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GEOLOGICAL REPORT
ON THE
WE, NATION AND HAT MINERAL CLAIMS
Fort St. James - Nation Lakes Area
Omineca Mining Division
British Columbia

FOR
HARVARD CAPITAL CORPORATION

BY
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September 11, 1990

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SUMMARY

Harvard Capital Corporation has entered into option/joint venture agreements for the purpose of earning working interests in three mineral claim blocks known as the WE, NATION and HAT properties which are situated in the Omineca Mining Division of north-central British Columbia.

The three properties cover aeromagnetic high features which are underlain principally by alkaline diorite-monzonite plutons similar to those known to host copper-gold mineralization elsewhere in the district.

The WE property is the most advanced of the three claim blocks and a recently completed airborne geophysical survey indicates several magnetic features which warrant additional investigation by way of first phase surface geophysical and geochemical surveys, prospecting and geological mapping at an estimated cost of \$220,000.00. Pending results from initial phase work, a second phase consisting of diamond drilling and estimated to cost \$260,000.00 may be warranted.

Recommended work programs for the NATION and HAT properties include airborne geophysical surveys and data compilations at estimated costs of \$60,000.00 and \$13,000.00 respectively.

INTRODUCTION

Harvard Capital Corporation has entered into option/joint venture agreements in order to earn varying interests in the WE, NATION and HAT mineral claims situated north of Fort St. James in north-central British Columbia.

This report, prepared at the request of Harvard Capital Corporation, is based on results of current and past exploration work on and adjacent to the three claim blocks and on a review of published and unpublished reports and maps pertaining to the geological setting of the various properties.

The writer conducted an aerial reconnaissance of the WE claims June 30, 1990 during a property examination of the contiguous WEBB claims which are currently being explored by Moondust Ventures Inc. The writer also carried out a property examination of claims immediately south of the HAT property on December 16, 1987 and examined and publicly reported on a prospect several km south of the NATION claims in 1971.

LOCATION AND ACCESS

The HAT, WE and NATION mineral claims are situated between 40 and 120 km north and northwest of Fort St. James in north-central British Columbia (Figure 1).

The HAT claims, on Hatdudatehl Creek at latitude 54 48' North and longitude 124 45' West in NTS map-area 93K/16W, are

40 km north of Fort St. James (Figure 2) and are accessible by logging roads extending west from the Omineca Mining Access Road.

The WE claims, 7 km south of the east end of Chuchi Lake (Figure 2) at latitude 55 05' North and longitude 124 20' West in NTS map-area 93N/1W, are within 7 km of the Omineca Mining Access Road. The old Manson Creek trail down Wittsichica Creek passes within 1 km of the eastern claims boundary.

The centre of the large NATION property, north of Tchentlo Lake (Figure 2), is at latitude 55 20' North and longitude 125 02' West in NTS map-areas 93N/6E and 7W. Access is most convenient by helicopter although logging roads from Fort St. James access the west end of Tchentlo Lake.

MINERAL PROPERTY

Harvard Capital Corporation has entered into option agreements with Grand America Minerals Ltd. in order to earn working interests of 50% in the WE claims, 51% in the NATION claims and 60% in the HAT claims by making cash payments, issuing capital stock and incurring cumulative expenditures of \$2 million over a three year period. The respective mineral property agreements call for the formation of joint ventures with Grand America Minerals Ltd. upon

Harvard Capital Corporation earning interests in the three claim groups.

No claim posts or lines on the HAT, WE or NATION claims have been examined by the writer. The claims are believed to have been located in accordance with procedures as specified by Mineral Tenure Act Regulations for the Province of British Columbia.

The mineral claims comprising the three properties are shown on Figures 3, 4 and 5 and details of the claims are as follows:

<u>Claim Name</u>	<u>Record No.</u>	<u>Units</u>	<u>Expiry Date</u>
HAT 1	11729	20	April 8, 1991
HAT 2	11730	20	" "
NATION 1	11846	20	May 8, 1991
NATION 2	11847	20	" "
NATION 3	11848	20	" "
NATION 8	11849	20	May 10, 1991
NATION 9	11850	20	" "
NATION 10	11851	20	May 11, 1991
NATION 11	11852	20	" "
NATION 12	11853	20	May 10, 1991
NATION 13	11854	20	" "
NATION 14	11855	20	" "
NATION 15	11856	20	" "
NATION 16	11857	20	" "
NATION 17	11858	20	" "
NATION 18	11859	20	" "
NATION 19	11860	20	" "
NATION 20	11861	20	" "
NATION 21	11862	20	May 12, 1991
NATION 22	11863	20	" "
NATION 23	11864	20	May 11, 1991
NATION 24	11865	20	May 10, 1991
NATION 25	11866	20	May 12, 1991
NATION 26	11867	20	" "
NATION 27	11868	20	May 11, 1991
NATION 28	11869	15	May 13, 1991

<u>Claim Name</u>	<u>Record No.</u>	<u>Units</u>	<u>Expiry Date</u>
NATION 29	11870	20	May 14, 1991
NATION 30	11871	20	" "
WE 1	11889	20	May 12, 1991
WE 2	11890	15	May 13, 1991
WE 3	11891	12	May 14, 1991
WE 4	11892	1	May 13, 1991

PHYSICAL FEATURES

The WE and HAT properties are situated in the northern part of the Interior Plateau at or near the height of land between Arctic and Pacific drainages. This region features broad valleys 750 to 900 metres above sea level which are separated by rounded hills with summits several hundred metres above the valley floors. Elevations within the WE and HAT claims are in the order of 1000 and 850 metres respectively (Figures 3 and 5).

Mature stands of spruce, pine and balsam are interspersed with open, swampy areas and occasional pine flats. Glacial drift of variable thickness is widespread in both the HAT and WE areas and bedrock exposures, particularly on the HAT claims, are few and confined mainly to ridge tops and along some of the major drainages. Bedrock exposures were noted in higher areas in the southwestern part of the WE claims. The NATION claims, north of Tchentlo Lake (the westernmost of the two Nation Lakes), cover an area near the southern limits of the Swannell Ranges, a subdivision of the

