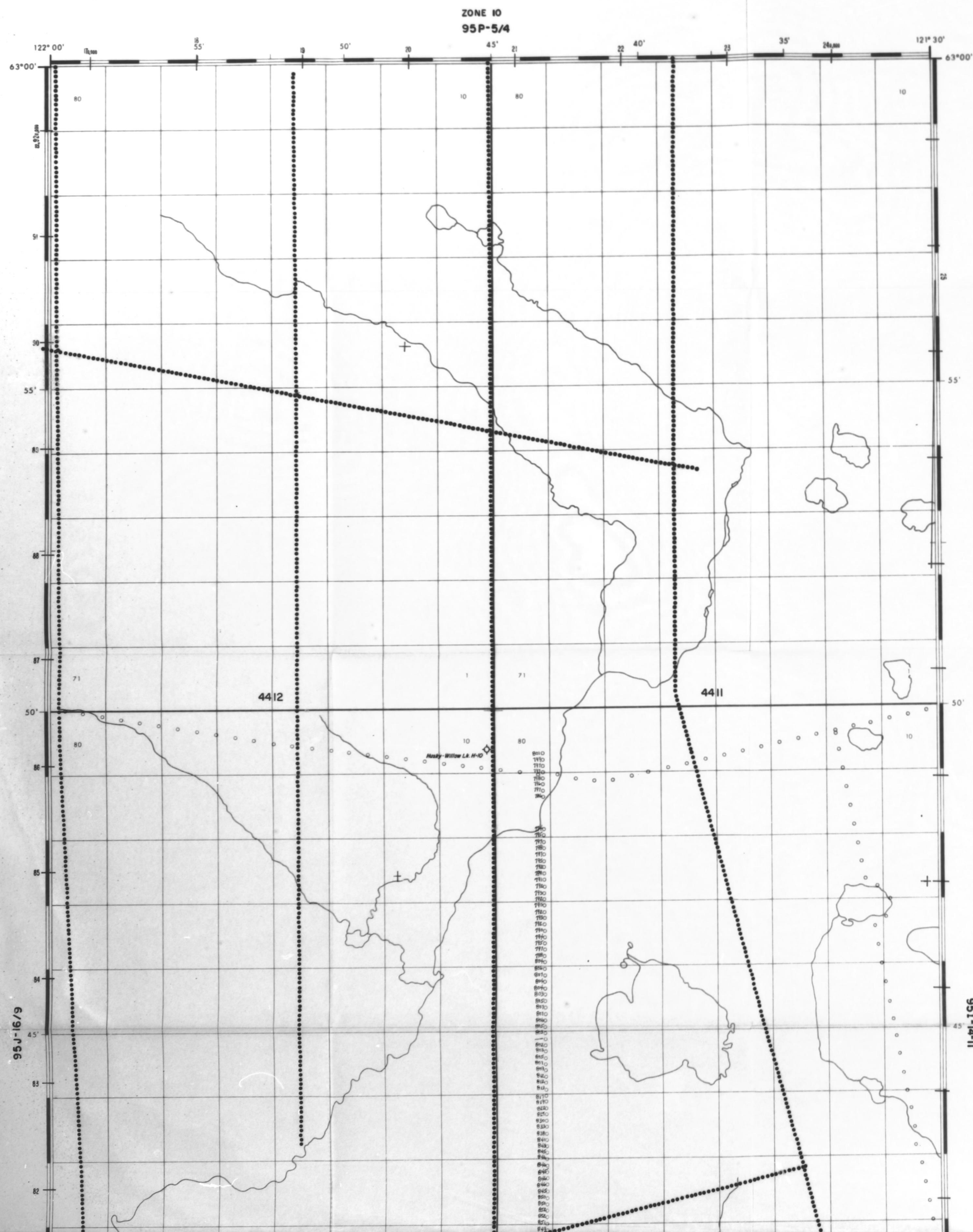
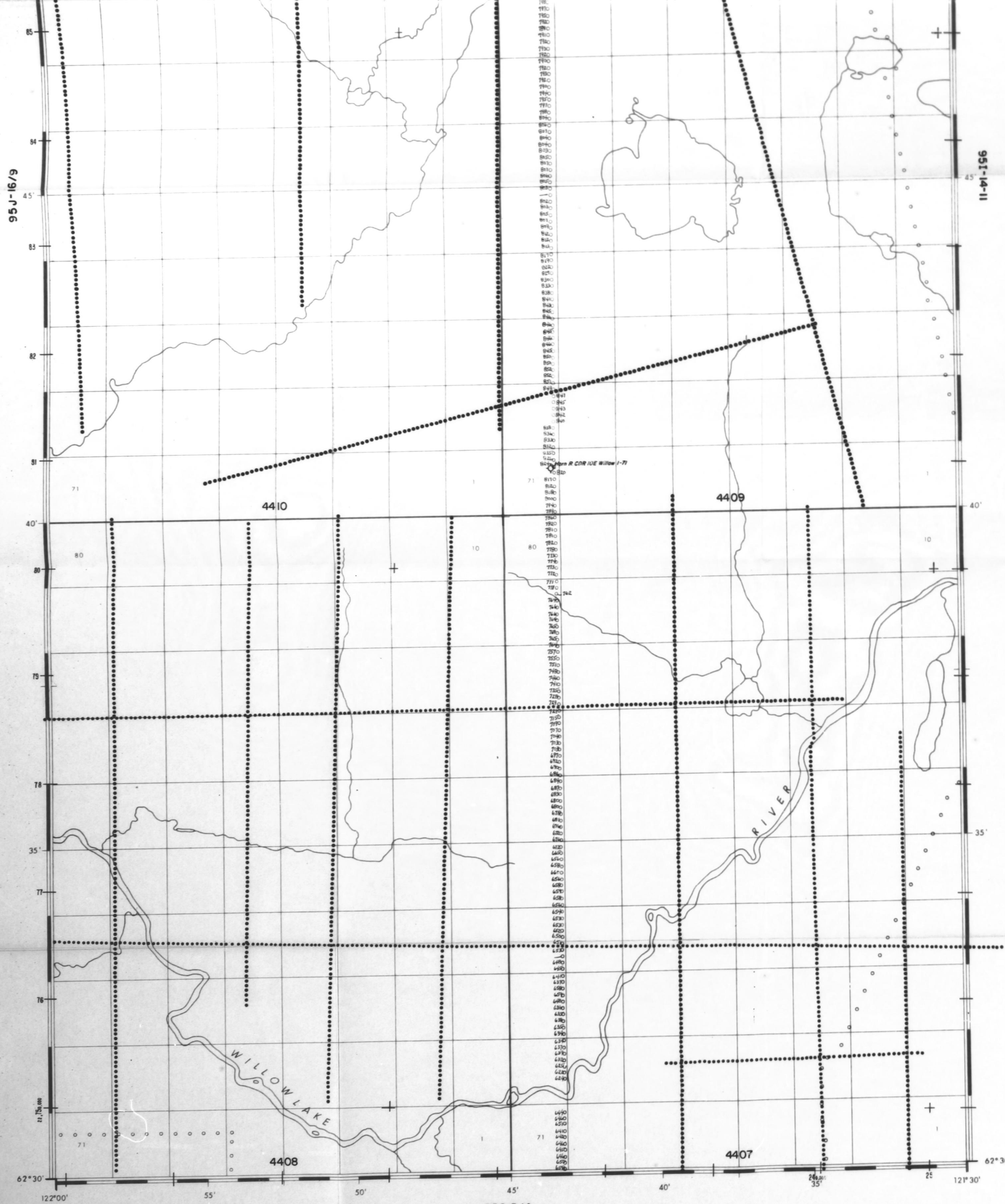






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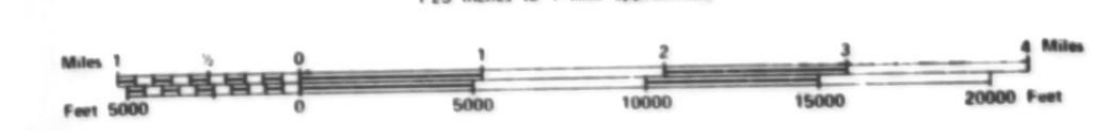
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95-6	95-7	95-8	95-9	95-10
95-11	95-12	95-13	95-14	95-15
95-16	95-17	95-18	95-19	95-20

SEISMOGRAPH MAP
SURFACE ELEVATIONS

Contour Interval: 10 Feet
Datum: Plane SEA LEVEL Velocity

BULMER LAKE 95-13/12

SCALE 1:50,000
1.25 inches to 1 mile approximately



PROPRIETARY

Gp	95I-13/12	3	V		
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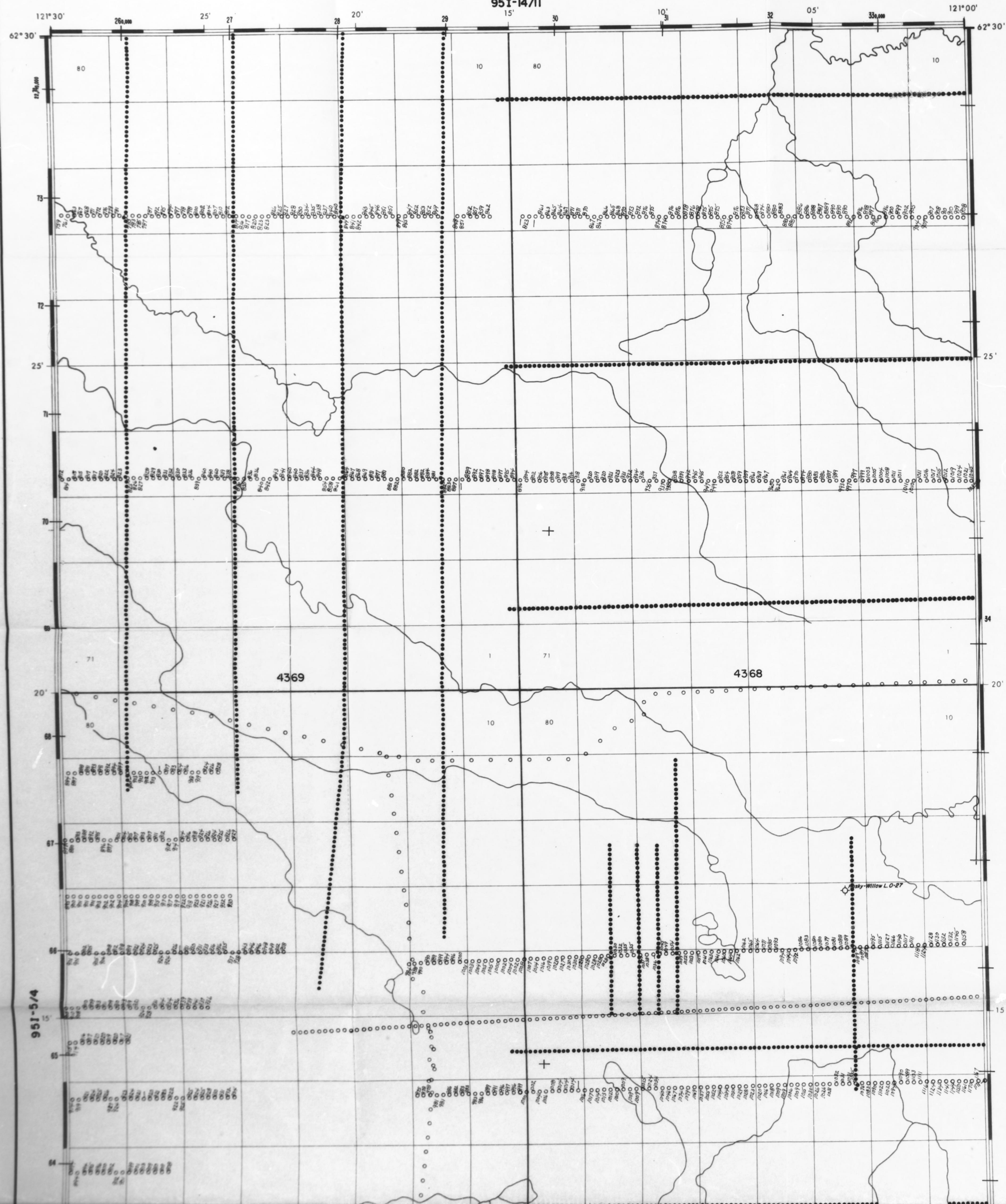


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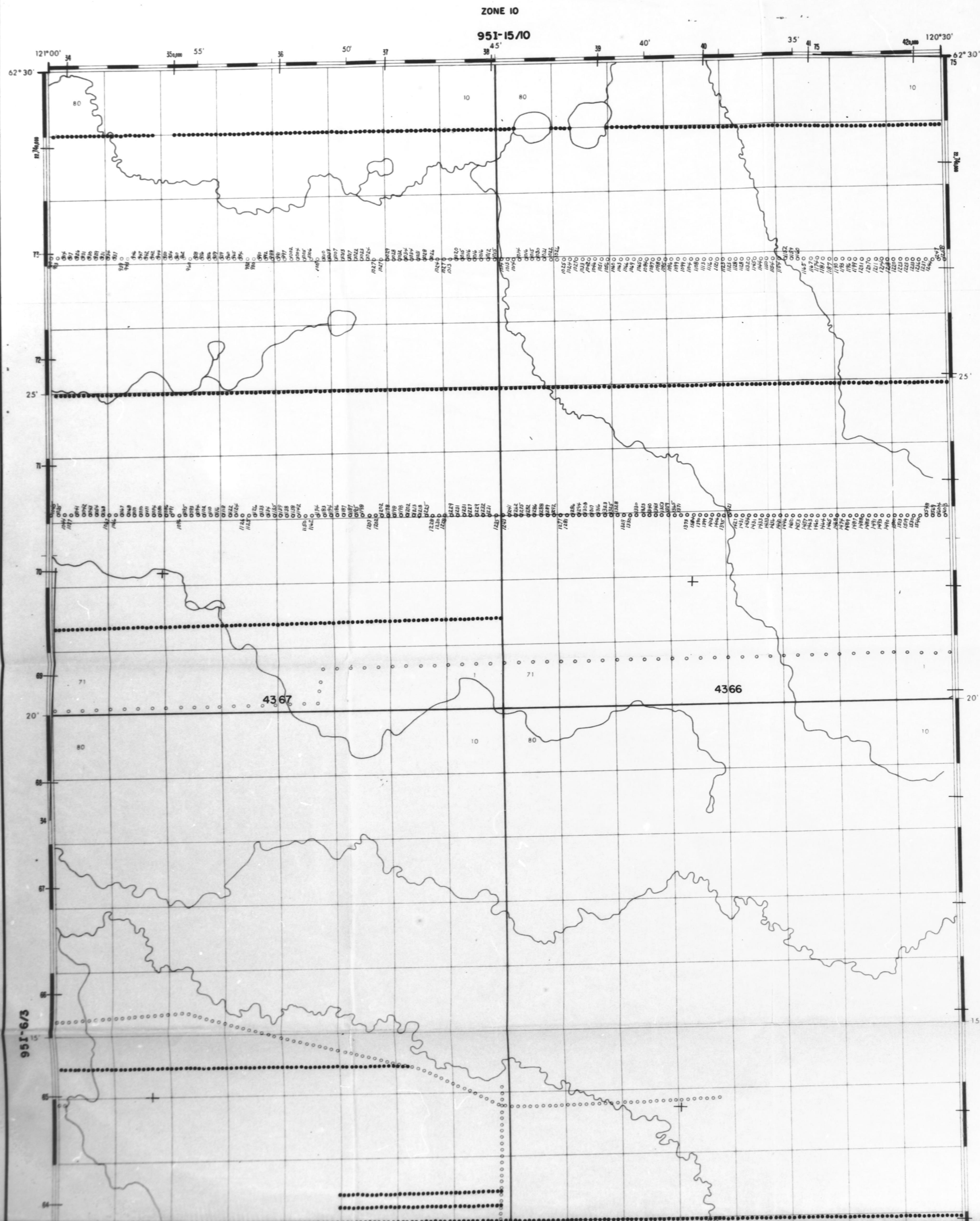
North American Datum 1927
Universal
Transverse Mercator Projection
(Gauss-Krüger)
10,000 ft. Coordinates, Territorial Plane Coordinate System.
Transverse Mercator Projection, 6 Zones.

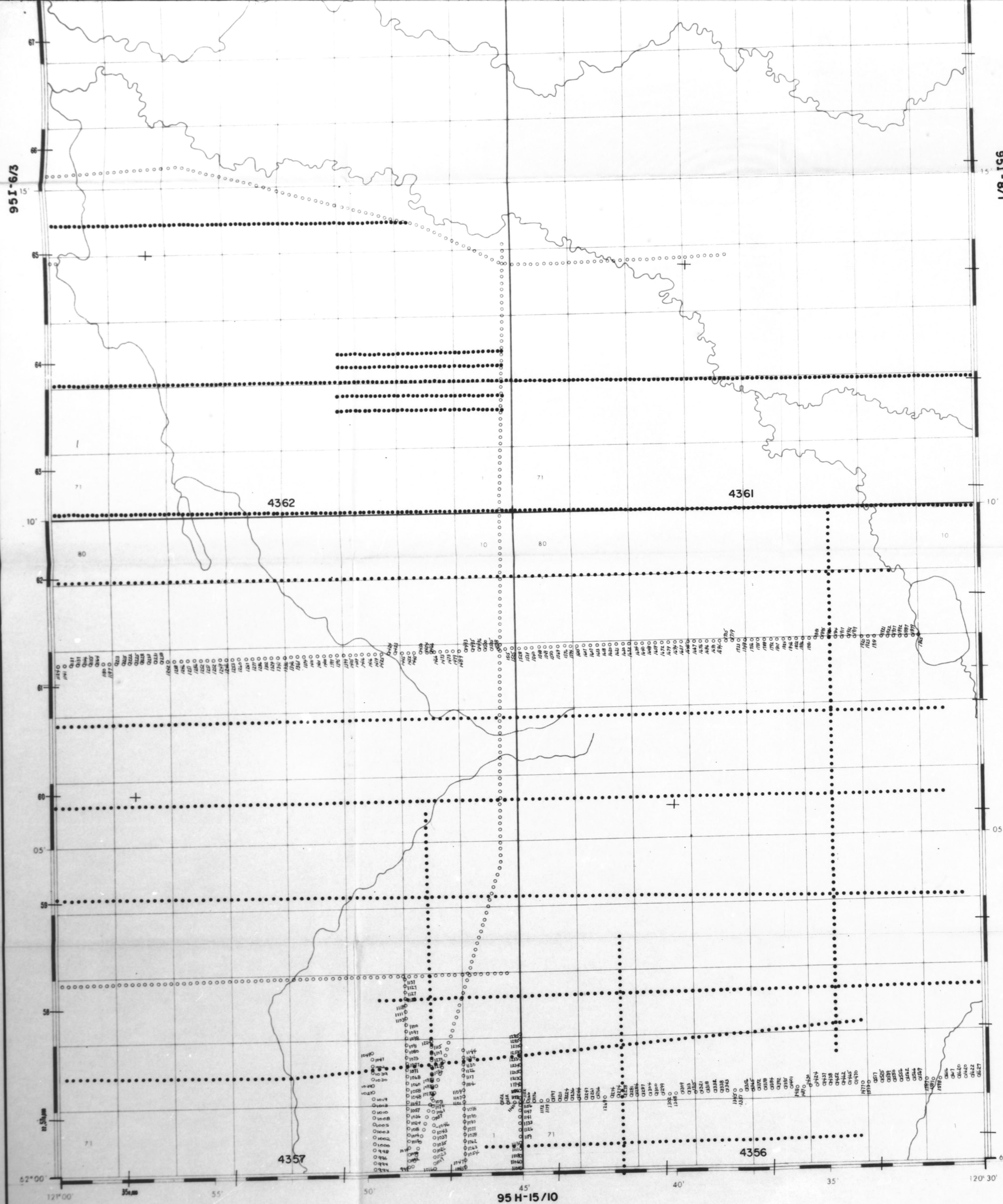
Seismic Revised
Values Revised
Contours Revised
Wells Revised May 22, 1977

ZONE 10
951-14/11



951-7/2





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13/1	13/2	13/3	13/4	13/5
14/1	14/2	14/3	14/4	14/5
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16/1	16/2	16/3	16/4	16/5
17/1	17/2	17/3	17/4	17/5
18/1	18/2	18/3	18/4	18/5
19/1	19/2	19/3	19/4	19/5
20/1	20/2	20/3	20/4	20/5

SEISMOGRAPH MAP SURFACE ELEVATIONS

Contour Interval: 10 Feet
Datum: Plane
Velocity: 1.0 cm/sec

BULMER LAKE 95 I-7/2

SCALE 1:50,000

1.25 inches to 1 mile approximately



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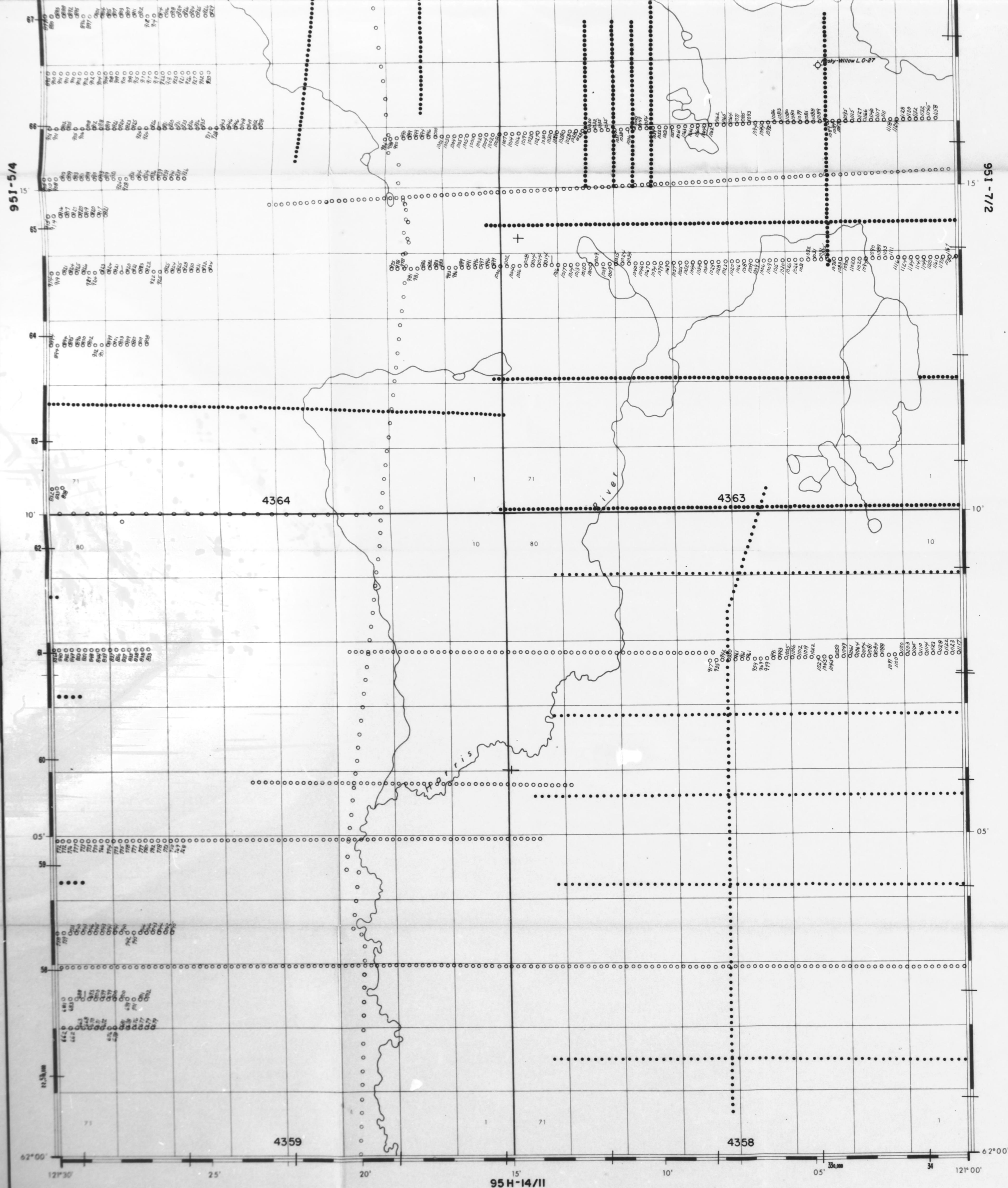
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Transverse Mercator Projection, 6 Zones.

Seismic Revised: 1977
Values Revised: 1977
Contours Revised: 1977
Wells Revised: 1977

Gp 95 I-7/2 6 V

PROPRIETARY

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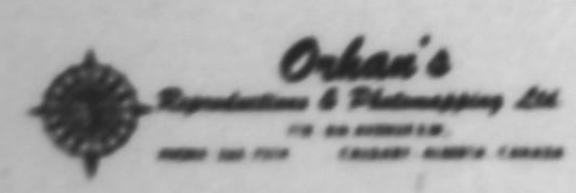
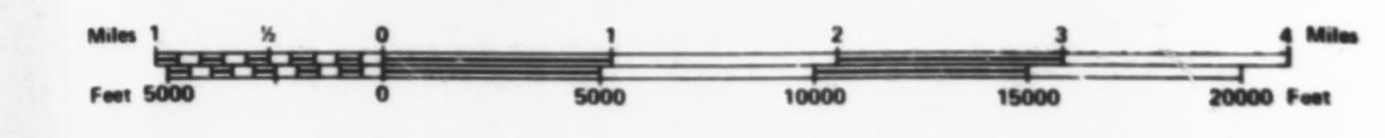
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SEISMOGRAPH MAP
SURFACE ELEVATIONS

Contour Interval: 100 Feet
Datums: Plane Velocity

BULMER LAKE 951-6/3

SCALE 1:50,000
1.25 inches to 1 mile approximately



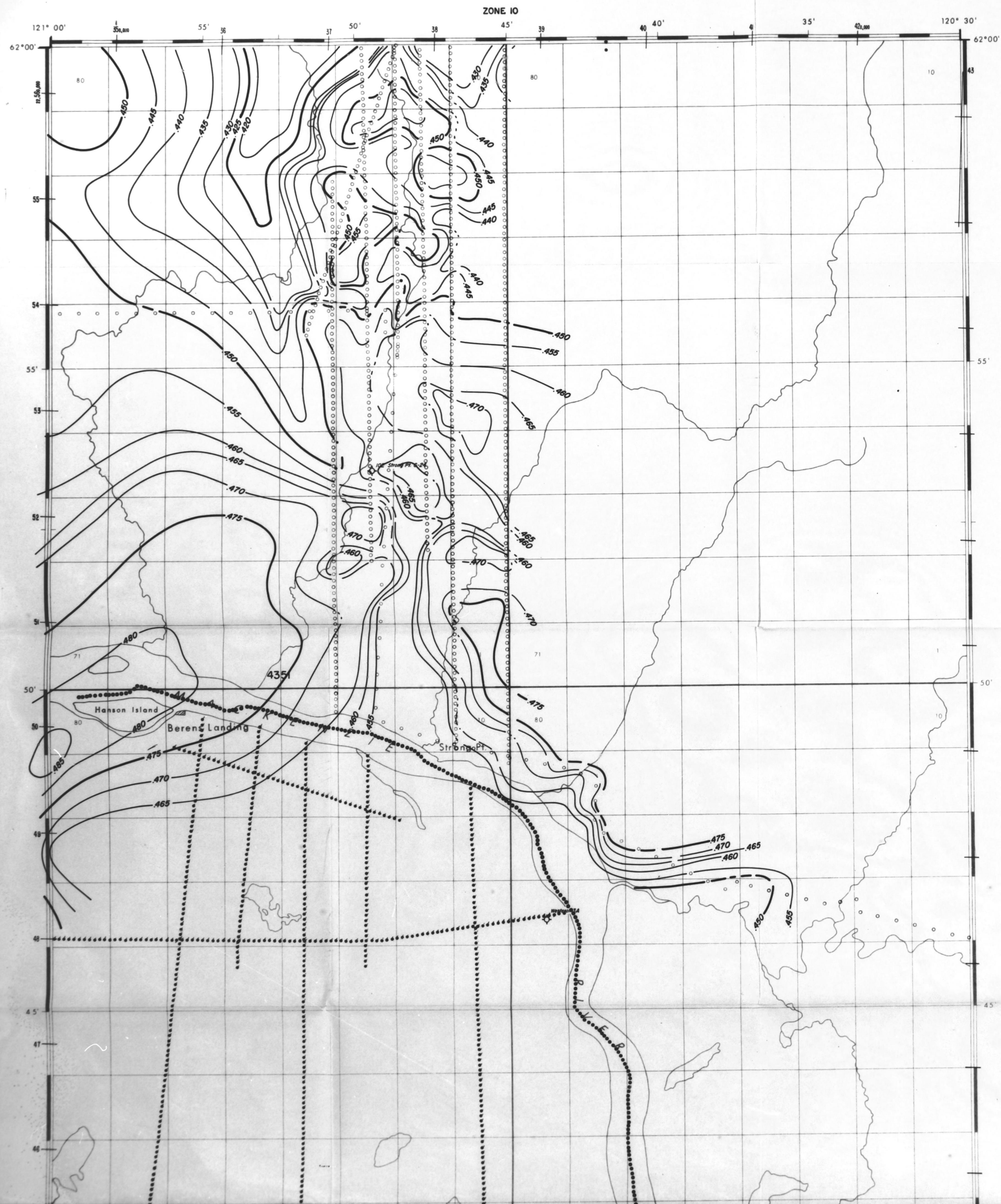
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Transverse Mercator Projection, 6 Zones.

Seismic Revised: 10/1/70
Values Revised: 10/1/70
Contours Revised: 10/1/70
Wells Revised: 10/1/70

PROPRIETARY





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12/1	12/2	12/3	12/4	12/5	12/6
13/1	13/2	13/3	13/4	13/5	13/6
14/1	14/2	14/3	14/4	14/5	14/6

TIME STRUCTURE

PRE-DEVONIAN

SEISMOGRAPH MAP

Contour Interval 0.05 SEC.
Datums: Plane Velocity 1.5/0.05/sec.

