

MAR 19890006: CANNONBALL

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THE CANNONBALL PROJECT

DELTA GOLD

FOR

JUAREZ ENGINEERING LTD.

407, 820 - 5th Avenue S.W.
Calgary, Alberta
T2P 0N4

by

JAMES S. FALCONER, P.Eng.

Calgary, Alberta

September 20, 1989

Revised: October 26, 1989

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THE CANNONBALL PROJECT

INTRODUCTION

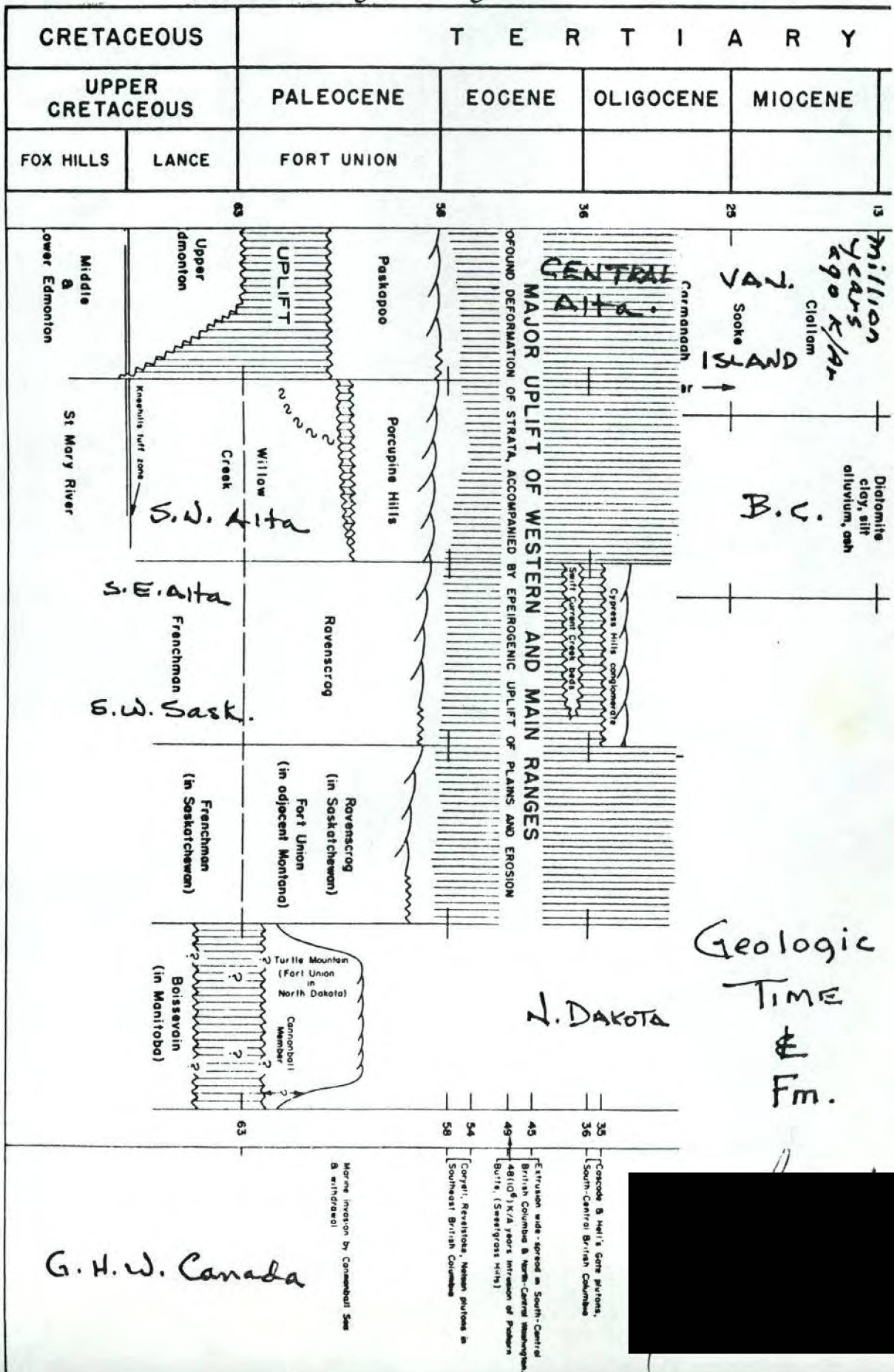
The idea of examining Alberta's gold possibilities was initiated by a discussion at Cochrane on March 10, 1989. On May 1 discussions with Wendall, a placer miner from Vancouver, started action by the writer. Wendall reported that a friend of his, a few years ago, had recovered 10½ ounces of gold in 3 weeks by hand shovelling into a reverse spiral concentrator from a bar on the North Saskatchewan River near Devon.

The writer with his wife as assistant, completed a random examination of the North Saskatchewan River between Keephills and Devon on May 4. Two colors of gold, which might be better termed "specks" were seen from one area. On May 7 the writer decided a bulk, fine gold concentrator was required for testing and a rocker design recommended by Knox & Haley in 1915 was selected. Fabrication and metal work by Raffin Electric was started May 8 and on May 12 the woodwork was started by Vincent Workshop in Calgary.

Alberta River Gravel

On May 31 the rocker was delivered to the writer. On June 13, a gravel pit near Devon was sampled and showed about 5 colors of placer gold from 60#. A county gravel pit upstream from Red Deer was sampled and showed color. On August 16, 115# of previously washed silt was tested and the con. assayed by Acme in Vancouver. This silt

Juarez Engineering Ltd.

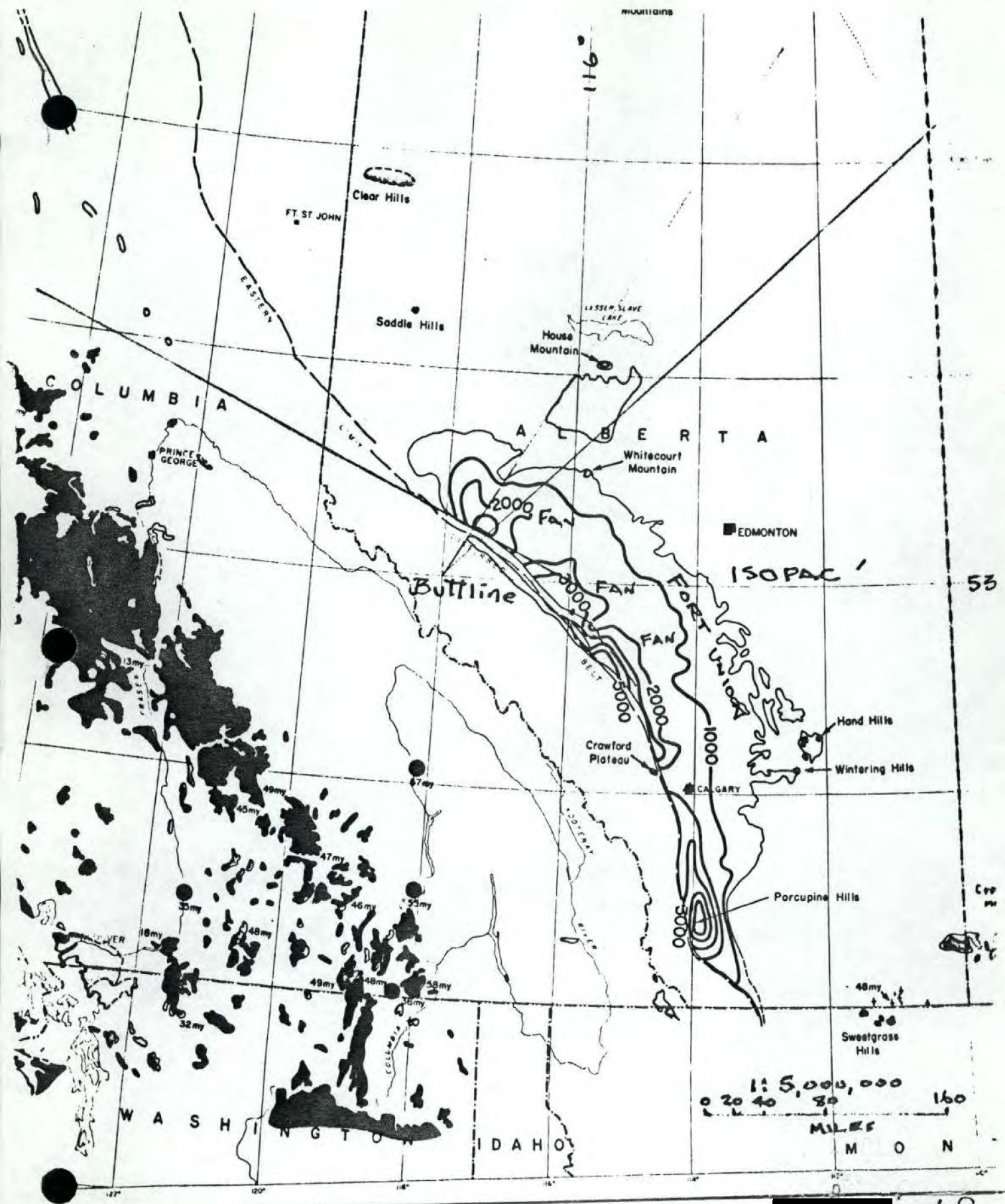


was from the Burnco gravel pit by the Bow River near Cochrane. The value of the sampled silt was $\frac{1}{2}\phi$ per cubic yard.