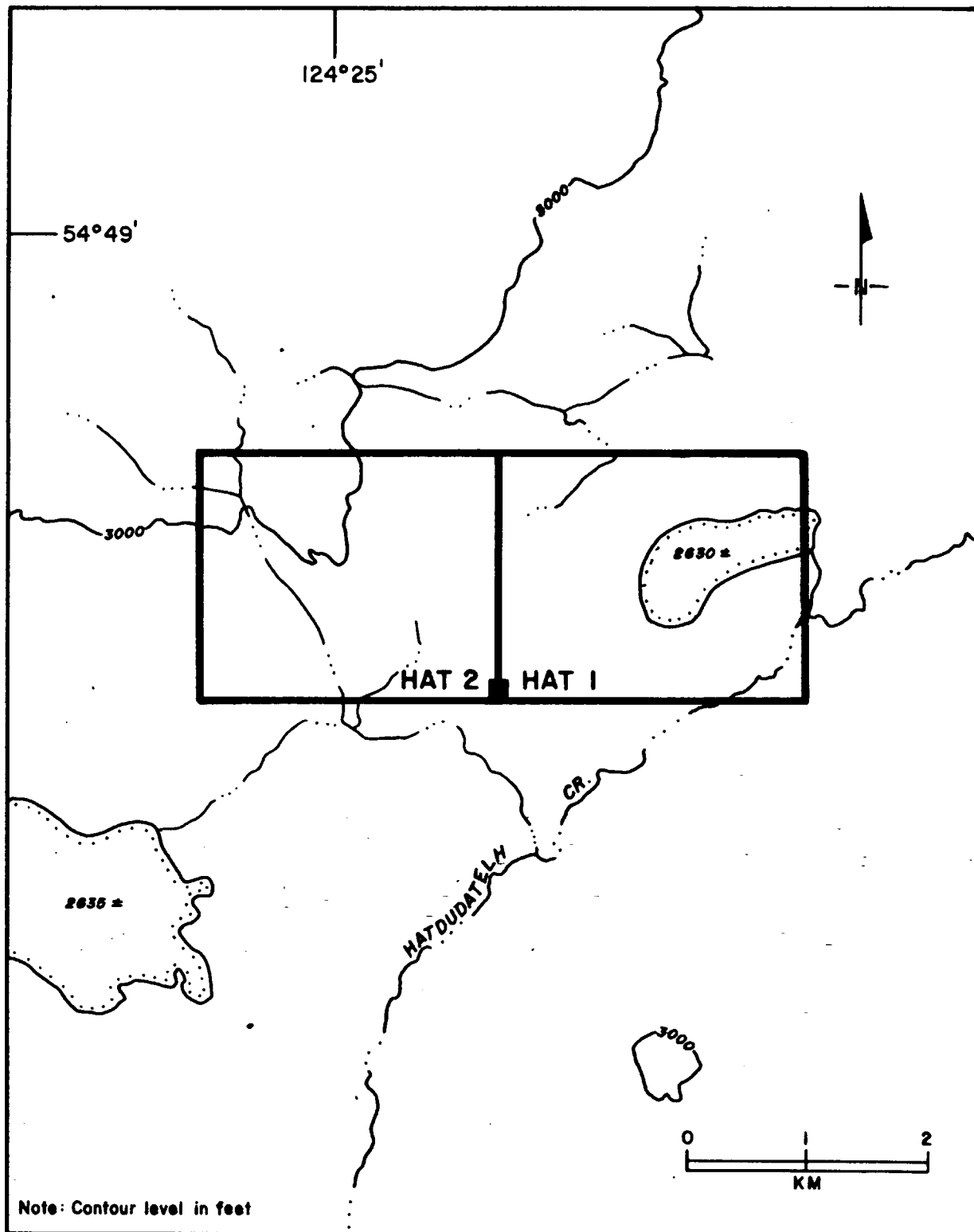


FIGURE 3 - HAT MINERAL CLAIMS

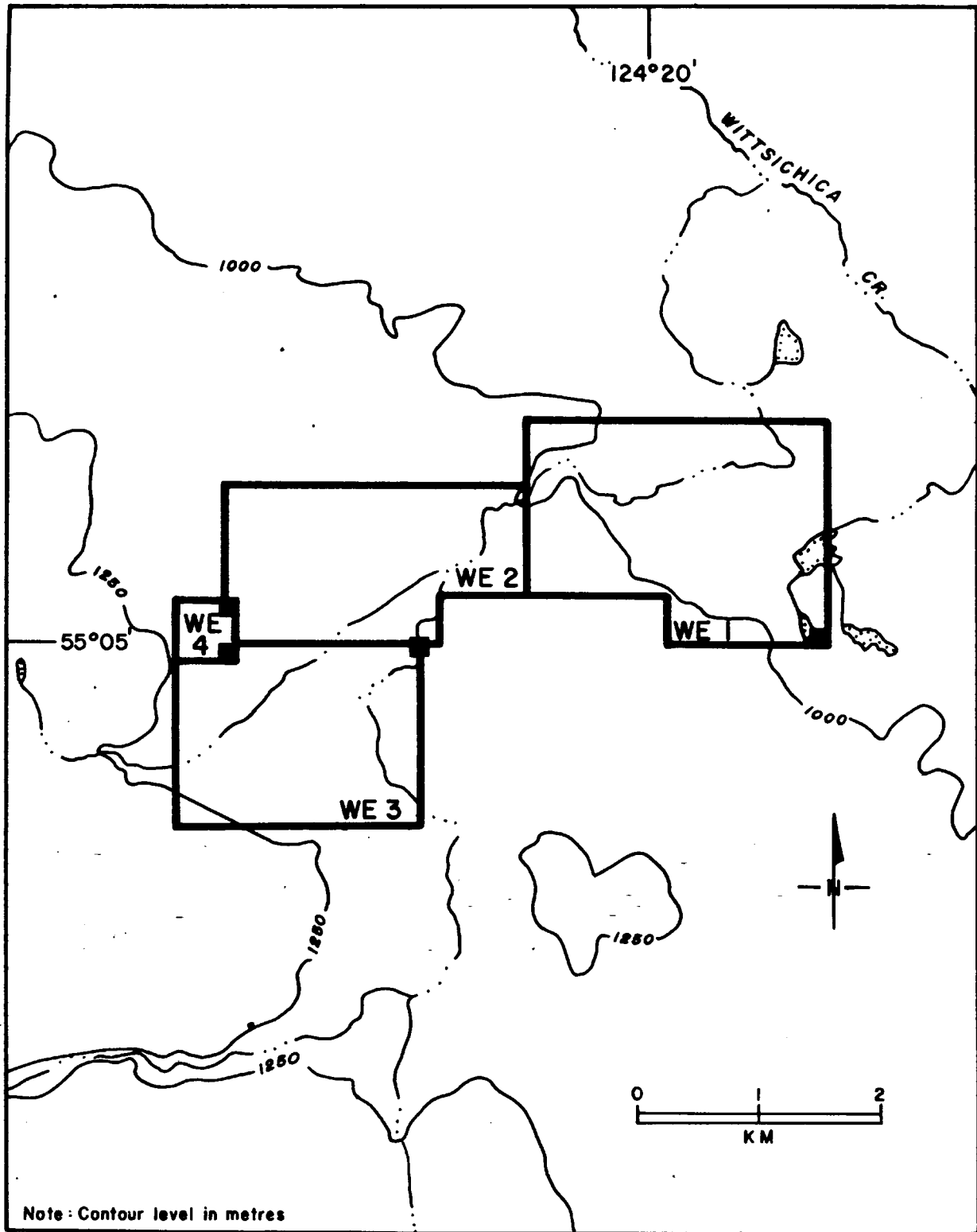


FIGURE 5 - WE MINERAL CLAIMS

Omineca Mountains. Elevations within the claims area range from 350 metres south of Ahdatay Lake in the east to more than 1700 metres on rounded summits in the northwest claims (Figure 4). Mt. Nation, adjacent to the southwestern margin of the claim block, is the highest point in the area at 1876 metres.

Tree line extends to about 1500 metres and according to available geological mapping (Garnett, 1978), bedrock is reasonably well exposed throughout the NATION claims area with the exception of the lower, eastern claims.

HISTORY

Earliest documented prospecting activity north of Fort St. James took place in the 1920's and resulted in the discovery of the Pinchi Lake mercury mine in the late 1930's.

The Nation Lakes area was investigated for porphyry style mineralization in the late 1960's - early 1970's and several airborne geophysical surveys were carried out in the area north of Fort St. James Lakes in the early 1980's.

The area has attracted renewed attention over the past few years in response to the discovery of large copper-gold deposits at Mt. Milligan.

Other than Federal-Provincial regional aeromagnetic surveys, there is no public record of previous work within

the boundaries of the current HAT, WE and NATION claim blocks. Bulldozer and excavator trenching was carried out in 1987 on claims adjoining the HAT property on the south. Porphyry style copper-gold mineralization is under investigation at Mt. Nation immediately southwest of the NATION claims and a diamond drilling program is currently underway on Moondust Ventures Inc.'s WEBB claims adjoining the WE claims on the north.

All of the subject properties have been recently covered by helicopter-borne magnetometer and VLF-EM surveys conducted by Aerodat Limited. Survey results for the WE property are in hand and reports for the HAT and NATION claims are expected shortly.

REGIONAL GEOLOGY AND MINERALIZATION

The Fort St. James - Nation Lakes area, near the eastern margin of the Intermontane tectonic belt, is underlain principally by early Mesozoic Takla Group volcanic and lesser sedimentary rocks which occupy the northern part of the Quesnel Trough. The layered rocks are intruded by coeval or comagmatic alkaline plutons, the largest of which is the composite Hogem batholith which extends from Nation Lakes 180 km northwesterly to Mesilinka River.

Several km north of Fort St. James, late Triassic-Early

Jurassic Takla Group rocks are separated from older, Paleozoic Cache Creek Group assemblages by the regional north-northwest trending Pinchi fault zone. Erosional remnants of Tertiary volcanic rocks locally overlie older rocks north of Fort St. James.

The most significant mineral deposit types within the Fort St. James - Nation Lakes area are porphyry copper (gold) deposits and prospects associated with late Triassic - early Jurassic alkaline (quartz deficient) plutons and enclosing volcanic rocks of similar age and petrochemistry. Common intrusive rock types include gabbros, diorites, monzonites and syenites.

Alkalic porphyry copper-gold deposits, ranging in age from 175-198 Ma (Christopher and Carter, 1976) are well documented throughout the Intermontane tectonic belt of British Columbia (Barr et al, 1976). Deposits of this type include the currently producing Similco and Afton-Ajax mines in south-central British Columbia and the Mt. Polley deposit (53.7 million tons grading 0.38% copper, 0.016 oz/ton gold) east of Williams Lake which is scheduled for production. The Galore Creek deposits in the Stikine River area of northwestern British Columbia have estimated reserves of 125 million tons grading 1.06% copper and 0.014 oz/ton gold.

Reported in situ reserves at the Mt. Milligan deposits,

southeast of Nation Lakes (Figure 2) total 6.3 million ounces of gold and 820,000 tonnes copper.

In addition to significant copper reserves, developed and undeveloped alkaline suite porphyry deposits contain more than one-third of identified British Columbia gold reserves.

Typically, alkaline suite porphyry deposits are developed in zones of intense faulting, fracturing and hydrothermal alteration. Pyrite, chalcopyrite, bornite, chalcocite and pyrrhotite occur in stockworks and in fractures and potassic alteration (secondary K-feldspar, biotite), coincident with the copper sulphide mineralization, grades outward to propylitically altered rocks with fracture filling and disseminated pyrite (Barr et al, 1976).

Examples of alkaline suite porphyry mineralization in the Fort St. James - Nation Lakes area include several prospects associated with basic intrusive rocks (gabbros, diorites, monzonites, syenites) near Nation Lakes at the southern limits of the Hogem batholith. At the BAL prospect, north of the west end of Tchentlo Lake, pyrite and chalcopyrite occur in fractures in weakly magnetic diorites and as disseminations in gabbroic phases (Carter, 1970). Copper mineralization on the HEATH property on the western slope of Mt. Nation includes chalcopyrite in fractures in diorites and gabbros which are intruded by syenites. Some

massive sulphide lenses containing good copper grades plus gold and silver values have also been reported (Campbell,1988).

Copper and gold values on the COL property, north of the west end of Chuchi Lake, are associated with chalcopyrite and bornite mineralization in syenite dykes which cut older monzonites (Garnett,1978).

The TAS prospect, 50 km north of Fort St. James, was discovered in the mid-1980's. Here, gold values are associated with pyrite, magnetite and lesser chalcopyrite in shear zones developed in Takla Group pyroxene porphyry flows and cherty sediments marginal to a diorite stock (Faulkner,1990).

The identification of large tonnages of gold-copper mineralization at Mt. Milligan, 10 km south of Nation River (Figure 2), has generated renewed interest in the Fort St. James - Nation Lakes area.

Like many of the deposits and prospects in the general area, Mt. Milligan is an alkaline intrusive related porphyry deposit (Rebagliati,1989) which features three principal styles of mineralization. Chalcopyrite and lesser pyrite occur as fracture fillings and as disseminations in K-feldspar altered Takla Group volcanic rocks marginal to a comagmatic, porphyritic monzonite stock. An intrusive

breccia, developed along the perimeter of the southern half of the stock which is 450 metres in diameter, also features intense K-feldspar alteration and chalcopyrite as disseminations and in fractures.

