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Approved by
The United States Navy



SEISMIC REFLECTION REPORT

BRACKETT LAKE

NORTHWEST TERRITORIES

FOR

BANFF OIL LTD.

CONTRACTED BY

COMPAGNIE GENERALE DE GEOPHYSIQUE

FEBRUARY 1969

PERMIT NO'S 5442, 5441, 5652, 5440, 5439, 5438
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5541, 5540

A. J. Blashyn

OCTOBER 20, 1969

Abstracted for
Geo-Science Data Index

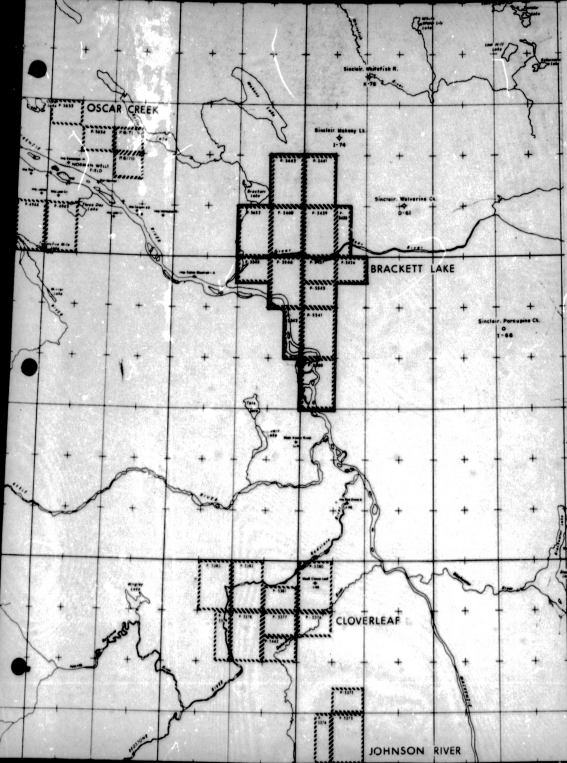
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ENCLOSURES:

Shotpoint Elevation Map
Hume Structure Time
Canol - Hume Isochron



INTRODUCTION

The Brackett Lake prospect is located in the Northwest Territories immediately east of the settlement of Ft. Norman. The prospect area lies within the boundaries of Latitudes $64^{\circ} 30'$ and $65^{\circ} 20'$, Longitudes $124^{\circ} 30'$ and $125^{\circ} 30'$. Field operations, conducted by Compagnie Generale de Geophysique, commenced on February 13, 1969 and were completed on March 1, 1969.

EXPLORATION PROCEDURE

The object of the survey was to acquire some preliminary seismic coverage in the area and to satisfy permit work obligations. The zones of interest in this area are post Hume and upper Ordovician reef developments and structural definition. A 45 mile reconnaissance line was shot along the CNT - Calex road system. Due to the configuration of the road, the line was shot as 100% on the curves and 300% where it was sufficiently rectilinear.

Operations

Field operations were conducted from two campsite locations in an effort to minimize driving times. The crew was serviced by Banff's F-27 aircraft and regular commercial flights to the Norman Wells airfield. Occasional small aircraft charters used the airstrip at Ft. Norman. The wheeled supply vehicle, which was added to the operation at this time, greatly reduced the supply run times to Ft. Norman and Norman Wells.

A detailed operations resume is provided in the Operations Summary.

Data Processing

All structural and data processing computations were prepared by Integrated Seismic Services personnel in Banff's offices under the supervision of the Project Geophysicist. Playback facilities were provided by the Banff Oil Playback centre.

A structure section, corrected to a datum of +500 feet at a datum velocity of 8000'/s, was prepared on the 45 mile line. Effects of the LVL, where applicable, were removed using an uphole-intercept method. The velocity function for NMO corrections was derived from a Δt analysis of the field records. The section was produced as a galvo-VAR display with a playback filter of 15-20-55-60.

