381

MAGNETOMETER SURVEYS

at

H I G H L A N D V A L L E Y, B. C.

for

Royal Canadian Ventures Ltd.

C.Warren Hunt Exploration Ltd.

August, 1961

C.Warren Hunt, President

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Vent Area	
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PERTINENT DATA

Nature of Survey:	GROUND MAGNETOMETER
Area:	HIGHLAND VALLEY, B. C. Surveys cover areas of specific geologic interest on client-held claims and adjoining locations where mineral showings afford geologic control.
Coverage:	50-foot square grids in areas of interest. Road traverses for local geologic checks.
Company:	ROYAL CANADIAN VENTURES LTD.
Personnel:	E.Huisman, operator June 14-September 1 R.K.Zimmerman,recorder June 22-August 4 W.A.Grant, field assistant July 7-August 22 D.Paugh, field assistant August 11, September 1
Dates of work:	Field : June 11 - September 1, 1961 Office: August 1-November 1, 1961
Instruments:	Sharpe Model A2 vertical component magnetometer, serial #209 calibrated June 12, 1961, re-calibrated August 10, 1961 Brunton compass Steel tape for measuring station locations Flagging for station marking Aerial photographs
Accommodation:	Highland Valley Lodge. House trailer at the Lodge grounds. Five to seven miles distance to sites of surveys.
Transportation:	Truck to road near site of surveys. Foot transportation on location.

PREFATORY REMARKS

Decision to carry out ground magnetometer surveys on the Highland Valley copper prospects of Royal Canadian Ventures Ltd. was based primarily on the fact that poor exposures in areas of interest necessitated an inexpensive means to extend known geology. Geologic factors which it was desirable to extend comprise structural features such as fracture zones, dikes, and intrusive contacts.

Magnetite occurs in the country rock in sufficient abundance for effective magnetometer surveying. This fact was determined by petrographic analysis carried out by June Rapson, petrographer.

The survey was, therefore, commenced with the qualitative objective of extending local known geologic structure. The Company had no expectation of direct indication of ores nor intention to compute residuals, derivatives, depths, or regional structure. Limitation of objectives kept costs to a minimum and eliminated the necessity of data reduction and interpretive procedures. These may still be done in future if desired.

FIELD CONDITIONS AND PROCEDURES

Access and working conditions generally were excellent, little time being lost to supply problems, daily ingress and egress or to rain. The availability of lodge facilities and services made for very much better than average efficiency of crew time.

A base station (called Main Base) was established near the road and northwest corner of the bridge at the west end of Calling Lake. Sub-base stations were established at strategic points on the road between the EZZ 13 claim and the Empire mine workings and another at the east end of Calling Lake.

Surveys were commenced for geological control purposes on the recognized mineral showings at the Empire and Kathleen workings and on the road between them. Surveying was continued on adjoining Royal Canadian Ventures' claims in the region north of the Kathleen and north of the OK mine. Geologic field work proceeded with magnetometer surveying and resulted in the extended work on the OK area, the EZZ 13 vicinity survey, the Vent survey and the East Calling Lake survey.

Field technique consisted of laying out a 50-foot square grid using Brunton compass and steel tape. All stations were marked both by flagging

and by marking of the station number on a tree or stake made for the purpose. In this manner locations of interest can be re-visited in the field and surveyed by plane table or transit if such more accurate location becomes desirable.

Magnetometer readings were made on paired lines in conventional loop manner restricting time on any loop to two hours. Corrections were interpolated between loop terminals to give diurnal corrections to station readings.

All readings in this project were made with the medium correction magnet for purposes of keeping the readings on scale. This magnet was set 38.5 cm below the magnetic center of the instrument with its South Pole Up. It has a correction value of 3900 gammas which, therefore, must be added to all readings after their conversion from instrument units to gammas.

For reasons stated in the Prefatory Remarks of this report, no conversion of instrument units to gammas was carried out. This can easily be done using the calibration value of 21.0 gammas per instrument unit for all readings prior to August 10 and 34.9 gammas per unit for readings subsequent to the re-calibration of that date.

RESUME OF RESULTS

OK Surveys 1, 2 and 3:

Some northeast alignments are distinguishable but results here do not encourage speculation on trends representing geologic structure. Several anomalies are parallel to traverses and suggest that results are controlled by magnetic fluctuations rather than by earth anomalies.

Empire Mine:

Northeasterly trends confirming geologic observations in the area of workings can be easily distinguished (See Geologic Report of November, 1960). Most of these, however, show a lack of continuity not characteristic of other surveys in this general region. It is unfortunate more readings were not taken to the west of the workings to show continuity of trends in that direction. However, readings received suggest that (1) an intermittent east-northeast-trending zone of alteration and, hence, of possible mineralization occurs from the workings to point 2D and then intermittently again at 4D and 4C and at 6C and 7C.

(2) Results also suggest that a divergent northeasterly trend of alteration occurs from the workings northeast along the base line to station 0A and possibly beyond. This trend undoubtedly represents the sericitized fault zone found in geologic work.

A second weak zone having this same northeast trend passes through stations 4G, 4F, 4E, 4D and 4C and seems to interrupt the east-northeasterly trend.

