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A + B CLAIMS GRAVITY SURVEY

SUMMARY

The results of the gravity survey over a portion of the A+B Claims area, Mile 701 Alaska Highway area, Yukon Territory, are given in this report. No excess mass anomaly was discovered over the main showing or over the mineralized zones intersected in drill holes number 1-4 inclusive. Based on the gravity results, it appears unlikely that a massive sulphide deposit of economic size exists in this area. However, a gravity high anomaly of possible economic importance was indicated on L8W between 2S-8S. The importance of this feature can only be ascertained by further geological, density and, perhaps, gravity work.

Respectfully submitted,

Charles A. Ager, PhD, PEng.

Geophysicist

June 30, 1977

090249

Office Of The Supervising Mining Recorder
OCT 14 1977
WHITEHORSE
Yukon Territory

This report has been examined by the Geological Evaluation Unit and is recommended to the Commissioner to be considered as representation work in the amount of $4,200.00

Resident Geologist or ~~Resident Mining Engineer~~

Considered as representation work under Section 53 (4) Yukon Quartz Mining Act.

B. R. BAXTER
Supervising Mining Recorder

Commissioner of Yukon Territory

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LOCATION - DATE OF WORK - CREW

LOCATION: A+B Claims Group

Mile 701 Area, Alaska Highway, Yukon Territory

NTS 105B-1

60°6.73' N Latitude, 130°26.98' W Longitude

DATE OF WORK:

Field Work: June 9 - June 16,1977

Office Work: June 20 - June 30, 1977

CREW: Charles A. Ager, PhD, PEng, data interpreter

Douglas R. MacQaurrie, BSc, geophysicist/party chief

Alan Watson, gravity observer

Howard Moskaluk, field assistant

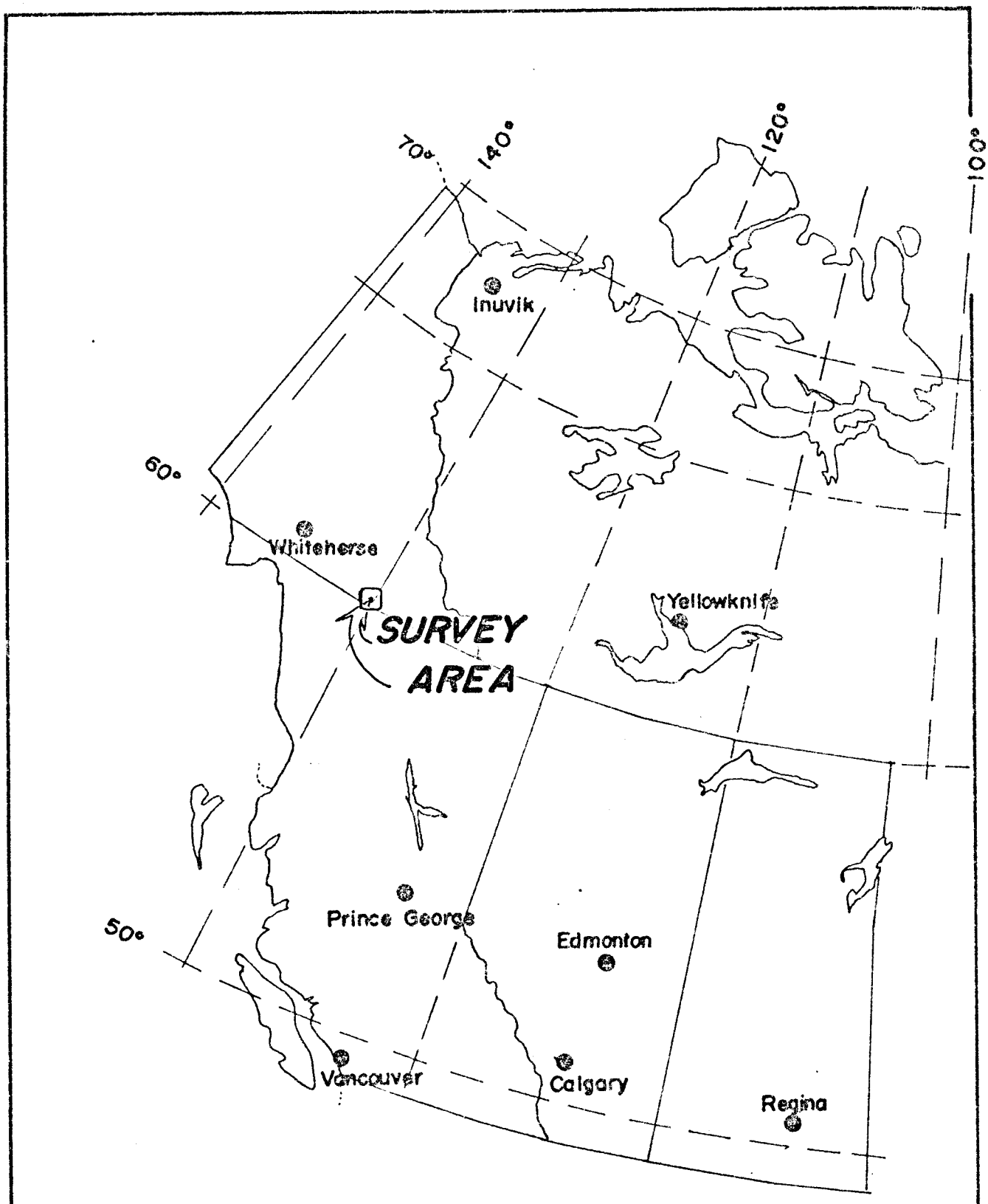
INTRODUCTION

At the request of Mr Peter Taggert, Serem Ltd., an exploratory gravity survey was conducted over anomalous areas of the A+B Claims area, Mile 701 Alaska Highway area, Yukon Territory. The main intent of the gravity work was to outline any zones of excess mass which could indicate the presence of buried massive sulphide bodies. The work was concentrated on A+B Claims Number 1 and 2 where prevoius work has indicated Pb-Zn mineralization in limy phyllites.

