

GEOCHEMICAL REPORT ON

MSTSACHA MINERAL CLAIM
(20 UNITS)

OMINECA MINING DIVISION
NTS 93F/2W

LATITUDE 53° 05' LONGITUDE 124° 50'

OWNER OF CLAIM: -
GEO-EX RESOURCES LTD.

OPERATOR: -
PLACER DEVELOPMENT LIMITED

E.T. KIMURA

31 AUGUST 1982

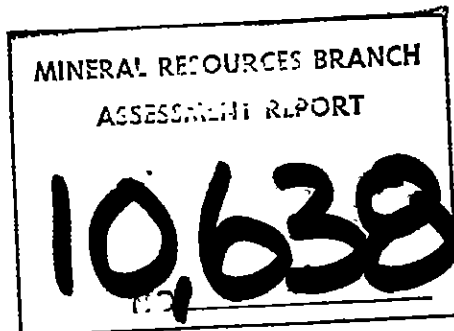


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1. Introduction

A field examination of Geo-Ex Resources Ltd.'s Mtsacha Mineral Claim was conducted by Placer Development Limited during period 28 June to 2 July 1982. A soil geochemical survey formed part of the examination.

2. Summary

A total of 195 soil and stream sediment samples was collected and analysed for Cu, Pb, Zn, Ag, Au and As content. The survey was extended beyond the eastern claim boundary. Results from the grid pattern of sampling show no strongly anomalous areas.

Cost of examination and sampling program was \$7,561.50.

3. Property Definition

Property is immediately southwest of Tsacha Mountain peak which is 50 km due south of Kenny Dam. Tsacha Lake which forms part of the Blackwater River system is eight km south-southeast of the Mtsacha Claim. The mineral claim location is shown on index map.

<u>Mineral Claim</u>	<u>Units</u>	<u>Rec. No.</u>	<u>Record Date</u>	<u>Expiry Date</u>
Mtsacha	20	3089(8)	August 7, 1980	August 7, 1985

Geo-Ex Resources Ltd. was initially attracted into this area from favourable regional stream sediment sampling results. This was followed in 1980 by claim staking. A reconnaissance style geochemical and rock chip sampling program outlined broad base metal anomalies with scattered precious metal signatures.

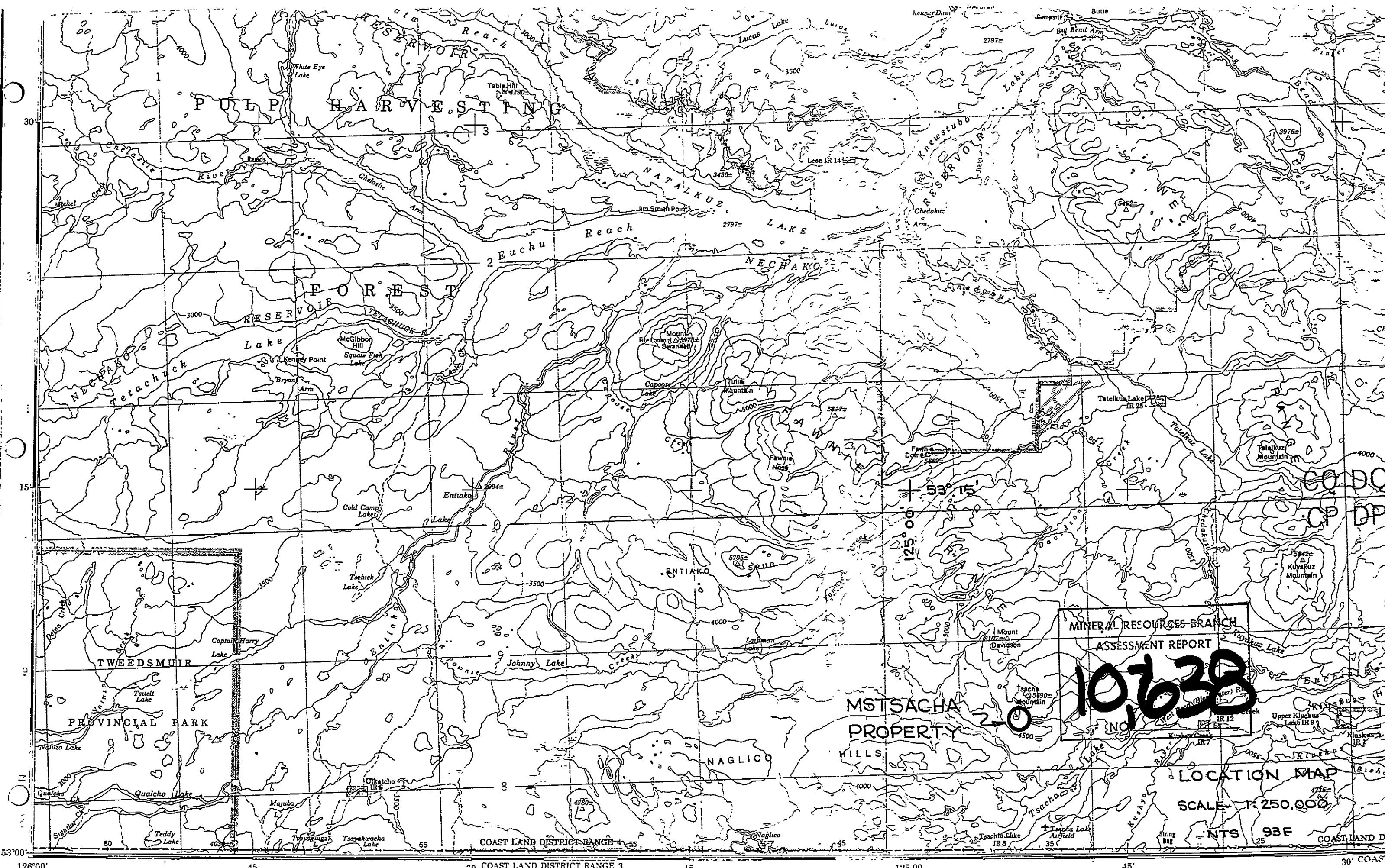
4. Topography and Access

Topography surrounding the property is accentuated by Tsacha Mtn. and Mt. Davidson; peaks of these mountains rise to 5,660 and 6,075 foot elevations respectively from lower-lying land forms at 3,500 foot levels. Aside from Tsacha Mountain, general terrain for property is characterized by a series of steep-sided rounded knolls with variable relief of 300 to 600 feet. Glacial trend is east-northeast. It has rounded most of the rocky hills as well as imprinting eskers, kames and kettle features in low-lying areas. Main streams across the property drain into a small shallow lake at southeast corner of mineral claim. Several large swamps are prevalent around this lake. Numerous other small swamps occupy local depressions on well-elevated knolls and terraced sidehills.