Ft. Union Delta Gold Deposition Theory

During the summer of 1989 the writer questioned where the fine gold in Alberta's rivers might come from. As the mountains westerly of the foothills are mostly limestone, the writer considered that some bed was being cut by the rivers in the foothills. The writer examined a geology book for Alberta and saw that the rivers cut the Paleocene or Fort Union Age (58 - 63 million years old by K/Ar) rocks. The book stated that these rocks were clastics or fragments from B.C. Apparently, B.C. Rivers formed deltas at about Alberta's foothills when they dumped into the Cannonball Sea. Later, the Laramide Orogeny took place and left the deltas stranded in Alberta. It appeared reasonable to the writer that Alberta's double-worked placer gold came from what I call the Fort Union deltaic bed, located along Alberta's foothills from north westerly of Edmonton, 400 miles southerly to the border, up to a mile thick at what I call the "butt" of the delta and about 80 miles wide into the plains. Towards the plains are the fans which thin rapidly away from the butt.

The physical size of the Fort Union bed initially discouraged the writer. I considered that the gold might be uniformly placed within this huge mass of river wash. I discussed the situation with Wendall.



FROM: Geol. History of W. Canada

Fig. 13-1

Fig.
Sept./89

He said "That's simple. Where the old river hit the sea, the big nuggets would drop out." The geology map of the Fort Union shows 3 likely-looking deltas assuming deltas approximate wedge-shaped fans. The most northerly delta approaches ideal fan shape and the old river channel could be approximated from the isopac. Even here the channel would be 10 miles wide.

The 2 deltas to the south would have, from the map, river mouths 40 and 16 miles wide. I believe that the zone of gold concentration is disturbed more, may even be missing near surface, as compared to the northerly, less disturbed appearing delta. In other words, the narrow zone where the river hit the sea appears missing from the 2 deltas to the south.

The butt line (plane) of the deltas and Fort Union appears to be in some sort of vertical orientation. In the field around Hinton the westerly contact from a few observations was glacial till. Both units appear similar, but when washed in the rocker, a quantity of silica and preponderance of small fragments identify the Fort Union. The sand in the till is more rounded and lacks silica. Both units have large rounded rocks.

The writer plotted the butt line of the most northerly delta from the 1:5,000,000 Geology map to the 1:250,000 Edson Topo. The other reason the writer chose the Northern delta besides configuration was that better gold values occur to the north in

FORT UNION
DELTA

G-PIT

BUTTLINE

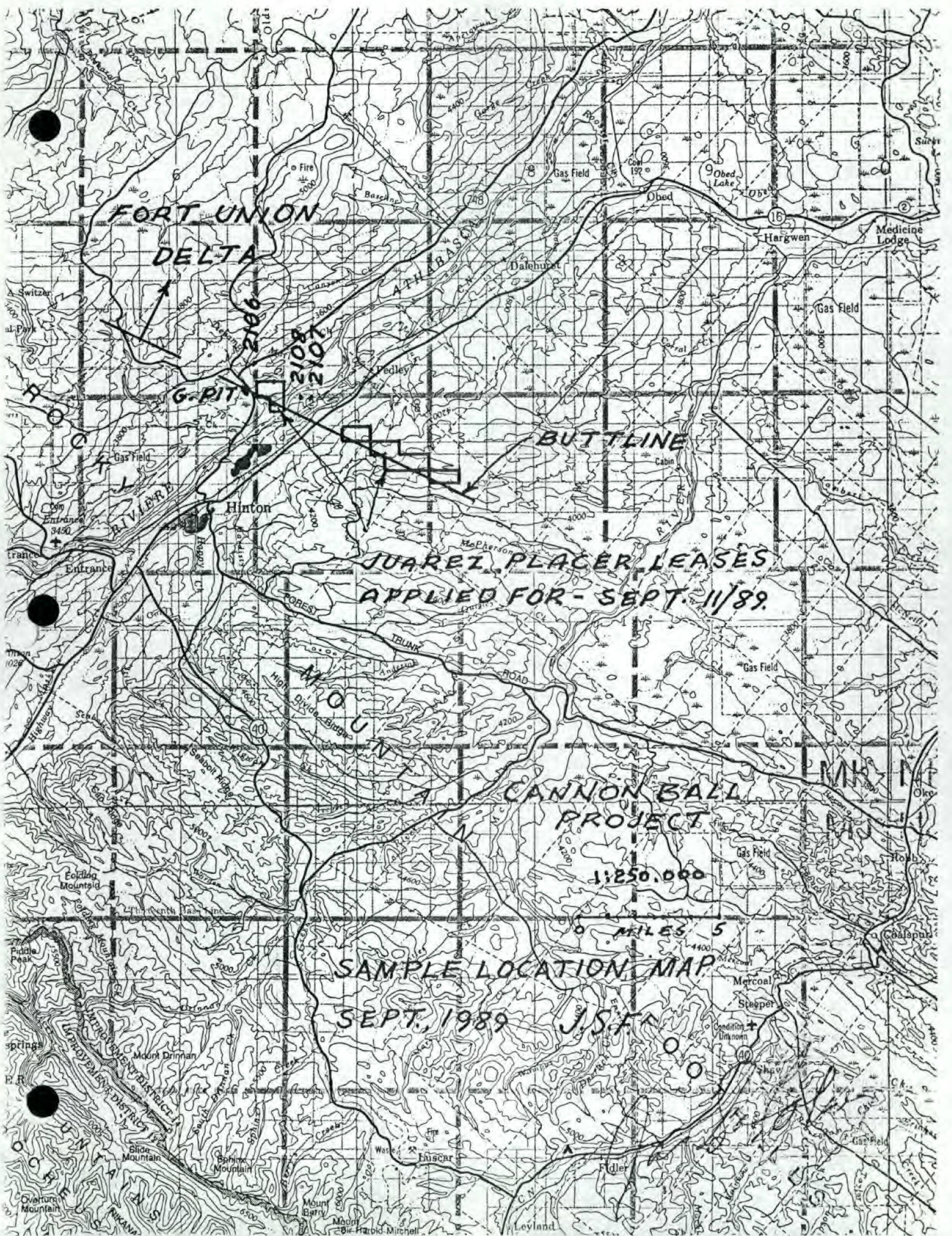
JUAREZ PLACER LEASES
APPLIED FOR - SEPT. 11/89

CANNON BALL
PROJECT

1:250,000

5 MILES

SAMPLE LOCATION MAP
SEPT. 1989 J.S.F.



Alberta's rivers as well as B.C.'s gold distribution improves to the north. One could assume that the northerly delta received the most northerly material from the interior of B.C. than the other 2 deltas to the south.

On the Edson Topo the butt line wound up 10 miles long, just east of Hinton and in a northwesterly direction. The 3000' thick line crossed the butt line and the 10 mile length was assumed to be the width of the old channel.

ASSAYS

On my first trip to Hinton September 2, I washed 90# of material from a gravel pit that appeared to be straddling the butt-line in Township 52, Range 25, W5 Section 1 SE corner. (No gold). Appeared to be glacial till.

80# of material was taken from Township 52, Range 25, W5, Section 1 NE corner.

The writer saw rock fragments 2106 con. sample. .001 mg.Au est. 1800#/cu. yd.

$22.5 \times .001 = .0225$ mg. Au/cu. yd.

Assay received September 19, 1989.

On September 7, 1989, I mistakenly sampled ground belonging to Mr. A. Thorsen, Township 51, Range 24, W5, Section 32 NE corner sample 2107,80#.

2107 .001 mg Au

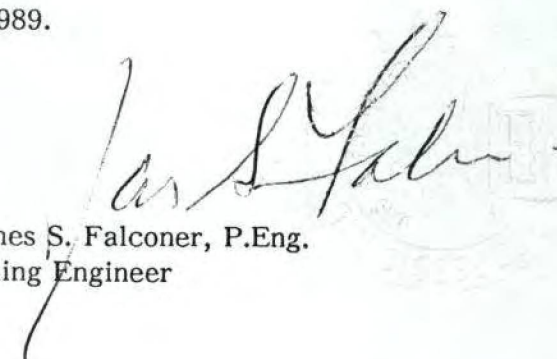
When I phoned Mr. Thorsen he said that if there was gold on his land he would like to leave it in the ground. Township 51, Range 24, W5 Section 32 NW corner of NE quarter Sample 2108,30#. Again, Thorsen land.