EZZ 13 Area:

An easterly-trending zone of low susceptibility can be followed from point P 10-G to P 34-5, a distance of 1500 feet. It is evidently terminated abruptly on the west by a northerly-trending low and is intersected at several other places by similar features. For geological reasons (see accompanying geological report) this zone is thought to be a zone of hydrothermal alteration. Locally it is known to contain intrusive rock. It is also locally thought to be a fault. This low trend provides continuity between mineral showings and known structure. It gives the sort of guidance to geologic thinking that was sought.

Two structural entities resulting from this survey

may be regarded as interesting. The first of these is the region of low susceptibility between P36-G and P36-7, especially the southeast flank of this low trend. The continuity and curvature of the axis suggests a southeast dipping contact. An abrupt trend change at the east end of this feature could be related to a north-south fault.

The second area of interest is the area of traverses extending southwest from sub-stations P19 to P29 inclusive. The pattern here resembles a faulted terrane. The east-southeast low-susceptibility trend centering on P23-2 has the easterly tensional tectonic direction which was found to be ore-bearing in the OK mine. As this seems to be a pronounced deviation from the normal direction of the low susceptibility trend, it may be of economic importance.

Alignments parallel to traverses on this as on other surveys are regarded as due to abnormal diurnal fluctuations. These are noted both in the second area of interest described above and in the eastern part of the map area.

Vent Area:

Anomalies present in this survey show no well-developed pattern of apparent structural origin. The few features present are parallel to traverses and evidently of diurnal origin. Alternative trends are weak. This survey fails to show the pronounced faults thought to occur below it.

One conclusion, however, may be drawn. This is that bedrock is deeper than usual for the region, probably 100 feet.

East Calling Lake Area:

A marked oval pattern occurs in two places in this survey area. The more easterly one is the more prominent, having two oval ridges of high susceptibility and a central core and middle ring of low susceptibility. The more westerly area is a very clearly defined oval trough of low susceptibility surrounding a central high.

These two patterns occur in an area of ubiquitous Bethseda quartz porphyry. The oval areas are thought possibly to define intrusive stocks or vents, the lows being peripheral zones of leaching caused by rising hydrothermal waters.

Kathleen Trail Area:

A well expressed series of east to east-northeast low

susceptibility trends is evident. One large opposing or north trending low occurs in the southwest part of the survey area.

The Kathleen workings occur on the end of a small but well defined northeast trending low. This is taken to show the fault zone known to occur there with mineralization (see geologic report of November, 1961). Several others among the east-trending and east-northeast-trending low susceptibility zones have as much or more definition than that which occurs at the Kathleen workings. It is possible one or more of them contains similar vein deposits.

The best looking feature from the point of view of structural breadth and, therefore, of exploration interest is the large north-south feature located between 16-F-B and 16-O-D in the southwest part of the survey area. It has a north length of 900 feet and a width which locally is a hundred feet or more. Although there is no way to predict what causes this feature, its location is known to be the floor of a gully. This position suggests poor resistance to erosion, a characteristic of a brecciated zone. Such a zone is therefore suggested.

SUMMARY

Surveys which gave results thought to be of geological significance are those named EZZ 13, East Calling Lake, and Kathleen Trail areas.

EZZ 13 has an easterly trending zone which gives continuity and sense to known mineral showings and structure.

East Calling Lake has two oval patterns of susceptibility which suggest alteration zones peripheral to an intrusive pipe.

The Kathleen Trail survey shows several east-northeasterly trending zones of low susceptibility which magnetically resemble the mineralized fractures comprising the Empire and Kathleen workings. A broad north-trending zone of low susceptibility west of the Kathleen workings is regarded as a cross trend comprising a fairly large area of magnetite leaching.

RECOMMENDATIONS

The EZZ 13 area has many features which could contain mineral. Drilling is not considered practical without more specific indication of where ore may be. An Induced Polarization survey is recommended for a rectangular area commencing at P37-11 and extending 2200 feet west and 800 feet south. A plane table survey tying in magnetometer stations to I.P. stations is recommended.

The East Calling Lake features of interest are recommended for Induced Polarization surveying or for drilling of several exploratory test holes prior to I.P. surveying.

The features are shallow and of such breadth that it is likely showings of some sort would be found by a few test holes. Two hundred fifty feet of depth would be desirable. Recommended locations are as follows:

25 feet west of substation J

25 feet southwest of station J-e

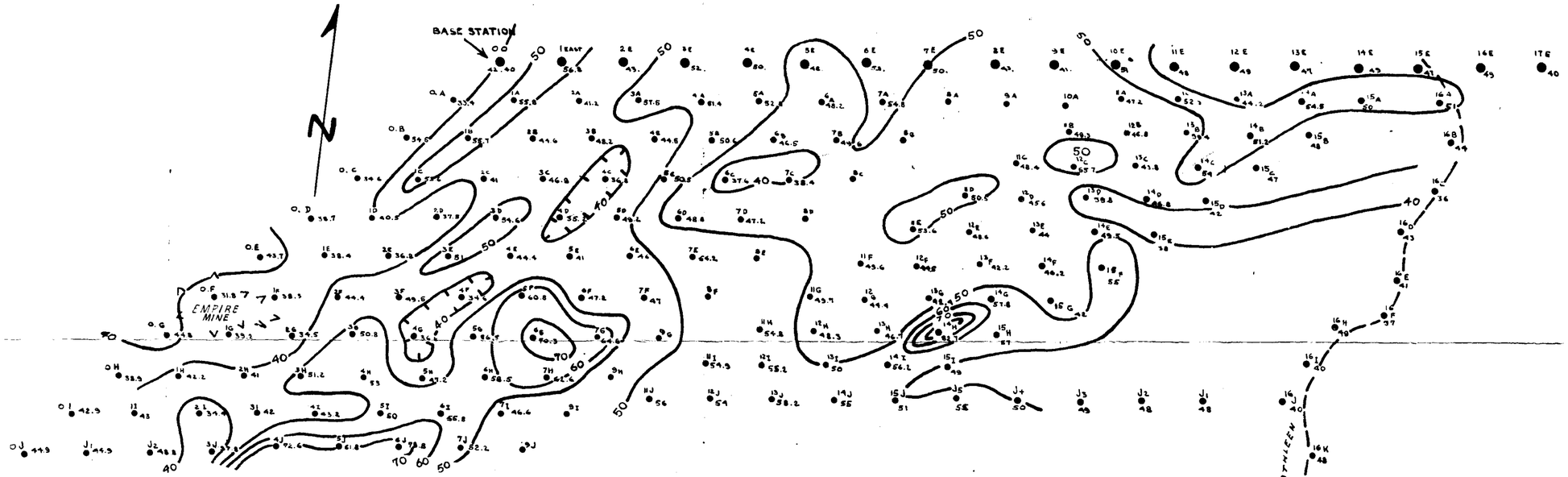
At station I-17

35 feet west of station N-18

The Kathleen Trail magnetometer surveying is recommended to be continued north to Calling Lake to cover unsurveyed parts of Cana 9, Cana Fr 1 and parts of Royal 2 and 4 south of the Lake. An Induced Polarization survey would be recommended for the anomalous low-susceptibility areas of the southern part

of the map area; but these are not on Company claims. Such an I.P. survey is recommended for anomalies found in the extension work recommended above.

C. Warren Hunt
Professional Geologist, Alberta.



MAGNETOMETER SURVEY
of
EMPIRE CLAIM

Scale: 1" = 62.5' Aug. 1961

Contour Interv. = 10 Instr. Units

Calibration: 1 Instrument Unit = 21.0 γ

By C. WARREN HUNT EXPLORATION LTD.
for ROYAL CANADIAN VENTURES LTD.
Highland Valley British Columbia

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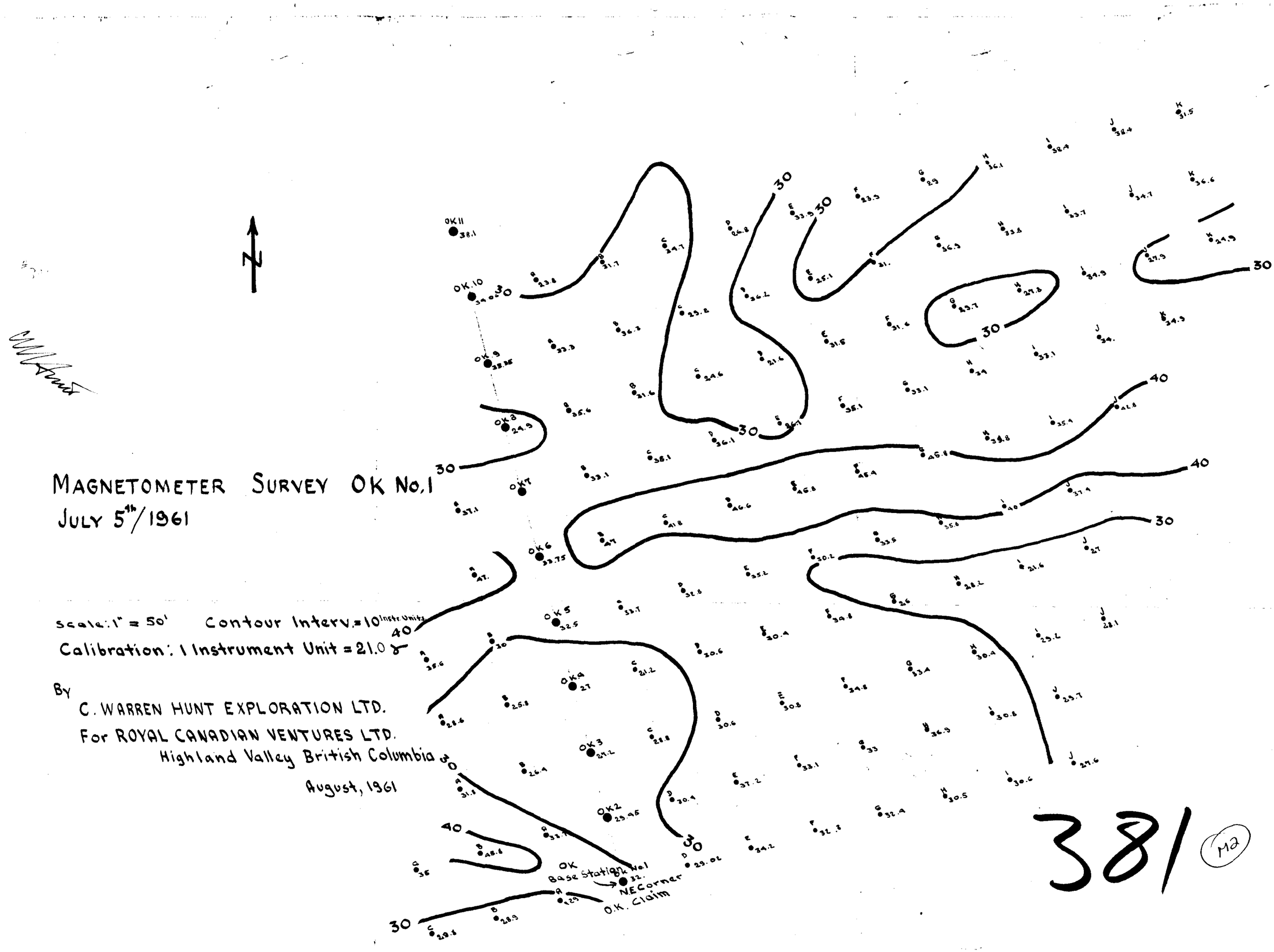
#381

