TECHNICAL REPORT
ON
TOMCLID IRON MINES PROPERTY

BY

Lloyd G. D. Thompson, Ph. D., P. Eng.

February 15, 1966

SUMMARY

Exploration and development work on ten (10) claims in South Canonto Township has established the presence of magnetite deposits having an expected average grade of about 40% natural iron with immediately available proven reserves of the order of three (3) million tons, probable reserves of the order of ten (10) million tons, and speculative or possible ore of the order of one hundred (100) million tons.

TOMCLID IRON MINES - OFFICERS AND DIRECTORS

Tomclid Iron Mines is composed of a group of private individuals formed for the exploration and development of an iron property described below.

The officers and directors are as follows:

President and Director ----------	Lloyd G. D. Thompson, B.A. Sc., M. Sc., Ph. D. 15 Minute Man Lane Lexington, Mass., U.S.A. Geophysicist and Professional Mining Engineer Geophysicist, General Oceanology, Inc. Cambridge, Mass., U. S. A.
Vice-President and Director ----------	William Hartling 232 William St. London, Ont., Canada Contractor, King Plumbing and Heating, Ltd.
Secretary - Treasurer and Director -------	John F. Clark 39 Sunnycrest Drive Ottawa, Ont., Canada Geophysicist, Dept. Energy, Mines and Resources, Ottawa
Director ----------	Edgar W. Lidington, M. D. 145 Heath St. Ottawa, Ont., Canada Physician and Surgeon Ottawa, Canada

PROPERTY

The holding consists of ten (10) contiguous mining claims located in the Township of South Canonto, Frontenac County, Ontario which contain magnetite deposits.

The claims are recorded as follows:

E.O. 28399 - North half Lot 13, Concession 3

E.O. 31172 - South half Lot 13, Concession 3

E.O. 28400 - North half Lot 14, Concession 3

E.O. 25784 - South half Lot 14, Concession 3

E.O. 28401 - North half Lot 15, Concession 3

E.O. 28402 - South half Lot 15, Concession 3

E.O. 28627 - North half Lot 16, Concession 3

E.O. 28628 - South half Lot 16, Concession 3

E.O. 32447 - South half Lot 14, Concession 4

E.O. 32446 - South half Lot 15, Concession 4

The claims total over five hundred (500) acres. They are all in good standing as follows:

E. O. 32447 and E. O. 32448 - Assessment work done and lease applied for.

All other claims - Assessment work done and 21 year lease taken.

LOCATION AND ACCESS

The property is located about 65 miles north of the city of Kingston, Ontario and about 4 miles north of the town of Ompah, Ontario, in particular, on the north-west side of Summit Lake.

It can be reached by taking Highway 509 north from Highway 7 (near Sharbot Lake) through Clarendon and Snow Road to the town of Ompah. Thence by taking the road along the southeast side of Palmerston Lake, taking the road across the dam between Palmerston and Canonto Lakes, and following a Hydro service road and bulldozed access road to the claim site.

FACILITIES AND UTILITIES

There are no buildings or mining equipment on the property. A hydro-electric transmission line passes about one half mile to the northwest of the property. Fresh spring water is available in adequate quantity. The claims also contain part of Summit Lake whose water is potable.

HISTORY

The original strike or find was made on a magnetite deposit shown as Zone .. in figure 1 in the summer of 1957 while prospecting with a magnetometer. Claims were staked and exploration and development work started beginning with a detailed magnetometer survey. As additional mineral and anomaly zones were located with further exploration, additional claims were staked and development work performed.

The development work was of a magnitude within the financial capability of Tomclid but more than adequate to complete the assessment work on the claims.

In 19 additional gravity survey over an area of two claims outlined a very large anomaly zone which greatly enlarges the potential ore and the size of the possible mining operation. The continued exploration and development of this new large anomaly zone is beyond the physical and financial capabilities of Tomclid. Therefore, Tomclid is seeking additional support for, or disposition of the property.

GEOLOGY

The magnetite mineralization is a replacement deposit that appears to have formed in a shear zone of a host rock mapped locally as hornblende gneiss. The gneiss varies from massive "grey granite" type blocks to amphibolite and hornblende phases. The magnetite outcrops at the surface in Zone A (figure) and occurs as a dike-like formation 50 to 150 feet wide with sharp contacts and dipping steeply at about 67 degrees to the northwest. (figures and 4) The mineralization may be associated with a mass of fine-grained porite which intrudes the area immediately to the west to form exposed hills of over 1100 feet in elevation.

LOCATION OF MINERAL DEPOSITS AND ANOMALIES ON CLAIM GROUP

Several mineral zones are known or indicated on the claims. The locations of the known magnetite deposits and gravity and magnetic anomalies on the group of claims are shown in Figure 1. Zone A is the original "strike" and is an explored and proven magnetite deposit. Zone C is another magnetite deposit that has been exposed and sampled. The magnetic anomaly of Zone C is greater than that of Zone A. Zone B is the main gravity anomaly. A drill hole into this zone has intersected magnetite at depth. The other zones are considered minor.

EXPLORATION AND DEVELOPMENT WORK

A great deal of exploration and development work has been done, mostly on Zone A but some on Zone C and a little on Zone B. Work has been in excess of that required for assessment work and includes the following major activities:

1. Detailed magnetic survey over Zone A.

2. Reconnaissance magnetic survey over all of the claims, outlining Zones B,C,D, and other minor zones not shown on Figure 1.

3. Detailed gravity survey over Zone A.

4. Gravity survey over 2 claims, outlining the new anomaly Zone B.

5. 1790 feet of diamond drilling with AX core, mostly on Zone A but partly intersecting Zone B.

6. Grid survey of 8 claims.

7. Bulldozer stripping of Zone A, road building and construction of water for drilling water (see Figure 1).

8. Sampling on Zones A and C.

9. Assaying; grab, surface, drill core.

10. Testing and milling tests.

11. Results of geophysical surveys, land survey, assays, and development drive logs, etc. can be presented for examination and discussion upon request. For convenience, a summary of exploration and development work are presented in the next section.

