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Consolidated Sea Gold Corp.

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SUMMARY OF DIAMOND DRILLING  
AND  
GEOLOGICAL, GEOCHEMICAL AND GEOPHYSICAL SURVEYS  
COMPLETED ON THE  
CAHILL CLAIMS  
LOCATED IN THE  
OSOYOOS MINING DIVISION  
5 km EAST OF  
HEDLEY, B.C.

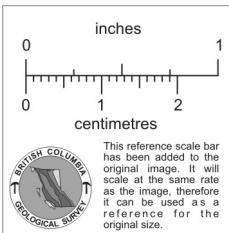
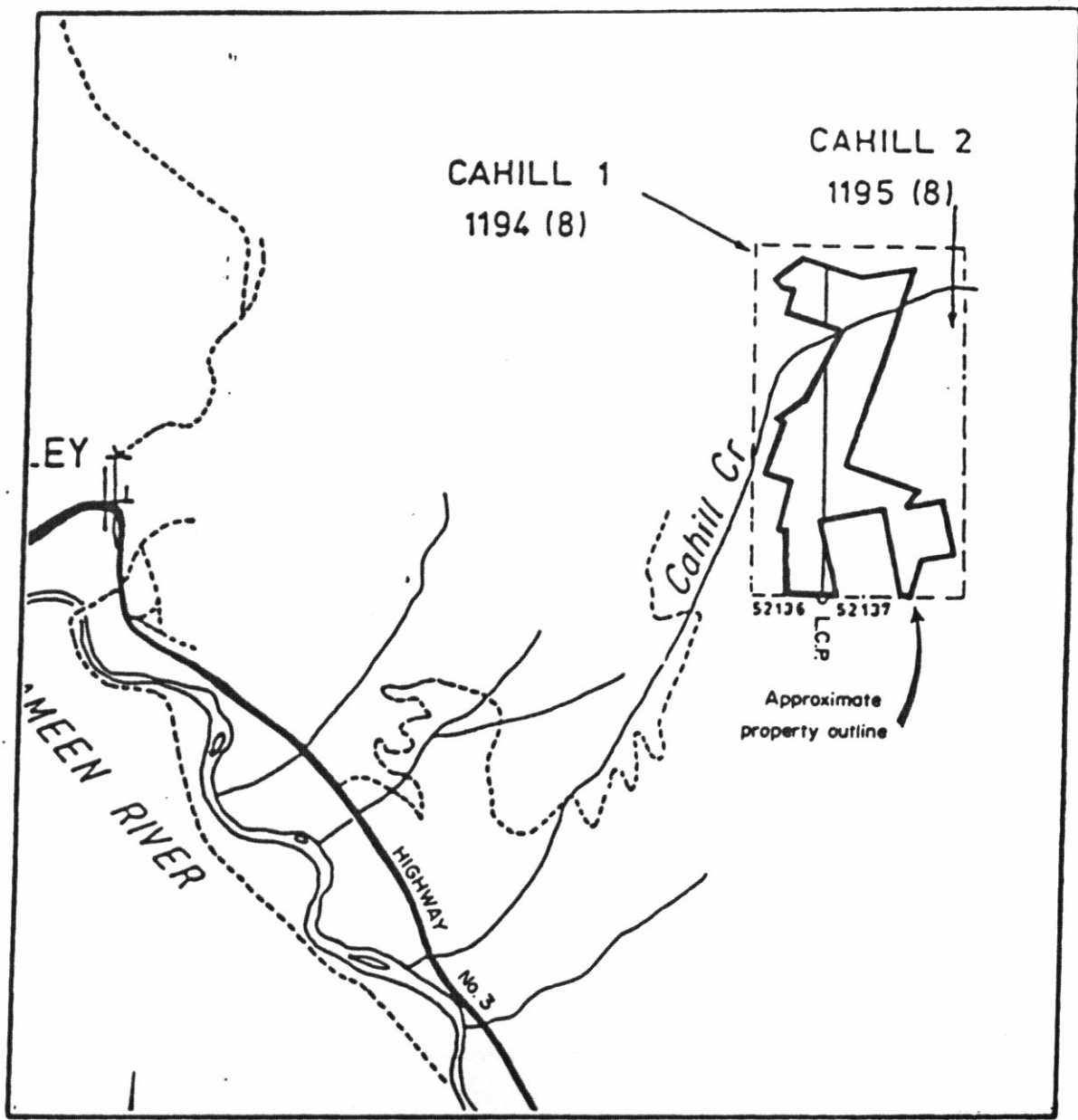
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PROPERTY: 49° 22' N LATITUDE  
120° 01' W LONGITUDE  
NTS 92H/8E and 82E/5W

