



31C15NW0032 63.2442 PALMERSTON

010

RADIOMETRIC SURVEY
REXDALE MINES LTD.
PALMERSTON TWP.
JAMES C. BAKER
DEC. 16 / 1968

RADIOMETRIC SURVEY

63-2442

REXDALE MINES LTD.
Palmerston Township
Eastern Ontario Mining Division

INTRODUCTION

At the request of Rexdale Mines Limited, a Gamma Ray Spectrometer Survey was conducted over a select number of claims on the Palmerston Township property of Rexdale Mines.

PROPERTY, LOCATION, ACCESSIBILITY

The property consists of 21 unpatented 50-acre claims, numbered E.O. 36370 to E.O. 36386, inclusive, E.O. 39772, E.O. 39773, E.O. 39775 and E.O. 39196. The maximum dimensions of the claim group is one and five-eighths miles long in a north-south direction and three-eighths miles wide in an east-west direction. It is located in the south central part of Palmerston Township, Eastern Ontario Mining Division, County of Frontenac, Province of Ontario.

The property is readily accessible to highway and railway transportation. The property is approximately 3-1/2 miles west of Mississippi Station on the C.P.R. Railway. A gravel road, #509, proceeds north from Highway #7 for 5 miles and thence west by jeep road to a trapper's cabin. A road has been cut to the southeastern part of the claim group about one and one-half miles to the new camp site on the east part of E.O. 36372. The property is thus about 220 miles from Toronto by road. The nearest large city is Kingston, about 45 miles to the south.

The claim group is wholly owned by Rexdale Mines Limited of Suite 101, 12 Richmond Street East, Toronto, Ontario.

James C. Baker, a geophysical technician of Toronto, Ontario, conducted the survey between the dates of November 12th and November 27th, 1968.

Eleven of the above claims were covered by the Spectrometer Survey. These are numbered E.O. 36370 to E.O. 36378 inclusive, and E.O. 36380 and E.O. 36381.

SCHEDULE OF CLAIMS

| <u>Claim No.</u> | <u>Lot No.</u> | <u>Concession No.</u> |
|------------------|----------------|-----------------------|
| E.O. 36370 | N.E. 1/2 Lot 5 | V |
| E.O. 36371 | S.E. 1/2 Lot 5 | V |
| E.O. 36372 | N.E. 1/2 Lot 4 | V |
| E.O. 36373 | S.E. 1/4 Lot 4 | V |
| E.O. 36374 | N.E. 1/4 Lot 3 | V |
| E.O. 36375 | N.W. 1/4 Lot 5 | V |
| E.O. 36376 | S.W. 1/4 Lot 5 | V |
| E.O. 36377 | N.W. 1/4 Lot 4 | V |
| E.O. 36378 | S.W. 1/4 Lot 4 | V |
| E.O. 36380 | N.E. 1/4 Lot 4 | IV |
| E.O. 36381 | S.E. 1/4 Lot 4 | IV |

GEOLOGY

The O.D.M. geological map No. 1956-4 of the Claredon-Dalhousie-Darling area was used as a reference.

The property is underlain by early Precambrian rocks and is approximately 80 percent outcrop, consisting in the central sector of hornblende-plagioclase schist and biotite-hornblende schist with limited paragneiss. Lenticular pegmatite masses have intruded the above, and strikes in the same north-east direction. This all dips to the south-east at between 30 and 45 degrees.

Claims numbered E.O. 36373 and E.O. 36374 in the south-east consist for the most part of a fine red granite.

The west portion of the group covered in the survey, claims E.O. 36380 and E.O. 36381 are underlain mostly by medium textured granite gneiss with the odd occurrence of pegmatitic lenses. This all has the similar strike and dip of the central sector.

Coarse to medium textured cream coloured crystalline limestone extends for a few hundred feet east and west of the base line from station 9N00 to and beyond line 24N00.

DEVELOPMENT TO DATE

The property was prospected by gieger counter previous to line cutting. One small hand steeled hole 1x2 feet by 6 to 8 inches deep was placed in the north-west corner of claim 36380. This is plotted on the accompanying maps as Zone "D". A bush road has been bulldozed to the lower portion of Zone "B", and terminated at 2E00 line 1S50. An additional bush road has just been cut to the anomaly on line 6N50 at 3W00.

RESULTS AND CONCLUSIONS

With the instrument set a time constant of 2 seconds and setting of 5.0 for uranium, thorium, numerous anomalously radioactive areas were located by the survey. These are plotted on the accompanying maps as Zones "A", "B", "C" and "D".

ZONE "A"

Located on claim E.O. 36375 on lines 18N50 and 21N00 at 11W50 shows an area 500 x 100 feet. The ground between these two pegmatite exposures is overburden covered but is more than likely one continuous body. This area averages 20 C.P.S. for U.,Th with higher counts as plotted.

The average thorium count here is quite low at 2 to 3 C.P.S. Totals varied as the U.,Th content increased.

This area consists of coarse grey-red pegmatite with an amphibolitic contact to the west.

The two smaller anomalies at 9W50 line 16N00 show an even average 6 C.P.S. for U.,Th and a very low thorium content. The dimensions of this pegmatite outcrop are 250 x 50 feet.

ZONE "B"

Detail map number one covers an area from line 3S50 to 8N00 and extends from 5W00 to 2E00. The largest radioactive zone here centres north of line 6N00 at station 3W50. An area of 35 to 40 feet by 10 feet averages 100 C.P.S. for U.,Th. The thorium content is fairly low.

This was pegmatite outcrop 200 x 75 feet. The ground directly to the south is overburden covered but as can be seen by the readings of 3 to 5 C.P.S. for U.,Th., must be pegmatite containing a radioactive content. This should join up with the anomaly on line 3N50 at 3W50 to the south.

While not all the pegmatite dykes on the property were significantly radioactive, but wherever one was encountered readings of 3 to 5 C.P.S. were observed on approaching these zones. Minute detail readings were taken surrounding anything of 4 to 5 C.P.S. Not all of these readings have been plotted as they were in the 1 to 2 C.P.S. range.

This therefore gives the above two anomalous zones a connected area of 550 x 60 to 75 feet.

No samples as yet have been taken from this area, but systematic sampling has now been started.

DETAIL MAP NO. 2

As a considerable area of high counts was encountered in pegmatite lenses in amphibolite, detailed work was done on this, but as can be seen on the accompanying map are highly erratic and widespread.

ZONE "C"

Located centrally on line 9S00 at 13W00. This is for the most part coarse to medium textured pegmatite with granite phases averaging 4 to 6 C.P.S. in U.,Th. The main concentration of radioactivity covers an area 600 x 50 feet with highs of 50 to 80 C.P.S. for U.,Th. It appears to be a large low grade zone, 400 feet wide by 700 feet long, extending north-south through lines 6S00, 9S00 and 12S00.

ZONE "D"

Located on claim E.O. 36380 in the extreme north-west corner. Three areas are outlined here with the most important one, assay-wise at 47W00 along a projected imaginary line across a large beaver pond. Dimensions are 75 x 20 feet with a high count of 400 U.,Th. C.P.S. Two assays from this are:

| | |
|-------------------|--------------|
| #1 - U.308 - 0.06 | Th02 - trace |
| #2 - U.308 - 1.02 | Th02 - 0.25 |

These assays are taken from a geological report submitted to Rexdale Mines Ltd. by J. C. Honsberger of Agincourt, Ontario.

The zone 400 feet south-east of here is 350 x 25 to 50 feet and is again pegmatite and the boundaries quite distinct in a drop off to 1 and 2 C.P.S. U.,Th.

The portion of the Rexdale Mines holdings completed in the survey has disclosed numerous radioactive anomalies over a widespread area. The dimensions as shown are quite large in some instances, and as stated, the overburden-covered areas surrounding Zones "A" and "B" could enlarge these.

Preliminary assays from Zone "D" show this as ore grade material, and was taken from one small surface blasted area one foot by two feet by six to eight inches deep.

It is clearly indicated extensive rock excavation, diamond drilling and sampling should be carried out to further assess the property.

INSTRUMENT DATA AND SURVEY METHOD

The instrument employed in the survey was a GIS-2 gamma ray integrating spectrometer manufactured by Sharpe Instruments, a division of Scintrex Limited of Downsview, Ontario. This instrument is a fully transistorized sensitive scintillation counter. The circuitry is such that gamma ray energy discrimination is possible, enabling the geophysicist to distinguish readily between uranium, thorium and potassium anomalies. For an excellent detailed description of the instrument, the reader is referred to the publication "Gamma Ray Integrating Spectrometer, GIS-2" dated May 2nd, 1967 and printed by Scintrex Limited. The detailed specifications of this instrument are, however, included in this report.

PRINCIPLES INVOLVED IN THE SURVEY

Three forms of radiation emanate from naturally occurring elements:

- (a) Alpha particles - which have the range of the order of one inch in air and are of little significance in prospecting;
- (b) Beta particles - which may have a range of the order of one foot in air;
- (c) Gamma rays - which may be detected up to several hundred feet through air or even a thousand feet or more from strong sources.

Gamma radiation, therefore, is the one particular type of radiation that is of use in both ground and aerial prospecting for radioactive minerals because it is the only one that can be measured at a reasonable distance from the source. Gamma rays are similar to X-rays but are shorter in wave-length and have more penetrating power. Penetration is definitely limited, however, and a strong radioactive source suspended in water to a depth of 5 ft. can barely be detected at the surface; likewise a cover of rock or dense clay two or three feet thick will blanket out the radiation.

With the threshold control on the GIS-2 set to 0.90 nearly all gamma rays are counted. In addition to Uranium (U) and Thorium (Th), the measurement includes gamma rays from Potassium (K), cosmic and fall-out radiation and Compton-scattered radiation. At a setting of 5.00,

the instrument detects gamma rays which are due almost entirely to U and Th, avoiding the problem of spurious K and fall-out anomalies, without any loss of sensitivity.

Similarly with the setting at 7.65, nearly all the gamma rays detected by the instrument are those which are attributable to Th.

DETAIL SPECIFICATIONS

- DETECTOR: 2" x 2" sodium iodide crystal and photomultiplier. Larger crystals are available on special order.
- HIGH VOLTAGE SUPPLY: Regulated electronic supply, nominally 1000 volts. Regulation: 0.25%.
- RATEMETER: Ranges: 10 - 30 - 100 - 300 - 1000 - 3000 - 10,000 CPS. Accuracy: 5% of f.s. Battery Test Function.
- METER TIME CONSTANT: 2, 8 and 16 seconds.
- CALIBRATION: A calibration source is supplied.
- TEMP. RANGE: -40°C to +55°C.
- AUDIO OUTPUT: To single integral speaker. On/Off switch.
- RECORDER OUTPUT: Provides 1 Ma. output to 1400 ohms recorder. Time constant nominally 0.2 sec. Longer time constants can be obtained by adding capacitors across recorder.
- POWER SUPPLY: 12 size C flashlight type batteries, plus 2 pen cells. Regulated to 2%. D size packs are available for longer battery life expectancy.
- BATTERY LIFE: C size battery pack: three 8 hour working days. D size battery pack: nine 8 hour working days.
- DIMENSIONS & WEIGHTS: Probe: 10" x 5" x 3½", 4 lbs.
Measuring Unit: 6" x 6-3/4" x 3-5/8", 3 lbs.
Battery Packs: C size - 6½" x 3½" x 2", 2 lbs.
D size - 8" x 5" x 2½", 3.8 lbs.

SURVEY DATA

A base line was turned off starting at the south-west corner of claim 36374 at a bearing of 349 degrees and extended north for 4600 feet. Picket lines were turned off at right angles to the base line at 300 foot intervals and extended to the boundaries of this upper portion of the claim group. Lines in between these were turned off at 50 foot intervals, for 500 feet west and 200 feet east.

Truement readings were taken at the chained 50 foot intervals and where anomalous conditions were encountered, check readings of from 5 to 10 foot intervals for 150 feet north and south of the lines. The 5 and 10 foot interval also applies to the lines themselves.

A total of 26.8 miles of lines were picketed and 2,600 stations covered in the survey.

James C. Baker

James C. Baker

ASSESSMENT WORK BREAKDOWN

| <u>Line Cutting & Picketing</u> | <u>Date</u> | (8 Hour) <u>Man Days</u> |
|-------------------------------------|---------------------------|-----------------------------|
| D. Riddell - Claredon, Ont. | Oct. 1-25/68 incl. | 25 |
| S. Cook - Claredon, Ont. | " " " | 25 |
| G. Boles - Claredon, Ont. | " " " | 25 |
| C. W. Ayrhart. Campbellford, Ont. | " " " | 25 |
| Same Personnel | Nov. 4-15/68 incl. 12x1½= | 48 |
| <u>Instrument Operator</u> | | |
| J. C. Baker, Toronto, Ont. | Nov. 12-27/68 incl. | 16 |
| <u>Assistant</u> | | |
| H. Ayrhart, Campbellford, Ont. | Nov. 12-27/68 incl. | 16 |
| <u>Consultant</u> | | |
| J. C. Honsberger, Agincourt, Ont. | | ½ |
| <u>Draftsman</u> | | |
| J. C. Baker, Toronto, Ont. | Dec. 2-7/68 incl. | 6 |
| <u>Office Work</u> | | |
| J. C. Baker, Toronto, Ont. | Dec. 9, 10, 30/68 | 3 |
| <u>Typing</u> | | |
| H. E. McIntosh, Toronto, Ont. | Dec. 16/68 | ½ |
| | TOTAL | <u>190</u> |

South Canoto Twp.

THE TOWNSHIP OF PALMERSTON COUNTY OF FRONTENAC EASTERN ONTARIO MINING DIVISION

SCALE 1-INCH = 40 CHAIN

LEGEND

- PATENTED LAND CROWN LAND SALE LEASES LOCATED LAND LICENSE OF OCCUPATION MINING RIGHTS ONLY SURFACE RIGHTS ONLY ROADS IMPROVED ROADS KINGS HIGHWAYS RAILWAYS POWER LINES MARSH OR MUSKEG MINES

NOTES

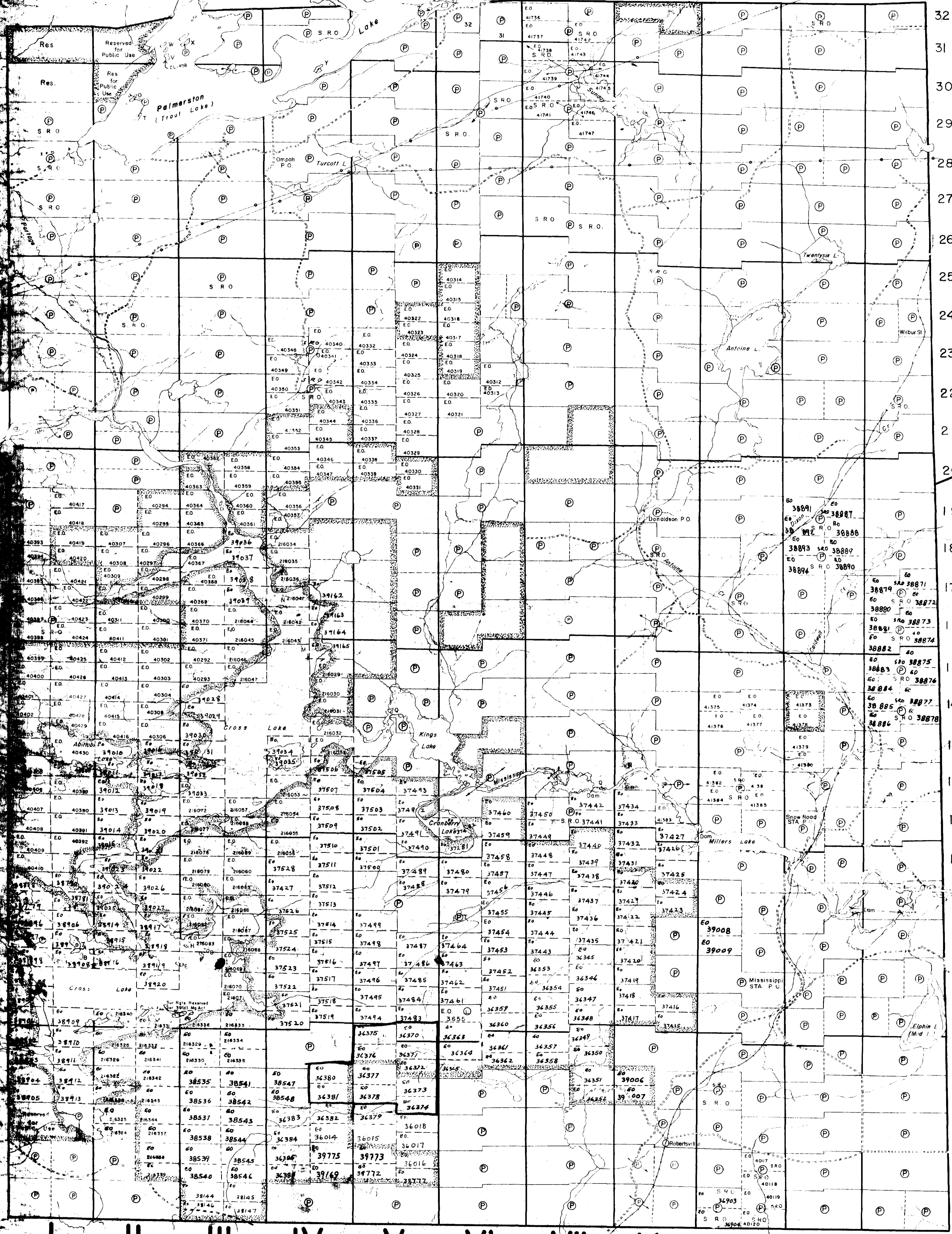
400' Surface rights reservation... Original shoreline shown thus... Eastern Forest Reserve shown thus... Flooding rights in Cross Lake reserved to elevation 110.5'...

This Map Is Not To Be Used FOR SURVEY PURPOSES



Lavant Twp.

North Sherbrooke Twp.



32 31 30 29 28 27 26 25 24 23 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1

I II III IV V VI VII VIII IX X XI

den Twp.

Oso Twp.

PLAN NO-M.139

DEPARTMENT OF MI - ONTARIO -

