MAGNETIC REPORT

on

MINE CENTRE PROJECT

of

THE HANNA MINING COMPANY

by

John F. Muhic

February 9, 1976

THE HANNA MINING COMPANY
MINE CENTRE PROPERTY

LIST OF CLAIMS

A. Unpatented claims held by The Hanna Mining Company.

K-419522-531	- 10
K-413966-972	- 7
K-414984-415000	- 17
K-419501-03	- 3
K-419505-521	- 17
K-412629-662	- 34
K-434751-789	- 39
K-434791-795	- 5
K-434797-805	- 9
K-412716-723	- 8
Total	-149

B. Patented claims optioned from G. L. Pidgeon of Wabigoon, Ontario

K.298	- 1
K.300	- 1
K.301	- 1
P.683	- 1
K.304	- 1
Total	- 5

MINE CENTRE

INTRODUCTION

The Hanna Mining Co. was originally attracted to the area by zinc showings on patented claims P.683 and K.301. A total of 149 claims were staked and 5 patented claims were optioned by The Hanna Mining Company.

The property was covered by a grid of picket lines at 400-foot intervals. During 1975, a geological survey, two types of electromagnetic surveys, and a magnetometer survey were conducted on the claim block.

The project was supervised by H. Willson, B.Sc, and assisted by A. Little, B.Sc, J. Muhic, B.Sc, R. Tanaka and J. Spiteri under the direction of Nelson Hogg, District Geologist for The Hanna Mining Co. After September 1, John Muhic supervised all field work on the project, and the plotting and interpretation of data.

LOCATION & ACCESS

The property crosses Ontario Hwy.11 about 8½ miles east of Mine Centre. It extends 3 miles southwest of the highway, and to the east it occupies the ground between Hwy.11 and the Little Turtle River for a distance of 4 miles.

The west end can be reached by old logging roads branching east from the Shoal Lake Rd. The eastern portion is reached from Hwy.11, from the road to Bowes Camp, and from the CNR which traverses the central part of the claims.

Three power lines, Highway 11, and the CNR cross the property in an east-west direction.

FORMER WORK

In 1969, Kerr Addison Mines Ltd. conducted a geophysical and geological survey over the area of the property south of Hwy.11. The geophysical survey was done using a Crone JEM instrument. The JEM survey did not detect any anomalies. As far as it is known no geophysical survey was carried out on the rest of the property.

The area, however, has been heavily prospected for gold dating back to 1893. Abundant trenches and occasional shafts scattered throughout the property serve as evidence of the prospecting activity.

LINE CUTTING

Because of a bend in the geologic structure, two grids of picket lines were cut. A base line bearing N55°E was cut from 60+00E to 200+00E and a base line bearing 90° Astronomic was cut from 198+00E to 400+00East. All base lines were transit controlled. Tie-lines were cut at 20+00N, 20+00S, 40+00N and 40+00S, but were not transit controlled. Picket lines were cut perpendicular to the base lines at 400-foot intervals. Some lines across bad swamps and ponds were completed after freeze-up.

The line-cutting was done under contract. Work was begun under Mr. C. D. Huston of Winnipeg and completed under the supervision of Mr. Scott Waldie, Red Lake, Ontario.

A total of 6.5 miles of base lines, 11.07 miles of tie lines and 106.94 miles of picket lines were cut. Because of reconnaisance mapping, the decision was made to do no further work on 29 claims in the southwest end of the property. The grid and the surveys cover 120 unpatented claims and 5 patented claims. All geological surveys and geophysical surveys were carried out using the same grid.

PERSONNEL

The magnetometer survey was conducted by Joseph Spiteri and John Muhic during the summer and fall of 1975. The results are plotted and contoured on 8 standard sized sheets of 36" X 44".

GENERAL GEOLOGY

Even though there was an abundance of prospecting activity on the property, little geological mapping has been carried out by Ontario Dept. of Mines or the G.S.C. In 1911, A. C. Lawson (1918) and in 1934 T. L. Tanton (1935,1936) mapped the Mine Centre area including the west end of the Hanna property. To the east of the property, the Bennett-Tanner area was mapped by W. L. Young (1960) in 1958.

The property is in general underlain by felsic to rhyolitic volcanics interbedded with intermediate volcanics and intruded by quartz gabbro. It is bounded on the north by highly sheared, carbonatized and chloritized intermediate volcanics which lie just south of the Quetico Fault. The southern boundary consists of the Seine River group of conglomerates and intermediate volcanics. To the west, the volcanics pinch out into the Seine conglomerate.

There is one elliptical mass of mafic volcanics extending from L312E to L340E north of Tie Line 20+00N. The intermediate volcanics occur in bands up to 300 ft. wide interbedded with felsic volcanics, and in greater widths to the north and south of the felsic volcanics.

Most of the property is underlain by felsic volcanic rocks which include uniform, fine grained, sericitized rhyolite with well developed quartz eyes.

The quartz gabbro occurs as two massive sill like sheets that appear to be conformable with the surrounding volcanics. The gabbro is characterized by a high magnetic relief.

A general geology map at a scale of 1 inch equals ¼ mile is bound into the report.

INSTRUMENT

The survey was conducted using a Scintrex MF-2 Fluxgate magnetometer with a sensitivity of 20 gammas per scale division on the most sensitive scale.

METHOD OF SURVEY

Base stations were established along the base lines and tie lines of the grid at 100 foot intervals. This was done by reading the base stations a few at a time, checking back constantly to an already established base station and then carrying the survey ahead. On this property a total of 367 base stations were established over 16.52 miles of the lines and base lines.

The picket line grid was then run in closed loops, checking in at the base stations on the base line or tie line at regular periods. The readings were taken at 50-foot intervals except in anomalous areas where 25-foot readings were taken. A total of 11,685 readings were taken over 104.87 miles of picket line.

RESULTS & CONCLUSIONS

The readings were plotted on eight 36" X 44" sheets and contoured. Copies of the maps are enclosed with the report.

The contour pattern shows a strong trend sub parallel to the base lines. Geological units can be successfully traced under overburden and thus the magnetometer readings were useful in geological interpretation. The most striking magnetic relief is associated with the two gabbroic sills. One extends from the eastern boundary and pinches out at L212+00E. A second sill occurs south of the base lines between L252+00E and line 300+00East.

There are scattered one-station anomalies throughout the property that do not extend to adjacent picket lines. One example of this is on L164E 10+00S. These small magnetic anomalies are probably due to very narrow magnetic bands that have been observed in a few places on the property. They occur in the felsic and intermediate volcanic units.

It is interesting to note that the intermediate volcanics along the northern boundary of the claim group have very low magnetic properties. In contrast the intermediate volcanics along the southern boundary between L60+00E and 228+00E, have relatively high magnetic relief.

REFERENCES

Lawson, A.C. - The Archean Geology of Rainy Lake
Re - Studied G.S.C. Mem.40 - map no.98a-1913.

Lawson, A.C. -"Report on the Geology of the Rainy Lake Region"
Annual Report, G.S.C.Vol.111, 1888 Report F.

Tanton, T.L. - Geological Survey of Canada Map 334A Mine Centre
Area - 1936. 1 in.= ½ mile.

Tanton, T.L. -Preliminary Report on Mine Centre Area, Ontario,
G.S.C., Jan.1935.

Young, W.L. -Geology of the Bennett-Tanner area,
Ont. Dept. of Mines Vol.LXlX Pt 4, 1960.

.....John Muhic.....

February 9,1976 John P. Muhic,B.Sc

MINE CENTRE PROJECT

THE HANNA MINING COMPANY

ELECTROMAGNETIC REPORT

on a

CRONE C.E.M. SURVEY (HORE SHOOTBACK)

by

JOHN F. MUHIC, B.Sc.

FEBRUARY 9, 1976

THE HANNA MINING COMPANY
MINE CENTRE PROPERTY

LIST OF CLAIMS

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B. Patented claims optioned from G. L. Pidgeon of Wabigoon, Ontario

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K.301	- 1
P.683	- 1
K.304	- 1
Total	- 5

MINE CENTRE
ELECTROMAGNETIC REPORT
CEM SURVEY

INTRODUCTION

The Hanna Mining Co. was originally attracted to the area by zinc showings on patented claims P.683 and K.301. A total of 149 claims were staked and 5 patented claims were optioned by The Hanna Mining Company.

The property was covered by a grid of picket lines at 400-foot intervals. During 1975, a geological survey, two types of electromagnetic surveys, and a magnetometer survey were conducted on the claim block.

The project was supervised by H. Willson, B.Sc, and assisted by A. Little, B.Sc, J. Muhic, B.Sc, R. Tanaka and J. Spiteri under the direction of Nelson Hogg, District Geologist for The Hanna Mining Co. After September 1, John Muhic supervised all field work on the project, and the plotting and interpretation of data.

LOCATION & ACCESS

The property crosses Ontario Hwy.11 about 3½ miles east of Mine Centre. It extends 3 miles southwest of the highway, and to the east it occupies the ground between Hwy.11 and the Little Turtle River for a distance of 4 miles.

The west end can be reached by old logging roads branching east from the Shoal Lake Rd. The eastern portion is reached from Hwy.11, from the road to Bowes Camp, and from the CNR which traverses the central part of the claims.

Three power lines, Highway 11, and the CNR cross the property in an east-west direction.

FORMER WORK

In 1969, Kerr Addison Mines Ltd. conducted a geophysical and geological survey over the area of the property south of Hwy.11. The geophysical survey was done using a Crone JEM instrument. The JEM survey did not detect any anomalies. As far as it is known no geophysical survey was carried out on the rest of the property.

The area, however, has been heavily prospected for gold dating back to 1893. Abundant trenches and occasional shafts scattered throughout the property serve as evidence of the prospecting activity.

LINE CUTTING

Because of a bend in the geologic structure, two grids of picket lines were cut. A base line bearing N55°E was cut from 60+00E to 200+00E and a base line bearing 90° Astronomic was cut from 198+00E to 400+00East. All base lines were transit controlled. Tie-lines were cut at 20+00N, 20+00S, 40+00N and 40+00S, but were not transit controlled. Picket lines were cut perpendicular to the base lines at 400-foot intervals. Some lines across bad swamps and ponds were completed after freeze-up.

The line-cutting was done under contract. Work was begun under Mr. C. D. Huston of Winnipeg and completed under the supervision of Mr. Scott Waldie, Red Lake, Ontario.

A total of 6.5 miles of base lines, 11.07 miles of tie lines and 106.94 miles of picket lines were cut. Because of reconnaisance mapping, the decision was made to do no further work on 29 claims in the southwest end of the property. The grid and the surveys cover 120 unpatented claims and 5 patented claims. All geological surveys and geophysical surveys were carried out using the same grid.

PERSONNEL

The Crone C.E.M. Survey was conducted by Joseph Spiteri, Rod Tanaka and John Muhic during the summer and fall of 1975. The results were plotted and profiled on 8 standard 36" X 44" sheets.

GENERAL GEOLOGY

Even though there was an abundance of prospecting activity on the property, little geological mapping has been carried out by Ontario Dept. of Mines or the G.S.C. In 1911, A. C. Lawson (1913) and in 1934 T. L. Tanton (1935, 1936) mapped the Mine Centre area including the west end of the Hanna property. To the east of the property, the Bennett-Tanner area was mapped by W. L. Young (1960) in 1958.

The property is in general underlain by felsic to rhyolitic volcanics interbedded with intermediate volcanics and intruded by quartz gabbro. It is bounded on the north by highly sheared, carbonatized and chloritized intermediate volcanics which lie just south of the Quetico Fault. The southern boundary consists of the Seine River group of conglomerates and intermediate volcanics. To the west, the volcanics pinch out into the Seine conglomerate.

There is one elliptical mass of mafic volcanics extending from L312E to L340E north of Tie Line 20+00N. The intermediate volcanics occur in bands up to 300 ft. wide interbedded with felsic volcanics, and in greater widths to the north and south of the felsic volcanics.

Most of the property is underlain by felsic volcanic rocks which include uniform, fine grained, sericitized rhyolite with well developed quartz eyes.

The quartz gabbro occurs as two massive sill like sheets that appear to be conformable with the surrounding volcanics. The gabbro is characterized by a high magnetic relief.

A general geology map at a scale of 1 inch equals ¼ mile is bound into the report.

INSTRUMENT

The survey was conducted using a Crone C.E.M. unit. It consists of two identical coils that can alternately transmit and receive. The operating range of the coils is up to 200 meters. Measurements are made by visual null on the field strength meter and by audio null through crystal earphones. The inclinometer has a range of 200 degrees and an accuracy of ± 0.5 degrees. The instrument has three frequencies 5010 Hz, 1830 Hz and 390 Hz.

METHOD OF SURVEY

The Horizontal Shootback EM method was employed during this survey. With this method, both operators traverse along the same picket line. Both, in turn, transmit and receive, measuring the dip angle of the field. The two angles are then added together and equal "0" if no conductor is present. The result is plotted at the mid-point between the two coils. One advantage of this system is that no corrections are necessary because of topography.

A 300-foot coil spacing was used during the survey. Readings were taken at 100-foot intervals except in anomalous zones, where readings were taken at 50-foot intervals. The basic coverage was conducted using the medium frequency of 1830 Hz. Where anomalous zones were encountered, both 1830 and 390 Hz were recorded.

A total of 108.36 miles of picket line were covered. This involved 6264 readings at 1830 Hz and 2009 readings at 390 Hz.

RESULTS & CONCLUSIONS

The readings were plotted on eight 36" X 44" sheets and profiled. Copies of the maps are enclosed with the report.

As a result of the two high voltage power lines, one low voltage power line (along Hwy 11) and the railway, severe electromagnetic interference was encountered in their vicinity. Thus any anomalous readings obtained 800 to 900 feet on either side of the high voltage lines or 400 to 500 feet on either side of the railway and the highway can be attributed to the electrical interference. Anomalies found on the rest of the property along with their interpretation are summarized in the following table. The interpretations are based on consultations with Duncan Crone who designed the instrument.

Line	Station	Interpretation (based on consultation with D.Crone)	Surface Geology
L100E	8+50S	Good conductor Depth 50-75' Width 50' Dip 45°S	Felsic Volcanics
L104E	12+00S	Bedrock conductor. Steep dip to south. Depth- 75 feet	Spruce muskeg
L112E	12+50S	Deep narrow bedrock conductor. Depth- over 100 feet.	Spruce muskeg
L128E	10+00S	Good conductor dipping south 50 to 75' deep	Muskeg
L132E	16+00S	Narrow deep conductor	Muskeg

Line	Station	Interpretation	Surface Geology
L140E	11+00S	Good narrow, very deep (150 ft) conductor	Muskeg
L200E	23+00N	Weak multiple conductor about 50' deep	Sand plain
L204E	19+40N-21+00N	Narrow, banded, multiple conductor.	Sand plain
L208E	14+50N	Narrow, multiple conductor	Sand plain
L224E	37+70N-42+40N	Anomalous readings only in medium (1830Hz) frequency indicate probability of highly conductive overburden.	Spruce swamp
L228E	40+50N	Good target. Poor conductor. Steep dip to north. Depth 50-75'.	Spruce swamp
L232E	37+00N-44+00N	Only medium frequency anomalous readings- probably overburden.	Spruce swamp
L236E	15+50N	Good conductor. Narrow. Steep dip to north. Depth 50-75'	Sand plain
L236E	38+50N-44+00N	Probably conductive, overburden. Possibly poor bedrock conductor, at 39+50N.	Spruce swamp
L240E	38+00N	Deep good conductor	Spruce swamp
L240E	42+00N	Deep good conductor	Spruce swamp
L240E	8+00N	Parallel, multiple weak conductors.	Sand plain
L240E	15+20N	Parallel, multiple weak conductors.	Sand plain
L240E	17+00N	Parallel, multiple weak conductors.	Sand plain
L244E	44+00N	Conductive overburden.	Spruce swamp

Line	Station	Interpretation	Surface Geology
L244E	19+50N	Deep, poor conductor, steep dip north.	Sand Plain
L256E	18+20N	Weak, multiple conductors, deep.	Rhyolite
L264E	20+00N	Weak, multiple conductors	Felsic volcanic
L264E	23+00N	Weak, multiple conductors	Rhyolite
L272E	23+00N	Weak, multiple conductors.	Rhyolite
L296E	2+80S	Weak, narrow bedrock conductor	Tag alder swamp
L304E	6+00S	Weak, poor conductor, high magnetics due to gabbro.	Quartz gabbro
L312E	37+80N	Deep conductor, vertical dip.	Intermediate Tuff
L316E	4+00S	Narrow, weak, near surface conductors.	Sand & Boulders
L360E	18+50N	Narrow, multiple, weak conductors.	Marsh
L380E	10+00N-12+60N	Shallow, poor, multiple conductors.	Sheared Quartz Gabbro
L384E	28+00N	Good conductor near surface	Interbedded Intermediate & Felsic Volcanics.

It should be noted that none of the above anomalies, with the exception of that on L304 and 6+00S, have coincident magnetometer anomalies. Also, the conductors have a very short strike length. The majority are found on only one line and no conductor crosses more than two adjacent picket lines.

Another electromagnetic survey using the APEX Max Min II system run over the best Crone C.E.M. conductors failed to confirm any of them. As a result, a decision was made to drill only the best three C.E.M. anomalies on the property. The anomalies drilled were (1) L100E 8+50S, (2) L236E 15+50N and L228E 40+50N.

The first hole intersected several zones of seamy and disseminated pyrite with up to 15% sulphides. When the cross section of the diamond drill hole was drawn, the correlation between any of the sulphide zones and the surface C.E.M. anomaly was dubious at best.

The second hole on line 236E intersected a 2.5 foot zone of 5% sulphides that appeared to correlate with the C.E.M. anomaly, but it is doubtful that the sulphide content is high enough to be detected by the instrument.

The third hole on line 228E encountered no bedrock conductor, but the overburden was 193 feet deep and consisted of sand and red clay. Because of the depth and nature of the overburden, the writer concludes that the anomaly was caused by it.

A separate detailed report on the diamond drilling program has been submitted to the government.

REFERENCES

Lawson, A.C. - The Archean Geology of Rainy Lake
Re - Studied G.S.C. Mem.40 - map no.98a-1913.

Lawson, A.C.- "Report on the Geology of the Rainy Lake Region"
Annual Report, G.S.C. Vol.III, 1888 Report F.

Tanton, T.L. - Geological Survey of Canada Map 334A Mine Centre
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February 9, 1976 John B. Muhic, B.Sc

MINE CENTRE PROJECT

THE HANNA MINING COMPANY

ELECTROMAGNETIC REPORT

on an

APEX SURVEY (HLEM)

by

JOHN F. MUHIC

February 10, 1976

THE HANNA MINING COMPANY
MINE CENTRE PROPERTY

LIST OF CLAIMS

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MINE CENTRE
ELECTROMAGNETIC REPORT
APEX SURVEY

INTRODUCTION

The Hanna Mining Co. was originally attracted to the area by zinc showings on patented claims P.683 and K.301. A total of 149 claims were staked and 5 patented claims were optioned by The Hanna Mining Company.

The property was covered by a grid of picket lines at 400-foot intervals. During 1975, a geological survey, two types of electromagnetic surveys, and a magnetometer survey were conducted on the claim block.

The project was supervised by H. Willson, B.Sc, and assisted by A. Little, B.Sc, J. Muhic, B.Sc, R. Tanaka and J. Spiteri under the direction of Nelson Hogg, District Geologist for The Hanna Mining Co. After September 1, John Muhic supervised all field work on the project, and the plotting and interpretation of data.

The electrical interference from the power lines and railway crossing the property invalidated the readings of the Crone CEM in their vicinity. Therefore, a decision was made to survey these areas as well as some of the better CEM conductors with an APEX Parametrics Max Min II system.

LOCATION & ACCESS

The property crosses Ontario Hwy.11 about 3½ miles east of Mine Centre. It extends 3 miles southwest of the highway, and to the east it occupies the ground between Hwy.11 and the Little Turtle River for a distance of 4 miles.

The west end can be reached by old logging roads branching east from the Shoal Lake Rd. The eastern portion is reached from Hwy.11, from the road to Bowes Camp, and from the CNR which traverses the central part of the claims.

Three power lines, Highway 11, and the CNR cross the property in an east-west direction.

FORMER WORK

In 1969, Kerr Addison Mines Ltd. conducted a geophysical and geological survey over the area of the property south of Hwy.11. The geophysical survey was done using a Crone JEM instrument. The JEM survey did not detect any anomalies. As far as it is known no geophysical survey was carried out on the rest of the property.

The area, however, has been heavily prospected for gold dating back to 1893. Abundant trenches and occasional shafts scattered throughout the property serve as evidence of the prospecting activity.

LINE CUTTING

Because of a bend in the geologic structure, two grids of picket lines were cut. A base line bearing N55°E was cut from 60+00E to 200+00E and a base line bearing 90° Astronomic was cut from 198+00E to 400+00East. All base lines were transit controlled. Tie-lines were cut at 20+00N, 20+00S, 40+00N and 40+00S, but were not transit controlled. Picket lines were cut perpendicular to the base lines at 400-foot intervals. Some lines across bad swamps and ponds were completed after freeze-up.

The line-cutting was done under contract. Work was begun under Mr. C. D. Huston of Winnipeg and completed under the supervision of Mr. Scott Waldie, Red Lake, Ontario.

PERSONNEL

The Apex Max Min II survey was conducted under contract by Geosearch Consultants Ltd., 100 University Ave., Suite 1114, Toronto, Ontario between September 16 and September 28, 1975, and between November 26 and December 5, 1975.

GENERAL GEOLOGY

Even though there was an abundance of prospecting activity on the property, little geological mapping has been carried out by Ontario Dept. of Mines or the G.S.C. In 1911, A. C. Lawson (1918) and in 1934 T. L. Tanton (1935,1936) mapped the Mine Centre area including the west end of the Hanna property. To the east of the property, the Bennett-Tanner area was mapped by W. L. Young (1960) in 1958.

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Most of the property is underlain by felsic volcanic rocks which include uniform, fine grained, sericitized rhyolite with well developed quartz eyes.

The quartz gabbro occurs as two massive sill like sheets that appear to be conformable with the surrounding volcanics. The gabbro is characterized by a high magnetic relief.

A general geology map at a scale of 1 inch equals ¼ mile is bound into the report.

INSTRUMENT

The survey was conducted using the new APEX Parametrics Max-Min II system. The unit was used on a horizontal loop mode which can be used with a coil separation up to 800 feet. It features automatic, direct readout of the In-phase and Quadrature components of the secondary field on 3½" size meters with a ±½% to ±1% reading repeatability. Operating frequencies include 222, 444, 888, and 1777 Hz with a 0.2 Hz normal receiver bandwidth. The system is reputed to be able to take valid readings underneath power lines. A built-in intercom system permits easy communication at any coil separation.

METHOD OF SURVEY

The APEX system was used in a horizontal loop mode. Both operators traverse along the same picket line. When a station is reached, the transmitter is turned on and the receiver operator notes the In-phase and quadrature readings. The readings are plotted at the mid point between the two coils. Topographic effects are eliminated by tilting both the transmitter and receiver coils to maintain a coplanar configuration. Both coils have a built-in tilt-meter to co-ordinate the angle of tilt for both operators.

During the survey a 400 foot coil separation was used and readings were taken at 100 foot intervals. A frequency of 888 Hz was used on this property except where some experimental work was done using different frequencies and coil separations.

A total of 2,968 readings were taken over 61.39 miles of picket line.

RESULTS & CONCLUSIONS

The readings were plotted and profiled on eight 36" X 44" sheets. Copies of the maps are included with the report.

No anomalies were detected by this survey. Moreover, when the Apex instrument was run over ground with CEM anomalies, it failed to confirm them. Directly under power lines, low anomalous readings are obtained, but meaningful readings are obtained until one coil is directly under the power line, so very little ground is eliminated from the survey.

The survey was very useful in helping to decide on a drilling program.

.....

John F. Muhic, B.Sc
Geologist

February 10, 1976

REFERENCES

Lawson, A.C. - The Archean Geology of Rainy Lake
Re - Studied G.S.C. Mem.40 - map no.98a-1913.

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Ont. Dept. of Mines Vol.LXIX Pt 4, 1960

CERTIFICATE

I, John F. Muhic, of the city of Toronto, in the Province of Ontario, hereby certify that:

1. I am a graduate in geology with the degree of B. Sc. from the University of Toronto, 1975.

2. That I am a full-time employee of The Hanna Mining Company, Room 805, 69 Yonge Street, Toronto, Ontario.

3. That the accompanying report is based on my personal knowledge of work done on the property, supplemented by information from published government reports.

4. That I have no direct or indirect interest in the property.

.....

John F. Muhic,
Geologist

February 9, 1976

GEOLOGICAL REPORT

on

MINE CENTRE PROJECT

of

THE HANNA MINING COMPANY

by

Nelson Hogg

December 31, 1975

MINE CENTRE

INTRODUCTION:

The Hanna Mining Company was attracted to the Mine Centre area by G. L. Pidgeon of Wabigoon, who had exposed zinc mineralization on two patented claims, F.683 and K.301. Pidgeon's five patented claims were optioned, and an additional 54 claims were staked in January, 1975. As work on these claims progressed, it became apparent that the favourable felsic rocks pinched out to the west but widened to the east, so 95 additional claims were staked during the summer of 1975 to cover the geologically attractive area. The property has a length of 7½ miles and a maximum width of 2 miles.

The entire property was covered by a grid of picket lines at intervals of 400 feet, and the grid was used to carry out a geological survey, two types of electromagnetic surveys, and a magnetometer survey during 1975.

The project was supervised by H. Willson, BA.Sc. assisted by A. Little, B Sc., J. Muhic, B Sc., R. Tanaka and J. Spiteri, under the direction of Nelson Hogg, District Geologist for The Hanna Mining Company.

Application was made under the Ontario Mineral Exploration Assistance plan to obtain assistance in the amount of one-third of expenditures on the property up to a maximum $100,000.

LOCATION & ACCESS:

The property crosses Ontario Highway No.11 about 8½ miles east of Mine Centre, or 43 miles east of Fort Frances. It extends 3 miles south-west of the highway, almost to Shoal Lake, and to the east it occupies the ground lying between Highway 11 and the Little Turtle River for a distance of 4 miles.

The west end is reached by old logging roads branching east from the Shoal Lake Road. The eastern portion is reached from Highway 11, from the road to Bowes Camp, and from the CNR, which traverses the central part of the claims.

Three power lines, Highway 11, and the C.N. Railway cross the property in an east-west direction.

HISTORY OF THE MINE CENTRE AREA:

Prospecting for gold in the Mine Centre area dates back to 1893 when prospectors entered the area from Minnesota. Quite a number of patented claims that are still in good standing were patented before 1900. In 1934, T. L. Tanton [1,2] mapped the area for the Geological Survey of Canada, and at that time he reported the existence of more than 60 gold-bearing veins in the quartz porphyry mass south-east of Bad Vermillion Lake, plus at least 20 gold-bearing veins in the quartz porphyry lying close to the north shore of the same lake.

The titaniferous magnetite deposits west of Bad Vermillion Lake were also investigated by prospectors in the early 1900's and are described by A. C. Lawson in 1913. In 1957 some of these occurrences were drilled by Stratmat Ltd.

Copper has also been found in the gabbro and volcanic rocks of the area. In 1916 the Port Arthur Copper Company worked on a copper deposit located 3 miles west of Mine Centre, on claim HP 187. Another copper occurrence in gabbro was developed by International Copper Company on claim FF 388 located 1 mile south-east of Mine Centre.

LINE-CUTTING:

Because the geological structure bends, two grids of picket lines were cut. A base line bearing N55° East was cut from 60+00 East to 200+00 East, and picket lines were cut at 400-foot intervals to the property boundaries. The baseline was not cut from 0+00 to 60+00 East because the decision was made to drop 29 claims forming the south-west corner.

At 198+00 East, a second base line was started, bearing 90° Astronomic. This base line was extended to the west for 800 feet, and to the east from 198+00East to 400+00 East. All base lines were transit-controlled. Tie-lines were cut at 20+00 North, 20+00 South, 40+00 North and 40+00 South, but they were not transit-controlled, so they do not maintain a fixed distance from the base line. Picket lines were cut at 400-foot intervals from the base line to the property boundaries except in places where ponds or swamps prevented cutting. In these cases the lines were cut back from a tie line toward the base line. Some lines across bad swamps and ponds were completed in November after freeze-up.

The following table summarizes the line-cutting operation.

	Miles
Base Lines	6.50
Tie Lines	11.07
Picket Lines	106.94
	124.51

114.5 mi.

All picket lines were cut under contract. Work was started by Mr. C. D. Huston of Red Lake and Winnipeg, and was completed by Mr. Scott Waldie of Red Lake. Attempts to use local labour were largely unsuccessful, although the local unemployment rate is high. Progress was slow due to inability of the contractors to attract labour, and in the end nearly all the line-cutters were imported from other parts of the province.

Names and addresses of the contractors are listed below:

Mr. C. D. Huston
94 Columbus Crescent,
Westwood, Manitoba.

Mr. J. Scott Waldie,
Box 52,
Madsen, Ontario.

OWNERSHIP:

The 149 unpatented claims are held by The Hanna Mining Company, Room 805, 69 Yonge Street, Toronto. These claims are numbered as follows:

K-419522-531	- 10
K-413966-972	- 7
K-414984-415000	- 17
K-419501-03	- 3
K-419505-521	- 17
K-412629-662	- 34
K-434751-789	- 39
K-434791-795	- 5
K-434797-805	- 9
K-412716-723	- 8
Total	-149

Five patented claims, K298, K300, K301, P683 and K804 are held under an option agreement with G. L. Pidgeon of Wabigoon, Ontario.

The Hanna Mining Company is responsible for submitting assessment work on the unpatented claims.

One unpatented claim (K-416612), and one patented claim (K388) located within the Hanna claim block, are not owned by The Hanna Mining Company.

GEOLOGICAL MAPPING:

Reconnaissance mapping along the claim boundaries of the original 54 claims was started on May 11, 1975 and mapping continued until October. As a result of the early reconnaissance mapping, the decision was made to do no work on the 29 claims forming the southwest end of the property, but to stake additional claims at the northeast end. Eventually a total of 149 claims were staked, but work was confined to 120 unpatented claims and 5 patented claims. These claims were mapped on picket lines 400 feet apart at a scale of 1 inch equals 200 feet. Mapping was done on 107 miles of picket line, 6½ miles of base line, and 11 miles of tie line.

Mr. Hugh Willson was in charge of the mapping and was assisted at different times by A. Little, J. Spiteri, R. Tanaka, and J.Muhic.

Results are plotted on 8 standard-sized sheets of 36" X 44".

REGIONAL GEOLOGY:

Although the Mine Centre district has been a focal point for prospecting since 1880, little detailed geological mapping has been carried out by the Ontario Department of Mines or the Geological Survey of Canada. A.C. Lawson [7] mapped the area in 1911, and started the long-standing discussion about the age relationship between the Seine Series, the Keewatin Series, and the Couchiching Series of sedimentary rocks.

T. L. Tanton [1,2] made a more detailed map of the Mine Centre gold camp in 1934, mapping at a scale of 1 inch equals 1/2 mile.

Both Lawson and Tanton mapped to a north-south line about 3 miles east of Mine Centre. No detailed mapping has been done to the east of this line for 8 miles, which marks the west boundary of the Bennett-Tanner area, mapped in 1958 by W. L. Young [3] for the Ontario Department of Mines. Most of the property held by The Hanna Mining Company is in this 8-mile gap of unmapped ground. Neither Tanton's Mine Centre map, nor Young's Bennett-Tanner map designate a unit of felsic volcanic rock, which is the principal rock-type on the Hanna claims. Tanton grouped all the Keewatin volcanic rocks together as greenstone, and Young apparently mapped the felsic volcanics as part of a "chloritic schist and tuff" unit. Later compilations [4,5] by the Ontario Department of Mines do not resolve the problem, so a modified table of formations for the area is used in this report.

Only the geology to the south of the Quetico fault is considered. The Quetico fault zone follows the Little Turtle River, and the Hanna property lies to the south of the fault. The Quetico fault is one of the major old faults of the Canadian Shield, ranking in importance with the Porcupine-Destor fault and the Kirkland-Malartic fault. It can be traced from the Lake of the Woods to Lake Superior, a distance of more than 200 miles, and it is characterized by a profound change in lithology of the Archean rocks on the two sides of the fault.

A table of formations for rocks in the Mine Centre area, south of the Quetico fault is given below:

Archean:

Post Seine - Felsic Intrusive Rocks - Granite, Quartz Porphyry.
- Basic to Ultrabasic Intrusive Rocks - Anorthositic Gabbro, Gabbro, and Peridotite.
-Intrusive Contact

Seine - Conglomerate, graywacke.

