Assessment Report

of

Geochemical Survey

Group German-1

German Township, Porcupine Division, Ontario

April 28, 1981

Toronto, Ontario

D.R. Pyke, Ph.D.

D R Pyke.

Introduction

This report covers a geochemical survey carried out over four claims in southeast German Township, about 25 miles east-northeast of the city of Timmins. The claim group is referred to as German-1, the claim numbers and their corresponding locations are tabulated below.

Claim Numbers

P 550695	SE ¼, S. ½, Lot 1, Conc. I, German Twp.
P 550696	NE ¼, S. ½, Lot 1, Conc. I, German Twp.
P 550697	NW ¼, S. ½, Lot 1, Conc. I, German Twp.
P 550699	SW ¼, S. ½, Lot 1, Conc. I, German Twp.

The above claims were staked by D.R. Pyke and were recorded on March 26, 1980. Mr. Pyke, of 157 Burbank Drive, Willowdale, Ontario is the current holder of the claim group.

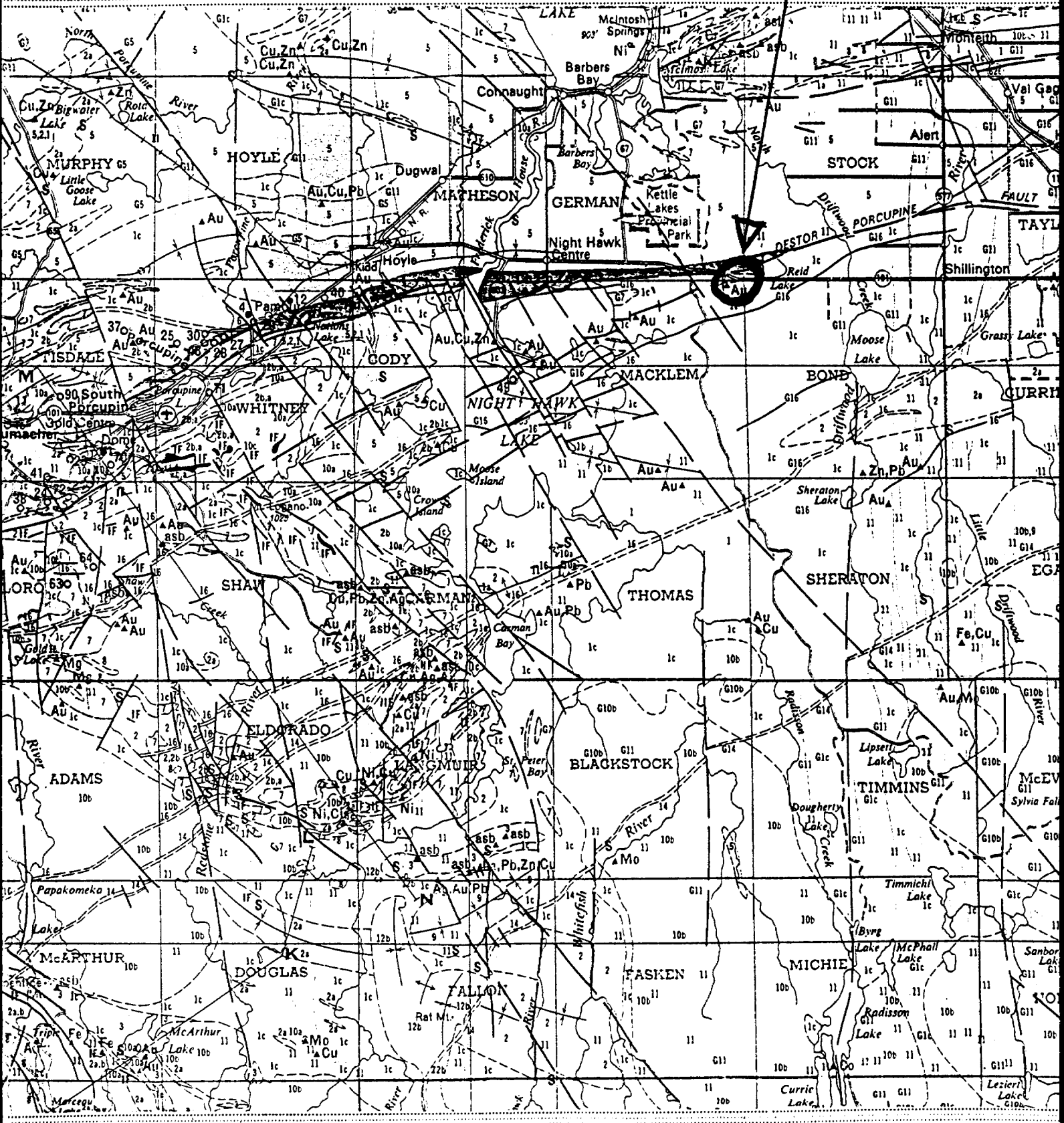
Access

Access to the claim group is excellent, as Highway 101 traverses its southern margin.

Previous Work

German Township was first geologically mapped by Laird (1931) as part of an investigation of the German-Currie area. Subsequently, a compilation map was produced by Satterly (1959). Leahy (1971) mapped the Night Hawk Lake area, which includes the area immediately south of German Township.

