



42A02SW0092 2.2128 ARGYLE

010

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MAY 31 1976

PROJECTS UNIT

Results of Surface Geophysical Surveys

Argyle - Input Property  
of

Mid-North Engineering Services Limited  
Argyle Township, Ontario

May 21, 1976

D. L. Sannes

## SUMMARY

During April of 1975, a group of 18 claims was staked for Mid-North Engineering Services Limited in the southeast corner of Argyle Township. The claim group was located to secure the area of two strongly anomalous aeromagnetic highs, one of which is coincident with a set of three INPUT E.M. anomalies. The above geophysical data was derived from O.D.M. Preliminary Map P1018 which shows the results of an airborne proton precession magnetic and INPUT electromagnetic survey conducted by Questor Surveys Limited for the Ontario Department of Mines.

Surface geophysical surveys were carried out by Mid-North during December of 1975. Results of the ground surveys show magnetic patterns which are roughly equivalent to the airborne survey and numerous weakly anomalous EM-16 trends, some of which correlate with the magnetic highs.

LOCATION AND ACCESS (N.T.S. reference: 42 A/Z;  
Coordinates: 48° 02'N, 80° 49'W)

The property is located approximately 37 miles west-southwest of Kirkland Lake, Ontario. Access is by highway 566 North beginning two miles west of Matachewan, Ontario to a point approximately three miles due south of the property; then by bush road to a small lake approximately one-quarter mile east of claim 431407. A field camp was established at this centrally-located lake.

## GEOLOGY

Mid-North has conducted neither detailed nor reconnaissance mapping on the property. Work by Rickaby<sup>a</sup> in 1931 is the most recent and most detailed mapping available. A more recent preliminary map (P-150; 1962) provides no additional information.

Map 41a shows Argyle Township to be almost totally underlain by Keewatin basic volcanics. There is a small area of Cobalt Series sediments projecting from those more extensive deposits to the south. In the vicinity of the property are several small, isolated intrusions ("bosses, lenses and plugs") of Algoman silicic types and Hailyburian? ultrabasics and basics.

Corresponding to the strong magnetic high near Ashley Lake (see "Geophysical Surveys") is mapped a boss of peridotite consisting "chiefly of enstatite, olivine and serpentine. The olivine has been largely altered to serpentine containing considerable magnetite dust."<sup>b</sup>

- a. RICKABY, H.C.; BANNOCKBURN GOLD AREA in the 41st Annual Report of the O.D.M., Vol. XLI Part II, 1932, pp. 1-24.  
Also: Map 41a 1" = 3/4 mile, 1932.
- b. Rickaby, p.7

## EXPLORATION AND DEVELOPMENT

No exploration work is recorded for the Argyle-Input property area. However, there has been some activity in the vicinity which is pertinent.

GOLD - Extensive prospecting for gold followed the discovery of the Ashley Mine (three and one half miles west-southwest of Ashley Lake) in 1930. Trenching of quartz veins in the basic volcanics was the most common technique employed. A few old trenches have been noted on the property.

BASE METALS with Platinum and Palladium - Near the northern boundary of Argyle Township, one-half mile east of mile-post five, is the showing of New Kelore Mines Limited. Here is a small body of Ultrabasic (pyroxenite to peridotite), with irregular masses of sulfide, which has yielded significant values in copper, nickel, platinum and palladium. Very high assays were returned for a grab sample taken from a trench.<sup>c</sup> Drilling indicated the ultrabasic to be a small, local lens, and the mineralization to be discontinuous.

## GEOPHYSICAL SURVEYS

Sixteen miles of line were surveyed using a Geonics model EM-16 VLF receiver. Stations were at intervals of fifty feet for both surveys. Magnetic readings were recorded with the sensor at ten feet and then at thirteen feet above surface in order to obtain gradient values. Picket lines, 400 feet apart, run due north-south. Transmitting station NAA Cutler, Maine (17.8 kHz) was utilized for the EM-16 survey.

Magnetics - Two very strong, circular magnetic highs were delineated. At the northeast side of Ashley Lake is the stronger anomaly which measures approximately 1,300 feet across and has a maximum intensity of 10,500 gammas above background. It encompasses the unit of peridotite shown on map 41a. Roughly east-west elongate, subordinate highs within the general pattern could reflect a layered structure for the peridotite.

The smaller magnetic high is 6,400 feet to the northeast and centered at 15 + 00N on line 24E. This 1,000 feet by 700 feet anomaly peaks at 7,700 gammas above background. No geological information is available for this area, but it is reasonable to assume that the anomaly is underlain by a rock type similar to the peridotite at the southern high.

c. O.D.M. assessment files - Argyle Township.

VLF-EM - Numerous weakly-anomalous east-west trends are exhibited by the EM-16 survey results. The more significant anomalies are discussed following.

- a.) A linear trend bearing  $095^{\circ}$  at the south boundary. Continuity through varying terrain suggests a bedrock source. Further investigations are warranted.
- b.) A "C"-shaped anomaly centered on line 20W at baseline #1 and encircling the highest magnetic values. The trio of three-channel airborne anomalies shown on O.D.M. map P1018 is roughly correlative with this EM-16 pattern. Although the anomaly is relatively weak, it merits follow-up on the basis of its associations.
- c.) An arcuate conductor along the north-western margin of the stronger magnetic anomaly. (Lines 16W to 28W at 10N to 13N) If this trend reflects the intrusive contact, it could be of significance as a likely site for sulphide deposition. Either gravity settling of the heavier metal compounds through the magma (presuming this was the base) or contact metamorphism could produce sulphide deposits here.  
It is necessary to note that this EM trend follows swampy, low ground and therefore, may not have a bedrock source. There is, however, a fairly good in-phase to out-of-phase ratio.
- d.) Lines 28E and 32E at 15N. This is the strongest portion of an elongate east-west trend which extends through the weaker magnetic anomaly. There is an interestingly sharp fluctuation of the magnetic pattern corresponding precisely to this EM trend. The pattern would reflect a differentiated layer of an ultrabasic intrusion or a contact.
- e.) A trend bearing  $080^{\circ}$  in the southern portion of Lines 28E to 40E. There is no magnetic correlation. Strength of the conductor appears to be enhanced where it crosses swampy ground. At the western end is a fairly strong portion trending east-west which occurs over a topographic high and could have a bedrock source.

Other VLF-EM conductors picked up by the survey are weak, discontinuous and generally correspond to conductive surficial features such as swamps and lakes. No significance can be attributed to them.

#### CONCLUSIONS AND RECOMMENDATIONS

Several areas within the claim group give interesting geophysical responses and merit additional work. Of particular interest are the VLF-EM conductors which occur within and at the margins of strong magnetic highs, especially those corresponding to the peridotite north of Ashley Lake and proximal to INPUT responses.