Keewatin -Intermediate, Basic and Felsic Volcanic Rocks.

Couchiching - Graywacke, argillite and derived schists.

COUCHICHING:

The argillaceous sedimentary rocks of the Couchiching Series underlie an area 30 miles wide to the south of Shoal Lake, but there are no exposures of Couchiching rocks on the Hanna property. Lawson [8] considered them to be the oldest rocks in the area, underlying the Keewatin volcanics. In the Rainy Lake area this question is still unsettled, but it seems certain that the great thickness of uniform argillaceous sediments was derived from older volcanic units containing intermediate to basic flows and tuffs.

KEEWATIN:

In the Mine Centre area the Keewatin volcanic rocks include felsic, intermediate and basaltic flows and pyroclastics. They occur in an easterly trending belt from 2 to 7 miles wide lying between the Quetico fault on the north and the Couchiching sediments on the south. The contact between Couchiching and Keewatin rocks is probably also a fault contact in this area.

Felsic rocks make up the greatest volume in the area between Mine Centre and Glenorchy. They vary in composition from rhyolites with more than 50% quartz to trachytic types with little quartz and a high content of light-coloured, sericitized feldspars. Fragmental lavas and tuff breccias constitute only a small proportion of the felsic volcanics, which are generally massive with distinct quartz-eyes, or fine-textured and uniform. It seems probable that a large percentage of this felsic volcanic material originated as ash flows and ignimbrites.

Relatively thin bands of intermediate tuffs and flows are interbedded with the felsic volcanic rocks, but the greatest volume of these rock types occur to the north and south of the felsic unit. Some poorly developed pillow lavas were identified, but most of the flows are massive. Narrow felsic tuffs and some narrow iron formation bands occur between the intermediate flows.

SEINE:

The Seine Series comprises conglomerate and graywacke in a belt up to 4 miles wide that follows the general strike of the Keewatin volcanics, but locally shows evidence of being unconformable. In the Mine Centre area, the Seine rocks are almost entirely conglomerates, which contain a great variety of boulders and cobbles, both as to size and rock type. Many of the boulders are granitic, but all varieties of volcanic rock are also represented. Poorly sorted boulders up to 3 feet in diameter are not uncommon in a matrix of graywacke that also contains rock grains of various rock-types.

POST SEINE:

The oldest intrusive unit of the area is a differentiated basic mass which forms the shores and islands of Bad Vermillion Lake and extends west along the north shore of Seine Bay to Rainy Lake. The mass is made up of differentiated bands that vary in composition from anorthosite to peridotite. Along the northwest side of Bad Vermillion Lake, massive, lenticular bodies of titaniferous magnetite occur with anorthositic gabbro.

Apophyses from this basic intrusive, and sill-like bodies, extend to the east of Bad Vermillion Lake within the Keewatin volcanics. When these intrusive rocks are sheared and chloritized, they are very difficult to distinguish from the intermediate to basic volcanics.

The youngest intrusive rocks are felsic types which include granite, quartz-porphyry, syenite and pegmatite. The most prominent felsic mass is an elongated stock located between Shoal Lake and Bad Vermillion Lake. Other masses occur west of Bad Vermillion Lake and on the south shore of Bad Vermillion Lake. Most of the gold occurrences of the area are in quartz veins cutting these felsic intrusive rocks.

STRUCTURE:

The rock units described in this report are confined by two regional, easterly-trending faults. The Quetico fault marks the north boundary, whereas a similar strong fault marks the contact between the Keewatin volcanics and the Couchiching sediments. These two faults are 8 miles apart at Seine Bay on Rainy Lake, but they converge to the East and merge at Calm Lake, just east of Flanders on the C.N.R.

The sedimentary and volcanic rock units generally trend east-west, but in the Bad Vermillion Lake area the general strike is N55°E, parallel to the long axis of the differentiated mafic intrusion and the granitic stocks. This change in strike is probably related to complex folding, but there is little evidence of tops of beds in either the volcanic units or the conglomerates. Detailed mapping failed to provide evidence that would unravel the complex structures that are suspected.

METAMORPHISM:

Most rocks of the area are affected by strong regional shearing and alteration, but these features are stronger in the softer rock units. The intrusive granites have escaped pervasive shearing and alteration although they are locally sheared in distinct zones.

The gabbroic intrusives are generally massive and crystalline, but they have suffered more than the granite from regional shearing, especially in the narrow sills and lenticular deposits cutting the volcanic rocks.

All of the volcanic rocks are more or less sheared and altered. The siliceous rhyolites are least affected, but most felsic volcanics are altered to sericitic schists. The andesitic and basaltic rocks have been converted to chloritic schists, but original structures such as pillows are preserved in the thick flows. Carbonate alteration has also affected all of the volcanic rocks and the sheared gabbroic rocks. It is more intense in the very highly sheared rocks near the Quetico fault.

The conglomerates of the Seine Group have a fresher appearance than the volcanic rocks, but the boulders are generally elongated to some extent, and the matrix is altered by carbonatization, chloritization and sericitization.

Regional shearing is sub-parallel to the stratigraphy. It strikes about N60°E in the southwest part of the property and changes to a strike of about N80°E east of line 190+00East. However the shearing often makes a small angle with contacts between flow units and with bedding in the graywacke bands of the Seine conglomerate.

GEOLOGY OF THE PROPERTY:

Geology along the base lines and picket lines was mapped at a scale of 1 inch = 200 feet, and was plotted on 8 standard sheets of 36" X 44" size. Copies of these maps are enclosed in a folder at the back of this report. The general geology was also reduced to a scale of 1 inch = 1/4-mile, and a copy is bound into the report.

The property was staked to cover the extensions of the rhyolitic rocks in which zinc sulphide mineralization occurs. This unit pinches out to the west into Seine-type conglomerate, but expands to the north and east to reach a width of more than 1 mile. It is bounded on the north by sheared intermediate volcanic rocks, and on the south by intermediate volcanic rocks and Seine-type conglomerate with graywacke.

One elliptical mass of mafic rock with fragmental and tuffaceous bands is mapped as basalt. It extends from line 312+00 East to line 340+00 East, north of the 20+00 North Tie Line. The southern part of this body is massive, whereas the northern part has bands of fragmental and bedded tuffaceous rocks, suggesting that the top is to the north.

There are numerous narrow bands (up to 800 ft. wide) of intermediate volcanic rocks interbedded with the felsic volcanics. In some cases these fine grained, sheared, chloritic rocks cut across the trend of shearing and bedding, but most are conformable. It is probable that some rocks mapped as volcanic are sheared, altered intrusives equivalent in age to the gabbros of the Bad Vermillion Lake area.

The band of intermediate volcanics along the north edge of the property is highly sheared, carbonatized and chloritized, probably in part due to the proximity of the Quetico fault. It contains a high percentage of tuffaceous material with compositional banding that is drag folded and contorted. The main band of intermediate volcanic rocks to the south has suffered less metamorphism. Poorly formed pillows can be recognized in several places, and there are interflow bands of felsic lava, cherty tuff, and thin iron formation. This band trends slightly north of east from line 200+00 East to line 400+00 East, but changes strike to the west of line 200, trending about S 60° West to line 60+00 East.

Conglomerates of the Seine Group are exposed along the south edge of the property, and good exposures can be seen in the road cuts of Highway 11. The unit follows the intermediate volcanics through the change of strike at line 200+00 East, but is not entirely conformable, and may be resting on an old erosional surface.

At the west end of the property the volcanic units pinch out into conglomerate which seems to be folded isoclinally into chevron-type folds. Poor evidence of tops in the sediments and volcanic rocks along the south edge of the property suggest tops to the south. If these are reliable, an anticlinal axis is indicated along the south part of the felsic volcanic band, and a synclinal axis close to the north edge of the felsic volcanic band.

The felsic volcanic rocks include a massive, fine-grained rhyolite characterized by abundant "eyes" of quartz up to 4 mm in diameter; a fine-grained, massive, sericitized rhyolite; bedded, cherty tuff; and some fragmental material. The best-developed fragmental rhyolite is on claim P.683 in the vicinity of the zinc sulphide mineralization. Fragments are angular, very siliceous, and up to 6 inches in their long dimension. The matrix is yellow, siliceous and sericitized. Most of the felsic volcanic rock is the uniform quartz-eye rhyolite, which in some cases has sharp, irregular contacts with sheared, sericitized felsic volcanic. The uniform texture, and the well developed quartz eyes suggests that this unit may be a welded tuff or ash-flow. No original textures to confirm this could be seen in thin section.

The rock mapped as quartz-gabbro is a massive, fresh-looking, dark green rock, characterized by "eyes" of blue quartz. A good exposure is in the railroad cut at line 284+00 East. It is a sill-like body that pinches out to the west at line 212+00E and extends to the east boundary. It can be traced easily because of its high magnetic relief, but it is also well exposed in outcrop. However, at the east end of the property the outcrops are so badly sheared and altered that the rock was first mapped as intermediate tuff. Only the continuity of high magnetic readings identifies it as part of the quartz-gabbro sill. A second narrow sill of quartz gabbro has been interpreted from magnetic readings between lines 252+00 East and line 300+00 East, south of the base line.

There are no exposures of granitic intrusive rocks on the Hanna claims.

DESCRIPTION OF MINERALIZED AREAS

A number of old pits and trenches on quartz veins and stringer zones were located in the course of mapping. These apparently date from the 1930's when the area was last prospected for gold.

A number of zinc sulphide occurrences have been opened up more recently by trenching done by G. L. Pidgeon of Wabigoon. Most zinc sulphide occurrences are in patented claim P.683, from line 96+00E to line 116+00E, but some minor occurrences are exposed in trenches on claim K.301, just north of highway 11. Rhyolitic volcanics are well exposed in outcrop on a ridge running through P.683 to K.301, a distance of 1½ miles. Small lenticular patches a few feet in length are stained and oxidized throughout this ridge of outcrop. These small patches are no doubt caused by disseminated sulphide mineralization. Rock trenches are confined to the larger mineralized zones which can be measured in tens of feet of strike length. Sphalerite occurs as a stockwork of massive stringers up to an inch thick, irregular blebs, and disseminated grains. A few grains of chalcopyrite and 2-5 mm seams of pyrite also occur. The host rock is a highly siliceous, waxy-looking rhyolite breccia.

None of the individual exposures has ore-grade material, but the extent of mineralization and the favourable rock type makes the property an attractive exploration target.

PREVIOUS WORK DONE ON THE PROPERTY

There is ample evidence in the form of old trenches and pits, that the property was thoroughly prospected for gold in the period between 1900 and 1939. Some of these old pits are completely grown over with mature poplar bush.

In 1969, Kerr Addison optioned the patented claims owned by G. L. Pidgeon, and staked additional ground along strike. A program of mapping and geophysical work was carried out, and six short diamond drill holes were drilled under the surface trenches. The deepest hole was 124 feet, and the total footage in 6 holes was 672. These holes explored beneath the trenches at a shallow depth, but did not investigate possible extensions or the swamp to the south of the surface exposures. Scattered low values in zinc and lead were obtained.

REFERENCES -

(1) Tanton, T. L. - Geological Survey of Canada Map 334A Mine Centre Area - 1936. 1 in.= ½ mile.

(2) Tanton, T. L. - Preliminary Report on Mine Centre Area, Ontario, G.S.C., Jan.1935.

(3) Young, W.L. - Geology of the Bennett-Tanner area, Ont. Dept. of Mines Vol.LXIX Pt 4, 1960.

(4) Map 2115 - Compilation Series, Ontario Dept. of Mines, 1967. "Kenora-Fort Frances Sheet" - 1 in. = 4 mi.

(5) McWilliams, G. and Ali, A. - Mine Centre-Entwine Lake Sheet - Ont. Dept. of Mines, Preliminary Map P.965 - 1 in. = 2 mi. - 1974.

(6) Rose, E. R. - Geology of Canadian and Vanadiferous Occurrences of Canada - G.S.C. Economic Geology Report No.27, 1973.

(7) Lawson, A.C. -The Archean Geology of Rainy Lake Re - Studied G.S.C. Mem.40 - map no.98a-1913.

(8) Lawson, A.C. -"Report on the Geology of the Rainy Lake Region" Annual Report, G.S.C. Vol.III, 1888 Report F.

(9) Robinson, A.H.A. 1917 - "The titaniferous magnetite deposits of Seine Bay and Bad Vermillion Lake; Mines Branch Canada, Sum.Rept. p 11-22.

(10) 1922 - Titanium Mines Branch Canada, Publication No.529.

Nelson Hogg

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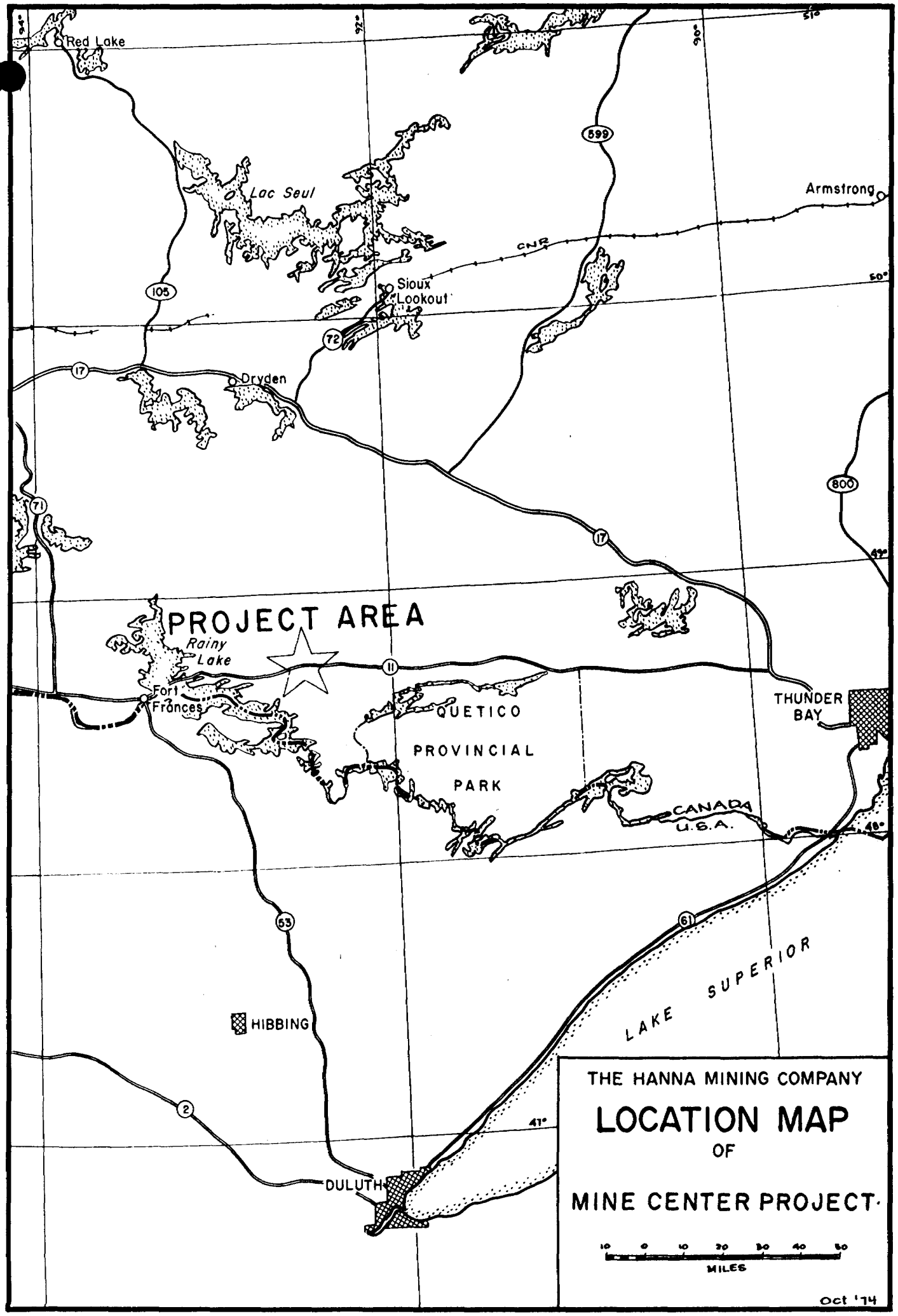
Nelson Hogg , District Geologist
December 31, 1975


Red Lake
Lac Seul
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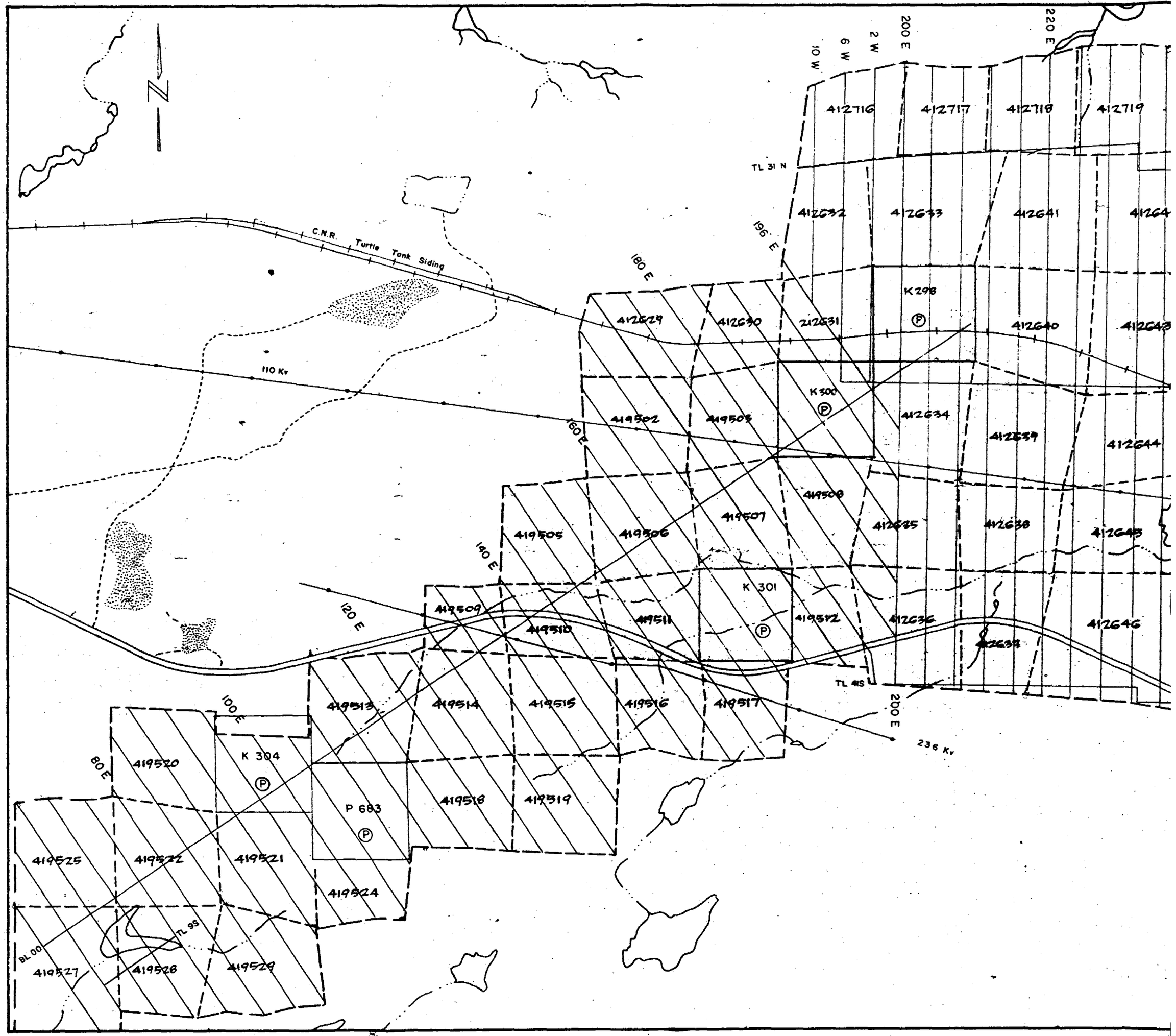
Armstrong
CNR
105
Sioux Lookout
72
17
Dryden
71
800
17
PROJECT AREA
Rainy Lake
11
Fort Frances
QUETICO
PROVINCIAL
PARK
THUNDER BAY
CANADA
U.S.A.
53
61
HIBBING
LAKE SUPERIOR
2
DULUTH
THE HANNA MINING COMPANY
LOCATION MAP
OF
MINE CENTER PROJECT
10 0 10 20 30 40 50
MILES
Oct '74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C.N.R. Turtle Tank Siding
110 Kv
10 W
6 W
2 W
200 E
220 E
TL 31 N
196 E
180 E
160 E
140 E
120 E
100 E
80 E
412716
412717
412718
412719
412632
412633
412641
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412629
412630
412631
K 298
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412643
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419503
K 300
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412643
K 301
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412636
412646
419510
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200 E
236 Kv
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419514
419515
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K 304
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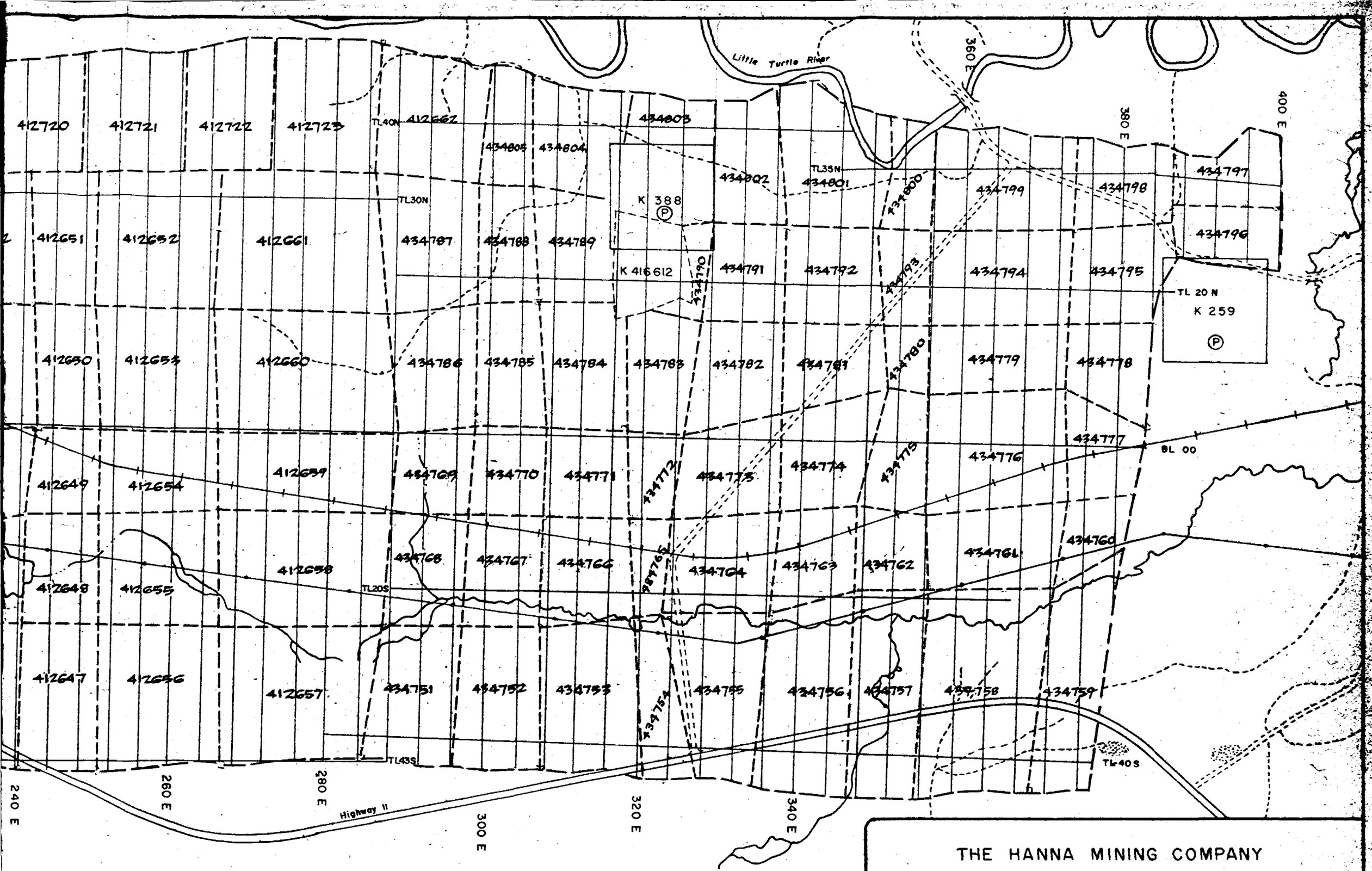


THE HANNA MINING COMPANY

MINE CENTRE PROPERTY

KENORA MINING DIVISION, ONTARIO

CLAIMS LOCATION MAP

SCALE

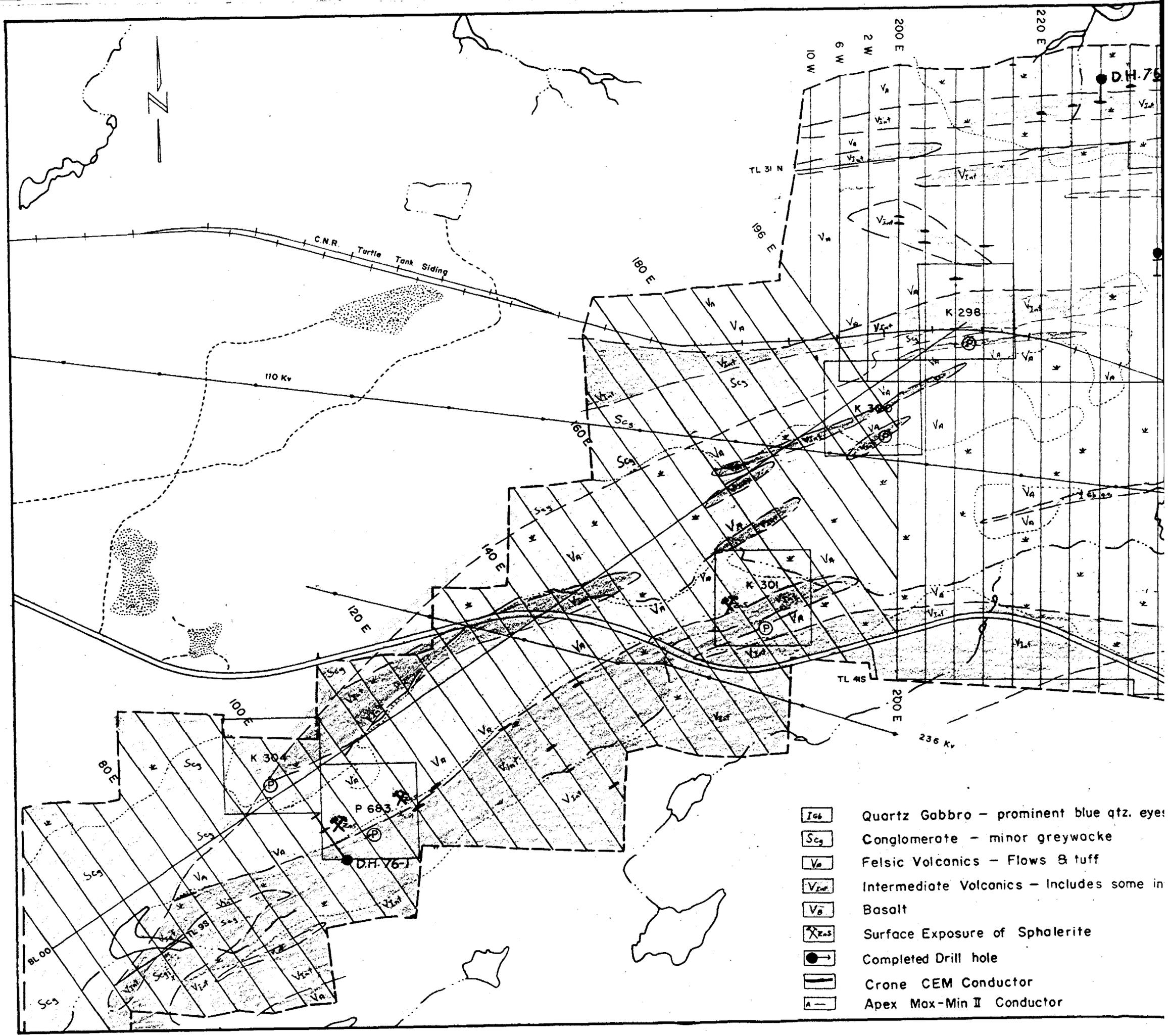
1" = 1320'

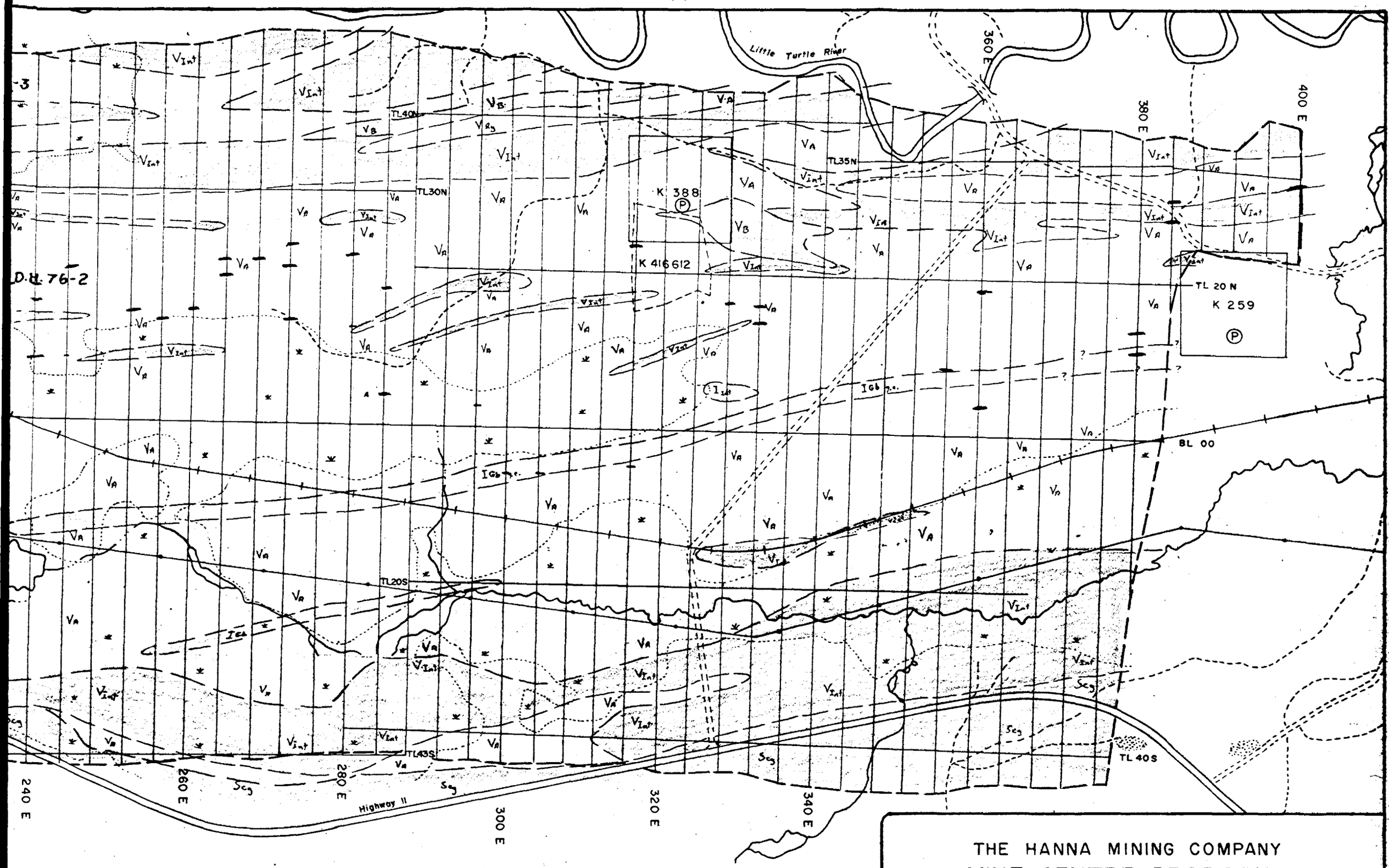
1000 500 0 1000 2000

Feet

Work by | Interpretation | Revised

Date | Date | N.T.S. No. 52-C-10


C.N.R. Turtle Tank Siding
110 Kv
TL 31 N
TL 41S
BL 00
10 W
6 W
2 W
200 E
220 E
196 E
180 E
160 E
140 E
120 E
100 E
80 E
D.H. 76
K 298
K 300
K 301
K 304
P 683
D.H. 76-1
236 Kv
Quartz Gabbro – prominent blue qtz. eyes
Conglomerate – minor greywacke
Felsic Volcanics – Flows & tuff
Intermediate Volcanics – Includes some in
Basalt
Surface Exposure of Sphalerite
Completed Drill hole
Crone CEM Conductor
Apex Max-Min II Conductor



2.2297

THE HANNA MINING COMPANY

MINE CENTRE PROPERTY

KENORA MINING DIVISION, ONTARIO

GEOLOGIC MAP

SCALE

1" = 1320'

1000 500 0 1000 2000

Feet

Work by

Date 1975

Interpretation J. Muhic Revised January, 1976

Date November, 1975 N.T.S. No. 52-C-10

Ontario

52C16SW0428 2.2297 LITTLE TURTLE LAKE

900

File 2.2297

RECEIVED
MAR 2 1976
PROJECTS UNIT

TO BE ATTACHED AS AN APPENDIX TO TECHNICAL REPORT
FACTS SHOWN HERE NEED NOT BE REPEATED IN REPORT
TECHNICAL REPORT MUST CONTAIN INTERPRETATION, CONCLUSIONS ETC.

