

KENNCO EXPLORATIONS, (WESTERN) LIMITED  
GEOPHYSICAL REPORT ON THE MAGNETOMETER SURVEY  
PART OF THE  
G.C., HAB AND BUY CLAIM GROUPS, GALORE CREEK, B.C.  
54 miles south southwest of Telegraph Creek  
57° 131° S.E.  
Sept. 19, 1961 By <sup>1046/3W</sup> H. W. Fleming, M.A. P.Eng.

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KENNCO EXPLORATIONS, (WESTERN) LIMITED

GEOPHYSICAL REPORT ON THE MAGNETOMETER SURVEY

PART OF THE G.C., HAS AND BUY CLAIM GROUPS

GALORE CREEK, LIARD MINING DIVISION,

BRITISH COLUMBIA

BY

H. W. FLEMING M.A., P. ENG.

TORONTO, ONTARIO

SEPTEMBER 19, 1961

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Enclosure - Magnetometer Survey,  
Part of Galore Creek Property,  
Liard M.D., British Columbia. 1  
Scale = 1 inch = 400 feet

Department of  
Mines and Petroleum Resources  
ASSESSMENT REPORT

NO. 368 MAP

KENNCO EXPLORATIONS, (WESTERN) LIMITED,  
GEOPHYSICAL REPORT ON THE MAGNETOMETER SURVEY,  
PART OF THE G.C., HAB AND BUY CLAIM GROUPS  
GALORE CREEK, B. C.

1. SUMMARY

The main areas of interest indicated by the aeromagnetic survey were surveyed as completely as possible on the ground by a total of approximately thirty (30) line miles of magnetometer surveys. The line spacing, where topography permitted, was eight hundred (800) feet.

This work confirmed the general features of the aeromagnetic work and provided more detail as to the nature of the magnetic trends and the geological structures. Since many of the stronger induced polarization anomalies are associated with significant magnetic anomalies or within a magnetic zone, it seems likely that similar geologic processes may control the distribution of both the magnetite and sulphide mineralization. Other sulphide mineralization, however, shows little or no relation to magnetic features.

It is recommended that all geophysical and geological data be compiled and a comprehensive drilling program be carried out on the basis of these data. Some consideration should be given to carrying out additional work in critical areas, in future years.

2. PROPERTY AND OWNERSHIP

The area covered by the ground magnetometer survey was staked at the time the work was performed. The claims consist of one hundred and forty-nine (149) G.C. claims, two (2) fractions, six (6) Hab claims and ten (10) Buy claims; all owned or under option to Kennco Explorations, (Western) Limited. Four (4) Hab claims held by Consolidated Mining and Smelting Limited lie within the above mentioned groups.

3. LOCATION AND ACCESS

The claim groups are located near the glacial headwaters of the Galore Creek, in the Liard Mining Division of British Columbia at approximately 57° 7' north latitude and 131° 27' west longitude. Galore Creek is a tributary of the Scud River which empties into the Stikine River about forty (40) miles north of its junction with the Iskut River.

The properties are accessible, for all practical purposes only by helicopter from a base at the junction of the Anuk and Stikine Rivers, some twelve (12) miles to the west. This helicopter base may be reached by barge once a week from Wrangell, Alaska, or by charter aircraft from Terrace, British Columbia, a distance of about 220 miles to the southeast.

Wrangell, Alaska may be reached by scheduled airlines from Seattle, Washington, and Terrace, British Columbia, by C.P.A. from Vancouver.

#### 4. HISTORY AND PREVIOUS WORK

Copper mineralization was discovered in the Galore Creek area by prospectors during 1955 and 1956 and claims were staked by Hudson Bay Exploration and Development Company, Limited who carried out a program of mapping, sampling and diamond drilling on these claims in 1956 and 1957.

Reconnaissance work by Kennco Explorations, (Western) Limited first attracted attention to this region in 1959, and during 1960, claims were acquired and a certain amount of regional and detailed mapping and sampling were carried out.