2108 .001 mg Au

Conclusion and Recommendation

Sample #2107 is very dull per cu. yd. and some 3000' into the delta away from the butt line. Sampling close to the butt line should be interesting. It is recommended that exploration be pursued. A Placer Lease should be acquired prior to exploration, however this could be expensive as butt line shifts are expected. Oil well data may provide for close butt line location.

Dated at Calgary, Alberta, September 20, 1989.

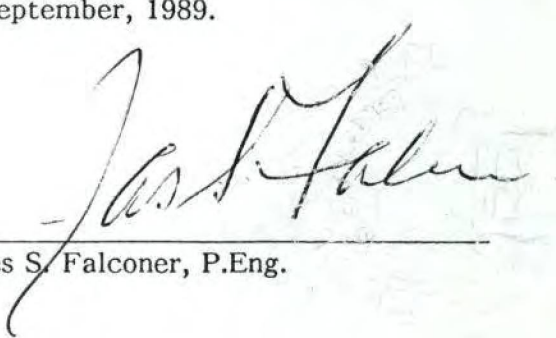

James S. Falconer, P.Eng.
Mining Engineer

CERTIFICATE

I, JAMES SELKIRK FALCONER, of Calgary, Alberta, hereby certify as follows:

1. I am a Mining Engineer residing at [REDACTED], Calgary, Alberta
2. I am a Registered Professional Engineer of the Provinces of Alberta, British Columbia and Ontario.
3. I graduated with a degree of Engineer of Mines from the Colorado School of Mines in 1969.
4. I have practised my profession for twenty years.
5. This report dated September 20, 1989, is based upon widespread Alberta field work carried out in 1989 and information gathered from available maps and literature.
6. This report is the personal property of the author and is not to be reproduced without the permission of the author. This report is confidential.

Dated at Calgary, Alberta, this 20th day of September, 1989.


James S. Falconer, P.Eng.

BIBLIOGRAPHY

McCrossan and Glaister, 1966, Geological History of Western Canada, Alberta Society of Petroleum Geologists. pp 190, 191, 192, 232.

Peele, R. Third Ed. 1941, Mining Engineers' Handbook, Vol. 1, 10-538, Vol. II, 25-13.

Webb, J. B., 1954, Western Canada Sedimentary Basin Geological History of Plains of Western Canada. pp 3-28.

APPENDIX 1

ACME ANALYTICAL LABORATORIES LTD.

DATE RECEIVED: SEP 7 1989


852 E. HASTINGS ST. VANCOUVER B.C. V6A 1R6

PHONE (604) 253-3158 FAX (604) 253-1716 DATE REPORT MAILED:

Sept. 14, 1989

ASSAY CERTIFICATE

- SAMPLE TYPE: CONC. AU** BY FIRE ASSAY FROM TOTAL SAMPLE.

SIGNED BY..  D. TOYE, C. LEONG, J. WANG; CERTIFIED B.C. ASSAYERS

JUAREZ ENGINEERING LTD. FILE # 89-3516

SAMPLE#	AU** SAMPLE
	mg wt. gm

E 2106	.001 102
--------	----------

APPENDIX 2

ACME ANALYTICAL LABORATORIES LTD.

DATE RECEIVED: SEP 12 1989

852 E. HASTINGS ST. VANCOUVER B.C. V6A 1R6

PHONE(604)253-3158 FAX(604)253-1716 DATE REPORT MAILED:

Sept. 15, 1989

ASSAY CERTIFICATE

- SAMPLE TYPE: PLACER CONC.

AU** BY FIRE ASSAY FROM TOTAL SAMPLE.

SIGNED BY.

D. TOYE, C. LEONG, J. WANG; CERTIFIED B.C. ASSAYERS

JUAREZ ENGINEERING LTD FILE # 89-3615

SAMPLE#	AU** SAMPLE
	mg wt. gm

E 2107	.001 134.94
--------	-------------

E 2108	.001 61.94
--------	------------

No gold found.

Juarez Engineering Ltd.

PALEOCENE SERIES

Continental sedimentation continued without interruption through uppermost Cretaceous into Paleocene time in most of western Canada. The Cordilleran geanticline, and especially the highlands of its eastern flank in the area of the present Columbia Mountains, was the major source of the Paleocene sediments on the Interior Plains. The bulk of these sediments are quartzose clastics, coarsest nearest the source area. The deposits formed a great series of coalescent, interfingering alluvial fans, fluvial sediments, and basin deposits which fringed the highlands and reached across the line of discontinuous basins referred to as the Rocky Mountain geosyncline (North and Henderson, 1954a; Alpha, 1955), on to the stable shelf. Irregularities in deposition, probably assisted by minor differential epeirogenic warping of the surface of this great plain of aggradation, permitted lessening of stream velocities and in places ponding, thus causing deposition of shales and, rarely, of limestones. Plant debris accumulated to considerable thicknesses in the west and in lesser amounts in the east and north, in swamp and deltaic environments associated with slow-moving rivers and shallow lakes.

The Paleocene Series in the Interior Plains ranges in thickness from more than 5000 feet in the Porcupine Hills of southwestern Alberta to a few hundred feet at Turtle Mountain, Manitoba (Fig. 13-1). In this latter section there is undoubtedly a minor component of fine-grained material derived from the low-lying, low-relief Precambrian Shield to the east. Northward, in the Mackenzie River valley, Tertiary sands, clays, and minor lignite, lying unconformably over older rocks, occur mostly in small isolated basins (Hume, 1933), but nowhere on plateau surfaces (Williams, 1937). Bell (1949) placed some of these Mackenzie River rocks in the Paleocene on floral evidence.

G. H. W. Canada

Juarez Engineering Ltd.

CENOZOIC

The tectonic and depositional environment of the Late Cretaceous continued essentially unchanged during earliest Tertiary time until late in the Paleocene Epoch. Deposition of fresh-water clastic rocks continued from Cretaceous through Paleocene time without break except in central Alberta where an hiatus occurred. Thick sections of these beds were preserved in the post-Paleocene downwarp of the Alberta syncline and in a large intermontane basin in north-central British Columbia. A widespread renewal of uplift, deformation, and plutonism in the batholithic belts of the Western Cordillera culminated in Late Paleocene to Early Eocene time. The related great uplift and crustal foreshortening by thrust-faulting of the Rocky Mountains and Foothills, generally termed the Laramide but more recently the Rocky Mountain orogeny, was largely accomplished by the end of the Eocene. The Alberta syncline and Sweetgrass arch originated during this period of compressional stress. Epeirogenic uplift accompanied the orogeny and deep erosion occurred. On the Plains, thin stream-bed conglomerates accumulated during Late Eocene and Early Oligocene, and again during the Miocene and Pliocene, but the post-Oligocene record was chiefly that of degradation. The Interior Plateau of British Columbia was subjected to large-scale fissure flows of lavas during the Middle Eocene, with recurrences during later Tertiary episodes. Marine and terrestrial Tertiary beds and associated volcanic rocks occur in the Puget Sound area and the coastal islands.

Late Tertiary plutonism took place in the Coast Range and Nelson batholiths, accompanied by renewed uplift and normal faulting of large displacement. This interval has been termed the Puget orogeny which continued into Quaternary time.

The history of the Quaternary in western Canada is chiefly that of the Wisconsin Stage of the Pleistocene glaciation. Two

G. H. W. Canada

Juarez Engineering Ltd.

nantly fresh-water deposition in the geosyncline and on the western part of the shelf, with much eastward interfingering of brackish and fresh-water deltaic deposits and marine shales. The maximum thickness of Upper Cretaceous deposits in the geosynclinal area, measured from outcrops in the foothills, is 10,000-12,000 feet, whereas far on the east in southwest Manitoba the thickness is only 2,500 feet and the beds are almost exclusively marine shales. The final phase of the Upper Cretaceous witnessed complete withdrawal of marine waters from the plains region, but deposition of brackish and fresh-water sediments continued for some time. In latest Cretaceous (Lance) or earliest Tertiary (Paleocene) time, broad uplift took place throughout the region accompanied by erosion which, on some parts of the plains, removed several hundred feet of beds.

TERTIARY

The emergence already noted probably was accompanied by the commencement of orogenic uplift along the present Rocky Mountains belt. The rejuvenated erosion in the west caused rapid accumulation of fresh-water sediments on the east across the present foothills and spreading far east on the plains. These beds are mostly Paleocene in age; the greatest thickness of 5,000-10,000 feet is preserved in the Alberta syncline, east of the folded and faulted foothills belt. It is likely that this formation attained much greater thickness farther west but post-Tertiary erosion removed most of the Tertiary sediments along the foothills. East of the Alberta syncline also, these beds were removed by post-Tertiary erosion except in the south, where, along the drainage divide between the South Saskatchewan and the Missouri rivers, the Cypress Hills form a remnant of the Tertiary plateau extending from southeastern Alberta far eastward into Saskatchewan.