A slightly younger, 45 metres wide, porphyritic monzonite dyke occupies an easterly dipping reverse fault east of the monzonite stock. Sulphide concentrations are highest in this area as are copper grades. Gold values are modest but several hundred metres to the southeast, along the projection of the reverse fault and porphyritic monzonite dyke, higher gold grades occur in propylitically altered volcanics cut by veinlets of pyrite with minor chalcopyrite.

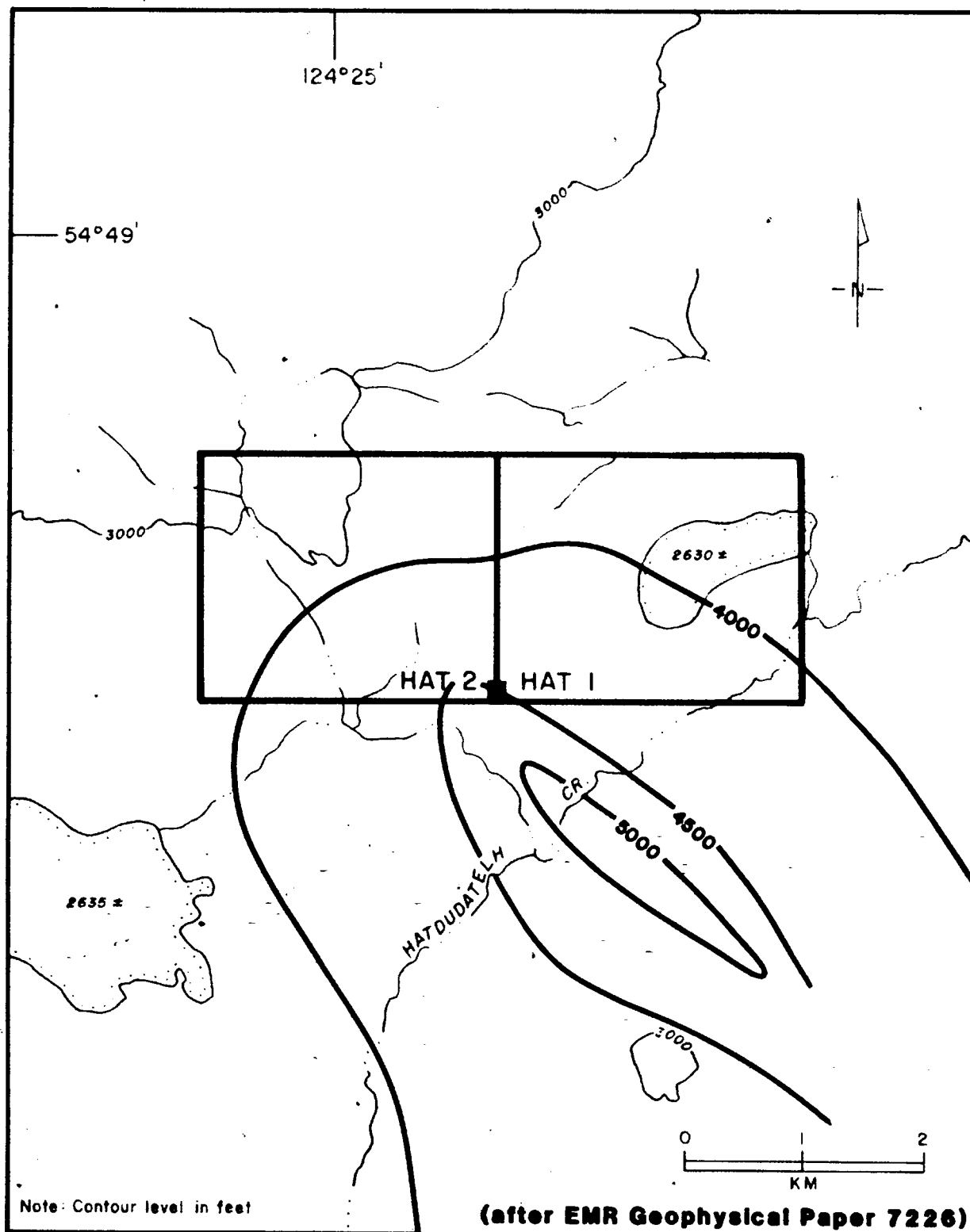
West of the monzonite stock, polymetallic gold and silver bearing veins occupy northeast trending faults.

PROPERTY GEOLOGY AND MINERALIZATION

HAT Claims

Only limited information is presently available for the HAT claims, which according to Armstrong(1949), are underlain by late Triassic Takla Group volcanic and sedimentary rocks.

As noted on Figure 6, the claims are located on the northern flank of an isolated aeromagnetic high which extends southeasterly for several km. This magnetic high feature reflects, at least in part, an elongate plug of diorite -



**FIGURE 6 - HAT MINERAL CLAIMS -
AEROMAGNETIC FEATURES (Values in gammas)**

granodiorite which is partially exposed on claims immediately south of the HAT property. This aeromagnetic signature is similar to that over the TAS gold-copper prospect 12 km to the north.

Takla Group andesites and sedimentary rocks marginal to the diorite plug on the claims immediately south of the HAT are variably altered and cut by gabbro and diorite dykes. Several zones with coincident anomalous copper (+80 ppm) and gold (+20 ppb) values were indicated by soil sampling (Schmidt, 1987). Subsequent trenching was undertaken in a logged area at the west end of a linear, multi-element soil anomaly in which the best values were in a timbered area.

Some of these trenches, examined by the writer in late 1987, showed 1-2 metres of overburden with a basal 0.3 metre thick clay layer immediately above the bedrock surface. Bedrock in the trenches, which were excavated just north of the diorite intrusive, consisted of intensely fractured and oxidized black to grey siltstone.

The apparently thin overburden cover on these claims to the south of the HAT and the presence of some bedrock exposures suggests that the same conditions may exist on the HAT claims.

NATION Claims

The Nation claims were located to cover aeromagnetic

high features north of Tchentlo Lake indicated by previous Federal - Provincial Government surveys. The two blocks of claims comprising the NATION property are north and south of Rottacker Creek.

The claims cover a part of the southern end of the composite Hogem batholith and principal geological features are illustrated on Figure 7. Both the east and west contacts of the north-northwest trending batholith are exposed in the area of the claims. Granodiorite is in contact with Takla Group volcanic rocks north of Ahdalay Lake and younger, lower Cretaceous, Uslika Formation sandstones and conglomerates flank a part of the batholith on the west (Figure 7).

A variety of intrusive rock types including two principal phases of the Hogem batholith are exposed within the area of the claims. The intrusive units have been offset by an east-west fault along Rottacker Creek (Figure 7).

Phase I intrusive rocks of the Hogem batholith underlie most of the NATION property. The most prevalent include monzonites and diorites of the Hogem basic suite (Garnett, 1978) which have radiometric ages of between 176 and 212 Ma (late Triassic - early Jurassic) and are distinctly alkaline in composition. These quartz deficient rocks, in which magnetite is a common constituent, are intruded by granodiorites of similar age and, in the northern claim

block, by leucocratic granitic rocks of lower Cretaceous age (Garnett,1978).

Copper mineralization is associated with monzonites and diorites of the Hogem basic suite at various localities within the batholith including the HEATH and BAL prospects west and south of Mt. Nation and referred to earlier.

A 4-6 metres wide north trending shear zone in dioritic rocks, exposed in a tributary of Rottacker Creek 1 km west of the main NATION claim block, contains chalcopyrite, pyrite and magnetite (Gatenby,1971). Chalcopyrite in closely spaced fractures in dioritic rocks 2.5 km northwest of Mt. Nation (B.C. Minfile 173) is apparently close to the southwest boundary of the main claim block.

According to Garnett(1978), copper mineralization is associated with basic suite Hogem rocks but similar age granodiorites are essentially barren of economic mineralization. Monzonites and diorites of the Hogem basic suite underlie much of the southern NATION claim block and in view of the 2-5% magnetite content of these rocks, they are thought to be the cause of the regional aeromagnetic high features in and adjacent to the claims area.