In 1961, an aeromagnetic survey indicated certain general features of the area which seemed to favour mineral concentration. It was recommended that ground surveys by induced polarization and magnetic methods should be carried out to clarify, if possible, the general features of this work and to aid in selecting drilling targets.

#### 5. GENERAL GEOLOGY

Incomplete geological mapping indicates that the Galore Creek area is principally underlain by pre-Upper Jurassic volcanic and clastic sedimentary rocks lying near the eastern flank of the Coast Intrusions. To the north and east, the watershed area is rimmed by Permian and possibly older rocks consisting of mainly crystalline limestone with minor siltstone, chert and shale.

The head of the west fork of Galore Creek drains a large basin which is underlain by a complex assemblage of multiple intrusive rocks of syenitic composition which has been termed the "Galore Creek Stock".

Sulphide mineralization occurs in many places within the stock as disseminations and segregations. Pyrite is the most common sulphide but chalcopyrite, bornite and other copper minerals have been noted. Magnetite is a common accessory mineral and occasionally forms the matrix of breccia deposits in which large fragments of syenite are cemented principally by magnetite.

In general the outline of the "Galore Creek Stock" parallels the outline of the basin drained by Galore Creek and is somewhat oval-shaped with the long axis in the north-south direction.

#### 6. WORK PERFORMED

In order to carry out the ground magnetometer survey which totalled 158,500 feet or approximately thirty (30) line miles, it was necessary to cut or otherwise establish 145,500 feet or approximately twenty-seven (27) line miles of line plus base lines. The cost of the line cutting has been calculated at \$1.70 per 100 feet and the magnetometer work at \$2.00 per 100 feet. This gives costs of \$2,473.50 and \$3,170.00 for line cutting and magnetometer work, respectively, and a total cost of \$5,643.50.

The magnetometer data were obtained with an Askania Torsion magnetometer measuring the variations in the earth's vertical magnetic field. The scale constant of this instrument is 264.5 gamma per degree and readings can be taken to one one hundredth of a degree or about two (2) gamma. Readings were corrected for diurnal effects in a standard manner and it is believed that most readings are well within a twenty-five (25) gamma limit of accuracy. The line spacing of 800 feet was considered close enough to outline the general features sought. Logistical reasons rendered it impractical to fill in lines at closer intervals at this time.

Station 200+00N, 200+00E was arbitrarily assigned a value of 2500 gamma at the commencement of the survey, and all values have been calculated relative to this base.

## 7. INTERPRETATION OF DATA

The ground magnetometer survey was laid out to cover, in some detail the area underlain by three aeromagnetic anomalies previously designated as the Northwest Anomaly, the Southeast Anomaly and the Central Anomaly. This aim was largely achieved; the exception being the Southeast Anomaly which was largely, topographically inaccessible.

This work has confirmed the presence of these anomalous areas and the intensity of the Northwest Anomaly is shown to be 2000 to 3000 gamma and the peak value of the Southeast Anomaly to exceed 10,000 gamma. The Central Anomaly has also been shown to exist but the magnetic background is somewhat more variable than previously indicated.

### (1) Northwest Anomaly

This anomalous zone extends in a general manner from line 176 north to line 288+90 north but over this distance it is not uniform either in magnitude or extent. Local well-developed anomalies occur on lines 184 north, 192 north "G" and "B". On Line 288+90 north, several narrow anomalies of 3000 to 4000 gamma in intensity are present. An anomaly at 181 east on line 160 north may also be a part of this zone.

To date, we have not established any precise correlation of magnetism with sulphide mineralization in this zone. Certainly the amount of magnetite observed in geological observations is small but less than five percent magnetite by volume is quite adequate to satisfy the anomalies that have been outlined. However, a concentration of significant induced polarization anomalies occurs well within the limits of the magnetically anomalous zone, and while there is no direct relationship between the strength of the magnetic anomaly and the magnitude of the induced polarization response, some of the better and more extensive responses do coincide with the stronger, magnetically anomalous zones.