The main period of Rocky Mountains orogeny, long termed the Laramide revolution, evidently occurred in early Eocene time, and the uplifting and overthrusting of the mountains were accompanied by broad uplift across the plains and erosion which may have removed 1,200 feet of strata in southern Saskatchewan before aggradation again commenced in late Eocene and Oligocene time. The fresh-water sandstones and shales of the Eocene and the succeeding quartzite cobble conglomerate of the Oligocene disconformably overlie the Paleocene or earliest Eocene formations and in places overlap these beds and rest on Upper Cretaceous sediments. Accompanying the mountain building in the west was the tight folding and thrust faulting of the foothills belt, and, adjacent at the east, the downwarping of the structural feature termed the Alberta syncline. On the southern plains of Alberta, at this same time, marked uplift, with contemporaneous erosion, occurred over the Sweetgrass arch, whereas at the east it seems evident that the Williston basin witnessed negative movement and renewed sedimentation. At about this time the porphyritic intrusive bosses of the Sweetgrass Hills thrust upward along the present eastern Alberta-Montana boundary, sharply doming the intruded formations. Tertiary sediments were completely

*Western Canada Sedimentary
BASIN - 1954 A. A. P. G.*

Juarez Engineering Ltd.

GEOLOGICAL HISTORY OF CANADIAN PLAINS

27

continental deposition continued for a relatively short interval until the broad uplift took place ending the period.

Tertiary.—Late Cretaceous emergence was probably accompanied by commencement of orogenic uplift along the Rocky Mountains belt. Rejuvenated erosion in the west supplied material for rapid accumulation of thick fresh-water clastics along a geosynclinal belt somewhat east of the earlier trough, where the foothills and Alberta syncline now stand. These beds were largely Paleocene in age and spread far eastward across the plains, but have been mostly removed by post-Tertiary erosion. The main period of Rocky Mountains orogeny (Laramide revolution) occurred in the early Eocene, accompanied by broad uplift and, in places, deep erosion on the plains. Aggradation by coarse clastics of stream-bed type again took place in late Eocene and Oligocene time. The surface feature termed the Alberta syncline resulted from post-Paleocene warping, when the Sweetgrass arch also took its present form, probably accompanied by slight negative tectonism in the Williston basin. Certain gravel benches indicate Miocene or Pliocene aggradation, but since Oligocene time the record on the plains has been chiefly that of degradation.

WEBB

W.C.G. Basin - 1954



APPLICATION FOR A PLACER MINERAL LEAS

ENERGY

Mineral Resources Division

APPLICANT CHANGED BY ALTA. GOVT.
IN EDMONTON TO: JAMES SELKIRK FALCONER
ON 19 Sept/89.

Name (in full)

JUAREZ ENGINEERING LTD.

Address

407, 820 - 5th AVE. S. W.,
CALGARY, ALBERTA,
T2P0N4

Ph. 2694935

1. I hereby apply for a lease of the placer mineral rights in the following lands:

						Acres
Sec 19	Tp 51	R 23	W 5	S 1/2		320
Sec 24	51	R 24	W 5	N 1/2		320
Sec 23	51	24	W 5	NE 1/4		160
Sec 26	51	24	W 5	S 1/2		320
Sec 27	51	24	W 5	N 1/2		320
Sec 31	51	24	W 5	NE 1/4		160
Sec 6	Tp 52	24	W 5	S 1/2		320

Total 1920 Acres.

2. I agree to comply with the provisions of the Placer Mining Regulation.

3. This application is accompanied by a fee of \$450.00.

WITNESS

Sept. 11 10:50 AM Verbally
corrected
Kirkland
11 August 1989

DATE

SIGNATURE OF APPLICANT

PRESIDENT

ADDENDUM

On Friday, October 13, 1989, the writer with wife as assistant, left Calgary for Hinton. On October 14, a 200# sample of heavy, mixed till and Ft. Union (brn clay, silt, rocks) was taken about 3,000' south (till side) of the butt line and washed at Fish Creek. One speck of gold was seen and the sample discarded.

This additional sampling trip was necessitated by Acme Assay discrepancy from observed gold in the field. Sample 2107 was estimated to run \$10 per cu. yd. in gold, however Acme's assay result showed background or no value.

70 lbs of sample C-1 was taken at the butt line. This was brn. silt with rocks and a preponderance of Ft. Union. However, the estimated 2,500#/cu. yd. suggests disturbed transition glacial till. Three colors of gold were seen in this sample.

70 lbs of Sample C-2 was taken about 1,000' north of a glacial till gravel pit north west of the Athabaska River. The butt line swings a half mile to the northeast. C-2 was lighter than C-1, estimated at 2,300#/cu. yd. Brn. silt with rocks indicated a preponderance of Ft. Union however only one speck of gold was seen after washing and panning. C-1 and C-2 were washed and panned at the Athabaska River and the few ounces of concentrate mailed to Swastika Labs in Ontario. The two samples were collected October 15 and washed October 16. Results of C-1 and C-2 follow:


- A2 -

- C-1 October 25, 1989, U.S \$/oz Au. \$368
 Cdn. exchange 1.175
 \$.0139/mg Au
 .0139 x .022 mg Au x 35.7 = 1.1¢/cu. yd.
- C-2 .0139 x.003 mg Au x 32.86 = 1/10¢/cu. yd.

Additional Land Application (Placer)

On October 17, 1989, two sections of Placer Lease, Section 33 and 34, were applied for by the writer. These sections border sample 2107, protect butt line shift and appear to be in the middle of the old river channel. Highways, railway and water are close by. The Addendum Map gives the sample locations to date and others, including geologic information.

October 26, 1989



J. S. Falconer, P.Eng.



Established 1928

Swastika Laboratories

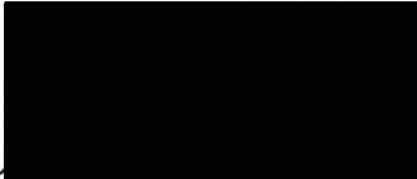
A Division of Assayers Corporation Ltd.

Assaying - Consulting - Representation

Certificate of Analysis

Certificate No. 76617 Date Oct. 25, 1989
Received Oct. 23, 1989 2 Concentrate Samples
Submitted by Juarez Engineering Ltd., Calgary, Alberta.

SAMPLE NO.	GOLD mg	SAMPLE WEIGHT gram
C-1	0.022	18.43
C-2	0.003	19.39

Per 
G. Lebel - Manager /ns



P.O. Box 10, Swastika, Ontario P0K 1T0
Telephone (705) 642-3244 FAX (705) 642-3300



APPLICATION FOR A PLACER MINERAL LEASE

ENERGY
Mineral Resources Division

Name (in full)

JAMES SELKIRK FALLONER

Address

407, 820 - 5th AVE. S. W.

CALGARY, ALTA.

T2P0N4

(403) 269 4935

1. I hereby apply for a lease of the placer mineral rights in the following lands:

	ACRES
SEC. 33 Tp 51, R24, W5	640
SEC 34 Tp 51, R24, W5	640
<hr/>	
1280 Acres	

2. I agree to comply with the provisions of the Placer Mining Regulation.

3. This application is accompanied by a fee of \$450.00.

[Redacted]

WITNESS

[Redacted]

WITNESS

SIGNATURE OF APPLICANT

[Redacted]

SIGNATURE OF APPLICANT

Oct 17, 1989

DATE OF APPLICATION

I agree to comply with the provisions of the Placer Mining Regulation.

1280 Acres

SEC 34 Tp 51, R24, W5
SEC 33 Tp 51, R24, W5

[Redacted]

[Redacted]

XX DOLLARS

PAY TO THE ORDER OF
James S. Falconer
Oct 17 1989
\$450.00

076

INVESTMENT CHECKING

CALGARY, ALBERTA T2P 0Z2

766 - 7TH AVENUE S.W.

