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Northgane Minerals Ltd.
Calgary, Alberta

Report of

Geological and Geochemical Investigations, 1984
Whipsaw, Island & Hard Mineral Claims (Mosquito Creek Project)
Cariboo Mining Division, B.C.

November 1984

Cariboo Mining Div.
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Lawrence
Consulting and
Resources Ltd.

GEOLOGICAL BRANCH ASSESSMENT REPORT

13,255

REPORT ON:

GEOLOGICAL AND GEOCHEMICAL EXPLORATION, 1984 ON WHIPSAW, ISLAND AND HARD MINERAL CLAIMS, CARIBOO MINING DIVISION, BRITISH COLUMBIA

(Wells, B.C.)

OWNER:

Mr. K.V. Campbell
P.O. Box 99,
Wells, B.C. V0K 2R0

OPERATOR:

Northgane Minerals Limited,
Calgary, Alberta

CONSULTANT:

Lawrence Consulting and Resources Ltd.,
Calgary, Alberta

AUTHOR:

G.F. Lawrence, C.E.T.

CLAIMS:

Whipsaw Mineral Claims (1881-1888)
Island Mineral Claims 5318 (2 units)
Hard Mineral Claims 5319 (8 units)

N.T.S. Map Area 93H/4

Latitude: 53° 08'   Longitude: 121° 38'

November, 1984

MOSQUITO CREEK PROJECT-WHIPSAW, ISLAND AND HARD CLAIMS

Northgane Minerals Ltd.'s Mosquito Creek Project consists of 10 mineral claims in the Caribou Mining Division of Central B.C., 4 1/2 km from the fully serviced village of Wells, population c.500. Northgane signed a working option with Mr. K.V. Campbell (owner) on these claims in February, 1984. The claims straddle a geological contact along which gold-bearing pyritic replacement ore bodies occur 2 to 10 km to the south-east. This geological contact marks the axis of the Barkerville Gold Belt within which there have been several historical gold mines; namely the Island Mtn., Cariboo Gold Quartz, Canusa and the Williams Creek Gold Quartz mines, and, the currently producing Mosquito Creek Gold Mine.

The Island Mtn. mine produced 1.2 million tons of ore averaging 0.46 oz/ton gold, the Cariboo Gold Quartz mine produced 1.7 million tons of ore averaging 0.38 oz/ton gold and the Mosquito Creek Gold Mine, 2 km to the southeast of Northgane's Mosquito Creek Project, has produced c.1978 approximately 17,000 oz. of gold. At the Mosquito Creek Mine the ore has been won from a strike length along the critical geological contact of less than 1000 meters. The same contact extends across Northgane's Mosquito Creek Project claims, and, based on a probable geological model involving intense folding, occurs along three repeat subcrops for a total combined length of 3,200 m. Old adit workings located on the Whipsaw claims in 1984 were researched and found to be the former Mystery and Little Chief mineral claims. From the Annual Report of the Minister of Mines, c.1903, records indicate that samples taken from a 12 ft. wide quartz vein assayed at $3.00 per ton gold (0.15 OZ/ton).

Exploration work completed on the Whipsaw, Island and Hard claims includes a reconnaissance VLF-EM16 survey, 1981; a reconnaissance geo-chemical survey, 1981/82; a detailed geochemical survey, reconnaissance geological mapping, and layout of new access road and trench locations, 1984. This work has been successful in locating the probable geological contact of interest, finding anomalous arsenic and gold values near the contact and finding previously unknown lead-silver anomalies.

Future physical work required on the property is firstly, the con-struction of an access road across the claims group, secondly, the excav-ation of aproximately 1200 m of trenches across the gold/arsenic geo-chemical anomalies and the lead and silver geochemical anomalies, thirdly, clean out the old Mystery and Little Chief workings for further investig-ation, fourthly, expand the geochemical soil investigation, and fifthly, conduct detailed VLF-EM and magnetometer surveys over the total claim area.

Unexpected assistance with road construction and the clearing of trees from trench sites has come from a logging contractor who, under the authority of the Ministry of Forests, has the right to harvest timber from the claims area. The trenching-work will most likely be undertaken during the 1985 field season.

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1 INTRODUCTION

This report presents the results of detailed geochemical soil survey work on the Whipsaw claims and geological reconnaissance mapping work on the Whipsaw, Island and Hard claims, three contiguous goups of mineral claims in the Caribou Mining Division of central British Columbia.

Mr. K.V. Campbell, owner of the claims, completed a VLF-EM reconnaissance survey (1981) and reconnaissance soil geochemical survey (1981/82) on the Whipsaw claims, the initial prospect property. Because of the encouraging results obtained from this early work along with the favourable geological setting of the property, Northgane Minerals obtained a working option from Mr. Campbell in early 1983. Once having more fully evaluated the property and the overall mining potential of the general area, Northgane requested Mr. Campbell to aquire additional property on open ground located to the south and west of the Whipsaw claims. This was completed in November 1983 with the Island claims adjoining the Whipsaw to the south and the Hard claims to the west. The original option agreement between Campbell and Northgane was revised in February 1984 to reflect the change of property status.

The geological setting is such that there is excellant potential for at least two and possibly three mineralizations to be present. Gold and silver-bearing quartz veins and auriferous pyritic replacement bodies in a limestone rock unit, both of which occur at the currently active Mosquito Creek Gold Mine some 2 1/2 km southeast along regional strike, are highly considered to occur on the Whipsaw claim group. In addition, the recently completed detailed geochemical soil survey has indicated a strong lead-silver soil anomaly to be present. Reports on the former Hardscrabble Tungsten Mine, 1/2 km northwest along regional strike, indicate the presence of rich gold-bearing veins as well pyrite, galena, and sphalerite. Also within the Hardscrabble mine, mapping has indicated limestone beds situated between light-colored quartzites and black phyllites and argillites, which resemble the rock suite in the contact area being mined at the Mosquito Creek Gold Mine. The earlier VLF-EM and geochemical survey interpretations indicate a potential location for this important contact on the Whipsaw property and the results of the recent detailed geochemical survey seem to confirm this interpretation.

The objectives of the gochemical soil sampling program carried out in September, 1984 were:

1. to further test and confirm, on a detailed scale, the precence of geochemical soil anomalies over the favorable MPD/DMs contact area, inferred from earlier geochemical and geophysical work,

2. to determine conclusively whether or not the arsenic anomalies detected in the earlier geochemical soil survey were reliable indicators for gold mineralization, and

3. to determine if geochemical soil anomalies associated with other mineralizations may be present in the favorable MPD/DMs contact area.

For these reasons then, all samples were analysed for the elements arsenic, silver and lead, and 180 of these samples, selected from across detected As, Ag and Pb anomalies, were further analysed for gold.

The objective of the geological mapping work was to locate as much information as possible on the bedrock geology in an area (Project area) that has only limited outcrop exposure, in order to build this information into a geological model that is mainly based on data from nearby mines and other geological mapping work.

Preparations for the geochemical soil sampling were begun as early as June 1984 with four mandays spent clearing an access trail and five mandays spent laying out the geochemical survey grid. The geochemical soil sampling and geological mapping was completed in September, 1984 with 29 mandays and 9 mandays spent respectively on these tasks. In addition three mandays were spent locating the alignment of an access road and several trenches which are planned to be constructed during the next field season.

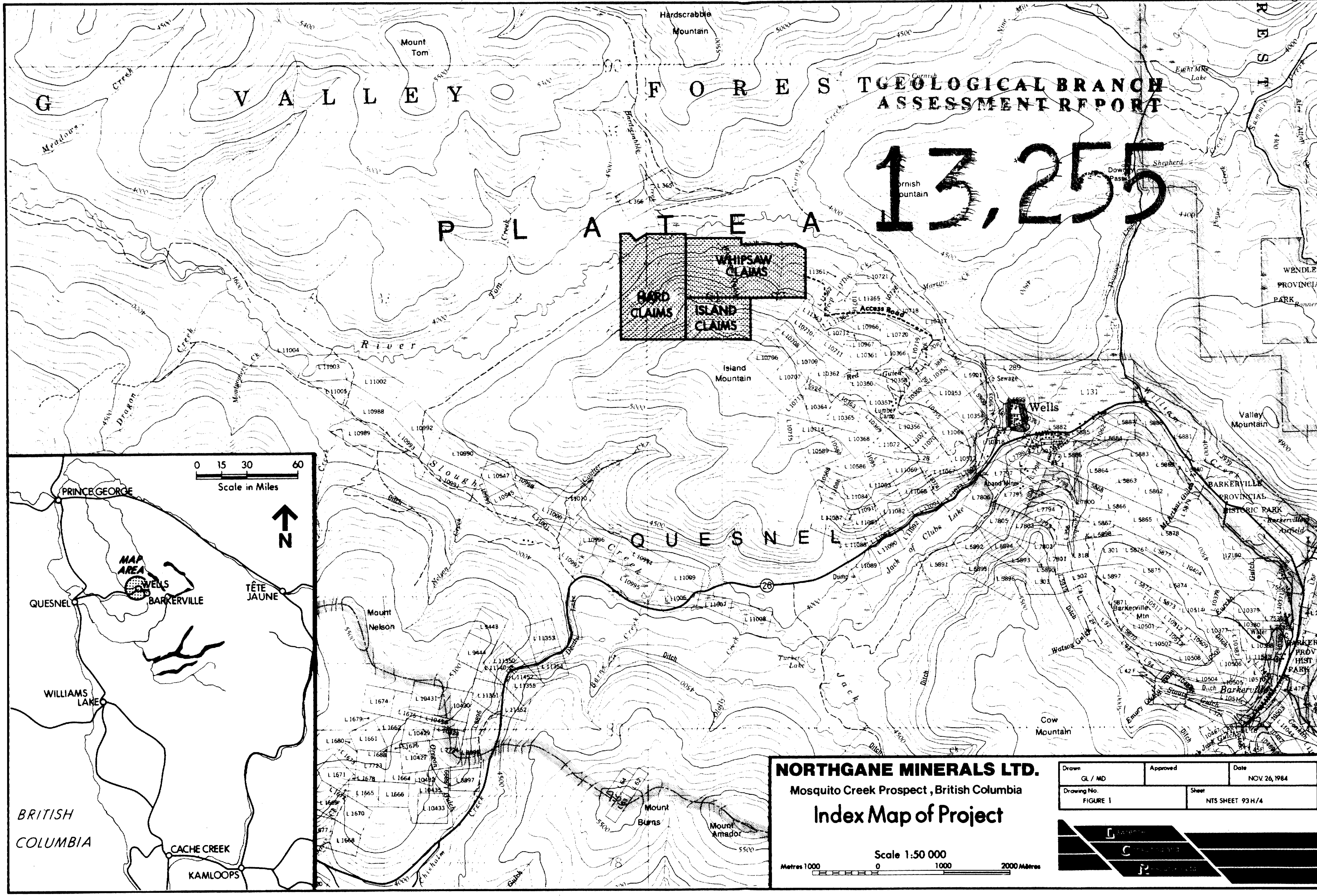
1.1 Location and Access

The Whipsaw, Island and Hard mineral claims are located in National Topographic System map area 94H/4 and area 5 km northwest of the village of Wells, B.C., west of the historic mining town of Barkerville, and, 80 km east of Quesnell, B.C. on Highway 26 (Figure 1). The claims lie on the north side of Island Mountain with all but two of the Hard claims located south of the Willow River.

Access to the Project area is by 4 wheel drive along the Peep 'O Day Creek road which leads off from the Mosquito Creek Gold Mine access road, then by foot along an old hydraulic ditch upon which a foot trail has been cleared (Figure 1).

1.2 Ownership and Claims Status

Northgane Minerals Ltd.'s Mosquito Creek Project consists of three


GEOLOGICAL BRANCH
ASSESSMENT REPORT
13,255
NORTHGANE MINERALS LTD.
Mosquito Creek Prospect, British Columbia
Index Map of Project
Scale 1:50 000
Metres 1000 0 1000 2000 Metres
Drawn GL / MD
Approved
Date NOV. 26, 1984
Drawing No. FIGURE 1
Sheet NTS SHEET 93 H/4
WHIPSAW CLAIMS
BARD CLAIMS
ISLAND CLAIMS
Access Road
Island Mountain
Wells
BARKERVILLE PROVINCIAL HISTORIC PARK
WENDLE PROVINCIAL PARK
Valley Mountain
Cow Mountain
Barkerville Mtn
Mount Nelson
Mount Burns
Mount Amador
Mount Tom
Hardscrabble Mountain
Jack of Clubs Lake
Tucker Lake
QUESNEL
PLATEA
VALLEY
FORES
0 15 30 60
Scale in Miles
N
PRINCE GEORGE
MAP AREA
WELLS
BARKERVILLE
QUESNEL
TÊTE JAUNE
WILLIAMS LAKE
BRITISH COLUMBIA
CACHE CREEK
KAMLOOPS

contiguous claim groups, specifically the Whipsaw, Island and Hard claim groups. The Whipsaw property consists of eight 2-post mineral claims, while the Island and Hard properties consist of 2 and 8 modified grid claims respectively. All are located in the Caribou Mining Division. Specific claim details are as follows:

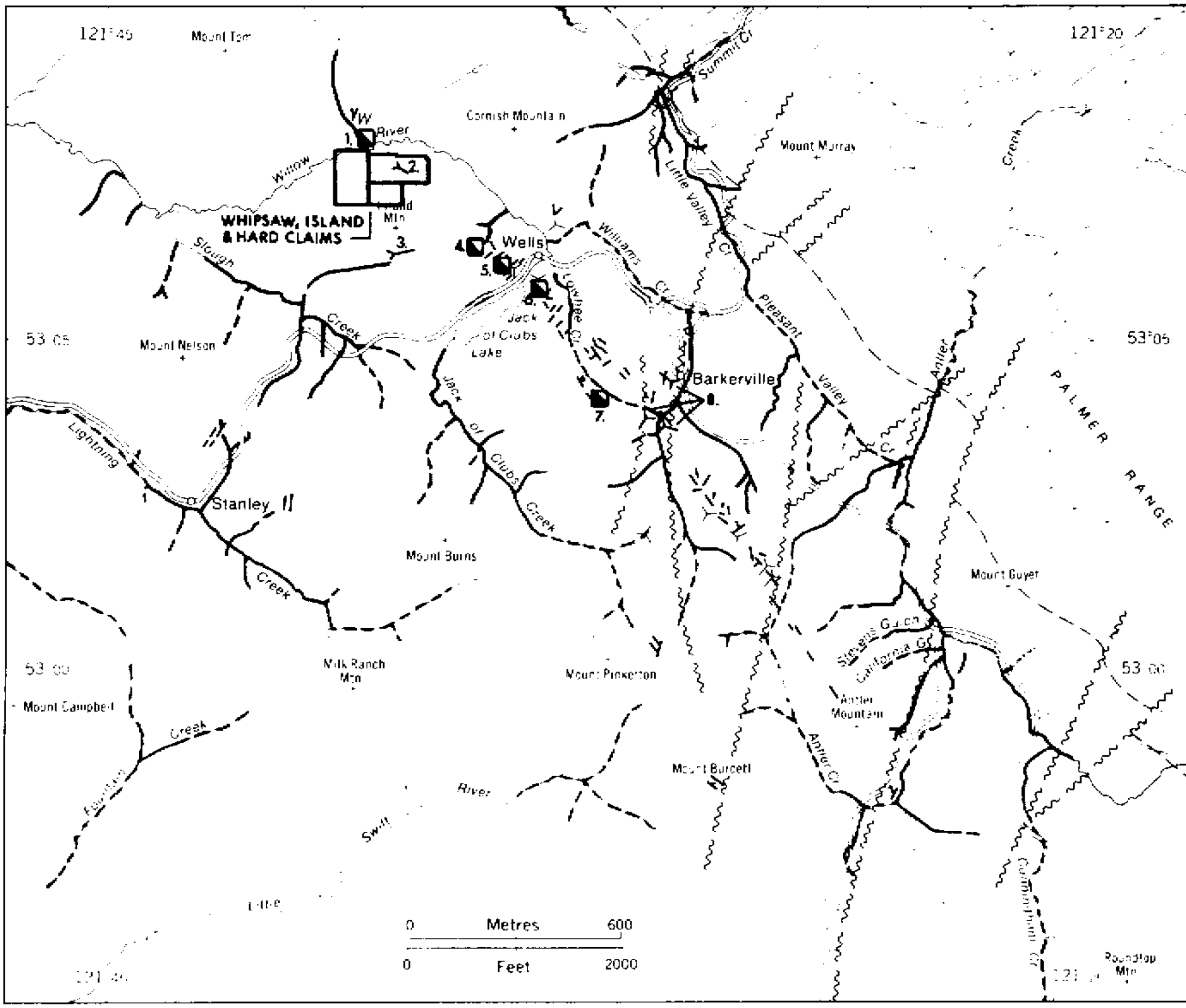
Claim Name	Record No.	Recording Date	Recorded Holder
Whipsaw 1	1881	August 25, 1982	K.V. Campbell
Whipsaw 2	1882	August 25, 1982	K.V. Campbell
Whipsaw 3	1883	August 25, 1982	K.V. Campbell
Whipsaw 4	1884	August 25, 1982	K.V. Campbell
Whipsaw 5	1885	August 25, 1982	K.V. Campbell
Whipsaw 6	1886	August 25, 1982	K.V. Campbell
Whipsaw 7	1887	August 25, 1982	K.V. Campbell
Whipsaw 8	1888	August 25, 1982	K.V. Campbell
Island	5318(2 units)	November 9, 1984	K.V. Campbell
Hard	5319(8 units)	November 9, 1984	K.V. Campbell

1.3 History

The Cariboo area is the oldest mining camp in Bristish Columbia, the first prospectors arriving c.1858. The early miners focused on placer deposits but by the 1880's gold-quartz veins were being mined as well.

Historical lode gold mines located 3 to 10 km to the southeast of Northgane's Mosquito Creek Project area are the Island Mountain, Cariboo Gold Quartz, Canusa and Williams Creek Gold Mines. Figure 2 shows the locations of the main placer creeks and lode gold mines in the Barkerville Gold Belt. Table 1 lists the prospects and mines that were located near the Project area.

Gold was won from both gold-quartz veins and pyritic replacement bodies in limestone. Free gold-bearing quartz veins are reported to occur at the former Columbia Tungstens Company Limited's Hardscrabble mine 1/2 km to the northwest of Northgane's Project area, but these were never mined. At present the only active mine in the area is the Mosquito Creek Gold Mine, 2 1/2 km to the southeast of the Project area, which had con-



PALEOZOIC

Slide Mountain Group Conglomerate, limestone, andesite basalt, chert, shale and argillite

Cariboo Group Quartzite, slate, sericite schist, limestone, phyllite, graphitic schist and chlorite schist

Placer (highly productive, marginal)
Fault
Auriferous quartz veins and lodes. W-with abundant scheelite
Adit
Shaft

1. HARDSCRABBLE TUNGSTEN MINE
2. MYSTERY & LITTLE CHIEF PROSPECT
3. BRIDGE ISLAND GOLD PROSPECT
4. MOSQUITO CREEK GOLD MINE
5. ISLAND MOUNTAIN GOLD MINE
6. CARIBOU GOLD QUARTZ MINE
7. CANUSA MINES LTD.
8. WILLIAMS CREEK GOLD MINE

NORTHGANE MINERALS LTD.

***Location of Mines, Auriferous Mineral and Placer Occurrances in Vicinity of the Whipsaw, Island and Hard Claims**

Drawn GL / MD	Approved	Date NOV. 26, 1984
Drawing No. FIGURE 2	Sheet NTS SHEET 93H/4	

*** after BOYLE, 1979**

Table 1

SUMMARY OF MINES AND PROSPECTS IN VICINITY OF THE WHIPSAW, ISLAND AND HARD CLAIMS

Reference No. (Figure 2)	Name	Description	Reference
1.	Hardscrabble Mine	Scheelite stringers in quartz veins and layers and in layers and lenses of quartz-carbonate rock. Country rocks are black phyllite, grey limestone and quartzite. Minor free gold occurs in quartz veins. Mineralization developed along northwesterly fault zones.	Little, H. W., (1959), Pages 62 - 67
2.	Mystery & Little Chief Mineral Claims	Two 12 ft. wide quartz veins. No visible sulphids, but $3/ton gold (1902) reported.	Annual Report, B.C. Minister of Mines, (1903), Page H-112
3.	Bridge Island Gold	Quartz vein showing in O'Conner Creek Gulch, Island Mtn. An adit was begun, however, not results given.	Annual Report, B.C. Minister of Mines, (1933), Page 125.
4.	Mosquito Creek Gold Mines	Pyrite replacement ore (ave. grade = 0.47 oz/ton Au) in limestone member of grey micaceous quartzite. Also, gold-quartz ore in black phyllite. The pyrite lenses are localized in crst of northeasterly plunging minor fold and in overturned limb of main fold structure.	Alldrick, D.J., (1983), B.C. Ministry of Energy, Mines and Pet. Res.
5.	Island Mountain Gold Mine	Similar ore deposit and mining siture to Mosquito Creek Gold Mine.	Sutherland Brown, A. (1957), Pages 74 - 79
6.	Cariboo Gold Quartz Mine	Ore predominantly in transverse quartz veins (60-70% of qzt. ore). Diagonal Veins supply most of remaining ore. Veins cut across grey quartzite, limestone and black phyllite.	Sutherland Brown, A. (1957), Pages 74 - 79

Table 1 con't. on Page 7

Table 1 Con't

SUMMARY OF MINES AND PROSPECTS IN VICINITY OF THE WHIPSAW, ISLAND AND HARD CLAIMS

Reference No. (Figure 2)	Name	Description	Reference
7.	Canusa Mines Ltd.	Of primary interest was the Canusa Vein, a large quartz vein, 9½ - 11 ft. wide. Average grade was 0.17 oz/ton. Other minerals included pyrite, galena, sphalerite and cosalite*. Best gold grades came from samples containing cosalite. Small transverse and strike veins occurring in groups yielded as much as 0.14 oz/ton gold from pyritic concentrations and 0.70 oz/ton from thin replacements adjacent to the veins.	Sutherland Brown, A. (1957), Pages 72 - 74
8.	Williams Creek Gold Mine	A series of smaller properties with ore coming predominantly from transverse veins. Small but rich ore bodies have been encountered on these properties which are the oldest lode-gold claims in B.C. Between 1887 and 1892 $5000 to $7000 in gold was recovered from aproximately 300 tons of ore.	Sutherland Brown, A. (1957), Pages 91 - 93

*Cosalite: - a bismuth-bearing mineral or bismusth sulphosalt, one of several which occur in many gold deposits, mainly skarn, gold-quartz and polymetallic types. Tends to occur more frequently in ores younger than Precambrian.

tinuous production from October 1980 to October 1983 of about 2000 tons per month of replacement ore with a head grade of 0.45 oz. per ton (Northern Miner, December 16, 1982). At the time of this writing Hudson Bay Mining and Smelting, in a joint venture agreement with Mosquito Creek Gold Mining Co., were undertaking extensive surface and subsurface exploration work. The initial Whipsaw claim group were staked in mid-Augustof 1980 because the area straddles the strike projection of the geology and structure at the Mosquito Creek Gold Mine.

Research of early Ministry of Mines records in Quesnell have shown that an old adit found in 1984 on the Whipsaw claim group is that of a gold prospect known as "Mystery and Little Chief"(Annual Report of the Minister of Mines, c.1903). Because the report is quite short, it has been copied verbatim as follows:

> "On Island Mountan, about 600 to 800 feet above the Willow River and two miles west of the mouth of Mosquito Creek, Allan McKinnon was working on two quartz locations, the Mystery and Little Chief. Many years ago a tunnel had been driven here into the hill for 60 feet, at which point it cross-cut a quartz ledge about 12 feet wide. This vein was of dull looking quartz, not showing any visible sulphides, but as sampled by Mr. McKinnon, assaying $3.00 per ton in gold. The claim on which this old tunnel was run had been abandoned for some years.
>
> About 50 feet vertically above the old tunnel and to one side of it, Mr. McKinnon has sunk a shaft 50 feet deep on and dipping with a vein of quartz. The shaft, for the first 35 feet, is at an angle of 75 degrees, the last 15 feet being almost vertical. The vein followed is about 12 feet wide, of white quartz, and where cross-cut shows that whereas the portion nearest the hanging-wall contains very low values, in that portion next the foot-wall they are very fair. There is undoubtedly a body of quartz here of considerable extent, and the returns so far obtained by Mr. McKinnon encourage him to expect that he may strike on a chute carrying good values.
>
> Mr. McKinnon had started a tunnel lower down the hill and writes, under date of 24th March, 1903, saying he was then in 94 feet. At this distance in he took a sample of the vein at the contact with the slates, which he forwarded to this Department for examination, and this sample contains particles of metallic tin, which can readily be separated by panning. Mr. McKinnon has been requested to verify this sample, as no other occurence of metallic tin has been known in British Columbia."

The old workings, located during the 1984 geochemical survey, are located at 10+00N, 2+50W on the geochemical grid. No investigative excavations were made on the site at that time.

A hydraulic ditch, now cleared and used as a footpath, crosses the claims on approximately the 1325 meter elevation contour (see Figure 5). Presumably it served placer mining activities on Mosquito Creek some 2 km southeast, c.1930's. Plans are to upgrade the old ditch to an access road so as to enable subsurface investigations to be made on the geochemical anomalous sites and possibly the old adit workings.