MAGNETOMETER SURVEY OK No.1

JULY 5th/1961



Scale: 1" = 50' Contour Interv. = 10 Instr. Units

Calibration: 1 Instrument Unit = 21.0 γ

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Highland Valley British Columbia

August, 1961

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MAGNETOMETER SURVEY

July 7/1961 O.K. No.2

Scale 1"-50' Contour Interv.=5 Instr.Units
Calibration: 1 Instrument Unit = 21.0 γ

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Highland Valley British Columbia
August, 1961

Tie station No.11 with O.K. No 1 Survey map

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(M3)

MAGNETOMETER SURVEY O.K. No. 3

Scale: 1" - 50' Contour Interv. = 5 Inst. Units.
Calibration: 1 Instrument Unit = 21σ

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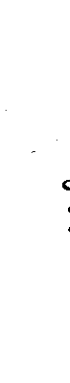
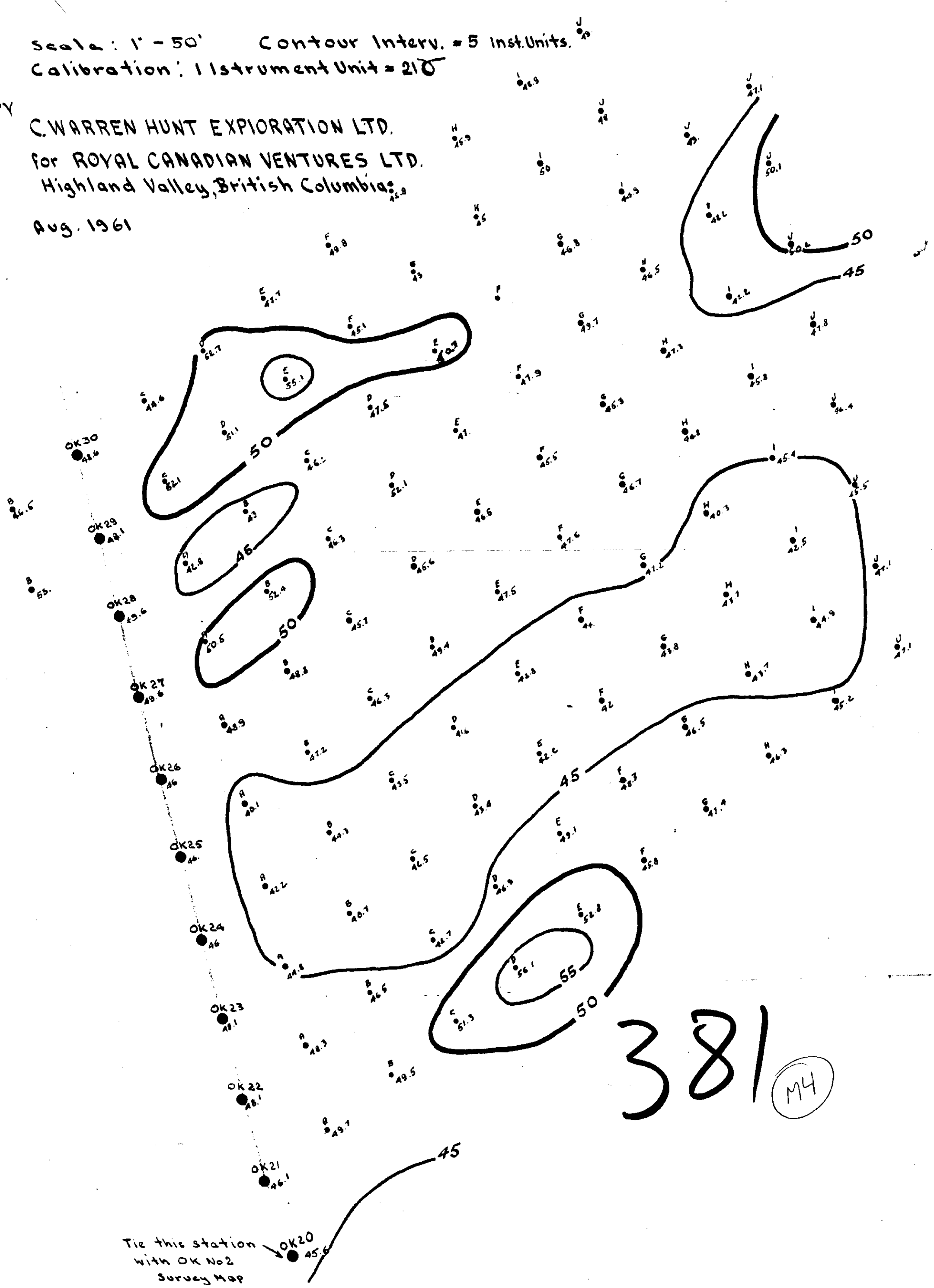
Highland Valley, British Columbia

