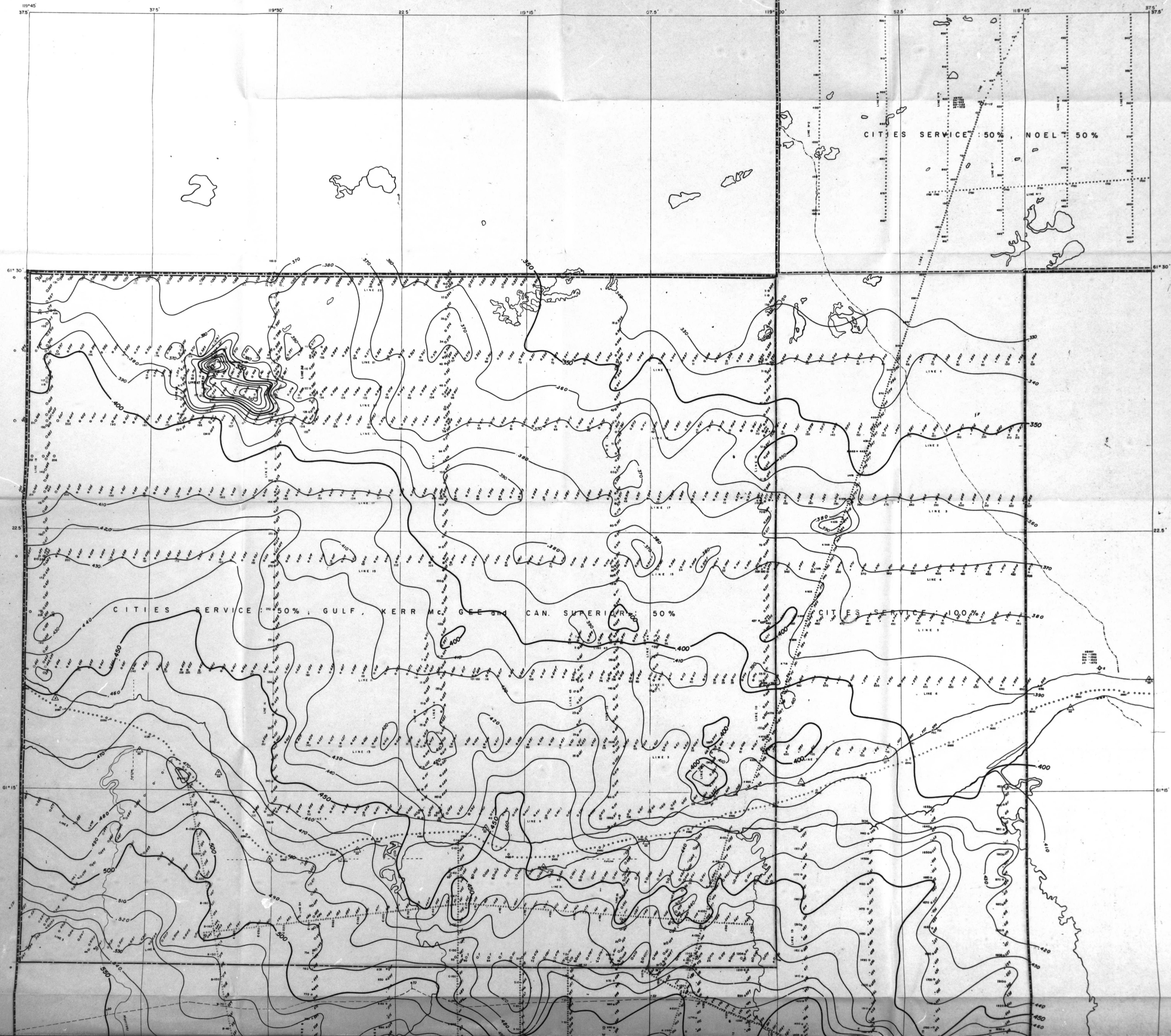


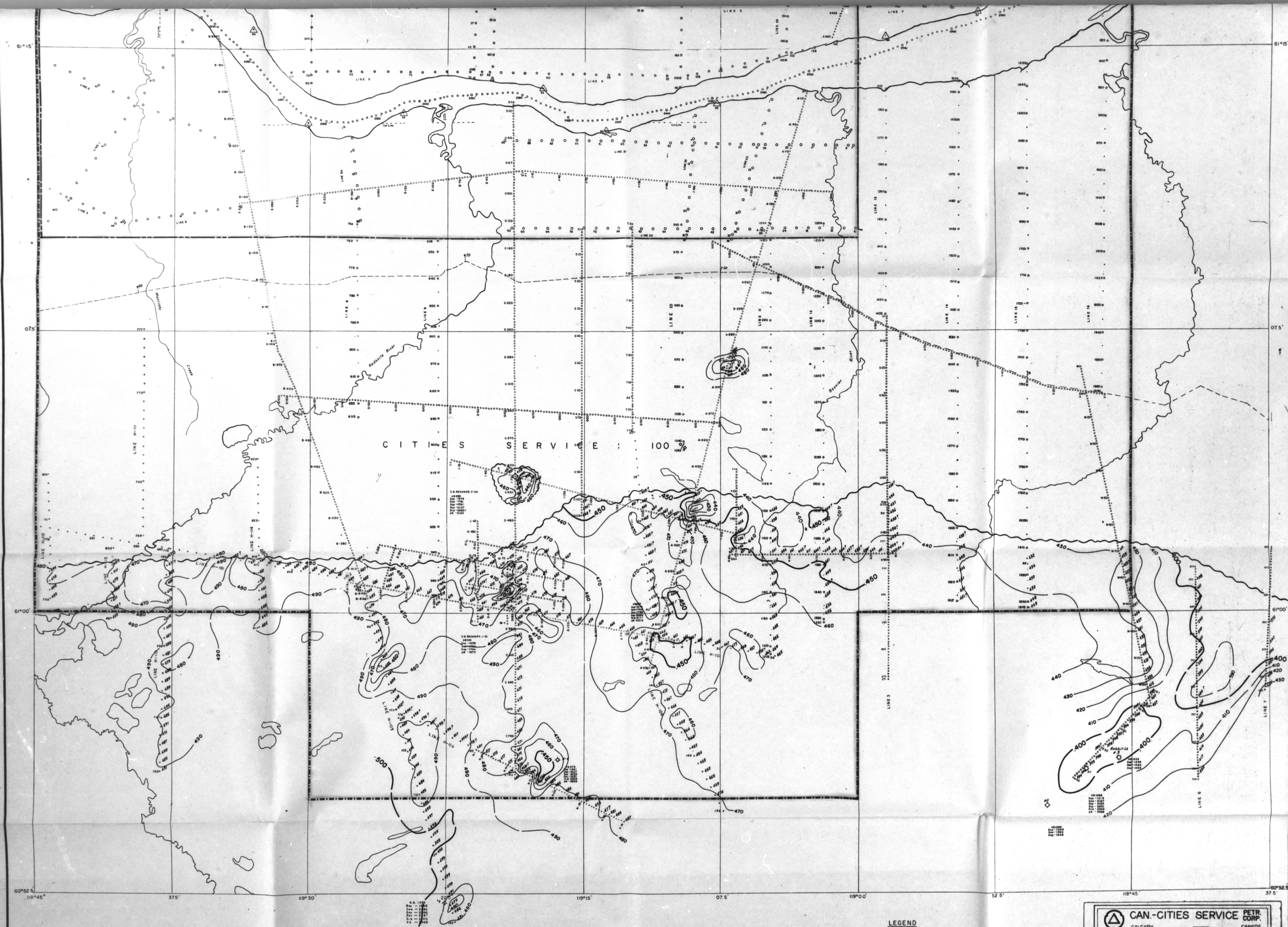




CITIES SERVICE : 50% , NOEL : 50%

CITIES SERVICE : 50% , GULF, KERR Mc. GEE and CAN. SUPERIOR : 50%

CITIES SERVICE : 100%



LEGEND

- Shot by Kenting 1968
- Shot by Velocity Survey 1968
- Shot by Heiland 1961
- Shot by Teledyne 1968-1969
- Shot by Kenting 1969
- Shot by Velocity Survey 1969

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PETR. CORP.