PLAN OF EXPLORATION AND DEVELOPMENT

Figure 1 is a development plan showing the work done on Zone A. The approximate outline of the zone is shown as well as the stripped areas and location of diamond drill holes, roads, and other features. In this

vicinity of Drill Hole No. 3 the formation is at a high elevation [illegible] generally high grade massive magnetite. In the vicinity of Holes [illegible] 2, and 4, the formation is lower in elevation and is banded in nature, thus having a lower average grade. The northeast end of the zone is again high grade magnetite but the width of the zone is narrow, 20 to 40 feet. A small but intense oval gravity anomaly at the southwest end of the zone indicates more potential magnetite.

A topographic profile along the axis of the zone is shown in Figure 3. This shows that the magnetite deposit extends across a shallow valley with high grade magnetite at the higher elevations at either end and the banded lower grade magnetite in the central portion. The diamond drill holes were put down in the banded section because the depth of high grade magnetite is obvious by its exposure over a considerable vertical distance.

A section of Zone A as determined by the drill holes is shown in Figure 4. The near vertical dike or lens-like nature of the deposit is verified by this section. At depth it appears to bend towards Zone B and must obviously continue to a greater depth beyond that determined by drill hole no. 4. The average grade of this section is about 40% Fe if the obviously barren rock is excluded and about 30% Fe if the waste rock is included.

Another cross-section in the vicinity of Drill Hole No. 5 is shown in Figure 5. The near vertical dike-like nature of the formation is again illustrated. This part of the deposit is high grade (about 58% Fe). In addition, it is important to note that the bottom few feet of this hole encountered magnetite at the contact of Zone B at a depth of about 380 feet. The grade was about 25% Fe.

In [illegible]ed way, this work has proven that Zone A is a dike-like [illegible] for[illegible]i of magnetite about 800 feet or more in length and dipp[illegible] st[illegible]y [illegible]% degrees) to the northwest. It varies in width from o[illegible] 10[illegible] at the southwest end to about 20 feet at the northeast [illegible] I[illegible] at least 200 and possibly 300 feet in depth. In addi[illegible], t[illegible] an unexplored anomaly at the southwest end of Zone A [illegible] in[illegible] an additional quantity of magnetite. Much of the deposi[illegible] h[illegible] magnetite but the banded nature of some portions reduc[illegible] th[illegible] [illegible]rade. An average grade of at least 40% Fe can be expect[illegible] a[illegible] [illegible]e formation as outlined, about 2 to 3 million tons of magnetite [illegible]ent, with a possibility of more.

Th[illegible] [illegible]rge gravity anomaly (Zone B) is shown in relation to the [illegible]ly ov[illegible] in Figure 6. It is readily seen that the Zone B anomaly [illegible] in extent than the anomaly over Zone A and indicates the presence [illegible] larger body of magnetite at a greater depth. There is [illegible] [illegible]f mineralization at the surface but Drill Hole No. 5 encountered [illegible] [illegible]t the contact zone at about a depth of 380 feet (Figure [illegible]). [illegible]ole No. 6 encountered low grade magnetite (12% Fe) from [illegible] to the bottom at 475 feet and is believed to have been sunk along [illegible]f the main magnetite zone.

...a length of over ...000 feet and indicates a body ...ving ...greater than th... f Zone A. Interpretation of the ... from profiles ...r it. Figure 7 shows anomaly ... sections D-D' and ... indicated on Figure 6. The profile ... shows a very ... and intense gravity anomaly ... magnetite ... of Zone A with another intense but ... at Zone B. ... here anomalies form a sharp bump on ..., broader and ... se anomaly that extends over more than ... In view of the ... al ...y anddrill hole information ..., this profile ind... the presence of two ... ...ake-like formati... of magnetite, one ... the ... ...w the surface, ex... ling downwards (say ... to a ... of magnetite. T... ravity anomaly profi... tion ... substantiates ... esence of the large mass ... h ...most identical to ... rofile along D-D' but ... s ... effect of the surfac... and near-surface lenses. ... t ... differentiation ... anomalies is difficult (and ... t...ry) ...pretation processes ... dicate that the lone formation of Zone ... mass of the order of ... to 3 million tons of magnetit... ... ...er of about 1... This is verified substantial... b ...formation. Inthe ... ce ... formation of Zone B in the ... section D-D', simple ... rpret... methods indicate a pos- ... mass of the order ... 10 million tons for only half the ... anomaly zone. Depth ... the center is estimated at about 325 ... entire Zone B formation at depth a total mass of the order of ... tons is estimated with ... depth to center of about 850 feet.

... loration of Zone B and ... other Zones is required to establish ... potential. However, exploratio... to date has establish... the ... diately available ... ver... ...sable reserves of the order ... in Zone A, prospect... re... of the ... r of 10 million ... case for the ... uri... ens in ... and ... lative ... of 100 million ... t... in Zone ... the other ... y zones. In vi... th... ent of Zone ... ...ibility ... serves of 20 milli... ton... or more is extre... ...ed. ... grade is lower ... an ex...ted.

... that obviously ... g... ...om 50% ... 0 ... ...e could easily ... ha... ...electi... ...y to ...ace. Sulphur, pos...hor... ...tents ...re ... ... Silica content ...eper... ... ...t is included as ...ste. ...ed to be barren a... ally ... ...ore.