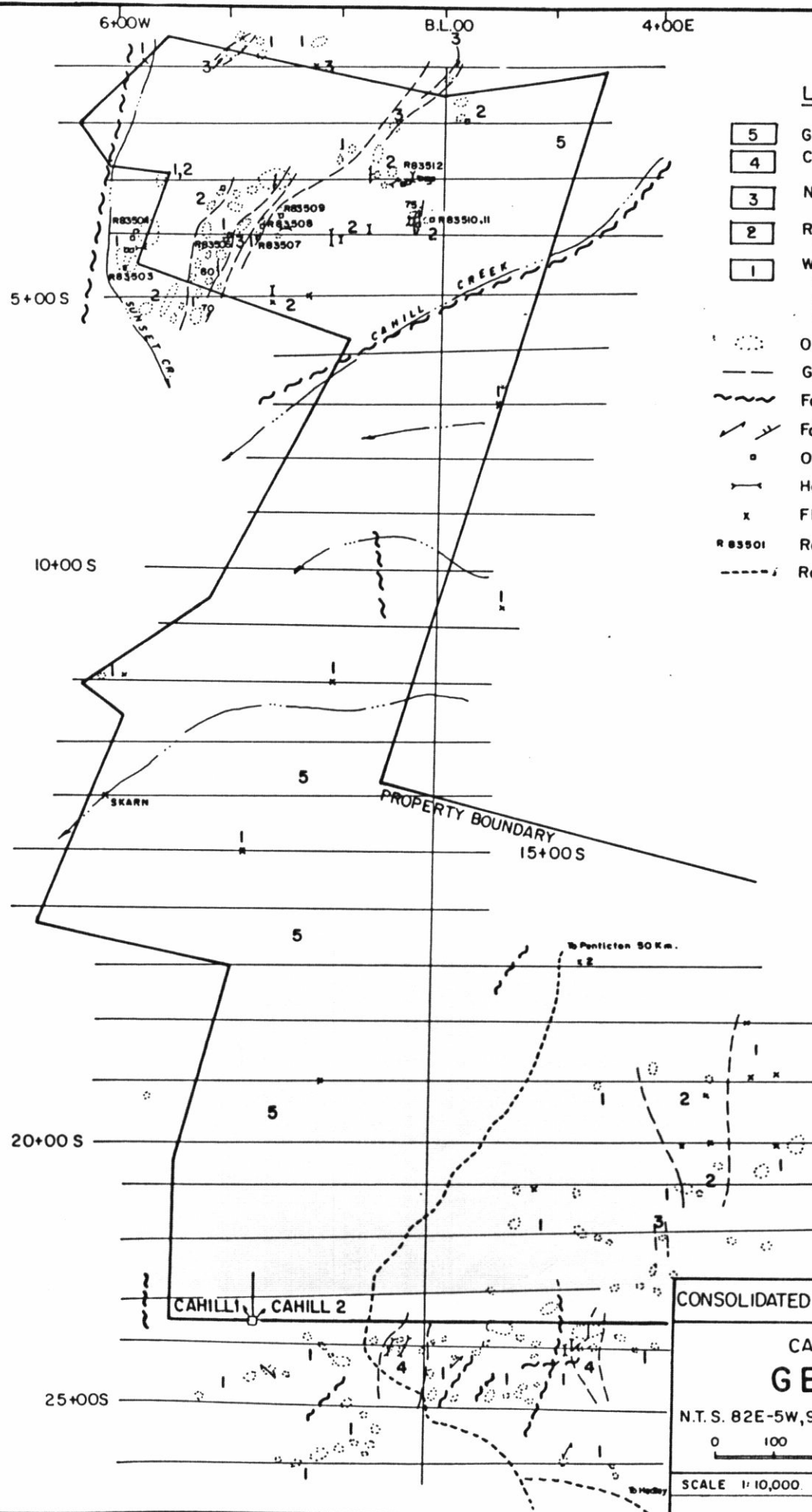
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WRITTEN BY: Michael R. Sanford, Geologist  
Box 225, Hedley, B.C.

DATE: January 16, 1987



<b>CONSOLIDATED SEA GOLD CORP.</b>			
CAHILL CLAIMS, HEDLEY AREA, B. C.			
OSOYOOS M. D., B. C.			
<b>CLAIM LOCATION MAP</b>			
SCALE: 1:50,000	DATE: April 30/84	SHEET: 2	N.T.S. 92 H / 8 E



**LEGEND**

- 5 Glacial (surficial) deposit
- 4 Cahill Creek Pluton : hornblende biotite granodiorite
- 3 Nickel Plate : diorite / gabbro, med. gr. massive
- 2 Red top Fm. : leucocratic siliceous ash tuffs with limestone lenses
- 1 Whistle Creek Fm. : green fine to med. gr. massive, andesitic crystal-lithic tuffs with minor breccia
- Outcrop
- Geological contact
- ~ Fault
- ↗ Foliation, bedding
- Open cut or pit
- Hand dug trench
- x Float / subcrop
- R 83501 Rock sample
- Road

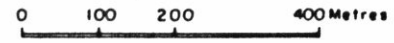


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CONSOLIDATED SEA GOLD CORPORATION

**CAHILL CLAIMS  
GEOLOGY**

N.T.S. 82E-5W, 92H-8E OSOYOOS M.D., B.C.



SCALE 1:10,000

DATE: AUG. 1987

FIGURE NR.

## I. INTRODUCTION:

### Program

From the 15th of May, 1986 to the 15th of November, 1986, a mineral exploration program was carried out on the Cahill Group Mineral claims currently under an option agreement between Consolidated Sea Gold Corporation and L. Goldsmith. The program was managed by M. R. Sanford of Banbury Gold Mines Ltd. at the request of Mr. C. Underhill of Consolidated Sea Gold Corporation.

### Summary of Work Performed

A summary of the work is presented as follows:

1. Grid re-establishment: 2.5 km cut and cleared base line; 28 km flagged line, covering all of the claim units.
2. Geological survey: (Peter Peto) mapped at a scale of 1:2500; covering all the claim units; 12 rock samples collected for assay.
3. Thin section study: (Vancouver Petrographics) 18 samples taken from drill core; polished thin sections made; visual petrographic descriptions and determinations.
4. Geochemical survey: 163 soils samples taken on 50m lines with 25m grid spacing; covering the NE part of the grid; analysed for Au, As, Ag, Cu, Pb, Zn, Co, Mo, Sb, Mn, W.
5. Geophysical surveys: (Delta Geoscience)
 

A. Magnetometer survey	5.3km
B. VLF-EM survey	5.3km
C. I.P. survey (chargeability and resistivity)	5.3km

 taken over the northern part of the claims.
6. Boundary location survey: 2.5 km of the northern boundary surveyed by B. C. Land surveyor; mapped at a scale of 1:2500.
7. Road building: 1.9 km cat road constructed of which 1.4 was on the property, and 0.5 was access to the property; 3.5m wide.

Summary of Work Performed (contd.)

8. Trenching: six - 25m long by 1m wide trenches were dug, for a total of 150m; shoveled and hosed down.

9. Diamond drilling; nine holes were drilled for a total of 1259.1m as follows:

<u>HOLE#</u>	<u>COLLAR CO-ORDINATES</u>	<u>ATTITUDE</u>	<u>LENGTH</u>
BM86-1	308S/21E	120/-45	275.3m
BM86-2	200S/80E	120/-45	31.4m
BM86-3	418S/80E	120/-50	153.0m
BM86-4	320S/53E	300/-45	123.5m
BM86-5	294S/148E	120/-45	283.2m
BM86-6	332S/16E	120/-40	91.8m
BM86-7	308S/2E	120/-45	93.0m
BM86-8	290S/1W	120/-45	124.1m
BM86-9	266S/24E	120/-45	83.8m

## II. PROPERTY:

### Description

The property consists of two claims, Cahill-1 and Cahill-2 that comprise 15 units, as follows:

<u>Claim</u>	<u>Record No.</u>	<u>Units</u>	<u>Date of Recording</u>
Cahill-1	1194	5	August 11, 1980
Cahill-2	1195	10	August 11, 1980

These cover an irregular block of ground that is defined by existing claims that predate the staking of the Cahill claims in 1980.

### Ownership:

The claims are owned by L. Goldsmith, and are under an agreement between Goldsmith and Consolidated Sea Gold Corporation.