Main access to property is by helicopter. Light fixed-wing aircraft could utilize the small lake. A network of well-maintained logging roads from Engen, B.C. are within 20 km of Tsacha Mtn.

5. Economic Assessment

Minor pyrite and rare chalcopyrite occur locally as disseminations and tiny veinlets in silicified flow-banded rhyodacite and andesite. The reconnaissance geochemical survey indicated the higher Ag and detectable Au to be centered near the drainages at west end of the small lake (see



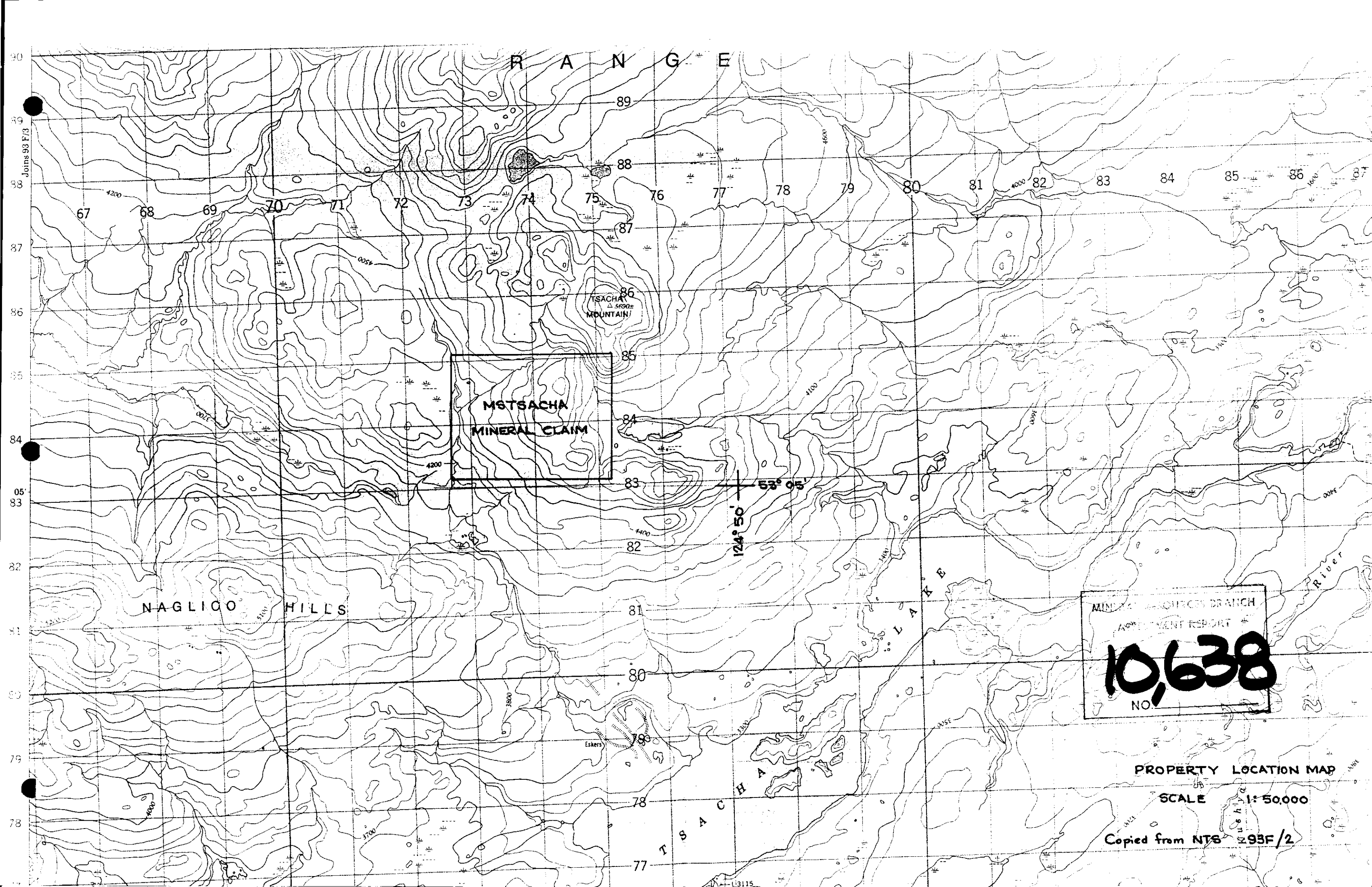
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MTS SACHA
PROPERTY
HILLS

LOCATION MAP

SCALE 1:250,000

NTS 93F



Joins 93 F/3

**MSTSACHA
MINERAL CLAIM**

124° 50' 53° 05'

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PROPERTY LOCATION MAP

SCALE 1:50,000

Copied from NTS 93F/2

appended maps). The soil geochemical program was planned and conducted so as to assess and delineate possible geochemical targets.

6. General Geology

Upper Triassic Takla Group volcanic rocks are oldest rocks in the area. Andesitic to basaltic flows and tuffs of this Group are most prevalent rock units covering area from Tsacha Mtn. to Tsacha Lake. Upper Jurassic granite, granodiorite and quartz diorite intrude the older rocks. The larger mass of intrusive rocks are 10 km west of Tsacha Mtn. and these are probably part of Capoose Lake Granodiorite Batholith. Late Cretaceous Ootsa Lake Group volcanic rocks overlie the Takla Group and batholithic rocks. These younger rocks, consisting of andesite, basalt and related tuffs, occur on higher elevations of Fawnie Range.