Certainly, the induced polarization anomalies within this zone can be fairly highly rated on the basis of their location for the occurrence of sulphide mineralization within this magnetically anomalous contact zone can be regarded as a favourable circumstance.

(ii) Southeast Anomaly

Because of the rugged topography in this region, only a portion of this anomaly in the vicinity of the aeromagnetic peak could be surveyed. This anomaly, which occurs between 138+50 north and 150+50 north, is one of marked contrasts with values varying between extremes of  $\pm 10,000$  gammas from background. Such variations are evidence of intense, local, near-surface concentrations of magnetite, but probably the average content of the whole zone is not more than ten percent by volume. This magnetic zone trends to the north and to the southwest away from the peak and the anomalies are of much smaller magnitude. It is possible that this zone could be overlain by other rock in both these directions or is becoming narrower and less intense.

As some copper mineralization has been found associated with a magnetite breccia in this locality, further investigations of the extensions of this anomaly are warranted, if necessary, by drilling.

(iii) Central Anomaly

As suspected, the relative smoothness of this airborne anomaly was due, in part to the greater height of the helicopter at this point in the survey. However, with the exception of the anomalies at 181 east and 160 north, 208 east and 168 north and 192 east and 240 north, this area is a remarkably featureless low and the magnetic data offer little in the way of structural indications. The absence of prominent structural features may indicate that this low occupies the central portion of the "Galore Creek Stock".

The anomaly at 181 east and 160 north probably is representative of a body some 200 feet to 300 feet in width, of limited strike length and containing not more than three percent magnetite by volume. The induced polarization data here are incomplete and the merits of this anomaly can only be determined by drilling.

The anomaly at 208 east and 168 north can be caused by a narrow body 100 feet to 150 feet in width, some 2000 feet in length and containing at most ten percent magnetite by volume. A significant induced polarization anomaly coinciding with the magnetic anomaly suggests that sulphide mineralization may be present and that this anomaly warrants further investigation.

The anomaly at 192 east and 240 north is probably due to a narrow body about 100 feet in width, of undetermined strike length and probably containing less than three percent magnetite by volume. No induced polarization data are available.

It is apparent in the case of the three anomalies mentioned above that if the magnetic anomalies are representative of the size and shape of any associated sulphide occurrences, that these bodies will be of a tabular nature and of limited, though possibly significant, extent.



8. CONCLUSIONS AND RECOMMENDATIONS

The ground magnetic and induced polarization data for the Northwest and Central Anomalies should be compiled and used in conjunction with the geological data to lay out a drilling program to investigate the potentialities of the region. These data should be continually re-assessed as more information becomes available. The Southeast Anomaly should be followed up by surface work or drilling, as logistics demand. Because of the extreme topography, it is unlikely that induced polarization surveys would be of any great value in this instance.


The magnetic work has been of considerable value in indicating the trends and structure of the region and it is recommended that this work be continued in future years to fill in between the 800 foot lines in critical areas. Furthermore, since sulphide mineralization is known to be associated with magnetite breccias in some localities, there is always the possibility that one of these stronger, magnetic anomalies will indicate a relatively high-grade sulphide concentration.

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H. W. Fleming, M.A., P.Eng.

Toronto, Ontario.  
September 19, 1961.



Magnetometer Survey

Statement of Expenditures

<u>Magnetometer Survey</u>	July - August 1961	
156,500 feet at \$2.00 per 100 feet		\$ 3,170.00
<u>Line Cutting</u>	June - July - August 1961	
145,500 feet at \$1.70 per 100 feet		<u>\$ 2,473.50</u>
	<u>TOTAL</u>	\$ 5,643.50