### Location:

The claims are located 5 km due east of the town of Hedley, and immediately east of Sunset Creek and Cahill Creek. It lies directly between the Mascot, Canty, and Good Hope deposits.

### Access

The claims are accessible by the road which connects Hedley with Apex Mountain resort. This road leaves Hwy #3 three km east of Hedley, and also serves as access to Mascot Gold Mine. A branch road 200 meters east of Sunset Creek heads south onto the northern part of the property, while another branch road leaving from the same fork skirts the eastern boundary of the property, and angles across the southern part of the claims.

### Physiography

The claims cover a heavily forested, west facing, moderately inclined slope draining into Cahill Creek. Total relief is about 1000 feet with the upper elevations consisting of predominantly open jackpine forest and the lower regions consisting of tall stands of spruce intermixing at intermediate levels. The elevation ranges from 4500 feet to 5500 feet. About half of the property is covered by deadfall and thick secondary

Physiography (contd.)

growth due to old burns making surveying arduous. Rock exposures are scarce except at higher elevations and steeper slopes; situated largely at the southern and northern ends of the property. Thick deposits of glacial debris cover the valley bottom. Glacial erratics consisting of granodiorite, probably derived from the Cahill Pluton, suggest that ice movement was northerly.

### III. HISTORY:

#### Regional History

Placer gold in the Similkameen River was discovered in the mid-eighteen-hundreds and actively worked until the turn of the century. The first major discovery of lode gold in the region was on Nickel Plate Mountain in 1897. Since then the area has had a long history of gold mining and between 1902 and 1955 approximately 51 million grams (1.6 million ounces) of gold were won from several mineralized skarn orebodies. Most production came from the Nickel Plate and Hedley Mascot mines located near the summit of Nickel Plate Mountain. Total production from the smaller French, Cauty, Good Hope and Banbury mines was approximately 1.8 million grams of gold. Mineralization is also seen at the Peggy (Hedley Amalgamated) and Gold Hill properties.

The Hedley district was geologically mapped more than 40 years ago (Camsell, 1910; Bostock, 1930, 1940a, 1940b) but since that time little regional geological work has been done. The areas immediately surrounding some of the gold producers were mapped and studied in detail (Warren and Cummings, 1936; Dolmage and Brown, 1945; Lee, 1951), but less attention was devoted to either the regional geology or synthesising and comparing the various gold-bearing deposits in the district.

Interest in the Hedley gold camp has recently revived due to Mascot Gold Mines Limited planned 1987 reopening of the Nickel Plate mine as an open-pit operation (Simpson and Ray, 1986). Current open-pit reserves total approximately 65 million tonnes or ore grading 5.1 grams gold per tonne.

Banbury Gold Mines, currently under option to Noranda Exploration, has also created interest in the Hedley camp in prospects peripheral to Mascot Gold Mines Ltd.

#### Property History

There appears to be no public record of exploration work prior to the location of the Cahill claims although there is much evidence of previous staking and physical work. The initial assessment work program consisting of reconnaissance mapping and soil sampling of the northern portion of the property was carried out by



Property History (contd.)

Arctex Engineering Services (Logan & Goldsmith, 1981). Magnetic and VLF-EM surveys were carried out over the claim area for assessment purposes and reported by Goldsmith (1984, 1985). A property examination and literature compilation by R. D. Westervelt, P. Eng., (1986) recommended a three phase contingent exploration program, including geological mapping, costing \$155,000.

#### IV. GEOLOGY:

##### Regional Geology

The Hedley region lies within the Intermontane Belt of the Canadian Cordillera. The area between Winters Creek to the east, and Smith Creek to the west is underlain by a sedimentary and volcanoclastic package of rocks of Upper Triassic age of the Nicola Group. These rocks are relatively highly deformed, and in the Hedley area are folded tightly along North-South axial planes. The entire package is roughly 1500m thick.

As did Bostock in 1930, G. Ray of the B.C. Department of Mines divides the package in two, comprising an older Hedley Sequence, and a younger Whistle Creek Sequence. A description of these two sequences follows:

"...our preliminary work indicates that the package can be informally separated into a younger Whistle Creek sequence to the west and an older Hedley sequence to the east. The latter comprises a generally westerly dipping, 450 to 600-metre-thick succession of sedimentary rocks that are characterized by thin-bedded, calcareous and cherty turbiditic siltstones, black argillites and impure limestone beds of variable thickness. Some parts of the Hedley sequence, particularly its upper portion, contain appreciable amounts of fine-grained volcanoclastic and crystal tuff material ....

"The Hedley sequence passes stratigraphically upwards into the 700 to 1200-metre-thick Whistle Creek sequence. This forms a generally westerly dipping, west-facing succession that mainly underlies the western portion of the district although small, downfaulted outliers of the sequence are present east of Hedley township and in the vicinity of Lookout Mountain. It contains tuffaceous siltstones and rare argillites in its lower portion, but higher in the succession is characterized by bedded to massive ash and lapilli tuffs with minor volcanic breccia. The Whistle Creek sequence is distinguished from the underlying rocks by a general lack of limestones and a predominance of volcanoclastic material. No volcanic flows have been identified in the sequence."

Regional Geology (contd.)

"The Whistle Creek sequence is divisible into three stratigraphic units, the oldest (Unit A) is believed to be Late Triassic in age, while the precise age of the upper two younger units (Units B and C) is uncertain. Unit A is mainly comprised of well-bedded to massive ash tuffs of andesitic to basaltic composition. In its lower portion ;the unit is predominantly sedimentary in character and includes tuffaceous siltstones, interbedded with thin horizons of well-bedded to massive crystal-lithic tuff. Higher in the unit, ash tuffs with minor lapilli tuffs and volcanic breccias predominate; individual horizons are thicker and more massive, and sedimentary bedding is uncommon. Thin-section studies reveal that many ash tuffs in Unit A contain abundant euhedral, pristine crystals of plagioclase and pyroxene that show little evidence of mechanical abrasion or transportation ....

"The Whistle Creek and Hedley sequences are separated by a limestone boulder conglomerate which forms the most distinctive and important stratigraphic marker horizon in the district. This conglomerate is best developed west of Hedley where it forms a northerly trending, steeply dipping unit that is traceable discontinuously for over 15 kilometres along strike. Remnant outliers of the same conglomerate are also seen further east, in the Nickel Plate mine-Lookout Mountain vicinity

"The Copperfield conglomerate is interpreted to be an olistostrome. It probably resulted from the catastrophic slumping of an unstable accumulation of reef debris down a steep submarine slope, and the widespread, chaotic deposition of this mass onto a sequence of unlithified, deeper water turbidites. South of Lookout Mountain some of the larger limestone blocks were apparently autobrecciated during the downslope movement. They are now represented by highly angular, closely interlocking fragments, separated by a thin limy gouge matrix."

