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GEOLOGICAL, GEOPHYSICAL AND GEOCHEMICAL REPORT
ON THE BETA CLAIM
GREENWOOD MINING DIVISION, B.C.
NTS: 82E/2 WEST: LONG. 118° 54', LAT. 49° 03'

BY

S.S. TAN, P. ENG.
JULY 21, 1984

OWNER AND OPERATOR OF CLAIM: S.S. TAN
(RAND RESOURCES INC.)

**GEOLOGICAL BRANCH
ASSESSMENT REPORT**

12,502

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INTRODUCTION

The 16 units Beta Claim is approximately 10 km. northwest of the Village of Midway. The claim is accessible by road from Midway via Highway #3 and thence from the Kettle River Bridge for 3 km. of well maintained gravelled road.

Geophysical, geochemical and geological surveys were conducted on part of the claim totalling 9 Line Km. of Survey of which 4.5. Line Km. were survey grid lines. In the geochemical survey, 158 soil samples and 14 rock-chip samples were collected and analysed for gold. The Electromagnetic survey (Ronka EM-16) totalled 4.5 Line Km. at 25 meter station within the grid area. Geological mapping and prospecting totalled 9 Line Km. The east-west flagged grid lines, at 100 metre intervals, were chain and compass surveyed. Likewise, the access road along the southern segment of the claim and along Bubar Creek Valley were similarly surveyed. The gridded area covers all of unit 1 and segments of unit 2, and unit 16. The 2 km. Base line extends along the east claim boundary. Areas covered outside the survey grid include parts of units 3, 4, 17 and 27 which were prospected. The results of the surveys are presented in 1:2500 scale maps.

LOCATION & ACCESS

NTS: 82E/2 West Approximate Co-ordinates: Long. 118° 54'
(Greenwood) - at property center - Lat. 49° 03'

The Beta claim is 10 km. northwest of the Village of Midway in the Boundary District of south central British Columbia. The claim is accessible from Midway via Highway #3 to the Kettle River Bridge thence along 3 km. of gravelled road. The Kettle River and the abandoned Canadian Pacific Railway line occupy the southwest segment of the property area. Greenwood, with a population of about one thousand, is 10 km. east of Midway. It is the supply centre for the area, catering mainly to the logging and ranching industries. Greenwood was an important mining camp from the 1890's to 1919 when the Granby Consolidated Mining, Smelting and Power Company operated several nearby copper mines containing by-product gold and silver. Granby began open pit mining at the nearby Phoenix copper mine in 1955 and continued production until 1978.

Figure 1 depicts the property location and access routes.

PROPERTY

The 16 units Beta claim is in the Greenwood Mining Division.

<u>Claim Name</u>	<u>No. Units</u>	<u>Record No.</u>	<u>Expiry Date</u>
Beta	16	3528	Feb. 24, 1985

PHYSICAL FEATURES

Elevations on the property range from 600 meters to 900 meters a.m.s.l. Segments of the property are within the Bubar Creek Valley. The terrain varies from moderately steep to rugged slopes with a scattering of local cliffs. The lower slopes are grass covered and the upper slopes are thinly forested with good sized pine. The area is drained by Bubar Creek and its tributaries which flow into the Kettle River at the southwest sector of the property. The area is in a semi-arid belt with moderate to low annual precipitation.

AREAL GEOLOGY

The regional geology of the area is documented in Map 6-1957, Kettle River East Half, scaled at 1 inch = 4 miles, issued by the Geological Survey of Canada.

Paleocene or Eocene rocks of the Phoenix Volcanic Group and the Kettle River Formation underlie the area. The Kettle River Formation consists of rhyolite and dacite tuff, sandstone, shale and rhyolite. The Phoenix Volcanic Group includes andesite, trachyte, minor basalt and locally interbedded tuff, shale and siltstone. The government map shows two northerly trending faults at the west half of the property.

LOCAL GEOLOGY

Six rock units were mapped within the grid area. These are (1) Quartzite, (2) Greywacke, (3) Hornfels, (4) Quartz-Feldspar Porphyry (intrusive porphyritic rhyolite), (5) Granodiorite and (6) Basalt. The strike of the rock units is approximately northwesterly. Fault and shear zones and gossans were also mapped.

Lithology

(1) Quartzite: This unit is from 100 m. to 200 m. wide and lies at the centre of the mapped area bounded by the quartz-feldspar porphyry to the west, granodiorite to the south and basalt to the east. Its eastern and western contacts are defined by fault zones. It is fine grained, light grey and massive. The mafic cement is often chloritized. The bedding, where discernible, strike northeasterly and dip steeply from 65° to 80° northwest. (2) Greywacke: The rock is fine grained, dark-grey and massive. The mafic constituents are chloritized. The bedding strikes northeasterly and dips about 70° northwest. (3) Hornfels: This unit is at the southeast of the mapped area. It is black, massive and hard. The rock contains abundant quartz healed fractures. The bedding strikes northeast and dips 80° NW. (4) Quartz-Feldspar porphyry: The rock is light coloured, massive and contains anhedral to subhedral phenocrysts from 2 mm. to 5 mm. long. Locally it is

altered via silicification and chloritization. The outcrops form prominent ridge tops. This unit is probably an intrusive rhyolite dyke. (5) The Granodiorite is probably an apophysis of a larger body to the south. It is equigranular, medium grained and massive. Its greenish to mauve tinge is due to hydrothermal alteration via chloritization and secondary k-feldspar alteration. (6) Basalt: The edges of the basalt outcrops form prominent cliff faces expressed in fault scarps. The rock is brown to maroon coloured. Vesicular, amygdaloidal, and massive varieties are present. Epidote, chlorite, calcite and zeolites commonly fill the vesicles.

Structural Geology

The regional strike of the mapped rock units is northeasterly and dipping steeply to the northwest. Two northeasterly striking faults conformable with the bedding of the sediments and acting as lithological contacts were mapped. Both faults dip from 80° to 87° northwest. Another regional fault at N20°E strike and 85° dip to the northwest is located at the east edge of the mapped area. A series of shorter east-west striking faults dipping 80° south were also mapped. Most fault scarps are topographically expressed as cliff faces.

Mineralization

Three gossan zones were found within the quartzite unit. They are iron stained limonite-hematite silica boxwork derived mostly from pyrite. Disseminated pyrite and quartz-pyrite stringers are present in the wall rock adjacent to the gossans. Quartz masses and veinlets are common in the vicinity of the gossans.