In 1980 and 1981, streams on the whipsaw claims were prospected, the few outcrops mapped and a VLF-EM16 survey completed (Campbell & Campbell, 1981). In the fall of 1981 and spring of 1982, a reconnaissance geochemical soil survey was conducted across the Whipsaw claims (K.V. Campbell, Aug,1982).

In February, 1983 Northgane Minerals Ltd. optioned the Whipsaw property from Mr. K.V. Campbell and later that year included the Island and Hard mineral claims to its optioned holdings.

1.4 References

The following is a chronological list of publications that have been consulted during the preparation of this report:

( ), (1903): Mystery and Little Chief Mineral Claims, Annual Report of the B.C. Minister of Mines, B.C. Ministry of Energy, Mines and Pet. Res., pp. H112

( ), (1933): Bridge Osland Golds Ltd., Annual Report of the B.C. Minister of Mines, Ministry of Energy, Mines and Pet. Res., Ministry of Energy, Mines and Pet. Res., pp. A125

Cockfield, W.E. (1941): see Little, H.W. (1959)

Stevenson, J.S. (1943): Tungsten Deposits of British Columbia, Ministry of Energy, Mines and Pet. Res., Bull. 10 (revised), pp. 82-90

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Sutherland Brown, A. (1957): Geology of The Antler Creek Area, Cariboo District, B.C., B.C. Ministry of Energy, Mines and Pet. Res., Bull. 38, pp. 105

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Rutter, N.W. (1976): Multiple Glaciation in the Canadian Rocky Mt. with Special Emphasis on Northeastern B.C.; Quaternary Stratigraphy of North America, pp. 512

Boyle, R.W. (1979): The Geochemistry of Gold and Its Deposits, Geological Survey of Canada, Bull. 280, pp. 357-359

Campbell, K.V. and Campbell, C.J. (1981): Report on Geology and Geophysics of The Whipsaw Claims (1881-1888), B.C. Ministry of Energy, Mines and Pet. Res. Assessment Report, pp. 14

Struik, L.C. (1981a): Snowshoe Formation, Central B.C., Geological Survey of Canada, Paper 81-1A, pp. 213-216

Struik, L.C. (1981b): Bedrock Geology Cariboo Lakes, Spectacle Lakes, Swift River, and Wells map areas, Cariboo District, B.C., Geological Survey of Canada, Open File Report 858

Alldrick, D.J. (1982): The Mosquito Creek Gold Mine, Cariboo Gold Belt, B.C. Ministry of Energy, Mines and Pet. Res., Field Project Report, pp. 15

Campbell, K.V. (1982): Report on Geochemical Soil Sampling of The Whipsaw Mineral Claims (1881-1888), B.C. Ministry of Energy, Mines and Pet. Res. Assessment Report, pp. 31

Struik, L.C. (1982): Snowshoe Formation (1982), Central B.C., Geological Survey of Canada, Paper 82-1B

Carlyle, L.W. (1983): Geological Summary of The Mosquito Creek Gold Mine, Field Trip Guidebook, Trip 4, Some Gold Deposits in The Western Canadian Cordillera, Victoria, 1983 Annual Meeting, GAC/MAC/CGU, pp. 3-11

2 SURFICIAL GEOLOGY AND GEOMORPHOLOGY

2.1 Regional

The property lies within the Quesnell Highland physiographic region. A characteristic of this region are upland areas which are remnants of a highly dissected plateau of moderate relief formed in Tertiary times. The summit of Island Mountain being one such remnant.

Glacial history of the region is not well known, however, recent work (Rutter, 1976) has indicated that as many as four glacial advances and two nonglacial intervals have occurred. It is considered that the entire area was completely covered by the early Wisconsinan Stage advance of the Cordilleran ice sheet, consequently most summits have been rounded. However, due to the near static or limited movement (southwestwards) ofthe ice sheet only slight modification of pre-existing uplands and valleys has occurred.

The uplands have little or no cover of glacial drift while lower slopes are mantled in drift. Valley bottoms are filled to about the 1200 m elevation with drift and stratified silts, sands and gravels, the maximum depth of fill in the main valleys being about 85 m.

Drainages were disrupted and even changed by glacial actions, the most noteable example being the Willow River. Bedrock gradients indicate that the pre-glacial flow of the Willow River was westwards through the valley now occupied by Jack of Clubs Lake and Slough Creek. This and the valley presently occupied by the Willow River are essentially filled to the same level with alluvium. Damming by morainal debris and/or ice has probably caused this flow change (Sutherland Brown, 1957).

2.2 Property

Figure 3 is an interpretation of the surficial geology and geomorphology of the Whipsaw, Island and Hard claims. The interpretation has been derived from several sources such as site and soil descriptions of the many geochemical soil samples (both 1981 & 1984), geological mapping information and observations, and airphoto evaluation.

The claim group is located on the north slope of Island Mountain and south the Willow River which parallels the north or lower boundary of the Whipsaw claims. The river cuts across the north end of the Hard claims. The Island claims adjoin the Whipsaw and Hard claims to the south and are located just below the crest of Island Mountain. Relief across the Project area is in the order of 550 m.

Three deeply incised creeks and a number of minor gullies, cutting roughly parallel to slope direction, drain the area. In general, the Project area is only moderately drained and therefore many small seeps and bogs prevail. This is reflected by the numerous thickets of alder and willow amid the thick forest of spruce and balsam.

The terrain subtlely undulates up slope in a terrace-like fashion, that is steep slopes followed by gentle to moderately sloped intervening benches. This feature is believed to be caused by downslope movement or creep of moist surficial materials on a steep underlying surface. In at least two locations slump structures are in evidence. Coarse angular talus of amphibolite and greenstone occur on the upper slopes of the project area. Airphoto and ground investigations indicate that an ancient landslide of the greenstone rocks has occurred on the upper Hard claim area, the talus of which is mantling stratigraphically lower rocks (MPD). No evidence of recent large scale movement can be seen and the area is heavily forested. One investigation site revealed a thick blanket of moss over angular boulder talus with no top soil formation in evidence. Direction of the slide was northwest.

Surficial deposits over the Project area have been divided into six categories. Figure 3 shows the mapped limits of these deposits which include recent fluvial, lacustrine (glacial), alluvium, outwash/meltwater, till and undivided colluvium and talus. The primary glacial deposit was locally derived till that would have covered the total Willow River valley floor and probably a large portion of the valley walls.

During deglaciation some of the till would have been eroded away by glacio-fluvial processes which in themselves have deposited moderately well sorted meltwater sands and gravels in the form of kame terraces on the valley walls. As the valley glacier wasted, shifting moraine and ice has probably dammed up certain glacio-fluvial channels, forming small pro-glacial lakes wherein fairly even textured silts and clays were deposited. A similar but somewhat larger lake deposit formed on the valley bottom during late stages of deglaciation. Subsequent downcutting by the Willow River has left these deposits perched on a river terrace along the northern boundary of the Project area.

Within the Project area postglacial processes have remodified the glacial deposits. Recent drainage systems have cut and eroded them reforming their outcrop patterns and in turn depositing reworked glacial or alluvium materials. The main drainages have become deeply incised in the valley walls and are floored with poorly sorted silts, sands and gravels. These deposits along with those located in the modern Willow River channel have been classed as recent fluvial. The upper slopes of the Project area are covered with till, colluvium and coarse angular talus. No effort was made to subdivide the colluvial and talus materials on the upper slopes, however, the indicated slumps are colluvium materials and the very prominent landslide of greenstone rocks is most definately talus material.

Very few bedrock outcrops exist on the Project area, those that do are mainly confined to the deep gullies that cut into the valley wall. Surficial deposits range in thickness from 2 to 3 m on the lower slopes and 1 to 2 m on the upper slopes.

The surficial deposits covering the Project area with exception for the outwash and talus deposits were found to be a moist, fine to medium textured material showing moderate porosity and permeability and to be in a mature stage of weathering. For example pyrite mineralization in float rocks was observed to be completely altered to limonite.

2.3 Conclusions

The following conclusions have been derived from the above interpretation and assessment of the surficial geology of the Project area:

1. There are at least six identifiable surficial deposits mantling the Project area, most of which are locally derived materials.

2. Glacial scouring has apparently steepened the valley wall sufficiently to cause slumping and in one case landsliding of upper slope materials.

3. In general the surficial deposits are moist, fine-grained materials exhibiting moderate permeability and a high degree of weathering, which together should indicate good potential for the transmission of trace elements leached from underlying bedrock.

3 GEOLOGY

3.1 Regional

Figure 4 illustrates a recent interpretation of the regional geology (Struik, 1982) with a tentative stratigraphy outlined in the legend. The area lies along the western part of the Omineca Tectonic Belt, known for its prevalence of gold and tungsten mineral occurrences. Three regional tectonostratigraphic sequences are shown in Figure 4. These are:

1. Hadrynian and Cambrian continental terrace wedge of grit, slate, orthoquartzite, carbonate and shale built up along the western margin of the North American Precambrian craton. This assemblage is further divided into two suites; the Western Cariboo Group (Units 1 to 5) and Eastern Cariboo Group (Uits 6 and 7) separated by the Pleasant Valley Thrust Fault.

2. Largely Paleozoic basinal sequence of shale, dolostone, basalt, conglomerate and limestone (Unit 8) unconformably ouverlying the older continental rocks.

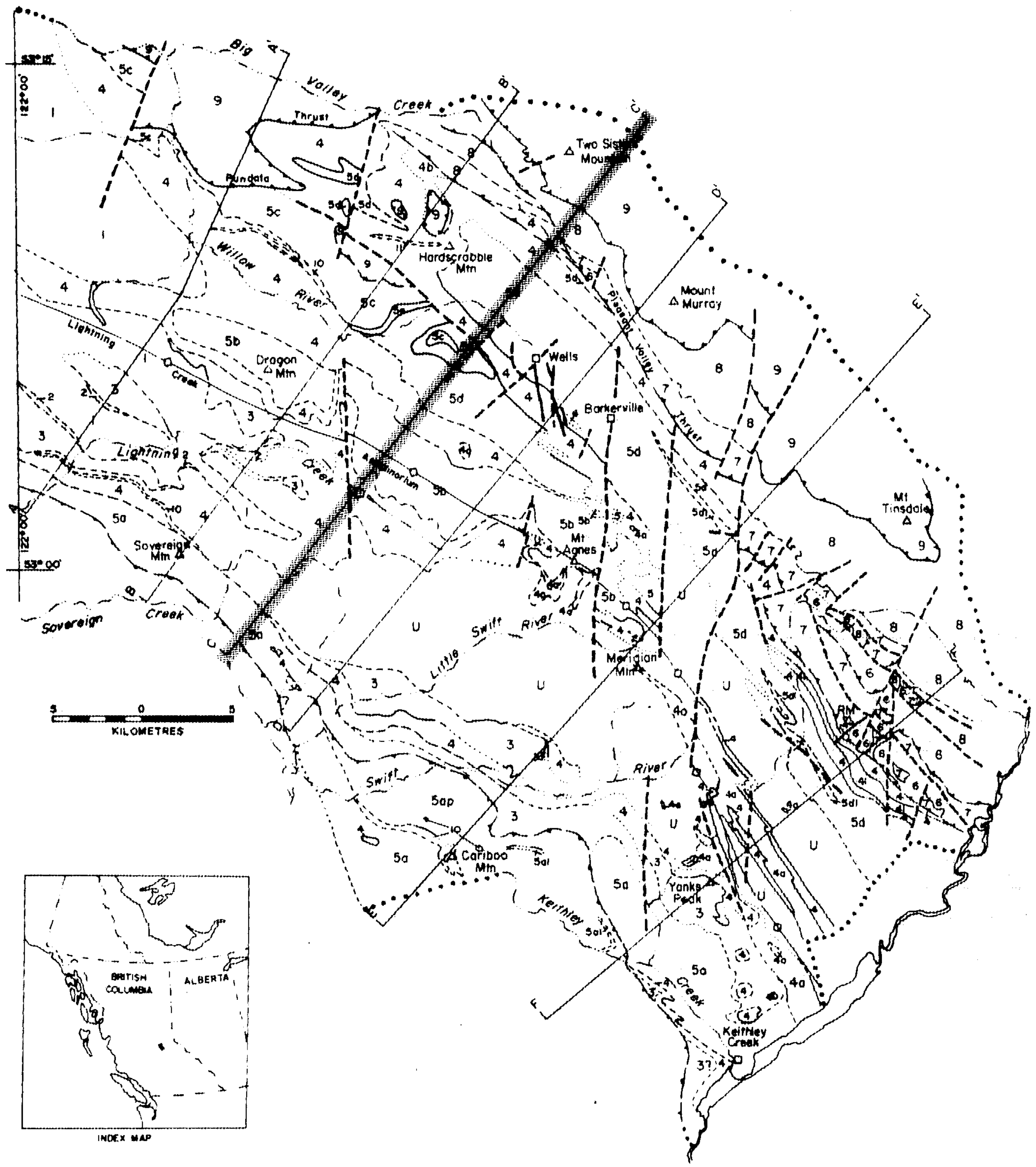
3. Permo-Pennsylvanian oceanic chert and mafic and ultramafic volcnaic and intrusive rocks (Unit9). This sequence, the Antler Formation, was thrust from the west over the basinal sequence in post-Permian time.

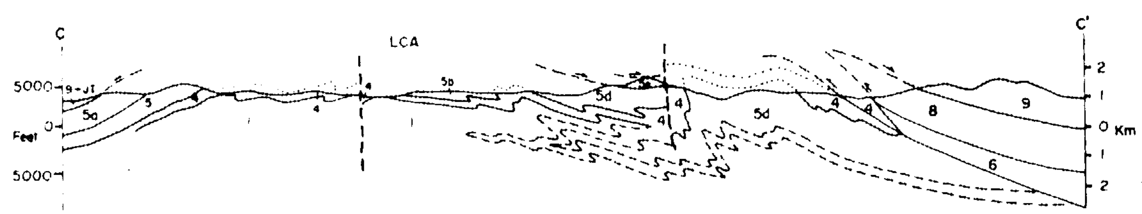
Unit DMs, previously referred by Struik (1981a) as Unit 4 is that mapped by Sutherland Brown (1957) as the Midas Formation and known at the Island Mountain and Mosquito Creek Gold Mines as the Rainbow Member. Unit MPD, equivalent to Unit 5 of Struik (1981a), was mapped by Sutherland Brown as the Snowshoe Formation.

In the lower part of Unit MPD, above the contact with Unit DMs, is a limestone unit known at the gold mines as the Baker Member. More that 95% of the gold production has come from a band less than 1.5 m in width along the contact between the Rainbow and Baker Members (Benedict, 1945). The replacement deposits found in this band are pencil-shaped bodies with an average cross-sectional area not much greater than 9 sq m. The ore bodies consist almost entirely of fine-grained pyrite with minor amount of arsenopyrite (Sutherland Brown, 1957).

3.2 Property

Nine mandays were spent carrying out geological mapping throughout the Whipsaw, Island and Hard claims during the September, 1984 exploration program. The objective of the geological mapping work was to obtain as





SECTION C - C'

*after STRUIK, 1982

LEGEND

LOWER PERMIAN

11 — bioclastic limestone

PERMIAN

10 — diorite, amphibolite, may include parts of 5e

PENNSLVANIAN AND PERMIAN

9 — *Antler Formation*; diorite, basalt, chert, greywacke, serpentinite, gabbro

CARBONIFEROUS ? AND PERMIAN ?

5 — *a, Ramos Creek Succession*; micaceous quartzite, pelite, limestone, metatuff ? *al*, limestone, calcareous sandstone *ap*, phyllite, quartzite, amphibolite *b, Dragon Mountain Succession*; micaceous quartzite, phyllite *c, Tom Creek Succession*; micaceous quartzite, phyllite *d, Downey Creek Succession*; micaceous quartzite, slate, limestone, metatuff ? *dl*, marble, limestone, diorite, metavolcanic *e*; amphibolite

DEVONIAN ? AND MISSISSIPPIAN?

4 — black siltite, phyllite, micaceous quartzite, limestone *a*; conglomerate, quartzite *b*, breccia, muddy conglomerate *l*; limestone, may be equivalent to 5dl

HADRYNIAN ?

3 — siltite, quartzite, phyllite *a*; quartzite

2 — marble, calcareous sandstone, quartzite, calcareous phyllite, phyllite

1 — micaceous quartzite, phyllite, schist

U — undifferentiated 1-5, mainly 4 & 5

ORDOVICIAN TO PERMIAN

8 — *Black Stuart and Guyet Formations*, slate, conglomerate, quartzite, greywacke, limestone, dolostone, chert, basalt, metatuff

HADRYNIAN AND CAMBRIAN

Eastern Cariboo Group

Hadrynian and Cambrian

7 — *Yanks Peak, Midas and Murel Formations*, quartzite, phyllite, limestone

Hadrynian

6 — *Isaac, Cunningham and Yankee Belle Formations*, phyllite, limestone, dolostone, quartzite

Geological contact (defined, approx., assumed)

Fault (defined, approx. and assumed)

Thrust (defined, approx. and assumed)

RM — Roundtop Mountain

GEOLOGICAL BRANCH
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*Regional Geology
Quesnel Highland, Central B.C.

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Drawing No.	Sheet
FIGURE 4	NTS SHEET 93 H/4

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program. The objective of the geological mapping work was to obtain as much information as possible on the bedrock geology from an area that has only limited outcrop exposure,and to determine if possible, what rock units underlie the recently aquired Island and Hard properties.

Figure 5 shows the location of the few outcrops found on the claims, as well as the location of various sites where rock samples were obtained from either outcrop or float for followup analyses. Rock types picked for samples analyses were those which were believed to be representative of the MPD and DMs rock units. Float samples were picked from the area that Campbell (1982) interpreted to be the approximate location of the MPD and DMs contact. Rock geochemical analyses for arsenic, gold, silver and lead were carried out on 8 samples. The results are presented in Table 2.

While carrying out the geological mapping and geochemical soil sampling work a considerable quantity of milky white vein quartz float was observed. A number of pieces showed extensive pyrite and galena mineralization. It therefore became a practice to record each occurrance of vein quartz encountered. Specimen size and mineralization, if any, was also noted. Many samples were collected. Six mineralized samples were selected and analysed for gold, silver and lead, the results are presented in Table 3. The locations of the samples, as well as any piece larger than 10 cm in diameter, is shown on Figure 5.

Outcrops of Unit DMs (Sruik's Unit 4) were found at approximately L4+50 1+10W, L9+30 6+70W, L11+00 4+60W and L12+00 3+25W on the control grid. These rocks are black graphitic phyllites, argillites and slates, thinly laminated and locally display very rusty weathering. They dip moderately northeast near the control grid baseline and steeply southwest near the Whipsaw-Island claim boundary.

Two outcrops of Unit MPD were locacted at approximately 120m and 340m west of the boundary line between the Whipsaw and Hard claims (along a westerly projection of the Whipsaw claim's centre location line). These rocks are white to light grey, fine-grained quartzites which dip moderately southwest.

Upslope from the above two MPD outcrops, angular blocks of greenstone and amphibolite talus occur.

Figure 6 illustrates a preliminary interpretation of the gology of the Project area and its immediate surrounding area. Supporting this interpretation are the data of various authors who have conducted extensive geological investigations in the general area. "Bedrock Geology, Wells Mapsheet" (Struik, 1981b) was adopted as the "geological plan-model", albeit modified in the Project area to reflect the interpretation of more detailed investigations.

The Project area straddles the MPD/DMs contact which marks the axis of the Barkerville Gold Belt. Some 3 1/2 km southeast along this axis in the vicinity of the currently active Mosquito Creek Gold Mine and the former Island Mountain Gold Mine, "Geological Cross-section A-A' "

Table 2:

ROCK ANALYSES - 1984

Sample No.	Description	Pb (ppm)	Ag (ppm)	Au (ppm)	As (ppm)
L3+00N, 0+75E	Light grey, fine-grained micaceous quartzite, rust spotten. Includes ½ cm wide quartz stringer with limonite. (float)	25	0.3	5	30
L5+50N, 0+00	Light grey, fine-grained micaceous quartzite. (outcrop)	14	0.2	nd	2
L8+00N, 1+25W	Pale greenish-grey talc schist with numerous siderite porphyblasts altered to limonite. (float)	13	0.1	5	15
L8+50N, 4+00W	Rusty weathering, medium-grained, light greenish-grey, micaceous dolomite, with approximately 10% fine disseminated pyrite. (float)	na	0.2	5	na
L8+50N, 4+75W	Pale greenish-grey, fine-grained quartz-chlorite schist. (float)	25	0.1	5	nd
L9+00N, 4+50W	Whitish-grey quartz-porphyry rhyolite with dark, smoky clear quartz grains in very fine-grained white siliceous matrix. (float)	26	0.2	5	nd
L12+00N, 3+25W	Black, sooty phyllite. (outcrop)	8	0.3	10	2
Sample A (Hard Claims)	White, fine-grained quartzite with approximately 5% fine-grained disseminated pyrite. (outCrop)	na	0.2	nd	na

na = not analysed for
nd = not detected

Table 3

ROCK ASSAYS - 1984

Sample No.	Description	Assays		
		Au (oz/ton)	Ag (oz/ton)	Pb (%)
L8+00N, 2+00W	Vein quartz float, milky white, rusty with abundant iron, lead oxide. Segregations to ½ x 2 cm of crystalline galena, minor finely crystalline pyrite.	less than 0.005	1.13	2.35
L8+00N, 4+00W	Vein quartz float, weakly iron oxide stained, minor sericite with siderite and limonite-filled vugs to 1 cm diameter. No visible sulphides.	less than 0.005	0.3	nd
L8+00N, 4+66W	Vein quatz float, segregations to 1 cm of galena and pyrite. Wall rock of vein is light, very fine-grained metavolcaniclastic.	less than 0.005	2.44	0.50
L9+00N, 3+00W	Vein quartz float, heavily limonite stained, numerous vugs ½ x 1 cm with finely crystalline pyrite.	less than 0.005	2.27	2.58
L9+50N, 4+25W	Vein quartz float, shattered, rusty, numerous small vugs to ½ cm diameter with finely crystalline pyrite.	less than 0.005	0.02	nd

nd = not detected

(Sutherland Brown, 1957) of Island Mountain was adopted to provide the primary subsurface modeling. This model was somewhat modified, as was Struik's surface geology, with subsurface mapping information from the Hardscrabble Tungsten mine (H.W. Little, 1959) located 1/2 km to the northwest along the same axial trend (see idealized cross-section in inset, Figure 6).

Cockfield (1941) reported that a massive fault zone (labelled "Fault A") of some 15 m in width, striking northwesterly and dipping 60 to 80 degrees southwest cut through the Hardscrabble mine workings. He observed this to be a left-slip normal fault with the west side moving southwards relative to the east side. Cockfield also reported bedding structures to strike in a general westerly direction and dip northerly. Beds of limestone and sandy limestone as well as light grey quartzites and black graphitic phyllites and argillites are reported to extensively intermingle throughout the mine workings, suggesting this to be a highly structurally disturbed area. Although the mine was worked for its scheelite, there was ample evidence of free gold, galena, pyrite and sphalerite occuring throughout the workings.

This preliminary geological model thus envisions a nothwest extension of the Island Mountain anticlinorium, with the eastern limb consisting of a secondary series of open folds, which include at least one overturned anticline. Stratigraphically MPD rocks overlie DMs rocks except where overturning has occurred. MPD rocks have been eroded away on the top and upper portion of the east limb of the anticlinorium, leaving a broad outcrop of DMs rocks. A northwest trending normal fault cuts through the northeast dipping DMs rocks bringing them in juxtaposition with southwest dipping MPD rocks.

The structure of this model indicates that there is potential for three repeat outcrops of the lower part of Unit MPD, known as the Baker Member. Tracing these outcrops across the Project area shows that cummulatively, there is potential for a total of approximately 3200 m of Baker Member outcrop. It cannot be ignored that it is from this rock unit and in the same structure that 95% of the gold production has come in the mines located 2 1/2 to 10 km to the southeast.

It is postulated that the normal fault, dubbed the "Hardscrabble Fault" by the author, and the east limb structure of the Island Mountain Anticlinorium converge in the location of the former Hardscrabble Tungsten mine. This seems to be supported by the extreme change of strike direction of the structure at this location. This extreme change of strike could be caused by the dragging effect of this major fault.

3.3 Conclusions

The following conclusions can be made from the 1984 geological field work and followup interpretive work:

1. The earlier interpretation of the geology on the Project area (Campbell, 1981,1982) are reasonable in view of the limited outcrop exposures. It is reasonable to expect the MDP/DMs (BakerMember/Rainbow Member) contact to be in close proximity of the established baseline.

2. The geological model that has been developed fits well with Campbell's interpretation and even though it is only an interpretation, it should serve as a useful guidence tool for followup work.

4 GEOCHEMISTRY

4.1 Introduction

Twenty-nine mandays were spent in the collection of 574 soil samples during Septeber, 1984. Figure 7 shows the layout of the control baseline and sample grid used. Five mandays were spent laying out the grid lines and samples stations which were spaced at 50 m and 25 m intervals respectively. Table 4 is a list of the sample stations and their grid locatons.

