AN ASSESSMENT REPORT SUMMARIZING THE 1991 PROGRAM OF GEOLOGICAL MAPPING AND GEOCHEMICAL SAMPLING ON THE AL #1 CLAIM - HARVIC GROUP

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 Al #1 claim, using helicopter support on Oct. 17/18, 1991 and conducted geological mapping and geochemical surveys. A total of 50 samples were collected - 35 soils, 1 stream sediment, 1 heavy mineral concentrate sample and 13 rock chip/channel samples. The Hillsbar Adit was relocated and quartz veins were chip sampled to determine gold content.

The geological mapping indicates a 100 m wide feldspar porphyry dyke, of variable composition between diorite (dominant) and granodiorite (subordinate), intrudes Hozameen Group ribbon chert and slate/argillite units, subparallel to a prominent northwest (115°-128°) trending cleavage in the slates. Aplite dykes and sills, with associated pyritic quartz veins, intrude feldspar diorite porphyry, 30 m west of the intrusion/Hozameen fault contact, in the vicinity of the Hillsbar Adit. Widespaced, 1 - 5 cm wide bull quartz veins are common in northwest and north trending tensional and shear fracture zones within all geological units.

An 0.2 - 0.5 m wide bull quartz vein, exposed in a drift in the Hillsbar Adit, was tested by 4 chip/channel samples collected at intervals over a 28.2 m length. The vein has an arithmetic average grade of 6.85 GMT gold (0.20 oz/ton) over an 0.5 m width.

Soil sampling has indicated an area of gold enrichment 2 - 30 times average values, approximately 100 m wide (east-west) on two soil lines spaced approximately 130 m apart (north-south), in the vicinity of Mike's Creek. The gold anomaly may indicate a northerly trending gold - bearing quartz/shear zone underlies an overburden covered area of feldspar porphyry intrusion.

The author concludes that gold mineralization is penecontemporaneous with the porphyry intrusion(s) and sees excellent potential to locate structurally controlled gold deposits both within the intrusion and in its contact zones with Custer Gneiss and Hozameen Group rocks.

Recommendations are made for followup of both the Hillsbar gold zone and the gold in soil anomaly.

Respectfully Submitted,

MICHAEL BRADLEY, M.Sc.

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2. <u>INTRODUCTION:</u> Two consultants travelled from Vancouver to Hope late on October 15, 1991, intending to travel to Qualark Creek by helicopter early the next day. Snow and fog in the Hope area, caused by a cold front, forced cancellation of the flight on October 16th. A second attempt early on October 17th mobilized the 2 man crew and equipment to a small clearing on a logging road, located at 774 m (2540') elevation, south of Qualark Creek within the Al #1 claim. A tent camp was established on the road to support a two day survey .
The purpose of the visit was to relocate the Hillsbar Adit along Qualark Creek, sample the gold-bearing quartz veins, map the local geology, conduct reconnaissance soil sampling, looking for gold anomalous zones and to relocate another adit noted by Vic Walters in a visit to the Al #1 area 40 years previous.
The Hillsbar Adit was relocated and three quartz veins in the workings were channel sampled. Bank soils were collected adjacent to a portion of Qualark Creek, downstream of the adit. Bedrock was mapped in and adjacent to the creek. Soil samples were collected at 100 m intervals to the south of Qualark Creek, upslope of logging roads. Outcrops were geologically mapped during the soil sampling. A search for the second adit reported by Vic Walters was not successful.
The two men collected a total of 50 samples, including; 13 rock-channel samples, 35 soils, 1 stream sediment and 1 panned concentrate sample, during a two day survey of the Al #1 claim. This report summarizes property geology (see figure 4), geochemical sampling (see figure 5) and lithogeochemical sampling of a portion of the Hillsbar Adit (see figure 6).

3. <u>LOCATION AND ACCESS:</u> The Al #1 claim is 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 on the Al #1 claim and elsewhere on the Harvic Claim Group, however; these have been washed out in numerous locations, cut banks are eroded and landings and right of ways are 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 Al #1 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, 5 and 3 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. Electical power is available at Yale, on the west side of the Fraser River.

4. <u>CLAIMS STATUS:</u> The Harvic Group of mineral claims lies within the New Westminster Mining Division and consists of 7 claims totalling 99 units. Upon acceptance of this report, submitted in support of work credits of $4607.00 - $4500 of which was filed on Jan. 17, 1992, one years assessment is applied on four claims as follows:

CLAIM NAME	REGISTRATION NO.	UNITS	ANNIVERSARY DATE
Al #1	3711	18	Aug. 17, 1992
Vic	3733	18	Sept.18, 1992
Harry	3734	18	Sept.18, 1992
Hillsbar #1	3846	10	Jan. 18, 1993
Hillsbar #2	3847	15	Jan. 18, 1993
John	3848	10	Jan. 18, 1993
Mike	3849	10	Jan. 18, 1993
	Total	99	

All of the above claims are owned by Mr. V. Walters of Sechelt, B.C., who paid for the work completed in the 1991 program of work on the Al #1 claim.

The author personally visited the Legal Corner Post for the Vic and Harry claims and verifies that it was staked and marked in a proper fashion. The location of the L.C.P is marked on figures 2, 4 and 5. The post is 74m north of the junction of a branch line and the mainline road on the north side of Qualark Creek, in a group of planted conifers.

5. HISTORY: 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 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. These anomalies were not prospected in the current study.

5. <u>PHYSIOGRAPHY:</u> The Harvic claim group 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. **REGIONAL GEOLOGY:** (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 upper-most 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 Al #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. Weak gold-tungsten association 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:

Introduction: Two men spent two days soil sampling and geologically mapping along Qualark Creek and an adjacent area to the south. Survey control was by metric topofil chainage along logging roads and compasstopofil 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 a scale of 1:2000 and redrafted to provide a base for plotting sample locations and geological information, presented in Figure 4.

Qualark Creek has cut to bedrock over much of its length and 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.

General Geology: (Figures 3, 4)

The Al #1 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. [South of Hope] along Silverhope Creek, 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).

Description of Lithologies: (Figures 4,5)

<u>Unit A (Permian to Jurassic Hozameen Group):</u>

The Hozameen Group contains the oldest lithologies represented on the Al #1 claim. 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 Al #1 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. The Hozameen rocks include Unit Al - a predominantly argillaceous division with narrow chert bands and Unit A2 - comprised of ribbon chert and silicified argillite with subordinate narrow bands of pelite, mainly observed in the area of Hillsbar Adit. Since greenstone and limestone facies have not been observed on the Al #1 claim, the author assumes local Unit A rocks belong to an upper division of the Hozameen Group, probably division iii. (above).

Unit A1: Thinly banded argillaceous rocks, including medium gray to black coloured argillite, slatey argillite, slate and shale, predominate south of Qualark Creek. 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. Two areas of more dense silica veining within the argillites/slates occur in shear zones near sample locations 20-3 and 20-21.

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 west of the survey area, east of Harry's Creek at stations 20-5, 8 and in the east of the Al #1 claim, near Hillsbar Adit. 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 bull-white 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 B: **(Cretaceous or Tertiary Custer Gneiss):**
The characteristic rock type called Custer Gneiss by Daly (1912), occurs south of Hope within a discontinuous belt extending from the International Boundary to Stout, B.C.. Gneiss comprises light coloured layers of plagioclase and quartz, alternating with dark layers of biotite and/or hornblende, having a migmatitic texture with plagioclase porphyroblasts both scattered throughout or concentrated into irregular layers. "Between Hope and Stout the gneiss...is chalky white, closely jointed, faulted and mylonitized, so that the rock is rather friable" (Monger, 1969). Nicholson (1990) has mapped similar gneiss, located just west of Vic's Creek, within the Al #1 and John claims.
Bands of chlorite schist, mapped in the current study along Harry's

Creek and 160 m to the east, do not obviously relate either to the Hozameen Group or Custer Gneiss units but may be characteristic of the fault contact separating these two units. The author has chosen to include rocks mapped as chlorite schist with Custer Gneiss, since gneiss is extensive just west of Harry's and Vic's Creeks and since schist belts are common within and flanking gneissic cores world wide, with lithotextural differences relating to variations in metamorphic grade, protolith and structural level in the orogeny.
Chlorite schist located along the ravine of Harry's Creek is fine-grained, dark green-gray coloured and prominently foliated on 120°/45°NE. The locally sinuous schistocity is marked by thin lenses and folia of dark green chlorite (chloritoid? and talc?). The schist is easily eroded and appears to define the ravine of Harry's Creek for at least 400 m. Further east, between sample stations 20-4,5, lies another chlorite schist band with a penetrative schistocity trending 158°/50°NE. Contacts with Unit A2 cherts to the southwest and Unit A1 pelites to the northeast are not exposed. An isolated outcrop of Unit C3, fine-grained diorite, separates schist from cherts at station 20-5 and may stope this contact zone. The schist, where observed, contains only minor amounts of macroscopic quartz and feldspar grains/blasts, suggesting the protolith was a fine-grained mafic volcaniclastic, dyke or zone of hydrothermal chlorite deposition.