CALGARY CANADA

FORT PROVIDENCE (N.W.T.)

REDMAC AREA

TOP OF SLAVE POINT CARBONATE

TIME STRUCTURE MAP

DATUM = 650 FT

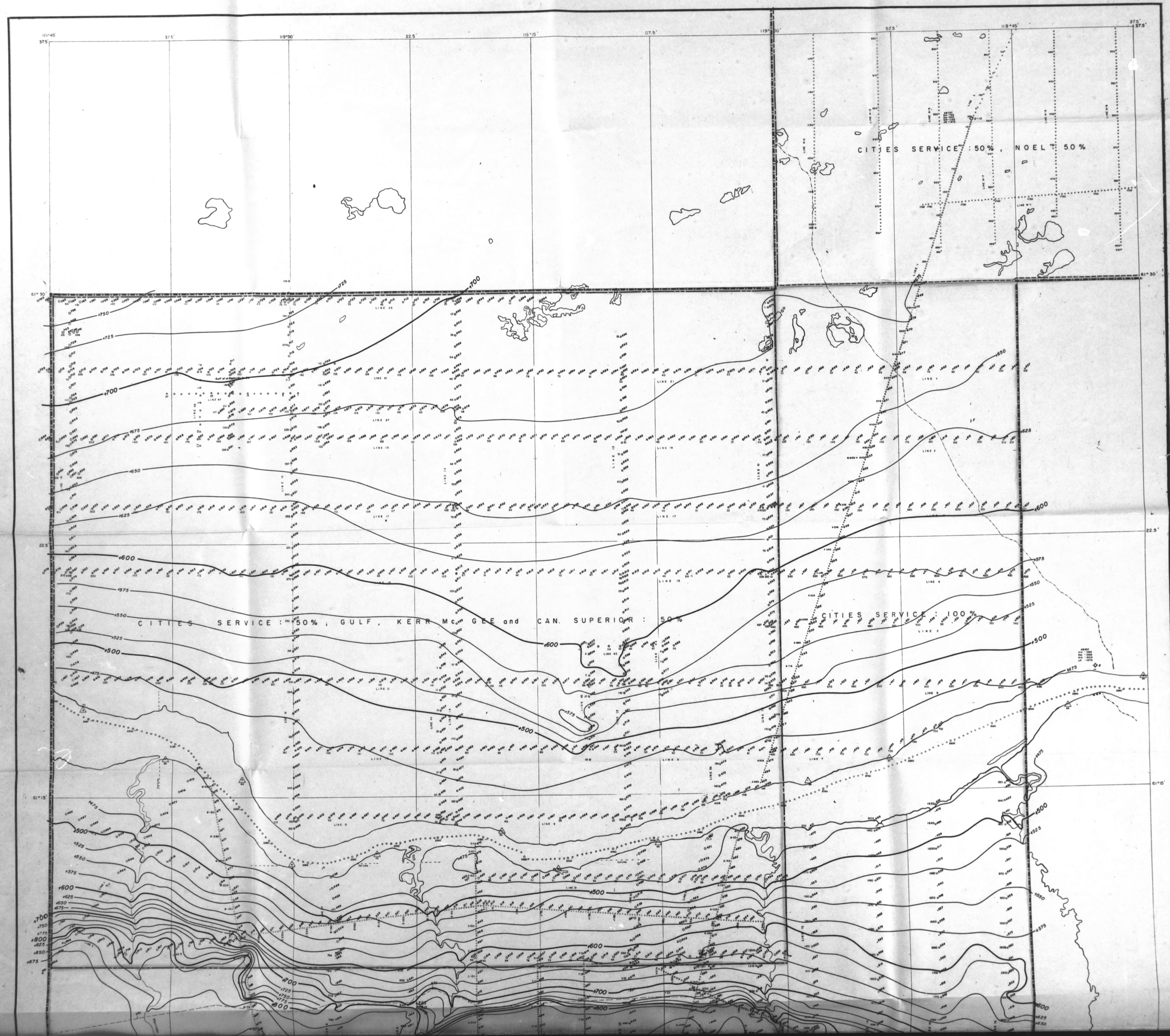
DATUM VELOCITY = 15,500 FT/SEC

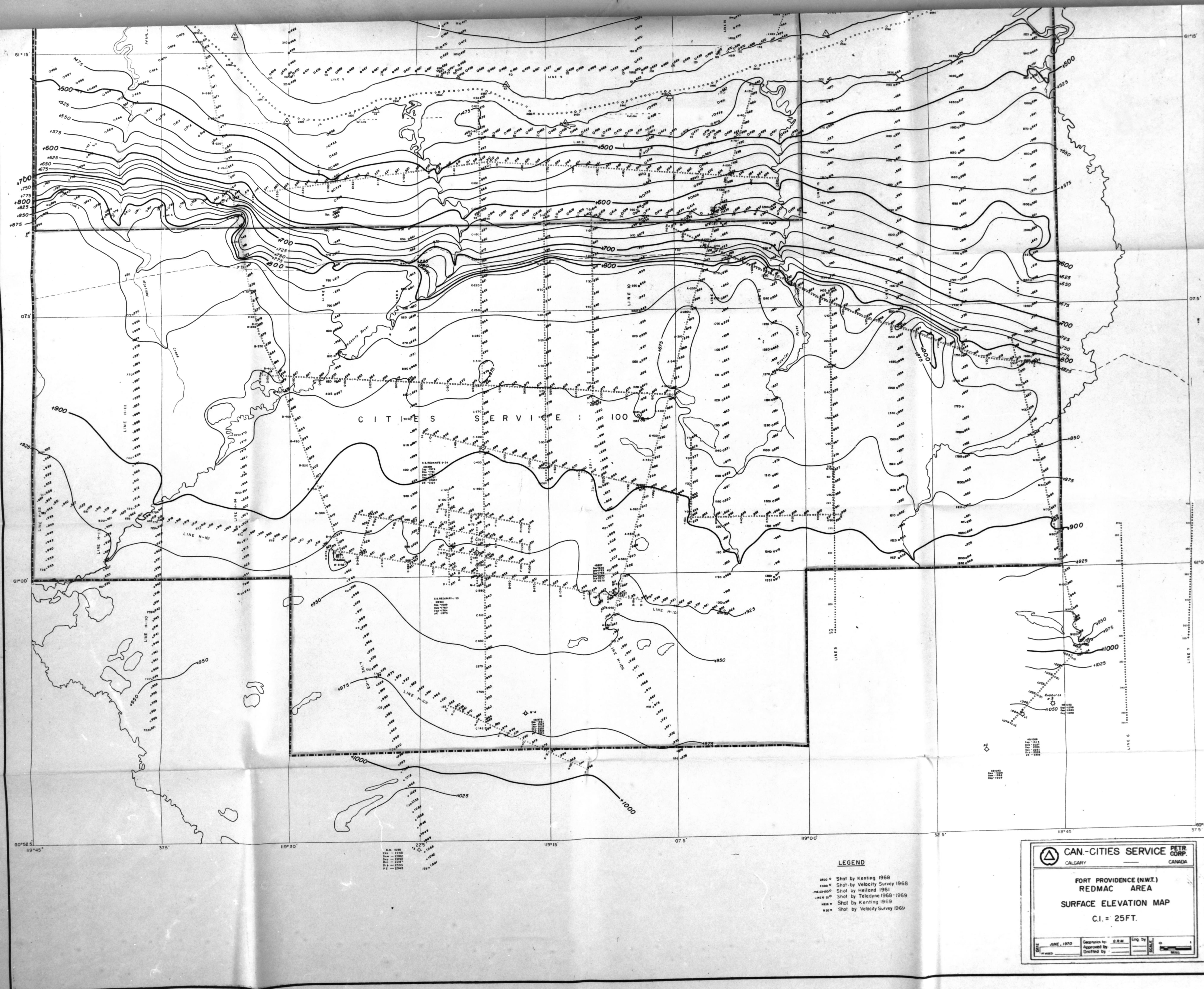
JUNE 1970

