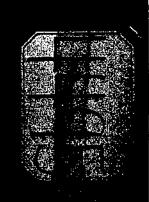
Combined Geological and Geophysical Report on the QQH/15E

Adonis Property
Aspen Grove Area, B.C.

49° 51' N 120° 36' W

W.1. Nelson, P. Eng. J.T. Walker

Moranda Exploration Company, Limited Micola Mining Division October 23, 1972 to June 15, 1973



4495

Combined Geological and Geophysical Report on the

Adonis Property

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49° 51' N 120° 36' W

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Noranda Exploration Company, Limited
Nicola Mining Division
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Department of

Mines and Petroleum Resources
ASSESSMENT REPORT

NO 4495 MA

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Combined Geological

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Geophysical Report

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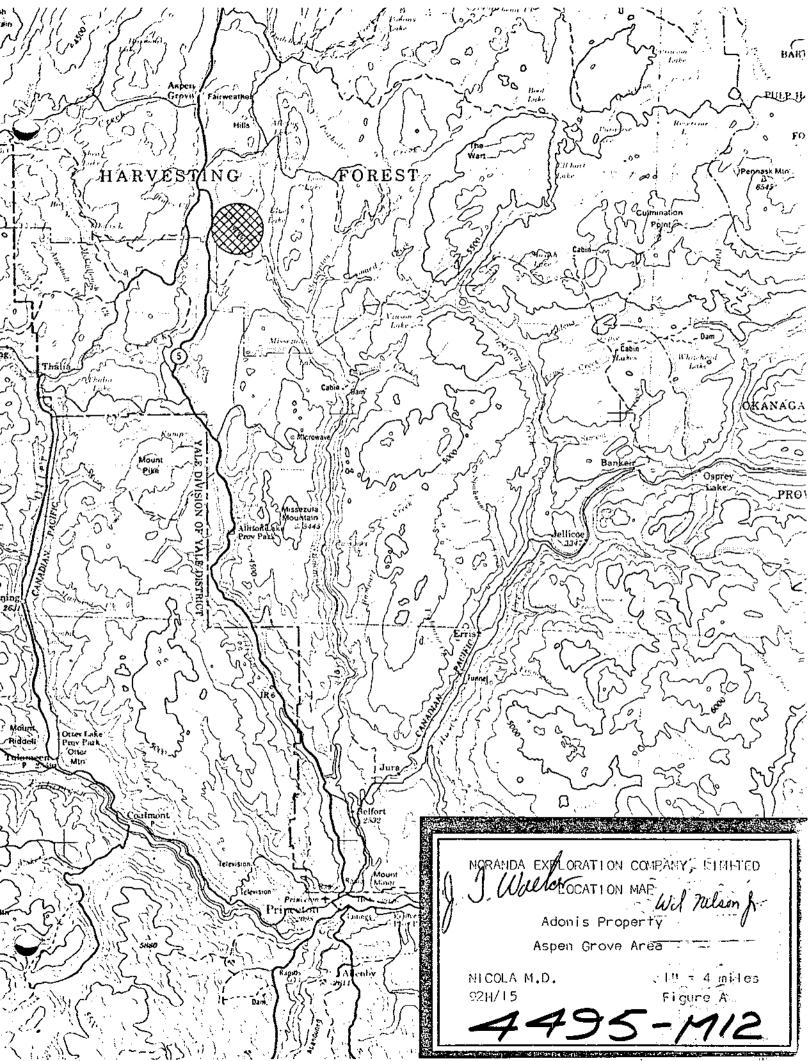
Adonis Property
Aspen Grove Area, B.C.
Noranda Exploration Company, Limited

INTRODUCTION:

The claims referred to in this report are owned by Adonis Mines Ltd. and are under option to Noranda Exploration Company, Limited (No Personal Liability). The names and record numbers of the mineral claims are listed in the following table and hereafter they will be referred to as the Adonis Property.

Claim Name	Record Numbers
Boss 25-32	44372-44379
Bim 1-24	49783-49806
Bim 25-32	49807-49814
Bim 37-38	49821-49822
Bim 47-82	49831-49866
Bim 91-100	49819-49874
J #1-2 Fr	49875-49876
Tight 8-9	50079-50080
LO 89-94	50081 -50086
LO 96	50087
L0:98	50088
J #3-6	50514-50517
Bim 33A-36A	50527-50530
Bim 39A-46A	50531 -50538
Boss 43-54	47615-47626
Boss 65-84	47627-47646
Boss 101-134	47674-47680
Gail 84-92	50951 50959
Gail 81-83	50948-50950

Total 194 claims all in the Nicola Mining Division.



Department of

Mines and Petroleum Resources

Ausers is T Assoult

NO 4495 MAP #12

The surveys described in this report were conducted within the boundaries of the above listed mineral claims. The claim names and their boundaries are shown in drawing No. 8.

The centre of the Adonis Property is 20 miles SSE of Merritt, B.C. at latitude $49^{\circ}51^{\circ}N$, longitude $120^{\circ}36^{\circ}W$. The claims lie mainly between highway No. 5 (Princeton-Merritt) and the Summers Creek-Quilchena Creek Valley which here is occupied by Bluey Lake and a number of smaller lakes and ponds. A 235,000 volt power line crosses north to south approximately on the centre line of the property. Access is by highway No. 5 and many old logging or construction roads which cross most parts of the property.

The western part, near the highway, is open, grassy, rolling hills, while the eastern part is more rugged and mostly covered by forests of pine and fir trees. East of the power line is a high and mostly rocky ridge while some swampy areas and small lakes are found between the power line and the highway. Small swamps are found even near the summit of the high ridge. Elevation of the surveyed area ranges from 3,300 feet at Bluey Lake to 4,500 feet on the ridge west of Bluey take, the median elevation is close to 3,500 feet.

The Adonis Property is at the southern end of the old Aspen Grove copper camp. This area has been prospected since the late eighteen nineties with greatest activity probably between 1900 and 1914; numerous pits and shafts date from this period. Many old claim posts are found on the property, some apparently 60 to 70 years old. More recent activity began about 1956 and is shown by many claim posts, grid lines, bulldozer trenches and diamond drill holes. At least seven diamond drill holes were drilled on the property before October 1972 but core from only one hole remains and the results of the other drilling is not known to the author.

Work directed by Noranda Exploration consisted of a geological reconnaissance carried out by W.I. Nelson in October and November 1972 and a geological survey by W.I. Nelson and D. Gee in May 1973. The 100E baseline, 80S line and southern 50E baseline were established by Noranda Exploration employees in October-November 1972. Most of the remaining grid lines were established by Relcom Exploration Company of Kamloops working under contract. Lines in the south western part of the property were extended by Noranda Exploration employees in May 1973. These lines are plotted on drawings No.1.

Geophysical surveys were carried out in February, March and April 1973, under the direction of J.T. Walker, Geophysicist for Noranda Exploration.

GEOLOGY:

The Adonis Property was examined by W.I. Nelson in October-November 1972 and by W.I. Nelson and D. Gee in May 1973. The 1972 observations are plotted on a scale of one inch to 1000 feet using topography for control. The 1973 observations are plotted on a scale of one inch to 400 feet using the surveyed grid for control.

The area has been glaciated but the only thick accumulation of glacial debris is probably the gravel benches and Morraines in Bluey Lake Valley and part of Otter Creek Valley. Outcrops are mostly found on hills while the low lying areas tend to be swampy and have little outcrop.

Most of the rock seen belongs to the Upper Triassic Nicola group. The only exceptions are a few small basaltic or basic dykes, which cut the Nicola rocks and the Valley Basalt, which is believed to be of Pliocene or possibly inter-glacial age.