LOCATION OF GERMAN-1 CLAIM GROUP



In 1964, Hollinger Consolidated Gold Mines Limited completed two diamond drill holes in the southwest quarter of the claim group, for a total of 937 feet (File T-786)*. Both holes intersected serpentinite and talc-chlorite schist. No assay values were reported. In 1974, Hollinger Mines put down another diamond drill hole, 1141 feet in length, in the northwest quarter of the claim group (File T-1627)*. The hole intersected conglomerate over its entirety; again, no assay values were reported.

Topography and Drainage

The property is characterized by low relief, the maximum variation in elevation being only about twenty feet. The southeast quarter of the property is largely covered by a ploughed field. The remaining area is wooded, predominantly with black spruce, white pine, cedar and second generation growths of alder and poplar trees.

Drainage on the property is fair, no swampy areas are found on the property during the summer months.

Glacial Geology

The glacial cover in the vicinity of the claim group is extensive. An esker complex traverses the western portion of the property and extends westerly through Kettle Lakes Provincial Park (Boissonau,1965). A succession of varved clays and silt, which form part of an extensive glacial lake clay belt, cover the eastern portion of the property.

---

* Ontario Division of Mines, Assessment Files, Timmins, Ont.

The depth of overburden on the claim group is known only from three drill holes located in the southwest quarter of the property (Files T-786, T-1627)*. The drilling indicates a progressive northward thinning in the overburden covering the property, from a thickness of about 200 feet near the centre of claim P550699 to less than 115 feet near the northern boundary of this claim.

Property Geology

There is no outcrop on the claim group, yet the Destor-Porcupine Fault is interpretted to extend through the southern portion of the property. Two diamond drill holes drilled by Hollinger Mines intersected the fault zone and encountered variably carbonatized and pyritized talc-chlorite serpentine schist (File T-786)*. Quartz veining is reported in some sections.

Well bedded, quartz rich, polymictic paraconglomerates occur north of the fault, as indicated by Hollinger drilling. Quartz, albitite and ankerite stringers and veins reportedly occur in the conglomerates, but are not abundant.

Present Survey

The survey completed by D.R. Pyke and Associates was carried out on August 10, 1980. The work was conducted by D.R. Pyke, N. Cozens (presently residing in Saskatoon, Saskatchewan), and K.M. Cunnison (presently residing in Aurora, Ontario).

---

* Ontario Division of Mines, Assessment Files, Timmins, Ont.

The survey entailed sampling of the humus (Ao) horizon. This horizon was variably developed over the property, ranging from total absence in newly cultivated areas and in areas populated by second generation alder growths to five inches thick in areas more densely populated by white pine, black spruce or cedar trees.

Sample location sites are plotted on Map A accompanying this report. Samples were collected at 100 foot intervals along nine north-south lines traversing the property. A total of 244 samples were obtained from the property. The samples were subsequently hang-dried and submitted to X-Ray Assay Laboratories for geochemical analysis. 198 samples were analyzed for gold (parts per billion) and arsenic (parts per million), the remaining 46 samples were found to lack sufficient humic content and were not analyzed.

Survey Results

The survey results are plotted on Maps B and C accompanying this report and are also displayed in Appendix A. The survey method is described in Appendix B.

Gold Content in Humus - Map B

The survey outlined five (5) areas of weakly anomalous gold concentration in the humus horizon:

Area 'A' - trending roughly north-south for a distance of 400 feet, lying between sample stations 4N and 11N on lines 8W and 10W.

Area 'B' - trending north-south for a distance of 200 feet, lying between stations 9N and 13N on line 14W.

Area 'C' - located at station 16N on line 14W.

Area 'D' - located at station 17N on line 25W.

Area 'E' - located at station 0N on line 25W.

Of the five anomalous areas, 'A' and 'B' appear to be more pronounced geographically. There is also a corresponding area of anomalous arsenic content in the humus (area 'b') associated with area 'A'.

Arsenic Content in Humus - Map C

The survey outlined five (5) areas of weakly anomalous arsenic concentration in the humus horizon:

Area 'a' - located at station 13N on line 0W.

Area 'b' - located at station 8N on line 10W.

Area 'c' - located at station 24N on line 21W.

Area 'd' - lying between stations 18N and 21N on line 25W.

Area 'e' - located at station 15N on line 25W.

The above anomalous areas appear to be very restricted geographically. Only area 'b' has a corresponding area of higher gold content in the humus.

Recommendations and Conclusions

Lack of continuity of the anomalous areas plus the relatively low gold and arsenic values found in these areas indicate that the geochemical anomalies detected are weak

and may not reflect a bedrock source for the gold and arsenic.

More detailed humus sampling followed by overburden drilling in the vicinity of anomalies 'A' and 'B' would best serve to further explore these anomalies.

References

Boissonau, A.N., 1965, Algoma-Cochrane surficial geology., Map S365, Ont. Dept. Lands and Forests. scale 1"to 8 miles.

Curtin, G.C., Lakin, H.W., Neuerberg, G.J., and Hubert, A.E., 1968, Utilization of humus rich forest soil (mull) in geochemical exploration for gold., U.S. Geol. Survey Circ. 562, 11p.