BANK OF MONTREAL

[Redacted]

[Redacted]

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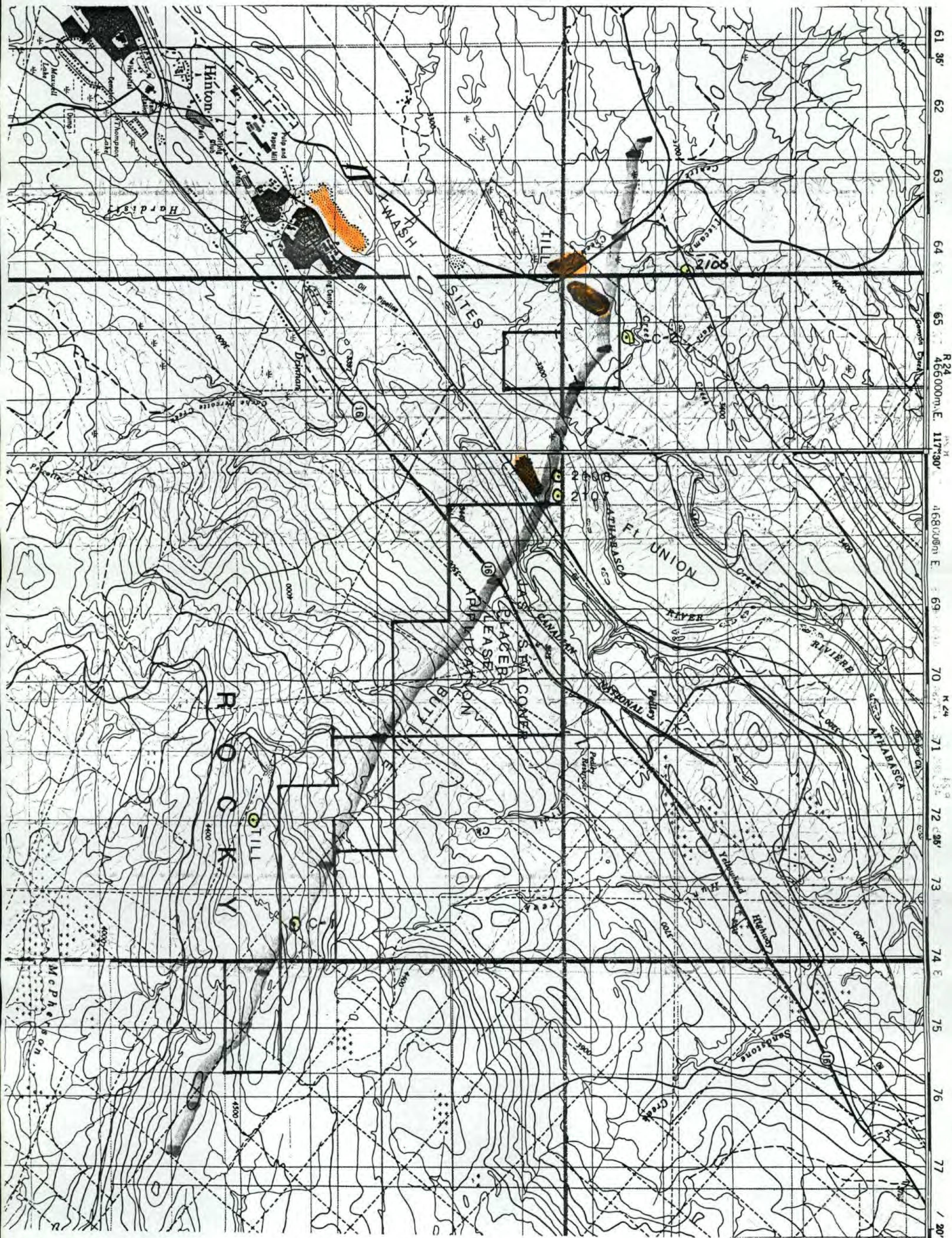
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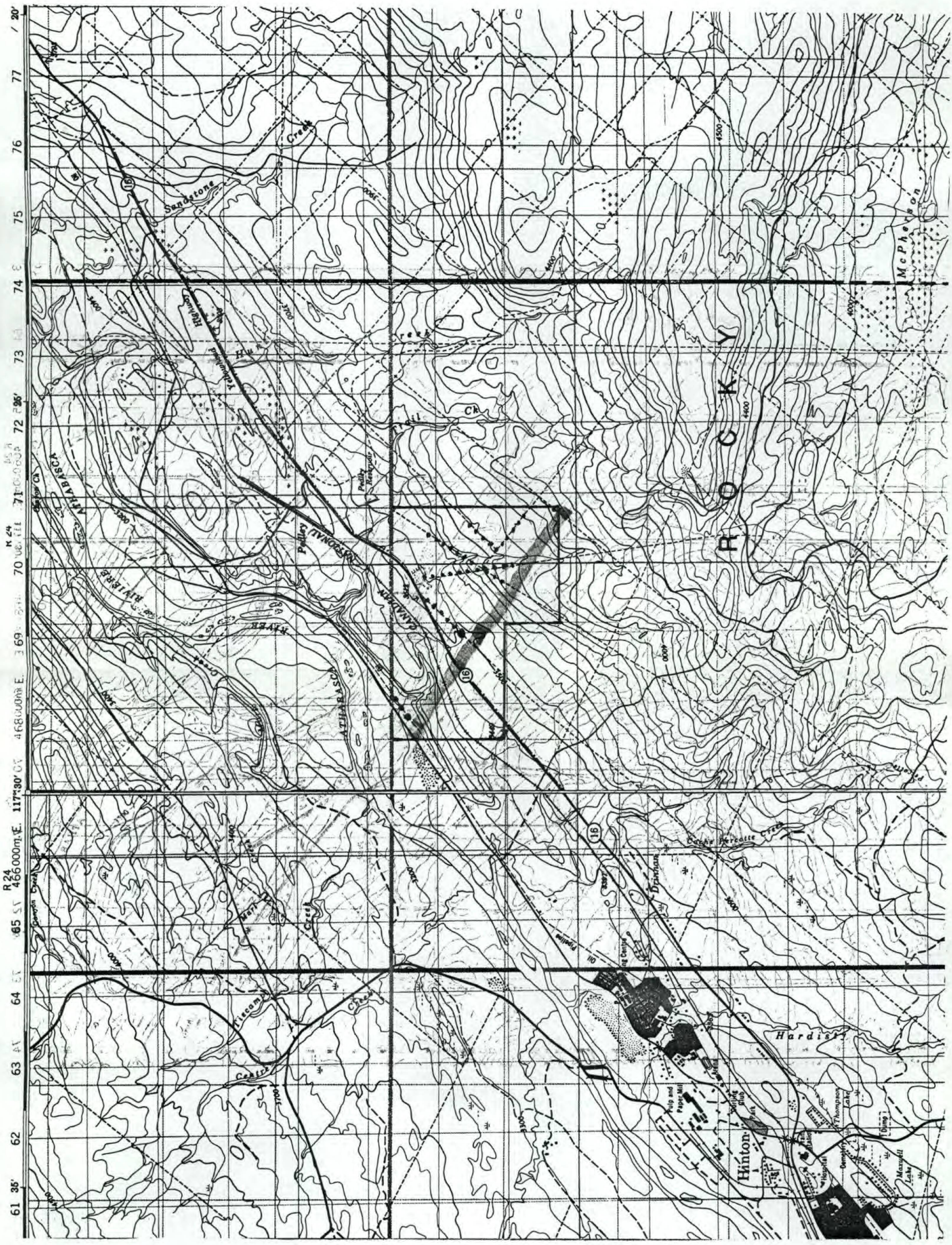
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0 1 2
miles

ADDENDUM MAP
OCTOBER, 1989



61 35' 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

ROCKY

Hinton

Hardisty

McPherson

Sandstone

ATHABASCA

Cr

16

Pulp and Paper Mill

Swimming Club

Thompson Lake

Marshall Lake

Thompson Lake

Marshall Lake

Thompson Lake

Marshall Lake

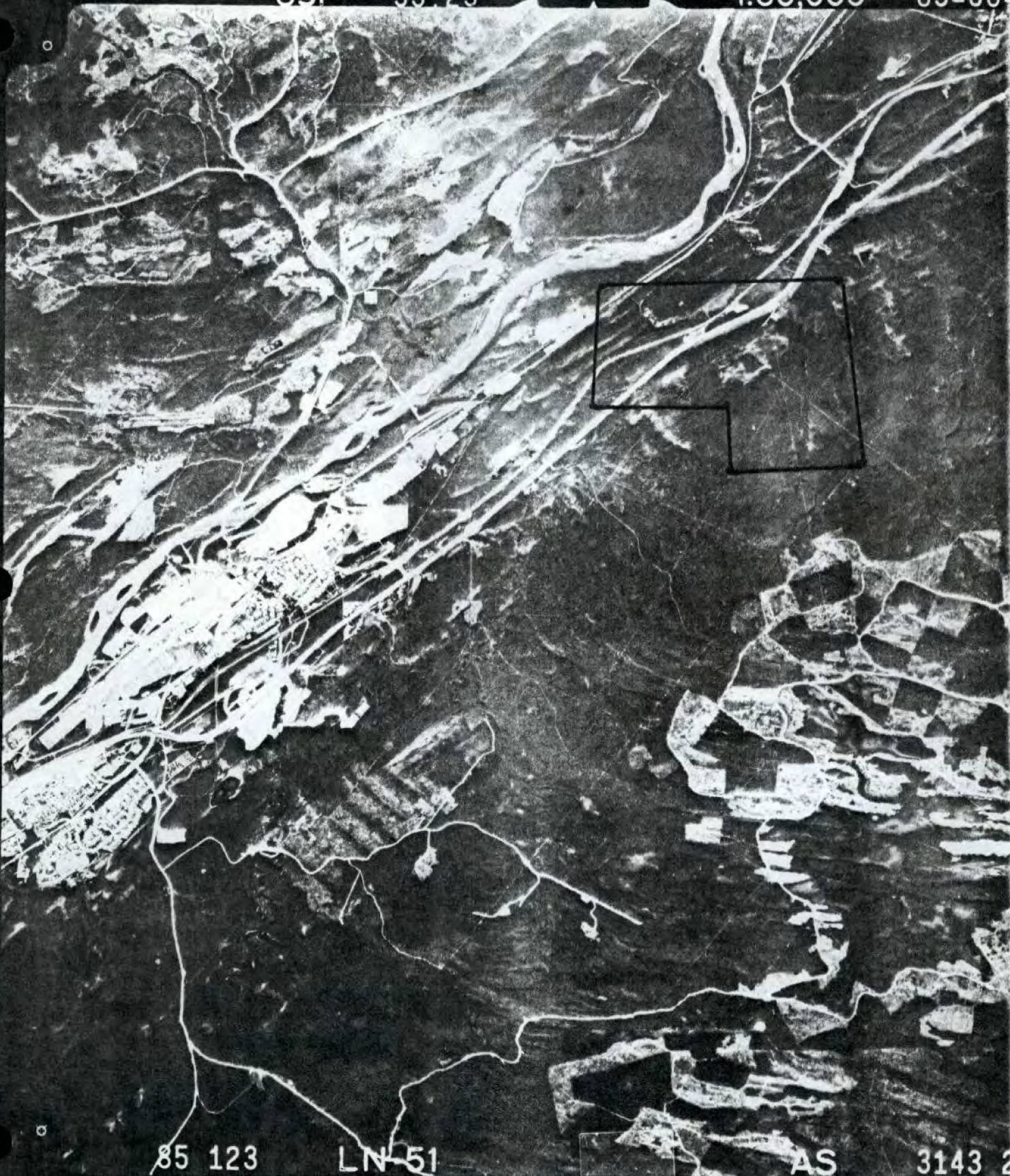
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MTA ALEANE 20004

