge of the Coquihalla serpentine belt; a north-northwest trending, steeply dipping sliver of highly sheared to massive serpentinite (after peridotite) and lesser amounts of highly altered gabbro-diabase rocks. The serpentine belt is bounded by east and west splays of the Hozameen Fault and separates supracrustal rocks of the Ladner Group, to the east, from Hozameen Group rocks, to the west. The serpentine belt is 2 Km. wide in the vicinity of the Carolin Mine to Coquihalla River area, narrowing dramatically to the south (Mount Outram) and north (Siwash Creek), where Ladner and Hozameen Groups are in direct fault contact.

Ray (1983) lists the following features of gold deposits and occurrences in the Coquihalla gold belt:

a) Gold zones are proximal to greenstones, fault bounded serpentinites and small fuchsite-bearing quartz-carbonate zones similar to those in the Bralorne Mine, Cassiar Gold Camp and Mother Lode Belt, California.

b) Located predominantly east of the East Hozameen Fault.

c) Gold is fine-grained and coarse visible gold is rare, except at the Aurum Mine.

d) Gold zones occur in highly fractured, therefore more competent host rocks, such as; greenstone (Emancipation, Murphy), felsite pophyry sills (Ward, Emigrant), metasedimentary rocks of the Ladner Group (Idaho and McMaster Zones, Pipestem, Rush of the Bull, Gem, Golden Cache, Homex, Spuz), or in fault zones between competent and incompetent rocks, e.g. greenstones against metasedimentary rocks.

e) Gold mineralization is accompanied by introduction of silica, commonly in discreet, generally narrow quartz veins or in wider zones of intense network veining and diffuse silicification, eg.; saddle reefs as at the Carolin Mine.

f) Gold is associated with varying amounts of sulphides, including; pyrite, arsenopyrite, pyrrhotite and chalcopyrite.

g) Geochemical Associations: Incomplete work suggests no, or rare gold-mercury association. A weak gold-tungsten association is reported in the Spuz occurrence and Idaho Zone. Widespread albitization at the Carolin Mine suggests sodium enrichment within gold zones - probably from subjacent spilitized volcanics, therefore suggesting a possible greenstone source for the gold.

9. PROPERTY GEOLOGY:

a. Introduction: Two men spent five days soil sampling and geologically mapping along roads located north and south adjacent to Qualark Creek . A traverse down Qualark Creek to Hillsbar Adit was tied into the bridge over Qualark Creek. Mapping of Hillsbar Drift was tied into the approximately established position of the Adit by compass-topofil survey, thence up to the road and 1992 sample sites north of the creek. Survey control was by metric topofil chainage along logging roads and compass-topofil traverse lines run from accurately positioned points on the roads. Topographic control was established from B.C. airphoto series BC83007 Nos. 258-260 and from Ministry of Forests Inventory Map 92H054 at a scale of 1:20000. A portion of the Forest Service map was enlarged to scales of 1:5000 and 1:2000, then redrafted to provide a base for plotting sample locations and geological information, presented in Figures 5 and 6.

Qualark Creek has cut to bedrock near Hillsbar Adit where discontinuous outcrop exposure at creek level averages 10-20% (locally 90%) by area. The slopes of Qualark Creek valley above 920 m elevation show discontinuous outcrop in bluffs, creek and road cuts, averaging 30% by area. The friable schists and pelites are commonly recessive weathering, exposed in road cuts and subcrop.

The G.S.C. regional geological map 41-1989 at a scale of 1:250000, compiled by Monger (1989), provides a geological framework for the study area. The G.S.C. work appears to be based on ridgeline traverses to the north and south of Qualark Creek. The eastern portion of the Flow-Gold claim was partially mapped by the B.C. Department of Mines and this work is available in B.C.D.M. Open File 1986-1C at a scale of 1:20,000.

b.General Geology: (Figures 3, 4)

The Hillsbar #4 claim straddles a regional fault contact between Custer Gneiss of Tertiary age, in the west and deformed sediments of the Permian to Jurassic Hozameen Group , in the east. The fault is shown in Figure 3 to be north trending and appears to be a splay of the Fraser Fault System. In Monger's (1969) description of Custer Gneiss, he mentions that gneiss in Fraser Canyon "grades through a complex of numerous small granitic intrusions [sills and small composite bodies; Kgd, eTgd - formerly Yale intrusions] into the Hozameen Group. Along Silverhope Creek (south of Hope), gneissic rocks are separated by a zone of highly deformed and sheared schistose rocks a few hundred feet wide from rocks of the uppermost Hozameen Group." The implication of the above is that the Custer - Hozameen contact is not a discrete structure, rather a complex zone of shearing and intrusion.

The granodiorite intrusion (Egd) north of Qualark Creek (Figure 3) has not been isotope dated by the G.S.C.; it was previously grouped with the Yale intrusions but in Monger's recent compilation (Map 41-1989), the intrusion is assigned an Eocene age, contemporaneous with the Mount Outram and Needle Peak Plutons. In the absense of an age date or other definitive criteria, this irregularly shaped intrusion may range in age

from Late Cretaceous to Miocene (lKgd, Mgd).
The eastern portion of the Flow-Gold claim straddles the Coquihalla Serpentine Belt - a deep-seated fault separating the Hozameen Group (Permo-Jurassic) sediments in the west, from Ladner Group (Jurassic) sediments to the east.

c. Description of Lithologies: (Figures 3, 4)

Unit A (Permian to Jurassic Hozameen Group):

The Hozameen Group contains the oldest lithologies represented on the Harvic property. Regionally the Hozameen Group achieves an apparent thickness of ~7.8 Km. in four stratigraphic divisions (Monger, 1969):

iv. Greenstone, chert, pelite, limestone pods	>2.1	Km.
iii. Ribbon chert and pelite	>1.8 - 3.0	Km.
ii. Greenstone, minor chert and limestone pods	>0.76 - 1.2	Km.
i. Ribbon chert, local bodies to 0.37 Km.	>1.5	Km.

Rocks ascribed to the Hozameen Group on the Hillsbar #4 claim are located in a narrow, northwest trending band, between Harry's Creek and the 1991 camp and from 30 m west of the Hillsbar Adit, eastward up Qualark Creek valley to the Coquihalla Serpentine Belt, in the eastern portion of the Flo-Gold claim. The Hozameen rocks include Unit A1 - a predominantly argillaceous division with narrow chert bands and Unit A2 - comprised of ribbon chert and silicified argillite with subordinate narrow bands of pelite. Since greenstone and limestone facies have not been observed on the Hillsbar #4 claim, the author assumes local Unit A rocks belong to an upper division of the Hozameen Group, probably division iii. (above). Greenstone bands occur on the Flow-Gold claim and these may belong to the uppermost division iv. (above) of the Hozameen.

Unit A1: Thinly banded argillaceous rocks, including medium gray to black coloured argillite, slatey argillite, slate and shale, predominate south of Qualark Creek and west of Hillsbar Adit. East of the adit, Unit A1 lithologies are dominantly phyllites and talc/chlorite schists with intercalated bands of slate, argillite and chert. Chert and siliceous argillite/slate bands 1 - 60 cm wide are not uncommon and are recognized by their resistive, bold and blocky weathering character. Colour variations and related grain size variation from fine to very fine-grained, suggest the unit is bedded and upright, striking northwest and dipping moderately to the northeast. The friable nature of the lithology and presence of slatey cleavage commonly obscure bedding attitudes. The unit contains widespaced, discontinuous, folia-form, centimeter scale, milky-white, bull-quartz veinlets and lenses. The veins are commonly barren of sulphides but a few contain sparse, fine-grained, crystalline pyrite. The quartz appears to represent silica mobilized during regional metamophism from chert and siliceous argillite lithologies and redeposited in dilatant zones within shears, fractures and fold hinges.

Unit A2: Medium to dark gray-black ribbon chert, defined by dark gray chert bands interbedded, intercalated and interbanded with 0.1-1.0 m wide pelitic layers, occurs in the central area of Hillsbar #4 claim near Hillsbar Adit and in scattered outcrop to the east on the Hillsbar #4 and Flow-Gold claims. The cherts are moderately hard and moderately fractured, with a prominent slatey cleavage trending 115°-130°/65°N developed in argillite/slate interbands. Unit A2 weathers light brown to dark gray in color, forming steep subparallel bluffs and bold, flaggy, cleavage controlled cliffs and benches, adjacent to Hillsbar Adit. In the adit area, ribbon cherts appear to have been partially recrystallized and silicified, based on lighter gray colouration in some parts and 0.5 mm drusy vugs, fine quartzitic textures and presence of light gray, conformable quartz veins. The slatey cherts are sheared and gouged at widespaced intervals over widths of 0.20 - 1.3 m, subparallel to cleavage trending 128°/60°NE and are healed in part by sinuous, pinch and swell, white, bull-quartz veins. Ribbon structured quartz veins in Hillsbar Adit and adjacent along Qualark Creek, carry minor amounts of arsenopyrite, pyrite, chalcopyrite and free gold.

UNIT A3: Outcrops of greenstone are found in the eastern portion of the Flow-Gold claim, north of Qualark Creek. The greenstone is typically dark green in colour, moderately sheared and altered to chlorite, talc and epidote. Tuffaceous, or tuffaceous pelitic bands are common in the greenstone, as are dykes of hornblende-rich basalt dykes, up to 1m wide. Chert bands are located in close proximity to greenstone outcrops but contacts are obscured by faulting and or by quartz porphyry dykes.

<u>UNIT D:</u> Dykes of quartz porphyry are found within scattered outcrops of chert and greenstone in the eastern portion of Flow-Gold claim, north of Qualark Creek. The dykes are 1.5 - 9m wide, light gray - green in colour and rusty weathering. Quartz eyes and rare ghosts of feldspar phenocrysts are common in the size range of 1-2 mm. The dykes are related to north and northwest trending faults within and between the chert and greenstone units. The dykes also seem to have a spatial association with the Coquihalla Serpentine Belt. Contacts of the dykes with enclosing lithologies are silicified and rich in iron and manganese oxides. Pyrite and pyrrhotite are found as disseminations and as fracture fill in the contact selvedges of the dykes. The author assumes these quartz-rich dykes are related to a volatile-rich phase of the Eocene aged Mount Outran granodiorite plutons, located elsewhere in the region.

<u>Unit D - Aplite:</u>

The youngest rocks encountered on the Hillsbar #4 claim are scattered aplite dykes and sills, varying 0.02-2.0 m in width. Aplite intrudes weakly sheared, sericitic, feldspar diorite porphyry, located along Qualark Creek between station 17-162 and a point 77m upstream, near contact of Unit C1 diorite porphyry and Unit A2 cherts. Aplite is commonly light gray to white in colour, weathering light orange-brown where the unit contains 1/2-1% fine to medium-grained crystalline pyrite. The unit is fine-grained sucrosic to cryptocrystalline in texture and is very siliceous - superficially resembling quartz veinlets, which are found associated with the dykes. Contacts with the host diorite porphyry are sharp and marked by a weak, narrow (<1 cm wide) silica selvedge and a 0.1 - 1.0 m wide diffuse and erratic sericite alteration. At station 17-162 very fine-grained dykelets have a light brown mottling (garnet?, biotite?) and are finely miarolitic, with some 0.5 mm voids containing limonite. Aplite dykes/sills are common on subhorizontal attitudes, also trending 130°/40°SW and 045°-

055°/80°NW-90°.

Quartz Veins: Light gray to milky-white bull-quartz veins are relatively common in the study area. Discontinuous metamorphic sweats of folia-form, sulphide-barren quartz are found throughout the pyllites, argillites and slates. Tension fractures and shears in all units contain widely spaced, pinch and swell, bull-quartz veins. These veins contain trace amounts but locally 1-2%, fine-grained crystalline and blebby pyrite. Minor amounts of fine-grained crystalline arsenopyrite were noted with pyrite in quartz veins in the Hillsbar Adit. Trace amounts of blebby chalcopyrite occur with pyrite in a quartz vein in Hillsbar Adit.

Quartz veins in the study area commonly occupy structures trending north (170°-180°/60°E-90°) and northwest (125°-152°/40°-80°NE), dipping moderately to the east. Low angle, vuggy, rusty quartz veins were noted west of Al's Creek (17-375), in Qualark Creek canyon, east of the Adit (19-47, etc.) and near the Coquihalla Serpentine Belt at 17-356.

d. Qualark Creek - Detailed Geology and Sampling: (see Figures 5,7)

A 70 m section of Qualark Creek, upstream from Hillsbar Adit was mapped at a scale of 1:250 using compass-topofil control tied into the bridge. The upper 16 m of the creek is underlain by Unit A1 - finely foliated, dark gray to black, phyllites and slates with subordinate chert ribbons. The foliation is fairly constant at 135°/80°NE. Beneath a pile of large logs, on the south bank of the creek, a 2 m wide dyke of quartz-feldspar porphyry with associated narrow quartz veinlets trends 140°/50°NE. The contact with the host schist/phyllite is sharp, slightly discordant and weakly silicified. A 20 cm wide folia-form, rusty, vuggy quartz vein on the north side of the creek contains 597 ppb gold over a 20 cm width (20-48).