The results obtained in the geological mapping will be discussed further in conjunction with results from the geochemical and geophysical surveys in the conclusion section of this report.

GEOPHYSICAL SURVEY (VLF-EM, RONKA-16)

The survey was conducted over the east-west grid lines at 100 m. spacing, with readings taken at 25 m. station.

A Ronka EM-16 manufactured by Geonic Limited was used in the survey. The Seattle transmitter station at the new frequency of 24.8 KHz was used in the survey. This station was selected to best suit the east-west grid lines.

The quadrature and in-phase components expressed in percentage were taken at each station. These results were then filtered using the Fraser's method (Geophysics: Vol. 34, No. 6, Dec. 1969). The filtered data are presented in a contour plan, accompanied by the basic data, in Drawing 5.

Results

Two moderately strong EM anomalies and two weaker anomalies were disclosed in the survey. The two former are subparallel. The strongest and largest anomaly at the west side of the grid has a peak filtered value of 49%. It is from 50 m. to 150 m. wide in a length of 600 m. that is opened at its southwest and northeast ends. The second largest anomaly is at the northeast corner of the grid area. It is subparallel to the largest anomaly. This consisted of two adjacent anomalies each of about 75 m. wide in a measured length of 200 m. Its northern extension is open. The other two weaker anomalies are at the south central segment of the grid area. Both are about 75 m. wide, trending northwesterly and have a determined individual length of 80 m. that is opened to the southeast.

The two strongest anomalies appear to correspond to the strike of the feldspar-porphyry unit and associated faults and to the quartzite unit's geologic boundary at the northeast of the survey area where gossans occur.

GEOCHEMICAL SURVEY

A total of 158 soil samples were collected during the survey. Of these 138 samples were collected at 25 m. station from the gridded area and 20 samples were taken at 100 m. intervals along the north bank of the main access road. Fourteen (14) rock chip samples were taken within the grid. The soil samples were taken with a mattock. Soil sample depths vary from 20 cm. to 80 cm. The "B" soil horizon was sampled. The rock chip-samples were taken from outcrops of quartz-feldspar porphyry, greywacke, quartzite, granodiorite, and mineralized showings (e.g. gossans). The basalt unit was not sampled.

The samples were analysed for gold content by Chemex Labs Ltd. of North Vancouver. In extraction, the -80 mesh sieved fractions of the samples were digested in aquaregia. The gold contents in the samples were then analysed by the atomic absorption (A-A) method and the results given in parts per billion (ppb).

Discussion of Results

The background gold content in the soil samples collected is less than 10 ppb. Au. Values in excess of 40 ppb. Au. are considered anomalous in this survey. Three spot value anomalies were disclosed.

The strongest, at 140 ppb. Au. peak value, is centred at Line 3^N, 1+25W. It is approximately 50 m. wide by 100 m. long. Related to this is a weaker anomaly, at 40 ppb Au., sited 50 m. to the west. Both anomalies are just down-slope from an east-west fault zone along a hydro thermally

altered granodiorite outcrop. The third anomaly, at 40 ppb. Au. peak value, is in Line 6^N, 3+50W. It is approximately 25 m. by 60 m. It is near a greywacke outcrop and lies along the projected strike of a northeasterly fault.

Two rock chip samples taken from altered granodiorite at 100 m. south of the first two soil anomalies showed 20 ppb. Au. and 30 ppb. Au. respectively. The gold content is considered anomalous in these two rock-chip samples, since the granodiorite background value for gold is less than 10 ppb. Au. Rock chips from quartzite indicate a background of less than 10 ppb. Au. Two anomalous samples at 40 ppb. Au. and 20 ppb. Au. were taken from quartzite associated with a gossan at Line 3^N, 4+50W. One anomalous quartz-feldspar porphyry rock chip sample at 40 ppb. Au. was sampled at Line 6^N, 1+50W.

CONCLUSIONS & RECOMMENDATIONS

The surveys indicate a good correlation amongst the geological, geochemical and electromagnetic (VLF-EM) results. The boundary of the strongest VLF-EM anomaly to the west appears to outline the contact of the quartz-feldspar porphyry unit with the quartzite in addition to defining the mapped faults contained within. The second EM anomaly likewise correlated with the quartzite unit to the northeast. One soil gold anomaly is within the boundary of the strongest EM anomaly. The other gold soil anomalies are outside and downhill from weaker EM anomalies but are close to an east-west fault in hydrothermally altered granodiorite. It appears that these are associated with the fault zone. Anomalous gold value were obtained from quartzite, greywacke and altered granodiorite that are not associated with fault or shear zones.

Indication of the presence of gold mineralization within the property has been confirmed in the geochemical soil/rock survey. The quartz-feldspar porphyry and quartzite/greywacke members are geologically favorable loci for the occurrence of bedded gold deposits. Such geologic type gold deposits are actively being explored for presently.

It is therefore recommended that the balance of the property be subject to an exploration program.

July 21, 1984


S.S. Tan, P. Eng.

REFERENCES

1. Cairnes, E.E.
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Geol. Surv., Canada, Map 6-1957
4. Monger, J.W.H.
1967 Early Tertiary Stratified Rocks,
Greenwood Map-Area.
Geol. Surv., Canada, Paper 67-42
5. 1894-1903 Various B.C. Dept. Mines Annual
Reports.

CERTIFICATE OF QUALIFICATIONS

I, Siak S. Tan, residing in the City of Vancouver, Province of British Columbia, hereby certify that:

1. I am a consulting Geological Engineer with offices at 207 - 2170 West 44th Avenue, Vancouver, B.C., V6M 2G3.
2. I was graduated in Geology (B.Sc., 1964) from Carlton University, Ottawa, Ontario and completed one year of post graduate studies at the University of Toronto (1965). My courses included geophysics and geochemistry.
3. I am a registered member of the Association of Professional Engineers of the Province of British Columbia in the Geological Engineering Division.
4. I have been engaged in my profession for the past nineteen years, having been employed by various mining companies and consulting engineering firms in my capacity as a geological engineer and geologist.
5. The attached assessment report on the Beta Claim, Greenwood Mining Division, is based on my personal field work on the property during June 9, 1983 to June 26, 1983 inclusive.

Dated at Vancouver, B.C., this 21st day of July, 1984.


Siak S. Tan, P. Eng.

ITEMIZED COST STATEMENTS

The following costs were incurred in the geological, geochemical and geophysical surveys of the Beta Claims, Greenwood Mining Division.