The occurrence of peridotite near Ashley Lake and the known Ni-Cu-Pt-Pd showing five miles to the north, indicate a potential for these metals and others.

Along the west boundary of the northern claims is mapped a silicic plug. Similar units described only as syenite, monzonite or feldspar porphyry on ODM Map 2205 have associated gold, copper and molybdenum. One such showing is located three miles to the north of the property.

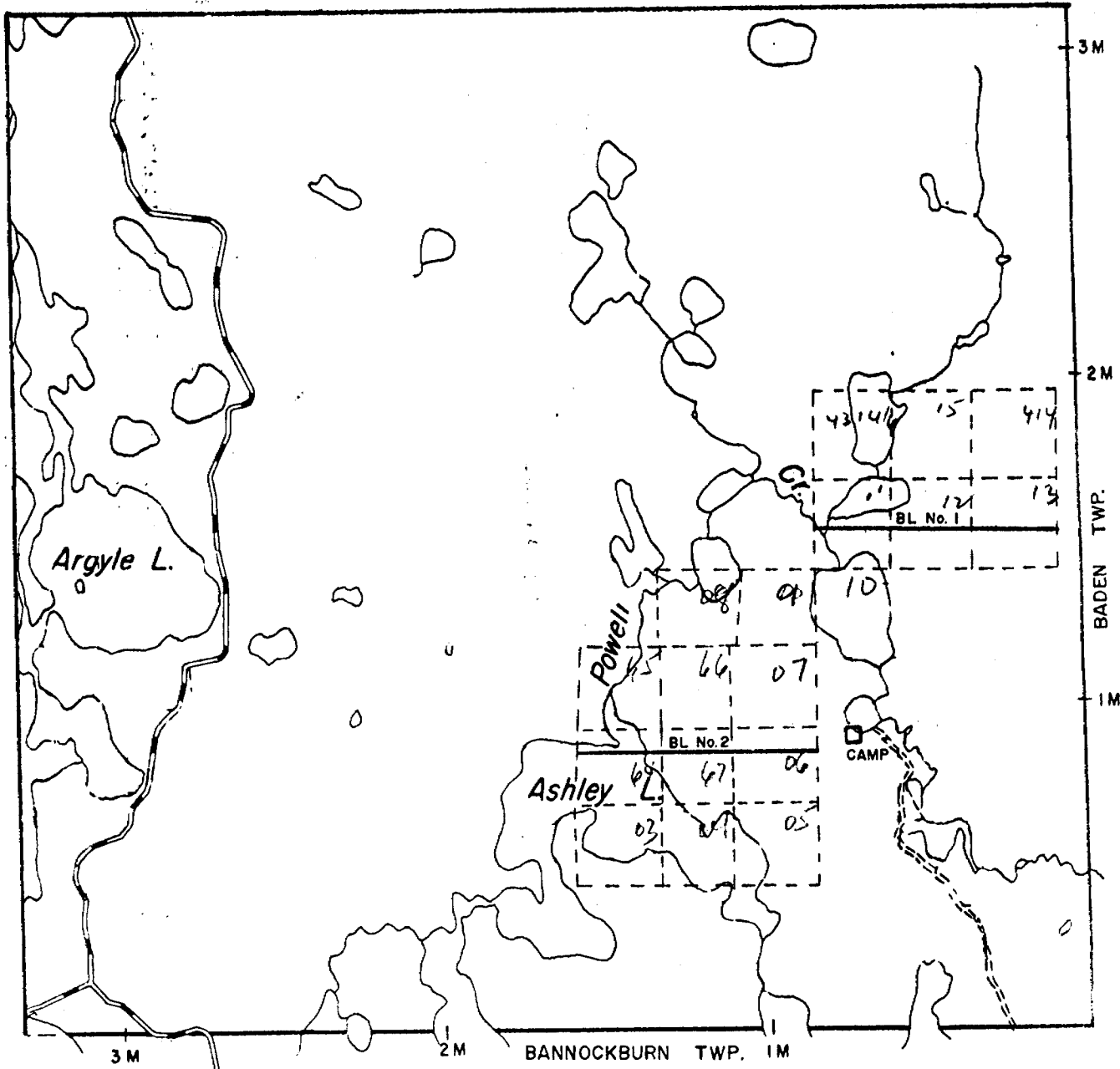
It is recommended that the areas of interest be mapped in detail. Any exposures of ultrabasic rock should be sampled systematically and assayed for copper, nickel and precious metals.

Intermediate lines at spacings of 200 feet should be established to facilitate the mapping. The detailed area should then be resurveyed using horizontal loop EM and/or I.P. These methods would be less susceptible to surface conductors and would, therefore, more accurately delineate bedrock sources.

At completion of the above work, favourable drilling targets could be delineated. From data available at present it is estimated that a minimum of six holes would be required to adequately test the main anomalous zones. Each hole would be an estimated 400 feet in length.

