



INTRODUCTION

This report describes a Magnetometer Survey which was conducted by Tri-J Mineral Surveys Limited, 58 Crawford Street, South Porcupine, Ontario, on behalf of Ralph E. Allerston, 322 Elm Street North, Timmins, Ontario, the recorded holder of the property surveyed, which consists of the following contiguous, unpatented mining claims in the west central part of Shaw Township, Porcupine Mining Division, Ontario:

- |         |          |         |         |
|---------|----------|---------|---------|
| P-98407 | P-214213 | P-97770 | P-98411 |
| P-98408 | P-214218 | P-97771 |         |
| P-98398 | P-214217 | P-98409 |         |
| P-98397 | P-214216 | P-98410 |         |

LOCATION and Access

The property lies just west of the sharp right-angled bend in the all-weather road (gravelled) which crosses Shaw Township from its northwest to its southeast corner, and extends northward to the Town of South Porcupine, about 5 miles away.

TOPOGRAPHY

The terrain is flat and the bedrock is covered by a mantle of outwash sand and gravel deposits of varying thickness; the few small rock outcrops are low, rounded and moss-covered.

PREVIOUS WORK

The writer is not aware that any previous exploration work has been done on this property apart from minor prospecting and pitting.

GEOLOGY

The geology of the claim group is shown on Ontario Department of Mines Preliminary Geological Map No. P-343 of Shaw Township. Three outcrops are present on the property as follows:

- (1) A sizeable outcrop of serpentinite and talc-chlorite schist in the north-central part of claim P-214213;
- (2) A very small outcrop of carbonate rock lying close to the mid-point of the boundary between claims P-214217 and P-214213;
- (3) A small outcrop of andesite near the southeast corner of claim P-97771.

It is probable that much of the northern part of the property is underlain by serpentinite with associated talc-chlorite and carbonate rock alteration phases; the southern part of the property appears to be underlain by andesite flow rocks with which there may be associated some narrow bands of lean iron formation.

*Handwritten initials/signature*

## geology (continued)

The Geological Survey of Canada Map 293G (Timmins Aero Magnetic Sheet) shows that the property lies within an east-northeast trending belt of relatively high magnetic intensity.

MAGNETOMETER SURVEY

A grid control system for the survey was established on the property consisting of main base line, 5600 feet long and striking east,-west, with traverse lines laid out at 400 foot intervals at right angles to the base line. A total of eleven (11) miles of survey lines were established in this way. The magnetometer survey was completed between October 24th and November 9th, 1969. The instrument operator was John J. Johnson, assisted by Raymond Latour. The instrument used was a Sharpe A-2 Magnetometer with a constant of twenty (20) gammas per scale division. Survey stations were established at 100 foot intervals on all traverse lines, and at 50 foot intervals where deemed advisable by survey results. A main magnetic base-station, with a value of 4800 gammas, was established at station 16 + 00W on the main base-line, and subsidiary magnetic base-stations were established at regular intervals along the main base-line. In plotting the survey results the usual corrections were made for diurnal variations, etc. A total of 563 magnetic stations were read during the course of the survey; these ranged in value from a low of 5 gammas to a high of 7920 gammas.

SURVEY RESULTS

Three small lens-shaped zones of anomalously high magnetic intensity project into the property for a few hundred feet from the west boundary; the long axes of these zones most probably marked the locations of roughly east-west trending bands of lean magnetite iron formation. The southern part of the property is relatively flat and uniform magnetic intensity suggesting little variation in the composition and characteristics of the underlying andesites. A broad arcuate band of high magnetic intensity extends across the northern part of the property and supports the idea that much of this ground is underlain by serpentinites and its associated alteration phases. A marked dipolar effect is evident between stations 6 +00N on lines 8W and 12W. The area under the centre of the arcuate band in the northeast part of claim P-97771, the southwest part of claim P-214216 and on the northern one-third of claim P-214217 may, in part at least, be underlain by sizeable zones of carbonate rock derived by alteration of the original ultra-mafic intrusive now chiefly represented here by the serpentinite mass.

RECOMMENDATIONS

- (1) Serpentinite is a favorable host rock for commercial nickel deposits. The known outcrops should be carefully prospected for evidence of nickeliferous sulphide minerals.
- (2) Carbonate rock zones associated with serpentinite masses in this area may carry significant amounts of <sup>the</sup> commercially valuable mineral, magnesite.

recommendations (continued)

All carbonate rock outcrops found on the property should be carefully studied and analysed for commercial concentrations of magnesite.

PERSONNEL

Line-cutters

Harold Lockett, 619 Pine Street North, Timmins, Ont.

Woodrow Wilson, Lover's Lane, Porcupine Ontario.

Ralph E. Allerston, 322 Elm Street N. Timmins, Ont.

Raymond Latour, 64 Columbus Ave., Timmins, Ontario.

Roger Dionne, 181 Commercial Avenue, Timmins, Ont.

Instrument operators & draughtsmen

John J. Johnson, 58n Crawford Street, South Porcupine Ont.

Raymond Latour, 64 Columbus Avenue, Timmins, Ontario.

Consultant

H.D. Carlson, Ph.D., P. Eng., 391 Patricia Blvd., Timmins, Ont.

Line-cutting - October 1st to October 29th, 1969. *ADD*

32 eight-hour man days, cutting and chaining.

Instrument work and draughting - October 24th to November 9th, 1969.

32 eight-hour man days.

Preparation of Report and Consulting - January 28th to 29th., 1970.

3 eight-hour man days.

SHARPE MODEL A-2 VERTICAL INTENSITY  
TYPE MAGNETOMETER

The Magnetometer Survey

The main purpose of magnetic surveys is to present a generalised picture of the bed rock geology, and it is only seldom that anomalies as such are directly associated with ore. Nevertheless by means of a magnetic intensity map for an area, known or unknown, geological conditions and formations bearing a relationship to possible ore locations may be traced.

The "Sharpe" Magnetometer, Model A-2

This instrument is a precision magnetic field balance measuring the vertical component of the earth's magnetic field. It has a sensitivity to 10 gammas (1 gamma = 0.00001 Gauss) per scale division and an intensity range of 0 to 15,000 gammas. This range may be increased by the use of greater strength auxiliary magnets.

The instruments as a unit may be conveniently operated by one person alone if desired, as there is no separate compass to be removed before each reading.

Instrument Details

The principle of this instrument is that the compass and Magnetometer needle have been relatively located by careful calculation and trial, so that when either is locked it is ineffective throughout the range of the other. Thus the compass and instrument head may remain fixed to the tripod, and the cumbersome operation of having to pass the instrument head and compass back and forth for each set up

SHARPE MODEL A-2 VERTICAL INTENSITY TYPE MAGNETOMETER

is eliminated.

The telescopic optical system with a micrometer focusing adjustment has been simplified, and the readable scale is readily observed in poor light. The reflector assembly fits close to the telescope when closed, minimizing the possibility of damage while carrying through thick brush.

Immediately on top of the instrument housing, are three totally enclosed levelling bubbles, one a circular bulls-eye bubble for preliminary set-up, and two sensitive tubular levels at right angles to each other. By adjusting the foot screws once the instrument has been set up, these levels will permit an accurate orientation. A thermometer reading degrees centigrade is specially mounted to permit the reading of interval temperatures. The side plates of the housing may be simply removed when required, to allow internal adjustments without removal of the telescope.

All tolerances have been maintained to  $2/10,000$  of an inch, and thick brass, aluminum and magnesium castings, plate and tubing have been used throughout.

The needle in the Magnetometer is the conventional Schmidt type, and consists of two cobalt steel magnet plates screwed to a central light weight cube having the same temperature coefficient as the magnet plates. Laterally this cube bears a latitude screw on an invar spindle toward the south end of the needle system, and a temperature compensation screw on an aluminum spindle to the north end. A sensitivity screw weight is on the under side and a surface mirror on the upper side.

A triangular quartz knife edge runs transversely through the central part of the cube. On the under side of the cube are three slotted studs concentric with pins in the elevating table to allow uniform release of the needle on its bearings.

All parts have been carefully pinned down to prevent shift and change of reading due to shock or other causes. In its locked position the needle system is held against blade springs, and during the reading the needle is quickly damped by means of copper dampers which set up counter motion damping fields.

#### Operation of the Instrument

The large lock nut encircling the tripod base plate is opened until the three main lock holes are open concentrically with the under plate holes. Note that by turning the magnet adaptor sleeve, the small locating pin on the base plate may have its position altered.

The instrument head is placed on the tripod so that the 3 small brass legs fit the lock holes. The magnet adaptor sleeve is turned until the small locating pin on the base plate fits its appropriate hole in the base of the instrument head. In this position the auxiliary magnet holder will be directly under the compass and parallel to it. The lock nut is now turned to the right and the brass head legs are gripped tightly, binding the head to the base plate.

The instrument is now set up for the whole survey and except for transportation, the instrument head need not be removed from the tripod.

The procedure at each station is as follows: It is assum-

ed the instrument is facing the observer.

1. Plant the tripod firmly and adjust one leg until the bull's eye bubble on the head is concentric with its target centre.
2. Turn the auxiliary magnet holder until it is in its neutral position, i.e. the magnet itself is in a horizontal position with the N marked end forward.
3. Accurately level the instrument head by means of the 3 foot screws until the two long bubble are centred.
4. Unlock the compass by turning the compass locking screw to the left, and when the compass needle is free to swing, turn the whole instrument head until the compass needle lies along the line marked "0". The magnetometer needle system is now aligned E-W. In the process of this alignment care must be taken to keep the instrument head against one of the 180 degree stops. To allow this, both the Magnetometer and its lock nut must be moved in unison.
5. Secure the Magnetometer firmly in this position by locking the orientation locking screw by turning it clockwise.
6. Lock the compass needle by turning to the right.
7. Release the Magnetometer needle by pushing in the safety catch and slowly turning the locking drum to the left. This lowers the bridge device that supports the needle, finally placing the needle on the cylindrical quartz bearings and leaving it free to swing. Hence, turn this drum slowly and keep looking at the scale in the eye piece to see that the release is gentle. Read and record the position of the middle cross line to the nearest  $1/10$  of a scale division. If the

cross lines go off to the high end of the scale, the compensating Magnet with N end up is required. Lock the needle and turn the magnet so the N end is up. Re-read the scale, and if the cross lines are still off scale, re lock the needle and unlock the compensating magnet holder, and slide the magnet up to such a position where the needle no longer gives an off scale reading.

NOTE: The auxiliary magnet should never be moved or changed while the needle system is free or unlocked. The needle system should only be free while a reading is being taken.

8. After a reading has been taken and the needle locked by turning the drum, the whole instrument head should be turned to the left through 180 degrees until it is again against its 180 deg. stops. A second check reading should now be taken in this W-E direction and the needle re-locked. The reading time for a station is of the order of  $1\frac{1}{2}$  minutes with practice.

#### Corrections

The magnetic readings at any station must be corrected for changes with time during the day and from day-to-day. This serves to reduce all stations to the values they would have had if measured simultaneously.

#### Plotting

The corrected readings are plotted on a scale map of the area surveyed. Lines of observation, picket lines, stations, claim posts and claim outlines should be shown.

Show corrected reading at each station.

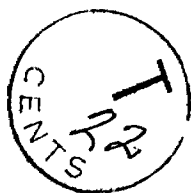


R.E. ALLERSTON  
BYE L M ST. NORTH  
TIMMINS. ONT



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THE ONTARIO DEPARTMENT OF MINES  
PROJECT SECTION,  
MINING LANDS BRANCH,  
PARLIAMENT BLDGS,  
TORONTO. 2. ONT

ATTENTION: MR. FREDERICK W. MATTEWS  
SUPERVISOR.

SPECIAL  
DELIVERY

SPECIAL DELIVERY  
SD.B  
23 10 61  
EXPRES

Whitney Twp. (M. 319)

THE TOWNSHIP OF  
OF  
**CLAIM MAP**  
**SHAW**

DISTRICT OF COCHRANE

PORCUPINE MINING DIVISION

SCALE: 1-INCH=40 CHAINS

LEGEND

- PATENTED LAND Ⓟ
- CROWN LAND SALE C.S.
- LEASES Ⓛ
- LOCATED LAND Loc.
- LICENSE OF OCCUPATION L.O.
- MINING RIGHTS ONLY M.R.O.
- SURFACE RIGHTS ONLY S.R.O.
- ROADS —
- IMPROVED ROADS —
- KING'S HIGHWAYS —
- RAILWAYS —
- POWER LINES —
- MARSH OR MUSKEG —
- MINES ✕
- CANCELLED C.

NOTES

400' Surface Rights Reservation around all Lakes and Rivers.

Unpatented Mining Claims in The Subdivided Portion of The Shaw Twp are Subject to Section 110 of The Mining Act. Dept of Mines File No. 83.5

PLAN NO.-M.311

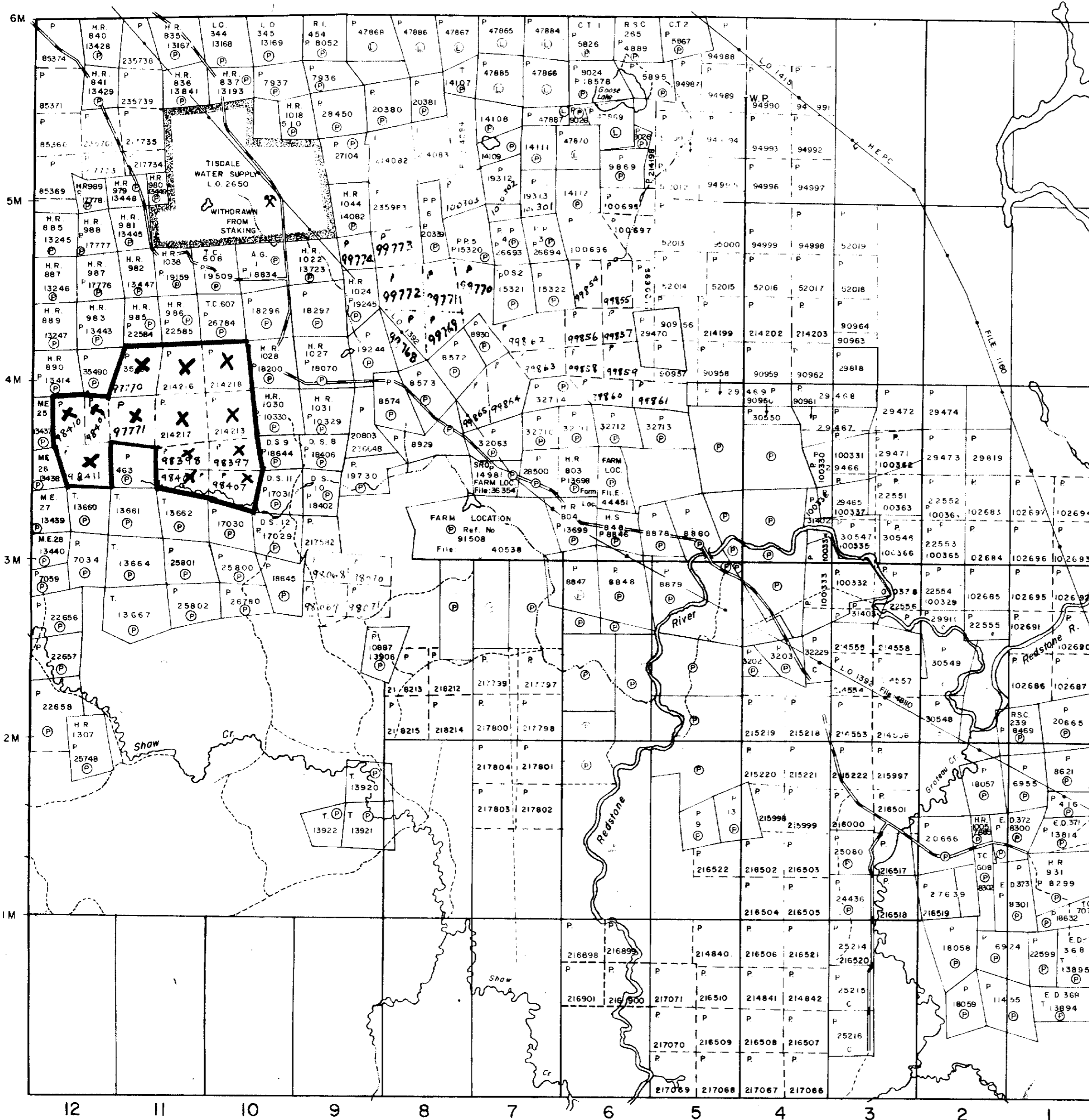
DEPARTMENT OF MINES

— ONTARIO —

Deloro Twp. (M. 272)

Carman Twp. (M. 266)

VI  
V  
IV  
III  
II  
I



Eldorado Twp. (M. 276)



MAGNETOMETER SURVEY

FOR

R. E. ALLERSTON

IN  
SHAW TWP.

PORCUPINE MINING DIV.

by

TRI-J MINERAL SURVEYS LTD.

Instrument: Sharpe A-2  
20 gammas per scale  
division.

LEGEND

- claim post
- claim boundary
- contour interval 100 gammas  
Every 500 gammas

Readings in gammas

SCALE: 1" = 200'