Contact with the Unit A2 - chert dominated section downstream, is sharply undulose, subparallel to the foliation trend. A 2.5 x 3 m exposure of weakly limonitic, vuggy bull quartz, located at the contact appears to be flat lying but could not be traced to the southeast, across Qualark Creek. Five serial channel/chip samples over the vein, each 53 cm. long contained from 3 to 180 ppb gold (19-47).

Six meters west of the vein, in the north wall of the creek, is a bluff/outcrop of chert/pelite, with a >3 m wide, limonitic, shear zone, marked by boudinage quartz and slightly recessive weathering gouge. A 1.0 m chip sample across the central part of the shear gave 587 ppb gold (20-49). The shear contains large quartz boudins and was be seen to continue below the adjacent pool but could not be sampled. The intervening outcrop down to the next pool was unremarkable - mainly ribbon chert with a few folia-form quartz veins.

Below the next pool (19-55 to 57), the cherts are more obviously sheared and quartz veined. The veins here are commonly boudinage and rusty/vuggy but contained low gold values where sampled. A 50 cm wide, quartz-feldspar dyke in this area is folia-form and has silicified the enclosing chert/phyllites. Two parallel quartz veins, located 10 m downstream of the dyke, suggest a fold axis, since they dip in opposite directions.

<u>e. Hillsbar Drift - Geology and Sampling:</u> (see Figures 7,8)

The drift is located approximately 30 m north and 30 m higher in elevation from the portal of the Hillsbar 760 m Adit on Qualark Creek. The drift portal is situated at the base of a steep outcrop of Unit A2 ribbon chert and at the head of a moderately steep talus slope. The portal and drift are partially caved to a point 8.4 m inside, thereafter the drive has average dimensions of 1.56 m wide by 1.86 m high. The drift trends azimuth 116° for a total length of 20.2 m.

The portal outcrop is superficially unremarkable - a gray to black ribbon chert (Unit A2) with interbands of phyllite/slate from 0.01-1.0 m wide; very similar to chert found throughout the property. The cross-sections afforded at the portal and 20.2 m face are illuminating and chastening. The southwest back of the portal exposes a 10 cm wide, rusty, vuggy, bull-quartz vein, coated with scorodite, hosted in a mylonitized chert/gouge zone. Overall attitude of the shear is 138°/58° NE. Sampling of the shear in the footwall of the vein returned 6 ppb gold over 50 cm (20-96). Sampling of the quartz vein and adjacent shear gave 134 ppb gold over 30 cm (20-95).

The face in the end of the drift shows a central, orange-brown, highly sheared band of gouge, chert lenticles and rare, boudinage, rusty quartz veins (Unit A2s), overlain by a >60 cm thick, dark gray to black - coloured shear zone, containing numerous boudinage, rusty quartz veins and rolls (Unit A2h) and underlain by medium gray to black, moderately sheared, recrystallized chert ribbons with gougy partings (Unit A2f), approximately 1 m thick.

The shear trends approximately 130°, dipping 38°NE on the southwest wall and steepening to 55°NE on the northeast wall. Quartz veins and boudinage exposed in the face and the back, along the drift, range from 0.01 to 60 cm thick. A channel sample of the hanging wall shear, taken in the face across a 10 cm wide quartz-boudin, gave 367 ppb gold over 67 cm. Another sample at 8.4 m in from the portal, channelled 33 cm of dense quartz veining in the hangingwall shear and 49 cm of the main shear, returning 1380 ppb gold (0.04 0z/ton Au) over 82 cm (20-94). Two other chip samples, 20-92,93 returned 6 ppm gold across the shear zone.

11. <u>GEOCHEMICAL SAMPLING PROGRAM:</u> A total of 204 soil samples, 27 rock chip samples and 21 stream sediment samples were collected in the survey. The soils in the survey area are dominantly podzols, having a variably developed B horizon. A typical soil profile has 2-5 cm of leafy humus (LH), overlying 5-10 cm of dark gray-black organic-rich material (AH), overlying 5-20+ cm of medium to dark brown, red-brown or orange-brown soil - (B horizon). BF soils are common on the north side of Qualark Creek. Mixed BF and BG (moist, mottled red-orange-brown) soils are found on the south side of the creek.

Complicating the soil profiles in varying degrees, is the variable presence of dominantly fluvial silt, sand and gravel deposits which mantle bedrock up to 40m above the main line road levels, in Qualark Creek valley. In these areas the B horizon is developed in sandy material, passing downward into a light gray-coloured C horizon, within sandy gravels. In adjacent areas, such as in the vicinity of the adit and downslope of most outcrop bluffs, soils are locally poorly developed, with a 2-5 cm LH + AH layer overlying a 2-10 cm thick BF horizon within basal talus aprons, perched talus, colluvial and residual soils. The effects of steep slopes, mass wasting and slide erosion, related to logging activities have generated colluvial soils in some lower bank areas along Qualark Creek.

1193 soil samples were collected from the B horizon at stations spaced either 25 m (detail) or 50 m (recce) apart, at a depth of 15-30 cm below surface. At each station approximatley 0.2 Kg. of soil was collected and placed in a wet strength Kraft envelope, consecutively numbered with the sample number. All sample sites were marked by flourescent flagging, labelled with the sample number, to permit relocation.

Stream sediment samples comprising sand and silt were collected from the middle and side areas within the active portions of all creeks.

Chip-channel samples were collected from quartz veins and silicified zones in various lithologies. Continuous chip samples were collected by hammering along a line, approximately 5 cm wide, across each vein at right angles to the structure. The chips and rock flour from each sample station were directed into consecutively numbered, kraft soil bags, held below the line of sampling. Approximately 1.5 Kg. of rock chips were collected from each sampled vein and sites were marked for followup with labelled fluorescent flagging.

All samples were delivered to ACME Analytical Laboratories in Vancouver, B.C. for gold analysis by the following method: soil and silt samples were dried at 60°C and pulverized to -100 mesh. Rock chip samples were crushed to 5 mm, then a 250 gm split was pulverized to -100 mesh.

A 20 gm split from the -100 mesh portion of each silt and soil sample and 30 gm of each rock chip sample was ignited at 600°C, digested with hot aqua regia, extracted by MIBK and analysed for gold, at a detection limit of 1 ppb, by graphite furnace AA.

11. <u>V.L.F. - E.M. SURVEY:</u>

Three separate compass-topofil grids were established to provide control for the surveys. E.M. Grid #1, located on the road north of Qualark Creek was sited to crosscut the extension of the Hillsbar Shear/Vein Zone. A 150 m long topofil line follows the road in an east-west direction. Stations were marked by numbered flagging every 5m along the line.

E.M. Grids #2 and #3 were established in the lower portions of Vic's

Creek and an adjacent tributary 350 m west. Purpose of the grids was to crosscut an adit located some 50 to 75 m up these creeks from their junction with Qualark Creek. The approximate location of the adit is known to Mr. Walters from visits in the 1930'2 and 1960's but the portal has been buried by logging activities in the 1980's and by subsequent erosion. The E.M. unit should respond either to a shallow buried fault or any steel rails left in the underground.

The baselines on E.M. Grids #2,3 were sited so that the local creeks roughly transected the grid in half. A 50m long baseline was run at azimuth 325°, roughly parallel to the regional structural trend, from the southwest corners of the two areas and crosslines trending azimuth 055° run at 0, 25 and 50m intervals. The crosslines were established by compass-topofil method, with stations marked by flagging every 5 m.

The instrument employed in the survey was a Sabre Model 27, VLF EM Receiver, tuned to Seattle transmitter (station NPG, 18.6 KHz.) The following field prodedure was used: 1. At the base station on each grid the receiver was held horizontal in front of the operator and turned in the horizontal plane until a null appeared on the field strength meter; that is with the operator facing south toward Seattle transmitter. 2. With the receiver facing the station the instrument was lifted to the vertical position and rotated slightly in the vertical plane to the right or left until the best null was noted. The angle (Tilt Angle) at which the null occurred was recorded. 3.The instrument was then returned to the horizontal plane and turned around until the field strength meter was at its maximum reading. The gain control was adjusted so the maximum reading showed 100% on the meter. The field strength button was depressed and the gain control slightly adjusted until the meter read 50%.

Tilt Angle readings were recorded at each station by repeating steps 1 - 3, depressing the FS button and reading the field strength meter indication for Comparative Field Strength.

12. DISCUSSION OF RESULTS:

a. VLF-EM Survey: The VLF-EM survey over Grid 2 (Figure 10) indicated five conductors, defined where the tilt angle goes from positive to negative and field strength is a maximum. Three of the conductors are located in close association with the topographic trace of Vic's Creek and probably indicate this wet conductive zone, rather than a buried fault. The conductor at 0+83mE on Line 0N is closely associated with the bed of Qualark Creek. The conductor at 0+11mE on Line 0N is probably caused by a partially buried metal cable found in the vicinity. The VLF survey over Grid 3 (Figure 11) located three conductors which are closely associated with the creek bed and are not likely caused by a bedrock conductor.

The VLF survey over Grid 1 (Figure 9) located two conductors. The conductor at 1+04mE may be a bedrock conductive zone or may simply indicate the overburden - outcrop interface which is located in the vicinity. The conductor at 0+69mE is very strong as indicated by the high field strength and is located within the overburden covered area. The feature may mark the northwest extension of the Hillsbar Shear/Vein Zone. Another conductor may be indicated just off the grid to the east, since the tilt angles in this area are trending negative.

b. Geochemical Survey:

An attempt was made to test site sampling variability, between the 1992 and 1993 geochemical surveys, by resampling a few soil holes and the immediate area around the soil holes from the 1992 samples, with the following results:

	1992	1993	
Sample No.	Gold Value (ppb)	Gold Value (ppb)	Sample No.
18-49	53	20	19-59 silt
18-37	56	11	19-60
18-48	30	69	19-61
18-38	10	16	19-62*
18-39	12	11	19-63*
18-47	21	7	19-64
18-40	29	17	19-65
18-17	30	3	20-03
18-19	25	10	20-01
18-19	25	28	20-02*

* these samples collected directly from 1992 soil holes. The rest of 1993 samples in the table collected within 4 m of the 1992 soil hole.

The data for silt sample 18-49 and 19-59 were taken in close proximity to one another on Gold Run Creek. While showing 2.5 times difference in absolute value, considering the vagaries of sampling particulate gold in a stream environment, the values are both anomalous and comparable. The * data is remarkably consistent between the two years. The other data indicate that gold values differ by a factor of 2-10 times over a short horizontal distance.

The author has examined the gold values obtained for soils, small tributary creek silts and Qualark Creek silts for the 1992 -1993 surveys and established the following anomaly groupings by "eye-balling" the numbers.

SOILS	TRIBUTARY SILTS	QUALARK CRK. SILTS	RATING
<10 PPB	<10 PPB	<15 PPB	BACKGROUND
<20	<22	<30	WEAKLY ANOM.
<40	<60	<60	MOD. ANOM.
<80	<120	<120	STRONGLY ANOM.
>80	>120	<120	INTENSELY ANOM.

The gold anomalous areas #1 - #6 indicated on Figures 5 and 6 were established using the above anomaly groupings.

1993 detail sampling in the vicinity of Gold Run Creek - Anomaly 3/3A has tended to confirm the anomalous gold in soils and silts obtained from the 1992 survey in this area. The likely source for the anomalies in area 3 and 3a are further upslope, in the vicinity of the projected trend of the Hillsbar Gold Vein/Shear. Anomaly 5 to the southeast is comprised of a strongly gold anomalous tributary silt and weak to moderately anomalous soils. The likely source area is upslope to the southwest, toward the projected southeast extension of the Hillsbar Shear Zone.

The 1992 gold anomalies within Anomaly #4 do not appear to continue upslope to the northeast onto the 1993 grid. The moderately gold-anomalous values at the lower elevation may be due to a dispersion fan from the Gold Run Creek area, isolated by the downward-cutting action of Qualark Creek. An alternative explanation of the gold anomaly is that it has a local source, perhaps in shallowly buried bedrock.

The 1993 upslope sampling of Anomaly 6, towards the headwaters of Qualark Creek, provide some support for an upslope source to explain the

1992 widespread gold in soil anomalies. There are two, intense, single point gold in soil highs; 20-17(93ppb) and 20-26(570ppb), plus the intensely anomalous tributary silt at 20-83(310ppb) in the anomaly area. The upslope source would presumeably be located along the Coquihalla Fault Zone.