Type of Survey(s) MAGNETIC

Township or Area Mine Centre area (Kenora)

Claim Holder(s) The Hanna Mining Co.

Survey Company The Hanna Mining Co.

Author of Report John F. Muhic

Address of Author 805 - 69 Yonge St., Toronto, Ontario:

Covering Dates of Survey May 10,1975 - Dec.8, 1975
(linecutting to office)

Total Miles of Line Cut 124.30

SPECIAL PROVISIONS CREDITS REQUESTED

ENTER 40 days (includes line cutting) for first survey.

ENTER 20 days for each additional survey using same grid.

	DAYS per claim
Geophysical	
--Electromagnetic	
--Magnetometer	20
--Radiometric	
--Other	
Geological	
Geochemical	

AIRBORNE CREDITS (Special provision credits do not apply to airborne surveys)

Magnetometer _____ Electromagnetic _____ Radiometric _____
(enter days per claim)

DATE: Feb.12/1976 SIGNATURE: John F. Muhic
(Author of Report or Agent)

2.2081 & abo

Res. Geol. _____ Qualifications on this file -

Previous Surveys

File No.	Type	Date	Claim Holder

MINING CLAIMS TRAVERSED
List numerically

SEE ATTACHED LIST
(prefix) (number)

If space insufficient, attach list

TOTAL CLAIMS 120

OFFICE USE ONLY

GEOPHYSICAL TECHNICAL DATA

GROUND SURVEYS -- If more than one survey, specify data for each type of survey

Number of Stations 367 base stations Number of Readings 11,685

Station interval 50 feet - 25 feet in anomalous areas Line spacing 400 feet

Profile scale

Contour interval 100 gammas

MAGNETIC

Instrument SCINTREX MF-2 Fluxgate magnetometer

Accuracy -- Scale constant 20 gammas per scale division on the most sensitive scale

Diurnal correction method Closed loop

Base Station check-in interval (hours) Approx. 3/4 hour

Base Station location and value 148+00E on base line 00

Value: 195 gammas

ELECTROMAGNETIC

Instrument

Coil configuration

Coil separation

Accuracy

Method: ☐ Fixed transmitter ☐ Shoot back ☐ In line ☐ Parallel line

Frequency
(specify V.L.F. station)

Parameters measured

GRAVITY

Instrument

Scale constant

Corrections made

Base station value and location

Elevation accuracy

INDUCED POLARIZATION

RESISTIVITY

Instrument

Method ☐ Time Domain ☐ Frequency Domain

Parameters -- On time Frequency

-- Off time Range

-- Delay time

-- Integration time

Power

Electrode array

Electrode spacing

Type of electrode

THE HANNA MINING COMPANY

ROOM 805, 69 YONGE STREET
TORONTO, ONTARIO M5E 1K3
TELEPHONE (416) 363-3028

LIST OF CLAIMS FOR ASSESSMENT CREDIT
MINE CENTRE PROJECT

K 419502
K 419503

K 419505
K 419506
K 419507
K 419508
K 419509
K 419510
K 419511
K 419512
K 419513
K 419514
K 419515
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K 419517
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K 434797
K 434798
K 434799
K 434800
K 434801
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K 434803
K 434804
K 434805

K 412716
K 412717
K 412718
K 412719
K 412720
K 412721
K 412722
K 412723

Total - 120 Claims

File 2.2297

Ontario

Ministry of Natural Resources

GEOPHYSICAL – GEOLOGICAL – GEOCHEMICAL TECHNICAL DATA STATEMENT

RECEIVED
MAR 2 1976
PROJECTS UNIT

TO BE ATTACHED AS AN APPENDIX TO TECHNICAL REPORT
FACTS SHOWN HERE NEED NOT BE REPEATED IN REPORT
TECHNICAL REPORT MUST CONTAIN INTERPRETATION, CONCLUSIONS ETC.

Type of Survey(s) ELECTROMAGNETIC (C.E.M.)

Township or Area Mine Centre Area (Kenora)

Claim Holder(s) The Hanna Mining Co.

Survey Company The Hanna Mining Co.

Author of Report John F. Muhic

Address of Author 805 - 69 Yonge St., Toronto, Ontario

Covering Dates of Survey May 10,1975 - Dec.8, 1975
(linecutting to office)

Total Miles of Line Cut 124.30

SPECIAL PROVISIONS CREDITS REQUESTED

ENTER 40 days (includes line cutting) for first survey.

ENTER 20 days for each additional survey using same grid.

	DAYS per claim
Geophysical	
--Electromagnetic	20
--Magnetometer	
--Radiometric	
--Other	
Geological	
Geochemical	

AIRBORNE CREDITS (Special provision credits do not apply to airborne surveys)

Magnetometer _____ Electromagnetic _____ Radiometric _____
(enter days per claim)

DATE: Feb.12/76 SIGNATURE: John F. Muhic
Author of Report or Agent

2.2081 & abo

Res. Geol. _____ Qualifications on this file

Previous Surveys

File No.	Type	Date	Claim Holder
63.3367	Not for assessment credits (Mineral Assistance Program)		
2.2081	Geophysical & Geological covering only one mining claim		

MINING CLAIMS TRAVERSED
List numerically

SEE ATTACHED LIST

(prefix) (number)

If space insufficient, attach list

TOTAL CLAIMS 120

LD

OFFICE USE ONLY

GEOPHYSICAL TECHNICAL DATA

GROUND SURVEYS -- If more than one survey, specify data for each type of survey

Number of Stations 6264 Number of Readings 1830Hz- 6264; 390Hz- 2009

Station interval 100 feet, 50 feet in anomalous areas Line spacing 400 feet

Profile scale 1" = 40°

Contour interval

MAGNETIC

Instrument

Accuracy -- Scale constant

Diurnal correction method

Base Station check-in interval (hours)

Base Station location and value

ELECTROMAGNETIC

Instrument Crone CEM

Coil configuration Horizontal Shoot Back

Coil separation 300 feet

Accuracy ± 0.5 degrees

Method: ☐ Fixed transmitter ☒ Shoot back ☐ In line ☐ Parallel line

Frequency 1830 Hz; 390 Hz
(specify V.L.F. station)

Parameters measured Dip angle of resultant field

GRAVITY

Instrument

Scale constant

Corrections made

Base station value and location

Elevation accuracy

INDUCED POLARIZATION

RESISTIVITY

Instrument

Method ☐ Time Domain ☐ Frequency Domain

Parameters -- On time Frequency

-- Off time Range

-- Delay time

-- Integration time

Power

Electrode array

Electrode spacing

Type of electrode

THE HANNA MINING COMPANY

ROOM 805, 69 YONGE STREET
TORONTO, ONTARIO M5E 1K3
TELEPHONE (416) 363-3088

LIST OF CLAIMS FOR ASSESSMENT CREDIT
MINE CENTRE PROJECT

Claim No.	Days
K 419502 1/4	16 not covered
K 419503	20
K 419505	0
K 419506	0
K 419507 3/4	3
K 419508 3/4	4
K 419509	20
K 419510	20
K 419511 2/3	7
K 419512 2/3	10
K 419513	2
K 419514	20
K 419515	20
K 419516 1/3	12
K 419517 1/3	17
K 419518 1/4	18
K 419519 3/4	3
K 419520	0
K 419521 1/4	16
K 419522 3/4	3
K 419523	0
K 419524 1/3	16
K 419527	0
K 419528	0
K 419529 1/3	14
K 412629 1/4	20
K 412630	20
K 412631 1/4	20
K 412632	0
K 412633	20
K 412634	20
K 412635	20
K 412636 1/4	20
K 412637	20
K 412638	20
K 412639	20
K 412640	20
K 412641	20
K 412642	20
K 412643 1/4	20
K 412644 1/4	20
K 412645 1/4	20
K 412646 1/4	20
K 412647	20
K 412648	20
K 412649 2/3	10
K 412650 1/2	10
K 412651 1/2	10
K 412652	0
K 412653	10
K 412654 3/4	10 not covered
K 412655	20
K 412656	20
K 412657	20
K 412658	20
K 412659	0
K 412660 1/2	8
K 412661 1/2	8
K 412662	0
K 434751	20
K 434752	20
K 434753	20
K 434754	20
K 434755 1/4	15
K 434756 1/3	14
K 434757 1/3	12
K 434758 1/3	10
K 434759 1/2	13
K 434760 1/2	20
K 434761	20
K 434762 1/4	18
K 434763 1/3	10
K 434764 1/2	10
K 434765 1/2	10
K 434766 1/3	14
K 434767	18
K 434768	20
K 434769	0
K 434770 2/3	8
K 434771 1/3	12
K 434772	0
K 434773	0
K 434774	0
K 434775	0
K 434776 1/2	10
K 434777 3/4	5
K 434778	0
K 434779 2/3	8
K 434780	0
K 434781	0
K 434782	0
K 434783	0
K 434784 1/3	13
K 434785	0
K 434786	0
K 434787	0
K 434788	0
K 434789 1/3	16 not covered
K 434791	0
K 434792	0
K 434793	0
K 434794 2/3	8
K 434795 3/4	7
K 434797 2/3	5
K 434798 3/4	7
K 434799 2/3	8
K 434800	0
K 434801	0
K 434802	0
K 434803	0
K 434804 1/3	12
K 434805	0
K 412716	0
K 412717 1/3	13
K 412718	20
K 412719	20
K 412720 1/4	20
K 412721 2/3	10
K 412722	0
K 412723 1/2	10

Total - 120 Claims

Circled mining claims (36) not covered / No Credits

Area of claims not Covered = 24 1/2

20 X 84 = 1680

÷ (84 + 24) = 15.5 days

File 2.2297

Ontario

Ministry of Natural Resources

GEOPHYSICAL – GEOLOGICAL – GEOCHEMICAL TECHNICAL DATA STATEMENT

TO BE ATTACHED AS AN APPENDIX TO TECHNICAL REPORT
FACTS SHOWN HERE NEED NOT BE REPEATED IN REPORT
TECHNICAL REPORT MUST CONTAIN INTERPRETATION, CONCLUSIONS ETC.

Type of Survey(s) ELECTROMAGNETIC (APEX)
Township or Area Mine Centre Area (Kenora)
Claim Holder(s) The Hanna Mining Company

Survey Company Geosearch Consultants Ltd.
Author of Report John F. Muhic
Address of Author 805 - 69 Yonge St., Toronto, Ontario
Covering Dates of Survey Sept.16,1975-Sept.28,1975. Nov.26/75
(linecutting to office) to Dec.5/75.
Total Miles of Line Cut 124.30

SPECIAL PROVISIONS CREDITS REQUESTED

ENTER 40 days (includes line cutting) for first survey.

ENTER 20 days for each additional survey using same grid.

DAYS per claim

Geophysical
--Electromagnetic See attached list.
--Magnetometer
--Radiometric
--Other
Geological
Geochemical

AIRBORNE CREDITS (Special provision credits do not apply to airborne surveys)

Magnetometer ____ Electromagnetic ____ Radiometric ____
(enter days per claim)

DATE: Feb.12,1976 SIGNATURE: John F.Muhic
Author of Report or Agent

2.2081 & abs on this file –

Res. Geol. ____ Qualifications ____

Previous Surveys

File No.	Type	Date	Claim Holder

MINING CLAIMS TRAVERSED
List numerically

SEE ATTACHED LIST
(prefix) (number)

If space insufficient, attach list

TOTAL CLAIMS 120

OFFICE USE ONLY

GEOPHYSICAL TECHNICAL DATA

GROUND SURVEYS -- If more than one survey, specify data for each type of survey

Number of Stations 2968 Number of Readings 2968

Station interval 100 feet Line spacing 400 feet

Profile scale 1" = 40%

Contour interval

MAGNETIC

Instrument

Accuracy -- Scale constant

Diurnal correction method

Base Station check-in interval (hours)

Base Station location and value

ELECTROMAGNETIC

Instrument Apex Parametrics Max-Min 11

Coil configuration Horizontal Loop

Coil separation 400 feet

Accuracy ± ½% to ±1%

Method: ☐ Fixed transmitter ☐ Shoot back ☒ In line ☐ Parallel line

Frequency 888 Hz (specify V.L.F. station)

Parameters measured Field strength in per cent.

GRAVITY

Instrument

Scale constant

Corrections made

Base station value and location

Elevation accuracy

INDUCED POLARIZATION RESISTIVITY

Instrument

Method ☐ Time Domain ☐ Frequency Domain

Parameters -- On time Frequency

-- Off time Range

-- Delay time

-- Integration time

Power

Electrode array

Electrode spacing

Type of electrode

THE HANNA MINING COMPANY

ROOM 805, 69 YONGE STREET
TORONTO, ONTARIO M5E 1K3
TELEPHONE (416) 363-3088

LIST OF CLAIMS FOR ASSESSMENT CREDIT
MINE CENTRE PROJECT

K 419502
K 419503

K 419505
K 419506
K 419507
K 419508
K 419509
K 419510
K 419511
K 419512
K 419513
K 419514
K 419515
K 419516
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K 434800
K 434801
K 434802
K 434803
K 434804
K 434805

K 412716
K 412717
K 412718
K 412719
K 412720
K 412721
K 412722
K 412723

Total - 120 Claims

File 2.2297

GEOPHYSICAL – GEOLOGICAL – GEOCHEMICAL TECHNICAL DATA STATEMENT

RECEIVED
FEB 23 1976
PROJECTS UNIT

TO BE ATTACHED AS AN APPENDIX TO TECHNICAL REPORT
FACTS SHOWN HERE NEED NOT BE REPEATED IN REPORT
TECHNICAL REPORT MUST CONTAIN INTERPRETATION, CONCLUSIONS ETC.

Type of Survey Geological

Township or Area Mine Centre Area (Kenora)

Claim holder(s) The Hanna Mining Company

Author of Report Nelson Hogg

Address Room 805, 69 Yonge St., Toronto, Ont. M5E 1K3

Covering Dates of Survey May 10, 1975 - Oct. 13, 1975
(linecutting to office)

Total Miles of Line cut 124.30

SPECIAL PROVISIONS CREDITS REQUESTED

ENTER 40 days (includes line cutting) for first survey.

ENTER 20 days for each additional survey using same grid.

DAYS per claim

Geophysical
--Electromagnetic
--Magnetometer
--Radiometric
--Other
Geological 40
Geochemical

AIRBORNE CREDITS (Special provision credits do not apply to airborne surveys)

Magnetometer ____ Electromagnetic ____ Radiometric ____
(enter days per claim)

DATE: Dec. 31, 1975 SIGNATURE: Nelson Hogg
Author of Report

MINING CLAIMS TRAVERSED
List numerically

SEE LIST ATTACHED
(prefix) (number)

If space insufficient, attach list

TOTAL CLAIMS 120

OFFICE USE ONLY

PROJECTS SECTION

Res. Geol. ____ Qualifications 63.1991

Previous Surveys ____

Checked by ____ date ____

GEOLOGICAL BRANCH

Approved by ____ date ____

GEOLOGICAL BRANCH

Approved by ____ date ____

GEOPHYSICAL TECHNICAL DATA

GROUND SURVEYS

Number of Stations _____ Number of Readings _____

Station interval _____

Line spacing 400 ft.

Profile scale or Contour intervals _____

(specify for each type of survey)

MAGNETIC

Instrument _____

Accuracy - Scale constant _____

Diurnal correction method _____

Base station location _____

_____

ELECTROMAGNETIC

Instrument _____

Coil configuration _____

Coil separation _____

Accuracy _____

Method: ☐ Fixed transmitter ☐ Shoot back ☐ In line ☐ Parallel line

Frequency _____

(specify V.L.F. station)

Parameters measured _____

GRAVITY

Instrument _____

Scale constant _____

Corrections made _____

_____

Base station value and location _____

_____

Elevation accuracy _____

INDUCED POLARIZATION – RESISTIVITY

Instrument _____

Time domain _____ Frequency domain _____

Frequency _____ Range _____

Power _____

Electrode array _____

Electrode spacing _____

Type of electrode _____

THE HANNA MINING COMPANY

ROOM 805, 69 YONGE STREET
TORONTO, ONTARIO M5E 1K3

TELEPHONE (416) 368-3088

LIST OF CLAIMS FOR ASSESSMENT CREDIT
MINE CENTRE PROJECT

K 419502
K 419503

K 419505
K 419506
K 419507
K 419508
K 419509
K 419510
K 419511
K 419512
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K 434805

K 412716
K 412717
K 412718
K 412719
K 412720
K 412721
K 412722
K 412723

Total - 120 Claims

HERON LAKE M.2407

PORTER INLET M.2459

REED LAKE M.2392

GRASSY LAKE M.2474

92°45' 92°30'

48°52'30" 48°45'

AREA OF 2·2297

LITTLE TURTLE LAKE

DISTRICT OF
RAINY RIVER

KENORA
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.R.O.
SURFACE RIGHTS ONLY	S.R.O.
ROADS	
IMPROVED ROADS	
KING'S HIGHWAYS	
RAILWAYS	
POWER LINES	
MARSH OR MUSKEG	
MINES	
PATENTED S.R.O. CANCELLED	C.

NOTES

400' Surface Rights Reservation along the shores of all lakes and rivers.

1/2 ch. allowance for Mg. Cl. 1770 along the shores of Bad Vermilion Lake - M.R.O.

Areas withdrawn from staking under Section 42 of the Mining Act, R.S.O. 1960, (Sec. 43, R.S.O. '70).

	Order No.	File	Date	Disposition
(R)	Public Lands Act	163472	7/7/67	S.R.O.
(R)		11891		S.R.O.
(R)	W 7/76	67883	19/2/76	S.R.O.

DATE OF ISSUE
FEB 24 1977
SURVEYS AND MAPPING BRANCH

NATIONAL TOPOGRAPHIC SERIES 52 C 15

PLAN NO. M-2433

ONTARIO
MINISTRY OF NATURAL RESOURCES
SURVEYS AND MAPPING BRANCH

487923

AREA OF 2·2297

WILD POTATO LAKE

DISTRICT OF
RAINY RIVER

KENORA — THUNDER BAY
MINING DIVISION

SCALE: 1-INCH = 40 CHAINS

LEGEND

PATENTED LAND	(P)
CROWN LAND SALE	C.S.
LEASES	(L)
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	

NOTES

NATIONAL TOPOGRAPHIC SERIES 52 C 9

PLAN NO. M-2397

ONTARIO
MINISTRY OF NATURAL RESOURCES
SURVEYS AND MAPPING BRANCH

FACTOR: LAKE AREA M.2389

MANION LAKE AREA M.2406

LITTLE TURTLE LAKE AREA M.2433

HEPBURN LAKE AREA M.2388

WILD POTATO LAKE AREA M.2397

92°30' 92°15' 48° 52' 30" 48° 45'

Moosetrack Lake

Hillyer River

Turtle River

Bennett Lake

Reed L.

BENNETT TWP.

FOR STATUS REFER TO TWP. PLAN

Con. 6 Con. 5 Con. 4 Con. 3 Con. 2 Con. 1

7M 6M 5M 4M 3M 2M 1M

59M Lot 11 Lot 10

HP 179 HP 178 HP 234 HP 238 HP 173 HP 240

P.729 P.718 P.717

Indian Reserve No. 23

C.N.R.

GLENORCHY STA.

STURGEON FALLS POWER SITE

MPL. 115

SPL L.O. 6626 ELEV. 1173'

LO. 6627 FILE 61486

AREA OF 2.2297

REED LAKE

DISTRICT OF
RAINY RIVER

KENORA
MINING DIVISION

SCALE: 1-INCH = 40 CHAINS

LEGEND

PATENTED LAND	(P)
CROWN LAND SALE	C.S.
LEASES	(L)
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	

NOTES

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

(1) GRAVEL FILE 162718

(2) M.T.C. PIT 1089
GRAVEL FILE 162718

(3) M.T.C. PIT 1058

(4) GRAVEL FILE 16799 vol.7

(5) M.N.R. Gravel Reserve No. 228, File 162718.

DATE OF ISSUE
FEB 24 1977
SURVEYS AND MAPPING BRANCH

NATIONAL TOPOGRAPHIC SERIES 52 C/16

PLAN NO. M.2392

ONTARIO
MINISTRY OF NATURAL RESOURCES
SURVEYS AND MAPPING BRANCH

(487922)

52C16SW2428 2.2297 LITTLE TURTLE LAKE

220

LITTLE TURTLE LAKE - M.2433

BLISS LAKE - M.2467

WILD POTATO LAKE - M.2397

MELIN LAKE - M.2465

92°45' 92°30' 48°45' 48°37'30"

Vermillion Lake · Island Bay · Finger L. · Pacing L. · Obashinsing · Vermillion L. · Shoal Lake · Bad · Seine River I.R. No. 23 B · Grassy L. · Seine R. · Mc Leod · Wild Potato R. · Rat R.

BELL CITY

Shoal Lake Wilderness Area reserved from staking

AREA OF 2·2297

GRASSY LAKE

DISTRICT OF RAINY RIVER

KENORA MINING DIVISION

SCALE: 1-INCH = 40 CHAINS

LEGEND

PATENTED LAND	(P)
CROWN LAND SALE	C.S.
LEASES	(L)
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 PATENTED S.R.O.	C.

NOTES

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

Sand & Gravel

- MTC Pit No 1212
- " " 1213
- " " 1214
- MTC Gravel Pit 1016
- Gravel File. 170703
- " " 23798
- " " 170756
- Gravel Pit No 988

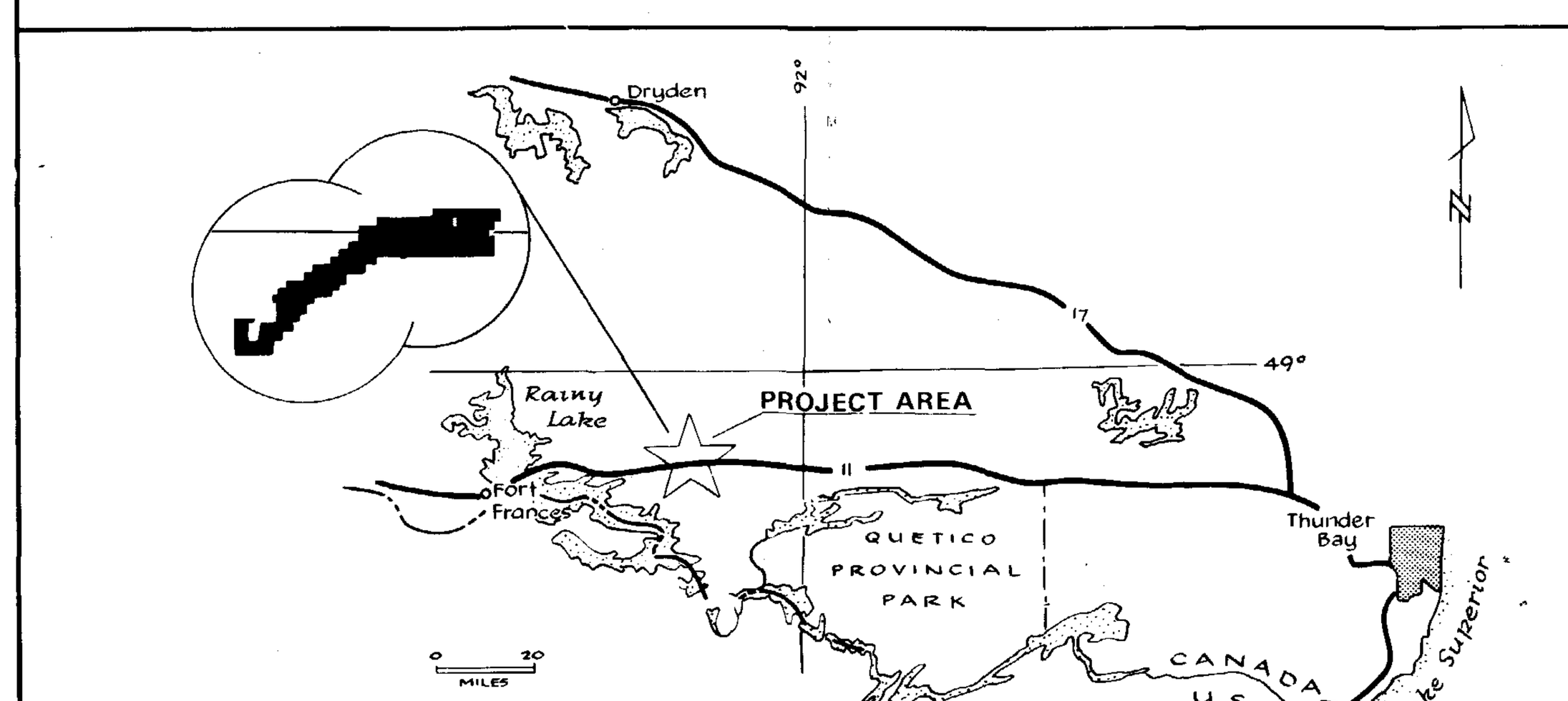
DATE OF ISSUE
FEB 24 1977
SURVEYS AND MAPPING BRANCH

NATIONAL TOPOGRAPHIC SERIES 52 C 10

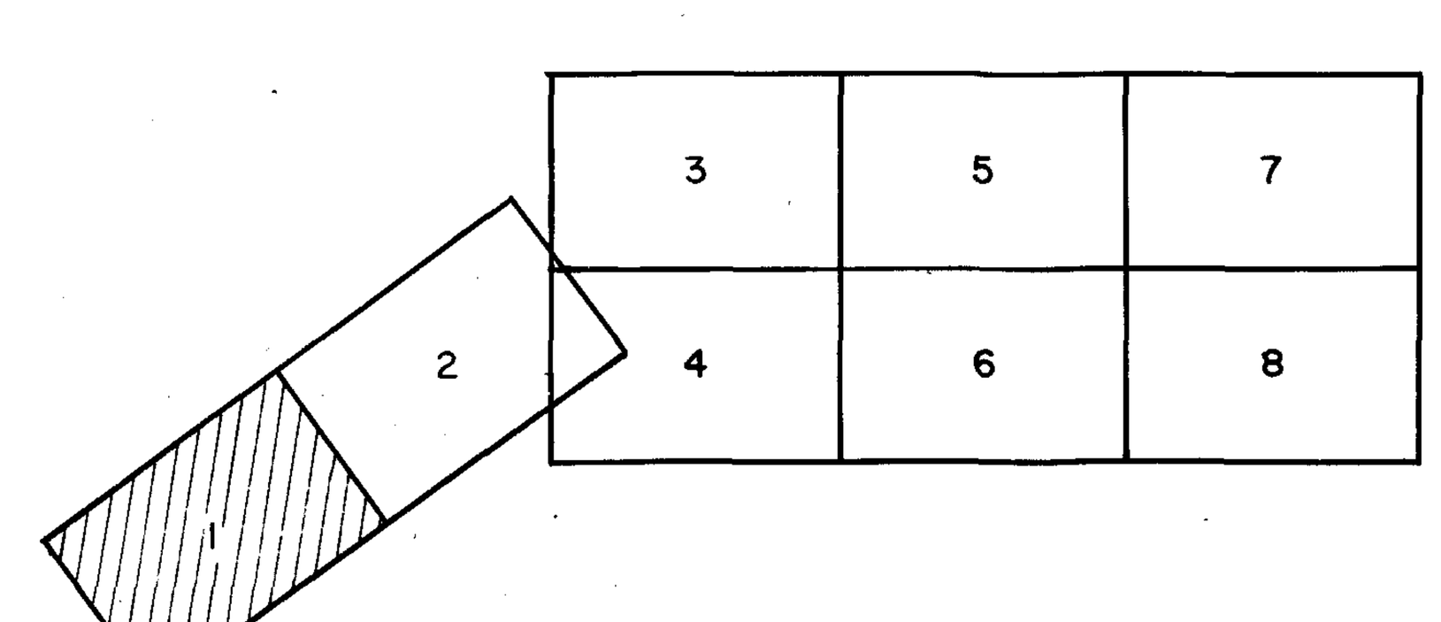
PLAN NO. M. 2474

ONTARIO
MINISTRY OF NATURAL RESOURCES
SURVEYS AND MAPPING BRANCH

486923



OPERTY LOCATION MAP



SHEET INDEX

LEGEND

- Hundred gamma contour
- Thousand gamma contour
- Closed magnetic low

Instrument:
Scintrex MF2 Fluxgate Magnetometer

SYMBOLS

- River, Creek.
- Beaver dam
- Railway
- Power transmission line
- Barbed wire fence
- Motor road or Highway
- Claim post, claim line

THE HANNA MINING COMPANY

MINE CENTER PROPERTY
KENORA MINING DIVISION
ONTARIO

MAGNETIC MAP

SCALE 1" = 200'

200 0 200 400 600
Feet

Work by	Interpretation by	Revised
Date	Date	Revised
		N.T.S. No 52-C-10

(1)

240

PROPERTY LOCATION MAP

SHEET INDEX

1 2 3 4 5 6 7 8

LEGEND

- Hundred gamma contour
- Thousand gamma contour
- Closed magnetic low

Instrument:
Scintrex MF 2 Fluxgate Magnetometer

SYMBOLS

- River, Creek.
- Beaver dam
- Railway
- Power transmission line
- Barbed wire fence
- Motor road or Highway
- Claim post, claim line

THE HANNA MINING COMPANY

MINE CENTER PROPERTY

KENORA MINING DIVISION

ONTARIO

MAGNETIC MAP

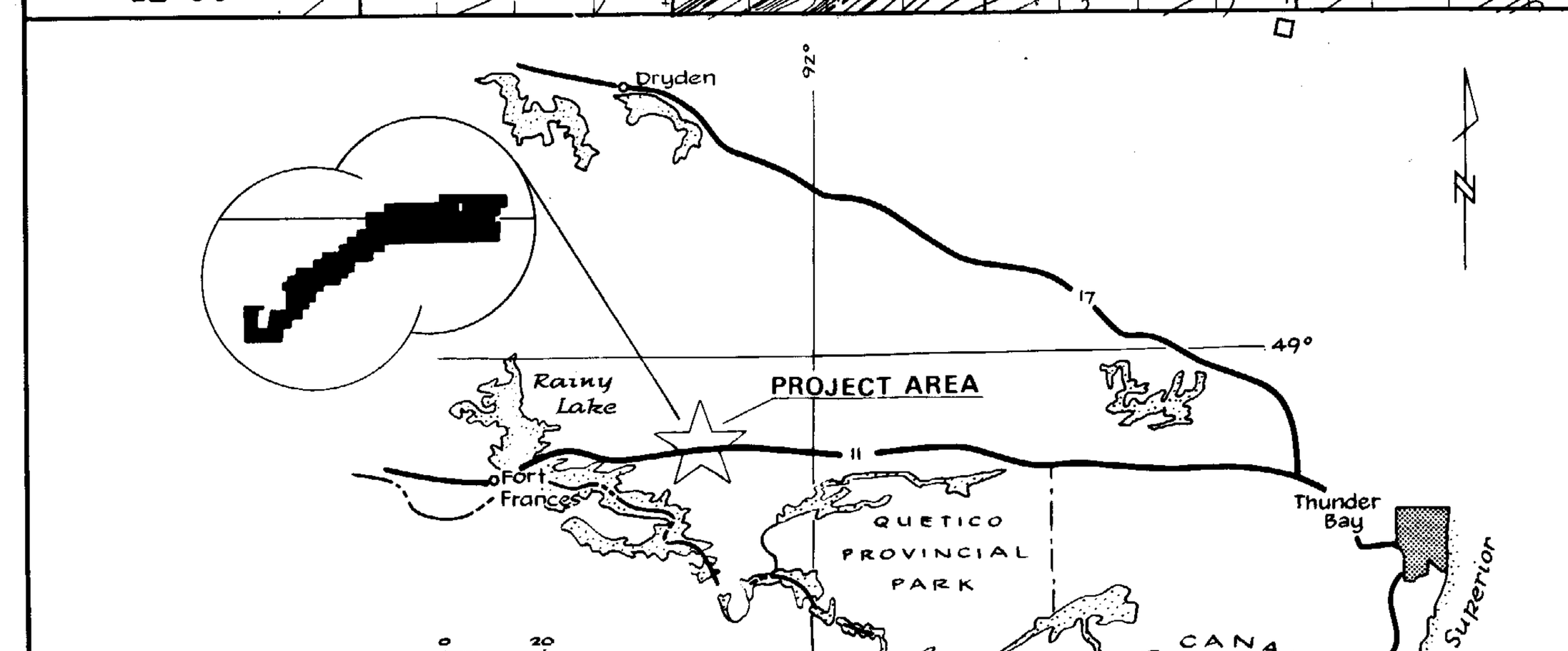
SCALE 1" = 200'

200 0 200 400 600
Feet

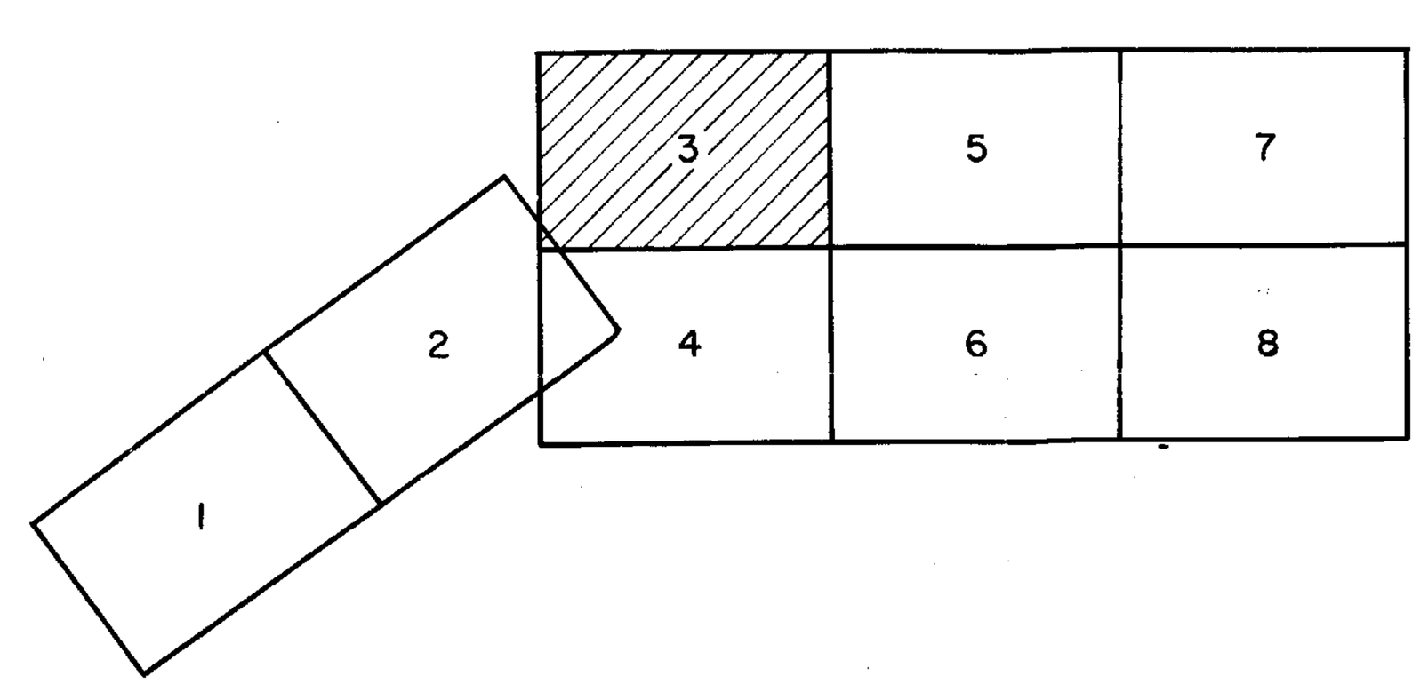
Work by		Interpretation by		Revised
Date		Date		Revised
				N.T.S. No 52-C-10

2.2297

250



ROPERTY LOCATION MAP



SHEET INDEX

LEGEND

Hundred gamma contour

Thousand gamma contour

Closed magnetic low

Instrument:
Scintrex MF 2 Fluxgate Magnetometer

SYMBOLS

River, Creek.