Gleeson, C.F., 1979, Consider geochemistry when seeking gold., The Northern Miner, Exploration issue, March 8, 1979, 4p.

Lakin, H.W., Curtin, G.C., Hubert, A.E., Shacklette, H.T. and Doxtader, K.G., 1974, Geochemistry of gold in the weathering cycle., U.S.G.S. Bull. 1330. 80p.

Laird, H.G., 1931, German-Currie Area, District of Cochrane; Ontario Dept. Mines, V. 40, pt. 3, p.1-22.

Leahy, E.J., 1971, Geology of the Night Hawk Lake Area, District of Cochrane; Ontario Dept. Mines and Northern Affairs, GR 96, 74 p.

Satterly, J., 1959, German Township; Ontario Dept. Mines, Preliminary Map P. 37, scale 1 inch to ¼ mile.

APPENDIX A

Humus Sample Analytical Results - Claim Group German - 1

SAMPLE	AU PPB	AS PPM
G-0W-0N	NH	NH
G-0W-1N	NH	NH
G-0W-2N	NH	NH
G-0W-3N	NH	NH
G-0W-4N	NH	NH
G-0W-5N	NH	NH
G-0W-6N	NH	NH
G-0W-7N	NH	NH
G-0W-8N	NH	NH
G-0W-9N	NH	NH
G-0W-10N	NH	NH
G-0W-11N	NH	NH
G-0W-12N	3	2

SAMPLE	AU PPB	AS PPM
G-0W-13N	1	20
G-0W-14N	4	5
G-0W-15N	3	3
G-0W-16N	5	5
G-0W-17N	4	<1
G-0W-18N	3	3
G-0W-19N	NH	NH
G-0W-20N	1	3
G-0W-21N	1	2
G-0W-22N	3	2
G-0W-23N	2	3
G-0W-24N	2	5
G-0W-25N	5	4
G-0W-26N	4	3
G-3W-0N	NH	NH
G-3W-1N	NH	NH
G-3W-2N	NH	NH
G-3W-3N	NH	NH
G-3W-4N	NH	NH
G-3W-5N	NH	NH
G-3W-6N	NH	NH
G-3W-7N	NH	NH
G-3W-8N	NH	NH
G-3W-9N	NH	NH
G-3W-10N	NH	NH
G-3W-11N	NH	NH
G-3W-12N	NH	NH
G-3W-13N	NH	NH
G-3W-14N	<1	6
G-3W-15N	3	4
G-3W-16N	NH	NH
G-3W-17N	NH	NH
G-3W-18N	NH	NH
G-3W-19N	NH	NH
G-3W-20N	NH	NH
G-3W-21N	NH	NH
G-3W-22N	NH	NH
G-3W-23N	1	4
G-3W-24N	NH	NH
G-3W-25N	3	5
G-3W-26N	<1	5
G-6W-0N	NH	NH
G-6W-1N	NH	NH
G-6W-2N	NH	NH
G-6W-3N	NH	NH
G-6W-4N	1	3
G-6W-5N	1	7
G-6W-6N	2	6
G-6W-7N	6	5
G-6W-8N	3	4
G-6W-9N	1	4
G-6W-10N	NH	NH
G-6W-11N	<1	4
G-6W-12N	2	5
G-6W-13N	3	6
G-6W-14N	1	5