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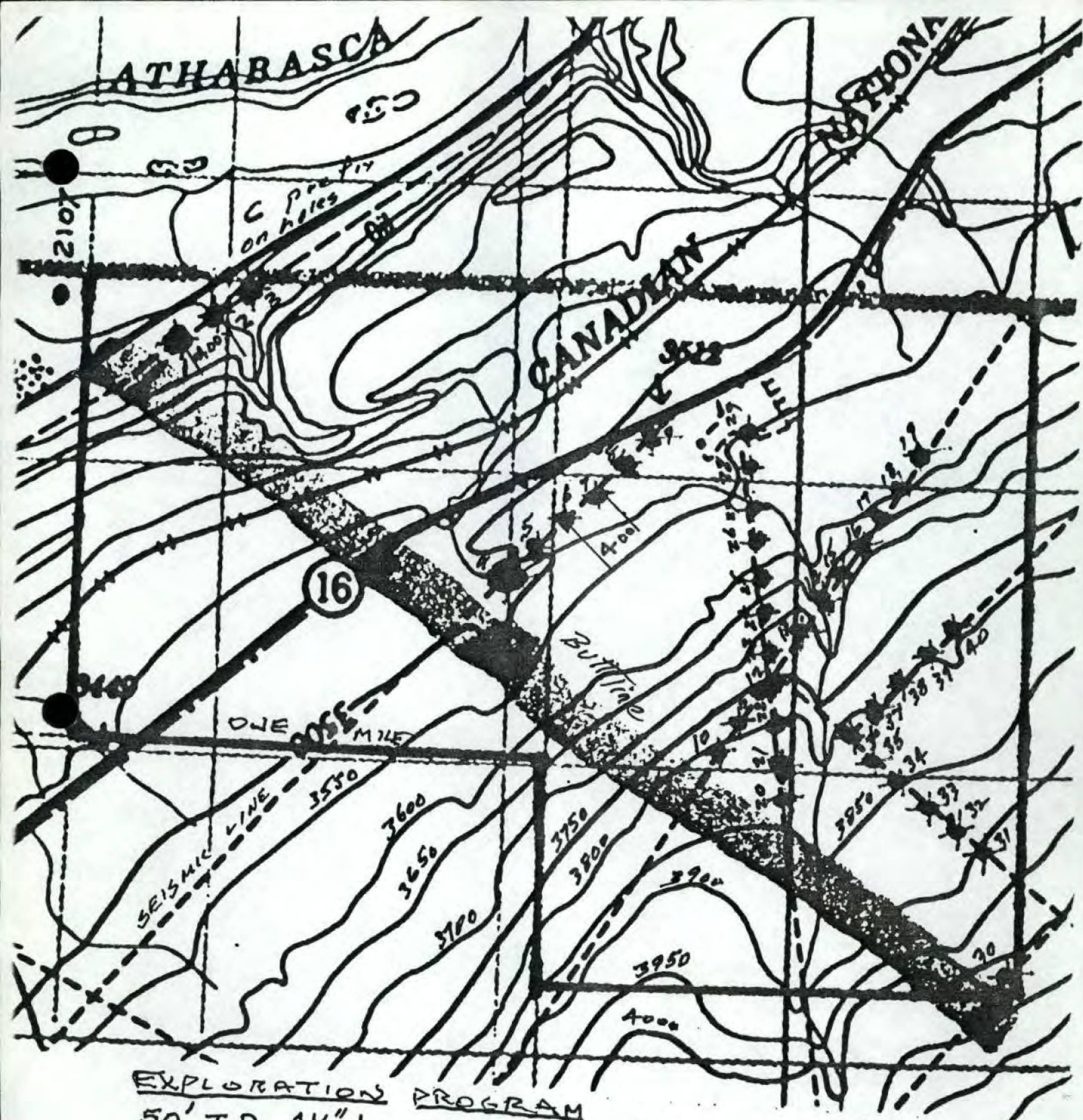


85 123

LN-51

AS

3143 2



EXPLORATION PROGRAM

50' T.D., 4 1/2" dia, reverse circulation

TRUCK Mounted, 40 holes, 2000' total

⊙ # 20 per foot

40, 45 gal. drums & TRANSPORT

ASSAYING

MISC.

Total \$ 50,000





Strobl, 1989). This means that the Ardley coal swamps may have been similar to the present-day Okefenokee Swamp and northern Everglades of the southeastern United States. Localized abundances of Pine pollen, fern spores and the spores of *Sphagnum* moss within certain coals at Highvale indicate that at times during their existence (especially the latter stages of succession within individual coal seams) Ardley mires dried out and the water table was relatively low. This is confirmed by coal petrographic studies in which anomalous abundances of oxidized plant remains (inertinite maceral) are present. Combined palynology and petrography provide evidence for a relative raising of the mire surface above the influence of the water table. Although not necessary for the formation of thick clean coal, this scenario of a relative raised mire surface is only one model which may be used to explain the Ardley coals at Highvale. Further paleoecologic details are covered by Demchuk and Strobl (1989).

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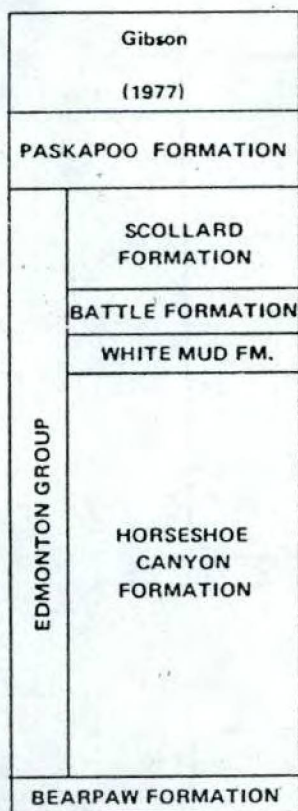


Figure 1.

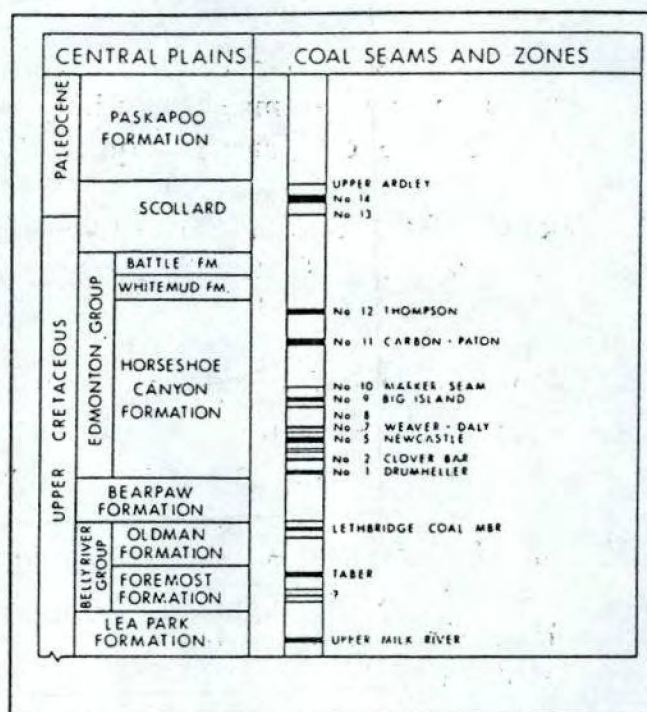


Figure 3. From Horacek, 1986.