DESCRIPTION OF ROCKS MAPPED:

- 1. Purple tuff both fine grained and medium grained varieties occur on the property. Both types are hornblende-rich and contain sporadic amounts of disseminated, fine grained magnetite. The fine grained tuff appears to have a calcareous cement. A banded variety is found which has alternating layers of fine and coarse material. In places, cross bedding is observed in this rock indicating deposition by water.
- 2. Purple fragmental tuff ~ this hornblende-rich tuff consists of fragments of coarse tuff in a fine grained tuffaceous matrix. The cement appears to be calcareous.
- 3. Feldspathic coarse tuff this rock is characterized by very coarse feldspars which may be white or altered to pink or green. It is purple and contains significant amounts of often coarse-grained disseminated magnetite. Gypsum and hornblende are abundant.
- 4. Green agglomerate and green tuff the green agglomerate consists of coarse green tuffaceous fragments in a finer grained, green matrix. The agglomerate and tuff are both highly magnetic due to significant amounts of disseminated magnetite. In some outcrops the green tuff is well banded but the rock seen was too disturbed to record any attitude.
- 5. Red agglomerate this volcanic rock is characterized by its pink to red weathered surface. The rock fragments are andesitic to syenitic in composition and have an angular to sub-rounded shape. The rock fragments are most noticeable on weathered surfaces. The matrix is tuffaceous and the color of the matrix varies from green to purple or pink. The red agglomerate contains sporadic amounts of hematite and is non-magnetic.

- 6. Green-gray agglomerate this agglomerate contains more rock fragments than does the red agglomerate and also the fragments are smaller. Chalcocite, native copper and malachite are found in this rock. Copper minerals are localized about certain rock fragments. Copper mineralization in this rock is highly irregular and scarce. The rock is highly magnetic.
- 7. Green andesite this andesite is frequently highly magnetic due to disseminated magnetite. The color varies from very dark gray to green. The texture varies from fine to coarse grained. Pyrite occurs locally as very fine disseminations. The andesite is often highly propylitized with the development of epidote and calcite.
- 8. Limestone apparently a single bed about ten feet thick. Contains fossil brachiopods and corals.
- 9. Argillite, graywacke and calcareous shale. Agrillite occurs in beds one or two feet thick, associated with graywacke. The calcareous shale is black and contains fossils which could not be identified.
- 10. Dykes basalt or basic dykes these are the only intrusive rocks found. The basalt is fine grained, vesicular and contains fragments of highly epidotized andesite. Disseminated magnetite is abundant both in the basalt and epidote rich fragments. The basic rocks are green, fine grained and hornblende-rich. Both of these rock types are thought to occur as dykes intruding the Nicola rocks.
- II. Valley Basalt black vesicular basalt. Magnetic. Main occurrence is in the bluffs on the east side of Bluey Lake Valley. Many boulders are found on a ridge west of the valley and magnetometer readings indicate occurrence in place here.

STRUCTURE:

Bedding or contacts usually strike north to northwesterly, their dip varies from vertical to 45° east or west with well exposed contacts showing a tendency to dip east. Profound changes in strike and dip were observed in one small outcrop apparently due to soft sediment deformation shortly after deposition.

Strong slickensides were seen in several outcrops indicating at least some fault movement with a general northerly trend. These are not obviously related to lineaments.

A number of lineaments are seen on air photographs and some of these may indicate the strike of faults. The strongest lineaments strike near N-14 $^{\circ}$ west while others strike N-10 $^{\circ}$ E and N-67 $^{\circ}$ E. Mapping by H.M.A. Rice of the Geological Survey of Canada places the Allison Fault near the western boundary of the Adonis Property. At the Adonis Property, on the west side of the Bluey Lake Valley, a strongly fractured and sheared zone is exposed in some old pits on the Gail 82 claim. A strong lineament is marked by the chain of swamps and ponds 800-1800 feet west of the power line. This lineament, with a direction of N-14 $^{\circ}$ W, apparently terminates a number of weaker lineaments with a direction of N-10 $^{\circ}$ E.

ALTERATION:

Epidote occurs as fracture filling in many of the rock types sometimes associated with shearing butno occurrence is very extensive nor is there usually much replacement. The green andesite is often propylitized. On the Bim 98 claim, a small area of andesite shows extensive replacement by epidote.

COPPER MINERALIZATION:

The most widespread occurrence of copper minerals is in the gray-green agglomerate (6). Primary copper minerals are chalcocite and less commonly native copper. Copper mineralization seems to favour certain pebbles in the agglomerate, so that on weathered surfaces these may be outlined by a coating of malachite. Most occurrences of the gray-green agglomerate seem to be fairly small and lenticular with a general northerly strike. Where contacts can be seen, they strike close to north and dips vary from 70° west to flat to 65° east. At one pit a contact of gray-green agglomerate with purple tuff varies from flat to a dip of 40° west over a distance of 15 feet. The graygreen agglomerate is often in contact with or close to purple tuff or purple fragmental tuff but these rocks contain no visible copper minerals. Prospectors of the 1900-1914 period evidently recognized the affinity of copper to the gray-green agglomerate and explored most outcrops with pits or shafts. A magnetic high near 44E from 12S to 8N on Bim 72 and Bim 74 claims may outline a body of gray-green agglomerate; an outcrop of this rock is seen in the anomalous area.

A series of outcrops along the summit of the main ridge west of Bluey Lake may indicate a body of gray-green agglomerate up to 2,000 feet long and 100 feet wide. Because of difficult access and the confused claim boundaries in the area, this occurrence has not been further investigated on the Adonis Property.

An isolated outcrop of gray-green agglomerate on a hillside) 92H/WE above the road on Boss 132 claim yielded an assay of 0.24% Cu over) 130 an area of $200^{\circ} \times 100^{\circ}$.

Another copper occurrence is on the Gail 82 claim. Here the rock is strongly fractured and sheared and fractures coated with malachite. The rock is purple feldspathic, coarse tuff.

The description of the Daisy Group on page K224 of the Report of the Minister of Mines 1915, fits the occurrence on Gail 82 claim.

A number of claim posts apparently 60 or 70 years old were found nearby.

On the Boss 80 claim, a large boulder of purple feldspathic, coarse tuff shows much malachite on fractures. Some old trenches and considerable bulldozer trenching done near here by previous owners did not disclose any more mineralization but most of the bulldozer trenches did not reach bedrock.

A few copper showings on the high ridge west of Bluey Lake seem to be malachite on isolated fractures in feldspathic coarse tuff. Extensive bulldozer trenching on some of them did not disclose any more mineralization.

A minor amount of malachite was seen on the limestone at the north end of the exposed bed.

A minor amount of malachite was found in fractures in andesite near 48S, 27E. A little malachite was seen at 8150S, 2650E. An assay of a chip sample from the outcrop yielded 160 p.p.m. copper.

MAGNETOMETER SURVEY:

The magnetometer survey was carried out utilizing a fluxgate magnetometer (Model MF-2, serial number 002193), manufactured by Scintrex Limited, 222 Snidercroft Road, Concord, Ontario. The instrument is designed to read the vertical intensity of the earth's magnetic field.

The survey was conducted on twenty-eight grid lines spaced 400 feet, for a total of 35 line miles. Readings were taken at 100 foot intervals along the line. Prior to surveying, the latitude controls of the magnetometer were adjusted to produce a reading of +500 gammas on the most sensitive scale setting at the base station. During the course of the survey, normal field procedures were followed, recording magnetic reading in gammas, time, grid line and station location. Three base station readings per day were recorded to check for diurnal change. During the time required to conduct the survey, diurnal change was less than 50 gammas and no diurnal correction was made.