## Regional Geology (contd.)

"Sedimentary indicators show that the Hedley and Whistle Creek sequences generally young westward.

Measurements of crossbeds and flame structures indicate that the Hedley sequence, and Unit A of the Whistle Creek sequence were deposited by northwesterly to southwesterly directed paleocurrents."

The western side of the property overlies what Ray refers to as the Cahill Creek Fracture Zone. This major structure has brought Hedley sequence rocks in contact with Whistle Creek sequence rocks along its northern extremity where the Cahill claims lie.

"Three plutonic suites are recognized in the area:

"The oldest is probably Middle Jurassic in age and comprises massive, coarse-grained, hornblende-bearing diorites, quartz diorites and minor gabbros of the Hedley intrusions (Rice, 1947). Potassium-argon age dates from these rocks range between 170 and 190 million years (Roddick et al., 1972). These rocks form major stocks up to 1.5 kilometres in diameter and swarms of thin sills and dykes, up to 200 metres in thickness and over 1 kilometre in strike length. The suite is absent in the Apex Mountain Group, but further west is widespread throughout the Upper Triassic rocks in the Hedley district. Most of the Hedley intrusions are concentrated along a northerly trending, elongate zone that coincides with the slope-related change of sedimentary facies in the Hedley sequence. Varying degrees of sulphide-bearing skarn alteration are developed within and adjacent to many of these intrusions. Some previous workers (Billingsley and Hume, 1941; Dolmage and Brown, 1945) considered this plutonic suite to be genetically related to the skarn-hosted gold mineralization in the district, including that at the Nickel Plate, Hedley Mascot and French mines. The preliminary geochemical and mapping results of this project support their conclusions."

Regional Geology (contd.)

"The second plutonic suite, the Similkameen intrusions, comprises coarse, massive, biotite hornblende-bearing granodiorite of presumed Late Jurassic age; most potassium-argon ages from these rocks range from 150 to 160 million years. These intrusions generally form large bodies such as the Pennask pluton which outcrops northwest of Hedley and a granodiorite body outcropping between Winters Creek and Hedley township ... referred to as the Cahill Creek Pluton type in the region."

"Several extensive roof pendants of hornfelsed, highly deformed sedimentary and tuffaceous rocks are present in the Cahill Creek pluton north of Winters Creek. These pendants contain coarse volcanic breccias, minor chert pebble conglomerates, limestones, siltstones and a thick horizon of limestone boulder conglomerate. The boulder conglomerate is the principal host for auriferous skarn mineralization at the French Mine and closely resembles the Copperfield conglomerate seen further west. However, it is not known whether these two conglomerate units are stratigraphically equivalent. The precise relationship between the deformed and hornfelsed roof pendant geology in the French mine area and the stratigraphic succession recognized further west is uncertain.

"The third and youngest intrusive suite in the district is represented by a fine-grained, felsic, quartz-bearing porphyry that cuts and postdates the Cahill Creek pluton. These rocks are characteristically leucocratic and contain rounded, partially resorbed quartz phenocrysts up to 4 millimetres in diameter. Sills and dykes, generally less than 3 metres wide, are widespread but not abundant throughout the area. West of Ashnola Hill one 300-metre-wide, 1.3-kilometre-long dyke-like body of quartz porphyry is controlled by the west-southwest-trending Cahill Creek fracture zone."

Property Geology

The Cahill Claims were mapped at a scale of 1:2500 in June and July, 1986 by Peter Peto, geologist. The following is from his summary statement:

According to regional geological mapping by Bostock (1940), as indicated by G.S.C. map 568A (Hedley), the claim area is underlain by undifferentiated upper Triassic, volcanoclastic sediments and carbonates which maybe correlated to the eastern facies of the Nicola Group. The northern portion of the property, which is extensively covered by glacial drift (Unit 5) would appear to be underlain by the northeast extension of the Redtop formation (Unit 2) which is said to consist of "limestone, cherty quartzite, siliceous argillite, tuff, some breccia", (Bostock (1940)). These lithologies might now best be interpreted as felsic (acid) volcanoclastics with interbedded limestones referred to as the Hedley sequence (Ray et al., 1985). The southern portion of the claims are underlain by massive, poorly bedded, grey-green, compact, intermediate crystal-lithic tuffs and breccias, devoid of limestone interbeds, which would correlate to Ray's Whistle Creek sequence (Unit 1). The crystal-lithic tuffs are strongly recrystallized to an assemblage of amphibole-chlorite-epidote and feldspar, resembling a fine grained diorite. However this texture and mineralogy, appears to be due to the hornfelsing effect of Cahill Creek granodiorite Pluton (Unit 4), situated to the south of the claims but is represented on the claims by north-trending, magnetic, granodiorite dykes. Several north-trending diorite/gabbro dykes (Unit 3) occur in the northwestern portion of the claims; these are believed to belong to the Hedley intrusions and are generally associated with contact metamorphic pyrite-pyrrhotite-chalcopyrite mineralization in north trending zones in marginal volcanoclastic rocks. These showings are described in greater detail below.

Property Geology ( contd.)

From a structural viewpoint bedding, dyking and fracturing is predominantly northerly with subvertical dips to the west. However data is scanty due to poor exposure. It is thought that magnetic and VLF-EM trends indicate that Cahill Creek is a major NE trending fault zone, which separates the stratigraphically lower Hedley sequence to the north from the Whistle Creek sequence to the south. Sunset Creek probably represents a major north trending fault. A limestone conglomerate occurs along the east bank of Sunset Creek and it may be equivalent to the Henri Creek(Copperfield) Conglomerate.

Several rock samples were collected for assay. These are briefly described below and assays are appended.

- R83521: L15 + 750W angular, vuggy skarn with pyrite and arsenopyrite collected from a small streambed.
- R83522: L19S + 400E pale green, siliceous tuff(?) or skarn which carries secondary quartz + epidote + chlorite + garnet and minor pyrite.
- R83523: 4.5S + 550W, 3x2x3m deep open cut in green tuff exposes a 1m wide N10°W-vertical shear carrying massive to disseminated pyrite (py), pyrrhotite(po), and chalcopyrite (cp).
- R83524: L4S + 525W, 2x5x3m deep open cut in fine to medium grained tuffs exposed in a 1m wide shear trending N10°E-80W carrying 5% disseminated py + po + cp in a quartz-carbonate gangue.
- R83525: 4.1S + 520W, 2x2x4m deep adit driven on vuggy, silicified, impure limestone and carbonate breccia with no visible sulphide or rust.
- R83526: L4S + 400E, 5x3x3m deep open cut in green tuffs, exposing 1m wide, N20W-vertical trending shear carrying

Property Geology (contd.)

carrying massive and disseminated py + po + cp + sph (?) adjacent to a N25°W trending gabbro dyke.