INSTRUMENTATION & SURVEY PROCEDURES

Gravity observations were made using a LaCoste & Romberg Model G gravity meter (Serial Number 209) with reading accuracy of $\pm$0.01 mgal. Instrument and diurnal drift were accounted for by tying into known base stations within three hour intervals. All gravity observations were within the dial range 4900-5000 for which the instrument constant was 1.06042 mgal/division.

Stations were located at 100 foot intervals along flagged chain and compas lines as shown on Figure 3. Station elevations were determined from standard levelling survey methods using an electric level developed by Ager & Associates Ltd. Station elevations have a relative accuracy of $\pm$0.10 feet or better.



LOCATION MAP

A+B CLAIMS AREA - SEREM Ltd.
NTS 105B-1

DATE JUNE 1977

C.A.AGER & ASSOC.
Surrey B.C. Canada

FIGURE 1

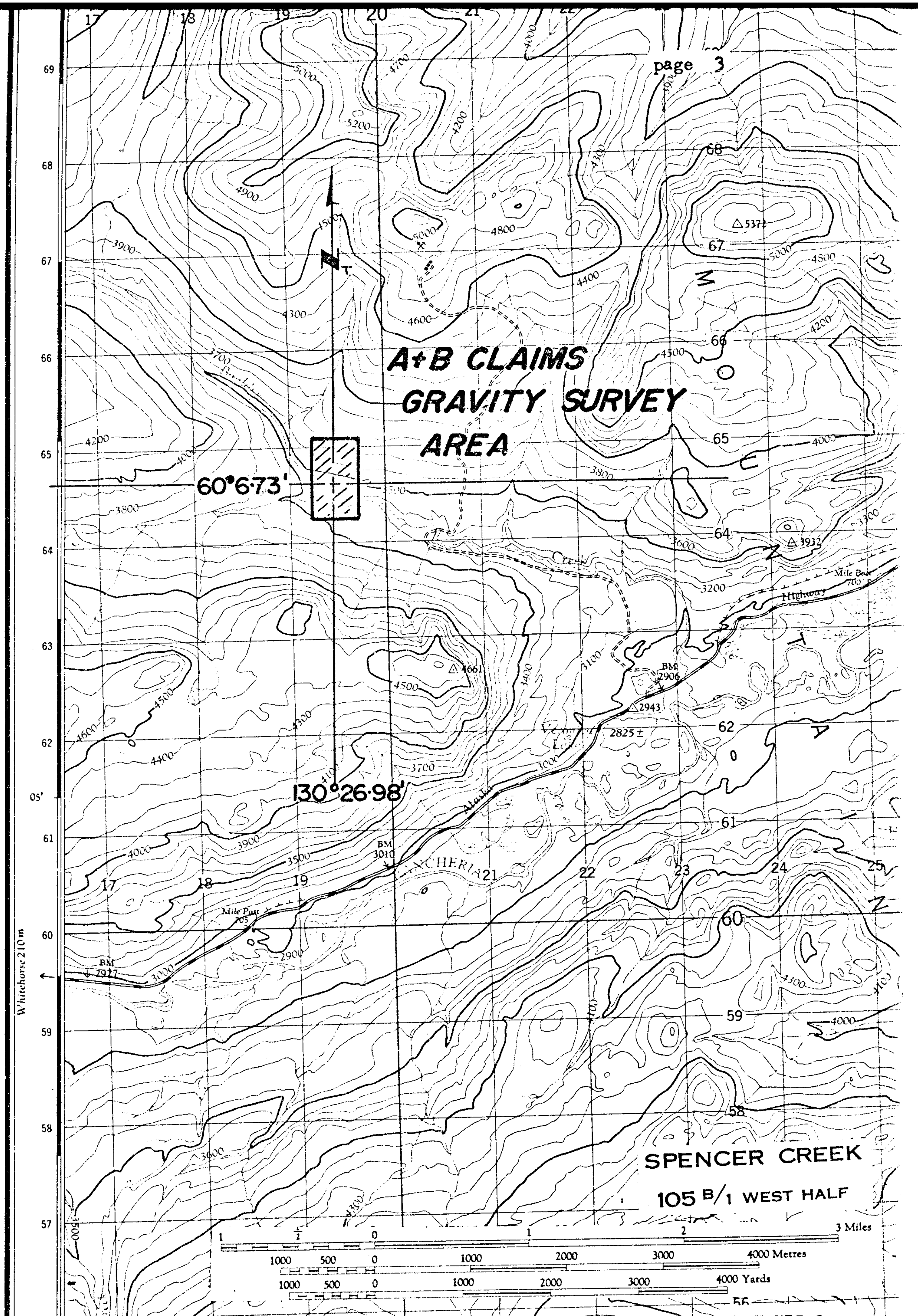

A+B CLAIMS
GRAVITY SURVEY
AREA
60°6·73'
130°26·98'
SPENCER CREEK
105 B/1 WEST HALF
3 Miles
4000 Metres
4000 Yards
Mile Post 705
Mile Post 700
Highway
BM 3010
BM 2906
BM 2927
△5372
△3932
△4661
△2943
2825 ±
Whitehorse 210 m