Presentation of Results:

Upon completion of the survey, the arbitrary datum was reduced by adding 1000 gammas to all field readings, thereby, eliminating negative values. The adjusted readings are plotted on Drawings No. 3 north and 3 south, of this report; plan maps at a scale of 1 inch equals 400 feet. Isomagnetic contours are drawn from these readings and displayed on separate sheets, Drawings No. 4 north and 4 south. The contour interval is 200 gammas.

Discussion of Results:

The magnetic results show a variation of approximately 3000 gammas on the south sheet and 2200 gammas on the north sheet. The most striking feature is the high frequency magnetic variation indicated on both the south and north sheets. These variations appear to be caused by small, near surface magnetic rock units.

In contrast to the high frequency variations, a linear magnetic "high" is indicated on the north map sheet located 600 feet west of the 50 + 00 baseline and extending from line 12 south to line 8 north.

AEROMAGNETIC SURVEY:

The airborne magnetometer survey was flown on March 23, 1973, utilizing an Elsec proton magnetometer (Type 59210) manufactured by the Littlemore Scientific Engineering Co., Railway Lane, Littlemore, Oxford, England. The instrument reads total intensity of the earth's magnetic field. The magnetic sensing head, installed in a towed bird, was suspended by 30 feet of cable beneath the helicopter.

A Bell G-381 helicopter, on charter from Transwest Helicopter Ltd., Burnaby, B.C., was used to fly the survey. Twenty-four lines were flown at 1000 foot line spacing bearing approximately south 80° east.

Flight navigation and flight line control were based on a photomozaic at a scale of I inch equals 1000 feet. The mozaic was prepared by Lockwood Survey Corporation, Vancouver, B.C. Nominal terrain clearance was 400 feet.

The magnetic data, measured along the flight lines was recorded on a Texas Instruments Inc., chart recorder using a full scale sensitivity of 1400 gammas. Correlation between flight line control points and the data recorded on the chart was maintained by a chart marker pen operated manually by the operator/navigator. Twenty-four lines were flown for a total of seventy-three miles.

Presentation of Results:

Results of the aeromagnetic survey are shown as magnetic contours on Drawing No. 5, a plan map developed from the photomozaic used as a base

for navigating and survey flight line control. The contour interval is 100 gammas with readings above a reference or datum of 58,000 gammas total field.

The plan map, at a scale of I inch equals 1000 feet also shows flight lines, numbered control points, some topographic features and an outline of the claims boundary.

Discussion of Results:

The results of the aeromagnetic survey show a magnetic variation ranging from 100 gammas on the eastern edge of the survey area to two magnetic highs greater than 1500 gammas in the southwestern survey area.

The north half of the survey area has a relatively low background of 300 to 400 gammas with two small magnetic highs exceeding 800 gammas.

The high magnetic anomalies on the south suggest a higher concentration of magnetic minerals in the rock units in this area.

V.L.F. ELECTROMAGNETIC SURVEY:

The electromagnetic survey was carried out utilizing a VLF-EM receiver manufactured by Sabre Electronic Instruments Ltd., 4245 East Hastings Street, Burnaby, B.C.

The operation and theory is fully described in the literature. Only a brief outline of the method will be discussed here.

The VLF-EM method employs very low frequency radio signals in the 20 kilohertz range as a primary field source. The field from these VLF stations is normally horizontal. This normally horizontal electromagnetic field can be locally distorted by many factors, one of which is

the presence of an electrically conductive zone in the earth. The distortion by a conductive zone will cause the field to tilt off the horizontal. This tilt of the field can be observed by measuring the tilt angle of null (minimum signal) in a vertical plane, tangential to the wave front of the primary field.

For this survey, the tilt angle of null was measured and recorded at each 100 foot station. The primary field was produced by the V.L.F. station located near Seattle, Washington, transmitting at a frequency of 18.6 kilohertz.

The survey was carried out on seventeen lines for a total of seventeen miles.

Field Procedure:

- (i) Turn instrument on, adjust gain for a suitable signal.
- (2) With the V.L.F. receiver held horizontally (receiver coil axis horizontal), rotate the instrument in a horizontal plane until a null is observed. In this null position, the coil axis points in the direction of the transmitter. The vertical plane perpendicular to the coil axis direction is now known. This vertical plane is tangential to the wave front of the primary field. The operator is now facing the transmitter.
- (3) The receiver is now held upright in this vertical plane (receiver coil axis vertical) and rotated until a signal null or minimum is observed. While the receiver is held in this null position, the dip angle of the null is read on the receiver inclinometer and recorded in degrees. A positive or negative sign is given each reading using the following convention.

Top of coil axis tilted to right of operator - sign positive.

Top of coil axis tilted to left of operator - sign negative.

At each station, the operator records dip angle of null in degrees, the grid line and station coordinates.

Presentation of Results:

The results of the survey are plotted on a plan map at a scale of linch equals 400 feet (Drawing No. 6). The measured dip angle of null is plotted at each 100 foot station and these readings are profiled using vertical scale of linch equals 20 degrees.

In addition to the profiles of the dip angle of null, a contour map of the filtered dip angle readings is shown on Drawing No. 7.

The filtering technique was developed by D.C. Fraser and published in Geophysics, Vol. 34, No. 6 (December 1969) pp. 958 - 967. The following functions are performed by the filtering procedure.

- The spatial frequencies are phase shifted by 90 degrees.
 (Anomalous cross overs and inflections as indicated on the profile plots are transformed into positive values).
- 2. High frequency noise is removed.
- The D.C. component is removed.(This component is caused in part by topography).

Since the anomalous cross overs and inflections are converted into positive peaks, only the positive filtered values are plotted and contoured. These positive contoured areas clearly define the conductive zones within the surveyed area.

Discussion of Results:

The relatively high frequencies used (18 kHz - 20 kHz) and the nature of the radiated signal produces a primary ground current distributed across large areas of the earth. The magnitude of this ground current is

altered by changes in the conductivity of the earth, producing measurable changes in the vertical component of the electromagnetic field. The direction of the current flow, in line between the survey area and transmitter, appears to emphasize conductive zones oriented generally in line with this flow.

Because of the high frequencies of the signal, minor structural features and geological changes may produce moderate to strong conductor patterns which may or may not be associated with mineralization.

CONCLUSIONS:

Copper mineralization of appreciable extent is found only in the gray-green agglomerate and in sheared zones in feldspathic coarse tuff.

The magnetic anomaly near 44E from 12S to 8N may outline a body of gray-green agglomerate. This should be tested by diamond drill holes at the following places.

- 1. 0 + 00N + 46 + 00E drill west on the grid line -45° 350 feet if gray-green agglomerate not intersected, then drill.
- 2A. 0 + 00N 42 + 50E drill east on the grid line -45° 350 feet if gray-green agglomerate intersected in 1, then drill.
- 2B. $4 + 00S 45 + 50E west on grid line -45<math>^{\circ}$ 350 feet.

Magnetic anomalies in the southern part of the property west of the power line are probably caused by magnetite disseminated in the andesite. No further work is recommended on these anomalies.

Respectfully submitted,

Wil Nelson, P. Eng.

Ø.T. Walker Geophysicist

June 15, 1973

Statement of Qualifications

- 1, James T. Walker of the City of Vancouver, Province of British Columbia do certify that:
- I have been an employee of Noranda Exploration Company, Limited since May 1958.
- I have held the position of Geophysicist for Noranda Exploration Company, Limited, British Columbia since June 1965.
- I am a member of the Canadian Institute of Mining and Metallurgy.