*H. W. Fleming*

KENNECO EXPLORATIONS, (WESTERN) LIMITED

Magnetometer Survey

List of Claims & Work Distribution

<u>Group</u>	<u>Claim No.</u>	<u>Record No.</u>	<u>Tag No.</u>	<u>Feet Surveyed</u>	<u>Cost</u>	<u>Feet Cut</u>	<u>Cost</u>	<u>Total Cost</u>	<u>Total Claimed</u>	<u>Years Applied</u>	
1	Buy	4489		200	4.00	200	9.00	7.00	100.00	1	
		4490		1200	24.00	1300	22.00	46.00	100.00	1	
		4491		1100	22.00	2300	41.00	63.00			
		4492		2200	44.00	2200	37.00	81.00			
		4493		100	2.00	100	2.00	4.00	100.00	1	
		11	4504		000	16.00	000	16.00	30.00		
		13	4506		200	4.00	200	9.00	7.00		
		14	4507		900	18.00	900	15.00	33.00		
	15	4508		2400	48.00	3900	65.00	114.00	100.00	1	
	16	4509		3000	60.00	4500	76.00	136.00	100.00	1	
	Hab	47	3792		1400	28.00	3000	31.00	79.00	100.00	1
		48	3793		3100	62.00	4500	76.00	138.00	100.00	1
		49	3794		300	6.00	300	5.00	11.00		
		50	3795		600	12.00	800	14.00	26.00		
		51	3796								
	52	3797									
G.C.	79	8786	228779	800	16.00	000	14.00	30.00	100.00	1	
	123		405723	400	8.00	400	7.00	15.00			
	124		405724	100	2.00	100	2.00	4.00			
	125		405725	700	14.00	700	12.00	26.00			
								<u>850.00</u>			

<u>Group</u>	<u>Claim No.</u>	<u>Record No.</u>	<u>Tag No.</u>	<u>Feet Surveyed</u>	<u>Cost</u>	<u>Feet Cut</u>	<u>Cost</u>	<u>Total Cost</u>	<u>Total Claimed</u>	<u>Years Applied</u>
2	G.C. 2	8644	390722	100	2.00	100	2.00	4.00		
	4	8646	390724	2000	40.00	2600	44.00	84.00		
	5	8647	390725	2600	52.00	3200	54.00	106.00		
	6	8648	390726	3000	60.00	3000	51.00	111.00		
	7	8649	390727	2000	40.00	3400	58.00	98.00		
	8	8650	390728	1700	34.00	1700	29.00	63.00	100.00	1
	9	8651	390729						100.00	1
	10	8652	390730	700	14.00	700	12.00	26.00		
	11	8653	390731							
	18	8660	390738	300	6.00	300	5.00	11.00		
	19	8661	390739						100.00	1
	21	8663	390741							
	23	8665	390743							
	34	8676	390754	2000	40.00	2000	34.00	74.00	100.00	1
	35	8677	390755	1400	28.00	2000	34.00	62.00	100.00	1
	36	8678	390756	1900	38.00	2700	46.00	84.00	100.00	1
	37	8679	390757						100.00	1
	46	8688	228746							
	121		405721							
	122		405722							
								<u>723.00</u>		

<u>Group</u>	<u>Claim No.</u>	<u>Receipt No.</u>	<u>Tag No.</u>	<u>Feet Surveyed</u>	<u>Cost</u>	<u>Feet Cut</u>	<u>Cost</u>	<u>Total Cost</u>	<u>Total Claimed</u>	<u>Years Applied</u>
3	C.G. 1	8643	396721							
	80	8806	405780			1500	25.00	25.00	100.00	1
	81	8807	405781						100.00	1
	88	8814	228788	3000	60.00	3000	51.00	111.00	100.00	1
	89	8815	228789	1700	34.00	1700	20.00	63.00		
	90	8816	228790	1200	24.00	1200	20.00	44.00		
	91	8817	228791							
	118		405718	1100	22.00	2900	49.00	71.00		
	119		405719							
	120		405720							
	125		405725							
	127		405727							
	128		405728							
	129		405729							
	136		405736							
	137		405737							
								<u>314.00</u>		