May 13, 1976

D. L. Sannes



**ARGYLE - INPUT PROPERTY**

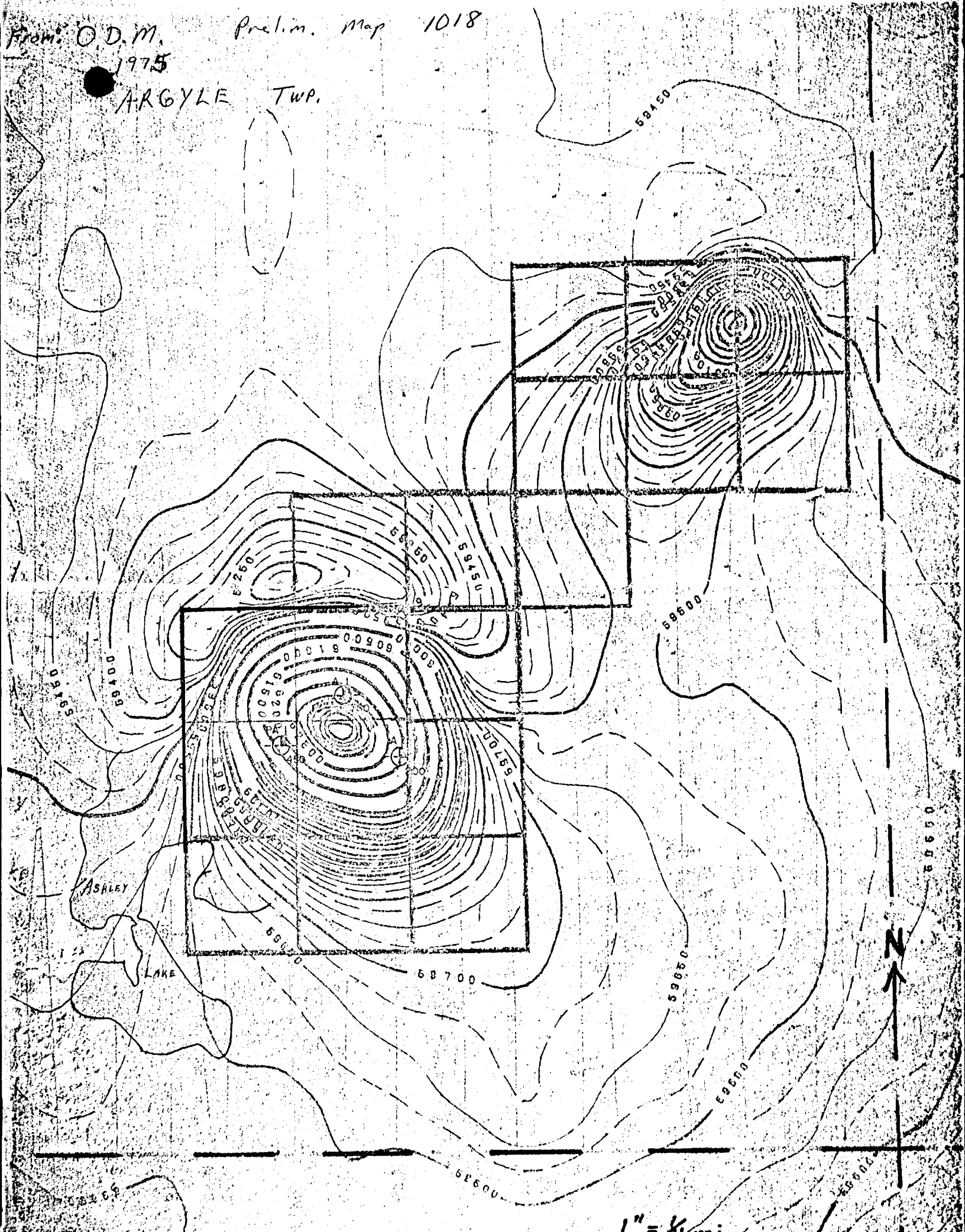
Argyle Township, Ontario

Scale: 1 in. = 1/2 mi

N.T.S. 42 A/2



From: O.D.M. Prelim. Map 1018  
1975  
ARGYLE TWP.



1" = 1/4 mi.



GEOPHYSICAL - GEOLOGICAL  
TECHNICAL DATA STATEMENT

900

MAY 31 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 Ground magnetic and electromagnetic surveys

Township or Area Argyle Township

Claim holder(s) Mid-North Engineering Services Ltd.  
Suite 1402-390 Bay Street, Toronto, Ont.

Author of Report David L. Sannes

Address Suite 1402, 390 Bay St., Toronto, Ontario

Covering Dates of Survey November 25-December 20, 1975  
(linecutting to office)

Total Miles of Line cut Baseline = 1.6 miles, Picket line  
= 16.3 miles

MINING CLAIMS TRAVERSED  
List numerically

L	429364
(prefix)	(number)
L	429365
L	429366
L	429367
L	431403
	04
	05
	06
	07
	08
	09
	10
	11
	12
	13
	14
	15
L	431416

If space insufficient, attach list

**SPECIAL PROVISIONS**  
**CREDITS REQUESTED**

	DAYS per claim
Geophysical	
--Electromagnetic	<u>40</u>
--Magnetometer	<u>20</u>
--Radiometric	
--Other	
Geological	
Geochemical	

ENTER 40 days (includes line cutting) for first survey.  
ENTER 20 days for each additional survey using same grid.

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

Magnetometer \_\_\_\_\_ Electromagnetic \_\_\_\_\_ Radiometric \_\_\_\_\_  
(enter days per claim)

DATE: May 21, 1976 SIGNATURE: David L. Sannes  
Author of Report

PROJECTS SECTION  
Res. Geol. \_\_\_\_\_ Qualifications 2.235 + also in this file  
Previous Surveys \_\_\_\_\_

Checked by \_\_\_\_\_ date \_\_\_\_\_

GEOLOGICAL BRANCH \_\_\_\_\_

Approved by \_\_\_\_\_ date \_\_\_\_\_

GEOLOGICAL BRANCH \_\_\_\_\_

Approved by \_\_\_\_\_ date \_\_\_\_\_

TOTAL CLAIMS Eighteen

OFFICE USE ONLY



GEOPHYSICAL TECHNICAL DATA

GROUND SURVEYS

EM-16=1730

Number of Stations 1730 Number of Readings Mag. =1710 at 10'  
& 1710 at 13'

Station interval Fifty feet

Line spacing 400 feet

Profile scale or Contour intervals EM-16 profiles @ 1"=30%; EM-16 Fraser contours @20%  
intervals : total field (specify for each type of survey) magnetics @100 gammas to+ 1000 gam-  
& @1000 gamma intervals - mas

MAGNETIC

Instrument Geonics model G-816 Proton Precession magnetometer

Accuracy - Scale constant + 1 gamma

Diurnal correction method 1/2 to 1 hour check at control stations

Base station location L8W @ BL No. 1

ELECTROMAGNETIC

Instrument Ronka EM-16

Coil configuration Operator facing north - horizontal field

Coil separation Transmitting station: NAA Cutler, Maine

Accuracy + 1%

Method:  Fixed transmitter  Shoot back  In line  Parallel line

Frequency 17.8 kHz

Parameters measured Vertical in-phase component and out-of-phase component  
(specify V.L.F. station)

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 TOWNSHIP  
OF 2.2128

# ARGYLE

DISTRICT OF  
TIMISKAMING

LARDER LAKE  
MINING DIVISION

SCALE: 1-INCH=40 CHAINS

## LEGEND

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

## NOTES

400' Surface rights reservation around all lakes and rivers.