WE Claims

The WE claims include part of the southeast margin of a regional aeromagnetic high which extends several km westerly

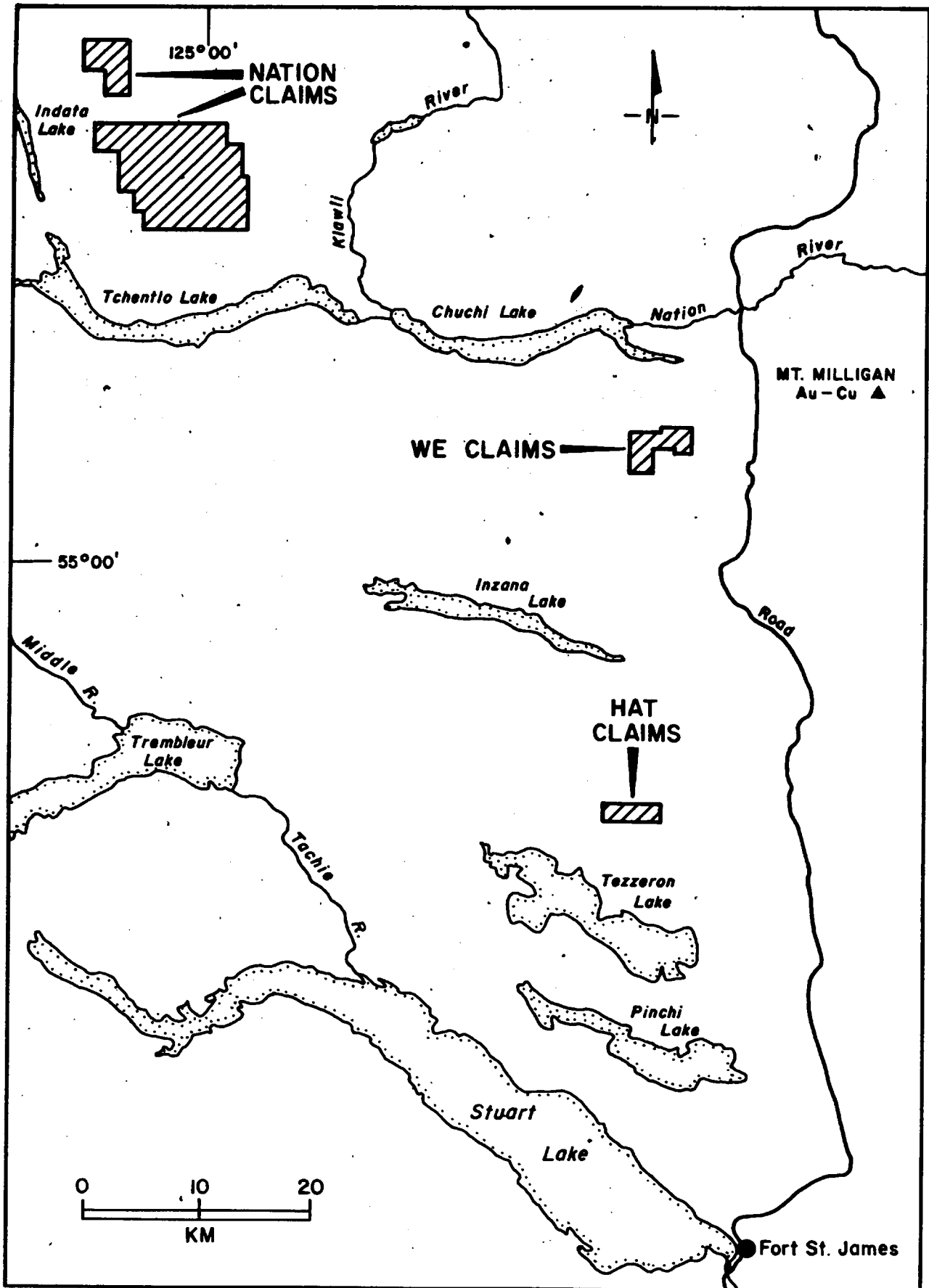
to Witch Lake. Dioritic rocks are known to occur near Witch Lake and it is thought that much of the aeromagnetic high feature is underlain by similar intrusive rocks.

While bedrock exposures are known to be present in the southwest claims area, no ground checks have been carried out by the writer. This area of the claims is indicated by Armstrong(1949) to be underlain by Takla Group volcanic rocks.

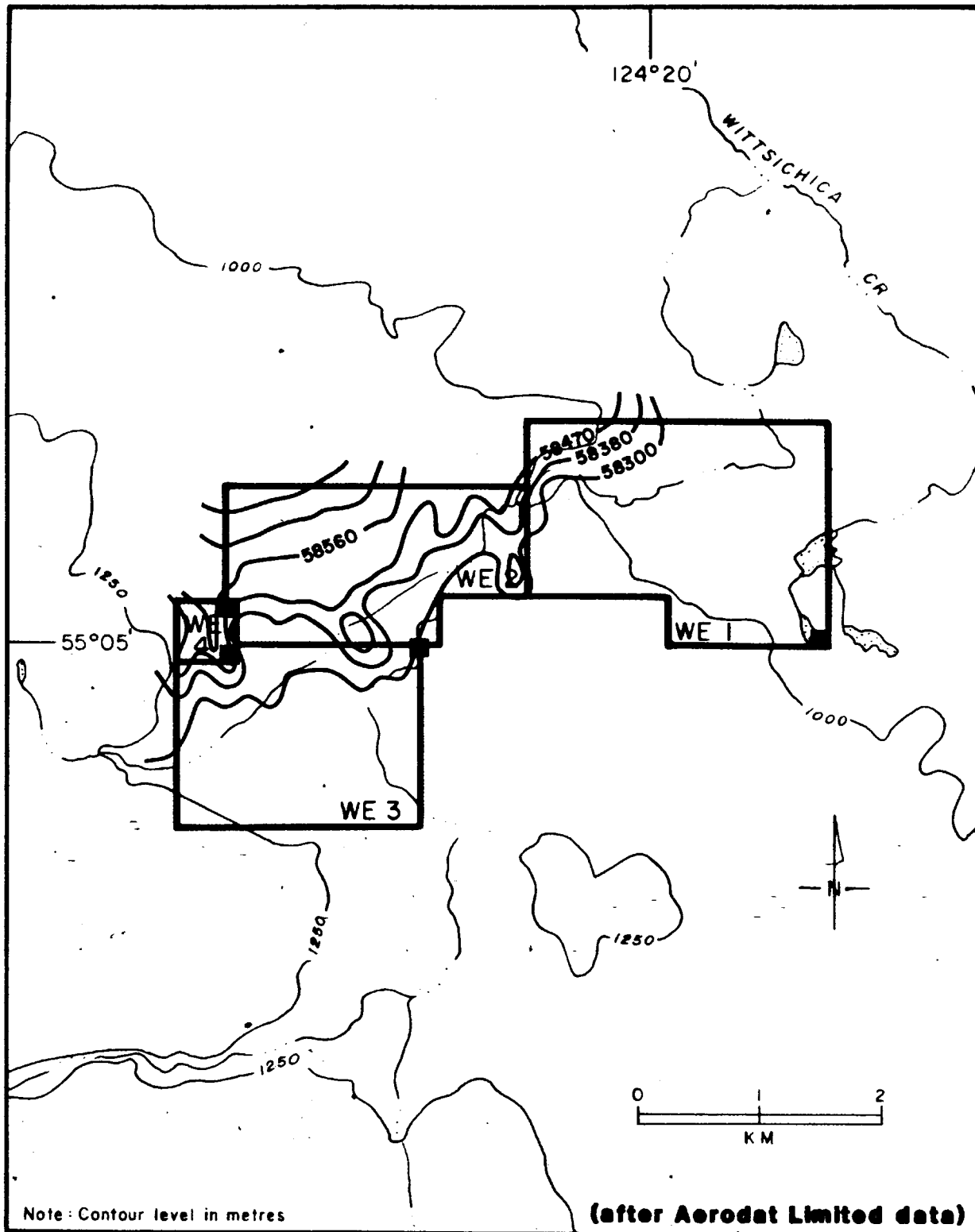
A helicopter-borne magnetometer and VLF-EM survey of the WE claims was recently completed by Aerodat Kimited. The survey consisted of 128 line km along east-west lines at approximately 100 metre spacings and at a mean terrain clearance of 60 metres (Carbone,1990).

Results of the magnetometer survey are shown as total field magnetic contours in a general way on Figure 8 and in detail on Figure 9.

As noted, the WE claims are situated at the southeastern edge of a regional magnetic high and the recent survey provides more detail of a part of the margin of this regional feature. Three distinct "lobes" project southerly from the main magnetic high and collectively they define an east-northeast trend (Figures 8 and 9). The easternmost "lobe" is of lower magnetic susceptibility and is flanked by magnetic lows. A smaller, circular area of moderate magnetic