R83527: L4S + 350W, 3x2x1m deep pit in green fine or green tuff cut by 0.5m wide shear trending N15W-70W carrying clots and disseminations of py and po near east contact of diorite dyke.

R83528: L4S + 350W, water filled pit 3x2x2m deep 10 metres N of above.

R83529: 3.5S + 300W, 2x2x2 meter deep open cut in dark green tuff exposing a 1m wide rusty fissure filling trending N0°E-75W carrying pods of massive po with py and cp.

R83530: L3.5S + 100W, 15x5x5m deep open cut with 3 short adits along contact with a gray limestone/marble with bedding trending N10°+75W. Footwall consists of rusty very fine grained felsic tuffs with disseminated po and hanging wall of rusty grey-green tuff with interbedded felsic tuffs. Cut by a narrow N10E vertical shear carrying disseminated py + po + cp + sph.

R83531: Hanging wall, rusty felsic tuff from above location.

R83532: L3S + 50W, 2x3x2m deep open cut in rusty, malachite-stained, very fine grained felsic tuff with disseminations and clots of po with epidote and chlorite alteration.

On the basis of the above observations it appears that predominantly pyrrhotite-bearing, fissure-type replacements occur in narrow, north-trending structures, cutting fine grained, well bedded, intermediate to acid ash and crystal-lithic tuffs proximal to major fault zones or diorite/gabbro dykes along the northwestern portion of the claims. Mineralization consists of minor amounts of chalcopyrite, sphalerite with values in gold.



Property Geology (contd.)

The southern portion of the claims appear devoid of mineralization except for pyrite adjacent to N-trending granodiorite dykes. The bulk of the property is overlain with glacial debris and little can be said about bedrock geology other than glacial float suggests it is probably underlain by crystalline tuffs and breccias of the "Whistle Creek sequence."

Ray indicates on his idealized section through the area that the Cahill Fracture zone may be a normal fault similar to the Bradshaw Fault that is well exposed in the Hedley bluffs to the west, and has possibly brought wedges or slices of rocks of the lower Hedley sequence up along it. It is thought that the zone on which the diamond drilling was concentrated may be one of these slices. Also Ray and W. Wilkenson, geologist for Mascot Mines, conjecture that the Canty gold deposit may lie in the same structural regime. The Canty deposit is immediately north of the Cahill property.

## V. GEOCHEMICAL SURVEY:

### Historical Surveys

Soils geochemical sampling was conducted over the northern half of the property in 1981 by Arctex Engineering Services. One hundred and seven samples were taken on 200m lines, 100m apart between line OS and line 12S, and between 700W and 800E. They were analysed for Au, As, and Cu. The following are R. D. Westervelt's comments on the survey:

"The soil samples are too widely spaced to be definitive but do indicate some general trends:

- (a) the gold values moderately increase immediately east of Cahill Creek and appear to follow a northeasterly trend;
- (b) anomalous copper values (eg: greater than 150 ppm) more or less trend northeasterly and also appear to support the gold trend noted east of Cahill Creek;
- (c) anomalous arsenic more often accompanies the higher copper and less frequently is associated with the higher gold values;
- (d) anomalous gold, copper and arsenic values are widespread but scattered throughout the property and peripheral areas."

Gold values were weak, ranging from less than 10 ppb to 200 ppb. Within property boundaries, they ranged from less than 10 ppb to 40 ppb.

### Present Work

The present survey was conducted on a much tighter spacing of samples. In all, 163 soil samples were taken between line 1S and line 5S, and between 200W and 300E. They were taken on 50m lines with 25m intervals. Each sample was analysed for Au, As, Ag, Cu, Pb, Zn, Co, Mo, Sb, Mn, and W.

Gold values ranged between 1 and 270 ppb, the tight sampling revealing a greater number of anomalous results. From the limited survey area, the only significant anomaly is a broad, spotty zone centered on

Present Work (contd.)

line 3S at OE, and trending NNW and SSE to the edges of the survey area. It is roughly 400m long and 100m wide. Other individual anomalous values are dispersed throughout the survey area.

There is little to say regarding the other elements that were analysed. In general none are abnormally anomalous, and none define broad zones of influence. It is noteworthy, however, that in general arsenic values are slightly elevated.

Discussion

It is thought by this author that geochemical studies on the property are of limited value. Only in local environments on the north and south ends of the property are they apt to be reflecting the chemical nature of the bedrock. This is because the property is largely covered with a thick blanket of glacial drift. In the area that was trenched, this was shown to be from 15 feet to over 100 feet thick, composed of glacial silts, sands, gravels, and boulders. Data collected to the present time should be used warily, and further exploration efforts should concentrate on remote methods (geophysics) and diamond drilling.

## VI. GEOPHYSICS:

### Historical Surveys

In 1984 and 1985, Magnetic and VLF-EM surveys were conducted over the entire property by Arctex Engineering Services. Data was collected from 100m lines with 50m sample intervals. The following summary is provided by Westervelt in his Summary Review Report:

"The most prominent magnetic feature is a steep gradient with considerable relief in the northernmost part of the property.

"This feature terminates southward along a northeasterly trending creek gully and probably reflects a major diorite intrusive along the northern property boundary. Southward from the creek gully, the magnetic relief is relatively flat suggesting a contact or fault along this lineament with tuffaceous sediments trending N 35° E lying to the south.

"Anomalous features requiring further investigation have been defined as follows:

- (a) a broad magnetic low trending northeasterly between 6+00S 2+50W and 3+00S 1+00E may reflect a major alteration zone wherein the magnetic minerals have been destroyed. Silicification with minor green copper staining and finely disseminated pyrite is present in several old trenches at 3+75S 1+10W immediately west of this magnetic low
- (b) a similar but less well defined magnetic low trending northeasterly from 21+00S 3+00W to 17+00S 3+50E. A large piece of float with silicification, arsenopyrite and pyrite in skarn was found in the immediate vicinity
- (c) a discrete magnetic high with a peak of some 1000 gammas above background extending from 24+00S 3+00E to 25+ppS 3+50E

### Historical Surveys (contd.)

- (d) a linear 200 gamma anomaly trending northerly at 5+00E on lines 19+00S through 21+00S

The contoured VLF-EM data indicate a complex of conductors associated with the high magnetic relief and steep gradient area in the northern part of the property. As with the magnetic pattern, there is a definite change in the EM pattern south of the northeast trending creek gully. South of the creek gully, the contours are quite regular for some distance suggesting an average trend of rock units at  $035^{\circ}$  without marked anomalous features.