Aug. 1961





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M4

MAGNETOMETER SURVEY:

VENT AREA

SCALE: 1" = 50' CONTOUR INTERVAL: = 10 Instrmt. Units
CALIBRATION: 1 Instrument Unit = 21 γ (before Aug 10/1961)
After Aug. 10/1961, 1 Instrument Unit = 34.9 γ

August, 1961.

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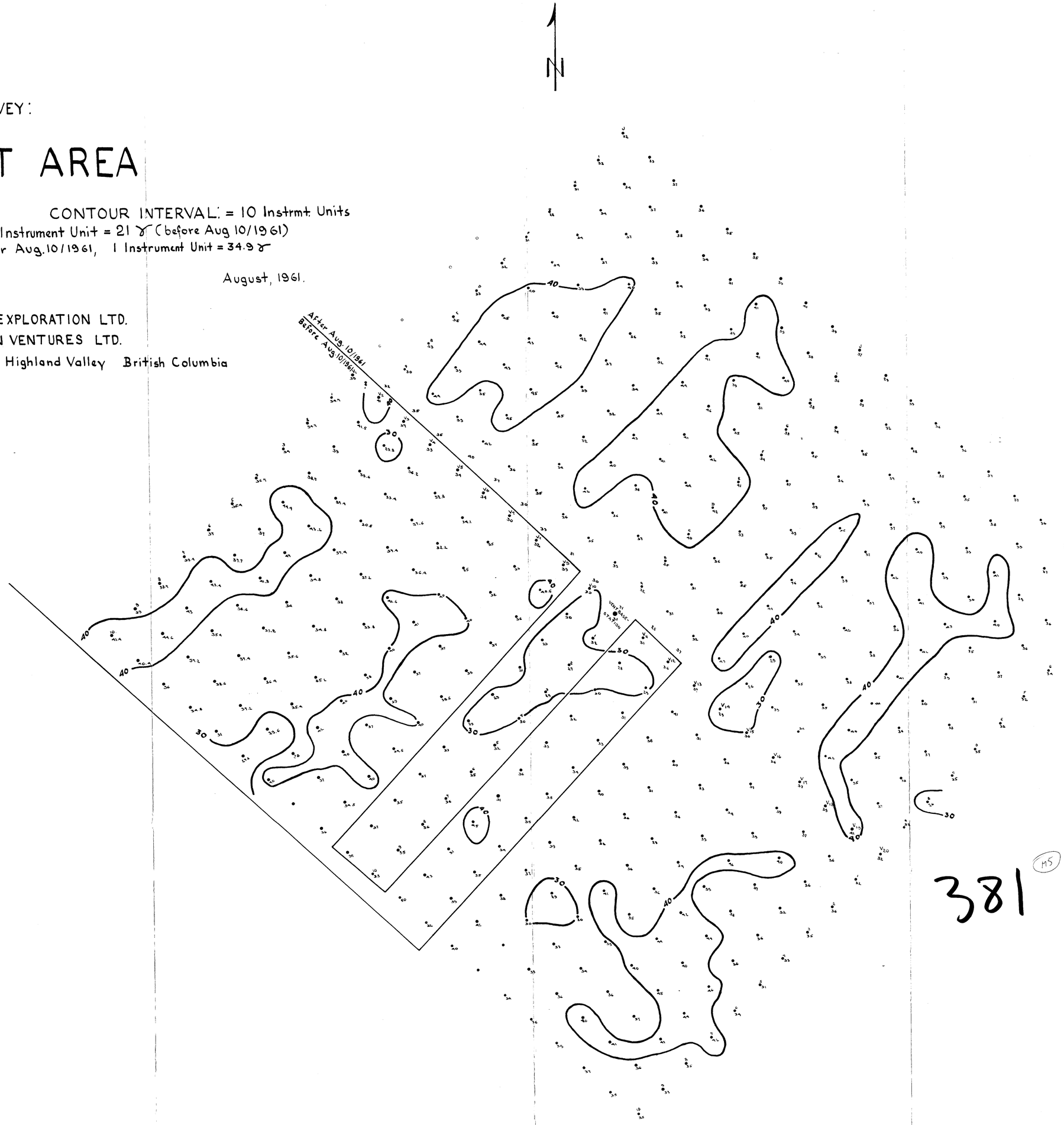