RESULTS, CONCLUSIONS & RECOMMENDATIONS

Due to the lack of well velocity control, reflection identifications were based on correlations from the Cloverleaf and Norman Wells areas. The Hume and Canol reflections were identified and correlated throughout the area. Approximate Pre Cambrian and Proterozoic reflections were correlated but not mapped. A strong 1st order Surface to Hume multiple is present over a major portion of the line. With the excessive relief exhibited by the Hume reflection, the multiple varies greatly in its zone of occurrence. The Hume structure time and Canol to Hume isochron maps were prepared and submitted with this report.

The Hume structure map shows the presence of two anomalous structural features. An intrusive diaper feature located between shotpoints G115 and G118 and a fault system between shotpoints G80 and G83.

The diaper exhibits .200 secs. or approximately 1100 feet of displacement on the west flank and .430 secs. or 2365 feet on the east flank at the Hume level. Salt dome characteristics such as the lack of reflections in a homogenous section and onlapping reflectors on the flanks are present.

The fault exhibits approximately .123 secs. or 675 feet of throw at the Hume level.

The Canol to Hume isochron exhibits an anomalous thickening indicative of reef development near shotpoint G70. A good quality dip occurs on the Canol reflection.

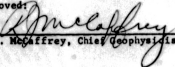
It is recommended that additional work be conducted in the area in the form of a gravity survey to verify the presence and location of salt intrusives; and seismic to delineate the diaper (s) and the post Hume reef lead.

Respectfully submitted,

BANFF OIL LTD.


A. J. Blashyn, P. Eng.
Project Geophysicist

Approved:


R. J. McAffrey, Chief Geophysicist

STRATIGRAPHIC CHART

ERA	PERIOD	WRIGLEY-DAHADINNI RIVER	LIARD PLATEAU— TROUT LAKE	NORTHERN ALBERTA	GREAT SLAVE LAKE
PALEOZOIC	DEVONIAN	UPPER IMPERIAL sh, sh CANOL sh HORN RIVER (More Indian) sh	BESA RIVER sh RUTCH sh, ls TETCHO ls, sh TROUT RIVER sh KAKISA sh, sh MEDANFE sh JAN MICH sh, ls FORT SIMPSON sh, sh MUSKWA sh HORN RIVER sh BESA RIVER sh PINE POINT cor. NAHANNI ls HEADLESS sh, ls FURBER sh, ls AMNICA sh MIRRE sh CAMBRO sh DE LOHME sh	WASAMUN WINTERBURN WOODBEND BEAVERHILL LAKE SLAVE POINT WAYT MTN MUSKWA sh KAGAN sh KEG RIVER CHINCHAGA ls, dol RED BEDS	RUTCH sh, ls TETCHO ls TROUT RIVER ls, sh KAKISA ls REDKNIFE sh, sh, ls TATHUNA sh, sh, sh TWIN UPPER MBR ls FALLS ALEXANDRA ls, sh SCARPMENT M. ls FORT SIMPSON—HAY RIVER sh MUSKWA sh HORN RIVER sh SLAVE POINT WAYT MTN MUSKWA sh KAGAN sh KEG RIVER CHINCHAGA ls, dol RED BEDS
		MIDDLE NAHANNI ls HUME ls HEADLESS sh, ls FURBER sh, ls AMNICA sh MIRRE sh CAMBRO sh DE LOHME sh	NAHANNI ls HEADLESS sh, ls FURBER sh, ls AMNICA sh MIRRE sh CAMBRO sh DE LOHME sh	CHINCHAGA ls, dol RED BEDS	CHINCHAGA ls, dol RED BEDS
		LOWER WHITTAKER ls KINDLE dol FRANKLIN MTL dol	NONDA dol WHITTAKER	CHINCHAGA ls, dol RED BEDS	CHINCHAGA ls, dol RED BEDS
	SILURIAN			CHINCHAGA ls, dol RED BEDS	CHINCHAGA ls, dol RED BEDS
	ORDOVICIAN	UPPER SUNBLOD sh, sh, ls MIDDLE SUNBLOD sh, sh, ls LOWER SUNBLOD sh, sh, ls			
	CAMBRIAN	SALINE RIVER sh, sh, ls MOUNT CAP sh MOUNT CLARK sh, sh, ls LONG LAND sh, sh, ls			
	PRECAMBRIAN	sh, ss, slt, cgl & dol	Sediments, granites and metamorphics	Igneous and metamorphic	Igneous and metamorphic

BANFF OIL LTD.
GEOPHYSICAL OPERATIONS REPORT

AREA Brckett Lake PERIOD FROM February 13, 1969 TO March 1, 1969
 SHOT BY C.G.G. PARTY S-910
 LOCATION Northwest Territories 125° LONG 65° LAT
 OR TWS. REGS. W M

CAMP SITE LOCATION Line 1
 TERRAIN Flat to Rolling Hills

COMMUNICATIONS S.S.B. Radio Intermittent Reception
Phone available from Ft. Norman, Mobile radios.
 ACCESS Calex Road system from Norman Wells.