...e shown that grin... ... ...as a 69% Fe conc... ...te

FIG. 1 – MAP OF CLAIMS SHOWING LOCATION OF MAGNETITE DEPOSIT ZONE 'A' AND OTHER ANOMALY ZONES

SCALE: 1" = 400'

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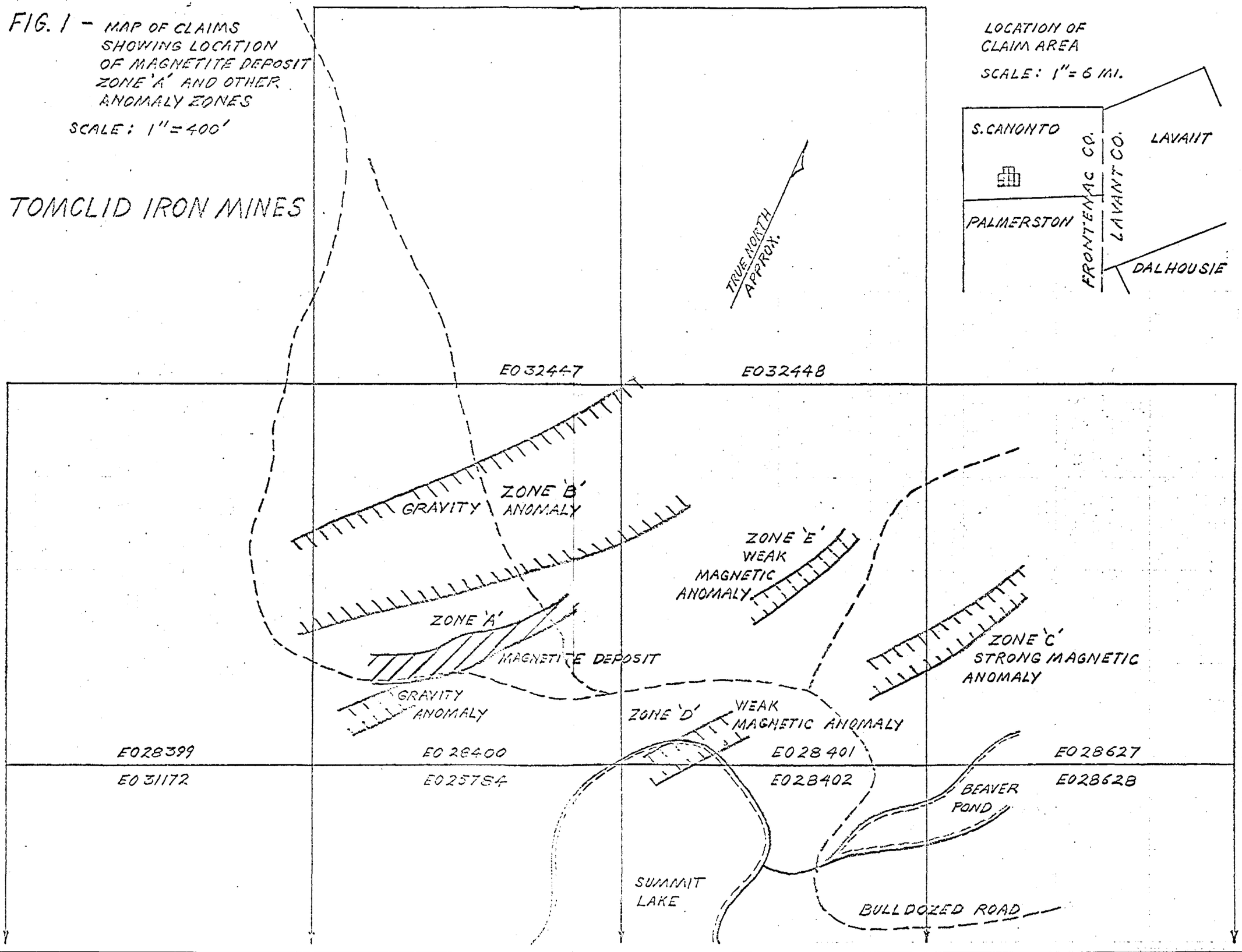

LOCATION OF CLAIM AREA

SCALE: 1" = 6 MI.

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FIG. 2 – DEVELOPMENT PLAN OF MAGNETITE ZONE A