**FIGURE 2 - LOCATION
- NATION, WE AND HAT MINERAL CLAIMS**



**FIGURE 8 - WE CLAIMS - AEROMAGNETIC FEATURES
 - TOTAL FIELD MAGNETIC CONTOURS
 (Values in nanoTeslas)**

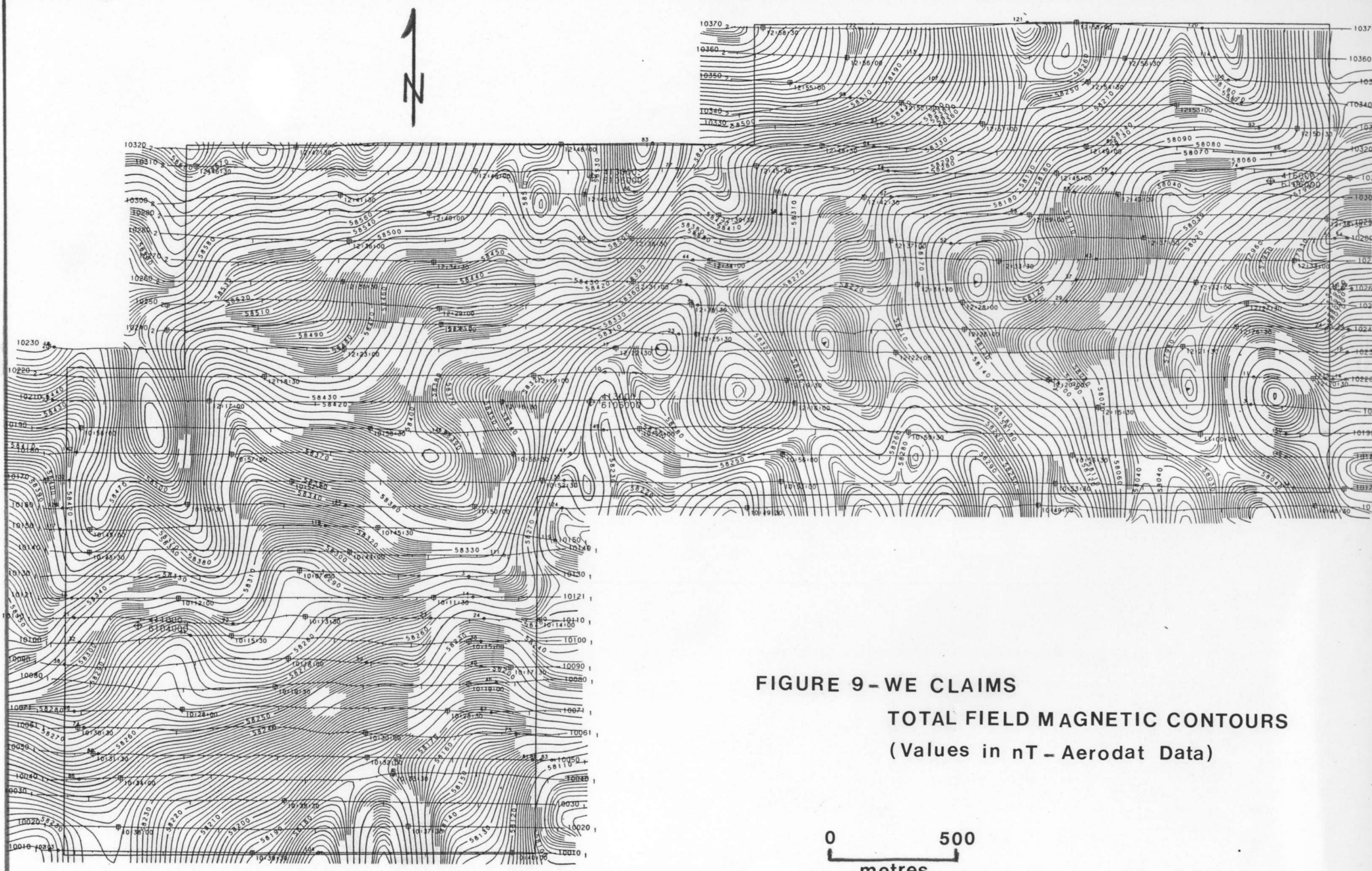


FIGURE 9 - WE CLAIMS
TOTAL FIELD MAGNETIC CONTOURS
(Values in nT - Aerodat Data)

0 500
metres

susceptibility is situated in the southeastern part of the claim block (Figure 9).

The airborne VLF-EM survey utilised both the Jim Creek, Washington and Cutler, Maine transmitting stations. VLF-EM total field intensities were contoured as percentages from data recorded from the Jim Creek transmitting station. These data show low (negative) values coincident with the cores of the three principal magnetic highs and higher percentage values marginal to them.

A similar aeromagnetic signature was obtained from an airborne survey of the WEBB property of Moondust Ventures Inc. which is contiguous with and north of the WE claims. A similar "lobe" projecting easterly from the same regional magnetic high is interpreted as reflecting a sub-circular diorite-monzonite stock some 700 metres in diameter. This magnetic feature was further defined by surface geophysical work including an Induced Polarization survey which indicated a 200-300 metres wide zone of high chargeability readings marginal to the western edge of the sub-circular magnetic high. Soil sampling disclosed anomalous copper and gold values within and adjacent to the zone of high chargeability readings. Diamond drilling is currently in progress.

CONCLUSIONS

Exploration work over the past several years in the general area of the three subject properties has been successful in identifying large reserves of copper-gold mineralization on the Mt. Milligan property. These reserves are within and marginal to a monzonite stock near the southern margin of an aeromagnetic high.

The Mt. Milligan monzonite stock is satellitic to the Hogem batholith and compositionally is analogous to the Hogem basic suite. While a number of copper occurrences with gold values have been known to be associated with this intrusive type for a number of years, their possible significance has been only recently recognized.

The delineation of significant reserves at Mt. Milligan has refocussed attention on the Fort St. James - Nation Lakes area with particular emphasis being directed to the flanks of regional aeromagnetic highs and known diorite-monzonite plutons.

In this context, the HAT, NATION and WE properties are considered to be prospective for alkaline porphyry related copper-gold mineralization and additional exploration work is warranted.

Of the three properties, the WE is the most advanced and merits an immediate, thorough program of surface geochemical and geophysical surveys followed by an initial phase of

diamond drilling.

Results of airborne geophysical surveys of the HAT and NATION claims, expected shortly, will quite probably identify targets for follow-up work at a later date.

RECOMMENDATIONS

Helicopter-borne geophysical surveys of the HAT, NATION and WE properties were completed prior to the preparation of this report and costs of these surveys are included in the Cost Estimate.

As noted, the WE property is recommended for immediate follow-up work, based mainly on encouraging airborne geophysical survey results. These results suggest that initial surface investigations be directed to the magnetic high features in the western property area. This work is recommended to include line cutting (100 metre spacings, 25 metre stations) preparatory to magnetometer and Induced Polarization surveys, geochemical soil, stream sediment and rock sampling and prospecting and geological mapping.

It is recommended that this work proceed without undue delay in order to take full advantage of generally good fall weather conditions in this part of British Columbia.

Pending receipt of encouraging results from first phase work, an initial phase of diamond drilling would be

warranted.

In addition to the helicopter-borne geophysical surveys previously mentioned, modest data compilation programs are recommended for the HAT and NATION properties at this time.

COST ESTIMATE

WE CLAIMS

Phase I

Helicopter-borne geophysical survey	\$10,000.00
Line-cutting - 70 km @ \$410/km	\$28,700.00
IP and magnetometer surveys - 70 km @ \$1000/km	\$70,000.00
Geochemical sampling - collection and analyses	\$24,500.00
Geological mapping, prospecting	\$10,500.00
Camp costs	\$20,000.00
Equipment Rentals	\$6,500.00
Miscellaneous expenses, expediting	\$8,000.00
Helicopter support - 25 hours @ \$750/hour	\$18,750.00
Mobilization - demobilization expenses	\$9,000.00
Engineering, supervision	\$4,000.00
Contingencies	<u>\$20,050.00</u>

Total Phase I \$220,000.00

Phase II

Diamond Drilling - 2000 metres @ \$130/metre (all-inclusive)	\$260,000.00
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NATION CLAIMS

Phase I

Helicopter-borne geophysical survey	\$50,000.00
Data Compilation	<u>\$10,000.00</u>

Total Phase I \$60,000.00

HAT CLAIMS

Phase I

Helicopter-borne geophysical survey	\$8,000.00
Data Compilation	<u>\$5,000.00</u>

Total Phase I \$13,000.00

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CERTIFICATE

I, NICHOLAS C. CARTER, of 1410 Wende Road, Victoria, British Columbia, do hereby certify that:

1. I am a Consulting Geologist, and have been registered with the Association of Professional Engineers of British Columbia since 1966.
2. I am a graduate of the University of New Brunswick with B.Sc.(1960), Michigan Technological University with M.S.(1962) and the University of British Columbia with Ph.D.(1974).
3. I have practised my profession in eastern and western Canada and in parts of the United States for more than 25 years.
4. The foregoing report on the WE, NATION and HAT mineral claims is based on personal examinations of adjacent or nearby properties and on published and unpublished reports and maps pertaining to the geological setting of the three properties.
5. I hold no interest, directly or indirectly, in the WE, NATION or HAT mineral claims, or in the securities of Harvard Capital Corporation, nor do I expect to receive any such interest.
6. Permission is hereby granted to Harvard Capital Corporation to use the foregoing report in support of a Filing Statement to be submitted to the Vancouver Stock Exchange.

N.C. Carter, Ph.D. P.Eng.