A previous geochemical soil survey was carried out in the fall of 1981 and spring of 1982 (Campbell,1982). That program was essentially a reconnaissance program, and, in conjuction with the results of an earlier VLF-EM16 reconnaissance survey of the same area (Campbell and Campbell, 1981) delineated an area of potential interest for more detailed investigations.

The objectives of the gochemical soil sampling program carried out in September, 1984 were:

1. to further test and confirm, on a detailed scale, the precence of geochemical soil anomalies over the favorable MPD/DMs contact area, inferred from earlier geochemical and geophysical work,

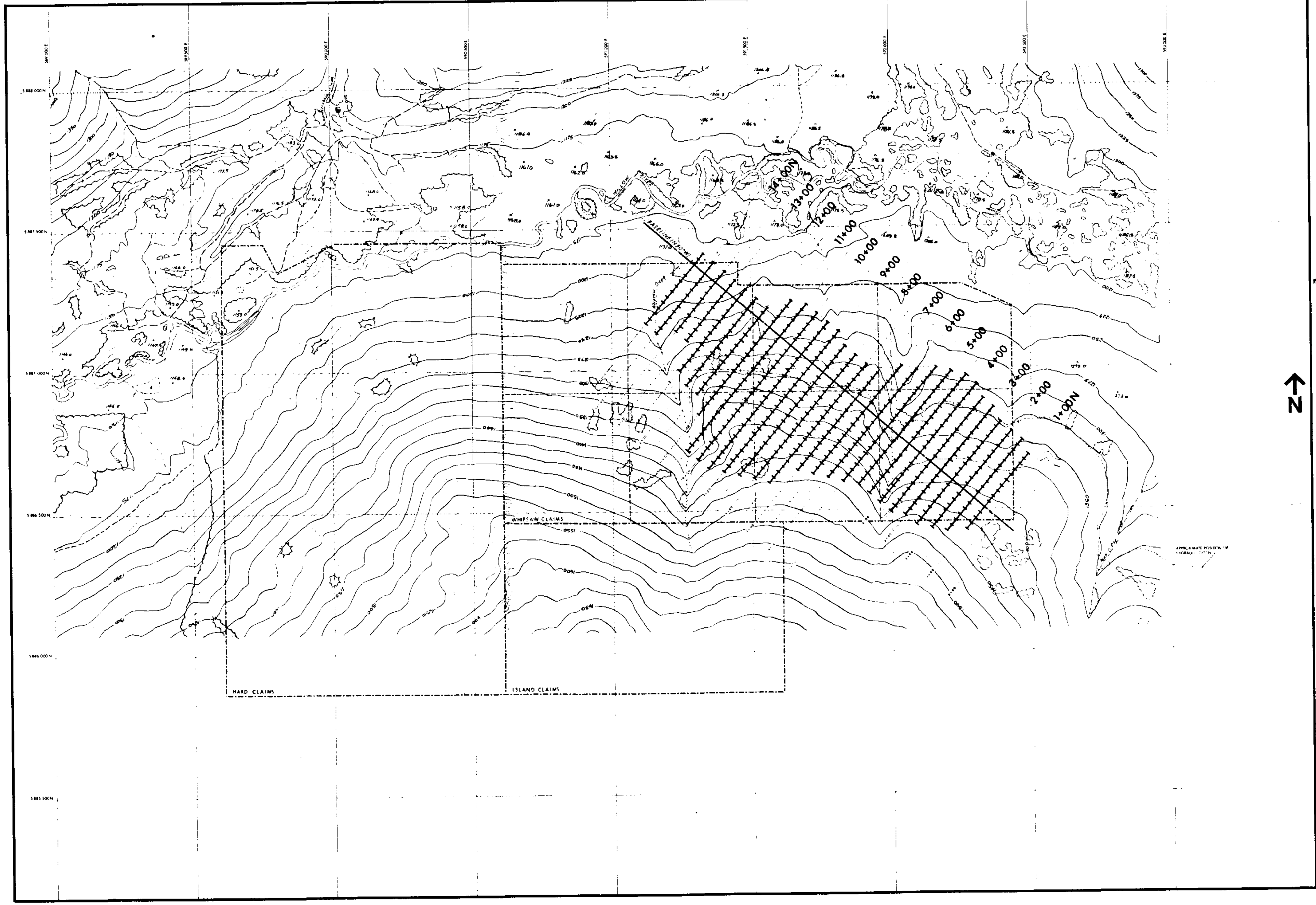
2. to determine conclusively whether or not the arsenic anomalies detected in the earlier geochemical soil survey were reliable indicators for gold mineralization, and

3. to determine if geochemical soil anomalies associated with other mineralizations may be present in the favorable MPD/DMs contact area.

For these reasons then, all samples were analysed for the elements arsenic, silver and lead, and 180 of these samples, selected from across detected As, Ag and Pb anomalies, were further analysed for gold.

4.2 Sampling Method

Figure 7 is a geochemical sample location map of the Project area. Convential sampling practises were followed. Samples were collected in 3 1/2"x6" Kraft paper bags at stations previously laid out along grid lines.



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m 0 — 500 — 1000 — 1500m

Scale 1: 12500

↑ N

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Mosquito Creek Prospect Whipsaw, Island & Hard Claims ; British Columbia

1984 FALL EXPLORATION PROGRAM

Layout of Geochemical Soil Sample Grid

Drawn	Approved	Date
GL / MD		NOV. 26, 1984

Drawing No.	Sheet
FIGURE 7	NTS SHEET 93H/4

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Table 4: 1984 GEOCHEMICAL SOIL SURVEY STATION LOCATIONS

CROSS-SECTION	METERS EAST OF BL.	METERS WEST OF BL.	No. OF STATIONS
0+00	-	-	0
0+50	-	-	0
1+00	250	100	15
1+50	275	150	18
2+00	275	175	19
2+50	275	200	20
3+00	300	200	21
3+50	300	225	22
4+00	325	225	25
4+50	325	225	23
5+00	300	225	22
5+50	275	250	22
6+00	225	275	21
6+50	200	300	21
7+00	125	325	19
7+50	125	425	23
8+00	125	450	24
8+50	125	475	25
9+00	150	500	27
9+50	150	525	28
10+00	150	525	28
10+50	150	525	28
11+00	125	400	22
11+50	50	350	17
12+50	50	325	16
13+00	50	225	12
13+50	50	225	12
14+00	50	275	14
14+50	50	275	14
Totals =	4900	8725	573

Total Line-meters = 13,625 m

Soil sampling was preceeded by digging pits to 1/2 m or greater in depth in order to verify the local soil profile. Two stations were selected for soil profile analysis in order to determine the optimum element distribution within the present soil profiles. A suite of twelve elements were analysed from samples taken from each soil horizon encountered at the two stations. The results, illustrated in Figures 8 and 9, indicate the C *soil horizon to be the preferred sample horizon for the elements for the* elements of interest, As, Ag, Pb and Au.

The C horizon was preferentially sampled when it was present. Overall, however, only 38% of the samples were identifiable as C horizon. Approximately 56% of the samples were obtained from the preferred alternate BM horizon.

As only the minus 80 fraction was analysed, coarse gravel and rock fragments were removed before bagging. The samples were air dried prior to shipment to the laboratory. Sample site particulars were recorded on field data cards, an example of which is shown in Appendix I. Highlights of these particulars together with the analyses of the site samples have been compiled and are listed in Appendix I.

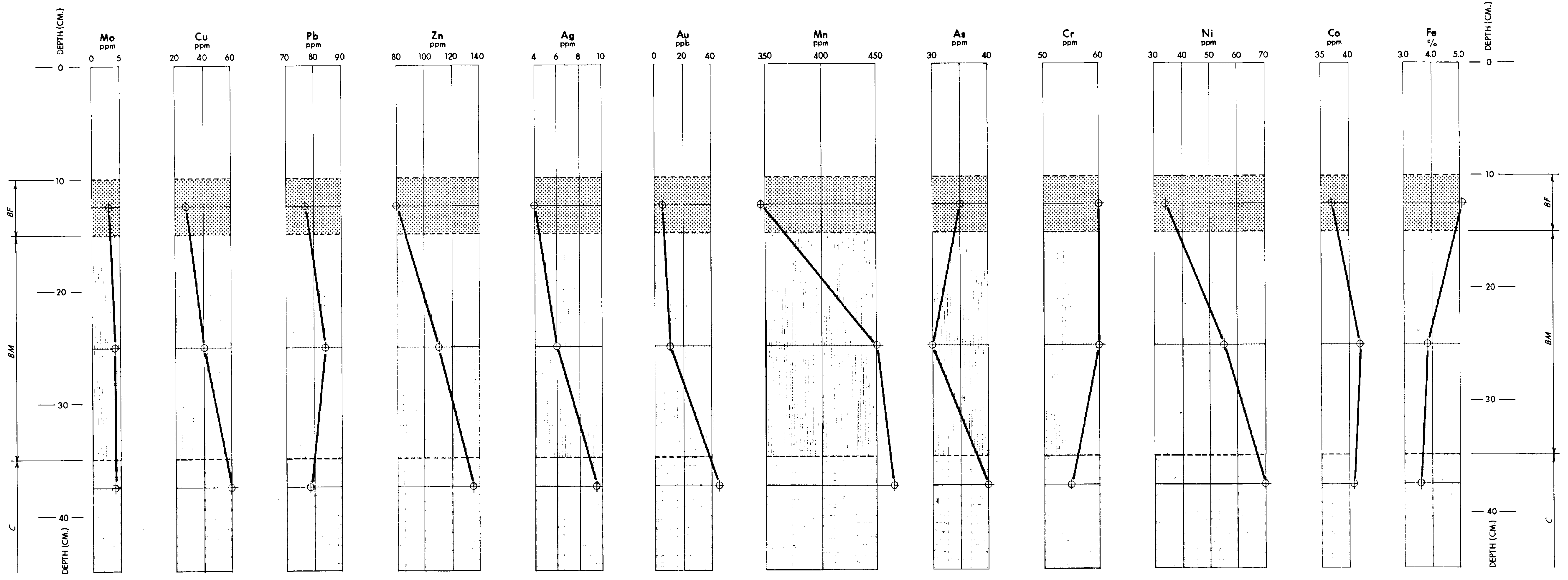
4.3 Analytical Procedure

The samples were analysed by Vangeochem Lab Limited, 1521 Pemberton Avenue, North Vancouver, B.C. Conventional procedures, described in Appendix II, were followed on the minus 80 fraction.

4.4 Overburden Origin and Soil Profile

Six major subdivisions of parent material have been identified within the project area. These have been discussed in detail under Section 2.2 of Surficial Geology and Geomorphology. Within the 1984 geochemical grid area all of the parent materials described previously, except for the coarse angular talus of greenstone and amphibolite, were encountered. *Figure 10 shows the soil profile and soil type samples at each station.* The boundaries of the parent materials have been drawn to illustrate the extent of their coverage over the survey area. The overriding influence of prominent terrain features (creeks, etc.) that have modified the parent materials are illustrated in Figure 3, "Surficial Geology and Geomorphology of The Project Area".

The outcrop pattern of the parent materials suggest that there has been a degree of modification during deglaciation processes. The primary glacial deposit was a locally derived till, that probably totally covered the investigation. During deglaciation lateral meltwater channels deposited moderately well sorted sands and gravels along the valley walls above the present-day Willow River. Small pockets and narrow strips of



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Soil Origin: Till
Soil Type: Podzol
Modifiers: -Local Transport
-Sandy-Silty Gravel

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1984 FALL EXPLORATION PROGRAM

SOIL GEOCHEMISTRY

Element Distribution in Soil Profile

Test Site 1 of 2: Station L6+00N, 0+75W

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Drawing No. FIGURE 8	Sheet NTS SHEET 93 H/4	

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even textured silts and clays, intersperced among the meltwater sands and gravels, suggest the formation of small proglacial lakes, possibly due to damming by ice and shifting moraine ridges.

Eventually these deposits were cut and redefined by postglacial drainage systems as is in evidence across the lower elevations of the survey grid. Along these drainages are poorly sorted deposits of silts, sands and gravels. Moisture-laden materials on steep upper slopes have moved downslopem in some cases becoming remixed, and in others, overriding on themselves. At least two cases of high energy downslope movement in the form of slumps have occurred.

Overburden thickness ranges from zero at the relatively few bedrock outcrops up to approximately 3 m, which is based on observations of road cuts in similar slopes about 1 km southeast.

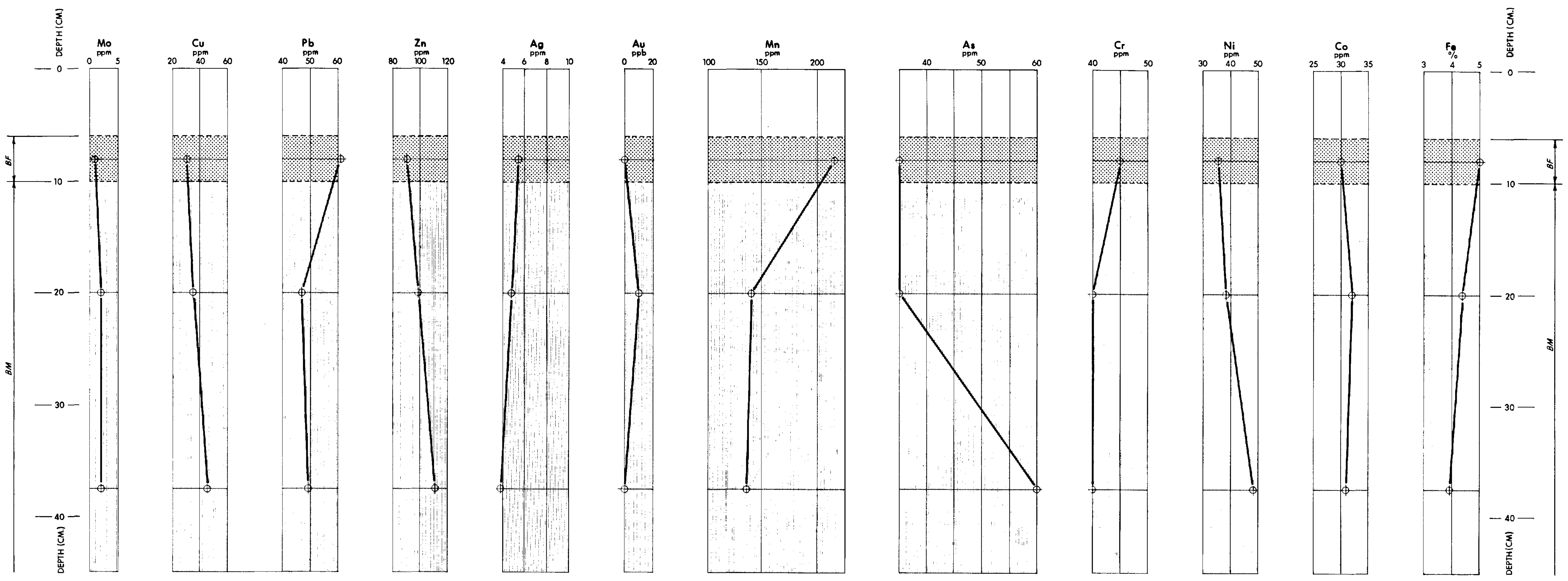
Soil profiles are moderately well developed. The organic mat is generally 5-10 cm thick and underlain by a BF horizon 10-20 cm thick and a BM horizon of approximately the same thickness. Where identifiable, the C horizon is encountered at depths of 30-50 cm. In some places both the BF and C horzons are either not present or not identifiable (mainly in the case of the C horizon).

4.5 Results

Figures 11, 12 and 13 show the analytical results for arsenic (ppm), silver (ppm) and lead (ppm) respectively in the soils sampled. Figure 14 shows the histogram for each analetical data set and Table 5 summarizes the geochemical statistics.

Arsenic values (Figure 11) are contoured on the 6.5, 13, 26, 52 and 104 ppm As isograds. Soils with arsenic greater than the statistical mean (25.7ppm) occur as individual islands or pods, with a large concentration located north of the baseline between lines 1+00N and 6+00N. A second population of these pods are strung parallel to and slightly south of the baseline between lines 7+00N and 15+00N. A possible third, but very small population is strung out to the west in the central grid area. Lows (less than 6.5 ppm As) only sparsely occur throughout the grid area. There are 14 sites with values greater than the statistical threshold of 64.5 ppm As.

Silver values (Figure 12) are contoured on the 0.32, 0.65, 1.3, 5.2, and 10.4 ppm Ag isograds. Soils with silver values greater than the statistical mean (1.3ppm) occur in sinuous patterns throughout the grid area. Most of these are interconnected, however, there are a few small individual islands or pods. Concentration is greatest south of the baseline in the central grid area. Lows (less than 0.32ppm Ag) intermingle with the sinuous highs, however, there is an obvious low occurring at each end of the baseline. There are 26 sites with values greater than the statistical threshold of 4.39 ppm.



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Soil Origin: Till
Soil Type: Podzol
Modifiers: - Local Transport
- Sandy, Silty

NOTE: 'C' horizon not found

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1984 FALL EXPLORATION PROGRAM

SOIL GEOCHEMISTRY

Element Distribution in Soil Profile
Test Site 2 of 2: Station L7+50N, 0+00

Drawn	Approved	Date
GL/ MD		NOV. 26, 1984
Drawing No. FIGURE 9	Sheet NTS SHEET 93 H/4	

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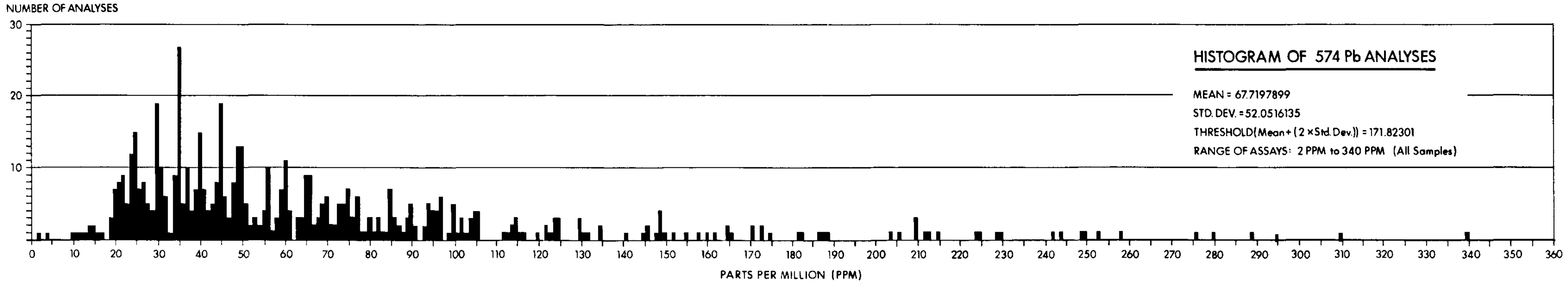

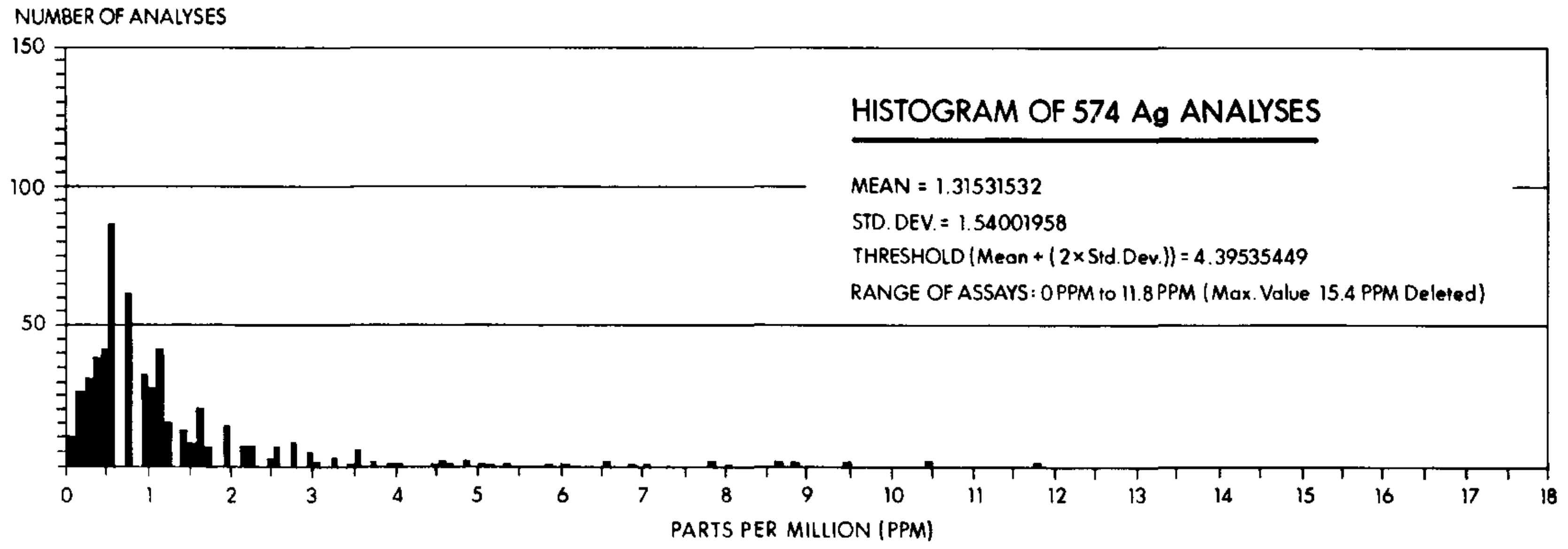

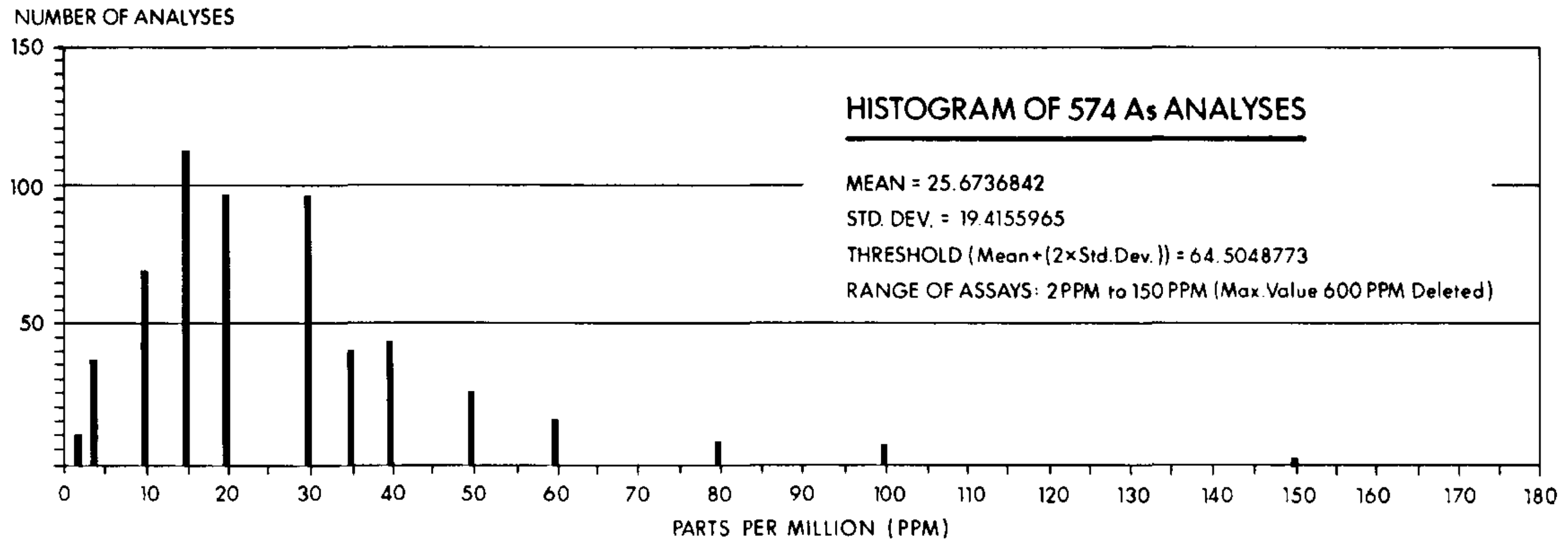

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Mosquito Creek Prospect-Whipsaw Claims
British Columbia

1984 FALL EXPLORATION PROGRAM

SOIL GEOCHEMISTRY

Histograms of Sample Analyses

Drawn	Approved	Date
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Drawing No. FIGURE 14	Sheet NTS SHEET 93 H/4	

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Table 5

SUMMARY OF 1984 GEOCHEMICAL STATISTICS: SILVER, ARSENIC AND LEAD IN SOIL

Element	Number of Samples	Range	Mean	Standard Deviation	Statistical Threshold (1)	No. of Samples Greater Than Threshold
Ag (2)	574	0 -15.4	1.31	1.54	4.39	26
As (3)	574	2 - 600	25.67	19.41	64.50	14
Pb	574	2 - 340	67.72	52.05	171.82	29

(1) Statistical Threshold = Mean + (2 x standard deviation).

(2) Sample with 15.4 ppm Ag deleted from calculations; 15 samples were less than 0.1 ppm Ag.