Unit C (Eocene to Miocene (?) - Needle Peak and Mount Outram Plutons):
The granodiorite body mapped by the G.S.C. on the ridge line north of Qualark Creek (Vic claim), as discussed in the General Geology section, has an uncertain age but is thought to have intruded in Tertiary time. Intrusions previously grouped with Yale Intrusions of Late Cretaceous to Early Tertiary age are commonly sheared - the Qualark Creek body is only locally sheared. Granodiorite of the Needle Peak Pluton is typically ..."massive, coarse-grained granite and granodiorite..." (Monger, 1969). Detailed G.S.C. descriptions of the Qualark ridge intrusion are not available and it was not examined in the current study. The intrusions along Qualark Creek are variable in composition from diorite to granodiorite and in texture from porphyritic to fine-grained. Narrow aplite (Unit D) dykes and sills crosscut feldspar diorite porphyry.

Unit C1 - Feldspar Diorite Porpyry:
Porphyritic diorite is found in subcontinuous outcrop along the floor of Qualark Creek, in the south wall of the canyon, for approximatley 100 m west of the porphyry-chert contact, adjacent to Hillsbar Adit. Scattered outcrop of porphyry are also found to the southwest, near station 20-11 and on the north side of Qualark Creek, near stations 17-154, 159, and 161.
Diorite porphyry is typically light to medium gray-coloured in moderately but prominently jointed outcrop along Qualark Creek. The joint pattern is well developed on 138°/70°E and approximately 070°, with subhorizontal dips. The unit is light gray on fresh surfaces and contains 20% by volume of white, subhedral to anhedral, subrounded and angular plagioclase phenocrysts, variable in diameter from 1-5 mm and 1-5%, 1 mm quartz phenocrysts, in a fine-grained matrix of feldspar, chloritized mafics and sericite. Sericite flakes are commonly <1 mm in diameter and occupy perhaps 2% of the matrix; however, local

concentrations, as at 17-161, have 5-10% of 1.5 mm diameter. Matrix and phenocryst feldspars are commonly weakly saussauritized and locally are moderately epidotized. Diorite porphyry located at creek level, between station 17-161 and 17 m above 17-164 is weakly sheared and jointed on 145°/90°, weakly sericitized and epidotized and cut by aplite dykes (Unit D) trending 045°/000°, 045°/80°NW and 130°/40°SW.
In the vicinity of station 17-154 on the north side of Qualark Creek, feldspar granodiorite porphyry passes gradationally upslope into feldspar diorite porphyry, containing 10-15% by volume of fine-grained stubby laths and accicular hornblende (and/or tourmaline?) crystals. The diorite porphyry unit is moderately chloritized and cut by epidotic shears, trending 148°/80°SW and 172°/60°E.

Unit C2 - Feldspar Granodiorite Porphyry:
Outcrop of Unit C2 is located along the floor and lower banks of Qualark Creek, west of sample 17-158. Granodiorite porphyry is distinquished from diorite prophyry by the crowded density of rounded to angular feldspar phenocrysts and presence of 10-20% by volume, 1-3 mm diameter, euhedral quartz phenocrysts, plus 1/4-1/2% disseminated by volume, fine-grained, blebby and crystalline pyrite. Granodiorite porphyry is prominently jointed on 000°/70°E and subhorizontal attitudes (005°/20°W). The matrix of this unit weathers away to leave a friable grus composed of feldspar and quartz phenocrysts, most prominently on the north side of Qualark Creek, in the vicinity of stations 17-53,54. The distribution of outcrop and the gradational contact in the vicinity of 17-53,54, suggests that feldspar granodiorite porphyry underlies feldspar diorite porphyry and floors the valley of Qualark Creek between Vic's Creek in the west and Mike's Creek in the east.

Unit C3 - Fine-Grained Diorite:
A single outcrop of diorite is located south of Qualark Creek in the vicinity of station 20-5. The exposure is approximately 10 m wide within a larger outcrop area of thinly bedded argillites, to the southwest and chlorite schist, to the northeast. The intrusive contact is not exposed but outcrop distribution and structural grain in the area suggest the diorite body is a northwest-trending dyke.
Diorite outcrop is medium gray to gray-green in colour and blocky weathering , in contrast to the host argillite and schist units. The intrusion is medium gray-green coloured on fresh surfaces, is compact and weakly fractured and fine to very fine-grained equigranular, composed of fine-grained equigranular feldspar, in a matrix of weakly chloritized mafic minerals.

Unit D - Aplite:
The youngest rocks encountered on the Al #1 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 to vertical.

Quartz Veins: Light gray to milky-white bull-quartz veins are relativley common in the study area. Discontinuous metamorphic sweats of folia-form, sulphide-barren quartz are found within the 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 at sample stations 17-150, 154 and in the Hillsbar Adit. Trace amounts of blebby chalcopyrite occur with pyrite in a quartz vein at station 17-154 and with malachite at station 17-172 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.

In the vicinity of aplite dyking, widespaced, sheeted quartz veins and local weak quartz stockworks trend subhorizontal, 105°/0°-40°S and 125°/40°NE, that is; both subparallel and orthogonal to some of the dyke/sills. Veins appear to have formed contemporaneously with the dykes, with possibly 0.5 m left lateral offset of veins, along dyked fractures trending 048°/NW.

10. Hillsbar Adit: (see Figure 6)

The portal of the Hillsbar Adit is located on the north side of Qualark Creek, at an approximate elevation of 760 m elevation, 8 m above a pool at the base of a 10 m high waterfall. The spoils dump has largely been washed away by Qualark Creek, the remaining material is anchored by two 30 cm diameter cedar trees, which effectively obscure the portal. Access to a drift, said to be located 30 m above the adit and trenches exposing gold-bearing quartz veins along the creek above the falls, is impeded by very steep slopes. These workings were not examined in the current study and would have to be approached by descending from higher elevations to the northwest.

The Hillsbar Adit is a quartering crosscut tunnel, bearing 018°, driven in the mid 1920's to intersect 7 gold-bearing quartz veins, trending 128°/60°N, first located above the falls on Qualark Creek. When visited by Cochrane Consultants (Cochrane, 1979), the 760 m underground comprised a 78 m crosscut and a 23 m drift on the No. 3 (?) quartz vein. The 1991 examination focussed on dump material, heavily iron-stained zones visible in the east wall of the crosscut and relatively good exposure of a vein in the back of the drift. The underground is in good condition, there is no timbering, scale, rockfall or water to hamper access. The walls and back are encrusted in grime, which obscures geological detail in the crosscut. The underground has an irregular cross section, with an average width of 1.5 m and a height of 1.9 m.

outcrop at the waterfall, portal and at intervals in the crosscut is of a medium gray-coloured, highly siliceous, possibly recrystallized ribbon chert (Unit A2), alternating predominantly siliceous layers and subordinant, slatey layers. A prominent cleavage in the slate layers trends 115°/60°-70°NE. The ribbon chert unit has been deformed, locally shear-faulted and healed by quartz veins. The three shear-related veins sampled at 17-167,168 and 170-172 in the underground, are distinguished by iron staining, presence of quartz and gouge. At sample 17-167 an 0.4 m wide fault, trending 128°/60°NE, contains an 0.28 m wide, rusty bull-quartz vein. At sample 17-168 an 0.20 m wide fault, trending 115°/60°NE, contains ground up quartz, suggesting the structure was reactivated after vein formation. The quartz vein exposed in the drift resembles material collected from the portal dump. The shear zone in the drift is approximately 0.5 m wide, within gougy slates and schist. A white to rusty brown-weathering bull-quartz vein pinches and swells from 0.20 -0.45 m wide, within the shear. The moderately fractured vein contains dicontinuous, 0.1-1.0 m wide ribbons of dark, chloritic slate and schist, oriented parallel to the vein within and adjacent to its margins. Sparse, fine-grained crystalline arsenopyrite and pyrite are found erratically disseminated in the quartz, with local concentrations of sulphides from 1-2% in and adjacent to the schist/slate inclusions. Trace amounts of fine-grained chalcopyrite with pyrite, arsenopyrite and some malachite were noted in quartz collected at sample 17-172 in the drift.

The author noted two specks of blebby free gold associated with arsenopyrite, when examining several fragments of quartz from the dump.

11. <u>GEOCHEMICAL SAMPLING PROGRAM:</u> A total of 35 soil samples, 13 rock chip samples, 1 stream sediment and 1 panned concentrate sample were collected in the survey. The soils in the survey 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 into a light gray-coloured C horizon, within sandy gravels. In adjacent areas, such as in the vicinity of the adit and outcrop bluffs generally, 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.

Soil samples were collected from the B horizon at stations spaced 50 m apart, at a depth of 15-30 cm below surface. At each station approximatley 0.5 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.
A single stream sediment sample (17-157), comprising sand and silt was collected from the middle and side areas within the active portion of Mike's Creek.
Four pans of unscreened gravel (17-152) were collected behind boulders within the active channel of Qualark Creek. The coarse material was reduced to a heavy mineral concentrate by careful panning and the concentrate placed in a numbered, wet strength kraft envelope.
Chip-channel samples were collected from quartz veins and silicified zones along Qualark Creek. 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, 18 x 33 mm, 4 mil gauge plastic bags, held by a circular steel sampling ring below the line of sampling. Approximately 3 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, silt and panned concentrate 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 30 gm split from the -100 mesh portion of the panned concentrate was fused with silver inquart with fire assay fluxes. After cupelation, the dore bead was weighed and total gold reported for 1 assay ton.
A 30 gm split was collected from the -100 mesh portion of the rock chip, silt and soil samples and fused inquart with fire assay fluxes. After cupelation the dore bead was dissolved and analyzed by Induced Coupled Plasma (I.C.P.) technique.