Beaver dam

Railway

Power transmission line

Barbed wire fence

Motor road or Highway

Claim post, claim line

THE HANNA MINING COMPANY

MINE CENTER PROPERTY

KENORA MINING DIVISION

ONTARIO

MAGNETIC MAP

SCALE 1" = 200'

200 0 200 400 600

Feet

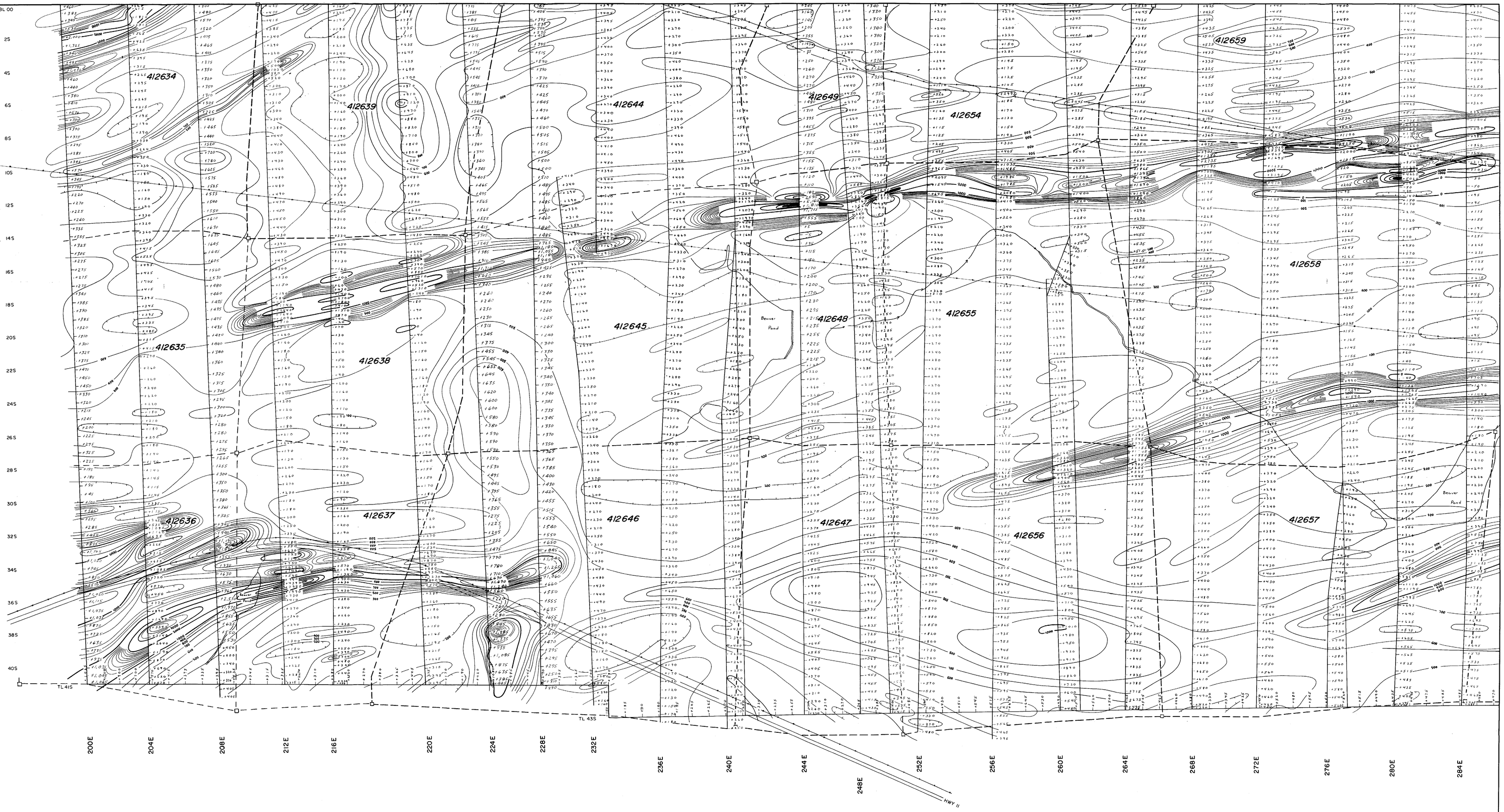
Work by	Interpretation by	Revised
Date	Date	Revised
		N.T.S. No 52-C-10

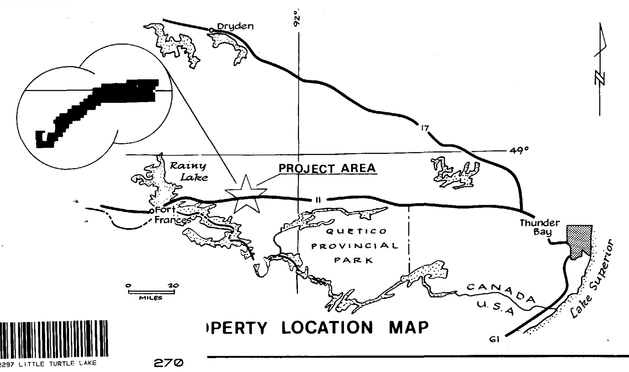
3

2.2297

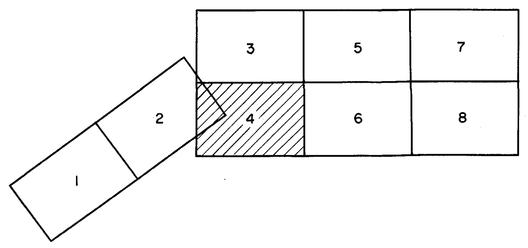
260

52C10SW0426 2.2297 LITTLE TURTLE LAKE





PERTY LOCATION MAP



SHEET INDEX

LEGEND

- Hundred gamma contour
- Thousand gamma contour
- Closed magnetic low

Instrument:
Scintrex MF2 Fluxgate Magnetometer

SYMBOLS

- River, Creek.
- Beaver dam
- Railway
- Power transmission line
- Barbed wire fence
- Motor road or Highway
- Claim post, claim line

THE HANNA MINING COMPANY

MINE CENTER PROPERTY

KENORA MINING DIVISION

ONTARIO

MAGNETIC MAP

SCALE 1" = 200'

200 0 200 400 600

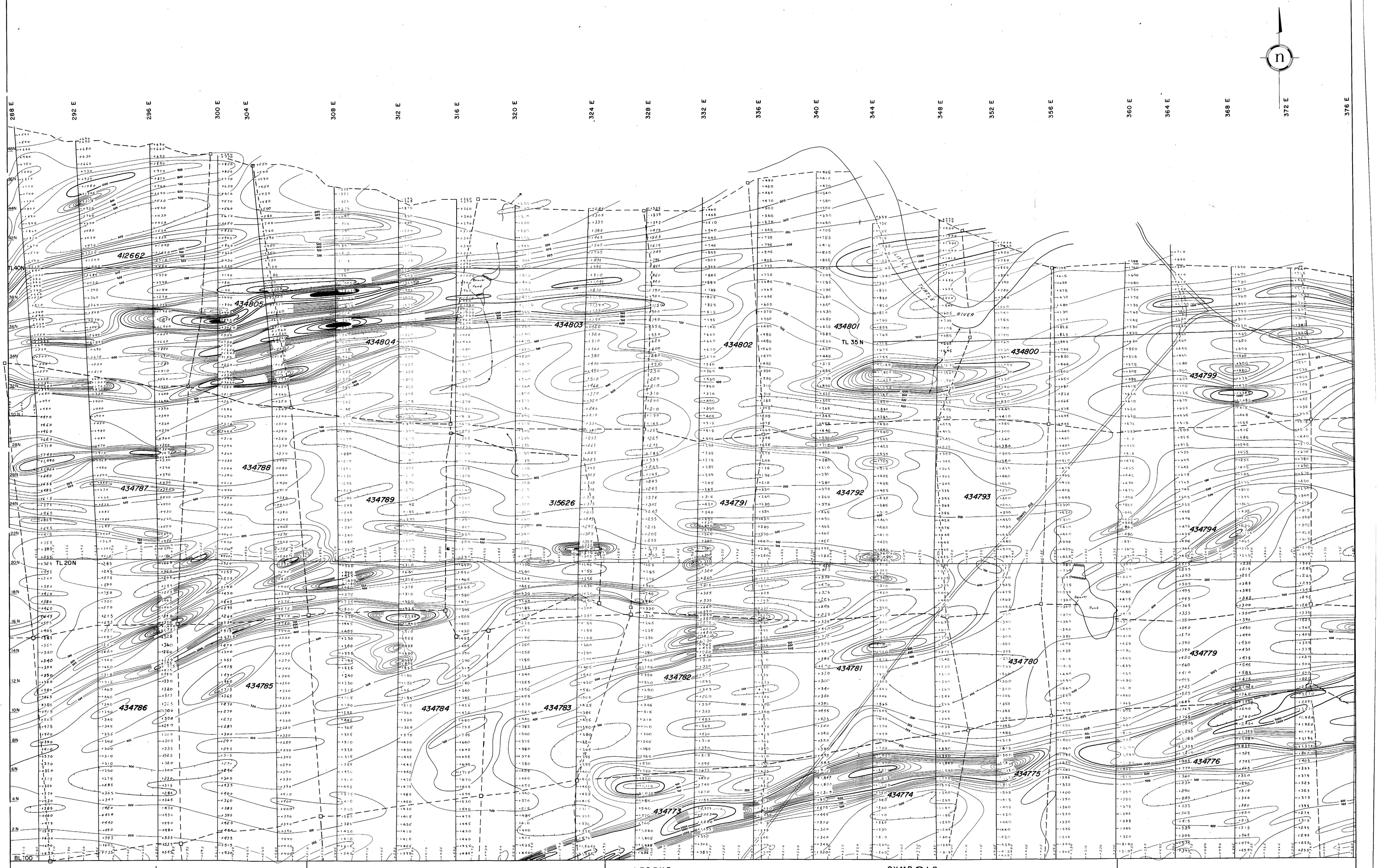
Feet

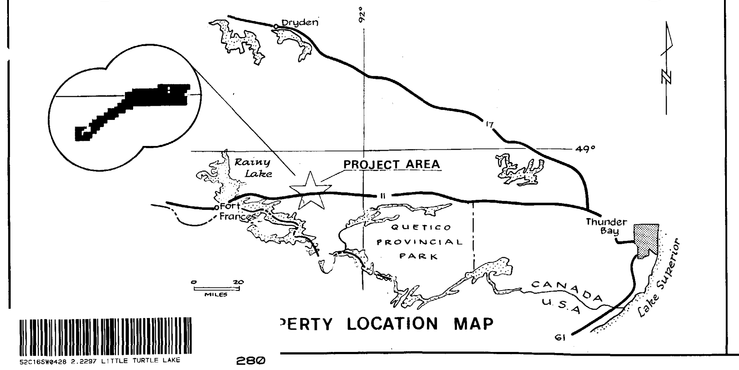
Work by	Interpretation by	Revised
Date	Date	Revised
		N.T.S. No 52-C-10

270

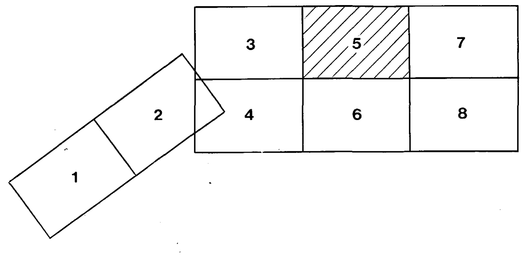
L 2297

4





PERTY LOCATION MAP



SHEET INDEX

LEGEND

- Hundred gamma contour
- Thousand gamma contour
- Closed magnetic low

Instrument:
Scintrex MF 2 Fluxgate Magnetometer

SYMBOLS

- River, creek.
- Beaver dam
- Railway
- Power transmission line
- Barbed wire fence
- Motor road or Highway
- Claim post, claim line

THE HANNA MINING COMPANY

MINE CENTER PROPERTY
KENORA MINING DIVISION

ONTARIO

MAGNETIC MAP

SCALE 1" = 200'

200 0 200 400 600
Feet

Work by	Interpretation by	Revised
Date	Date	Revised
		N.T.S. No 52-C-10

22297

280

BL. 00

2 S

4 S

6 S

8S

10S

12S

14S

16S

18S

TL 20 S

22S

24S

26S

28S

30S

32S

34S

36S

38S

TL 40S

40S

42S

44S

434769

434770

434771

434772

434773

434774

434775

434776

434765

434768

434767

434766

434764

434763

434762

434761

434751

434752

434753

434754

434755

434756

434757

434758

434759

Beaver Pond

Beaver Pond

Beaver Pond

Beaver Pond

Beaver Rd.

Hwy. 11

288 E

292 E

296 E

300 E

304 E

308 E

312 E

316 E

320 E

324 E

328 E

332 E

336 E

340 E

344 E

348 E

352 E

356 E

360 E

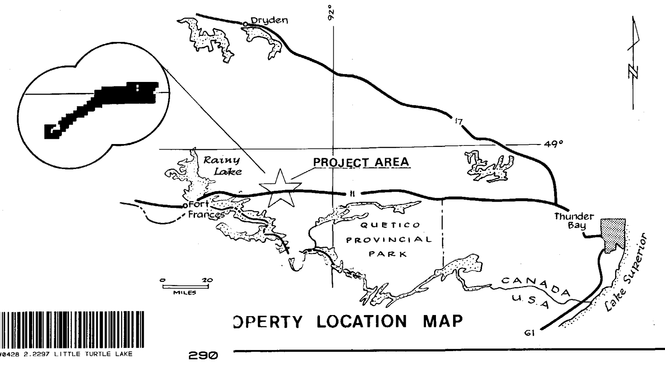
364 E

368 E

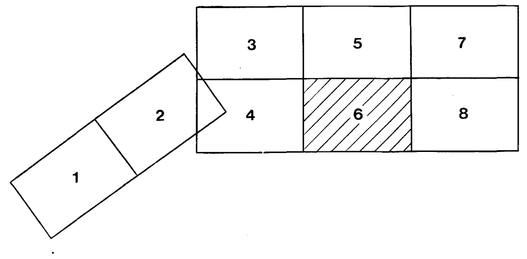
372 E

n

PROPERTY LOCATION MAP



SHEET INDEX



LEGEND

- Hundred gamma contour
- Thousand gamma contour
- Closed magnetic low

Instrument:
Scintrex MF 2 Fluxgate Magnetometer

SYMBOLS

- River, Creek.
- Beaver dam
- Railway
- Power transmission line
- Barbed wire fence
- Motor road or Highway
- Claim post, claim line

THE HANNA MINING COMPANY

MINE CENTER PROPERTY

KENORA MINING DIVISION

ONTARIO

MAGNETIC MAP

SCALE 1" = 200'

200 0 200 400 600

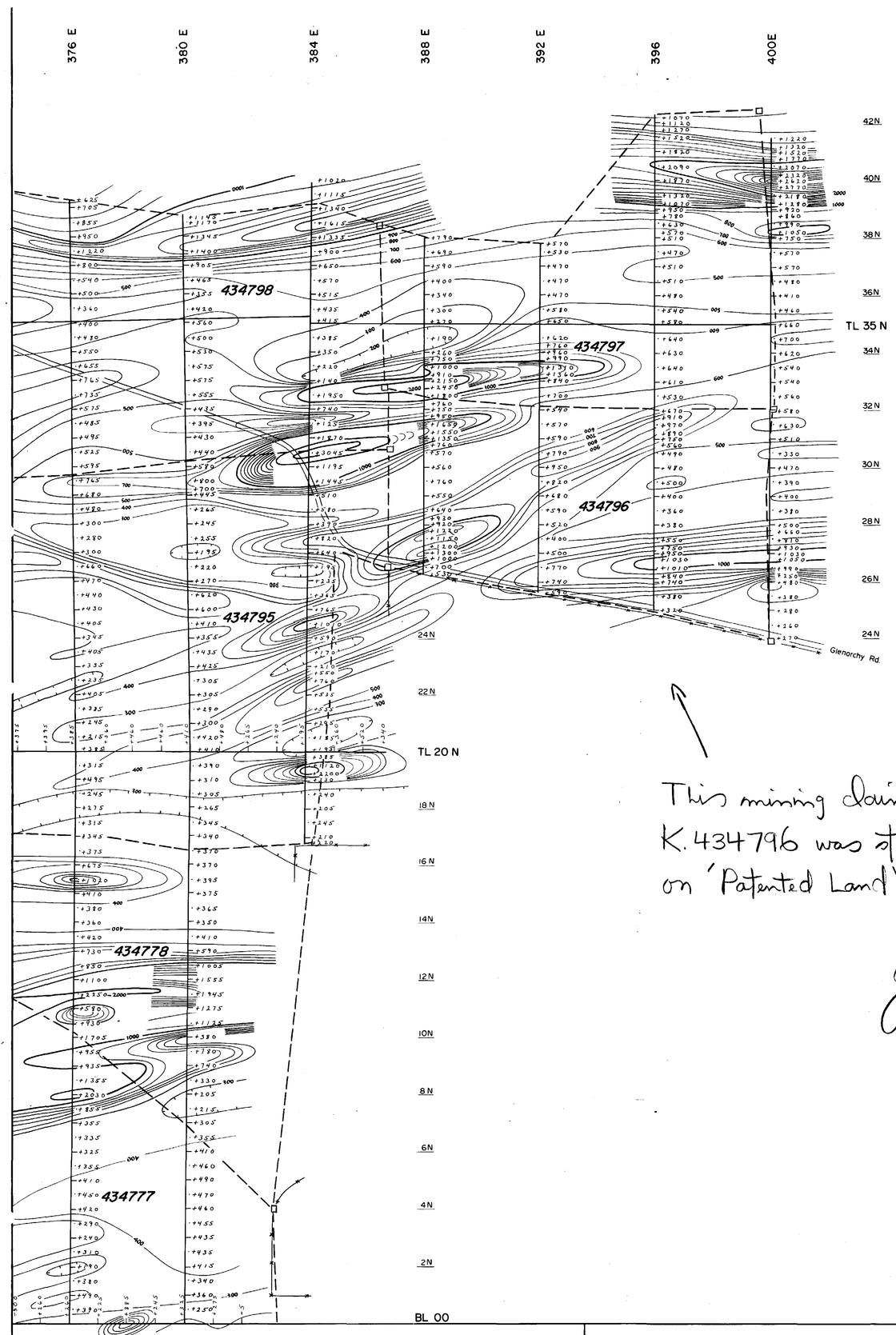
Feet

Work by	Interpretation by	Revised
Date	Date	Revised
		N.T.S. No 52-C-10

6

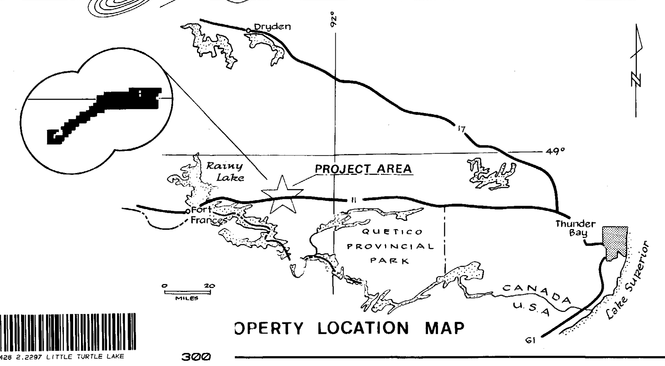
2-22-97

290

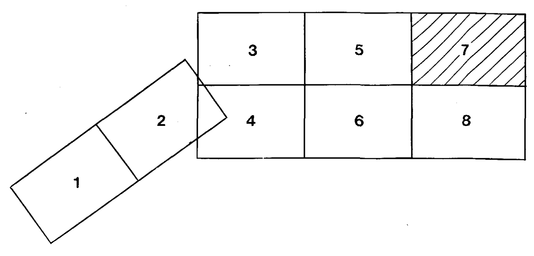


This mining claim K.434796 was staked on 'Patented Land'.

J



OPERTY LOCATION MAP



SHEET INDEX

LEGEND

- Hundred gamma contour
- Thousand gamma contour
- Closed magnetic low

Instrument:
Scintrex MF 2 Fluxgate Magnetometer

SYMBOLS

- River, Creek
- Beaver dam
- Railway
- Power transmission line
- Barbed wire fence
- Motor road or Highway
- Claim post, claim line

THE HANNA MINING COMPANY

MINE CENTER PROPERTY

KENORA MINING DIVISION

ONTARIO

MAGNETIC MAP

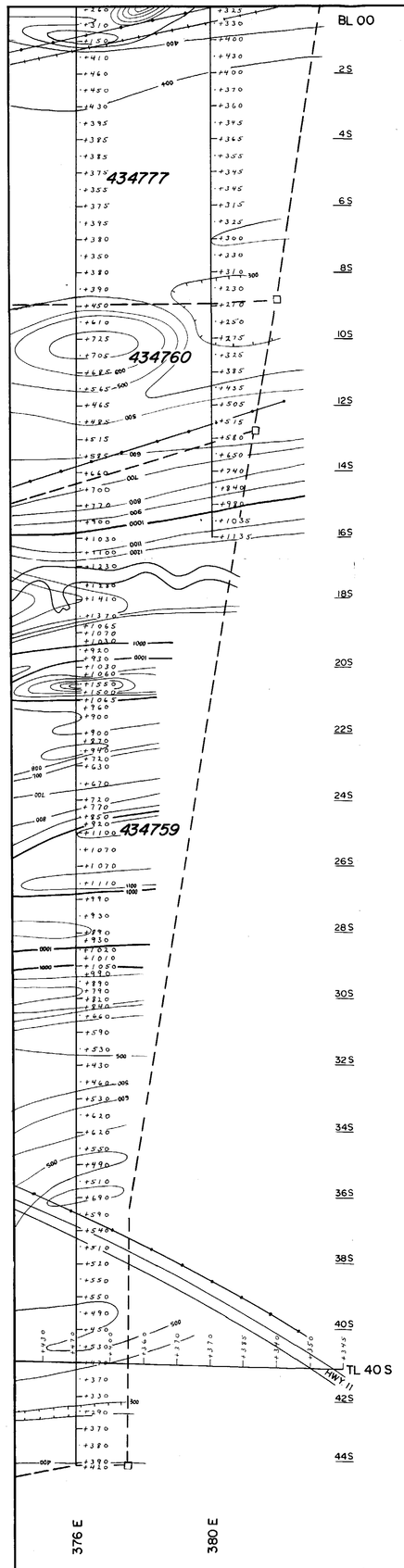
SCALE 1" = 200'

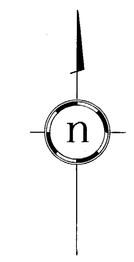
200 0 200 400 600

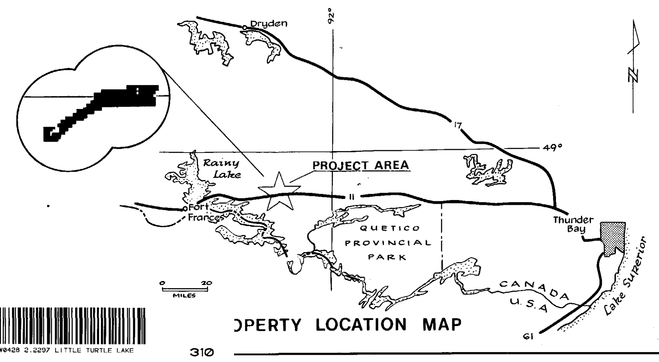
Feet

Work by	Interpretation by	Revised
Date	Date	Revised
		N.T.S. No 52-C-10

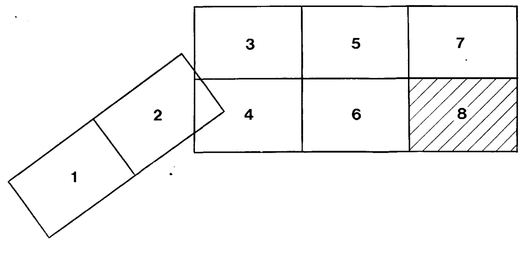
2.2297







OPERTY LOCATION MAP



SHEET INDEX

LEGEND

- Hundred gamma contour
- Thousand gamma contour
- Closed magnetic low

Instrument:
Scintrex MF 2 Fluxgate Magnetometer

SYMBOLS

- River, Creek
- Beaver dam
- Railway
- Power transmission line
- Barbed wire fence
- Motor road or Highway
- Claim post, claim line

THE HANNA MINING COMPANY

MINE CENTER PROPERTY
KENORA MINING DIVISION

ONTARIO

MAGNETIC MAP

SCALE 1" = 200'

200 0 200 400 600
Feet

Work by Date	Interpretation by Date	Revised Revised N.T.S. No 52-C-10

8

22-297

310

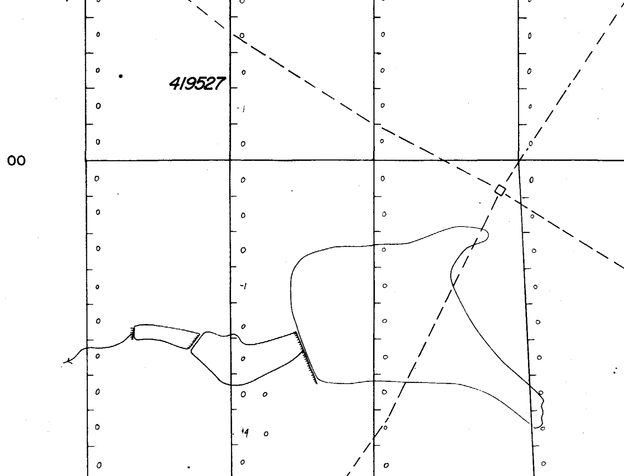
NORTH

60 E 64 E 68 E 72 E 76 E 80 E 84 E 88 E 92 E 96 E 100 E 104 E 108 E 112 E 116 E 120 E 124 E 128 E 132 E 136 E 140 E 144 E

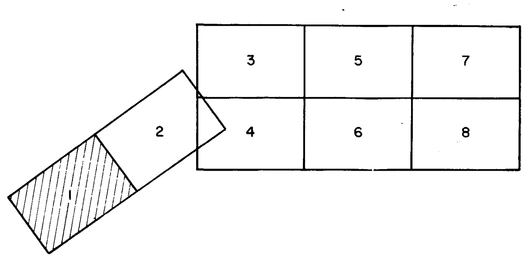
20N 18N 16N 14N 12N 10N 8N 6N 4N 2N BL 00 2S 4S 6S 8S 10S 12S 14S 16S 18S 20S 22S 24S 26S 28S

419527 419523 419520 419522 K-304 419513 419509 419505 419510 P-683 419521 419514 419528 419530 419529 DH 76-1 419524 419518 419515 419519

HWY. 11



PROPERTY LOCATION MAP



SHEET INDEX

LEGEND

APEX		CEM	
In-phase	Quadrature	Medium Frequency	Low Frequency
+1	+1	+1	+1

Instrument

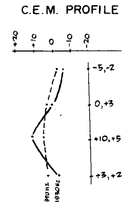
CRONE CEM

Medium Frequency	1830 Hz
Low Frequency	390 Hz
Coil Spacing	300 Feet

APEX Parametrics Max-min II

Frequency	888 Hz
Coil Spacing	400 Feet

C.E.M. PROFILE



SYMBOLS

- River, Creek
- Beaver dam
- Railway
- Power transmission line
- Barbed wire fence
- Motor road or Highway
- Claim post, claim line
- DH 76-1 Diamond Drill Hole