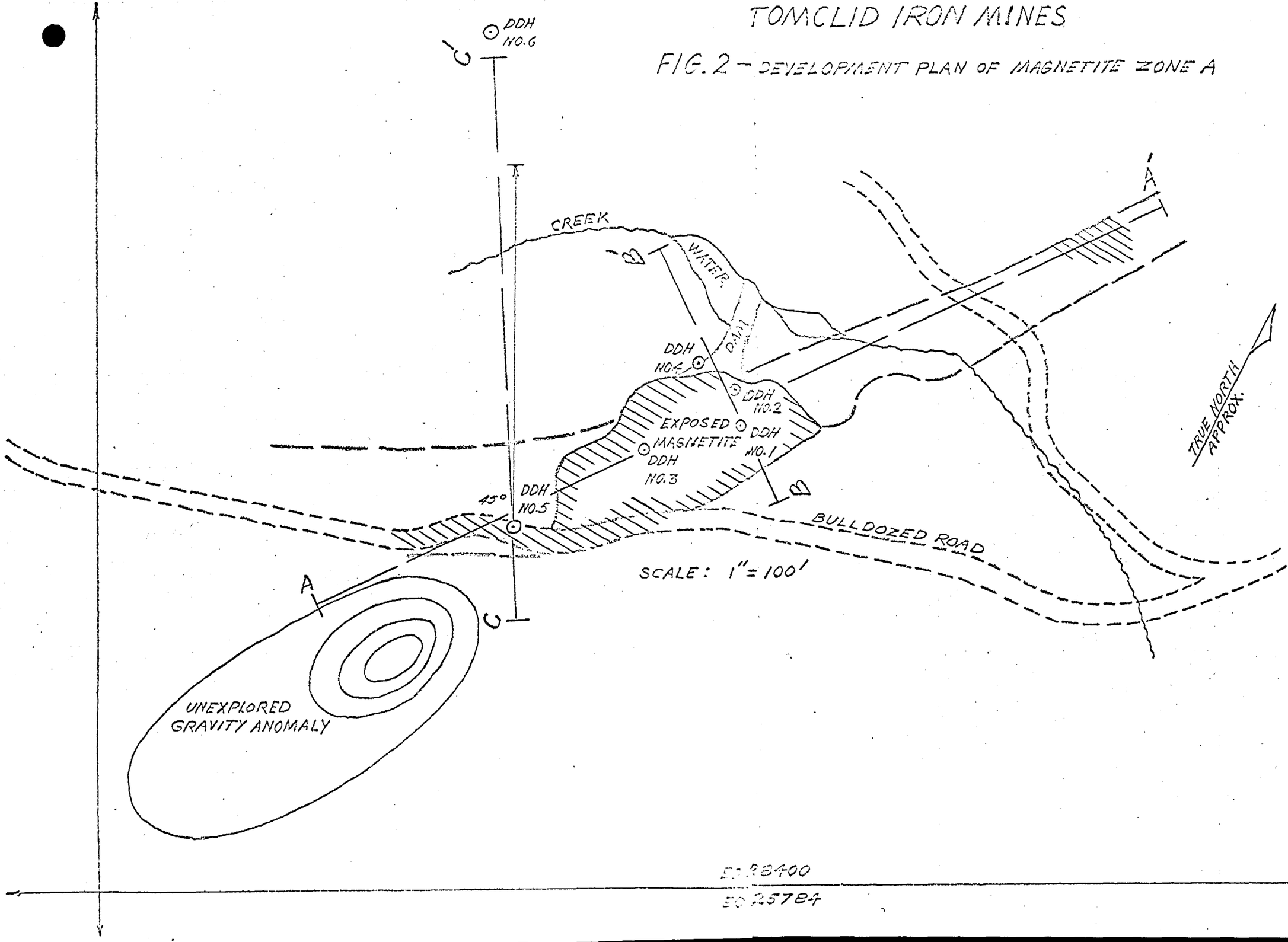

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FIG. 3 - TOPOGRAPHIC PROFILE ALONG SECTION A-A' OF FIG. 2 SHOWING DISTRIBUTION OF Fe GRADE

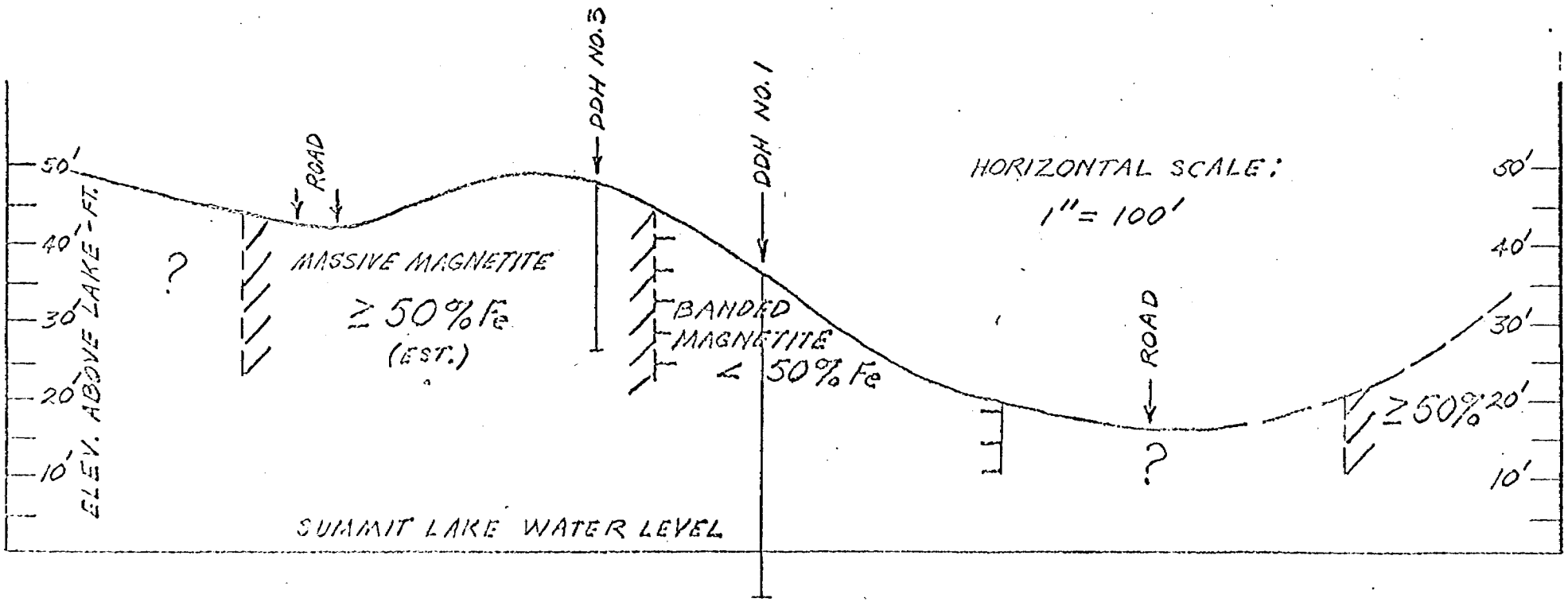

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FIG. 4 – SECTION B-B' OF FIG. 2 ACROSS ZONE A SHOWING MAGNETITE FORMATION FROM DRILL HOLES NO. 1, 2 & 4