Personnel: (a) M. Tan - field assistant
(b) S.S. Tan, P. Eng.

1. <u>Food & Accommodation:</u> June 9-26, 1983 = 18 days \$47.80/man day (2 men)	\$860.24
2. <u>Transportation:</u> June 9-26, 1983 = 18 days Vehicle, expenses and mileage @\$44.75/day	805.47
3. <u>Instrument Rental</u> (EM-16): @\$10/day	160.00
4. <u>Field Supplies and Sundries:</u> @\$8.50/man day	307.82
5. <u>Analyses: Chemex Labs:</u> 158 soils and 14 rock samples Soil @\$6.40, Rock @\$7.50	1116.70
6. <u>Wages:</u> M. Tan (June 9-26, 1983): 13 working days @\$50	650.00
<u>Fees:</u> S. Tan, P. Eng. Field Time June 9-26, 1983 = 18 days @\$400/day = \$7200 Preparation of Report: 4 days @\$400/day = \$1600	8800.00
TOTAL	<u>\$12700.23</u>

S.S. Tan, P. Eng.

A P P E N D I X

Certificate of Analysis



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TELEX: 043-52597

CERTIFICATE OF ANALYSIS

TO : RAN D RESOURCES INC

210 - 1965 WEST 8th AVENUE
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V6J 1W2

CERT. # : A8312858-001-A
INVOICE # : I8312858
DATE : 25-JUL-83
P.C. # : NONE

ATTN: SIAK TAN

Sample description	Prep code	AU-AA ppb						
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L3N 2+25W	201	10	--	--	--	--	--	--
L3N 2+50W	201	10	--	--	--	--	--	--

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CERT. # : A8312858-002-A

INVOICE # : 18312858

DATE : 25-JUL-83

P.O. # : NCNE

ATTN: SIAK TAN

Sample description	Prep code	AU-AA ppb					
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DATE : 25-JUL-83
P.C. # : NONE

ATTN: SIAK TAN

Sample description	Prep code	AU-AA ppb						
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L6N 4+00W	201	<10	--	--	--	--	--	--
L6N 4+25W	201	<10	--	--	--	--	--	--

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L7N 0+25W	201	<10	--	--	--	--	--
L7N 0+50W	201	<10	--	--	--	--	--
L7N 0+75W	201	<10	--	--	--	--	--
L7N 1+00W	201	<10	--	--	--	--	--
L7N 1+25W	201	<10	--	--	--	--	--
L7N 1+50W	201	<10	--	--	--	--	--
L7N 1+75W	201	<10	--	--	--	--	--
L7N 2+00W	201	<10	--	--	--	--	--
L7N 2+25W	201	<10	--	--	--	--	--
L7N 2+50W	201	<10	--	--	--	--	--
L7N 2+75W	201	<10	--	--	--	--	--
L7N 3+00W	201	<10	--	--	--	--	--
L7N 3+25W	201	<10	--	--	--	--	--
L7N 3+50W	201	<10	--	--	--	--	--
L7N 3+75W	201	<10	--	--	--	--	--
L7N 4+00W	201	<10	--	--	--	--	--
SBL7N 4+00W	201	<10	--	--	--	--	--
L15N 4+75W	201	<10	--	--	--	--	--
R00+50E	201	<10	--	--	--	--	--
R01+00	201	<10	--	--	--	--	--
R02+00	201	<10	--	--	--	--	--
R03+00	201	10	--	--	--	--	--
R04+00	201	<10	--	--	--	--	--
R05+00	201	10	--	--	--	--	--
R06+00	201	<10	--	--	--	--	--
R07+00	201	10	--	--	--	--	--
R08+00	201	10	--	--	--	--	--
R09+00	201	10	--	--	--	--	--
R10+00	201	<10	--	--	--	--	--
R11+00	201	<10	--	--	--	--	--
R12+00	201	<10	--	--	--	--	--
R13+00	201	<10	--	--	--	--	--
R14+00	201	<10	--	--	--	--	--
R15+00	201	<10	--	--	--	--	--
R16+00	201	<10	--	--	--	--	--
R17+00	201	<10	--	--	--	--	--
R18+00	201	<10	--	--	--	--	--
R19+00	201	<10	--	--	--	--	--



Certified by *Hart Bichler*



CHEMEX LABS LTD.

212 BROOKSBANK AVE.
NORTH VANCOUVER, B.C.
CANADA V7J 2C1

• ANALYTICAL CHEMISTS

• GEOCHEMISTS

• REGISTERED ASSAYERS

TELEPHONE: (604) 984-0221
TELEX: 043-52597

CERTIFICATE OF ANALYSIS

TO : RANCO RESOURCES INC

210 - 1965 WEST 8th AVENUE
VANCOUVER, B.C.
V6J 1W2

CERT. # : A8312959-001-4
INVOICE # : 18312859
DATE : 26-JUL-83
P.O. # : NCME

ATTN: SIAK TAN

Sample description	Prep code	AU-AA ppb						
RL2+20N R1+25W	205	20	--	--	--	--	--	--
RL2+25N ?+50W	205	30	--	--	--	--	--	--
RL3N R4+30WG	205	20	--	--	--	--	--	--
RL3N R4+40WT	205	40	--	--	--	--	--	--
RL3N R5+20K	205	<10	--	--	--	--	--	--
RL3+30N R4+25WG	205	<10	--	--	--	--	--	--
RL4N R2+75h	205	10	--	--	--	--	--	--
RL5N R1+25W	205	<10	--	--	--	--	--	--
RL5N R1+80K	205	<10	--	--	--	--	--	--
RL5N R3+30N	205	<10	--	--	--	--	--	--
RL6N R0+70h	205	<10	--	--	--	--	--	--
RL6N R1+50K	205	40	--	--	--	--	--	--
RL7N R2+60K	205	20	--	--	--	--	--	--
RL45N R0+50W	205	20	--	--	--	--	--	--