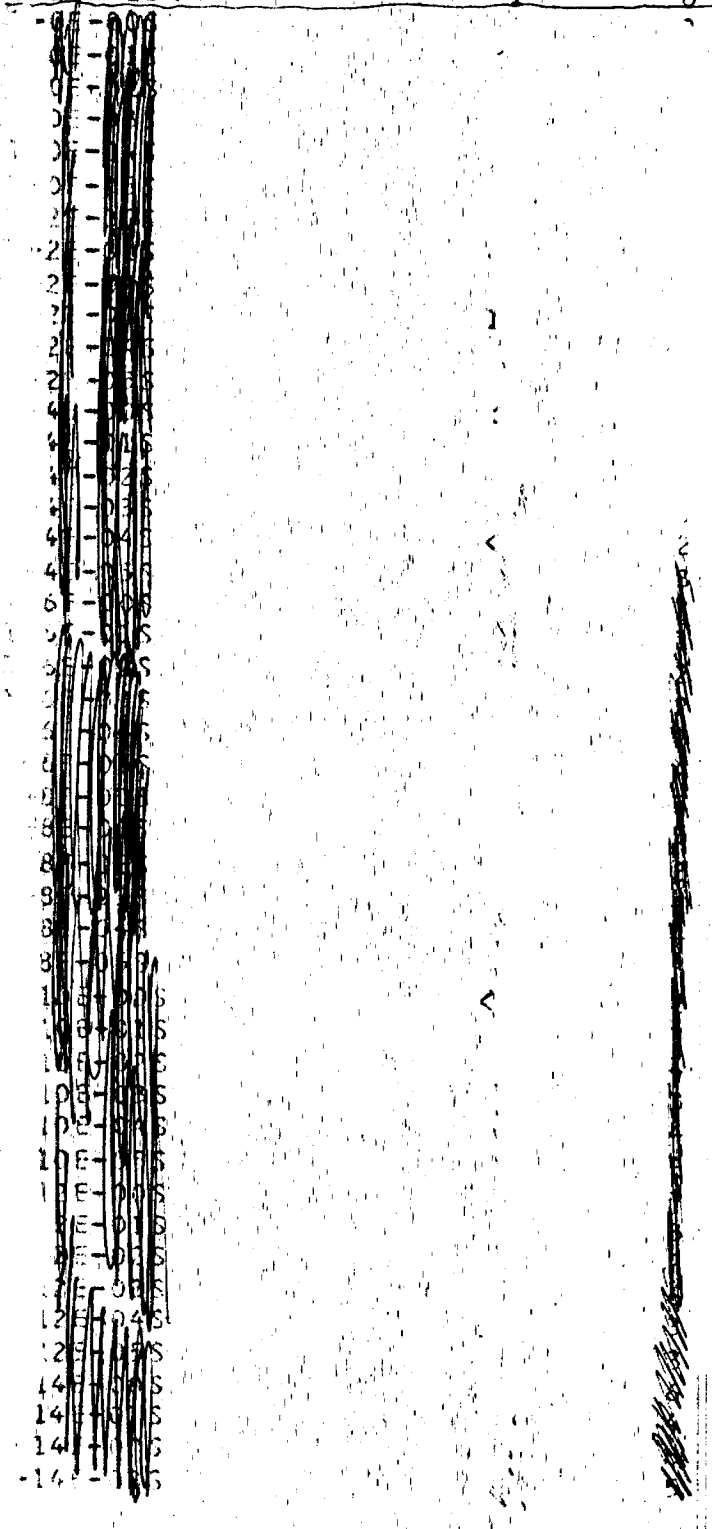
SAMPLE	AU PPB	AS PPM
G-6W-15N	1	4
G-6W-16N	NH	NH
G-6W-17N	NH	NH
G-6W-18N	NH	NH
G-6W-19N	1	1
G-6W-20N	3	3
G-6W-21N	1	2
G-6W-22N	3	4
G-6W-23N	3	4
G-6W-24N	4	8
G-6W-25N	1	4
G-6W-26N	<1	2
G-8W-0N	4	1
G-8W-1N	NH	NH
G-8W-2N	3	6
G-8W-2AN	<1	5
G-8W-3N	4	5
G-8W-3AN	2	5
G-8W-4N	4	4
G-8W-5N	5	6
G-8W-6N	4	6
G-8W-7N	4	7
G-8W-8N	5	5
G-8W-9N	10	9
G-8W-10N	4	3
G-8W-10AN	8	7
G-8W-11N	3	4
G-8W-12N	2	2
G-8W-13N	3	2
G-8W-13AN	<1	3
G-8W-14N	3	5
G-8W-14AN	3	8
G-8W-15N	1	5
G-8W-16N	1	7
G-8W-17N	<1	2
G-8W-18N	<1	6
G-8W-19N	3	6
G-8W-20N	4	7
G-8W-21N	4	4
G-8W-22N	7	8
G-8W-23N	5	7
G-8W-24N	5	6
G-8W-25N	3	6
G-10W-0N	5	1
G-10W-1N	NH	NH
G-10W-2N	NH	NH
G-10W-3N	5	5
G-10W-4N	4	4
G-10W-5N	7	4
G-10W-6N	8	8
G-10W-7N	9	6
G-10W-8N	9	12
G-10W-9N	2	5
G-10W-10N	5	5
G-10W-11N	5	5
G-10W-12N	5	6

SAMPLE	AU PPB	AS PPM
G-10W-13N	9	7
G-10W-14N	5	7
G-10W-15N	4	6
G-10W-16N	2	6
G-10W-17N	4	4
G-10W-18N	1	5
G-10W-19N	2	5
G-10W-20N	3	4
G-10W-21N	3	5
G-10W-22N	5	6
G-10W-23N	2	5
G-10W-24N	5	4
G-10W-25N	4	6
G-10W-51N	4	5
G-10W-101N	3	5
G-14W-0N	<1	1
G-14W-2N	2	5
G-14W-3N	2	3
G-14W-31N	1	4
G-14W-4N	5	6
G-14W-5N	5	6
G-14W-6N	3	5
G-14W-7N	7	5
G-14W-8N	5	5
G-14W-9N	4	5
G-14W-10N	9	6
G-14W-11N	9	5
G-14W-12N	10	5
G-14W-13N	2	4
G-14W-14N	4	6
G-14W-15N	2	6
G-14W-16N	11	6
G-14W-17N	7	5
G-14W-18N	3	5
G-14W-19N	2	2
G-14W-20N	5	4
G-14W-21N	3	6
G-14W-22N	4	6
G-14W-23N	3	3
G-14W-24N	4	6
G-14W-25N	5	7
G-14W-26N	3	5
G-17W-0N	2	3
G-17W-1N	2	5
G-17W-2N	4	5
G-17W-3N	5	6
G-17W-4N	2	7
G-17W-6N	4	7
G-17W-7N	6	6
G-17W-8N	3	7
G-17W-9N	<1	5
G-17W-10N	2	3
G-17W-11N	5	3
G-17W-12N	4	5
G-17W-13N	<1	2
G-17W-14N	3	3