<u>Group</u>	<u>Claim No.</u>	<u>Record No.</u>	<u>Tag No.</u>	<u>Feet Surveyed</u>	<u>Cost</u>	<u>Feet Cut</u>	<u>Cost</u>	<u>Total Cost</u>	<u>Total Claimed</u>	<u>Years Applied</u>
4	B.C.	13	8655	390733	3000	60.00	3000	51.00	111.00	
		14	8656	390734	3000	60.00	3000	51.00	111.00	1
		15	8657	390735	2000	40.00	2000	34.00	77.00	1
		16	8658	390736	2000	40.00	2200	37.00	77.00	1
		17	8659	390737	3000	60.00	3000	51.00	111.00	
		47	8689	228747						
		48	8690	228748	600	12.00	600	10.00	22.00	1
		49	8691	228749					100.00	1
		50	8692	228750	2400	48.00	2400	41.00	89.00	1
		51	8693	228751	400	8.00	400	7.00	15.00	1
		52	8694	228752	3400	68.00	3400	58.00	126.00	1
		53	8695	228753	4300	86.00	4300	73.00	159.00	1
		60	8702	228760						
		61	8703	228761						
		62	8704	228762	2300	46.00	2300	39.00	85.00	1
		63	8705	228763	1000	20.00	1000	17.00	37.00	
		64	8706	228764	4500	90.00	4500	76.00	166.00	1
		68	8710	228768						
		69	8711	228769						
								<u>1186.00</u>		

<u>Group</u>	<u>Claim No.</u>	<u>Record No.</u>	<u>Tag No.</u>	<u>Feet Surveyed</u>	<u>Cost</u>	<u>Feet Cut</u>	<u>Cost</u>	<u>Total Cost</u>	<u>Total Claimed</u>	<u>Years Applied</u>
5	G.C. 24	8666	390744	3000	60.00	3000	51.00	111.00		
	54	8696	228754	3000	60.00	3900	66.00	126.00	100.00	1
	55	8697	228755	700	14.00	700	12.00	26.00	100.00	1
	56	8698	228756						100.00	1
	57	8699	228757							
	65	8707	228765	3500	70.00	3500	59.00	129.00		
	66	8708	228766	700	14.00	700	12.00	26.00	100.00	1
	67	8709	228767	300	6.00	300	4.00	11.00		
	70	8712	228770							
	71	8713	228771							
	72	8714	228772	200	4.00	200	3.00	7.00		
	73	8715	228773							
	74	8716	228774							
	75	8717	228775							
	130		405730							
	131		405731							
	132		405732							
	133		405733							
	134		405734							
	135		405735							

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436.00

<u>Group</u>	<u>Claim No.</u>	<u>Record No.</u>	<u>Tag No.</u>	<u>Feet Surveyed</u>	<u>Cost</u>	<u>Feet Cut</u>	<u>Cost</u>	<u>Total Cost</u>	<u>Total Claimed</u>	<u>Years Applied</u>
6	G.C. 1 Fr.	8642	390766	2800	56.00	3300	56.00	112.00		
	2 Fr.		390792	1700	34.00			34.00		
	3	8645	390723	800	16.00	800	14.00	30.00		
	12	8654	390732	3300	66.00	4800	82.00	148.00		
	26	8668	390746	2600	52.00			52.00		
	27	8669	390747	2900	58.00			58.00		
	28	8670	390748	2800	56.00			56.00	100.00	1
	29	8671	390749	2800	56.00			56.00		
	30	8672	390950	3700	74.00			74.00		
	31	8673	390751	2400	48.00			48.00		
	32	8674	390752	1500	30.00			30.00		
	33	8675	390753	2780	54.00			54.00	100.00	1
	98	8824	228798						100.00	1
	99	8825	228799						100.00	1
	100	8826	228740	2900	58.00			58.00	100.00	1
	101	8827	228741	2100	42.00			42.00	100.00	1
	110		405710	2500	50.00	2500	42.00	92.00		
115		405715	800	16.00			16.00			
116		405716	2100	42.00			42.00	100.00	1	
117		405717	1400	28.00	2900	49.00	77.00	100.00	1	
							<u>879.00</u>			



