

GEOPHYSICAL REPORT  
FLAT MINERAL CLAIMS  
TURNAGAIN RIVER AREA  
MAP SHEET 104I/7 W(M)  
58° 128° S.E.

BY PAUL S. WHITE  
FOR CASSIAR ASBESTOS CORPORATION

HELICOPTER BORNE  
MAGNETOMETER SURVEY.

SURVEY PERFORMED  
JUNE 11th - 14th 1967

1077

1077

GEOPHYSICAL REPORT OF  
AIRBORNE MAGNETOMETER SURVEY OF  
FLAT MINERAL CLAIMS Nos. 25-34, 43-46

IN

TURNAGAIN RIVER AREA - CRY LAKE SHEET

MAP 104 I/7 W(M)

58° 128° S.E.

BY

PAUL S. WHITE

FOR

CASSIAR ASBESTOS CORPORATION

DATES OF SURVEY: JUNE 11TH - 14TH Inclusive

1967

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- Map 1 ..... Topographic Map - CRY LAKE - Sheet 104 I #1
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INTRODUCTION:

In March 1967 the Cassiar Asbestos Corporation requested that Paul S. White P. Eng., (Mining) carry out a reconnaissance survey using airborne magnetometer equipment of certain FLAT mineral claims in the Turnagain River area of the Cry Lake map sheet in the Cassiar Mining Division of the Province of British Columbia. Mr. White was commissioned to act as consultant and prime contractor in the performance of the survey. Mr. White selected the method of survey as a helicopter borne Varian magnetometer survey for the purpose of outlining target areas for follow-up ground investigation during the 1967 summer field season, and engaged the following companies to participate in the performance of the survey;

- a) Coast Range Airways Ltd.
- b) Chapman, Wood & Griswold Ltd.
- c) Exploration Geophysics (Yukon) Ltd.
- d) White, Hosford & Impey Ltd.

The duties of the various companies are described in the later section of this report titled "PERSONNEL".

The survey was scheduled for early June and in fact took place between the dates of June 11th and June 14th, 1967.

LOCATION OF SURVEY AND MINERAL CLAIMS

The magnetic survey covered the FLAT mineral claims which are located in the general area overlying the junction of the Turnagain River and Hard Creek, at approximate north latitude  $58^{\circ}$  and west longitude  $128^{\circ}$  (S.E. Sheet corner) on Map Sheet 104 I/7 W(M). The mineral claims grouped for Assessment Work by this report are the FLAT M.C.s Nos. 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 43, 44, 45, 46, and are shown in relation to the survey on Map 2 in the Appendix accompanying this report. A copy of the CRY LAKE map sheet No. 104 I is also included in the Appendix as Map 1.

GENERAL GEOLOGY

The area shown as shown by Map 2 is almost entirely underlain by a single, large, ultramafic intrusive of gabbro through peridotite composition. The ultramafic body is oval shaped in plan and measures approximately 5 miles by 3 miles being elongated northwesterly and paralleling the southern margin of the Cassiar Batholith, from which it is separated by a 4 mile wide belt of Lower Jurassic sedimentary rocks.

The ultramafic body forms buff weathering outcrops on both sides of the Turnagain River in the northern part of the project area and is obscured by talus, overburden and vegetation to the south. A large granitic stock is known to be present southwest of Hard and Flat Creeks and a granite-ultramafic contact is a likely possibility. To the southeast the ultramafic body appears to be intrusive into the argillites and chert arenites of the Mississippian Sylvester Group.

GENERAL GEOLOGY (Continued)

The ultramafic varies in internal ~~composition~~ color from light mottled grey to dense black. It contains much crystalline olivine and in places approaches dunite composition. Some phases of the body are pyroxenitic. The entire body is magnetic but the magnetite distribution varies widely. Pyrrhotite is known to be widely distributed throughout the mass and in places carries erratic amounts of nickel and copper sulphides.

NOTE: Geology described supplied by W. Plumb, Chief Geologist, Cassiar Asbestos Corporation.

EQUIPMENT USED FOR SURVEY

A Bell 47G-3B1 helicopter (CF-UFC) with pilot and engineer was supplied by Coast Range Airways Ltd. of Atlin B.C. after the helicopter's power supply was adapted to receive the electrical connections of the Varian magnetometer used.