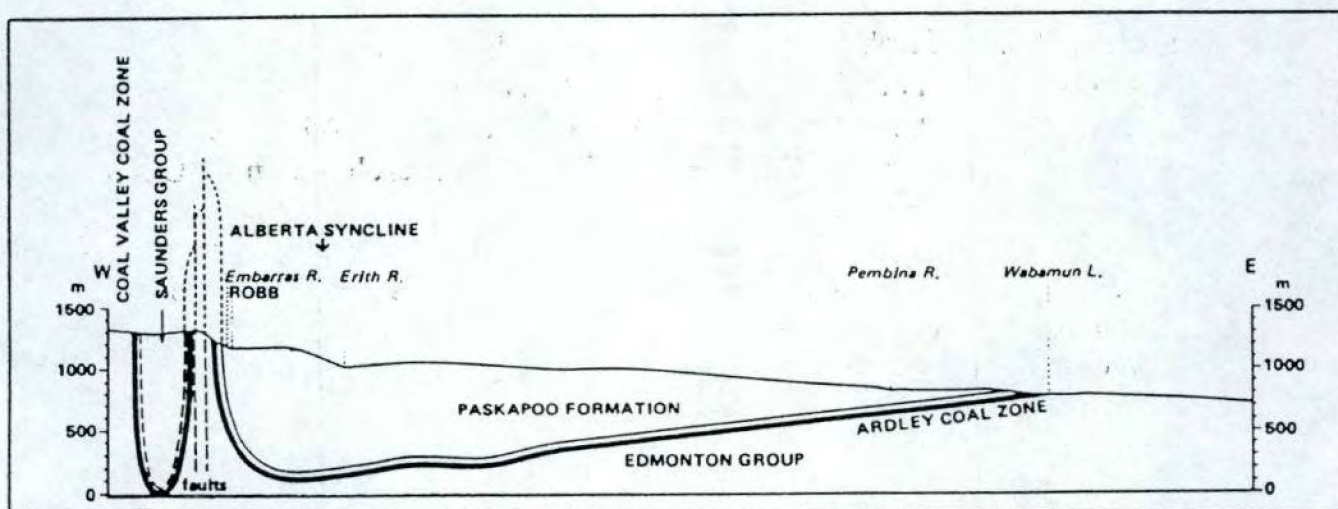


Figure 2. From Horacek, 1986.

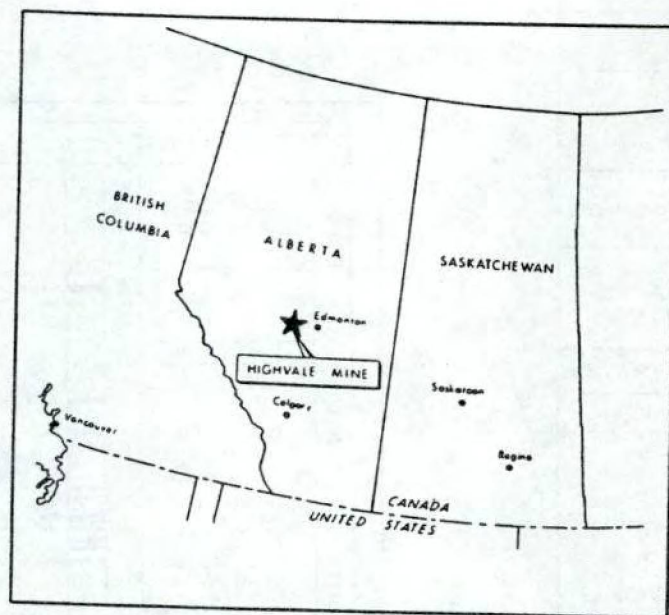


Figure 4. From Taylor, 1986.

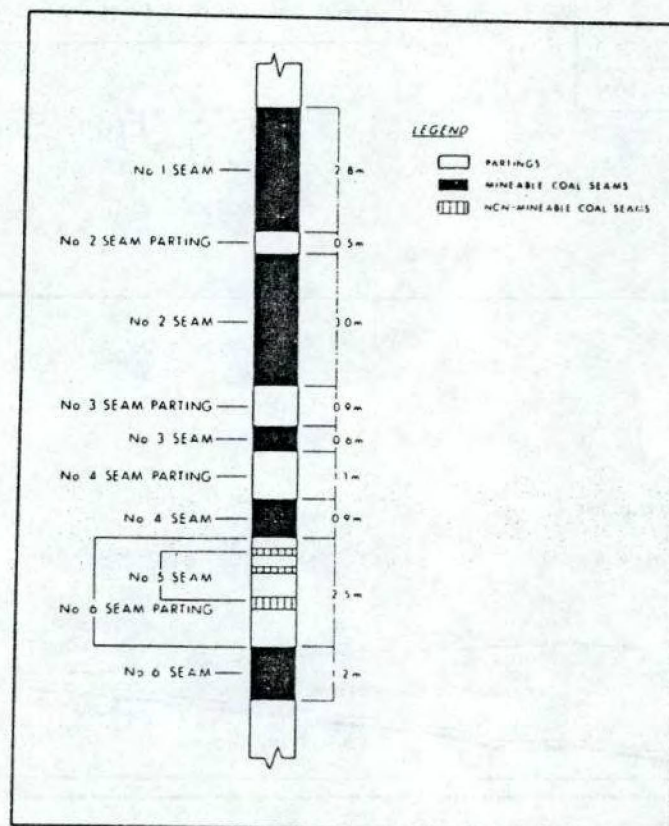
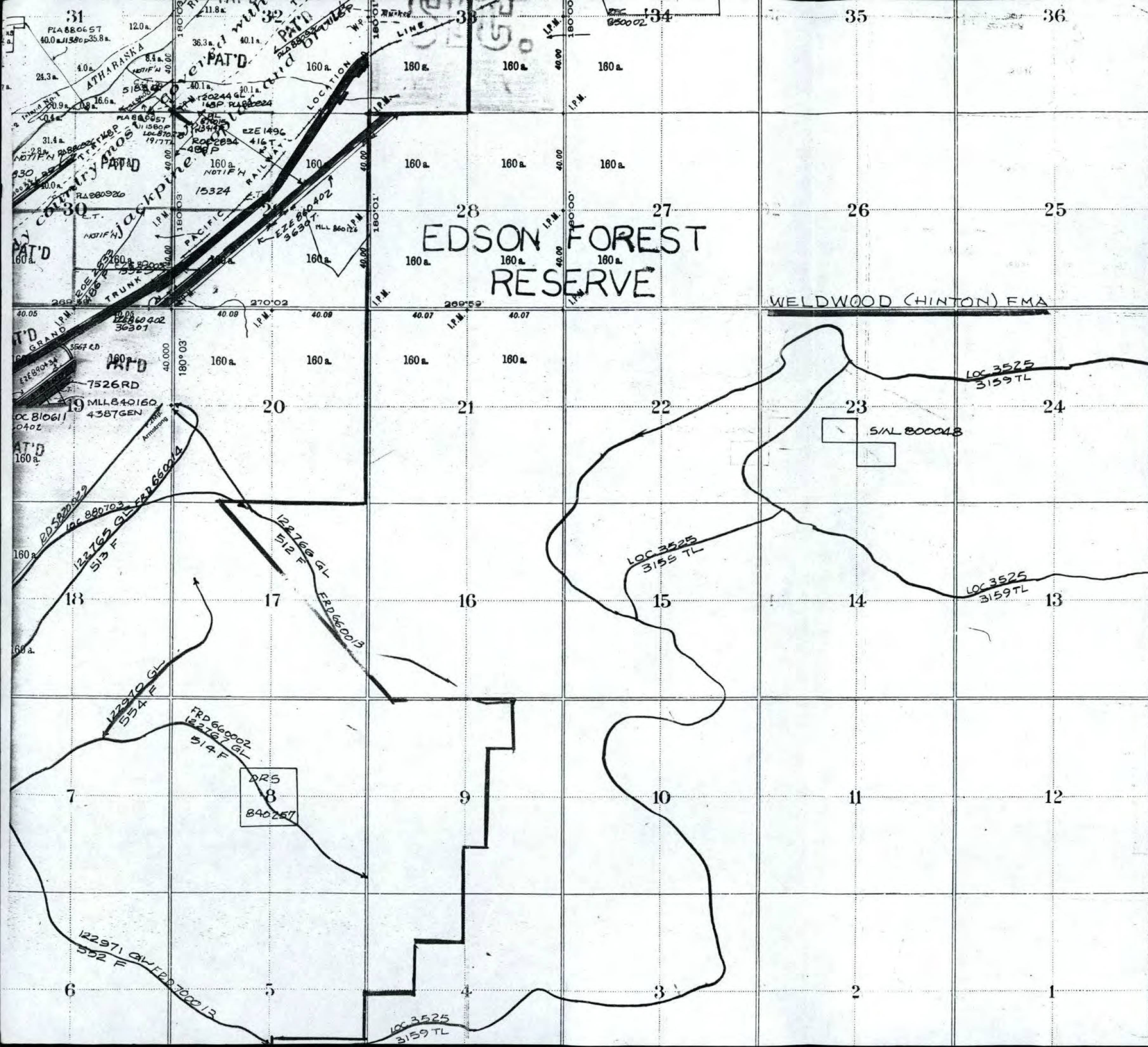
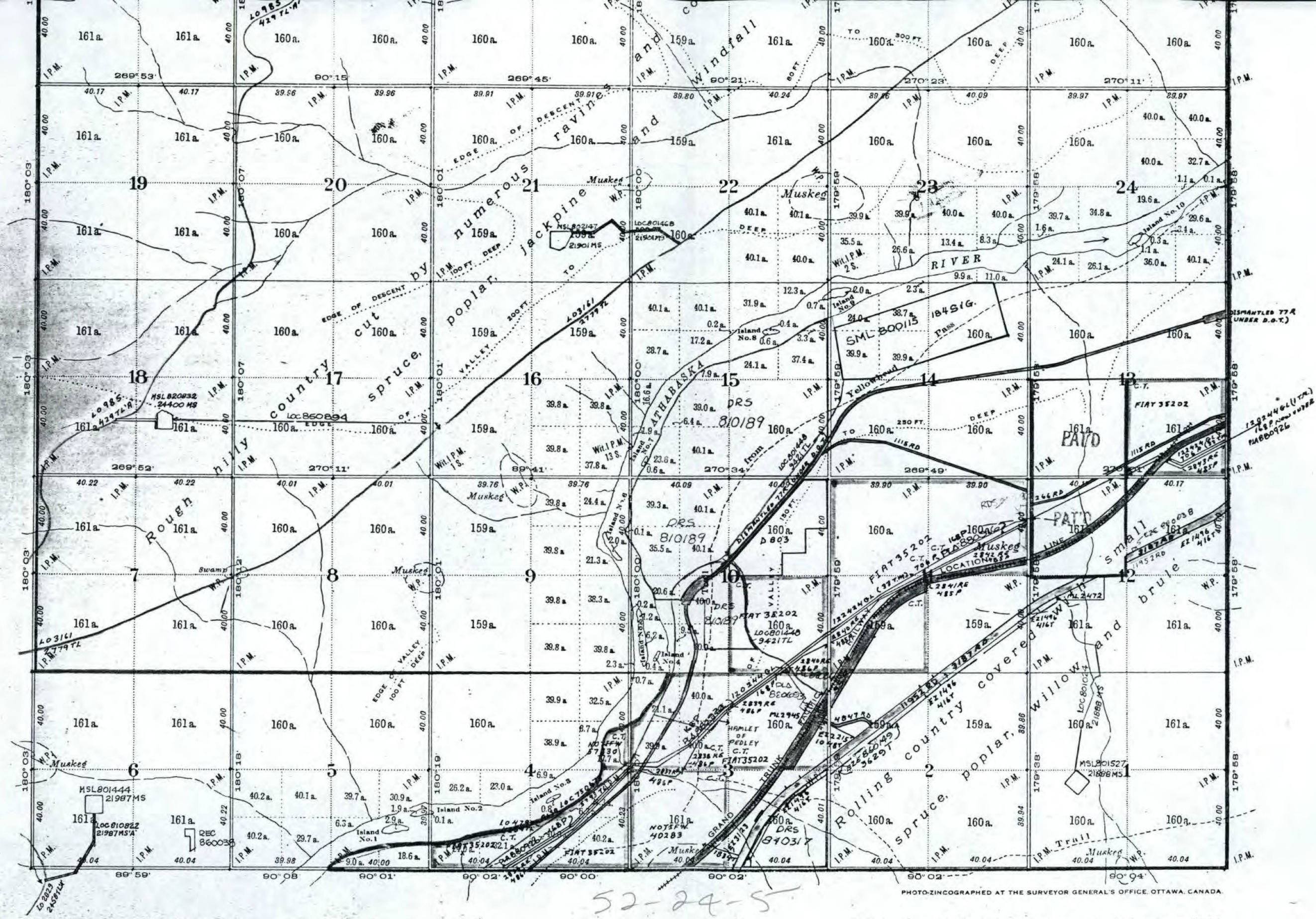