(3) Sample with 600 ppm Pb deleted from calculations.

Lead values (Figure 13) are contoured on the 17, 34, 68, 136 and 272 ppm Pb isograds. Soils with lead values greater than the statistical mean (67.7 ppm Pb) occur mainly in one very large concentration in the west central grid area. A few small isolated islands occur elsewhere throughout the grid area. Lows (less than 17 ppm Pb) occur only as small isolated islands, some located within the large concentrated mass of high values and a few on the north end of the grid area. There are 29 sites with values greater than the statistical threshold of 171.8 ppm Pb.

Figure 15 shows a compilation of the soils with lead, arsenic and silver greater than 2 times the respective statistical mean, which is, lead, 136 ppm; arsenic, 52 ppm; and silver, 2.6 ppm. Arsenic isograds occur, in most cases, in clusters by themselves, whereas the lead and silver isograds occur together in the same general area. The arsenic isograds are concentrated mainly to the northeast grid area and along the north end of the baseline. Lead and silver isograds are concentrated in the west central grid area.

Stations located along possible mineralization trends of the compiled lead, arsenic and silver data were selected for gold analyses. This was carried out on the retained portion from the original samples. The analytical results for gold (ppb) in the soils selected are shown beside their respective site locations on Figure 15. The analytical results for these gold values have not been statistically analysed.

4.6 Conclusions

The following conclusions can be made on the results of the 1984 geochemical soil sampling program:

1. There are soils with definate anomalous values of arsenic, gold, silver and lead in the Mosquito Creek area.

2. Arsenic has been shown to be an excellant indicator for gold.

3. There is very promising evidence for the existance of gold mineralization, located along the interpreted contact between the MPD Unit (Baker Member) and the DMs Unit (Rainbow Member).

4. There is strong evidence for the existance of a second mineralization of lead and silver, which before now has only been considered as minor secondary mineralization.

5. The soils anomalies indicating both mineralizations are open on the boundaries of the smaple grid.

5 CONCLUSIONS

The following conclusions have been made as a result of the geological and geochemical investigations and assessments outlined in this report:

1. From surficial geological investigations it can be concluded that there are areas on the claims where slope failure has occurred. The resulting slumps and slides have to some extent mantled other units on the lower slopes. These areas, however, do not occur in the area of primary interest. Except for the slide deposits and the meltwater sands and gravels, most deposits exhibit a relatively fine texture, moderate permeability and a high degree of weathering, all of which indicate a good potential for the leaching of trace elements from underlying bedrock and the transmission of these elements through the surficial materials.

2. From the geological investigations it can be concluded that the earlier interpretation of the location of the potentially mineralized geological contact of the MPD Unit (Baker Member) and the DMs Unit (Rainbow Member) is reasonable. It has been possible, using regional, local and on-site data, to develope a preliminary geological interpretive model of the local geological setting, which hopefully will serve as a useful guideline for future investigations.

3. Geochemical investigations have indicated that there are definate arsenic, gold, silver and lead anomalies in the soil horizons on the Whipsaw claim group. Further, it has been shown that arsenic is an excellant indicator for gold. Anomalously high arsenic and gold values found in the soils from within the interpreted geological contact area of the MPD Unit (Baker Member) and DMs Unit (Rainbow Meber) is very promising evidence of gold mineralization. Coincidental high silver and lead values suggest the possibility of a second mineralization within the Project area. Anomalies for both gold/arsenic and lead/silver are open ended on the boundaries of the 1984 sample grid.

6 RECOMMENDATIONS

It is recommended that Northgane undertake the following steps to prove out its Mosquito Creek Project:

1. Build an access road onto the property in order to bring excavating equipment on site. With the logging operation working on the Project area now, access may only require certain upgrading or extension next year.

2. Using a tracked hydraulic excavator, trench to bedrock the following gold/arsenic, silver and lead geochemical soil anomalies:

   a. a 500 m trench along what appears to be the longitudinal axis of the cluster of strong gold/arsenic anomalies located between L1+00 0+75E and L5+50 2+50E

   b. a 200 m trench across the two gold/arsenic anomalies and silver anomaly on L8+00 between 1+00E and 1+00W

   c. a 200 m trench across the silver anomaly on L6+00 between stations 0+00 and 2+00W

   d. a 200 m trench across 3 anomalies, one gold/arsenic, one silver and one lead on L10+50 between stations 0+00 and 2+00W

   e. a 100 m trench across a gold/arsenic anomaly on L12+50 between stations 0+50W and 1+50W

3. Open up the old workings on the former Mystery and Little Chief claims.

4. Carry out additional soil geochemical exploratioin, extending the existing grid, specifically to cover the northeast and northwest corners of the Whipsaw claims. An additional 5100 m of grid line or 204 stations would be necessary to cover this area.

   It may be desireable to extend the geochemical soil sampling over a much larger area of the claim group at a later time.

5. Carry out a detailed magnetometer and VLF-EM geophysical survey over the entire claim group.

7 CERTIFICATE

I, GARY LAWRENCE, resident of Calgary, Province of Alberta, hereby certify as follows:

1. I am an exploration consultant with an office located at 7376 Silver Springs Road N.W., Calgary, Alberta.

2. I graduated with a diploma in Exploration Technology, Minerals Option, from the Northern Alberta Institute of Technology, in 1971.

3. I am registered with the Alberta Society of Engineering Technologists as a Geological Technologist and with the Association of Engineers, Geologists, and Geophysicists of Alberta as a student, in preparation for professional examinations.

4. I have worked in the earth sciences since 1971.

5. This report is based on my field work and supervision and my examination of available reports.

DATED at Calgary, Province of Alberta, this 5th day of December, 1984.

G. Lawrence

G. Lawrence, C.E.T.
Geological Technologist

APPENDIX I

SAMPLE FIELD DATA CARD

SOIL REPORT PROJECT No. ________ AREA ____________________ SAMPLE No. ________

NTS ________ ELEVATION ________ UTM GRID N________ E________ SAMPLER ________ DATE ________

SITE TOPOGRAPHY
- ☐ Hill Top
- ☐ Gentle slope
- ☐ Steep slope >20°
- ☐ Base of slope
- ☐ Valley floor
- ☐ Depression
- ☐ Level
- ☐ Rolling
- ☐ Bog

SAMPLE ENVIRONMENT
- ☐ Tundra-hummocky
- ☐ Tundra-dry
- ☐ Tundra-swampy
- ☐ Grassland, meadows
- ☐ Peat mounds
- ☐ Bog in depression
- ☐ Forest-coniferous
- ☐ Forest-deciduous
- ☐ Forest-mixed
- ☐ Alder or willows
- ☐ Cultivated land
- ☐ Desert, semi-arid
- ☐ Barren
- ☐ Talus fan
- ☐ Bank soil-stream
- ☐ Bank soil-lake
- ☐ Road cut ☐ Logged

SITE DRAINAGE
- ☐ Dry
- ☐ Moist
- ☐ Wet
- ☐ Saturated

WATER MOVEMENT
- ☐ Seepage

OVERBURDEN ORIGIN
- ☐ Till-angular boulders
- ☐ Outwash-sandy, rounded boulders
- ☐ Lake sediment-sand/silt
- ☐ Alluvium-stream deposit
- ☐ Peat-bog
- ☐ Colluvium
- ☐ Lake sediment-clay
- ☐ Talus
- ☐ Residual
- ☐ Frost boil ★
- ☐ Seepage boil ★
- ☐ Boulder field ★
- ☐ Gravel ★
- ☐ Rock chips

★ Use only if formed origin cannot be identified.

BEDROCK
- ☐ Mineralized
- ☐ Present within 100m-200m upslope
- ☐ Present within 100m-200m downslope
- ☐ Underlies sample site
- ☐ Gossan
- ☐ Fe surface stains
- ☐ Radioactivity

SAMPLE TEXTURE
- ☐ Organic muck
- ☐ Fibrous, peaty organic matter
- ☐ Very sandy
- ☐ Sandy
- ☐ Sand-silt
- ☐ Sand-silt-clay
- ☐ Silt
- ☐ Silt-clay
- ☐ Clay
- ☐ Gravel ☐ Rock chips

OVERBURDEN TRANSPORT
- ☐ Local
- ☐ Extensive
- ☐ Unknown
- ☐ Mixed - two sources

SOIL HORIZON
- ☐ LH Leaf, humus layer, undecomposed vegetation lying on the ground surface (do not sample)
- ☐ AH Dark grey to black, organic-rich mineral horizon usually no deeper than 15 cm from the surface (do not sample)
- ☐ AE Grey to white (occasionally brown) leached mineral horizon near ground surface, usually sandy; accompanied by BF or BT horizon at depth (do not sample)
- ☐ BH Black, organic-rich mineral horizon at depths greater than 15 cm (do not sample)
- ☐ BF Red brown, iron-rich horizon
- ☐ BT Brown, clay-rich horizon
- ☐ BG Horizon which is water-saturated most of the year, identified by red brown mottles
- ☐ BM Brown horizon which is only slightly different in appearance from under-lying parent material
- ☐ C1, C2, C3, etc.-Parent material for soil
- ☐ CA White calcium carbonate precipitate in C horizon
- ☐ 01 02, 03 etc.—Bog samples at various depths
- ☐ TF Talus fines

SOIL TYPE
- ☐ Chernozem-prairie soil usually under grassland or meadow, thick Ah 10cm.
- ☐ CA horizon at depth Solonetz-saline soil, high content of NaCl
- ☐ Luvisol-BT horizon diagnostic
- ☐ Podzol-BF horizon diagnostic
- ☐ Brunisol-BM horizon is only B horizon of profile
- ☐ Regosol-little or no soil development. No B soil horizon, only LH (maybe) and C horizon
- ☐ Gleysol-BG horizon diagnostic
- ☐ Organic soil-bog vegetation-no mineral matter

CONTAMINATION
- ☐ none
- ☐ possible
- ☐ definite

SHAPE OF COARSE FRAGMENTS
- ☐ Angular
- ☐ Rounded
- ☐ Subrounded, subangular
- ☐ Mixed above types

________ % COARSE FRAGMENTS

________ APPROXIMATE SLOPE DIRECTION

________ APPROXIMATE SLOPE ANGLE

________ TOP OF SAMPLE INTERVAL-CM

________ BOTTOM OF SAMPLE INTERVAL-CM

________ LOCAL BEDROCK COMPOSITION
Estimate—use lists 1-4

____________________ COLOUR

K.V. CAMPBELL & ASSOCIATES LTD.

Sample Field Data Card

APPENDIX II

GEOCHEMICAL SAMPLE AND ANALYSES DATA

GEOCHEMICAL SAMPLE DATA

PROJECT: MOSQUITO CREEK-WHIPSAW CLAIMS LOACATION: WELLS, B.C.

SAMPLE: Soil/Silt No. OF SAMPLES: 574 DATE: Sept.,1984

SAMPLE No.	SITE TOPOGRAPHY	OVERBURDEN ORIGIN	SOIL HORZ	SAMPLE INT(cm)	ELEMENTS TESTED (ppm) As	Pb	Ag	Au(ppb)
L1+00 1+00W	Gtle. Slope	Till	BM	35-40	15	40	0.7	
L1+00 0+75W	Gtle. Slope	Till	Cl	35-40	20	59	0.7	
L1+00 0+50W	Gtle. Slope	Till	BM	35-40	30	48	0.4	
L1+00 0+25W	Gtle. Slope	Till/Alluv.	BM	35-40	40	64	1.2	
L1+00 0+00	Gtle. Slope	Till	BM	35-40	30	86	1.1	
L1+00 0+25E	Gtle. Slope	Till	BM	40-45	30	60	0.5	
L1+00 0+50E	Gtle. Slope	Till	BM	40-45	35	59	1.1	50
L1+00 0+75E	Gtle. Slope	Lk Sed,s,st	BM	45-50	30	50	0.3	25
L1+00 1+00E	Gtle. Slope	Till	Cl	45-50	60	50	0.3	70
L1+00 1+25E	Gtle. Slope	Lk Sed,s,st	Cl	45-50	50	56	1.0	100
L1+00 1+50E	Gtle. Slope	Lk Sed,s,st	Cl	40-45	20	35	0.4	30
L1+00 1+75E	Gtle. Slope	Lk Sed,s,st	Cl	45-50	30	41	0.7	
L1+00 2+00E	Gtle. Slope	Till	BM	40-45	35	43	0.4	
L1+00 2+25E	Gtle. Slope	Till	BM	40-45	40	48	0.8	
L1+00 2+50E	Gtle. Slope	Outwash-s	BM	40-45	20	183	2.0	
L1+50 1+50W	Gtle. Slope	Till	BM	40-45	20	117	0.8	30
L1+50 1+25W	Gtle. Slope	Till	BM	35-40	20	65	0.6	
L1+50 1+00W	Gtle. Slope	Till	BM	30-35	4	45	1.2	10
L1+50 0+75W	Level	Outwash-s	BM	35-40	20	73	0.3	
L1+50 0+50W	Gtle. Slope	Till	BM	34-40	20	60	0.4	
L1+50 0+25W	Gtle. Slope	Till	BM	40-45	20	60	1.0	10
L1+50 0+00	Gtle. Slope	Till	BM	40-45	30	85	1.0	5
L1+50 0+25E	Gtle. Slope	Till	Cl	35-40	40	77	1.0	65
L1+50 0+50E	Gtle. Slope	Till	BG	40-45	50	50	0.5	115
L1+50 0+75E	Gtle. Slope	Till	Cl	40-50	40	66	0.8	25
L1+50 1+00E	Gtle. Slope	Till	BM	35-40	50	66	1.2	60
L1+50 1+25E	Gtle. Slope	Till	Cl	40-45	50	58	0.6	45
L1+50 1+50E	Gtle. Slope	Outwash-s	Cl	40-45	30	50	0.7	60
L1+50 1+75E	Gtle. Slope	Till	Cl	45-50	20	56	0.3	
L1+50 2+00E	Gtle. Slope	Till	BM	40-45	30	90	0.4	
L1+50 2+25E	Gtle. Slope	Till	BM	45-50	30	56	0.3	
L1+50 2+50E	Gtle. Slope	Till	Cl	45-50	20	59	0.8	
L1+50 2+75E	Gtle. Slope	Till	BM	45-50	50	86	0.8	
L2+00 1+75W	Gtle. Slope	Till	Cl	30-40	4	37	1.1	
L2+00 1+50W	Gtle. Slope	Till	Cl	35-40	30	96	1.7	
L2+00 1+25W	Gtle. Slope	Till	Cl	45-50	20	74	0.9	
L2+00 1+00W	Gtle. Slope	Till	Cl	65-70	15	74	0.5	
L2+00 0+75W	Steep Slope	Till	Cl	45-50	10	68	0.4	
L2+00 0+50W	Steep Slope	Till	Cl	45-50	50	95	0.4	60
L2+00 0+25W.	Steep Slope	Till	BM	55-60	150	73	0.8	190
L2+00 0+00	Gtle. Slope	Till	Cl	40-45	20	49	0.5	n.d.
L2+00 0+25E	Gtle. Slope	Till	Cl	40-45	30	60	0.2	20

GEOCHEMICAL SAMPLE DATA

PROJECT: MOSQUITO CREEK-WHIPSAW CLAIMS LOACATION: WELLS, B.C.

SAMPLE: Soil/Silt No. OF SAMPLES: 574 DATE: Sept.,1984

SAMPLE No.	SITE TOPOGRAPHY	OVERBURDEN ORIGIN	SOIL HORZ	SAMPLE INT(cm)	ELEMENTS TESTED (ppm) As	Pb	Ag	Au(ppb)
L2+00 0+50E	Gtle. Slope	Till	Cl	35-40	150	77	0.7	150
L2+00 0+75E	Gtle. Slope	Till	Cl	45-50	150	68	0.9	330
L2+00 1+00E	Steep Slope	Till	Cl	60-65	80	68	0.8	80
L2+00 1+25E	Gtle. Slope	Till	Cl	50-55	40	46	0.5	75
L2+00 1+50E	Gtle. Slope	Alluv-s,g	BM	30-35	60	70	1.8	125
L2+00 1+75E	Gtle. Slope	Till	Cl	45-50	40	37	0.4	35
L2+00 2+00E	Gtle. Slope	Till	BM	45-50	15	35	0.6	
L2+00 2+25E	Steep Slope	Till	BM	40-45	10	37	0.6	
L2+00 2+50E	Gtle. Slope	Till	Cl	45-50	15	66	1.0	
L2+00 2+75E	Gtle. Slope	Till	Cl	45-50	4	25	0.5	
L2+50 2+00W	Steep Slope	Till	Cl	35-40	4	29	n.d.	
L2+50 1+75W	Steep Slope	Till	Cl	45-50	10	64	0.6	
L2+50 1+50W	Gtle. Slope	Till	Cl	60-65	20	76	2.0	
L2+50 1+25W	Gtle. Slope	Till	Cl	50-60	15	51	0.9	25
L2+50 1+00W	Steep Slope	Till	BM	40-45	20	80	0.5	n.d.
L2+50 0+75W	Gtle. Slope	Till	Cl	30-35	10	36	0.6	n.d.
L2+50 0+50W	Gtle. Slope	Till	Cl	35-40	20	53	0.5	25
L2+50 0+25W	Steep Slope	Till	Cl	40-45	15	45	0.6	n.d.
L2+50 0+00	Steep Slope	Till	Cl	45-50	60	94	0.8	30
L2+50 0+25E	Steep Slope	Till	Cl	45-50	40	71	1.3	5
L2+50 0+50E	BaseofSlope	Lake Sed-cl	Cl	30-35	30	48	0.1	n.d.
L2+50 0+75E	BaseofSlope	LkSd-s/Allv	Cl	45-50	80	45	1.4	130
L2+50 1+00E	Steep Slope	Till	BM	45-50	40	101	0.6	50
L2+50 1+25E	Steep Slope	Till	Cl	50-55	40	41	0.4	40
L2+50 1+50E	Gtle. Slope	Till	Cl	30-35	20	50	0.5	35
L2+50 1+75E	Gtle. Slope	Till	Cl	45-50	30	48	0.3	
L2+50 2+00E	Steep Slope	Till	Cl	40-45	40	55	0.2	
L2+50 2+25E	Gtle. Slope	Till	Cl	45-50	40	65	0.2	
L2+50 2+50E	Gtle. Slope	Till	Cl	35-40	15	28	0.1	
L2+50 2+75E	Gtle. Slope	Till	BM	35-40	10	44	2.6	
L3+00 2+00W	Steep Slope	Till	Cl	60-65	10	49	2.6	
L3+00 1+75W	Steep Slope	Till	Cl	45-50	10	60	1.3	
L3+00 1+50W	Steep Slope	Till	Cl	40-45	15	65	0.8	
L3+00 1+25W	Steep Slope	Till	Cl	40-45	20	59	2.6	
L3+00 1+00W	Steep Slope	Till	Cl	35-40	20	67	7.8	
L3+00 0+75W	Gtle. Slope	Till	Cl	30-35	20	73	0.7	
L3+00 0+50W	Gtle. Slope	Till	Cl	40-45	20	48	1.1	
L3+00 0+25W	Gtle. Slope	Till	Cl	50-55	40	85	0.8	
L3+00 0+00	Gtle. Slope	Till	Cl	40-50	15	49	1.4	5
L3+00 0+25E	Steep Slope	Till	Cl	50-55	15	56	1.1	n.d.
L3+00 0+50E	Steep Slope	Till	Cl	45-50	10	34	0.4	30
L3+00 0+75E	Steep Slope	Till	Cl	50-55	40	45	0.4	50

GEOCHEMICAL SAMPLE DATA

PROJECT: MOSQUITO CREEK-WHIPSAW CLAIMS   LOACATION: WELLS, B.C.

SAMPLE: Soil/Silt   No. OF SAMPLES: 574   DATE: Sept.,1984

SAMPLE No.	SITE TOPOGRAPHY	OVERBURDEN ORIGIN	SOIL HORZ	SAMPLE INT(cm)	ELEMENTS TESTED (ppm) As	Pb	Ag	Au(ppb)
L3+00 1+00E	Gtle. Slope	Till	BM	35-40	35	45	1.4	15
L3+00 1+25E	Gtle. Slope	Till	Cl	50-55	15	36	0.3	30
L3+00 1+50E	Gtle. Slope	Till	Cl	40-45	50	44	0.6	50
L3+00 1+75E	Gtle. Slope	Till	BM	35-40	30	35	0.2	20
L3+00 2+00E	Gtle. Slope	Till	BM	50-55	35	41	0.3	
L3+00 2+25E	Gtle. Slope	Till	BM	50-55	15	35	0.4	
L3+00 2+50E	Steep Slope	Till	BM	65-70	30	70	1.1	
L3+00 2+75E	Gtle. Slope	Till	Cl	35-40	20	37	0.6	
L3+00 3+00E	Gtle. Slope	Till	Cl	40-45	20	40	0.4	
L3+50 2+25W	Steep Slope	Till	Cl	60-65	15	31	1.3	
L3+50 2+00W	Steep Slope	Till	BM	30-35	15	94	0.9	
L3+50 1+75W	Steep Slope	Till	Cl	35-40	20	40	1.1	
L3+00 1+50W	Steep Slope	Till	Cl	35-40	15	24	2.7	
L3+50 1+25W	Steep Slope	Till	Cl	60-65	20	63	0.9	
L3+50 1+00W	Gtle. Slope	Till	BG	35-40	20	42	0.7	
L3+50 0+75W	Level	Till	BM	35-40	15	39	0.6	
L3+50 0+50W	Gtle. Slope	Till	Cl	35-40	20	38	0.5	
L3+50 0+25W	Gtle. Slope	Till	Cl	35-40	35	65	1.3	
L3+50 0+00	Gtle. Slope	Till	BM	35-40	40	47	1.0	25
L3+50 0+25E	Gtle. Slope	Till	BM	5-55	30	73	1.2	30
L3+50 0+50E	Gtle. Slope	Till	BG	45-50	30	70	1.3	20
L3+50 0+75E	Gtle. Slope	Till	Cl	45-50	40	35	0.3	30
L3+50 1+00E	Gtle. Slope	Till	BM	55-60	100	49	1.2	110
L3+50 1+25E	Gtle. Slope	Till	BM	45-50	100	58	1.2	105
L3+50 1+50E	Gtle. Slope	Till	BG	40-45	60	35	0.2	45
L3+50 1+75E	Gtle. Slope	Till	BM	30-35	30	45	1.3	15
L3+50 2+00E	Gtle. Slope	Till	BM	40-45	15	40	0.1	
L3+50 2+25E	Gtle. Slope	Till	Cl	45-50	15	44	0.2	
L3+50 2+50E	Gtle. Slope	Till	Cl	35-40	20	41	0.3	
L3+50 2+75E	Gtle. Slope	Till	BM	40-45	20	50	1.3	
L3+50 3+00E	Gtle. Slope	Till	Cl	40-45	15	40	0.6	
L4+00 2+75W	Steep Slope	Till/Colluv	Cl	40-45	4	31	0.7	
L4+00 2+00W	Steep Slope	Alluv-s,g	BF	20-30	30	97	0.8	
L4+00 1+75W	Steep Slope	Till	Cl	40-45	15	77	1.1	
L4+00 1+50W	Steep Slope	Till	Cl	45-50	30	94	6.5	
L4+00 1+25W	Gtle. Slope	Till	Cl	40-45	20	69	2.4	
L4+00 1+00W	Gtle. Slope	Till	Cl	40-45	20	54	0.8	
L4+00 0+75W	Gtle. Slope	Till	BM	45-50	15	43	0.7	
L4+00 0+50W	Gtle. Slope	Till	Cl	50-55	4	50	0.5	
L4+00 0+25W	Gtle. Slope	Till	BG	40-45	10	45	1.0	
L4+00 0+00	Steep Slope	Till	Cl	50-55	20	50	0.7	20
L4+00 0+25E	Gtle. Slope	Till	BM	45-50	80	46	1.1	35

GEOCHEMICAL SAMPLE DATA

PROJECT: MOSQUITO CREEK-WHIPSAW CLAIMS LOACATION: WELLS, B.C.