Anomaly 1, in Hillsbar #4 claim, was not resampled in the 1993 program and its importance is undiminished.

Anomaly 2 has been upgraded in importance since the 1992 survey. The 1993 sampling along Qualark Creek indicates two highly gold-anomalous silt samples in the main creek, at 19-44(160 ppb) and 19-43(50 ppb). Two weakly anomalous tributaries enter Qualark Creek from the north, in the direction of a highly anomalous soil (120ppb gold), located further upslope. The high gold in silt values in Qualark Creek could be due to a placer effect but they are unusually high for Qualark Creek and may indicate the presence of a nearby gold source.

The canyon section of Qualark Creek and the vicinity of the Hillsbar Adit have not been well soil sampled, due to steep topography and time constraints. A single soil sample, collected 4 m southeast of the 790 m Drift portal, gave a weakly anomalous gold value (20-97; 11 ppb gold). This result suggests that occurrences of gold-bearing quartz veins/shears may have a very subtle gold in soil signature and may essentially be blind to widespaced geochemical surveys. It also suggests that gold analysis should be accompanied by I.C.P. analysis and that elements such as arsenic, known to accompany gold in the Hillsbar quartz veins and commonly having a wider dispersion pattern than gold, should be used to further define targets for followup.

c. Geological Mapping:

The Hillsbar Shear Zone is a subtle feature in outcrop, since the recrystallized chets tend to weather boldly but fractured, rusty quartz veins within the sheared phyllite/fault gouge are recessive and obscure. The area of interest is steep and partially overlain by 1 - 20 m glacial-fluvial overburden and by pools of water along Qualark Creek, which hamper mapping and geochemical surveys.

The approximate location of the Hillsbar Adit and Drift indicate that they were sited to explore the shear zone exposed in Qualark Creek canyon, particularly the No. 3 Vein, sampled in the vicinity of 20-49 (Figure 7). Quartz veins in this area were reported to carry impressive amounts of native gold. Government sampling of the No. 3 vein averaged 0.968 oz gold/ton over 3 feet (Nichols, 1927). Sampling of the No. 3 Vein in the Hillsbar Adit returned 6.85 GMT (0.20 oz gold/ton) over an average width of 0.5 m and 28.2 m strike (Bradley, 1991). The best sample obtained of the No. 3 Vein/Shear, from the 790 m Drift, contained 1380 ppb gold (20-94; 0.04 oz gold/ton) over 0.82 m sample width. The best sample from the No. 3 Vein/Shear along Qualark Creek contained 587 ppb gold (20-49; 0.017 oz gold/ton) over a 1 m sample width. Given the presence of native gold, the relatively fine grind of -100 mesh in 1991-93 laboratory preparation and that samples were not screened for metallics, the above gold values may be low and not representative of the Zones's true gold grade.

The No. 3 Vein is well exposed in the north bank of Qualark Creek (19-47 to 54)and appears to be flat lying. The Vein was not seen in the south bank and this feature requires further investigation. The No. 3 Vein/Shear is essentially vertical where exposed in the Hillsbar 760m Adit and in Qualark Creek canyon. In the 790 m Drift the Vein/Shear trends 130°/30°NE, in the southwest wall and 130°/60-70°NE in the northeast wall. Flattening of the shear to the southwest could be due to folding, splaying or refraction/rolling of the shear zone within the chert/phyllite dominant units. The Gold-bearing quartz vein(s) vary()s 10-50 cm (possibly to 2.5 m; 19-47) thick and cohesive lenticular to boudinage/cataclastic, both horizontally and vertically in the Shear Zone.

13. <u>CONCLUSIONS:</u>

1. Mapping along Qualark Creek has located the Hillsbar Vein/Shear Zone and the included No. 3 Vein(s) in the north bank of the creek. The greater shear zone has an inferred true width of some 40 m. The included No. 3 Vein/Shear Zone has a width of 5 m (say). The No. 3 Vein, where exposed at creek level and in the Hillsbar Adit, appears relatively continuous and cohesive, with a minimum thickness of 0.30 m and an unknown upside thickness - perhaps 2-3 m, depending on the

attitude of the creek exposure. Maximum inferred strike of the No. 3 Vein (to date) is 65 m, open to the northwest and southeast; though not, as yet, located in the south bank of Qualark Creek.

In the 790m Drift the No. 3 Vein appears to be boudinage and 10-50 cm thick. Grades vary from negligible, in small scattered samples, to 6.85 GMT (0.20 oz/ton gold) over an 0.50 m average thickness and 28.2 m strike.

Grades may be biased on the low side due to presence of native gold, the fine grind (-100 mesh) and lack of screening for metallics in samples collected from the Zone. An association of trace to <1% by volume, fine-grained pyrite and arsenpyrite has been noted in gold-bearing quartz veins and boudins in the Zone. Given the intense shearing, gold distribution may be complex. While further surface mapping, trenching and sampling must be conducted to explicate the Hillsbar Shear Zone, due to the geometry of its location it will be necessary in the future to drill for structure and drift for the gold. The target is given priority one for followup.

The 1993 geochemical sampling has confirmed that Anomaly 3/3A, in the vicinity of Gold Run Creek, is anomalous in gold, with an upslope source to the southwest - perhaps the southeast extension of the Hillsbar Shear/Vein Zone. This area is assigned a high priority for followup.

Gold Anomaly 5 is interpreted to have a source upslope to the southwest and requires followup.

Gold Anomaly 6 was partially confirmed by 1993 sampling. The likely source area is to the northeast, along the Coquihalla Fault Zone and should be investigated.

Gold Anomaly 1 and 2; respectively located 200 m west and 250 m east of the Hillsbar Adit, may indicate other en echelon, gold-bearing zones to the Hillsbar trend and require followup.

Gold Anomaly 4 was not confirmed by the 1993 sampling. It may represent an outlier/artifact from the Gold Run Creek anomaly, now isolated by Qualark Creek. No further work is indicated at this time.

The VLF-EM conductors defined on EM Grids #2 and #3 have natural causes and do not indicate the presence of adits of shear zones.

The western conductor on EM Grid #1 is located in a dry, overburden covered area and is probably caused by a bedrock fault, or underground stream. Its location suggests the northwest extension of the Hillsbar Shear/Vein Zone is nearby. Further work is required to locate a source for the conductor and its gold potential.

14. RECOMMENDATIONS:

The following approach is suggested to further develope the gold potential on the property:

1. Priority 1 followup of the Hillsbar Adit/Drift area, to determine the structure, orientation and gold distribution in the known Zone.

a. Mobilize a pressure washer to the underground workings, clean walls and map at a scale of 1:20. Channel sample walls on continuous 3 m ribs and stripes. Sample discrete features, such as; quartz veins, boudins, cross faults and sulphide zones. All samples to be screened for metallics and run for ICP multi-element analysis.

b. Pressure wash the Hillsbar Shear along Qualark Creek canyon. Map in detail at 1:100 (say) and collect continuous chip samples every 3 m along one rib, using ropes and ladders where necessary.

c. Install a 300 m long, northwest trending baseline from Hillsbar Adit and run northeast trending crosslines every 50m, with stations every 25 m. Prospect, map and sample the grid and run an EM 16R survey to reproduce/define the location of bedrock conductors on EM Grid #1.

d. Construct a 4 x 4 road from the McMaster Zone, near Spider Peak, to connect with the existing road network along Qualark Creek. Reopen all roads leading to geochemical anomalies.

e. Employ an excavator to expose bedrock conductors located by the EM 16R survey, where feasible, then map and sample. Evaluate all data prior to a drilling decision.

2. Establish 50m (line) x 25m (station) grids over upslope areas to

geochemical anomalies 2, 3/3A, 5, 6 and 1, in order of decreasing priority. Map, prospect and soil sample these areas at a scale of 1:5000. Evaluate data for followup by EM 16R survey and trenching. The estimated cost of the above program is in the order of $ 150,000.

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16. STATEMENT OF QUALIFICATIONS:

I, Michael D. Bradley of Mike Bradley & Associates with an office at 4750 Westlawn Drive, Burnaby, B.C., V5C 3R3, do hereby state as follows:

1. I am a graduate of the University of British Columbia, Vancouver, B.C., where I received a B.Sc. degree in Physics-Geology in 1973.

2. I received an M.Sc. degree in 1975 from Scripps Institute of Oceanography, La Jolla, California.

3. I have been continuously employed as an exploration geologist from 1976 to present; as an employee of B P Resources Canada and since 1989 as a full time consultant.

4. I am a voting member of the Association of Exploration Geochemists since 1989.

5. I am a member of the Canadian Institute of Mining and Metallurgy.

6. I am a member of the Cordilleran Section of the G.A.C.

7. I am a member of the B.C. and Yukon Chamber of Mines.

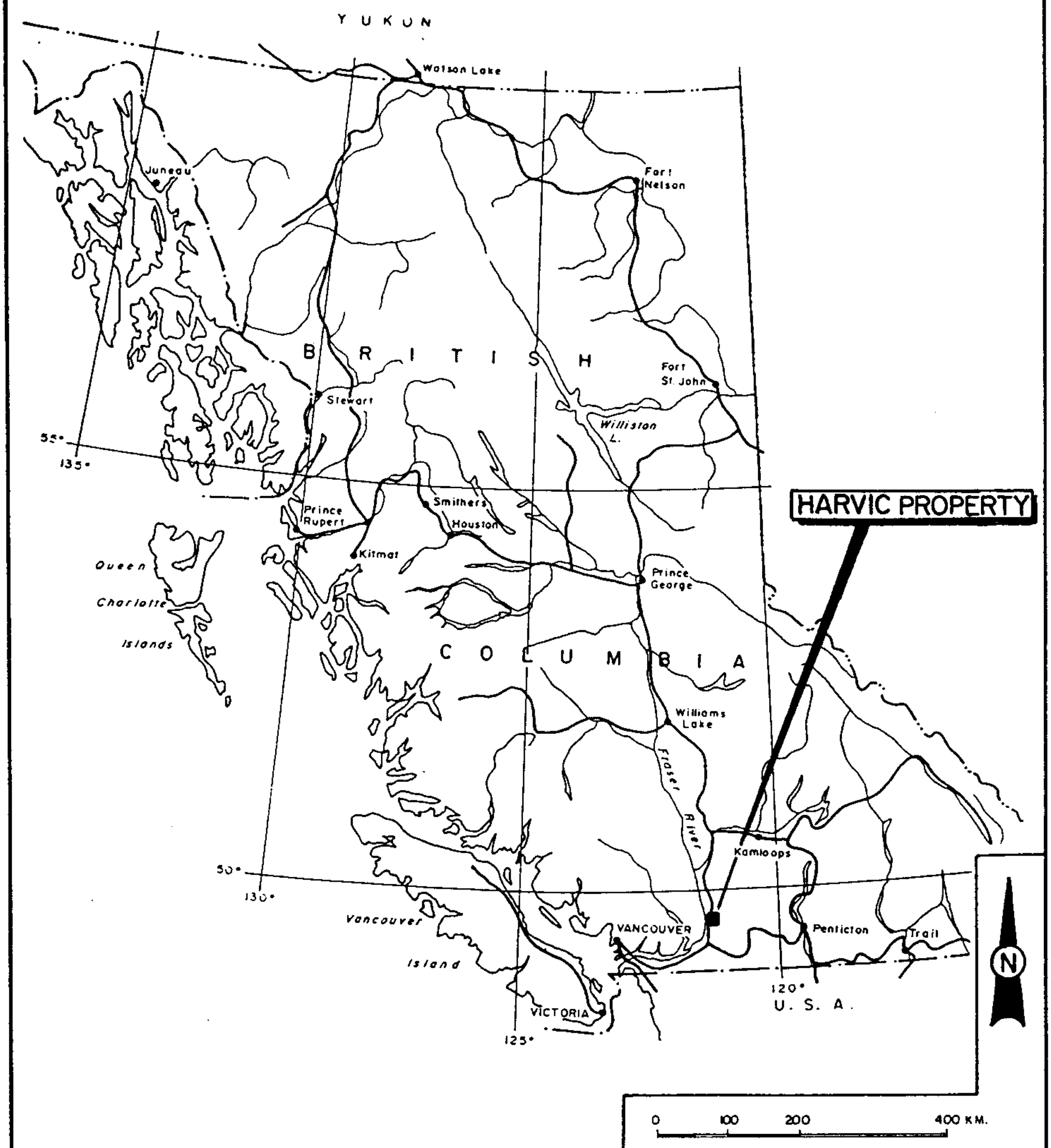
8. I am a past chairman of the Vancouver M.E.G. and currently am publisher of the M.E.G. Directory.