Dated at Vancouver this 15th day of June 1973.

ames T. Walker

Geophysicist

Noranda Exploration Company, Limited (No Personal Liability)

James J. Walker

DOMINION OF CANADA:

PROVINCE OF BRITISH COLUMBIA.

To Wit:

In the Matter of a statement of exploration expense on 194 mineral claims in the Nicola Mining Division having record numbers 44372-79, 47615-46, 47674-80, 49783-814, 49819-22, 49831-76, 50079-88, 50514-17, 50527-38, 50948-59

W.W. Young (F.M.C. 109 085, Issued April 28, 1972) agent for Adonis Mines Ltd. (N.P.L.) (F.M.C. 112 938, Issued May 10, 1972)

both of 1050 Davie Street Vancouver 5, B.C.

in the Province of British Columbia, do solemnly declare that the cost of a combined Geological and Geophysical Report from October 23, 1972 to May 24, 1973 was:

i. Contracts

A. Line cutting by Relcom Exploration Co. of Kamloops, B.C. 49.58 line miles @ \$63.00 Contractors field cots

\$3,123.54 515.00 3,638.54

B. Air photo mosaics and topographic map Lockwood Survey Corporation

1,074.77

C. Helicopter charter, re Alrborne Geophysics
Transwest Helicopters (1965) Ltd. - 4.5 hr. @ \$150

675.00

 Noranda Exploration Company, Limited personnel: Employees: B. Cormie, R. Crider, N. Davidson, D. Gee, C. Lee, W. Nelson C. Nichols, L. Reinertson, I. Saunders, D. Turner, C. Vardy, J.T. Walker.

Salary costs per man day of field crew including WCB, UIC,
Holiday Pay, Cdn. Pension, Etc.
Field costs per man day including all other costs related to job
Combined salary and field costs per man day.

\$\frac{11.50}{42.04}\$

Number of Man Days: Geology 78 Ground geophysics 56

Airborne Geophysics 6
Line preparation 89
229

A. Combined salary and field costs - 229 @ \$42.04

9,627.16

B. Salary costs of airborne data reduction personnel 12 days at \$58.30

699.60

3. Consulting W.I. Neison, P. Eng. - 2 days @ \$75

150.00

4. Field supervision, drafting and report preparation - 5 days @ \$25.00

125.00 \$15,990.07

And I make this solemn declaration conscientiously believing it to be true, and knowing that it is of the same force and effect as if made under oath and by virtue of the "Canada Evidence Act."

Declared before me at the

of

, in the

Province of British Columbia, this

NCOUVER, B. C.

day of

, A.D.

JUL 24 1973

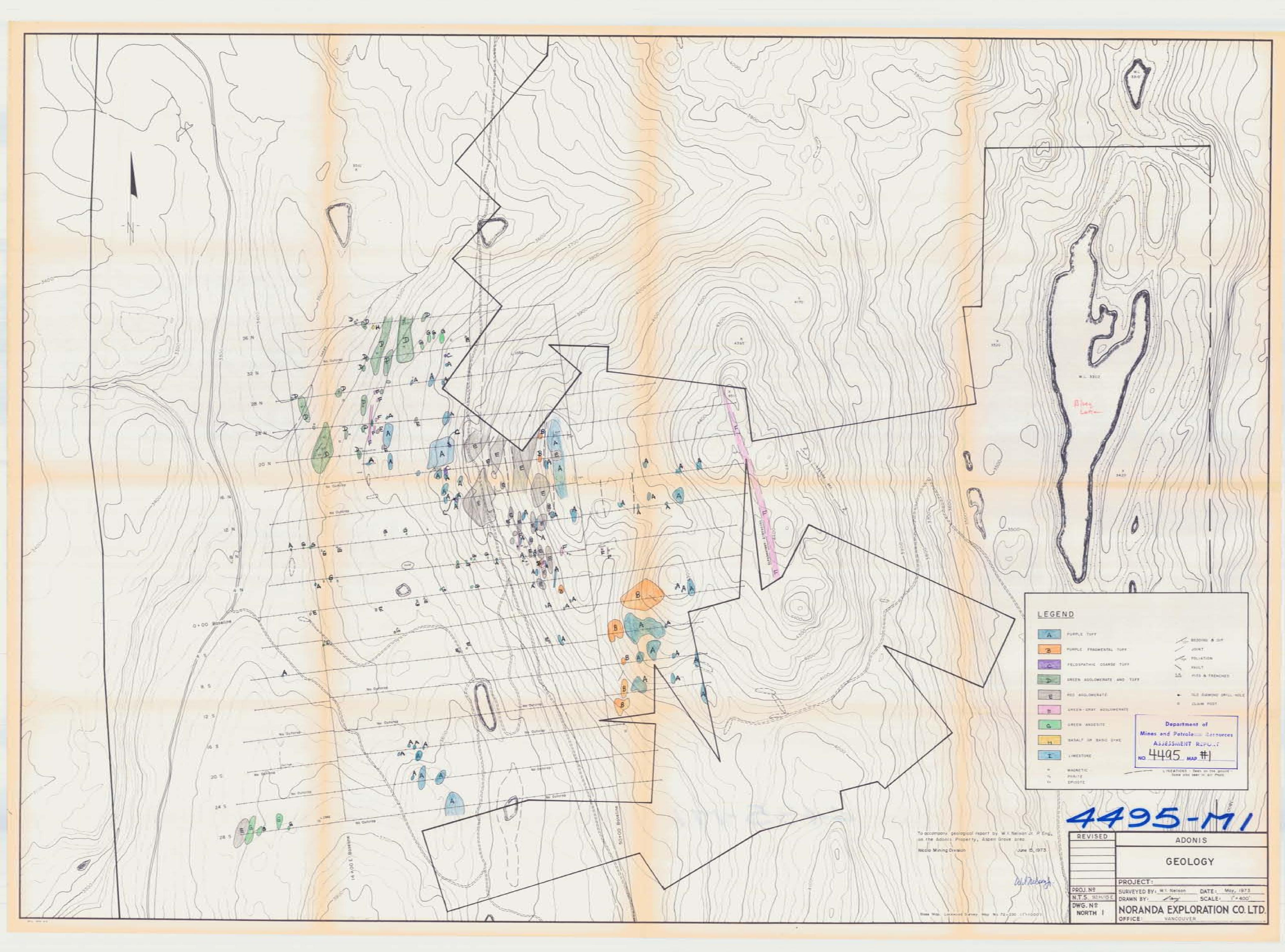
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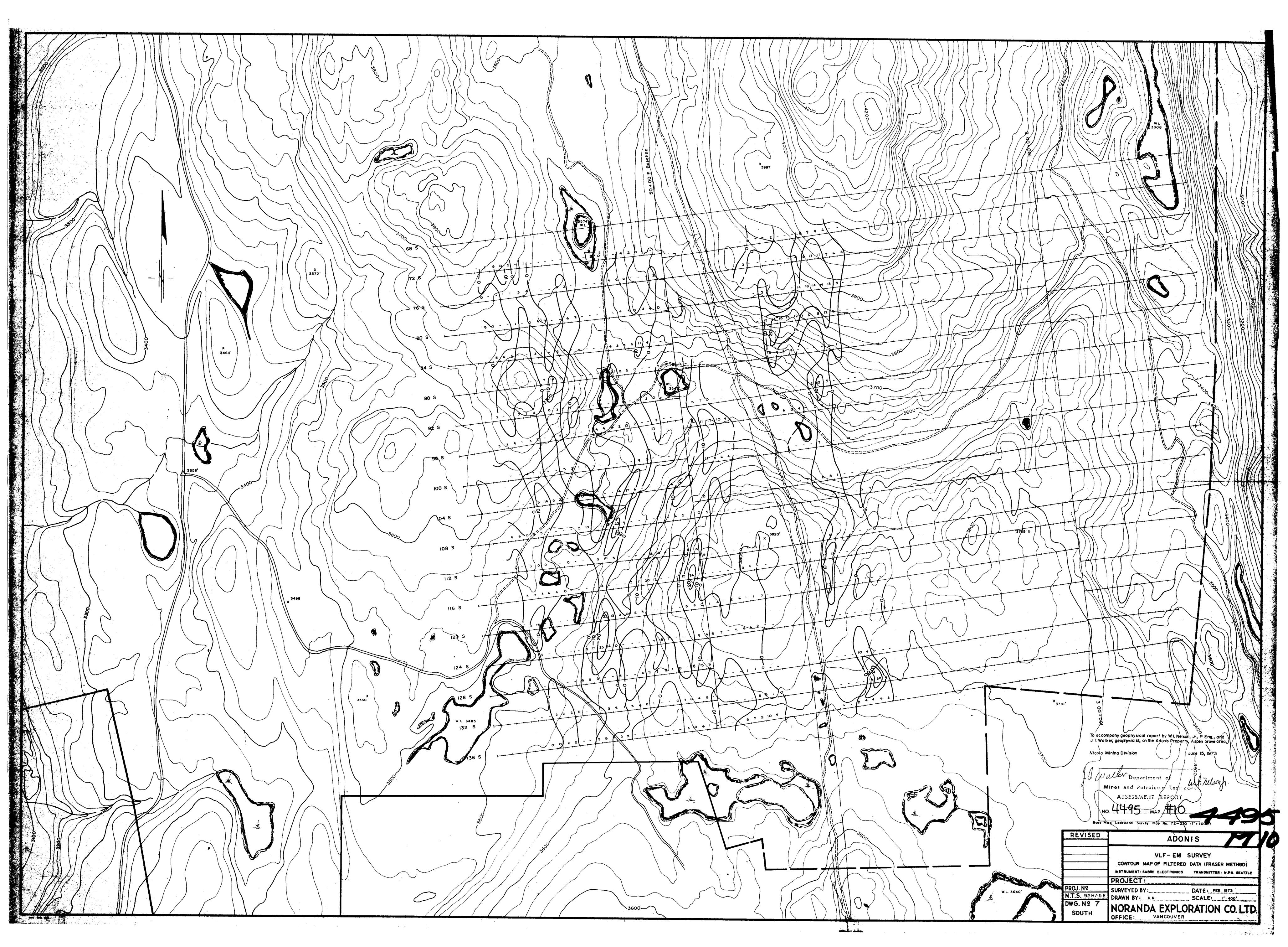
A Commissioner for taking Affidavits within British Columbia of
A Notary Public in and for the Province of British Columbia.