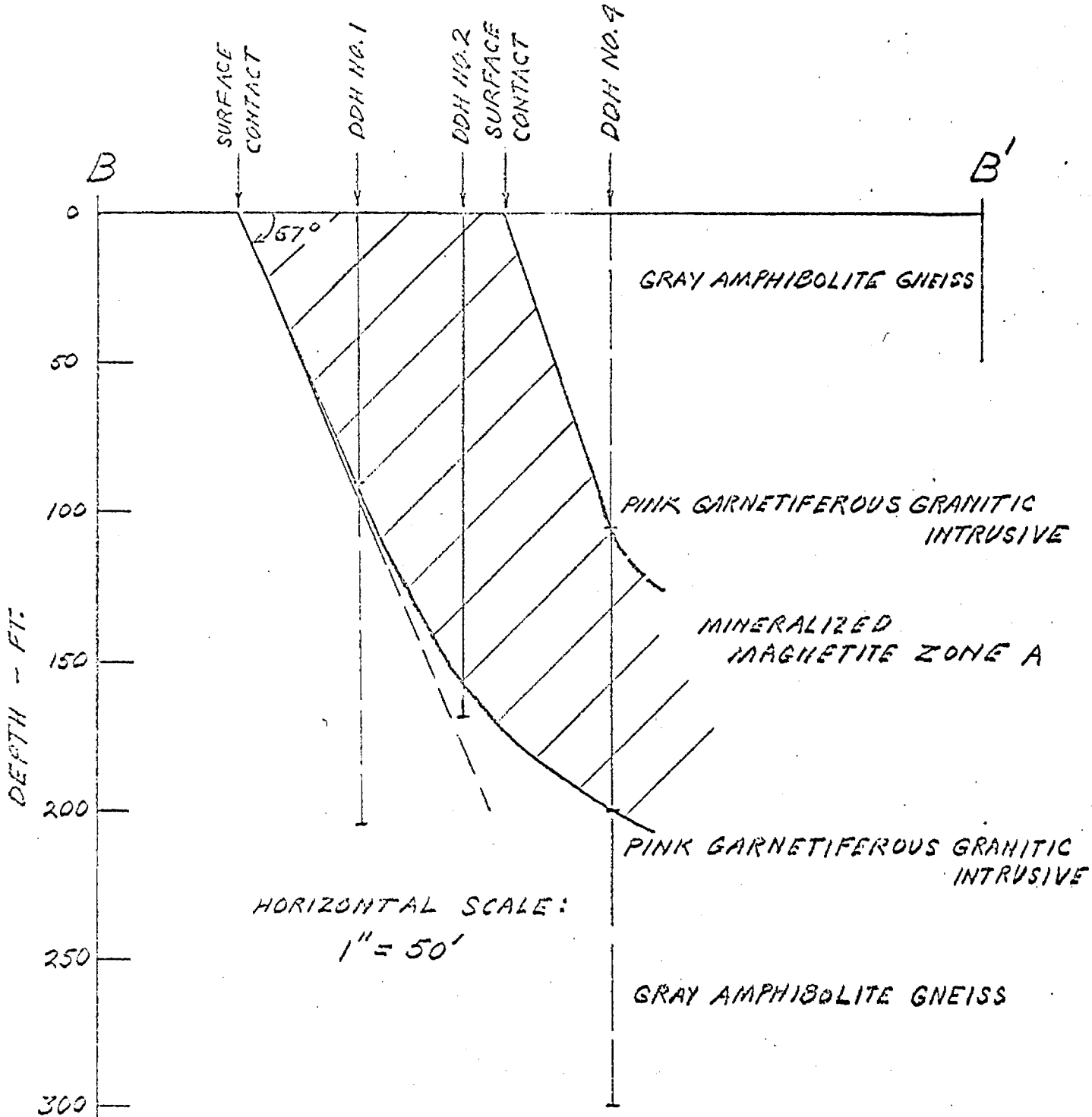

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FIG. 5 - SECTION C-C' OF FIG. 2 SHOWING MAGNETITE FORMATION ZONE A FROM DRILL HOLE NO. 5