FORT SIMPSON 95 H - 15 / 10

SCALE 1 : 50,000

1/25 inches to 1 mile approximately



PROPRIETARY

2 of 2

Seismic Revised
Values Revised
Contours Revised
Wells Revised

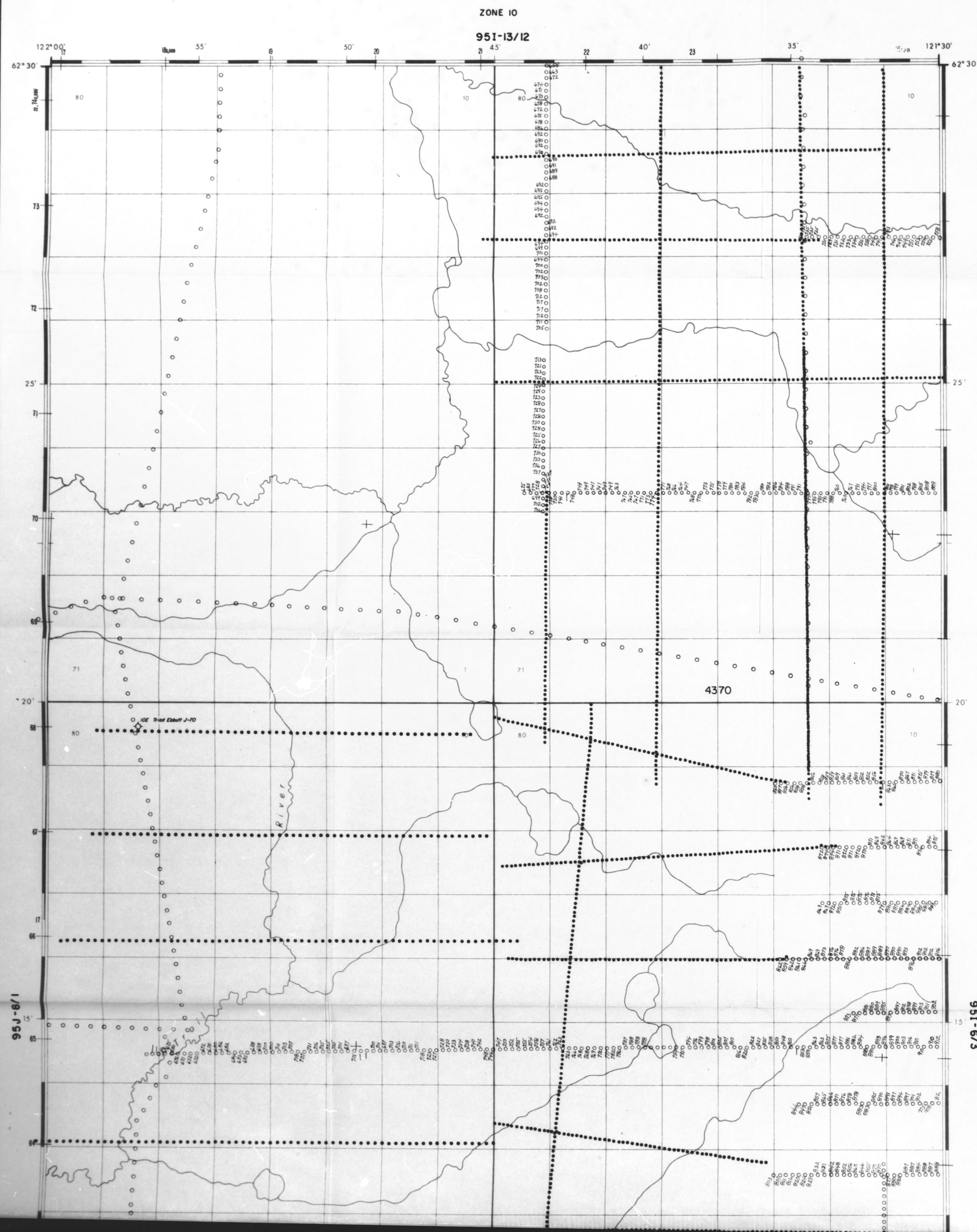
Gp 95H-15/10 2 C

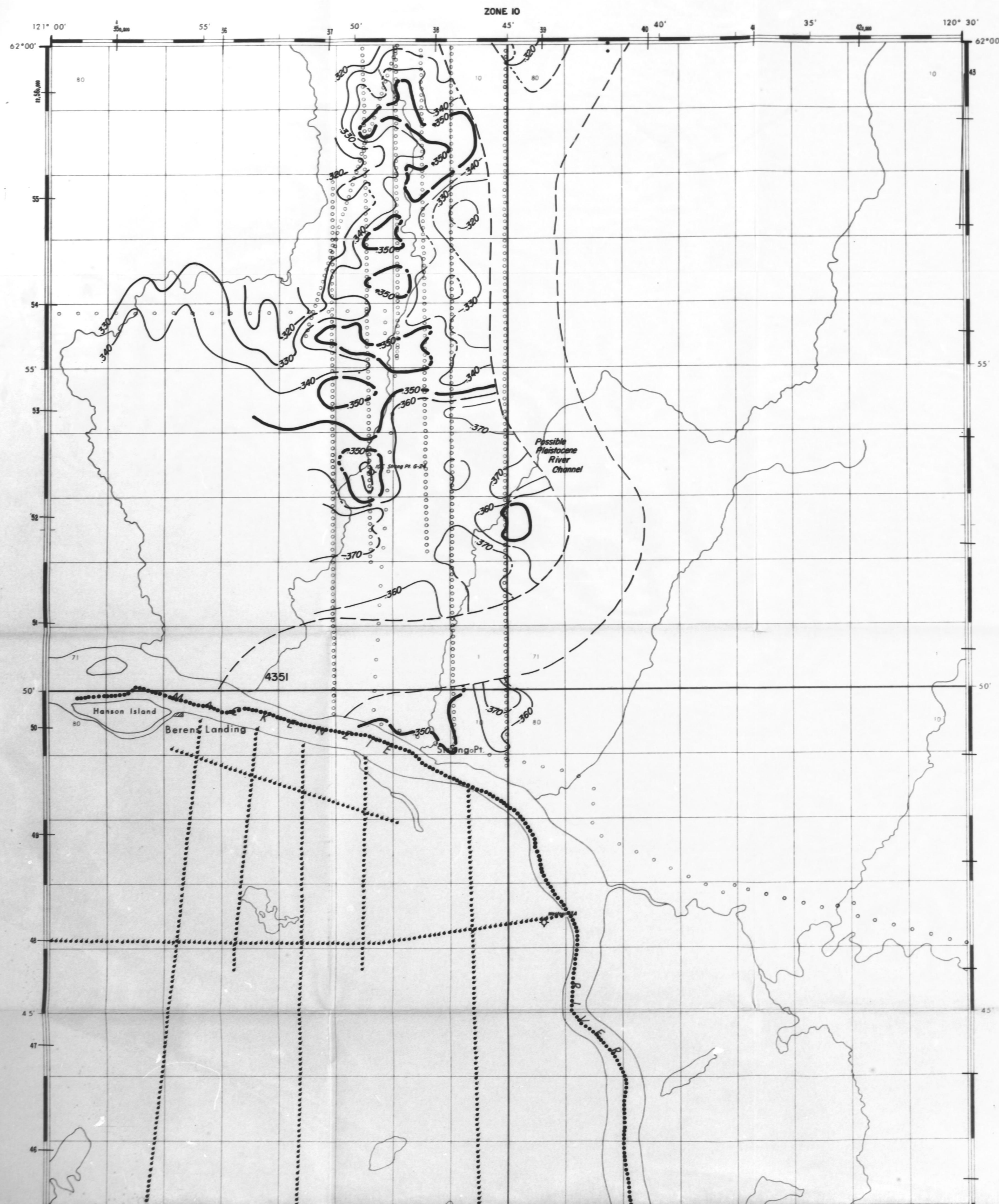


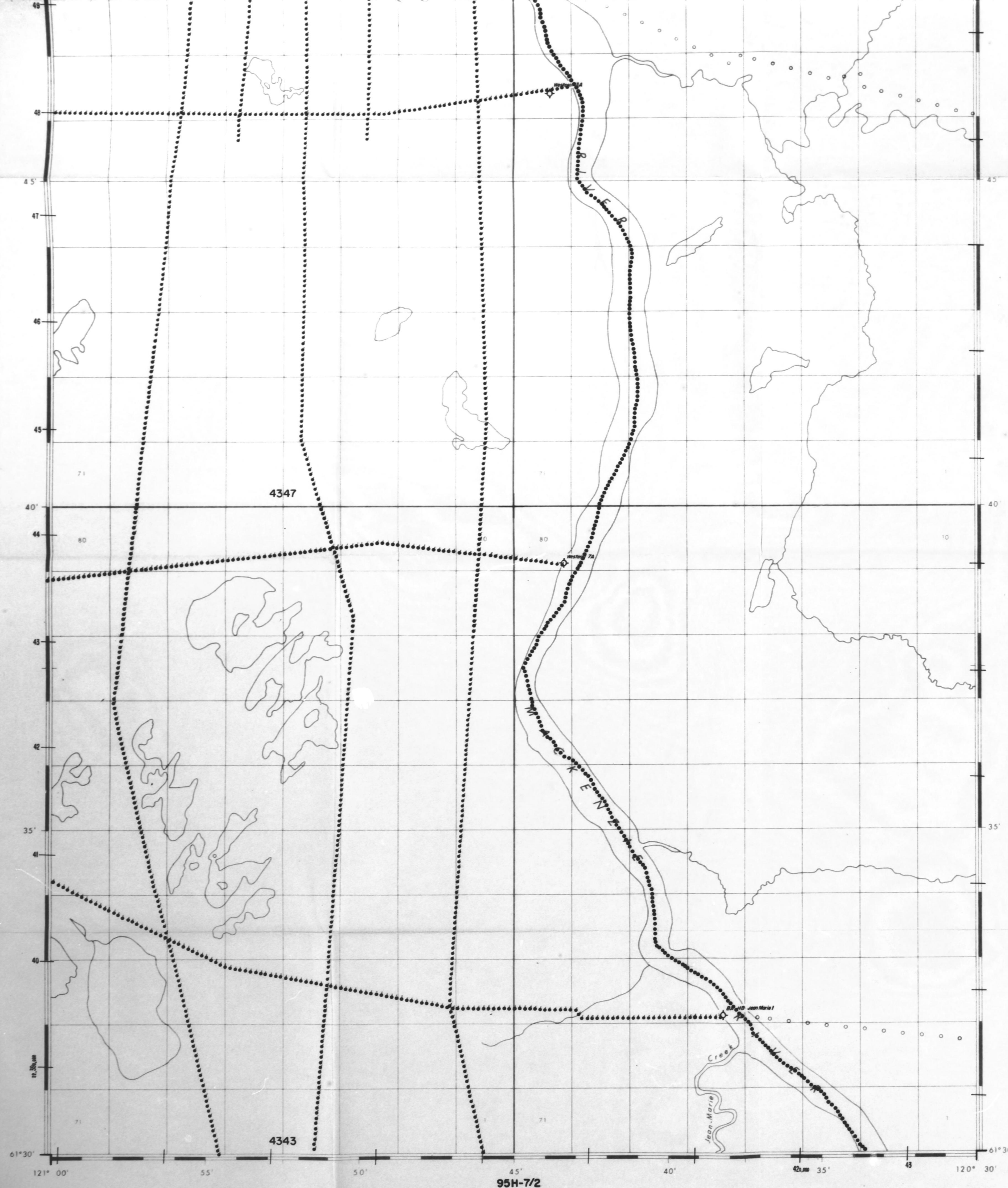
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North American Datum 1927
Universal
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(Bauer-Kroger)







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13/9	13/12	14/1	14/4	14/7	13/12
95J	95I	95H	95G	95F	95E

TIME STRUCTURE

HUME

SEISMOGRAPH MAP

Contour Interval 0.010 SECS.
Datums: Plane Velocity

FORT SIMPSON 95H-15/10

SCALE 1:50,000

1.25 inches to 1 mile approximately



Seismic Revised
Values Revised
Contours Revised
Wells Revised

Gp95H-15/10

I V C

PROPRIETARY

2 of 2

Ordnance
Survey
Map
1:50,000
Scale
1:50,000
Scale

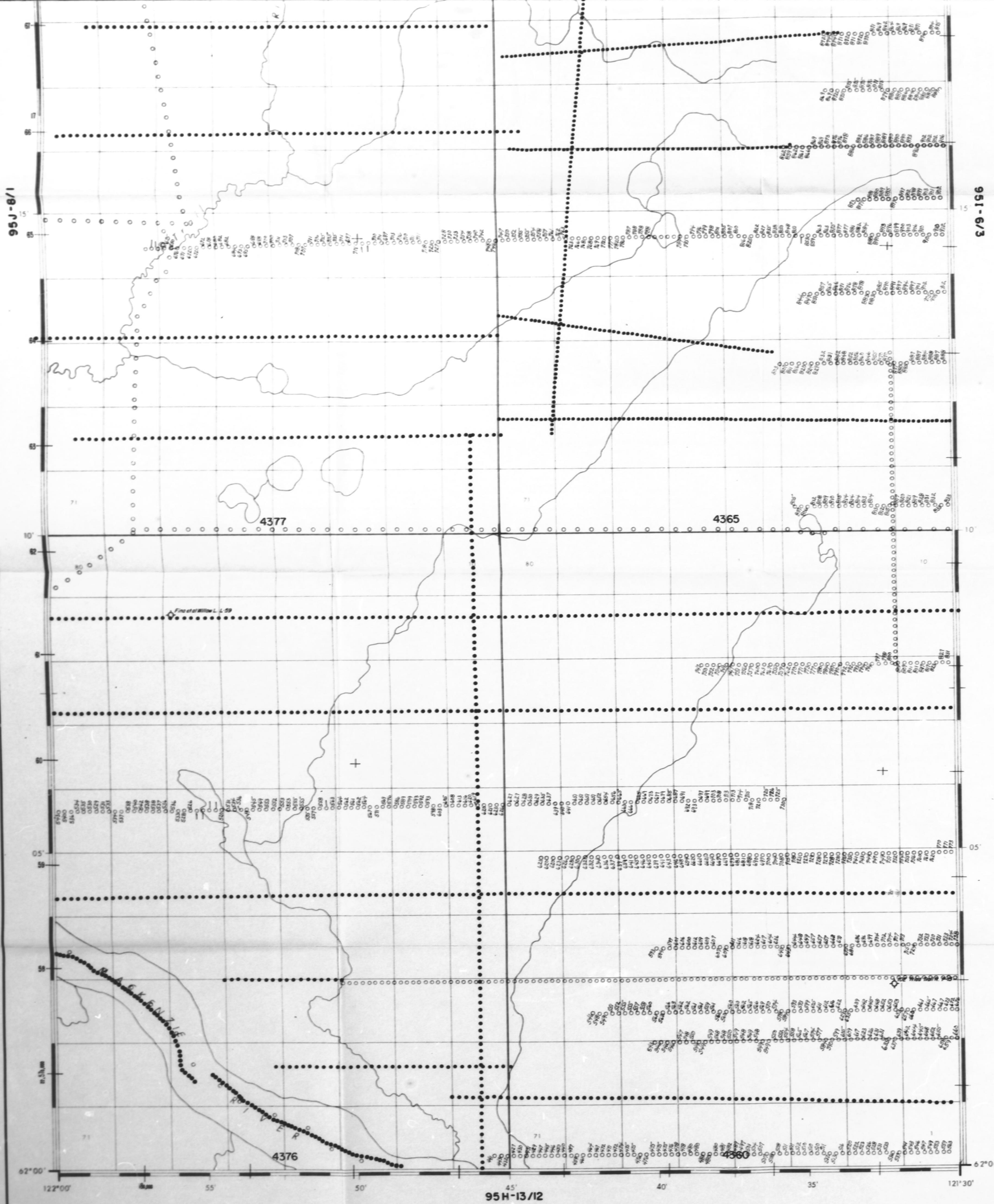
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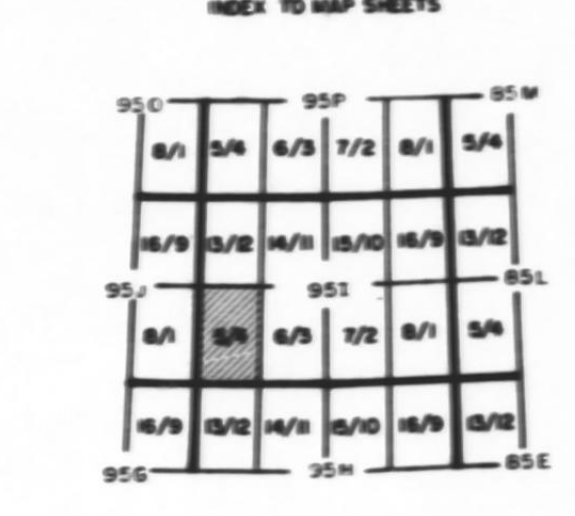
10,000 ft. Coordinates, Territorial Plane Coordinate System.
Transverse Mercator Projection, & Zones.

95J-8/1

95I-6/3



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SEISMOGRAPH MAP
SURFACE ELEVATIONS

Contour Interval
Datum: Plane SEA LEVEL Velocity

BULMER LAKE 95I-5/4

SCALE 1:50,000
1.25 inches to 1 mile approximately



Ordnance
Survey
Map
95I-5/4

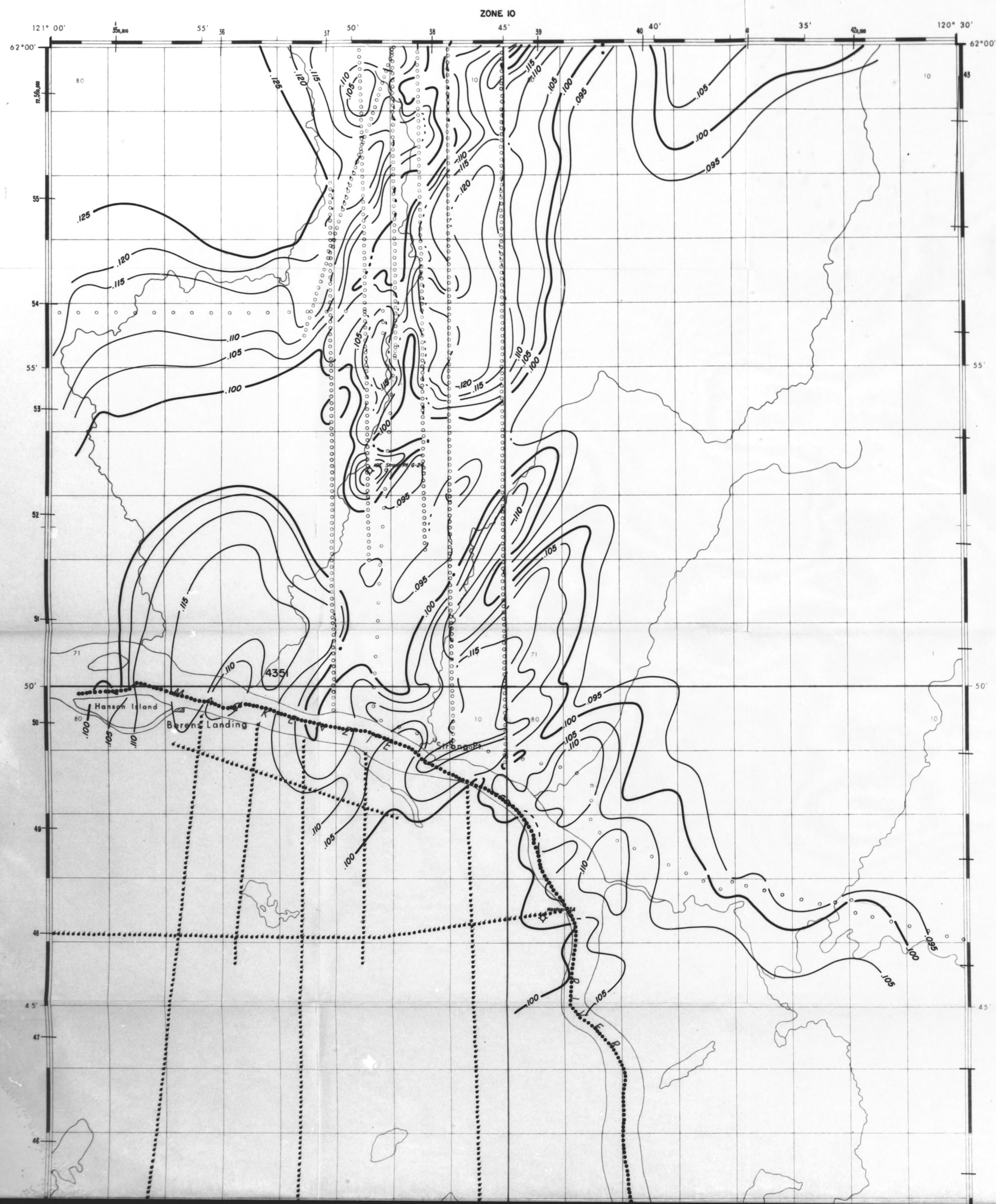
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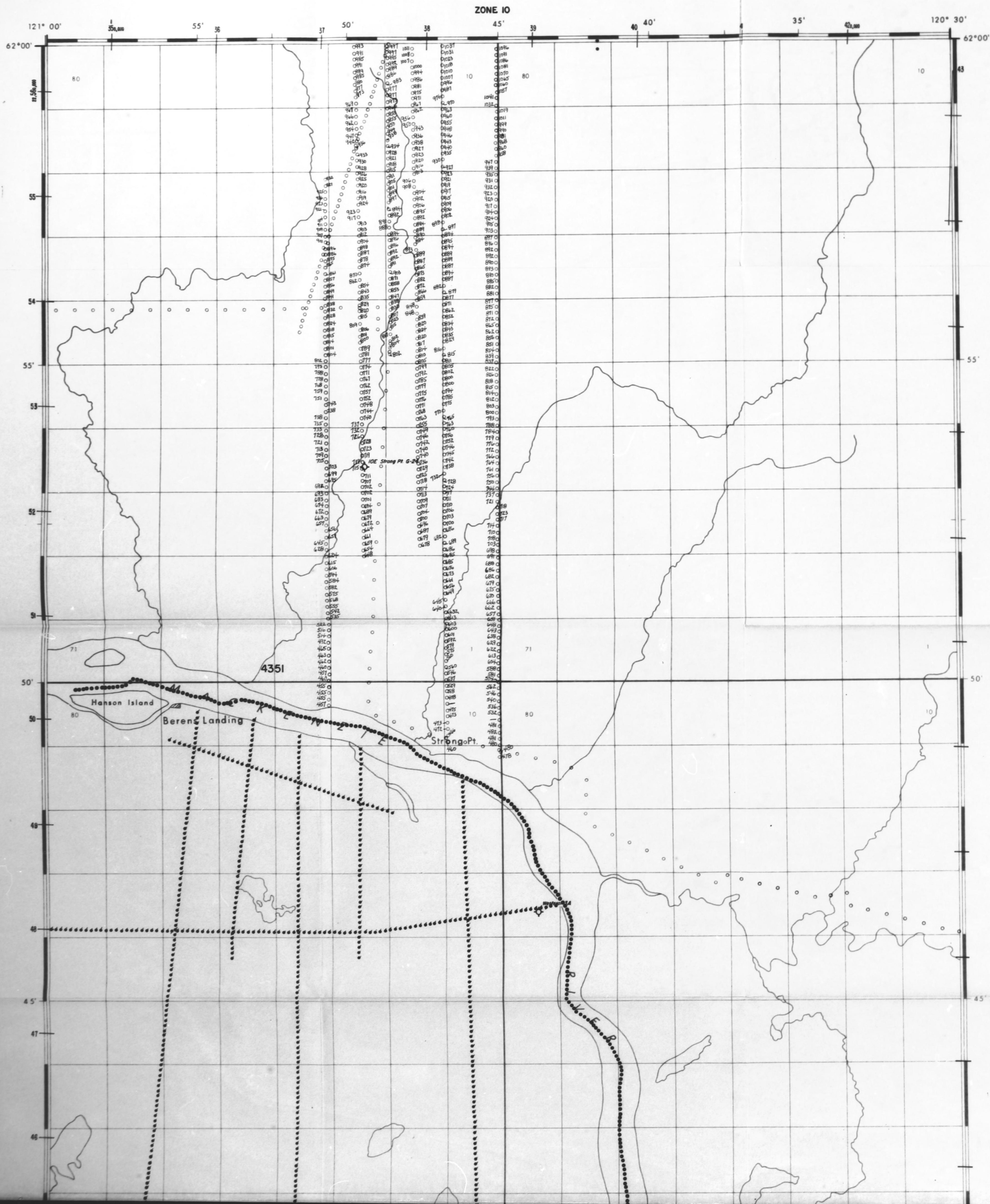
10,000 ft. Coordinates Territorial Plane Coordinate System.
Transverse Mercator Projection, & Zones.

Seismic Revised
Values Revised
Contours Revised
Wells Revised May 20, 1991

Gp 95I-5/4 6 V

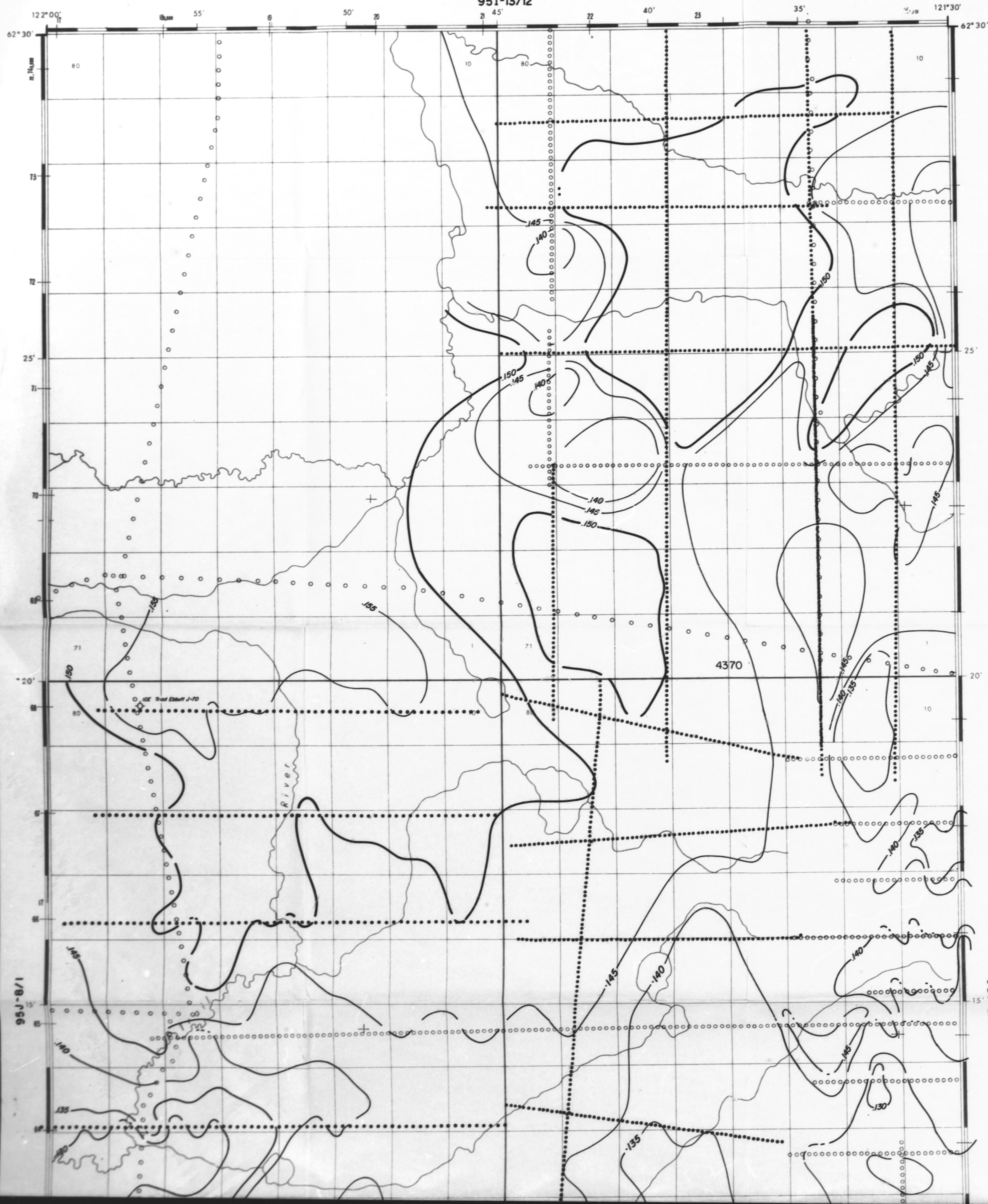
PROPRIETARY
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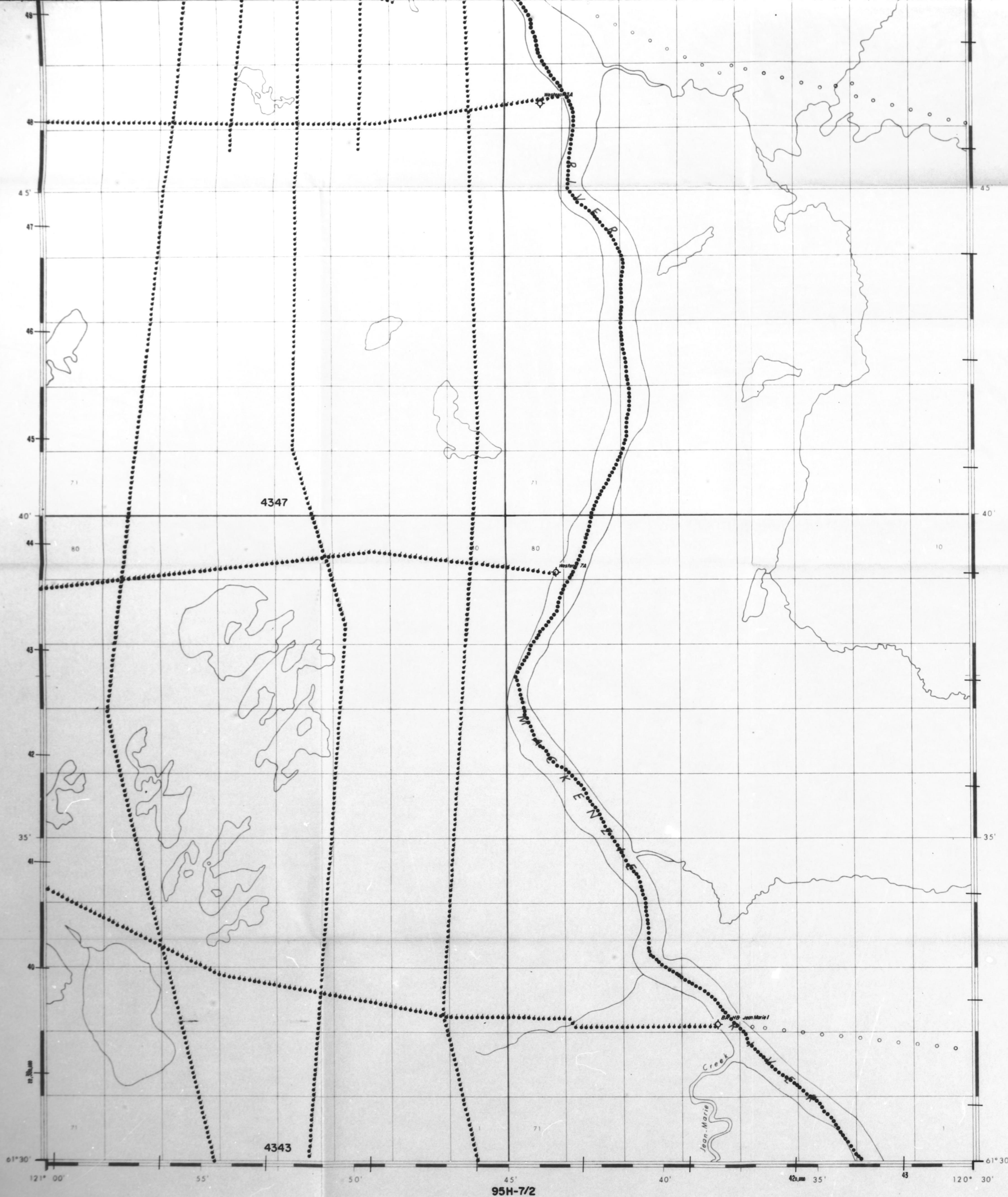
ZONE 10

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95B	95A		95D		

IMPERIAL OIL ENTERPRISES LTD.