The magnetometer was supplied, with operator- navigator, by Chapman, Wood and Griswold Ltd, Consulting Geologists and Engineers, of Vancouver B.C. The instrument used was a Varian Associates of Palo Alto, California, Model V 4937 Proton magnetometer of airborne configuration. This magnetometer utilizes proton free precession to measure and record absolute total intensity of Earth's magnetic field. A phase lock circuitry multiplies precession frequency for direct gamma readout using an analog strip chart recorder. The instrument's range is one hundred thousand gammas with sensitivity of plus or minus one gamma.

EQUIPMENT (continued)

Navigation of the flight lines was visual and was recorded in flight by the navigator-operator on aerial photo mosaics.

PERSONNEL

<u>COMPANY</u>	<u>NAME</u>	<u>FUNCTION</u>	<u>NAME</u>
Chapman, Wood & Griswold Ltd.		Engineer Navigator Operator	P.H. Blanchet P. Eng.
Coast Range Airways Ltd.		Pilot Engineer'	C. Ford
Exploration Geophysics (Yukon Ltd.)		DATA REDUCTION Final plotting	J. S. Brock B.Sc. Geophysicist
White, Hosford & Impey Ltd.		Initial plotting Expediter	D. Gamble
		Consultant and Prime Contractor	P.S. White P. Eng.
Cassiar Asbestos Corporation		Client and Consulting Geologist	W. Plumb P. Eng.

SURVEY PERFORMANCE

The survey was scheduled for early June performance and all personnel met in Whitehorse on June 10, 1967. Liason was completed and all personnel left for the D. of T. camp at Dease Lake where a supply of gas had been established. The magnetometer was installed in the helicopter on June 11th and the reconnaissance flight of the area made that day. The actual survey work was performed on June 13th and June 14th. The total helicopter hours exclusive of ferry time from Atlin to Dease Lake and return were 4.9 hrs. The total mileage flown obtaining usable magnetic readings was 48.0.

SURVEY PERFORMANCE (continued)

The location of the flight lines are shown on Map 2. The flight lines were parallel for the most part and spaced from 1000 feet to 1320 feet apart, running in a northeasterly and southwesterly pattern. The results were plotted on Map 2 at a scale of 1320' = 1" inch, and contoured at intervals of 200 gammas to give the magnetic contours shown on Map 2.

The reduction of field data was performed once by P.H. Blanchet and D. Gamble in the field to give a preliminary work map for area exploration analysis, and the results of the first reduction were plotted in Whitehorse between June 15th and June 21st. These work maps were sent with the strip charts of magnetic readings to Mr. J.S. Brock, a graduate of the University of British Columbia in Geophysics, who with Mr. White made a final data reduction and finished map of the survey. Mr. Brock is a director and consultant to a geophysical contracting company of Whitehorse Yukon, - Exploration Geopysics (Yukon) Ltd.

RESULTS OF SURVEY

The results of the survey are shown in contour form on Map 2 and show total magnetic intensity in gammas of the Earth's magnetic field. Three areas of high magnetic response were outlined in the area surveyed and are centred on

- 1) Fiducial point 21 - Flight line No. 64
- 2) Fiducial point 44- Flight line No. 61
- 3) Fiducial point 56- Flight line No. 59

Magnetic highs indicating probable magnetite or other form of iron concentration were also found along the northerly boundary of the area surveyed and the said areas of high response pointed out to the client for his consideration and



Results of Survey (continued)

~~and~~ decision for further exploration requirements.

CONCLUSIONS AND SUMMARY

The magnetic survey of the Flat mineral claims was undertaken by Paul S. White (White, Hosford and Impey Ltd.) on behalf of Cassiar Asbestos Corporation and performed between June 11th and June 14th, 1967. The survey covered the area shown on Map 2, and was accomplished by obtaining usable results from 48.0 line miles of helicopter borne magnetometer readings. The expenditures as shown by affidavit accompanying this report were in total the amount of \$ 1440.00 which expenditures covered all charter helicopter charges, consulting fees to Chapman, Wood and Griswold Ltd. (including magnetometer rental), all field expenses for travel and subsistence for personnel, data reduction and interpretation by Exploration Geophysics (Yukon ) Ltd., and White, Hosford and Impey Ltd.

The mapped magnetic results showed areas of high magnetic response which the author believes are worthy of ground prospecting and exploration.

Respectfully submitted this 10th day  
of August A.D. 1967



Paul S. White P. Eng. (Mining)  
(Yukon and Alta.)