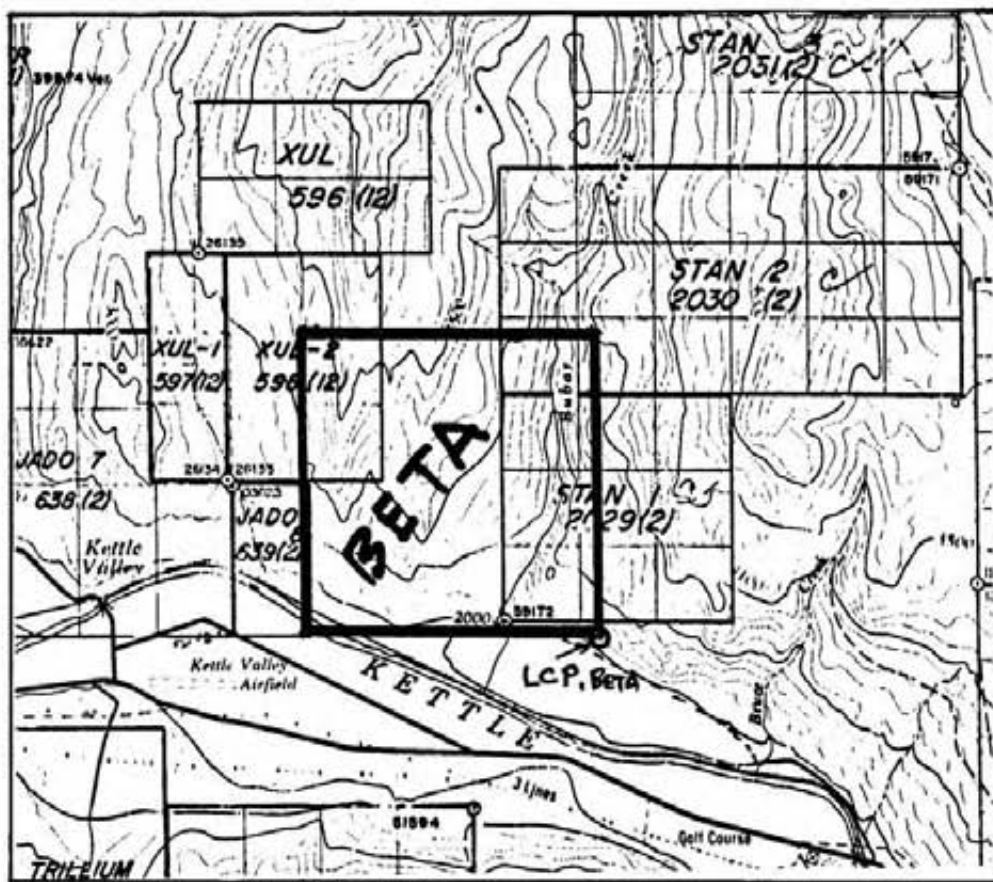
4N R5+50W



Certified by Hart Bichler



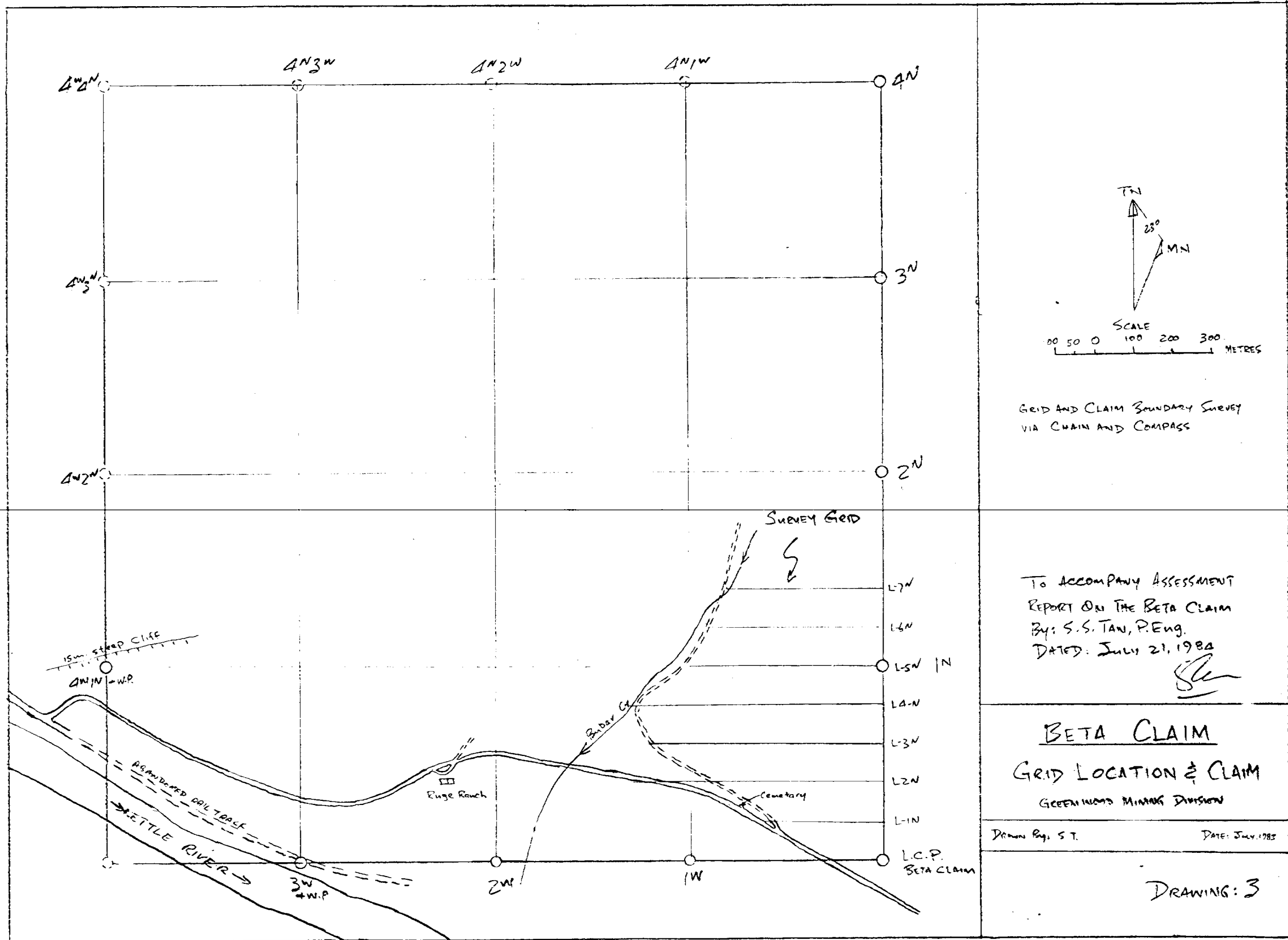
INDEX MAP
 BETA CLAIM - GREENWOOD M.D.



APR: M 82E/2.
WEST HALF

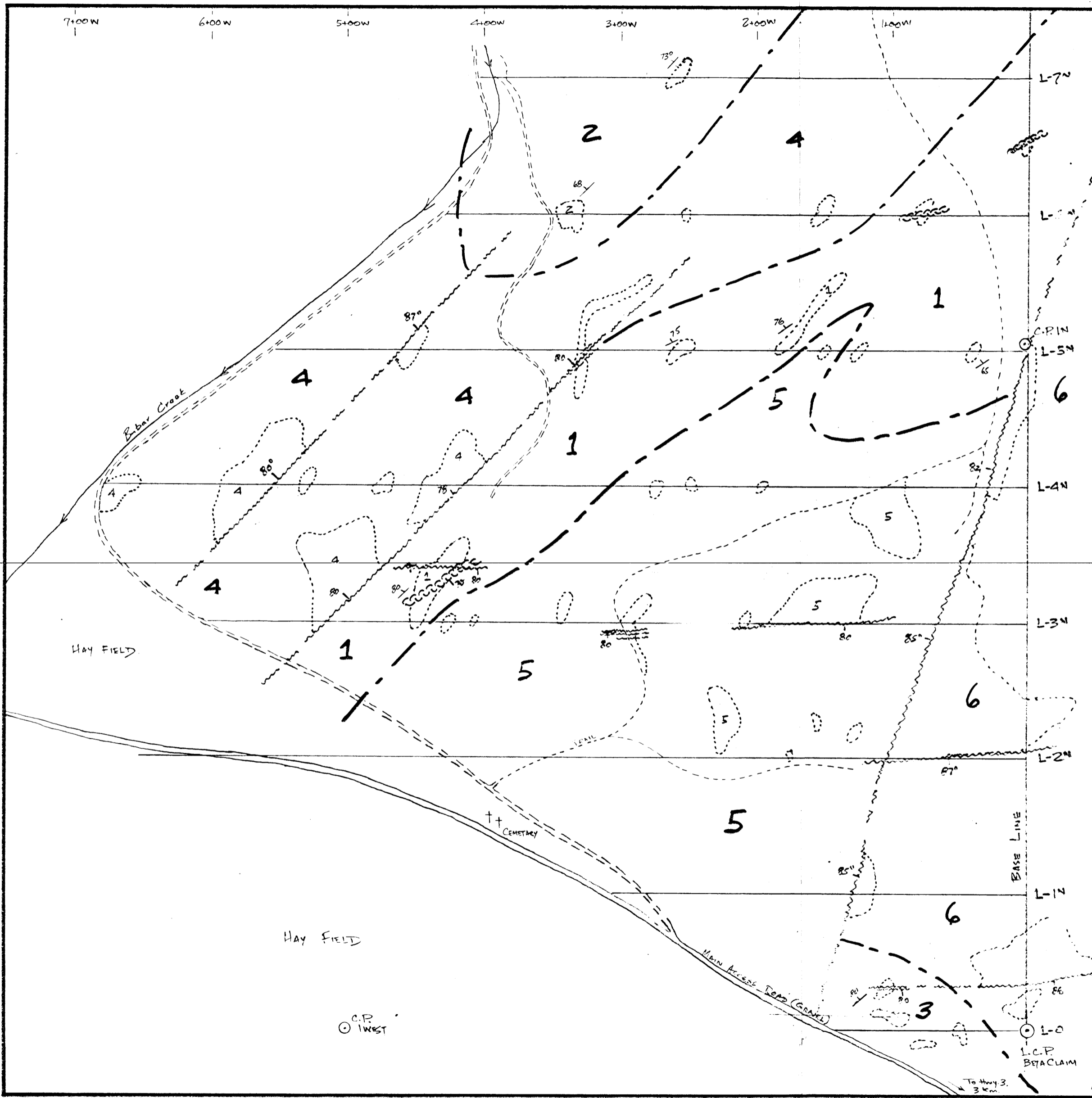
CLAIM LOCATION
BETA CLAIM
GREENWOOD MINING DIVISION.

DRAWING: 2



GEOLOGICAL BRANCH
ASSESSMENT REPORT

12,502



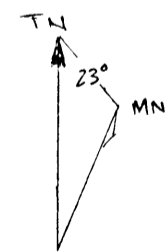
GEOLOGICAL BRANCH
ASSESSMENT REPORT

12,502

LEGEND

- 6 BASALT
- 5 GRANODIORITE
- 4 QUARTZ-FELDSPAR PORPHYRY
(INTRUSIVE PORPHYRITIC RHYOLITE)
- 3 HORNFELS
- 2 GNEISS
- 1 QUARTZITE

GEOLOGICAL BOUNDARY (DEFINED, APPROXIMATE) - - - -
 BEDDING - - - -
 FAULT (DEFINED, APPROXIMATE) - - - -
 GOSSAN - - - -
 OUTCROP - - - -
 CLAIM POST - - - -
 CREEK - - - -
 ROAD, TRAIL - - - -
 CLAIM BOUNDARY AND GRID VIA CHAIN AND COMPASS SURVEY.



SCALE: 50 75 0 50 100 METRES

To accompany Assessment Report DATED JULY 21, 1984. By S. S. TAN, P. ENG

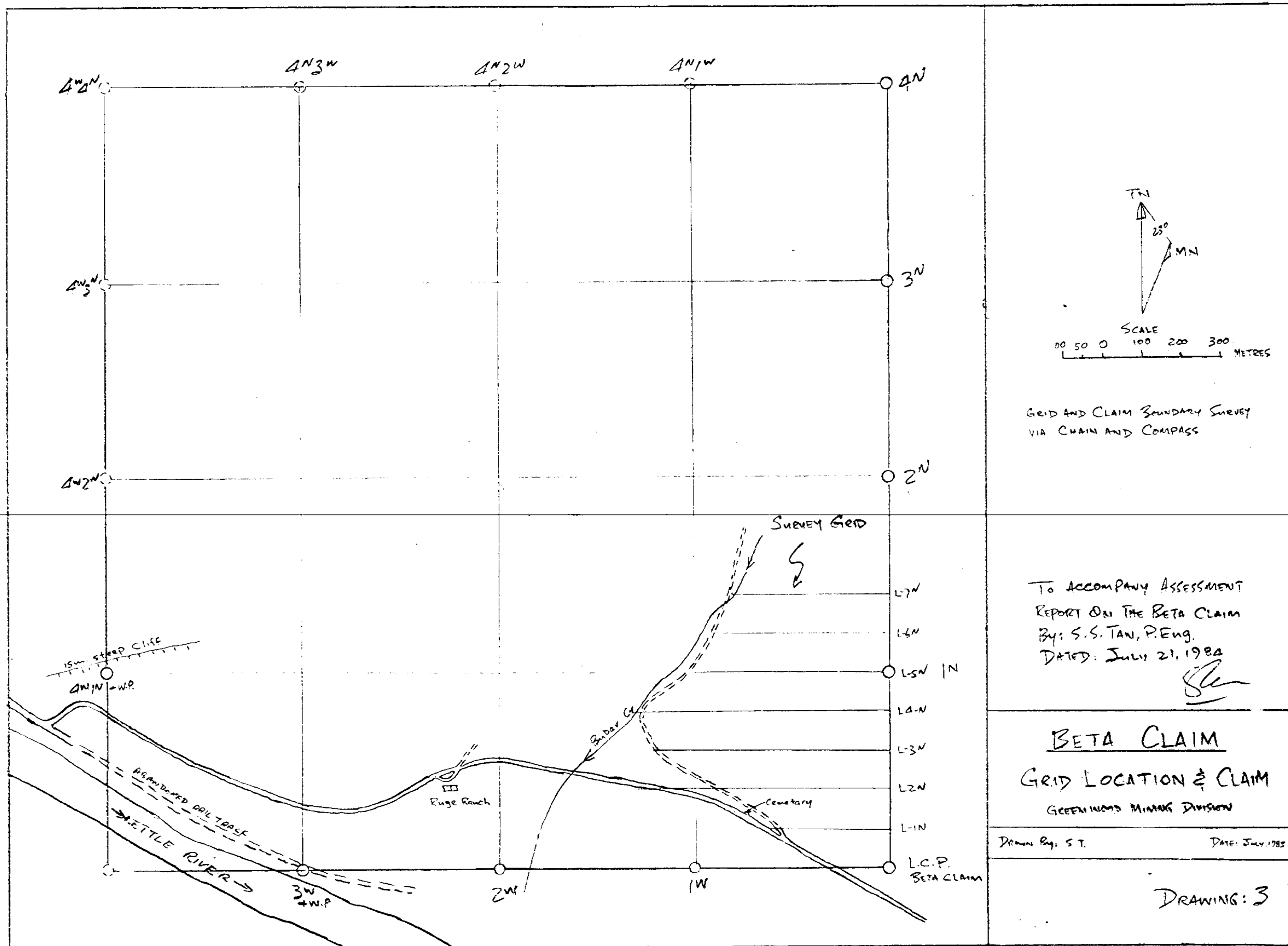
GEOLOGY - BETA CLAIM

GREENWOOD MINING DIVISION.

MAPPED BY: S. TAN, P. ENG. SCALE: 1:2,500

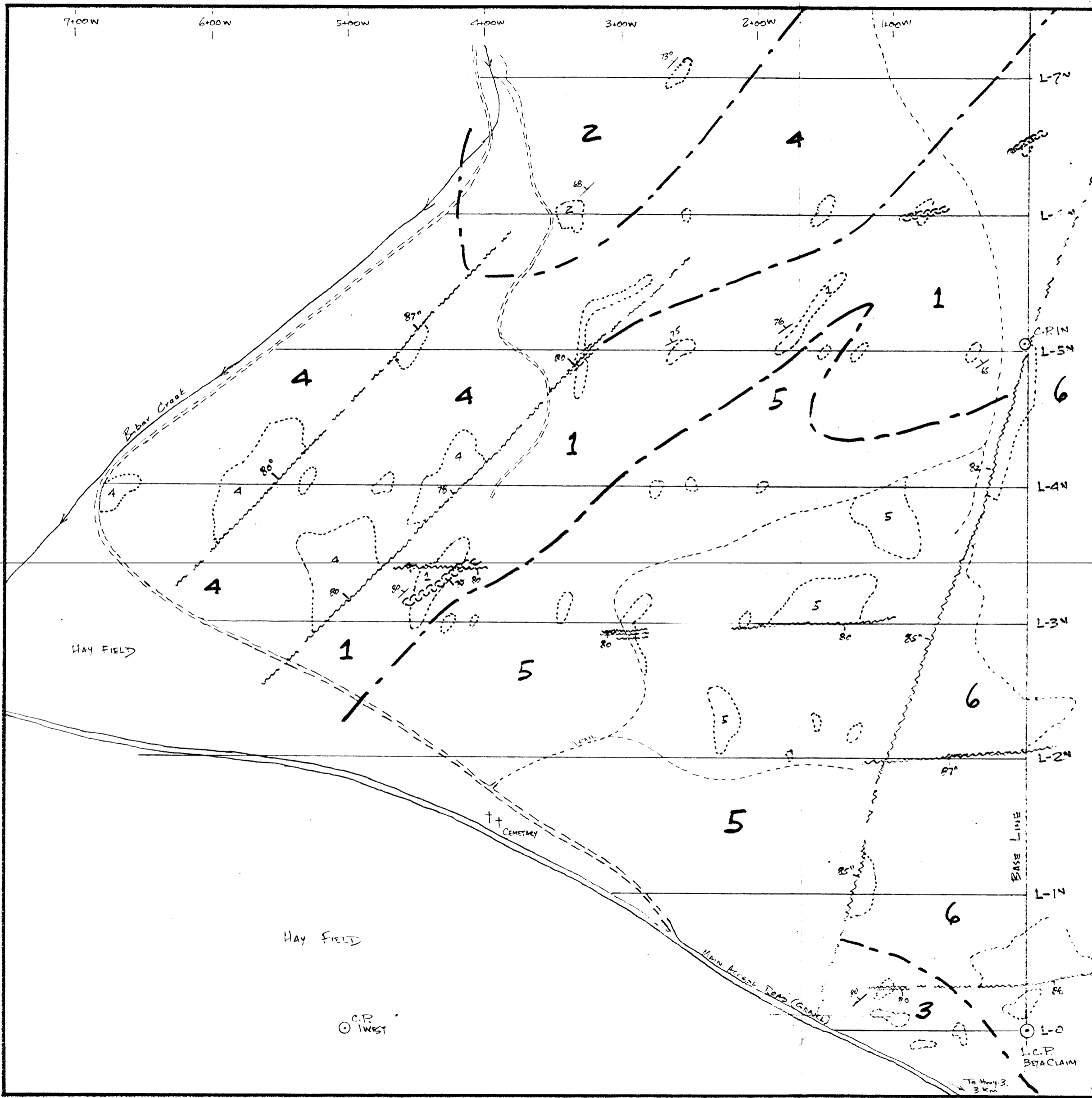
DRAWN BY: S. T. DATE: July 1985

DRAWING: 4



GEOLOGICAL BRANCH
ASSESSMENT REPORT

12,502



GEOLOGICAL BRANCH
ASSESSMENT REPORT

12,502

LEGEND

- 6 BASALT
- 5 GRANODIORITE
- 4 QUARTZ-FELDSPAR PORPHYRY
(INTRUSIVE PORPHYRITIC RHYOLITE)
- 3 HORNFELS
- 2 GNEISS
- 1 QUARTZITE

GEOLOGICAL BOUNDARY (DEFINED, APPROXIMATE) - - - - -
 BEDDING - - - - -
 FAULT (DEFINED, APPROXIMATE) - - - - -
 GOSSAN - - - - -
 OUTCROP - - - - -
 CLAIM POST - - - - -
 CREEK - - - - -
 ROAD, TRAIL - - - - -

CLAIM BOUNDARY AND GRID VIA CHAIN AND COMPASS SURVEY.

SCALE: 1:2500
50 25 0 50 100 METRES

To accompany Assessment Report DATED
JULY 21, 1984. By S. S. TAN, P. ENG.

GEOLOGY - BETA CLAIM

GREENWOOD MINING DIVISION.

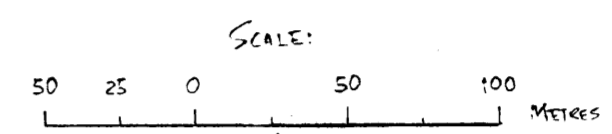
MAPPED BY: S. TAN, P. ENG. SCALE: 1:2500

DRAWN BY: S.T. DATE: July 1985

DRAWING: 4

GEOLOGICAL BRANCH
ASSESSMENT REPORT

12,502



LEGEND

○ FILTERED (FRASER'S)
+20
VALUE DENOTES PERCENT-%

○ CLAIM POST - VIA CHAIN AND COMPASS SURVEY

TO ACCOMPANY ASSESSMENT REPORT ON THE
BETA CLAIM, DATED JULY 21, 1984.
BY: S. S. TAN, P. ENG.

Signature

BETA CLAIM
VLF-EM (RONKA-16) PLAN
(FILTERED - FRASER'S)
GREENWOOD MINING DIVISION, B.C.

SURVEYED BY: S. TAN, P. ENG.

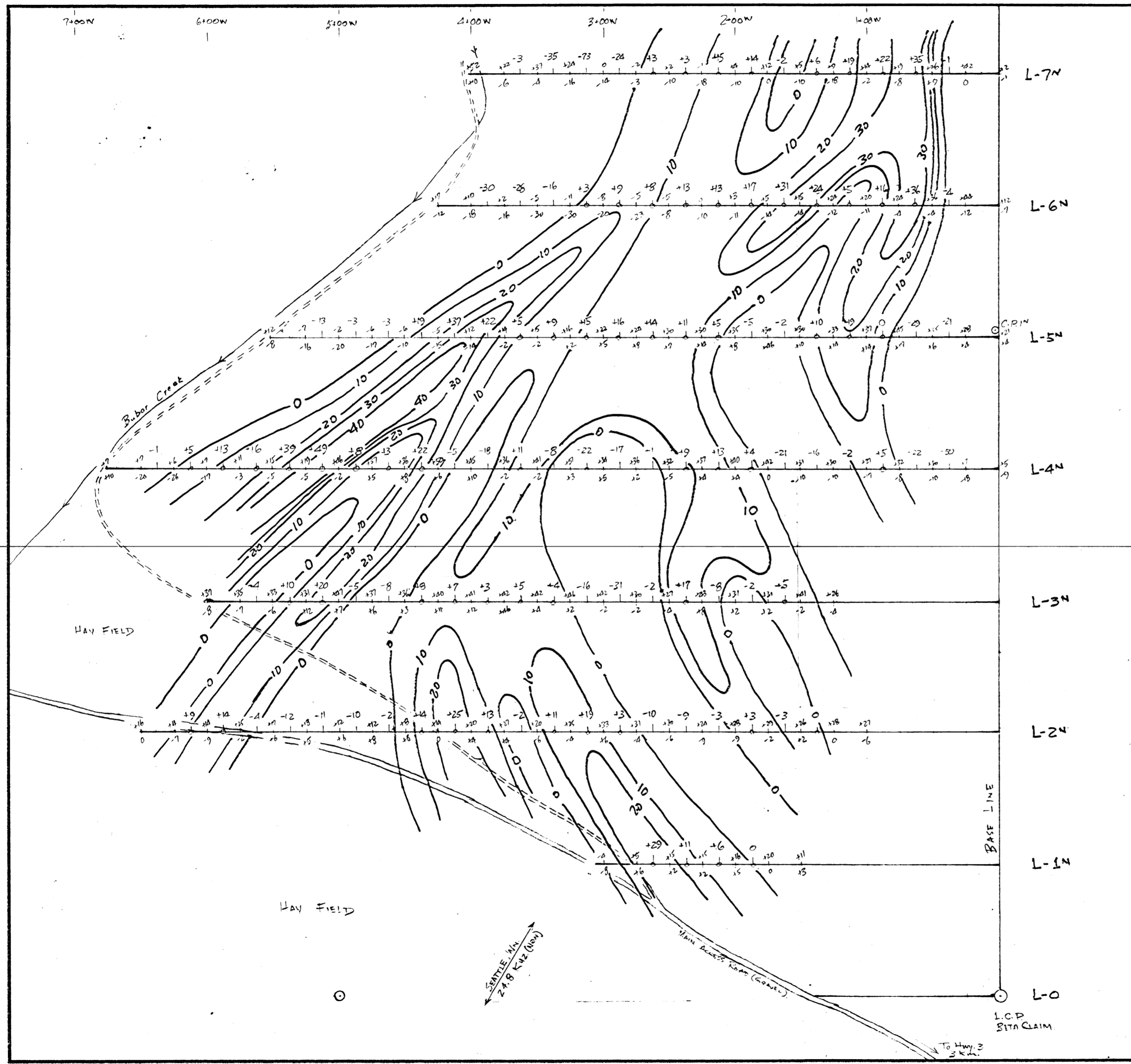
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DRAWING

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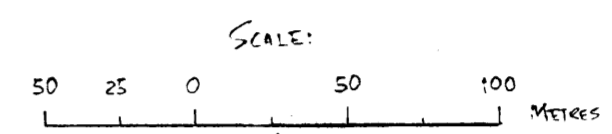
DATE: 07-1984

5



GEOLOGICAL BRANCH
ASSESSMENT REPORT

12,502



LEGEND

○ FILTERED (FRASER'S)
+20
VALUE DENOTES PERCENT-%

○ CLAIM POST - VIA CHAIN AND COMPASS SURVEY

TO ACCOMPANY ASSESSMENT REPORT ON THE
BETA CLAIM, DATED JULY 21, 1984.
BY: S. S. TAN, P. ENG.

Signature

BETA CLAIM
VLF-EM (RONKA-16) PLAN
(FILTERED - FRASER'S)
GREENWOOD MINING DIVISION, B.C.

SURVEYED BY: S. TAN, P. ENG.

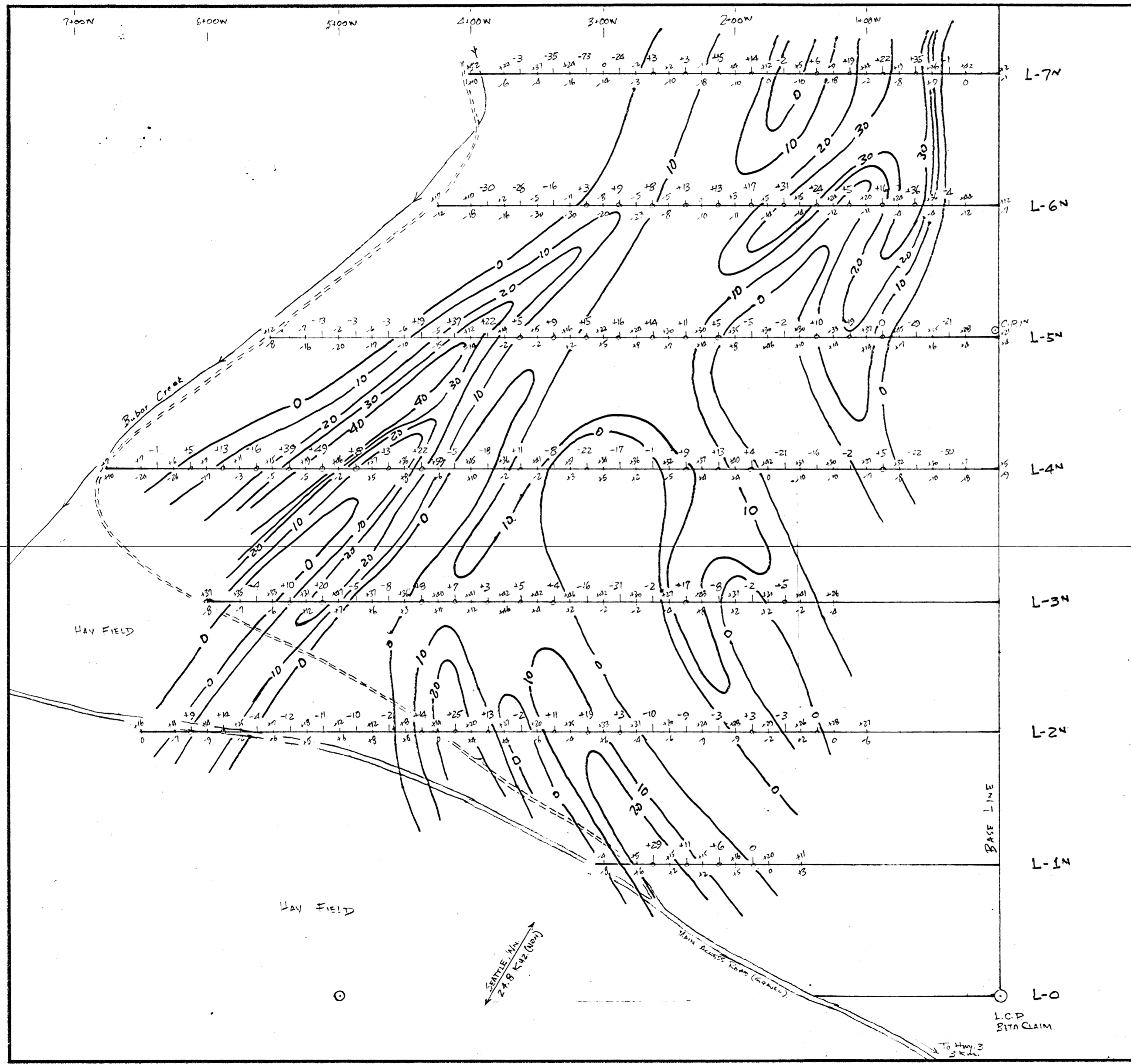
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DRAWING

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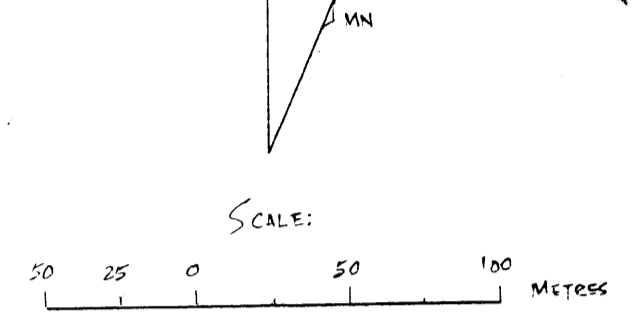
DATE: 07-1984

5



GEOLOGICAL BRANCH
ASSESSMENT REPORT

12,502



LEGEND

- Soil Sample Location in Au-PPB Δ^{10}
- Anomalous Soil (>40PPbAu) \bigcirc^{40}
- Rock Chip Sample - in PPB-Au Δ^{10}
- Anomalous Rock Chip Sample (>20PPb-Au) Δ^{40}

$\bigcirc^{C.P.M.}$ CLAIM POST. VIA CHAIN AND COMPASS SURVEY

TO ACCOMPANY ASSESSMENT REPORT ON THE
BETA CLAIM, GREENWOOD MINING DIVISION.
DATED: JULY 21, 1984, BY: S. S. TAN, P. ENG.

Signature

BETA CLAIM

SOIL/ROCK GEOCHEMICAL PLAN
- Au in PPB -
GREENWOOD MINING DIVISION, B.C.

SURVEYED BY: S. TAN

SCALE: 1:2,500

DRAWING

DRAWN BY: S.T.

DATE: 07/1984

6