Examination of rock exposures on Mtsacha Claim shows that dark-coloured volcanic flow rocks predominate. Andesite, rhyodacite and amygdaloidal rocks are commonly silicified. Pyrite and rare chalcopyrite locally occur as disseminations and very thin fracture fillings in these rocks. Ferruginous andesitic flow rocks occur as a mappable unit at southwest corner of property. A lapilli tuff unit occurs at higher elevations near northwest segment of mineral claim. It is assumed that all volcanic rock sequences are correlative with Takla Group. Several narrow rhyolitic to dacitic dykes intrude volcanic rocks.

7. Geochemical Survey

Field work was conducted from a fly camp during period 28 June to 2 July 1982. Access to the property and return to Burns Lake was by helicopter.

7.1 Soil Geochemical Survey

Soil geochemical sampling was completed on approximately 80% of mineral claim. Soil samples were collected at 100 m intervals along east-west traverse lines that were spaced at about 300 to 400 m. Sampling along parts of three lines near the lake were spaced at 40 m intervals. A slightly wider pattern of samples was collected from area immediately east of the mineral claim. Several stream sediment samples were collected from drainages that crossed sample lines.

7.2 Soil Development

A large portion of mineral claim area is overlain by glacial transported material in which soil development is generally poor. The A1 soil horizon is usually very thin at one to five cm. except in local swampy areas where it is much thicker. This horizon is frequently non-existent in more sandy to gravelly areas. The important B1 horizon is normally distinguishable. Much of the upland knolls are bedrock, talus slopes or very close to bedrock. Soil cover on these areas is relatively thin with considerable angular rock fragments.

7.3 Vegetation

Jack Pine forests are most common form of foliage. Low-lying areas and parts of north-facing slopes are predominately a mixture of spruce, balsam and minor Jack Pine. Small bushes consisting of alder and willows locally crowd the ground level.

7.4 Geochemical Sampling

Soil samples were collected from small holes which were dug to depths varying from 3 to 25 cm. In most cases, samples averaging 150 gm were collected from B1 or C horizons and emplaced in a numbered kraft paper envelope. Sampling was hampered by local ground conditions where soil was very poorly developed.

Sediment samples were collected from small drainages. Normally, sediment sample was collected where fine silty sand material is available in the stream bed or as back-eddy deposits.

7.5 Analytical Procedure

All soil and sediment samples were assayed by the Placer Development limited Geochemical Laboratory at Vancouver, B.C.

7.5.1 Analysis For Cu, Pb, Zn, Ag and As

Samples are dried in a hot-air dryer, then sifted in -80 mesh nylon sieves. A 0.50 gm portion of -80 mesh fraction of soil or sediment is weighed with a precision torsion balance. Samples are digsted in hot solution of HNO₃ and HClO₄ for three and a half hours, then cooled, diluted and prepared for analysis on Perkin-Elmer 603 Atomic Absorption Spectrophotometer for Cu, Pb, Zn, Ag and As.

Detection limits and ranges are listed below for relevent elements:

<u>Metal</u>	<u>Detection Limit & Range</u>
Copper	2-4,000 ppm
Lead	2-3,000 ppm
Zinc	2-3,000 ppm
Silver	0.20-20 ppm
Arsenic	2-1,000 ppm

7.5.2 Analysis For Au

Following the drying and sieving process, a 3.0 gm portion of -80 mesh fraction is heated at 600^o C for one and a half hours, then HBr solution is added and allowed to stand overnight. Water and MIBK solution are added, shaken, centrifuged and then 1% HBr in water is added to the top organic layer separate. Solution is shaken prior to analysis for Au by atomic absorption. Detection limit and range are 0.02 to 4.00 ppm

7.6 Results

Geochemical assays for Cu, Pb, Zn, Ag, Au and As are plotted on appended maps.

With reference to the maps, soil sample sites are designated by a small circle symbol and a sequential sample number. All soil sample numbers were prefixed with MSX, however in order to facilitate map clarity, these prefixes were not repeatedly denoted for each sample site. Sediment sample sites are designated with a small square symbol with its corresponding sample number and a prefix of MSS. Several rock chip samples were collected; these sites are designated with a small triangle and a prefix MSR. The rock chip samples were not assayed. Several coarse gravelly soil samples did not provide sufficient -80 mesh fraction for analyses. These samples are shown with a NSS result.

8. Interpretation of Results

The main emphasis of this examination was to delineate and evaluate possible targets of precious metal association with base metals. Results generally indicate low-order roughly coincident Cu and Zn anomalies that have spotty internal high values. Preliminary interpretation shows both elemental anomalies to be 400 to 600 m wide zones that broaden and extend northeasterly onto flank of Tsacha Mtn. The higher values for Pb and As, except for several erratic high assays are not as prominent as compared to Zn. Nevertheless the anomalous values for Pb and As generally follow the Cu-Zn anomaly trend. Arsenic shows more uniform and higher values on flanks of Tsacha Mtn. Th Ag and Au values are low except for several isolated anomalous Ag. It is notable that within the grid center, a narrow band of higher Ag values can be interpolated as a northeast trend, internal to Cu and Zn anomalies. Gold was undetectable in majority of samples; no patterns can be interpreted from those samples which did show detectable Au content.

9. Statement of Expenses

The following expenses were incurred by Placer Development Limited for conducting the geochemical survey on Mstsacha Minreral Claim.