AFFIDAVIT OF EXPENDITURES

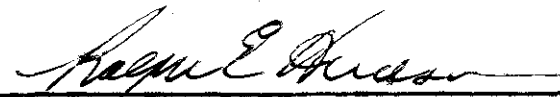
I, PAUL S. WHITE, ENGINEER, OF THE CITY OF WHITEHORSE IN THE  
YUKON TERRITORY, MAKE OATH AND SAY:

THAT I HAVE CAUSED TO BE PERFORMED AN AIRBORNE MAGNETOMETER  
GEOPHYSICAL SURVEY OF THE FLAT MINERAL CLAIMS, MORE ESPECIALLY THE  
FLAT MINERAL CLAIMS Nos. 25-34 incl. and 43-46 incl., BETWEEN  
THE DATES OF June 11th and June 14th, A.D. 1967, and THAT I HAVE  
RECEIVED MONIES IN THE SUM OF \$ 1440.00 (ONE THOUSAND FOUR HUNDRED  
FORTY DOLLARS) FROM THE CASSIAR ASBESTOS CORPORATION OF CASSIAR B.C.  
TO COVER THE COSTS OF SAID SURVEY, WHICH MONIES I HAVE FULLY  
EXPENDED TO COVER THE HELICOPTER CHARGES, GEOPHYSICAL EQUIPMENT  
RENTAL CHARGES, SUBSISTENCE CHARGES, CONSULTING FEES AND  
HELICOPTER FUEL COSTS DIRECTLY ASSOCIATED WITH THE SAID SURVEY.

SWORN BEFORE ME AT THE CITY OF WHITEHORSE

  
P.S. WHITE

IN THE YUKON TERRITORY THIS 11th day of AUGUST A.D. 1967

  
NOTARY PUBLIC FOR THE YUKON TERRITORY

STATEMENT OF QUALIFICATIONS

I, PAUL S. WHITE, ENGINEER, OF THE CITY OF WHITEHORSE IN THE YUKON TERRITORY, HEREBY DECLARE MY QUALIFICATIONS AND RESPONSIBILITIES IN THE MATTER OF THE AIRBORNE GEOPHYSICAL SURVEY DESCRIBED IN THE ACCOMPANYING REPORT:

- 1) I AM A GRADUATE IN APPLIED SCIENCE IN MINING ENGINEERING WITH GEOPHYSICS OPTION HAVING OBTAINED THE DEGREE OF BACHELOR OF APPLIED SCIENCE IN MINING ENGINEERING (B.A.Sc. Mining) FROM THE UNIVERSITY OF BRITISH COLUMBIA IN 1956.
- 2) I RESIDE AT Box 1188, CITY OF WHITEHORSE IN THE YUKON TERRITORY, AND AM A PROFESSIONAL ENGINEER (MINING), DULY REGISTERED IN THE ASSOCIATION OF PROFESSIONAL ENGINEERS OF THE PROVINCE OF ALBERTA AND THE ASSOCIATION OF PROFESSIONAL ENGINEERS OF THE YUKON TERRITORY.
- 3) I AM THE MANAGING DIRECTOR OF WHITE, HOSFORD AND IMPEY LTD., THE PRIME CONTRACTORS FOR THE PERFORMANCE FOR THE SURVEY REFERRED TO BY THIS REPORT, AND THE MANAGING DIRECTOR OF EXPLORATION GEOPHYSICS (YUKON) LTD. WHO PERFORMED THE FINAL MAGNETIC DATA REDUCTION FOR THE SAID SURVEY.
- 4) I HAVE BEEN ENGAGED IN THE PERFORMANCE OF GEOPHYSICAL SURVEYS SINCE December, 1957.

Signed this 10th day of August A.D. 1967 at Whitehorse Yukon

*Paul S. White*  
Paul S. White P.Eng.

Third Ave.

# White, Hosford & Impey Limited

LEGAL SURVEYS :: ENGINEERING

Whitehorse, Yukon

Paul S. White, P. Eng., A.L.S., D.L.S.  
A. Denis Hosford, A.L.S., B.C.L.S.  
Hugh E. Impey, A.L.S., S.L.S., M.L.S., D.L.S.

3 August 1967

## STATEMENT OF ACCOUNT

WITH: CASSIAR ASBESTOS CORPORATION LTD  
CASSIAR BC

TO: Aeromagnetic Survey at Flat Creek, B.C. using  
Varian magnetometer and Bell 47G-3B1 helicopter,  
including helicopter charges, magnetometer rental,  
consulting services of

- a) Chapman, Wood & Griswold Ltd.
  - b) White, Hosford & Impey Ltd.,
  - c) Exploration Geophysical (Yukon) Ltd.
- and preparation of plans and reports.