SAMPLE	AU PPB	AS PPM
G-17W-15N	4	4
G-17W-16N	3	4
G-17W-17N	3	5
G-17W-18N	3	5
G-17W-19N	5	5
G-17W-20N	3	6
G-17W-21N	5	6
G-17W-22N	4	5
G-17W-23N	5	5
G-17W-24N	<1	6
G-17W-25N	2	6
G-17W-36N	2	3

SAMPLE	AU PPB	AS PPM
G-21W-00N	4	5
G-21W-01N	4	5
G-21W-02N	2	4
G-21W-04N	3	4
G-21W-05N	5	6
G-21W-06N	4	7
G-21W-07N	3	4
G-21W-08N	6	7
G-21W-09N	<1	6
G-21W-10N	3	6
G-21W-11N	6	7
G-21W-12N	3	5
G-21W-13N	<1	5
G-21W-14N	5	2
G-21W-15N	7	6
G-21W-16N	4	9
G-21W-17N	3	3
G-21W-18N	1	6
G-21W-19N	3	8
G-21W-20N	2	5
G-21W-21N	3	5
G-21W-22N	3	7
G-21W-23N	<1	5
G-21W-24N	4	20
G-21W-25N	3	7
G-21W-26N	3	3
G-25W-00N	9	5
G-25W-01N	3	2
G-25W-02N	4	4
G-25W-03N	3	3
G-25W-04N	<1	3
G-25W-06N	2	5
G-25W-08N	2	3
G-25W-09N	4	6
G-25W-10N	3	1
G-25W-11N	7	6
G-25W-12N	<1	6
G-25W-13N	5	6
G-25W-14N	3	6
G-25W-15N	4	17
G-25W-16N	4	7

SAMPLE	AU PPB	AS PPM
G-25W-17N	9	6
G-25W-18N	5	5
G-25W-19N	2	13
G-25W-20N	4	11
G-25W-21N	5	4
G-25W-22N	6	5
G-25W-23N	4	9
G-25W-24N	4	6
G-25W-25N	2	9
G-25W-26N	1	6



APPENDIX B Survey Method

Procedure

During the survey, humus samples were obtained either by hand or by exposing deeper levels of the humus layer with a grub hoe.

After hang-drying, the samples were shipped to X-Ray Assay Laboratories, 1885 Leslie Street, Don Mills, Ontario, for analysis. 198 samples were analyzed by neutron activation method for gold and arsenic.

Sample preparation entailed thoroughily blending each sample in a blender to homogenize the material, followed by hydrolic compression of a portion of the sample to form a pellet weighing eight grams, which was used in the neutron activation process.

Humus as a sample medium

Gleeson (1979), Lakin et al (1974), Curtin et al (1968) and others have documented the successful use of humus (mull) as a sample medium for detection of auriferous bedrock zones in areas covered by 3 to 120 feet of glacial material. Gleeson (1979) has found that anomalies in the humus generally occur directly over the subcrop of the auriferous zones, and their dispersion patterns are little effected by glacial transport.

The humus layer sampled consists of the partly decomposed plant debree found under trees or shrubs, and usually occurs

as dark brown or black, humus-rich pads mixed with varying amounts of mineral matter.

A summary of the geochemical processes involved in the accumulation of gold in the humus horizon is presented by Lakin et al (1974):

> "....ample hydrogen cyanide is formed in the soil by hydrolysis of cyanogenic plants, animals and fungi to result in solution of gold in an oxygenated environment. The gold cyanide thus formed is absorbed by plants, but they do not use it as a nutrient. It is therefore found accumulating as a reject in the woody parts of a plant. The decomposition of plant debree results in the reduction of gold in the plant material and gold accumulation in the humus horizon of the soil."

Boyle and Dass (1967), through their work in the Cobalt area, have demonstrated that concentrations of such elements as arsenic, zinc, copper and lead also occur in the humus layers over known veins containing these elements.

Certificate

I, D.R. Pyke, submit this document to certify that the following statements are, to the best of my knowledge, true and correct.

1. That I supervised the geochemical survey conducted on the Group German-1 claims in German Township, conducted on August 10, 1980.

2. That I am the author of the corresponding assessment report entitled "Assessment Report of Geochemical Survey Group German-1, German Township, Porcupine Division, Ontario".

3. That I have received the following university degrees:

B.Sc.	University of Saskatchewan	1959
M.Sc.	University of Saskatchewan	1961
Ph.D	McGill University, Quebec	1967

4. That I have been working as a geologist in the general Timmins area for 13 years, and I am familiar with the geology of the area under consideration.