SAMPLE: Soil/Silt No. OF SAMPLES: 574 DATE: Sept.,1984

SAMPLE No.	SITE TOPOGRAPHY	OVERBURDEN ORIGIN	SOIL HORZ	SAMPLE INT(cm)	ELEMENTS TESTED (ppm) As	Pb	Ag	Au(ppb)
L4+00 0+50E	Level/Bog	Till	BG	45-50	100	50	1.4	30
L4+00 0+75E	Gtle. Slope	Till	Cl	30-35	30	40	0.5	40
L4+00 1+00E	Gtle. Slope	Till	BH	30-35	35	52	1.0	30
L4+00 1+25E	Gtle. Slope	Till	BM	45-50	100	45	1.8	180
L4+00 1+50E	Gtle. Slope	Till	BM	30-35	50	63	1.3	80
L4+00 1+75E	Gtle. Slope	Till	BM	35-40	50	66	1.6	40
L4+00 2+00E	Gtle. Slope	Till	BM	45-50	40	44	1.0	
L4+00 2+25E	Gtle. Slope	Till	BM	35-40	35	37	1.0	
L4+00 2+50E	Gtle. Slope	Till	Cl	35-40	20	42	0.6	
L4+00 2+75E	Gtle. Slope	Till	Cl	45-50	15	31	0.4	
L4+00 3+00E	Gtle. Slope	Till	Cl	60-65	10	27	0.4	
L4+00 3+25E	Gtle. Slope	Till	Cl	40-45	20	34	0.9	
L4+50 2+25W	Steep Slope	Alluv-s,g	BM	25-30	15	82	1.8	
L4+50 2+00W	Steep Slope	Colluv-s,g	Cl	35-40	15	79	1.1	
L4+50 1+75W	Steep Slope	Colluv-s,g	Cl	40-45	30	60	1.2	
L4+50 1+50W	Steep Slope	Alluv-s,g	BM	40-45	50	71	1.4	
L4+50 1+25W	Steep Slope	Alluv-s,g	BM	35-40	20	95	1.6	
L4+50 1+00W	Steep Slope	Till	Cl	40-45	30	48	1.5	
L4+50 0+75W	Steep Slope	Till	BM	40-45	20	55	0.4	
L4+50 0+50W	Steep Slope	Till	BM	35-40	10	34	1.2	
L4+50 0+25W	Steep Slope	Till	BM	35-40	15	49	1.5	
L4+50 0+00	Gtle. Slope	Till	Cl	40-45	30	60	1.2	30
L4+50 0+25E	Gtle. Slope	Till	Cl	25-30	15	30	1.1	15
L4+50 0+50E	Gtle. Slope	Till	BM	35-40	60	45	1.8	40
L4+50 0+75E	Gtle. Slope	Till	BM	35-40	80	30	1.0	40
L4+50 1+00E	Gtle. Slope	Till	BM	35-40	30	43	0.4	5
L4+50 1+25E	Gtle. Slope	Till	Cl	40-45	15	30	0.6	5
L4+50 1+50E	Gtle. Slope	Till	Cl	45-50	60	46	0.9	40
L4+50 1+75E	Gtle. Slope	Till	Cl	40-45	20	37	0.2	20
L4+50 2+00E	Gtle. Slope	Till	Cl	40-45	30	26	n.d.	
L4+50 2+25E	Gtle. Slope	Till	BM	35-40	40	45	1.1	40
L4+50 2+50E	Gtle. Slope	Alluv-s,slt	BM	35-40	30	35	0.7	
L4+50 2+75E	Gtle. Slope	Outwash-sdy	BM	40-45	60	65	0.8	20
L4+50 3+00E	Gtle. Slope	Outwsh-s,st	Cl	30-35	10	30	0.4	
L4+50 3+25E	Gtle. Slope	Lk Sed-s,st	BM	35-40	15	41	0.9	
L5+00 2+25W	Steep Slope	Till/Colluv	BM	40-45	20	87	0.8	
L5+00 2+00W	Steep Slope	Alluv-sdy,g	BM	45-50	30	102	0.9	
L5+00 1+75W	Steep Slope	Till-s,st,g	BM	40-45	10	72	2.8	
L5+00 1+50W	Steep Slope	Till	BM	40-45	15	99	1.5	
L5+00 1+25W	Steep Slope	Alluv-s,g	BM	35-40	15	85	1.0	
L5+00 1+00W	Steep Slope	Allu-s,g	BM	35-40	30	94	1.1	
L5+00 0+75W	Steep Slope	Alluv-s,g	BM	45-50	10	29	1.0	

GEOCHEMICAL SAMPLE DATA

PROJECT: MOSQUITO CREEK-WHIPSAW CLAIMS LOACATION: WELLS, B.C.

SAMPLE: Soil/Silt No. OF SAMPLES: 574 DATE: Sept.,1984

SAMPLE No.	SITE TOPOGRAPHY	OVERBURDEN ORIGIN	SOIL HORZ	SAMPLE INT(cm)	ELEMENTS TESTED (ppm) As	Pb	Ag	Au(ppb)
L5+00 0+50W	Steep Slope	Allv-s,st,g	Cl	40-45	40	21	0.7	
L5+00 0+25W	Steep Slope	Till	BM	35-40	15	31	0.7	
L5+00 0+00	Steep Slope	Till	BM	40-45	20	35	2.2	
L5+00 0+25E	Steep Slope	Till	Cl	35-40	30	49	0.7	
L5+00 0+50E	Gtle. Slope	Till	BM	35-40	20	61	2.0	15
L5+00 0+75E	Steep Slope	Till	BM	35-40	30	32	0.9	n.d.
L5+00 1+00E	Steep Slope	Till	BM	35-40	30	45	1.1	20
L5+00 1+25E	Steep Slope	Till	BM	30-35	35	26	1.0	10
L5+00 1+50E	Gtle. Slope	Till	BM	35-40	35	35	0.6	45
L5+00 1+75E	Gtle. Slope	Till	Cl	40-45	35	29	0.6	25
L5+00 2+00E	Gtle. Slope	Lk Sed-s,st	Cl	35-40	30	41	0.8	35
L5+00 2+25E	Gtle. Slope	Lk Sed-slt	Cl	25-30	10	31	0.5	n.d.
L5+00 2+50E	Gtle. Slope	Lk Sed-slt	Cl	30-35	15	35	0.3	10
L5+00 2+75E	Gtle. Slope	Outwsh-s,st	Cl	30-35	30	49	0.6	30
L5+00 3+00E	Gtle. Slope	Lk Sed-s,st	BM	40-45	40	77	0.6	
L5+50 2+50W	Steep Slope	Till	BM	30-35	40	112	8.6	10
L5+50 2+25W	Steep Slope	Till	BM	40-45	30	94	15.4	5
L5+50 2+00W	Steep Slope	Till	BM	40-45	40	11	11.8	20
L5+50 1+75W	Steep Slope	Till	BM	35-40	35	146	6.8	
L5+50 1+50W	Steep Slope	Till	BM	40-45	20	106	7.1	
L5+50 1+25W	Steep Slope	Till	BM	45-50	30	97	2.1	
L5+50 1+00W	Steep Slope	Till	BM	35-40	20	93	2.0	
L5+50 0+75W	Steep Slope	Till	Cl	30-35	15	69	0.9	
L5+50 0+50W	Steep Slope	Till	Cl	35-40	15	61	0.9	
L5+50 0+25W	Steep Slope	Till	Cl	35-40	4	39	0.4	
L5+50 0+00	Valley Flr	Alluv-s,g	BM	25-30	20	75	1.7	
L5+50 0+25E	Steep Slope	Lk/Colluv	BM	40-45	30	25	0.3	
L5+50 0+50E	Steep Slope	Colluv/Till	BM	35-40	40	30	0.6	
L5+50 0+75E	Steep Slope	Till	BM	35-40	40	28	0.7	
L5+50 1+00E	Steep Slope	Till	BM	35-40	20	30	0.6	
L5+50 1+25E	Steep Sloe	Till	BM	35-40	15	24	0.8	
L5+50 1+50E	Gtle. Slope	Till	BM	35-40	20	49	0.7	5
L5+50 1+75E	Steep Slope	Till	BF	30-35	60	32	0.8	20
L5+50 2+00E	Gtle. Slope	Till	Cl	35-40	20	49	0.5	20
L5+50 2+25E	Hill Top	Till	BM	40-45	60	39	0.4	20
L5+50 2+50E	Gtle. Slope	Till	BM	45-50	80	53	1.0	50
L5+50 2+75E	Hill Top	Till	Cl	35-40	10	31	0.3	20
L6+00 2+75W	Gtle.Slope	Colluv/Till	BF	25-30	20	76	2.7	20
L6+00 2+50W	Steep Slope	Till	Cl	30-35	15	75	3.9	10
L6+00 2+25W	Steep Slope	Till	BM	35-40	35	103	10.5	30
L6+00 2+00W	Steep Slope	Till	BM	35-40	15	78	5.1	20
L6+00 1+75W	Steep Slope	Till	BM	45-50	15	84	8.8	10

GEOCHEMICAL SAMPLE DATA

PROJECT: MOSQUITO CREEK-WHIPSAW CLAIMS LOACATION: WELLS, B.C.

SAMPLE: Soil/Silt No. OF SAMPLES: 574 DATE: Sept.,1984

SAMPLE No.	SITE TOPOGRAPHY	OVERBURDEN ORIGIN	SOIL HORZ	SAMPLE INT(cm)	ELEMENTS TESTED (ppm) As	Pb	Ag	Au(ppb)
L6+00 1+50W	Steep Slope	Till	BM	30-35	20	66	6.1	30
L6+00 1+25W	Steep Slope	Till	Cl	45-50	20	54	3.8	10
L6+00 1+00W	Steep Slope	Colluv/Till	BM	25-30	30	55	6.6	n.d.
L6+00 0+75W	Steep Slope	Till	Cl	35-40	40	79	9.6	
L6+00 0+50W	Steep Slope	Till	BM	35-40	35	87	2.9	10
L6+00 0+25W	Steep Slope	Outwash-s,g	BM	30-35	15	35	1.9	10
L6+00 0+00	Steep Slope	Outwash-s,g	BM	25-30	10	45	0.7	5
L6+00 0+25E	Steep Slope	Outwash-s,g	BM	35-40	20	57	1.0	
L6+00 0+25E	Steep Slope	Outwash-s,g	BM	30-35	15	45	0.8	
L6+00 0+75E	Steep Slope	Outwash-s,g	BM	35-40	20	45	0.7	
L6+00 1+00E	Gtle. Slope	Outwash-s,g	Cl	35-40	15	59	1.3	
L6+00 1+25E	Valley Flr.	Outwash-s,g	BM	45-50	20	61	1.2	
L6+00 1+50E	Valley Flr.	Outwash-s,g	BM	30-35	30	44	1.7	
L6+00 1+75E	Valley Flr.	Lk Sed-silt	BM	30-35	30	30	0.3	
L6+00 2+00E	Steep Slope	Till	Cl	35-40	20	30	0.2	
L6+00 2+25E	Steep Slope	Till	BM	35-40	15	23	0.6	
L6+50 3+00W	Gtle. Slope	Till	Cl	35-40	35	213	0.6	
L6+50 2+75W	Steep Slope	Till	Cl	40-45	4	93	1.7	
L6+50 2+50W	Steep Slope	Till	Cl	45-50	30	123	2.3	
L6+50 2+25W	Steep Slope	Till	BM	45-50	40	85	3.6	
L6+50 2+00W	Steep Slope	Till	BM	45-50	20	100	2.6	
L6+50 1+75W	Steep Slope	Till	Cl	45-50	40	175	2.1	
L6+50 1+50W	Steep Slope	Lk Sed-s,st	Cl	45-50	35	89	2.9	
L6+50 1+25W	Bse of Slpe	Outwsh-s,st	Cl	40-45	15	70	1.2	
L6+50 1+00W	Hill Top	Outwsh-s,st	Cl	40-45	4	40	0.5	
L6+50 0+75W	Steep Slope	Outwash - s	BM	45-50	20	61	0.5	
L6+50 0+50W	Steep Slope	Outwash - s	BM	45-50	4	34	0.5	
L6+50 0+25W	Steep Slope	Alluv-v.s.	BM	65-70	10	49	0.7	
L6+50 0+00	Bse of Slpe	Lk Sed-s,st	Cl	50-55	15	50	0.6	
L6+50 0+25E	Gtle. Slope	Alluv-s,st	BF	30-35	35	66	1.5	
L6+50 0+50E	Steep Slope	Alluv-s,st	BM	30-35	4	37	0.7	
L6+50 0+75E	Steep Slope	Alluv-s,st	BM	45-50	40	59	0.9	
L6+50 1+00E	Steep Slope	Aluv-s,st,g	BM	45-50	10	51	0.9	
L6+50 1+25E	Steep Slope	Alluv-s,st	BM	65-70	15	48	1.3	
L6+50 1+50E	Steep Slope	Till	BM	45-50	10	35	0.6	
L6+50 1+75E	Steep Slope	Till	BM	45-50	20	44	0.7	
L6+50 2+00E	Gtle. Slope	Till	Cl	40-45	15	49	1.4	
L7+00 3+25W	Gtle. Slope	Till	Cl	45-50	15	149	1.6	
L7+00 3+00W	Steep Slope	Till	Cl	45-50	30	89	3.2	
L7+00 2+75W	Gtle. Slope	Till	Cl	35-40	40	60	0.6	
L7+00 2+50W	Steep Slope	Colluv/Till	BM	15-30	15	60	2.4	
L7+00 2+25W	Steep Slope	Till	Cl	45-50	30	86	1.1	

GEOCHEMICAL SAMPLE DATA

PROJECT: MOSQUITO CREEK-WHIPSAW CLAIMS LOACATION: WELLS, B.C.

SAMPLE: Soil/Silt No. OF SAMPLES: 574 DATE: Sept.,1984

SAMPLE No.	SITE TOPOGRAPHY	OVERBURDEN ORIGIN	SOIL HORZ	SAMPLE INT(cm)	ELEMENTS TESTED (ppm) As	Pb	Ag	Au(ppb)
L7+00 2+00W	Steep Slope	Till	Cl	40-45	35	102	0.9	
L7+00 1+75W	Steep Slope	Till	Cl	50-55	40	149	2.3	
L7+00 1+50W	Steep Slope	Till	Cl	45-50	15	45	1.4	
L7+00 1+25W	Bse of Slpe	Till	BM	45-50	30	65	0.4	
L7+00 1+00W	Steep Slope	Till	BM	70-75	4	35	1.8	
L7+00 0+75W	Steep Slope	Till	BM	65-70	2	25	1.5	
L7+00 0+50W	Steep Slope	Till	BM	60-65	15	46	0.8	
L7+00 0+25W	Steep Slope	Alluv-s,st	BM	55-60	10	30	0.9	
L7+00 0+00	Gtle. Slope	Till	BM	35-40	20	45	1.6	
L7+00 0+25E	Level	Alluv-s,st	Cl	45-50	10	37	0.9	
L7+00 0+50E	Level	Lk Sed-slt	Cl	45-50	20	35	0.7	
L7+00 0+75E	Steep Slope	Till	Cl	65-70	20	47	0.5	
L7+00 1+00E	Steep Slope	Till	Cl	55-60	20	39	0.7	
L7+00 1+25E	Steep Slope	Till	BM	35-40	15	46	1.0	
L7+50 4+25W	Gtle. Slope	Till	Cl	45-50	15	310	1.1	
L7+50 4+00W	Steep Slope	Colluv.	BM	40-50	15	77	1.2	
L7+50 3+75W	Bse of Slpe	Till	BM	40-50	30	135	1.5	
L7+50 3+50W	Steep Slope	Till	BM	15-25	35	173	2.9	
L7+50 3+35W	Gtle. slope	Lk Sed-st,c	Cl	60-70	4	35	0.6	
L7+50 3+00W	Steep Slope	Outwash-s,g	Cl	50-70	30	189	1.2	
L7+50 2+75W	Steep Slope	Till	Cl	50-60	50	102	1.1	
L7+50 2+50W	Steep Slope	Till	Cl	30-60	35	75	3.5	
L7+50 2+25W	Gtle. Slope	Till	BM	40-45	4	25	0.9	
L7+50 2+00W	Steep Slope	Till	Cl	40-45	20	74	0.8	
L7+50 1+75W	Steep Slope	Till	Cl	40-45	30	166	0.9	
L7+50 1+50W	Steep Slope	Till	Cl	45-50	30	70	1.2	
L7+50 1+25W	Steep Slope	Till	Cl	35-40	10	34	1.4	
L7+50 1+00W	Steep Slope	Till	Cl	35-40	20	60	4.4	
L7+50 0+75W	Gtle. Slope	Till	Cl	30-35	30	75	0.5	
L7+50 0+50W	Gtle. Slope	Colluv.	Cl	40-45	4	46	0.2	
L7+50 0+25W	Gtle. Slope	Till	Cl	45-50	30	56	1.0	
L7+50 0+00	Level	Till	BM3	33-45	60	49	3.8	n.d.
L7+50 0+25E	Gtle. Slope	Till	BF	35-40	30	35	5.8	
L7+50 0+50E	Gtle. Slope	Till	BM	30-35	35	35	3.2	
L7+50 0+75E	Gtle. Slope	Alluv-v.s.	BM	40-45	30	34	1.1	
L7+50 1+00E	Steep Slope	Lk Sed-v.s.	BM	30-35	15	26	0.5	
L7+50 1+25E	Level	Lk Sed-s	Cl	35-40	15	32	5.3	
L8+00 4+50W	Steep Slope	Till	Cl	75-80	10	212	0.6	15
L8+00 4+25W	Steep Slope	Till	BM	20-30	15	100	1.3	n.d.
L8+00 4+00W	Bse of Slpe	Till	Cl	60-70	20	96	1.1	15
L8+00 3+75W	Gtle. Slope	Till	Cl	50-60	10	130	0.6	n.d.
L8+00 3+50W	Steep Slope	Colluv/Talu	BM	50-60	35	188	0.6	n.d.

GEOCHEMICAL SAMPLE DATA

PROJECT: MOSQUITO CREEK-WHIPSAW CLAIMS LOACATION: WELLS, B.C.

SAMPLE: Soil/Silt No. OF SAMPLES: 574 DATE: Sept.,1984

SAMPLE No.	SITE TOPOGRAPHY	OVERBURDEN ORIGIN	SOIL HORZ	SAMPLE INT(cm)	ELEMENTS TESTED (ppm) As	Pb	Ag	Au(ppb)
L8+00 3+25W	Steep Slope	Colluv/Till	Cl	60-65	10	295	2.8	5
L8+00 3+00W	Gtle. Slope	Colluv/Till	Cl	50-60	15	74	3.4	15
L8+00 2+75W	Steep Slope	Till	BM	45-55	30	96	1.8	35
L8+00 2+50W	Steep Slope	Till	Cl	60-70	30	60	0.3	30
L8+00 2+25W	Steep Slope	Till	Cl	55-65	35	80	1.1	30
L8+00 2+00W	Steep Slope	Till	BM	60-70	30	89	1.3	20
L8+00 1+75W	Steep Slope	Till	Cl	60-70	15	45	0.6	10
L8+00 1+50W	Steep Slope	Till	Cl	50-60	15	149	2.5	10
L8+00 1+25W	Steep Slope	Till/Talus	BM	70-80	20	55	1.9	20
L8+00 1+00W	Steep Slope	Till	BM	40-50	80	77	1.2	20
L8+00 0+75W	Steep Slope	Till	Cl	50-60	40	73	0.6	10
L8+00 0+50W	Sleep Slope	Till	BM	65-70	50	56	0.2	35
L8+00 0+25W	Steep Slope	Till	BM	30-60	100	28	0.8	50
L8+00 0+00	Gtle. Slope	TILL	BM	35-40	35	35	4.7	25
L8+00 0+25E	Gtle. Slope	Outwash-sdy	BM	40-45	15	32	0.5	10
L8+00 0+50E	Gtle. Slope	Till	BM	35-40	30	35	9.5	10
L8+00 0+75E	Gtle. Slope	Till	BM	35-40	30	45	4.8	30
L8+00 1+00E	Gtle. Slope	Lk Sed-sdy	BM	35-40	35	40	3.2	30
L8+00 1+25E	Gtle. Slope	Lk Sed-sdy	BM	35-40	15	27	0.8	15
L8+50 4+75W	Steep Slope	Till	Cl	50-60	10	225	1.7	5
L8+50 4+50W	Steep Slope	Till	BM	50-60	10	66	0.5	20
L8+50 4+25W	Gtle. Slope	Till	Cl	50-60	2	81	0.6	15
L8+50 4+00W	Level/Bog	LkSd-s,st,c	BM	35-50	4	83	0.5	
L8+50 3+75W	Gtle. Slope	Till	Cl	55-65	10	160	1.0	
L8+50 3+50W	Gtle. Slope	Till	BM	40-50	60	229	1.3	65
L8+50 3+25W	Steep Slope	Till	BM	40-50	50	206	1.6	205
L8+50 3+00W	Gtle. Slope	Till	Cl	45-50	60	171	1.5	105
L8+50 2+75W	Bse ofSlope	Till	Cl	60-70	15	124	4.6	40
L8+50 2+50W	Steep Slope	Till	BM	70-80	30	116	0.7	
L8+50 2+25W	Steep Slope	Colluv/Till	Cl	65-75	30	130	0.6	
L8+50 2+00W	Steep Slope	Collv/Talus	BM	50-60	20	115	2.8	
L8+50 1+75W	Steep Slope	Colluv	BM	30-40	30	10	10.5	
L8+50 1+50W	Bse of Slpe	Alluv-sdy	BM	20-25	15	75	2.3	
L8+50 1+25W	Steep Slope	Colluv	BM	65-70	35	69	1.4	
L8+50 1+00W	Steep Slope	Colluv	BM	50-60	30	100	1.2	
L8+50 0+75W	Gtle. Slope	Till	Cl	40-45	20	63	2.9	
L8+50 0+50W	Steep Slope	Lk Sed-slt	Cl	70-75	4	30	0.2	
L8+50 0+25W	Steep Slope	Till	Cl	65-70	10	50	1.4	
L8+50 0+00	Steep Slope	Till	Cl	65-70	15	38	0.6	
L8+50 0+25E	Steep Slope	Till	Cl	50-55	10	39	1.9	
L8+50 0+50E	Gtle. Slope	Till	BM	45-50	10	35	0.3	
L8+50 0+75E	Depression	Lk Sed-slt	Cl	55-60	4	25	n.d.	

GEOCHEMICAL SAMPLE DATA

PROJECT: MOSQUITO CREEK-WHIPSAW CLAIMS LOACATION: WELLS, B.C.

SAMPLE: Soil/Silt No. OF SAMPLES: 574 DATE: Sept.,1984

SAMPLE No.	SITE TOPOGRAPHY	OVERBURDEN ORIGIN	SOIL HORZ	SAMPLE INT(cm)	ELEMENTS TESTED (ppm) As	Pb	Ag	Au(ppb)
L8+50 1+00E	Gtle. Slope	Till	BM	35-40	30	52	0.5	
L8+50 1+25E	Steep Slope	Till	BM	50-55	20	50	0.6	
L9+00 5+00W	Gtle. Slope	Till	BM	45-50	20	224	1.0	
L9+00 4+75W	Gtle. Slope	Till	BM	40-45	15	114	0.4	
L9+00 4+50W	Gtle. Slope	Till	Cl	40-45	10	104	0.7	
L9+00 4+25W	Gtle. Slope	Till	BM	40-45	4	95	0.5	
L9+00 4+00W	Gtle. Slope	Till	BM	40-45	15	130	0.6	
L9+00 3+75W	Gtle. Slope	Till	BM	30-35	40	276	0.9	10
L9+00 3+50W	Gtle. Slope	Till	BM	45-50	30	158	0.8	20
L9+00 3+25W	Gtle. Slope	Talus	BM	30-35	35	105	0.7	
L9+00 3+00W	Steep Slope	Till	BM	40-45	20	95	3.5	30
L9+00 2+75W	Steep Slope	Till	Cl	50-55	30	150	4.0	40
L9+00 2+50W	Steep Slope	Till	Cl	45-50	30	165	2.1	
L9+00 2+25W	Steep Slope	Till	BM	60-65	35	125	1.0	
L9+00 2+00W	Steep Slope	Till	Cl	60-65	30	96	1.1	
L9+00 1+75W	Steep Slope	Till	BM	50-55	30	210	0.9	
L9+00 1+50W	Gtle. Slope	Till	Cl	35-40	10	64	2.6	
L9+00 1+24W	Gtle. Slope	Till	Cl	50-55	20	250	1.8	
L9+00 1+00W	Gtle. Slope	Alluv-s,slt	BM	70-75	15	37	0.1	
L9+00 0+75W	Hill Top	Outwsh-s,st	BM	60-65	10	27	n.d.	
L9+00 0+50W	Steep Slope	Till	BM	45-50	35	165	0.8	
L9+00 0+25W	Gtle. Slope	Alluv-s,slt	BM	35-40	40	66	0.4	
L9+00 0+00	Gtle. Slope	LkSed-s,slt	Cl	45-50	30	40	0.3	
L9+00 0+25E	Gtle. Slope	Till	BM	50-55	50	38	0.3	
L9+00 0+50E	Steep Slope	Till	Cl	45-50	15	27	n.d.	
L9+00 0+75E	Steep Slope	Till	Cl	45-50	15	38	n.d.	
L9+00 1+00E	Gtle. Slope	Till	Cl	45-50	15	40	n.d.	
L9+00 1+25E	Steep Slope	LkSed-s,slt	BM	25-30	4	25	n.d.	
L9+00 1+50E	Steep Slope	LkSed-s,slt	BM	60-65	4	24	0.1	
L9+50 5+25W	Steep Slope	Till	Cl	60-65	30	90	1.0	
L9+50 5+00W	Steep Slope	Till	Cl	45-50	15	97	0.7	
L9+50 4+75W	Steep Slope	Till	BM	45-50	20	125	0.5	
L9+50 4+50W	Steep Slope	Till	Cl	60-65	15	106	1.1	
L9+50 4+25W	Gtle. Slope	Till	BM	45-50	10	124	1.9	
L9+50 4+00W	Gtle. Slope	Till	BM	35-40	30	210	1.2	
L9+50 3+75W	Gtle. Slope	Till	BM	45-50	20	173	1.1	
L9+50 3+50W	Gtle. Slope	Till	BM	40-45	40	242	0.9	
L9+50 3+25W	Steep Slope	Till	BM	40-45	30	253	1.5	
L9+50 3+00W	Steep Slope	Till	BM	45-50	50	244	1.9	
L9+50 2+75W	Steep Slope	Till	BM	45-50	35	340	1.5	
L9+50 2+50W	Steep Slope	Till	BM	45-50	30	280	1.7	
L9+50 2+25W	Gtle. Slope	Till	BM	40-45	2	25	0.6	

GEOCHEMICAL SAMPLE DATA

PROJECT: MOSQUITO CREEK-WHIPSAW CLAIMS LOACATION: WELLS, B.C.

SAMPLE: Soil/Silt No. OF SAMPLES: 574 DATE: Sept.,1984

SAMPLE No.	SITE TOPOGRAPHY	OVERBURDEN ORIGIN	SOIL HORZ	SAMPLE INT(cm)	ELEMENTS TESTED (ppm) As	Pb	Ag	Au(ppb)
L9+50 2+00W	Steep Slope	Till	BM	50-55	20	91	1.0	80
19+50 1+75W	Steep Slope	Till	BM	50-55	100	146	1.8	n.d.
L9+50 1+50W	Steep Slope	Till	BM	30-35	15	90	1.0	
L9+50 1+25W	Gtle. Slope	Colluv.	BM	25-30	15	105	1.0	
L9+50 1+00W	Level	Alluv-s,slt	BM	60-65	4	25	0.4	
L9+50 0+75W	Steep Slope	Till	Cl	45-50	35	51	1.0	
L9+50 0+50W	Gtle. Slope	Alluv-s,slt	BM	35-40	30	122	0.7	
L9+50 0+25W	Steep Slope	Till	BM	35-40	50	106	0.9	
L9+50 0+00	Gtle. Slope	Lk Sed-s,st	BM	40-50	30	56	0.5	
L9+50 0+25E	Steep Slope	Till	Cl	40-45.	20	65	0.5	
L9+50 0+50E	Gtle. Slope	Till	BM	45-50	15	36	1.0	
L9+50 0+75E	Gtle. Slope	Till	BM	40-45	20	97	1.1	
L9+50 1+00W	Steep Slope	Till	BM	40-45	15	42	0.6	
L9+50 1+25E	Steep Slope	Alluv-s,slt	BM	45-55	4	51	0.2	
L9+50 1+50E	Gtle. Slope	Alluv-s,slt	BM	50-55	15	25	0.4	
L10+00 5+25W	Steep Slope	Outwsh-s,g	BM	25-30	15	210	1.8	
L10+00 5+00W	Gtle. Slope	Till	BM	35-40	15	82	1.1	
L10+00 4+25W	Steep Slope	Till	BM	25-30	10	155	7.8	
L10+00 4+50W	Gtle. Slope	Till	BM	30-35	35	131	0.6	
L10+00 4+25W	Hill Top	Till	Cl	25-30	50	289	8.0	
L10+00 4+00W	Gtle. Slope	Colluv/Till	Cl	30-35	40	104	2.4	
L10+00 3+75W	Gtle. Slope	Till	Cl	30-35	30	125	1.3	
L10+00 3+50W	Gtle. Slope	Till	Cl	25-30	15	43	0.1	
L10+00 3+25W	Steep Slope	Till	BM	25-30	10	69	0.7	
L10+00 3+00W	Gtle. Slope	Till	BM	25-30	50	258	4.5	
L10+00 2+75W	Steep Slope	Colluv/Till	Cl	25-30	2	24	1.2	
L10+00 2+50W	Steep Slope	Colluv/Till	Cl	30-35	10	44	0.5	
L10+00 2+25W	Steep Slope	Till	BM	30-35	30	204	0.6	30
L10+00 2+00W	Steel Slope	Till	Cl	30-35	80	182	2.0	n.d.
L10+00 1+75W	Steep Slope	Colluv.	Cl	25-30	20	113	1.6	
L10+00 1+50W	Level-Bench	Outwash-sdy	BM	30-35	4	30	0.2	
L10+00 1+25W	Gtle. Slope	Outwash-s,g	BM	40-45	4	30	0.1	
L10+00 1+00W	Steep Slope	Colluv/Till	BM	25-30	35	97	1.2	
L10+00 0+75W	Steep Slope	Till	BM	35-40	30	85	0.2	
L10+00 0+50W	Steep Slope	Till	BM	30-35	40	115	0.7	
L10+00 0+25W	Gtle. Slope	Till	BM	35-40	20	58	0.9	
L10+00 0+00	Gtle. Slope	Till	BM	30-35	30	115	2.8	
L10+00 0+25E	Gtle. Slope	Lk Sed-s,st	BM	35-40	15	32	2.0	
L10+00 0+50E	Gtle. Slope	Outwsh-s,st	BM	30-35	80	49	0.8	
L10+00 0+75E	Gtle. Slope	Till/Lk Sed	BG	35-40	40	4	2.2	
L10+00 1+00E	Gtle. Slope	Lk Sed-s,st	BM	35-40	15	35	0.2	
L10+00 1+25E	Gtle. Slope	LkSd-s,st,c	Cl	35-40	20	41	0.8	

GEOCHEMICAL SAMPLE DATA

PROJECT: MOSQUITO CREEK-WHIPSAW CLAIMS LOACATION: WELLS, B.C.

SAMPLE: Soil/Silt No. OF SAMPLES: 574 DATE: Sept.,1984

SAMPLE No.	SITE TOPOGRAPHY	OVERBURDEN ORIGIN	SOIL HORZ	SAMPLE INT(cm)	ELEMENTS TESTED (ppm) As	Pb	Ag	Au(ppb)
L10+00 1+50E	Getle. Slop	Allv-st,s,g	BM	30-35	20	47	2.3	
L10+50 5+25W	Steep Slope	Till	BM	35-40	20	114	0.6	
L10+50 5+00W	Bse of Slpe	Till	BM	30-35	20	97	0.1	
L10+50 4+75W	Steep Slope	Till	BM	30-35	20	149	2.0	
L10+50 4+50W	Steep Slope	Colluv/Till	Cl	35-40	35	100	0.7	
L10+50 4+25W	Steep Slope	Till	BM	30-35	20	152	0.9	
L10+50 4+00W	Gtle. Slope	Till	BM	20-25	30	171	2.1	
L10+50 3+75W	Gtle. Slope	Till	BM	25-30	30	162	1.5	
L10+50 3+50W	Steep Slope	Till	BM	30-35	15	70	1.3	
L10+50 3+25W	Steep Slope	Till	BM	35-40	10	56	3.8	
L10+50 3+00W	Gtle. Slope	Till	BM	35-40	40	85	0.7	
L10+50 2+75W	Steep Slope	Till	BM	30-35	20	100	0.8	
L10+50 2+50W	Steep Slope	Colluvium	BM	40-45	2	132	2.3	
L10+50 2+25W	Gtle. Slope	Colluvium	BF	30-35	30	90	1.4	
L10+50 2+00W	Steep Slope	Colluvium	BF	35-40	15	105	1.3	
L10+50 1+75W	Steep Slope	Colluv/Till	BF	25-30	30	106	8.9	20
L10+50 1+50W	Gtle. Slope	Till	BM	35-40	20	82	3.0	20
L10+50 1+25W	Gtle. Slope	Till	BM	35-40	20	91	2.7	10
L10+50 1+00W	Gtle. Slope	Till	BM	30-35	30	104	3.5	n.d.
L10+50 0+75W	Steep Slope	Till	BM	35-40	40	215	5.2	10
L10+50 0+50W	Steep Slope	Till	Cl	45-50	60	148	1.6	40
L10+50 0+25W	Gtle. Slope	Till	Cl	35-40	60	75	8.7	20
L10+50 0+00	Gtle. Slope	Till	BM	35-40	50	40	1.4	20
L10+50 0+25E	Gtle. Slope	Lk Sed-s,st	Cl	40-45	20	32	0.6	20
L10+50 0+50E	Steep Slope	Till	BM	40-45	40	59	0.8	10
L10+50 0+75E	Gtle. Slope	Till	BM	45-50	15	35	0.6	n.d.
L10+50 1+00E	Gtle. Slope	Outwsh-s,st	BM	40-45	10	31	0.7	10
L10+50 1+25E	Gtle. Slope	Outwsh-s,st	Cl	40-45	4	19	0.4	10
L10+50 1+50E	Gtle. Slope	Till	BM	40-45	4	22	0.4	
L11+00 4+00W	Steep Slope	Till	BF	30-35	15	56	1.0	
L11+00 3+50W	Steep Slope	Colluv/Till	BM	25-30	35	249	4.8	
L11+00 3+50W	Gtle. Slope	Till	BM	30-35	15	48	3.6	
L11+00 3+25W	Steep Slope	Colluv/Till	Cl	30-35	50	56	1.5	
L11+00 3+00W	Steep Slope	Outwsh-s,st	BM	25-30	35	50	3.5	
L11+00 2+75W	Steep Slope	RkChip-Phyl	-	Surfce	2	2	0.5	
L11+00 2+50W	Depression	Colluv/Till	Cl	30-35	4	39	1.7	
L11+00 2+25W	Steep Slope	Colluvium	Cl	25-35	15	45	1.2	
L11+00 2+00W	Steep Slope	Till	BM	30-35	50	187	1.0	
L11+00 1+75W	Steep Slope	Till	BM	30-35	50	135	2.6	
L11+00 1+50W	Steep Slope	Till	BM	35-40	15	30	0.7	
L11+00 1+25W	Gtle. Slope	Till	BM	25-30	40	65	0.5	
L11+00 1+00W	Gtle. Slope	Till	BM	35-40	35	72	0.4	

GEOCHEMICAL SAMPLE DATA

PROJECT: MOSQUITO CREEK-WHIPSAW CLAIMS LOACATION: WELLS, B.C.

SAMPLE: Soil/Silt No. OF SAMPLES: 574 DATE: Sept.,1984

SAMPLE No.	SITE TOPOGRAPHY	OVERBURDEN ORIGIN	SOIL HORZ	SAMPLE INT(cm)	ELEMENTS TESTED (ppm) As	Pb	Ag	Au(ppb)
L11+00 0+75W	Gtle. Slope	Till	BM	35-40	30	66	1.4	
L11+00 0+50W	Gtle. Slope	Till	BM	35-40	30	85	0.9	
L11+00 0+25W	Gtle. Slope	Till	BM	35-40	40	76	0.7	
L11+00 0+00	Gtle. Slope	Till	BG	30-35	50	69	1.3	
L11+00 0+25E	Gtle. Slope	Till	BM	35-40	40	51	1.4	
L11+00 0+50E	Gtle. Slope	Till	BG	25-30	30	44	3.0	
L11+00 0+75E	Gtle. Slope	Lk Sed-s,st	Cl	40-45	40	40	1.2	
L11+00 1+00E	Gtle. Slope	Lk Sed-s,st	Cl	35-40	15	53	2.0	
L11+00 1+25E	Gtle. Slope	Outwash-s,g	BM	35-40	15	29	1.6	
L11+50 3+50W	Steep Slope	Till	Cl	40-45	15	33	1.2	
L11+50 3+25W	Steep Slope	Till	BM	40-45	2	24	2.9	
L11+50 3+00W	Steep Slope	Till	BM	35-40	30	120	1.4	
L11+50 2+75W	Steep Slope	Till	Cl	40-45	10	24	0.9	
L11+50 2+50W	Steep Slope	Till	BM	40-45	30	88	1.8	
L11+50 2+25W	Steep Slope	Till	BM	45-50	20	90	1.3	
L11+50 2+00W	Steep Slope	Till	BM	45-50	30	122	0.4	
L11+50 1+75W	Steep Slope	Till	BM	50-60	35	124	1.1	
L11+50 1+50W	Bse of Slpe	Till	BM	40-45	30	65	1.9	
L11+50 1+25W	Level	Alluv-s,slt	BF	50-60	10	30	n.d.	
L11+50 1+00W	Hill Top	Alluv-s,slt	BF	30-35	15	22	n.d.	
L11+50 0+75W	Ridge Top	Alluv-s,slt	BF	30-35	10	25	n.d.	
L11+50 0+50W	Steep Slope	Alluv-s,slt	BM	35-40	10	22	0.2	
L11+50 0+25W	Steep Slope	Outwsh-s,st	BM	40-45	10	30	0.5	
L11+50 0+00	Steep Slope	Outwsh-s,st	BM	55-60	10	23	1.5	
L11+50 0+25E	Steep Slope	Outwsh-s,st	BM	55-60	10	25	1.7	
L11+50 0+50E	Gtle. Slope	Lk Sed-s,st	BM	55-60	15	30	0.4	
L12+00 3+50W	Steep Slope	Till	Cl	50-60	30	80	1.7	
L12+00 3+25W	Steep Slope	Till	BM	65-75	15	31	1.3	
L12+00 3+00W	Steep Slope	Till	BM	50-55	15	39	1.4	
L12+00 2+75W	Steep Slope	Till	Cl	40-50	20	74	2.7	
L12+00 2+50W	Steep Slope	Till	BM	60-70	35	230	1.7	
L12+00 2+25W	Steep Slope	Till	Cl	60-70	30	75	0.5	
L12+00 2+00	Steep Slope	Coluv/Talus	TF	40-50	30	105	2.1	
L12+00 1+75W	Gtle. Slope	Lk Sed-s,st	Cl	50-60	20	49	0.8	
L12+00 1+50W	Gtle. Slope	Outwash,s,g	BF	15-20	10	22	0.5	
L12+00 1+25W	Steep Slope	Outwash,sdy	BF	20-30	15	30	0.6	15
L12+00 1+00W	Steep Slope	Outwash-s,g	BF	20-30	4	15	0.2	20
L12+00 0+75W	Steep Slope	Outwash-s,g	BF	20-30	2	27	0.3	5
L12+00 0+50W	Steep Slope	Outwash-s,g	AE	15-20	4	14	n.d.	
L12+00 0+25W	Steep Slope	Outwash-s,g	AE	10-20	2	12	n.d.	
L12+00 0+00	Steep Slope	Outwash-s,g	BM	50-60	10	20	0.4	20
L12+00 0+25E	Steep Slope	Outwash-s,g	BM	65-75	10	23	0.5	15

GEOCHEMICAL SAMPLE DATA

PROJECT: MOSQUITO CREEK-WHIPSAW CLAIMS LOACATION: WELLS, B.C.

SAMPLE: Soil/Silt No. OF SAMPLES: 574 DATE: Sept.,1984

SAMPLE No.	SITE TOPOGRAPHY	OVERBURDEN ORIGIN	SOIL HORZ	SAMPLE INT(cm)	ELEMENTS TESTED (ppm) As	Pb	Ag	Au(ppb)
L12+00 0+50E	Steep Slope	Outwash-v.s	Cl	80-90	15	20	0.5	5
L12+50 3+25W	Steep Slope	Till	BM	35-40	30	145	2.8	
L12+50 3+00W	Gtle. Slope	Till	BM	45-50	10	24	0.8	
L12+50 2+75W	Gtle. Slope	Lk Sed/Allv	Cl	50-55	10	21	0.8	
L12+50 2+50W	Steep Slope	Alluv-s,slt	Cl	55-60	10	21	1.1	
L12+50 2+25W	Steep Slope	Till	Cl	50-55	20	36	1.1	
L12+50 2+00W	Steep Slope	Till	BM	45-50	4	21	1.7	
L12+50 1+75W	Gtle. Slope	Till	BM	45-50	15	40	0.7	
L12+50 1+50W	Gtle. Slope	Till	BM	40-45	10	27	0.3	25
L12+50 1+25W	Gtle. Slope	Lk Sed-s,st	BM	40-45	60	26	1.0	40
L12+50 1+00W	Gtle. Slope	Till	Cl	40-45	60	36	0.6	10
L12+50 0+75W	Gtle. Slope	Till	BM	30-35	600	35	0.2	185
L12+50 0+50W	Gtle. Slope	Outwash-sdy	BM	40-45	10	35	0.3	35
L12+50 0+25W	Steep Slope	Outwash-sdy	BM	40-45	10	25	0.5	
L12+50 0+00	Steep Slope	Till	Cl	35-40	4	26	0.1	
L12+50 0+25E	Gtle. Slope	Outwash-sdy	BM	40-45	10	22	0.2	
L12+50 0+50E	Gtle. Slope	Outwash-sdy	BM	40-45	10	17	0.2	
L13+00 2+25W	Gtle. Slope	Outwash-sdy	BM	35-40	15	30	0.5	
L13+00 2+00W	Gtle. Slope	Outwash-sdy	BM	40-45	4	24	1.2	
L13+00 1+75W	Gtle. Slope	Outwash-sdy	BM	40-45	10	27	0.3	
L13+00 1+50W	Gtle. Slope	Outwsh-s,st	BM	40-45	50	40	1.0	20
L13+00 1+25W	Gtle. Slope	Outwash-sdy	BM	40-45	15	22	0.1	15
L13+00 1+00W	Gtle. Slope	Outwsh-s,st	BM	35-40	15	34	0.3	35
L13+00 0+75W	Gtle. Slope	Till	BM	40-45	30	28	0.5	n.d.
L13+00 0+50W	Gtle. Slope	Till	BM	40-45	20	31	1.5	15
L13+00 0+25W	Gtle. Slope	Lk Sed-s,st	BM	40-45	10	35	n.d.	
L13+00 0+00	Gtle. Slope	Lk Sed-s,st	Cl	40-45	10	24	0.4	
L13+00 0+25E	Gtle. Slope	Outwash-s,g	BM	35-40	15	25	0.4	
L13+00 0+50E	Gtle. Slope	Lk Sed-s,st	BM	45-50	4	20	0.3	
L13+50 2+25W	Gtle. Slope	Outwash-sdy	BM	25-30	10	21	0.4	
L13+50 2+00W	Gtle. Slope	Outwash-sdy	BM	35-40	10	30	0.3	
L13+50 1+75W	Gtle. Slope	Outwash-sdy	BM	35-40	15	21	0.2	
L13+50 1+50W	Gtle. Slope	Outwas-sdy	Cl	30-40	35	141	0.7	
L13+50 1+25W	Gtle. Slope	Outwash-sdy	BM	40-45	15	34	2.1	30
L13+50 1+00W	Steep Slope	Till	BM	35-40	40	35	1.0	20
L13+50 0+75W	Gtle. Slope	Till	BM	35-40	40	31	1.0	25
L13+50 0+50W	Gtle. Slope	Till	BM	35-40	20	22	0.2	
L13+50 0+25W	Gtle. Slope	Till	BM	30-35	20	28	0.4	
L13+50 0+00	Gtle. Slope	Lk Sed-s,st	Cl	35-40	15	24	n.d.	
L13+50 0+25E	Gtle. Slope	Lk Sed-s,st	BM	40-45	10	22	0.2	
L13+50 0+50E	Gtle. Slope	Lk Sed-s,st	BM	40-45	4	23	0.6	
L14+00 2+75W	Gtle. Slope	Alluv-s,slt	BM	30-35	15	67	0.3	

GEOCHEMICAL SAMPLE DATA

PROJECT: MOSQUITO CREEK-WHIPSAW CLAIMS LOACATION: WELLS, B.C.

SAMPLE: Soil/Silt No. OF SAMPLES: 574 DATE: Sept.,1984

SAMPLE No.	SITE TOPOGRAPHY	OVERBURDEN ORIGIN	SOIL HORZ	SAMPLE INT(cm)	ELEMENTS TESTED (ppm) As	Pb	Ag	Au(ppb)
L14+00 2+50W	Gtle. Slope	Till	BM	30-35	15	40	0.2	
L14+00 2+25W	Gtle. Slope	Till	BM	30-35	10	37	0.9	
L14+00 2+00W	Gtle. Stope	Till	BM	40-45	60	24	0.4	
L14+00 1+75W	Gtle. Slope	Outwash-sdy	BM	35-40	15	21	0.3	
L14+00 1+50W	Gtle. Slope	Outwash-sdy	Cl	45-50	20	26	0.5	
L14+00 1+25W	Gtle. Slope	Outwash-sdy	BM	40-45	10	20	0.6	15
L14+00 1+00W	Gtle. Slope	Till	BM	40-45	30	34	1.9	10
L14+00 0+75W	Gtle. Slope	Till	BM	30-35	35	22	0.2	45
L14+00 0+50W	Gtle. Slope	Lk Sed-s,st	BM	25-30	20	19	0.6	
L14+00 0+25W	Gtle. Slope	Till	BM	35-40	15	20	0.4	
L14+00 0+00	Gtle. Slope	Till	BM	30-35	10	20	0.4	
L14+00 0+25E	Gtle. Slope	Lk Sed-s,st	BM	30-35	10	27	0.4	
L14+00 0+50E	Gtle. Slope	Lk Sed-s,st	Cl	40-45	2	19	0.3	
L14+50 2+75W	Gtle. Slope	Alluv-sdy	BM	45-50	4	25	0.2	
L14+50 2+50W	Gtle. Slope	Aluv-st,s,g	BM	30-35	2	16	0.8	
L14+50 2+25W	Valley Flr.	Alluv-s,st	BG	30-35	20	43	0.6	30
L14+50 2+00W	Gtle. Slope	Aluv-st,s,g	BM	35-40	15	42	0.8	
L14+50 1+75W	Gtle Slope	Till	BM	30-35	15	35	0.7	
L14+50 1+50W	Gtle. Slope	Alluv-s,st	BF	25-30	15	24	0.5	
L14+50 1+25W	Gtle. Slope	Lk Sed-s,st	Cl	40-45	50	21	0.5	70
L14+50 1+00W	Gtle. Slope	Till	BM	35-40	100	25	0.3	85
L14+50 0+75W	Gtle. Slope	Till	Cl	30-35	35	13	0.3	10
L14+50 0+50W	Gtle. Slope	Till	BM	35-40	20	26	0.9	
L14+50 0+75W	Gtle. Slope	Lk Sed-s,st	BM	35-40	50	20	0.3	
L14+50 0+00	Gtle. Slope	Lk Sed-s,st	BG	30-35	10	23	0.3	
L14+50 0+25E	Gtle. Slope	Lk Sed-s,st	Cl	35-40	4	15	0.2	
L14+50 0+50E	Gtle. Slope	Lk Sed-s,st	Cl	35-40	4	14	0.1	

APPENDIX III

ANALYTICAL PROCEDURES

ANALYTICAL PROCEDURE

Used to Determine:

<u>GEOCHEMICAL ARSENIC IN SOILS</u>

VANGEOCHEM LAB LTD.
1521 Pemberton Ave.
North Vancouver, B.C.
V7P 2S3

TO: Mr. Gary Lawrence
Lawrence Consulting Ltd.
7376 Silverspring Road N.W.
Calgary Alberta T3B 4L3

FROM: Vangeochem Lab Ltd.
1521 Pemberton Ave.
North Vancouver, B.C. V7P 2S3

SUBJECT: Analytical procedure used to determine hot acid soluble arsenic in geochemical silt, soil, lake sediment and rock samples.

1. Sample Preparation

(a) Geochemical soil, silt, lake sediment or rock samples were received in the laboratory in wet-strength 3 1/2 x 6 1/2 Kraft paper bags and rock samples in 4" x 6" Kraft paper bags.

(b) The wet samples were dried in a ventilated oven.

(c) The dried soil and silt samples were sifted by hands using a 8" diameter 80-mesh stainless steel sieve. The plus 80-mesh fraction was rejected and the minus 80-mesh fraction was transferred into a new bag for analysis later.

(d) The dried rock samples were crushed by using a jaw crusher and pulverized to 100-mesh or finer by using a disc mill. The pulverized samples were then put in a new bag for later analysis.

2. Method of Digestion

(a) 0.25 gram of the minus 80-mesh sample was used. Samples were weighed out by using a top-loading balance.

(b) Samples were heated in a sand bath with concentrated perchloric acid (70 - 72% $HClO_4$ by weight) at a medium heat for four hours.

(c) The digested samples were diluted with demineralized water.

3. Method of Analysis

(a) Potassium iodide and stannous chloride in HCl were added to the digested samples.

(b) Zinc metal was introduced and the arsenic in solution was gassed off as arsene through a glass wool scrubber plug saturated with lead acetate and into a solution of silver diethyldithiocarbamate in chloroform with l-ephedrine, forming a red complex with the silver diethyldithiocarbamate.

(c) The concentration of the arsenic was determined colorimetrically by comparing the intensity of the color of the red complex with a set of known standards prepared in a similar fashion as the samples.

4. The analyses were supervised or determined by Mr. Eddie Tang or Mr. Conway Chun and their laboratory staff.

Eddie Tang
Vangeochem Lab Ltd.

ANALYTICAL PROCEDURE

Used To Determine:

GEOCHEMICAL LEAD AND SILVER IN SOILS

VANGEOCHEM LAB LTD.
1521 Pemberton Ave.
North Vancouver, B.C.
V7P 2S3

TO: Mr. Gary Lawrence
Lawrence Consulting LTD.
7376 Silverspring Road N.W.
Calgary Alberta T3B 4L3

FROM: Vangeochem Lab Ltd.
1521 Pemberton Ave.
North Vancouver, B.C. V7P 2S3

SUBJECT: Analytical procedure used to determine hot acid soluble for Pb & Ag in geochemical silt, soil, and samples.