12. DISCUSSION OF RESULTS:

The 35 soil samples collected in the survey are too small a population for meaningful statistical treatment. There is a marked contrast in gold values obtained for soils collected by the two samplers. The arithmetic mean gold value from 8 soils collected by sampler 17 (the author) is 20.1 ppb versus 4.6 ppb for the 25 soils collected by sampler 20. Since the author was not wearing a gold ring during the survey, other explanations must be considered.
Soils collected by sampler 20 over areas known to be underlain by Unit A - Hozameen Group pelites, vary in the range 1-4 ppb gold. Soils collected by sampler 20 in the vicinity of Mike's Creek; an area known and/or suspected to be underlain by Unit C1 - feldspar diorite porphyry, vary in the range 5-9 ppb gold, approximately twice the range for the Hozameen pelites. Sample 20-10, located just east of the 1991 camp, contains 59 ppb gold and is clearly anomalous.
Soils collected along Qualark Creek, by sampler 17, vary in the range 6-42 ppb gold. The highest values of gold in soil (28-42 ppb) are located near the junction of Mike's Creek and Qualark Creek, an area underlain by feldspar granodiorite and diorite porphyry.
There are four (at least) possible explanations for the difference in soil gold levels between the two samplers:
A. Placer gold derived from gold-bearing quartz veins, cut by Qualark Creek upstream of Hillsbar Adit, has been incorporated into downstream

overburden and/or into downstream bedrock crevices then subsequently released into soils by erosion processes.

B. Sampler 20 collected soils developed at the top of the fluvial sediments having a relatively low talus/residual soil component or a colluvial component with a low inherent gold component. By contrast, sampler 17 collected colluvial bank soils with a high component of talus derived from intrusive(s) having an elevated but possibly not anomalous gold content.

C. Placer gold originating in the fluvial sedimentary overburden has been concentrated downslope by erosion processes in the vicinity of Mike's Creek.

D. A structurally controlled gold source may exist in the vicinity of Mike's Creek. The source may be auriferous quartz veins, as in the Hillsbar Adit, and/or aplite dyke/sills, as at 17-162 (65 ppb gold in rock chip).

Stream sediment sample 17-157, collected near the mouth of Mike's Creek, contains 26 ppb gold, a value which would be considered anomalous for silts collected in many regions of B.C.. Interpretation of the value is complicated by the lack of comparable silt surveying on the property and factors 1-3 discussed above.

Heavy mineral concentrate sample 17-152, comprising 4 - 3 litre pans of gravel collected from Qualark Creek, contained 4 specks of gold with relatively sparse pyrite, magnetite and garnet in the heavy fraction and assayed 0.008 mg gold (approximately 2.7 mg/cubic meter). Source of the gold is assumed to be the Hillsbar quartz-gold veins.

Chip-channel samples collected from quartz veins in granitic porphyry along Qualark Creek (see Appendix #2) have a low gold content in the range 8-13 ppb. Most of the sampled quartz veins contain minor pyrite and sample 17-150 contains minor arsenopyrite and is ribbon structured, similar to the veins in Hillsbar Adit.

An aplite dyke (sample 17-162) cutting diorite porphyry contains 65 ppb gold over 0.15 m width, an anomalous value 5-8 times that obtained from quartz veins in granitic porphyry. The aplites are very siliceous and given their location close to the Hozameen - diorite porphyry contact may represent a source for the gold-quartz veins in the Hillsbar Adit.

The silicified ribbon chert/slates, sampled over a width of 0.65 m (17-165) at the portal of Hillsbar Adit, contain 8 ppb gold, indicating a low gold content for the host rocks to the auriferous quartz veins located further north in the crosscut. Within Hillsbar Adit the quartz-shear zones sampled in the east wall of the crosscut at 11.5 m north of the portal (17-168, 8 ppb) and 13.5 m north of the portal (17-167, 26 ppb) have low gold content.

The quartz-shear vein located in the drift was sampled in 4 locations: 17-169 (2139 ppb/0.5 m), 17-170 (19479 ppb/0.5 m), 17-171 (4985 ppb/0.5 m) and 17-172 (804 ppb/0.3 m - 485.6 ppb cut to 0.5 m, assuming 20 cm @ 8 ppb). This vein (possibly the No. 3 vein; Cairnes, 1924) has a calculated arithmetic average gold content of 6852 ppb (0.20 oz/ton) over an 0.5 m thickness and 28.2 m strike length. The vein is thickest in the eastern portion of the drift, consisting of a central bull-quartz vein, ribbon structured with slate and gougy schist inclusions in its margins, transitional into sheared slate and chert. Near the crosscut and in its western extent, the quartz narrows to 0.2-0.3 m wide within an 0.5-1.0 m wide zone of gouge and schist. The erratic gold content of the vein reflects a nugget effect due to erratic distribution of fine-grained free gold and associated sulphides. The author located fine-grained visible gold associated with arsenopyrite concentrations, in quartz samples taken from the the dump (17-166, 12965 ppb or 0.38 oz/ton gold). Seven quartz veins, the southeast onstrike continuation of veins crosscut in the Hillsbar Adit, are said to be exposed in Qualark Creek above the falls (Cairnes, 1924). The veins are widespaced, vary in width 0.03-1.0 m over a zone width of 34 m, and apparently contained locally spectacular visible gold.

The Hillsbar veins are located in narrow, northwest-trending shear zones, parallel to prominent cleavage (115°-128°/60°N) in the host chert/slates, approximately 40-50 m east of a 100 m wide granitic porphyry dyke. The close association of the gold-bearing veins with the intrusive contact and anomalous gold in aplite dyke/sills cutting sheared, sericitic, silicified (veined) porphyry, near the Hozameen contact (see above), suggest that gold mineralization is genetically related to and penecontemporaneous with, intrusion of the late stage siliceous aplite dyke/sill unit.

The author speculates that a deformed zone in the Hozameen pelites was reactivated as a major fault in the Tertiary orogeny, which juxtaposed gneissic rocks (locally Custer Gneiss) uplifted from great depths, in the west, against greenschist grade, unmigmatized Hozameen rocks, in the east. This shear fault zone was intruded by high level, moderately differentiated stocks, satellite to larger plutons (Mount Outram). In the Qualark Creek area the fault zone was stoped by feldspar porphyry of diorite to granodiorite composition. A ribbon chert unit close to the intrusive contact was silicified and quartz veins formed in dilatant zones, along shears developed in slate bands. Gold was introduced to the shears with siliceous mesothermal fluids associated with diorite or aplite intrusion.

The paucity of sulphides in metamorphic quartz sweats in the Hozameen rocks and the association of sulphides with gold in the Hillsbar veins, suggests that sulphur was locally introduced by magmatic fluids accompanying the porphyry intrusion. Arsenopyrite and chalcopyrite have been recognized in quartz veins within the intrusion and in the Hillsbar veins, so arsenic and copper may be important pathfinder elements for gold in the area.

The Hillsbar veins, particularly the Number 3 Vein (?), appear to have good persistence over a horizontal strike of 46 m (say) and 35 m vertical extent. The veins are relatively narrow and although the known zone of interest is relatively unexplored, indicated grades are very erratic. The average grade of the drifted portion of Vein No. 3 (6.85 GMT, 0.2 oz/ton gold) is subeconomic.

Shear-hosted gold-bearing veins are notoriously variable in their widths and grade along strike and to depth. Relatively narrow leads may strike into thick zones of rich or low grade with bewildering rapidity. The ultimate importance of the Hillsbar veins is to point to apparently persistent gold enrichment along a major structure stoped by porphyritic intrusion(s). The structure has been underexplored and may well host an economic gold deposit.

The gold in soils anomaly in the vicinity of Mike's Creek and the anomalous gold value in an aplite dyke suggest that the porphyry intrusion may also host a gold-bearing structure.

Assuming gold mineralization accompanied the intrusion then the western contact of the intrusion with Hozameen pelites and Custer Gneiss should be equally prospective.

13. CONCLUSIONS:

The Hillsbar gold veins are located along a major fault zone juxtaposing Custer Gneiss in the west, against Hozameen Group pelites, to the east. In the Al #1 claim, the contact zone has been stoped by a +100 m wide porphyritic intrusion, further intruded by siliceous aplite with associated quartz veinlets and local stockworks. The Hillsbar quartz-gold veins occupy discrete, 0.5-1.0 m wide shear zones within slate bands in a ribbon chert lithology of the Hozameen group, 50 m east of the porphyry's eastern contact. The deformation history of the Hozameen Group was not considered in this study but could provide important structural information in the search for gold in cross veins and saddle reefs along the hinges of major folds.

The spatial association of the Hillsbar veins with the porphyry contact, the presence of anomalous gold (65 ppb) in an aplite dyke, silicification of the chert bands and the association of visible gold with sulphides in the veins (not present in quartz sweats elsewhere in the Hozameen pelites) suggest that gold mineralization was penecontemporaneous with intrusion.

The No. 3 vein is the widest of the Hillsbar veins - it was sampled in four locations in the drift portion of the Hillsbar Adit and returned 6.85 GMT (0.20 oz/ton gold) over 0.5 m width and 28.2 m strike. This portion of the vein is subeconomic, however; the veins appear to have good persistence over a vertical range of >35 m and >46 m strike, open to depth and onstrike. Given the size of the regional structure and the local persistence of gold mineralization in the area of Hillsbar Adit, further exploration is indicated in search of wider vein zones of higher grade.