Victoria, B.C.
September 11, 1990

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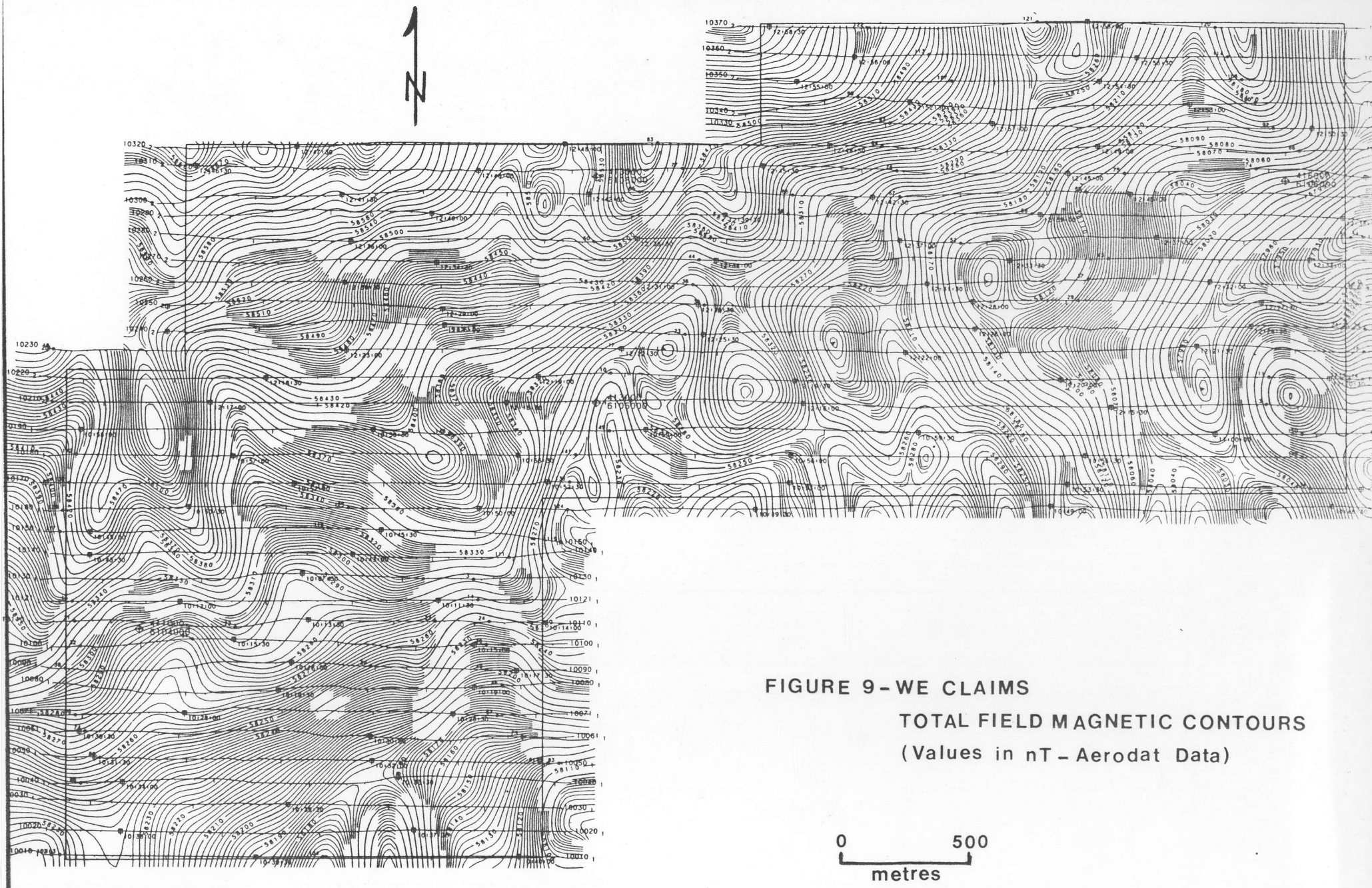
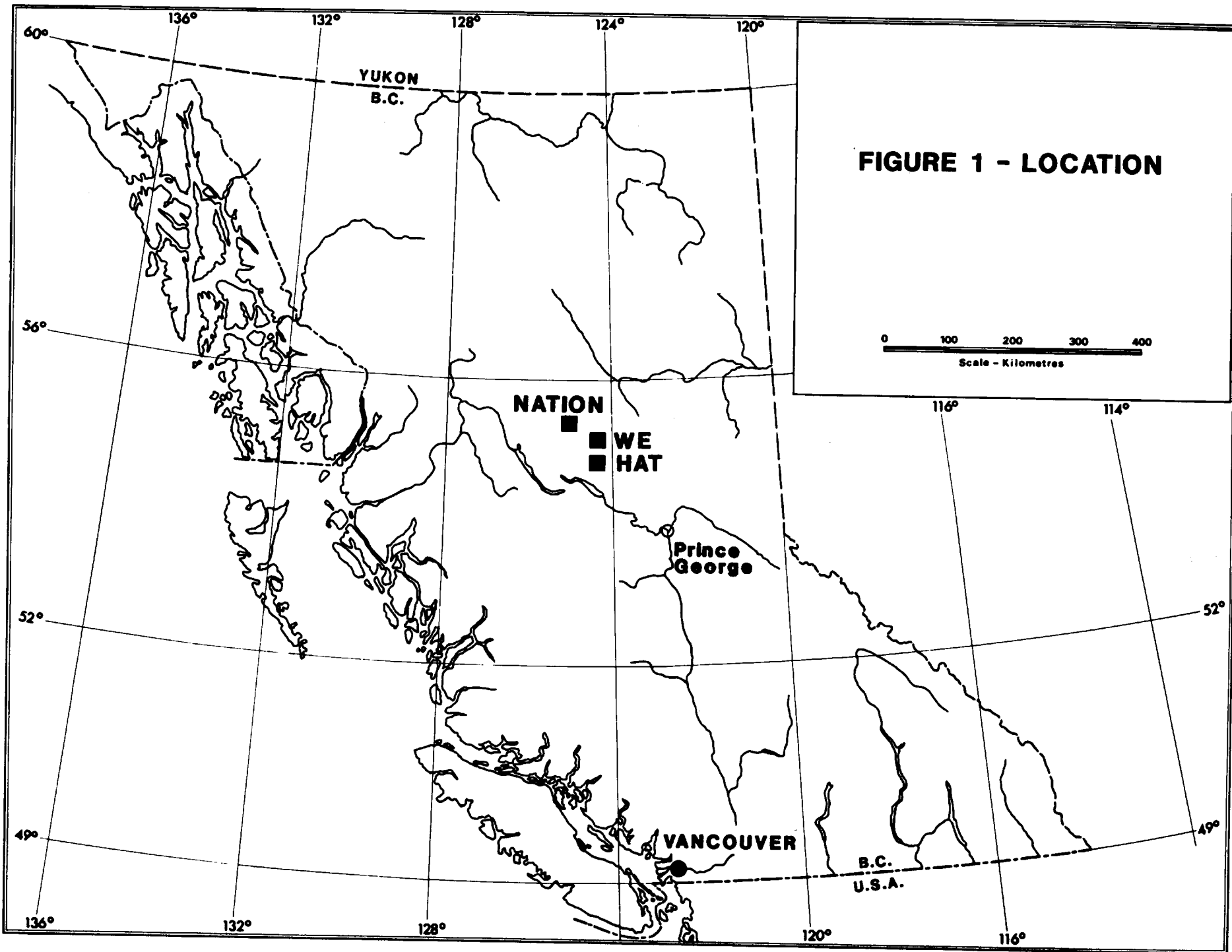
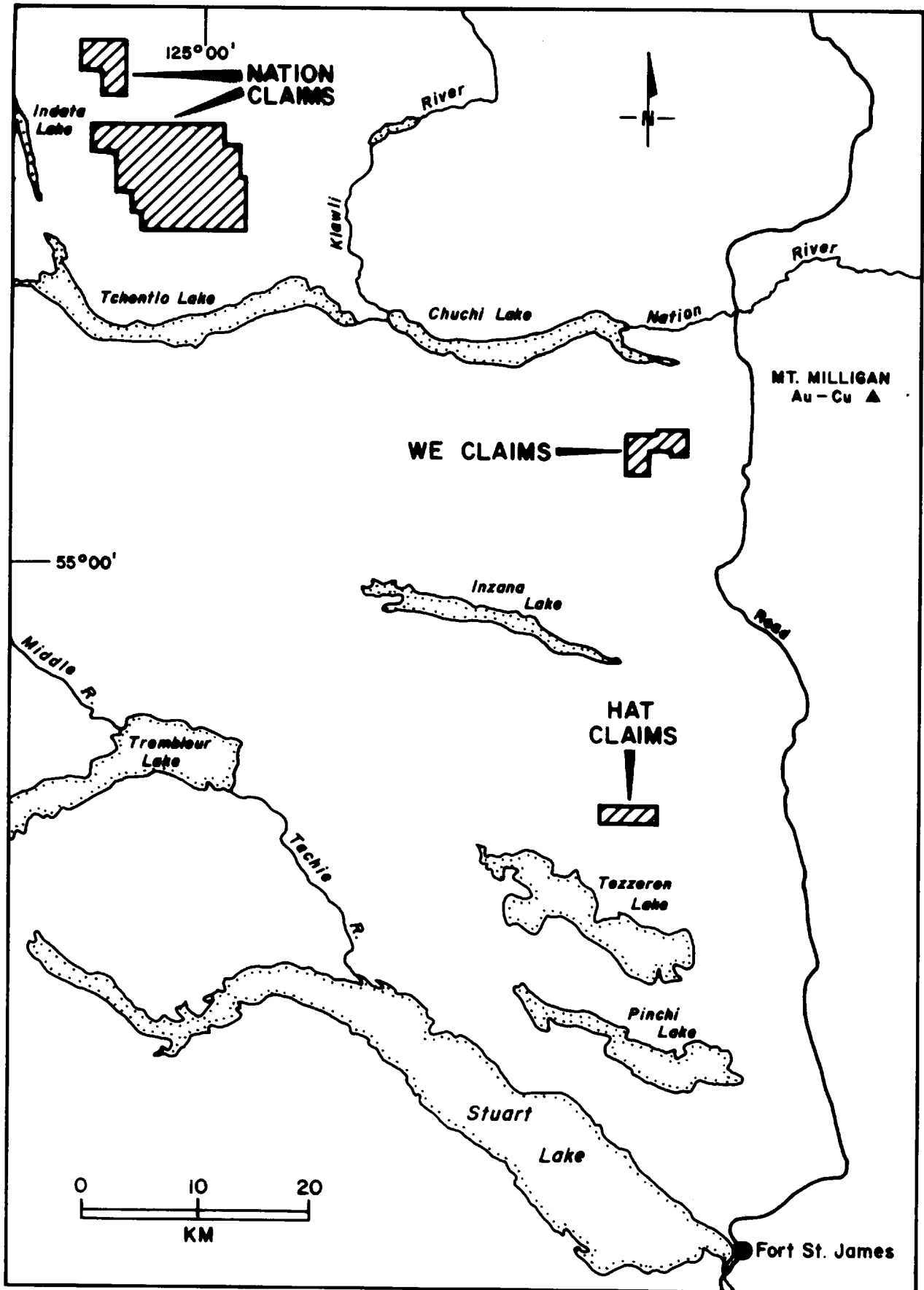


FIGURE 9-WE CLAIMS
 TOTAL FIELD MAGNETIC CONTOURS
 (Values in nT - Aerodat Data)