1. Method of Sample Preparation

(a) Geochemical soil, silt or rock samples were received in the laboratory in wet-strength 4" x 6" Kraft paper bags or rock samples sometimes in 8" x 12" plastic bags.

(b) The dried soil and silt samples were sifted by hand using a 8" diameter 80-mesh stainless steel sieve. The plus 80-mesh fraction was rejected and the minus 80-mesh fraction was transferred into a new bag for analysis later.

(c) The dried rock samples were crushed by using a jaw crusher and pulverized to 100-mesh or finer by using a disc mill. The pulverized samples were then put in a new bag for later analysis.

2. Method of Digestion

(a) 0.50 gram of the minus 80-mesh samples was used. Samples were weighed out by using a top-loading balance.

(b) Samples were heated in a sand bath with nitric and perchloric acids (15% to 85% by volume of the concentrated acids respectively).

(c) The digested samples were diluted with demineralized water to a fixed volume and shaken.

3. Method of Analysis

Pb & Ag analyses were determined by using a Techtron Atomic Absorption Spectrophotometer Model AA5 with their respective hollow cathode lamps. The digested samples were aspirated directly into an air and acetylene mixture flame. The results, in parts per million, were calculated by comparing a set of standards to calibrate the atomic absorption units.

4. Background Correction

A hydrogen continuum lamp is used to correct the Silver background interferences.

5. The analyses were supervised or determined by Mr. Conway Chun or Mr. Eddie Tang and the laboratory staff.

for Eddie Tang
VANGEOCHEM LAB LTD.

ANALYTICAL PROCEDURE

Used To Determine:

GEOCHEMICAL GOLD IN SOILS AND ROCKS

VANGEOCHEM LAB LTD.
1521 Pemberton Ave.
North Vancouver, B.C.
V7P 2S3

TO: Mr. Gary Lawrence
Lawrence Consulting Ltd.
7376 Silverspring Road N.E.
Calgary Alberta T3B 4L3

FROM: Vangoechem Lab Ltd.
1521 Pemberton Ave.
North Vancouver, B.C. V7P 2S3

SUBJECT: Analytical procedure used to determine Aqua Regia soluble gold in geochemical samples

1. Method of Sample Preparation

(a) Geochemical soil, silt or rock samples were received in the laboratory in wet-strength 4" x 6" Kraft paper bags or rock samples sometimes in 8" x 12" plastic bags.

(b) The dried soil and silt samples were sifted by hand using a 8" diameter 80-mesh stainless steel sieve. The plus 80-mesh fraction was rejected and the minus 80-mesh fraction was transferred into a new bag for analysis later.

(c) The dried rock samples were crushed by using a jaw crusher and pulverized to 100-mesh or finer by using a disc mill. The pulverized samples were then put in a new bag for later analysis.

2. Method of Digestion

(a) 5.00 or 10.00 grams of the minus 80-mesh samples were used. Samples were weighed out by using a top-loading balance into beakers.

(b) 20 ml of Aqua Regia (3:1 HCl : HNO_3) were used to digest the samples over a hot plate vigorously.

(c) The digested samples were filtered and the washed pulps were discarded and the filtrate was reduced to about 5 ml.

(d) The Au complex ions were extracted into diisobutyl ketone and thiourea medium. (Anion exchange liquids "Aliquot 336").

(e) Separate Funnels were used to separate the organic layer.

3. Method of Detection

The gold analyses were detected by using a Techtron model AA5 Atomic Absorption Spectrophotometer with a gold hollow cathode lamp. The results were read out on a strip chart recorder. A hydrogen lamp was used to correct any background interferences. The gold values in parts per billion were calculated by comparing them with a set of gold standards.

4. The analyses were supervised or determined by Mr. Conway Chun or Mr. Eddie Tang and his laboratory staff.

Eddie Tang
VANGEOCHEM LAB LTD.

ANALYTICAL PROCEDURE

Used To Determine:

GOLD BY FIRE ASSAY AND ATOMIC ABSORPTION

VANGEOCHEM LAB LTD.
1521 Pemberton Ave.
North Vanvouver, B.C.
V7P 2S3

TO: Mr. Gary Lawrence
Lawrence Consulting Ltd.
7376 Silverspring Road N.W.
Calgary Alberta T3B 4L3

FROM: Vangeochem Lab Ltd.
1521 Pemberton Ave.
North Vancouver, B.C. V7P 2S3

SUBJECT: Analytical procedure used to determine gold by fire-assay method and detected by atomic absorption spec. in geological samples.

1. Method of Sample Preparation

(a) Geochemical soil, silt or rock samples were received in the laboratory in wet-strength 4" x 6" Kraft paper bags or rock samples sometimes in 8" x 12" plastic bags.

(b) The dried soil and silt samples were sifted by hand using a 8" diameter 80-mesh stainless steel sieve. The plus 80-mesh fraction was rejected and the minus 80-mesh fraction was transferred into a new bag for analysis later.

(c) The dried rock samples were crushed by using a jaw crusher and pulverized to 100-mesh or finer by using a disc mill. The pulverized samples were then put in a new bag for later analysis.

2. Method of Extraction

(a) 20.0 - 30.0 grams of the pulp samples were used. Samples were weighed out by using a top-loading balance into fusion pot.

(b) A Flux of litharge, soda ash, silica, borax, flour, or potassium nitrite is added, then fused at 1900 degrees F and a lead button is formed.

(c) The gold is extract by cupellation and part with diluted nitric acid.

(d) The gold bead is saved for measurement later.

3. Method of Detection

(a) The gold bead is disolved by boiling with sodium cyanide, hydrogen peroxide and ammonium hydroxide.

(b) The gold analyses were detected by using a Techtron model AA5 Atomic Absorption Spectrophotometer with a gold hollow cathode lamp. The results were read out on a strip chart recorder. The gold values in parts per billion were calculated by comparing them with a set of gold standards.

4. The analyses were supervised or determined by Mr. Conway Chun or Mr. David Chiu and his laboratory staff.

for David Chiu
VANGEOCHEM LAB LTD.

APPENDIX IV

ITEMIZED COST STATEMENT

ITEMIZED COST STATEMENT
OF 1984 EXPLORATION AND DEVELOPMENT WORK
CARRIED OUT ON THE WHIPSAW, HARD AND ISLAND CLAIMS,
CARIBOU MINING DIVISION, B.C.

COST ITEMS	AMOUNT
Work - see Schedule 'A' attached for details	$14,025.00
Food and Accomodation - see Schedule 'B' attached for details	797.00
Transportation - see Schedule 'C' attahced for details	2,115.89
Analetical - see Schedule 'D' attached for details	4,830.25
Other - see Schedule 'E' attached for details	5,861.52
TOTAL =	$27,629.66
Including costs of preliminary research and topographic mapping, prior to 25 Aug. 85. (AR 84-629 - returned.)	4866.16
	32495.82

TEK.

SCHEDULE 'A': 1984 Work Cost Schedule For Whipsaw, Hard and Island Claims, Caribou Mining Division, B.C.

Employee	Dates on Site	Task	Rate/Day	Total Paid
V. Campbell	June 19,20,	grid establishment	$325/day	$ 650.00
Box 99	Sept. 11	soil sampling	"	325.00
Wells, B.C.	Sept. 21,23	data compilation	"	650.00
	Sept. 24,27	mapping	"	650.00
	Oct. 16,17,18,19	data analysis	"	1,300.00
J. Boutwell	Sept. 10	grid establishment	$150/day	150.00
General Delivery	Sept.11,12,13, 14,17,18,19, 20,21,23,24	soil sampling	"	1,650.00
Wells, B.C.				
	Sept. 25	mapping	"	150.00
	Oct. 22	flagging road access	"	150.00
S. Brown	June 21,July 17	clearing trail	$150/day	150.00
Box 31,	Oct. 22	flagging road access	"	150.00
Wells, B.C.				
H. Carter	July 4,7	clearing trail	$150/day	300.00
Box 31,	July 19,Aug 3, Sept.7,10	grid establishment	"	600.00
Barkerville, B.C.				
	Sept.11,12,13, 14,17,18,19, 20,21,24	soil sampling	"	1,500.00
	Sept.25	mapping	"	150.00
	Oct. 22	flagging road access	"	150.00
G. Lawrence	Sept.16,17,18, 19,20,21,22	soil sampling	$325/day	2,275.00
7376 SilverSprings Rd. N.W.				
Calgary, Alberta	Sept.23,24,25,	mapping	"	1,625.00
	Oct.16,17,18,19	data analysis	"	1,300.00
TOTAL WORK COSTS =				$14,025.00

SCHEDULE 'B': 1984 Food and Accomodation Cost Schedule For Whipsaw, Hard and Island Claims, Caribou Mining Division, B.C.

Employee	Dates For Meals and Accomodations	Item	Cost
G. Lawrence 7376 SilverSprings Rd. N.W. Calgary, Alberta	Sept. 16,17,18,19,20,21,22, 23,24,25,26,27,28 Oct.17,18,19,20	meals	$296.00
G. Lawrence 7376 SilverSprings Rd. N.W. Calgary, Alberta	Sept.16,17,18,19,20,21,22, 23,24,25,26,27,28, Oct.16,17,18,19	accomodation	501.08

TOTAL MEALS AND ACCOMODATIONS COSTS = $797.08

SCHEDULE 'C': 1984 Transportation Cost Schedule For Whipsaw, Hard and Island Claims, Caribou Mining Division, B.C.

Type of Transportation	Dates Used	Explanation of Use	Daily Rate	Mileage Rate	Mileage	Cost
4x4 rental	June 19,21, July 4,17,19, Aug.3, Sept.7,10,11, 12,13,14,17, 18,19,20,21, Oct.22	rented in Wells for transport of workers to & from job site	$20/day	$0.20/km	274.5km	$ 414.90
4x4 rental	Sept.12 to 29	rented in Calgary, prepare for job, travel to Wells, provided transport to & from job site for workers	$590/wk + $55/day	$0.20/km	2530km	$1261.00
CP Air	Oct.16/84	Calgary-Prince George	-	-	-	$ 147.95
PWA	Oct.20/84	Prince George-Calgary	-	-	-	$ 147.95
car rental	Oct.16-20/84	travel from Prince George to Wells & back	$32/day + tax	$0.18/km	437km (400 free)	$ 144.09

TOTAL TRANSPORTATION COSTS = $2,115.89

SCHEDULE 'D': 1984 Analetical Cost Schedule For Whipsaw, Hard and Island Claims, Caribou Mining Division, B.C.

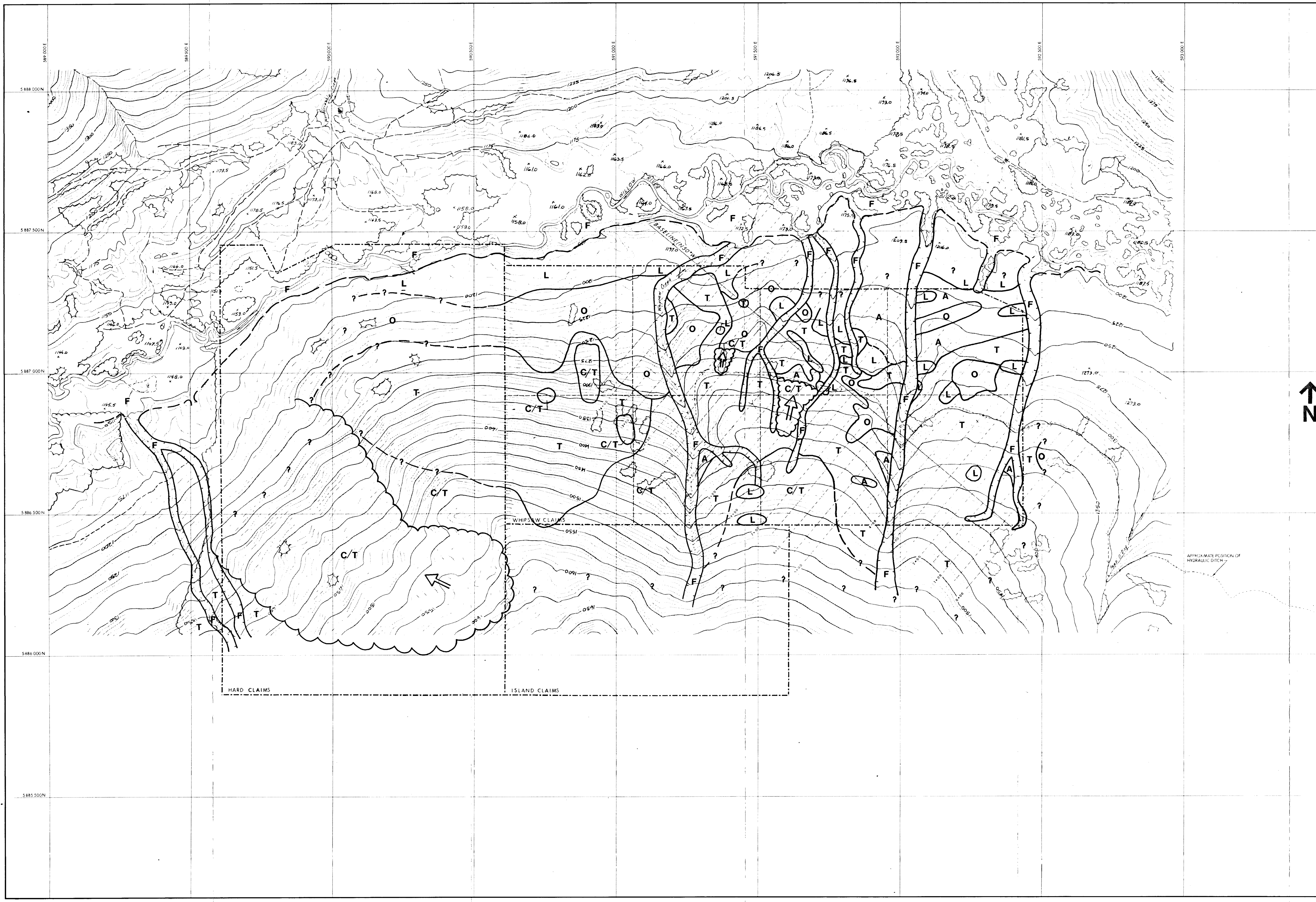
Type	Number	Description of Analyses	Unit Cost	Cost
soil geochem	574	soil sample preparation	$0.85	$ 487.90
	574	trace analyses for Pb,Ag	$2.75	1,578.50
	574	trace analyses for As	$3.00	1,722.00
	167	Au analyses by SOLEXT/AAS	$4.75	793.25
stream sediment	1	sediment sample preparation	$0.85	.85
	1	trace analysis for Au	$4.75	4.75
rock geochem	8	rock sample preparation	$2.75	22.00
	6	trace analses for Pb, Ag	$2.75	16.50
	2	trace analyses for Ag	$2.00	4.00
	6	trace analyses for As	$3.00	18.00
	8	analyses by FA/AAS	$6.50	52.00
rock assay	6	rock sample preparation	$2.75	16.50
	6	Pb assay	$7.00	42.00
	6	Ag & Au assay	$12.00	72.00

TOTAL ANALETICAL COST = $4,830.25

SCHEDULE'E': 1984 Schedule of Other Costs For Whipsaw, Hard and Island Claims, Caribou Mining Division, B.C.

Item	Manpower Costs Rate	Manpower Costs Time	+ Material Costs plus Federal Sales Tax	= Cost
drafting services	$32/hr	5 hrs.	$ 27.55	$ 187.55
secretary/data input services	$16.25/hr	47¼hrs.	-	767.81
reproduction & copying	-	-	160.55	160.55
equipment rental (chainsaw)	-	-	40.00	40.00
freight on sample shipment	-	-	117.95	117.95
expendable materials (field)	-	-	187.12	187.12
gasoline for trucks	-	-	222.00	222.00
miscellaneous	-	-	30.00	30.00
Report Preparation:				
- geological services	$325/day	7 days	-	2,275.00
- drafting services	$32/hr	32 hrs.	148.39	1,172.39
- secretarial services	$16.25/hr	24 hrs.	-	390.00
- reproduction & copying	-	-	311.15	311.15

TOTAL OTHER COSTS = $5,861.52



No.	Revision	By	Date

GEOLOGICAL BRANCH
ASSESSMENT REPORT

13,255

F - Fluvial Deposits (Recent)
L - Lacustrine Sediments
A - Alluvium Deposits
O - Outwash/Meltwater Deposits
C/T - Undivided Colluvium and Talus Deposits
T - Till

Landslide Scar/Slump Block
Direction of Movement

m 0 100 200 400 600m
Scale 1:5000

NORTHGANE MINERALS LTD.

Mosquito Creek Prospect - Whipsaw, Island & Hard Claims; British Columbia

1984 FALL EXPLORATION PROGRAM

Surficial Geology and Geomorphology of Project Area

Drawn	Approved	Date
GL / MD		NOV 26, 1984
Drawing No. FIGURE 3	Sheet NTS SHEET 93H/4	

(1)

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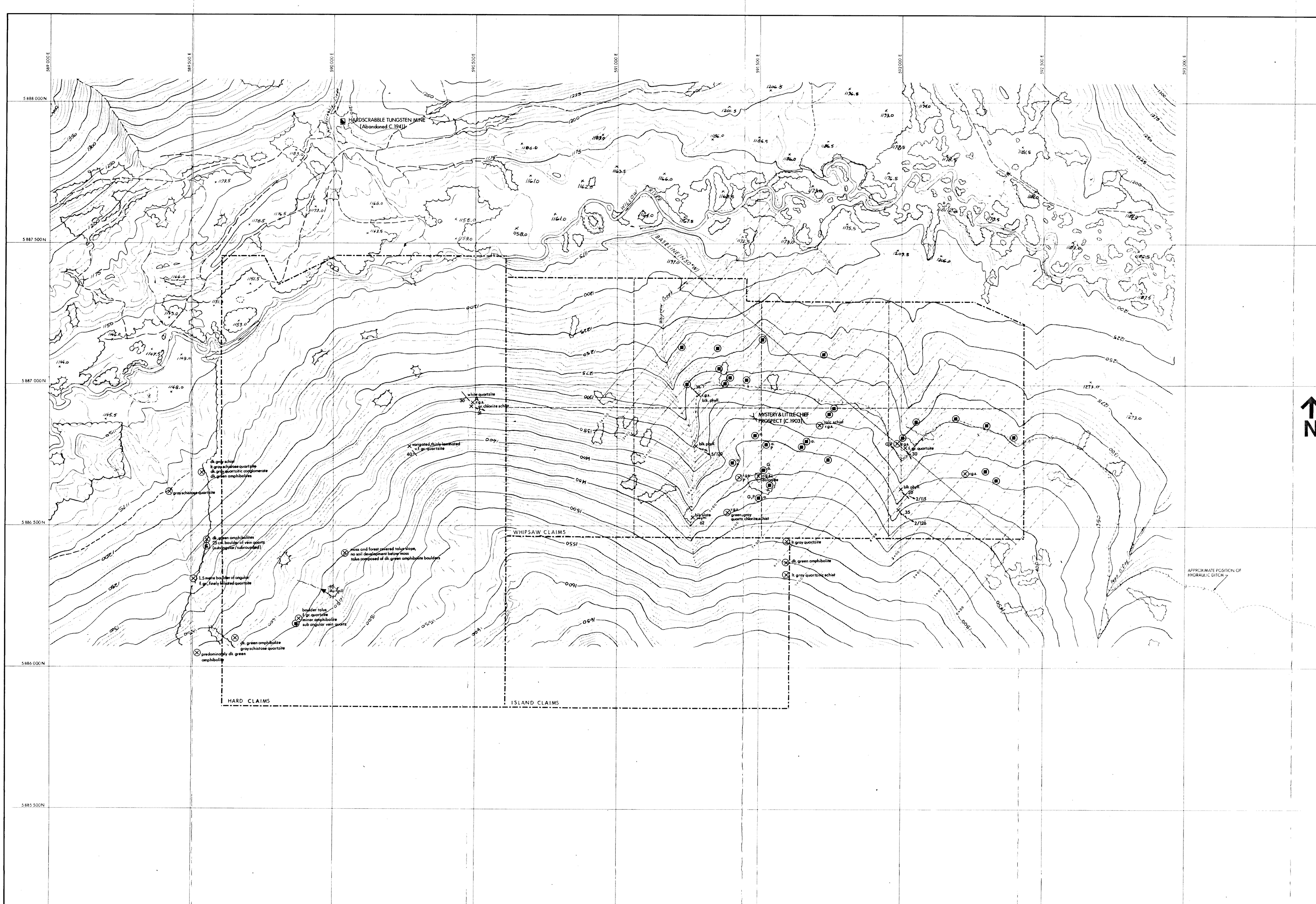

No.	Revision	By	Date

GEOLOGICAL BRANCH ASSESSMENT REPORT

13,255

- × Bedrock Outcrop
- ×r.g.a. Bedrock Outcrop Sampled for Rock Geochem. Analysis
- ×a. Bedrock Outcrop Sampled for Assay Analysis
- ⊗ Float
- ⊗qtzte Float with Rock Description
- ⊗G,P Float with Mineral Occurance
- ⊗r.g.a. Float Sampled for Rock Geochem. Analysis
- ⊗a. Float Sampled for Assay Analysis
- G,P Galena, Pyrite
- Vein Quartz
- r.g.a. Vein Quartz Sampled for Rock Geochem. Analysis
- a. Vein Quartz Sampled for Assay Analysis
- G,P Vein Quartz Float with Mineral Occurance
- Stream Sediment Sample Site
- Foliation (inclined) (vertical)
- 2/115 Degree and Direction of Plunge
- Bedding (inclined) (vertical)
- Hydraulic Ditch
- Adit (open) (collapsed)
- Shaft (abandoned)

m 0 100 200 400 600m

Scale 1:5000

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Mosquito Creek Prospect - Whipsaw, Island & Hard Claims; British Columbia

1984 FALL EXPLORATION PROGRAM

Results of 1984 Geological Mapping on Project Area

Drawn	Approved	Date
GL / MD		NOV. 26, 1984
Drawing No. FIGURE 5		Sheet NTS SHEET 93H/4

(2)

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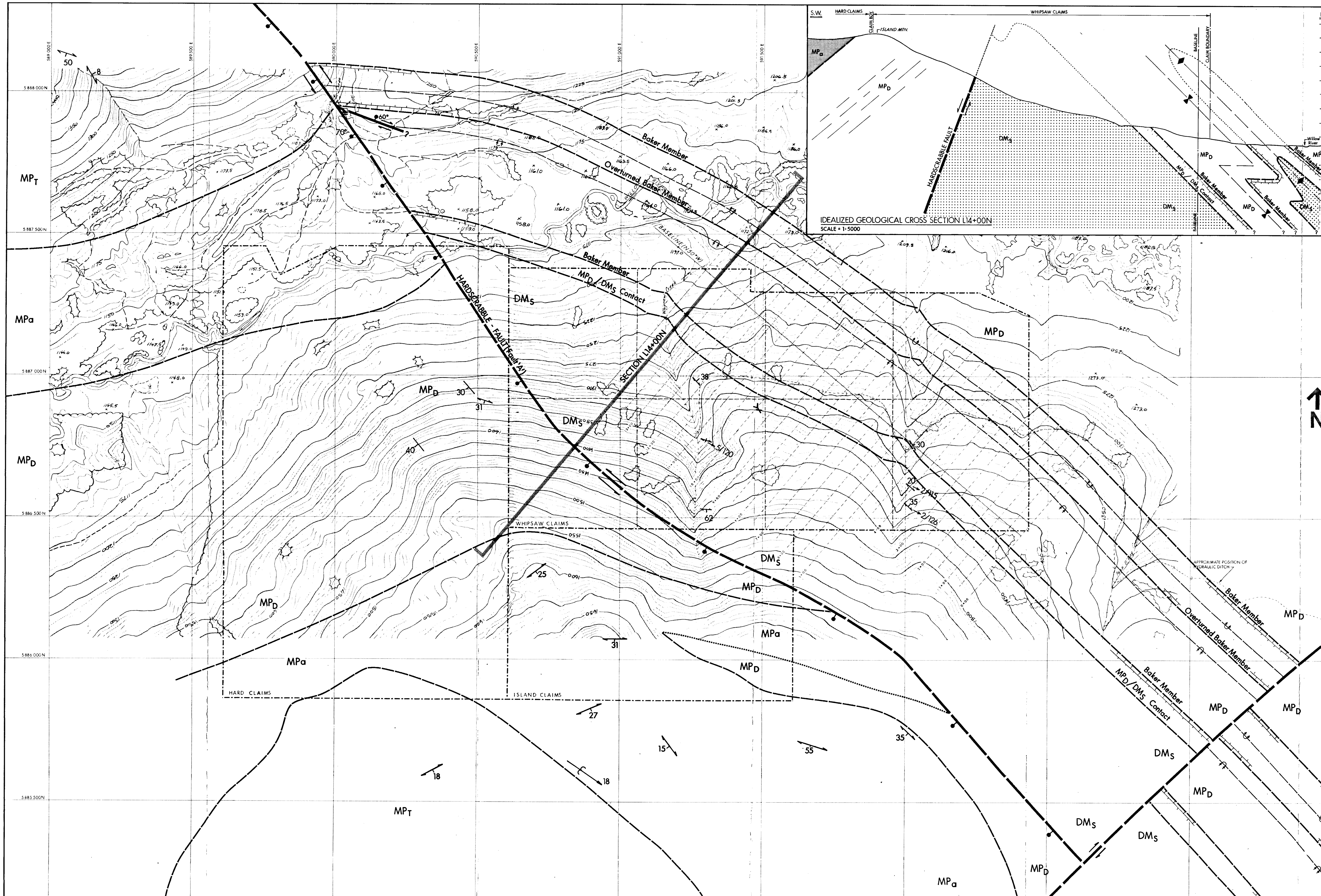
GEOLOGICAL BRANCH
ASSESSMENT REPORT

13,255



No.	Revision	By	Date

MISSISSIPPIAN? PENNSYLVANIAN & PERMIAN

MP_A - Antler Formation: diorite, basalt, serpentine, gabbro, diabase

MIDDLE PENNSYLVANIAN

P_c - black micritic limestone, gray and black shale

MISSISSIPPIAN? TO PERMIAN?