Anomalous gold in soil values were obtained in the vicinity of Mike's Creek, an area with little outcrop believed to be underlain by porphyry. Gold in the Hillsbar veins is associated with arsenopyrite, pyrite and trace chalcopyrite in ribbon structured quartz. Although sampled quartz veins in the intrusion returned low gold values, arsenopyrite was observed with pyrite in a ribbon structured vein at 17-150 and in another quartz vein, with chalcopyrite, at 17-154. The occurrence of arsenic and copper sulphides in narrow, north and northwest trending, shear-hosted quartz veins in the intrusion, suggests a zone similar to the Hillsbar vein zone may be present in the area of the Mike's Creek, gold in soils anomaly. The porphyry intrusion (Unit C) comprises competent lithologies, rich in feldspar, that would make excellent hosts for large, structurally and chemically (alteration) induced, highly porous zones, favourable to gold deposition. The Mike's Creek gold anomalous area is assigned a high priority for followup.

The western contact of the porphyry intrusion is poorly exposed and underexplored. Preliminary geochemical sampling on one soil line has returned low gold values from a portion of the contact, but this limited data should not be considered definitive of its gold potential. Assuming that the porphyry intrusion has played an active role in local gold mineralization then its contact areas, particularly fault and alteration zones should be closely explored. The chlorite schist (Unit B) along Harry's Creek may represent a zone of hydrothermal, rather than metamorphic alteration and should be prospected and sampled for shear related gold zones. The feldspar-rich portions of the Custer Gneiss (Unit B), reported to occur west of Harry's and Vic's Creeks (Nicholson, 1990), represent a favourable chemical-structural host for gold mineralization and should be prospected on a lower priority basis than the Hillsbar Adit and Mike's Creek zones.

14. RECOMMENDATIONS:

A. Locate reports of Caroline Mine's exploration work in the claim's area and compile all relevent information.

B. Resample gold anomalous soil sample sites 17-155, 156, 158 and 20-9 to 20-12 to check repeatability of the gold values.

C. Conduct detailed prospecting and geological mapping in a north-south zone extending 200 m east of the 1991 camp, in the vicinity of Mike's Creek and a 175 m wide, northwest trending zone centered on Hillsbar Adit. Chip sample all altered/silicified zones.

D. Excavate and sample a minimum of 4 soil profiles through the fluvial overburden to bedrock (where possible), to establish variation of gold content with depth/horizon in the overburden and to indicate the presence of paleoplacer gold.

E. Resample existing soil lines at a station interval of 25 m. Establish additional east-west soil lines at 50 m intervals for a minimum of 500 m north and south of Qualark Creek and from Al's Creek in the east to 200 m west (say) of Vic's Creek in the west. Collect B horizon soil samples at 25 m spacings on the control lines.

F. Pressure wash the Hillsbar Adit, then continuously chip sample and geologically map the crosscut walls, to determine the gold content of both the vein structures and the host rocks and to establish additional structural controls to gold mineralization in the Hozameen Group.

G. The association of sulphides with gold in the Hillsbar veins suggests that arsenic, copper and iron are pathfinder elements to indicate gold-bearing structures in areas of overburden. Analyze all samples by multielement I.C.P. and by geochemical fire assay method for gold. Reananlyze 1992 samples by I.C.P. to provide trace element data on the Hillsbar veins.

H. Ground magnetic and shallow EM-16 surveys are not recommended at this time. The geological units on the property have a very low magnetic (susceptibility) contrast, therefore shear zones will be difficult to interpret on a magnetic survey. E.M. methods should indicate the Hillsbar veins and other fault zones as areas of contrasting conductivity, due to clays in the shears; however, shallow E.M. is very sensitive to changes in vegetation, topography and overburden type/thickness, all of which vary rapidly on the property.

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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.

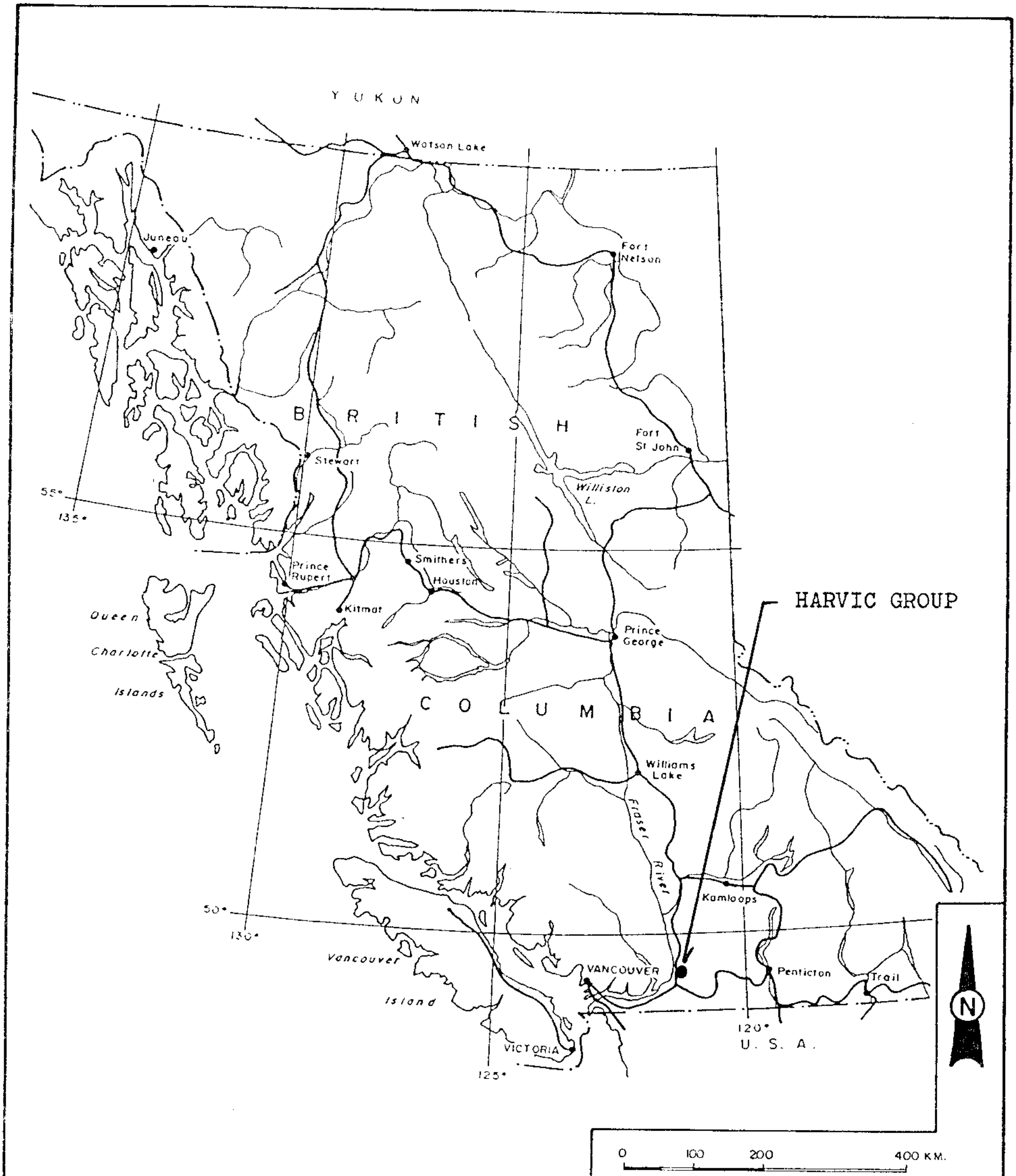
8. I am a past chairman of the Vancouver M.E.G. and currently am publisher of the M.E.G. Directory.

9. I have no interest, either directly or indirectly in the Harvic Group of mineral claims Corporation, nor do I expect to receive any.

10. 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.