THE HANNA MINING COMPANY

MINE CENTER PROPERTY

KENORA MINING DIVISION

ONTARIO

ELECTROMAGNETIC MAP

CRONE C.E.M. PROFILES

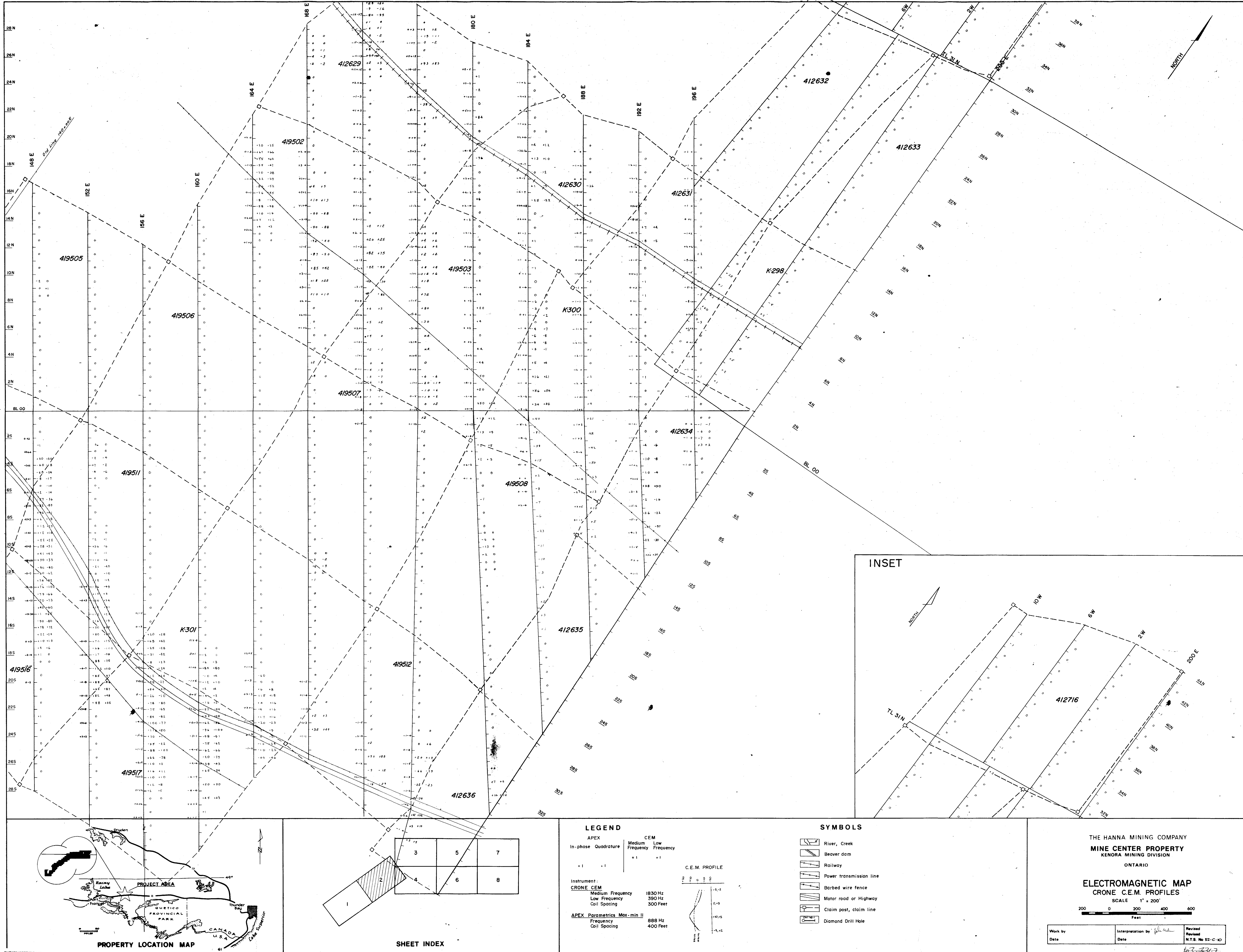
SCALE 1" = 200'

200 0 200 400 600

Feet

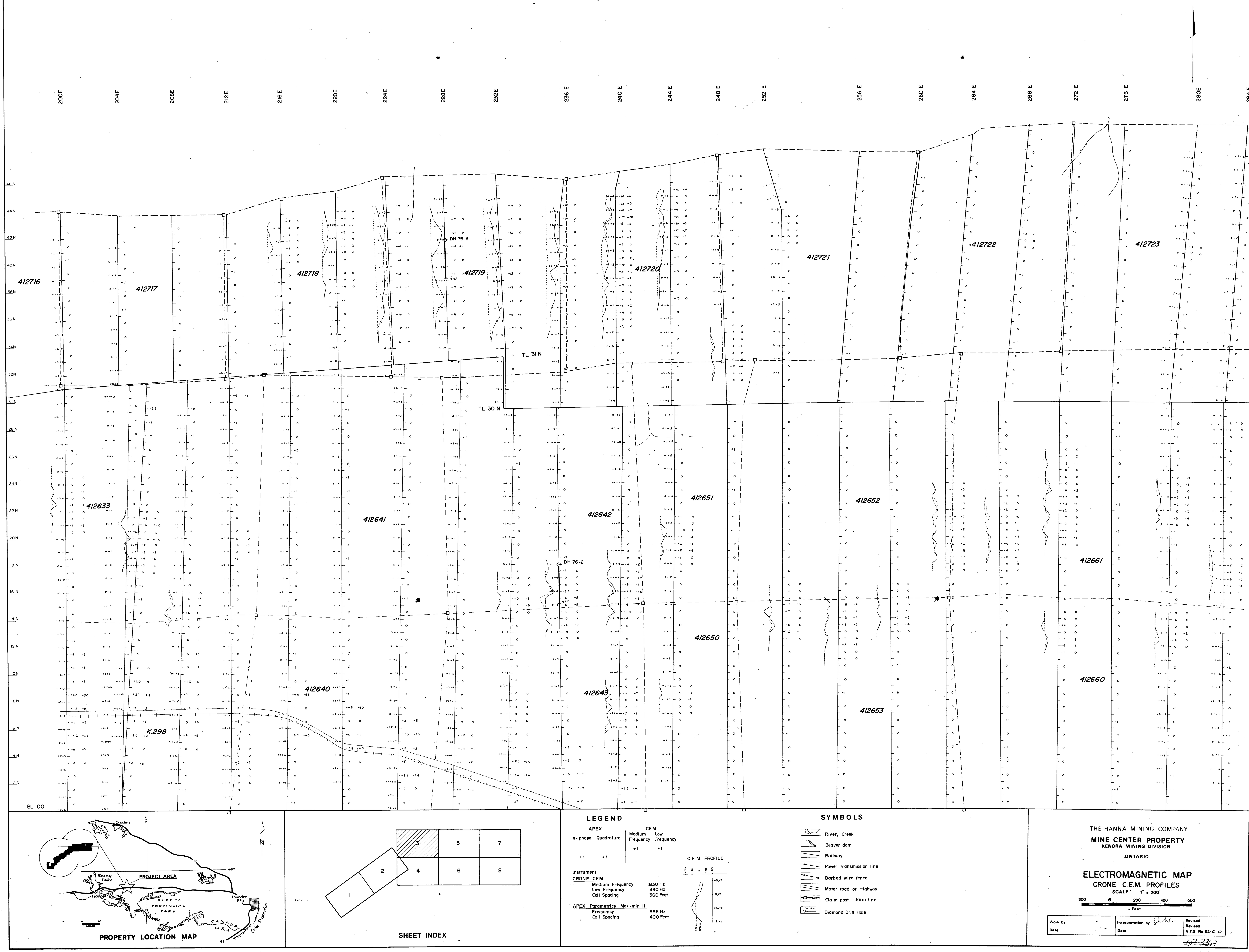
Work by	Interpretation by	Revised
Date	Date	Revised
		N.T.S. No 52-C-10

63-3367



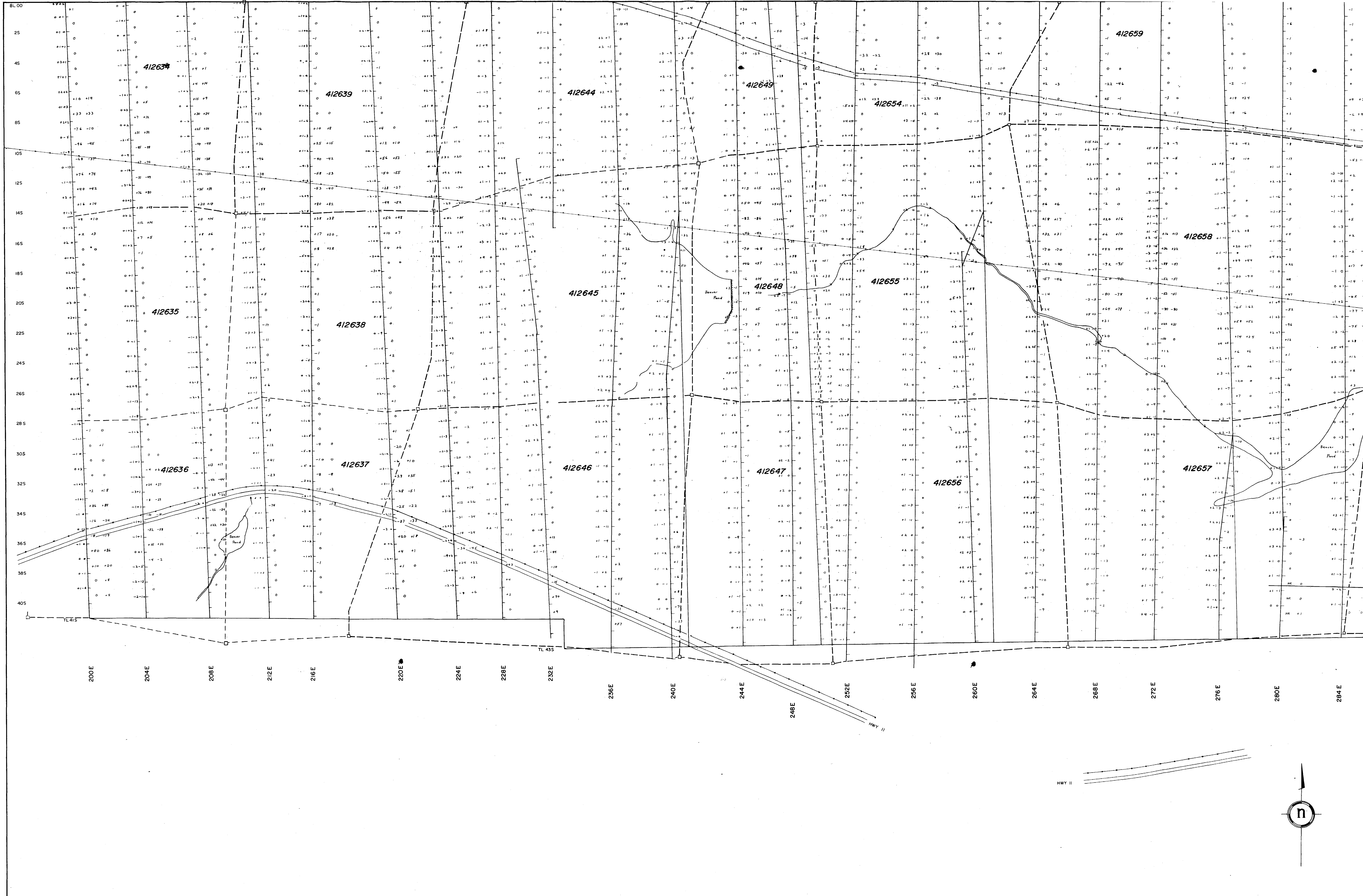
INSET
NORTH
BL 00
TL 31 N
412629
412630
412631
412632
412633
412634
412635
412636
412716
419502
419503
419505
419506
419507
419508
419511
419512
419516
419517
K298
K300
K301
148 E
152 E
156 E
160 E
164 E
168 E
180 E
184 E
188 E
192 E
196 E
200 E
Old Line 140+00E
LEGEND
APEX
In-phase Quadrature
CEM
Medium Frequency
Low Frequency
C.E.M. PROFILE
Instrument:
CRONE CEM
Medium Frequency 1830 Hz
Low Frequency 390 Hz
Coil Spacing 300 Feet
APEX Parametrics Max-min II
Frequency 888 Hz
Coil Spacing 400 Feet
SYMBOLS
River, Creek
Beaver dam
Railway
Power transmission line
Barbed wire fence
Motor road or Highway
Claim post, claim line
Diamond Drill Hole
SHEET INDEX
PROPERTY LOCATION MAP
PROJECT AREA
QUETICO PROVINCIAL PARK
Thunder Bay
Lake Superior
CANADA
U.S.A.
THE HANNA MINING COMPANY
MINE CENTER PROPERTY
KENORA MINING DIVISION
ONTARIO
ELECTROMAGNETIC MAP
CRONE C.E.M. PROFILES
SCALE 1" = 200'
Feet
Work by
Date
Interpretation by
Date
Revised
Revised
N.T.S. No 52-C-10
63-3347

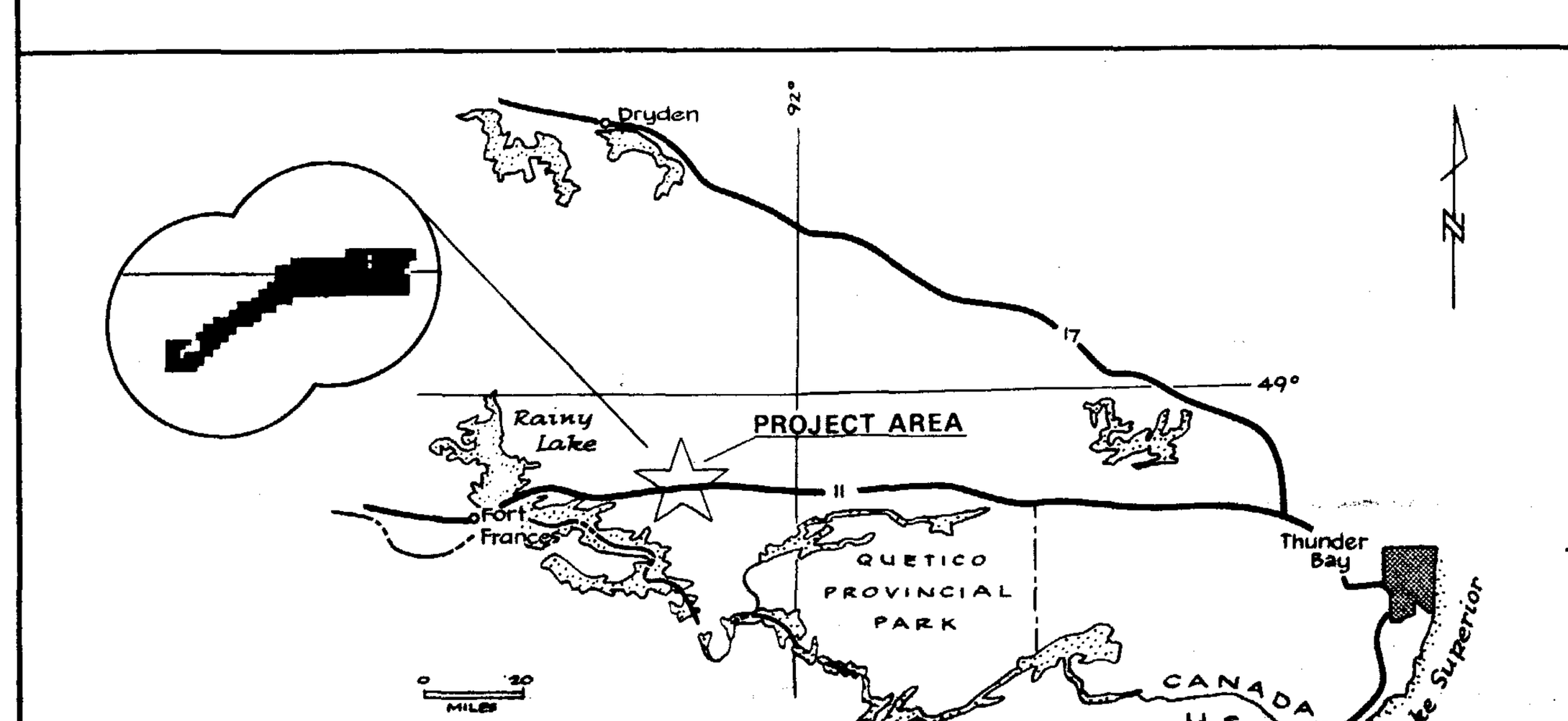
22297
330


200E
204E
208E
212E
216E
220E
224E
228E
232E
236 E
240 E
244 E
248 E
252 E
256 E
260 E
264 E
268 E
272 E
276 E
280E
284 E
46 N
44N
42N
40N
38N
36N
34N
32N
30N
28 N
26N
24N
22 N
20N
18N
16 N
14 N
12 N
10N
8N
6 N
4N
2 N
BL 00
412716
412717
412718
412719
412720
412721
412722
412723
412633
412641
412642
412651
412652
412661
412640
412650
412643
412653
412660
K.298
DH 76-3
DH 76-2
TL 31 N
TL 30 N
PROJECT AREA
Rainy Lake
Dryden
Thunder Bay
QUETICO PROVINCIAL PARK
CANADA
U.S.A.
Lake Superior
PROPERTY LOCATION MAP
SHEET INDEX
LEGEND
APEX
In-phase Quadrature
CEM
Medium Frequency
Low Frequency
C.E.M. PROFILE
Instrument
CRONE CEM
Medium Frequency 1830 Hz
Low Frequency 390 Hz
Coil Spacing 300 Feet
APEX Parametrics Max-min II
Frequency 888 Hz
Coil Spacing 400 Feet
SYMBOLS
River, Creek
Beaver dam
Railway
Power transmission line
Barbed wire fence
Motor road or Highway
Claim post, claim line
Diamond Drill Hole
THE HANNA MINING COMPANY
MINE CENTER PROPERTY
KENORA MINING DIVISION
ONTARIO
ELECTROMAGNETIC MAP
CRONE C.E.M. PROFILES
SCALE 1" = 200'
200 0 200 400 600
Feet
Work by
Date
Interpretation by
Date
Revised
Revised
N.T.S. No 52-C-10

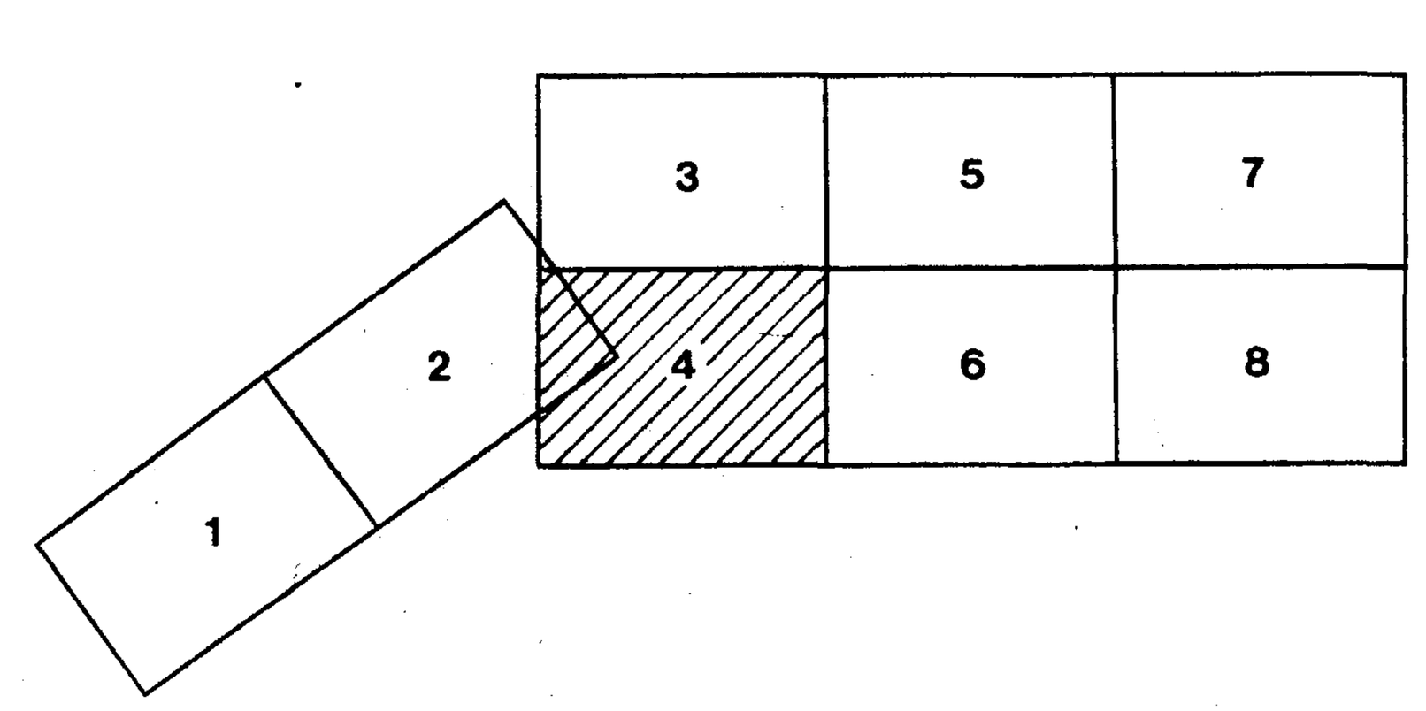
22297

340





PROPERTY LOCATION MAP



SHEET INDEX

LEGEND

APEX		CEM	
In-phase	Quadrature	Medium Frequency	Low Frequency
+1	+1	+1	+1

Instrument
CRONE CEM
Medium Frequency 1830 Hz
Low Frequency 390 Hz
Coil Spacing 300 Feet

APEX Parametrics Max-min II
Frequency 888 Hz
Coil Spacing 400 Feet

C.E.M. PROFILES

SYMBOLS

- River, Creek
- Beaver dam
- Railway
- Power transmission line
- Barbed wire fence
- Motor road or Highway
- Claim post, claim line
- Diamond Drill Hole

THE HANNA MINING COMPANY
MINE CENTER PROPERTY
KENORA MINING DIVISION
ONTARIO

ELECTROMAGNETIC MAP
CRONE C.E.M. PROFILES
SCALE 1" = 200'
200 0 200 400 600
Feet

Work by	Interpretation by	Revised
Date	Date	Revised
		N.T.S. No 52-C-10

63.3367

2.2297

350

298 E 292 E 296 E 300 E 304 E 308 E 312 E 316 E 320 E 324 E 328 E 332 E 336 E 340 E 344 E 348 E 352 E 356 E 360 E 364 E 368 E 372 E 376 E

48N 46N 44N 42N TL 40N 38N 36N 34N 32N 30N 28N 26N 24N 22N TL 20N 18N 16N 14N 12N 10N 8N 6N 4N 2N BL 00

412662 434805 434804 434803 434802 434801 TL 35 N 434800 434799 434787 434789 416612 434791 434792 434793 434794 434786 434785 434784 434783 434782 434781 434780 434779 434775 434774 434773 434776

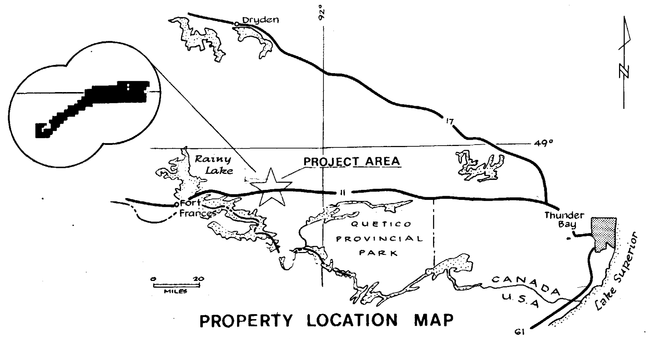
LITTLE TURTLE RIVER

Beaver Pond

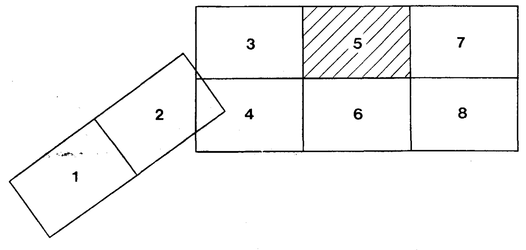
Beaver Pond

Beaver Dam

PROPERTY LOCATION MAP



SHEET INDEX



LEGEND

APEX In-phase	APEX Quadrature	CEM Medium Frequency	CEM Low Frequency
+1	+1	+1	+1

Instrument:

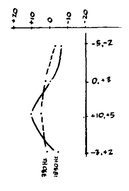
CRONE CEM

Medium Frequency	1830 Hz
Low Frequency	390 Hz
Coil Spacing	300 Feet

APEX Parametrics Max-min II

Frequency	888 Hz
Coil Spacing	400 Feet

C.E.M. PROFILES



SYMBOLS

- River, Creek
- Beaver dam
- Railway
- Power transmission line
- Barbed wire fence
- Motor road or ~~Highway~~
- Claim post, claim line
- DDH 381 — Diamond Drill Hole

THE HANNA MINING COMPANY

MINE CENTER PROPERTY

KENORA MINING DIVISION

ONTARIO

ELECTROMAGNETIC MAP

CRONE C.E.M. PROFILES

SCALE 1" = 200'

200 0 200 400 600

Feet

Work by	Interpretation by	Revised
Date	Date	Revised
		N.T.S. No 52-C-10

63-3367

2.2297

360

BL 00

2 S

4 S

6 S

8 S

10 S

12 S

14 S

16 S

18 S

TL 20 S

22 S

24 S

26 S

28 S

30 S

32 S

34 S

36 S

38 S

TL 40 S

40 S

42 S

44 S

434769

434770

434771

434772

434773

434774

434775

434776

434761

434762

434763

434764

434765

434766

434767

434768

434751

434752

434753

434754

434755

434756

434757

434758

434759

Beaver Pond

Beaver Pond

Bones Rd.

Hwy. 11

288 E

292 E

296 E

300 E

304 E

308 E

312 E

316 E

320 E

324 E

328 E

332 E

336 E

340 E

344 E

348 E

352 E

356 E

360 E

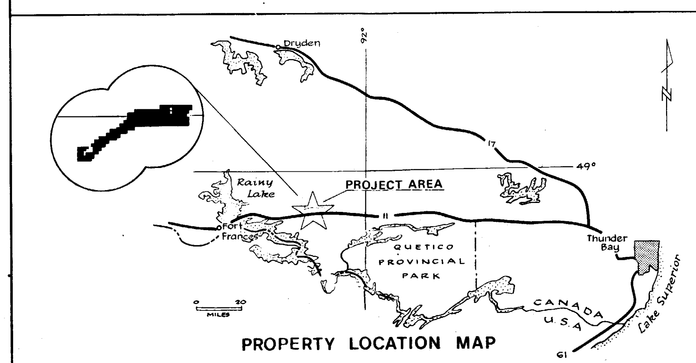
364 E

368 E

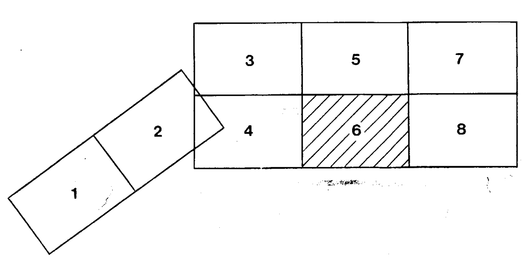
372 E

n

PROPERTY LOCATION MAP



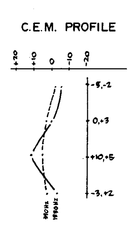
SHEET INDEX



LEGEND

APEX		CEM	
In-phase	Quadrature	Medium Frequency	Low Frequency
+1	+1	+1	+1

C.E.M. PROFILE



Instrument

CRONE CEM

Medium Frequency	1830 Hz
Low Frequency	390 Hz
Coil Spacing	300 Feet

APEX Parametrics Max-min II

Frequency	888 Hz
Coil Spacing	400 Feet

SYMBOLS

- River, Creek
- Beaver dam
- Railway
- Power transmission line
- Barbed wire fence
- Motor road or Highway
- Claim post, claim line
- Diamond Drill Hole

THE HANNA MINING COMPANY

MINE CENTER PROPERTY

KENORA MINING DIVISION

ONTARIO

ELECTROMAGNETIC MAP

CRONE C.E.M. PROFILES

SCALE 1" = 200'

200 0 200 400 600

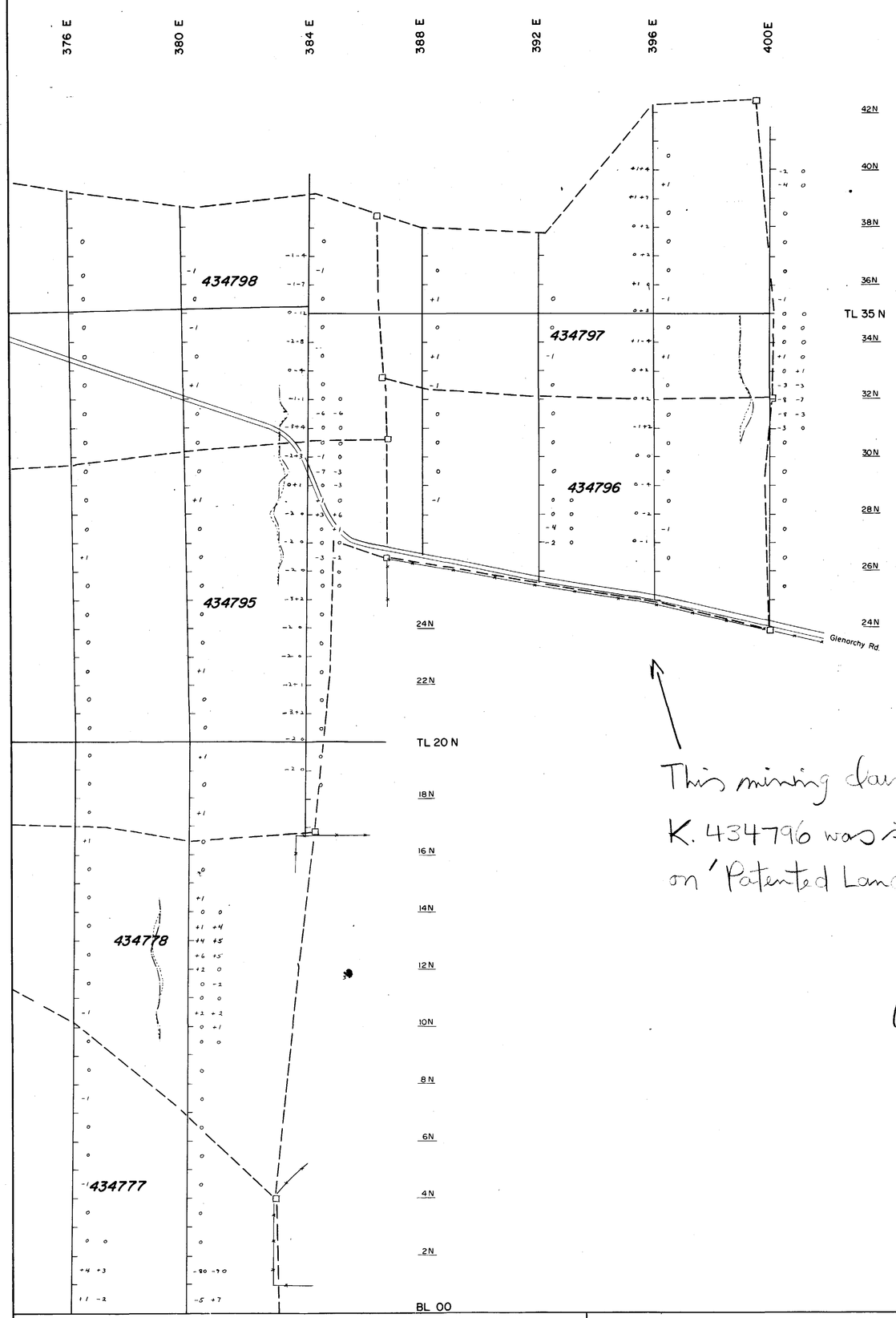
Feet

Work by	Interpretation by	Revised
Date	Date	Revised
		N.T.S. No 52-C-10

63-3367

2.2297

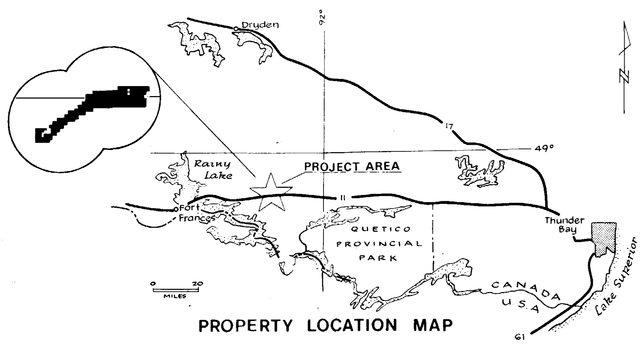
370



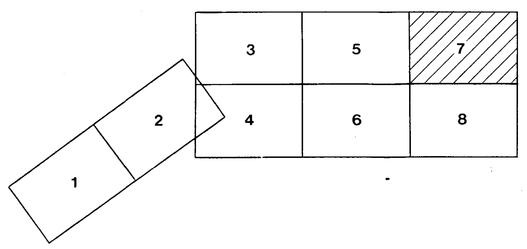
This mining claim K. 434796 was staked on 'Patented Land'.