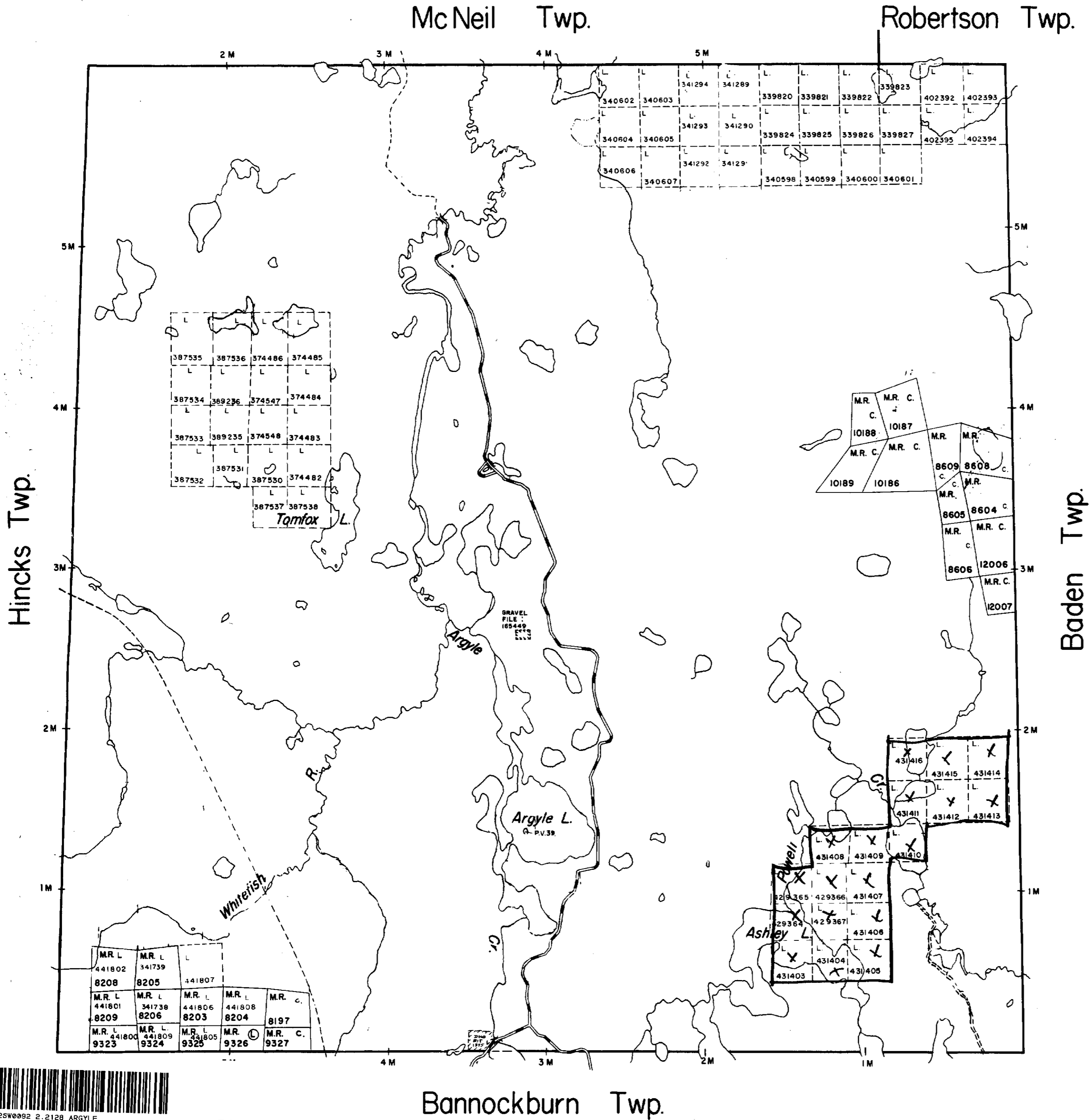
DATE OF ISSUE

MAY 31 1976

SURVEYS AND MAPPING  
BRANCH

PLAN NO.- M-203

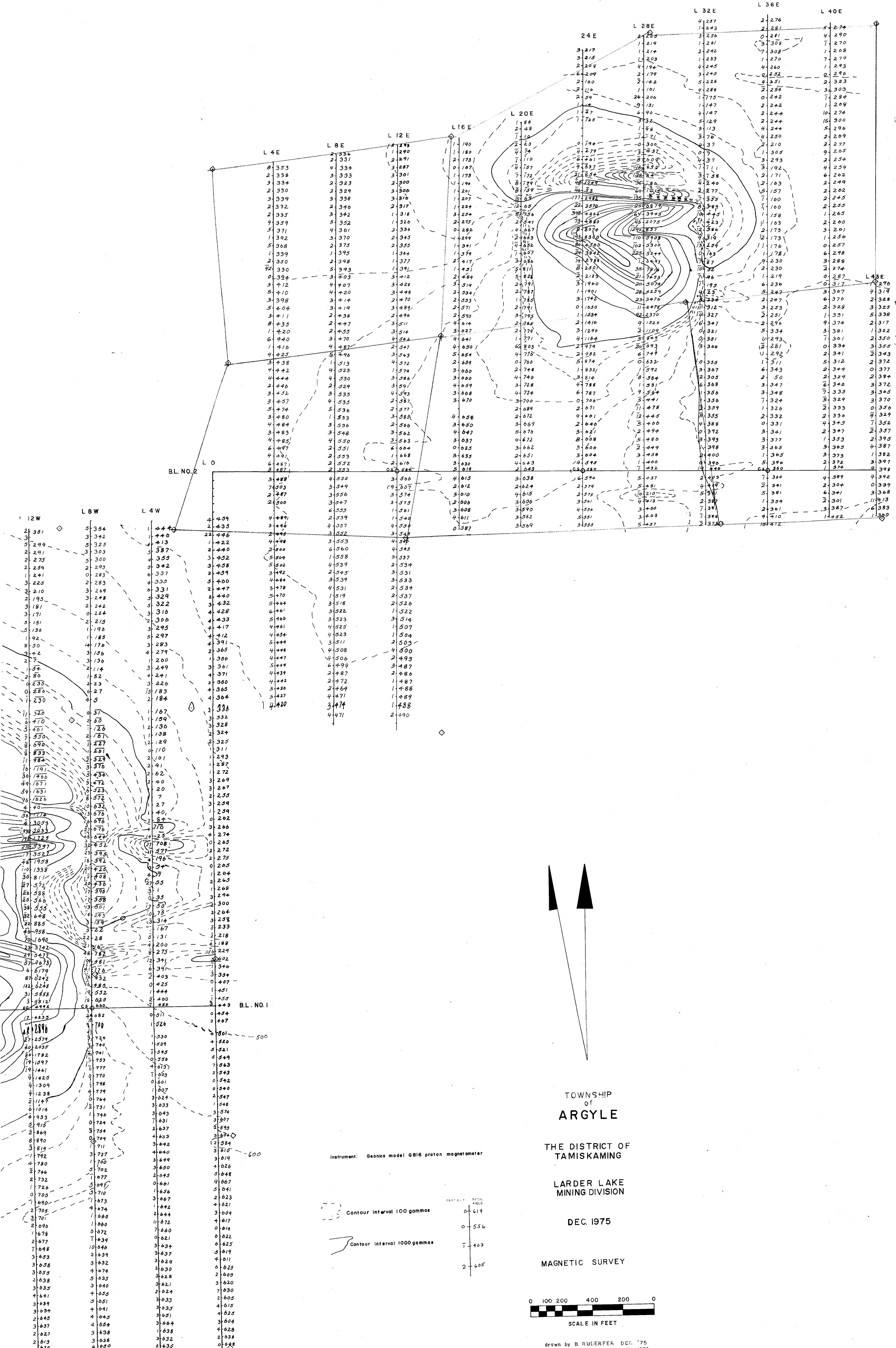
ONTARIO  
MINISTRY OF NATURAL RESOURCES  
SURVEYS AND MAPPING BRANCH



M.R. L	M.R. L	L		
441802	341739			
8208	8205	441807		
M.R. L	M.R. L	M.R. L	M.R. L	M.R. C.
441801	341738	441806	441808	
8209	8206	8203	8204	8197
M.R. L	M.R. L	M.R. L	M.R. L	M.R. C.
441800	441809	441805	9326	9327
9323	9324	9325		

Bannockburn Twp.