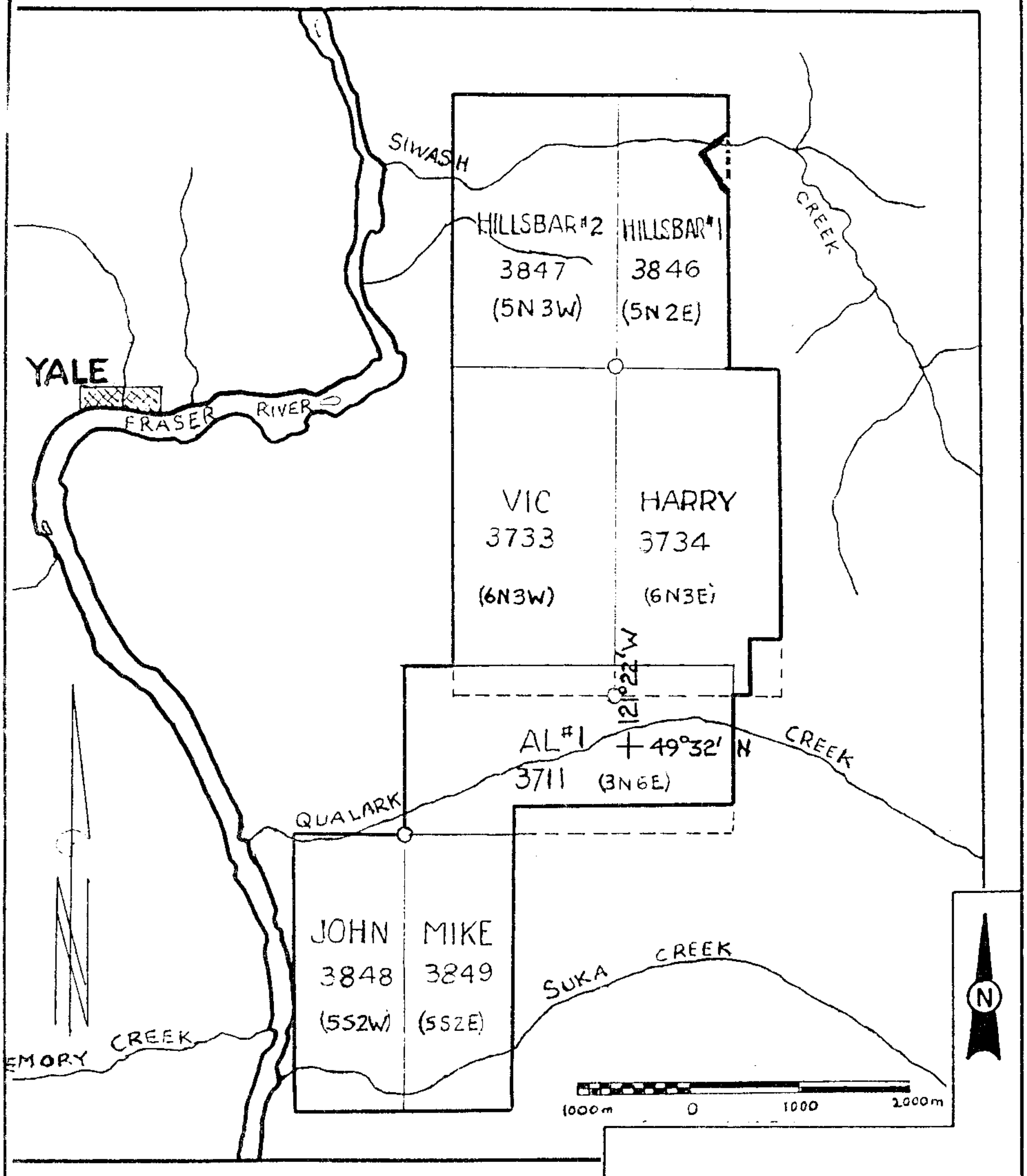
Michael Bradley

Dated At Burnaby, British Columbia, this 15th day of April, 1992.



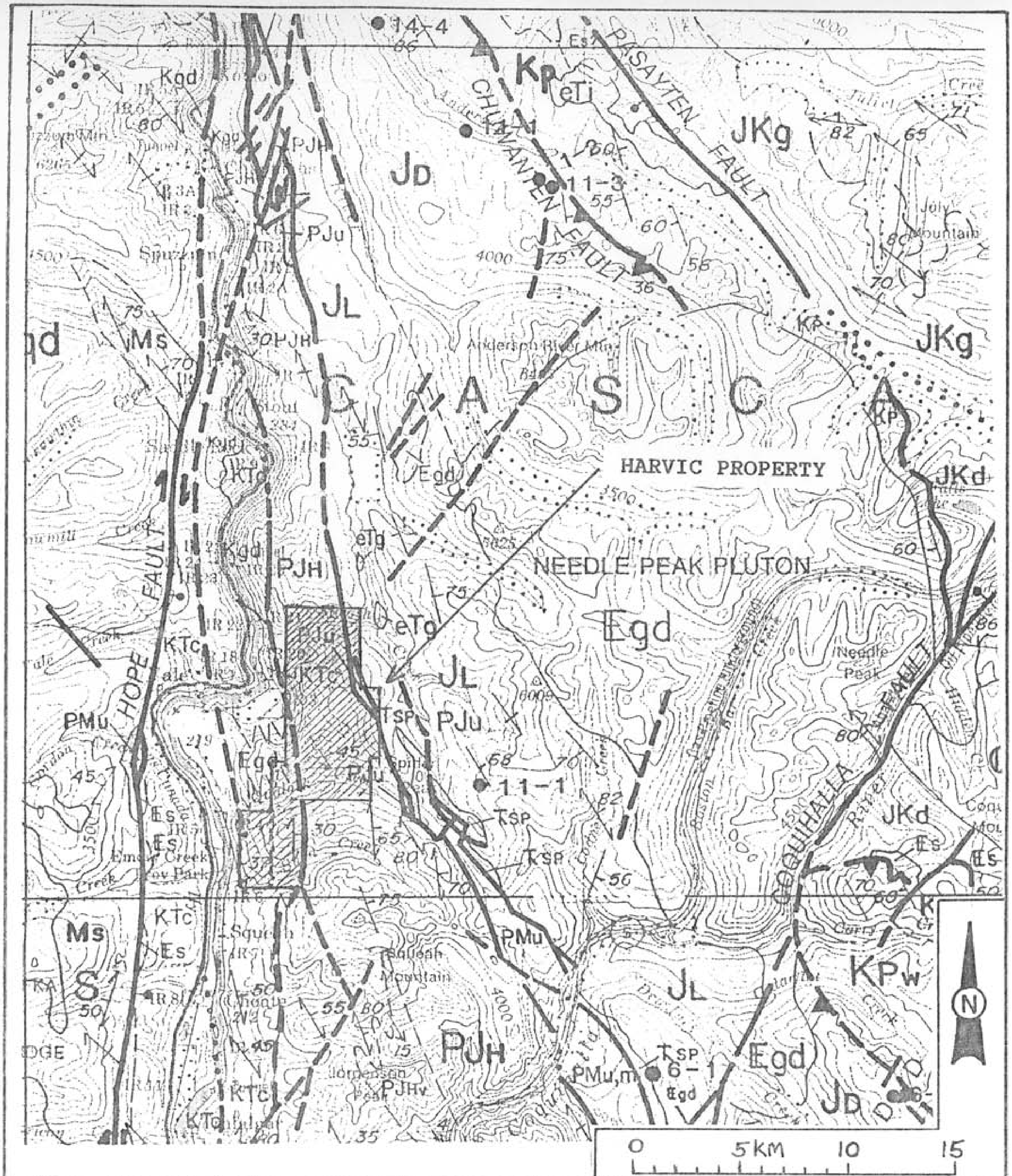
MIKE BRADLEY & ASSOCIATES	SCALE: 1:7,500,000
CLIENT: MR. V. WALTERS	N.T.S.: 92 H/11W
	DRAWN BY: M.D.B.
REGIONAL LOCATION MAP	PROJECT: 91 - 109
	DATE: April/92
HARVIC CLAIM GROUP	FIGURE Nº. 1

CHONG



MIKE BRADLEY & ASSOCIATES	SCALE:	1:50000
CLIENT: MR. V. WALTERS	N.T.S.:	92 H/11W
	DRAWN BY:	M.D.B.
CLAIM LOCATION MAP- HARVIC GROUP	PROJECT:	91 -109
	DATE:	April/92
	FIGURE Nº.	2

CHONG



MIKE BRADLEY & ASSOCIATES	SCALE: 1:250000
CLIENT: MR. V. WALTERS	N.T.S.: 92 H/11W
	DRAWN BY: M.D.B.
REGIONAL GEOLOGY MAP -	PROJECT: 91 - 109
	DATE: April/92
HARVIC GROUP	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

ҠSP	*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)

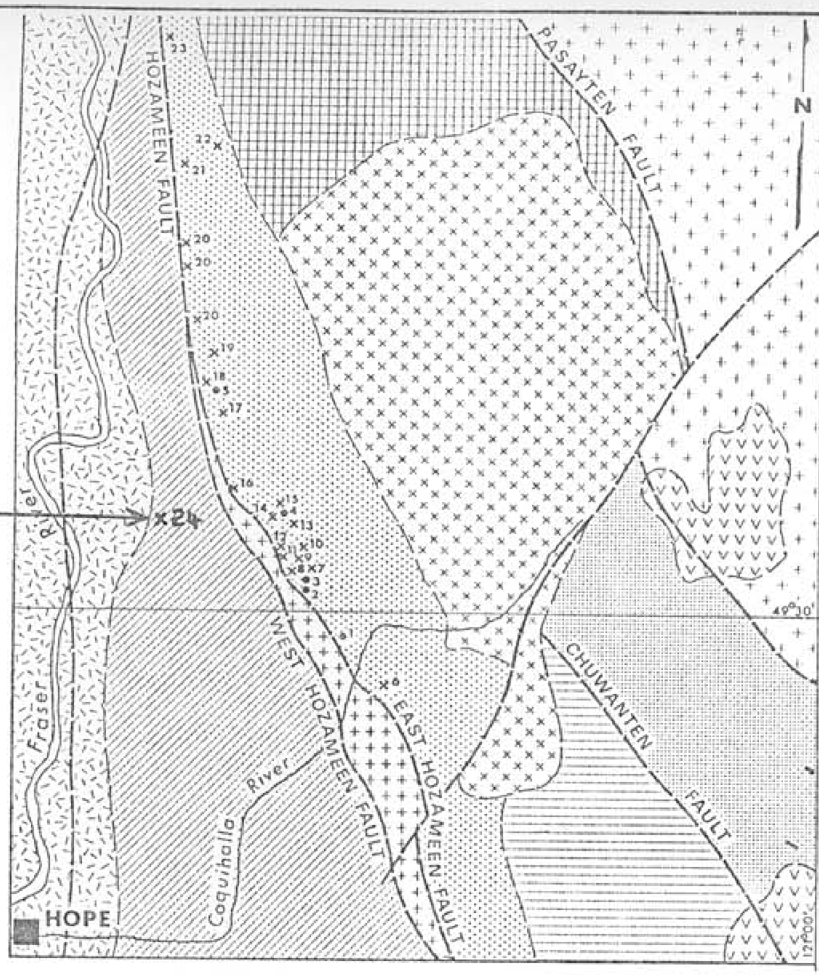
Thrust fault and "layer parallel" fault; teeth on upper plate