OUR FEES:

48.0 Line miles @ \$30.00/line mile	\$1440.00
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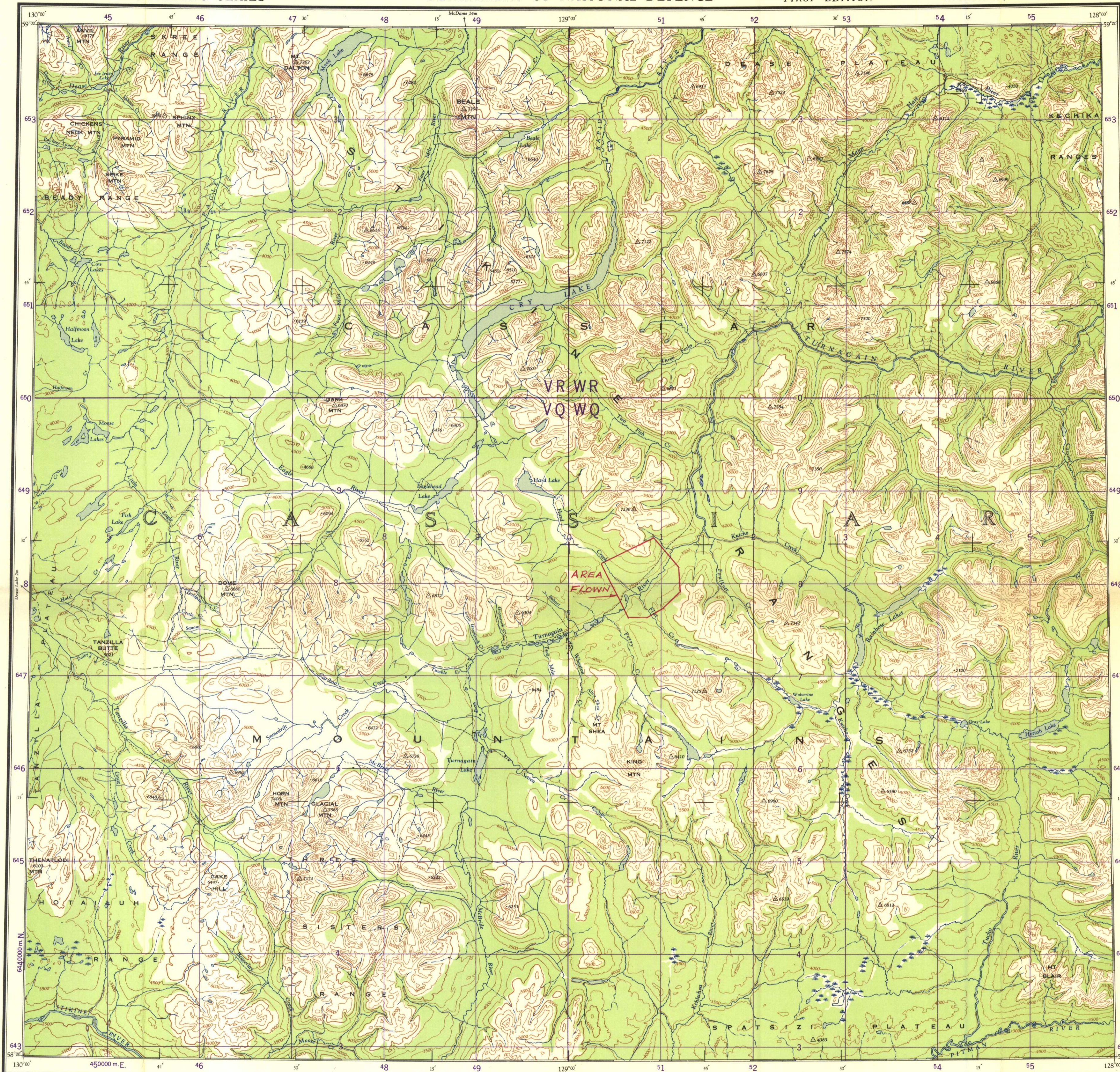
\$1440.00

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THIS IS TO CERTIFY THAT THE CHARGES STATED ABOVE WERE  
APPLICABLE TO THE PROJECT DESCRIBED AND ARE FAIR AND  
JUST.



(PAUL S. WHITE) P.ENG.