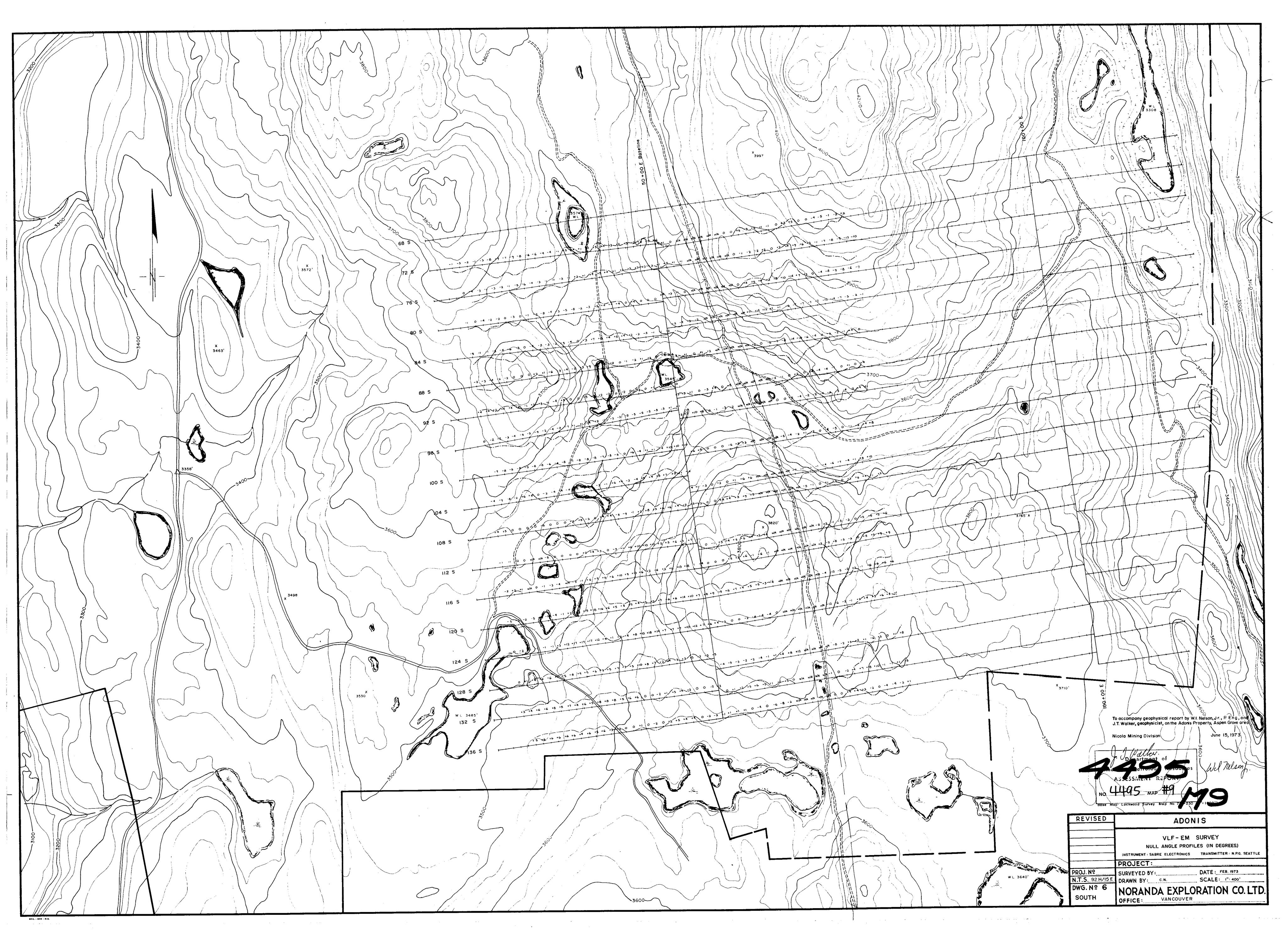
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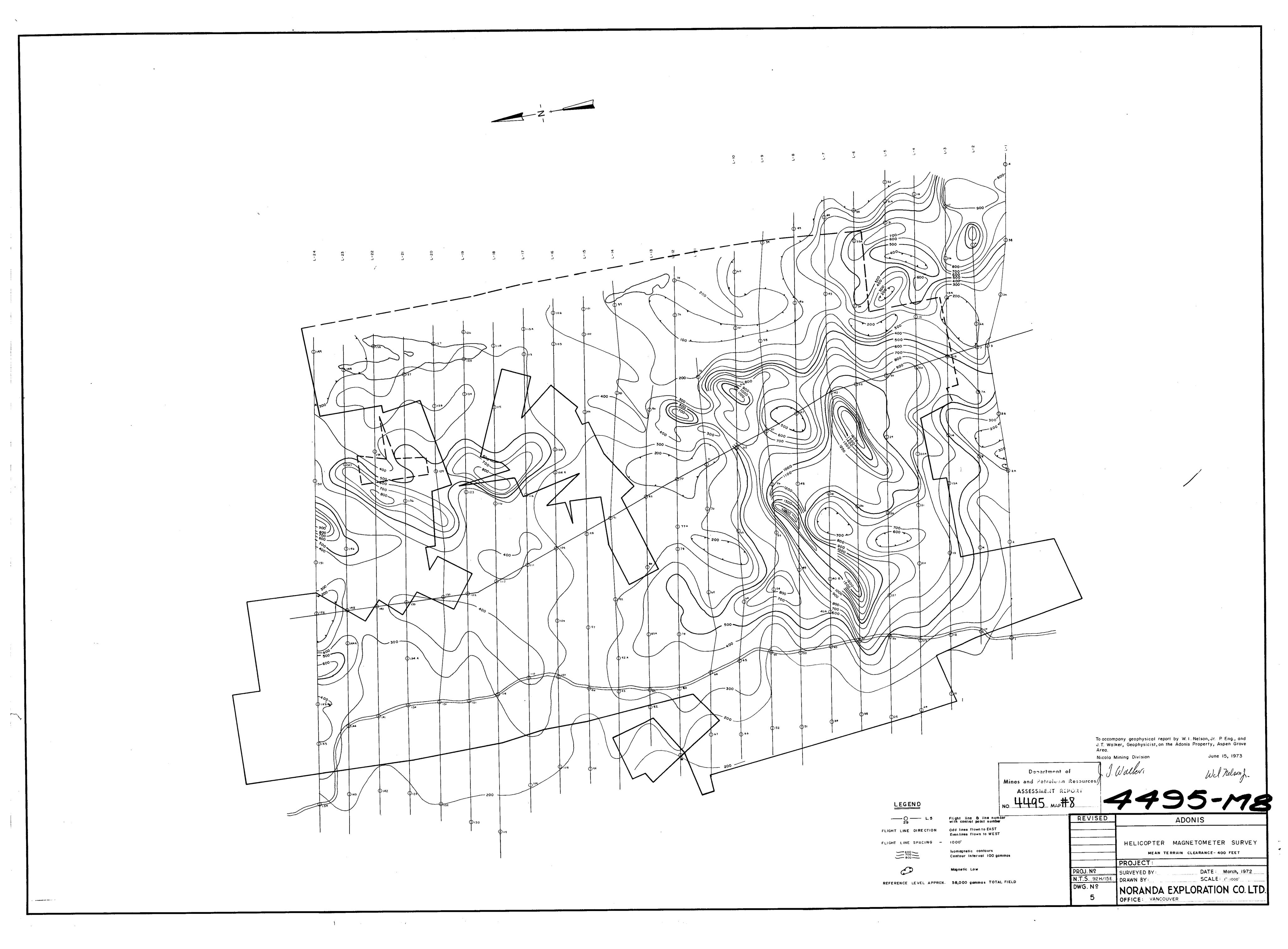
Statutory Declaration