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.: 92 H/11W
LEGEND FOR REGIONAL GEOLOGY MAP HARVIC GROUP	DRAWN BY: M.D.B.
	PROJECT: 91 - 109
	DATE: April/92
	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)

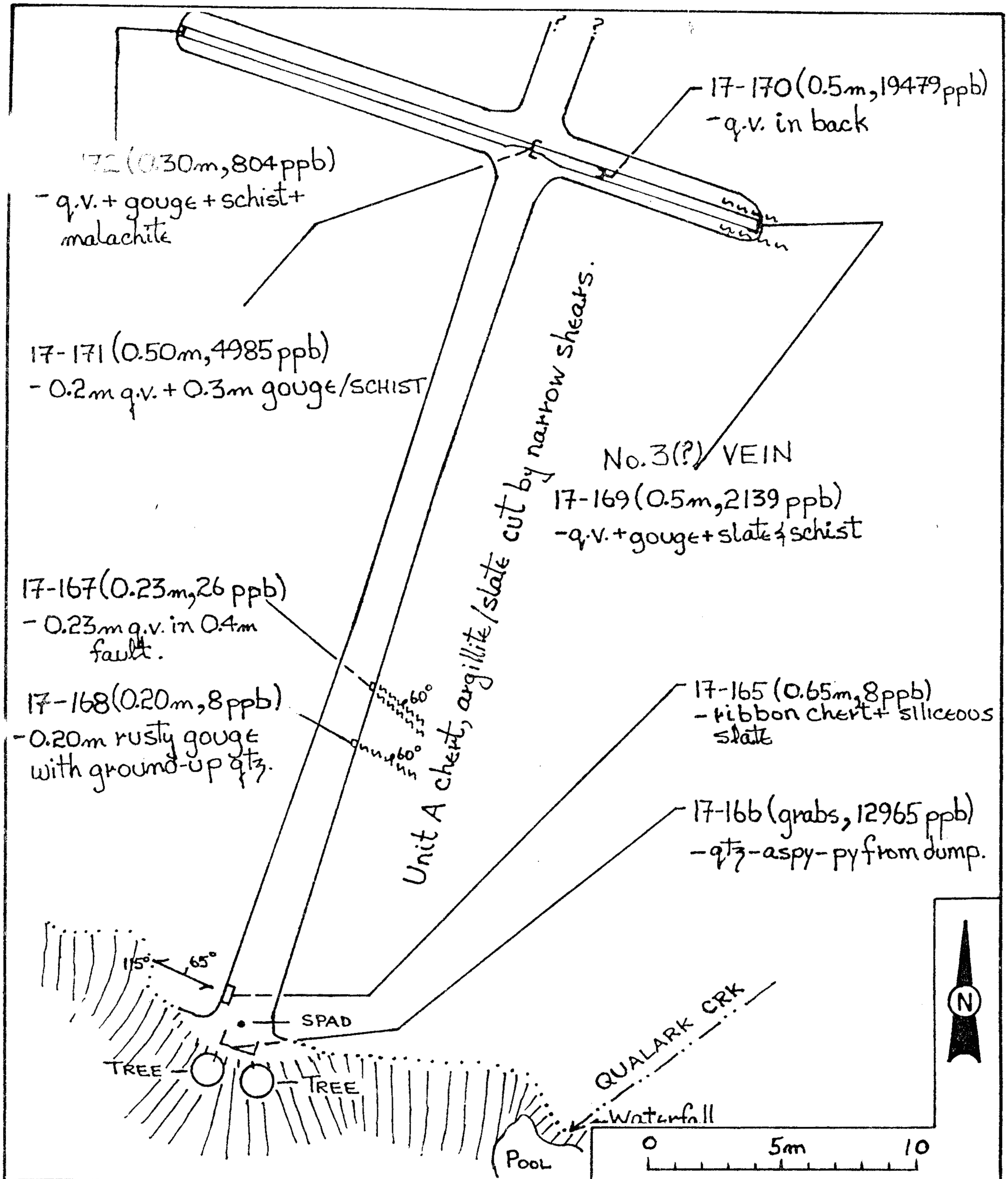
6 - BROKEN HILL
7 - SNOWSTORM
8 - MONTANA
9 - RUSH OF THE BULL
10 - GOLDEN CACHE
11 - McMASTER ZONE
12 - MURPHY
13 - GEM
14 - STAR
15 - HOME X
16 - NORM AND GEORGIA 2
17 - EMIGRANT
18 - RODDICK
19 - MARVEL
20 - SPUZ A, B, G AND MONUMENT
21 - MAJESTIC
22 - GOLD COIN
23 - GOLD CORD
24 - HILLSBAR

Figure 22. Regional setting of the Coquihalla gold belt showing location of gold deposits and occurrences. (Geology adapted after Monger, 1970).

0 5 10KM 15 20

MIKE BRADLEY & ASSOCIATES	SCALE: 1:300000
CLIENT: MR. V. WALTERS	N.T.S.: 92 H/11W
	DRAWN BY: G.E. Ray
GOLD OCCURRENCES IN THE -	PROJECT: 91 - 109
	DATE: April/92
Coquihalla Gold Belt.	FIGURE Nº. 3C

CHONG



MIKE BRADLEY & ASSOCIATES

CLIENT: MR. V. WALTERS

SAMPLING PLAN AND GOLD RESULTS - HILLSBAR ADIT - HARVIC GROUP

SCALE: 1:200

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

DRAWN BY: M.D.B.

PROJECT: 91 - 109

DATE: April/92

FIGURE Nº. 6

CHONG

APPENDICES

APPENDIX 1

STATEMENT OF COSTS

STATEMENT OF COSTS

1. CONSULTING: Fieldwork

M. Bradley: Oct. 16 - 18, 1991: 3d x $375/d =	$1125.00	
H. Nicholson: Oct. 16 - 18, 1991: 3d x $200/d =	600.00	
Subtotal	$1725.00	$1725.00

2. TRAVEL EXPENSES:

Food	$ 55.00	
Motel (Oct.16)	52.00	
Gas	41.00	
Subtotal	$148.00	148.00

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

0.9 Hours	750.00

4. ANALYTICAL: Acme Analytical Laboratories

47 samples for Au analysis by FA/ICP (30 gm)	512.00

5. REPORT PREPARATION: Mike Bradley & Associates

M. Bradley: 3 days @ $375/d =	$1125.00	
Typing: =	275.00	
Reproduction: =	72.00	
Subtotal	$1472.00	1472.00
GRAND TOTAL OF COSTS		$4607.00

APPENDIX 2

ROCK SAMPLE DESCRIPTIONS & ANALYTICAL RESULTS

ROCK CHIP/CHANNEL SAMPLE DESCRIPTIONS

SAMPLE NO.	GOLD (PPB)	SAMPLE LENGTH	DESCRIPTION
17-150	8	0.28 M	0.28m max. width, bifurcating, pinch & swell, gray-white bull-qtz. vein, trds. 000°/75°E. Has irregular small vugs containing 0 - 1/4% (locally 1/2-1% by vol.), dissem. blebby & crystalline py + aspy, variably weathered to limonite. Contains slivers of granodiorite porphyry host.
17-154	13	0.58	0.58 m wide, rusty bull quartz vein trends 172°/60°E. within chloritic shear zone in feldspar porphyry diorite. Vein contains 1/2% fine-grained pyrite, trace aspy., cpy.
17-162	65	0.15	0.15 m wide aplite dyke with 1/2-1% fine to medium-grained disseminated pyrite, trends 130°/40°SW.
17-163	7	1.00	1.6-2.0 m wide aplite sill (?), with 1/2% fine-grained pyrite, has a subhorizontal attitude in feldspar porphyry diorite, sheared and jointed on 145°/90°.
17-165	8	0.65	Siliceous and quartz veined zone of chert/slate, cleavage trends 115°/65°N at portal.
17-166	12965	grab	Picked grab sample from dump at Hillsbar Adit portal: bull-quartz containing disseminated, fine-grained aspy. + py. in matrix and in/adjacent to dark green-black slate/schist inclusions.
17-167	26	0.23	0.23 m wide rusty bull-quartz vein in 0.4 m wide shear-fault trending 128°/60°N. 13.6 m north of portal spad.
17-168	8	0.20	0.20 m wide rusty gouge zone parallel to cleavage, contains groundup rusty quartz. 11.5 m north of portal spad.
17-169	2139	0.50	0.50 m wide quartz vein and included ribbons of gouge and slate. East end of drift in back.
17-170	19479	0.50	Same vein as 17-169. Sample located 4 m east of crosscut in drift.
17-171	4985	0.50	Same vein as 17-169,170. Here vein comprises central portion - 0.20 m wide bull quartz plus 0.30 m of ribbon quartz with gouge and slate inclusions in vein margins. Sample located at the intersection of the crosscut and drift.
17-172	804	0.30	Same vein as 17-169,170,171. 0.3 m wide bull-quartz vein, in part rusty with narrow schist inclusions plus specular hamatite and trace cpy + malachite.
17-173	13	0.20	0.20 m wide chip sample across several 1-3 cm wide bull-quartz veinlets containing no sulphides. Veins trend 170°/90° in brittle fractures cutting weathered feldspar porphyry diorite.