FIGURE 2

The entire survey was tyed to a single gravity base station (GB 77-6) that was established on the north side of the access road on claim number A+B 1 (Figure 3). This base is marked by a four foot high post on which is carved the station number. The absolute gravity value of this point was determined by an ex-center tie to the National Network station at Whitehorse, Y.T. (No. 9807-69). The elevation was estimated from the 1:250,000 map sheet 105B to be 3500.00 feet. The base station parameters are as follows:

GB 77-6

Elevation	3500.00 feet
Observed Gravity	981,576.13 mgal
Lat, Long	60°6.73' N Latitude 130°26.98' W Longitude
Grid Coordinates	0.50E + 4.25N

DATA REDUCTION

As is well known, the observed gravity values (g_0) contain much information of non-interest in exploration geophysics. Simply stated, the problem is to separate the unwanted effects of the earth (g_E) from the observed gravity field. The map of interest, the Complete Bouguer Gravity Map (Δg_{CB}) is defined as follows:

$$\Delta g_{CB} = g_O - g_E \qquad (1)$$

where

$$g_E = g_L + g_{FA} + g_{BS} + g_T \qquad (2)$$

g_L: Latitude effect

g_{FA}: Free Air effect

g_{BS}: Bouguer Slab effect

g_T: Terrain effect

Using standard procedures, the Complete Bouguer Gravity Map (Figure 4) was calculated by Equation 2 above. Terrain effects were calculated to a radius of 1000 feet about each station using a computer technique of Ager & Associates Ltd. Bouguer slab and terrain densities were taken as 2.70 g/cc as determined from rock density measurements. The complete Bouguer gravity values are all relative to the base point (GB 77-6) which was assigned an arbitrary value of 209.37 mgal. A complete listing of the gravity data is given in Appendix A.

THE GRAVITY MAPS

The gravity survey was designed to test for the presence of massive lead-zinc mineralization within the limy phyllites which underly the survey area. Previous work has uncovered a showing at L0+6N and massive sulphides over widths of 6-38 feet intersected in DDH 1-4 inclusive some 200 feet south of the showing. Rock densities were measured on host and mineralized rocks selected from within the survey area as follows:

Sample No.	Rock Type	Density (g/cc)
1	Limy Phyllite	2.71
2	Sphalerite + Phy.	3.48
3	Limy Phyllite	2.68
4	Phyllite	2.71

As can be seen by the above table, the host phyllites have a mean density of about 2.70 g/cc with the mineralized rock giving a much higher density of about 3.5 g/cc. This density contrast of 0.80 g/cc is most certainly sufficient to generate a gravity high anomaly in the range 0.30 - 2.0 mgal over a massive body of sufficient size to be an ore body.

The elevation map and the complete Bouguer gravity map are given on Figures 3 and 4 respectively. Inspection of the Bouguer gravity field indicates a regional gravity gradient of about 1.25 mgals/1000 feet north. This gradient was removed from the complete Bouguer gravity map to form the Residual Gravity Map, Figure 5. The plane equation for the regional field is:

$$g_R = 208.22 + 0.0054654X + 0.078011Y \text{ mgal} \quad (3)$$

where

X,Y are EW,NS grid co-ordinates in 100's feet

A complete listing of the regional-residual gravity values for each station is given in Appendix B.

INTERPRETATION OF RESULTS

The residual gravity map indicates a gravity low region of amplitude -0.80 mgals occupying the southern part of the survey region. This feature is coincident with Boulder Creek and the Beaver pond and most certainly marks a lower density rock unit striking southeast in this region.

Over the showing, L0+600N, gravity stations were taken at 50 foot intervals. As evidenced by both the complete Bouguer and the residual gravity maps, there is no discernable gravity response over the showing. This is interpreted to mean that there

is small volume extent to the massive sphalerite mineralization exposed here and intersected in the drill holes to the south.

The most significant feature on the gravity maps is a gravity high anomaly of amplitude 0.50-0.70 mgals occuring in the region 2S-8S on line 8W. However, due to the limited nature of the survey, insufficient data is available to properly appraise this feature. The most that can be said, at this time, is that it is a gravity high feature of sufficient amplitude and size to be of economic importance. More work is needed before it is possible to say whether the anomaly is caused by a denser rock unit or by a massive deposit.

The remainder of the gravity survey area is interesting only in the sense that it shows the rock units to have an east to southeast strike direction with the rocks north of the showing being very consistant in density.

CONCLUSIONS & RECOMMENDATIONS

The exploratory gravity survey over the A+B claims area has indicated only one gravity anomaly of possible economic importance. It is located on Line 8W between 2S and 8S. Every effort should be made to appraise this feature. In particular, the geology should be mapped and rock density measurements made. If this work fails to explain the feature, then further gravity

work should be done in order to appraise the anomaly before spotting any drill holes.

The gravity work over the known areas of mineralization indicates that there is no discernable excess mass anomaly present here. This is interpreted to mean that there is insufficient volume of Pb-Zn mineralization to constitute an economic ore body in the vicinity of the showings and DDH 1-4 inclusive.