J

PROPERTY LOCATION MAP



SHEET INDEX



LEGEND

APEX

In-phase	Quadrature
+1	+1

CEM

Medium Frequency	Low Frequency
+1	+1

Instrument

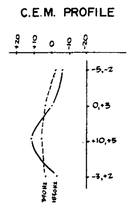
CRONE CEM

Medium Frequency	1830 Hz
Low Frequency	390 Hz
Coil Spacing	300 Feet

APEX Parametrics Max-min II

Frequency	888 Hz
Coil Spacing	400 Feet

C.E.M. PROFILE



SYMBOLS

- River, Creek
- Beaver dam
- Railway
- Power transmission line
- Barbed wire fence
- Motor road or Highway
- Claim post, claim line
- DH 96-1 Diamond Drill Hole

THE HANNA MINING COMPANY

MINE CENTER PROPERTY

KENORA MINING DIVISION

ONTARIO

ELECTROMAGNETIC MAP

CRONE C.E.M. PROFILES

SCALE 1" = 200'

200 0 200 400 600

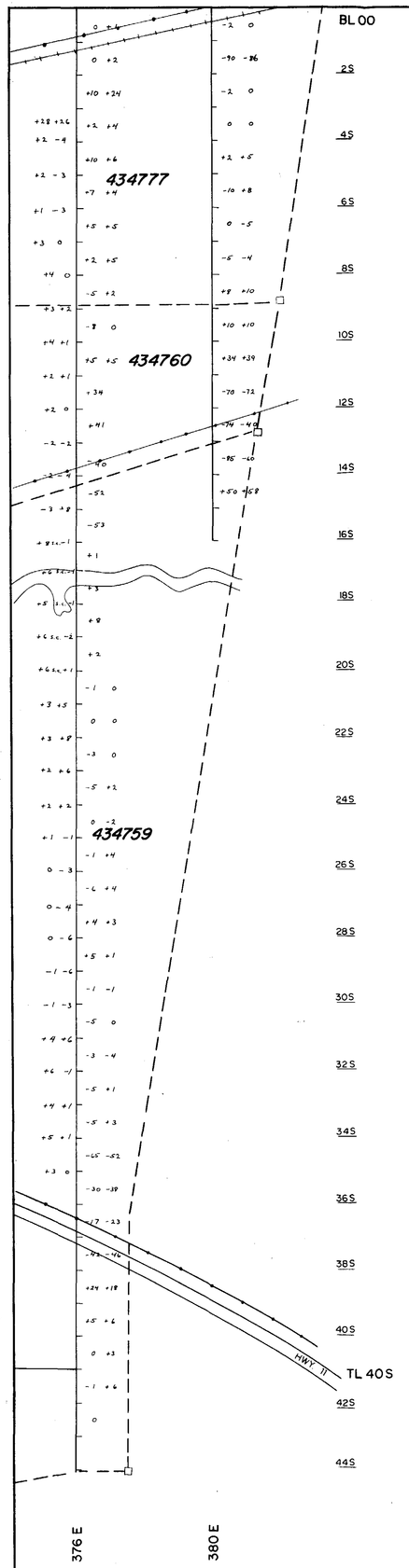
Feet

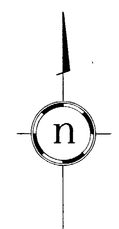
Work by	Interpretation by	Revised
Date	Date	Revised
		N.T.S. No 52-C-10

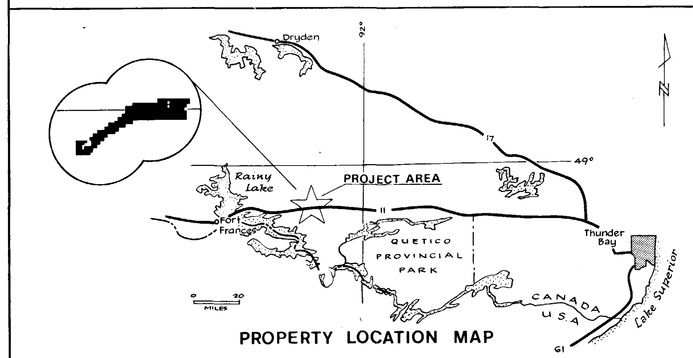
93367

2.2277

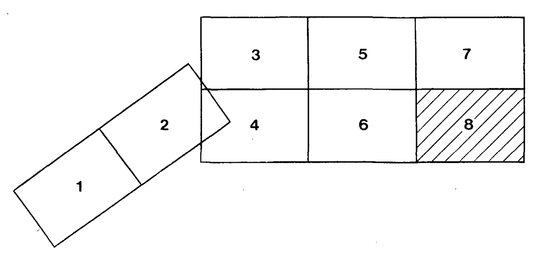
380







PROPERTY LOCATION MAP



SHEET INDEX

LEGEND

APEX In-phase	APEX Quadrature	CEM Medium Frequency	CEM Low Frequency
+1	+1	+1	+1

Instrument

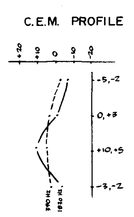
CRONE CEM

Medium Frequency	1830 Hz
Low Frequency	390 Hz
Coil Spacing	300 Feet

APEX Parametrics Max-min II

Frequency	888 Hz
Coil Spacing	400 Feet

C.E.M. PROFILE



SYMBOLS

- River, Creek
- Beaver dam
- Railway
- Power transmission line
- Barbed wire fence
- Motor road or Highway
- Claim post, claim line
- Diamond Drill Hole

THE HANNA MINING COMPANY

MINE CENTER PROPERTY

KENORA MINING DIVISION

ONTARIO

ELECTROMAGNETIC MAP

CRONE C.E.M. PROFILES

SCALE 1" = 200'

200 0 200 400 600

Feet

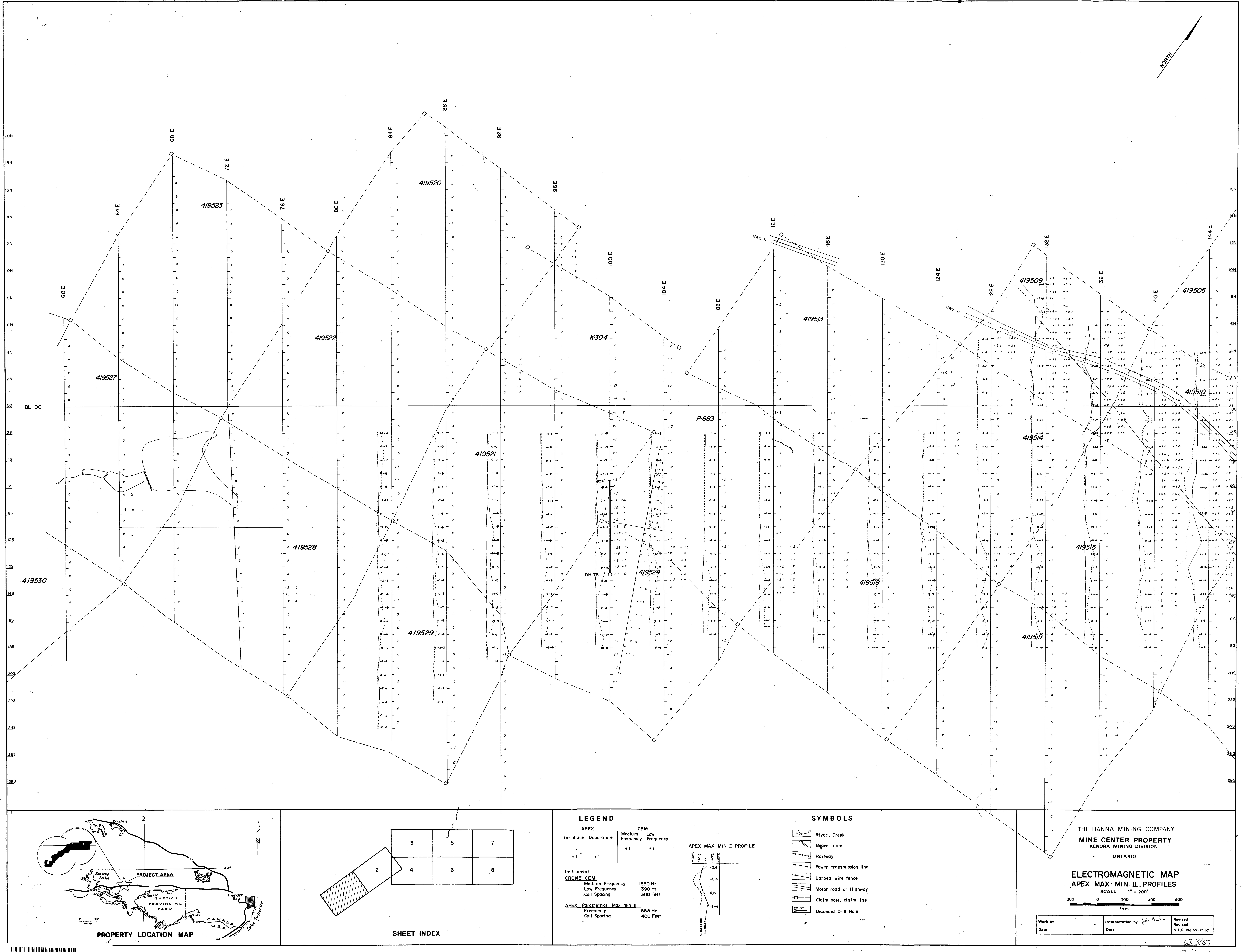
Work by	Interpretation by	Revised
Date	Date	Revised
		N.T.S. No 52-C-10

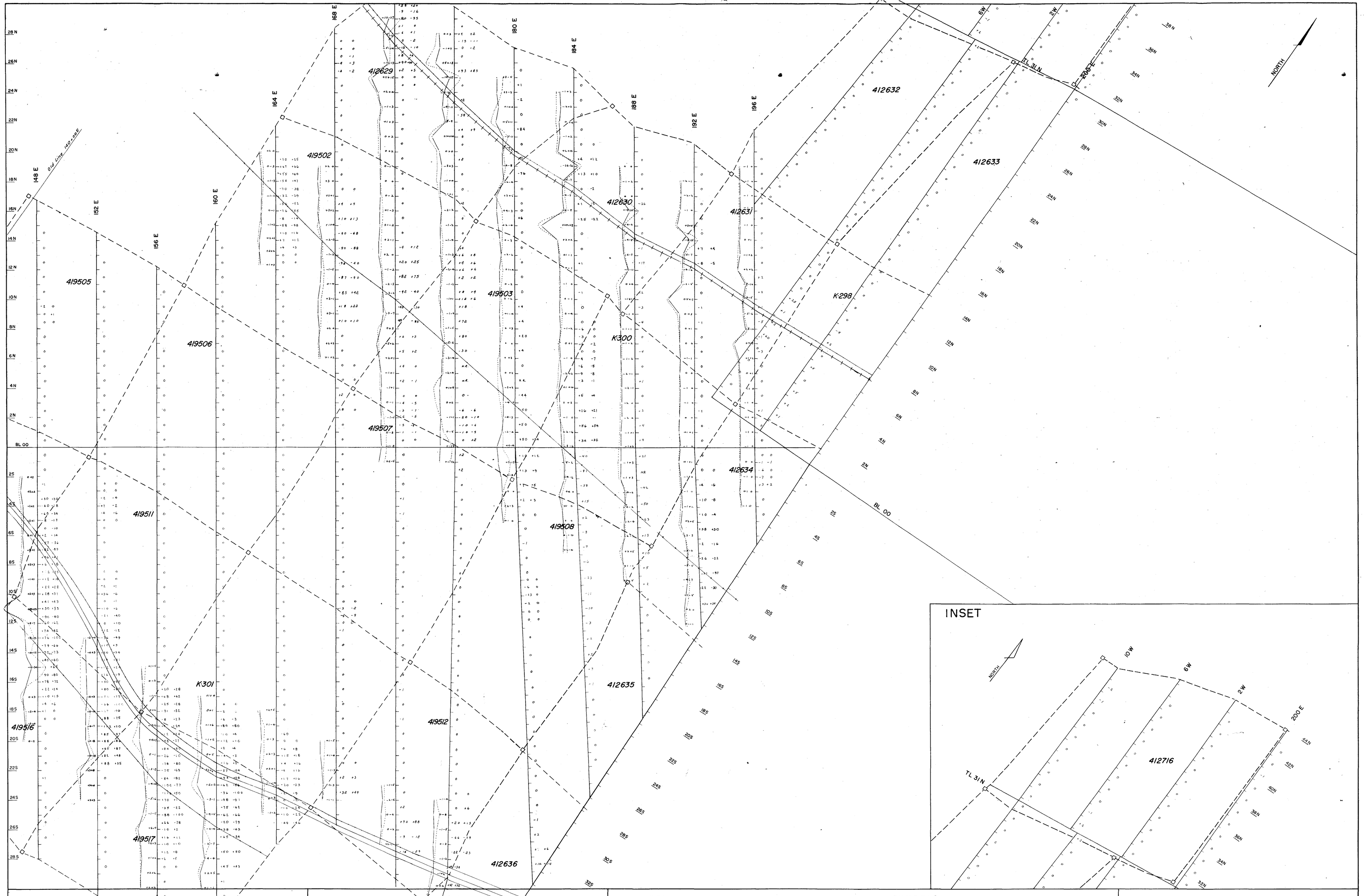
(83-336)

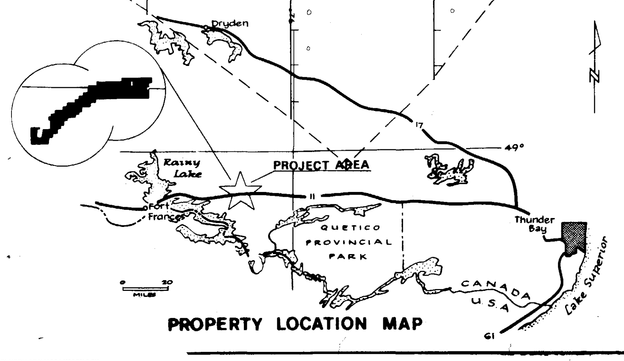
Sheet 8

2.2297

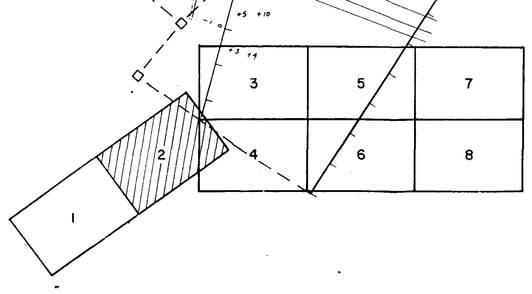
390


NORTH
60 E
64 E
68 E
72 E
76 E
80 E
84 E
88 E
92 E
96 E
100 E
104 E
108 E
112 E
116 E
120 E
124 E
128 E
132 E
136 E
140 E
144 E
BL 00
HWY. 11
K304
P683
DH 76-1
419505
419509
419510
419513
419514
419515
419518
419519
419520
419521
419522
419523
419524
419527
419528
419529
419530
PROPERTY LOCATION MAP
Dryden
PROJECT AREA
Eaxay Lake
Fort Frances
QUETICO PROVINCIAL PARK
Thunder Bay
Lake Superior
CANADA
U.S.A.
SHEET INDEX
LEGEND
APEX
In-phase Quadrature
CEM
Medium Frequency
Low Frequency
Instrument
CRONE CEM
Medium Frequency 1830 Hz
Low Frequency 390 Hz
Coil Spacing 300 Feet
APEX Parametrics Max-min II
Frequency 888 Hz
Coil Spacing 400 Feet
APEX MAX-MIN II PROFILE
SYMBOLS
River, Creek
Beaver dam
Railway
Power transmission line
Barbed wire fence
Motor road or Highway
Claim post, claim line
Diamond Drill Hole
THE HANNA MINING COMPANY
MINE CENTER PROPERTY
KENORA MINING DIVISION
ONTARIO
ELECTROMAGNETIC MAP
APEX MAX-MIN II PROFILES
SCALE 1" = 200'
Feet
Work by
Date
Interpretation by
Date
Revised
Revised
N.T.S. No 52-C-10
400





PROPERTY LOCATION MAP



SHEET INDEX

LEGEND

APEX In-phase	APEX Quadrature	CEM Medium Frequency	CEM Low Frequency
+1	-1	+1	+1

Instrument:

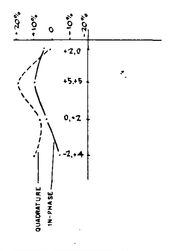
CRONE CEM

Medium Frequency	1830 Hz
Low Frequency	390 Hz
Coil Spacing	300 Feet

APEX Parametrics Max-min II

Frequency	888 Hz
Coil Spacing	400 Feet

APEX MAX-MIN II PROFILE



SYMBOLS

- River, Creek
- Beaver dam
- Railway
- Power transmission line
- Barbed wire fence
- Motor road or Highway
- Claim post, claim line
- Diamond Drill Hole

THE HANNA MINING COMPANY

MINE CENTER PROPERTY

KENORA MINING DIVISION

ONTARIO

ELECTROMAGNETIC MAP

APEX MAX-MIN II PROFILES

SCALE 1" = 200'

200 0 200 400 600

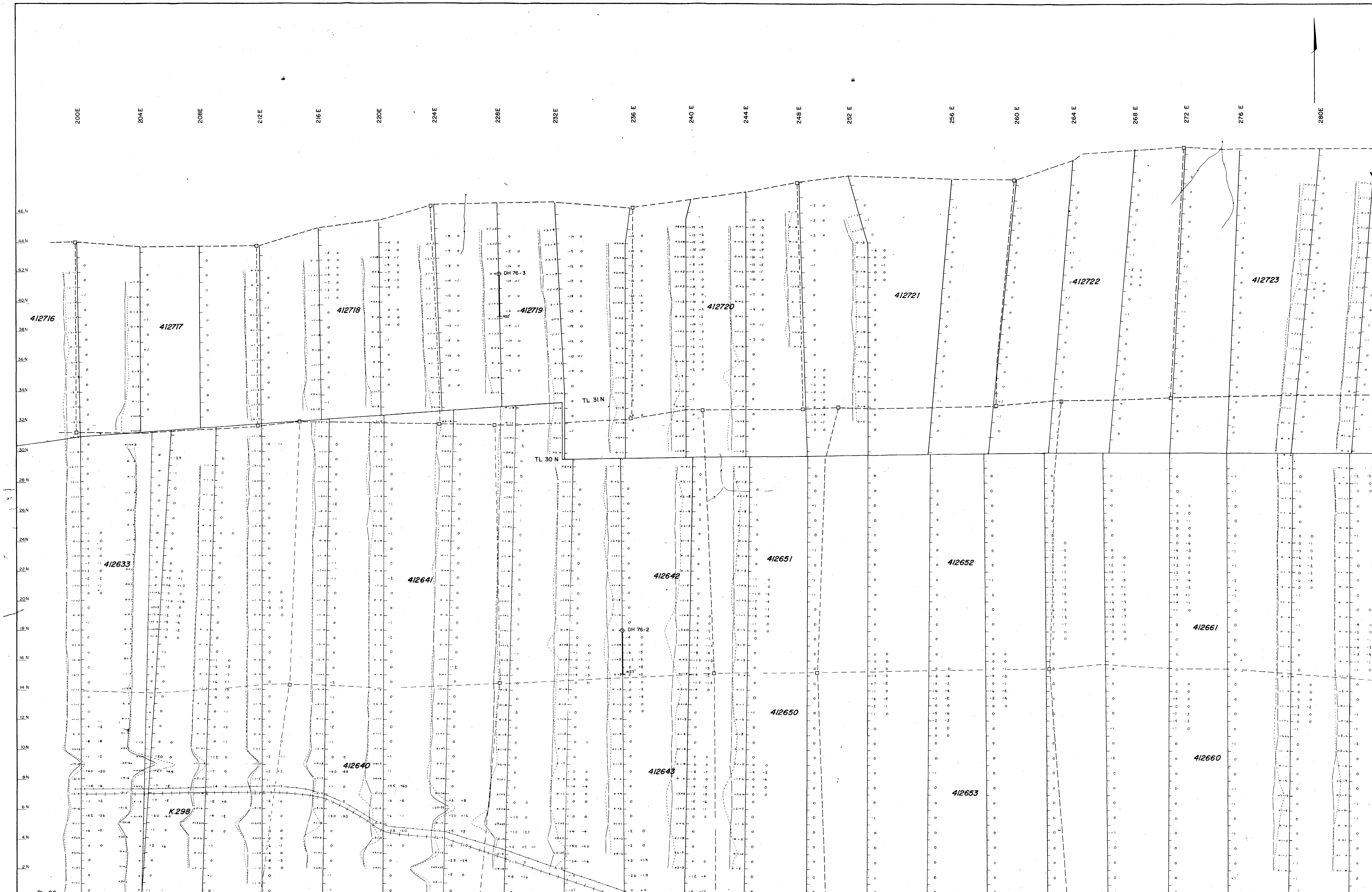
Feet

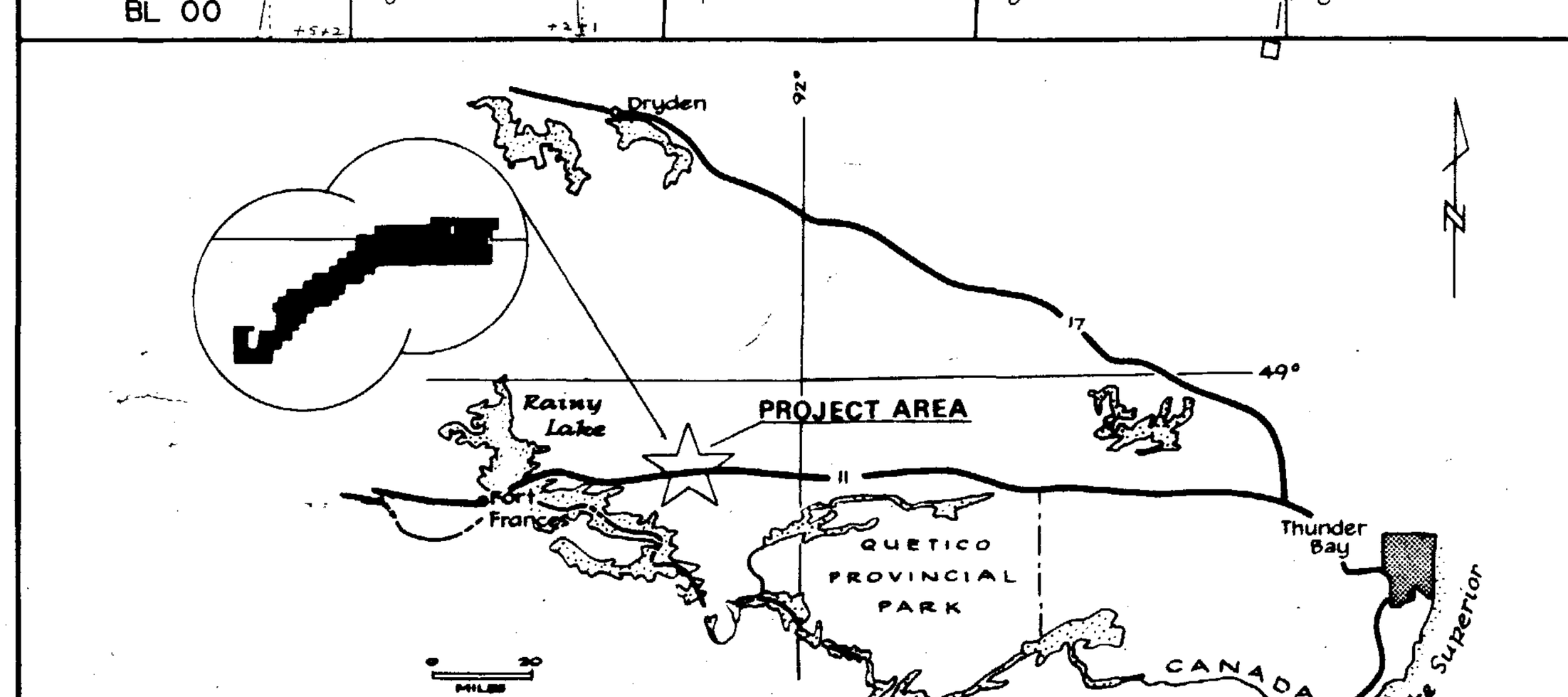
Work by	Interpretation by	Revised
Date	Date	Revised
		N.T.S. No 52-C-10

410

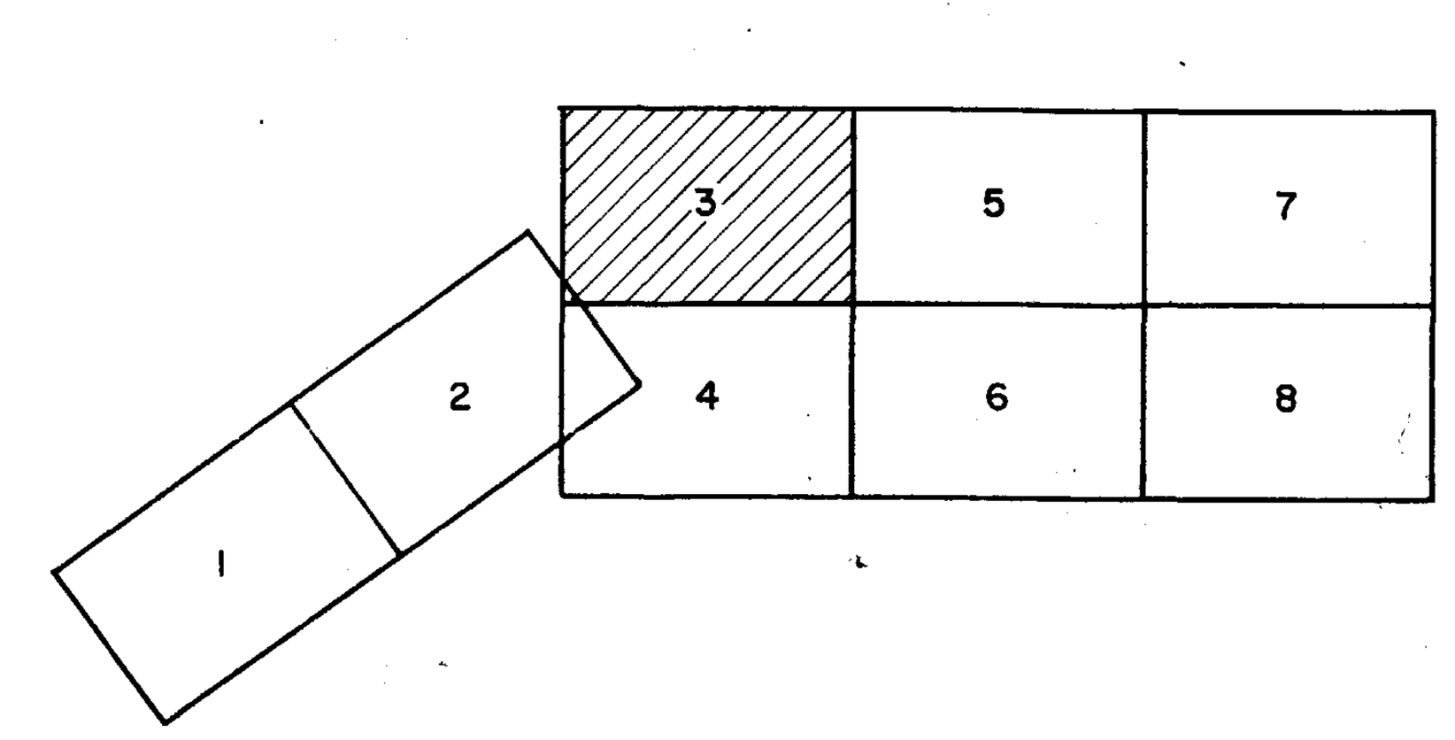
D.W.L.