9. I am a member of the Association of Professional Engineers and Geoscientists, 1993.

10. I have no interest, either directly or indirectly in the Harvic Property, nor do I expect to receive any.

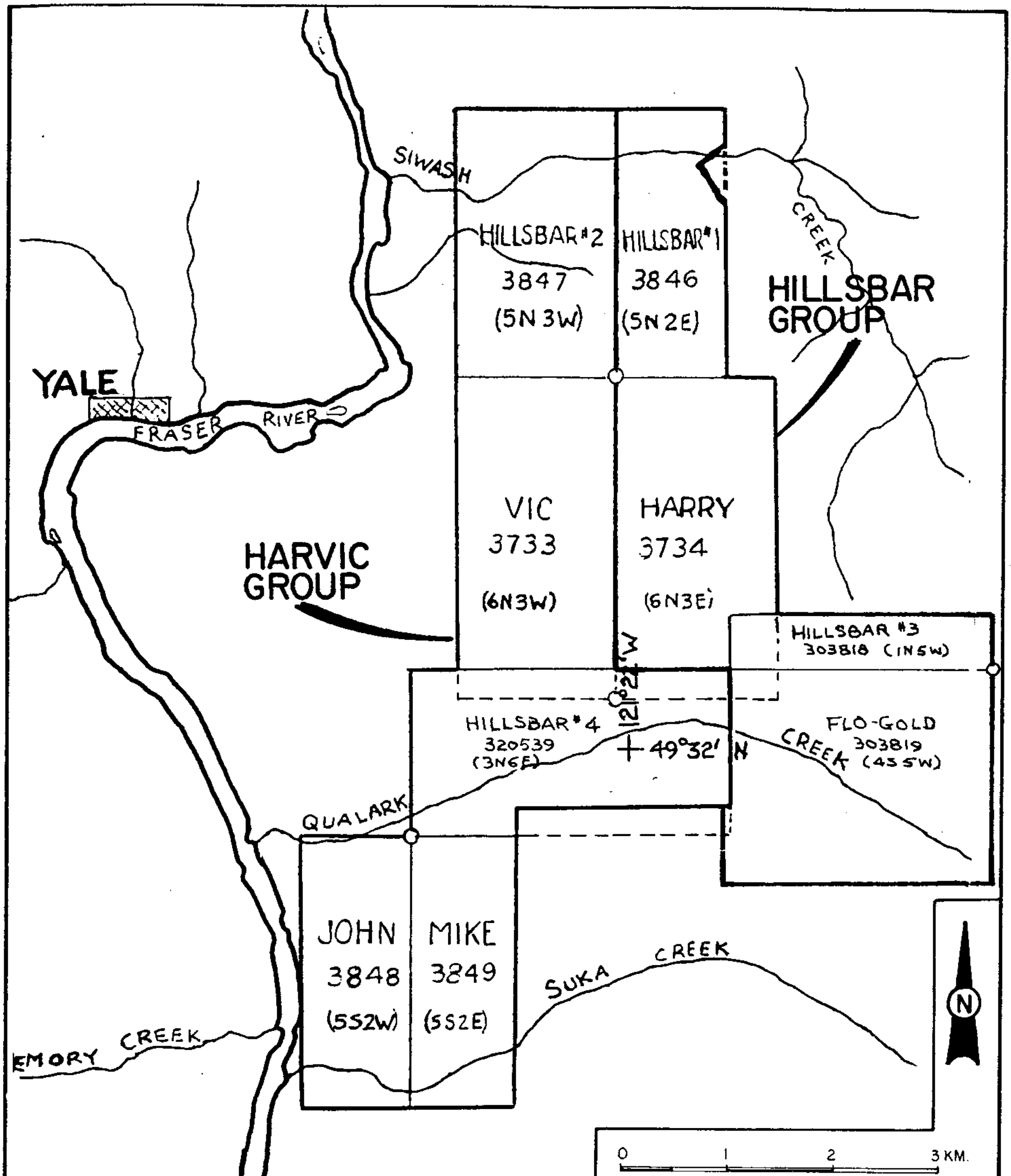
11. I hereby grant my permission to Mr. Vic Walters to use this report, or any portion of it, for any legal purposes normal to his business, so long as excerpts used do not materially deviate from the intent of this report, as set out in the whole.

Dated At Burnaby, British Columbia, this 4th day of December, 1993.



MIKE BRADLEY & ASSOCIATES	SCALE: 1:7,500,000
CLIENT: MR. V. WALTERS	N.T.S.: 92H/11W
	DRAWN BY: M.D.B.
REGIONAL LOCATION MAP HARVIC PROPERTY	PROJECT: 93-96
	DATE: DEC. 1993
	FIGURE No. 1

CHONG



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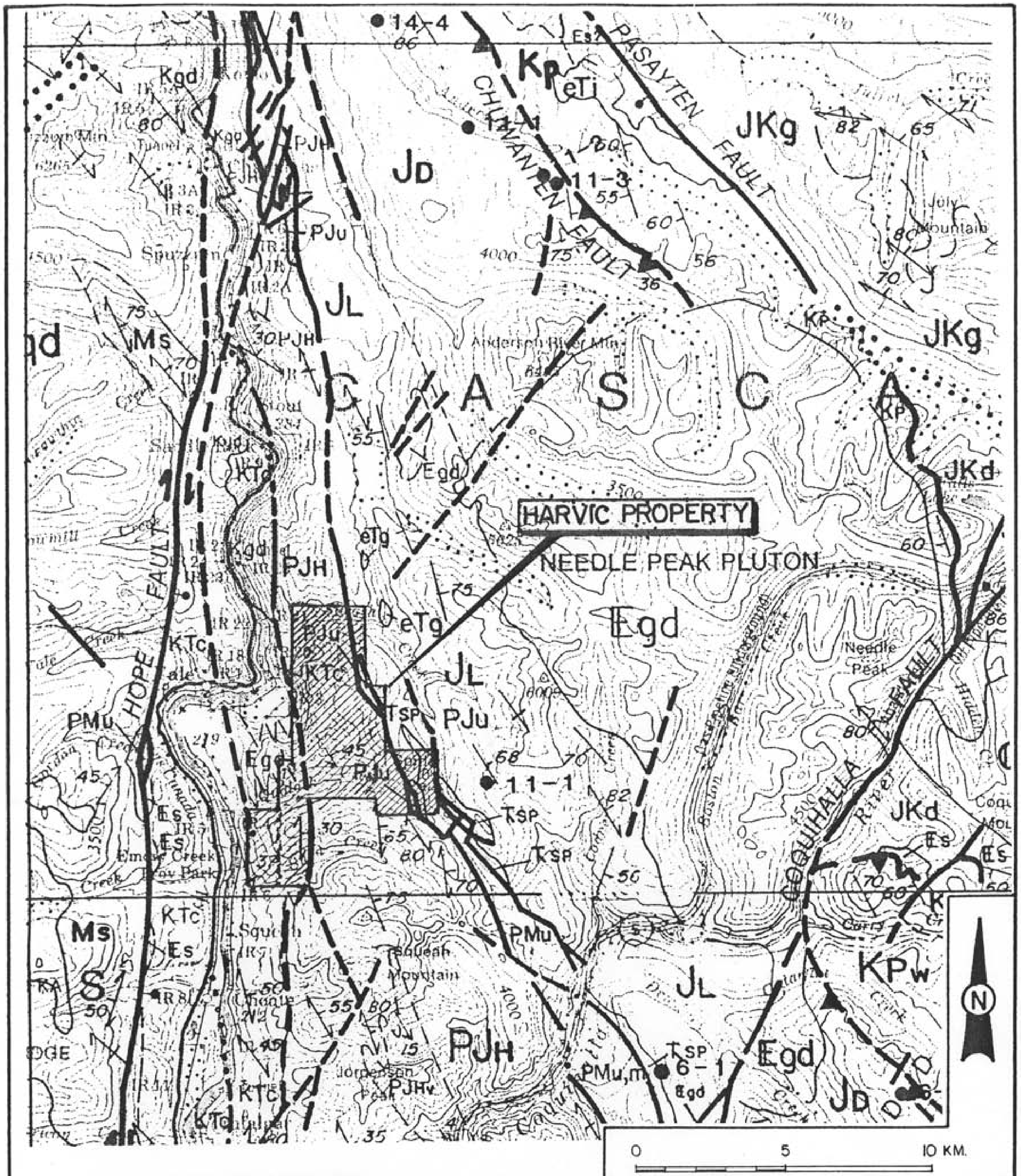
CLIENT: MR. V. WALTERS	N.T.S.: 92H / 11W
	DRAWN BY: M.D.B.
CLAIM LOCATION MAP HARVIC PROPERTY	PROJECT: 93-96
	DATE: DEC. 1993
	FIGURE Nº. 2

CHONG



MIKE BRADLEY & ASSOCIATES	SCALE: AS SHOWN
CLIENT: MR. V. WALTERS	N.T.S.: 92H/11W
	DRAWN BY: M.D.B.
REGIONAL GEOLOGY MAP HARVIC PROPERTY	PROJECT: 93-96
	DATE: DEC. 1993
	FIGURE Nº. 3A

CHONG

LEGEND FOR REGIONAL GEOLOGICAL MAP

Formal names capitalized

CENOZOIC

QUATERNARY

PLEISTOCENE AND RECENT

	Thick drift: alluvium; glaciofluvial and lacustrine deposits, till, colluvium, landslides

TERTIARY

MIOCENE

Mgd	*Granodiorite (MOUNT BARR BATHOLITH)*

LATE OLIGOCENE TO EARLY MIOCENE

OMCv	*COQUIHALLA FORMATION: intermediate, felsic pyroclastics and flows*

OLIGOCENE

Ogd	*Granodiorite (CHILLIWACK BATHOLITH)*

EOCENE

Egd	*Granodiorite (NEEDLE PEAK, MOUNT OUTRAN PLUTONS)*
Es	*Sandstone, conglomerate, argillite (includes ALLENBY FORMATION of PRINCETON GROUP)*

EARLY TERTIARY

eTgd,i	*Intrusions of granodioritic (gd) and intermediate (i) composition*

CRETACEOUS AND/OR TERTIARY

KTc	*CUSTER GNEISS: pegmatitic granite gneiss; pelitic schist and amphibolite, minor marble and ultramafic rocks, probably derived mainly from lower Mesozoic and possibly Paleozoic and (?) Precambrian rocks, and metamorphosed in Late Cretaceous and early Tertiary time*
Ms	*Garnet-biotite, staurolite, kyanite and sillimanite schist (in part, SETTLER SCHIST), local amphibolite, minor ultramafic rock and siliceous schist; south of Fraser River includes greenschist-grade sandstone, pelite and broken formation; metamorphosed in Cretaceous*

MESOZOIC

CRETACEOUS

LATE EARLY, EARLY LATE CRETACEOUS

PASAYTEN GROUP

KPw,v	*(a) undifferentiated sandstone, conglomerate, argillite; (b) "Winthrop facies" (Pw) of PASAYTEN GROUP, arkose, conglomerate, argillite and minor red beds and tuff; (c); "Virginian Ridge facies" (Pv) of PASAYTEN GROUP, chert-grain sandstone, argillite): as mapped, Pasayten lies east of Chuwanten Fault, but is probably a non-marine facies equivalent of the upper part of the JACKASS MOUNTAIN GROUP*

EARLY AND MIDDLE CRETACEOUS

JACKASS MOUNTAIN GROUP

KJ	*Sandstone, argillite, conglomerate; lies west of Chuwanten Fault; marine and non-marine; upper part is probably a facies equivalent of PASAYTEN GROUP*
Kgd	*Quartz diorite (qd), diorite (d), granodiorite (gd), minor ultramafic rock (SPUZZUM PLUTON); local gneissic phases*

JURASSIC(?) AND CRETACEOUS

LATE JURASSIC AND EARLY CRETACEOUS

JKgd	*Granodiorite and gneiss (EAGLE PLUTONIC COMPLEX)*
JKd	*Diorite and amphibolite (EAGLE PLUTONIC COMPLEX)*
JKg	*Muscovite-biotite granite and pegmatite (EAGLE PLUTONIC COMPLEX)*

EARLY AND MIDDLE JURASSIC

JH	*HARRISON LAKE FORMATION: intermediate, locally felsic flows and pyroclastics; local argillite, conglomerate*

LADNER GROUP

JL	*Argillite, slate, siltstone, tuff; as mapped, includes minor amounts of Upper Jurassic sandstone and conglomerate, possibly correlative with "Thunder Lake sequence"*
JD	*DEWDNEY CREEK FORMATION of LADNER GROUP: sandstone, argillite; local mafic to intermediate volcanics*

MESOZOIC

TRIASSIC

TrSP	*SPIDER PEAK FORMATION mafic volcanics*

PALEOZOIC AND/OR MESOZOIC

PMu	*Ultramafic rock, local gabbro*

PERMIAN TO JURASSIC

HOZAMEEN COMPLEX (PJH-PJHv)