In the vicinity of the arsenopyrite-pyrite skarn float, a second major northeasterly trending structure is implied by a disruption of the EM contours extending from 23+00S 5+00W to 17+ppS 3+50E.

The contours in the vicinity of the discrete magnetic anomaly at 24+00S 3+00E suggest a northeasterly trending structure cross-cutting the north trending magnetic feature."

### Present Work

Magnetic, VLF-EM, and I.P. surveys were done on the northern part of the property on the re-established grid. Lines 1S through 6S were surveyed with 25m sample intervals.

The mag and VLF-EM surveys agreed closely with those of Arctex Engineering with the following refinements due to the closer sample interval:

- (1) The broad mag low that trends northeast from line 6S, 250W to line 3S, 100E is flanked immediately to the SE by a similar trending irregular mag high. This was interpreted to be a large Hedley Diorite dyke extending from what is interpreted as a diorite stock in the NE corner of the property. Subsequent diamond drilling has shown this to be the case.

Present Work (contd.)

- (2) The VLF-EM conductors were shown to be parallel or sub-parallel and trend mainly NNE.

The I.P. survey was done for chargeability and resistivity. Two major anomalous zones were delineated as follows:

- (1) a broad 400m long NE trending zone from line 5S, 100W to line 2S, 250E (ANOMALY 1) This is a anomaly comprised of parallel N30E trending belts from 25m to 75m wide. Each belt is characterized by high chargeability, while the whole zone is characterized by low to moderate resistivity, indicating abundance of sulphides, with some connection. Indeed, this was confirmed by diamond drilling.
- (2) a 300m long N trending zone from line 5S, 460W to line 2S, 450W. (ANOMALY 2) This is an anomaly of high chargeability and moderate to high resistivity, indicating disseminated sulphides in most probability. the zone is as yet open ended to the south.

Discussion

I.P. results south of a line between 6S, 300W and 3S, 300E were not obtained by the current survey due to the limitations in the survey equipment used. Very thick overburden masks the area around Cahill Creek and much of the property south of this line. Larger, more powerful I.P. equipment will be necessary for reliable results in this area.

VII. TRENCHING:

Trenching was attempted at six locations on geophysical ANOMALY I, with marginal success, located as follows:

1. Line 2S - 125E to 150E
2. Line 3S - 75E to 100E
3. Line 3S - 175E to 200E
4. Line 4S - 150W to 125W
5. Line 4S - 25W to 1E
6. Line 4S - 25E to 50E.

Deep overburden, extremely large boulders, cemented gravels, and excessive groundwater hindered success. Bedrock or presumed bedrock was encountered in only two of the six trenches. Dark pyroxene skarn with 4% disseminated pyrrhotite was exposed at 80E in trench #2, and the same, with 2% disseminated pyrite and pyrrhotite was exposed in trench #5 at 20E. Both exposures were poor.

No further trenching work is recommended.

### VIII. DIAMOND DRILLING:

Nine holes were drilled on the northern part of the property. Gold values were encountered in two holes. The other seven were barren. All nine holes were drilled on the geophysical ANOMALY I. An intensely altered package of rocks was encountered and drilling indicated a structurally and mineralogically complex zone that has many similarities to the system of rocks encountered in recent drilling in the Mascot ore body.

Basically two major rock types were encountered in the drilling; Hedley diorite porphyries intruding what is thought to be tuffs and minor clastic sediments (with an undetermined proportion of limestone lenses and beds) of the Hedley sequence. However, it may be that the country rocks are of the Whistle Creek sequence (Unit A) which are widespread in the area, and have been heavily influenced by skarnifying fluids that have moved up through the rocks adjacent to the Cahill Creek fracture zone.

The diorite porphyries are major elements of the package, comprising upwards of 25% of the core drilled. The impression is of several intrusive stages injecting the structurally incompetent sediments. At least two prominent types were noted: a hornblende diorite porphyry with 5% to 20% hornblende phenocrysts, and a feldspar diorite porphyry, with 10% to 25% feldspar phenocrysts.

Imprinting of successive stages of fluids through the package is apparent in the drill core and in this section, making it impossible to determine the original textures and nature of the rocks from later ones caused by tectonic movement and successive fluid migrations. The diorite porphyries and lithic tuffs grade back and forth into each other, and it is often impossible to determine one from the other.

A dominant unit of completely skarned rock was encountered at the western limit of drilling. This rock is a very hard, dense, light coloured garnet-diopside-wollastonite skarn. Sulphides are notably rare to absent in this unit, probably indicating that intense skarnification preceded the major sulphide events.



VIII. DIAMOND DRILLING (Contd.)

The gold values were found in the rocks on the flanks of this light coloured skarn, indicating that these are important targets for exploration. (i.e. further drilling). As well, the only abundance of arsenopyrite mineralization was found in this zone. Gold values were associated with the arsenopyrite.

Also present are a leucocratic fine grained granodiorite which forms a large dyke near eastern limit of drilling, and several smaller dykes within the package, and many small diabase dykes of fresh appearance that have intruded the package at a later date. These later granodiorite and diabase dykes seemed to have been later than the main event that caused the profound alteration, brecciation and introduction of sulphides to the package. It is thought that they may have been responsible for minor brecciation and some remobilization of the sulphides, as well as later, but minor, episodes of hornfelsing.

A brief verbal summary of each hole follows:

1. BM86-1: Collared in mixed brecciated tuffs and diorite porphyry to 168 feet. Breccia is light green to dark green, to red, medium-grained, tectonic with minor to 2% sulphides (pyrrhotite, pyrite, chalcopyrite). Diorite in many fingers or sheets into the zone. Profound later alteration. This zone has four sections that have gold values as follows:

- a. 51 feet to 60 feet - 0.104 oz/ton Au
- b. 75 feet to 77 feet - 0.070 oz/ ton Au
- c. 102 feet to 106 feet- 0.096 oz/ton Au
- d. 132 feet to 135 feet- 0.248 oz/ton Au

From 168 feet to 310 feet is mainly bedded tuffs and sediments exhibiting prominent biotite hornfelsing and 2% to 4% pyrrhotite and pyrite throughout, with very minor chalcopyrite. What were thought to be garnets exhibiting pervasive retrograde metamorphism in the drill core were shown by thin section to be red biotite. Tectonically brecciated by fresh diorite dyke between 205 and 246 feet.