Figure 5. From Taylor, 1986.





Compiled from official surveys by
 G. Ross, D.L.S. 14th October, 1907
 A. E. Farncomb, D.L.S. 19th November, 1908
 G. H. Herriot, D.L.S. 2nd December, 1911

DIAGRAM SHOWING THE
 NUMBERING OF LEGAL SUB-
 DIVISIONS IN A SECTION.

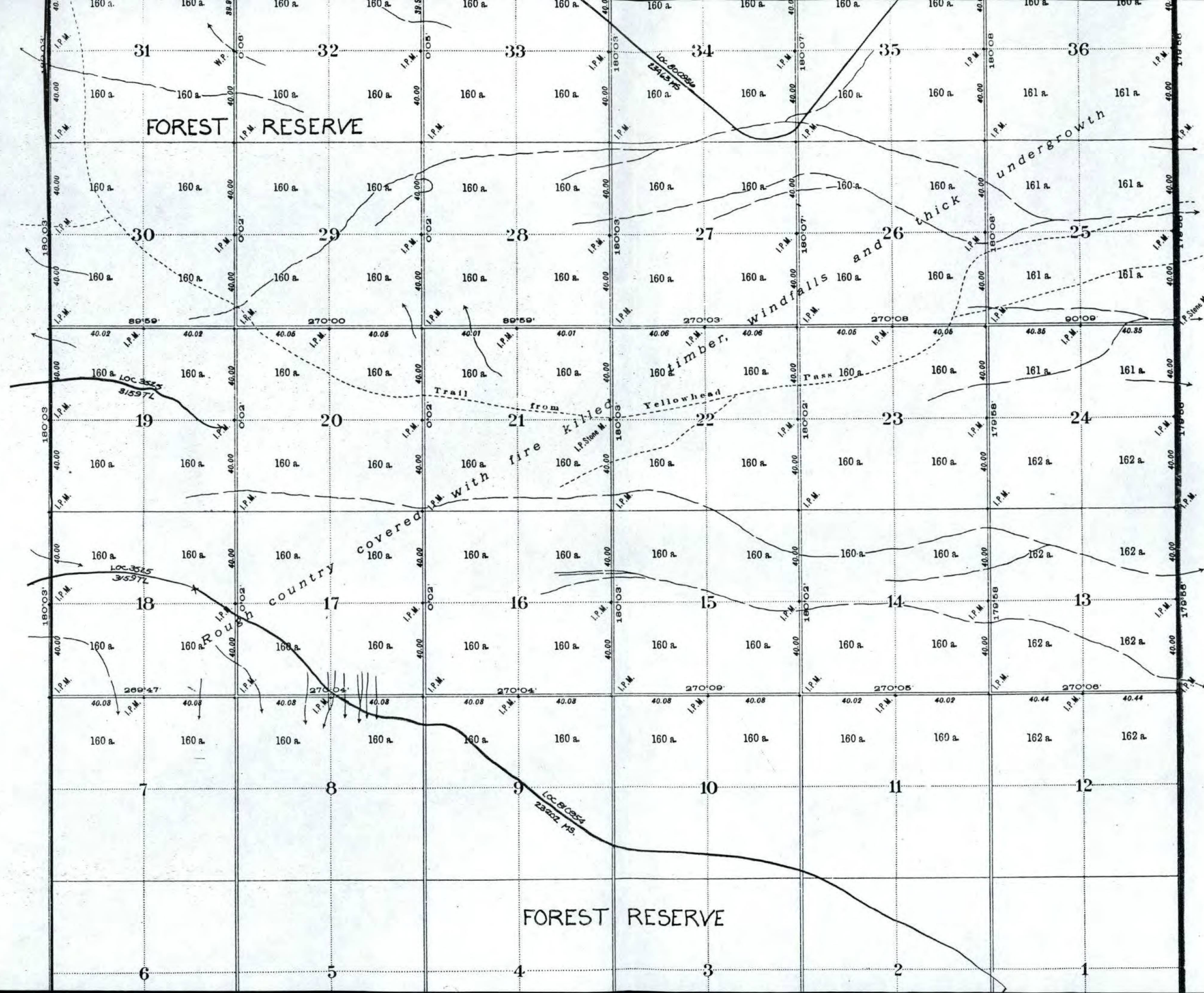
13	14	15	16
12	11	10	9
5	6	7	8
4	3	2	1

NOTE: The subdivisions of quarter sections shown upon this plan are legal subdivisions. Areas in acres are marked on all lands surveyed. Distances are

Department of the Interior, Ottawa, 17th January, 1913.

Approved and Confirmed.


 Surveyor General.



51-23-9