Geophysics by J.R.M.S.

Approved by

Drafted by





LEGEND

- 2500 Spot by Kenting 1968
- 2400 Spot by Velocity Survey 1968
- 2300 Spot by Heland 1961
- 2200 Spot by Telephoto 1968-1969
- 2100 Spot by Kenting 1969
- 2000 Spot by Velocity Survey 1969

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CALGARY CANADA

Fort Providence (N.W.T.)

Redmac Area

Surface Elevation Map

C.I. = 25 FT.

DATE: JUNE, 1970

Drawn by: S.R.M.

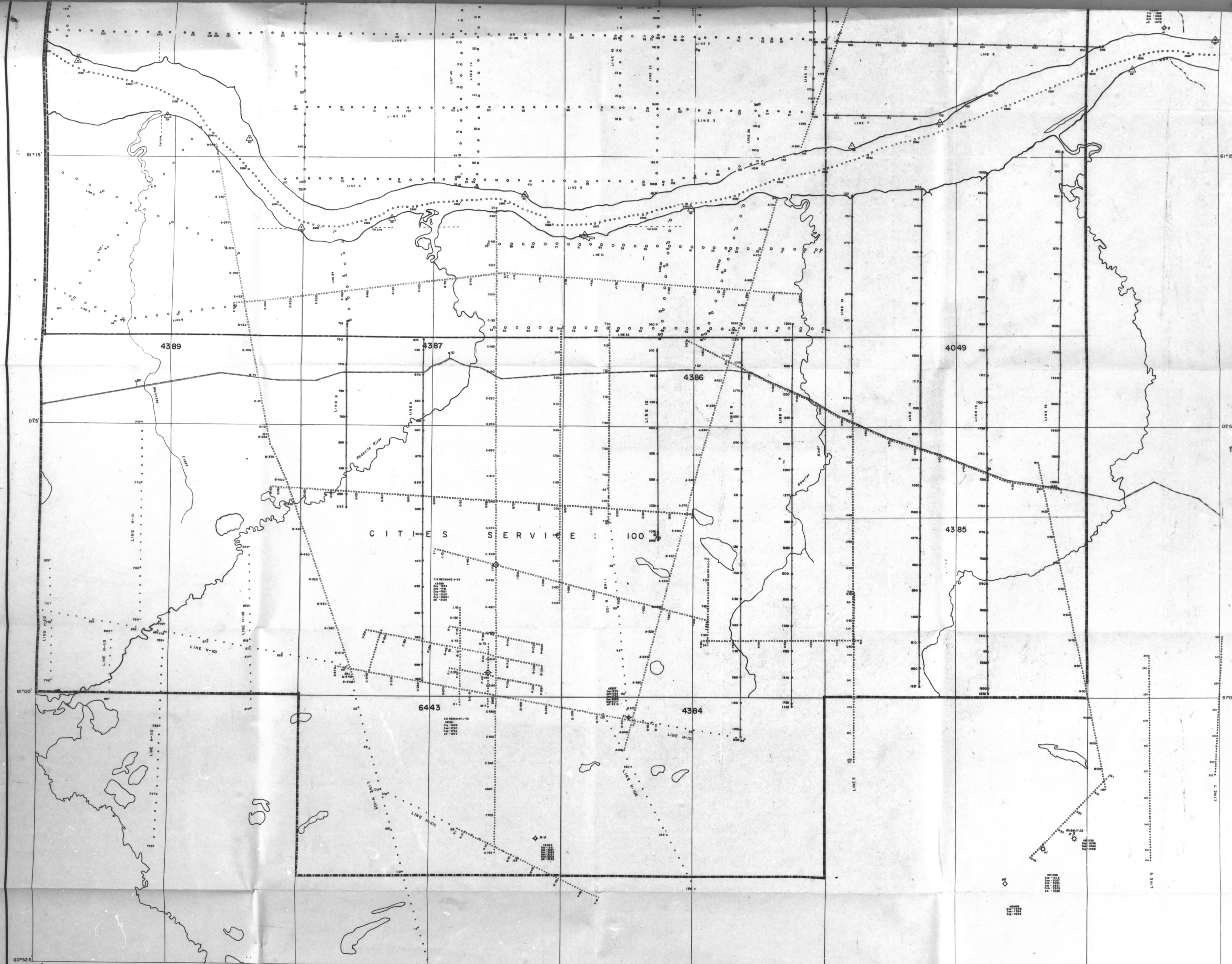
Checked by: S.R.M.

Drafted by: S.R.M.

Scale: 1 inch = 1 mile

Graphic scale bar





CITIES SERVICE : 100

LEGEND

- 2000 Shot by Kenting 1968
- 4000 Shot by Velocity Survey 1968
- 4000 Shot by Heland 1961
- 4000 Shot by Telebyte 1968-1969
- 4000 Shot by Kenting 1969
- 4000 Shot by Velocity Survey 1969
- 4000 Shot by Conwest 1970
- Access
- 6443 Permit No.

CAN-CITIES SERVICE

PETR. CORP.

CALGARY

CANADA

FORT PROVIDENCE (N.W.T.)

REDMAC AREA

SHOTPOINT LOCATION MAP

JUNE, 1970

Geophysics by: G.R.M. (Eng. by)

Approved by:

Drafted by:

SEISMIC INVESTIGATION

REDMAC AREA - FORT PROVIDENCE, N.W.T.

FOR PERIOD FEBRUARY 1970, TO MARCH 1970

For:

CANADA-CITIES SERVICE PETROLEUM CORPORATION

By:

Canwest Geophysical Limited Party #21

On:

Permits: 4049, 4384 - 4387, 4389,

4391 - 4394, 6443

Prepared By:

J. H. HARDING: CHIEF GEOPHYSICIST

June, 1970

Project Number: 62-6-4-70-1

Abstracted for
Geo-Science Data Index

Date _____



TABLE OF CONTENTS

Locality Map

INTRODUCTION	1
STATISTICAL DATA	1
FIELD PROCEDURE	3
DATA PROCESSING	3
RESULTS AND INTERPRETATION	3
CONCLUSIONS	4

Enclosures:

- Shot Point Location Map
- Surface Elevation Map
- Time Structure Map: Top of Lonely Bay Carbonate
- Time Structure Map: Top of Slave Point Carbonate

INTRODUCTION:

SEISMIC INVESTIGATION - REDMAC AREA, FORT PROVIDENCE, N.W.T.

PERMIT NUMBERS: 4049, 4384-4387, 4389, 4391-4394, 6443.

The purpose of the seismic survey was to expand the reconnaissance program previously shot in the area to further evaluate the Slave Point shale-out edge and to explore unsurveyed portions of the area north of the Mackenzie River Valley.

A total of 159 miles of reflection seismic was shot. Access to the area was via the Fort Simpson highway south of the Mackenzie River and via the Northern Oil Explorers road and the Calnex Road from Fort Providence north of the Mackenzie River. Access within the prospect was confined to previously cut trails.

STATISTICAL DATA

The survey commenced February 22, 1970 and was terminated March 17, 1970

PRODUCTION

Total number of miles recorded	159
Total number of shots	1,976
Average daily production	6.6 miles
Total number of days worked	24
Total number of weather days	0

EQUIPMENT

Four Wheel Drive Units:

- 1 One ton Recording Unit
- 1 3/4 ton shooting truck
- 3 One ton line trucks
- 1 3/4 ton supply truck
- 1 Party Managers truck
- 3 3/4 ton survey pickups

Drills:

- 4 Conventional drills
- 2 Top Drives
- 1 Sewell
- 3 Water Trucks

Cats:

- 3 3/4 Ton service trucks
- 4 D7 Caterpillar Dozers
- 1 D6 Caterpillar Dozer

Camp:

- 1 10' X 52' Kitchen Trailer
- 1 10' X 40' Utility Trailer
- 5 10' X 52' Sleeper Trailers
- 1 10' X 52' Advance Trailer
- 1 30 KVA Cat Plant
- 1 20 KVA Deutch Plant
- 2 Shop Trailers
- 1 Dynamite Magazine
- 1 Cap Magazine

PERSONNEL

- | | |
|-----------------------|--------------------|
| 1 Party Manager | 1 Operator |
| 3 Surveyors | 2 Shooters |
| 3 Rodmen | 9 Geophone Linemen |
| 10 Drillers | 2 Mechanics |
| 10 Drill Helpers | 1 Cat Foremen |
| 3 Water Truck Drivers | 5 Camp Staff |
| 10 Cat Skinners | |

NAVIGATION

All surveying was performed with a Wilde T-1A Theodolite. Horizontal control in the area north of the Mackenzie was obtained from solar observations and ties to previous lines in the area. Vertical control was established by tying to the Cities Service Laferte River N-54 well site located at $61^{\circ}43'52.5''N$, $118^{\circ}55'32.8''W$.

South of the Mackenzie River horizontal control was obtained from solar observations on each line. Vertical control was tied to the C.S. Redknife J-21 well, $61^{\circ}00'40''N$, $119^{\circ}19'14''W$.

FIELD PROCEDURE

Field data was recorded digitally with 48 D.F.S. Binary Gain amplifiers and a TI-508 tape transport. The survey was shot using 5,280 foot split spreads with 220 foot intervals between geophone stations and 440 feet between shot points to give 1200% C.D.P. coverage. However, due to refractive interference on the outside traces, only the inside 24 traces were used in processing to give 600% coverage on the final sections.

DATA PROCESSING

The data was processed digitally to give 600% stacked flattened and structural sections. The processing stages were as follows:

- Stage I - Normal moveout removal
- Stage II - Trace Gathers and flattening statics
- Stage III - Stack and structural corrections

Weathering corrections were computed using the intercept method and elevations were corrected to a +600 foot datum using a correction velocity of 12,500 feet per second.

Cross-sections north of the Mackenzie River were displayed in flattened form while those lines south of the river were displayed in both flattened and structural form as the flattened sections did not show the Slave Point edge.

The data was digitally filtered using a 15-20/55-60 band pass filter. All data was processed by Digitech Ltd. of Calgary.

RESULTS & INTERPRETATION

Quality of the data varied from good to poor, with the poor quality data occurring when shooting in a limestone escarpment south of the Mackenzie River.

Over most of the area there was only one mappable horizon which was identified as the Top of the Carbonate. In the southern portion of the area the map was contoured on the Top of the Slave Point Carbonate and in the northern portion of the area the map was contoured on the Top of the Lonely Bay Carbonate. The postulated Slave Point edge is shown on each map.

There was evidence of shallower reflections over most of the area but none of these horizons have been mapped.

CONCLUSIONS AND RECOMMENDATIONS

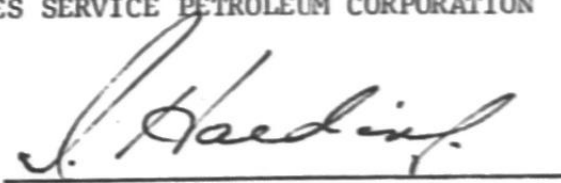
Because of the poor quality data and the difficulty in drilling shot holes in the limestone escarpment, it has been recommended by the contractor that, in future programs in this portion of the area, a Vibroseis survey be used.

There are several structural possibilities in the area north of the Slave Point Reef edge but none are as definitive and show as much closure as the dry reef structure drilled by Gulf in the Gulf et al Redknife H-28 well located at $61^{\circ}27'N$, $119^{\circ}9'W$.

There are one or two prospect areas south of the Slave Point edge similar to the structure drilled in the C.S. Redknife I-24 well, and these areas may require further detailed exploration.

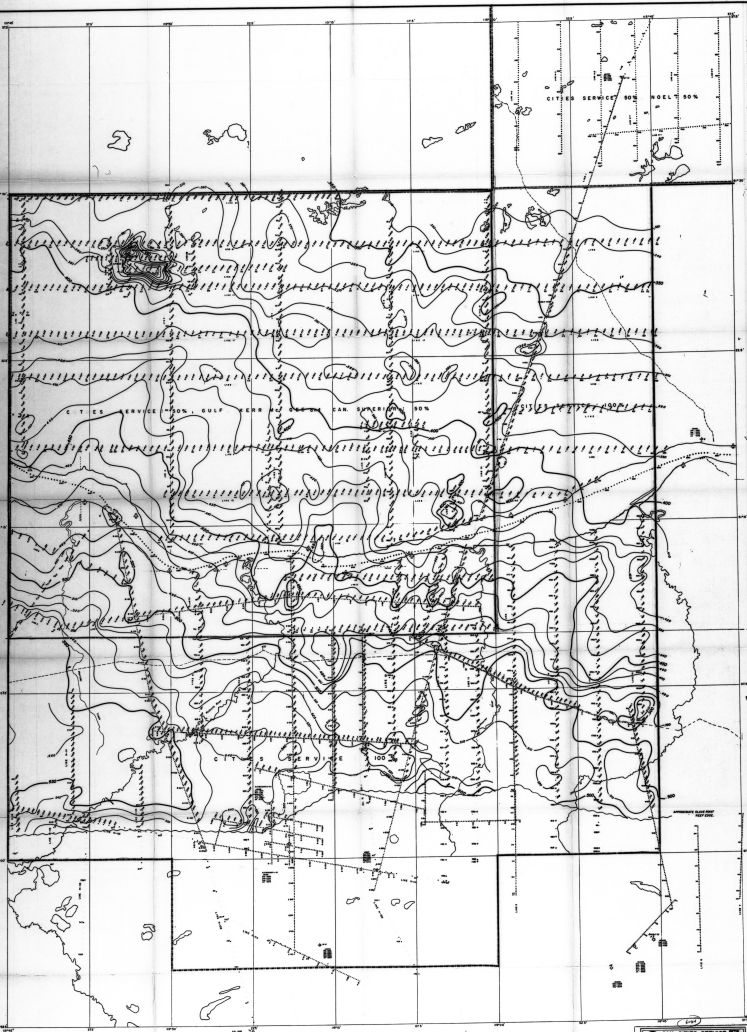
Respectfully submitted,

CANADA-CITIES SERVICE PETROLEUM CORPORATION



J. H. Harding
Chief Geophysicist

July 2, 1970



LEGEND

- 1. Contour Interval 100
- 2. Contour Interval 50
- 3. Contour Interval 20
- 4. Contour Interval 10
- 5. Contour Interval 5
- 6. Contour Interval 2
- 7. Contour Interval 1

CAN-CITIES SERVICE

POST OFFICE BOX 100
 NEWARK, N.J.

TOP OF LOWLY BAY CARBONATE
 THE STRUCTURE MAP

1960-100-100