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

GEOCHEM PRECIOUS METALS ANALYSIS

Mike Bradley & Associates PROJECT 109 File # 92-0128 Page 1

4750 Westlawn Drive, Burnaby BC V5C 3R3 Submitted by: MIKE BRADLEY

SAMPLE#	Au** ppb
17-150	8
17-154	13
RE 17-162	72
17-162	65
17-163	7
17-165	8
17-168	8
17-172	804
17-173	13
STANDARD AU-R	469

AU** ANALYSIS BY FA/ICP FROM 30 GM SAMPLE.
- SAMPLE TYPE: P1 ROCK P2 SOIL P3 PAN CONC.

Samples beginning 'RE' are duplicate samples.

DATE RECEIVED: JAN 7 1992 DATE REPORT MAILED: Jan 12/92 SIGNED BY. C. Leong ....D.TOYE, C.LEONG, J.WANG; CERTIFIED B.C. ASSAYERS

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

GEOCHEM PRECIOUS METALS ANALYSIS

Mike Bradley & Associates PROJECT 109 File # 91-5755
4750 Westlawn Drive, Burnaby BC V5C 3R3

SAMPLE#	Au** ppb
8191109 17-166	12965
8191109 17-167	26
8191109 17-169	2139
8191109 17-170	19479
8191109 17-171	4985
RE 8191109 17-169	2243
STANDARD AU-R	475

AU** ANALYSIS BY FA/ICP FROM 30 GM SAMPLE.
- SAMPLE TYPE: ROCK
Samples beginning 'RE' are duplicate samples.

DATE RECEIVED: DEC 17 1991 DATE REPORT MAILED: Dec 20/91. SIGNED BY C. Leong ..D.TOYE, C.LEONG, J.WANG; CERTIFIED B.C. ASSAYERS

APPENDIX 3

GEOCHEMICAL SAMPLES - ANALYTICAL RESULTS

SAMPLE#	Au** ppb
17-151	13
17-153	16
17-155	28
17-156	42
17-157	26
17-158	28
RE 17-157	31
17-159	6
17-160	9
17-161	19
20-1	3
20-2	4
20-3	2
20-4	2
20-5	2
20-6	5
20-7	2
20-8	2
20-9	5
20-10	59
20-11	7
20-12	9
20-13	5
20-14	4
20-15	1
20-16	2
20-17	3
20-18	2
20-19	3
20-20	1
20-21	1
20-22	2
20-23	4
20-24	2
20-25	2
STANDARD AU-S	46

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

ACME ANALYTICAL

SAMPLE#	Total AU** mg
17-152	.008

Sample type: PAN CONC..

Province of British Columbia — Ministry of Energy, Mines and Petroleum Resources

WORK APPROVAL NO. NAN-91-254-93

ASSESSMENT REPORT
TITLE PAGE AND SUMMARY

TYPE OF REPORT/SURVEY(S)	TOTAL COST
GEOLOGICAL-GEOCHEMICAL	$4607.00

AUTHOR(S) Michael Bradley SIGNATURE(S) Michael Bradley

DATE STATEMENT OF EXPLORATION AND DEVELOPMENT FILED Oct. 15, 1991 YEAR OF WORK 1991

PROPERTY NAME(S) Harvic property, Hillsbar Property

COMMODITIES PRESENT Au (Cu)

B.C. MINERAL INVENTORY NUMBER(S), IF KNOWN

MINING DIVISION NEW WESTMINSTER NTS 92 H/11W

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

NAMES and NUMBERS of all mineral tenures in good standing (when work was done) that form the property [Examples: TAX 1-4, FIRE 2 (12 units); PHOENIX (Lot 1706); Mineral Lease M 123; Mining or Certified Mining Lease ML 12 (claims involved)]:

Al #1 (3711 - 18u), Vic (3733 - 18u), Harry (3734 - 18u),
Hillsbar #1 (3846 -10u), Hillsbar #2 (3847 - 15u),
John (3848 - 10u), Mike (3849 - 10u).

OWNER(S)
(1) Mr. Victor Walters (2)

MAILING ADDRESS
4927 Laurel Road,
Sechelt, B.C. VOn 3AO.

OPERATOR(S) (that is, Company paying for the work)
(1) Mr. Victor Walters (2)

MAILING ADDRESS
4827 Laurel Road,
Sechelt, B.C. VON 3AO

SUMMARY GEOLOGY (lithology, age, structure, alteration, mineralization, size, and attitude):

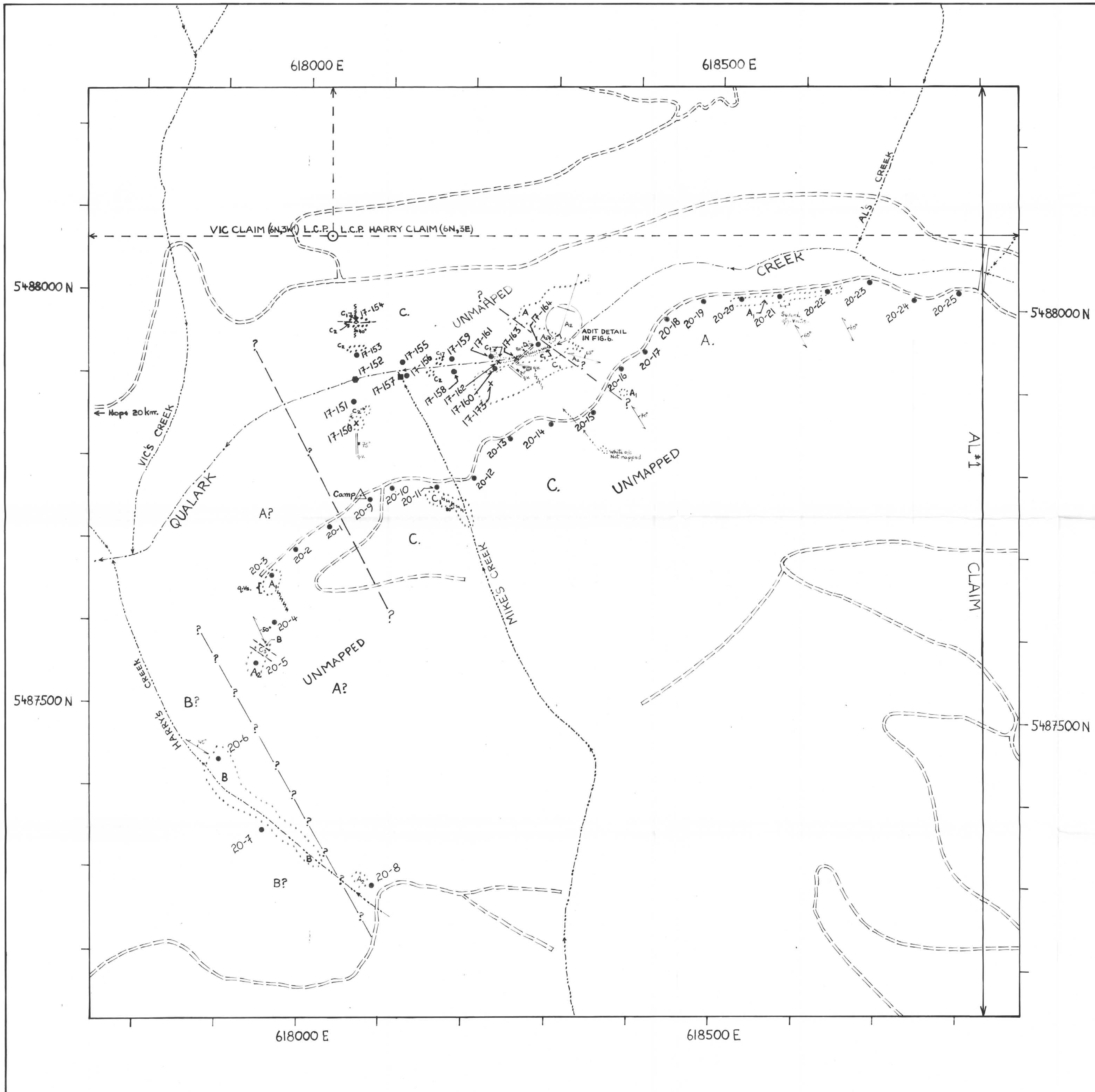
The Al #1 claim overlies a complex shear-fault zone - contact between cherts and pelites of the Permian to Jurassic Hozameen Group, in the east and chlorite schist and gneiss of Cretaceous to Tertiary Custer Gneiss, in the west. The contact is stoped by a northwest to north-trending, feldspar diorite-granodiorite porphyry dyke, further intruded by aplite dykes/sills. The drift in Hillsbar Adit exposes a ribbon structured, bull-quartz vein trending 128°/60°NE, varying 0.2-0.5 m wide, 0.5-1.0 m wide shears in Hozameen ribbon cherts/slates located 50 m east of the porphyry contact. Four chip/channel samples across the No. 3 vein (in drift) averaged 6.85 GMT gold (0.20 oz/ton)/0.5 m width over a 28.2 m strike length.