22297





PROPERTY LOCATION MAP



SHEET INDEX

LEGEND

APEX		CEM	
In-phase	Quadrature	Medium Frequency	Low Frequency
+1	+1	+1	+1

APEX MAX-MIN II PROFILE

Instrument

CRONE CEM
- Medium Frequency 1830 Hz
- Low Frequency 390 Hz
- Coil Spacing 300 Feet

APEX Parametrics Max-min II
- Frequency 888 Hz
- Coil Spacing 400 Feet

SYMBOLS

- River, Creek
- Beaver dam
- Railway
- Power transmission line
- Barbed wire fence
- Motor road or Highway
- Claim post, claim line
- Diamond Drill Hole

THE HANNA MINING COMPANY

MINE CENTER PROPERTY

KENORA MINING DIVISION

ONTARIO

ELECTROMAGNETIC MAP

APEX MAX-MIN II PROFILES

SCALE 1" = 200'

200 0 200 400 600 Feet

Work by	Interpretation by	Revised
Date	Date	Revised
		N.T.S. No 52-C-10

420

BL 00

25
45
65
85
105
125
145
165
185
205
225
245
265
285
305
325
345
365
385
405

TL 41S

TL 43S

412634
412635
412636
412637
412638
412639
412644
412645
412646
412647
412648
412649
412654
412655
412656
412657
412658
412659

Beaver Pond

Beaver Pond

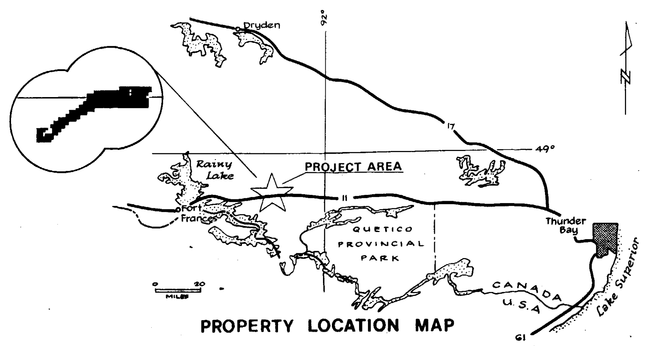
200E 204E 208E 212E 216E 220E 224E 228E 232E 236E 240E 244E 248E 252E 256E 260E 264E 268E 272E 276E 280E 284E

HWY 11

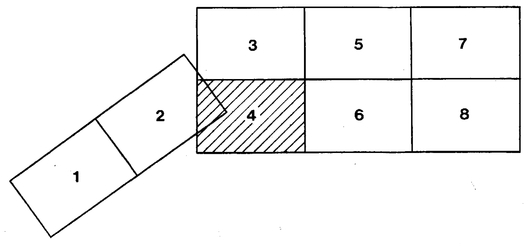
HWY 11

n

PROPERTY LOCATION MAP



SHEET INDEX



LEGEND

APEX In-phase	APEX Quadrature	CEM Medium Frequency	CEM Low Frequency
+1	+1	+1	+1

Instrument

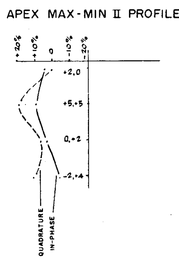
CRONE CEM

Medium Frequency	1830 Hz
Low Frequency	390 Hz
Coil Spacing	300 Feet

APEX Parametrics Max-min II

Frequency	888 Hz
Coil Spacing	400 Feet

APEX MAX-MIN II PROFILE



SYMBOLS

- River, Creek
- Beaver dam
- Railway
- Power transmission line
- Barbed wire fence
- Motor road or Highway
- Claim post, claim line
- Diamond Drill Hole

THE HANNA MINING COMPANY

MINE CENTER PROPERTY

KENORA MINING DIVISION

ONTARIO

ELECTROMAGNETIC MAP

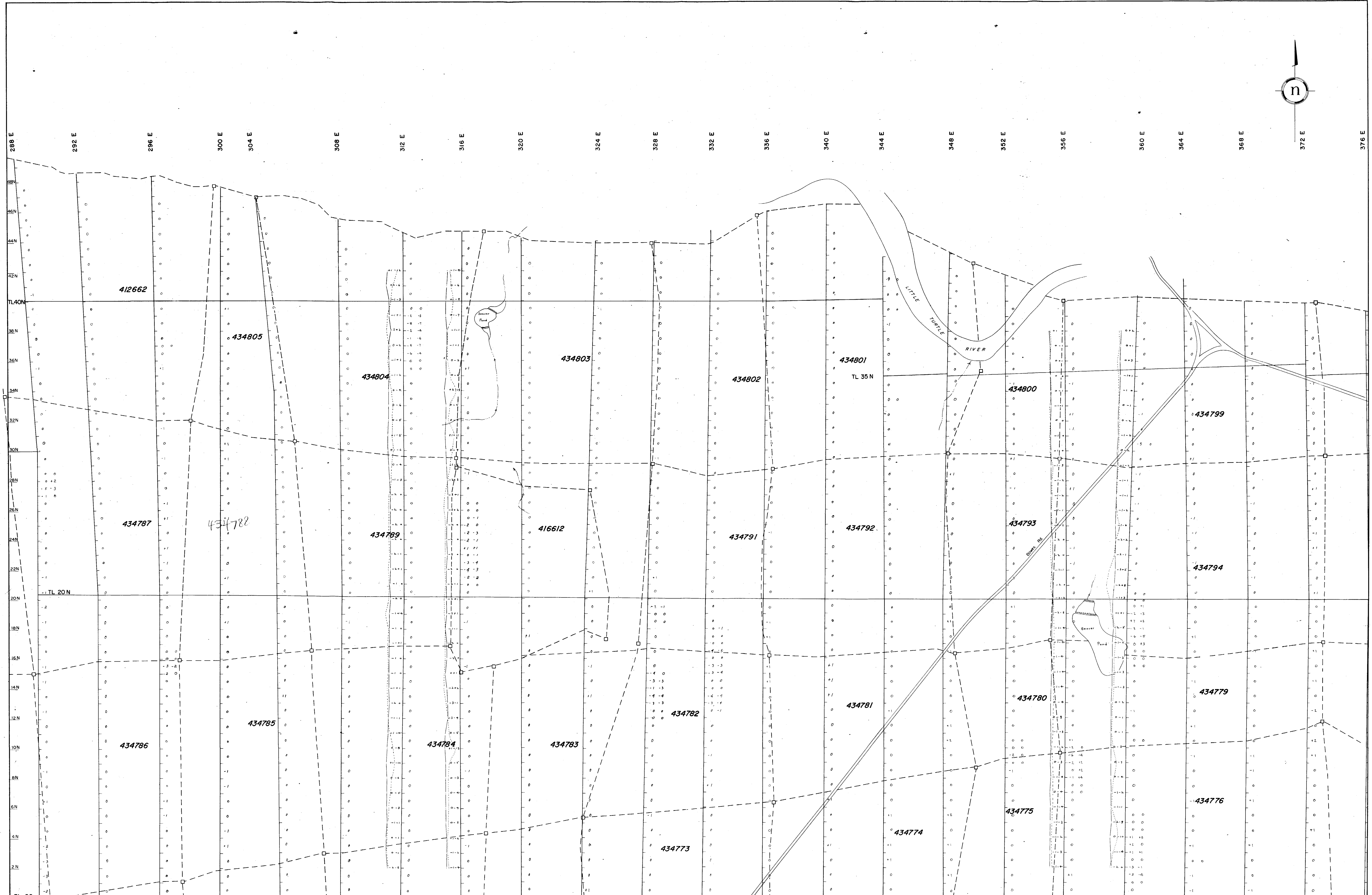
APEX MAX-MIN II PROFILES

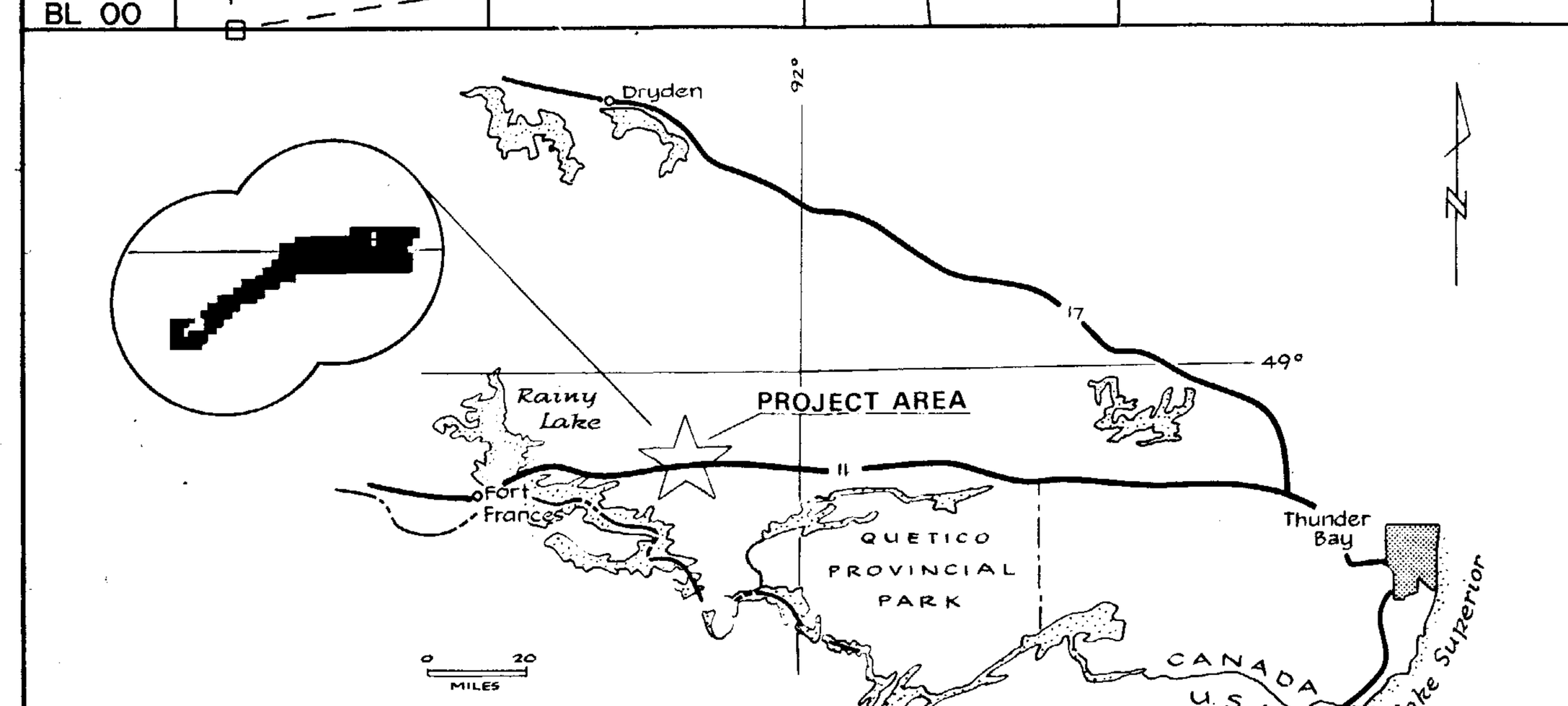
SCALE 1" = 200'

200 0 200 400 600

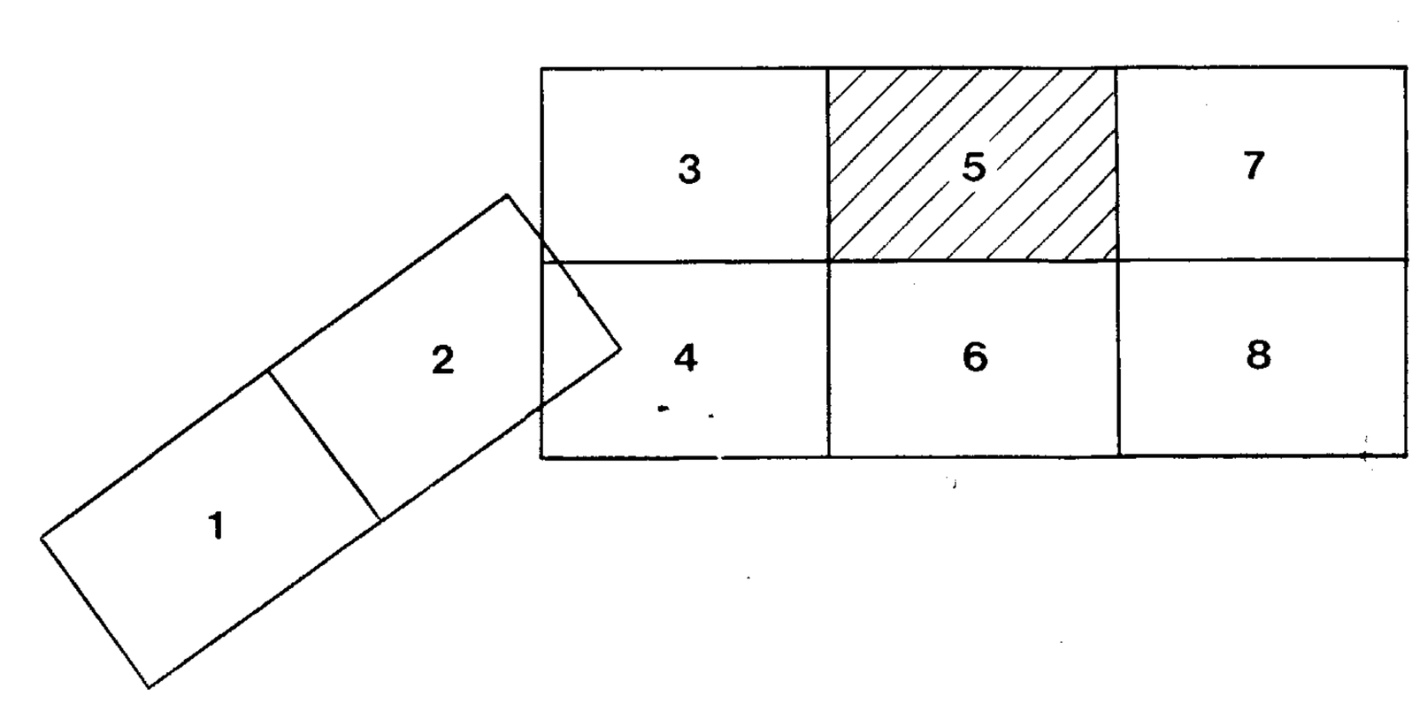
Feet

Work by	Interpretation by	Revised
Date	Date	Revised
		N.T.S. No 52-C-10





PROPERTY LOCATION MAP



SHEET INDEX

LEGEND

APEX		CEM	
In-phase	Quadrature	Medium Frequency	Low Frequency
+1	+1	+1	+1

Instrument:
CRONE CEM
Medium Frequency 1830 Hz
Low Frequency 390 Hz
Coil Spacing 300 Feet

APEX Parametrics Max-min II
Frequency 888 Hz
Coil Spacing 400 Feet

APEX MAX-MIN II PROFILE

SYMBOLS

- River, Creek
- Beaver dam
- Railway
- Power transmission line
- Barbed wire fence
- Motor road or Highway
- Claim post, claim line
- Diamond Drill Hole

THE HANNA MINING COMPANY
MINE CENTER PROPERTY
KENORA MINING DIVISION
ONTARIO

ELECTROMAGNETIC MAP
APEX MAX-MIN II PROFILES

SCALE 1" = 200'
200 0 200 400 600
Feet

Work by	Interpretation by	Revised
Date	Date	Revised
		N.T.S. No 52-C-10

440

BL 00

2 S

4 S

6 S

8 S

10 S

12 S

14 S

16 S

18 S

TL 20 S

22 S

24 S

26 S

28 S

30 S

32 S

34 S

36 S

38 S

TL 40 S

40 S

42 S

44 S

434769

434770

434771

434772

434773

434774

434775

434776

434768

434767

434766

434765

434764

434763

434762

434761

434751

434752

434753

434754

434755

434756

434757

434758

434759

Beaver Pond

Beaver Pond

Beaver Pond

Bowes Rd.

Hwy. 11

288 E

292 E

296 E

300 E

304 E

308 E

312 E

316 E

320 E

324 E

328 E

332 E

336 E

340 E

344 E

348 E

352 E

356 E

360 E

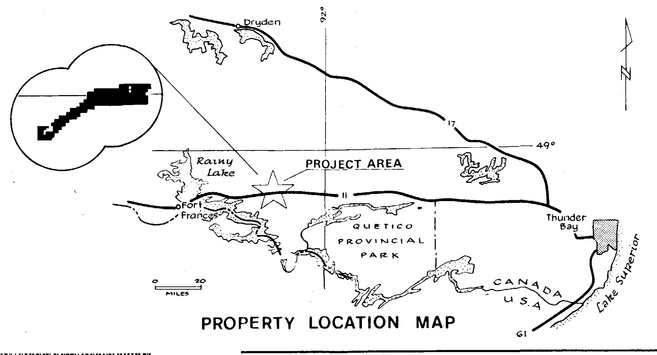
364 E

368 E

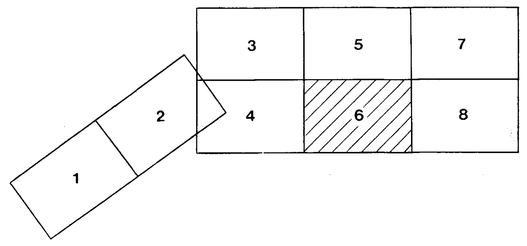
372 E

n

PROPERTY LOCATION MAP



SHEET INDEX



LEGEND

APEX		CEM	
In-phase	Quadrature	Medium Frequency	Low Frequency
+1	+1	+1	+1

Instrument

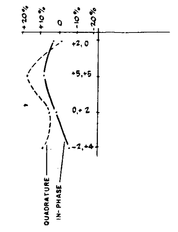
CRONE CEM

Medium Frequency	1830 Hz
Low Frequency	390 Hz
Coil Spacing	300 Feet

APEX Parametrics Max-min II

Frequency	888 Hz
Coil Spacing	400 Feet

APEX MAX-MIN II PROFILE



SYMBOLS

- River, Creek
- Beaver dam
- Railway
- Power transmission line
- Barbed wire fence
- Motor road or Highway
- Claim post, claim line
- Diamond Drill Hole

THE HANNA MINING COMPANY

MINE CENTER PROPERTY

KENORA MINING DIVISION

ONTARIO

ELECTROMAGNETIC MAP

APEX MAX-MIN II PROFILES

SCALE 1" = 200'

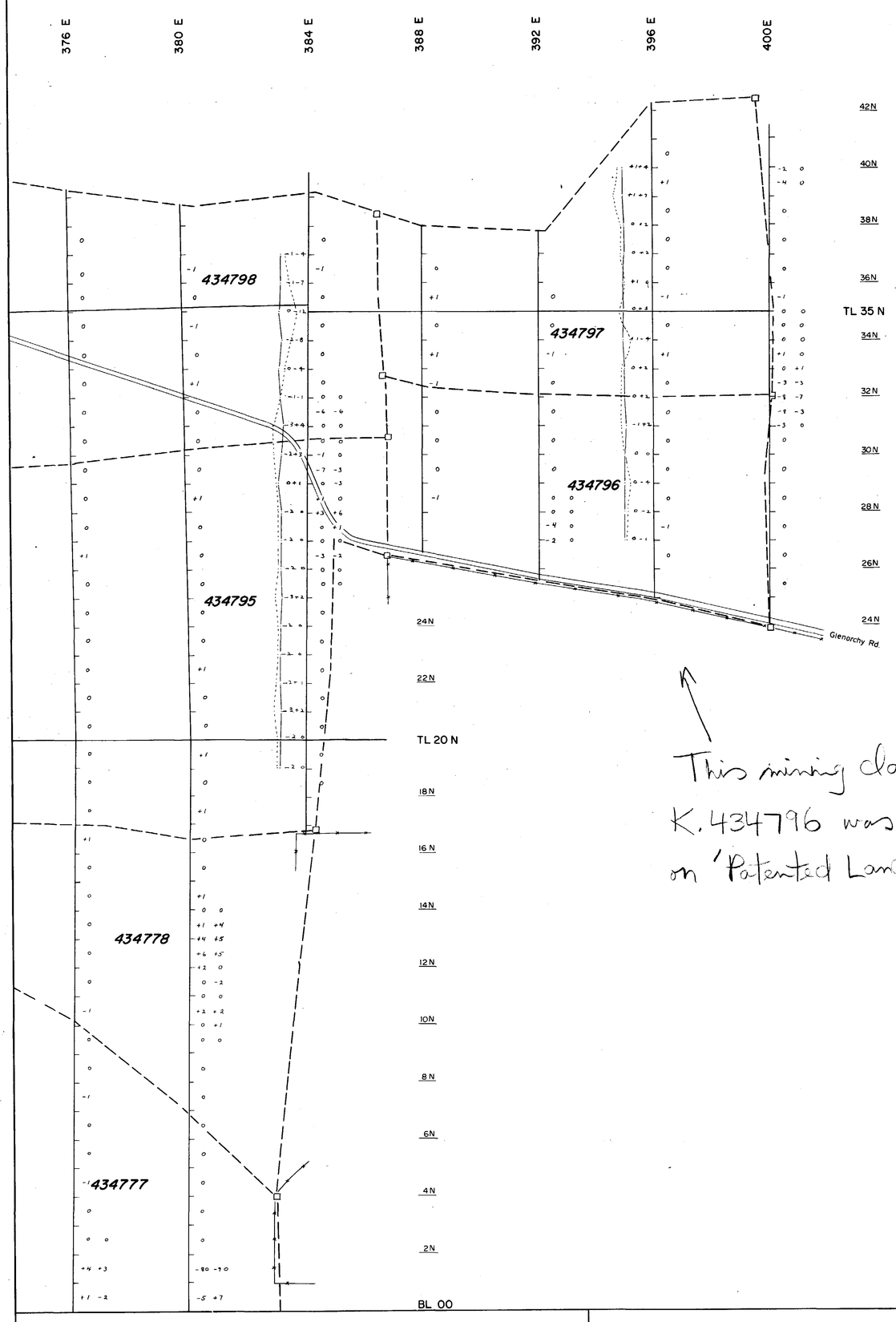
200 0 200 400 600

Feet

Work by	Interpretation by	Revised
Date	Date	Revised
		N.T.S. No 52-C-10

2.2297

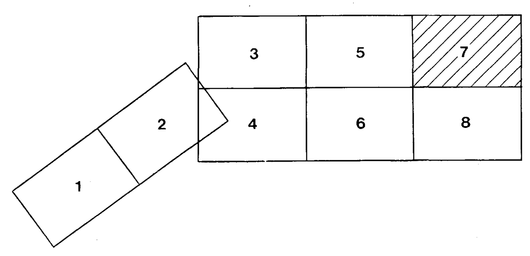
450



This mining claim K.434796 was staked on 'Patented Land'.

g

PROPERTY LOCATION MAP



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LEGEND

APEX In-phase	APEX Quadrature	CEM Medium Frequency	CEM Low Frequency
+1	+1	+1	+1

Instrument

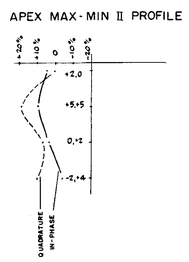
CRONE CEM

Medium Frequency	1830 Hz
Low Frequency	390 Hz
Coil Spacing	300 Feet

APEX Parametrics Max-min II

Frequency	888 Hz
Coil Spacing	400 Feet

APEX MAX-MIN II PROFILE



SYMBOLS

- River, Creek
- Beaver dam
- Railway
- Power transmission line
- Barbed wire fence
- Motor road or Highway
- Claim post, claim line
- DH 78-1 Diamond Drill Hole

THE HANNA MINING COMPANY

MINE CENTER PROPERTY

KENORA MINING DIVISION

ONTARIO

ELECTROMAGNETIC MAP

APEX MAX-MIN II PROFILES

SCALE 1" = 200'

200 0 200 400 600

Feet

Work by	Interpretation by	Revised
Date	Date	Revised
		N.T.S. No 52-C-10

63-336

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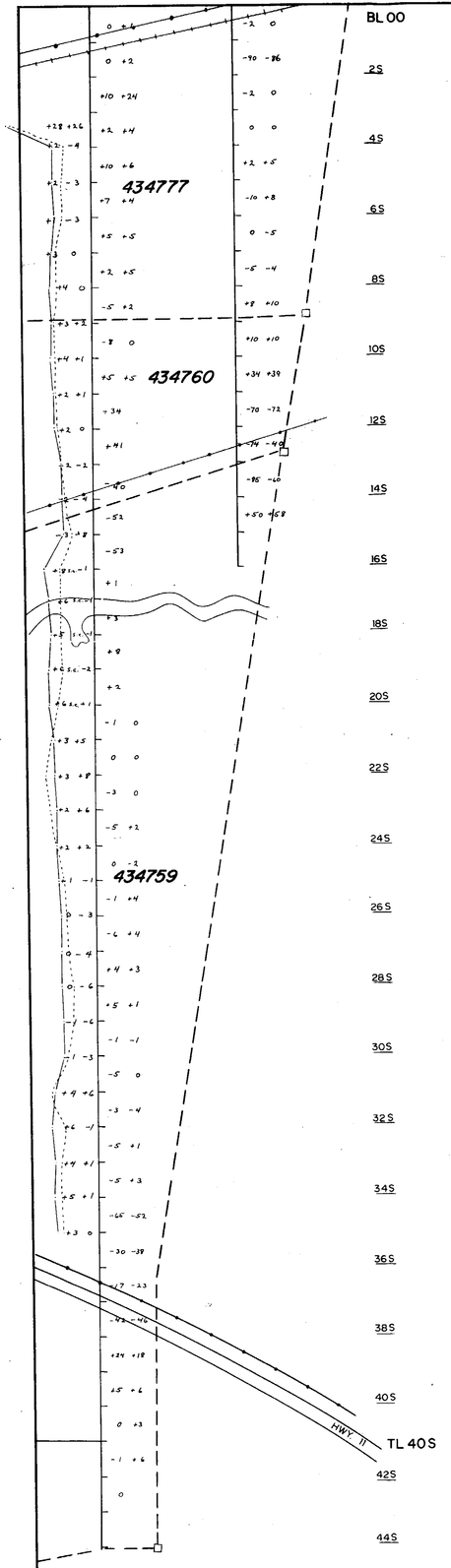
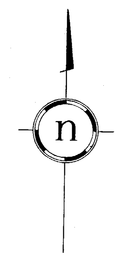
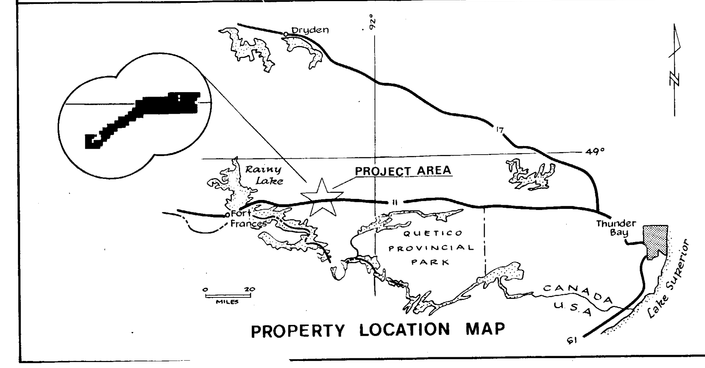
2.2297



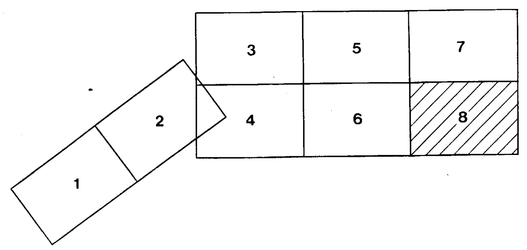
BL 00

2S
4S
6S
8S
10S
12S
14S
16S
18S
20S
22S
24S
26S
28S
30S
32S
34S
36S
38S
40S
42S
44S





PROPERTY LOCATION MAP



SHEET INDEX

LEGEND

APEX		CEM	
In-phase	Quadrature	Medium Frequency	Low Frequency
+1	+1	+1	+1

Instrument

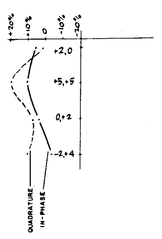
CRONE CEM

Medium Frequency	1830 Hz
Low Frequency	390 Hz
Coil Spacing	300 Feet

APEX Parametrics Max-min II

Frequency	888 Hz
Coil Spacing	400 Feet

APEX MAX-MIN II PROFILE



SYMBOLS

- River, Creek
- Beaver dam
- Railway
- Power transmission line
- Barbed wire fence
- Motor road or Highway
- Claim post, claim line
- DH 76-1 Diamond Drill Hole

THE HANNA MINING COMPANY

MINE CENTER PROPERTY

KENORA MINING DIVISION

ONTARIO

ELECTROMAGNETIC MAP

APEX MAX-MIN II PROFILES

SCALE 1" = 200'

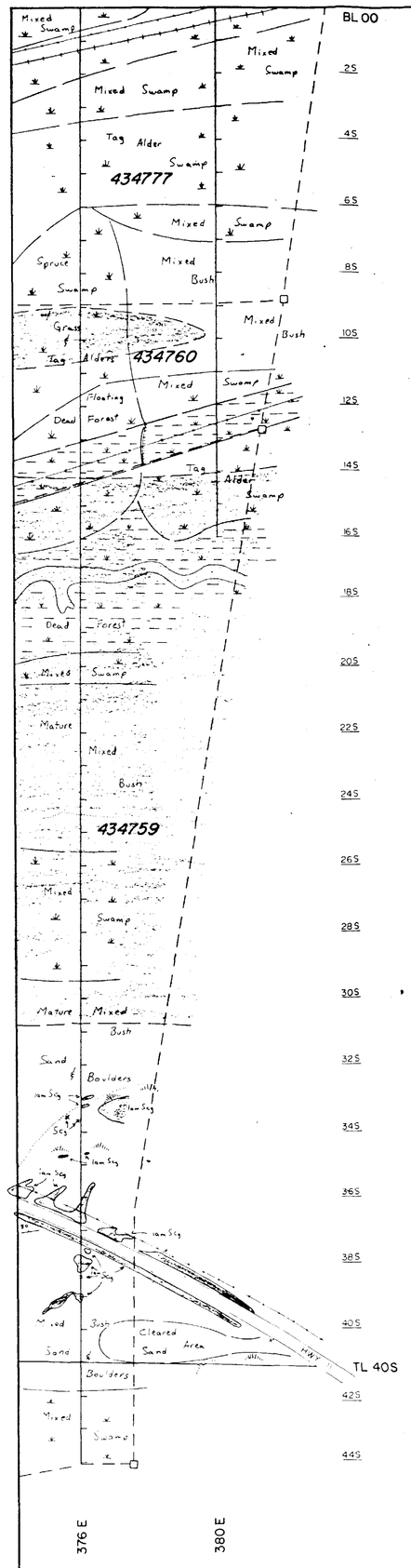
200 0 200 400 600

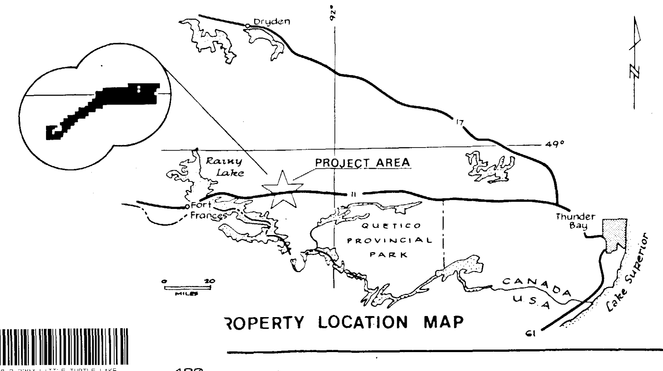
Feet

Work by	Interpretation by	Revised
Date	Date	Revised
		N.T.S. No. 52-C-10

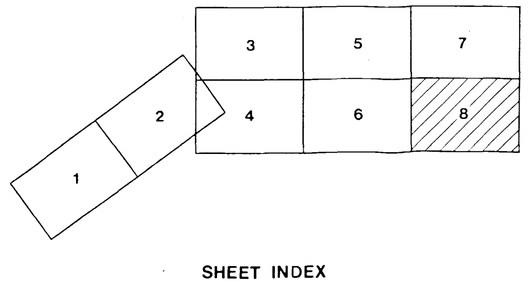
63-5367

22297





PROPERTY LOCATION MAP



SHEET INDEX

LEGEND

- IGb Gabbro intrusive
- I int Intermediate intrusive - undifferentiated
- Sed Conglomerate
- Ser Grit
- Sew Greywacke
- Va Acid volcanics - undifferentiated
- Vrh Rhyolite
- Vint Intermediate volcanics - undifferentiated
- Vda Dacite
- Vb Basic volcanics

ABBREVIATIONS

amy	amygdaloidal
bx	brecciated
vfg	very fine grained
fng	fine grained
mdg	medium grained
cog	coarse grained
mv	massive
pl	pillowed
ab	carbonate
ccp	chalcopyrite
chl	chlorite
fe	iron
mag	magnetite
py	pyrite
qtz, bqz	quartz eyes, blue quartz eyes
qtz	quartz vein
ser	sericite
epidot	epidosite
tlc	talc
fspr	supplementary

SYMBOLS

- Boundary of high ground
- Bench Mark
- Flooded ground or Bog
- Muskeg or Swamp
- Boundary of Muskeg, Swamp, etc.
- River, creek, stream - flow direction
- Bridge
- Beaver dam
- Railway
- Power transmission line
- Barbed wire fence
- Motor road or Highway
- Trail or foot road
- Claim post - Claim line
- Building, cabin
- Shaft
- Trench
- Drill hole, vertical, inclined
- Magnetic attraction
- Rock sample
- Rock outcrop - small, large
- Geological boundary - defined, approximate
- Strike and dip of bedding - vertical, inclined
- Strike and dip of foliations or schistosity - vertical, inclined
- Drag folds - direction of plunge

THE HANNA MINING COMPANY

MINE CENTER PROPERTY

KENORA MINING DIVISION

ONTARIO 52 C/16 SW K-1

GEOLOGIC MAP

SCALE 1" = 200'

200 0 200 400 600

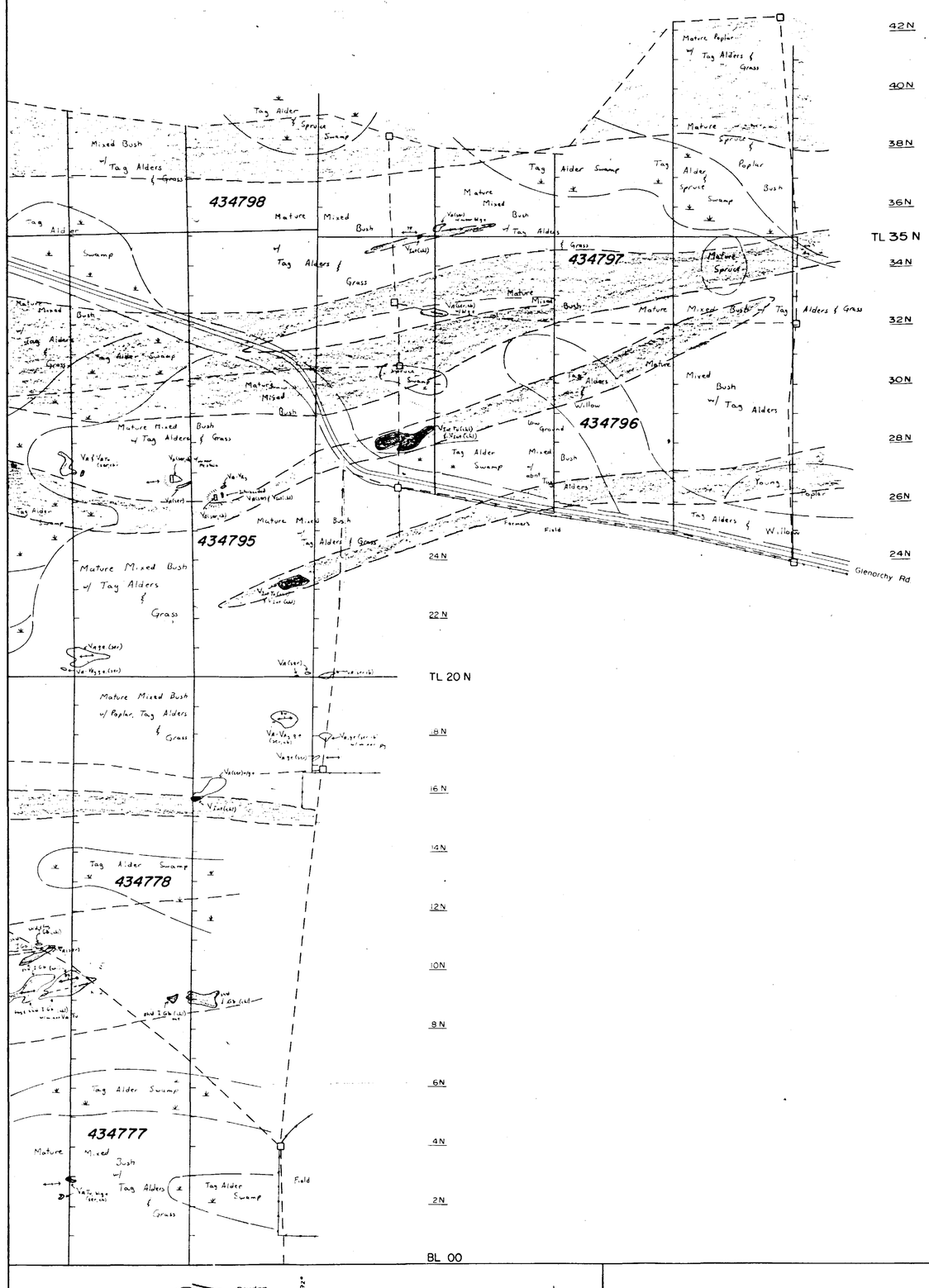
Feet

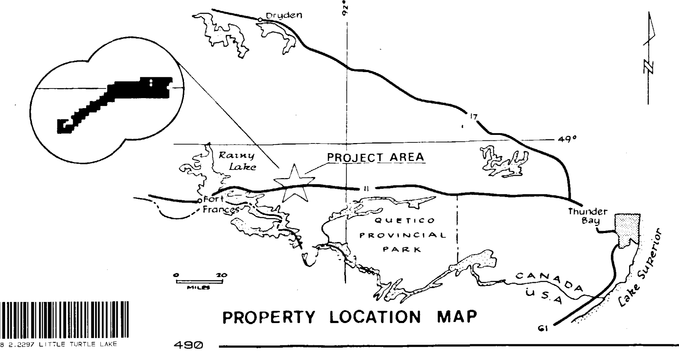
Work by	Interpretation by	Revised
Date	Date	Revised
		N.T.S. No 52-C-10