<u>Group</u>	<u>Claim No.</u>	<u>Record No.</u>	<u>Tag No.</u>	<u>Feet Surveyed</u>	<u>Cost</u>	<u>Feet Cut</u>	<u>Cost</u>	<u>Total Cost</u>	<u>Total Claimed</u>	<u>years Applied</u>
7	G.C. 25	8667	390745	3000	60.00	3000	51.00	111.00		
	38	8680	390758	400	8.00	400	7.00	15.00	100.00	1
	40.	8682	390760	2900	58.00	2900	49.00	107.00	100.00	1
	42	8684	390762	4100	82.00	4100	70.00	152.00	100.00	1
	44	8686	390764	200	4.00	200	3.00	7.00	100.00	1
	58	8700	228758							
	59	8701	228759							
	102	8823	405702	1400	28.00	1400	24.00	52.00		
	103	8829	405703	1500	30.00	1500	25.00	55.00	100.00	1
	104	8830	405704	1500	30.00	1500	25.00	55.00	100.00	1
	105	8831	405705	1500	30.00	1500	25.00	55.00	100.00	1
	111		405711	200	4.00	200	3.00	7.00		
	113		405713							
	148		405748	5400	108.00	5400	92.00	200.00	100.00	1
								<u>816.00</u>		
8	G.C. 39	8681	390759	100	2.00	100	2.00	4.00		
	41	8683	390761	500	10.00	500	9.00	19.00		
	43	8685	390763	300	6.00	300	5.00	11.00		
	45	8687	390765							
	106	8832	405706	1500	30.00	1500	25.00	55.00		
	107	8833	405707	1500	30.00	1500	25.00	55.00		
	108	8834	405708	1400	28.00	1400	24.00	52.00	100.00	1
	109	8835	405709	1300	26.00	1300	22.00	48.00		
	112		405712							
	113		405713							
	114		405714						100.00	1
	144		405744							
	145		405745							
	146		405746							
	147		405747							
149		405749	500	10.00	500	9.00	19.00			
							<u>263.00</u>			