REMARKS Wheeled supply truck improved operating efficiency.

CREW BASICS

CAMP Banff Porta-Built
 CATERING Foothills - Edmonton
 TYPE OF VEHICLES Track Mounted

SURVEYING

INSTRUMENTS Wilde Theodolite T-0 and T-16
 BENCH MARKS Ft. Norman
 TIES Air Photo Mosaics
 ELEVATIONS HIGH +509 LOW +241

REMARKS Line was shot on Calex Road

BULDOZING

CONTRACTOR Borek Construction - Dawson Creek, B.C.

EQUIPMENT 2-D6 2-D7 Own Camp, 1-ton Supply Truck

PRODUCTION Approximately 9 miles per day

REMARKS Equipment and personnel was adequate to provide an efficient operation.

DRILLING

CONTRACTOR Two-Way Drilling - Calgary

Sedco Drilling - Calgary

EQUIPMENT 2-Conventionals 1-Conventional (Air) Sedco

1-Top Drive

3-Water trucks

PRODUCTION Approximately 2.3 hours per shot-point (120'-180')

REMARKS Drilling efficiency improved. Long drive times restricted better production rate.

SHOT POINT PATTERN DIAGRAM

SPREAD DIAGRAM

PRODUCTION Approximately 1.2 shot-points per hour

REMARKS 300% was shot on straight portions of line
100% was shot on remainder. Data quality very
poor to good - shallow reflectors.

PERSONNEL

SUPERVISOR M.Eidsness
PARTY MANAGER O.Dionne
PARTY CHIEF -
CHIEF COMPUTER -
OBSERVER N.Muscarello
SURVEYOR P.Grisi

INTERPRETATION:

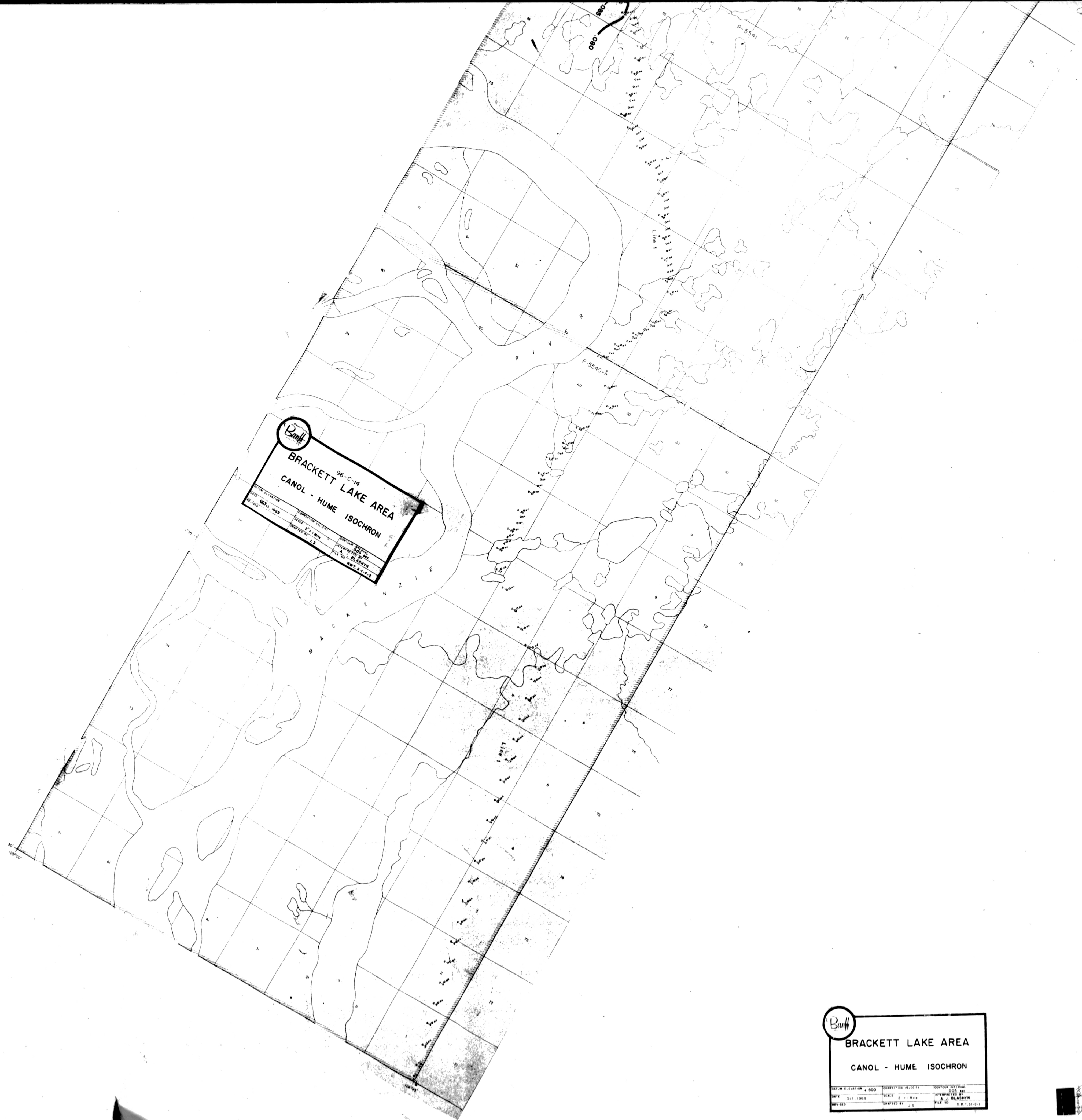
BRACKETT LAKE



A topographic map of the Brackett Lake area. The map features a grid system with numerical labels (e.g., 10, 20, 30, 40, 50, 60, 70, 80, 90, 100) indicating elevation. Contour lines are drawn to show the lake's depth and surrounding terrain. Key labels include "BRACKETT LAKE" in the upper left, "POLICE ISLAND" at the top, and "P-5542" and "P-5541" near the lake's center. A "Bent" symbol is visible in the bottom left corner. The map also shows various smaller islands and shoreline details.

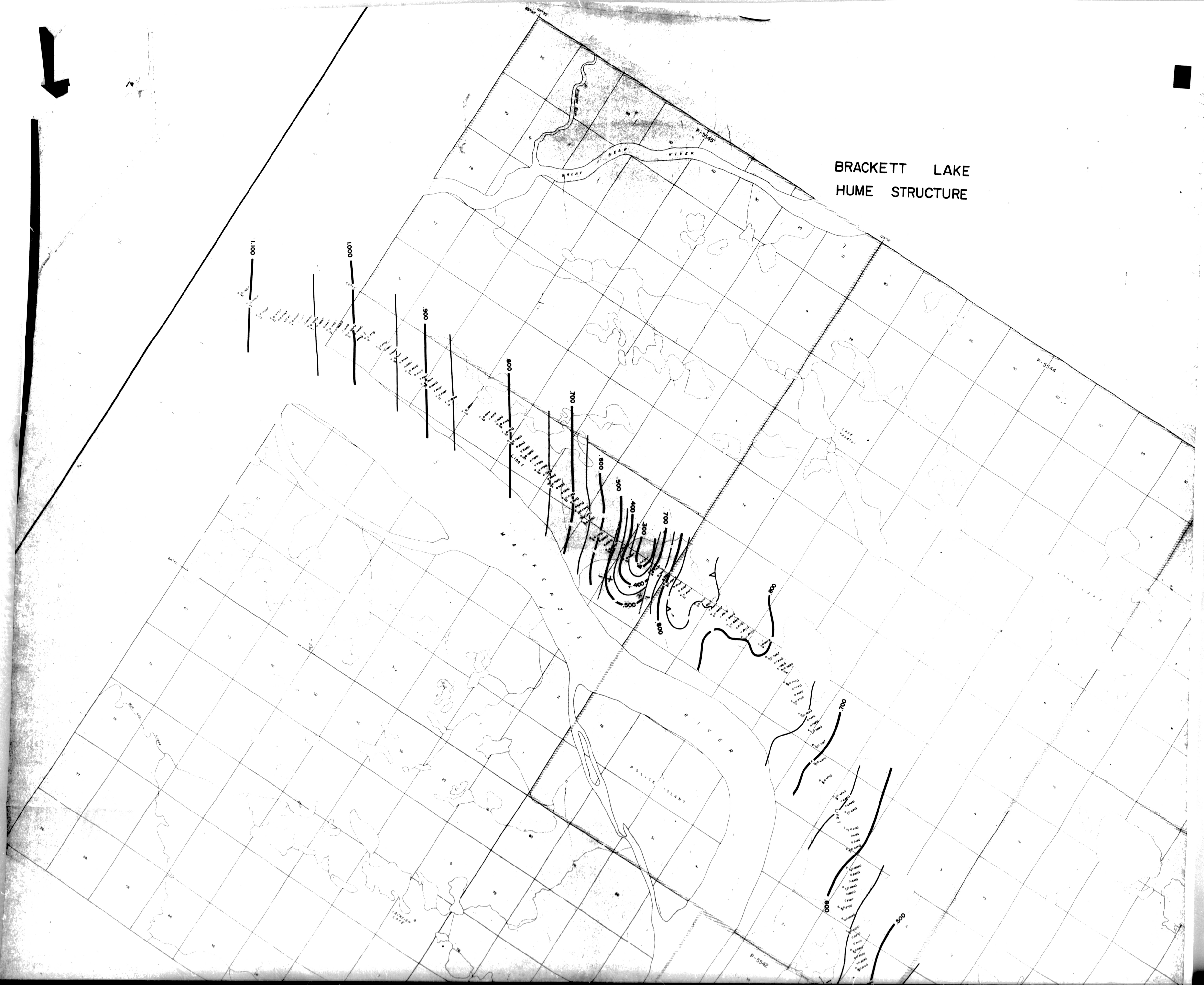
BRACKETT LAKE





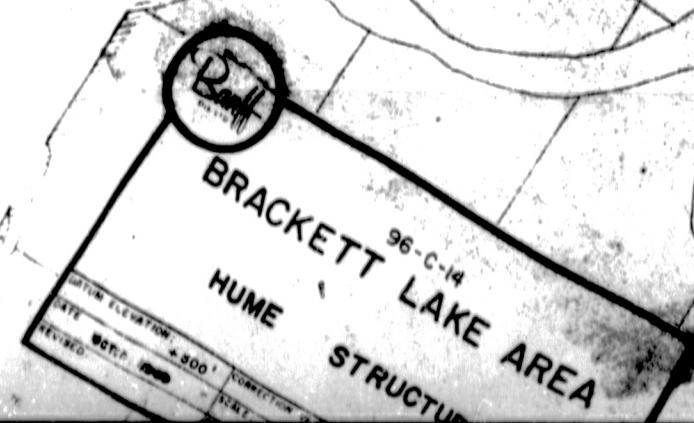
Brackett Lake Area
CANOL - HUME ISOCHRON

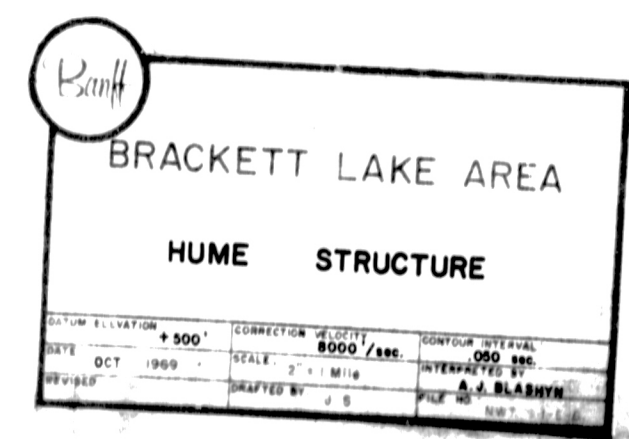
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REVISED		GRAPHED BY	J. S.	FILE NO.	100-1-10-1



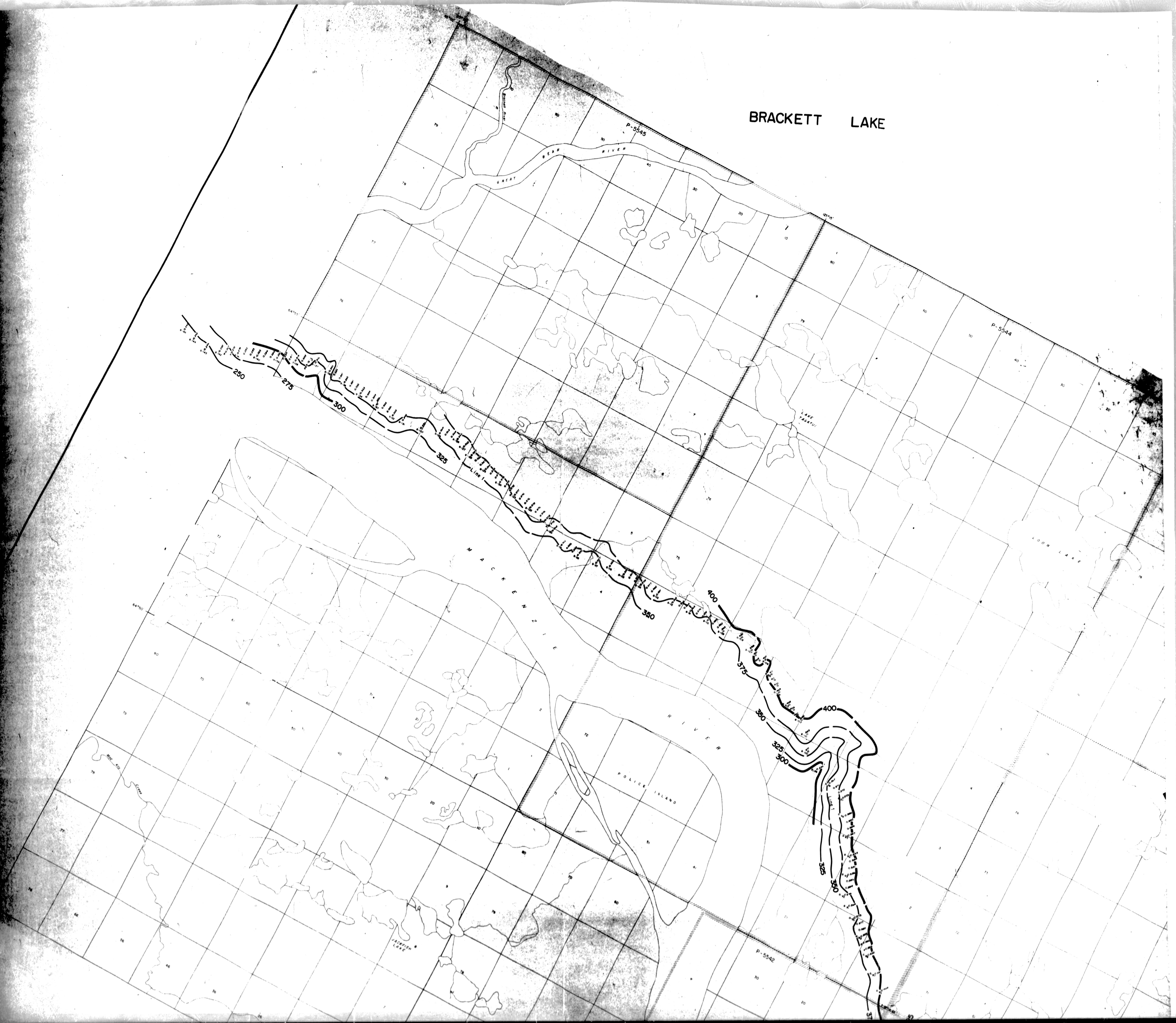
BRACKETT LAKE
HUME STRUCTURE

V. Ave. $\approx 11,000'$ /sec.
.010 $\approx 55'$

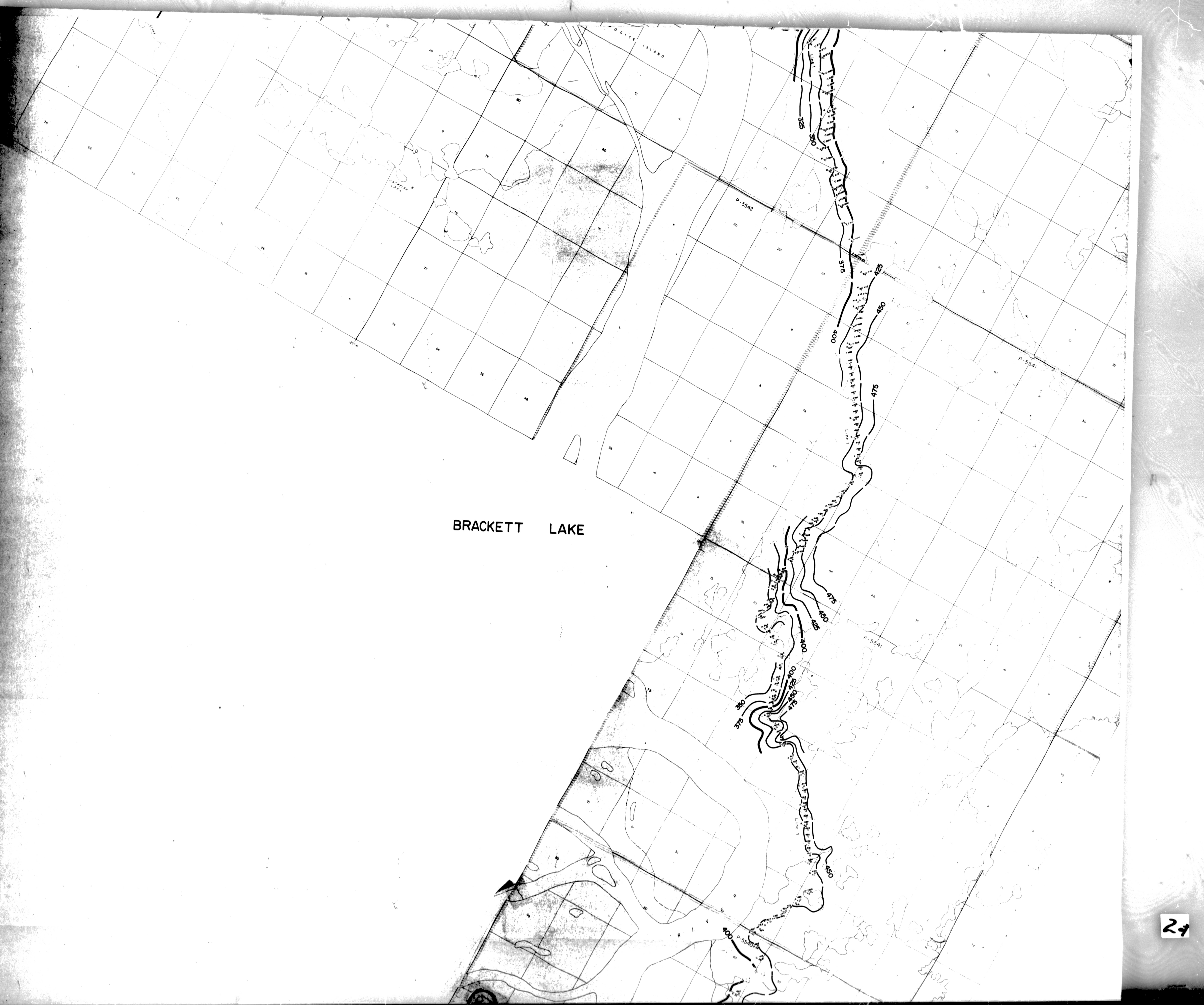




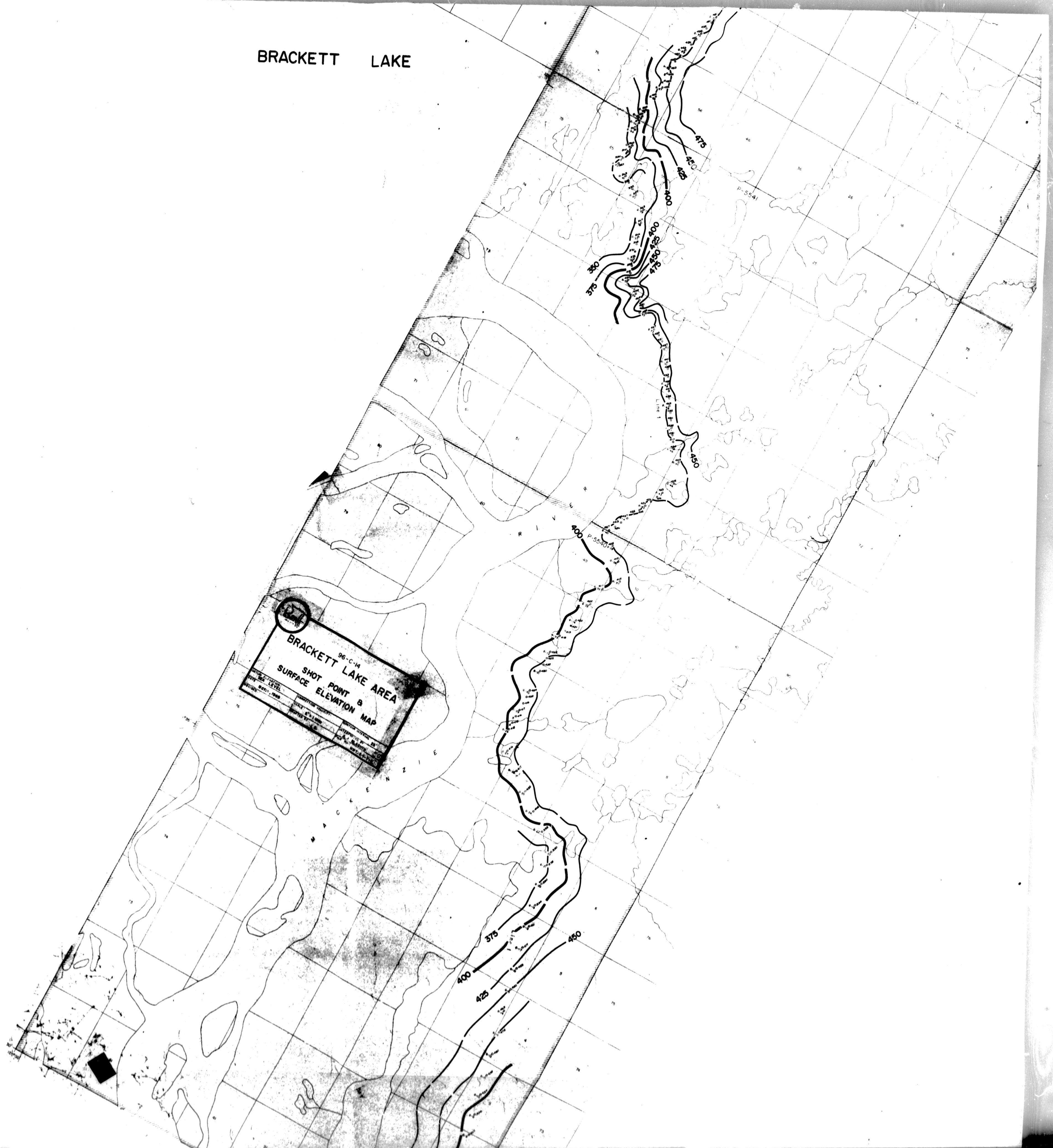
BRACKETT LAKE



BRACKETT LAKE



BRACKETT LAKE





BRACKETT LAKE AREA
SHOT POINT 8
SURFACE ELEVATION MAP
DATE: 1960
BY: J. A. BLASBY
CHECKED BY: J. A. BLASBY
SCALE: 1" = 1000'

BRACKETT LAKE AREA
SHOT POINT 8
SURFACE ELEVATION MAP
DATE: 1960
BY: J. A. BLASBY
CHECKED BY: J. A. BLASBY
SCALE: 1" = 1000'