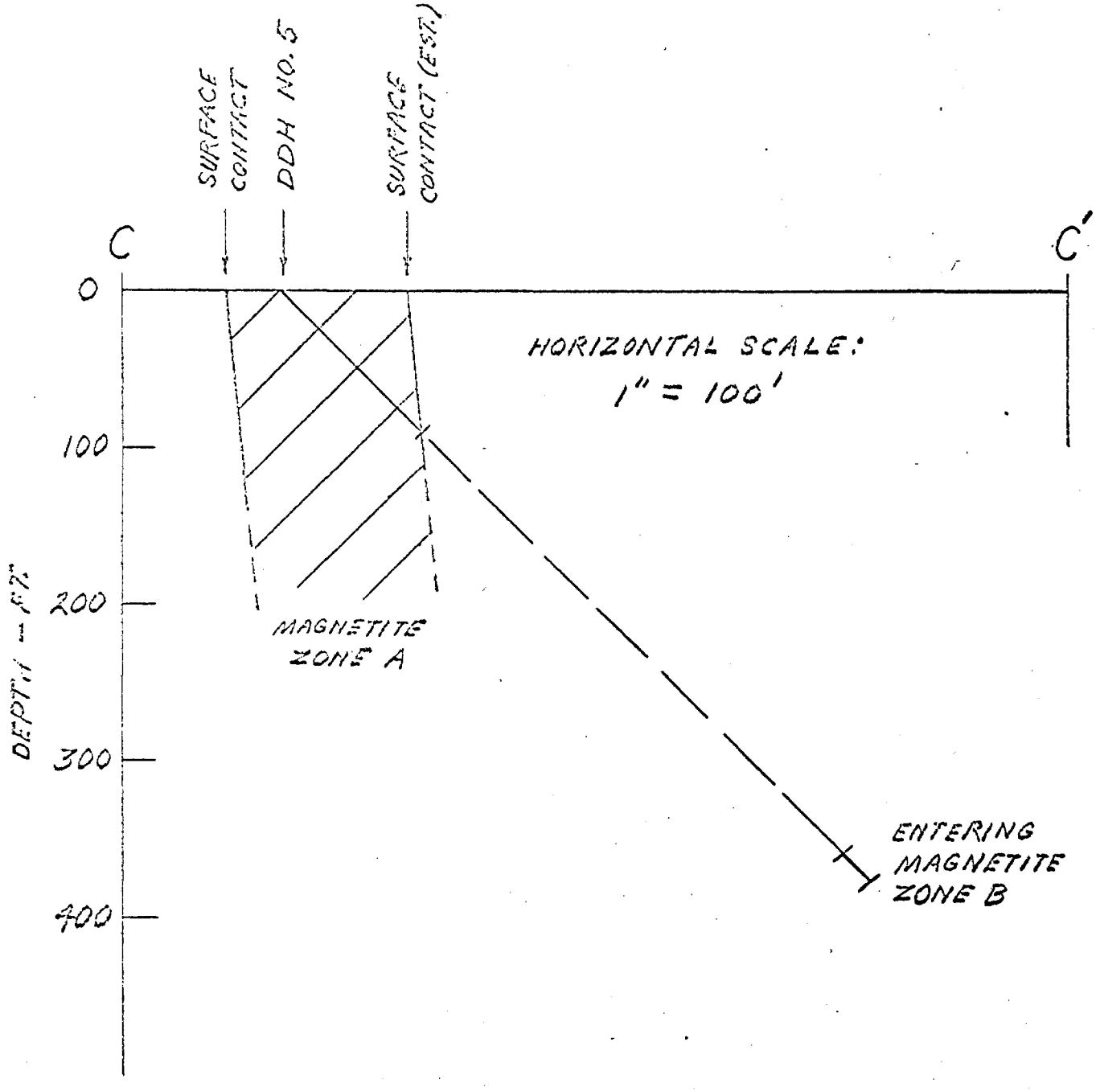

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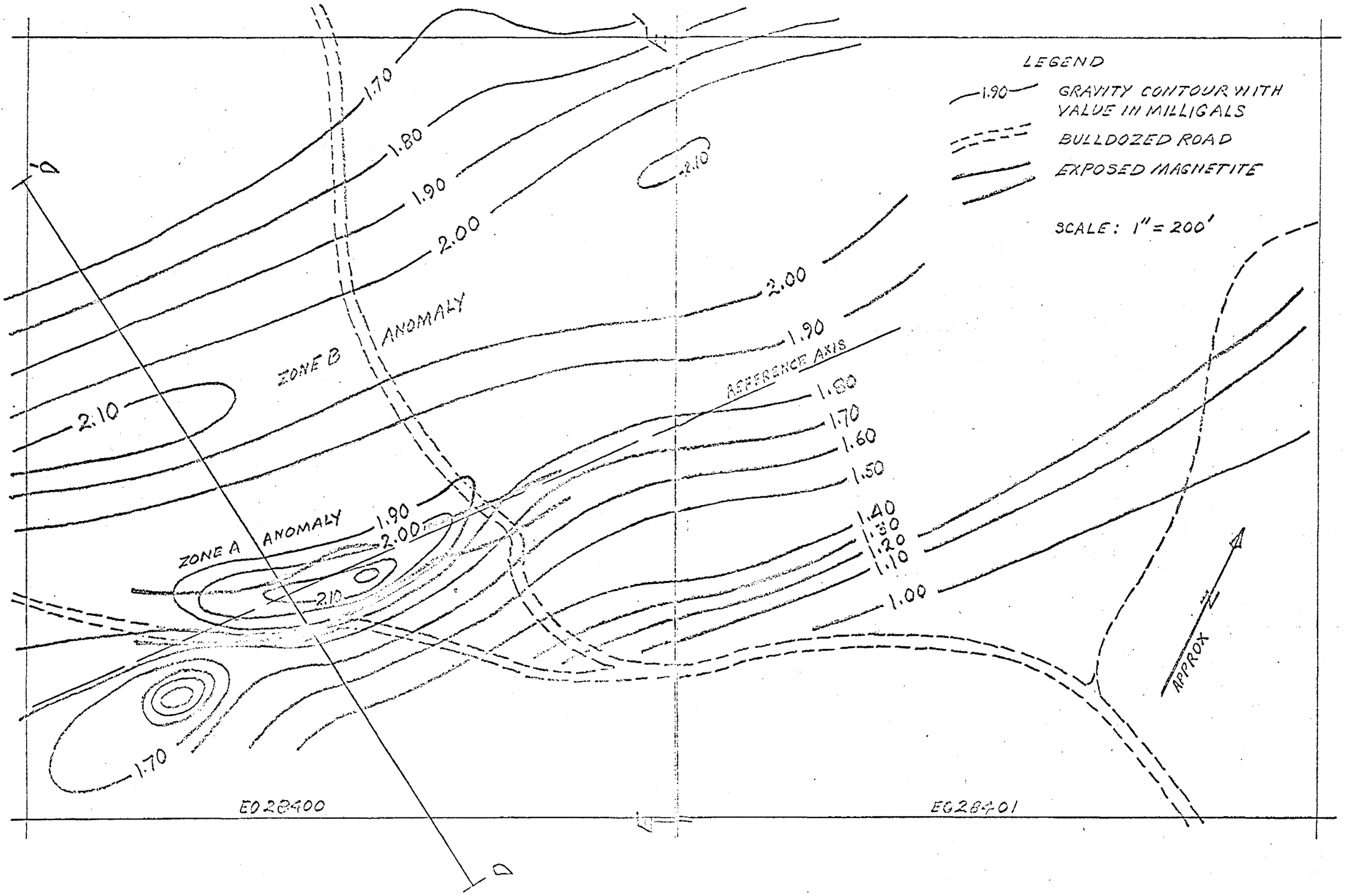
FIG. 6 — BOUGUER GRAVITY ANOMALY MAP SHOWING ANOMALIES OVER ZONES A AND B