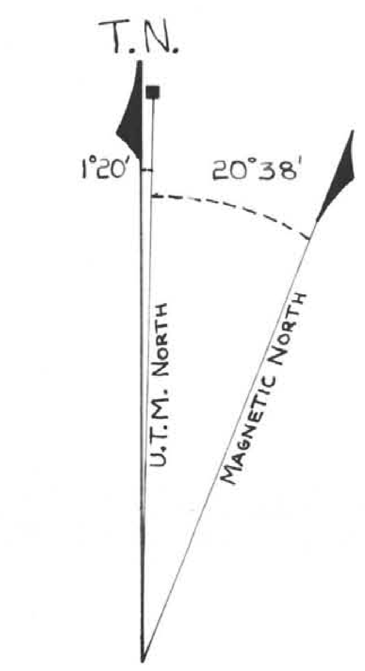
REFERENCES TO PREVIOUS WORK
B.C.M.E.M.P.R. Assessment Reports #7643, 11198, Nicholson (1990)

(over)

TYPE OF WC IN THIS REPORT	EXTENT OF WORK (IN METRIC UNITS)	ON WHICH CLAIMS	C APPORTIONED
GEOLOGICAL (scale, area)			
Ground	1:2000 (0.3 Km)	Al #1	$2994.00
~~Photo~~ ADIT	1:200 (61 m)	Al #1	
GEOPHYSICAL (line-kilometres)			
Ground			
Magnetic			
Electromagnetic			
Induced Polarization			
Radiometric			
Seismic			
Other			
Airborne			
GEOCHEMICAL (number of samples analysed for ....)		Al #1	
Soil	35 - Au		
Silt	1 - Au	Al #1	$1613.00
Rock	13 - Au	Al #1	
Other (panned conc)	1 - Au	Al #1	
DRILLING (total metres; number of holes, size)			
Core			
Non-core			
RELATED TECHNICAL			
Sampling/assaying			
Petrographic			
Mineralogic			
Metallurgic			
PROSPECTING (scale, area)			
PREPARATORY/PHYSICAL			
Legal surveys (scale, area)			
Topographic (scale, area)			
Photogrammetric (scale, area)			
Line/grid (kilometres)			
Road, local access (kilometres)			
Trench (metres)			
Underground (metres)			
		TOTAL COST	$4607.00

FOR MINISTRY USE ONLY	NAME OF PAC ACCOUNT	DEBIT	CREDIT	REMARKS:
Value work done (from report)				
Value of work approved				
Value claimed (from statement)				
Value credited to PAC account				
Value debited to PAC account				
Accepted .... Date	Rept. No.			Information Class





LEGEND

TERTIARY
EOCENE
MOUNT OUTRAN PLUTONS:

- D — Aplite
- 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

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.

SYMBOLS

- Contact (defined; inferred)
- 80° Dyke, showing strike and dip
- 20° Quartz vein, showing strike and dip
- 30° Shear, showing strike and dip
- 45° Cleavage, showing strike and dip
- Adit
- Outcrop Area
- Legal Corner Post
- Camp Location
- • 20-7 Sample Location and sample number
- x, •, ■, ⬢ 20-7 Sample types: rock; soil; sediment; heavy mineral
- ===== Logging roads - partially eroded
- Bridge
- Major creek
- Subsidiary creek

0 50 100 200 300
METERS

GEOLOGICAL BRANCH
ASSESSMENT REPORT

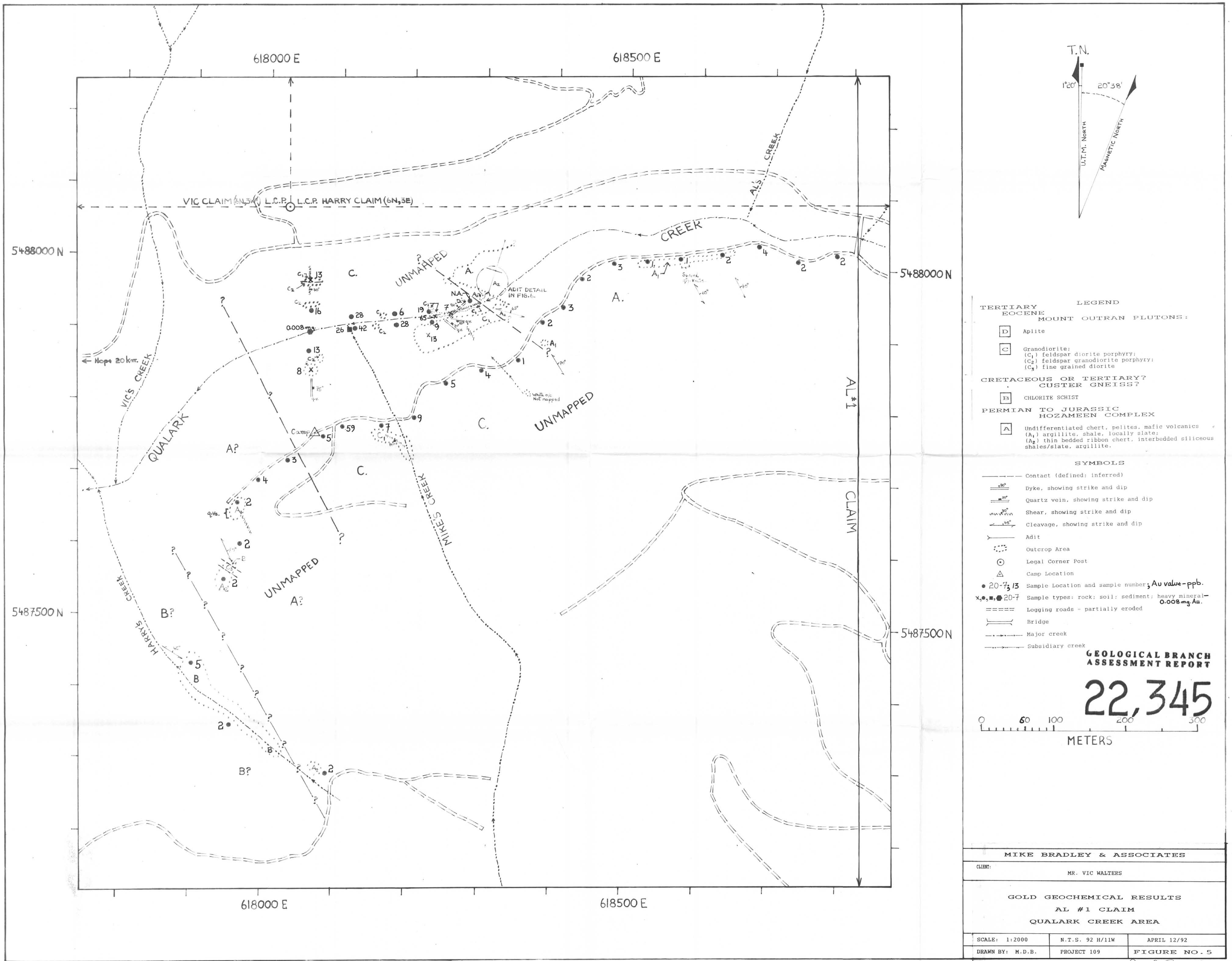
22,345

MIKE BRADLEY & ASSOCIATES

CLIENT: MR. VIC WALTERS

GEOLOGY AND SAMPLE LOCATION MAP
AL #1 CLAIM
QUALARK CREEK AREA

SCALE: 1:2000	N.T.S. 92 H/11W	APRIL 12/92
DRAWN BY: M.D.B.	PROJECT 109	FIGURE NO. 4


618000 E
618500 E
5488000 N
5487500 N
VIC CLAIM (6N,3W) L.C.P.
L.C.P. HARRY CLAIM (6N,3E)
AL'S CREEK
CREEK
QUALARK
VIC'S CREEK
MIKE'S CREEK
HARRY'S CREEK
UNMAPPED
ADIT DETAIL IN FIG. 6.
Camp
Hope 20 km.
AL #1 CLAIM
T.N.
U.T.M. NORTH
MAGNETIC NORTH
1°20'
20°38'
LEGEND
TERTIARY
EOCENE
MOUNT OUTRAN PLUTONS:
D Aplite
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
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.
SYMBOLS
Contact (defined: inferred)
Dyke, showing strike and dip
Quartz vein, showing strike and dip
Shear, showing strike and dip
Cleavage, showing strike and dip
Adit
Outcrop Area
Legal Corner Post
Camp Location
20-7; 13 Sample Location and sample number; Au value-ppb.
x, ●, ■, ⬢ 20-7 Sample types: rock; soil; sediment; heavy mineral- 0.008 mg. Au.
Logging roads - partially eroded
Bridge
Major creek
Subsidiary creek
GEOLOGICAL BRANCH
ASSESSMENT REPORT
22,345
0 50 100 200 300
METERS
MIKE BRADLEY & ASSOCIATES
CLIENT: MR. VIC WALTERS
GOLD GEOCHEMICAL RESULTS
AL #1 CLAIM
QUALARK CREEK AREA
SCALE: 1:2000
N.T.S. 92 H/11W
APRIL 12/92
DRAWN BY: M.D.B.
PROJECT 109
FIGURE NO. 5