Instrument: Geonics model G816 proton magnetometer

Contour interval 100 gammas

Contour interval 1000 gammas

TOWNSHIP  
of  
**ARGYLE**

THE DISTRICT OF  
TAMISKAMING

LARDER LAKE  
MINING DIVISION

DEC. 1975

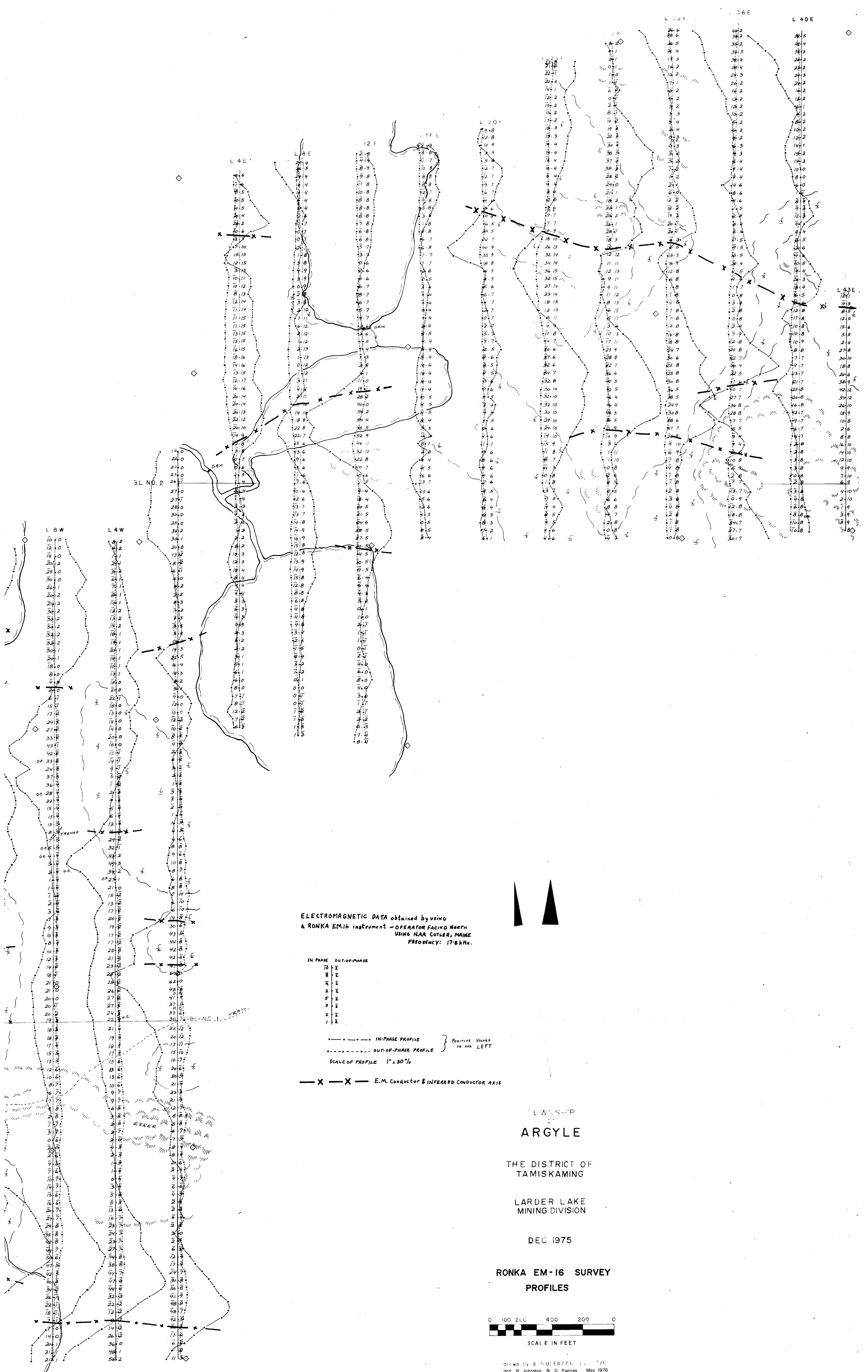
MAGNETIC SURVEY

SCALE IN FEET

drawn by B. RUDERFER DEC. '75  
and B. Johnston & D. Sannes May 1976

D.L. Jones

2-2128

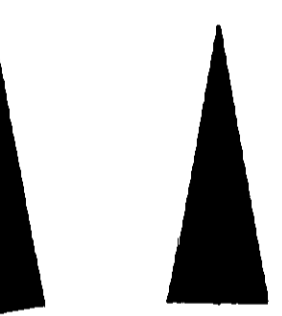


ELECTROMAGNETIC DATA obtained by using  
 a RONKA EM-16 instrument - OPERATOR FACING NORTH  
 USING MAJ CUTLER, MAINE  
 FREQUENCY: 17.8 KHz.

IN PHASE	OUT-OF-PHASE
70	1
8	2
4	3
2	4
5	5
7	6
2	7
1	8

--- IN-PHASE PROFILE } Positive Values  
 - - - - - OUT-OF-PHASE PROFILE } to the LEFT  
 SCALE OF PROFILE 1" = 30'