Personnel Costs

<u>Personnel</u>	<u>Period Employed</u>	<u>Rate</u>	<u>Cost</u>
E.T. Kiumura	28 June to 2 July 1982	5 days @\$240/day	\$1200
B.S. Ott	28 June to 2 July 1982	5 days @\$185/day	925
C. Harivel	28-30 June 1982	2 days @\$225/day	<u>\$ 450</u> \$2575.00

Helicopter Costs

Placer Development Limitd Helicopter
28 June 1982
2.4 hours @\$500.00/hour

\$1200

Helicopter Costs (continued)

2 July 1982 2.3 hours @\$500.00/hour	<u>\$1150</u>	\$2350.00
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Assaying Costs

195 soil and sediment samples for ppm Cu, Pb, Zn, Ag, Au and As @\$10.70	\$2086.50
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Camp Costs

15 man days @\$30.00/man day	450.00
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Miscellaneous Costs

Sampling supplies, equipment, etc.	100.00
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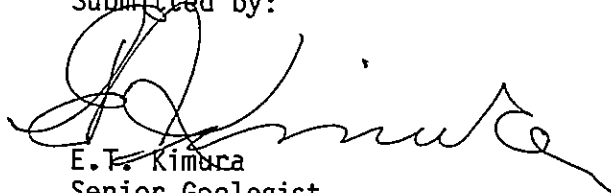
Total Expenditures

\$7561.50

10. Conclusion

Soil geochemical sampling shows weak coincident Cu and Zn anomalies. Due to the somewhat erratic distribution of Ag content, it is difficult to assess its relationship to base metals. Gold content in soil samples is essentially non-detectable.

Submitted by:



E. F. Kimura
Senior Geologist
PLACER DEVELOPMENT LIMITED

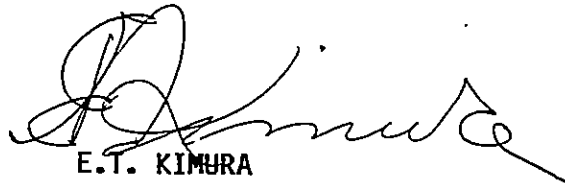
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Appendix I

Statement of Qualifications

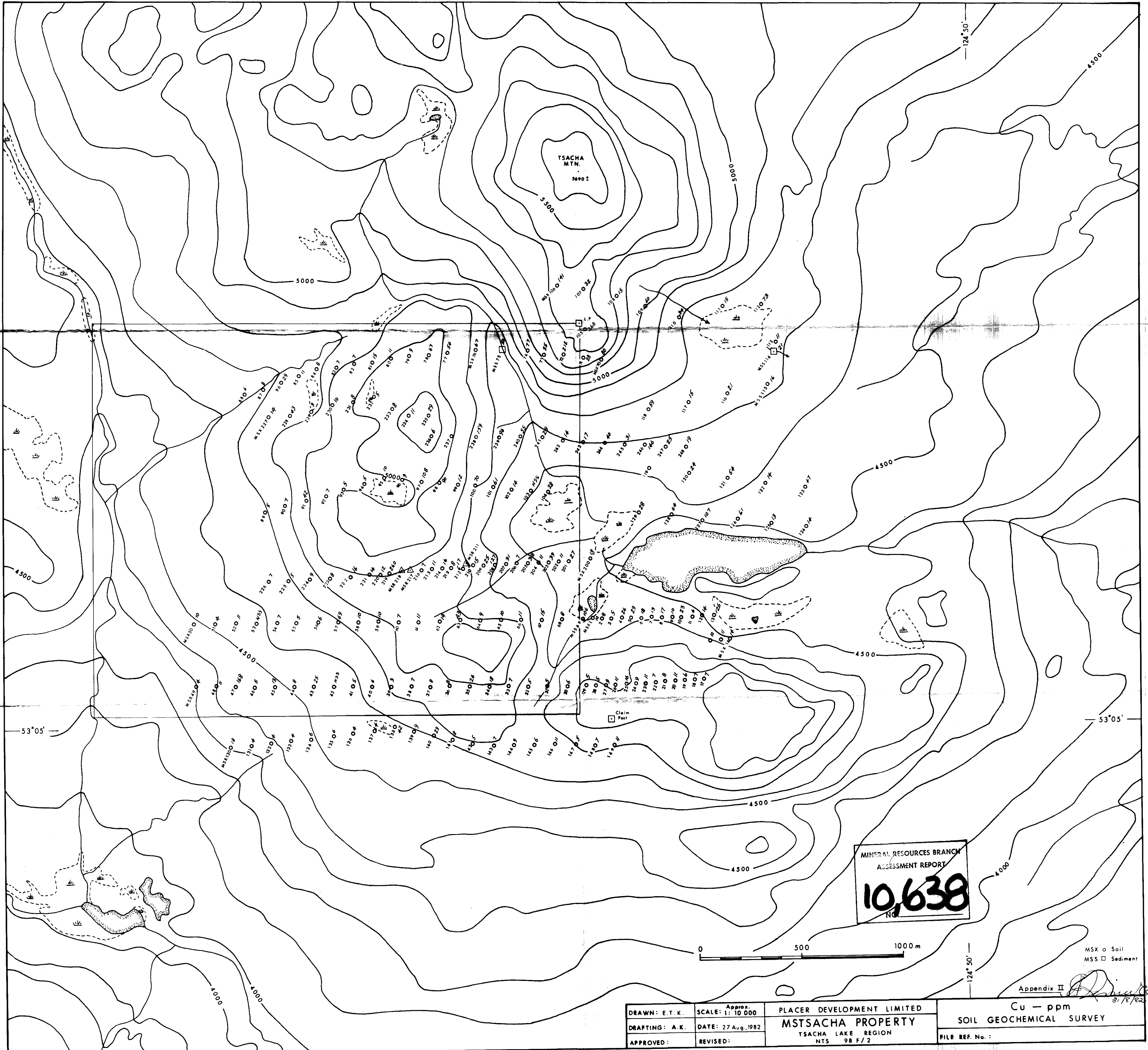
I, E.T. Kimura, of Placer Development Limited do hereby certify that:

1. I am a geologist.
2. I am a graduate of University of British Columbia with a BA degree in Geology and Physics in 1955.
3. From 1954 until the present, I have been engaged in mining geology, both in underground and open pit operations, and in exploration geology in British Columbia, Saskatchewan and Yukon Territory.
4. I personally supervised and participated in the field work, and have reviewed and assessed the data resulting from this work.