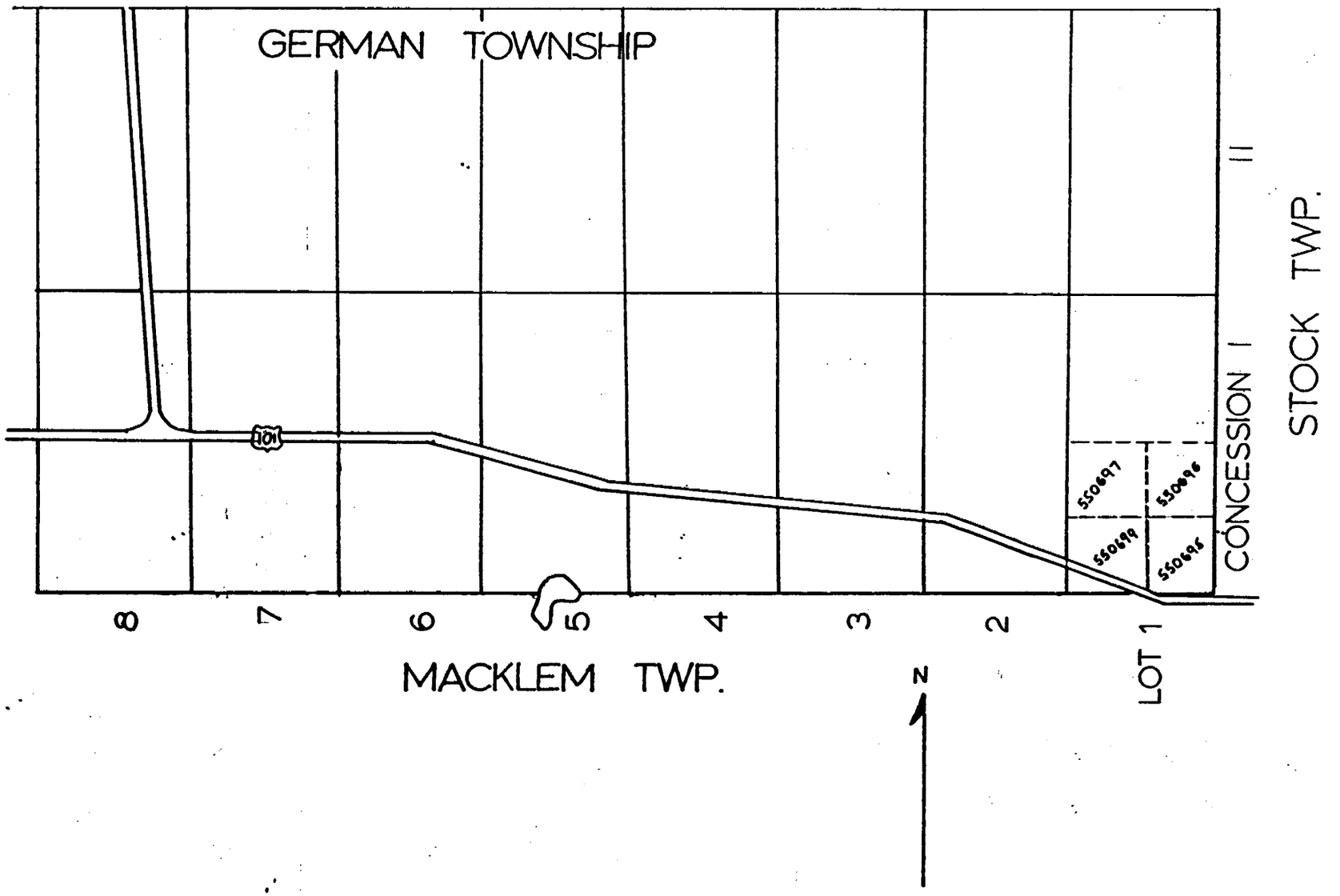
Respectfully,

D.R. Pyke

D.R. PYKE

LOCATION MAP
CLAIMS P550695-550697,
P550699

SOUTH 1/2 of LOT 1, CONC. 1
GERMAN TOWNSHIP



D Pyke APRIL, 19

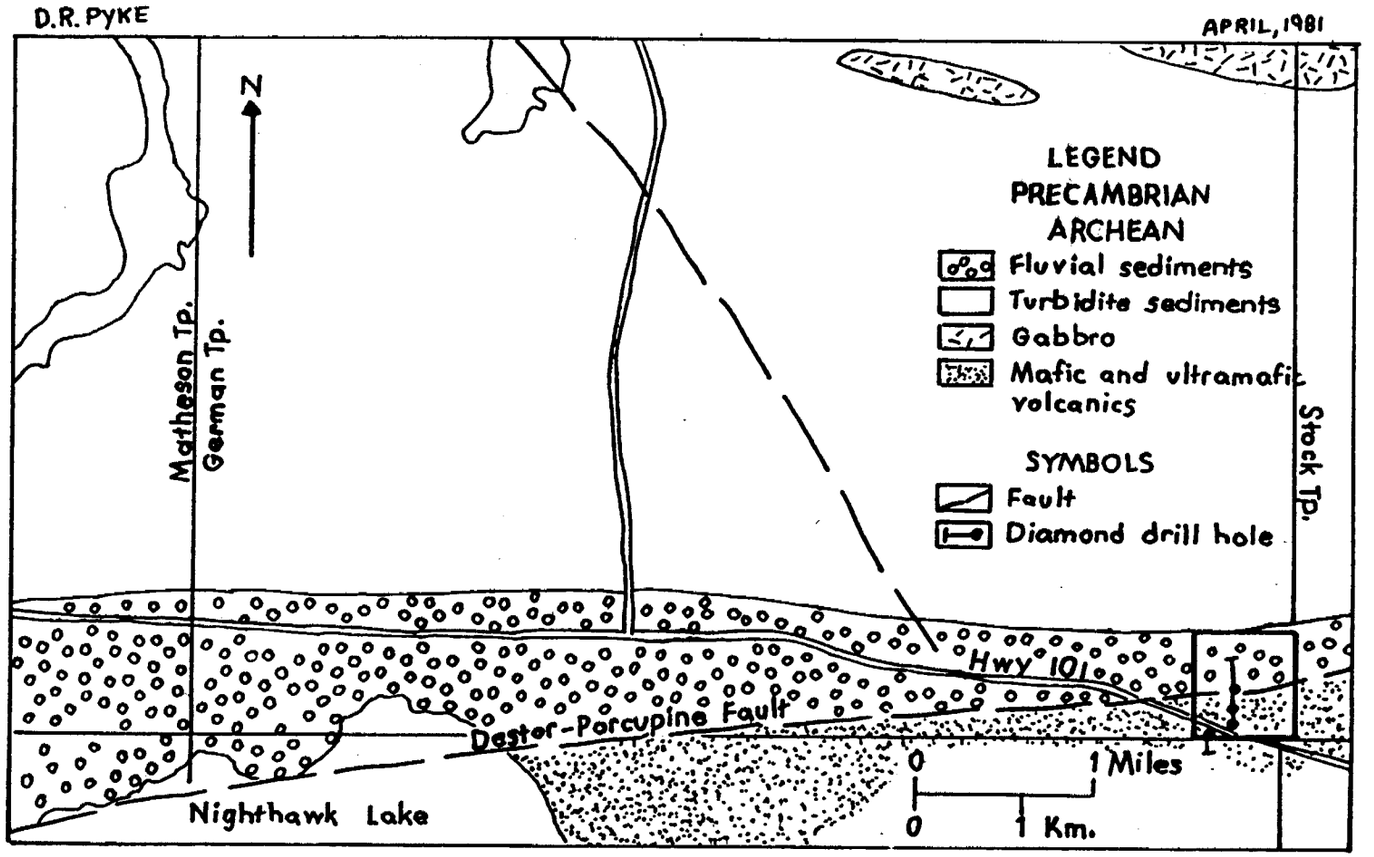


Figure. – Geology of the German Township claims.

South ½ of Lot 1, Concession 1

D. Pyke

Ontario

900

File _____

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) Geochemical (Humus sampling)

Township or Area German Township

Claim Holder(s) D.R. Pyke
157 Burbank Dr., Willowdale M2K 1N9

Survey Company --

Author of Report D.R. Pyke

Address of Author 157 Burbank Dr., Willowdale, M2K 1N9

Covering Dates of Survey August 10, 1980 , April 28, 1980
(linecutting to office)

Total Miles of Line Cut --

MINING CLAIMS TRAVERSED
List numerically

(prefix)	(number)
P	550695
P	550696
P	550697
P	550699

If space insufficient, attach list

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	
Geochemical	

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

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

DATE: May 15/81 SIGNATURE: D.R. Pyke
Author of Report or Agent

Res. Geol. _____ Qualifications _____

Previous Surveys

File No.	Type	Date	Claim Holder

E.D.

TOTAL CLAIMS 4

OFFICE USE ONLY

837 (5/79)

GEOPHYSICAL TECHNICAL DATA

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

Number of Stations _____ Number of Readings _____