Respectfully submitted,

Charles A. Ager

June 30, 1977

Charles A. Ager, PhD, PEng.
Geophysicist

APPENDIX A

A+B CLAIMS GRAVITY DATA

Observed Gravity = Network datum relative to GB 77-6

C.B. Gravity = Arbitrary datum

Elevation factor = 0.05958 mgal/foot (Bouguer density = 2.70 g/cc)

STATION	COORD.	ELEVATION	OBSERVED GRAVITY	C.BOUGUER GRAVITY
GB77-6		3500.00	0.00	209.37
800S	800 W	3506.63	-0.51	209.30
600S	800 W	3466.63	1.79	209.30
400S	800 W	3504.73	-0.39	209.30
200S	800 W	3505.51	-0.16	209.59
0N	800 W	3478.64	1.03	209.08
100N	800 W	3442.17	2.82	208.73
200N	800 W	3422.19	3.76	208.61
300N	800 W	3421.72	3.83	208.63
400N	800 W	3427.56	3.49	208.63
500N	800 W	3468.95	1.47	208.93
600N	800 W	3501.28	0.05	209.55
700N	800 W	3492.93	0.61	209.60
800N	800 W	3528.19	-1.38	209.74
900N	800 W	3548.88	-2.43	209.92
1000N	800 W	3564.49	-3.16	210.07
1100N	800 W	3574.92	-3.72	210.07
1200N	800 W	3590.02	-4.50	210.16
1300N	800 W	3603.11	-5.14	210.26
1400N	800 W	3619.44	-6.13	210.21
1500N	800 W	3621.84	-6.19	210.24
1600N	800 W	3647.46	-7.65	210.30
1700N	800 W	3650.60	-7.61	210.46
1800N	800 W	3662.41	-8.33	210.40
1900N	800 W	3665.75	-8.46	210.42
2000N	800 W	3669.93	-8.69	210.41
BL/300N	400 W	3477.03	1.43	209.29
400N	400 W	3477.59	1.49	209.43
500N	400 W	3488.83	0.84	209.55
600N	400 W	3522.14	-1.03	209.68
700N	400 W	3548.74	-2.37	209.93
800N	400 W	3568.28	-3.43	209.98
900N	400 W	3577.54	-3.87	210.04
1000N	400 W	3605.81	-5.36	210.20
1100N	400 W	3618.47	-6.01	210.25
1200N	400 W	3630.38	-6.70	210.23
1300N	400 W	3650.78	-7.78	210.34
1400N	400 W	3660.42	-8.27	210.37
1500N	400 W	3662.77	-8.32	210.44
1600N	400 W	3678.19	-9.17	210.47
1700N	400 W	3689.85	-9.79	210.54
1800N	400 W	3705.87	-10.68	210.56
1900N	400 W	3725.95	-11.79	210.63
2000N	400 W	3731.91	-11.94	210.77
BL 0	000 E	3464.86	1.95	209.02
100N	0+00W	3464.14	2.06	209.07

200N	0+00W	3466.44	1.94	209.12
300N	0+00W	3476.92	1.37	209.28
350N	0+00W	3488.69	0.66	209.39
400N	0+00W	3498.54	0.19	209.47
450N	0+00W	3505.73	-0.21	209.60
500N	0+00W	3514.66	-0.69	209.64
550N	0+00W	3530.65	-1.56	209.73
600N	0+00W	3547.54	-2.48	209.80
650N	0+00W	3560.43	-3.49	209.93
700N	0+00W	3583.56	-4.35	210.08
750N	0+00W	3588.18	-4.51	210.08
800N	0+00W	3595.69	-4.90	210.13
900N	0+00W	3602.42	-5.16	210.21
1000N	0+00W	3625.54	-6.55	210.15
1100N	0+00W	3646.48	-7.65	210.28
1200N	0+00W	3659.49	-8.25	210.41
1300N	0+00W	3677.09	-9.19	210.49
1400N	0+00W	3694.40	-10.12	210.56
1500N	0+00W	3717.82	-11.52	210.53
1600N	0+00W	3732.12	-12.26	210.58
1700N	0+00W	3732.94	-12.15	210.65
1800N	0+00W	3747.49	-12.93	210.69
1900N	0+00W	3760.93	-13.67	210.71
2000N	0+00W	3769.40	-14.10	210.74
600S	400 E	3457.71	1.89	208.72
700S	400 E	3457.09	3.06	208.68
600S	400 E	3425.70	3.58	208.54
500S	400 E	3415.66	4.28	208.61
400S	400 E	3407.38	4.63	208.46
300S	400 E	3408.68	4.58	208.41
200S	400 E	3434.69	3.08	208.42
100S	400 E	3455.50	2.08	208.64
0S	400 E	3453.69	2.33	208.76
00S	400 E	3461.39	2.04	208.92
BL0	400 E	3448.84	2.74	208.88
100N	400 E	3449.01	2.83	209.06
200N	400 E	3458.55	2.38	209.29
300N	400 E	3470.43	1.55	209.36
400N	400 E	3509.97	-0.62	209.54
500N	400 E	3554.50	-3.06	209.78
600N	400 E	3564.86	-3.38	209.92
700N	400 E	3582.69	-4.30	209.98
800N	400 E	3598.83	-5.14	210.05
900N	400 E	3614.42	-5.90	210.19
1000N	400 E	3630.24	-6.78	210.23
1100N	400 E	3657.41	-8.33	210.26
1200N	400 E	3672.92	-9.06	210.41
1300N	400 E	3690.37	-10.07	210.38
1400N	400 E	3712.46	-11.31	210.41
1500N	400 E	3723.40	-11.85	210.46
1600N	400 E	3733.16	-12.36	210.48
1700N	400 E	3749.49	-13.22	210.57
1800N	400 E	3764.93	-14.07	210.59
1900N	400 E	3779.90	-14.90	210.60
2000N	400 E	3791.73	-15.58	210.56
BL0	800 E	3436.96	3.07	208.71
100N	800 E	3437.86	3.23	209.09
200N	800 E	3459.08	2.02	209.27
300N	800 E	3502.43	-0.28	209.60
400N	800 E	3537.94	-2.15	209.79