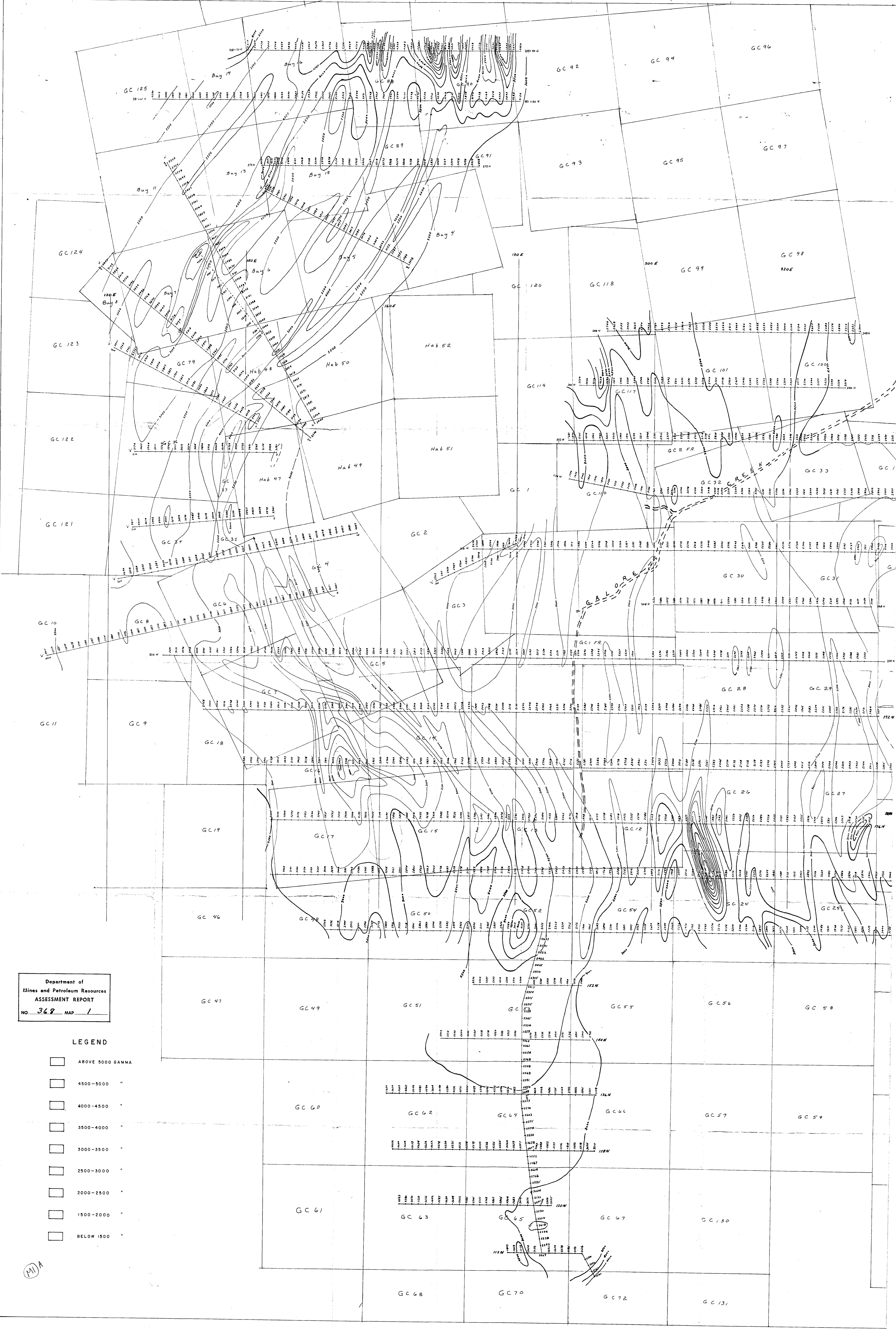
<u>Group</u>	<u>Claim No.</u>	<u>Record No.</u>	<u>Tag No.</u>	<u>Feet Surveyed</u>	<u>Cost</u>	<u>Feet Cut</u>	<u>Cost</u>	<u>Total Cost</u>	<u>Total Claimed</u>	<u>Years Applied</u>	
9	G.C. 82	8808	405782			1500	25.00	25.00			
	83	8809	405783								
	84	8810	405784			300	5.00	5.00			
	85	8811	405785								
	86	8812	405786								
	87	8813	405787								
	92	8818	228792								
	93	8819	228793								
	94	8820	228794								
	95	8821	228795			900	15.00	15.00			
	96	8822	228796								
	97	8823	228797								
	138		405738								
	139		405739								
	140		405740								
141		405741									
142		405742									
143		405743									
				<u>158,500</u>		<u>149,700</u>		<u>45.00</u>			

Department of  
Mines and Petroleum Resources  
ASSESSMENT REPORT  
NO. 362 MAP 1