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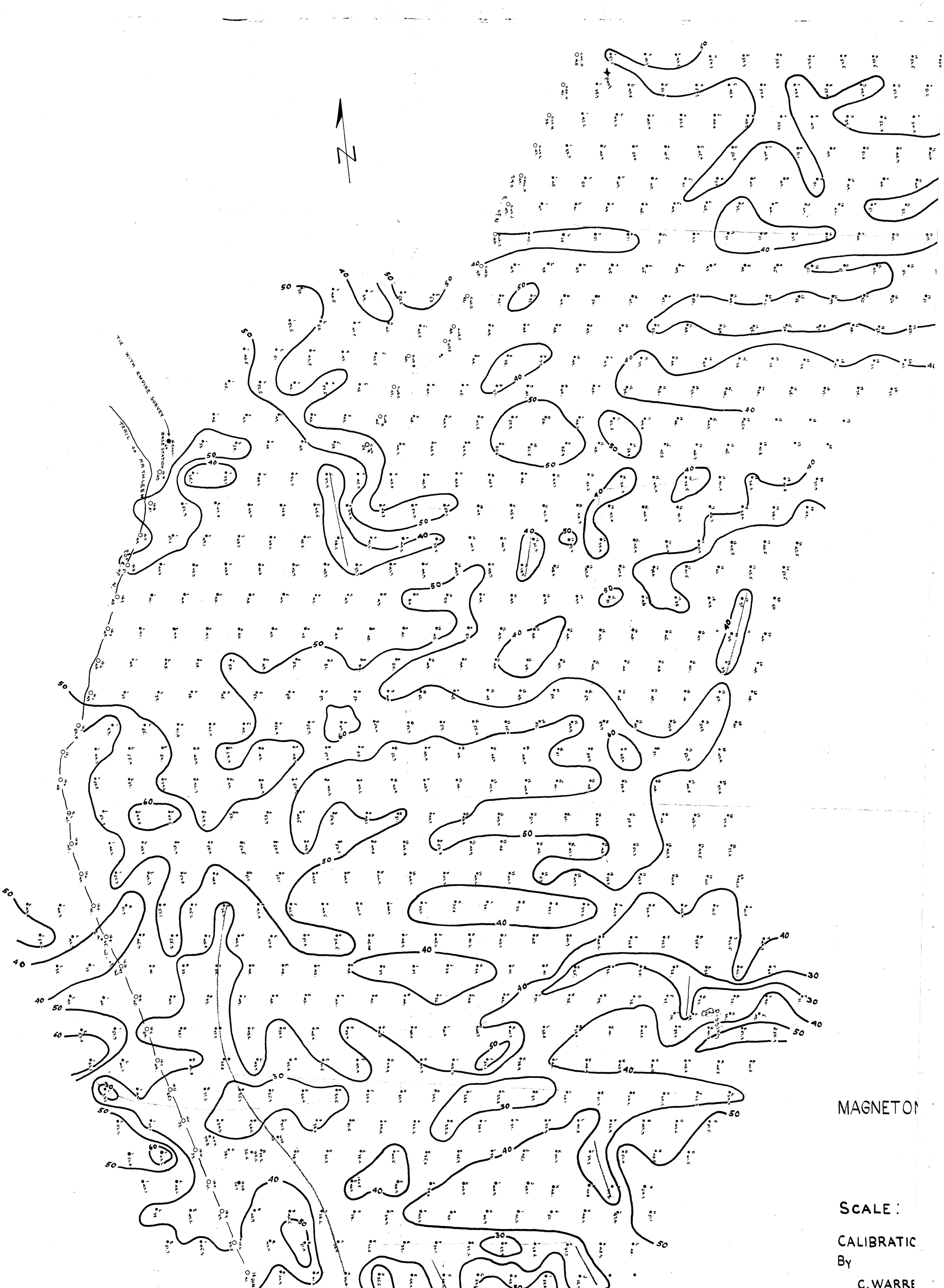

MAGNETO

SCALE :

CALIBRATIC
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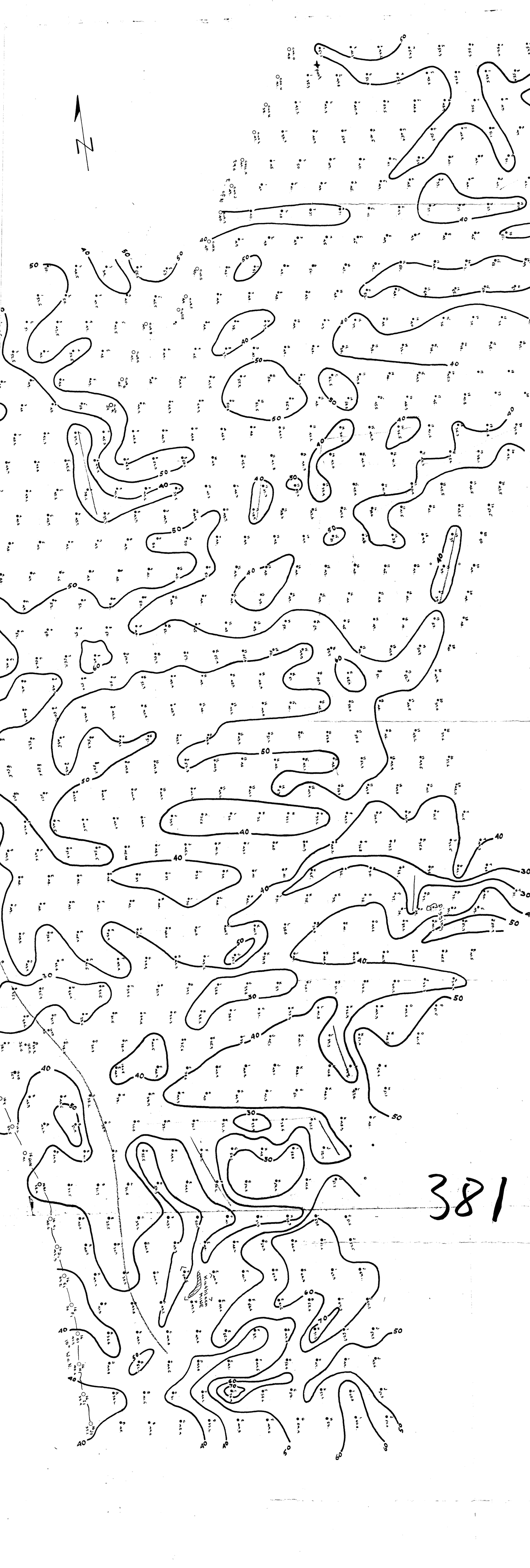
M6