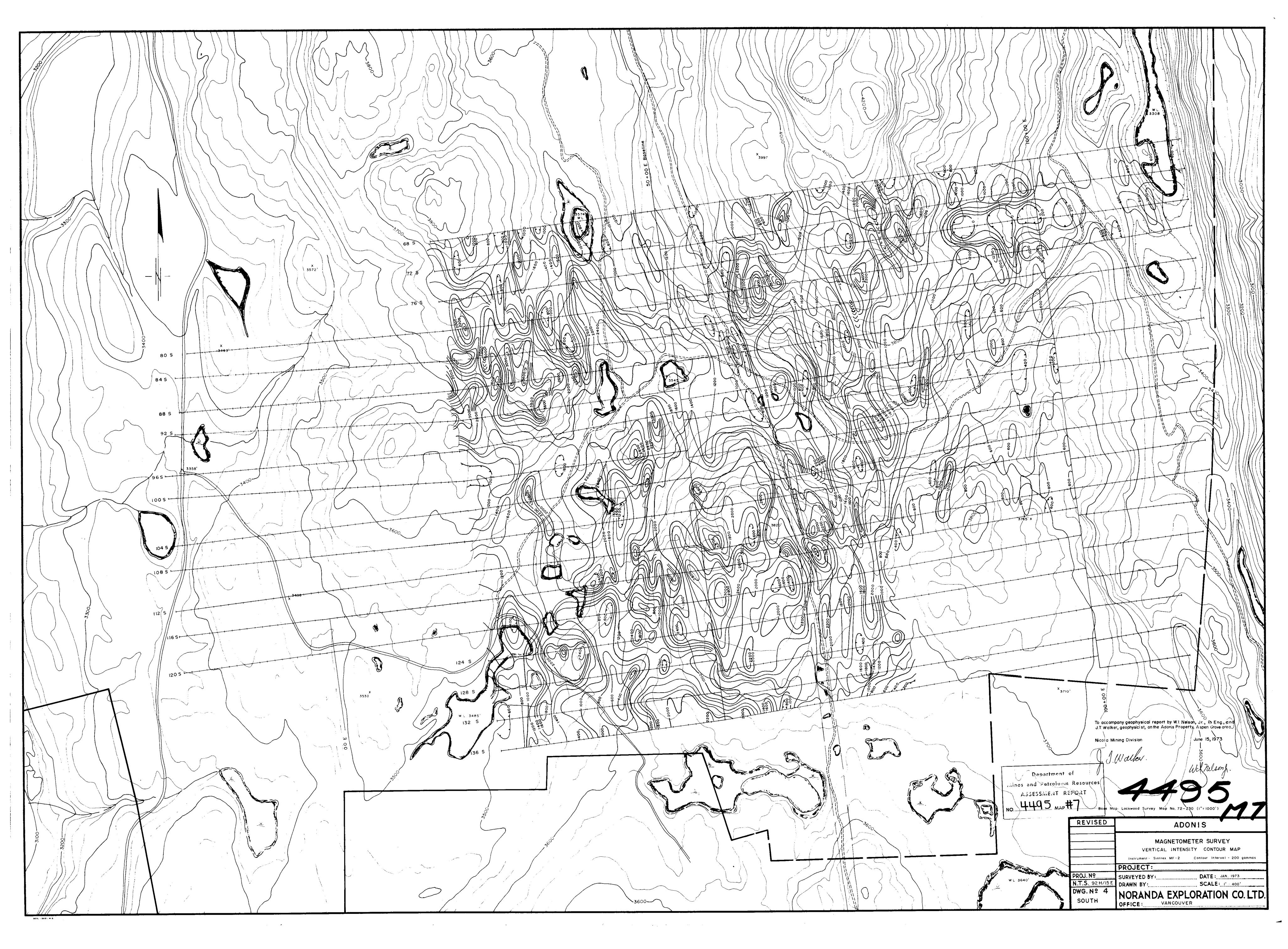
(CANADA EVIDENCE ACT)