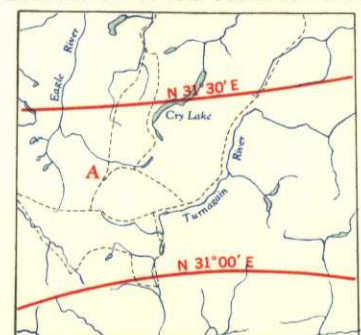


Department of  
Mines and Petroleum Resources  
ASSESSMENT REPORT  
NO. 1077 MAP 1

GRID ZONE DESIGNATION	TO GIVE A STANDARD REFERENCE ON THIS SHEET TO NUMBER 1000 METRES
9V	
100 000 M SQUARE IDENTIFICATION	SAMPLE POINT TRIANGULATION STA
VR WR	WQ
VQ WQ	07
50	8
	WQ0788
	9VW0788

TEN THOUSAND METRE  
UNIVERSAL TRANSVERSE MERCATOR GRID  
ZONE 9

THE DECLINATION OF THE COMPASS NEEDLE, 1952

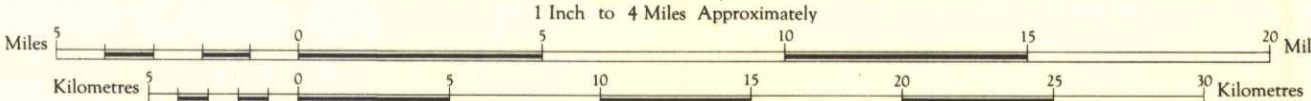


The declination of the compass needle at any place along a red line is the declination given on that red line. At other places the declination is between those given on the neighboring red lines. The declination is between N. 31° 00' E. and N. 31° 30' E. The yearly declination of the compass needle on decreasing 5 minutes annually.

Surveyed, compiled, shown and printed by the ARMY SURVEY ESTABLISHMENT R.C.E., 1949-53.  
Aerial photography by the R.C.A.F. 1949.  
Universal Transverse Mercator Projection.

REFERENCE

Road, Lower Surface, All Weather	More than 2 Lanes	2 Lanes
Road, Lower Surface, Less than 2 Lanes	All Weather	Dry Weather
Cart Track		
Trail		
Railway, Multiple Track		
" Single Track		
Boundary, International		
" Province or State		
" County or District		
" Reservations, Indian, Military, Park, etc.		

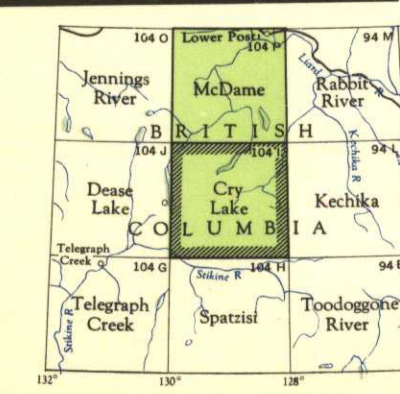


Contour Interval 500 Feet.

All Elevations in Feet above Mean Sea Level.

REFERENCE

Triangulation Station	Spot Elevation, in feet	257
Contours, Elevation	Woods Area	
" Depression	Swamp or Marsh	
" Approximate		
Stream, Intermittent	Ferry	W.L. 241
" Perennial	Navigation Light	
Dam	Archeological, in Land	
Field	Elevation in Feet 250	
Main Electric Power Line	on Water	



NOTE: On the above index the sheets published are shown in red.

To Accompany GEOPHYSICAL  
REPORT - FLAT MINERAL CLAIMS  
By PAUL S. WHITE

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CASSIAR ASBESTOS CORP. LTD.  
AIRBORNE GEOPHYSICAL SURVEY

SHEET 1



CONTOUR INTERVAL 200 GAMMA  
MEAN FLIGHT LINE SPACING 1000 FEET  
MEAN TERRAIN CLEARANCE 400 FEET  
1000 GAMMA CONTOUR  
500 GAMMA CONTOUR  
MAGNETIC LOW  
EVIDENTIAL POINTS 0.36  
FLIGHT LINES

FLAT CREEK AREA  
B.C.  
1 in. = 1320 ft.



AEROMAGNETIC MAP

Flown by: CHAPMAN, WOOD and GRISWOLD, Ltd.  
Vancouver, B.C. (June 1967)  
Compiled by: EXPLORATION GEOPHYSICS (Yukon) Ltd.  
Whitehorse, Y.T.  
*Paul White P. Eng (Mining)*

Department of  
Mines and Petroleum Resources  
ASSESSMENT REPORT  
NO. 1077 MAP No. 2

**1077**  
MAP No. 2

To ACCOMPANY GEOPHYSICAL REPORT  
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