MAGNETOMETER SURVEY:

KATHLEEN TRAIL

SCALE: 1" = 50' CONTOUR INTERV. = 10 Instrumt. Units

CALIBRATION: 1 Instrument Unit = 21 γ

By

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AUGUST, 1961.

For ROYAL CANADIAN VENTURES Ltd.

Highland Valley British Columbia

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MAGNETOMETER SURVEY:

SOUTH-EAST END OF CALLING LAKE

Scale: 1" = 50'

Contour Interv: = 10 Instrument Units (Locally 5 Instmt.Units)

Calibration: 1 Instr. Unit = 34.9 γ

● = Test Hole

August, 1961.

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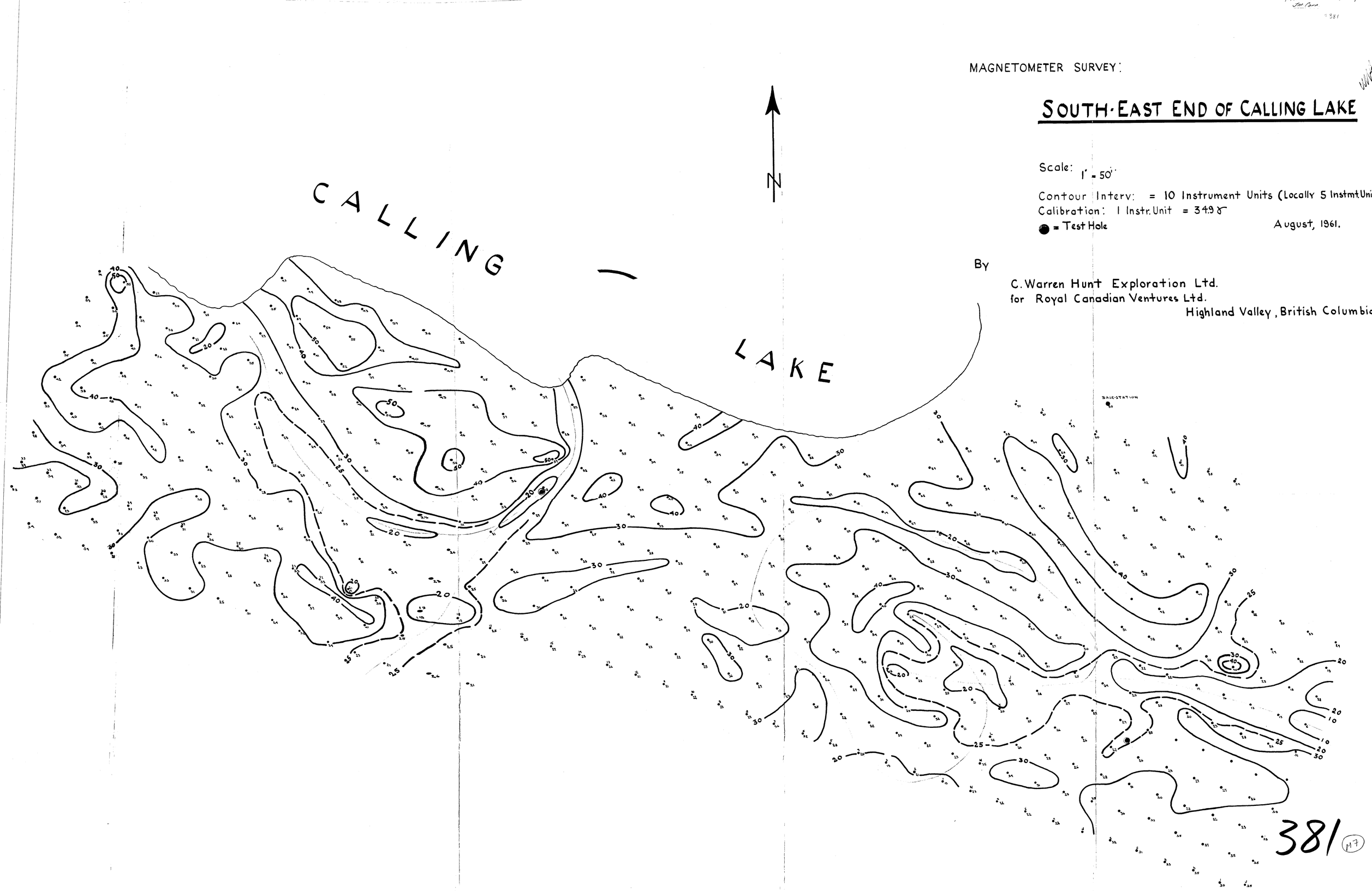
Highland Valley, British Columbia