500N	800	E	3568.65	-3.69	209.97
600N	800	E	3579.80	-4.19	210.00
700N	800	E	3594.02	-4.87	210.10
800N	800	E	3609.03	-5.66	210.18
900N	800	E	3625.12	-7.17	210.21
1000N	800	E	3665.95	-8.91	210.28
1100N	800	E	3678.41	-9.41	210.43
1200N	800	E	3689.60	-9.95	210.49
1300N	800	E	3707.17	-10.96	210.48
1400N	800	E	3725.52	-11.94	210.55
1500N	800	E	3739.46	-12.69	210.59
1600N	800	E	3751.12	-13.35	210.58
1700N	800	E	3769.45	-14.38	210.62
1800N	800	E	3785.14	-15.24	210.65
1900N	800	E	3800.33	-16.14	210.60
2000N	800	E	3814.15	-16.91	210.60
BL/800S	700	W	3503.07	-0.36	209.19
BL/800S	600	W	3488.36	0.38	209.06
BL/800S	500	W	3481.26	0.78	209.03
BL/800S	400	W	3492.63	0.02	208.92
BL/800S	300	W	3493.40	-0.10	208.85
BL/800S	200	W	3497.20	-0.37	208.84
BL/800S	100	W	3486.59	0.33	208.88
BL/800S	000	W	3483.44	0.48	208.85
BL/800S	100	E	3480.26	0.63	208.83
BL/800S	200	E	3474.69	0.99	208.87
BL/800S	300	E	3471.90	1.10	208.81
BL0	100	E	3464.34	2.01	209.04
BL0	200	E	3462.46	2.08	209.00
BL0	300	E	3458.96	2.23	208.96
BL0	500	E	3443.56	2.95	208.82
BL0	600	E	3439.94	3.07	208.77
BL0	700	E	3439.53	3.02	208.75
BL/300N	300	W	3472.46	1.73	209.31
BL/300N	200	W	3469.37	1.85	209.29
BL/300N	100	W	3472.20	1.70	209.32
BL/900N	700	W	3553.06	-2.54	209.96
BL/900N	600	W	3573.31	-3.60	210.10
BL/900N	500	W	3573.57	-3.52	210.15