**FIGURE 2 - LOCATION
- NATION, WE AND HAT MINERAL CLAIMS**

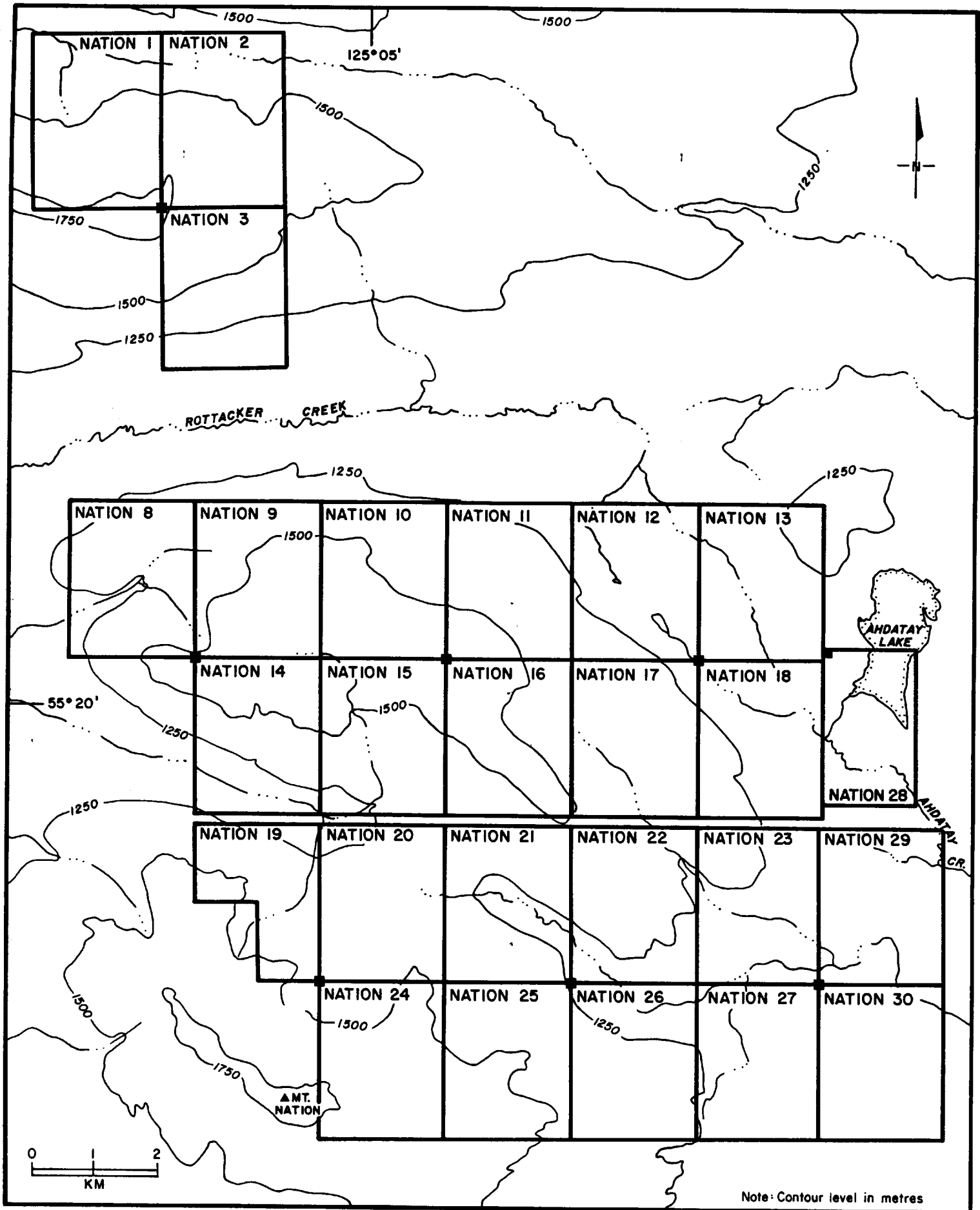


FIGURE 3 - NATION MINERAL CLAIMS

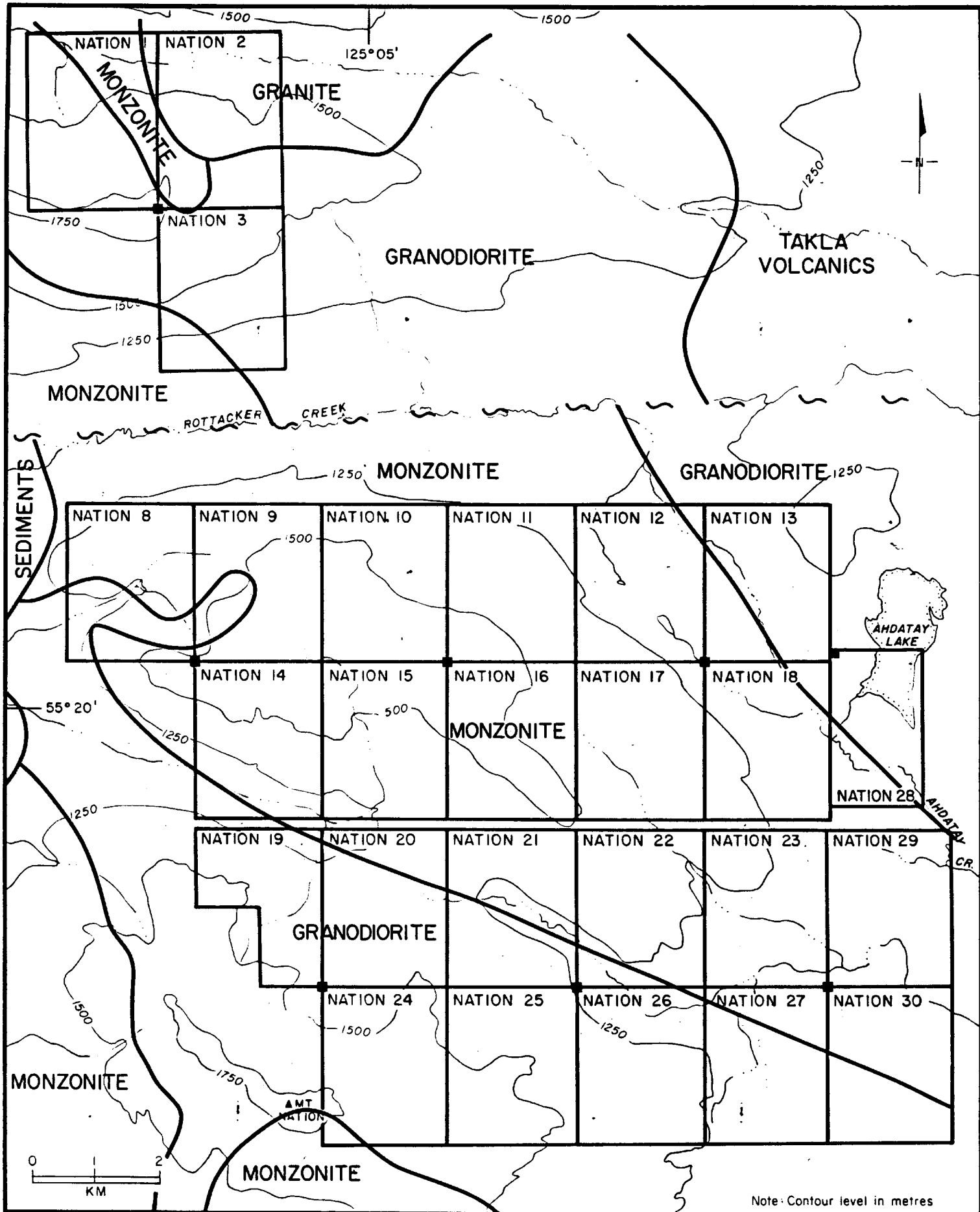


FIGURE 4 - NATION MINERAL CLAIMS - GEOLOGY (After MEMPR Bulletin 70)