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MAGNETOMETER SURVEY

CLAIM EZZ 13 and VICINITY

Scale: 1" = 50' Contour Interval: 10 Instrument Units

Calibration: 1 Instrmt. Unit = 21 ɣ

Points P.35 A to J, P.36 A to J, P.37 A to L, P.38 A to L and P.39 A to L = 1 Instrmt. Unit = 34.9 ɣ
Points P.36. 21 to 24, P.37 21 to 27, P.38 21 to 28, P.39 21 to 30, P.40 21 to 31, P.41 21 to 32, = 34.9 ɣ

● = Test Hole

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For ROYAL CANADIAN VENTURES LTD.

Highland Valley British Columbia

August, 1961.

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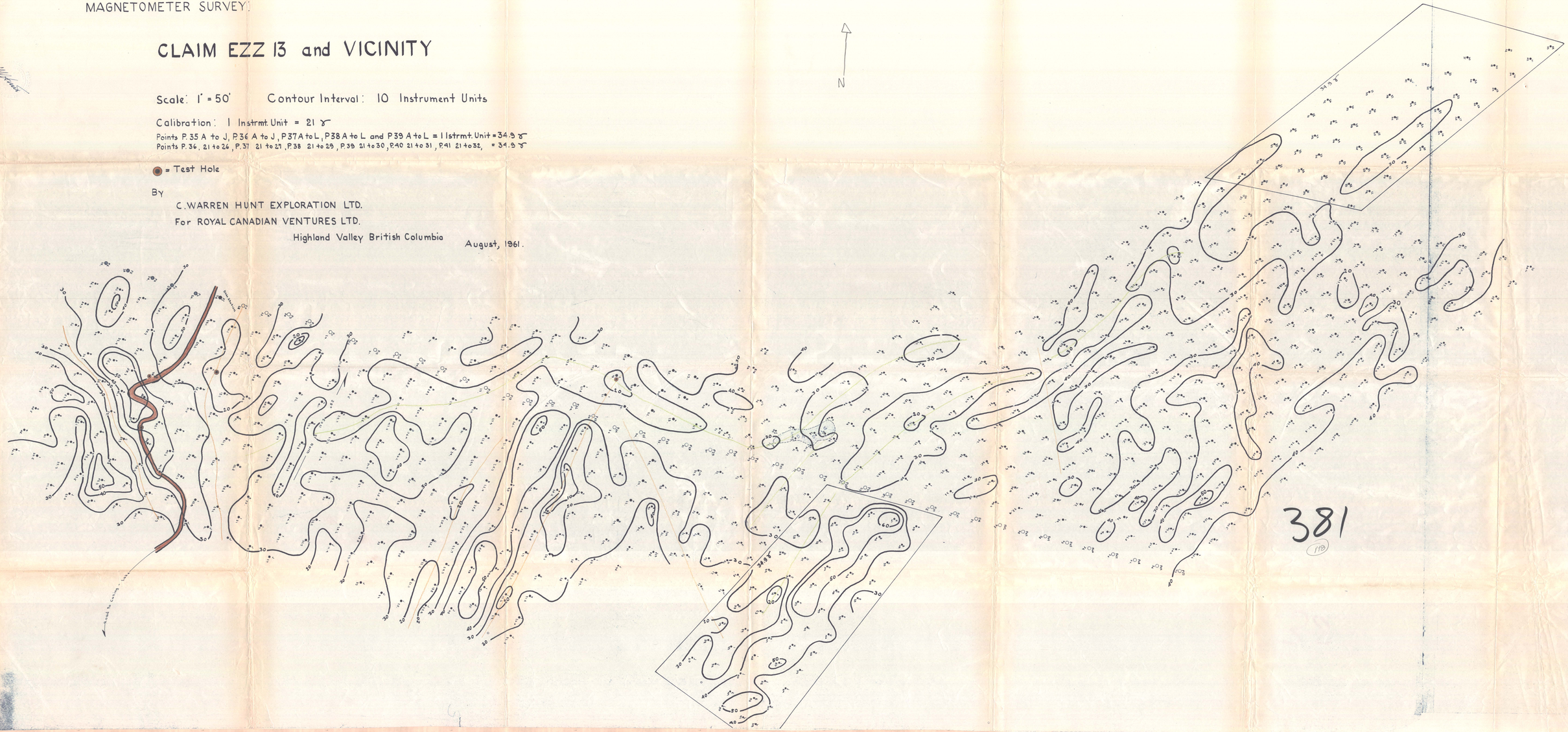

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