Station interval _____ Line spacing _____

Profile scale _____

Contour interval _____

MAGNETIC

Instrument _____

Accuracy – Scale constant _____

Diurnal correction method _____

Base Station check-in interval (hours) _____

Base Station location and value _____

_____

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 _____

GEOCHEMICAL SURVEY – PROCEDURE RECORD

Numbers of claims from which samples taken P550695, P550696, P550697, P550699

Total Number of Samples 198

Type of Sample soil sample - humus
(Nature of Material)

Average Sample Weight 8 grams

Method of Collection sampled by hand/grub hoe

Soil Horizon Sampled humus - Ao

Horizon Development Variable, 0-6 inches

Sample Depth 2-5 inches

Terrain Essentially one of low releif. Southeast ¼ of property largely ploughed field, rest wooded. Fair - good.

Drainage Development

Estimated Range of Overburden Thickness
Poorly known. Probably quite variable, 50 - 200 feet (17 - 65 metres).

SAMPLE PREPARATION
(Includes drying, screening, crushing, ashing)

Mesh size of fraction used for analysis
Not applicable.

General Samples were blended in a blending machine for homogeneity of material. All samples were thoroughily dried before blending.

ANALYTICAL METHODS

Values expressed in: per cent ☐ p. p. m. ☒ p. p. b. ☐

Cu, Pb, Zn, Ni, Co, Ag, Mo, (As)-(circle)

Others Gold (Au) - expressed in p.p.b.