TOMCLID IRON MINES

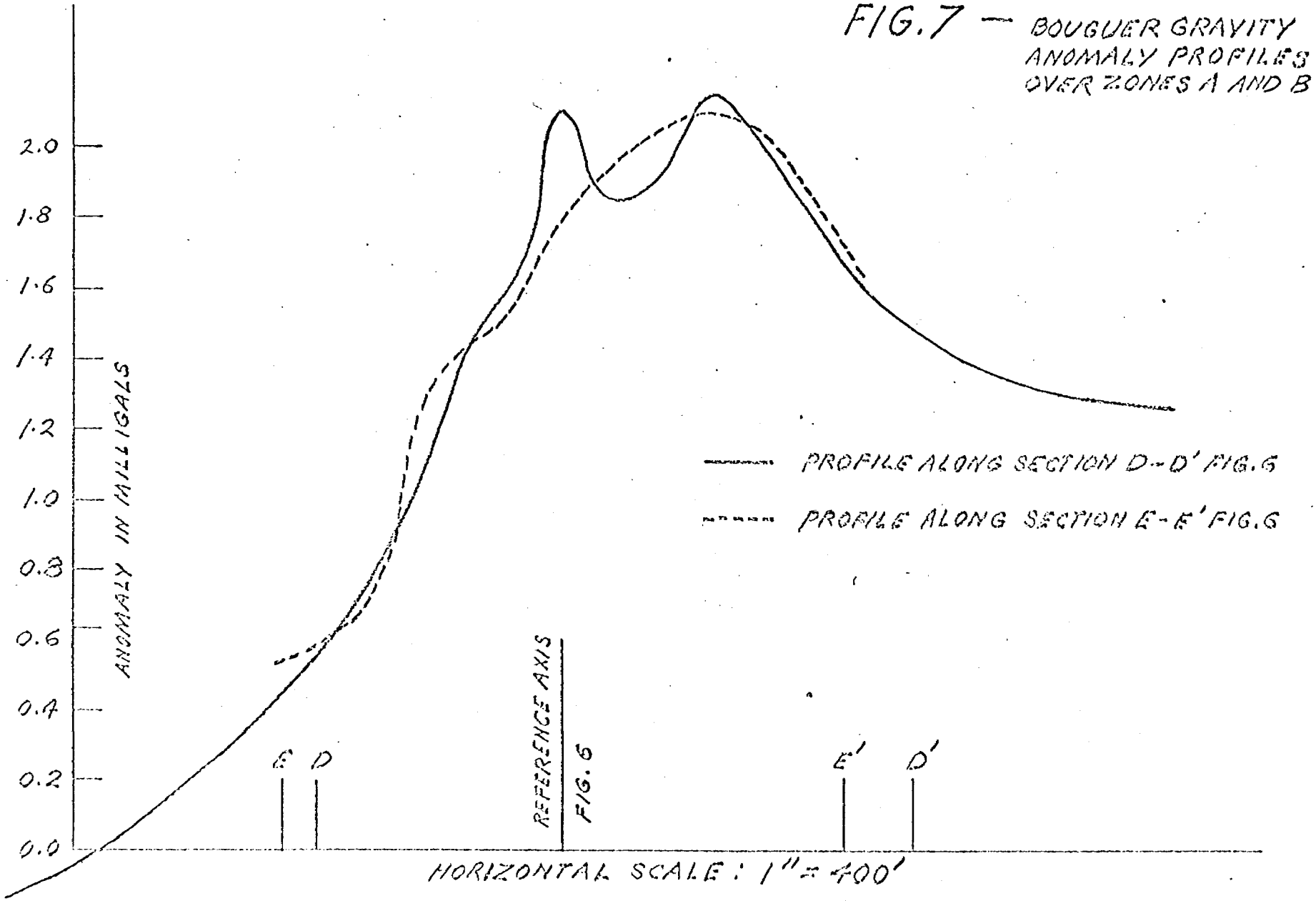


FIG. 7 — BOUGUER GRAVITY ANOMALY PROFILES OVER ZONES A AND B

CANADA

DEPARTMENT OF ENERGY, MINES AND RESOURCES

MINES BRANCH

OTTAWA

MINERAL PROCESSING DIVISION

Test Report MPT 68-11

MAGNETIC CONCENTRATION OF IRON ORE FROM SOUTH CANONTO TOWNSHIP, FRONTENAC COUNTY, ONTARIO

by

I. B. Klymowsky

Ferrous Ores Section

September 16, 1968

INTRODUCTION

A sample of magnetite ore from a claim in Eastern Ontario was received from Mr. J. F. Clark, 39 Sunnycrest Drive, Ottawa 5, Ontario, on July 9, 1968. The claim is located on the north half of lot 14, concession 3, South Canonto Township, Frontenac County, Ontario.

Purpose of Test Work

Mr. Clark requested that test work be done on the ore sample to determine the most suitable treatment. He believed that pig iron could be produced economically from the ore in an electric furnace. This would require a coarse feed, therefore concentration tests were conducted at the coarse grinds of 50 and 100-mesh to determine the grades of the furnace feed.