PJH	*Undifferentiated, chert, pelite, mafic volcanics, minor limestone, gabbro and ultramafic rock*
PJHv	*Mafic volcanics*

BRIDGE RIVER COMPLEX

PJBR	*Siliceous and chlorite schist, phyllite; correlative with HOZAMEEN COMPLEX but west of Fraser River*
PJu	*Ultramafic rock and local gabbro, associated with HOZAMEEN and BRIDGE RIVER COMPLEXES*

Area of outcrop

Geological boundary (defined, approximate, assumed)

Bedding, tops known (inclined, vertical)

Schistosity, gneissosity, cleavage foliation (inclined, vertical)

Lineation, axis of minor fold, mineral/clast elongation (horizontal, inclined)

Major fold axis (syncline, anticline, overturned fold, arrow indicates plunge)

Lineament (from airphoto)

Fault (defined and approximate; assumed and extension beneath drift)

Normal fault (bar indicated downthrown side)

Strike-slip fault (arrow indicates relative movement)

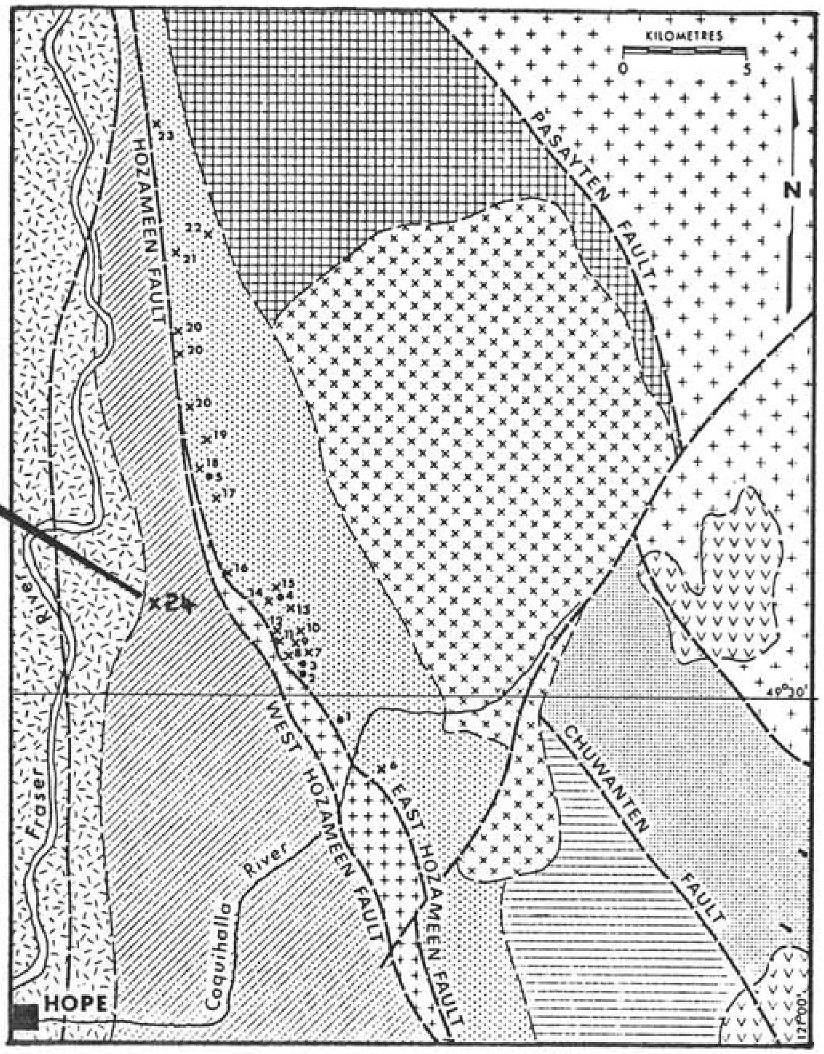
Thrust fault and "layer parallel" fault; teeth on upper plate

Geological mapping by J.W.H. Monger, Geological Survey of Canada (1984-86) In addition this compilation includes material from numerous sources (published reports by G.S.C. and B.C. Geological Survey, theses mainly at the University of British Columbia, and recent mapping by G.E. Ray, B.C. Geological Survey, in the Coquihalla and Hedley areas

Geological cartography by the Geological Survey of Canada

MIKE BRADLEY & ASSOCIATES	SCALE: —
CLIENT: MR. V. WALTERS	N.T.S.: 92H/11W
	DRAWN BY: M.D.B.
LEGEND FOR REGIONAL GEOLOGY MAP HARVIC PROPERTY	PROJECT: 93-96
	DATE: DEC. 1993
	FIGURE No. 3B

CHONG



LEGEND

COQUIHALLA GROUP	LADNER GROUP
NEEDLE PEAK PLUTON	COQUIHALLA SERPENTINE BELT
PASAYTEN GROUP	FOLIATED GRANODIORITE
JACKASS MOUNTAIN GROUP	HOZAMEEN GROUP
DEWDNEY CREEK GROUP	GNEISSES AND GRANITES

● PAST AND PRESENT GOLD PRODUCERS (*SEE* TABLE 2)

1 - EMANCIPATION
2 - AURUM
3 - IDAHO ZONE (CAROLIN MINE)
4 - PIPESTEM
5 - WARD

x REPORTED GOLD OCCURRENCES (*SEE* TABLE 3)

6 - BROKEN HILL
7 - SNOWSTORM
8 - MONTANA
9 - RUSH OF THE BULL
10 - GOLDEN CACHE
11 - McMASTER ZONE
12 - MURPHY
13 - GEM
14 - STAR
15 - HOME X
16 - NORM AND GEORGIA 2
17 - EMIGRANT
18 - RODDICK
19 - MARVEL
20 - SPUZ A, B, G AND MONUMENT
21 - MAJESTIC
22 - GOLD COIN
23 - GOLD CORD
24 - HILLSBAR

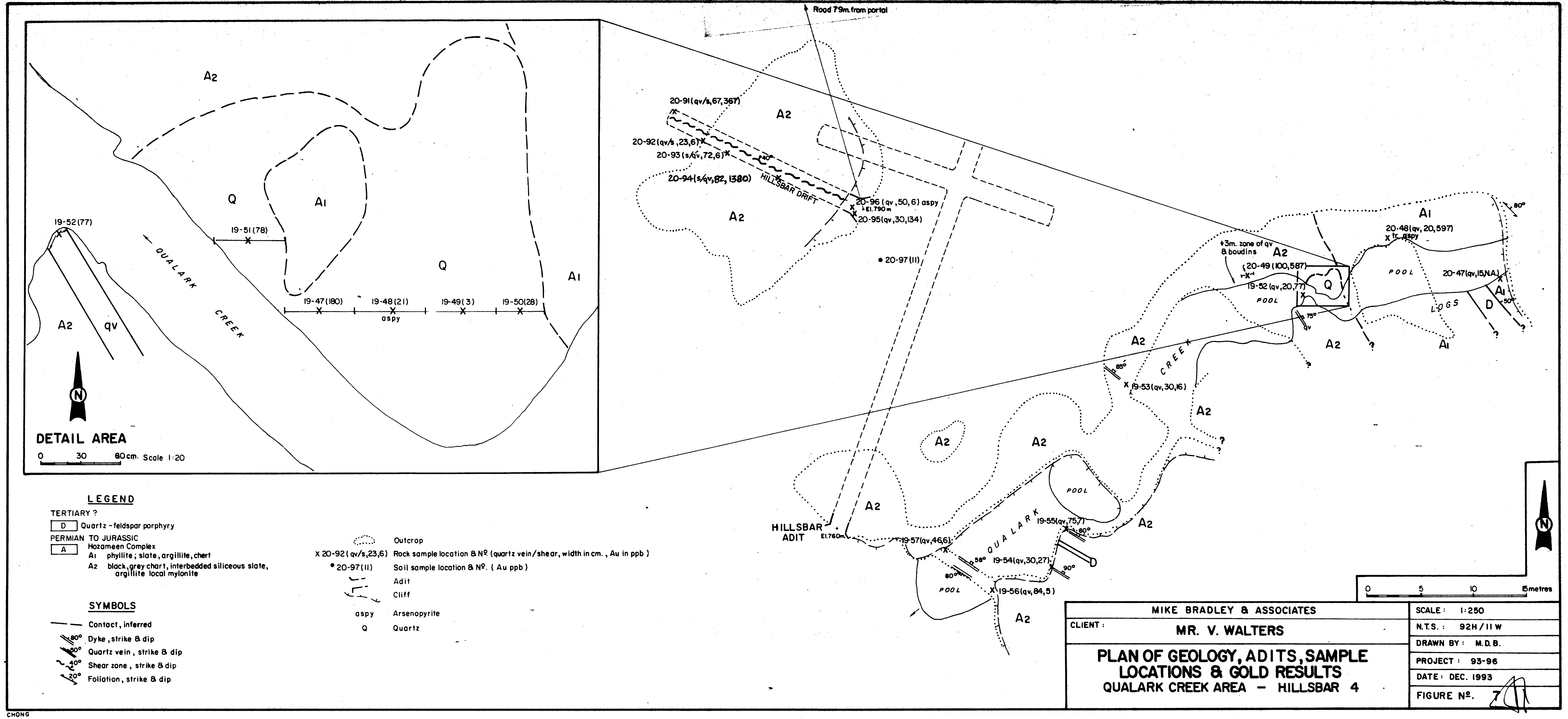
After Monger, 1970

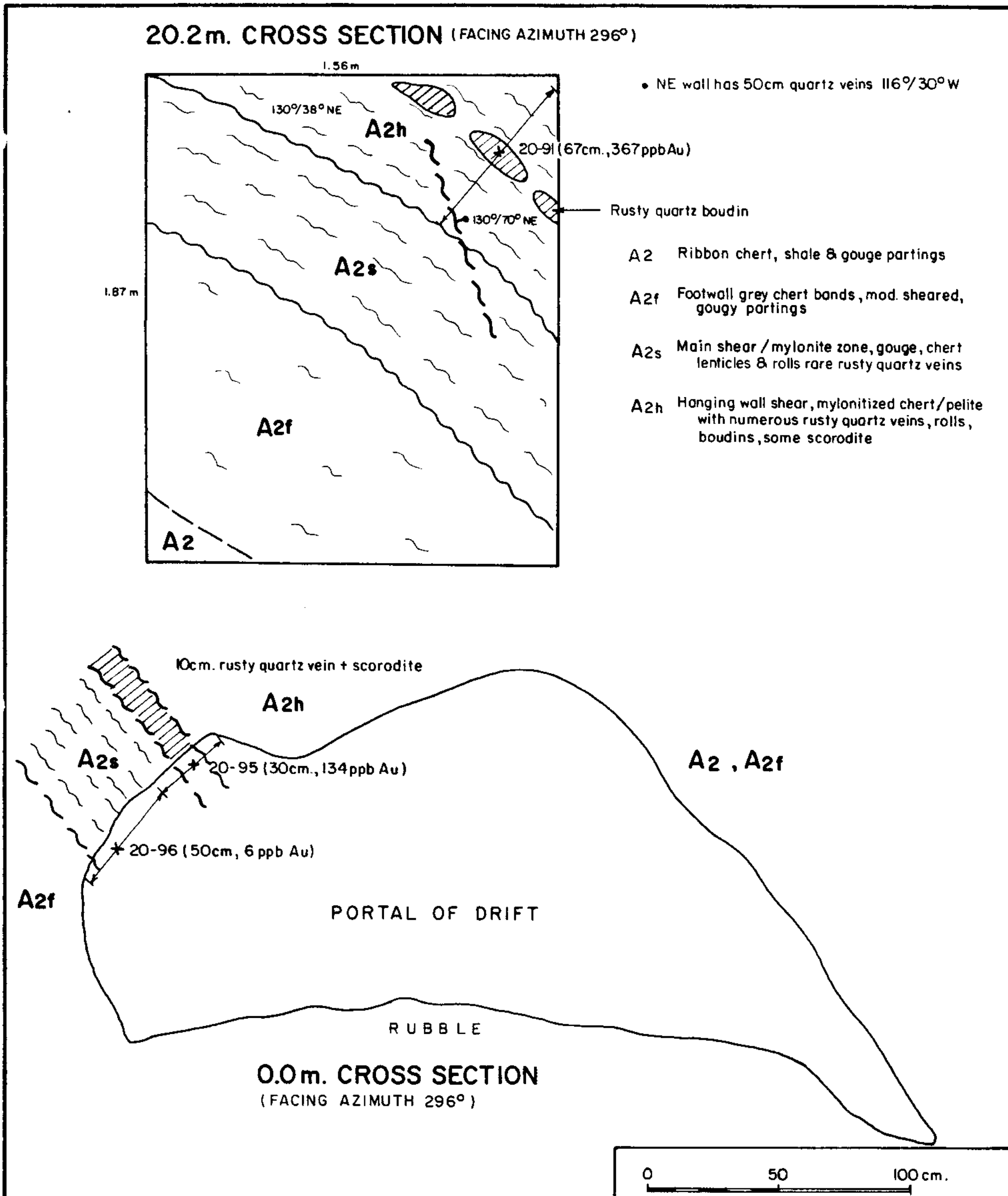
0 5 10 15 KM.