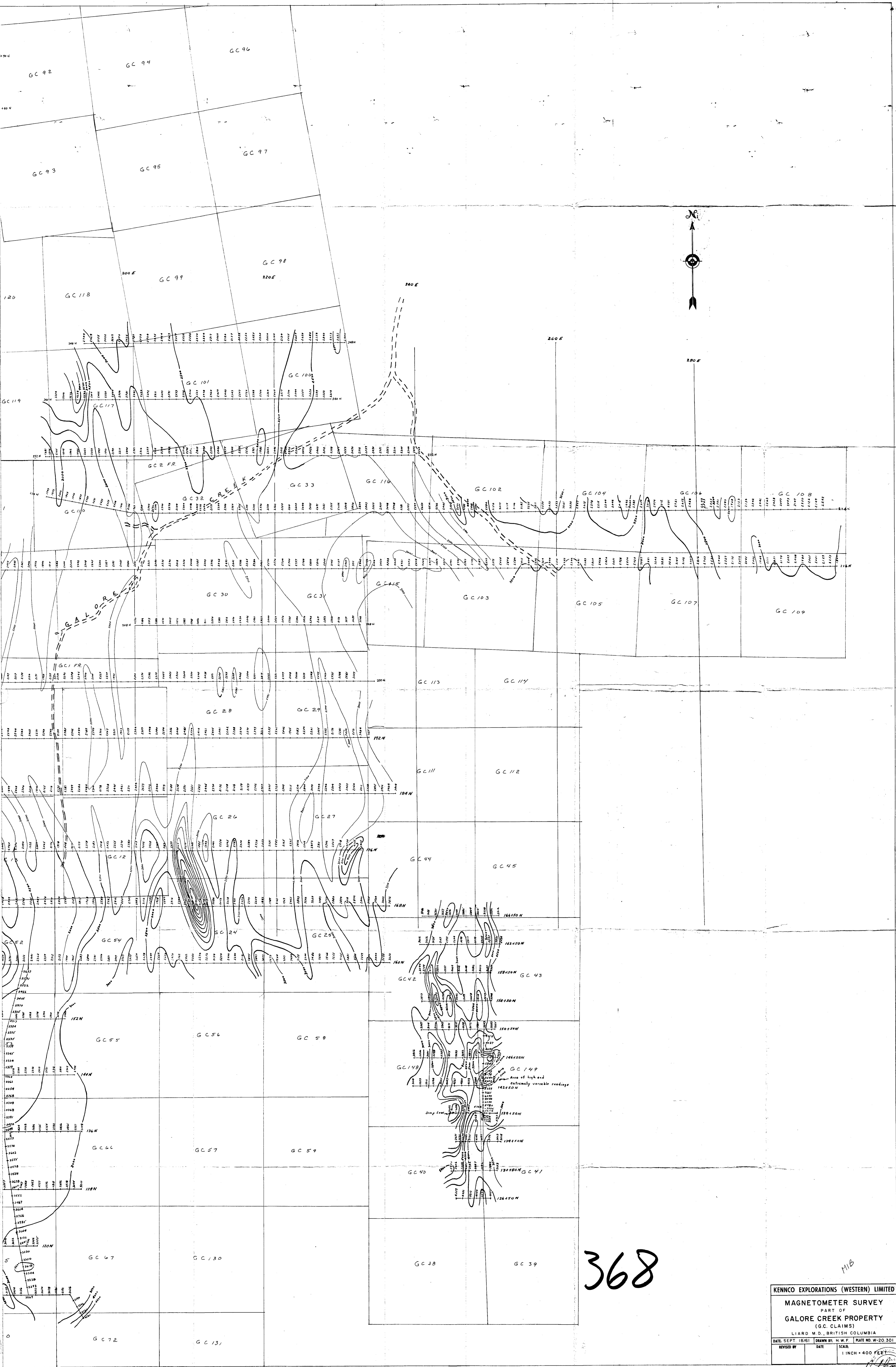
LEGEND

- ABOVE 5000 GAMMA
- 4500-5000 "
- 4000-4500 "
- 3500-4000 "
- 3000-3500 "
- 2500-3000 "
- 2000-2500 "
- 1500-2000 "
- BELOW 1500 "

M/A







KENCO EXPLORATIONS (WESTERN) LIMITED  
 MAGNETOMETER SURVEY  
 PART OF  
 GALORE CREEK PROPERTY  
 (G.C. CLAIMS)  
 LIARD M.D., BRITISH COLUMBIA  
 DATE: SEPT. 1951 | DRAWN BY: H.W.F. | PLATE NO. W-20.201  
 REVISED BY: | DATE: | SCALE: 1 INCH = 400 FEET

MIB

368

Report 268