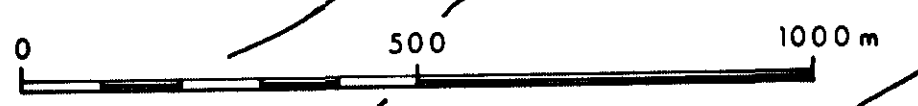


E.T. KIMURA

ETK/cs



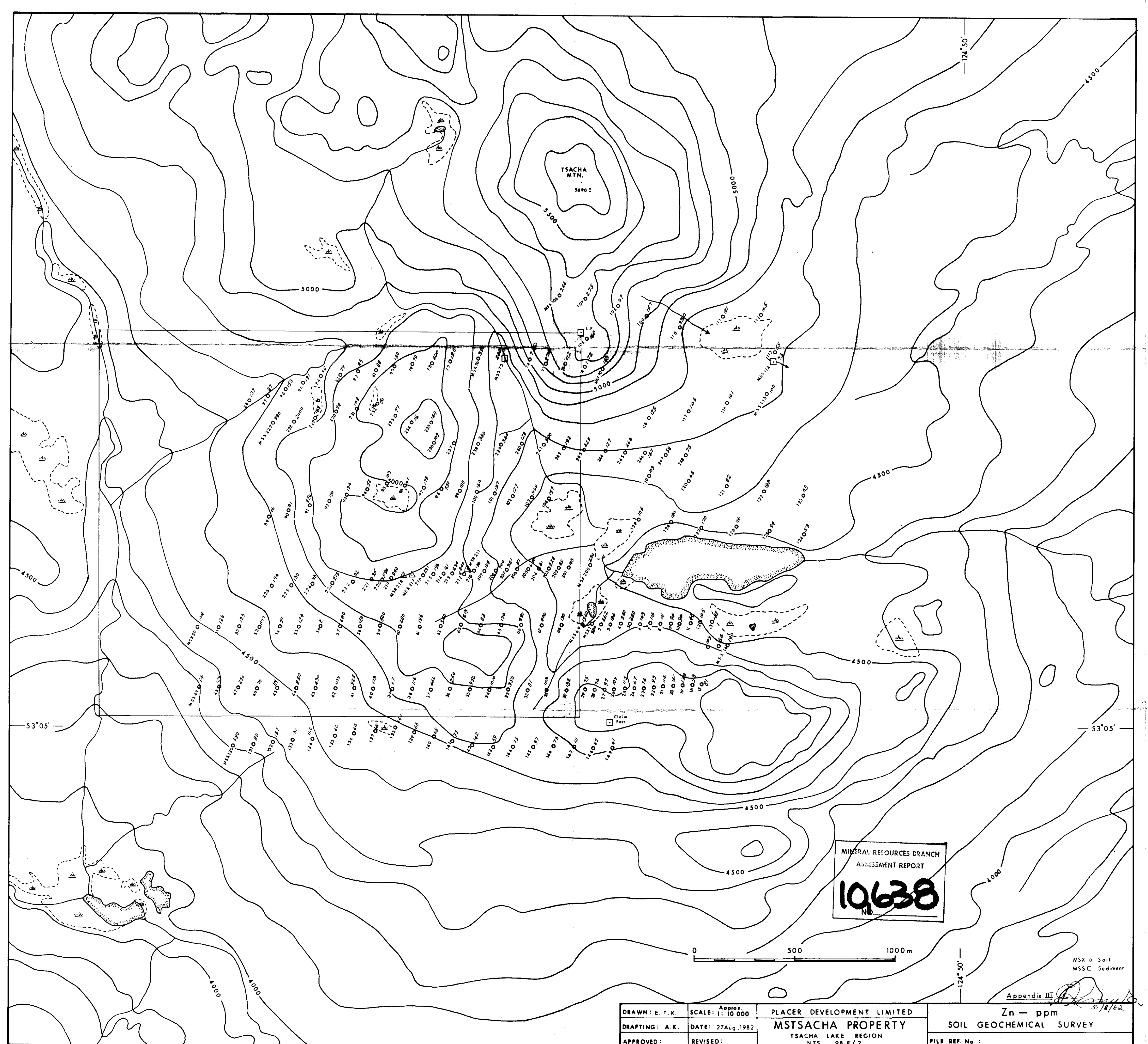
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 NO.



MSX o Soil
 MSS □ Sediment

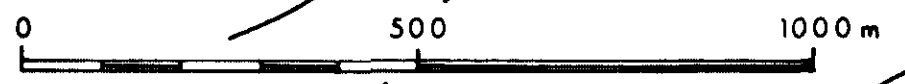
Appendix II
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DRAWN: E.T.K.	SCALE: 1: 10 000	PLACER DEVELOPMENT LIMITED	Cu - ppm SOIL GEOCHEMICAL SURVEY
DRAFTING: A.K.	DATE: 27 Aug., 1982	MSTSACHA PROPERTY	
APPROVED:	REVISED:	TSACHA LAKE REGION NTS 98 F/2	
FILE REF. No.:			