N

MIKE BRADLEY & ASSOCIATES	SCALE: 1:300,000
CLIENT: MR. V. WALTERS	N.T.S.: 92H/11 W
	DRAWN BY: M.D.B.
GOLD OCCURRENCES IN THE COQUIHALLA GOLD BELT HARVIC PROPERTY	PROJECT: 93-96
	DATE: DEC. 1993
	FIGURE No. 4

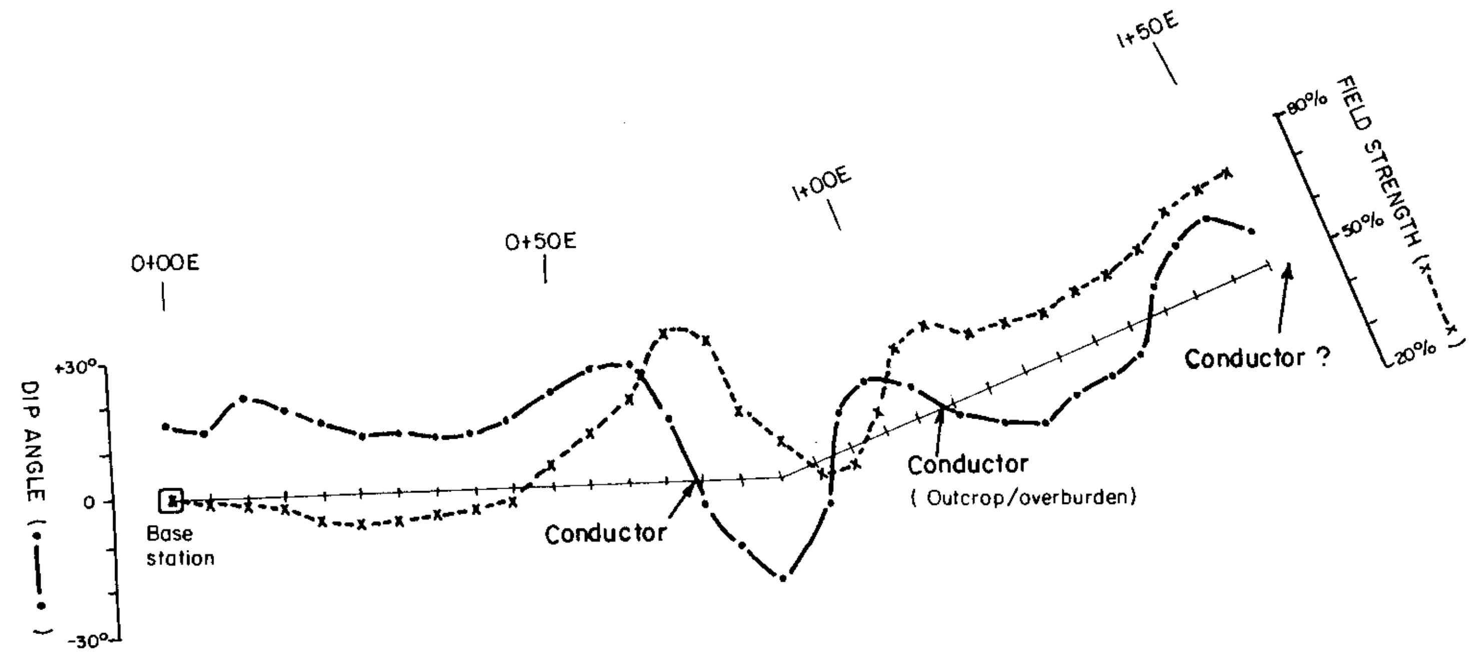
CHONG

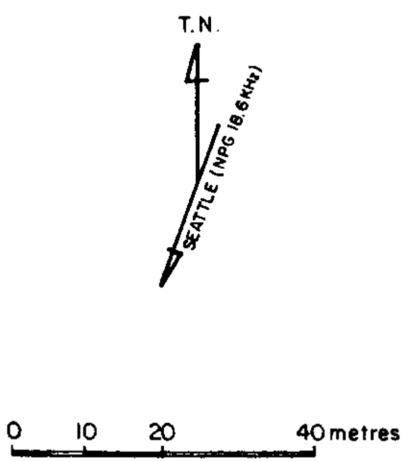

DETAIL AREA
0 30 60cm. Scale 1:20
A2
A1
Q
qv
QUALARK CREEK
19-52(77)
19-51(78)
19-47(180)
19-48(21)
aspy
19-49(3)
19-50(28)
Road 79m. from portal
20-91(qv/s,67,367)
20-92(qv/s,23,6)
20-93(s/qv,72,6)
20-94(s/qv,82,1380)
HILLSBAR DRIFT
20-96 (qv,50,6) aspy
El. 790m
20-95(qv,30,134)
20-97(11)
HILLSBAR ADIT
El.760m
±3m. zone of qv & boudins
20-49(100,587)
19-52(qv,20,77)
20-48(qv,20,597) tr. aspy
20-47(qv,15,N.A.)
POOL
LOGS
CREEK
19-53(qv,30,16)
19-55(qv,75,7)
19-54(qv,30,27)
19-57(qv,46,6)
19-56(qv,84,5)
QUALARK
D
0 5 10 15metres
LEGEND
TERTIARY ?
D Quartz-feldspar porphyry
PERMIAN TO JURASSIC
A Hozameen Complex
A1 phyllite; slate, argillite, chert
A2 black, grey chart, interbedded siliceous slate, argillite local mylonite
SYMBOLS
Contact, inferred
80° Dyke, strike & dip
50° Quartz vein, strike & dip
40° Shear zone, strike & dip
20° Foliation, strike & dip
Outcrop
X 20-92 (qv/s,23,6) Rock sample location & Nº. (quartz vein/shear, width in cm., Au in ppb)
• 20-97(11) Soil sample location & Nº. (Au ppb)
Adit
Cliff
aspy Arsenopyrite
Q Quartz
MIKE BRADLEY & ASSOCIATES
CLIENT: MR. V. WALTERS
PLAN OF GEOLOGY, ADITS, SAMPLE LOCATIONS & GOLD RESULTS
QUALARK CREEK AREA - HILLSBAR 4
SCALE: 1:250
N.T.S.: 92H/11W
DRAWN BY: M.D.B.
PROJECT: 93-96
DATE: DEC. 1993
FIGURE Nº. 7
CHONG



MIKE BRADLEY & ASSOCIATES	SCALE: 1:20
MR. V. WALTERS	N.T.S.: 92H / 11W
	DRAWN BY: M.D.B.
SAMPLING SECTIONS-HILLSBAR 790m. DRIFT	PROJECT: 93-96
HILLSBAR 4 CLAIM - HARVIC GROUP	DATE: DEC. 1993
	FIGURE No. 8