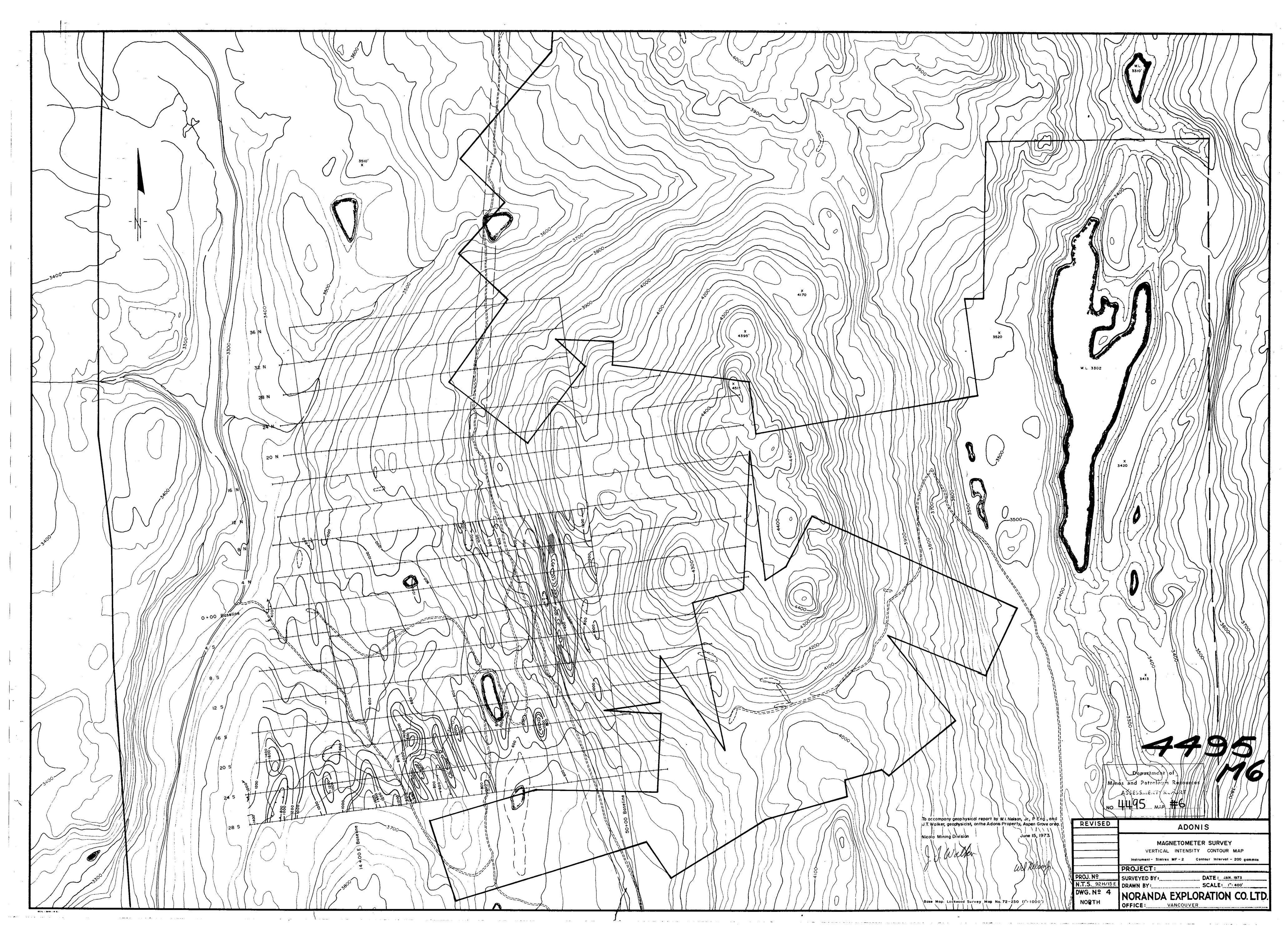


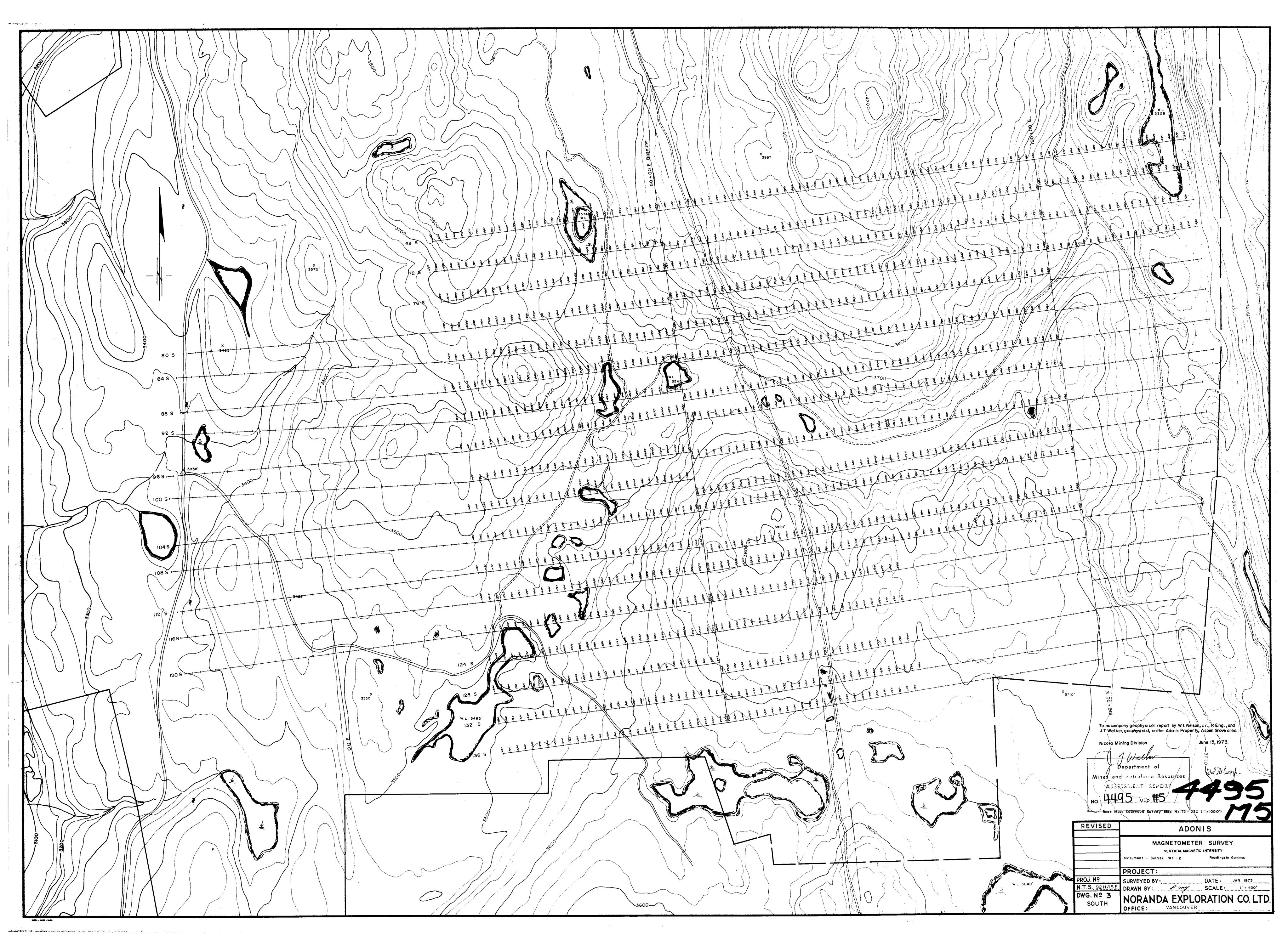


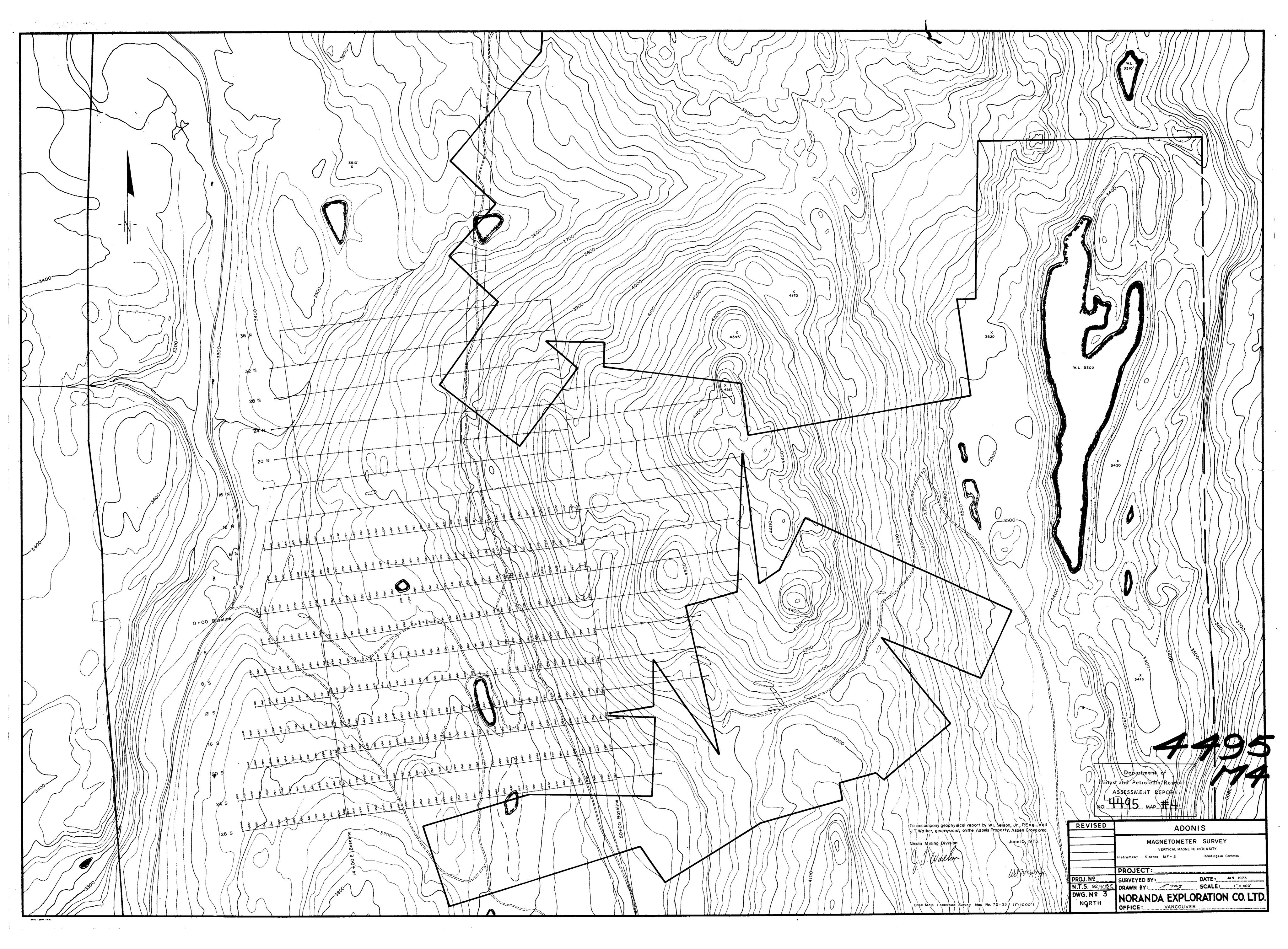




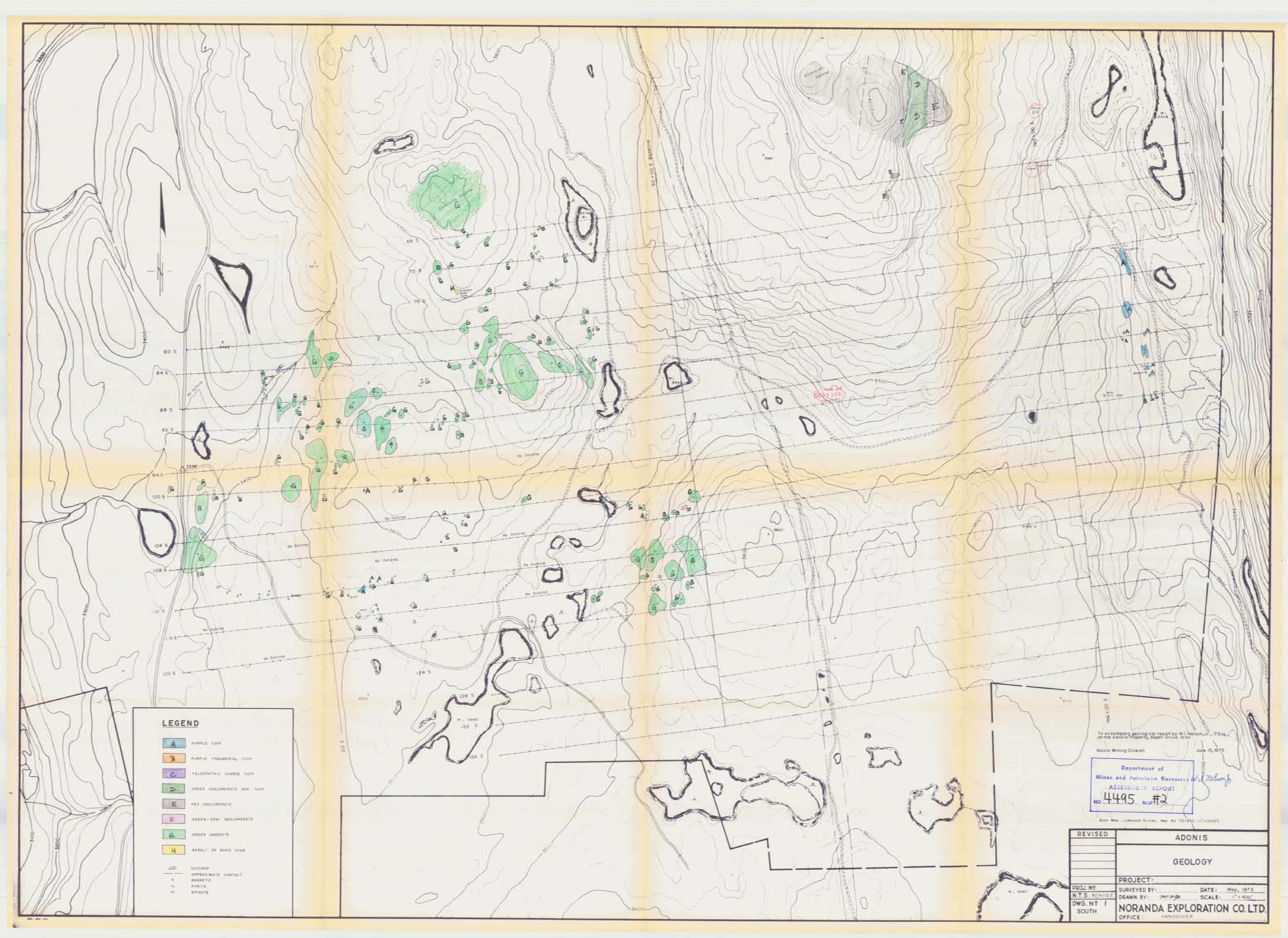
















Department of Mines and retroloum Resources ASSESSMENT REPORT

NO 4495 MAP #11

NORANDA EXPLORATION COLLO SOUTH W ASPEN GROVE B.C. SCALE 1 = 1000 EONTOUR 15 BEFERENCE 114/15E DATE OF PHOTOGRAPHY | 1 C GOVT ROLL 5487 (1972) NATURE TO S. C. LAPPROX.) THE PROPERTY AND THE PR THE SHARE CONSTRUCTION LAND 72-230

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