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3690.2

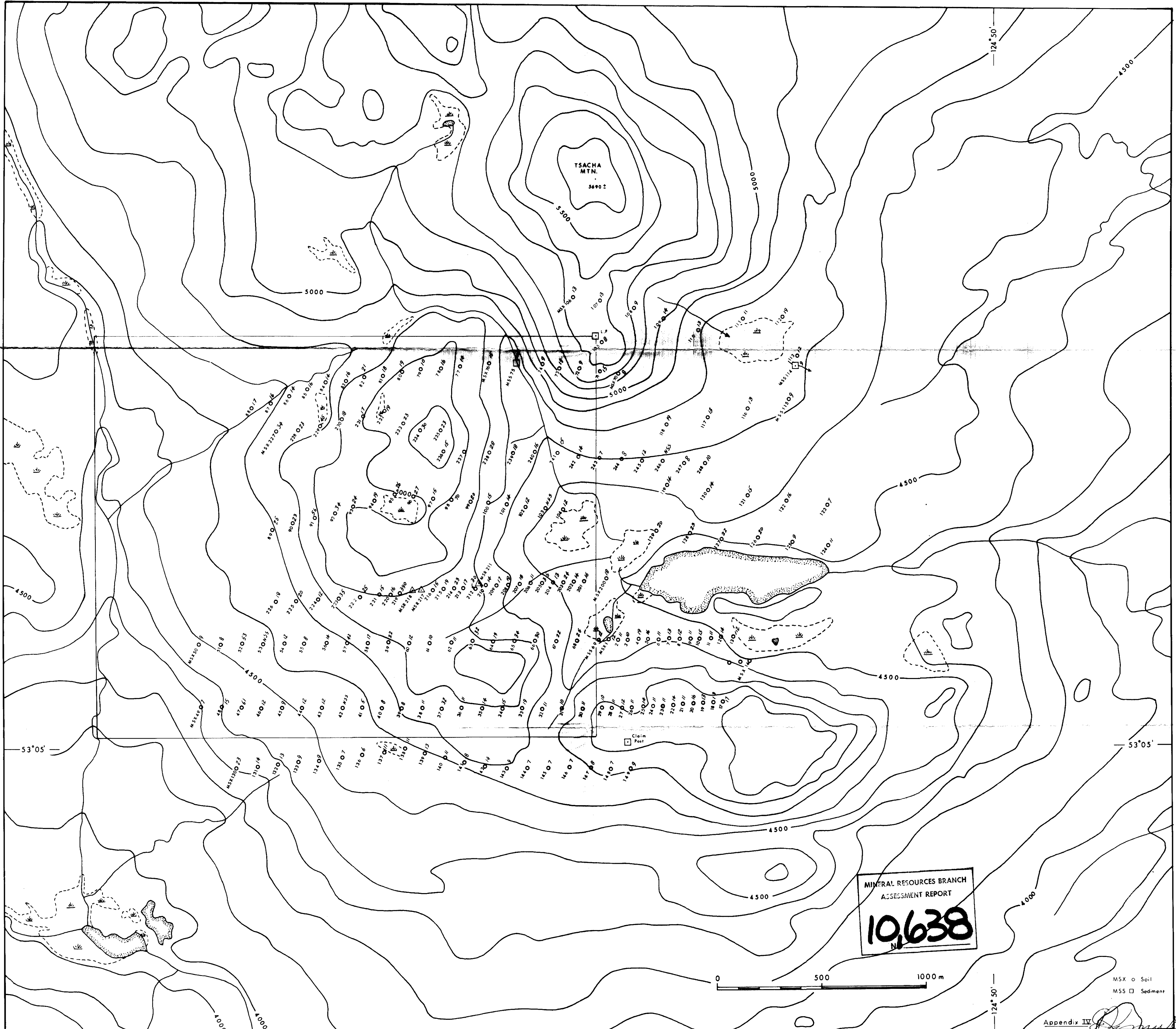
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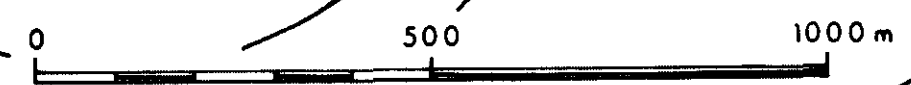
MSX o Soil
MSS □ Sediment

Appendix III
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31/8/82

DRAWN: E. T. K.	SCALE: ^{Approx.} 1: 10 000	PLACER DEVELOPMENT LIMITED	Zn - ppm SOIL GEOCHEMICAL SURVEY
DRAFTING: A. K.	DATE: 27 Aug, 1982	MTSACHA PROPERTY	
APPROVED:	REVISED:	TSACHA LAKE REGION NTS 98 F/2	FILE REF. No.:



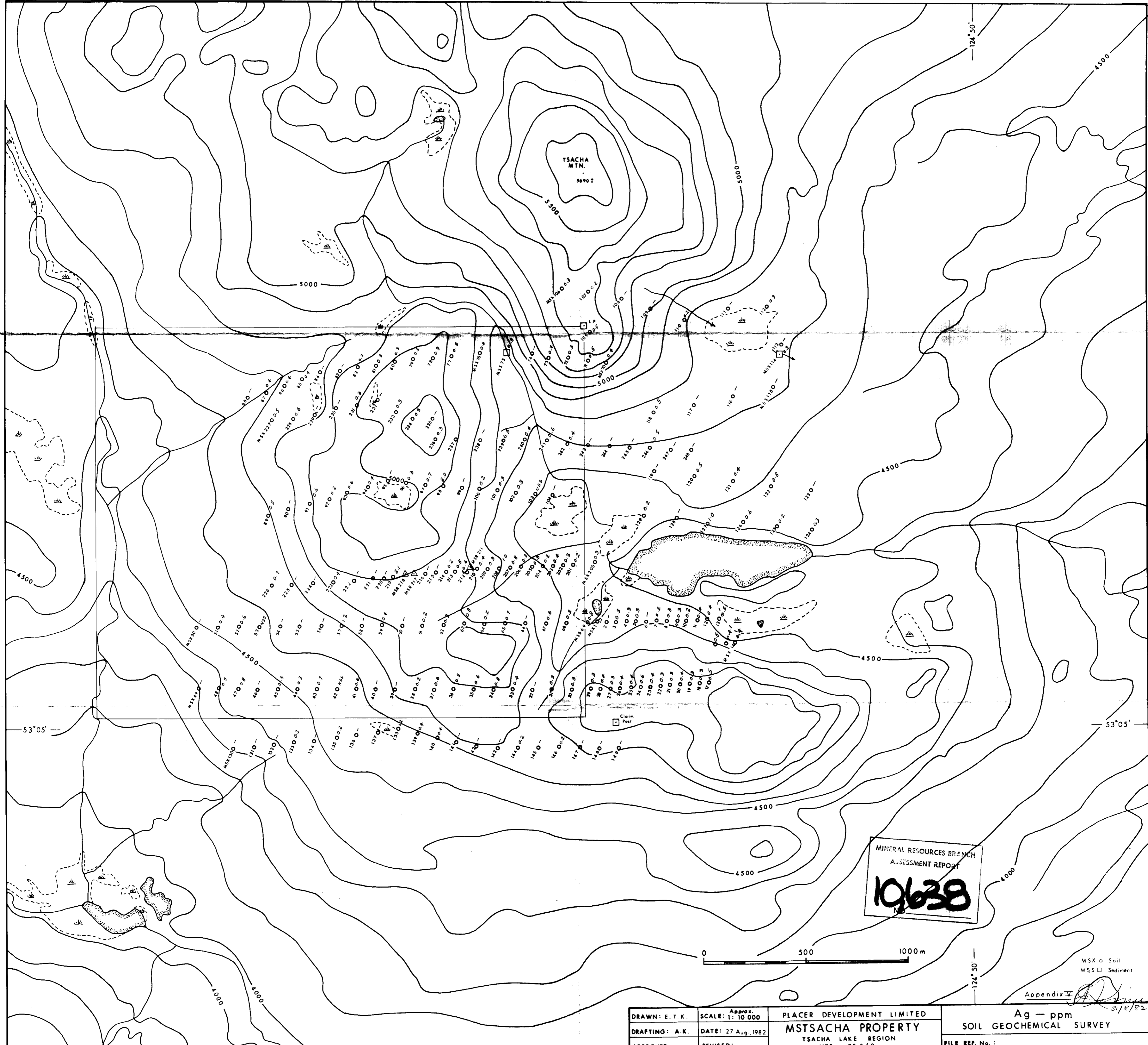
MINERAL RESOURCES BRANCH
ASSESSMENT REPORT
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Pb