--- X --- E.M. CONDUCTOR & INFERRED CONDUCTOR AXIS



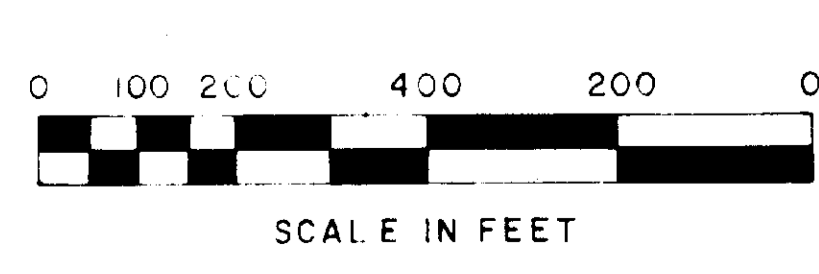
TOWNSHIP  
 ARGYLE

THE DISTRICT OF  
 TAMISKAMING

LARDER LAKE  
 MINING DIVISION

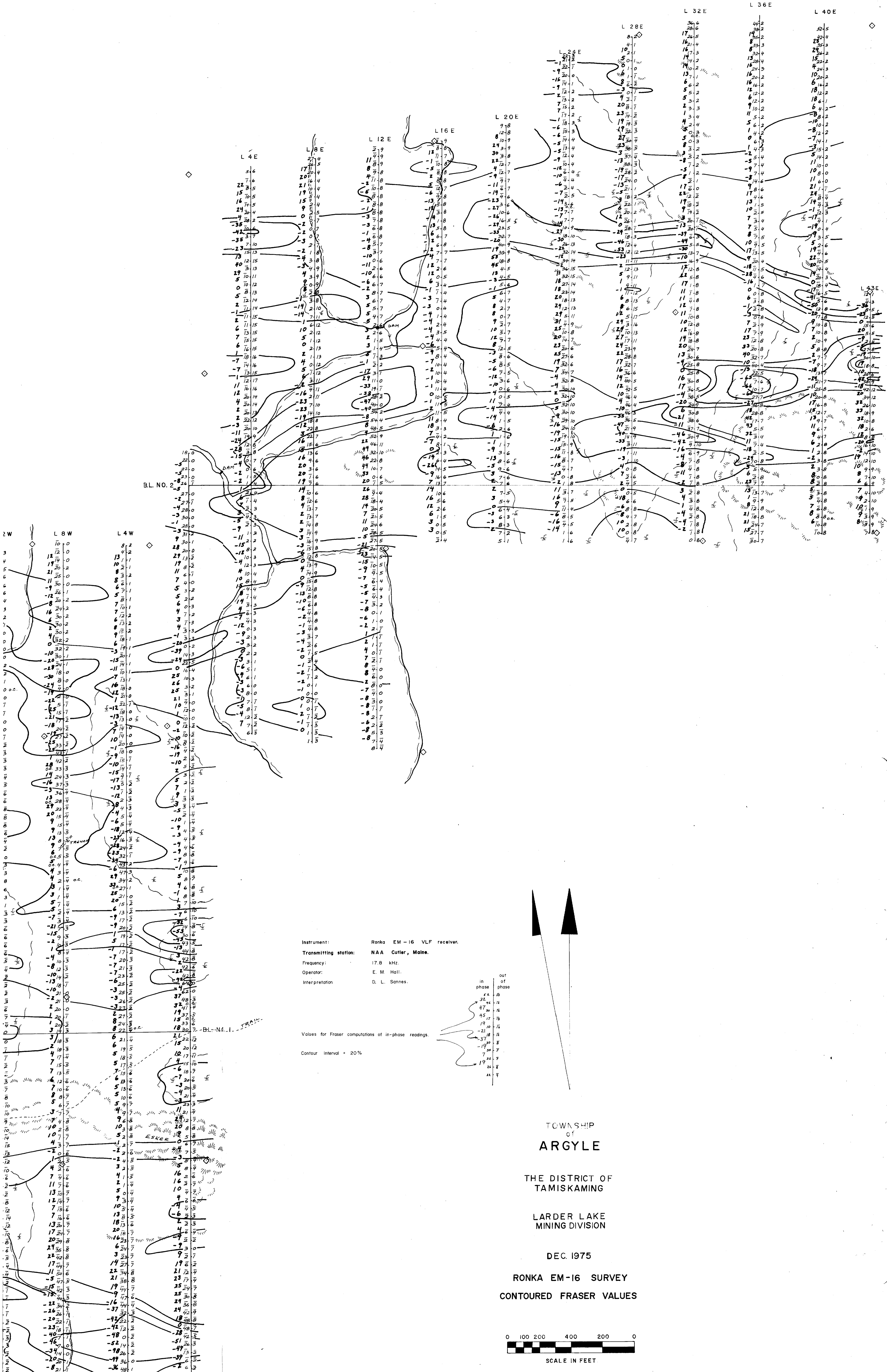
DEC 1975

RONKA EM-16 SURVEY  
 PROFILES



Drawn by E. H. ERFFA, 1975  
 and B. Johnston & D. Sannes May 1976

D. L. Jones

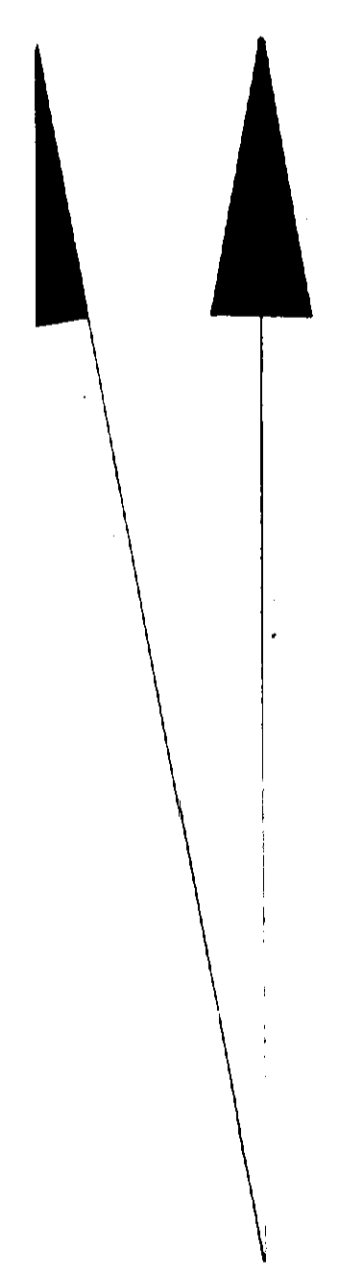


Instrument: Ronka EM-16 VLF receiver.  
 Transmitting station: NAA Cutler, Maine.  
 Frequency: 17.8 kHz.  
 Operator: E. M. Hall.  
 Interpretation: D. L. Sannes.

Values for Fraser computations of in-phase readings.