CONSOLIDATED REPORT

FORT SIMPSON AREA, N.W.T.

1968 - 1971

7-6-4-101

IMPERIAL OIL ENTERPRISES LIMITED
Producing Department - Western Region

REFLECTION SEISMIC AND DRILLING PROGRAM

FORT SIMPSON AREA

Parts 1 and 2



by

O. Friesen

Southern Exploration District
Edmonton, Alta.

Date: October, 1971

PART 1

Reflection Seismic Program

Fort Simpson Area

Permits 4343 - 4372, 4376, 4377, 4407 - 4412.

Field work performed by:

Imperial Oil Enterprises Ltd. Party #23 from January 7
to March 30, 1968.

IOE P.W.O. No:	A00-0423
Department Code No:	7-6-4-67-2

Heiland Exploration Ltd. Party #27 from February 1
to March 14, 1968.

IOE P.W.O. No:	A00-2223
Department Code No:	7-6-4-67-2

Ray Geophysical Ltd. Party #13 from January 7 to
January 29, 1969.

IOE P.W.O. No:	A00-0223
Department Code No:	7-6-4-69-3

Re-Interpretation

IOE P.W.O. No:	A00-1523
Department Code No:	86-6-4-69-1

List of Enclosures

- In Attached Pocket -

SEISMIC (32 Maps, 1:50,000 scale)

1. Surface Elevations	}	Map Sheets:
2. Hume Time Structure		95H -13/12, -14/11, -15/10
3. Pre-Devonian Time Structure		95I -7/2, -6/3, -5/4,
4. Hume to Pre-Devonian Isochron		-13/12, -14/11.

GEOLOGICAL

1. Isopach Top Hume Fm. to Pre-Devonian
2. Structure Top Hume Fm.
3. Structure on PreCambrian.

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Data Processing	(Party #23) 4
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PART 2

Drilling Program - Fort Simpson Area

Permits 4343 - 4372, 4376, 4377, 4407 - 4412.

Wells Drilled:

I.O.E. Strong Point G-24

I.O.E. Trail River P-13

Fina et al Willow Lk. J-66

Fina et al Willow Lk. L-59

Husky et al Willow Lk. O-27A

Husky H.B. et al Willow Lk. G-32

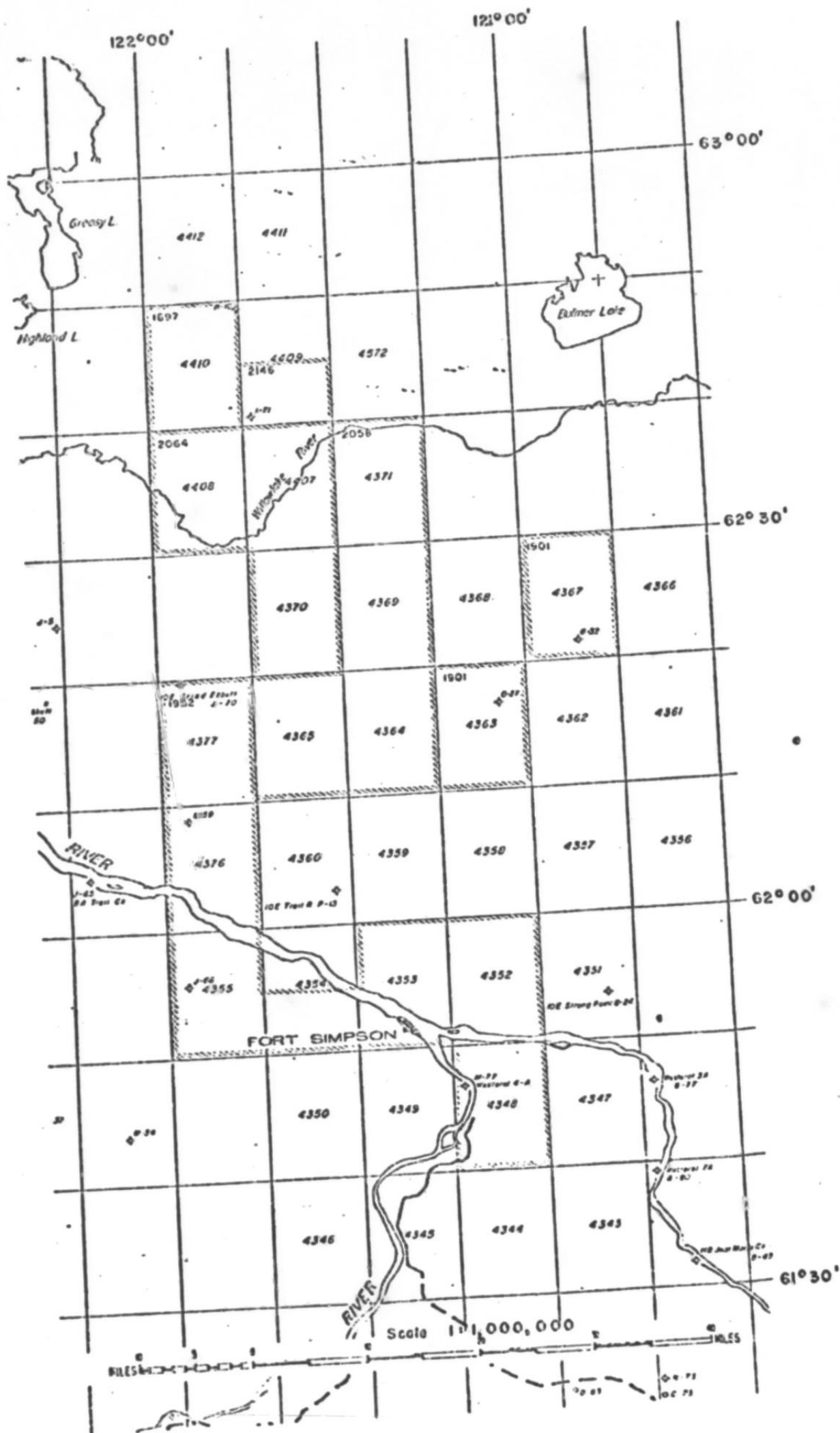
H.R., C.D.R., I.O.E. Willow Lk. I-71

Husky H.B. et al Willow Lk. H-10

Introduction

This is a consolidated report covering Imperial's operations in the Fort Simpson area since 1968. The report is broken into two parts. Part one, is a report on seismograph operations conducted by Imperial Oil Enterprises Ltd. Party #23, Heiland Exploration Ltd. Party #27 and Ray Geophysical Ltd. Party #13 on Imperial Oil Enterprises Ltd. Permits 4343 - 4372, 4376, 4377, 4407 - 4412 during the winter seasons of 1968 and 1969. Included in this section of the report are details of re-interpretation of seismograph operations carried out by farmee companies during the winter seasons of 1969, 1970 and 1971. These companies are Amoco Canada Petroleum Company Limited, Central-Del Rio Oil Limited, Canadian Fina Oil Limited and Husky Oil Limited. Reports of their field operations have been filed by the companies involved.

Part two of this report deals with the wells that have been drilled on the lands since 1968. In all eight wells have been drilled and abandoned. The results of these tests and their geological significance is discussed.



FORT SIMPSON AREA

Part 1 - Reflection Seismic Program

Statistical Data

Imperial Oil Enterprises Ltd. Party #23

Dates: The move to the Fort Simpson area was completed on January 6, 1968. Recording commenced on January 7 and was completed with the equipment moved to another assignment on March 30, 1968.

Production: 196 miles, 1840 shot points, average daily production was 3.1 miles per day. The crew worked 64 days on these permits. There were 19 down days because of time off and 1 down day because of instrument problems.

Equipment: Recorder, 2 shooting trucks, 2 calbe trucks, 2 survey trucks, 1 party manager vehicle, 2 water trucks, 4 shot hole drills, 3 bulldozers, 1 personnel carrier. The I.O.E. Aztec aircraft and grand transport were used for supervisory trips and supplies. Twenty-four trace digital equipment was used.

Personnel: Party manager, operator and assistant, shooter and assistant, 2 surveyors, 2 rodmen, 5 line helpers, 4 helpers, 4 drillers, 4 drill helpers, 2 water truck drivers. 6 dozer operators, 1 dozer foreman, dozer camp cook, seismic camp cook, cook's helper and camp attendant.

Surveying: Horizontal angles measured to + or - 20 seconds with a Wilde T-16 theodolite. Horizontal control was based on baseline and previous seismic control.

Conditions: Conditions were normal for the time of year. Temperatures varied from 0°F to -50°F.

Field Procedures

A 300% C.D.P. method of shooting was used. Single holes were used, with shot hole spacing of 600', stations were spaced 150' apart with 8 geophones over 150'. Charge sizes varied from 2 1/2 to 20 pounds of "Geogel" per hole. The most common charge size was 5 pounds. The average hole depth was 40 feet. Drilling was fair to good.

Data Processing

All of the seismograms were corrected to a datum of +1000' A.S.L. using a datum velocity of 12,000 ft./sec. Weathering corrections were applied where the base of shot did not reach the base of the weathered layer.

The data was played back digitally with 3-fold stacked sections produced on variable density film. All the data was filtered with selective filters used to remove low frequency interference energy. Multiple interference did not seem to be a problem, therefore the data was not deconvolved. The processing was done in Imperial Oil's Process Centre.

Results and Interpretation

The results and interpretation of all shooting will be discussed in the final portion of this report.

Statistical Data

Heiland Exploration Ltd. Party #27.

Dates: The move to the Fort Simpson area was completed February 1, 1968. Recording commenced on February 2nd and was completed with the equipment released on March 14, 1968.

Production: 128 miles, 532 shot points, average daily production was 3.1 miles per day. The crew worked 42 days on these permits. There were no down days.

Equipment: Recorder, 2 shooting trucks, 2 cable trucks, 2 survey trucks, 1 party manager vehicle, 2 water trucks, 4 shot hole drills, 3 bulldozers, 1 personnel carrier. I.O.E. Aztec aircraft and ground transport were used for supervisory trips and supplies. Twenty-four trace digital equipment was used.

Personnel: Party manager, operator and assistant, shooter and assistant, 2 surveyors, 2 rodmen, 5 line helpers, 8 drillers, 8 drill helpers, 2 water truck drivers, 6 dozer operators, 1 dozer foreman, dozer camp cook, seismic camp cook, cook's helper and camp attendant.

Surveying: Horizontal angles measure to + or - 20 seconds with a Wilde T-16 theodolite. Horizontal control was based on baseline survey. Vertical control based on baseline and previous seismic control.

Conditions: Conditions were normal for the time of year. Temperatures varied from 0°F to -50°F.

Field Procedures

A 100% method of shooting was used. 3 holes over 110' were used, with shot hole spacing of 1320' stations were spaced 110' apart with 8 geophones over 110'. Charge sizes varied from 2 1/2 to 20 pounds of "Geogel" per hole. The most common charge size was 5 pounds. The average hole depth was 40 feet. Drilling was poor to good.

Data Processing

All of the seismograms were corrected to a datum of +1000' A.S.L. using a datum velocity of 12,000 ft./sec. Weathering corrections were applied where the base of shot did not reach the base of the weathered layer.

The data was played back digitally with 3-fold stacked sections produced on variable density film. All the data was filtered with selective filters used to remove low frequency interference energy. Multiple interference did not seem to be a problem, therefore the data was not deconvolved. The processing was done in Imperial Oil's Process Centre.

Results and Interpretation

The results and interpretation of all shooting will be discussed in the final portion of this report.

Statistical Data

Ray Geophysical Ltd. Party #13.

Dates: The move to the Fort Simpson area was completed January 6, 1969. Recording commenced on January 7 and was completed with the equipment released on January 29, 1969.

Production: 53 miles, 476 shot points, average daily production was 2.3 miles per day. The crew worked 23 days on these permits. There were no down days.

Equipment: Recorder, 2 shooting trucks, 2 cable trucks, 2 survey trucks, 1 party manager vehicle, 2 water trucks, 6 shot hole drills, 3 bulldozers, 1 personnel carrier. I.O.E. Aztec aircraft and ground transportation were used for supervisory trips and supplies. Twenty-four trace digital equipment was used. (D.F.S. 200)

Personnel: Party manager, operator and assistant, shooter and assistant, 2 surveyors, 2 rodment, 5 line helpers, 6 drillers, 6 drill helpers, 2 water truck drivers, 6 dozer operators, 1 dozer foreman, dozer camp cook, seismic camp cook, cook's helper and camp attendant.

Surveying: Horizontal angles measured to + or - 20 seconds with a Wilde T-16 theodolite. Horizontal control was based on baseline survey. Vertical control based on baseline and previous seismic control.

Conditions: Conditions were cold for the time of year. Temperatures varied from -10°F to -55°F .

Field Procedures

A 300% C.D.P. method of shooting was used. Single holes were used, with shot hole spacing of 600', stations were spaced 150' apart with 8 geophones over 150'. Charge sized varied from 2 1/2 to 20 pounds of "Geogel" per hole. The most common charge size was 5 pounds. The average hole depth was 40 feet. Drilling was fair to good.

Data Processing

All of the seismograms were corrected to a datum of +1000' A.S.L. using a datum velocity of 12,000 ft./sec. Weathering corrections were applied where the base of shot did not reach the base of the weathered layer.

The data was played back digitally with 3-fold stacked sections produced on variable density film. All the data was filtered with selective filters used to remove low frequency interference energy. Multiple interference did not seem to be a problem, therefore the data was not deconvolved. The processing was done in Imperial Oil's Process Centre.

Results and Interpretation

The quality of seismograms obtained by all crews was comparable. Quality was good in the higher elevation areas and deteriorated steadily to almost unuseable close to the rivers and in the sand dune area south and east of Fort Simpson. Two consistent reflectors could

be carried. These were from the Middle Devonian Carbonate top (Hume) and the pre-Devonian unconformity. Time structure maps of each of these reflectors were constructed together with the isochron between the two reflectors. Certain areas of these maps are blank. These areas are where the quality of the seismograms obtained or the corrections applied were considered unreliable. Reflections corresponding to the Precambrian top and the Cold Lake Salt were noted on some lines. The Precambrian reflection was sporadic and not carried. A map showing the presence or absence of Cold Lake Salt as interpreted from the seismic control was constructed. The seismic coverage was tied to all velocity surveys taken at wells in the area. The interpretation was made from the maps prepared and the stacked seismic cross-sections, with assistance of geological control in the area.

As a result of the interpretation made from the seismic coverage in the area, the following anomalies were observed.

1. Low velocity near surface zones which appear to be abandoned pleistocene channels of the Mackenzie River. These channels have eroded into the Middle Devonian Carbonate in places, thus severely downgrading any hydrocarbon prospects in the Middle Devonian Carbonate in this area. These channels are indicated on the Hume structure map and where erosion of the Middle Devonian Carbonate has taken place corresponding thin values of the Hume to pre-Devonian isochron are observed.

2. Thin values of the Hume to pre-Devonian isochron with associated low values (stratigraphically high) of the pre-Devonian structure have been interpreted as either basement highs or possible

reefing of the Ernestina Lk. formation. The latter possibility was tested unsuccessfully in the I.O.E. Trail River P-13 well.

3. A few thick values of the Hume to pre-Devonian isochron exist which are interpreted as possible Arrowhead pinnacle reefs.

No other significant anomalies have been observed. A regional thickening of all intervals to the northwest of the area is apparent from the maps. It is known from geological control that the beds below the pre-Devonian unconformity thicken and that a potential reservoir exists in the Ronning. However, the velocity contrast between these horizons is insufficient to produce a consistent reflection.

Summary and Conclusions

A total of 1705 miles of seismic coverage has been obtained in this area since 1967, 377 miles of which was shot for I.O.L. and the remainder by farmeers. Most of the seismic anomalies considered to have hydrocarbon potential have been tested.

JT:gw

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No other significant anomalies have been observed. A regional thickening of all intervals to the northwest of the area is apparent from the maps. It is known from geological control that the beds below the pre-Devonian unconformity thicken and that a potential reservoir exists in the Ronning. However, the velocity contrast between these horizons is insufficient to produce a consistent reflection.

Summary and Conclusions

A total of 1705 miles of seismic coverage has been obtained in this area since 1967, 377 miles of which was shot for I.O.L. and the remainder by farmeers. Most of the seismic anomalies considered to have hydrocarbon potential have been tested.

JT:gw

Part 2 - Drilling Program

Introduction

Since 1968 the following wells have been drilled on the subject lands by or on behalf of Imperial Oil:

<u>Well Name</u>	<u>Location</u>	<u>Rig Release Date</u>
1. I.O.E. Strong Pt. G-24	G-24, 62°-00'N, 120°-45'W	16/02/69
2. I.O.E. Trial River P-13	P-13, 62°-10'N, 121°-30'W	15/03/69
3. Fina et al Willow Lk. J-66	J-66, 62°-00'N 121°-45'W	26/01/71
4. Fina et al Willow Lk. L-59	L-59, 62°-10'N 121°-45'W	25/02/71
5. Husky et al Willow Lk O-27A	O-27, 62°-20'N 121°-00'W	22/02/70
6. Husky H.B. et al Willow Lk. G-32	G-32, 62°-30'N 120°-45'W	05/04/70
7. H.R., C.D.R., I.O.E. Willow Lake I-71	I-71, 62°-50'N 121°-30'W	17/03/71
8. Husky H.B. et al Willow Lk. H-10	H-10, 62°-50'N 121°-45'W	27/03/70

In our opinion these tests represent a good sampling of the general geology of the area. All the wells bottomed in PreCambrian rocks and were abandoned. No major or significant hydrocarbon shows were encountered in the wells drilled. Several definitive drill stem tests did however indicate reservoir in that substantial water recoveries were recorded.

Results and Interpretation

In all cases the drilled wells encountered 100+ feet of glacial sands, gravels and clays. Underlying these deposits were shales with minor sands and silts of the Devonian Imperial formation. Basically this formation, in the area, is a greenish grey to dark grey slightly calcareous shale. These are fissile and soft. Varying amounts of interbedded silts and very fine sands are noted in the section. Occasional fossils (brachiopods and ostracods) have been noted in samples. The thickness of this formation varies from 300 feet upwards depending upon the amount of erosion to which it has been subjected.

Immediately below the Imperial formation is a recognizable dark brown to very dark grey shale unit. This unit is the Canol formation and is characterized by its general dark colour and highly bituminous nature. The formation averages about 94 feet in thickness in the area and varies from 82 to 115 feet. Occasional thin limestone interbeds, which are dark brown and very shaly, are noted in the lower portion of the section.

From the base of the Canol formation down to the top of the Pre-Devonian sediments the section consists mainly of evaporites with minor carbonates. The evaporites are anhydrite and halite while the carbonates are limestones and minor dolomites. The attached Isopach map (Top Hume to PreDevonian) indicates a general thickening in a north to north-westerly direction and a thinning in a southerly direction. The southward thinning reflects the effect of the Tathlina high on sedimentation while the northward thickening indicates the direction of greatest subsidence or basining. Also shown on this map is the

edge of the Cold Lake salt. The significance of this line is that it very roughly approximates the boundary of the Ernestina Lake carbonate which has been considered prospective. This dolomite varies in thickness from 50+ feet to 110+ feet. The wells which have penetrated it indicate an interbedded carbonate and anhydrite sequence. The carbonate is interpreted to be algal in origin and a shallow water facies. Mechanical logs of the wells which have penetrated the formation indicate it to be tight. Two wells, Husky H.B. et al Willow Lake G-32 and Husky et al Willow Lake O-27A, tested the section with minor mud recoveries only. In the G-32 test a very slight trace of oil was noted in the mud. Consequently from all data available one must conclude that conditions during the time of deposition never became fresh enough to provide extensive reservoir facies.

The control wells show the total thickness of carbonates above the evaporites to vary between 330 and 604 feet. In the main this section is limestone with minor dolomites and shales. The dolomites are present in the basal one-third to one-half of the interval and are interpreted to be of a shallow water, algal origin. They are light brown, fine crystalline, trace argillaceous and contain minor fossil debris. Poor porosity is noted in these dolomites. The limestones in the upper portion of the interval are also interpreted to be shallow water in origin. They do however suggest slightly deeper water conditions near the top of the Hume. As a rule these limestones are brown to dark brown, argillaceous and have a variable fossil content. Fossils noted are brachiopods, crinoids and corals. Some beds exhibit a fragmental appearance. The limestones are generally tight;

however traces of minor oil stained porosity have been recorded. When tested this porosity has proven to be ineffective since only mud has ever been recovered. Drill stem tests of the porous dolomite sections, at the base of the interval, have also returned only mud and indicate poor, ineffective reservoir.

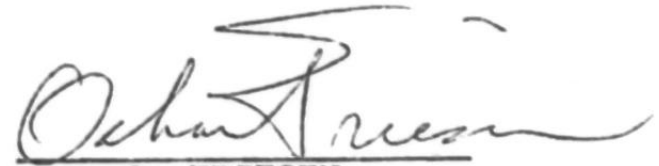
The Silurian-Ordovician Ronning formation underlies approximately the northern two-thirds of the area under permit to Imperial Oil. Where seen this formation consists of a very fine to fine crystalline, grey to buff dolomite. Variable amounts of chert have been noted throughout the section. This chertification appears to be concentrated in the more fossiliferous zones. Vuggy and some intercrystalline porosity is noted in samples of the Ronning and can be graded fair to good, reduced somewhat in quality by chertification. Further evidences of fair reservoir characteristics in this carbonate are shown in the water rises obtained on drill stem test of several wells in the area. The wells testing the Ronning and test results are listed below.

<u>Well Name</u>	<u>D.S.T. Results</u>
1. I.O.E. Strong Pt. G-24	No Ronning present.
2. I.O.E. Trail River P-13	No test.
3. Fina et al Willow Lk. J-66	No Ronning present.
4. Fina et al Willow Lk. L-59	900' salt water.
5. Husky et al Willow Lk. O-27A	1596' salt water, 360' mud cut salt water.
6. Husky H.B. et al Willow Lk. G-32	475' mud.
7. H.R., C.D.R., I.O.E. Willow Lk. I-71	200' salt mud.
8. Husky H.B. et al Willow Lk. H-10	5' mud.

The Basal Paleozoic sandstone unit is interpreted to be present in all wells, drilled in the area, except two. These are I.O.E. Strong Point G-24 and Husky H.B. et al Willow Lake H-10. In the other wells, situated on the subject lands, the thickness of this unit is variable from 10+ feet to 84 feet. The thickest development appears in the Husky et al Willow Lake 0-27A test where 84 feet of sand are present. Descriptions of this unit indicate it as composed of an argillaceous and dolomitic siltstone at the top grading downward to a well sorted clean sandstone at the bottom. The sandstone portion of the unit is essentially tight; however streaky poor intergranular porosity is present in some wells. Silica cement appears to be the main agent of porosity destruction. A drill stem test was run over this potential reservoir at Husky et al Willow Lake 0-27A. The recovery was 150 feet of mud cut salt water. Analysis of mechanical logs of the other control wells suggests a similar result (i.e. poor water bearing porosity).

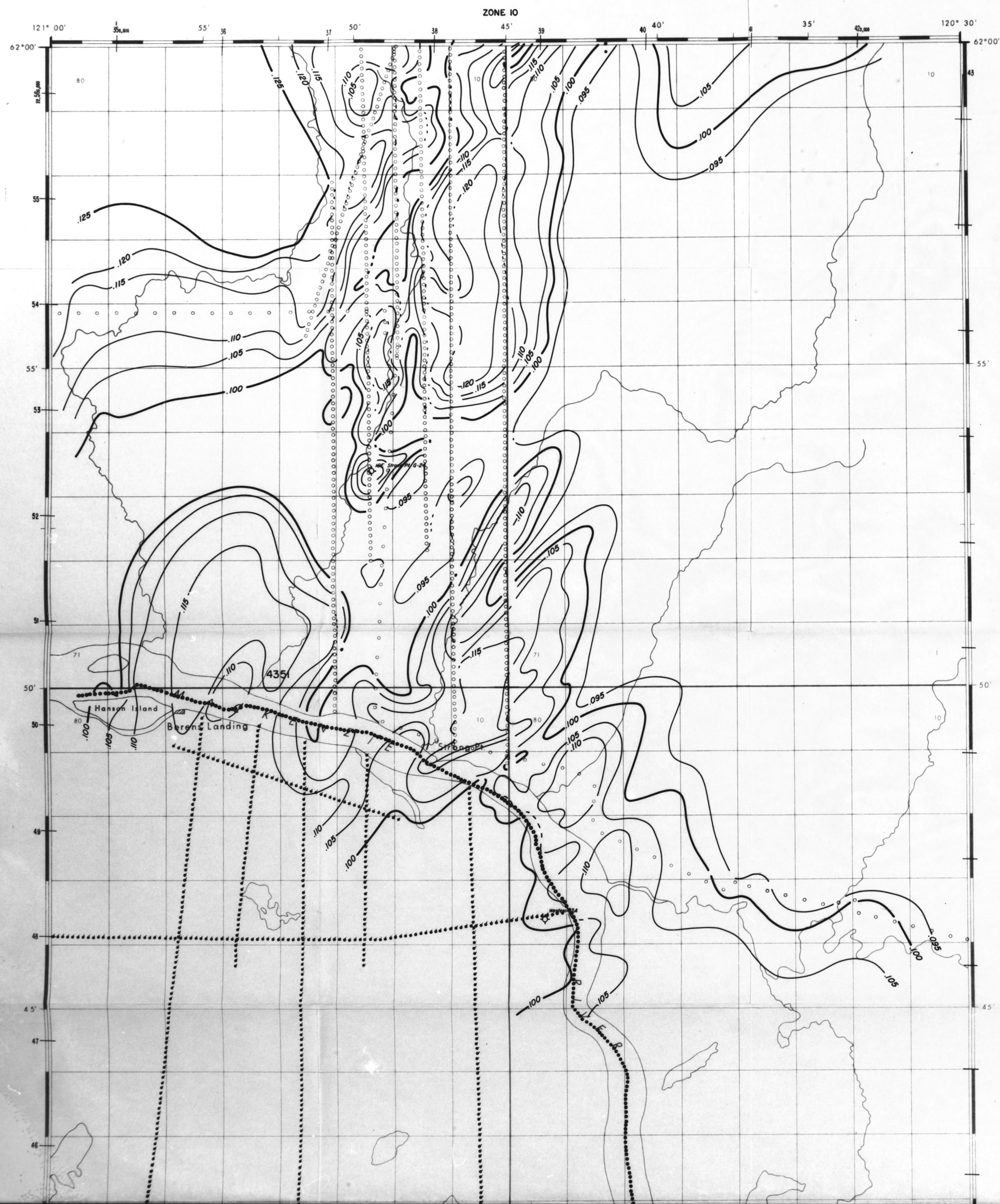
Summary & Conclusions

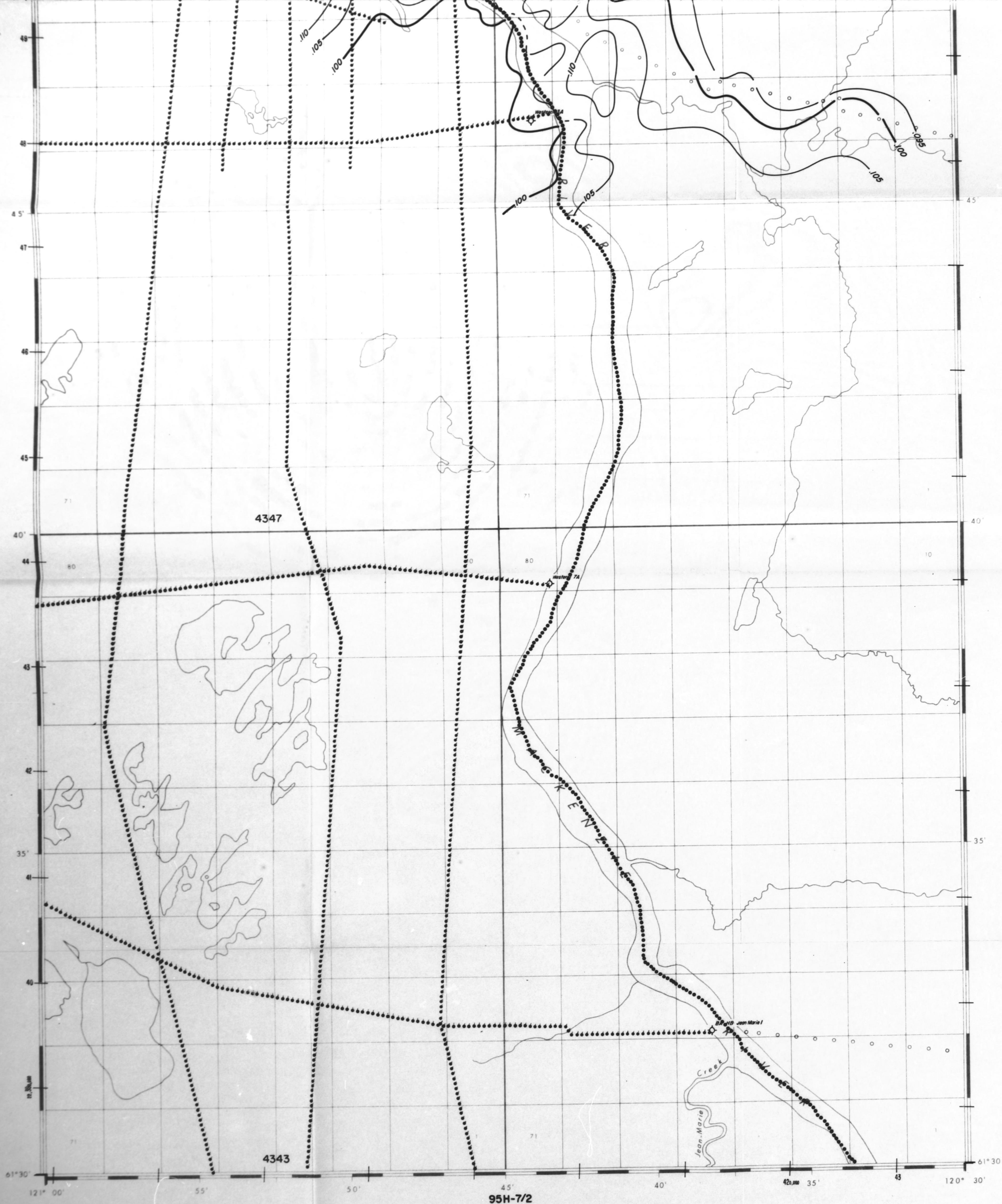
Drilling to date has failed to find commercial hydrocarbons. Several formations have indicated the potential for reservoir development (i.e. Ronning and Basal Cretaceous Sandstone) and these will require further drilling for a proper evaluation. The known seismic anomalies considered to have hydrocarbon potential have been tested.