CHONG





MIKE BRADLEY & ASSOCIATES

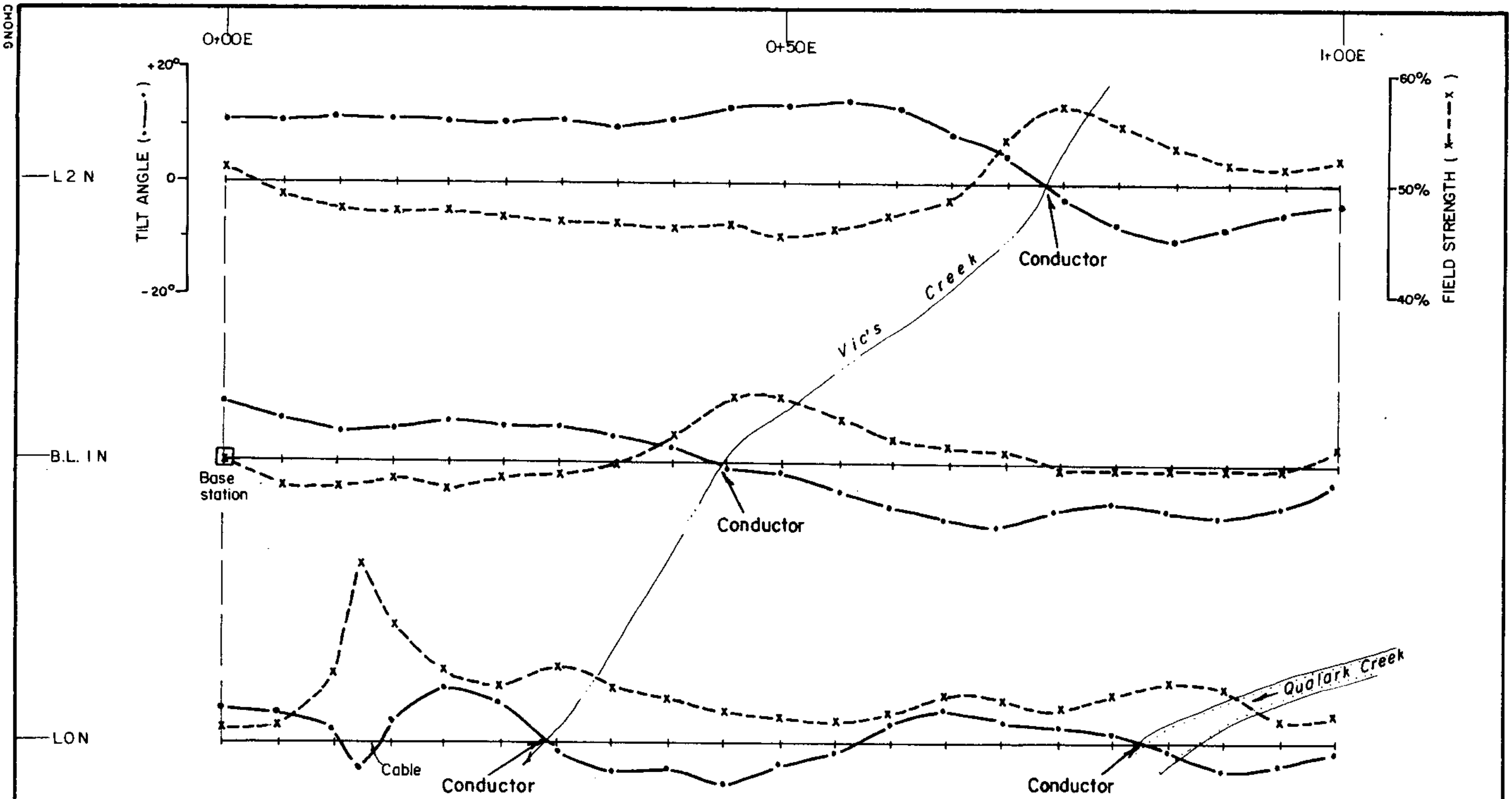
CLIENT: MR. V. WALTERS

GRID #1 : PLOT OF VLF-EM

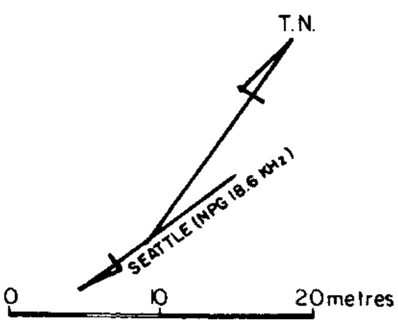
HARVIC GROUP

SCALE:	1:1000
N.T.S.:	92H / 11 W
DRAWN BY:	M.D.B.
PROJECT:	93-96
DATE:	DEC. 1993
FIGURE No.	9

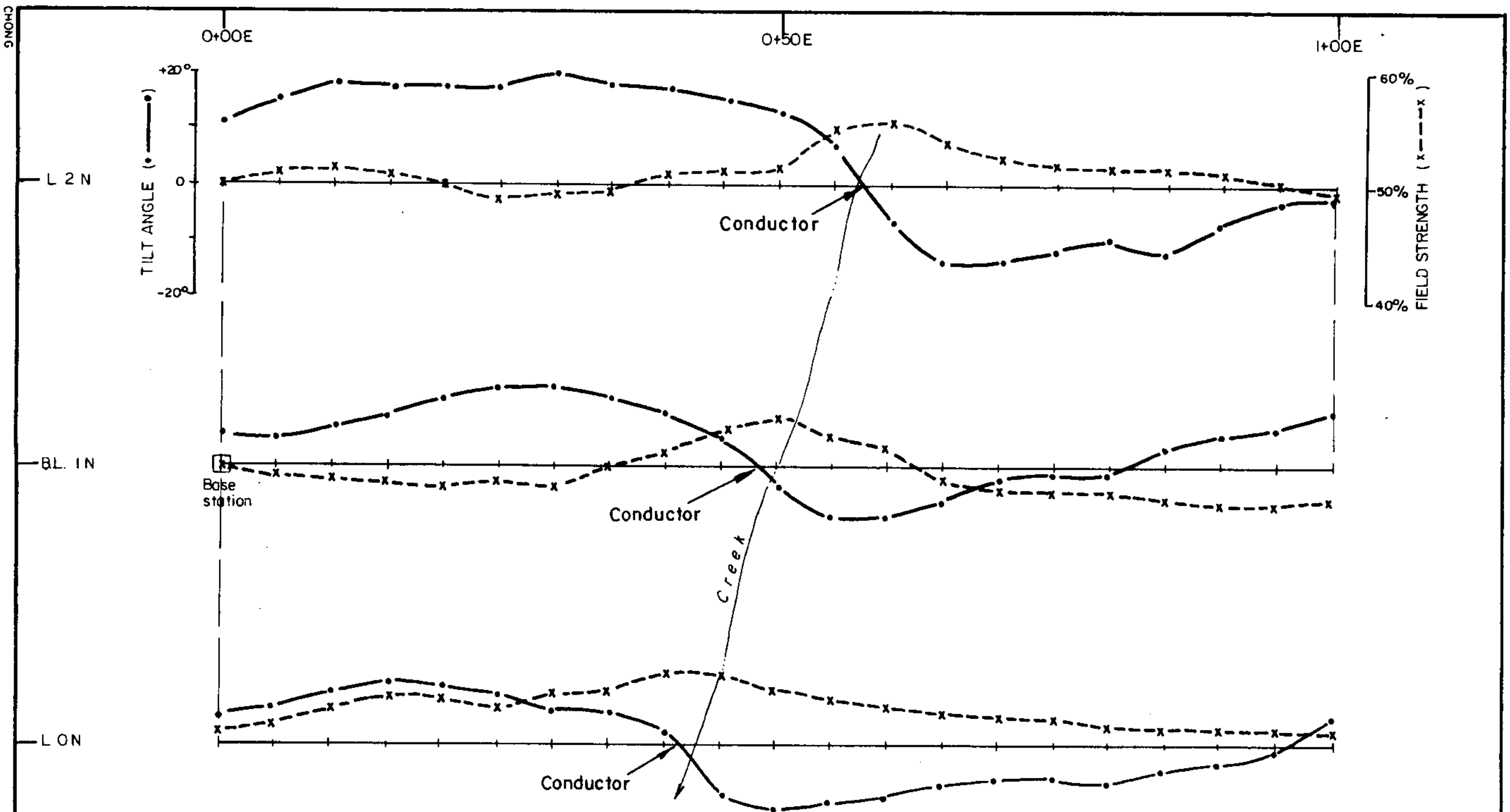
CHONG

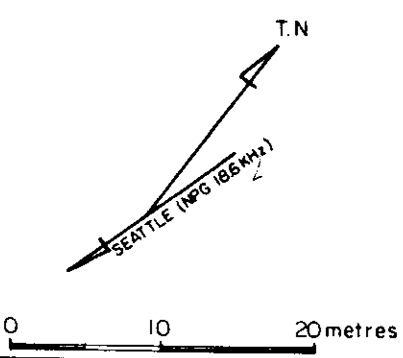


All readings taken facing south



MIKE BRADLEY & ASSOCIATES	SCALE: 1:500
CLIENT: MR. V. WALTERS	N.T.S.: 92H/11W
GRID #2 : PLOT OF VLF-EM HARVIC GROUP	DRAWN BY: M.D.B.
	PROJECT: 93-96
	DATE: DEC. 1993
	FIGURE N°. 10





All readings taken facing south.

MIKE BRADLEY & ASSOCIATES

CLIENT: MR. V. WALTERS

GRID #3 : PLOT OF VLF - EM

HARVIC GROUP

SCALE: 1:500

N.T.S.: 92H / 11W

DRAWN BY: M.D.B.

PROJECT: 93-96

DATE: DEC. 1993

FIGURE No. 11

APPENDICES

APPENDIX 1. STATEMENT OF COSTS

APPENDIX 2. ROCK CHIP SAMPLE DESCRIPTIONS & ANALYTICAL RESULTS

APPENDIX 3. GEOCHEMICAL SAMPLES - ANALYTICAL RESULTS.

APPENDIX 1

STATEMENT OF COSTS

STATEMENT OF COSTS

1. CONSULTING: Fieldwork

M. Bradley: Sept. 5-11, 1993: 7d x $375/d =	$2625.00	
B. Lennan : Sept. 6-11, 1993: 6d x $350/d =	2100.00	
Subtotal	$4725.00	$4725.00

2. HELICOPTER: Valley Helicopters, Hope - B.C. (Bell 206)

1.5 Hours	1158.00

3. ANALYTICAL: Acme Analytical Laboratories

27 samples for Au analysis by Acid Leach (30 gm)	
177 samples for Au analysis by Acid Leach (20 gm)	
156 soil sample prep.	
21 silt sample prep.	
27 rock sample prep.	1628.43

4. FOOD:

$22/Man day x 12 man days =	264.00

5. SUPPLIES: (batteries, flagging, kraft & plastic bags, etc.) 82.03

6. CAMP CHARGE: (M.Bradley kitchen & tent, etc. supplies)

$53.50/d x 6 days =	321.00

7. TRUCK RENTAL: (B.Lennan 3/4 ton 4 x 4 truck)

Rental: $53.50/d x 6d =	$321.00	
Mileage: 367Km x $0.11/Km=	40.37	
Gas: =	49.75	
Subtotal	$411.12	411.12

8. VLF-EM RENTAL: (M.Bradley)

Sabre Model 27 VLF-EM Receiver: $43/d x 6d =	258.00

5. REPORT PREPARATION: Mike Bradley & Associates

M. Bradley: 6 days @ $375/d =	$2250.00	
Typing: 15 hours @ $22.50/hr.=	337.50	
Drafting (F.Chong): =	759.20	
Reproduction, maps, copies: =	109.65	
Subtotal	$3456.35	3456.35

GRAND TOTAL OF ASSESSMENT WORK COSTS **$12304.00**

Apportionment of total costs to the **Hillsbar #4 claim/Harvic Group:**

$\frac{\text{5 field man days}}{\text{12 field man days}}$ x **$12304 = $5130.**

Apportionment of total costs to the **Flow-Gold claim/Hillsbar Group:**

$12304 - $5130 = $7174

APPENDIX 2

ROCK SAMPLE DESCRIPTIONS & ANALYTICAL RESULTS

ROCK CHIP/CHANNEL SAMPLE DESCRIPTIONS

SAMPLE NO.	GOLD (PPB)	SAMPLE LENGTH (cm)	DESCRIPTION
19-47	180	53	See Figure 7. 2.5m wide exposure of flat(?) lying to undulose, milky-white quartz vein. True thickness unknown - possible fold nose. Irregular vuggy, limonitic patches. Sharp, silicified contacts with Units A1,A2.
19-48	21	53	ditto
19-49	3	53	ditto
19-50	28	37	ditto
19-51	78	53	ditto
19-52	77	15	15 cm thick, milky-white quartz vein trending 149°/85°NE.
19-53	16	30	30 cm thick, milky-white quartz vein, trending 130°/85°NE.
19-54	27	30	30 cm thick, milky-white quartz vein, vuggy, limonitic. Possibly in nose of a chevron fold - axis trends 124°.
19-55	7	75	75 cm thick, very limonitic and vuggy bull-quartz vein, parallel to foliation in chert/argillite, trending 120°/60°NE. Chert is sheared, recrystallized and very limonitic.
19-56	5	84	84 cm thick, bull-quartz vein, folia-form trending 124°/85°SW.
19-57	6	46	46 cm thick bull-quartz vein @ 124°/58°NE.
19-99	1	40	Fine-grained, fels-textured (quartz) aplite is 4m thick, cutting gneissic dioite on 140°/90°. Numerous 1-5 cm thick aplite dykelets in hanging wall @ 125°/48°NE.
20-6	1	talus grab	Limonitic chert cut by many 1 mm, vuggy, rusty, sheeted quartz veinlets.
20-33	7	9	Several 1 cm thick, vuggy, rusty-white quartz veinlets trend 127°/90° in fold axis trending 127°/18°SE. Cherts locally folded and sheared.
20-38	2	70	Light to medium, orange-brown weathering aplite dyke with trace fine-grained pyrite, 70 cm thick, trending 152°/90°. Chip of dyke and erratic, subhorizontal, white, vuggy quartz veinlets.
20-39	4	10	10 cm thick, vuggy, rusty, bull-quartz vein in wafer-laminated phyllites.
20-40	1	80	80 cm thick, rusty, vuggy, bull-quartz veins - fold thickened and offset by fault @ 113°/85°NE.

SAMPLE NO.	GOLD (PPB)	SAMPLE LENGTH (cm)	DESCRIPTION
20-47	1	15	15 cm thick, rusty, vuggy, boudinage quartz vein with inclusions of argillite. Foliation of host cherts and vein trend 135°/80°E. Adjacent to a quartz-feldspar porphyry dyke.
20-48	597	20	20 cm thick, very rusty, vuggy, quartz vein with included folia of phyllite within gray-black cherts. Trace disseminated, fine-grained arsenopyrite and pyrite.
20-49	587	100	Chip across 1.0 m central to >3m wide shear zone containing rusty, vuggy, bull-quartz veins and boudins in chert/argillite host.
20-91	367	67	N.W. end/face of 790m Drift - see Figure 8. Chip across 67 cm true width of hanging wall to intense shear zone. Sheared, gougy, chert/mylonite trends 130°/50°NE and contains numerous rusty, fractured, vuggy, bull-quartz veins and boudins. Chip includes 1 large quartz boudin.
20-92	6	23	S.W. wall of 790m Drift @ 16.3m in from portal. Chip from back, down wall - see Figure 8. Chip/channel across hanging wall shear, locally black and gougy with lots of quartz boudins (not included in sample), into light orange-brown colored main shear zone containing rare quartz.
20-93	6	72	S.W. wall of 790m Drift @ 13.7m in from the portal. Chip from back down 72 cm - see Figure 8. Chip from the back, downwall 72 cm - see Figure 8. Chip/channel across upper 28 cm of black, gougy, hanging wall shear, with dense, rusty, quartz veinlets and boudinage + 44 cm of the main shear zone.
20-94	1380	82	S.W. wall of 790m Drift @ 8.4m in from the portal. Chip from back, down 82 cm on wall - see Figure 8. Chip/channel upper 33 cm of black, gougy, hanging wall shear + quartz boudinage + 49 cm of main shear zone. Much cave and rubble from here to portal.
20-95	134	30	S.W. wall in back, at portal of 790m Drift. 30 cm chip/channel across back exposure of 10 cm thick, rusty, quartz vein, coated with limonite and scorodite and enclosing sheared chert/phyllite.
20-96	6	50	S.W. adjacent to 20-95 in Figure 8. Rusty, orange-colored shear/gouge in upper 35 cm of chip and black, graphitic gouge in lower 15 cm of chip sample.
20-99	36	120	1.2m thick fine-grained, siliceous rock with white ghosts of relict, anhedral feldspar phenos. - an aplite, weakly limonitic + trace fine-grained pyrite. Trends 110°/55°NE, parallel to foliation in gneissic feldspar granodiorite. Numerous 0.5-2.0 cm thick rusty, white quartz veins adjacent to dyke.

ACME ANALYTICAL LABORATORIES LTD. 852 E. HASTINGS ST. VANCOUVER B.C. V6A 1R6 PHONE(604)253-3158 FAX(604)253-1716

GEOCHEMICAL ANALYSIS CERTIFICATE

Mike Bradley & Associates PROJECT 9392 File # 93-2500 Page 7

4750 Westlawn Drive, Burnaby BC V5C 3R3

SAMPLE#	Au* ppb
19-47	180
19-48	21
19-49	3
19-50	28
19-51	78
19-52	77
19-53	16
19-54	27
19-55	7
19-56	5
19-57	6
19-99	1
20-6	1
20-33	7
20-38	2
20-39	4
20-40	1
20-47	1
20-48	597
RE 20-48	534
20-49	587
20-91	367
20-92	6
20-93	6
20-94	1380
20-95	134
20-96	6
20-99	36
STANDARD AU-R	457

- SAMPLE TYPE: P1-P5 SOIL P6 SILT P7 ROCK AU* ANALYSIS BY ACID LEACH/AA FROM 30 GM SAMPLE.

Samples beginning 'RE' are duplicate samples.