#8

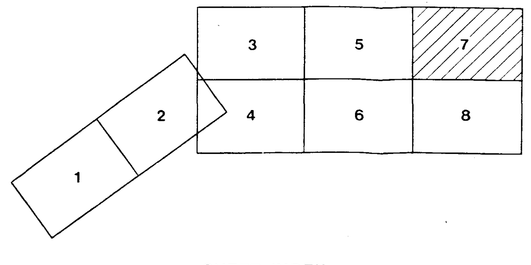
2.2977

480





PROPERTY LOCATION MAP



SHEET INDEX

LEGEND

- 1Gb Gabbro intrusive
- I int Intermediate intrusive - undifferentiated
- Scg Conglomerate
- Sgr Grit
- Saw Greywacke
- Va Acid volcanics - undifferentiated
- Vrhy Rhyolite
- Vint Intermediate volcanics - undifferentiated
- Vda Dacite
- Va Basic volcanics

ABBREVIATIONS

amy	amygdaloidal
bx	brecciated
vfg	very fine grained
fng	fine grained
mdg	medium grained
cog	coarse grained
mv	massive
pl	pillowed
cb	carbonate
ccp	chalcopyrite
chl	chlorite
fe	iron
mag	magnetite
Py	pyrite
qfp, bqp	quartz eyes, blue quartz eyes
qv	quartz veins
ser	sericite
sphal	sphalerite
Tu	tuff
Agg	agglomerate

SYMBOLS

- Boundary of high ground
- Bench Mark
- Flooded ground or Bog
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- Building, cabin
- Shaft
- Trench
- Drill hole, vertical, inclined
- Magnetic attraction
- Rock sample
- Rock outcrop - small, large
- Geological boundary - defined, approximate
- Strike and dips of bedding - vertical, inclined
- Strike and dip of foliation or schistosity - vertical, inclined
- Drag fold - direction of plunge

THE HANNA MINING COMPANY

MINE CENTER PROPERTY

KENORA MINING DIVISION

ONTARIO 52 C/16 SW K-1

GEOLOGIC MAP

SCALE 1" = 200'

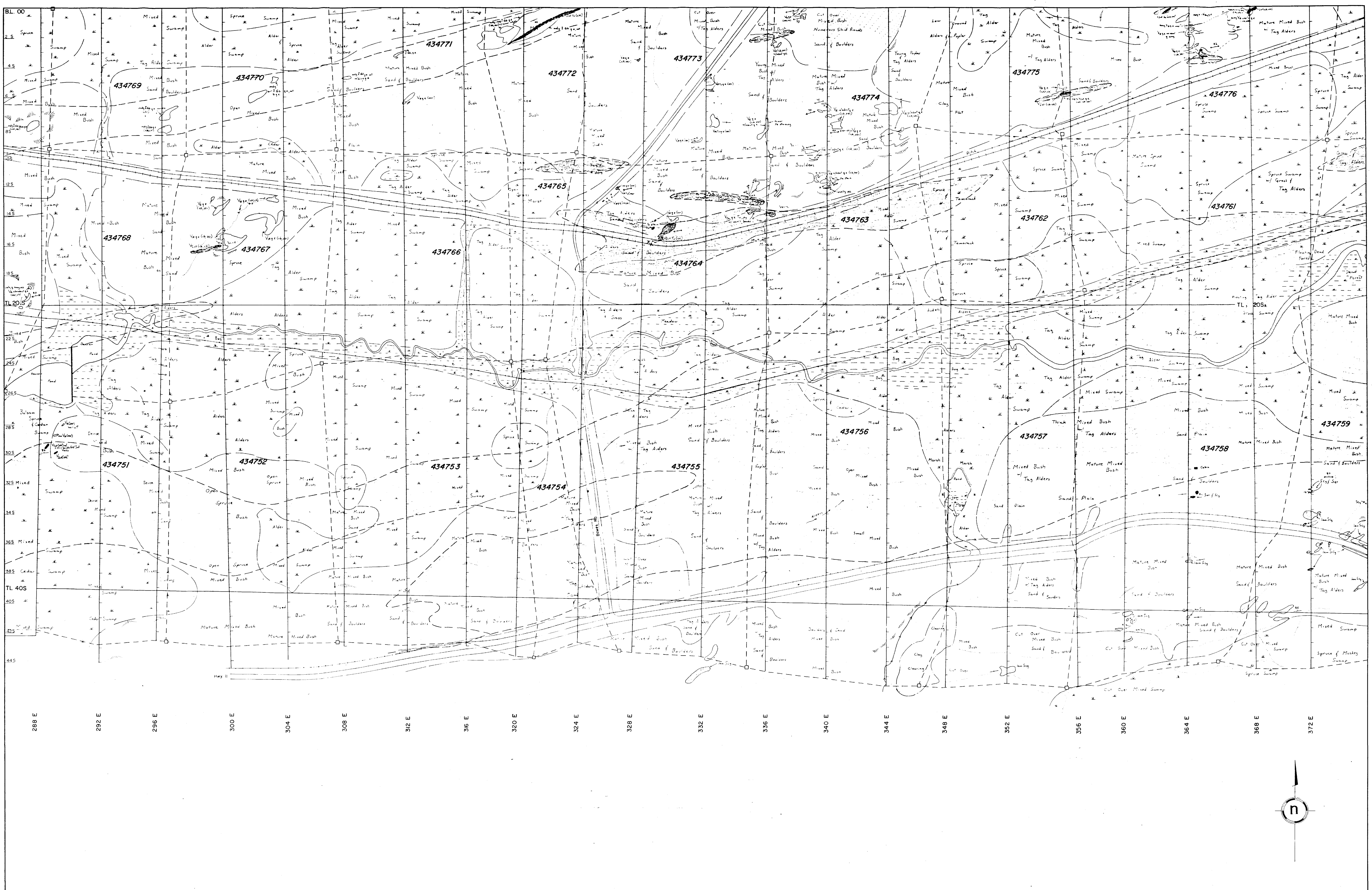
200 0 200 400 600

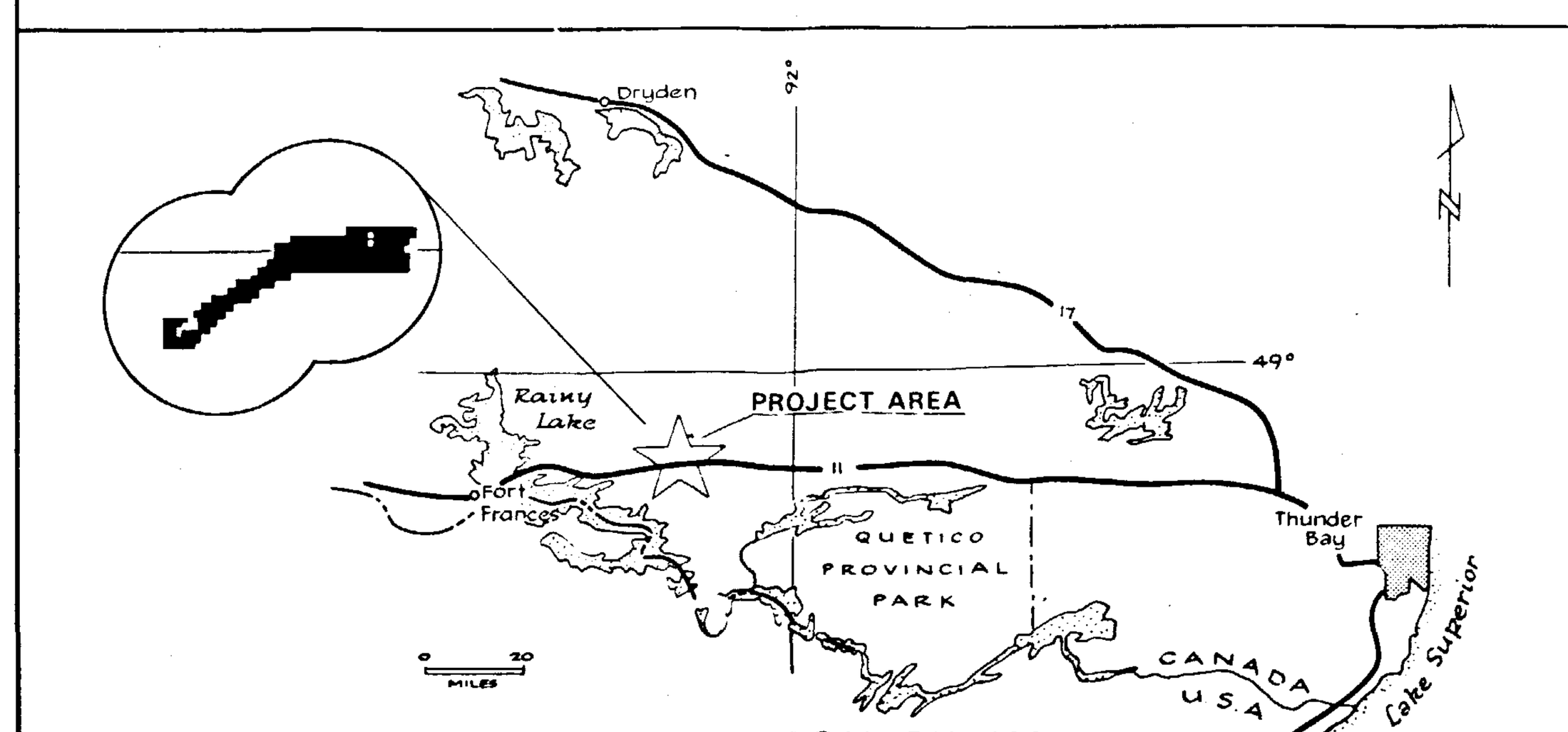
Feet

Work by	Interpretation by	Revised
Date	Date	Revised N.T.S. No 52-C-10

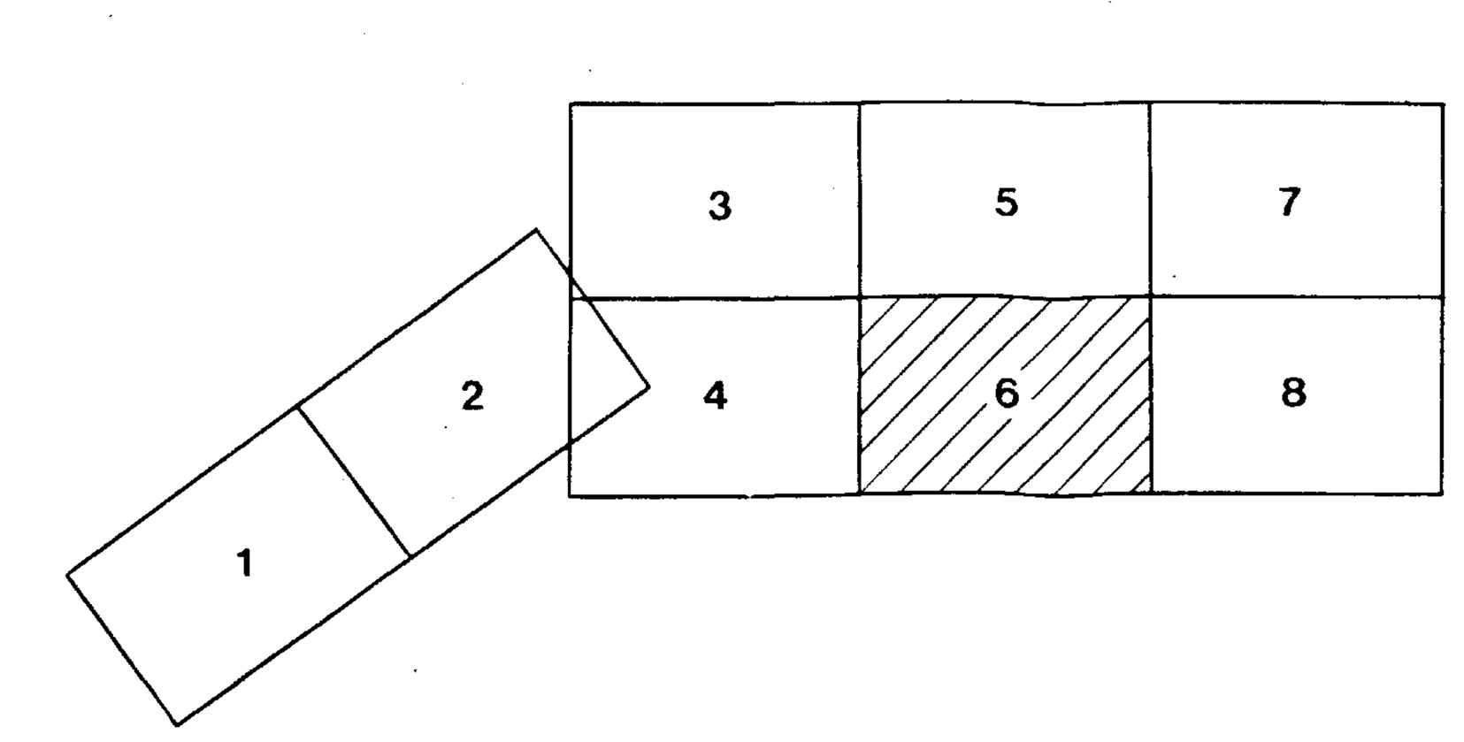
490

2.2297





PROPERTY LOCATION MAP



SHEET INDEX

LEGEND

- IGb Gabbro intrusive
- IInt Intermediate intrusive - undifferentiated
- Scg Conglomerate
- Sgt Grit
- Sgw Greywacke
- Va Acid volcanics - undifferentiated
- Vrhy Rhyolite
- Vint Intermediate volcanics - undifferentiated
- Vda Dacite
- Vb Basic volcanics

ABBREVIATIONS

amy	amygdaloidal
bx	brecciated
vfg	very fine grained
fng	fine grained
mdg	medium grained
csg	coarse grained
mv	massive
pl	pillowed
cb	carbonate
ccp	chalcopyrite
chl	chlorite
fe	iron
mag	magnetite
py	pyrite
q.e., b.q.e.	quartz eyes, blue quartz eyes
qv	quartz vein
ser	sericite
sphal	sphalerite
tu	tuff
agg	agglomeratic

SYMBOLS

- Boundary of high ground
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- Shaft
- Trench
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- Magnetic attraction
- Rock sample
- Rock outcrop - small, large
- Geological boundary - defined, approximate
- Strike and dip of bedding - vertical, inclined
- Strike and dip of foliation or schistosity - vertical, inclined
- Drag folds - direction of plunge

THE HANNA MINING COMPANY

MINE CENTER PROPERTY

KENORA MINING DIVISION

ONTARIO

52 C/16 SW K-1

GEOLOGIC MAP

SCALE 1" = 200'

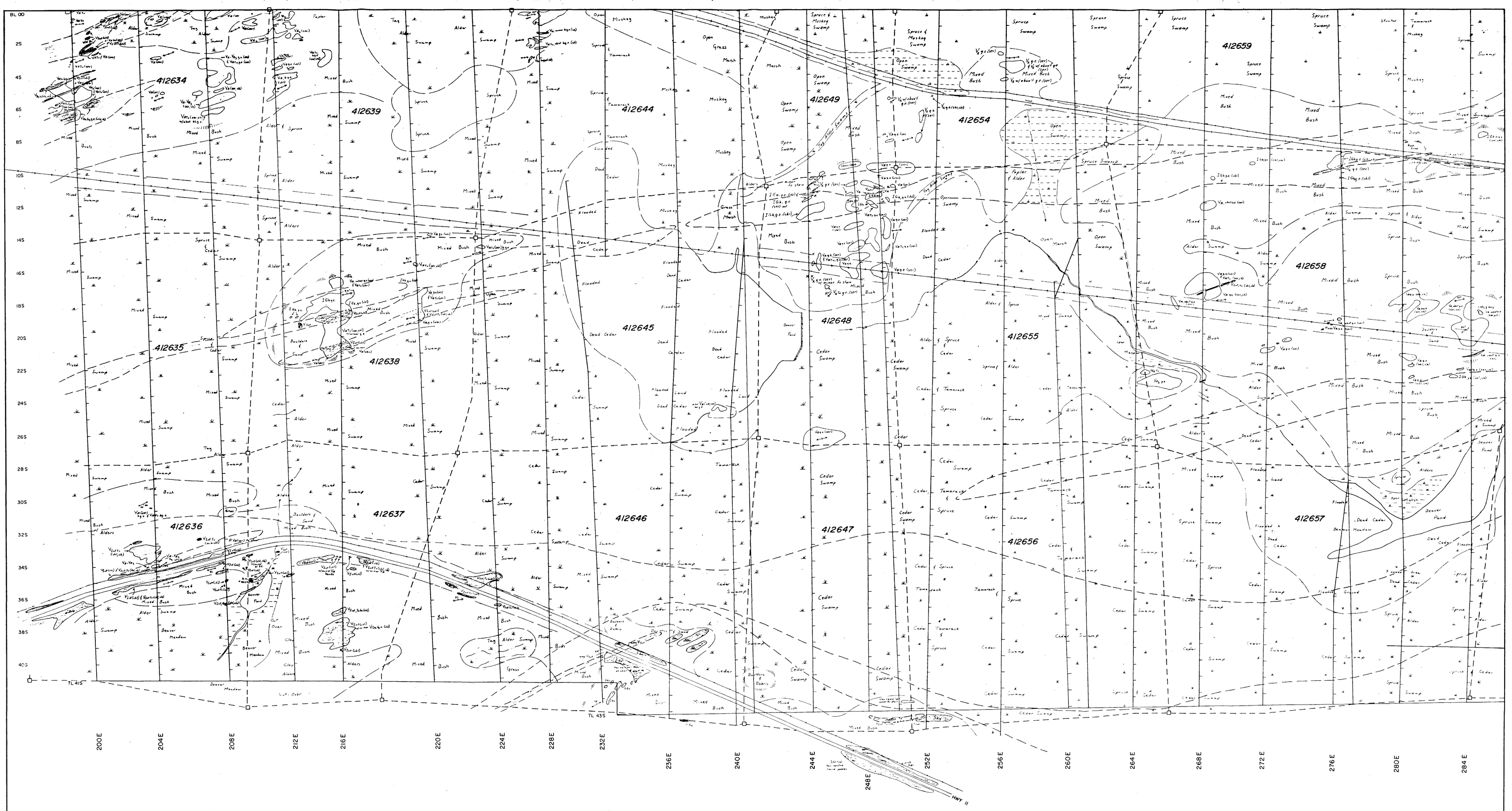
200 0 200 400 600

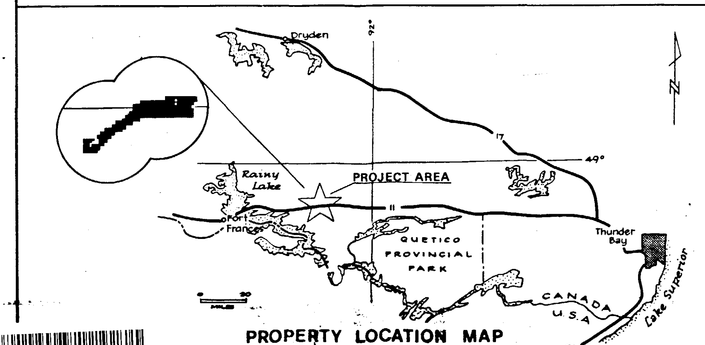
Feet

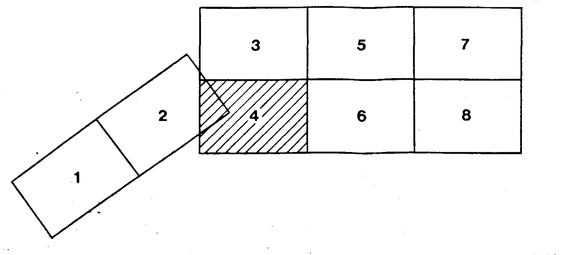
Work by	Interpretation by	Revised
Date	Date	Revised
		N.T.S. No 52-C-10

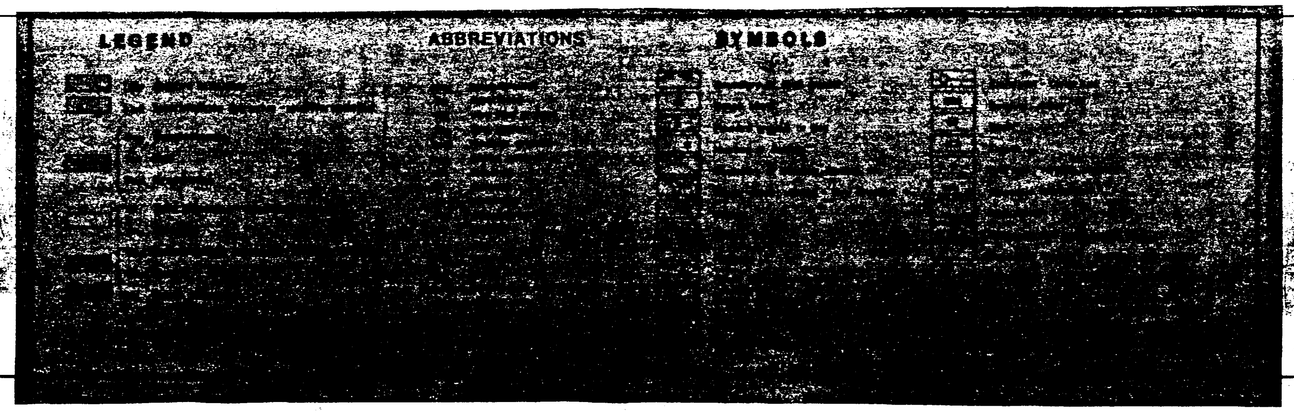
2.2297 #6

500









THE HANNA MINING COMPANY

MINE CENTER PROPERTY

KENORA MINING DIVISION

ONTARIO 52 C/16 SW K-1

GEOLOGIC MAP

SCALE 1" = 200'

200 0 200 400 600

Feet

Work by	Interpretation by	Revised
Date	Date	Revised
		N.T.S. No 52-C-10


THE HANNA MINING COMPANY
MINE CENTER PROPERTY
KENORA MINING DIVISION
ONTARIO
GEOLOGIC MAP
SCALE 1" = 200'
200 0 200 400 600
Feet
Work by
Date
Interpretation by
Date
Revised
Revised
N T S No 52-C-10
LEGEND
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SYMBOLS
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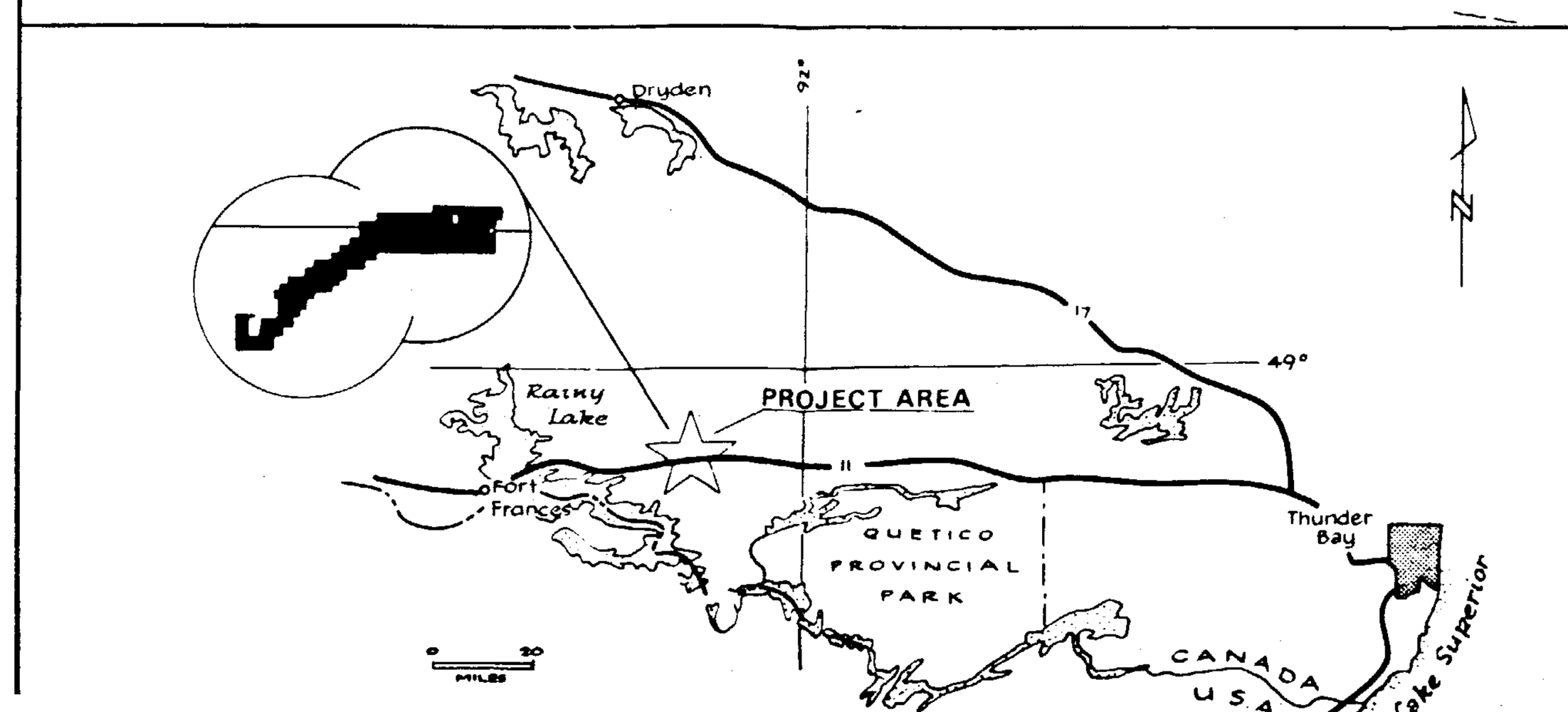
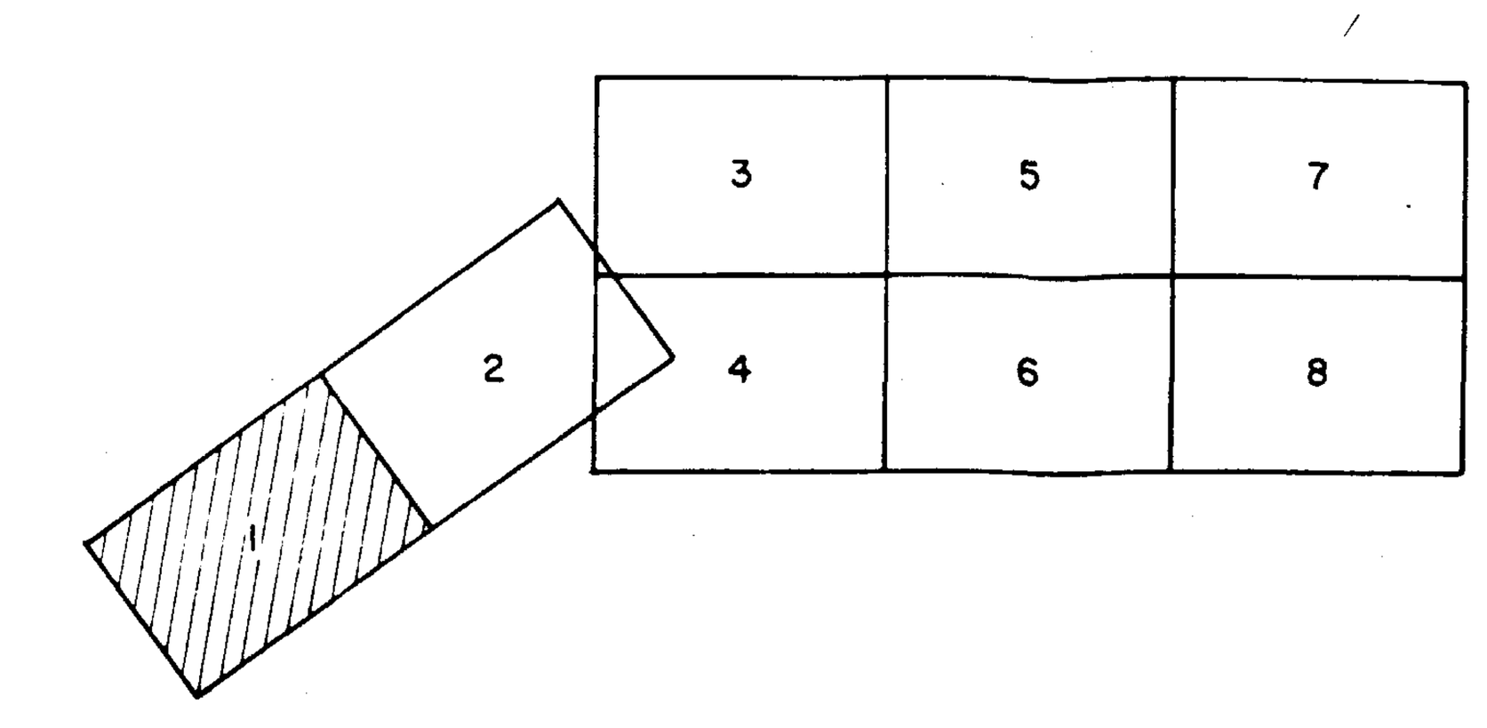
6
7
8
PROPERTY LOCATION MAP
PROJECT AREA
Rainy Lake
Thunder Bay
QUETICO PROVINCIAL PARK
CANADA
U.S.A.
Lake Superior
412716
412717
412718
412719
412720
412721
412722
412723
412633
412640
412641
412642
412643
412650
412651
412652
412653
412660
412661
TL 31 N
TL 30 N
K.298
BL 00
520
2.2297 #3


THE HANNA MINING COMPANY
MINE CENTER PROPERTY
KENORA MINING DIVISION
ONTARIO 52 C/16 SW K-1
GEOLOGIC MAP
SCALE 1" = 200'
200 0 200 400 600
Feet
Work by
Date
Interpretation by
Date
Revised
Revised
NTS No 52-C-10
2.2297
#2
LEGEND
ABBREVIATIONS
SYMBOLS
INSET
NORTH
SHEET INDEX
ROPERTY LOCATION MAP
PROJECT AREA
Rainy Lake
Fort Frances
Dryden
Thunder Bay
QUETICO PROVINCIAL PARK
Lake Superior
CANADA
USA
530
412629
412630
412631
412632
412633
412634
412635
412636
419502
419503
419505
419506
419507
419508
419511
419512
419516
419517
412716
K298
K300
K301
BL 00
TL 31N
Old Line 140x00E



PROPERTY LOCATION MAP



SHEET INDEX

LEGEND

- 1Gb Gabbro intrusive
- 1Int Intermediate intrusive - undifferentiated
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- Magnetic attraction
- Rock sample
- Rock outcrop - small, large
- Geological boundary - defined, approximate
- Strike and dip of bedding - vertical, inclined
- Strike and dip of foliation or schistosity - vertical, inclined
- Drag folds - direction of plunge

THE HANNA MINING COMPANY

MINE CENTER PROPERTY

KENORA MINING DIVISION

ONTARIO 52C/16SW K

GEOLOGIC MAP

SCALE 1" = 200'

200 0 200 400 600

Feet

Work by	Interpretation by	Revised
Date	Date	Revised
		N.T.S. No 52-C-10

540

2.2297 #1