MSX o Soil
MSS □ Sediment

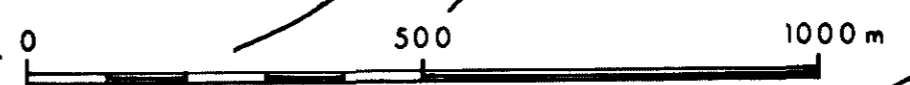
Appendix IV
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DRAWN: E.T.K.	SCALE: 1:10 000	PLACER DEVELOPMENT LIMITED	Pb — ppm SOIL GEOCHEMICAL SURVEY
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APPROVED:	REVISED:	TSACHA LAKE REGION NTS 98 F/2	FILE REF. No.:



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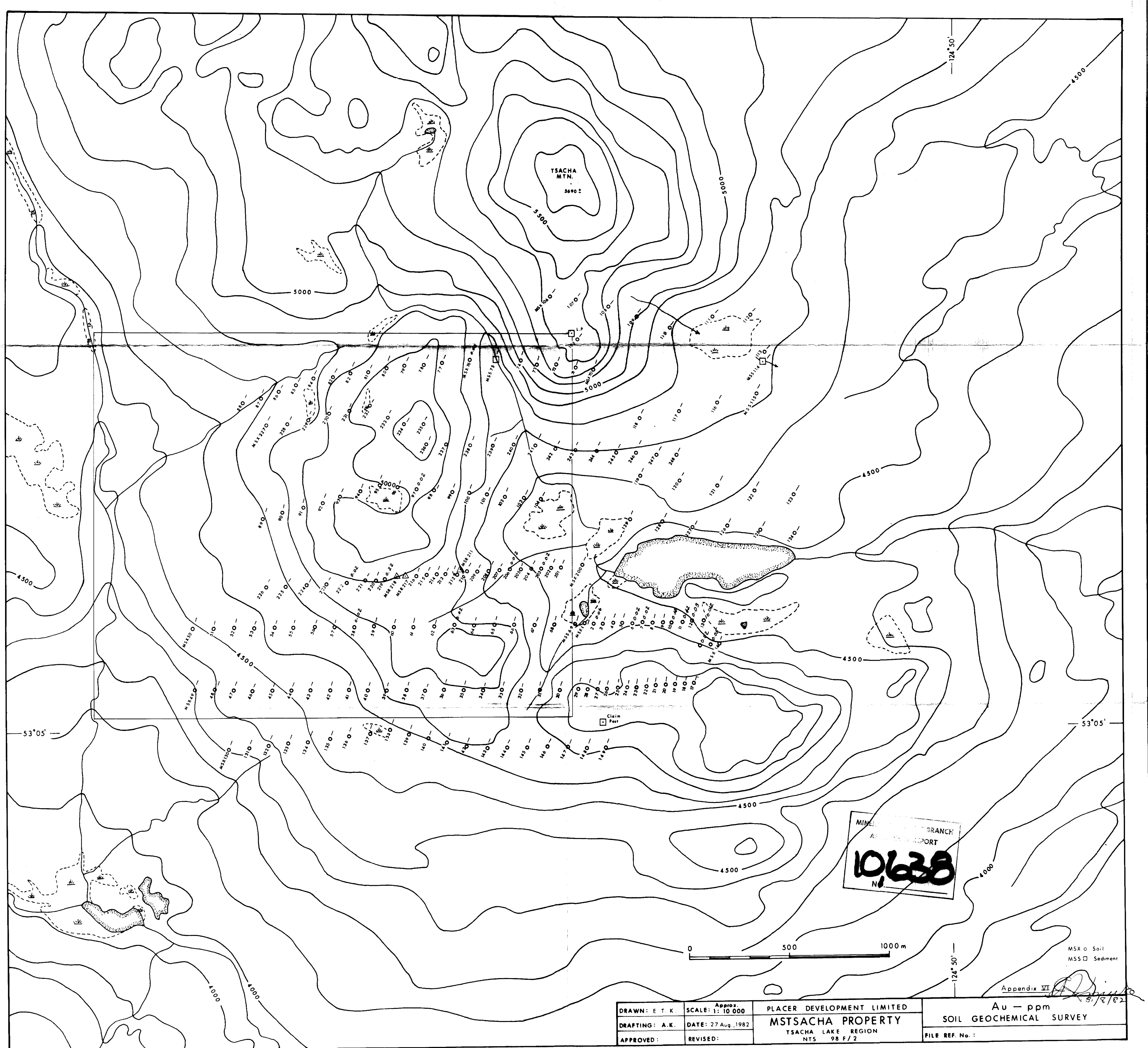
MINERAL RESOURCES BRANCH
ASSESSMENT REPORT
10638
No.