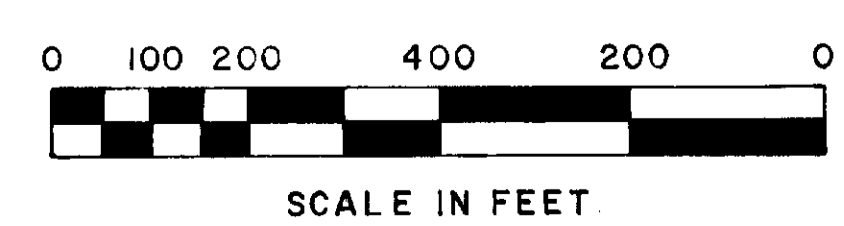
Contour interval = 20%

in phase	out of phase
32	40
34	42
36	44
38	46
40	48
42	50
44	52
46	54
48	56
50	58
52	60
54	62
56	64
58	66
60	68
62	70
64	72
66	74
68	76
70	78
72	80
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76	84
78	86
80	88
82	90
84	92
86	94
88	96
90	98
92	100



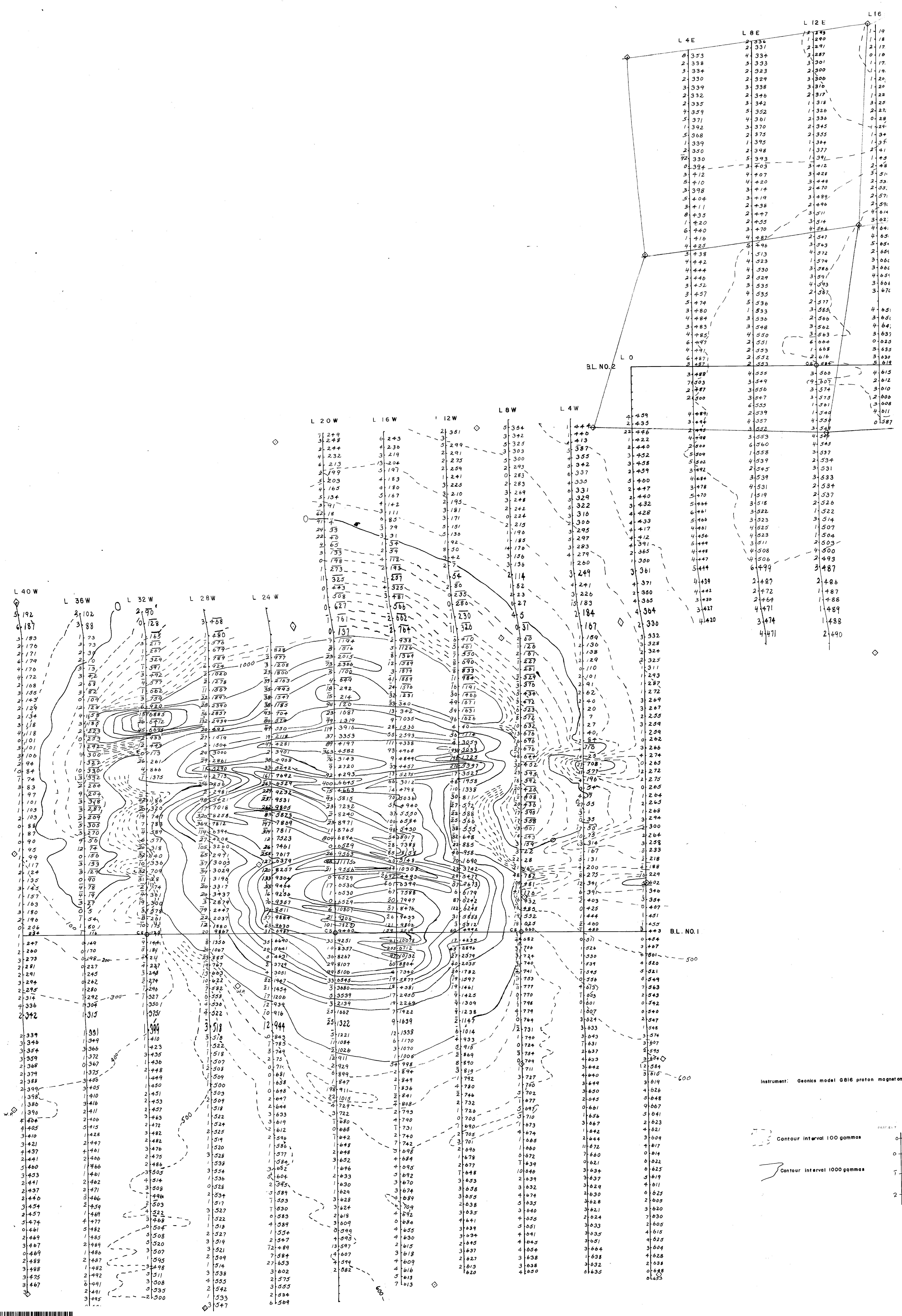
TOWNSHIP  
 of  
**ARGYLE**  
 THE DISTRICT OF  
 TAMISKAMING  
 LARDER LAKE  
 MINING DIVISION