EXECUTION TERMINATED

$SIGNOFF

A + B CLAIMS REGIONAL-RESIDUAL GRAVITY DATA

Regional plane determined by LMS fit to data

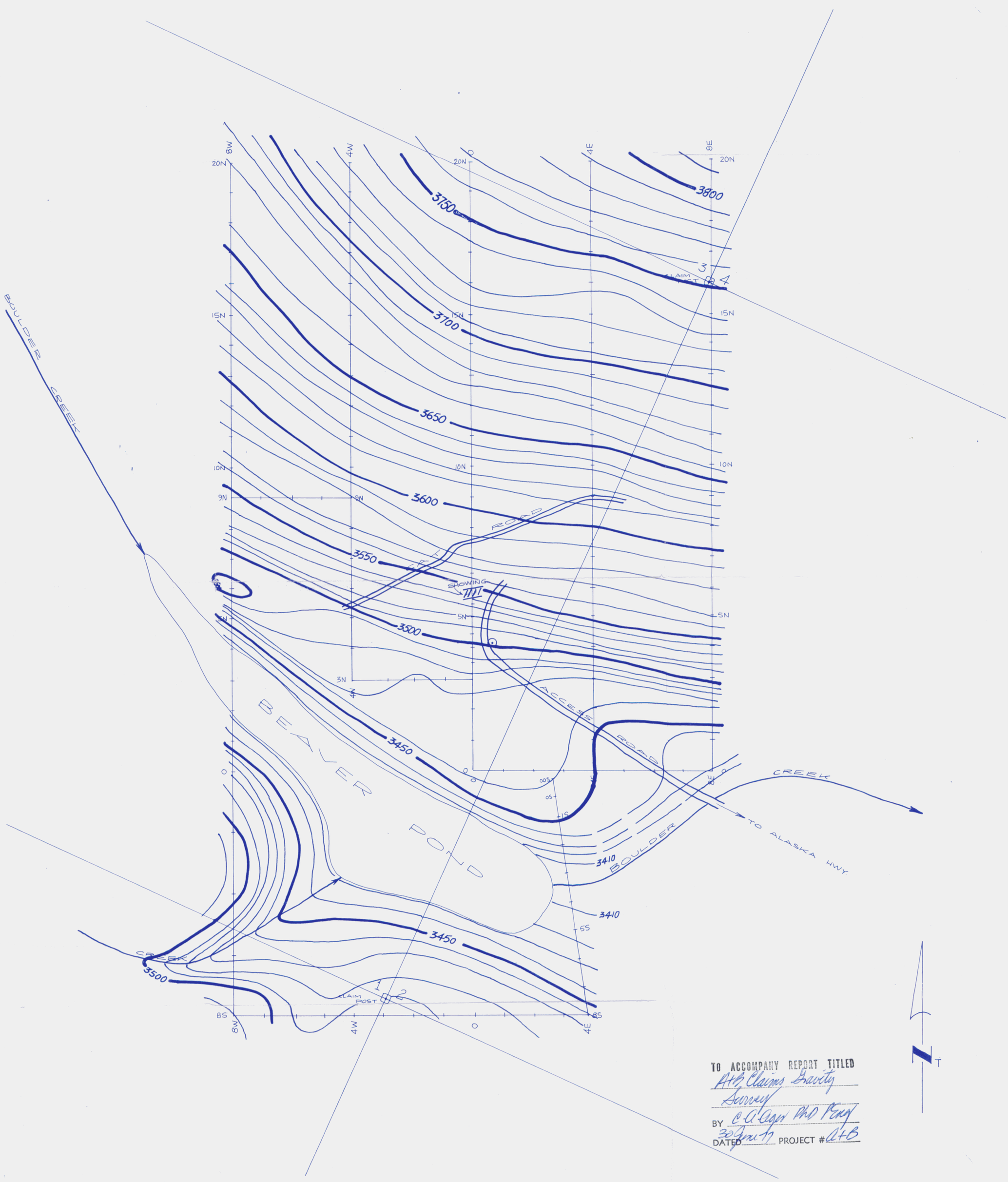
STATION COORD.		C.B.GRAVITY	RESIDUAL
GB77-6		209.37	-0.19
800S	800 W	209.30	0.74
600S	800 W	209.30	0.59
400S	800 W	209.30	0.42
200S	800 W	209.59	0.56
0N	800 W	209.08	-0.11
100N	800 W	208.73	-0.54
200N	800 W	208.61	-0.74
300N	800 W	208.63	-0.79
400N	800 W	208.63	-0.87
500N	800 W	208.93	-0.65
600N	800 W	209.55	-0.10
700N	800 W	209.60	-0.13
800N	800 W	209.74	-0.07
900N	800 W	209.92	0.03
1000N	800 W	210.07	0.10
1100N	800 W	210.07	0.02
1200N	800 W	210.16	0.03
1300N	800 W	210.26	0.05
1400N	800 W	210.21	-0.07
1500N	800 W	210.24	-0.13
1600N	800 W	210.30	-0.15
1700N	800 W	210.46	-0.07
1800N	800 W	210.40	-0.20
1900N	800 W	210.42	-0.26
2000N	800 W	210.41	-0.34
BL/300N	400 W	209.29	-0.15
400N	400 W	209.43	-0.09
500N	400 W	209.55	-0.05
600N	400 W	209.68	-0.00
700N	400 W	209.93	0.16
800N	400 W	209.98	0.14
900N	400 W	210.04	0.12
1000N	400 W	210.20	0.20
1100N	400 W	210.25	0.17
1200N	400 W	210.23	0.08
1300N	400 W	210.34	0.11
1400N	400 W	210.37	0.06
1500N	400 W	210.44	0.05
1600N	400 W	210.47	0.01
1700N	400 W	210.54	-0.00
1800N	400 W	210.56	-0.06
1900N	400 W	210.63	-0.07
2000N	400 W	210.77	-0.00
BL0	000 E	209.02	-0.21
100N	0+00W	209.07	-0.25
200N	0+00W	209.12	-0.27
300N	0+00W	209.28	-0.19
350N	0+00W	209.39	-0.13

400N	0+00W	209.47	-0.08
450N	0+00W	209.60	0.01
500N	0+00W	209.64	0.01
550N	0+00W	209.73	0.06
600N	0+00W	209.80	0.10
650N	0+00W	209.93	0.19
700N	0+00W	210.08	0.30
750N	0+00W	210.08	0.26
800N	0+00W	210.13	0.27
900N	0+00W	210.21	0.27
1000N	0+00W	210.15	0.14
1100N	0+00W	210.28	0.19
1200N	0+00W	210.41	0.24
1300N	0+00W	210.49	0.23
1400N	0+00W	210.56	0.22
1500N	0+00W	210.53	0.13
1600N	0+00W	210.58	0.09
1700N	0+00W	210.65	0.09
1800N	0+00W	210.69	0.04
1900N	0+00W	210.71	-0.02
2000N	0+00W	210.74	-0.06
800S	400 E	208.72	0.10
700S	400 E	208.68	-0.01
600S	400 E	208.54	-0.23
500S	400 E	208.61	-0.23
400S	400 E	208.46	-0.45
300S	400 E	208.41	-0.57
200S	400 E	208.42	-0.63
100S	400 E	208.64	-0.48
0S	400 E	208.78	-0.41
00S	400 E	208.92	-0.30
BL0	400 E	208.88	-0.37
100N	400 E	209.06	-0.28
200N	400 E	209.29	-0.12
300N	400 E	209.36	-0.13
400N	400 E	209.54	-0.03
500N	400 E	209.78	0.13
600N	400 E	209.92	0.20
700N	400 E	209.98	0.18
800N	400 E	210.05	0.17
900N	400 E	210.19	0.23
1000N	400 E	210.23	0.19
1100N	400 E	210.26	0.15
1200N	400 E	210.41	0.21
1300N	400 E	210.38	0.11
1400N	400 E	210.41	0.06
1500N	400 E	210.46	0.03
1600N	400 E	210.48	-0.03
1700N	400 E	210.57	-0.02
1800N	400 E	210.59	-0.08
1900N	400 E	210.60	-0.14
2000N	400 E	210.58	-0.25
BL0	800 E	208.71	-0.57
100N	800 E	209.09	-0.27
200N	800 E	209.27	-0.16
300N	800 E	209.60	0.09
400N	800 E	209.79	0.19
500N	800 E	209.97	0.29
600N	800 E	210.00	0.24
700N	800 E	210.10	0.27