From 310 feet to 843 feet is alternating altered diorite porphyry and skarned and hornfelsed bedded and brecciated tuffs and sediments.

VIII. DIAMOND DRILLING (Contd.)

From 843 feet to 903 feet is fine-grained leucocratic granodiorite. The hole ends at 903 feet.

2. BM86-2: Driven 106 feet in heavy sand, gravel, and boulder overburden.
3. BM86-3: Collared in bedded tuffs and sediments from 33 feet to 90.5 feet. Hornfelsed and locally skarned.

From 90.5 feet to 105.7 feet - very intense green zone of carbonate related material. Green mineral may be a chloritic variety or a form of mica. This zone is thought to be a skarn.

From 105.7 feet to 169 feet is mixed bedded tuffs and sediments with diorite porphyry, with 1% to 3% pyrite and pyrrhotite and very minor chalcopyrite.

From 169 feet to 415 feet is mixed brecciated tuffs and sediments with diorite porphyry. The whole zone is highly hornfelsed with local skarned zones. Arsenopyrite is abundant from 224 feet to 250 feet and has sporadic minor gold values as follows:

- a. 229.0 feet to 231.0 feet-0.081 oz/ton Au
- b. 235.0 feet to 236.0 feet-0.048 oz/ton Au

From 415 feet to 477.5 feet is mixed bedded tuffs and sediments with diorite porphyry. 3% pyrite and pyrrhotite with very minor chalcopyrite occurs throughout.

From 477.5 feet to 502 feet is mixed leucocratic fine grained granodiorite and hornfelsed sediments. The hole ends at 502 feet.

4. BM86-4: Collared in mixed brecciated and strongly hornfelsed tuffs and sediments and diorite porphyry from 30 feet to 134 feet.

From 134 feet to 300 feet is a zone of garnet-dipside-wollastonite skarn. All trace of original texture and mineralogy has been obliterated. It is almost devoid of sulphides and veining. It has been intruded with dykes of fine-grained granodiorite and diorite porphyry from 224 feet to 267 feet.

VIII. DIAMOND DRILLING (Contd.)

From 300 feet to 405 feet is bedded hornfelsed tuffs and sediments displaying zones of skarn and 2-3% pyrrhotite and pyrite and very minor chalcopyrite throughout. From 323 feet to the end of the hole at 405 feet it is mixed with diorite porphyry.

5. BM86-5: Collared in diorite porphyry from 60 feet to 170 feet.

From 170 feet to 278 feet is brecciated tuffs and sediments with mixed porphyry dyke near the top of the section 2% to 4% pyrrhotite and pyrite throughout.

From 278 feet to 326 feet in bedded hornfelsed tuffs and sediments with 2% fracture related sulphides.

From 326 feet to 458 feet is alternating diorite porphyry dykes and diabase dykes with brecciated tuffs and sediments. Sulphide rich (3%-4% pyrite and pyrrhotite, minor chalcopyrite). 2.5 feet of massive vuggy pyrite-pyrrhotite at 427 feet. Diabase in fresh, the rest is hornfelsed and locally skarned.

From 458 feet to 686 feet is bedded tuffs and sediments all hornfelsed, with local skarning. Minor zones of breccia, and minor (10%) diorite porphyry dykes, 2% sulphides.

From 686 feet to 720 feet in brecciated tuffs and sediments with granodiorite dyke from 693 feet to 713 feet. All hornfelsed 2% sulphides.

From 720 feet to 814.5 feet is diorite porphyry with many septa of tuffs and sediments. All hornfelsed with local skarning. 2% pyrite. Hole ends at 814.5 feet.

6. BMS6-6: Collared in garnet-diopside-wollastonite skarn from 49 feet to 178 feet. Sulphide poor (less than 1%).

VIII. DIAMOND DRILLING (Contd.)

From 178 feet to 222 feet is diorite porphyry with many septa of hornfelsed and skarned tuffs and sediments. 3% sulphides.

From 222 feet to 301 feet is mixed brecciated and bedded tuffs and sediments with diorite porphyry. 3% sulphides. The hole ends at 301 feet.

7. BM86-7: Collared in brecciated tuffs and sediments from 75 feet to 91 feet. 2% pyrite.

From 91 feet to 136 feet is bedded tuffs and sediments mixed with 30% diorite porphyry as thin apophyses. 1% pyrite, minor pyrrhotite.

From 136 feet to 160 feet is mainly green-white garnet-diopside-wollastonite skarn. 1% pyrite.

From 160 feet to 305 feet is mixed brecciated and bedded tuffs and sediments with diorite porphyry. Breccias predominate. 3% to 4% pyrite and pyrrhotite.

8. BM86-8: Collared in green-white garnet-diopside-wollastonite skarn from 25 feet to 248 feet. Shows brecciated, mottled, or weakly bedded texture. 1% to 2% pyrite, minor pyrrhotite. Breccia predominates. Diorite porphyry from 208 feet to 217 feet.

From 248 feet to 407 feet is mixed brecciated tuffs and sediments and diorite porphyry. 4% pyrite and pyrrhotite overall. Hornfelsed with local skarning. Hole ends at 407 feet.

9. BM86-9: Collared in green-white garnet-diopside-wollastonite skarn from 53 feet to 218 feet. Mainly bedded texture or mottled with abundant brecciated zones.

From 218 feet to 230 feet is diorite porphyry. Brecciation common. 5% pyrite-pyrrhotite.

VIII. DIAMOND DRILLING (Contd.)

From 230 feet to 275 feet is a highly brecciated zone of tuffs and sediments with minor diorite porphyry. 10% pyrite and pyrrhotite. Vuggy. Hole ends at 275 feet.