DEC. 1975  
 RONKA EM-16 SURVEY  
 CONTOURED FRASER VALUES



drawn by B. RULERFER DEC. '75  
 and B. Johnston & D. Sannes May '976

*P.L. Sannes*

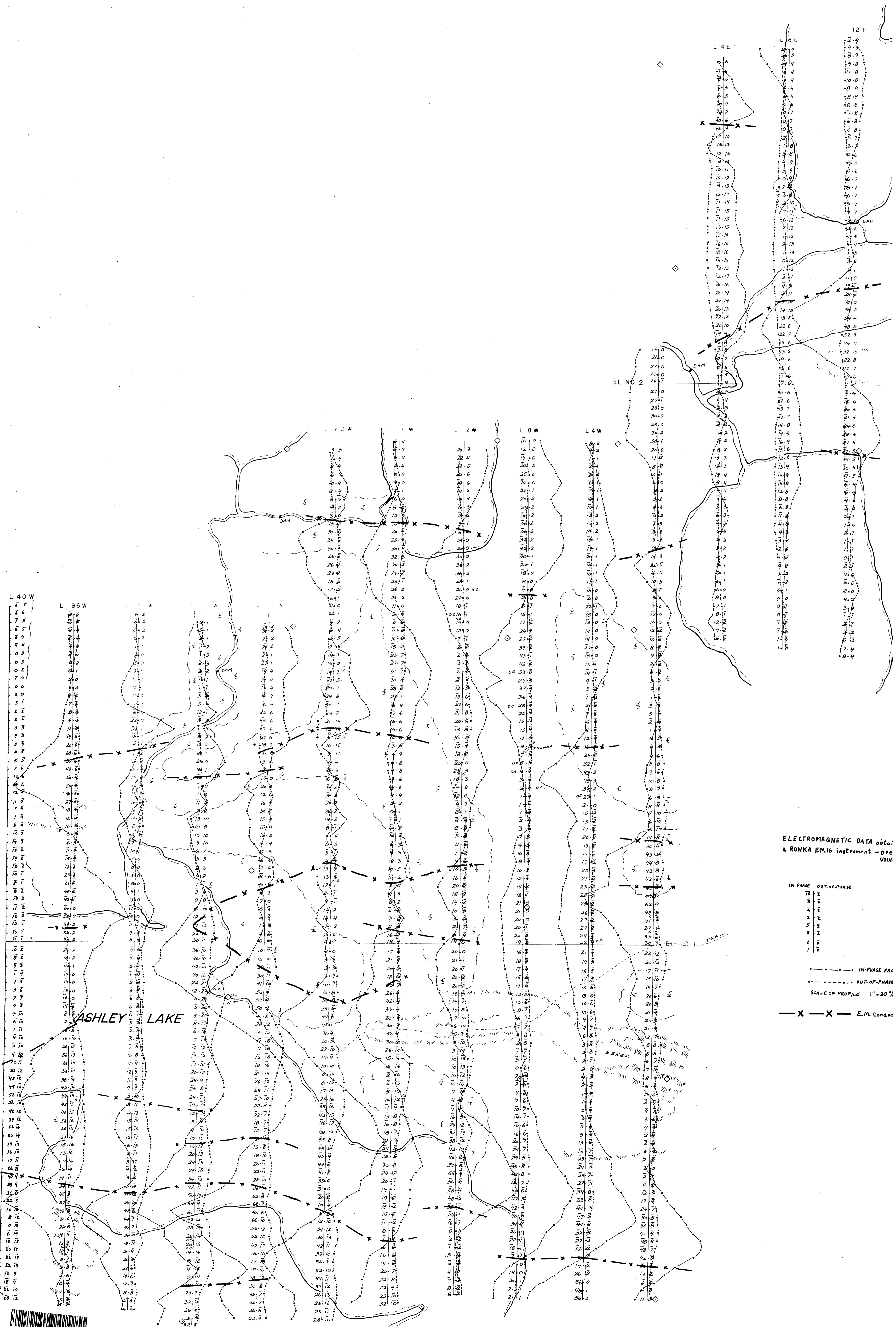


Instrument: Geonics model G816 proton magnetometer

Contour interval 100 gammas

Contour interval 1000 gammas

PROPERTY TOTAL FIELD  
0 614  
0 556  
0 614  
0 622  
0 625  
0 619  
0 611  
0 625  
0 620  
0 624  
0 625  
0 628  
0 634  
0 632  
0 638  
0 635

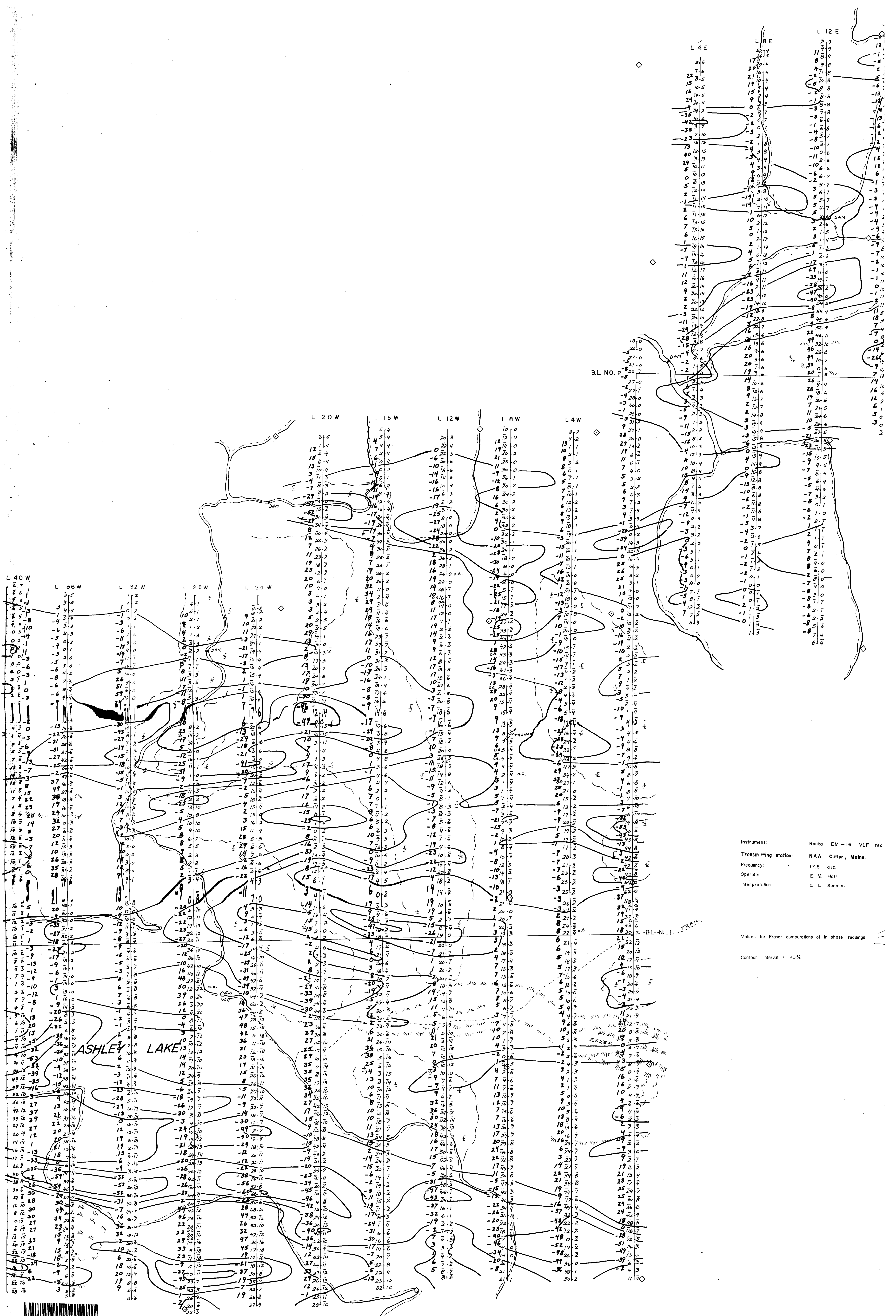


ELECTROMAGNETIC DATA obtained  
 & RONKA EM16 instrument - OPE  
 USIN

IN PHASE	OUT-OF-PHASE
78	2
8	2
4	2
5	2
2	2
3	2
2	2
1	2

--- IN-PHASE PRO  
 --- OUT-OF-PHASE  
 SCALE OF PROFILE 1" = 30'  
 X X E.M. Conduc





Instrument: Ronka EM-16 VLF rec.  
 Transmitting station: NAA Cutler, Maine.  
 Frequency: 17.8 kHz.  
 Operator: E. M. Hall.  
 Interpretation: D. L. Sannes.

Values for Fraser computations of in-phase readings.  
 Contour interval = 20%