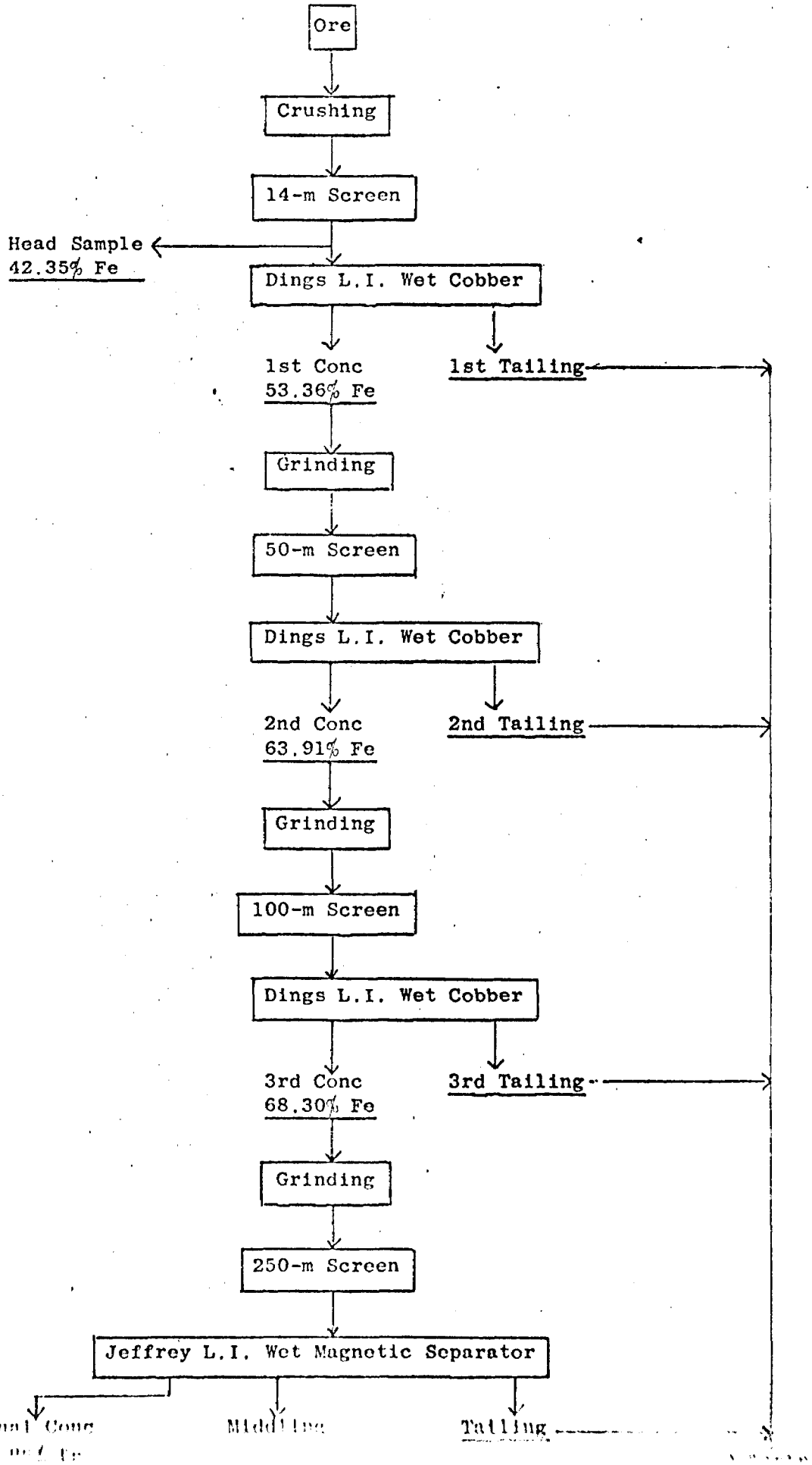
In the possibility that the concentrate would be pelletized, a test was also done at the finer grind of minus 250-mesh to determine what grade could be achieved.

Description of Ore Sample

The sample weighed approximately 100 lb and consisted of pieces up to 6 inches in size. Examination of the pieces revealed coarse grains of magnetite that could be liberated at 100-mesh.

Procedure

The details of the test flowsheet are presented in Figure 1. The ore was crushed to minus 14-mesh and passed over a Dings low-intensity magnetic cobber. The concentrate was ground in batches in laboratory grinding mills to minus 50-mesh and again passed over the Dings machine. The second concentrate was reground to minus 100-mesh and repassed over the Dings machine. To determine the grade of concentrate that could be made for pelletizing, the third concentrate was reground to minus 250-mesh and passed over a Jeffrey low-intensity magnetic separator which yielded final concentrate, middling and tailing products.


Ore
Crushing
14-m Screen
Head Sample
42.35% Fe
Dings L.I. Wet Cobber
1st Conc
53.36% Fe
1st Tailing
Grinding
50-m Screen
Dings L.I. Wet Cobber
2nd Conc
63.91% Fe
2nd Tailing
Grinding
100-m Screen
Dings L.I. Wet Cobber
3rd Conc
68.30% Fe
3rd Tailing
Grinding
250-m Screen
Jeffrey L.I. Wet Magnetic Separator
Middling
Tailing

Analysis

All chemical analysis was done by the Analytical Chemistry sub-division of Mineral Sciences. Assays of the head sample showed 43.6% total iron, 42.35% soluble iron, and 0.13% TiO_2.

Results

Table 1 gives the metallurgical results of the concentration tests.

TABLE 1

Products	Wt %	Analysis % Sol Fe	Distn % Sol Fe
Jeffrey Final Conc	59.1	69.85	97.9
Jeffrey Middling	1.2	63.29	0.2
Jeffrey Tailing	0.3	10.16	0.1
3rd Conc	60.6	68.30*	98.2
3rd Tailing	4.4	3.48	0.3
2nd Conc	65.0	63.91*	98.5
2nd Tailing	13.3	1.82	0.6
1st Conc	78.3	53.36*	99.1
1st Tailing	21.7	1.77	0.9
Feed	100.0	42.16*	100.0

* calculated

Table II gives the results of a screen test on the final concentrate.

TABLE II

Tyler Mesh	Wt %
+270	2.2
-270+325	17.0
-325+400	8.4
-400	72.4

CONCLUSIONS

Grades of 63.91% and 68.30% were obtained at the coarse grinds of 50 and 100-mesh respectively. A concentrate of 69.85% iron was made at minus 250-mesh at a ratio of concentration of 1.69 to 1 and a recovery of 97.9% of the soluble iron in the ore. This final grade is suitable for pelletizing and was achieved without any additional cleaning operations at the finer grind.