O. FRIESEN

Southern Exploration District Manager
Imperial Oil Enterprises Ltd.
Edmonton, Alberta.





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ISOCHRON

HUME to PRE-DEVONIAN

SEISMOGRAPH MAP

Contour Interval 0.05 SEC.
Datums: Plane Velocity

FORT SIMPSON 95 H - 15 / 10

SCALE 1 : 50,000

1.25 inches to 1 mile approximately



Seismic Revised
Values Revised
Contours Revised
Wells Revised

Gp95H-15/10

4

C

PROPRIETARY

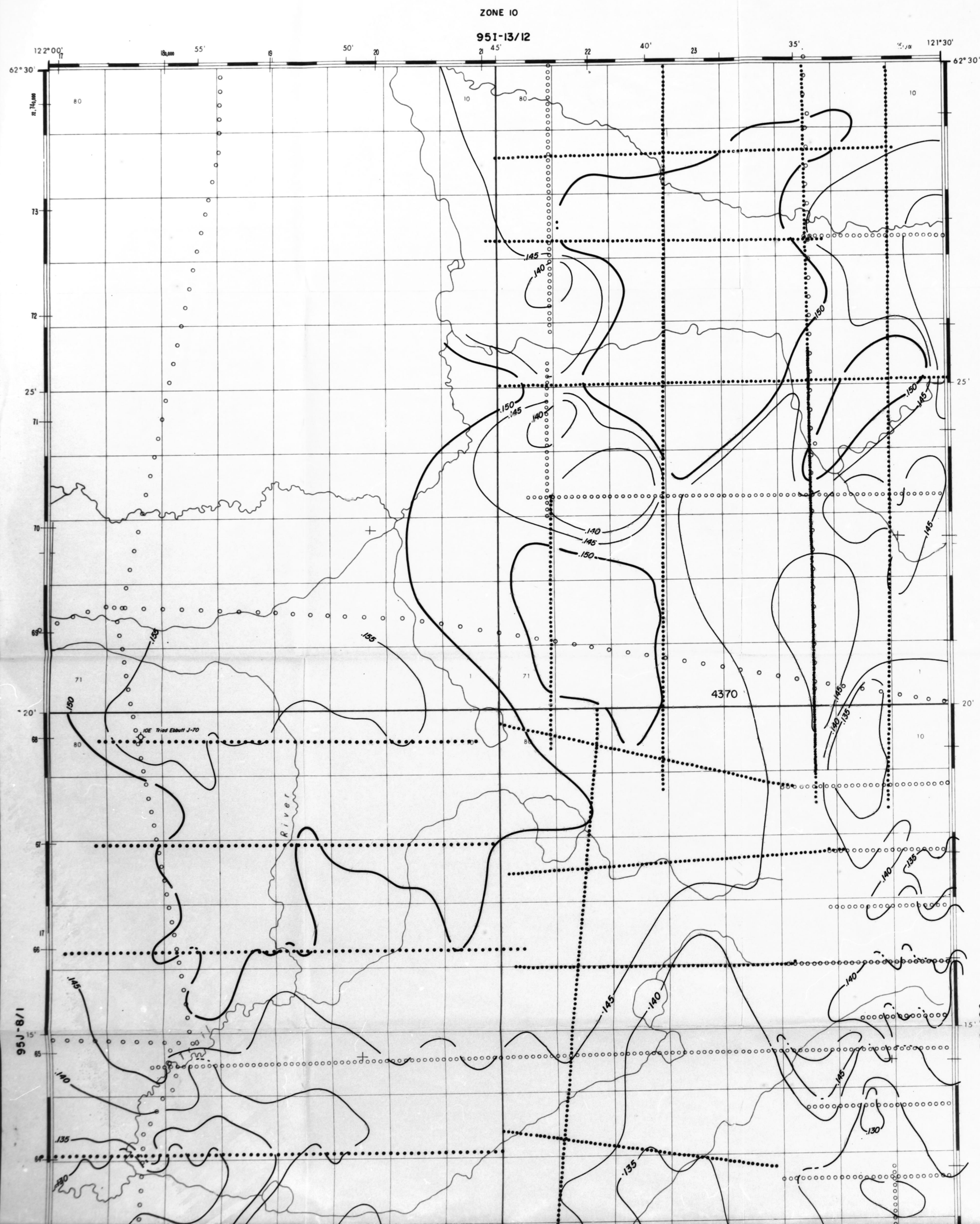
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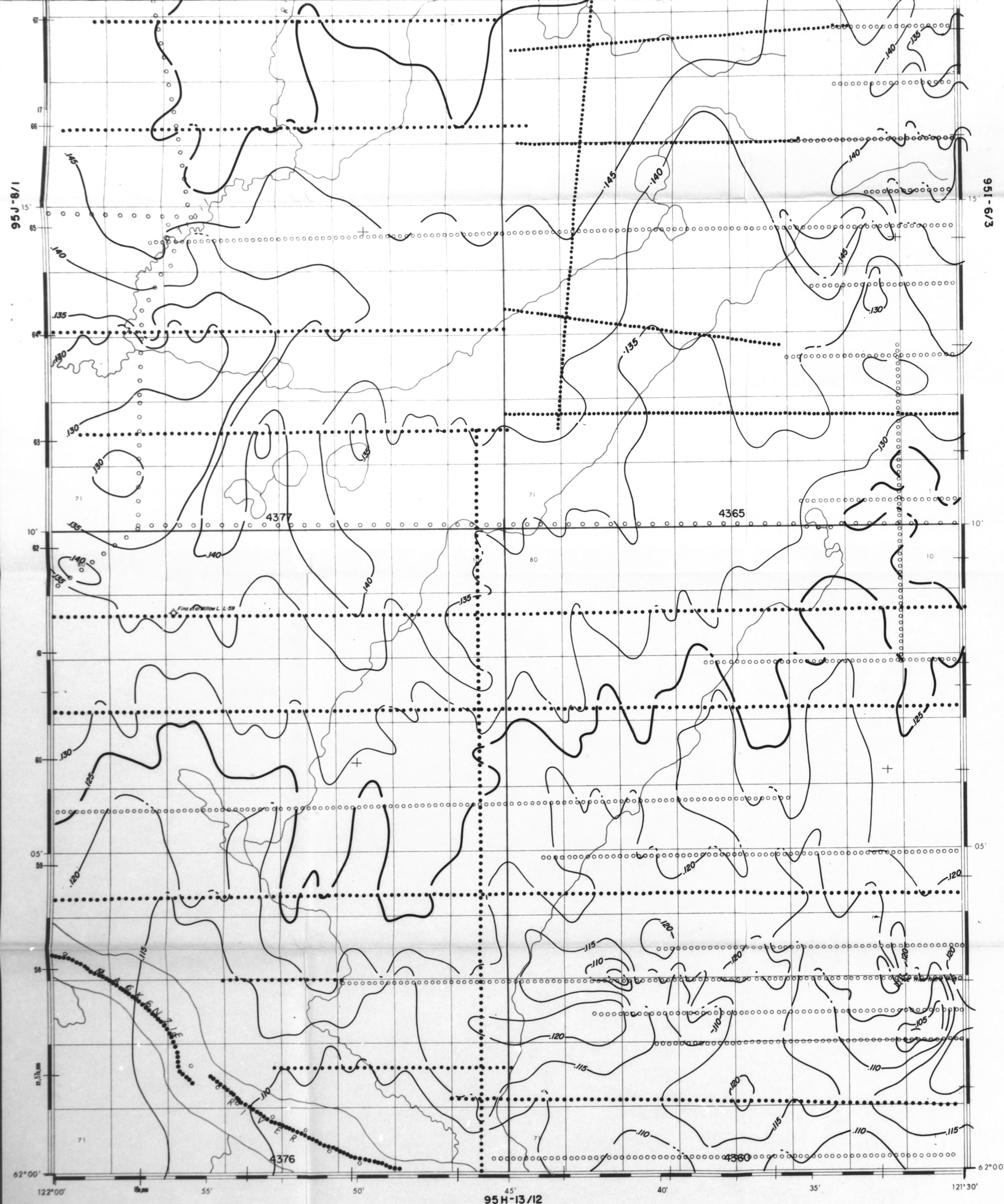
Ordnance
Survey
Map
Sheet
95H-15/10

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Ordnance Survey
Map
Sheet
95H-15/10

North American Datum 1927
Universal
Transverse Mercator Projection
(Gauss-Krüger)

10,000 ft. Coordinates, Territorial Plane Coordinate System.
Transverse Mercator Projection, & Zones.





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North American Datum 1927
Universal
Transverse Mercator Projection
(Gauss-Kruger)

10,000 ft. Coordinates Territorial Plane Coordinate System.
Transverse Mercator Projection, 6 Zones.

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SEISMOGRAPH MAP

Contour Interval 0.005-555
Datum: Plane Velocity

ISOCHRON

HUME to PRE-DEVONIAN

BULMER LAKE 95I-5/4

SCALE 1:50,000

1.25 inches to 1 mile approximately

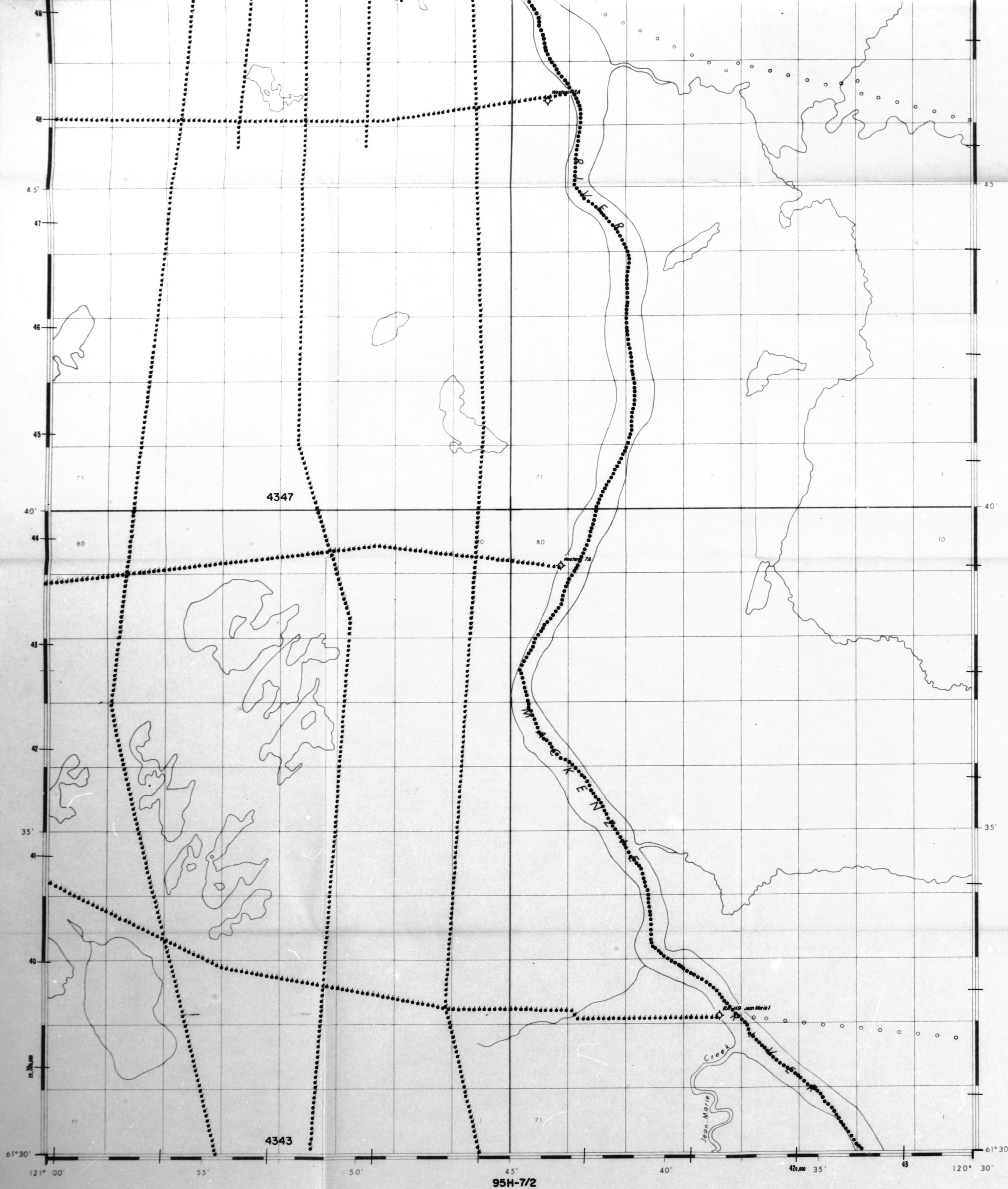


Seismic Revised 10/1/77
Values Revised 10/1/77
Contours Revised 10/1/77
Wells Revised May 10, 1977

Gp 95I-5/4 1 C

PROPRIETARY

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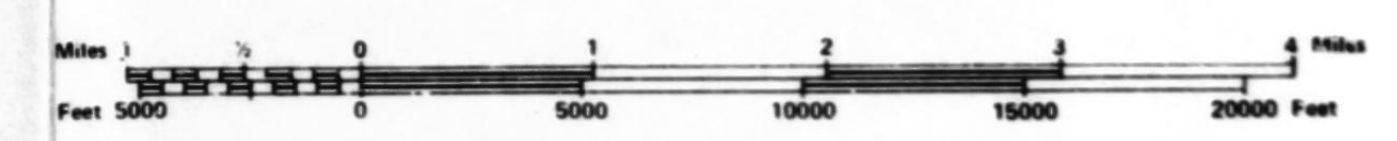
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SEISMOGRAPH MAP
SURFACE ELEVATIONS

Contour Interval
Datum: Plane SEA LEVEL Velocity

FORT SIMPSON 95 H - 15 / 10

SCALE 1:50,000
1.25 inches to 1 mile approximately



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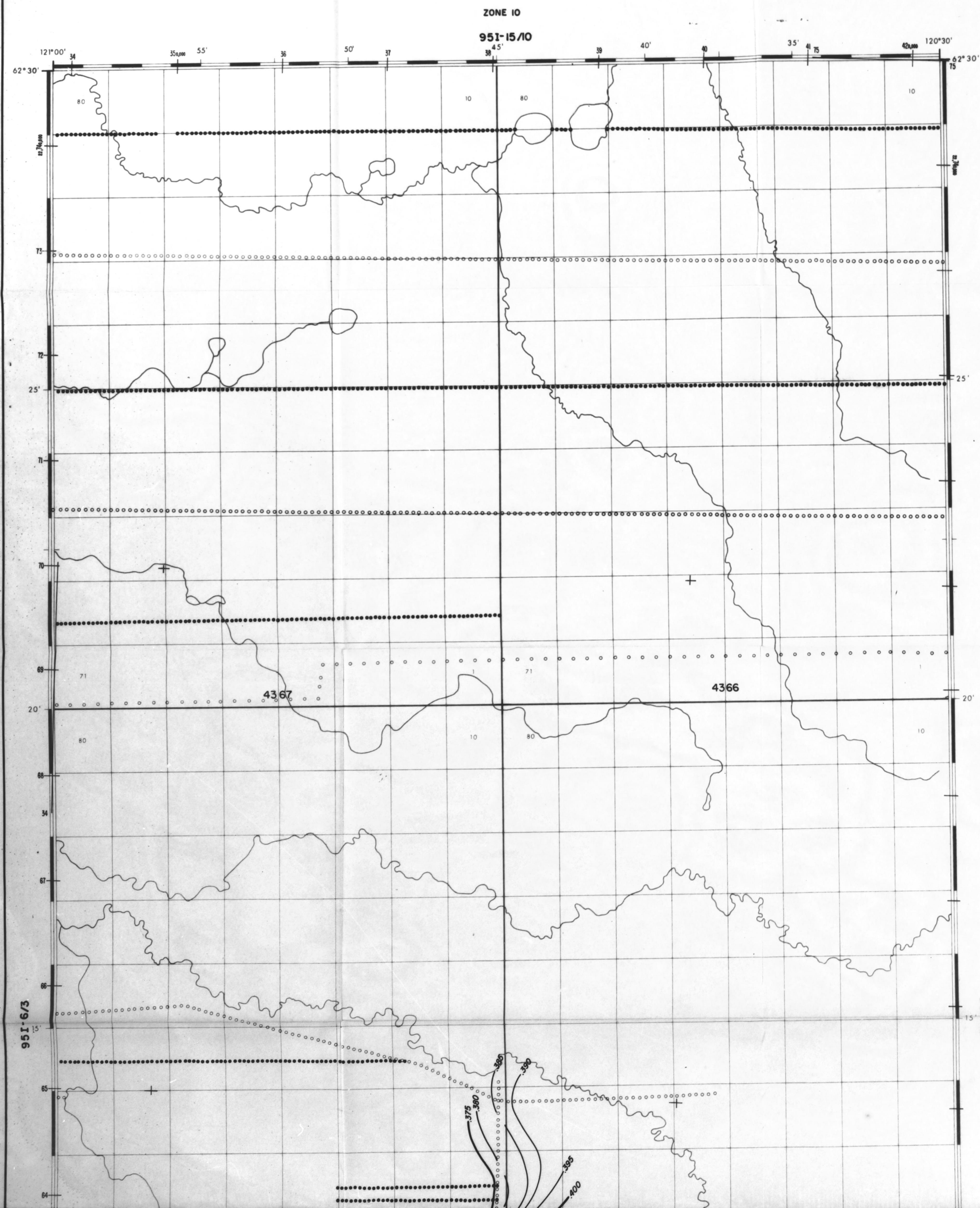
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Transverse Mercator Projection, 6 Zones.

Seismic Revised
Values Revised
Contours Revised
Wells Revised 1977 16/000

PROPRIETARY

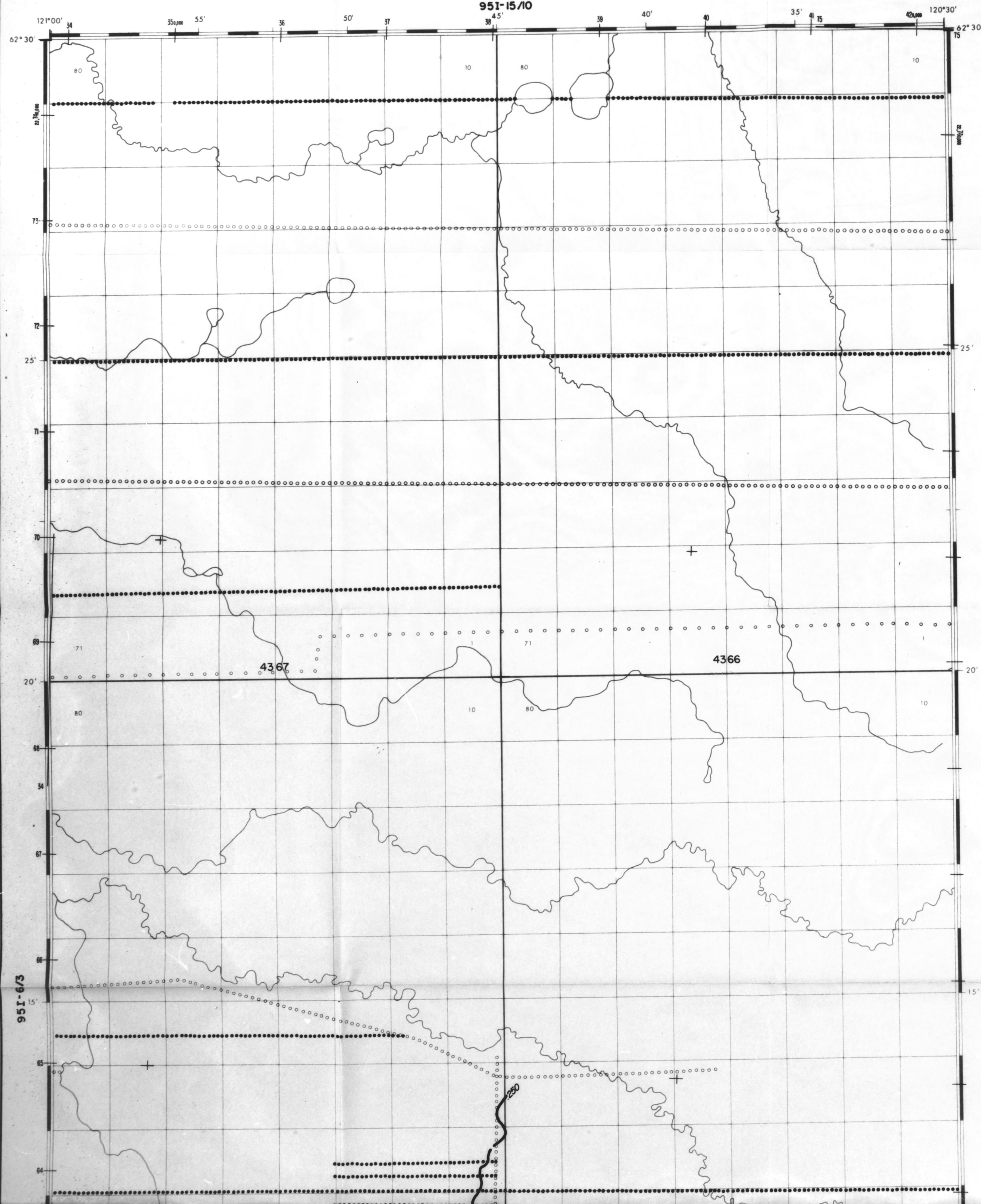
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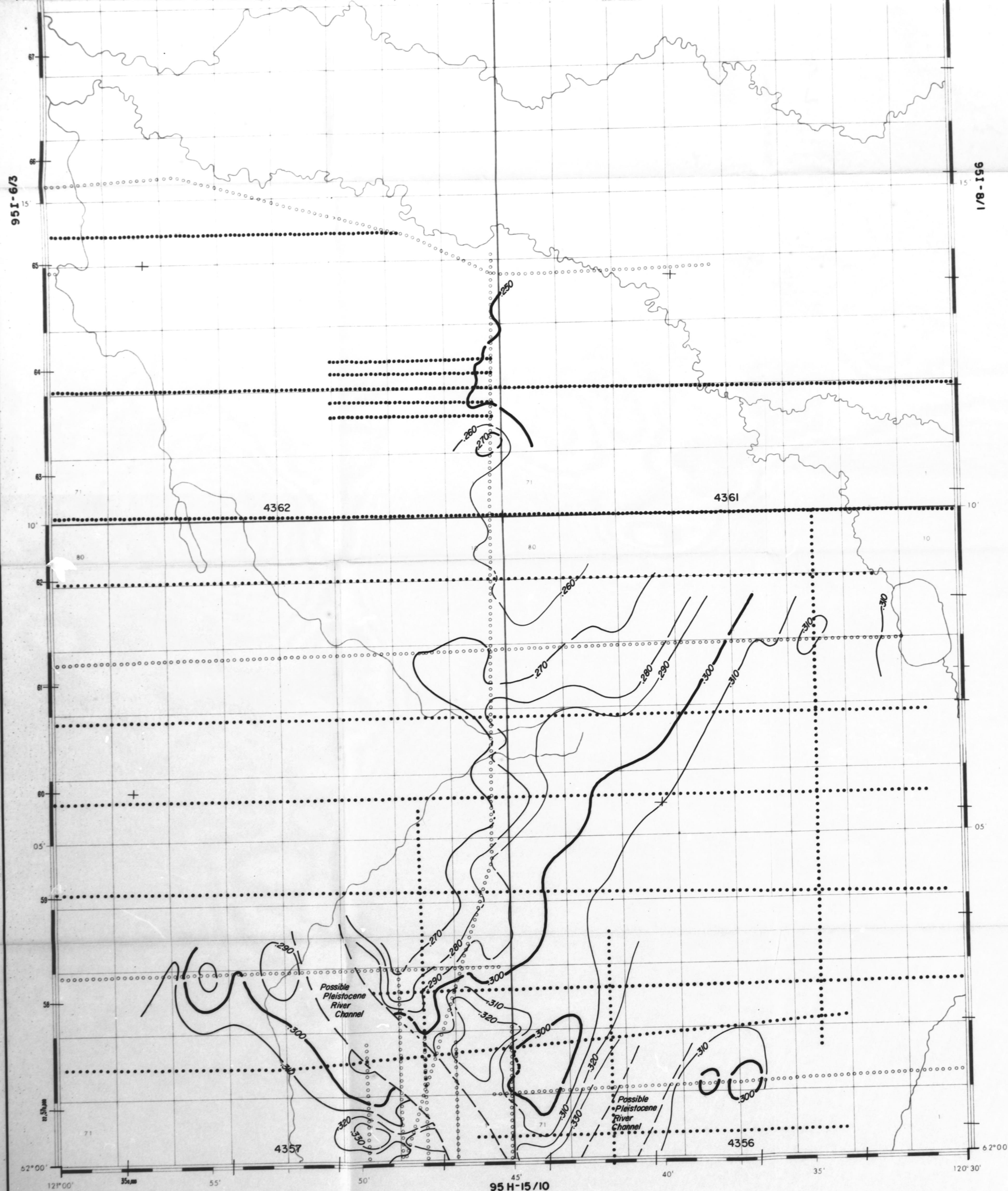
Gp 95H-15/10 3 V



ZONE 10

951-15/10





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SEISMOGRAPH MAP

Contour Interval 0.000 SECS.
Datums: Plane Velocity

TIME STRUCTURE

HUME

BULMER LAKE 95 1- 7/2

SCALE 1 : 50,000

1.25 inches to 1 mile approximately



North American Datum 1927
Universal
Transverse Mercator Projection
(Gauss-Kruger)

10,000 ft. Coordinates, Territorial Plane Coordinate System.
Transverse Mercator Projection, 6 Zones.

Seismic Revised
Values Revised
Contours Revised
Wells Revised

Gp 951-7/2 4 V C

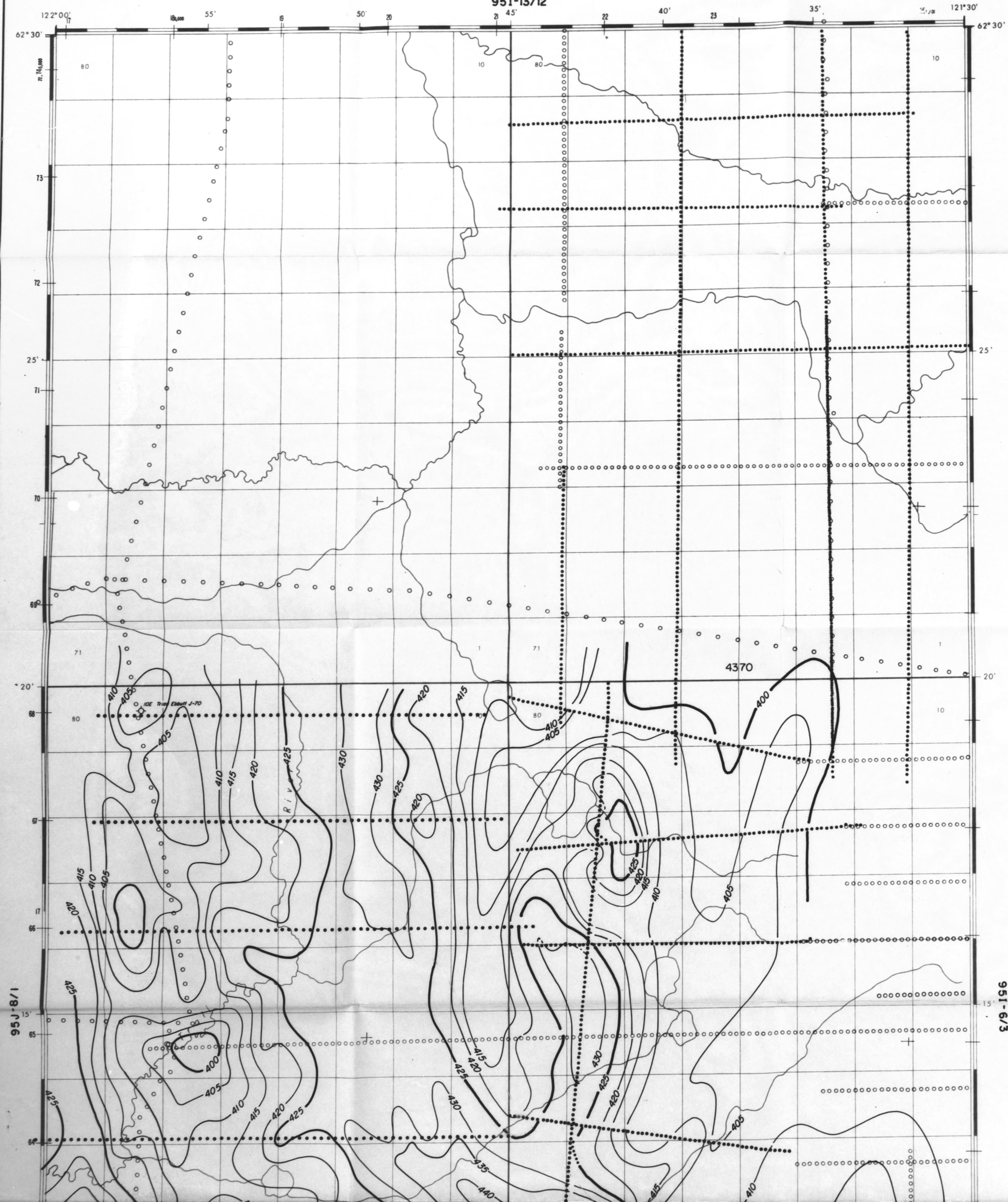
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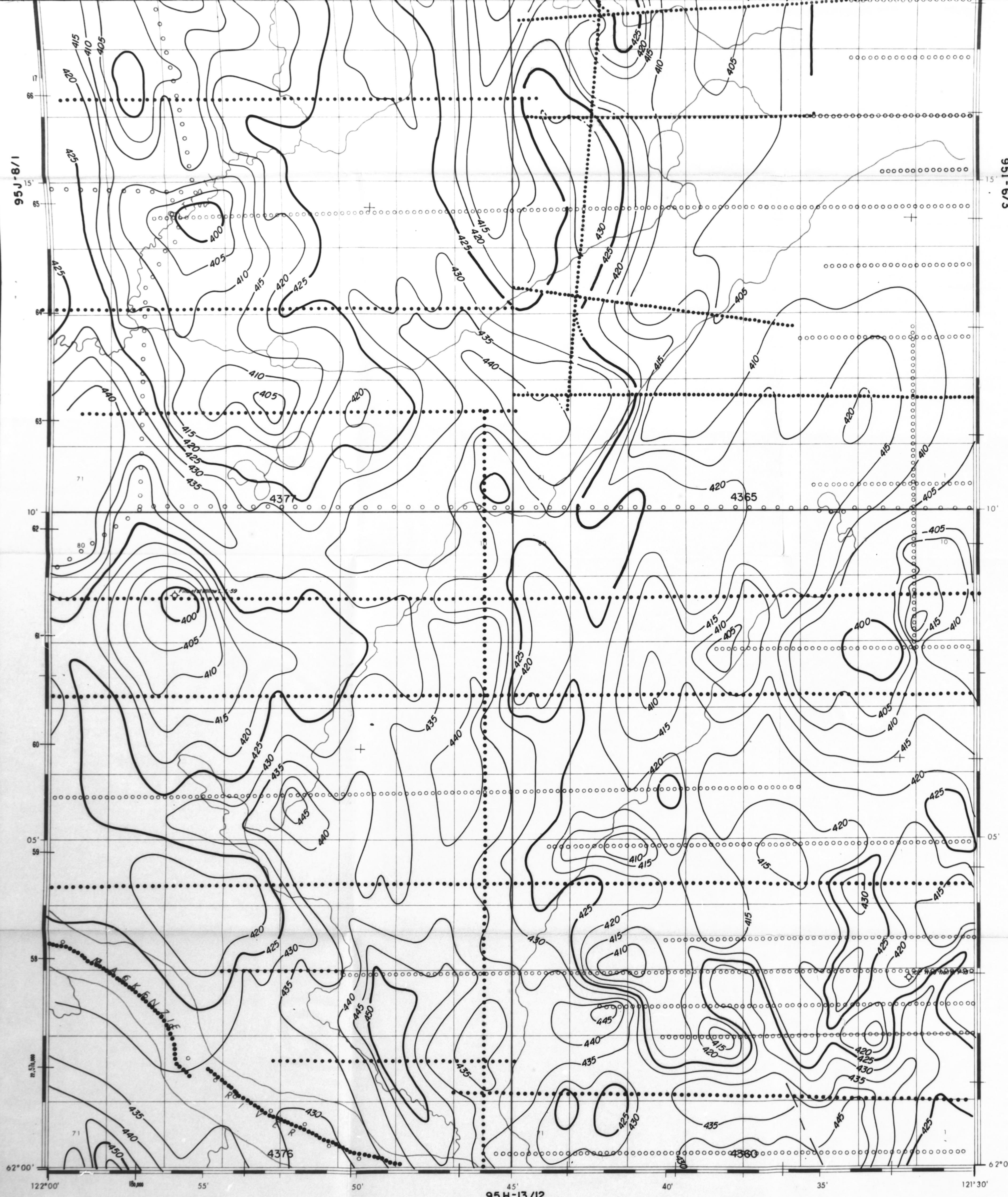
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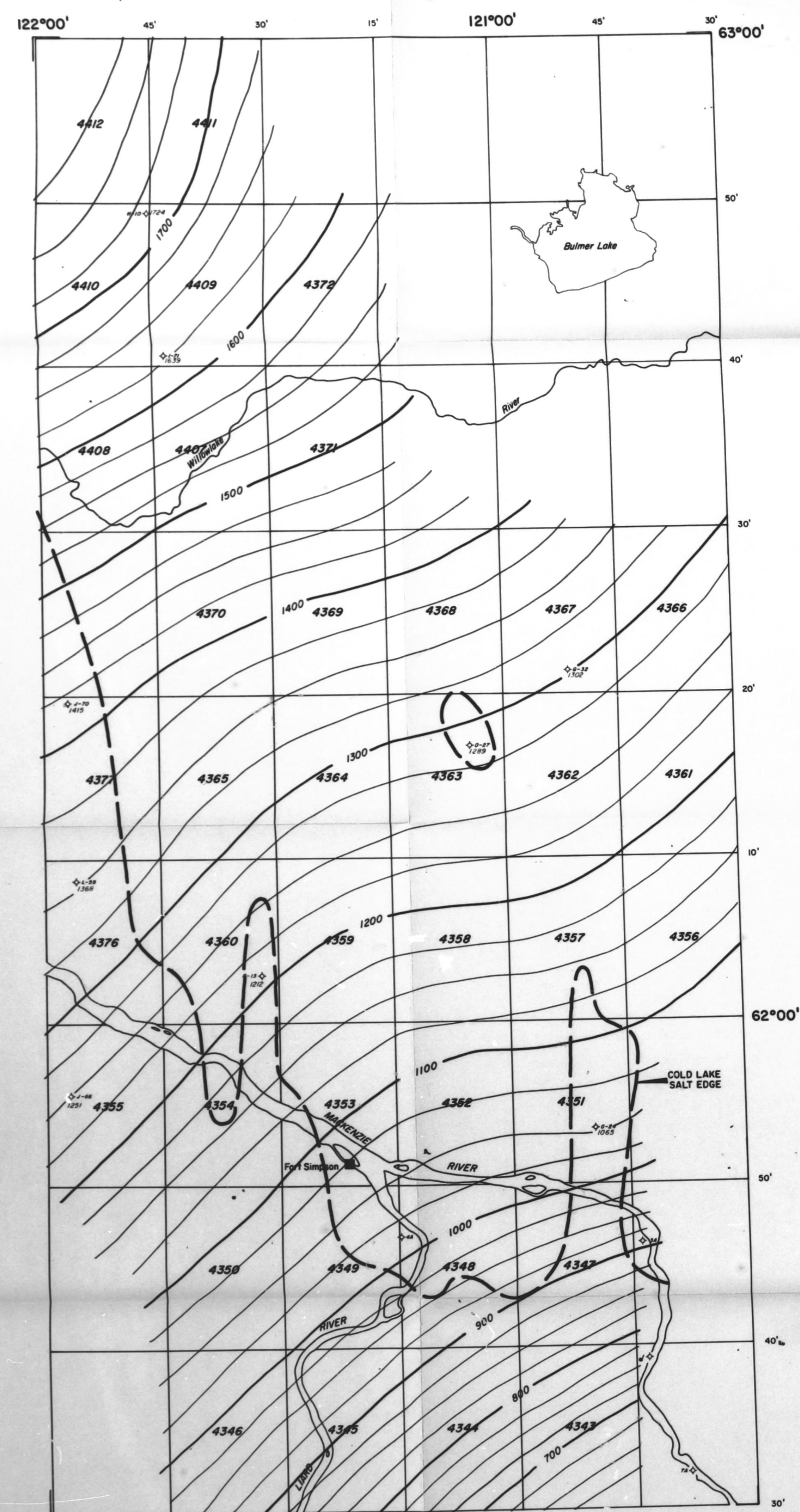
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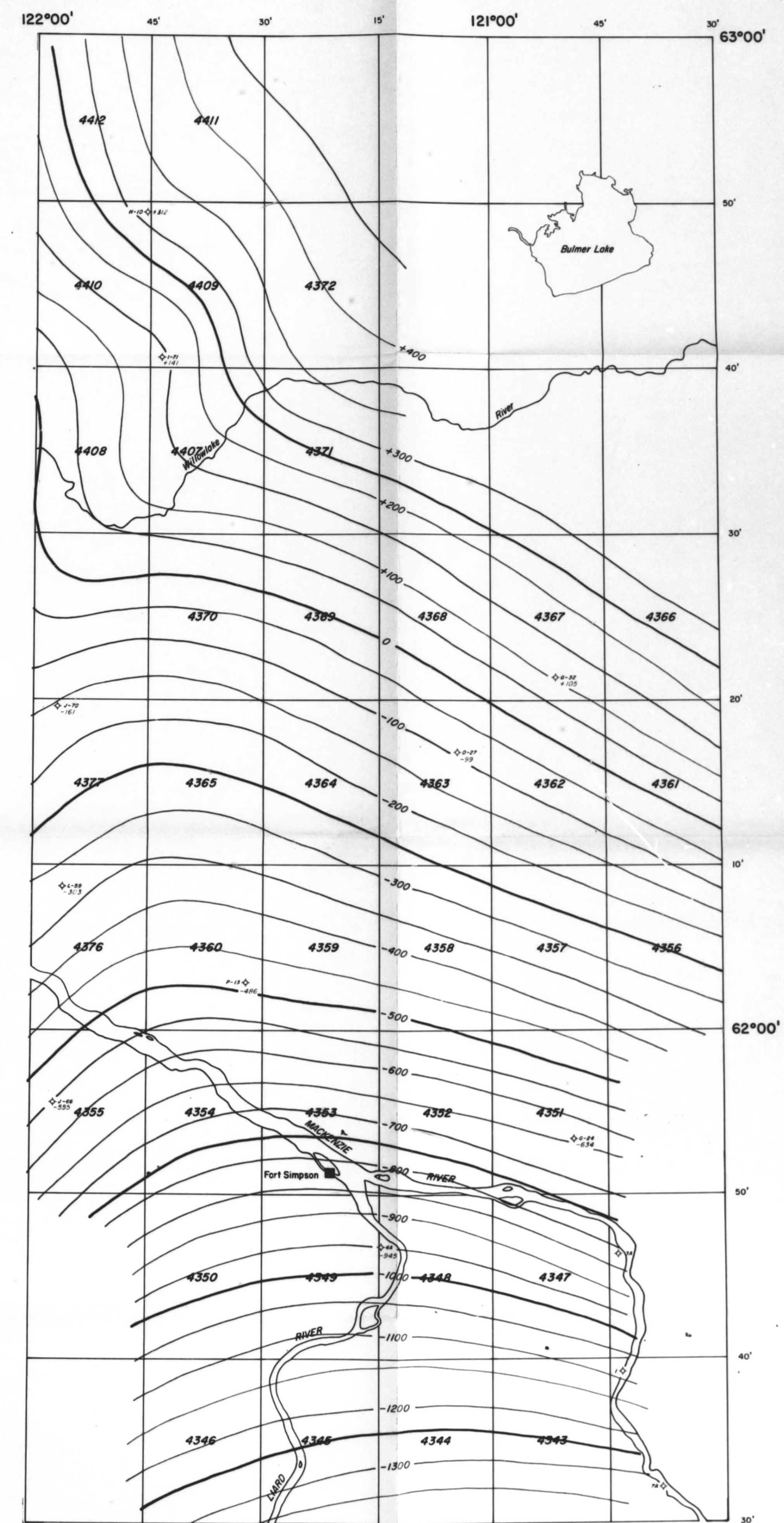
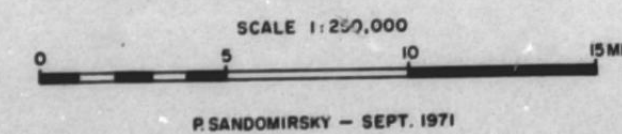


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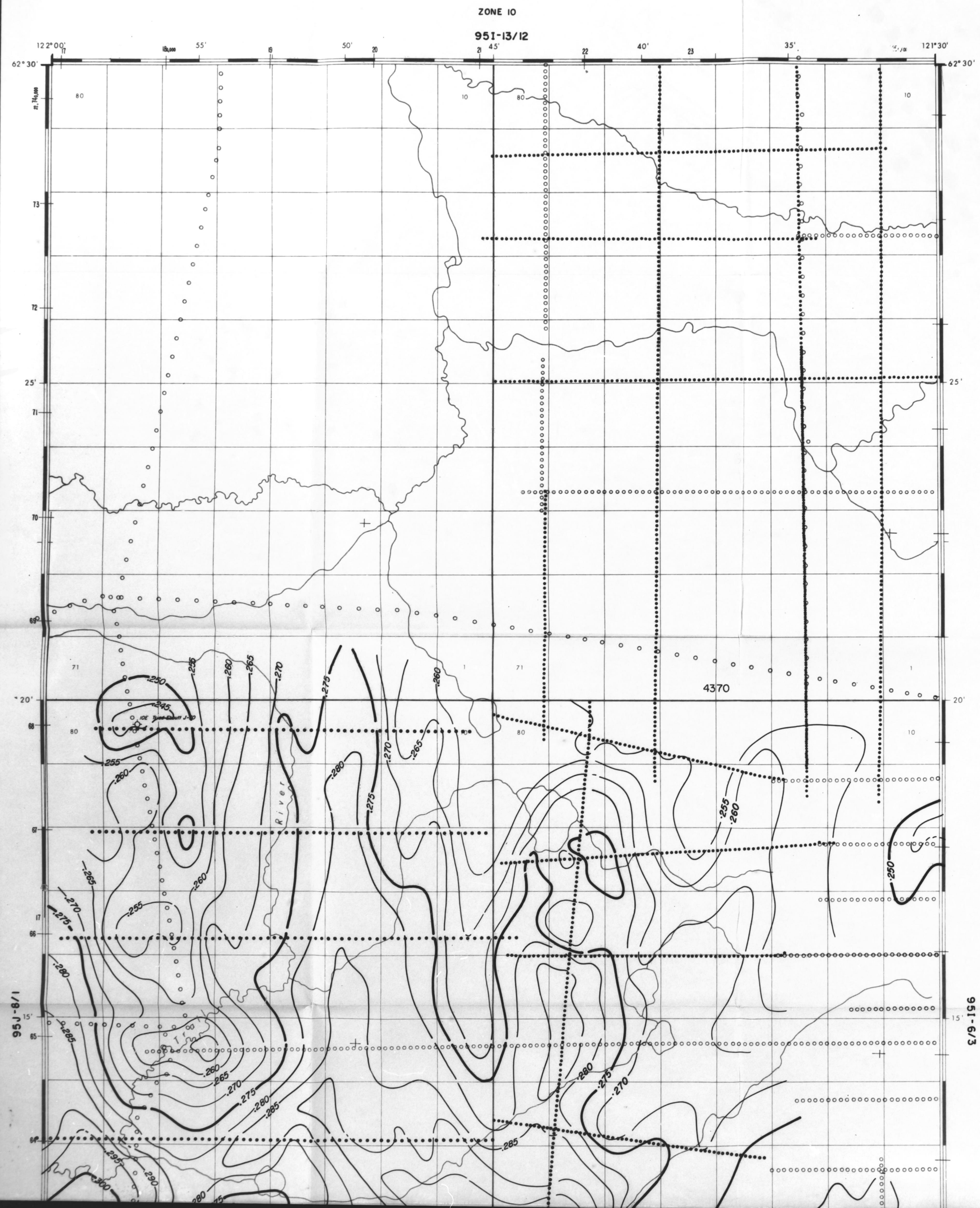


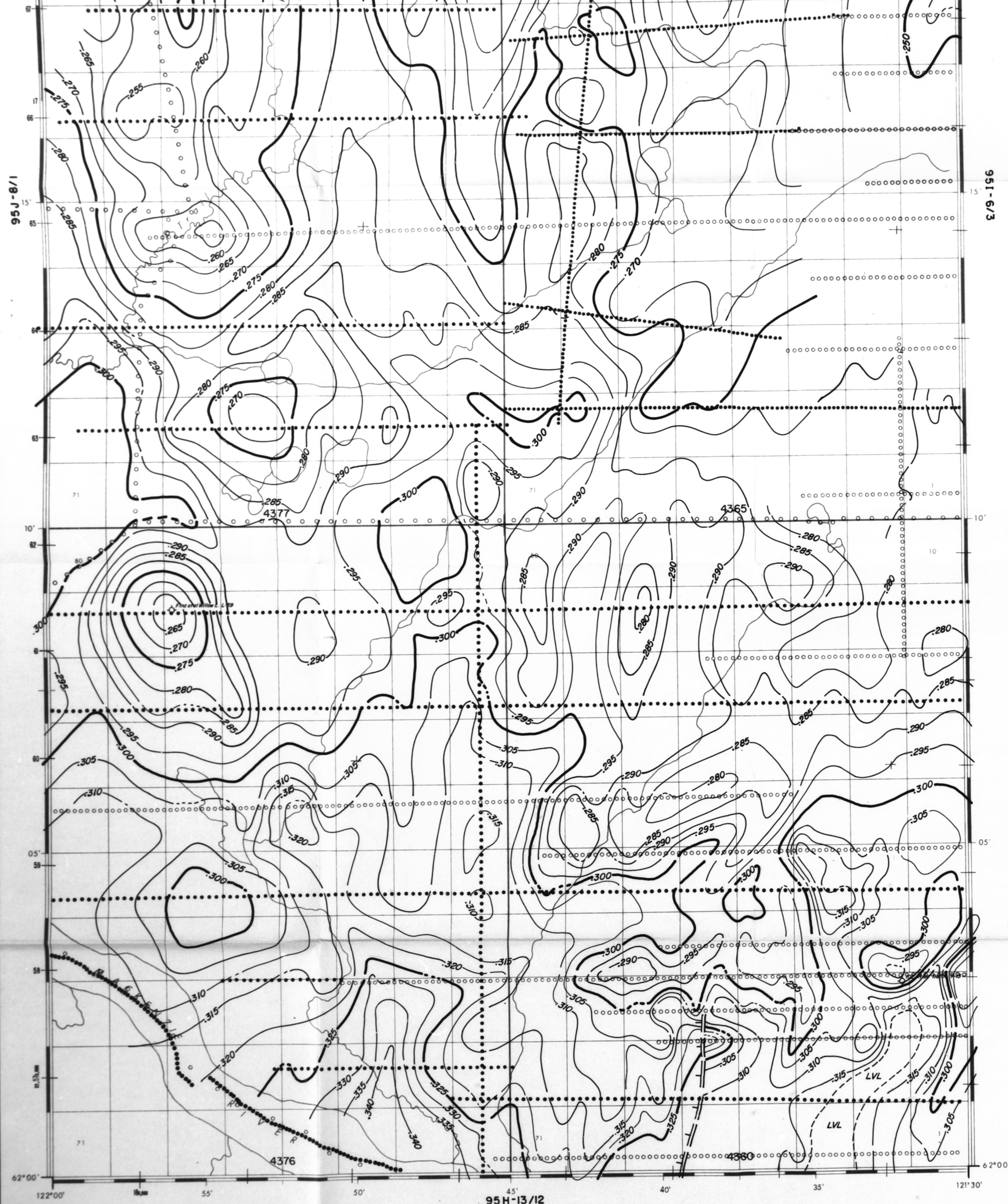
FORT SIMPSON AREA N.W.T.
ISOPACH TOP HUME FM. TO PRE DEVONIAN
CONTOUR INTERVAL 25 FEET



FORT SIMPSON AREA N.W.T.
STRUCTURE TOP HUME FM.
CONTOUR INTERVAL 50 FEET







95J-8/I
95J-15/I

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16/9	16/10	16/11
95J	95I	95H

SEISMOGRAPH MAP

Contour Interval 0.005 SECS.
Datum: Plane Velocity

TIME STRUCTURE

HUME

BULMER LAKE 95I-5/4

SCALE 1:50,000
1.25 inches to 1 mile approximately



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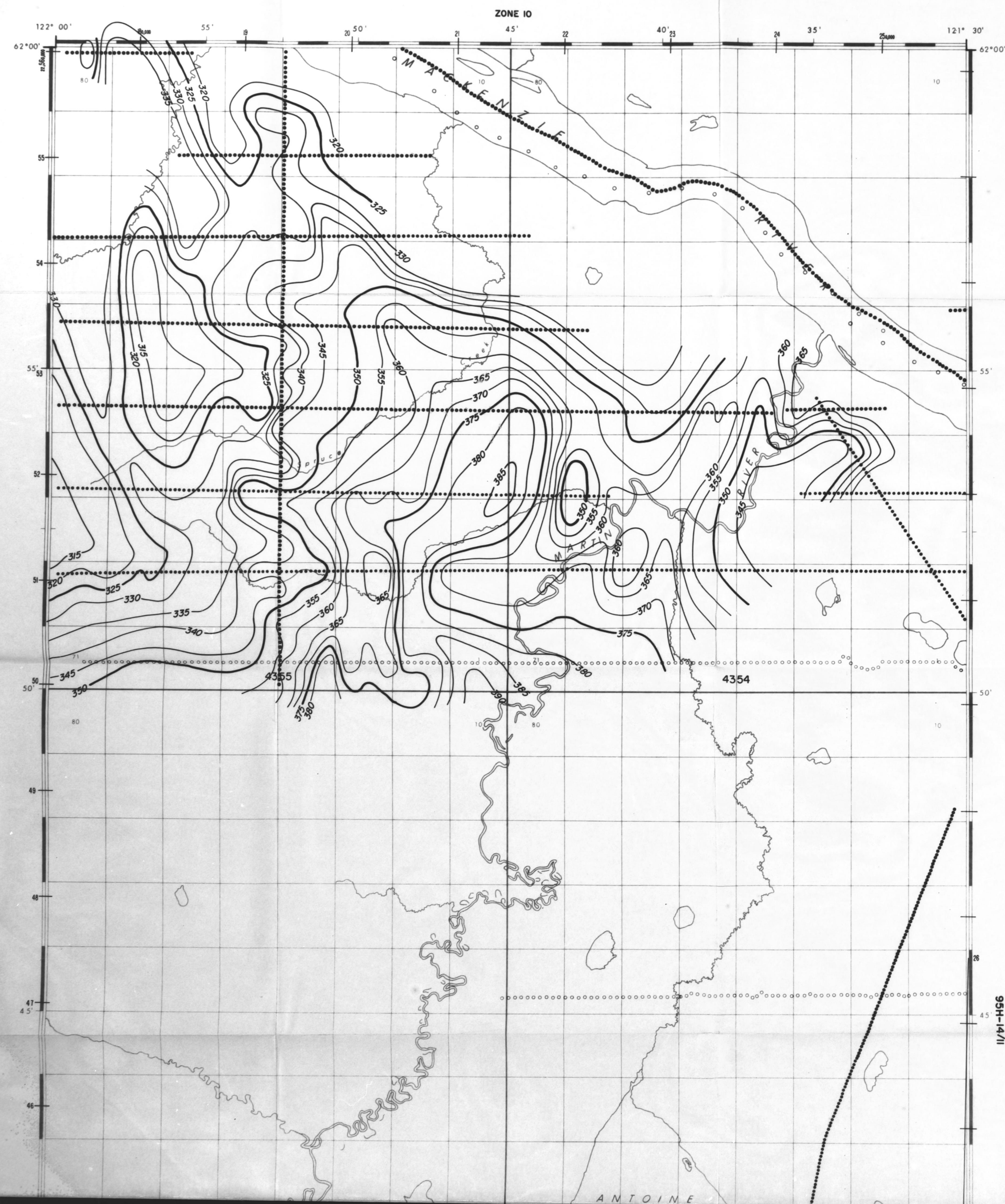
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Universal
Transverse Mercator Projection
(Gauss-Kruger)

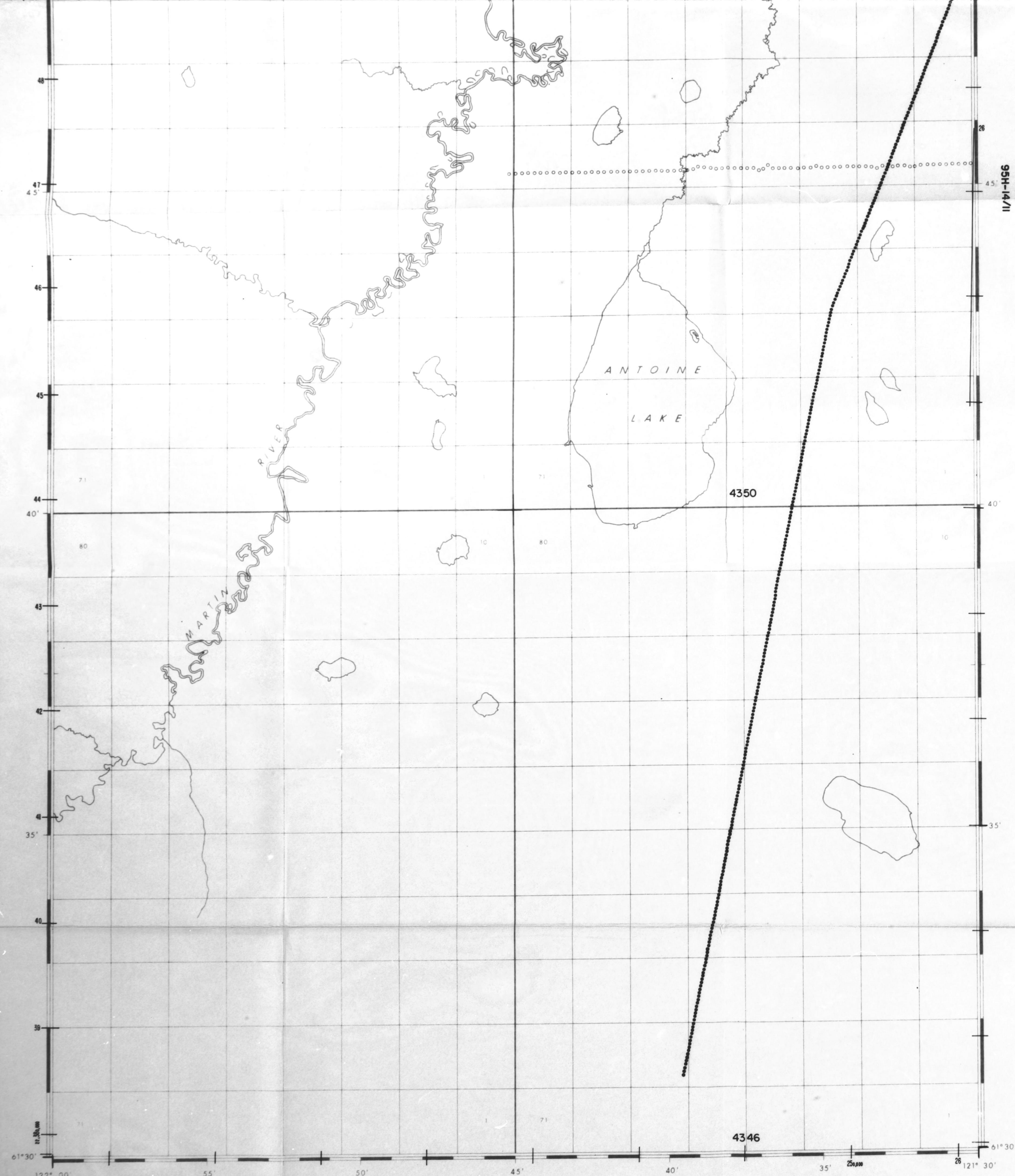
10,000 ft. Coordinates Territorial Plane Coordinate System.
Transverse Mercator Projection, 6 Zones.

Seismic Revised 1967
Values Revised 1967
Contours Revised 1967
Wells Revised May 20, 1971

Gp	95I-5/4	4	V	C
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TIME STRUCTURE
HUME
SEISMOGRAPH MAP

Contour Interval 5 MILLISECONDS
Datum: Plane 1000' Velocity 12,000'

FORT SIMPSON 95 H - 13/12

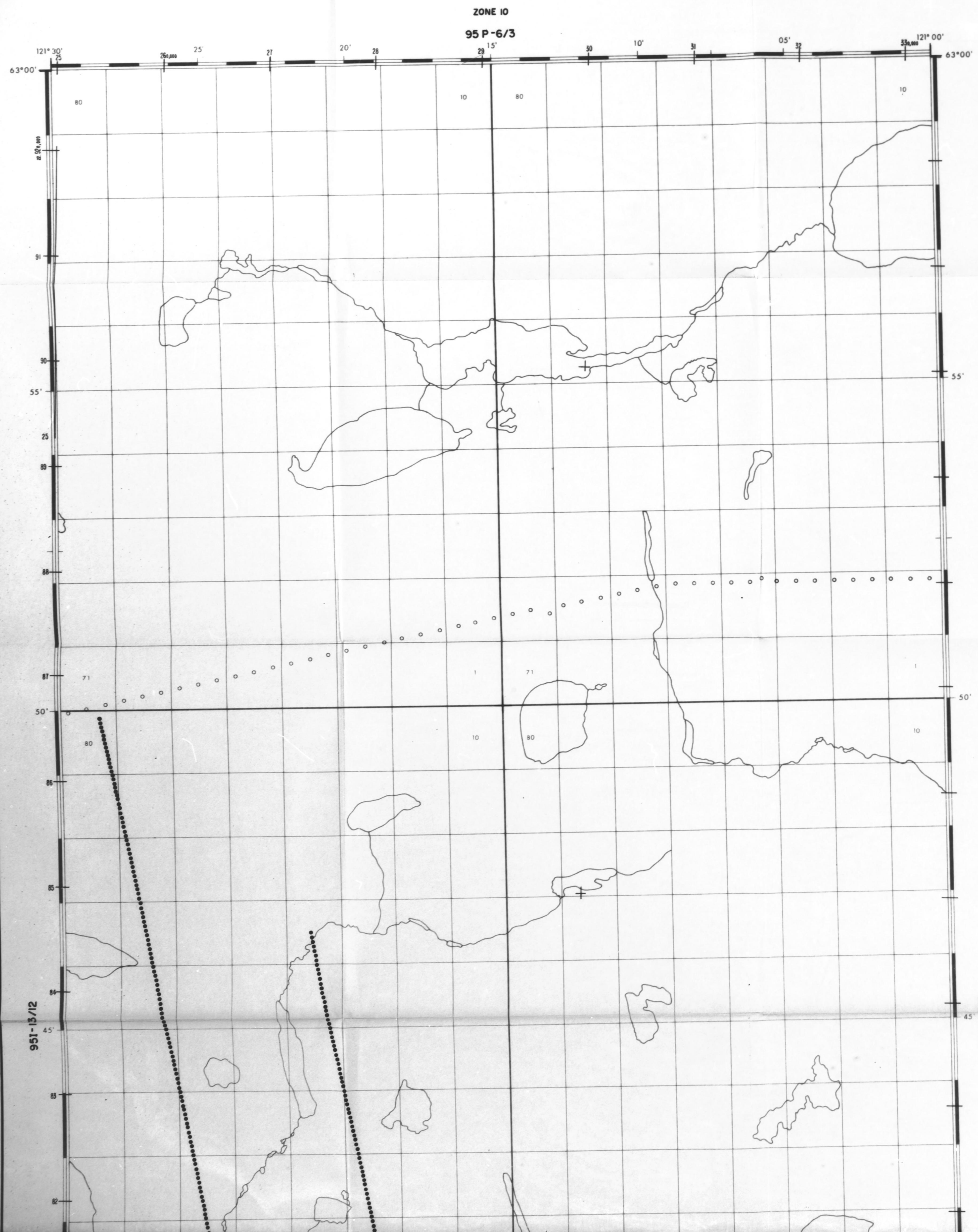
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Seismic Revised MAY 18, 1971
Values Revised
Contours Revised
Wells Revised

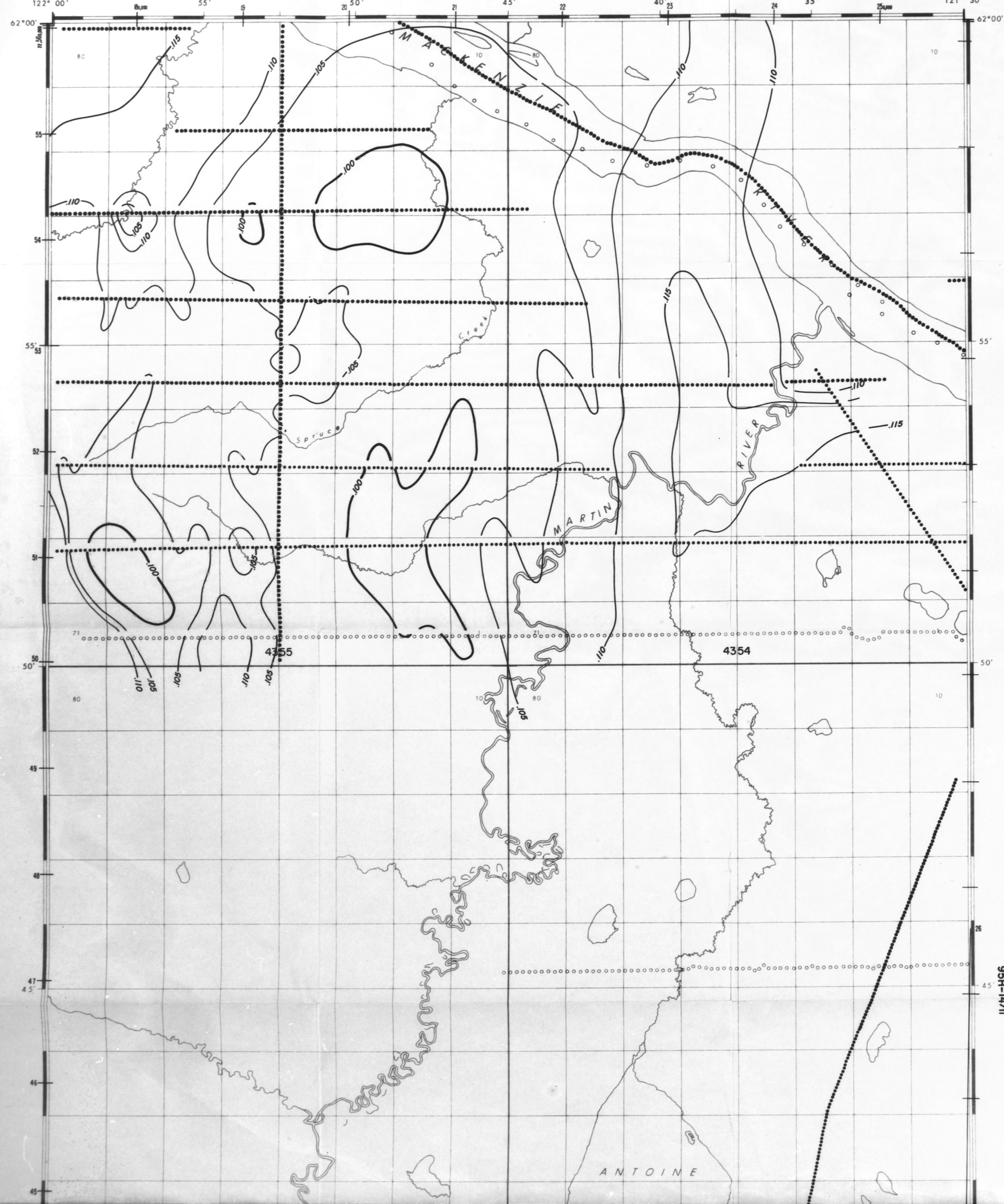
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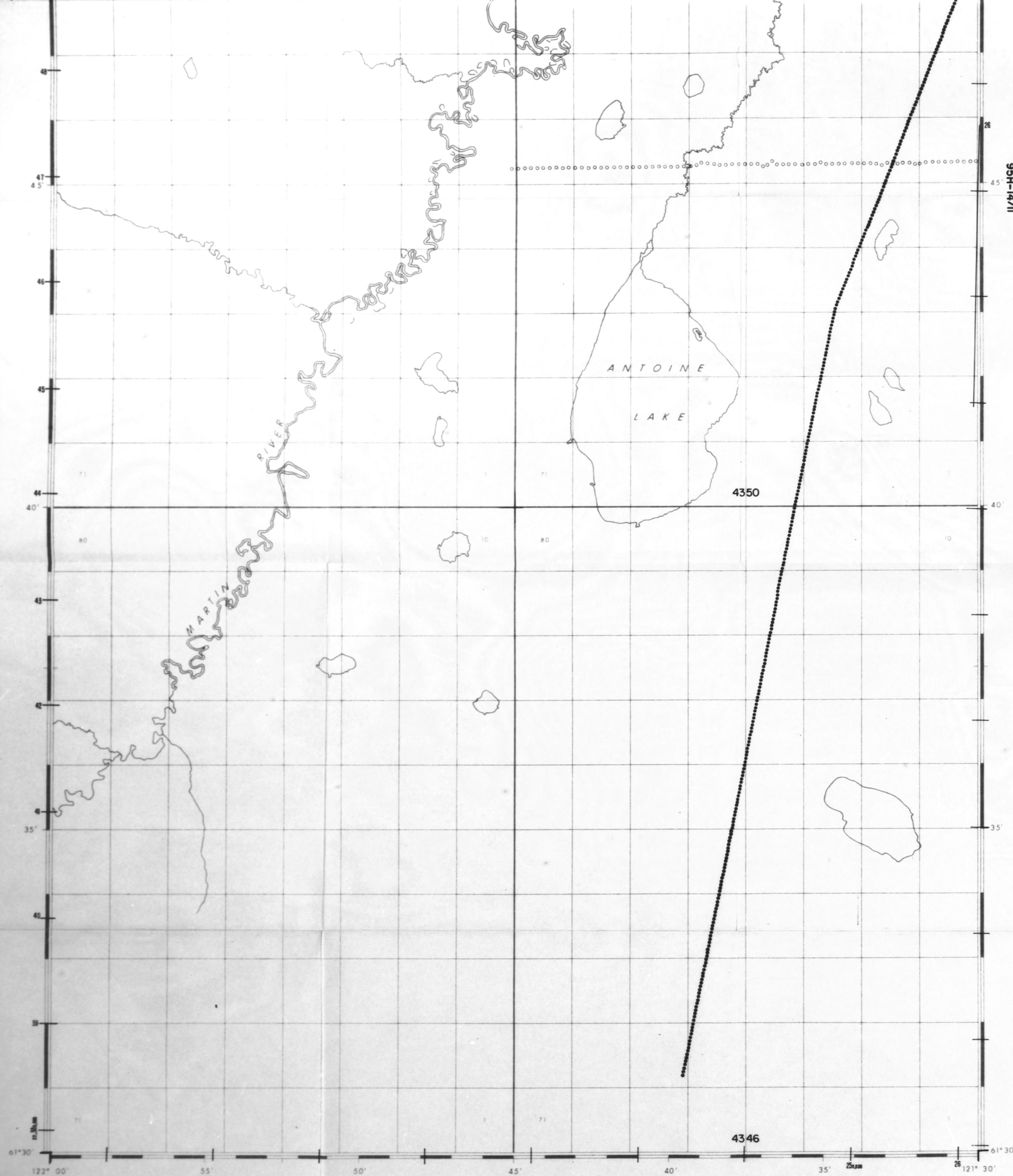
PROPRIETARY



122° 00' 62° 00' 121° 30' 62° 00'

ZONE 10





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95N	95A	95O

ISOCHRON

HUME to PRE-DEVONIAN

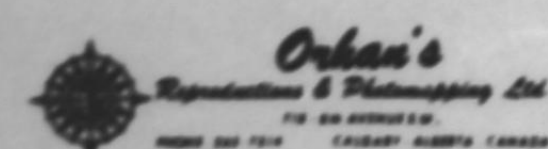
SEISMOGRAPH MAP

Contour Interval 0.005 SEC
Datum: Plane Velocity

FORT SIMPSON 95 H - 13/12

SCALE 1:50,000

1.25 inches to 1 mile approximately



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Universal
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Transverse Mercator Projection, 6 Zones.

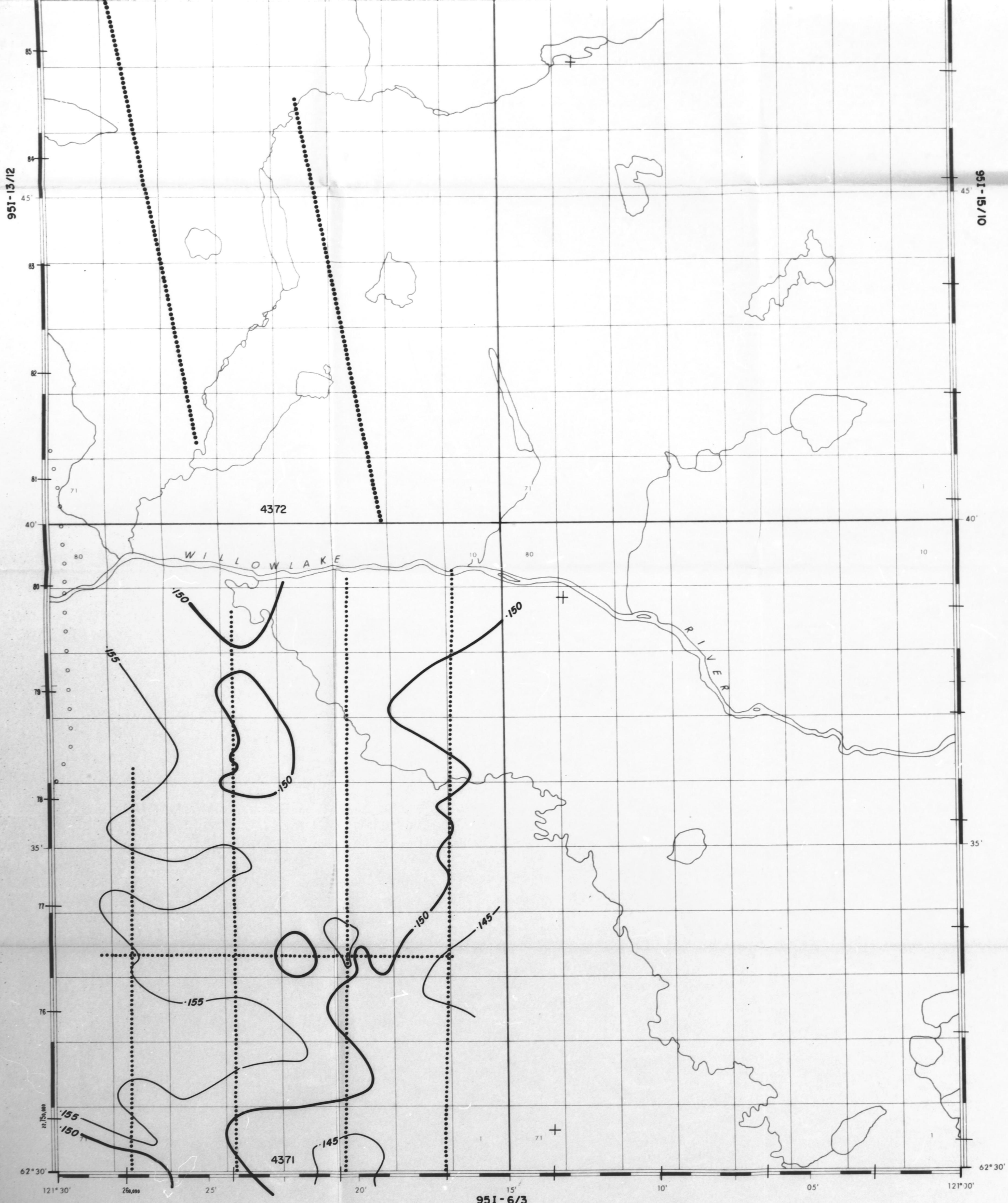
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Values Revised
Contours Revised MAY 18, 1970
Wells Revised MAY 18, 1970

Gp 95H-13/12

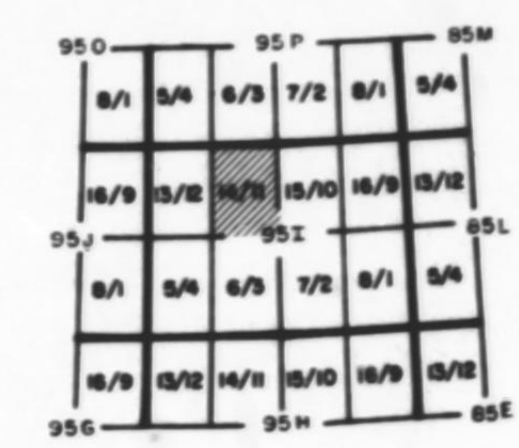
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PROPRIETARY

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SEISMOGRAPH MAP

Contour Interval .005 sec.
Datum: Plane Velocity

ISOCHRON

HUME to PRE-DEVONIAN

BULMER LAKE 95I-14/11

SCALE 1:50,000
1.25 inches to 1 mile approximately



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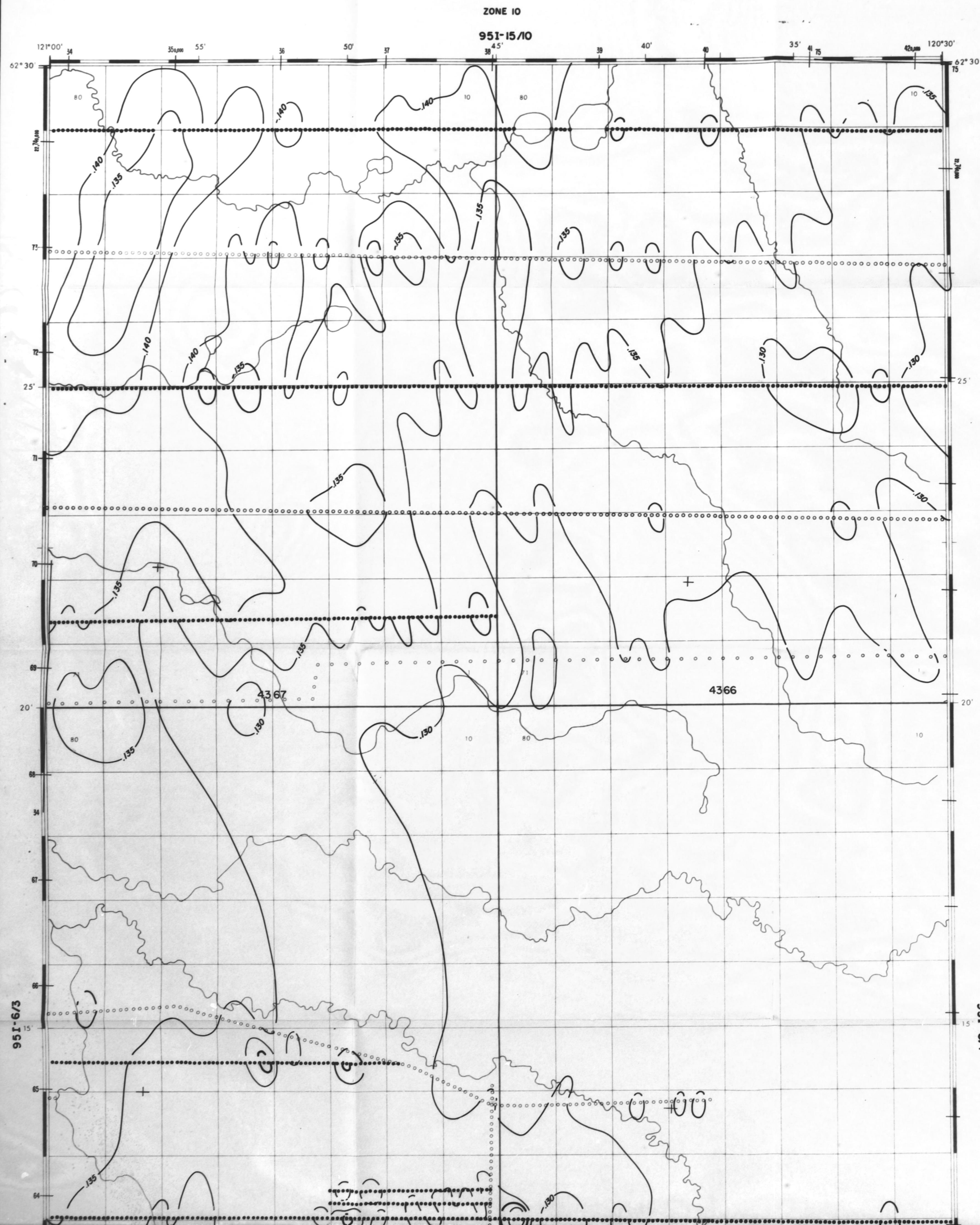
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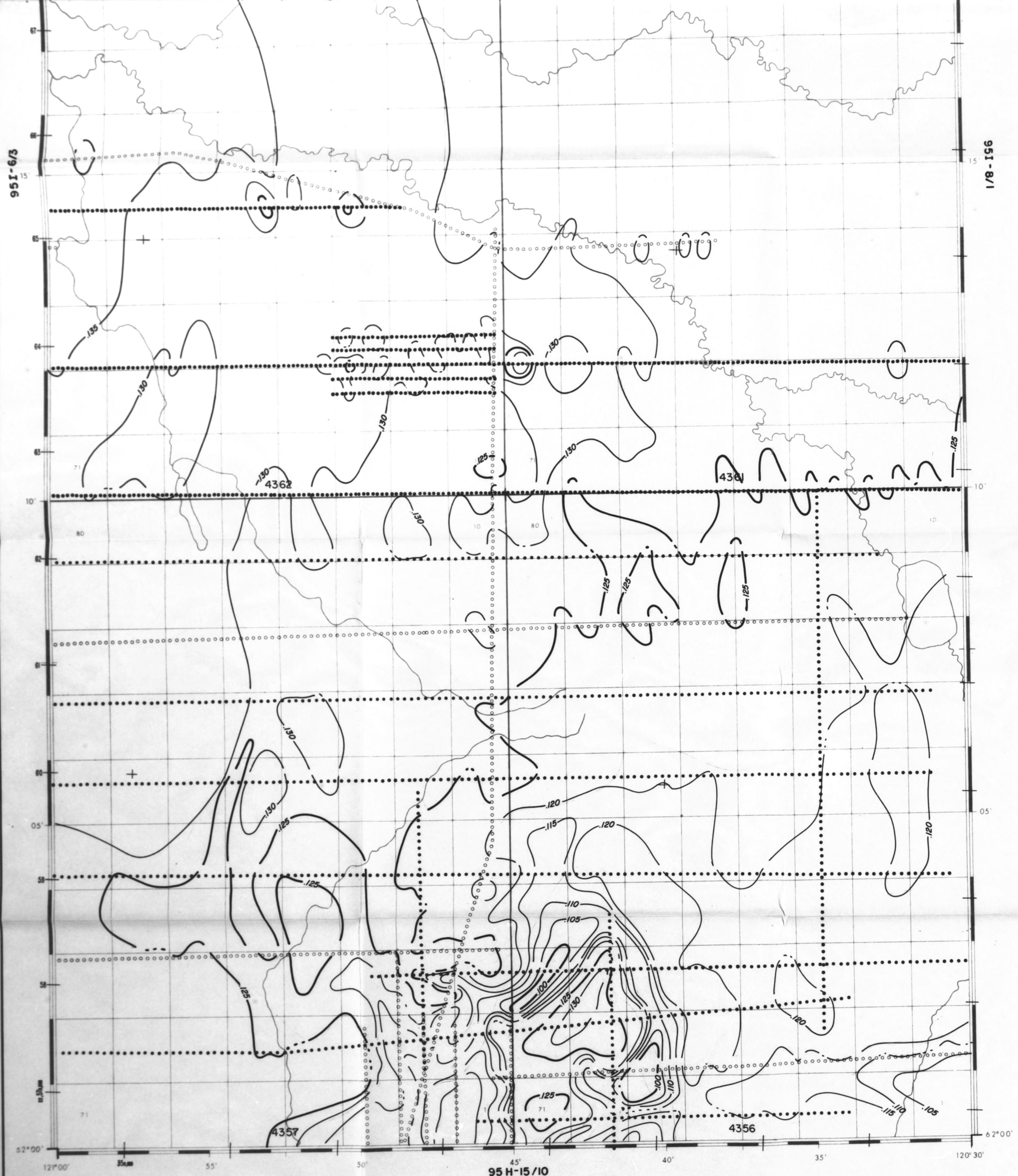
Seismic Revised
Values Revised
Contours Revised 4/1/78
Wells Revised 4/1/78

Gp 95I-14/11 2 V C

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95N	95H	85E

SEISMOGRAPH MAP

Contour Interval: 100
Datum: Plane Velocity

ISOCHRON

HUME to PRE-DEVONIAN

BULMER LAKE 95 I- 7/2

SCALE 1: 50,000

1.25 inches to 1 mile approximately

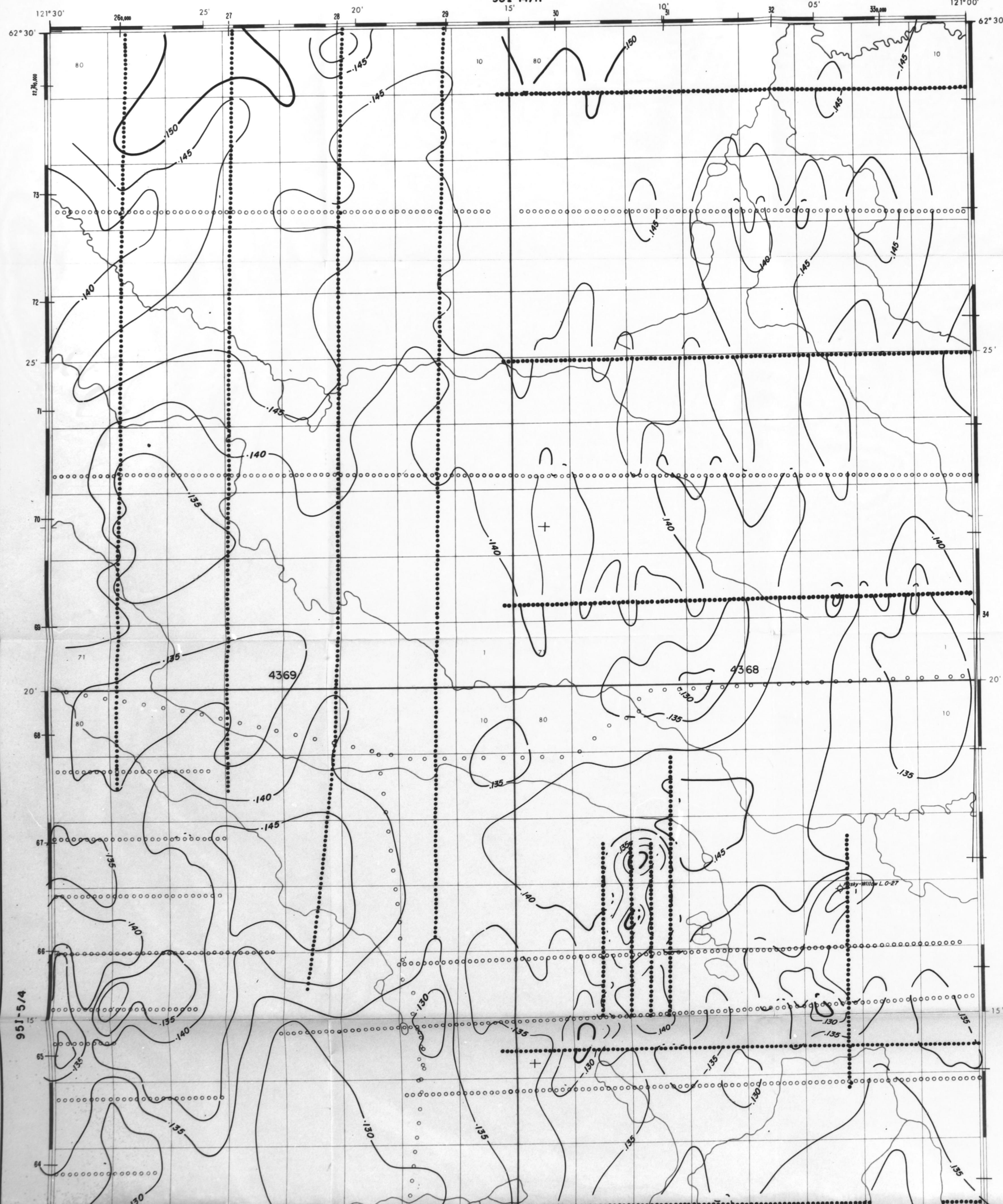


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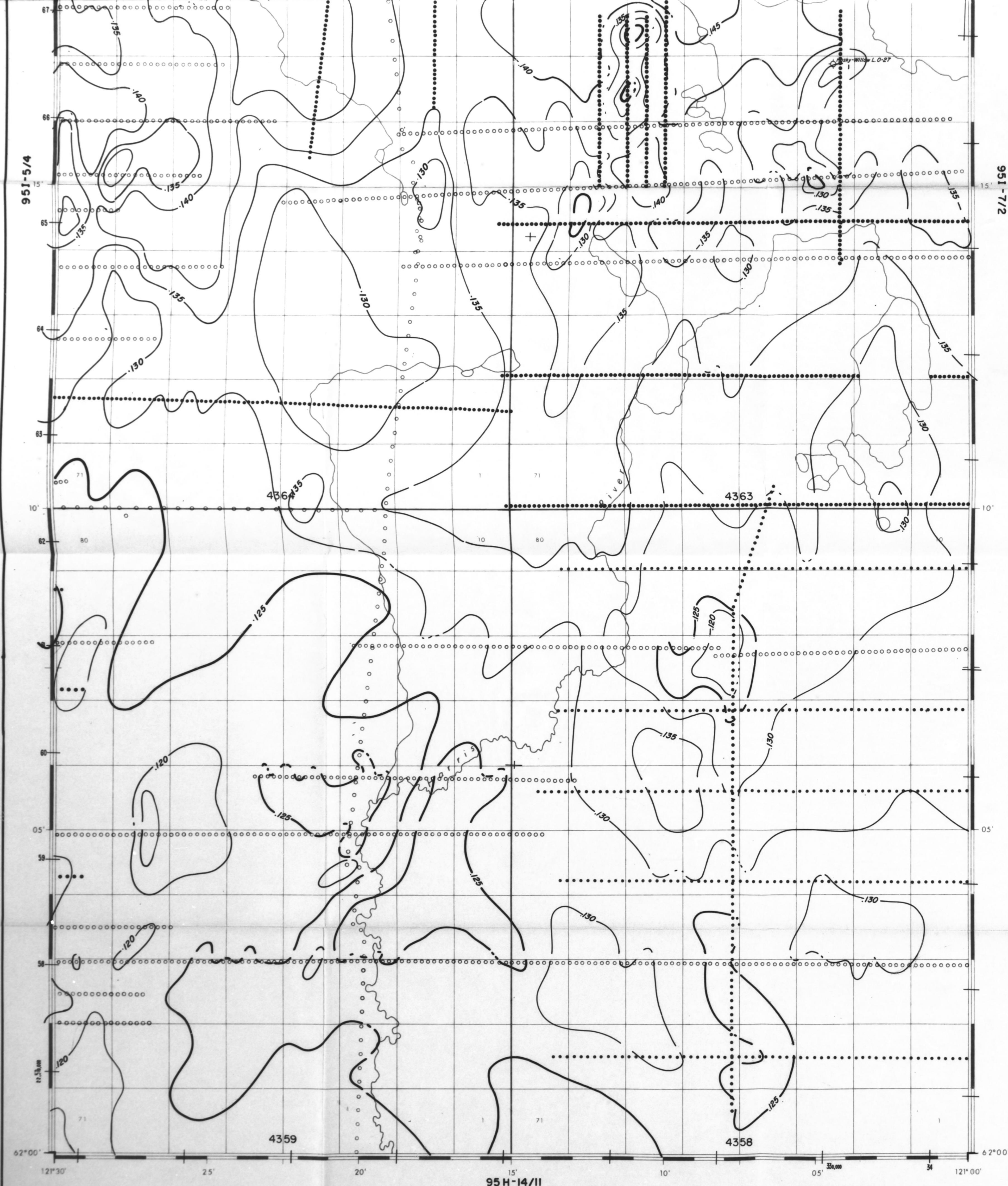
Gp 95I-7/2 1 C

ZONE 10

951-14/11



951-7/2



951-7/2

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SEISMOGRAPH MAP

Contour Interval .005 SEC.
Datums: Plane --- Velocity ---

ISOCHRON

HUME to PRE-DEVONIAN

BULMER LAKE 951-6/3

SCALE 1:50,000

1.25 inches to 1 mile approximately



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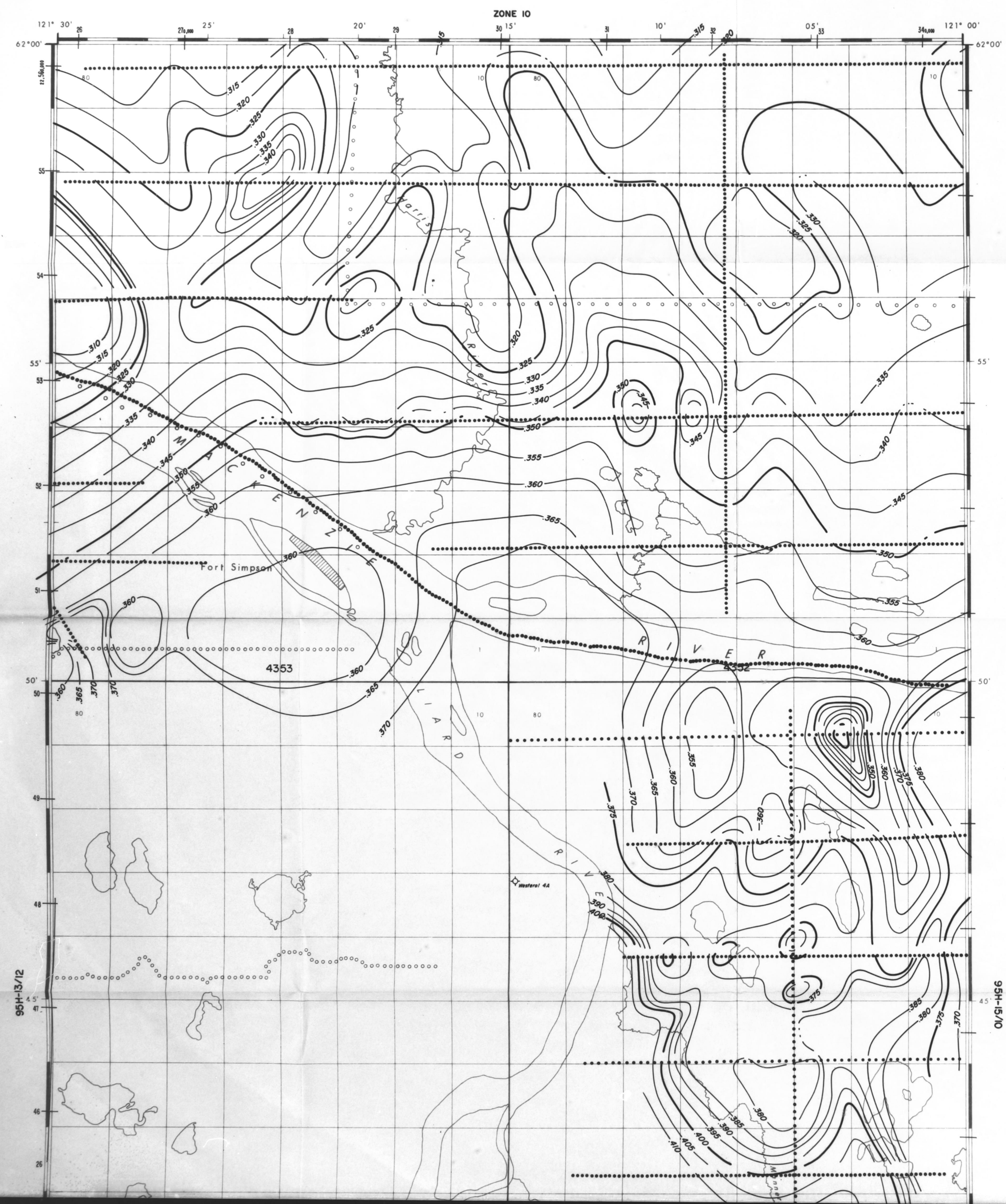
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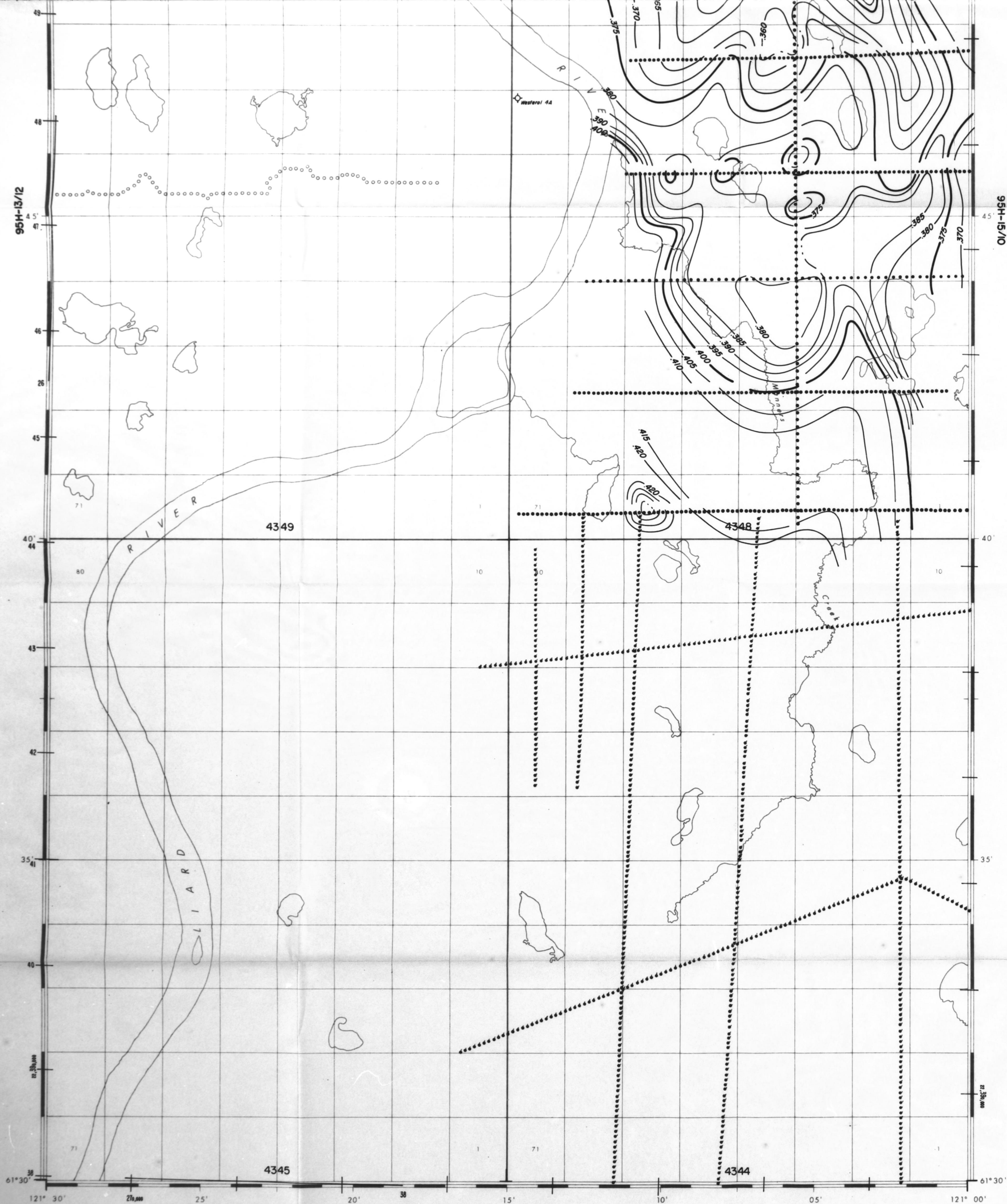
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Values Revised 10/10/68
Contours Revised 10/10/68
Wells Revised 10/10/68

Gp 951-6/3 1 C

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TIME STRUCTURE
HUME
SEISMOGRAPH MAP

Contour Interval .005 SEC
Datum: Plane 1000' Velocity 12,000'/sec

FORT SIMPSON 95 H - 14/11

SCALE 1:50,000
1.25 inches to 1 mile approximately



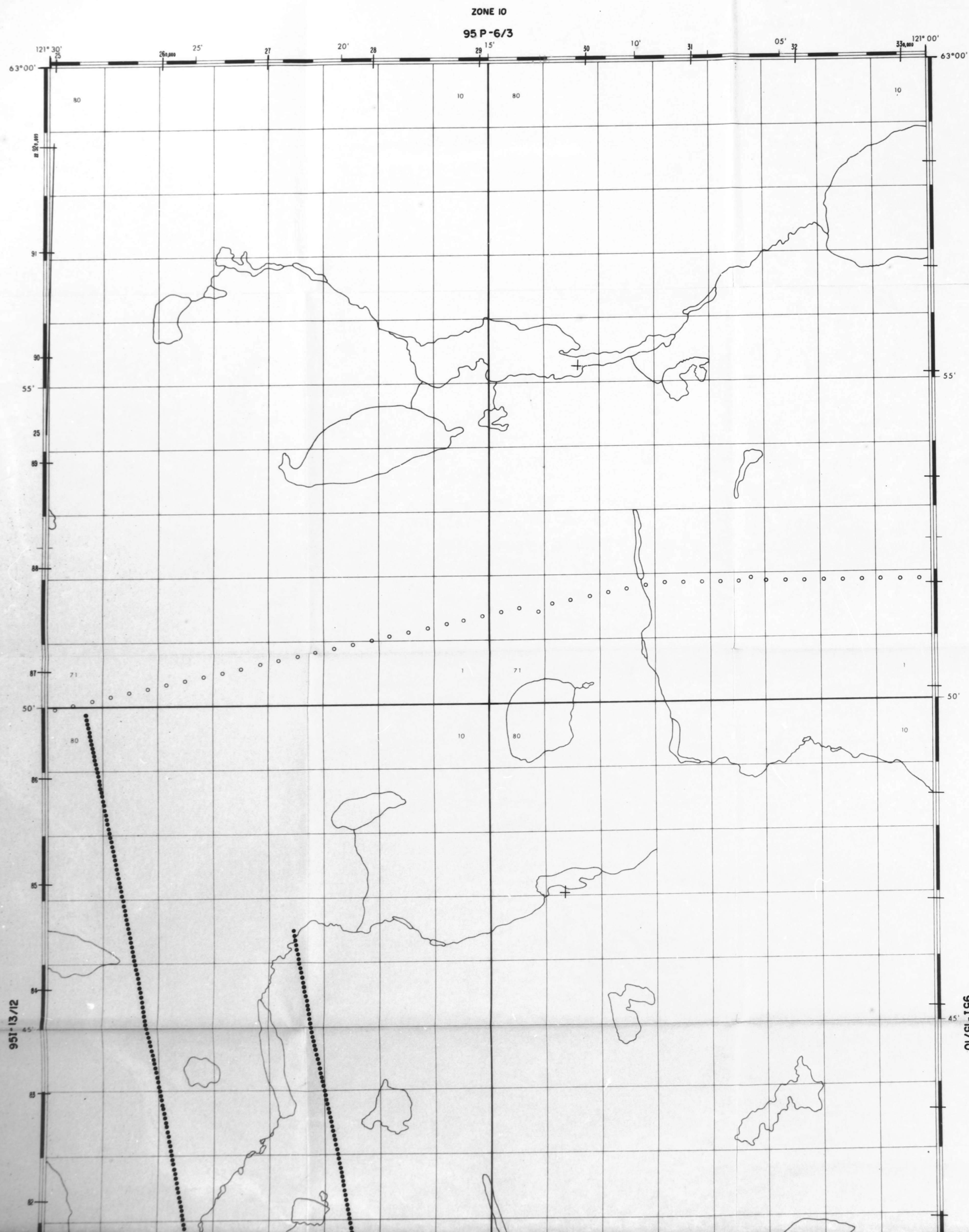
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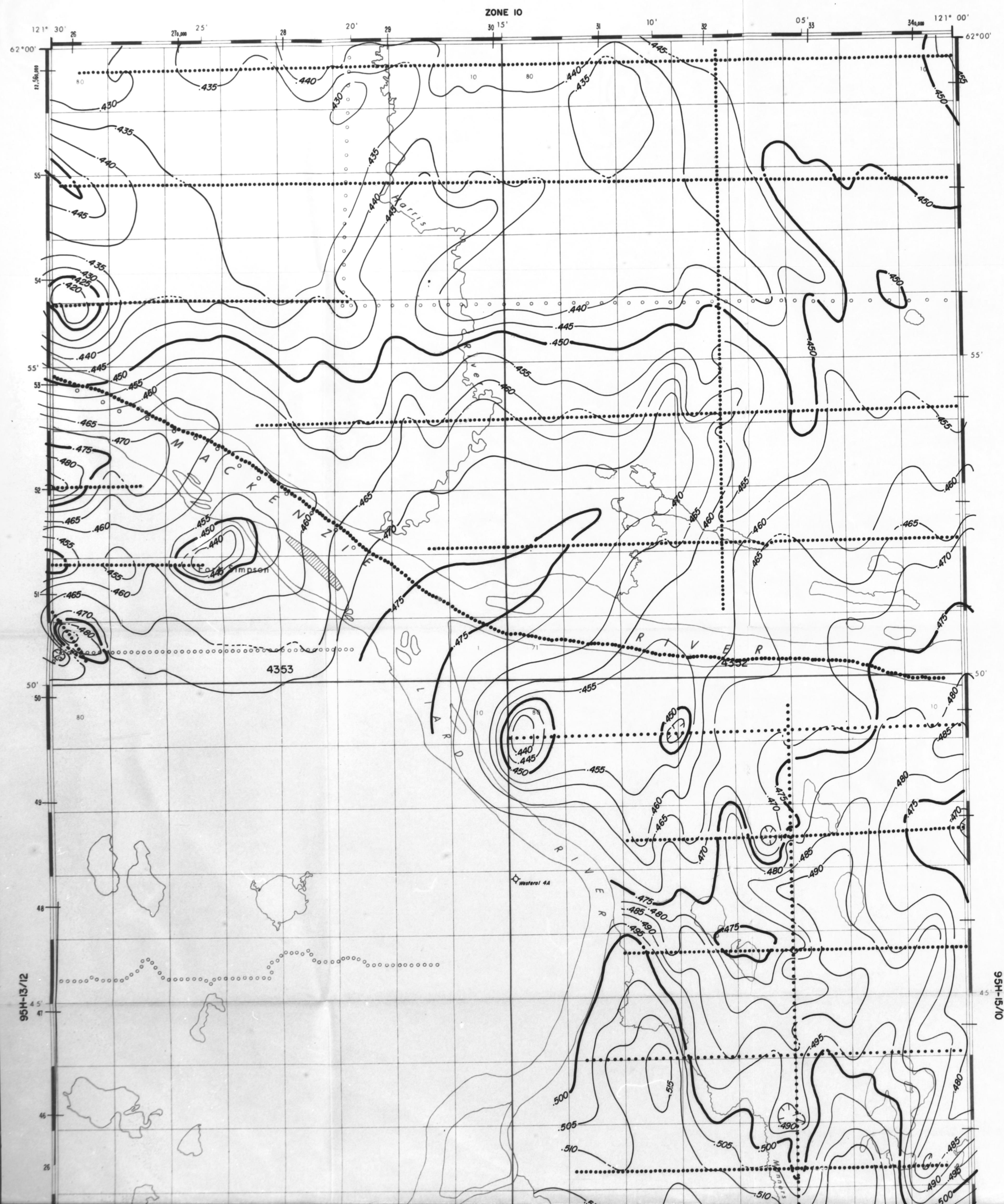
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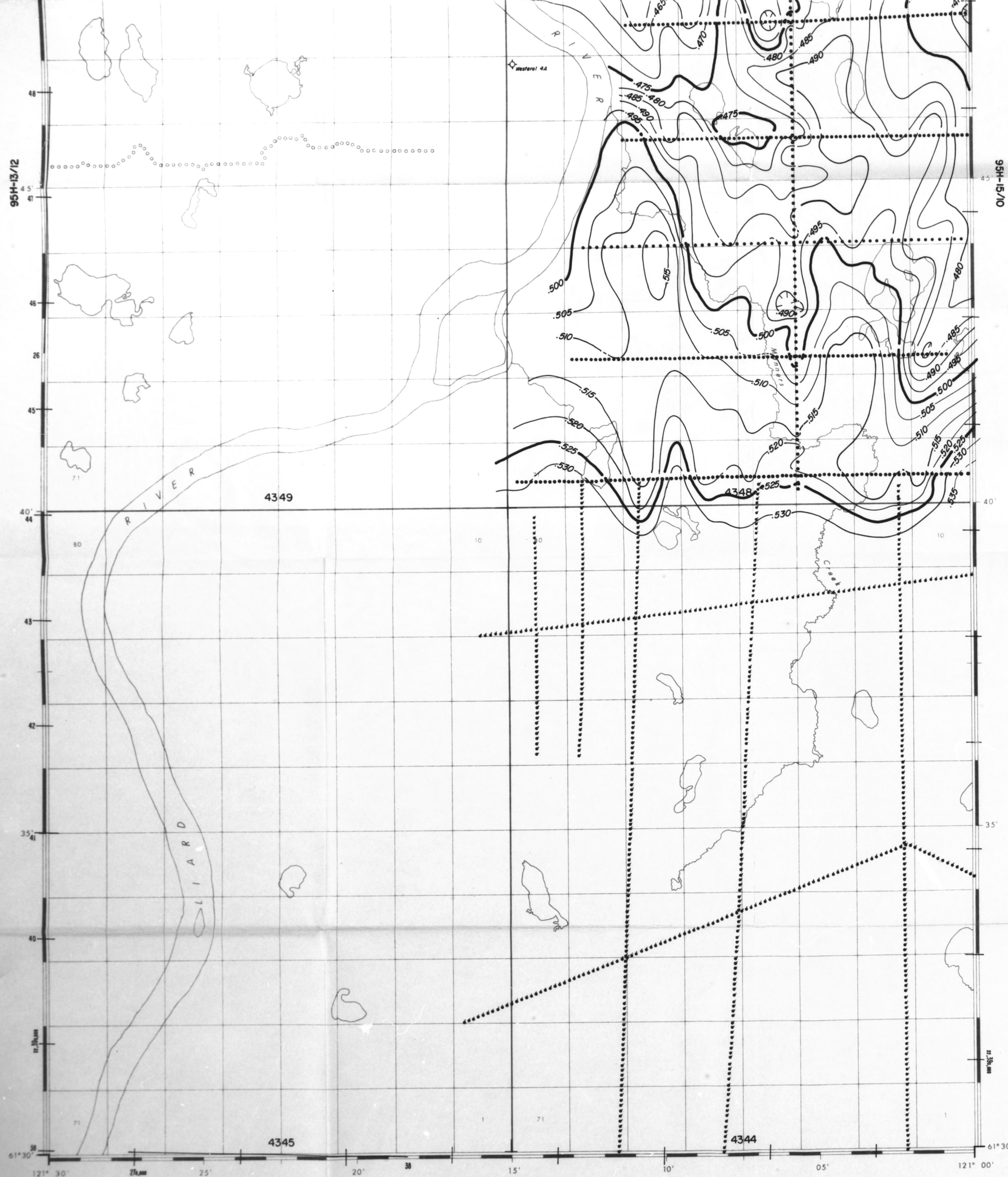
Seismic Revised
Values Revised
Contours Revised
Wells Revised

Gp 95H-14/II 3 C

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TIME STRUCTURE

PRE-DEVONIAN

SEISMOGRAPH MAP

Contour Interval 0.005 SECS
Datums: Plane Velocity

FORT SIMPSON 95 H-14/11

SCALE 1:50,000

1.25 inches to 1 mile approximately



Seismic Revised
Values Revised
Contours Revised
Wells Revised

Gp 95H-14/11 2 V C

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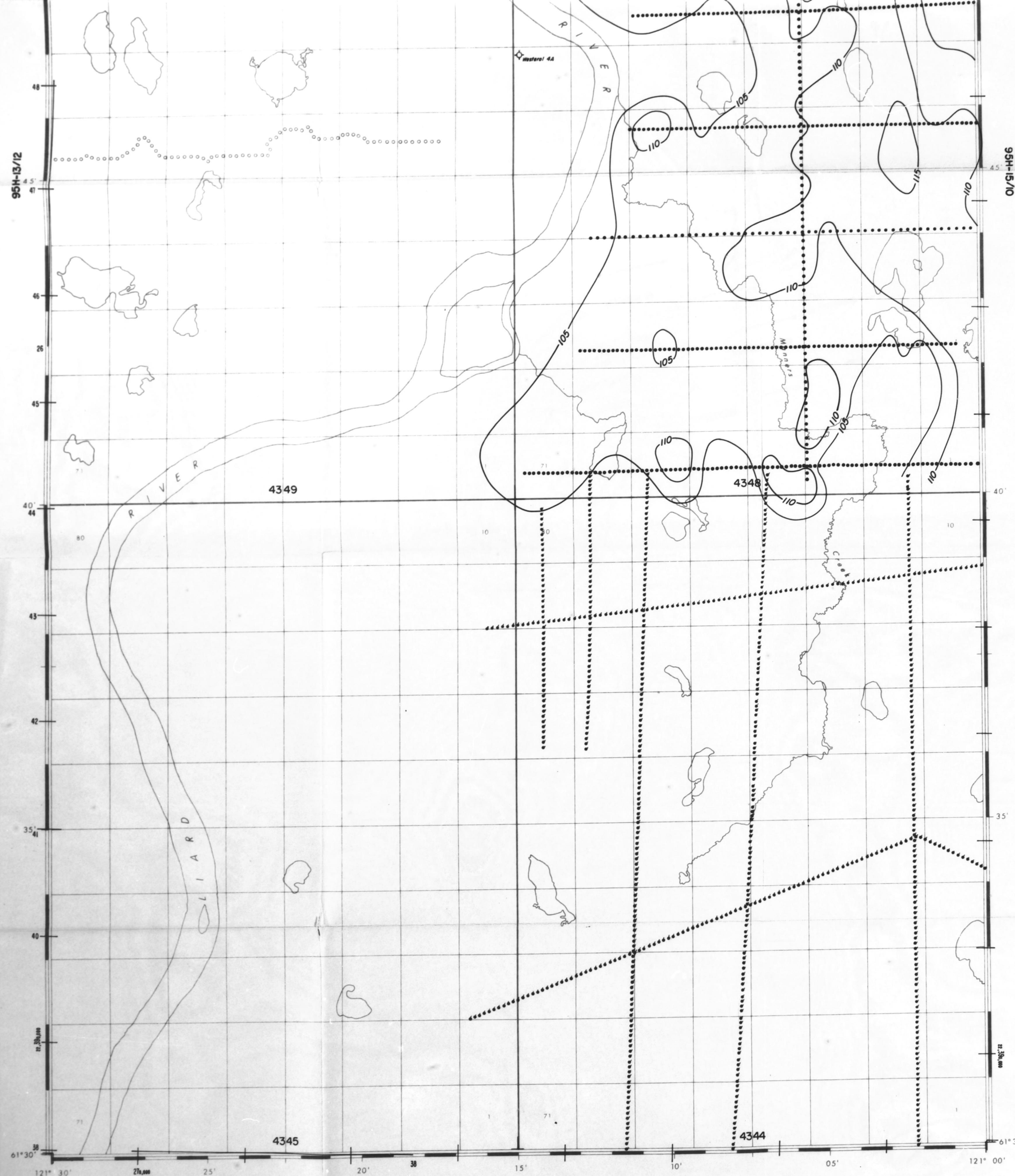
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Transverse Mercator Projection, 6 Zones.



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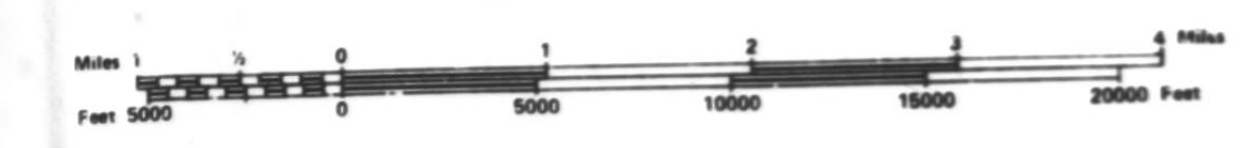
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95L	8/1	5/4	6/3	7/2	8/1	9/4
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ISOCHRON
HUME to PRE-DEVONIAN
SEISMOGRAPH MAP

Contour Interval .005 SEC.
Datums: Plane Velocity

FORT SIMPSON 95 H - 14/11

SCALE 1:50,000
1.25 inches to 1 mile approximately



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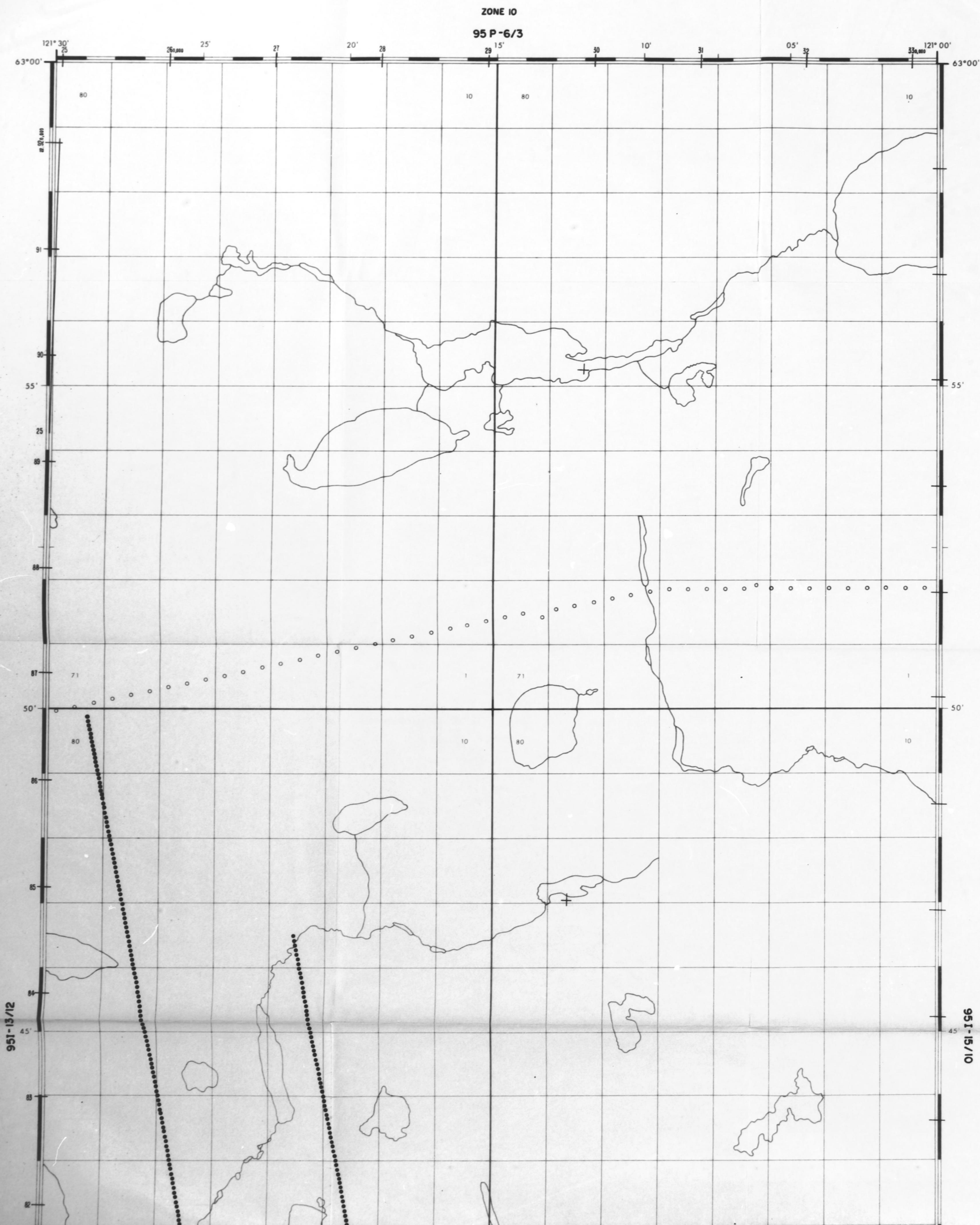
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Universal
Transverse Mercator Projection
(Gauss-Kruger)

Seismic Revised
Values Revised
Contours Revised
Wells Revised

Gp 95H-14/II 1 C

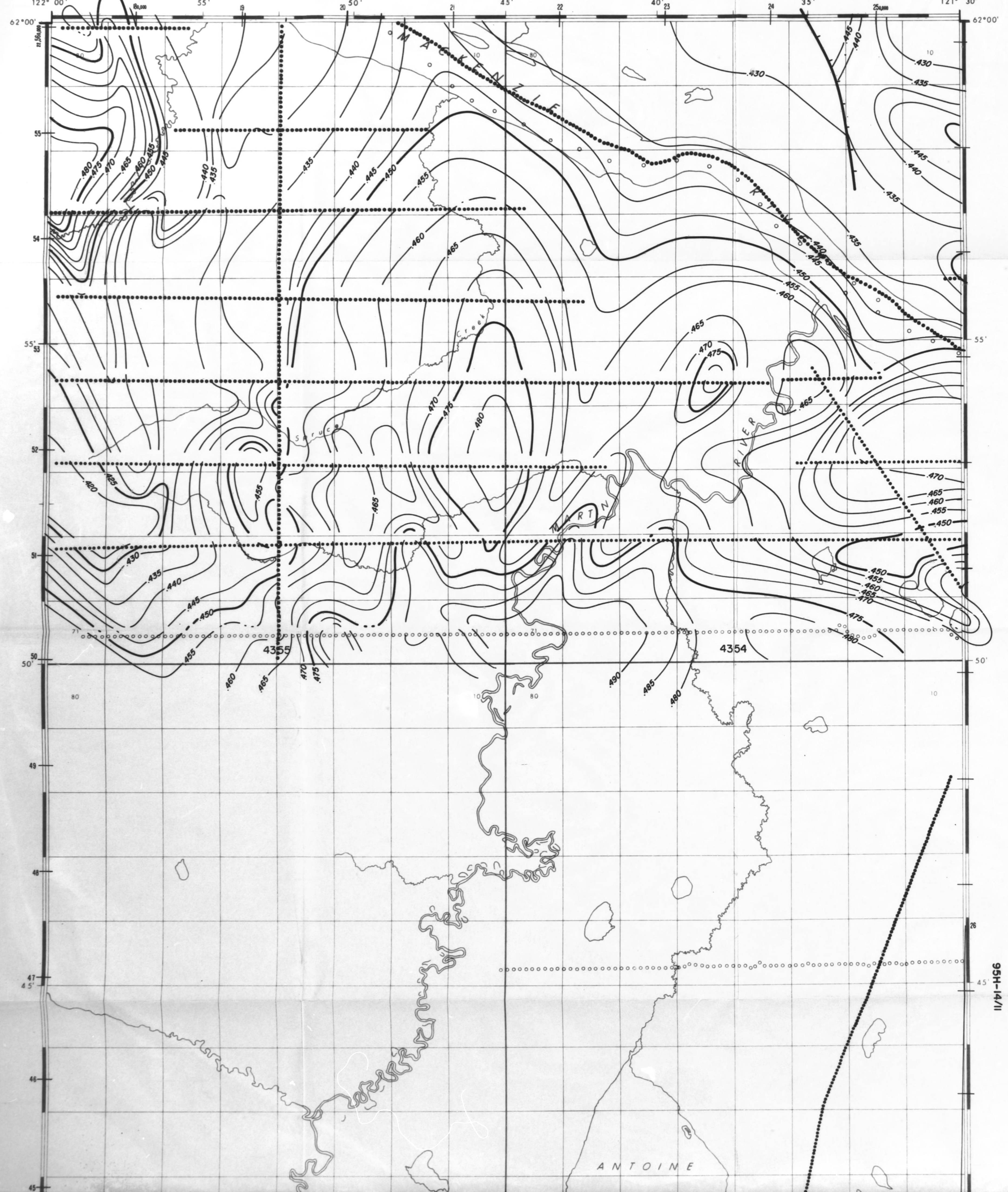
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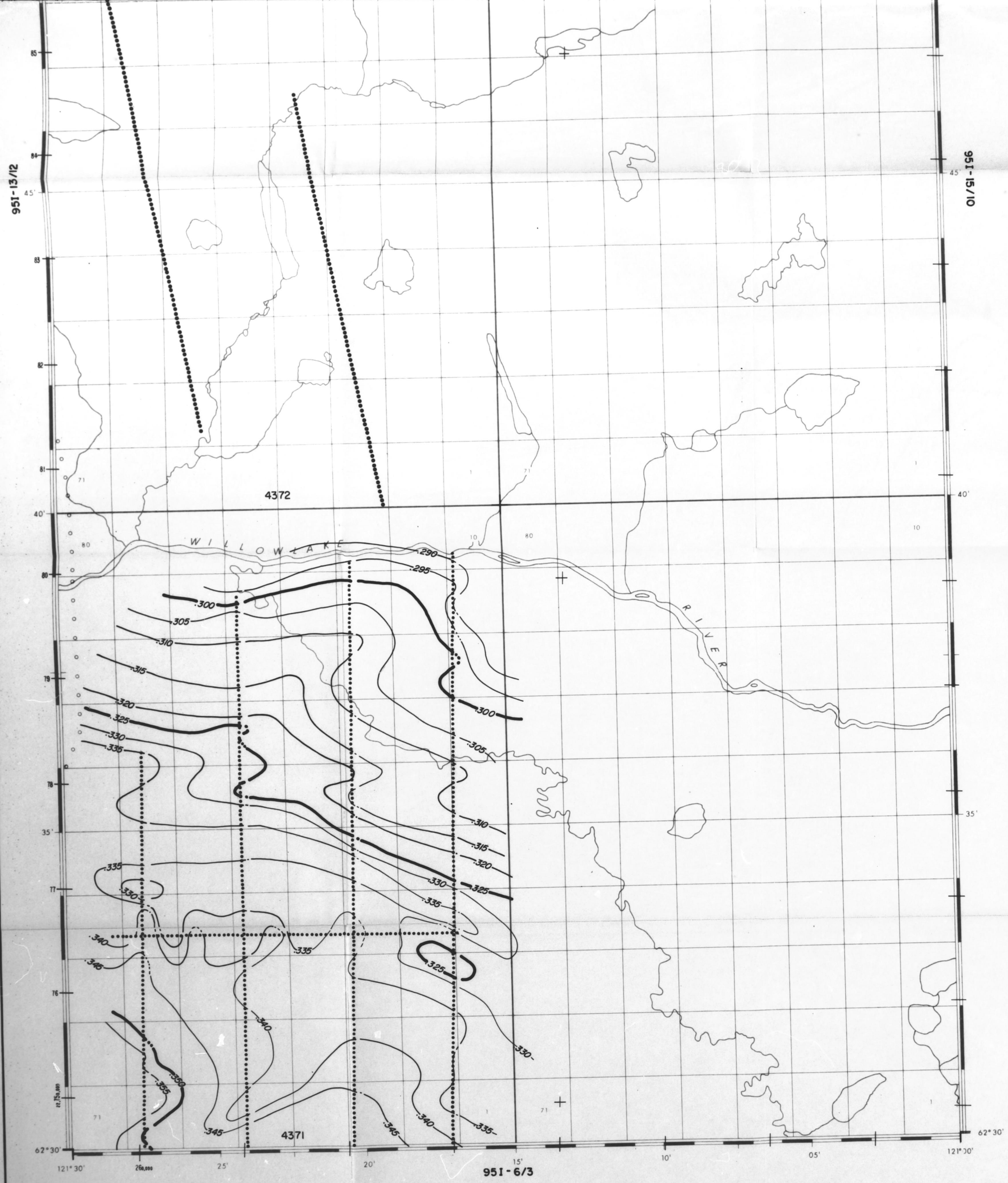
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122° 00' 55' 20' 50' 45' 22' 40' 23' 35' 25' 121° 30' 62° 00'

ZONE 10





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SEISMOGRAPH MAP

Contour Interval 0.005 SECS.
 Datums: Plane Velocity

TIME STRUCTURE
 PRE-DEVONIAN

BULMER LAKE 951-14/11

SCALE 1: 50,000
 1.25 inches to 1 mile approximately



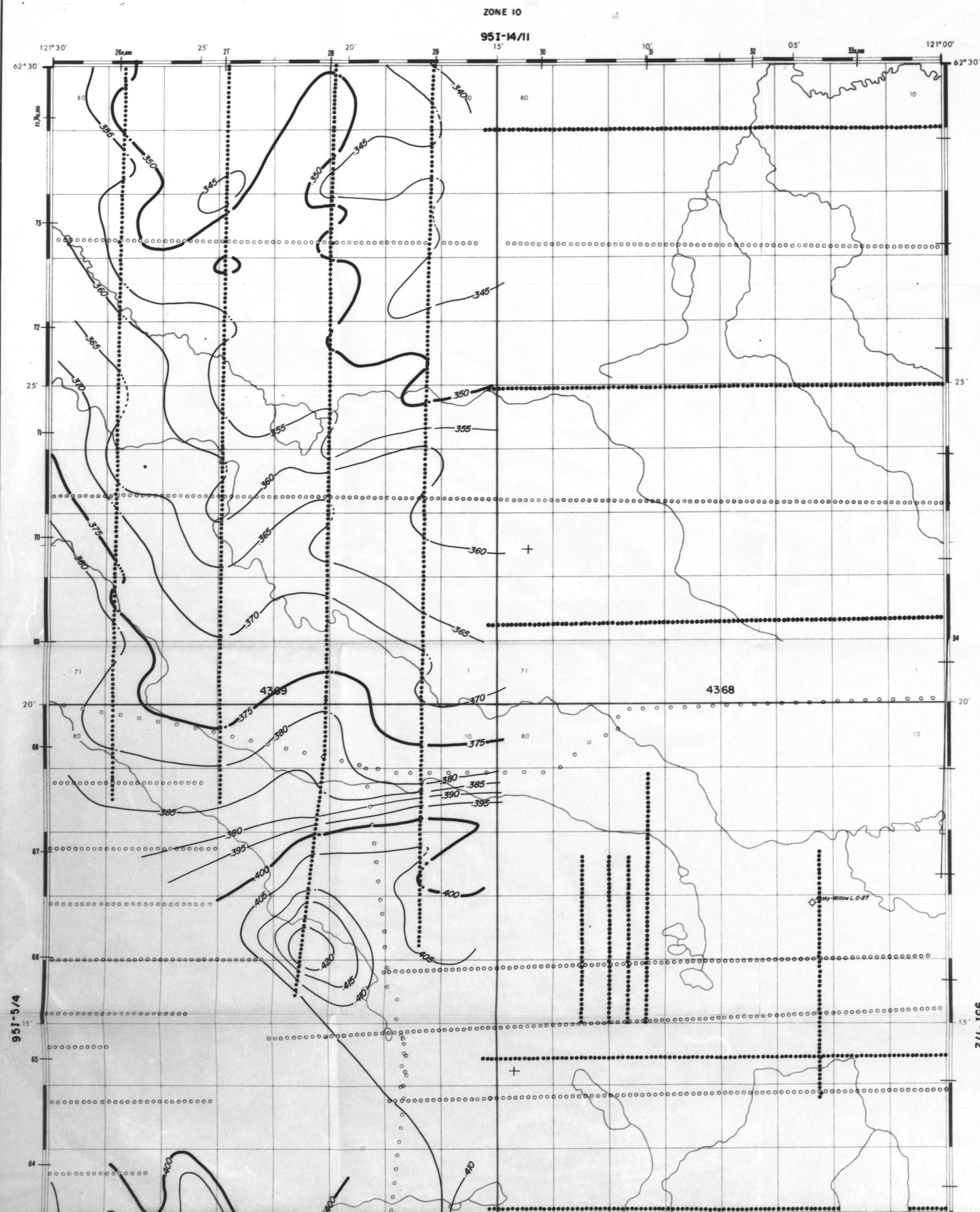
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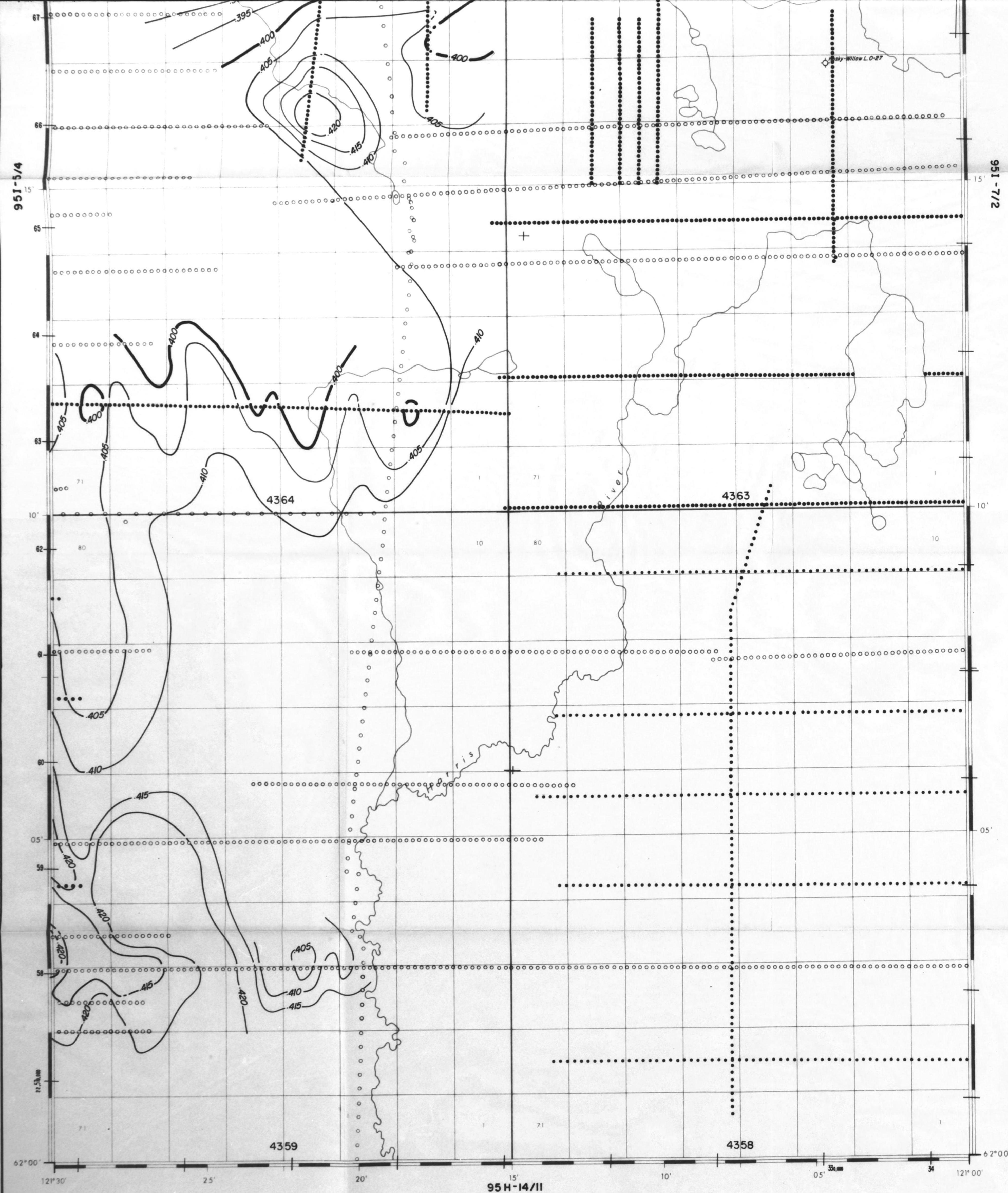
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 10,000 ft. Coordinates, Territorial Plane Coordinate System.
 Transverse Mercator Projection, 6 Zones.

Seismic Revised
 Values Revised
 Contours Revised
 Wells Revised

Gp 951-14/11 3 V C

PROPRIETARY

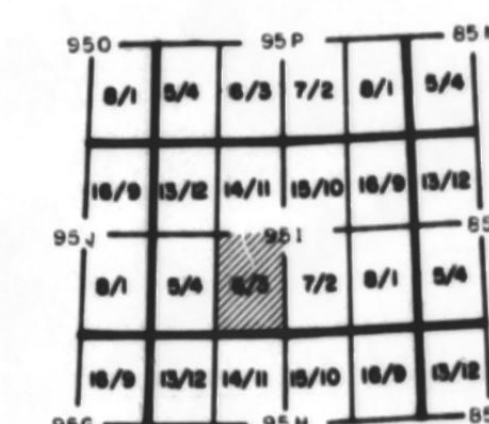




North American Datum 1927
Universal
Transverse Mercator Projection
(Gauss-Kruger)

10,000 ft. Coordinates, Territorial Plane Coordinate System.
Transverse Mercator Projection, 6 Zones.

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SEISMOGRAPH MAP

Contour Interval ----- 0.005 SECS. -----
Datums: Plane ----- Velocity -----

TIME STRUCTURE

PRE-DEVONIAN

BULMER LAKE 951-6/3

SCALE 1 : 50,000

1.25 inches to 1 mile approximately



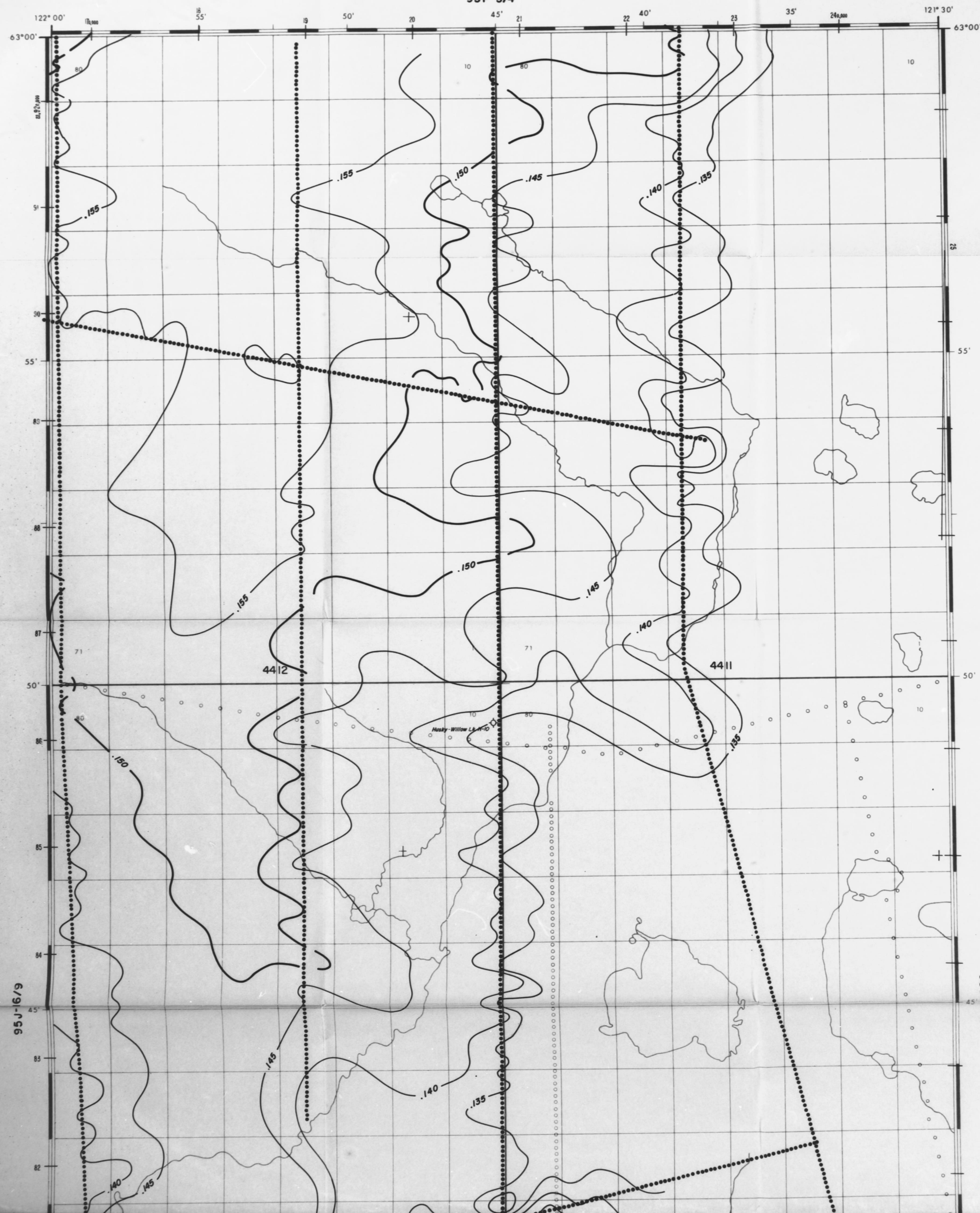
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Values Revised
Contours Revised . . . NOVEMBER 27/70 . . .
Wells Revised Apr. 27, 1970

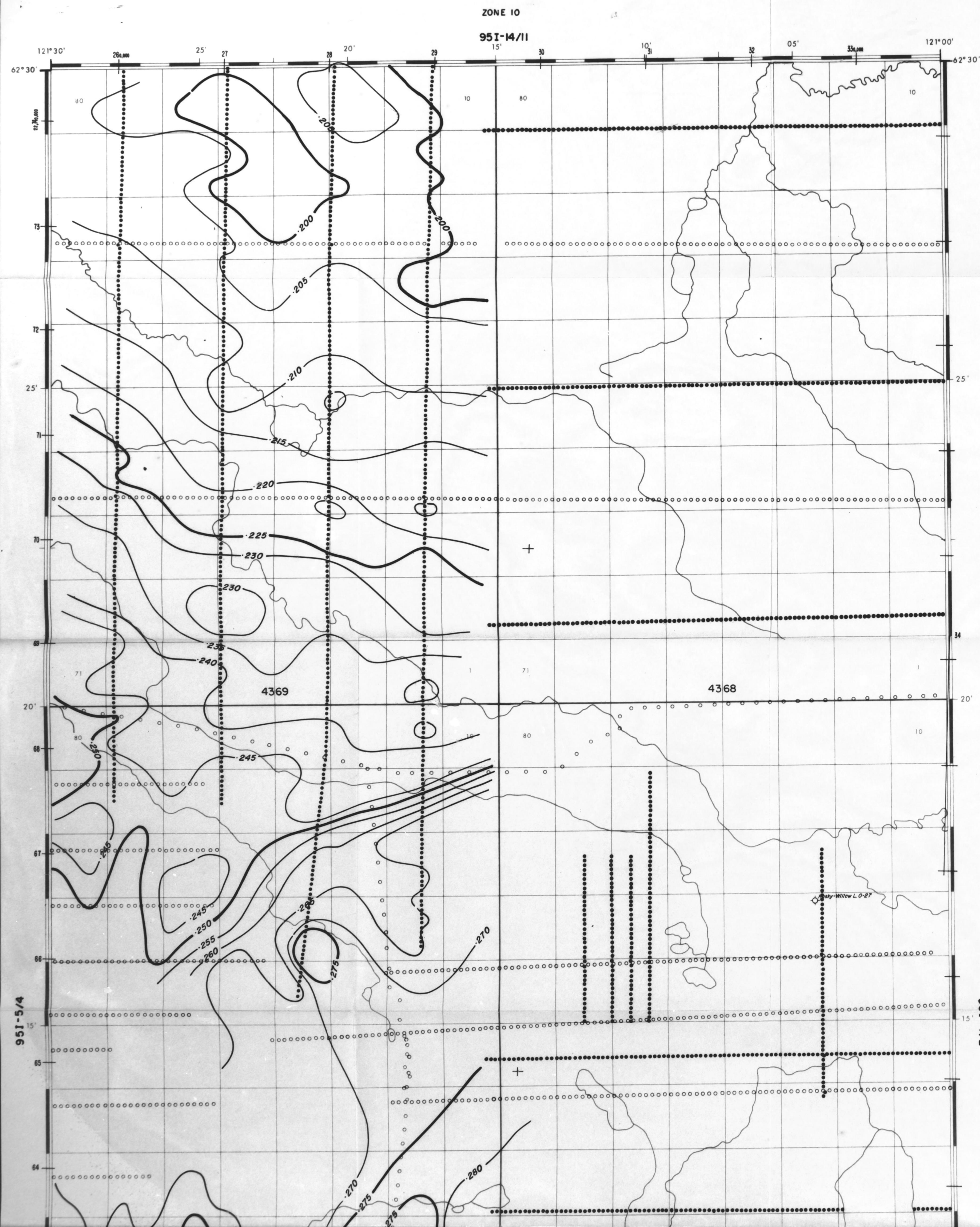
Gp	951-6/3	5	V	C		
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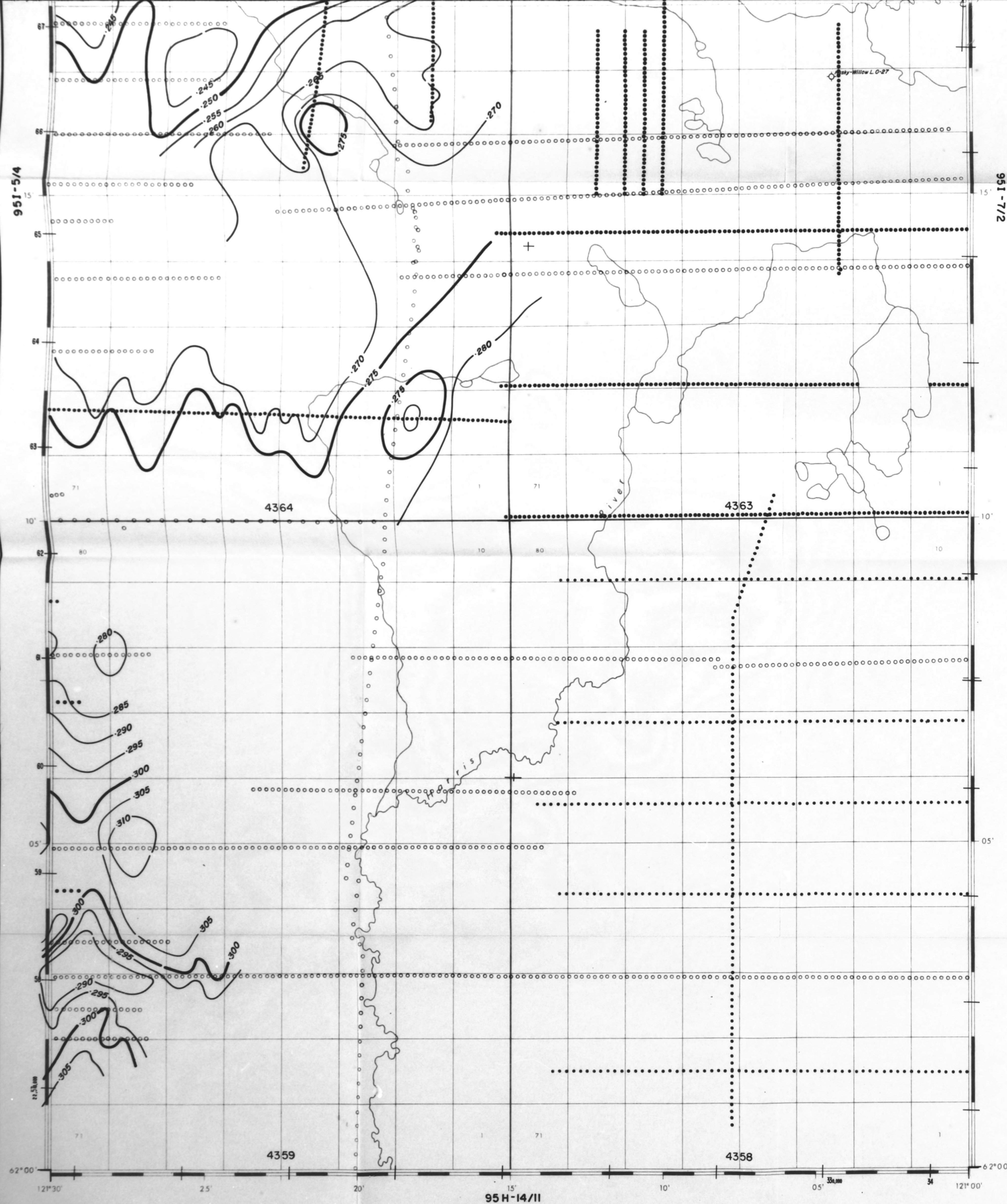
PROPRIETARY

2 of 4

ZONE 10
95P-5/4







INDEX TO MAP SHEETS

950	951	952	953	954	955
6/1	6/2	6/3	6/4	6/5	6/6
6/7	6/8	6/9	6/10	6/11	6/12
6/13	6/14	6/15	6/16	6/17	6/18
6/19	6/20	6/21	6/22	6/23	6/24
6/25	6/26	6/27	6/28	6/29	6/30

SEISMOGRAPH MAP

Contour Interval 005 SECS.
Datum: Plane Velocity

TIME STRUCTURE

HUME

BULMER LAKE 951-6/3

SCALE 1:50,000

1.25 inches to 1 mile approximately



Seismic Revised 10/27/70
Values Revised Nov. 1970
Contours Revised Nov. 1970
Wells Revised Apr. 27, 1970

PROPRIETARY

2 of 2

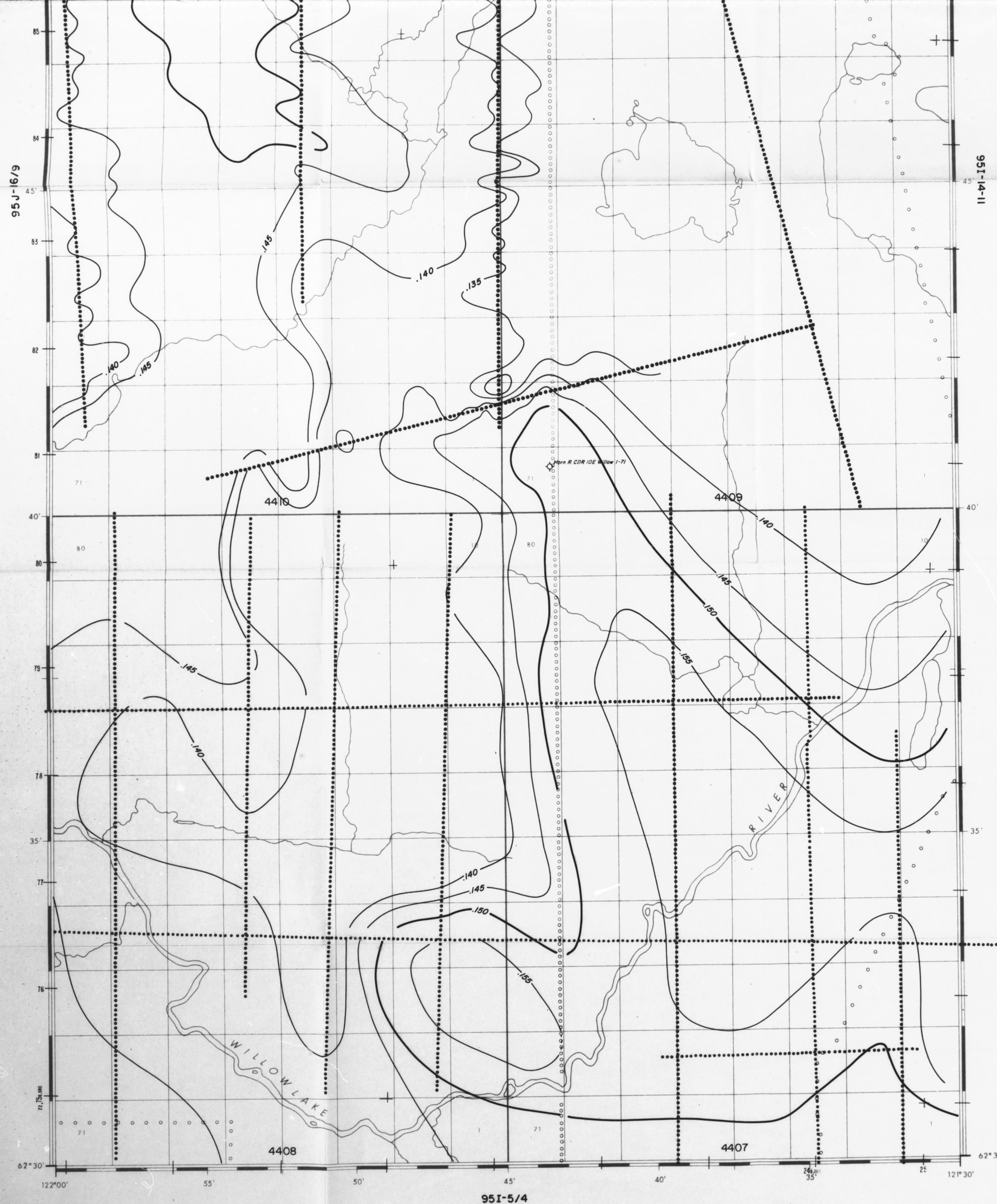
Gp 951-6/3 4 V C

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North American Datum 1927
Universal
Transverse Mercator Projection
(Gauss-Kruger)

10,000 ft. Coordinates, Territorial Plane Coordinate System.
Transverse Mercator Projection, 6 Zones.



North American Datum 1927
Universal
Transverse Mercator Projection
(Gauss-Kruger)

10,000 ft. Coordinates, Territorial Plane Coordinate System.
Transverse Mercator Projection, 6 Zones.

Seismic Revised *JANUARY 2/70*
 Values Revised
 Contours Revised *OCT 7, 1971*
 Wells Revised *MAY 20, 1971*

INDEX TO MAP SHEETS

95.0	8/1	5/4	6/3	7/2	8/1	5/4
95.5	16/9	13/12	14/11	15/10	16/9	13/12
96.0	8/1	5/4	6/3	7/2	8/1	5/4
	16/9	13/12	14/11	15/10	16/9	13/12

SEISMOGRAPH MAP

Contour Interval 0.005 SECS
Datums: Plane _____ Velocity _____

ISOCHRON

HUME to PRE-DEVONIAN

BULMER LAKE 95 1-13/12

SCALE 1 : 50,000

1.25 inches to 1 mile approximately



PROPRIETARY

Gp	95I-13/12	2		C		
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