MP_T - Tom Creek Succession: olive gray micaceous quartzite, phyllite and schist

MP_D - Downey Creek Succession: olive and gray micaceous quartzite and phyllite, gray olive and green slate, limestone, marble, metatuff?

MP_a - amphibolite

DEVONIAN? & MISSISSIPPIAN?

DM_s - black siltite and phyllite, gray micaceous quartzite, limestone, minor metatuff? graywacke, muddy conglomerate, quartzite clast conglomerate, quartzite

Geological Contact:
(defined) (approximate) (inferred)
Anticline (overturned)
Syncline (overturned)
Antiform, Synform
Fault:
(defined) (approximate) (inferred)
(arrows indicate direction of movement, dot indicates downthrow side)
20 Foliation: (inclined) (vertical)
2/126 Plunge angle and direction
Bedding (inclined) (vertical)

m 0 100 200 400 600m
Scale 1:5000

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Mosquito Creek Prospect - Whipsaw, Island & Hard Claims; British Columbia

1984 FALL EXPLORATION PROGRAM

Preliminary Geological Interpretation of Project Area

Drawn	Approved	Date
GL/ MD		NOV. 26, 1984
Drawing No. FIGURE 6		Sheet NTS SHEET 93 H/4

(3)

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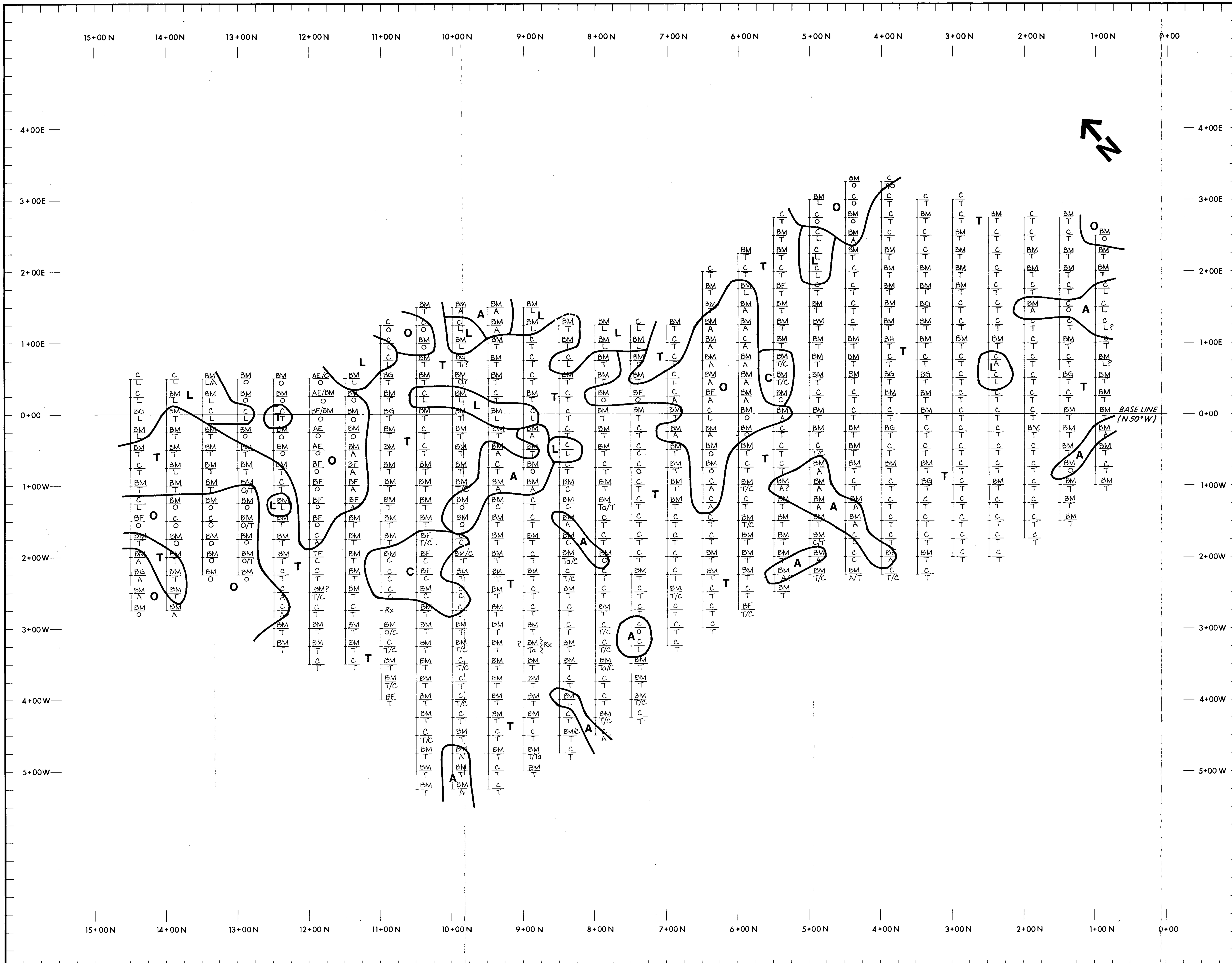

No	Revision	By	Date

BM/T — Soil Horizon / Soil Origin (Parent material)

SOIL HORIZON

AE gray to white leached mineral horizon near ground surface, usually sandy

BF red-brown, iron-rich horizon

BM brown horizon which is only slightly different in appearance from under-laying parent material

C parent material

PARENT MATERIAL

T Till

O Outwash

A Alluvium

L Lake Sediment

C Colluvium

Ta Talus

Soil Horizon Boundary

GEOLOGICAL BRANCH ASSESSMENT REPORT

13,255

m 0 — 300m

Scale 1:2500

NORTHGANE MINERALS LTD.

Mosquito Creek Prospect-Whipsaw Claims

British Columbia

1984 FALL EXPLORATION PROGRAM

SOIL GEOCHEMISTRY

Soil Types and Profiles of Sample Sites

Drawn	Approved	Date
GL / MD		NOV 26, 1984
Drawing No. FIGURE 10		Sheet NTS SHEET 93H/4

(4)

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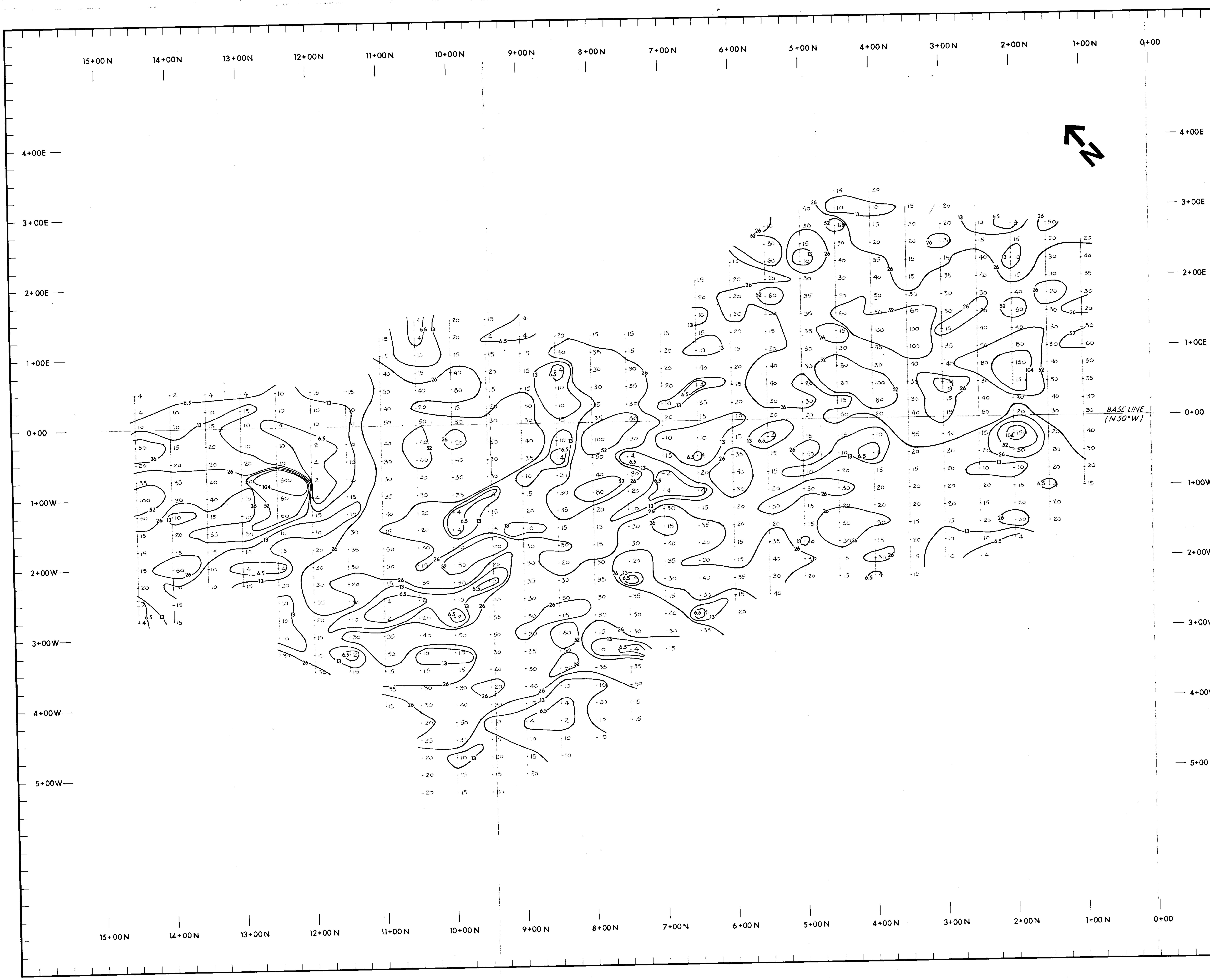

No	Revision	By	Date

CONTOURS AT 6.5,13,26,52,104 ppm As
NUMBER OF SAMPLES = 574
RANGE OF ASSAYS = 2 to 600 ppm (max. value 600 ppm deleted)
MEAN = 25.7
STANDARD DEVIATION = 19.4
THRESHOLD (Mean + (2 × Std. Dev.)) = 64.5

GEOLOGICAL BRANCH
ASSESSMENT REPORT
13,255

m 0 100 200 300 m
Scale 1: 2500

NORTHGANE MINERALS LTD.

Mosquito Creek Prospect - Whipsaw Claims
British Columbia

1984 FALL EXPLORATION PROGRAM

SOIL GEOCHEMISTRY
Contoured As Values

Drawn GL/MD	Approved	Date NOV. 26, 1984
Drawing No FIGURE 11	Sheet NTS SHEET 93 H/4	

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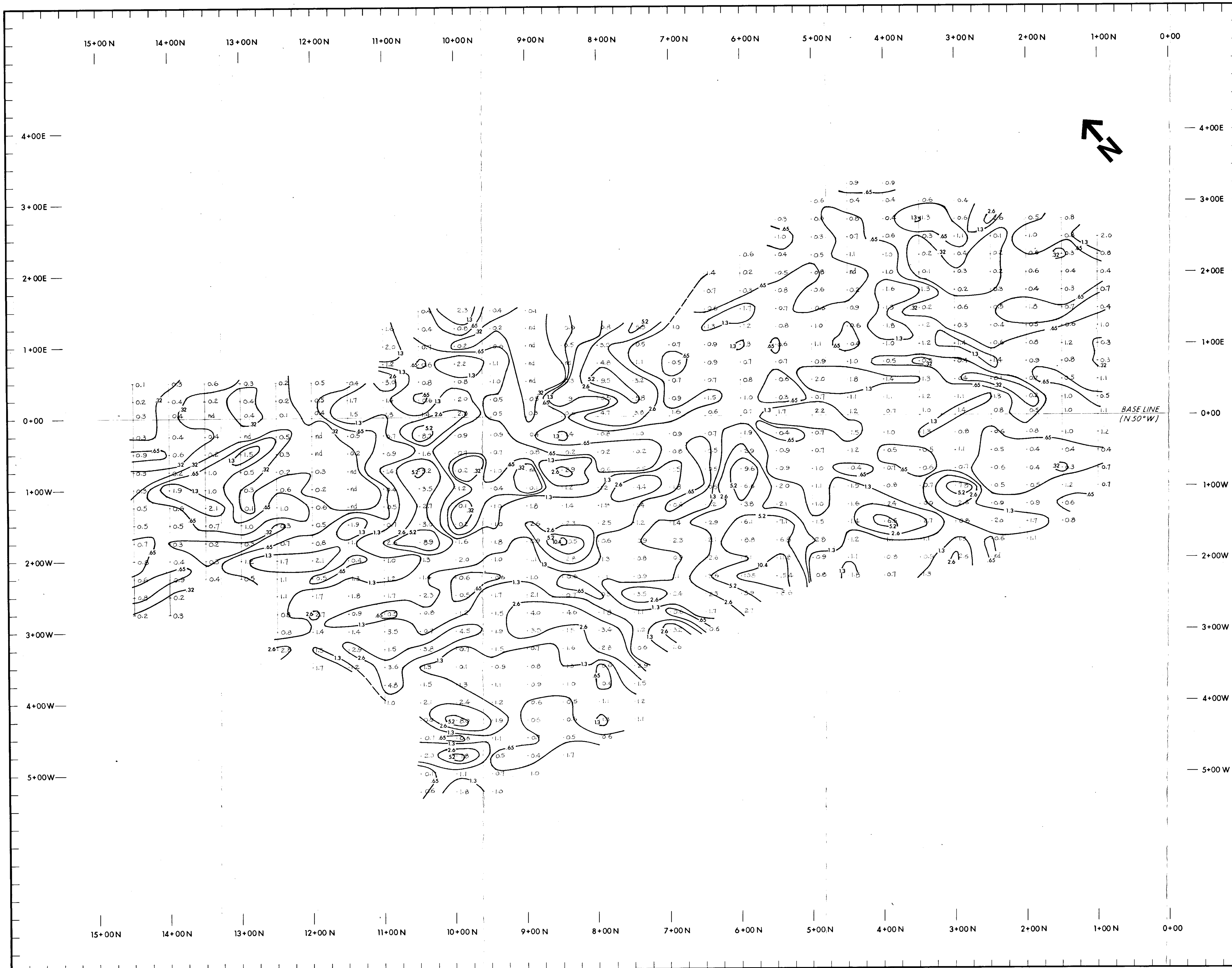

No	Revision	By	Date

GEOLOGICAL BRANCH
ASSESSMENT REPORT

13,255

CONTOURS AT 0.32, 0.65, 1.3, 2.6, 5.2, 10.4 ppm Ag
NUMBER OF SAMPLES = 574
RANGE OF ASSAYS = 0 to 15.4 ppm (max. value 15.4 deleted)
MEAN = 1.3
STANDARD DEVIATION = 1.5
THRESHOLD (Mean + (2 × Std. Dev.)) = 4.4

m 0 100 200 300m
Scale 1:2500

NORTHGANE MINERALS LTD.

Mosquito Creek Prospect-Whipsaw Claims
British Columbia

1984 FALL EXPLORATION PROGRAM

SOIL GEOCHEMISTRY

Contoured Ag Values

Drawn GL/MD	Approved	Date NOV. 26, 1984
Drawing No. FIGURE 12		Sheet NTS SHEET 93H/4

(b)

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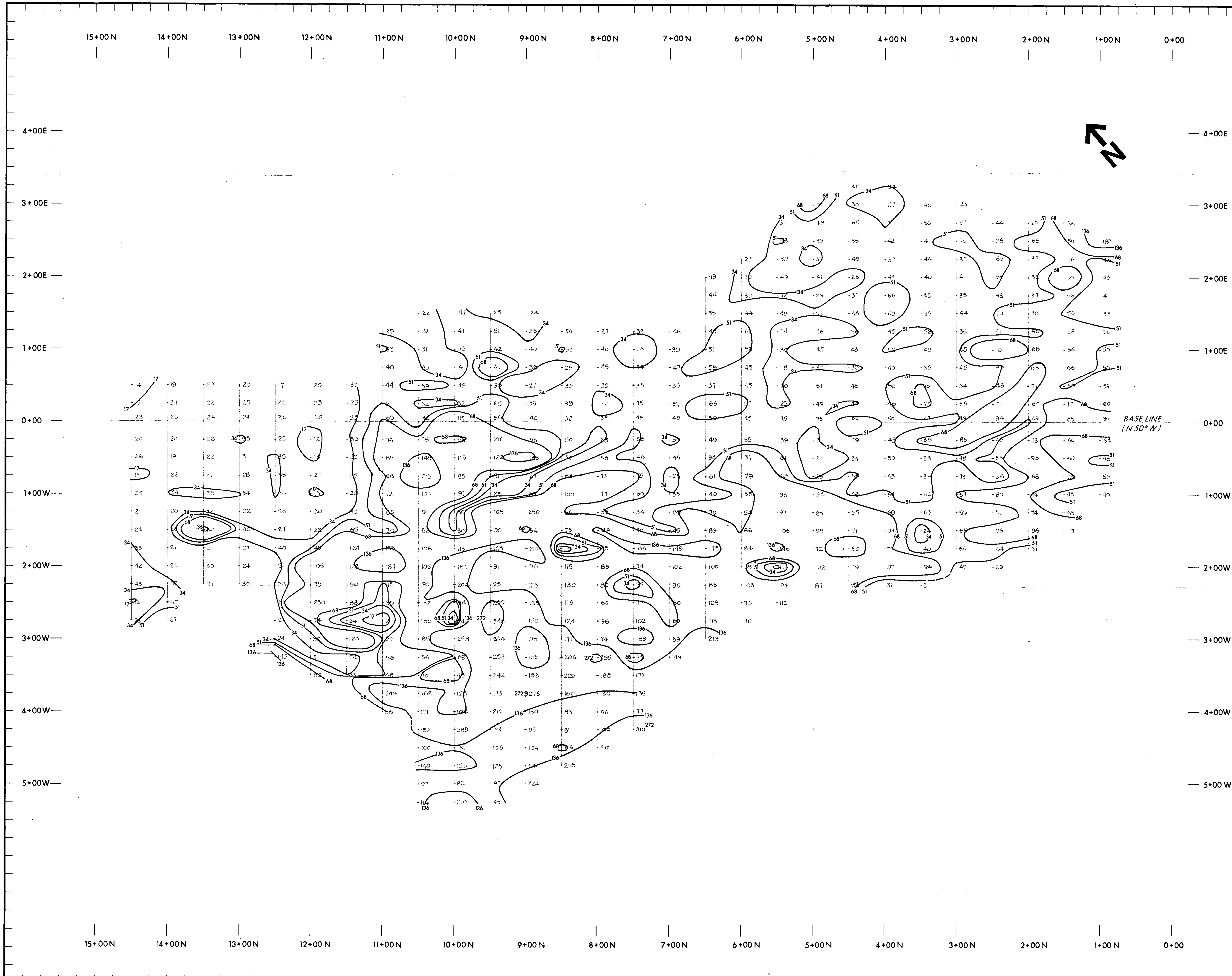

No	Revision	By	Date

GEOLOGICAL BRANCH
ASSESSMENT REPORT

13,255

CONTOURS AT 17, 34, 51, 68, 136, 272 ppm Pb

NUMBER OF SAMPLES = 574

RANGE OF ASSAYS = 2 to 340 ppm

MEAN = 67.7

STANDARD DEVIATION = 52.0

THRESHOLD (Mean + (2 × Std. Dev.)) = 171.8

m 0 100 200 300 m

Scale 1:2500

NORTHGANE MINERALS LTD.

Mosquito Creek Prospect - Whipsaw Claims

British Columbia

1984 FALL EXPLORATION PROGRAM

SOIL GEOCHEMISTRY

Contoured Pb Values

Drawn	Approved	Date
GL /MD		NOV 26, 1984
Drawing No FIGURE 13		Sheet NTS SHEET 93H/4

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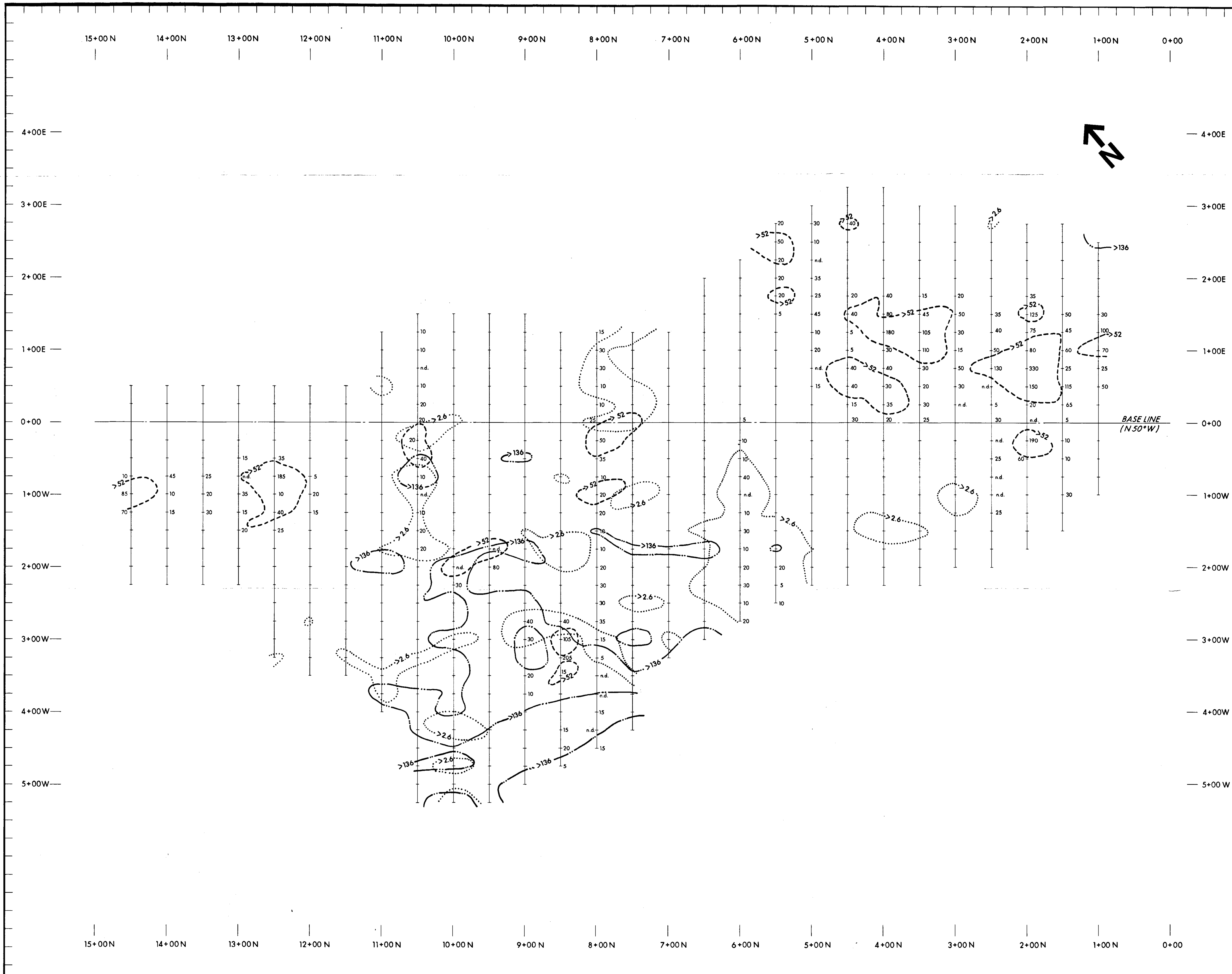

No	Revision	By	Date

—·—·— Isograd,>136 ppm Pb
– – – – Isograd,> 52ppm As
·········· Isograd,> 2.6ppm Ag
115,10,n.d.,30 Au values(ppb) tested across Pb,As & Ag Isograds

GEOLOGICAL BRANCH
ASSESSMENT REPORT

13,255

m 0 100 200 300m

Scale 1:2500

NORTHGANE MINERALS LTD.

Mosquito Creek Prospect-Whipsaw Claims
British Columbia
1984 FALL EXPLORATION PROGRAM

SOIL GEOCHEMISTRY

Compiled Interpretation of
Pb,As,Ag and Au Soil Geochemistry

Drawn	Approved	Date
GL/ MD		NOV. 26,1984
Drawing No. FIGURE 15	Sheet NTS SHEET 93H/4	

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LCR File: