FINAL SUBMISSION
TECHNICAL REPORT
OPAP FILE NO. OP93-054

by

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November 16, 1993

I. PROJECT LOCATION

The key location of the project area is shown in Figure 1 which is a portion of NTS mar [illegible] et 31F/2 Clyde Forks. The area is at Latitude 45 deg. 03 min. [illegible] sec. and Longitude 76 deg. 50 min. 11 sec. The project exploration area is within the North half of Lots 15 and 16, Concession 3, South Canonto Township, Frontenac County, Ontario as shown in Figure 2 which is part of the North and South Canonto claim map. The location of the project magnetometer survey grid and diamond drilling work area relative to the claim boundaries, Summit Lake, access road and other topographic features is shown in Figure 3 in more detail.

II. ACCESS

From Kaladar on Highway 7, take Highway 41 north and Highway 506 east to Ompah. Continue east from Ompah about 1 mi. (1 km.) and take Canonto Road north about 2 mi. (3.2 km.) to a road over the dam between Palmerston and Canonto Lakes. Take this gravel road north over the dam and follow it about 1.4 mi. (2.4 km.) to a junction at an open area where a bush road turns off to the left (west). Follow this bush road about 1.7 mi. (2.7 km.) around Marl and Summit Lakes to the project site at the north end of Summit Lake. The road over the dam and bush road (trail) to the project site are shown on NTS map sheet 31F/2.

III. GEOLOGY

The project area is on a bedrock knoll that rises about 50 feet to the northeast from the access road around Summit Lake. Bedrock in the area is mapped locally as amphibolite schist and is nearly vertically dipping at 87 degrees to the northwest. The schist is banded and varies from dark grey and black amphibolite to hornblende and chlorite phases. The bedrock formation includes bands of white, grey and buff marble, siliceous white and grey marble and bands of disseminated and massive magnetite. The magnetite is considered to be a contact metasomatic deposit associated with a mass of fine-grained diorite which intrudes the area immediately to the west to form hills over 100 feet high. The magnetite deposit outcrops in only a very narrow vein on the surface with most of the deposit lying beneath the bedrock surface. Mineralization in the magnetite and more altered parts of the amphibolite schist includes white calcite crystals, garnet, chalcopyrite and pyrrhotite.

Figure 1. Key Topographic Map Showing Location Of Project Area.

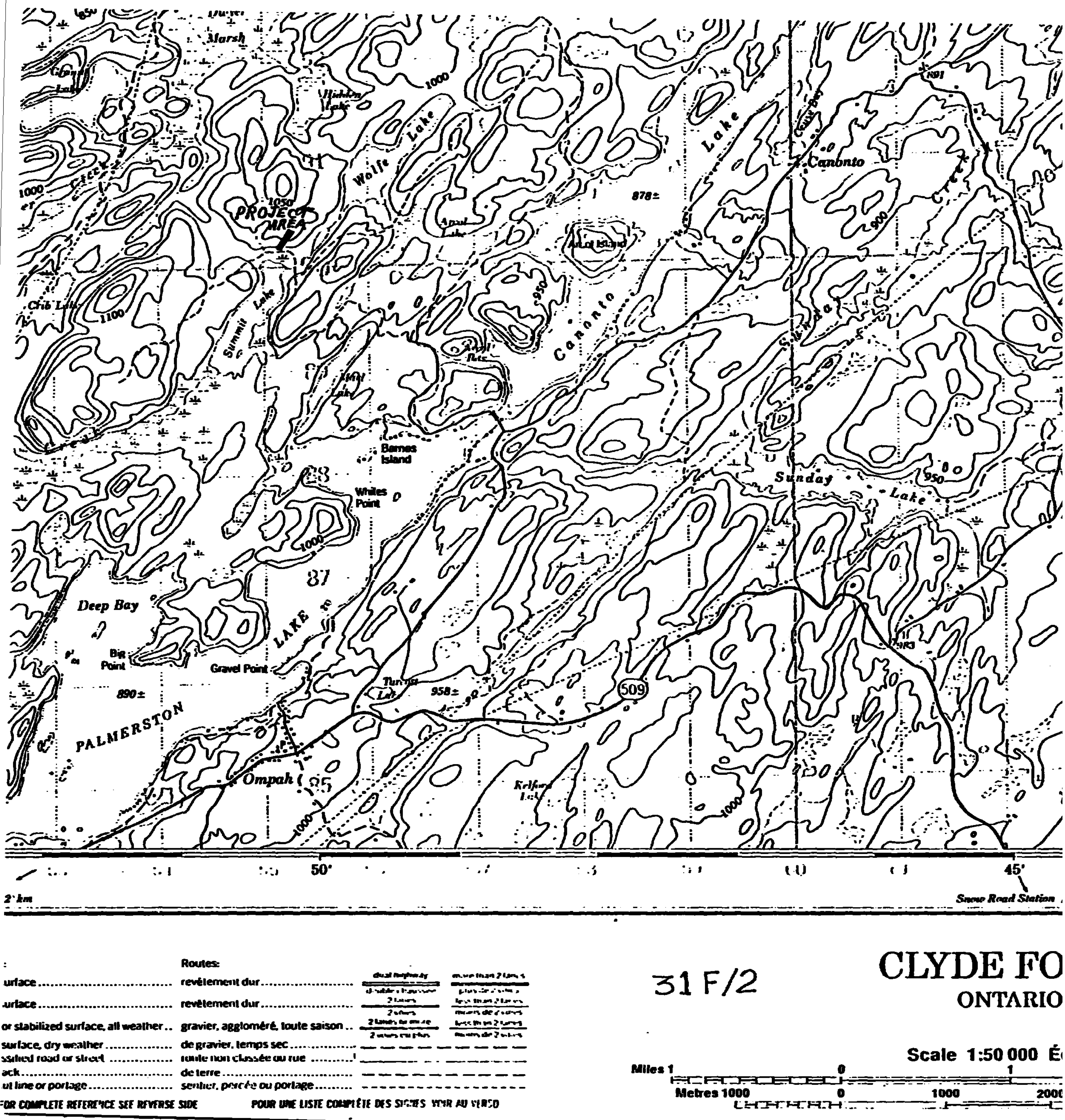
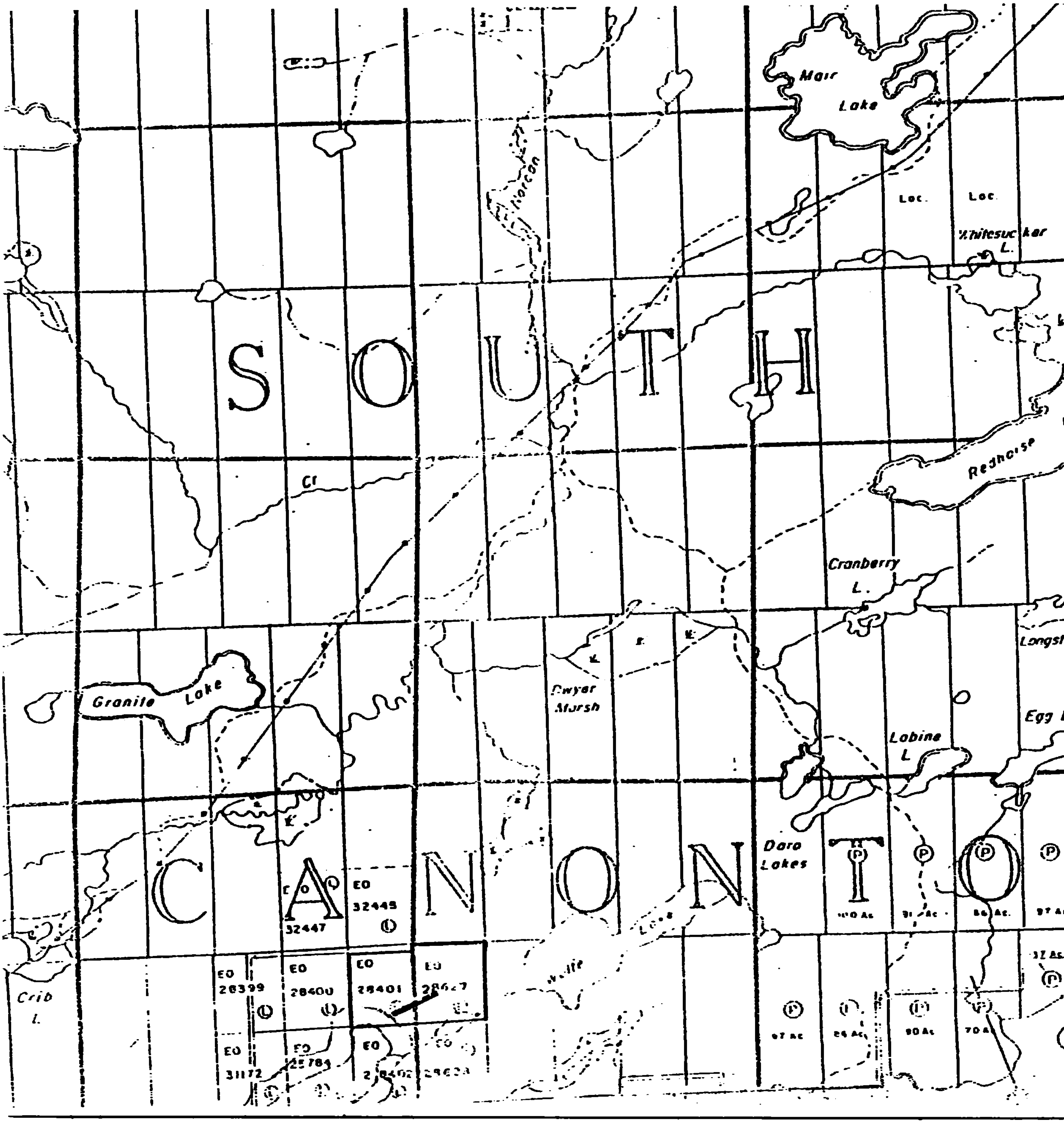


Figure 2. Location Of Project Area On North And South Canonto Claim Map.



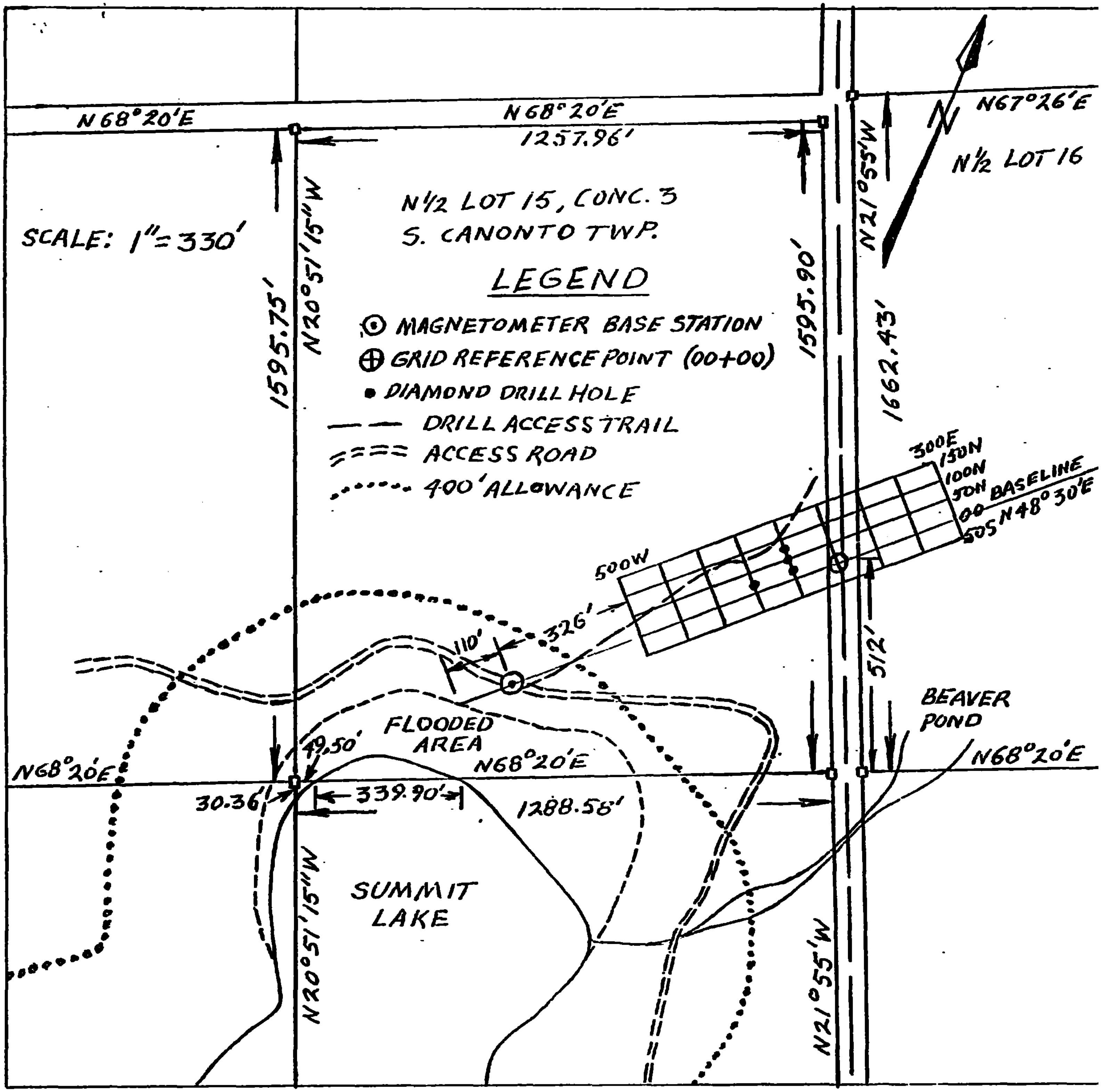


Figure 3. Detailed Location Map Of Magnetic Survey Grid. Map Base Is Land Survey Done By M. J. McAlpine, O.L.S., Feb. 21, 1964.

IV. WORK DONE

A. GENERAL

As mentioned in the proposal, considerably more work effort and expenses were necessary to satisfactorily complete the proposed exploration project than were covered by the proposal budget. This extra work was done at the applicant's own time and expense. For example, to resolve the high magnetic intensity of the anomaly associated with the magnetite deposit, almost twice as many magnetometer stations and readings were required (at 25' intervals instead of 50'). Also, the applicant was more involved with the diamond drilling results and core analysis which increased the work and report preparation workload. The applicant also provided all breakfasts, nearly all bush lunches and many of the evening meals for himself and helpers in order to keep the meal cost within budget.

B. CHANGES TO PROPOSED PROJECT

In general, the work project followed the phases outlined in the proposal, namely:

1. Magnetometer Survey
2. Diamond Drilling Program
3. Drill Core Analysis
4. Report Preparation

However, much preliminary work by the applicant was required before the magnetometer survey work and diamond drilling could be started. Also, due to the poor quality of the core samples of magnetite a full analysis of the core was not deemed necessary by the proposed contractor. Only a Specific Gravity analysis of the core was necessary. This was done by the applicant in his own laboratory facilities.

Each work phase was completed essentially as proposed. Each is discussed in detail in the following sections.

C. MAGNETOMETER SURVEY

1. Purpose

Since the magnetic anomaly was so intense (off-scale positive and negative for needle-type and flux-gate magnetometers), a detailed quantitative magnetic survey for interpretation purposes was not feasible. The main purpose of the magnetic survey was, therefore, to determine the actual extent of the anomaly zone and to provide a grid for locating diamond drill holes.

2. Instrumentation

To accommodate the extremely high magnetic anomaly a relatively insensitive Sharpe D-1-M dipping needle magnetometer owned by the applicant was used for the survey. This instrument measures the vertical component of the magnetic field. This instrument was calibrated at the Magnetic Division, Enery, Mines and Resources in Ottawa. The scale factor varies from about 43 gamma per scale division for mid-range deflections to about 80 gamma per scale division for large and small range deflections. In view of the fact that many readings gave very large or very small deflections (in fact off-scale), the overall measurement accuracy was considered to be about 100 gamma.

3. Preliminary Work

Field work on the magnetometer survey was done from June 11, 1993 to July 7, 1993. Before establishing the actual survey grid, considerable preliminary work by the applicant was required. The magnetic anomaly zone was first relocated and the general strike of the narrow and intermittent outcrops of magnetite was marked with flagging. The limits of the anomaly zone were roughly established to give a survey area 800 feet long parallel to the strike of the zone and 200 feet wide across the zone. To locate the survey grid relative to the claim boundaries, the adjacent claim lines had to be relocated, cleared, marked and chained. In addition, a line was cut and chained from the westerly grid limit to the access road and Summit Lake. This work required 0.18 mi. (0.29 km.) of line cutting and chaining.

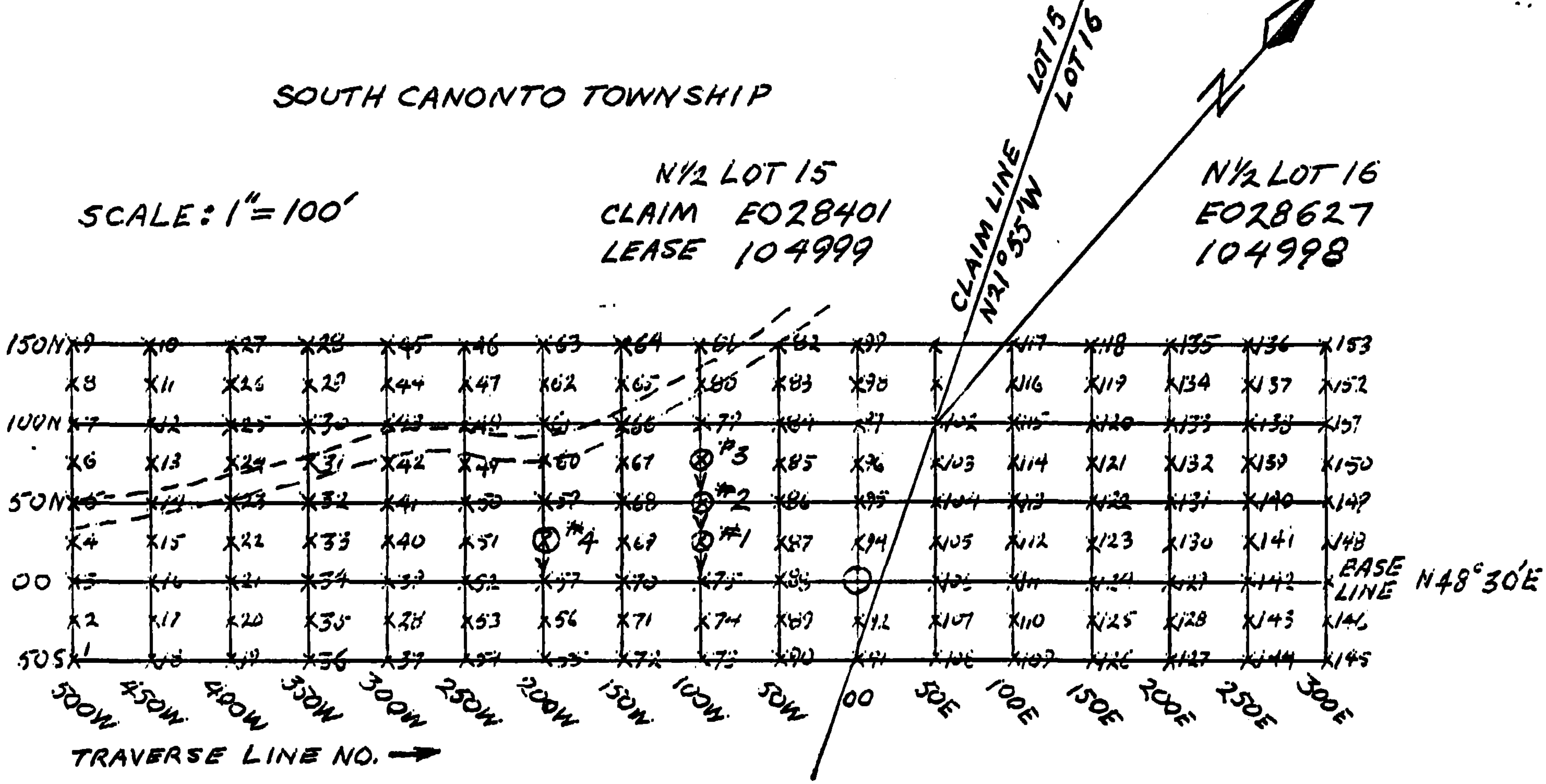
4. Survey Plan and Method

A detailed plan of the magnetometer survey area showing the grid lines, magnetometer traverse lines, magnetometer stations and numbers, claim lines, diamond drill hole locations and other pertinent information is shown in Figure 4. The survey baseline was selected to be along the strike of the magnetite outcrops with a true bearing of N 48 deg. 30 min. E. The survey grid reference point (00+00) was taken to be at a topographic high 13 feet west from the Lot 15 - 16 claim line. This conveniently placed the 100W traverse line at a point of highest magnetic anomaly (off-scale). The baseline was cleared by line cutting to distances 500 feet west and 300 feet east of the reference point and was chained and picketed at 50 foot intervals. Traverse lines were established at right angles to the baseline at 50 foot intervals, cleared by line cutting and picketed at 50 foot intervals from 50S to 150N on the grid. The lines parallel to the baseline at 50S, 50N, 100N and 150N were also cleared by line cutting and the 50 foot grid interval was checked by chaining (see Figure 4 for grid direction code). This survey grid required 1.40 mi. (2.26 km.) of line cutting, chaining and picketing.

FIGURE 4. MAGNETIC SURVEY GRID PLAN

SOUTH CANONTO TOWNSHIP

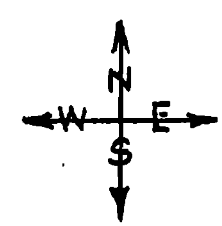
SCALE: 1" = 100'



LEGEND

- X MAGNETOMETER STATION AND NO.
- ⊕ SURVEY GRID REFERENCE POINT (00+00)
- ⊗ 45°S DIAMOND DRILL HOLE AND NO.
- ═══ DRILL ACCESS TRAIL

LINE & GRID DIRECTION CODE



NOTE: STATION MAGNETIC VALUES ARE IN TABLE 1.

For convenience, the magnetometer base station was located on the site access road as shown in Figure 3. Magnetometer readings were taken along each of the 17 traverse lines going from south to north on the first line (500W), north to south on the second line (450W), etc. Due to the high, rapidly changing magnetic intensity near the baseline, magnetometer readings were taken at 25 foot intervals (instead of the planned 50 foot intervals) in order to allow better contouring of the magnetic anomaly. These intermediate stations were chained and marked. This gave 9 readings per traverse line (instead of 5) for a total of 153 stations (instead of 85). This was a considerable increase in work effort and cost. A total distance of 0.64 mi. (1.04 km.) along the traverse lines was surveyed.

5. Survey Results

a. Data Reduction, Contouring and Profiling

Reduction of the magnetometer data, plotting of an anomaly contour map and profiles and interpretation of the results was done primarily from June 8 to July 13 by the applicant. The magnetometer readings were reduced to magnetic values in gamma using a calibration curve provided by the Magnetic Division, Energy, Mines and Resources in Ottawa. Since many readings were off-scale both positive and negative, a maximum value of 49,000 gamma and a minimum of -10,000 gamma were assumed for contouring purposes. A computer program was used for drawing a variable density anomaly contour map as well as profiles across the anomaly zone. To use this computer program, the magnetic values had to be adjusted to zero as a minimum and quoted to a tenth of a gamma. Thus the original magnetic values were increased by 10,000 gamma and divided by 10 so that all values were between 0.0 and 59,000 gamma. The adjusted magnetic values for all stations are given in Table 1 (4 sheets). The variable density anomaly contour map is shown in Figure 5. Profiles along pertinent traverse lines are shown in Figures 6 and 7.

b. Interpretation

The variable density contour map and associated profiles show that the magnetite zone straddles the baseline and is very narrow. It is not continuous over the length of the survey area as originally expected. The main anomaly area indicates a magnetite deposit about 20 feet wide and about 250 feet long. If it extends to a depth of 100 feet and is of good grade, it would only contain about 40,000 tons of magnetite at a two-thirds recovery rate. The high magnetic intensity is evidently caused by a high thermo-remnant magnetization of the deposit. Interpretation of the magnetic data by magnetic modelling is not possible (and was not expected from this survey). The exploration and evaluation of the deposit must be done by diamond drilling which is the main work effort of this project.

Table 1. Magnetic Values For All Stations Adjusted For Computer Program.

List of data in b:tomtest1.fld data file.

GRID LINE	LN	DAY	HH	MM	SS	STA	X	Y	MAG
500W	100	188	0:	0:	0	1	0.0	0.0	1566.0
	100	188	0:	0:	0	2	0.0	0.0	1756.0
	100	188	0:	0:	0	3	0.0	0.0	1802.5
	100	188	0:	0:	0	4	0.0	0.0	1821.5
	100	188	0:	0:	0	5	0.0	0.0	1821.5
	100	188	0:	0:	0	6	0.0	0.0	1810.5
	100	188	0:	0:	0	7	0.0	0.0	1810.5
	100	188	0:	0:	0	8	0.0	0.0	1810.5
	100	188	0:	0:	0	9	0.0	0.0	1821.5
450W	150	188	0:	0:	0	10	0.0	0.0	1789.0
	150	188	0:	0:	0	11	0.0	0.0	1789.0
	150	188	0:	0:	0	12	0.0	0.0	1789.0
	150	188	0:	0:	0	13	0.0	0.0	1780.5
	150	188	0:	0:	0	14	0.0	0.0	1775.0
	150	188	0:	0:	0	15	0.0	0.0	1810.5
	150	188	0:	0:	0	16	0.0	0.0	1821.5
	150	188	0:	0:	0	17	0.0	0.0	1802.5
	150	188	0:	0:	0	18	0.0	0.0	1767.0
400W	200	188	0:	0:	0	19	0.0	0.0	1680.0
	200	188	0:	0:	0	20	0.0	0.0	1693.5
	200	188	0:	0:	0	21	0.0	0.0	1718.0
	200	188	0:	0:	0	22	0.0	0.0	1612.0
	200	188	0:	0:	0	23	0.0	0.0	1693.5
	200	188	0:	0:	0	24	0.0	0.0	1761.5
	200	188	0:	0:	0	25	0.0	0.0	1775.0
	200	188	0:	0:	0	26	0.0	0.0	1780.5
	200	188	0:	0:	0	27	0.0	0.0	1789.0
350W	250	188	0:	0:	0	28	0.0	0.0	1761.5
	250	188	0:	0:	0	29	0.0	0.0	1756.0
	250	188	0:	0:	0	30	0.0	0.0	1729.0
	250	188	0:	0:	0	31	0.0	0.0	1734.5
	250	188	0:	0:	0	32	0.0	0.0	1699.0
	250	188	0:	0:	0	33	0.0	0.0	1748.0
	250	188	0:	0:	0	34	0.0	0.0	5900.0
	250	188	0:	0:	0	35	0.0	0.0	1984.5
	250	188	0:	0:	0	36	0.0	0.0	1780.5
300W	300	188	0:	0:	0	37	0.0	0.0	1639.0
	300	188	0:	0:	0	38	0.0	0.0	1794.0
	300	188	0:	0:	0	39	0.0	0.0	2931.0
	300	188	0:	0:	0	40	0.0	0.0	2564.0
	300	188	0:	0:	0	41	0.0	0.0	1816.0
	300	188	0:	0:	0	42	0.0	0.0	1718.0
	300	188	0:	0:	0	43	0.0	0.0	1748.0
	300	188	0:	0:	0	44	0.0	0.0	1761.5
	300	188	0:	0:	0	45	0.0	0.0	1756.0

Note: For Actual Magnetic Values In Gamma, Subtract 1,000 From The Listed Values And Multiply By 10.

Table 1. Continued.

250W	350	188	0:	0:	0	46	0.0	0.0	1789.0
	350	188	0:	0:	0	47	0.0	0.0	1748.0
	350	188	0:	0:	0	48	0.0	0.0	1761.5
	350	188	0:	0:	0	49	0.0	0.0	1710.0
	350	188	0:	0:	0	50	0.0	0.0	1653.0
	350	188	0:	0:	0	51	0.0	0.0	1582.0
	350	188	0:	0:	0	52	0.0	0.0	4636.5
	350	188	0:	0:	0	53	0.0	0.0	1810.5
	350	188	0:	0:	0	54	0.0	0.0	1612.0
200W	400	188	0:	0:	0	55	0.0	0.0	1761.5
	400	188	0:	0:	0	56	0.0	0.0	1748.0
	400	188	0:	0:	0	57	0.0	0.0	5900.0
	400	188	0:	0:	0	58	0.0	0.0	5900.0
	400	188	0:	0:	0	59	0.0	0.0	2373.5
	400	188	0:	0:	0	60	0.0	0.0	1952.0
	400	188	0:	0:	0	61	0.0	0.0	1848.5
	400	188	0:	0:	0	62	0.0	0.0	1780.5
	400	188	0:	0:	0	63	0.0	0.0	1794.0
150W	450	188	0:	0:	0	64	0.0	0.0	1857.0
	450	188	0:	0:	0	65	0.0	0.0	1881.0
	450	188	0:	0:	0	66	0.0	0.0	1965.5
	450	188	0:	0:	0	67	0.0	0.0	2115.0
	450	188	0:	0:	0	68	0.0	0.0	2455.0
	450	188	0:	0:	0	69	0.0	0.0	3380.0
	450	188	0:	0:	0	70	0.0	0.0	5900.0
	450	188	0:	0:	0	71	0.0	0.0	0.0
	450	188	0:	0:	0	72	0.0	0.0	1457.0
100W	500	188	0:	0:	0	73	0.0	0.0	1772.5
	500	188	0:	0:	0	74	0.0	0.0	1027.0
	500	188	0:	0:	0	75	0.0	0.0	5900.0
	500	188	0:	0:	0	76	0.0	0.0	4364.5
	500	188	0:	0:	0	77	0.0	0.0	2964.0
	500	188	0:	0:	0	78	0.0	0.0	2158.5
	500	188	0:	0:	0	79	0.0	0.0	1974.0
	500	188	0:	0:	0	80	0.0	0.0	1892.0
	500	188	0:	0:	0	81	0.0	0.0	1873.0
50W	550	188	0:	0:	0	82	0.0	0.0	1865.0
	550	188	0:	0:	0	83	0.0	0.0	1714.0
	550	188	0:	0:	0	84	0.0	0.0	1974.0
	550	188	0:	0:	0	85	0.0	0.0	2115.0
	550	188	0:	0:	0	86	0.0	0.0	2360.0
	550	188	0:	0:	0	87	0.0	0.0	2203.0
	550	188	0:	0:	0	88	0.0	0.0	5900.0
	550	188	0:	0:	0	89	0.0	0.0	2360.0
	550	188	0:	0:	0	90	0.0	0.0	1873.0

Table 2. Continued.

00	600	188	0:	0:	0	91	0.0	0.0	1884.0
	600	188	0:	0:	0	92	0.0	0.0	2006.5
	600	188	0:	0:	0	93	0.0	0.0	2768.0
	600	188	0:	0:	0	94	0.0	0.0	2768.0
	600	188	0:	0:	0	95	0.0	0.0	2093.5
	600	188	0:	0:	0	96	0.0	0.0	1965.5
	600	188	0:	0:	0	97	0.0	0.0	1897.5
	600	188	0:	0:	0	98	0.0	0.0	1848.5
	600	188	0:	0:	0	99	0.0	0.0	1821.5
50E	650	188	0:	0:	0	100	0.0	0.0	1835.0
	650	188	0:	0:	0	101	0.0	0.0	1821.5
	650	188	0:	0:	0	102	0.0	0.0	1857.0
	650	188	0:	0:	0	103	0.0	0.0	1857.0
	650	188	0:	0:	0	104	0.0	0.0	2126.0
	650	188	0:	0:	0	105	0.0	0.0	1935.5
	650	188	0:	0:	0	106	0.0	0.0	1979.0
	650	188	0:	0:	0	107	0.0	0.0	1835.0
	650	188	0:	0:	0	108	0.0	0.0	1857.0
100E	700	188	0:	0:	0	109	0.0	0.0	1886.5
	700	188	0:	0:	0	110	0.0	0.0	2047.0
	700	188	0:	0:	0	111	0.0	0.0	1925.0
	700	188	0:	0:	0	112	0.0	0.0	1984.5
	700	188	0:	0:	0	113	0.0	0.0	1881.0
	700	188	0:	0:	0	114	0.0	0.0	1865.0
	700	188	0:	0:	0	115	0.0	0.0	1848.5
	700	188	0:	0:	0	116	0.0	0.0	1848.5
	700	188	0:	0:	0	117	0.0	0.0	1835.0
	750	188	0:	0:	0	118	0.0	0.0	1835.0
150E	750	188	0:	0:	0	119	0.0	0.0	1843.0
	750	188	0:	0:	0	120	0.0	0.0	1911.0
	750	188	0:	0:	0	121	0.0	0.0	2237.5
	750	188	0:	0:	0	122	0.0	0.0	2237.5
	750	188	0:	0:	0	123	0.0	0.0	3053.5
	750	188	0:	0:	0	124	0.0	0.0	2061.0
	750	188	0:	0:	0	125	0.0	0.0	2006.5
	750	188	0:	0:	0	126	0.0	0.0	1881.0
200E	800	188	0:	0:	0	127	0.0	0.0	1911.0
	800	188	0:	0:	0	128	0.0	0.0	1957.5
	800	188	0:	0:	0	129	0.0	0.0	1965.5
	800	188	0:	0:	0	130	0.0	0.0	1549.5
	800	188	0:	0:	0	131	0.0	0.0	1345.5
	800	188	0:	0:	0	132	0.0	0.0	1829.5
	800	188	0:	0:	0	133	0.0	0.0	1897.5
	800	188	0:	0:	0	134	0.0	0.0	1865.0
	800	188	0:	0:	0	135	0.0	0.0	1843.0

Table 1. Continued.

250 E	850	188	0:	0:	0	136	0.0	0.0	1848.5
	850	188	0:	0:	0	137	0.0	0.0	1870.5
	850	188	0:	0:	0	138	0.0	0.0	1829.5
	850	188	0:	0:	0	139	0.0	0.0	181.5
	850	188	0:	0:	0	140	0.0	0.0	0.0
	850	188	0:	0:	0	141	0.0	0.0	3788.0
	850	188	0:	0:	0	142	0.0	0.0	2490.5
	850	188	0:	0:	0	143	0.0	0.0	2012.0
	850	188	0:	0:	0	144	0.0	0.0	1897.5
	900	188	0:	0:	0	145	0.0	0.0	1870.5
300 E	900	188	0:	0:	0	146	0.0	0.0	1718.0
	900	188	0:	0:	0	147	0.0	0.0	1103.5
	900	188	0:	0:	0	148	0.0	0.0	0.0
	900	188	0:	0:	0	149	0.0	0.0	4024.5
	900	188	0:	0:	0	150	0.0	0.0	3551.5
	900	188	0:	0:	0	151	0.0	0.0	2237.5
	900	188	0:	0:	0	152	0.0	0.0	1979.0
	900	188	0:	0:	0	153	0.0	0.0	1884.0
	Base	188							1789.0

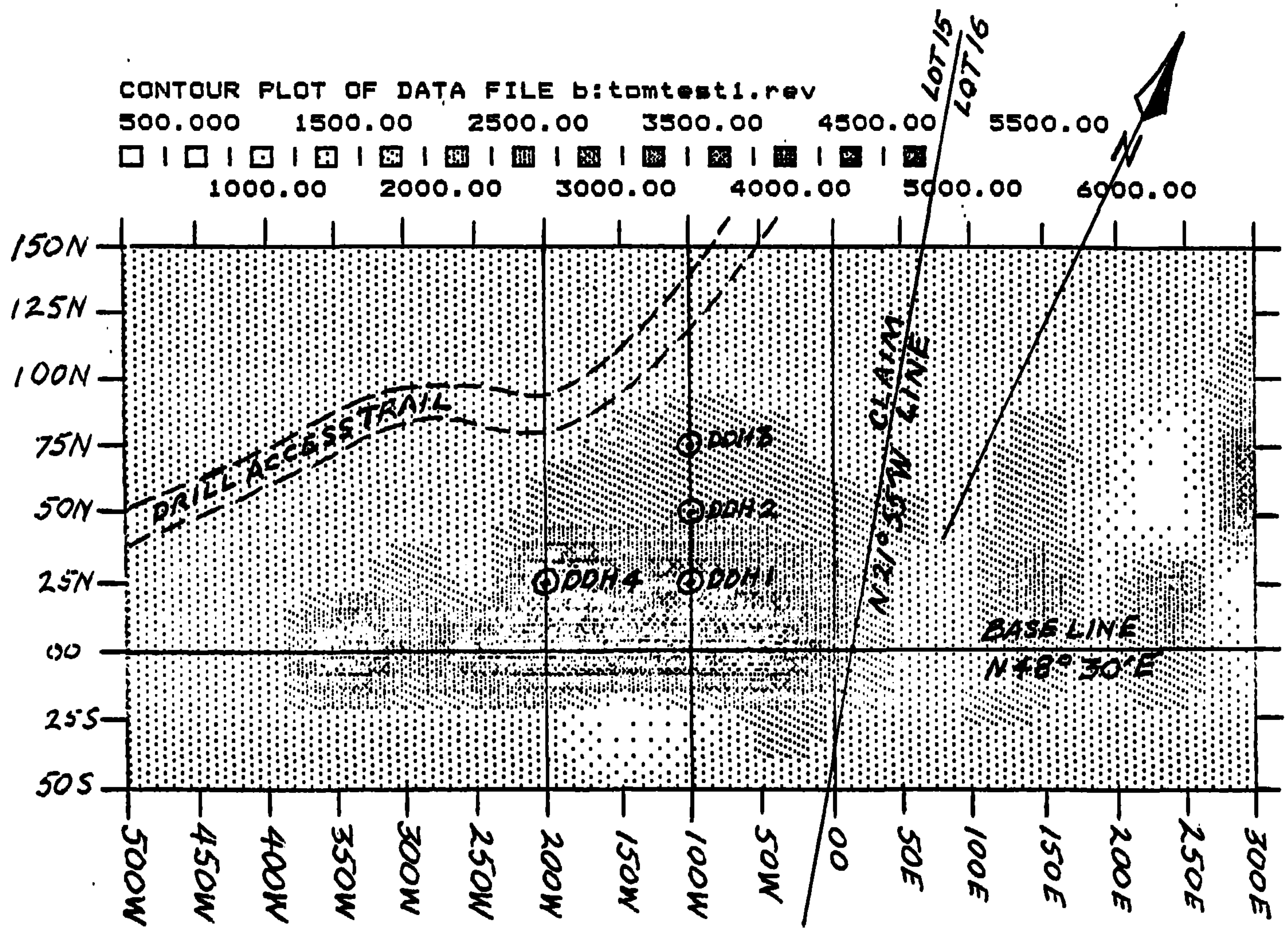


Figure 5. Variable Density Magnetic Anomaly Contour Map.

Note: Vertical And Horizontal Scales Are Not Equal And Are Arbitrary.

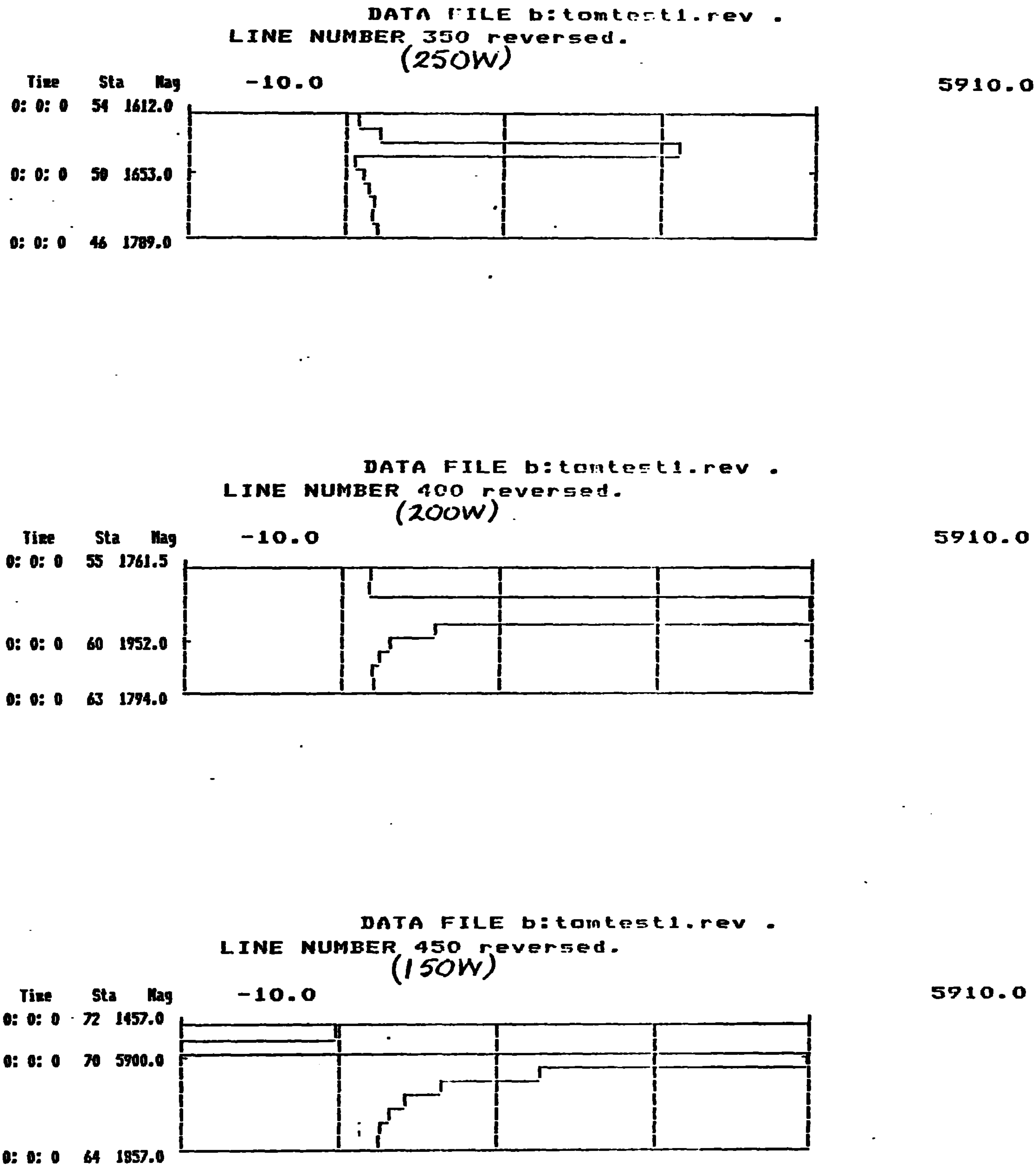
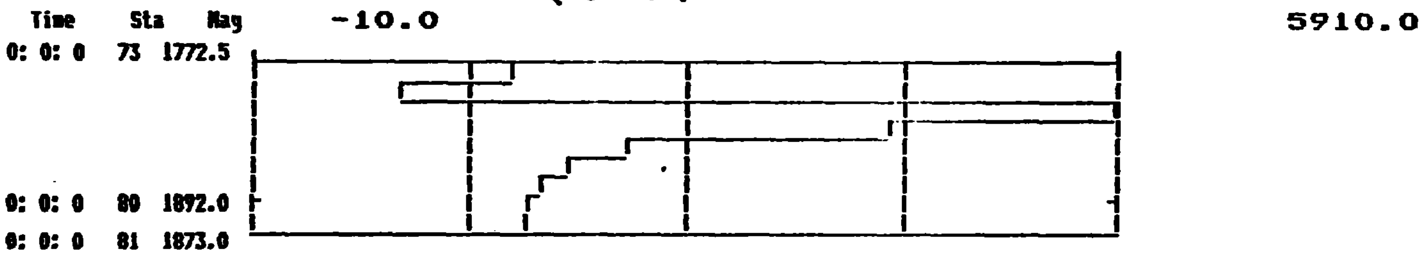
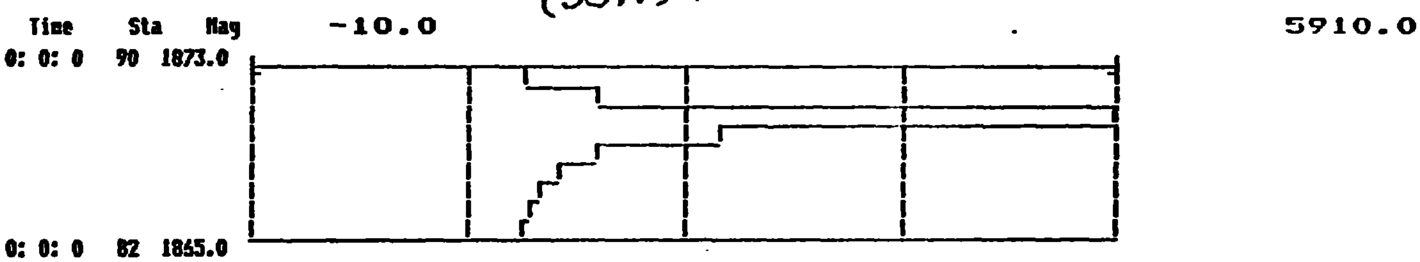


Figure 6. Magnetic Profiles Along Traverse Lines 250W, 200W And 150W Across The Magnetic Anomaly Facing West.

DATA FILE b:tomtest1.rev .
LINE NUMBER 500 reversed.
(100W)



DATA FILE b:tomtest1.rev .
LINE NUMBER 550 reversed.
(50W)



DATA FILE b:tomtest1.rev .
LINE NUMBER 900 reversed.
(300E)

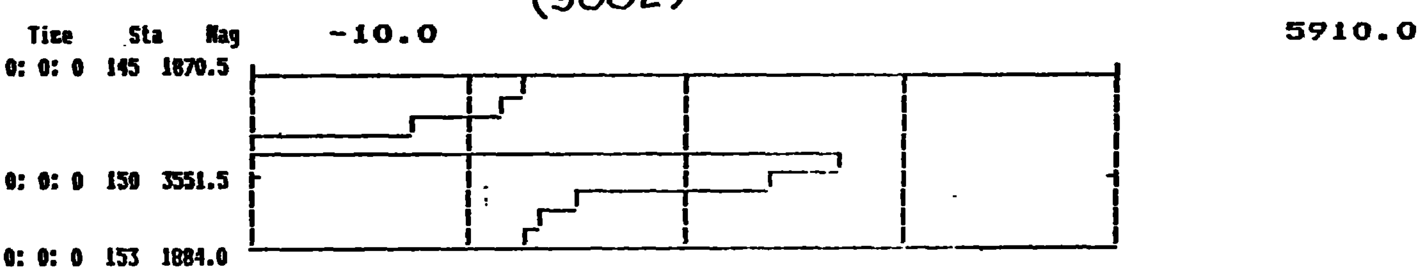


Figure 7. Magnetic Profiles Along Traverse Lines 100W, 50W And 300E Across The Magnetic Anomaly Facing West.

D. DIAMOND DRILLING

1. Objective

The objective of the diamond drilling work was to confirm and evaluate the magnetite deposit identified by the magnetic anomaly contour map of Figure 5. Since the magnetic data were not suitable to permit a quantitative interpretation of the magnetite deposit, further exploration of the deposit by diamond drilling was the obvious and logical answer.

2. Preliminary Work

Considerable preliminary work by the applicant was required to prepare for the diamond drilling. This work was done from July 9 to July 16. By considering the magnetic anomaly contour map and the near-vertical dip of the magnetite deposit, it was concluded that the best information could be obtained by drilling 45 degree holes to intersect the magnetite deposit at various depths. It was decided to drill 3 holes along the 100W traverse line collared at 25N, 50N and 75N and dipping at 45 degrees to the south. These holes would intersect the magnetite deposit at approximately 25', 50' and 75' depths respectively. Similarly, it was also planned, if time and footage permitted, to drill similar holes along the 200W traverse line. The diamond drilling plan for these holes is shown in Figure 8 which was prepared for the use of the diamond driller. The locations of the 4 holes actually drilled are shown in Figures 4 and 5.

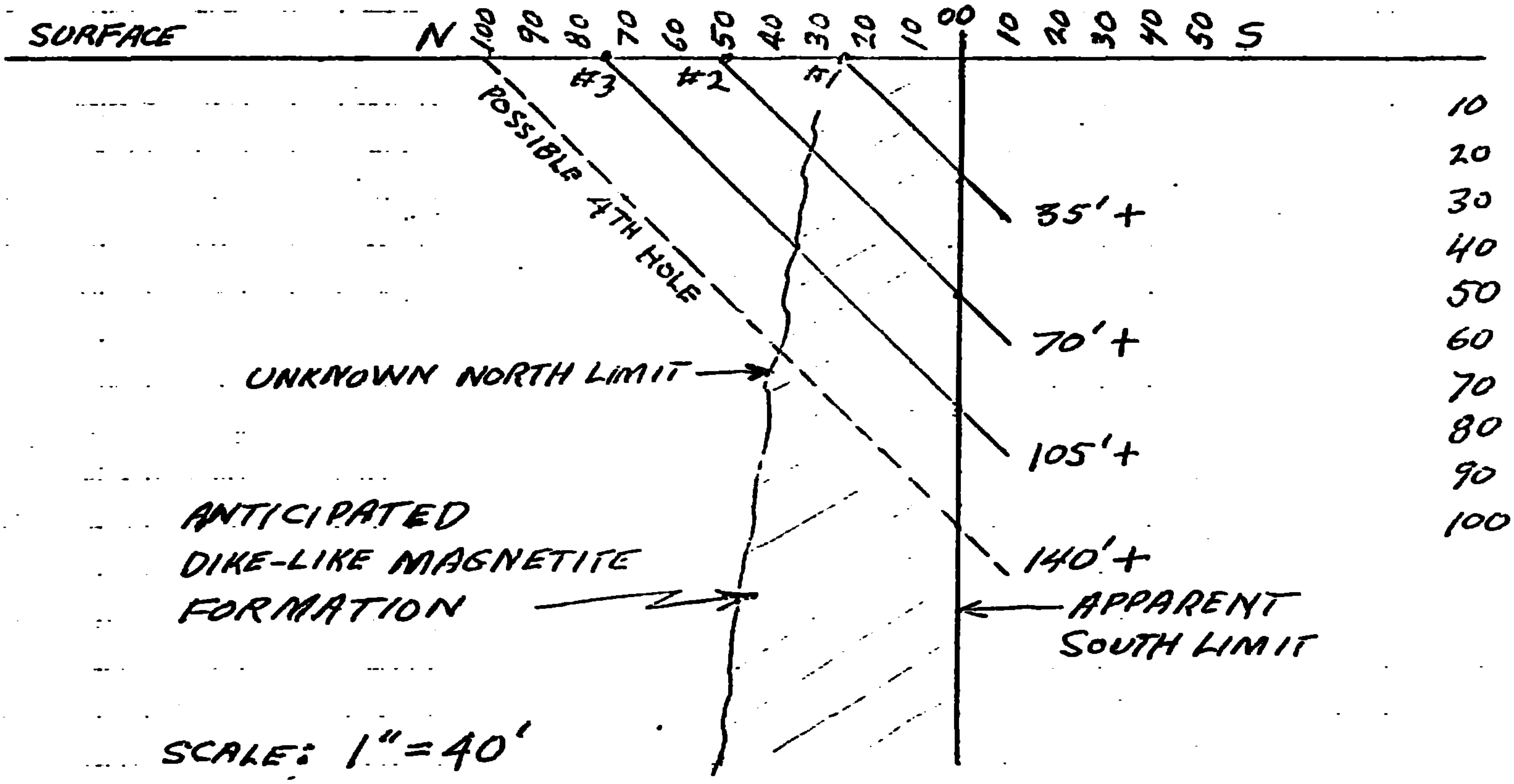
Prior to the arrival of the drill crew, the position of the 3 drill holes along the 100W line were chained and staked. Similary, 3 holes along the 200W line were located and staked. Brush and trees were cleared along the 100W and 200W lines wide enough for the drill rig to pass. Also, brush and trees were cleared for 830' through the survey area from the site access road to the drill site to make an access trail 15' wide for the drill rig to reach the drill site. This drilling access trail is shown on Figure 3 and 4.

The access road to Summit and Wolf Lakes and the project site was badly in need of repairs to allow the passage of the large flatbed truck carrying the drill rig (provided for in the project budget). The contractor hired to do the road repair was Francis L. Manion Ltd., Ardoch, Ontario. A small grader was used to efficiently repair all the rocky, washed-out and water-filled sections of the road to form a smooth gravel road. The work was completed in 10 hours at a total cost of only $428.00 (including G.S.T.). As a result, the drilling rig was transported to the project site with no trouble.

FIGURE 8.

DIAMOND DRILLING PLAN

CROSS SECTION ALONG 100 W LINE (LOOKING UPHILL)



(2) IF DEPOSIT PETERS OUT WITH 3 HOLES, THEN MOVE TO 200 W LINE AND REPEAT AS ABOVE.

(1) IF DEPOSIT WIDENS OR CONTINUES WITH GOOD SHOWINGS, A 4TH HOLE ON LINE 100W MAY BE DONE.

3. Diamond Drilling Work

The diamond drilling was done from July 22 to July 28 by George Downing Estate Drilling Ltd., Calumet, Quebec. A Longyear wire-line core drill was used with BQ bits giving 1 3/8" core.

Prior to the start of the actual drilling work, the company president was taken to the drilling site to familiarize him with the route to the site, survey grid area, drill hole locations and the required drilling program. The drill was moved onto the drill site on July 23, but due to a variety of delays including bad thunderstorms, actual drilling did not start until noon on July 24. All holes were drilled at 45 degrees south (see Figure 8) and were collared directly on amphibolite schist bedrock. DDH #1 was completed at 51' 6" on July 26. DDH #2 was started and completed on July 27 to a depth of 93'. DDH #3 was started on July 27 and completed at 123' on July 28. DDH #4 was also drilled to 53' on July 28. This was the last day the drill was available to the project so the drilling program was terminated. The total footage drilled for the 4 holes was 320' 6". The contractor gave a reduced price of $12.50 per foot (instead of the contracted $15.00 per foot) for a total cost of $4,286.69 (including G.S.T.).

4. Drilling Results

Drill core logging was done by the applicant who was at the drilling site every day except Sunday July 25 to monitor the drilling and log the core. The drill core logs for holes #1, #2, #3 and #4 are given in Tables 2, 3, 4 and 5 respectively. A vertical cross-section of holes #1, #2 and #3 along the 100W traverse line is shown in Figure 9. The sections of core with disseminated magnetite (low grade) and massive magnetite (high grade) are shown along each hole and give the outline of the magnetite déposit to a depth of about 80'. A similar vertical cross-section of hole #4 along the 200W traverse line is shown in Figure 10.

The drill core logs confirmed the nearly vertical dip (87 degrees NW) of the bedrock and magnetite deposit. The logs show that the host bedrock consisted of banded dark grey to black amphibolite schist with hornblende and chlorite phases. Included were bands of white, grey and buff marble, siliceous white and grey marble and a banded deposit of disseminated and massive magnetite. In the magnetite and more altered sections of the bedrock core were showings of white calcite crystals, garnet, chalcopyrite and pyrrhotite. In particular, the magnetite core contained numerous stringers of white calcite crystals which destroyed the massive character of the magnetite.

Table 2.

DIAMOND DRILL HOLE NO. 1

North Half Lot 15, Concession 3
South Canonto Township, Frontenac County

Drilling Contractor: George Downing Estate Drilling Limited
91 Main St.
Calumet, Quebec
JOV 1BO

Dates: Start July 23, 1993; Finish July 26, 1993

Hole Location: 25N on 100W traverse line of survey grid

Size of Core: BQ bit with 1 3/8" core

Dip of Hole: 45 degrees to South along 100W line of survey grid

Dip Test Results: None

Final Hole Depth: 51' 6"

0' - 20'	Banded amphibolite schist with some quartz stringers
20' - 21' 6"	Banded disseminated magnetite with fine calcite stringers
21' 6" - 23'	Grey siliceous marble
23' - 26' 6"	Amphibolite schist
26' 6" - 26' 8"	Disseminated magnetite in amphibolite schist
26' 8" - 30' 6"	Banded amphibolite and grey marble with white calcite stringers and garnet
30' 6" - 34'	Massive banded magnetite with white calcite stringers, some chlorite and pyrrhotite
34' - 37' 6"	Amphibolite schist with calcite and disseminated magnetite bands, some chlorite, chalcopyrite, pyrrhotite and garnet
37' 6" - 39' 6"	Massive banded magnetite with calcite stringers, chalcopyrite and pyrrhotite
39' 6" - 42' 6"	Amphibolite schist with hornblende and calcite stringers
42' 6" - 43' 4"	Disseminated magnetite in amphibolite schist
43' 4" - 45' 2"	Massive banded magnetite with chlorite and calcite stringers, chalcopyrite & pyrrhotite
45' 2" - 46'	Amphibolite schist with grey siliceous marble bands, chlorite and calcite stringers
46' - 47' 4"	Disseminated magnetite bands in amphibolite schist with chlorite and calcite stringers
47' 4" - 49' 2"	Banded amphibolite schist with chlorite and calcite stringers
49' 2" - 49' 4"	Band of disseminated magnetite
49' 4" - 51' 6"	Amphibolite schist

Table 3.

DIAMOND DRILL HOLE NO. 2

North Half Lot 15, Concession 3
South Canonto Township, Frontenac County

Drilling Contractor: George Downing Estate Drilling Limited
91 Main St.
Calumet, Quebec
J0V 1B0

Dates: Start July 27, 1993; Finish July 27, 1993

Hole Location: 50N on 100W traverse line of survey grid

Size of Core: BQ bit with 1 3/8" core

Dip of Hole: 45 degrees to South along 100W line of survey grid

Dip Test Results: None

Final Hole Depth: 93'

0' - 23'	Banded amphibolite schist
23' - 24'	Grey siliceous marble
24' - 27'	Amphibolite schist with bands of grey siliceous marble
27' - 31'	Grey/white marble
31' - 40'	Banded amphibolite schist
40' - 43'	White marble
43' - 45'	White/grey siliceous marble
45' - 47'	Amphibolite schist
47' - 48'	Banded disseminated magnetite in amphibolite
48' - 53'	Banded grey siliceous marble
53' - 59'	Disseminated magnetite bands in amphibolite
59' - 63' 6"	Massive banded magnetite with white calcite stringers
63' 6" - 70'	Banded amphibolite/chlorite/hornblende schist with minor disseminated magnetite,pink calcite and garnet
70' - 74'	Massive magnetite with white calcite and chlorite stringers
74' - 78'	Massive magnetite with calcite stringers, minor amphibolite with chlorite
78' - 79'	Amphibolite schist with grey silicious marble
79' - 80'	Banded disseminated magnetite in amphibolite with calcite
80' - 82'	Amphibolite schist with grey siliceous marble
82' - 83'	Banded disseminated magnetite in amphibolite with chlorite
83' - 93'	Black amphibolite schist banded with chlorite and white marble

Table 4.

DIAMOND DRILL HOLE NO. 3

North Half Lot 15, Concession 3
South Canonto Township, Frontenac County

Drilling Contractor: George Downing Estate Drilling Limited
91 Main St.
Calumet, Quebec
JOV 1BO

Dates: Start July 27, 1993; Finish July 28, 1993

Hole Location: 75N on 100W traverse line of survey grid

Size of Core: BQ bit with 1 3/8" core

Dip of Hole: 45 degrees to South along 100W line of survey grid

Dip Test Results: None

Final Hole Depth: 123'

0' - 40'	Black amphibolite schist with grey siliceous marble bands and pink calcite
40' - 42'	White/grey banded marble
42' - 62'	Black amphibolite schist with bands of grey marble and grey siliceous marble
62' - 64'	White/grey marble
64' - 73'	Amphibolite with marble stringers & garnet
73' - 79'	White/grey marble with chlorite and garnet
79' - 80'	Disseminated magnetite in amphibolite schist
80' - 81'	Grey siliceous marble
81' - 83'	Amphibolite with chlorite
83' - 85'	Coarse grained amphibolite with silica and white marble bands, chlorite, hornblende and pyrrhotite
85' - 87'	Disseminated magnetite in amphibolite schist
87' - 89' 6"	Banded and mottled amphibolite/chlorite schist with pyrrhotite
89' 6" - 101'	Massive magnetite with stringers of white calcite and chlorite schist
101' - 107'	Banded amphibolite schist with chlorite and bands of pink and grey marble
107' - 109' 6"	Massive magnetite in amphibolite/chlorite schist with white calcite stringers
109' 6" - 111' 6"	Massive magnetite in amphibolite schist
111' 6" - 114'	Amphibolite schist with bands of white and pink marble and chlorite
114' - 116'	Disseminated magnetite in banded chlorite schist and grey marble
116' - 120'	Amphibolite schist mottled and banded with chlorite and grey marble
120' - 123'	Hornblende phase of amphibolite schist

Table 5.

DIAMOND DRILL HOLE NO. 4

North half Lot 15, Concession 3
South Canonto Township, Frontenac County

Drilling Contractor: George Downing Estate Drilling Limited
91 Main St.
Calumet, Quebec
JOV 1BO

Dates: Start July 28, 1993; Finish July 28, 1993

Hole Location: 25N on 200W traverse line of survey grid

Size of Core: BQ bit with 1 3/8" core

Dip of Hole: 45 degrees to South along 200W line of survey grid

Dip Test Results: None

Final Hole Depth: 53'

0' - 5'	Amphibolite schist with white calcite stringers
5' - 6'	Grey siliceous marble
6' - 13'	Hornblende phase of amphibolite schist with calcite and quartz particles
13' - 19'	Amphibolite schist with stringers of calcite and grey siliceous marble
19' - 23'	Massive magnetite with white calcite stringers, pink marble and chlorite
23' - 24'	Grey siliceous marble
24' - 26'	White/grey marble
26' - 28'	Amphibolite schist
28' - 29'	Grey siliceous marble
29' - 30'	White marble
30' - 30' 6"	Disseminated magnetite in white marble
30' 6" - 33'	Amphibolite schist banded and mottled with hornblende, calcite and grey siliceous marble
33' - 34'	Banded grey siliceous marble
34' - 44'	Massive magnetite with white calcite stringers and bands of amphibolite/hornblende/chlorite schist
44' - 46'	Hornblende schist
46' - 49'	Amphibolite schist
49' - 53'	Grey siliceous marble with quartz stringers

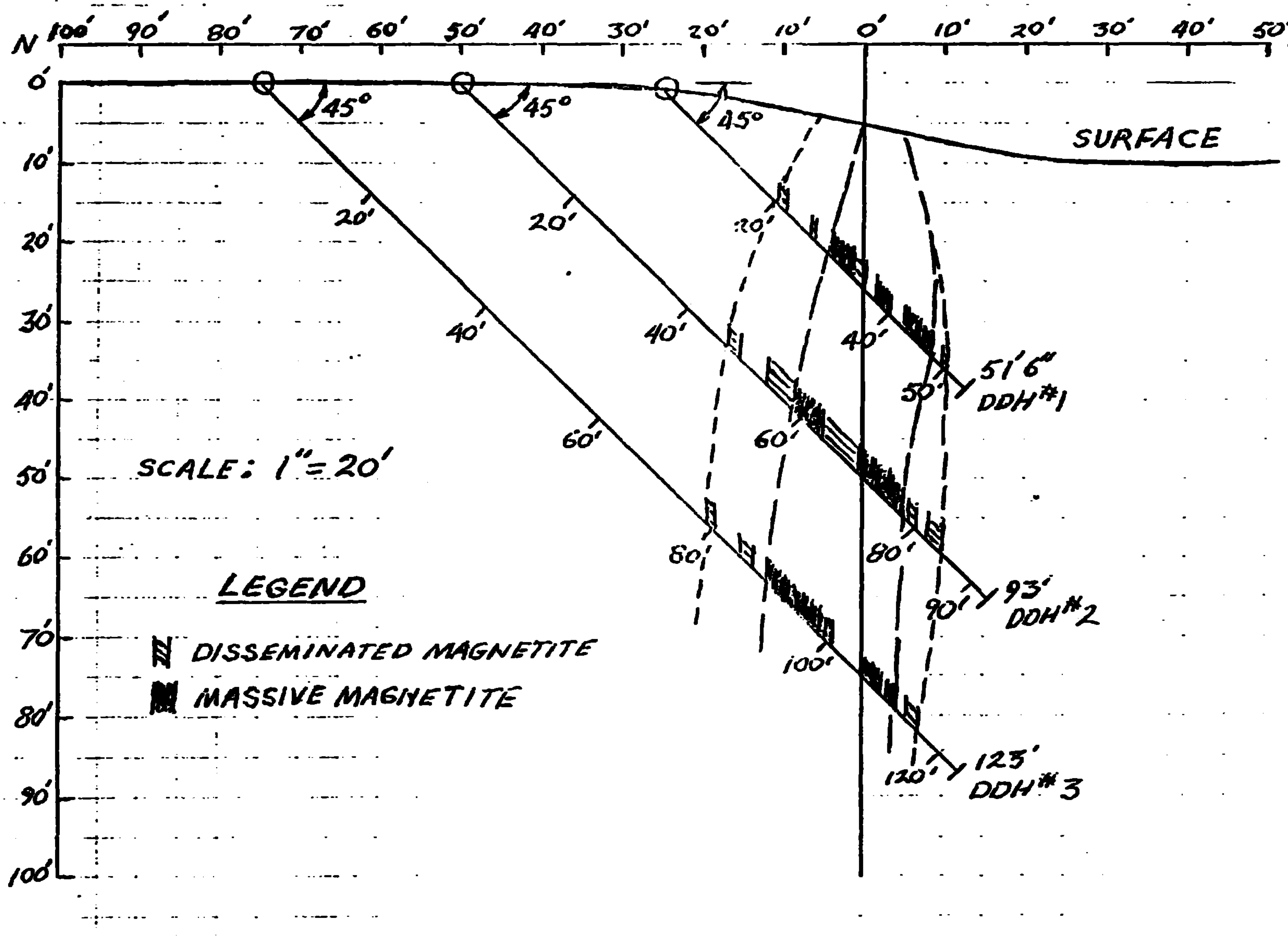


Figure 9. Diamond Drill Hole Vertical Section Along Traverse Line 100W Looking East.

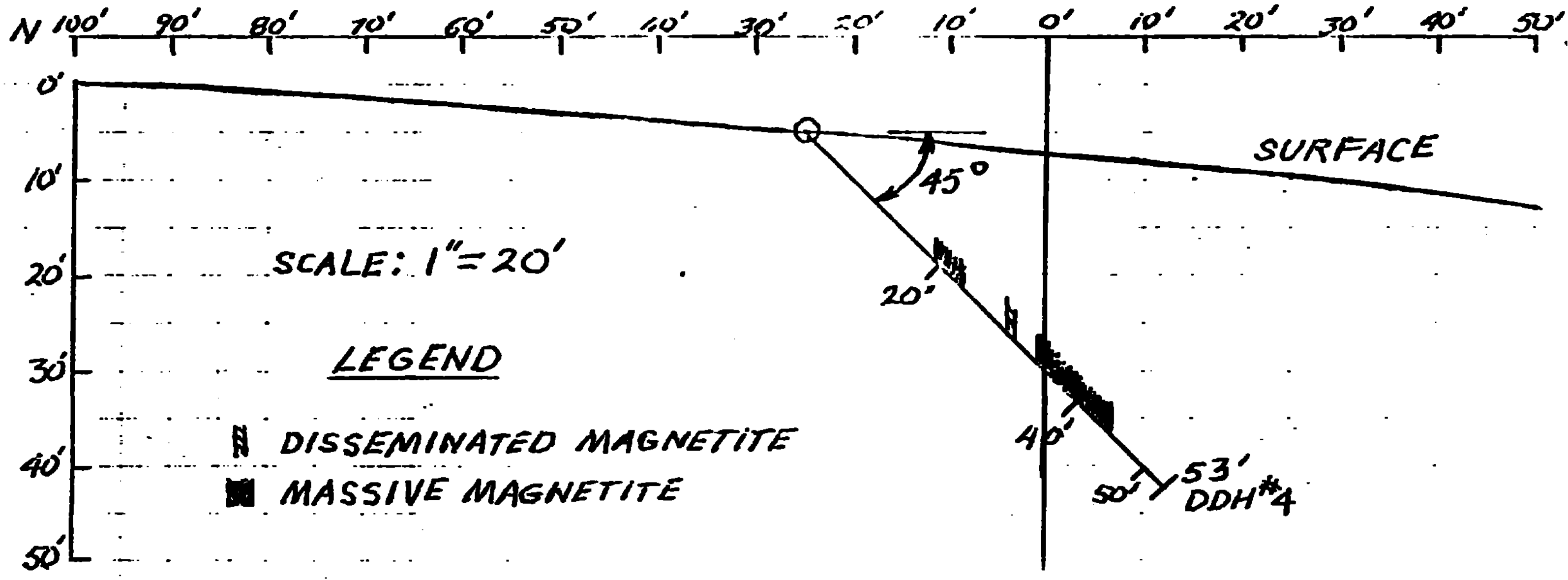


Figure 10. Diamond Drill Hole Vertical Section Along Traverse Line 200W Looking East.

The vertical cross-section of drill holes along the 100W traverse line in Figure 9 shows the outline of the nearly vertical dipping (87 degrees) banded magnetite formation. It pinches out at the surface but widens with depth. At the surface, only about 5' of massive magnetite is observed. At about 20' depth, the horizontal width of the deposit is about 20' but only 12' contain magnetite and only 7 1/2' contain massive magnetite. At about 45' depth, the horizontal width is about 25' but only 11' contain magnetite of which 9' contain massive magnetite. At about 70' depth, the horizontal deposit width is about 26' of which 15' contain magnetite with 11' containing massive magnetite. This indicates that the width of massive magnetite increases with depth.

The vertical section of hole #4 along the 200W traverse line also shows more horizontal width of massive magnetite and less disseminated magnetite. At a depth of about 23', the magnetite horizontal width is about 18' of which 10' is massive magnetite and less the 1/2' is disseminated magnetite.

In conclusion, the magnetite formation would allow mining a 20' width (the minimum width for mining an open cut with machines) especially since mining from west to east is uphill. However, only about half of the material mined would be massive magnetite. Since the magnetite is laced with stringers of white calcite crystals, it is of poor quality and unsuitable for heavy aggregate applications.

5. Drilling Recommendations

No further drilling of this magnetite zone is needed or recommended. On completion of the project, the drill core will be stored at the MNDM Core Library, Tweed, Ontario.

E. DRILL CORE ANALYSIS

1. Work Done

Since the magnetite was considered unsuitable for heavy aggregate applications, complete testing and analysis of core samples by IMD Laboratories Ltd., Barrie, Ontario, as proposed, was not deemed necessary. However, it was essential to determine the Specific Gravity of the magnetite core samples to establish the quality of the magnetite deposit.

The Specific Gravity analysis of the magnetite core for each drill hole was done by the applicant from August 18 to August 26 in the applicant's own laboratory facilities. An Ohaus Triple Beam Balance with maximum direct load of 610 grams was used to measure the Specific Gravity of the core samples. The balance sensitivity was 0.01 grams. Measurements were made to 0.1 grams which gave 4 significant figures in the measured weights. This ensured a three-figure accuracy in the Specific Gravity determinations.

The drill core was 1 3/8" in diameter. To keep individual pieces of core less than 610 grams, the core was broken into pieces 6" long or less. This size of core was also necessary for splitting the core with the core splitter at the MNDM Core Library, Tweed, Ontario. Out of the total length of core cutting the magnetite formation (which included sections with no magnetite), only the short sections containing massive (higher quality) magnetite were taken as samples. DDH #1 had 3 separate samples.; DDH #2 had 2 samples. DDH #3 had 3 samples and DDH #4 had 2 samples. In all, Specific Gravity measurements were made on 126 pieces of core. To obtain the best average Specific Gravity for the core tested for each hole, the Specific Gravity for each piece of core was weighted according to its length (i.e. S.G. of piece x length in inches). The weighted average for the total length of core tested for each hole was then determined by dividing the sum of the weighted values for all pieces by the total length of all pieces.

2. Analysis Results

Information on the samples analyzed and the results of the Specific Gravity measurements are presented in Table 6. It is noted from Table 6 that the average Specific Gravity of the magnetite deposit is less than 4.0. This is due to the presence of so much white calcite in the magnetite. This confirms that the magnetite deposit is too low in Specific Gravity and quality to be used for heavy aggregate purposes.

V. FINAL RESULTS

The exploration project consisting primarily of a magnetic survey and diamond drilling program was satisfactorily completed. Although the magnetite deposit proved to be smaller and of lower quality than hoped for, the project was worth while to finally know after so many years the cause of the extremely high magnetic anomaly at the project site.

The magnetometer survey results indicated that the magnetite deposit was not continuous over the length of the survey area as expected. Only one relatively small part of the anomaly about 250' long was of interest. Diamond drilling confirmed that this zone was a narrow (about 20' wide), banded, nearly vertically dipping (87 degrees NW) magnetite formation of which about 10' was massive magnetite. The extremely high magnetic intensity and polarity over this narrow deposit was obviously the result of thermo-remnant magnetization when the deposit was formed. Small pieces of the magnetite have sufficiently strong North and South poles to attract small grains of magnetite or iron. The magnetite could properly be called Lodestone.

TABLE 6. CORE ANALYSIS RESULTS. SPECIFIC GRAVITY MEASUREMENTS OF MAGNETITE SECTIONS OF DRILL CORE.

DDH NO.	SAMPLE NO.	POSITION IN HOLE	NO. PIECES	TOTAL LENGTH	WEIGHTED AVERAGE S.G.
1	1	30' 6" - 34' 0"	10	41"	3.96
1	2	37' 6" - 39' 6"	3	14"	3.92
1	3	43' 4" - 45' 2"	5	22"	3.81
2	1	70' 0" - 71' 10"	6	22"	4.02
2	2	59' 0" - 63' 6"	12	54"	4.09
3	1	89" 6" - 101' 0"	35	135"	3.91
3	2	107' 0" - 111' 0"	11	44"	3.70
3	3	114' 0" - 115' 0"	3	12"	3.89
4	1	19' 0" - 23' 0"	10	33"	3.80
4	2	34' 0" - 44' 0"	31	119.5"	3.77

TOTAL NO. MEASUREMENTS 126

WEIGHTED AVERAGE SPECIFIC GRAVITY 3.89

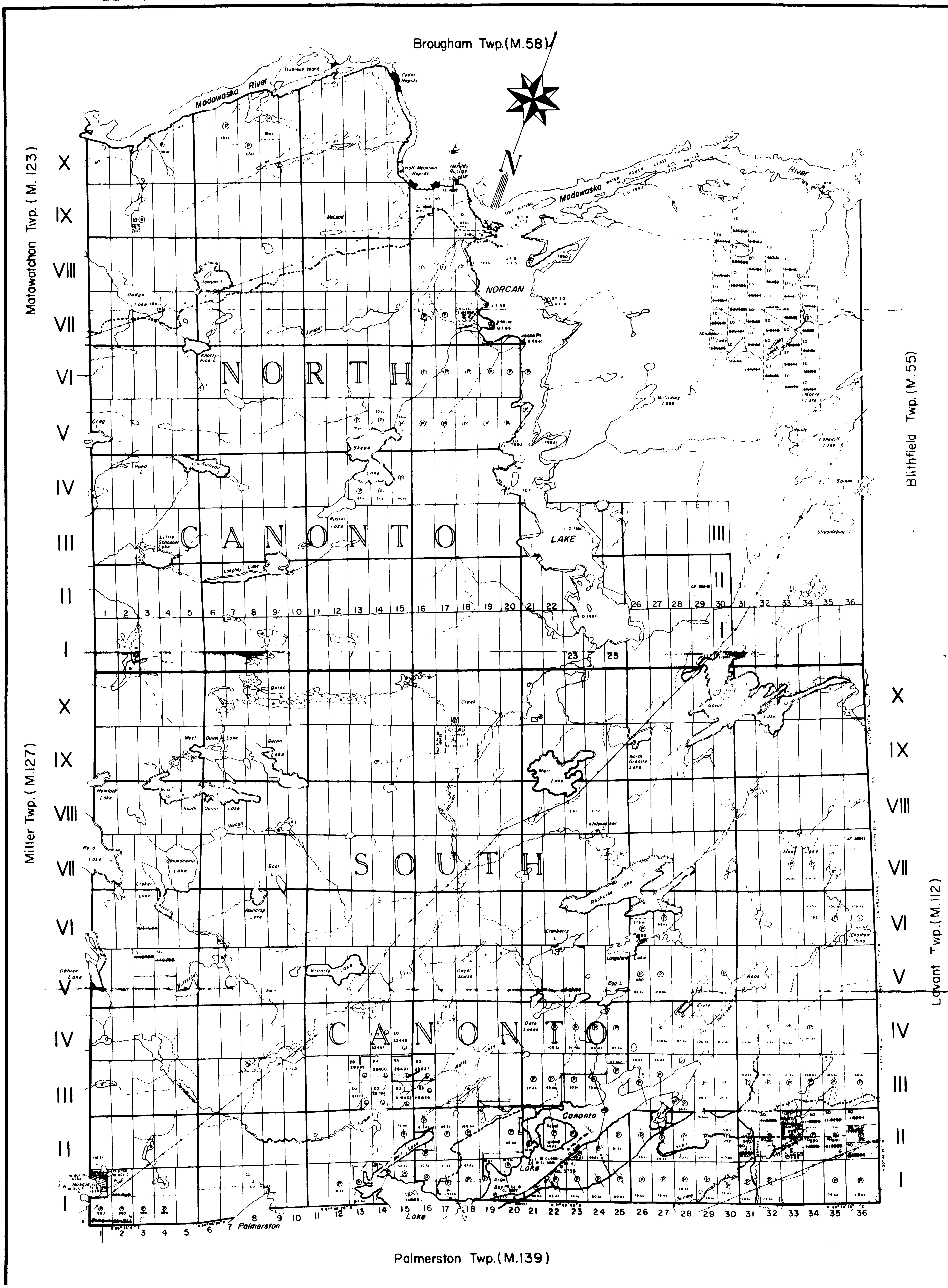
The drill core of the magnetite was laced with stringers of white calcite crystals which made the magnetite of low quality. The average Specific Gravity of the magnetite determined by the core analysis was just less than 4.0. This confirmed the low quality of the magnetite and its unsuitability for coarse heavy aggregate (4.4 and higher is required).

The magnetite deposit may have potential for a fine magnetite product with a Specific Gravity of 4.4 or higher if it is crushed and ground to the size of the calcite crystals (about 30 mesh) and magnetically separated.

No new claims were staked and no option agreement will result from the work completed. An additional magnetic anomaly detected just at the east end of the survey area could be of interest for further exploration.

VI. FINAL RECOMMENDATIONS

No further exploration work on the project survey grid area is needed or recommended. However, the additional magnetic anomaly detected just at the east end of the survey grid about 50' north of the baseline is worth exploring further since it indicates another magnetite deposit. The survey area could easily be extended eastward now that a good baseline and grid have been established. Hopefully, this magnetite deposit will not contain calcite stringers and will be of sufficiently high grade and Specific Gravity to be used for heavy aggregate. A small, high quality magnetite deposit is still urgently needed to meet current markets for high Specific Gravity heavy aggregate for nuclear shielding purposes. The applicant plans to apply for an OPAP grant for 1994-95 to be able to do a magnetic survey and diamond drilling on this new magnetic anomaly zone.



THE TOWNSHIP OF NORTH & SOUTH CANONTO

COUNTY OF FRONTENAC

SOUTHERN ONTARIO
MINING DIVISION

SCALE: 1-INCH=40 CHAINS

LEGEND

PATENTED LAND	● or (P)
CROWN LAND SALE	C S
LEASES	(L)
LOCATED LAND	Loc
LICENSE OF OCCUPATION	L O
MINING RIGHTS ONLY	M RO
SURFACE RIGHTS ONLY	S RO
ROADS	
IMPROVED ROADS	
KINGS HIGHWAYS	
RAILWAYS	
POWER LINES	
MARSH OR MUSKEG	
MINES	
CANCELLED	C.
TRAILS	
PATENTED S.R.O.	●

NOTES

This Map Is Not To Be Used FOR SURVEY PURPOSES

Lot And Concession Lines Shown Hereon Are Projected From The Best Information Available But Their True Position Is Not Guaranteed For Official Survey Purposes Consult The Original Survey Plans And Field Notes

400 surface rights reservation along the shores of all lakes and rivers

The Acreages shown are the amounts that were patented and do not necessarily represent the true surveyed area of the parcel

L O 7990 - reserving Flooding Rights to contour elevation 662.5' to Ont Hydro File 1278 v 2

Flooding Rights reserved for Mountain Chute Development on Madawaska River to contour elev 817' File 83050 v 1&2

Portion of Madawaska River under Water Power Lease No 100 to Ont Hydro File 1278 v 2

HY 110 - flooding rights reserved to contour elev 817' under WPL A No 79

SAND AND GRAVEL

(G) QUARRY PERMIT
(G1) MNR 6F10 GRAVEL RESERVE
(G2) MNR 6F11 GRAVEL RESERVE
(G3) MNR 6F12 GRAVEL RESERVE

MAR. 1, 1993

THE INFORMATION THAT APPEARS ON THIS MAP HAS BEEN COMPILED FROM VARIOUS SOURCES AND ACCURACY IS NOT GUARANTEED. THOSE WISHING TO STAKE MINING CLAIMS SHOULD CONSULT WITH THE MINING RECORDER, MINISTRY OF NORTHERN DEVELOPMENT AND MINES, FOR ADDITIONAL INFORMATION ON THE STATUS OF THE LANDS SHOWN HEREON.

PLAN NO.-M. 68

ONTARIO
MINISTRY OF NATURAL RESOURCES
SURVEYS AND MAPPING BRANCH

200