	800N	800 E	210.18	0.28
	900N	800 E	210.21	0.22
	1000N	800 E	210.28	0.23
	1100N	800 E	210.43	0.29
	1200N	800 E	210.49	0.27
	1300N	800 E	210.48	0.18
	1400N	800 E	210.55	0.18
	1500N	800 E	210.59	0.14
	1600N	800 E	210.58	0.05
	1700N	800 E	210.62	0.02
	1800N	800 E	210.65	-0.04
	1900N	800 E	210.60	-0.17
	2000N	800 E	210.60	-0.24
	BL/600S	700 W	209.19	0.63
	BL/800S	600 W	209.06	0.49
	BL/800S	500 W	209.03	0.45
	BL/800S	400 W	208.92	0.34
	BL/800S	300 W	208.85	0.26
	BL/800S	200 W	208.84	0.25
	BL/800S	100 W	208.88	0.28
	BL/800S	000 W	208.85	0.25
	BL/800S	100 E	208.83	0.22
	BL/800S	200 E	208.87	0.25
	BL/800S	300 E	208.81	0.20
	BL0	100 E	209.04	-0.20
	BL0	200 E	209.00	-0.24
	BL0	300 E	208.96	-0.29
	BL0	500 E	208.82	-0.44
	BL0	600 E	208.77	-0.50
	BL0	700 E	208.75	-0.52
	BL/300N	300 W	209.31	-0.14
	BL/300N	200 W	209.29	-0.17
	BL/300N	100 W	209.32	-0.14
	BL/900N	700 W	209.96	0.06
	BL/900N	600 W	210.10	0.19
	BL/900N	500 W	210.15	0.24

EXECUTION TERMINATED

$SIGNOFF



CONTOUR INTERVAL = 10 feet

TO ACCOMPANY REPORT TITLED
A+B Claims Gravity Survey
BY C.A. Ager and Assoc.
DATED 30 June 77 PROJECT # A+B