DATE RECEIVED: SEP 15 1993 **DATE REPORT MAILED:** Sept 20/93 **SIGNED BY** .... D.TOYE, C.LEONG, J.WANG; CERTIFIED B.C. ASSAYERS

APPENDIX 3

GEOCHEMICAL SAMPLES - ANALYTICAL RESULTS

SAMPLE#	Au* ppb
19-41	13
19-42	11
RE 19-44	140
19-43	50
19-44	160
19-45	29
19-46	45
19-59	20
19-67	58
19-70	23
20-34	11
20-35	11
20-57	5
20-66	6
20-70	70
20-72	17
20-79	25
20-83	310
20-104	8
20-106	10
20-107	33
20-108	30
STANDARD AU-S	47

Sample type: -100 SILT. Samples beginning 'RE' are duplicate samples.

ACME ANALYTICAL LABORATORIES LTD. 852 E. HASTINGS ST. VANCOUVER B.C. V6A 1R6 PHONE(604)253-3158 FAX(604)253-1716

GEOCHEMICAL ANALYSIS CERTIFICATE

Mike Bradley & Associates PROJECT 9392 File # 93-2500 Page 1

4750 Westlawn Drive, Burnaby BC V5C 3R3

SAMPLE#	Au* ppb
19-1	7
19-2	4
19-3	6
19-4	5
19-5	1
19-6	5
19-7	4
19-8	4
19-9	3
19-10	5
19-11	8
19-12	16
19-13	7
19-14	4
19-15	5
19-16	6
19-17	2
19-18	4
RE 19-32	2
19-19	8
19-20	3
19-21	5
19-22	11
19-23	10
19-24	4
19-25	4
19-26	8
19-27	3
19-28	7
19-29	7
19-30	5
19-31	4
19-32	2
19-33	3
19-34	7
STANDARD AU-S	49

Soil

- SAMPLE TYPE: P1-P5 SOIL P6 SILT P7 ROCK AU* ANALYSIS BY ACID LEACH/AA FROM 20 GM SAMPLE.

Samples beginning 'RE' are duplicate samples.

DATE RECEIVED: SEP 15 1993 **DATE REPORT MAILED:** Sept 20/93 **SIGNED BY**..........D.TOYE, C.LEONG, J.WANG; CERTIFIED B.C. ASSAYERS

SAMPLE#	Au* ppb
19-35	11
19-36	3
19-37	1
19-38	3
19-39	11
19-40	5
19-58	5
19-60	11
19-61	69
19-62	16
19-63	11
19-64	7
19-65	17
19-66	24
19-68	12
19-69	7
RE 19-58	6
19-71	93
19-72	6
19-73	5
19-74	4
19-75	4
19-76	30
19-77	20
19-78	6
19-79	14
19-80	16
19-81	5
19-82	9
19-83	13
19-84	1
19-85	44
19-86	8
19-87	4
19-88	11
STANDARD AU-S	45

Sample type: -100 SOIL. Samples beginning 'RE' are duplicate samples.

SAMPLE#	Au* ppb
19-89	12
19-90	7
19-91	64
19-92	5
19-93	11
19-94	5
19-95	9
19-96	3
19-97	5
19-98	4
20-1	10
20-2	28
20-3	3
20-4	3
20-5	3
20-7	6
20-8	6
20-9	2
20-10	4
20-11	7
20-12	3
20-13	7
20-14	7
20-15	6
20-16	3
20-17	93
20-18	2
20-19	3
20-20	6
RE 19-96	2
20-21	7
20-22	7
20-23	6
20-24	5
20-25	5
STANDARD AU-S	46

Sample type: -100 SOIL. Samples beginning 'RE' are duplicate samples.

SAMPLE#	Au* ppb
20-26	570
20-27	6
20-28	4
20-29	5
20-30	2
20-31	1
20-32	4
20-36	1
20-37	4
20-41	4
20-42	8
20-50	1
20-51	4
20-52	3
20-53	1
20-54	2
20-55	3
20-56	1
20-58	8
20-59	6
RE 20-27	6
20-60	23
20-61	1
20-62	6
20-63	3
20-64	3
20-65	5
20-67	5
20-68	10
20-69	17
20-71	32
20-73	5
20-74	6
20-75	5
20-76	7
STANDARD AU-S	47

Sample type: -100 SOIL. Samples beginning 'RE' are duplicate samples.

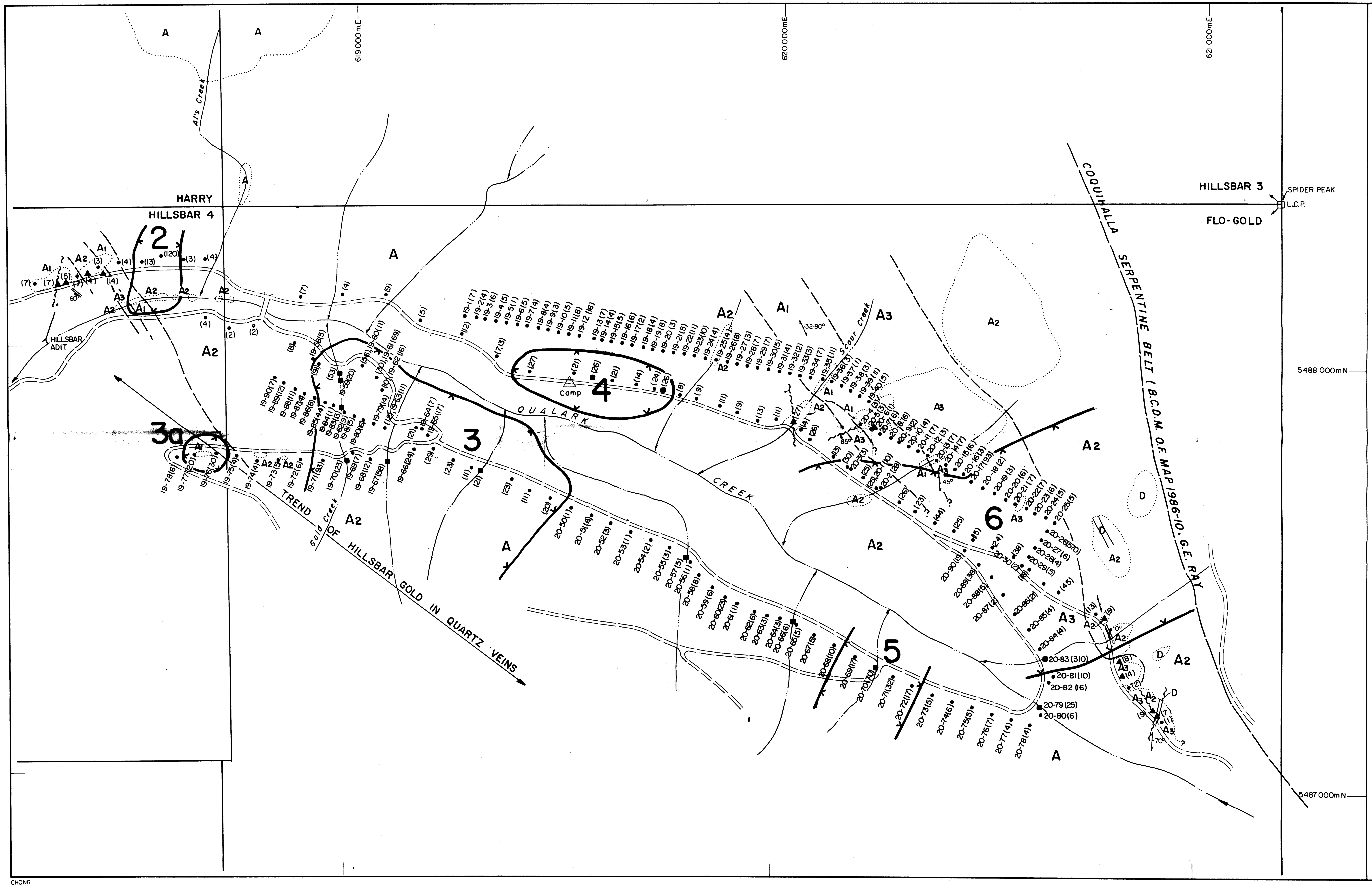
SAMPLE#	Au* ppb
20-77	4
20-78	4
20-80	6
20-81	10
20-82	16
20-84	4
20-85	4
20-86	21
20-87	2
20-88	5
20-89	38
20-90	19
20-97	11
20-98	1
20-100	4
20-101	7
RE 20-105	3
20-102	<1
20-103	10
20-105	3
20-109	7
STD AU-S	49

Sample type: -100 SOIL. Samples beginning 'RE' are duplicate samples.

LEGEND
TERTIARY
EOCENE
MOUNT OUTRAN PLUTONS
D Aplite ; quartz (feldspar) porphyry
C Granodiorite
C1 feldspar diorite porphyry
C2 feldspar granodiorite porphyry
C3 fine grained diorite
CRETACEOUS OR TERTIARY ?
CUSTER GNEISS ?
B Chlorite schist, hornblende schist
PERMIAN TO JURASSIC
HOZAMEEN COMPLEX
A Undifferentiated chert, pelites, mafic volcanics
A1 argillite, shale, locally slate
A2 thin bedded ribbon chert, interbedded siliceous shales/slate argillite
A3 greenstone, tuffaceous pelite ; basalt dykes
SYMBOLS
Contact - defined, inferred
Dyke showing strike & dip
Quartz vein, showing strike & dip
Shear, showing strike & dip
Cleavage, showing strike & dip
Adit
Outcrop
Legal corner post
[20],(20) Gold value in ppb [Nicholson, 1990], (Bradley, 1991)
19-59(20) Sample Nº. (Gold value in ppb), 1993
Sample location - rock, soil, sediment
Logging road - partially eroded
Creek
Bridge
Gold in soil anomaly
VIC
HARRY
HILLSBAR 4
HILLSBAR 3
FLO-GOLD
617,500mE
618,000mE
618,500mE
619,000mN
5,488,000mN
5,487,500mN
EM GRID Nº. 1
(FIG. 9)
EM GRID Nº. 2
(FIG.10)
EM GRID Nº. 3
(FIG.11)
HILLSBAR ADIT
UNMAPPED
VIC'S CREEK
QUALARK CREEK
MIKE'S CREEK
HARRY'S CREEK
AL'S CREEK
GOLD CREEK
TREND OF HILLSBAR GOLD IN QUARTZ VEINS
Camp
Numerous 1-5cm aplite dykes
White o/c not mapped
Several q.v.
GEOLOGICAL BRANCH
ASSESSMENT REPORT
23,328
M.G.
40 0 40 80 120 160metres
MIKE BRADLEY & ASSOCIATES
MR. VIC WALTERS
HILLSBAR 4 CLAIM : HARVIC GROUP
PLAN OF GEOLOGY, SAMPLE LOCATIONS AND GOLD RESULTS
SCALE 1:2000
N.T.S. 92H/11W
DATE: DEC. 1993
DRAWN BY : M.D.B.
PROJECT : 93-96
FIGURE : 5

GEOLOGICAL BRANCH
ASSESSMENT REPORT

23,328



LEGEND

TERTIARY
EOCENE
MOUNT OUTRAN PLUTONS

- D — Quartz (feldspar) porphyry
- C — Granodiorite
  - C_1 feldspar diorite porphyry
  - C_2 feldspar granodiorite porphyry
  - C_3 fine grained diorite

CRETACEOUS OR TERTIARY ?
CUSTER GNEISS ?

- B — Chlorite schist, hornblende schist

PERMIAN TO JURASSIC
HOZAMEEN COMPLEX

- A — Undifferentiated chert, pelites, mafic volcanics
  - A_1 argillite, shale, locally slate
  - A_2 thin bedded ribbon chert, interbedded siliceous shales/slate argillite
  - A_3 greenstone, tuffaceous pelite; basalt dykes

SYMBOLS

- Contact - defined, inferred
- Dyke showing strike & dip
- Quartz vein, showing strike & dip
- Shear, showing strike & dip
- Cleavage, showing strike & dip
- Adit
- Outcrop
- Legal corner post
- (20) Gold value in ppb, Bradley, 1992
- 19-59(20) Sample No. (Gold value in ppb), 1993
- Sample location - rock, soil, sediment
- Logging road - partially eroded
- Creek
- Bridge
- Gold in soil anomaly

T.N.
M.G.
N
21°58'

100 0 100 200 400 metres

MIKE BRADLEY & ASSOCIATES

MR. VIC. WALTERS

FLO-GOLD CLAIM : HILLSBAR GROUP

PLAN OF GEOLOGY, SAMPLE LOCATIONS AND GOLD RESULTS

SCALE 1:5000	N.T.S. 92H/11W	DATE: DEC. 1993
DRAWN BY: M.D.B.	PROJECT: 93-96	FIGURE: 6