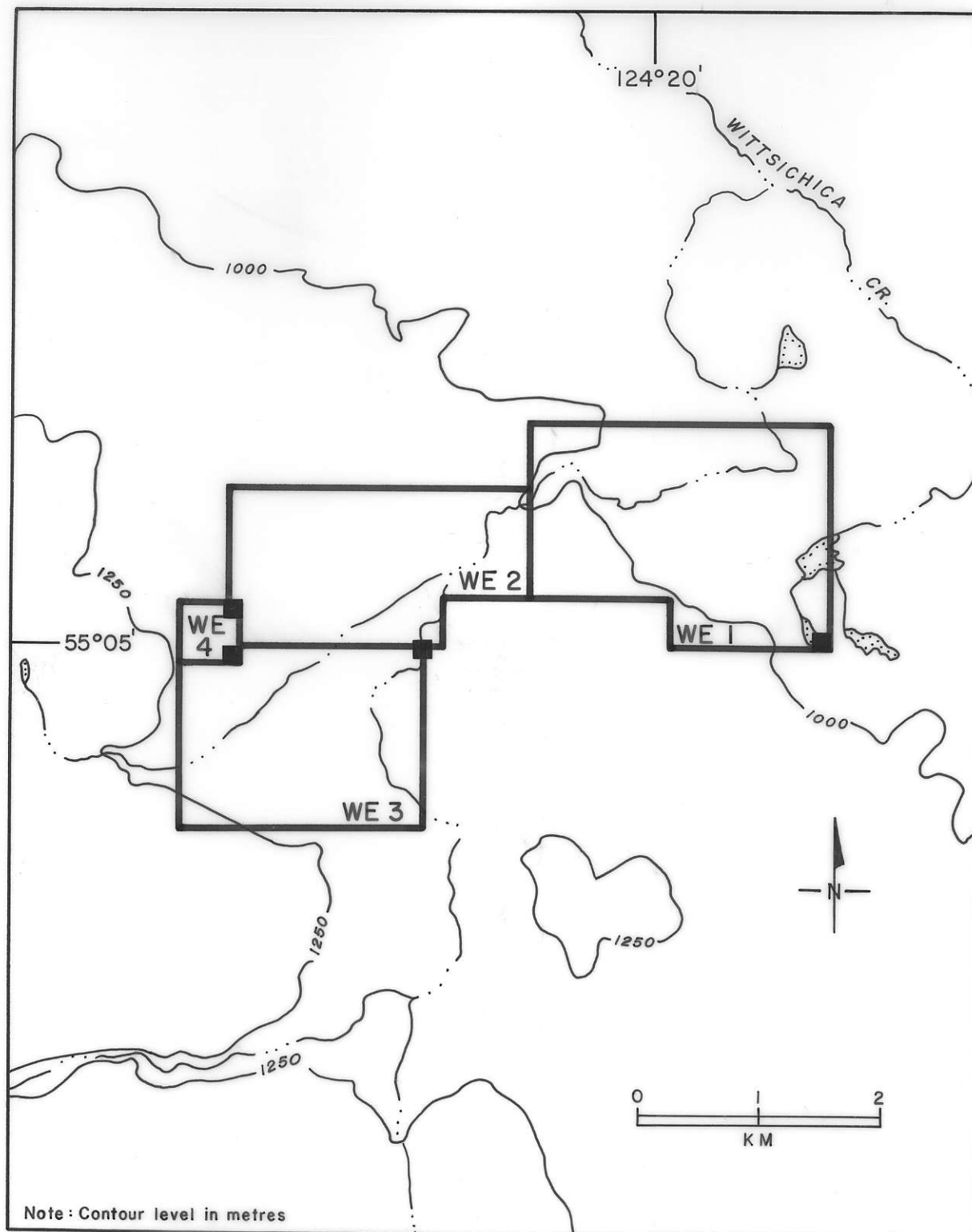
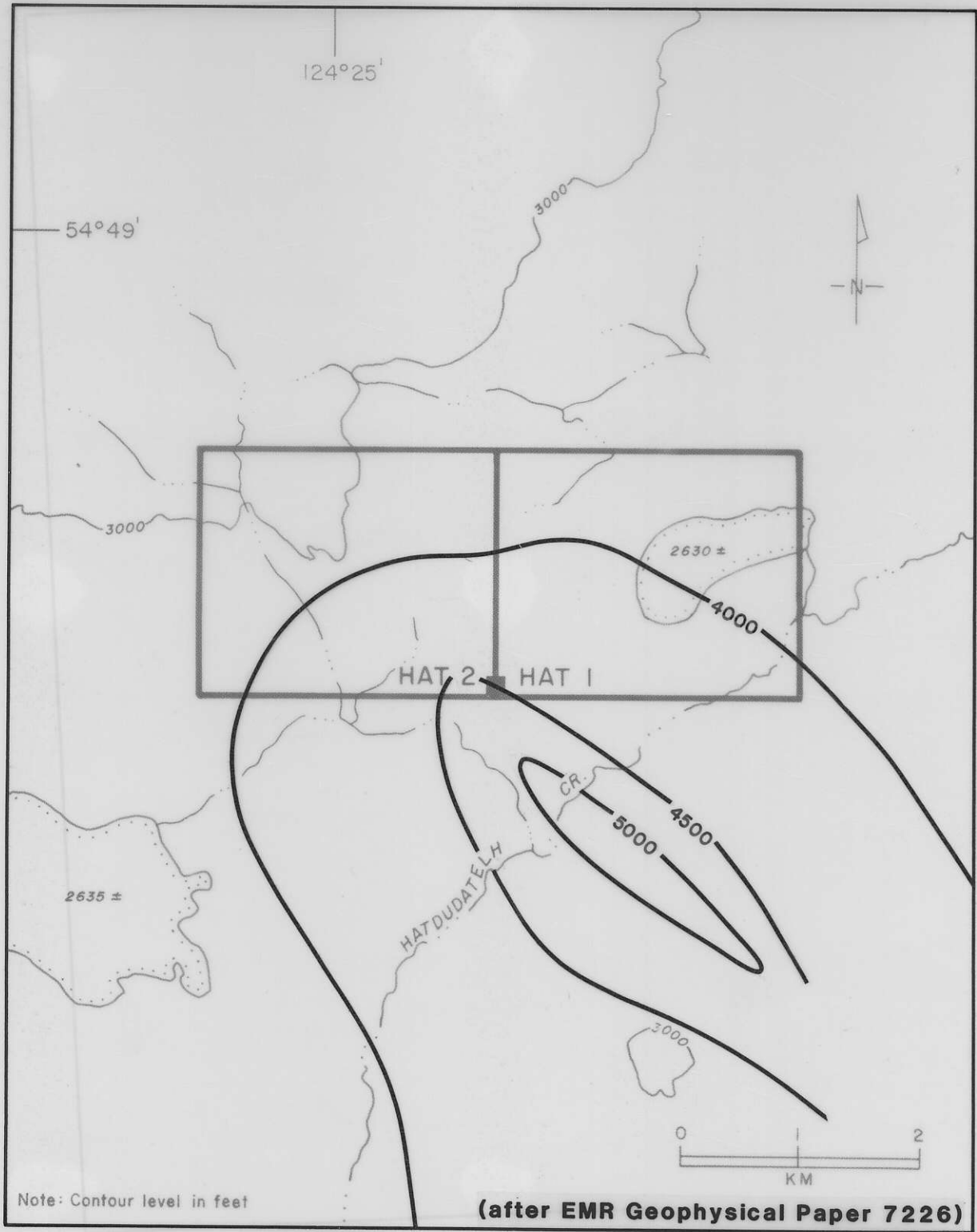
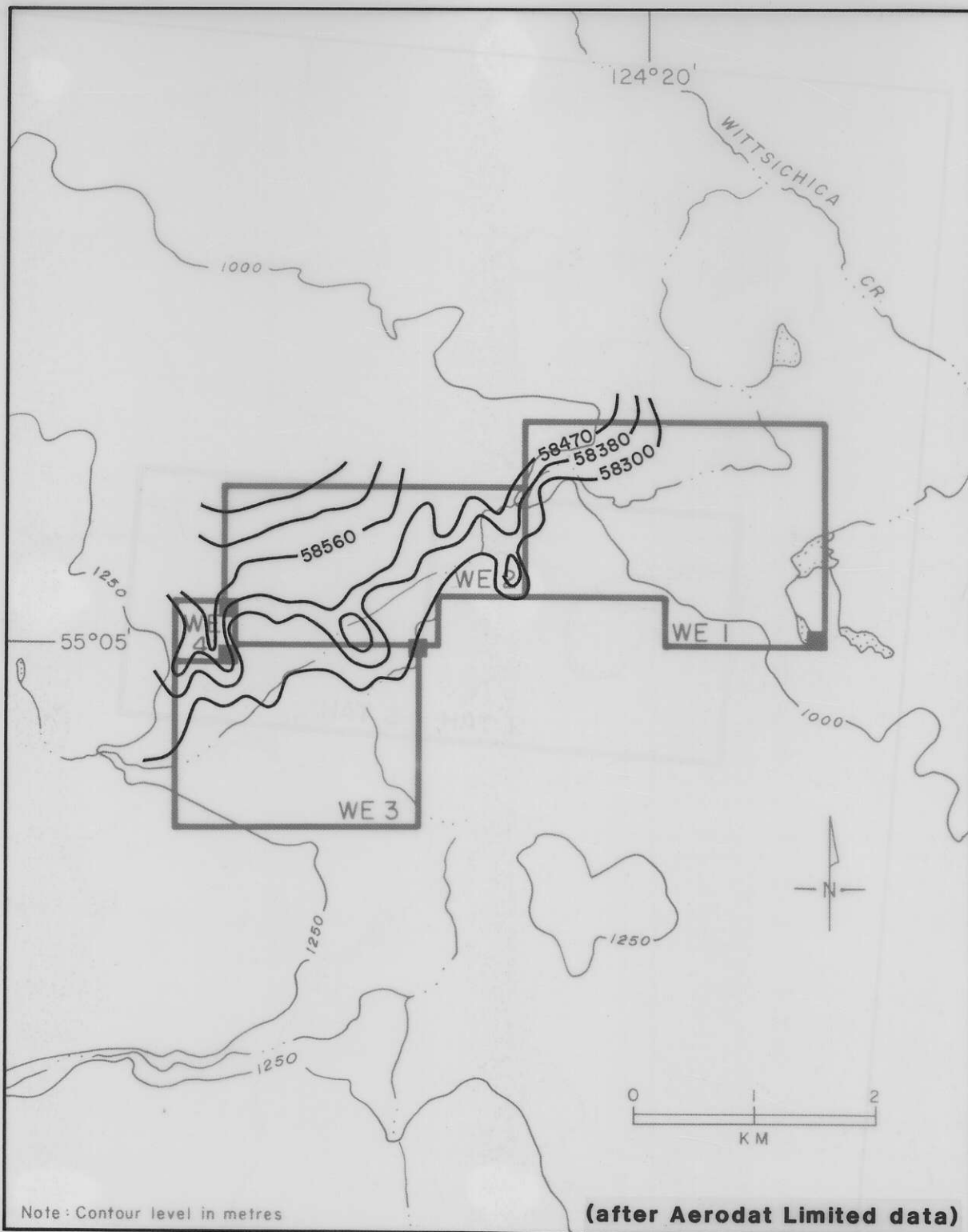


FIGURE 5 - WE MINERAL CLAIMS



**FIGURE 6 - HAT MINERAL CLAIMS -
AEROMAGNETIC FEATURES (Values in gammes)**



**FIGURE 8 - WE CLAIMS - AEROMAGNETIC FEATURES
 - TOTAL FIELD MAGNETIC CONTOURS
 (Values in nanoTeslas)**