ELEVATION MAP

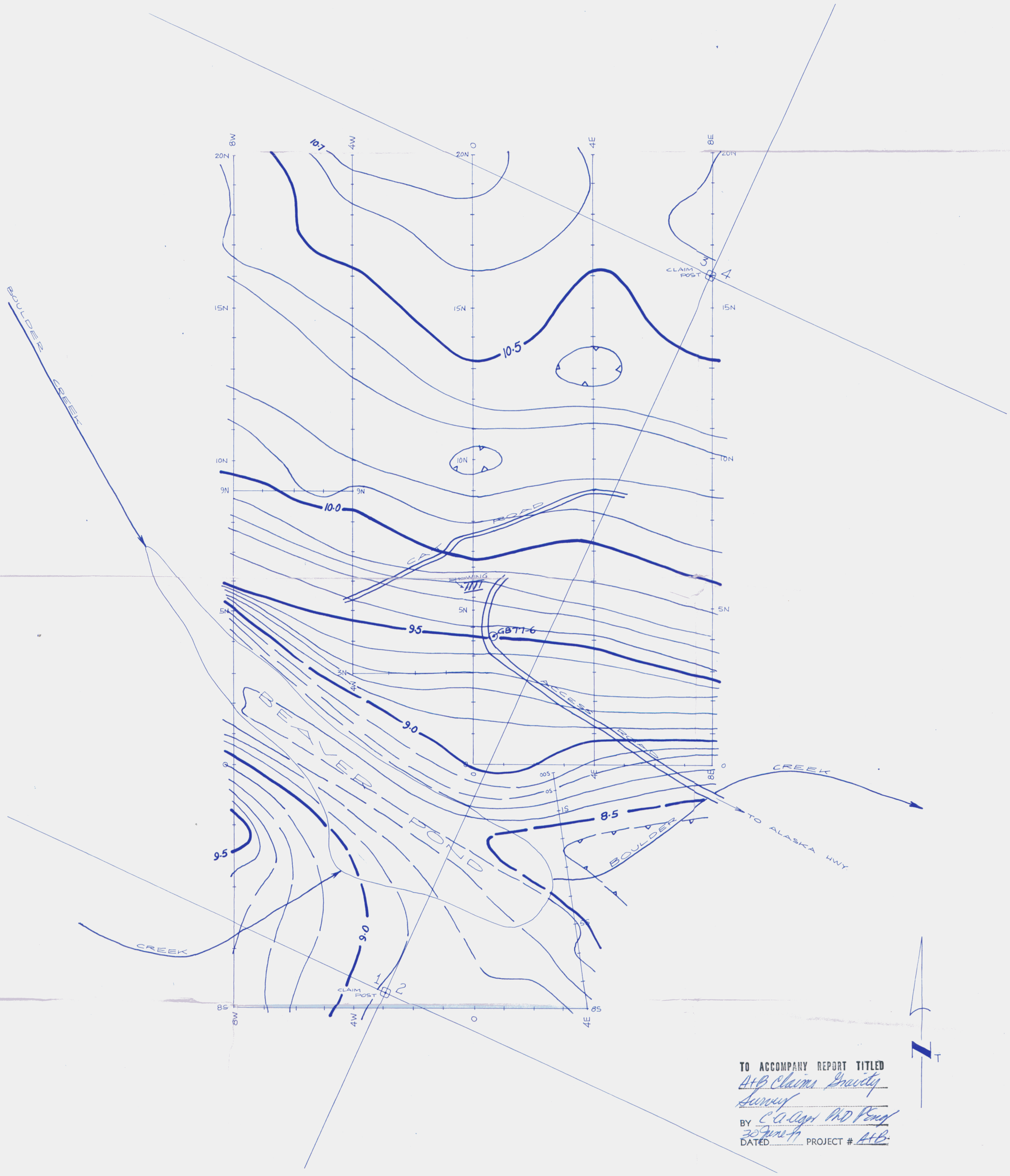
A+B CLAIMS GRAVITY SURVEY

SEREM LTD

MILE 701 AREA, ALASKA HIGHWAY, YUKON
NTS 105B-1

SCALE 1" = 200'	C.A. AGER & ASSOC. LTD.
DATE JUNE 1977	SURREY B.C. CANADA

FIGURE 3



CONTOUR INTERVAL = 0·10 mgal

TO ACCOMPANY REPORT TITLED
A+B Claims Gravity Survey
BY C.A. Ager M.D. Engr
DATED 30 June 77 PROJECT # A+B

COMPLETE BOUGUER GRAVITY

A+B CLAIMS GRAVITY SURVEY

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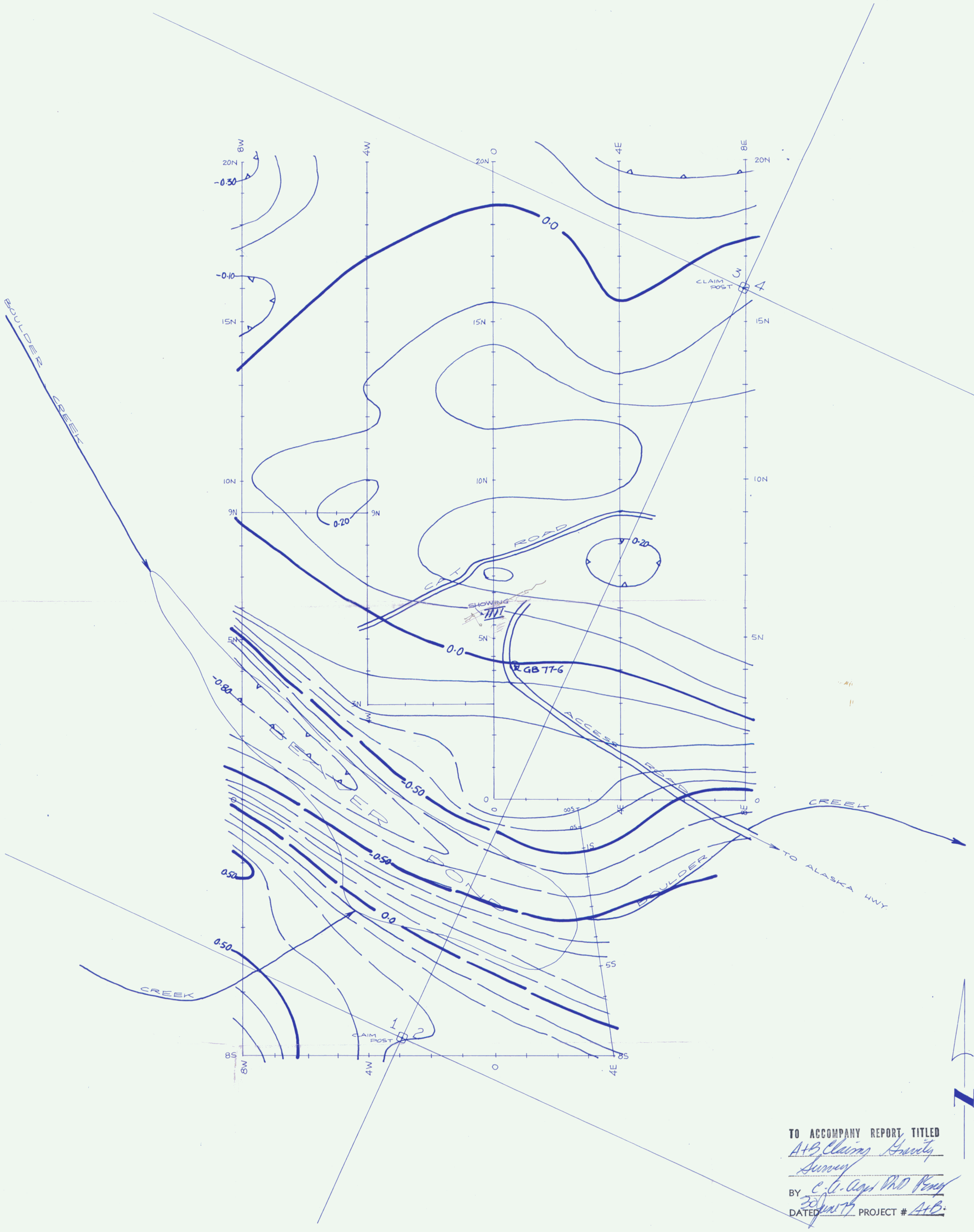
NTS 105B-1

SCALE 1" = 200'	C·A·AGER & ASSOC· LTD·
DATE JUNE 1977	SURREY B·C· CANADA

FIGURE 4



TO ACCOMPANY REPORT TITLED
A+B Claims Gravity Survey
BY C.A. Ager PhD Geol
DATED 30 June 77 PROJECT # A+B.

CONTOUR INTERVAL = 0·10 mgal

RESIDUAL GRAVITY

A+B CLAIMS GRAVITY SURVEY

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NTS 105B-1

SCALE 1" = 200'	C·A·AGER & ASSOC· LTD·
DATE JUNE 1977	SURREY B·C· CANADA

FIGURE 5