## IX. DISCUSSION AND CONCLUSIONS:

The property has shown a good deal of promise and in this author's judgement is an extremely worthy exploration bet. This opinion is based on the following observations:

1. The property is underlain by intensely metasomatised rocks of the Hedley sequence, similar to those found in the open pit currently being developed by Mascot Gold Mines Ltd. High grade skarn through highly metasomatised biotite hornfels forms NS zones of indeterminate strike length and thickness.
2. Where exposed, the country rocks are intensely intruded by Hedley diorite porphyries.
3. Successive thermal and hydrothermal events have been imprinted on the rocks.
4. Sulphides are widespread and abundant, and have been introduced into the package several times. Mainly pyrite and pyrrotite were observed, but widespread disseminated chalcopyrite was encountered both in outcrop and in diamond drilling, and a significant zone of arsenopyrite was encountered at the southern limit of diamond drilling. Both chalcopyrite and arsenopyrite are associated with the Mascot gold deposit.
5. Gold has been introduced into the system, possibly as two generations. First, the arsenopyrite is auriferous. Second, several tectonic breccia horizons are auriferous. It is thought that the arsenopyrite zone is the most promising, based on the experience of the Mascot ore body, as well as the fact that other breccias on the property were barren.
6. Geophysical methods have shown that the anomalous zones are of significant strike length, of good intensity, and are fairly continuous. ANOMALY 1 is 500 m long before

DISCUSSIONS AND CONCLUSIONS (contd.)

it is lost beneath very thick overburden along Cahill Creek. Further and deeper testing should reveal more about these zones.

7. Structurally and stratigraphically the property is favourably located. G. Ray interprets the area to be a steeply dipping to overturned eastern limb of the Mascot anticline which has been confused by extensive faulting along the Cahill Fracture zone, and other zones. The rocks on the property may be an extension of those of the Mascot system.
8. Much of the property is masked by a thick blanket of overburden. Skarn and mineralized float has been observed in several locations carrying abundant arsenopyrite and anomalous gold.

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November 7th, 1986

Report for: Michael Sanford,  
Banbury Gold Mines Ltd.,  
Box 225,  
HEDLEY, B.C.  
VOX 1K0

## Samples:

18 samples of drill core for preparation of polished thin sections and petrographic description.

Samples are as follows:

HH-1	BM 86-1	54'	HH-10	BM 86-1	563'
2		62'	11		722'
3		71'	12		854'
4		100'	13	BM 86-3	99'
5		205'	14		236'
6		247'	15	BM 86-4	114'
7		267'	16		175.5'
8		428'	17		282'
9		518'	18		366'

The HH series numbers (cross-referenced above) were assigned in the lab for preparation purposes; they can be found scribed on the slides. These numbers are used for reasons of convenience in the following discussion (summary).

Individual petrographic descriptions of each sample are attached and should be referred to for more detailed information.

## Summary:

The suite consists mainly of quartz-poor feldspathic volcanics and intrusives, most of which have been more or less modified by thermal metamorphism (hornfelsing) and, in some cases, subsequent alteration.

Recognizable rock types are latitic tuffs (HH-2, 7, 18); andesitic tuffs (HH-6, 11, 15); diorite porphyries (HH-1, 8, 10); diabase (HH-4, 5); quartz monzonite porphyry (HH-12) and amygdaloidal andesite (HH-1).

Original rock types are indistinguishable in HH-9, 13, 16 and 17. Sample HH-14 is massive sulfide.

Thermal metamorphic effects are apparently absent in HH-3 and 12. Mild to moderate thermal effects (development of secondary amphibole and/or red biotite, and partial recrystallization of matrix feldspars) are seen in HH-4, 5, 8, 10 and 11. Stronger thermal effects (development of granular diopside) are seen in HH-1, 2, 6, 7 and 18.

Samples HH-16 and 17 show total recrystallization to aggregates of skarnic type. They may represent an extreme manifestation of the thermal event or possibly result from distinctive original rock types.

Samples HH-13 and 15 are probably hornfelsed volcanics similar to others of the suite, but exhibit a strong superimposed carbonate alteration. Sample HH-9 is the product of a similar alteration process on a different original rock.

Sulfides are present in several samples. HH-14 is compact arsenopyrite with accessory pyrite (probably after pyrrhotite); it contains inclusions of amphibole which may be secondary after pyroxene.

Samples HH-6 and 9 contain around 20% sulfide, dominantly pyrite. In the first case this is associated with quartz-epidote alteration and probably originated as pyrrhotite; in the second it is a peculiar fine-grained aggregate form associated with carbonate alteration.

Other samples containing minor amounts of sulfides (1 - 3% pyrite and/or pyrrhotite) are HH-2, 4, 5, 7, 10 and 11. The general impression from this suite is that sulfide mineralization is mainly a later event than the hornfelsing.

The most strongly altered samples (from BM 86-4) are notably lacking in sulfides.

J.F. Harris Ph.D.

APPENDIX B

ACME ANALYTICAL LABORATORIES LTD.  
87 E. HASTINGS ST. VANCOUVER B.C. V6A 1R6  
P. 253-3158 DATA LINE 251-1011

DATE RECEIVED: JULY 5 1986

DATE REPORT MAILED: *July 9/86*

**GEOCHEMICAL ICP ANALYSIS**

.500 GRAM SAMPLE IS DIGESTED WITH 3ML 3-1-2 HCL-HNO3-H2O AT 95 DEG. C FOR ONE HOUR AND IS DILUTED TO 10 ML WITH WATER.  
THIS LEACH IS PARTIAL FOR MN.FE.CA.P.CR.MG.BA.TI.B.AL.NA.K.W.SI.ZR.CE.SN.Y.NB AND TA. AU DETECTION LIMIT BY ICP IS 3 PPM.  
SAMPLE TYPE: ROCK CHIPS AU ANALYSIS BY AA FROM 10 GRAM SAMPLE.

ASSAYER: *De Toy* DEAN TOYE. CERTIFIED B.C. ASSAYER.

BANBURY GOLD MINES PROJECT - CAHILL#1&#2 FILE # 86-1319 PAGE 1

SAMPLE#	Mo PPM	Cu PPM	Pb PPM	Zn PPM	Ag PPM	Co PPM	Mn PPM	As PPM	Sb PPM	W PPM	Au# PPB
R83521	1	20	15	41	.3	4	280	3027	2	1	51
R83522	1	32	4	76	.1	14	638	40	2	1	9
R83523	1	4088	74	31	15.4	59	168	19	2	1	115
R83524	2	147	81	45	1.1	12	537	33	2	1	11
R83525	2	33	7	11	.2	4	247	22	2	1	4
R83526	1	1771	21	41	2.0	55	143	9	2	1	6
R83527	11	932	20	49	1.0	45	214	15	2	1	9
R83528	1	787	16	46	1.0	37	203	11	2	1	12
R83529	1	1463	15	49	3.1	180	385	89	5	1	200
R83530	1	20	3	22	.2	2	317	10	2	1	2
R83531	2	104	11	39	.2	21	96	1717	2	1	33
R83532	4	167	12	50	.6	12	95	63	2	1	27
STD C/AU 0.5	20	60	36	126	7.1	30	1041	35	16	13	495