MSX o Soil
MSS □ Sediment

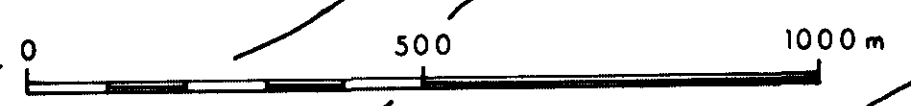
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DRAWN: E.T.K.	SCALE: ^{Approx.} 1: 10 000	PLACER DEVELOPMENT LIMITED	Ag - ppm SOIL GEOCHEMICAL SURVEY
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APPROVED:	REVISED:	TSACHA LAKE REGION NTS 98 F/2	FILE REF. No.:



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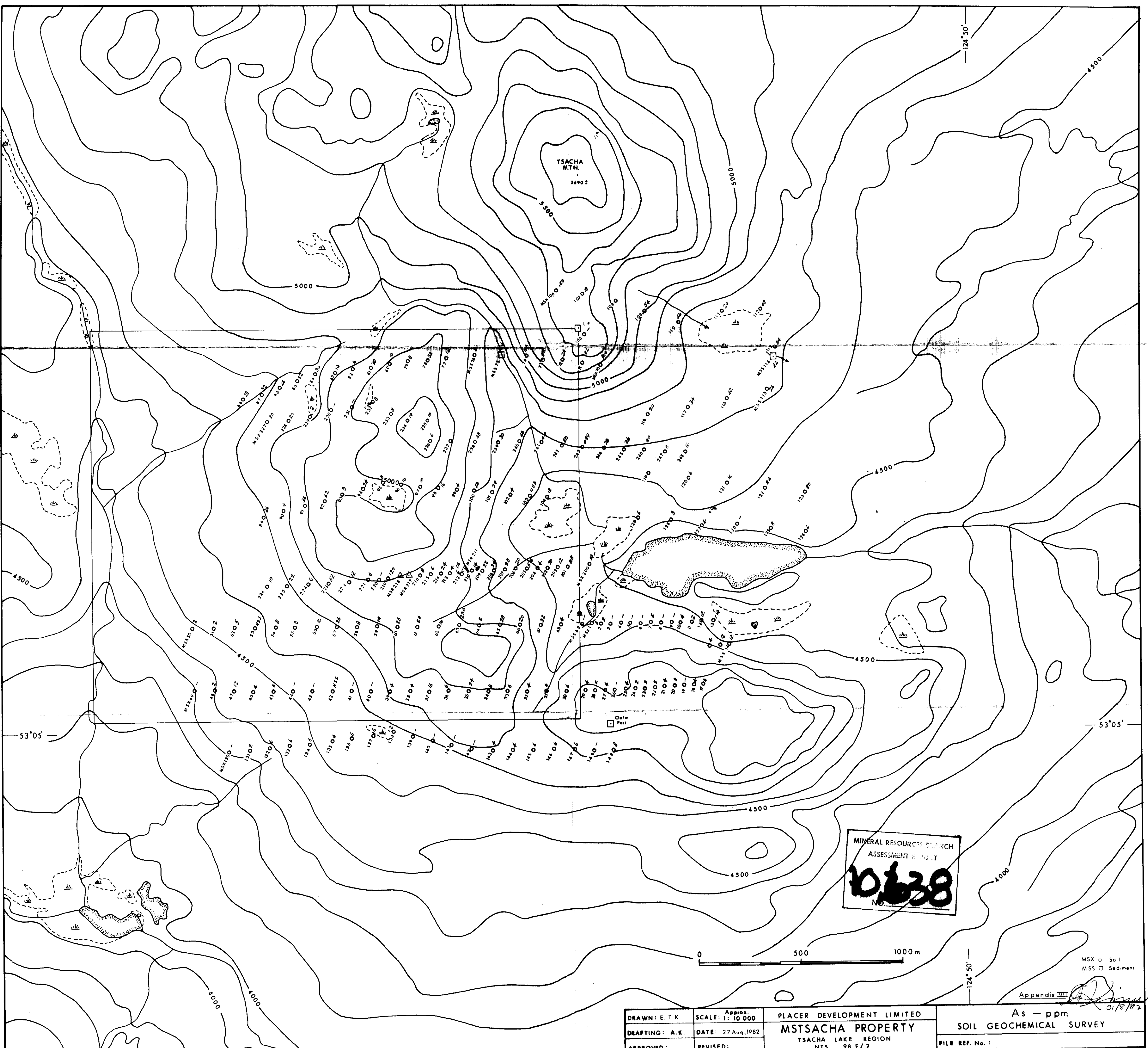
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MSX o Soil
MSS □ Sediment

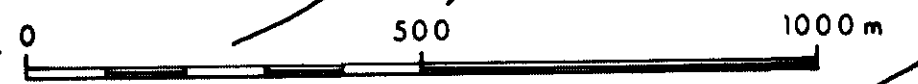
Appendix VII
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DRAWN: E.T.K.	Approx. SCALE: 1:10 000	PLACER DEVELOPMENT LIMITED	Au - ppm
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MSX o Soil
MSS □ Sediment

Appendix VII
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DRAWN: E.T.K.	SCALE: 1:10 000	PLACER DEVELOPMENT LIMITED	As - ppm
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APPROVED:	REVISED:	TSACHA LAKE REGION NTS 98 F/2	FILE REF. No.: