4199

GEOPHYSICAL REPORT
MAGNETOMETER, ELECTROMAGNETOMETER
SURVEYS FOR
OSWOOD G. MACDONALD

94E/6E

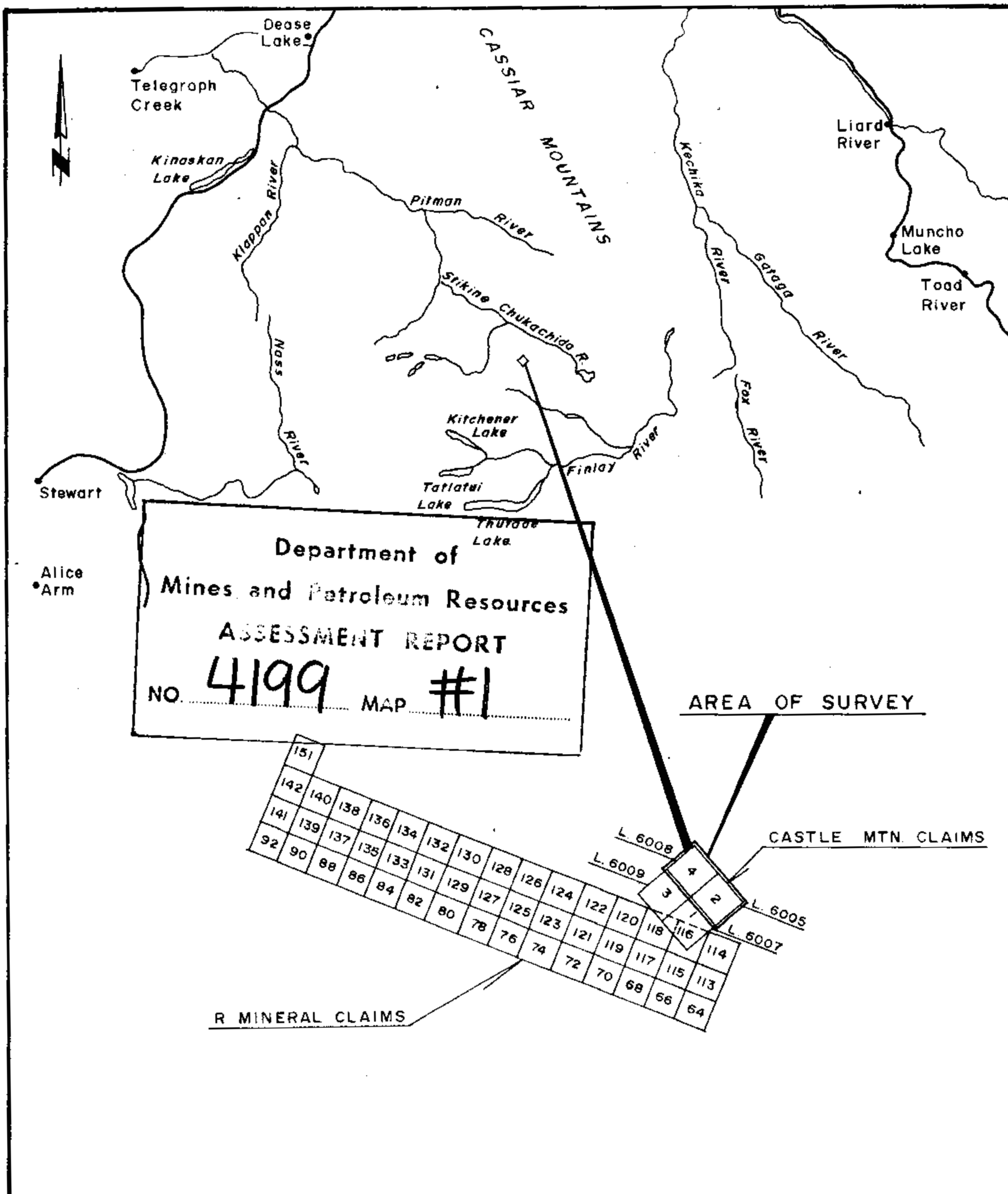
R and Castlemountain mineral claims, Chapelle creek area 180 miles northeast of Smithers, B.C.
Lat. 57°17'N Long. 127°07'W N.T.S. 94E/6

AUTHOR: Glen E. White, Geophysicist
P. ENG: D. Parent
DATE OF WORK: March 8-20, 1973
DATE OF REPORT: April 2, 1973

C O N T E N T S

PAGE

Illustrations



OSWOOD G. MacDONALD

CASTLE MTN. CLAIMS

LOCATION AND CLAIMS MAP

SCALE · LOCATION MAP · 1" = 14 MILES APPROX   CLAIMS MAP · 1/2" = 3000' APPROX.

Glen E. White geophysical consulting & services ltd

MAR. 30, 1973
FIG. 1

INTRODUCTION

During the period March 8-20, 1973, Glen E. White Geophysical Consulting and Services Ltd. conducted a limited program of ground magnetometer and electromagnetometer surveying over the Castlemountain crown grant mineral claims, Chappelle Creek area, Omineca Mining Division, B.C. on behalf of Oswood G. MacDonald.

The purpose of the survey was to try and trace by geophysical means mineral veins containing values of Au, Ag, Cu, Pb and Zn (Plate 2) under deep snow such that the information could be used to plan an exploration program for the summer months.

LOCATION AND ACCESS

The Castlemountain crown grants and R mineral claims are located approximately 6 miles north of Black Lake, Chappelle Creek area some 180 miles northnortheast of Smithers, B.C., Omineca Mining Division, Latitude 57°17'N Longitude 127°07'W N.T.S. 94E/6.

Access is by aircraft to Black Lake or to the airstrip owned by Conwest Mines Ltd. just east of Black Lake. Conwest is presently constructing a road northward to their Chappelle claims. This road will pass just east of the Castlemountain claims.

PROPERTY

The property consists of 46 contiguous R mineral claims and 4 crown grants listed as follows:

CLAIM	RECORD NO.	RECORD DATE
Castlemountain 1-4	Lots 6005, 6007-6009	
R 113-142	107359-107388	March 22, 1972
R 64, 66, 68, 70, 72, 74, 76, 78, 80, 82, 84, 86, 88, 90, 92	107310, -12, -14, -16, -18, -20, -22, -24, -26, -28, -30, -32, -34, -36, -38	March 22, 1972
R 151	108202	March 27, 1972

These claims have been grouped into two groups, Castlemountain 1 and Castlemountain 2.

GENERAL GEOLOGY

The general geology of the Castlemountain claims area is shown on Plate 1. This map appears in the 1971 Exploration Report by the B.C. Department of Mines and was provided by Kennco Explorations (Western) Ltd. to illustrate the geology of the Chappelle claims. From this map it can be seen that the Castlemountain claims are underlain by limestone and augite porphyry of the Takla group which has been intruded by the Ominecia Intrusions of monzonite porphyry and quartz monzonite to granodiorite.

PREVIOUS WORK

Plate 2 shows a sketch map of work completed over the Castlemountain claims in 1931 by C M & S. This map shows much the same detail as Plate 1 but shows a number of interesting gold, silver, lead and zinc assays on several vein systems. These claims are partially enclosed in the Chappelle claims upon which Conwest is reportedly about to drive an audit to test interesting values of gold and silver.

The geophysical surveys were undertaken to try and detect any of the mineralized veins shown on Plate 2. However, because of extremely hazardous snow conditions and steep topography, the surveys progressed slowly and were not able to reach mineral claims Castlemountain 1 and 3 which cover extremely steep topography.

SURVEY SPECIFICATIONS

Survey Grid

The survey grid consists of southwesterly directed traverse lines turned off at right angles every 400 feet and in some areas 200 feet from a northwest-southeast directed baseline. The lines were chained and flagged at

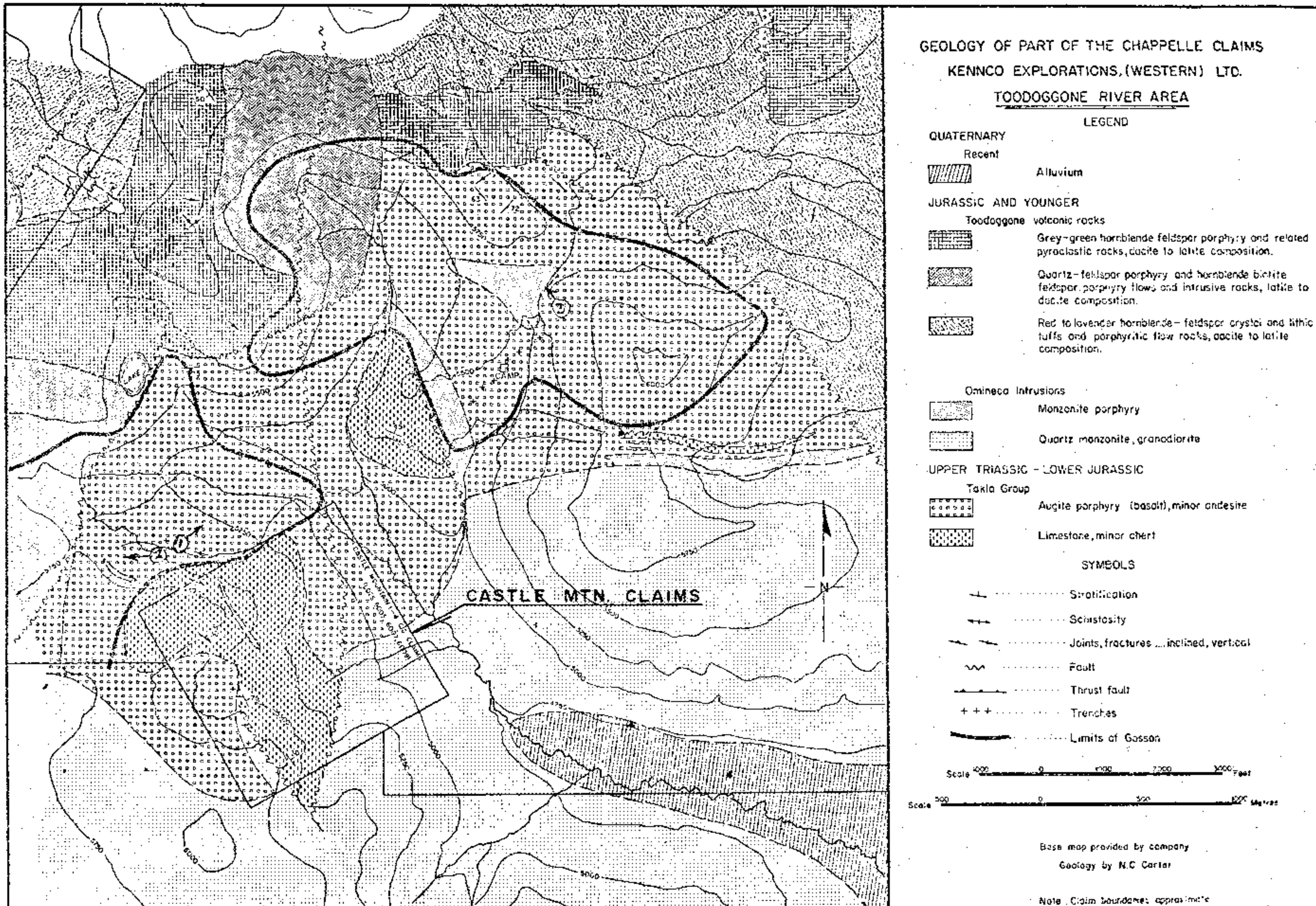
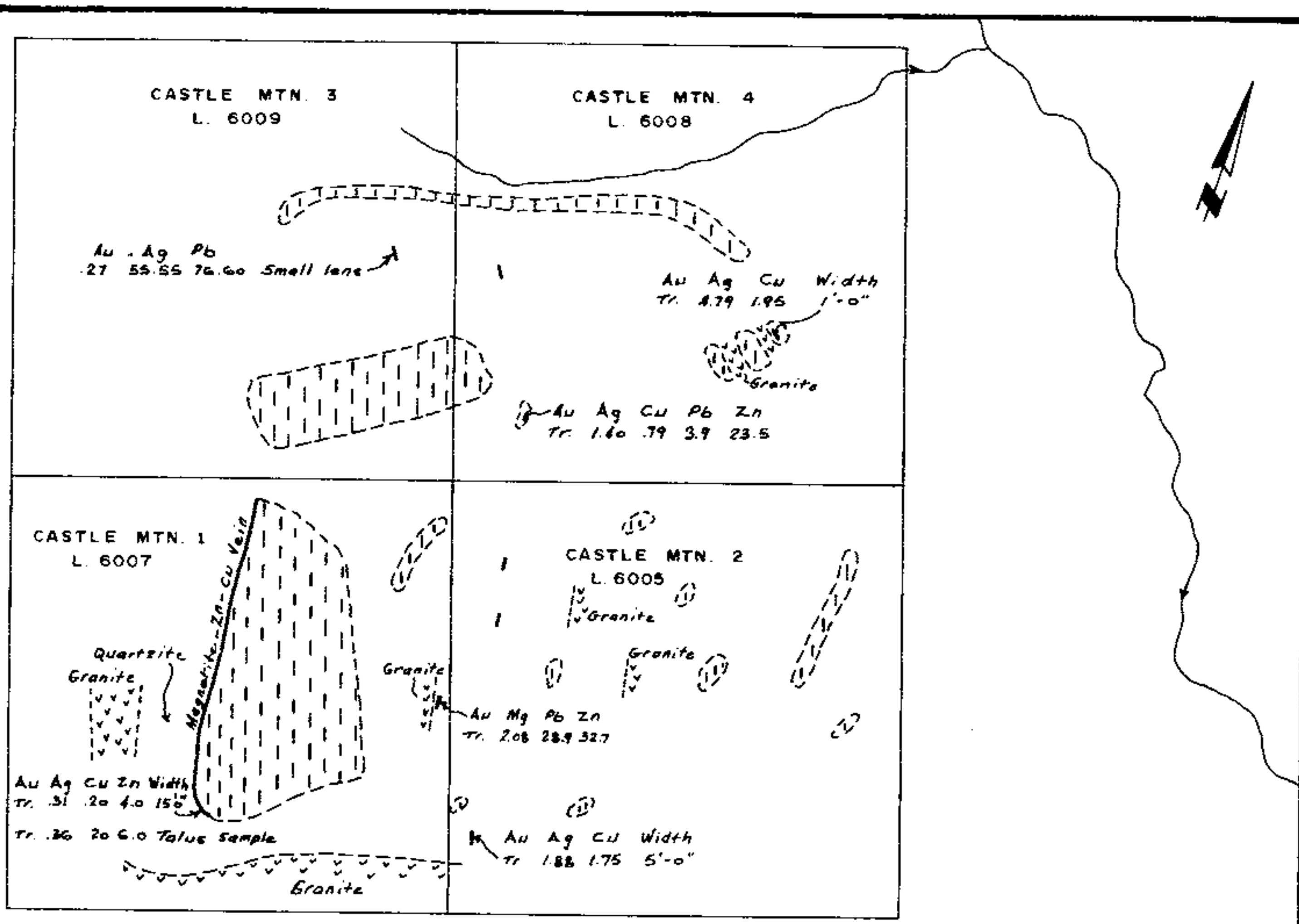


PLATE 1

GEOLOGY MAP



Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
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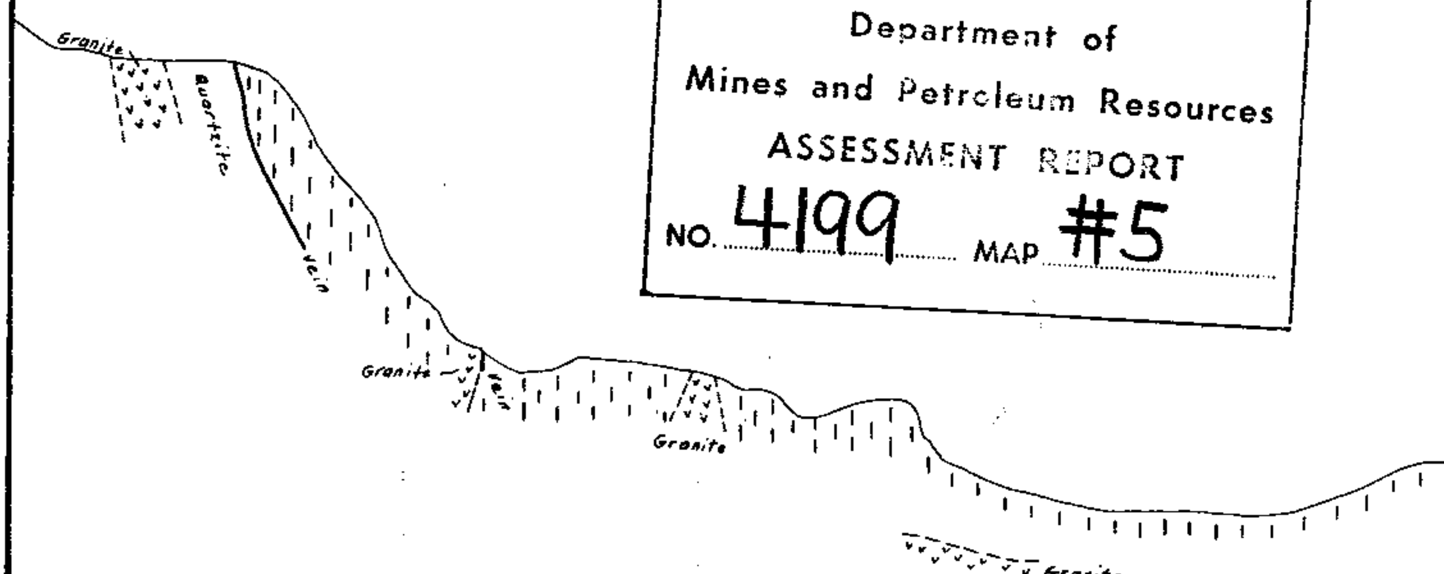


LEGEND

Limestone Outcrops

Ore Outcrops

SECTION A-B

SHOWING PROBABLE STRUCTURE

Glen E. White geophysical consulting & services ltd.

NOTE

GEOLOGY BY THE CONSOLIDATED MINING AND SMELTING COMPANY OF CANADA LIMITED (OCTOBER 1931)

Scale: 1" = 600'

MAR. 30, 1973
PLATE 2

100 foot intervals. The area was covered with some 7-12 feet of powdery snow which made the survey work extremely slow since the survey area also exhibits considerable topographic relief. Several minor avalanches occurred during the survey period. In all, some 2800 feet of baseline and 8400 feet of survey grid was established and surveyed by ground magnetometer and electromagnetometer methods.

The Magnetometer Survey

The magnetometer survey was conducted using a Fluxgate magnetometer. This instrument measures the vertical component of the earth's magnetic field to an accuracy of 10 gammas. Corrections for diurnal variation were made by tying into previously established base stations at intervals not exceeding one and one half hours. Readings were taken at 100 foot intervals along the traverse lines.

The Electromagnetometer Survey

This survey was conducted using a Ronka EM - 16 V.L.F. Electromagnetometer. This instrument acts as a receiver only. It utilizes the primary electromagnetic fields generated by VLF marine communication stations. These stations operate at a frequency between 15-25 KHZ, and have a vertical antenna-current resulting in a horizontal primary field. Thus, this V.L.F. - EM measures the dip-angle of the secondary field induced in a conductor.

For maximum coupling, a transmitter station located in the same direction as the geological strike should be selected, since the direction of the horizontal electromagnetic field is perpendicular to the direction of the transmitting station.

Readings were taken at 50 foot intervals and the data filtered in the field by the operator as described by D. C. Fraser, Geophysics Vol. 34, No. 6 (December 1969). The advantage of this method is that it removes the dc and attenuates long spatial wave lengths to increase resolution of local anomalies, and phase shifts the dip-angle data by 90 degrees so that crossovers and inflections will be transformed into peaks to yield contourable quantities.

Data Presentation

The ground magnetometer magnetic intensity data and filtered electromagnetometer dip-angle results are shown in Figures 2 and 3 respectively.

DISCUSSION OF RESULTS

The vertical magnetic intensity map, Figure 2, shows only moderate changes from a low of 1270 gammas to a high of 1650 gammas. These variations trend in a southerly to south-easterly direction and may possibly reflect weakly magnetic granitic dikes in the Takla limestone. A study of Plates 1 and 2 shows that the general trend of the mineralized veins, dikes and fault structures is from a southerly to southeasterly direction.

The filtered V.L.F. Em - 16 inphase data shows three well defined anomalous peaks. The strongest electromagnetic response occurs on line 12 + 00 N and trends off the survey area to the north. This feature is of sufficient magnitude that it likely represents a well developed fault or mineralized zone. The central electromagnetic conductor shows good responses on lines 0 + 00 and 4 + 00 S. Correlation of this anomaly with the vertical magnetic intensity data shows that the electromagnetic conductor lies along a moderate southerly directed magnetic high trend. Plate 2 shows a number of well mineralized lenses and veins lying along granitic dikes in this area. The smaller electromagnetic anomaly on line 8 + 00 S may also possibly be caused by a mineral vein or a conductive fault zone.

CONCLUSIONS

During March 1973, a limited program of magnetic and electromagnetic surveying was conducted over a group of mineral claims showing several undefined veins of interesting mineralization. The ground magnetometer survey showed weak south and southeasterly trending magnetic highs. Three electromagnetic anomalies were located, which also trend in a southerly and southeasterly direction. One electromagnetic anomaly is located along the westerly flank of a small magnetic high trend and may possibly represent a vein of mineralization along a granite dike.

RECOMMENDATIONS

Based on the above findings, it is felt that the magnetic and electromagnetic methods will be valuable in tracing the veins and lenses of gold, silver, copper, lead, and zinc mineralization and should be completed over the remaining mineralized area in conjunction with geochemical soil sampling and geological mapping.

Respectfully submitted,

Glen E. White B. Sc.
Geophysicist

STATEMENT OF QUALIFICATIONS

Name:	WHITE, Glen E.
Profession:	Geophysicist
Education:	B. Sc. Geophysics - Geology University of British Columbia.
Professional Associations:	Associate member of Society of Exploration Geophysicists. Active member B.C. Society of Mining Geophysicists.
Experience:	Pre-Graduate experience in Geology - Geochemistry - Geophysics with Anaconda American Brass. Two years Mining Geophysicist with Sulmac Explorations Ltd. and Airborne Geophysics with Spartan Air Services Ltd. One year Mining Geophysicist and Technical Sales Manager in the Pacific north-west for W. P. McGill and Associates. Two years Mining Geophysicist and supervisor Airborne and Ground Geophysical Divisions, with Geo - X Surveys Ltd. Two years Chief Geophysicist Tri-Con Exploration Surveys Ltd. Two years Consulting Geophysicist. Active experience in all Geologic provinces of Canada.

APPENDIX I

Instrument Specifications

MAGNETOMETER

A Instrument

(a) Type - Fluxgate
(b) Make - Sharpe MF - 1

B Specifications

(a) Measurement - Vertical Magnetic Field
(b) Range - ± 100 K gammas in 5 ranges
(c) Sensitivity - Maximum 20 gammas per scale division
(d) Accuracy - ± 10 gammas

C Survey Procedures

(a) Method - One and one half hour loops
(b) Corrections - (i) Base
(ii) Diurnal

(c) Station relationship - each station read for intensity of vertical magnetic field.

APPENDIX II

Instrument Specifications

ELECTROMAGNETOMETER

A. Instrument

(a) Type - Geonies VLF - EM
(b) Make - Ronka EM 16

B. Specifications

Measurement

(i) Utilizes primary fields generated by VLF marine communication stations, measures the vertical field components in terms of horizontal field present.

(ii) Frequency range 15-25 KHZ

(iii) Range of measurement - in phase ±150% or ± 90°.
- quadrature ±40%.

(iv) Method of reading - null detection by earphone, real and quadrature from mechanical dials.

(v) Accuracy - ± 1% resolution.

C. Survey Procedures

Method

(a) Select closest VLF station perpendicular to traverse lines.
(b) In-phase dial measures degree of tilt from vertical position.
(c) Quadrature dial calibrated in percent - null.
(d) Station plot - plot values read at station surveyed.
(e) Manually filter dip-angle data.

C E R T I F I C A T E

I, Douglas Parent, DO HEREBY CERTIFY AS FOLLOWS:

(1) That I am a Consulting Mining Engineer with a business office at 4495 Wallace St., Vancouver 8, B.C.

(2) That I am a graduate of New Mexico Institute of Mining and Technology having received the degree of B. Sc. in Mining Engineering in 1934.

(3) That I am a registered P. ENG in the Association of Professional Engineers in the province of British Columbia and Quebec.

(4) That I have practised my profession as a Mining Engineer for the past 36 years.

(5) That I have reviewed a report dated April 2, 1973 based on work conducted by Glen E. White Geophysical Consulting and Services Ltd. under the supervision of Glen E. White, B.Sc., Geophysicist, and concur with the findings therein.

(6) That I have no interest directly or indirectly in the Castlemountain crown grants or the R mineral claims nor do I expect to acquire or receive any.

Dated at Vancouver, British Columbia, this 2nd day of April, 1973.

DOUGLAS PARENT, P. ENG

Douglas Parent, P. ENG

4199 M-2

Department of Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 4199 MAP #2

OSWOOD G. MacDONALD

CASTLE MTN. CLAIMS

OMINECA MINING DIVISION – BRITISH COLUMBIA

GEOPHYSICAL MAP

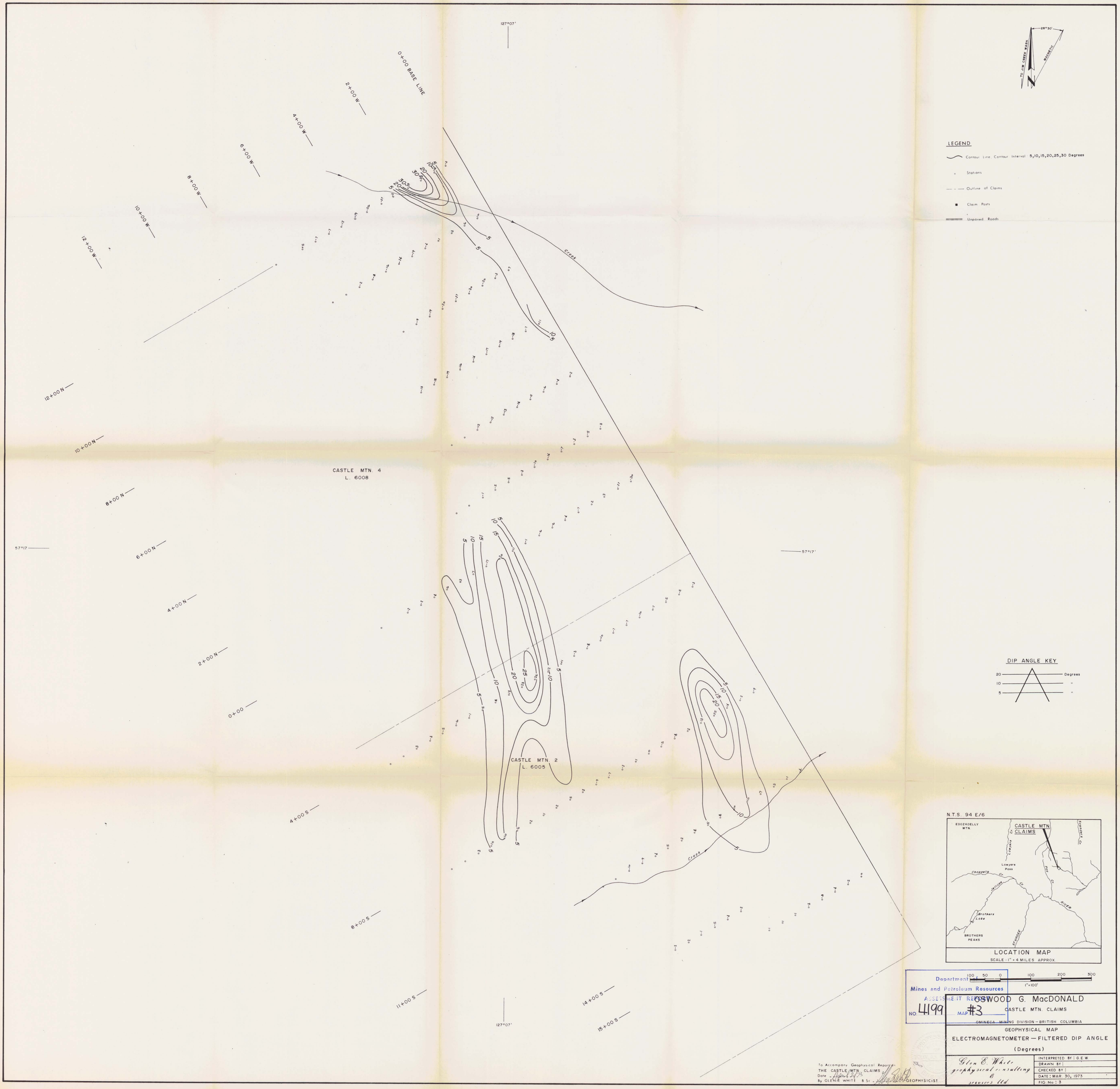
VERTICAL MAGNETIC INTENSITY

(Gammas)

Glen E. White geophysical consulting & services ltd.

INTERPRETED BY: G.E.W.
DRAWN BY:
CHECKED BY:
DATE: MAR. 30, 1973
FIG. No: 2

To Accompany Geophysical Report on
THE CASTLE MTN. CLAIMS
Date April 2/73
By GLEN E WHITE B Sc GEOPHYSICIST



0+00 BASE LINE
2+00 W
4+00 W
6+00 W
8+00 W
10+00 W
12+00 W
12+00 N
10+00 N
8+00 N
6+00 N
4+00 N
2+00 N
0+00
4+00 S
8+00 S
11+00 S
14+00 S
15+00 S
127°07'
57°17'
CASTLE MTN. 4
L. 6008
CASTLE MTN. 2
L. 6005
Creek
LEGEND
Contour Line Contour Interval 5,10,15,20,25,30 Degrees
Stations
Outline of Claims
Claim Posts
Unpaved Roads
DIP ANGLE KEY
Degrees
N.T.S. 94 E/6
CASTLE MTN CLAIMS
Brothers Lake
BROTHERS PEAKS
STURDEE
LOCATION MAP
SCALE: 1" = 4 MILES APPROX.
1" = 100'
OSWOOD G. MacDONALD
CASTLE MTN. CLAIMS
OMINECA MINING DIVISION – BRITISH COLUMBIA
GEOPHYSICAL MAP
ELECTROMAGNETOMETER — FILTERED DIP ANGLE
(Degrees)
Glen E. White geophysical consulting & services ltd.
INTERPRETED BY: G.E.W.
DRAWN BY:
CHECKED BY:
DATE: MAR. 30, 1973
FIG. No: 3
To Accompany Geophysical Report on THE CASTLE MTN. CLAIMS
By GLENN WHITE B.Sc. GEOPHYSICIST