Field Analysis (_____ tests)

Extraction Method

Analytical Method

Reagents Used

Field Laboratory Analysis

No. (_____ tests)

Extraction Method

Analytical Method

Reagents Used

198 samples tested

Commercial Laboratory (for Au and As tests)

Name of Laboratory X-Ray Assay Laboratory

Extraction Method none

Analytical Method Neutron Activation

Reagents Used none

General 198 samples were tested, each for gold and arsenic. Samples analyzed at X-Ray Assay Laboratories, 1885 Leslie St., Don Mills, Ont. Blended sample material was hydrolically compressed to form a pellet weighing 8 grams.

SELF POTENTIAL

Instrument _____ Range _____

Survey Method _____

_____

Corrections made _____

_____

RADIOMETRIC

Instrument _____

Values measured _____

Energy windows (levels) _____

Height of instrument _____ Background Count _____

Size of detector _____

Overburden _____

(type, depth – include outcrop map)

OTHERS (SEISMIC, DRILL WELL LOGGING ETC.)

Type of survey _____

Instrument _____

Accuracy _____

Parameters measured _____

_____

Additional information (for understanding results) _____

_____

_____

AIRBORNE SURVEYS

Type of survey(s) _____

Instrument(s) _____

(specify for each type of survey)

Accuracy _____

(specify for each type of survey)

Aircraft used _____

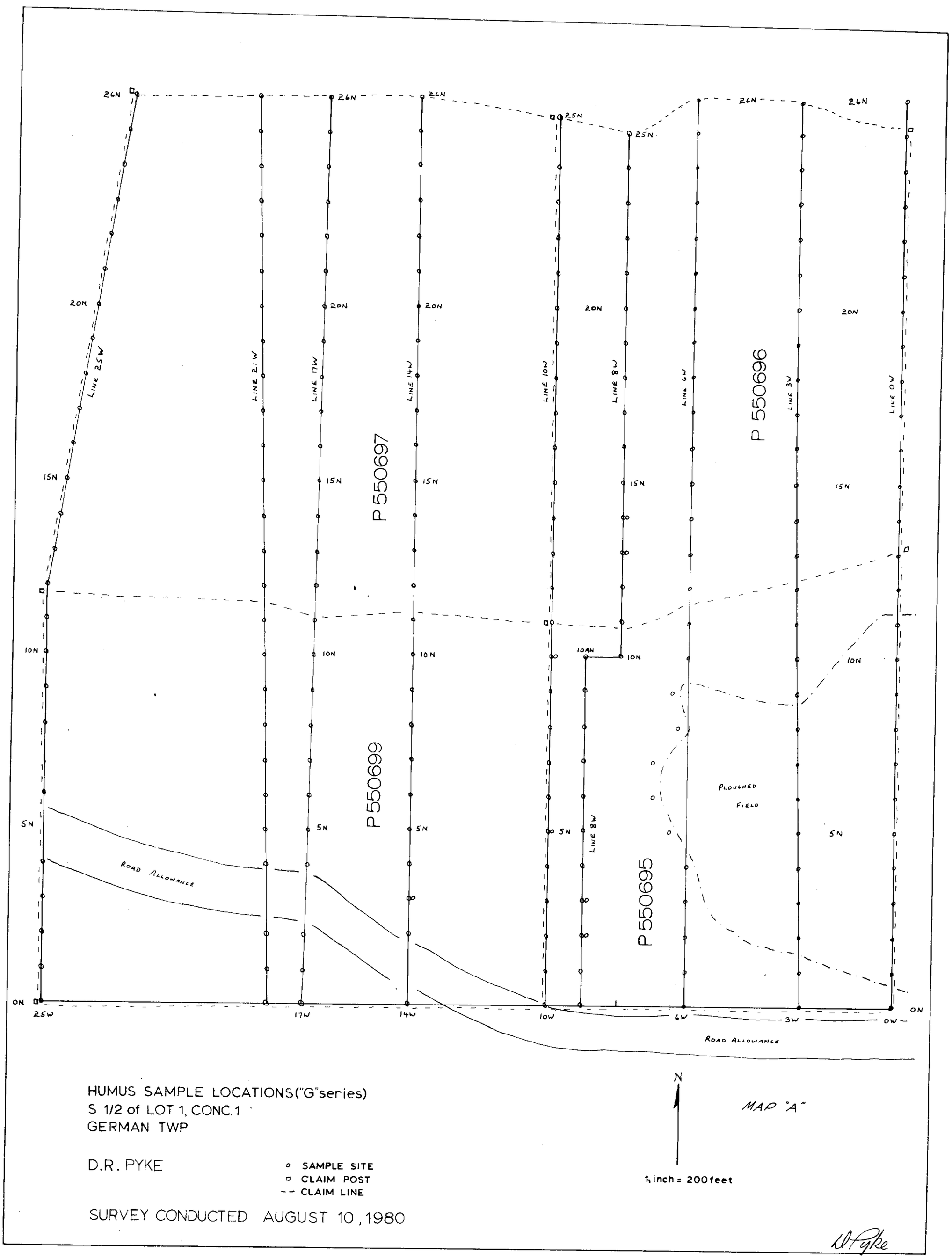
Sensor altitude _____

Navigation and flight path recovery method _____

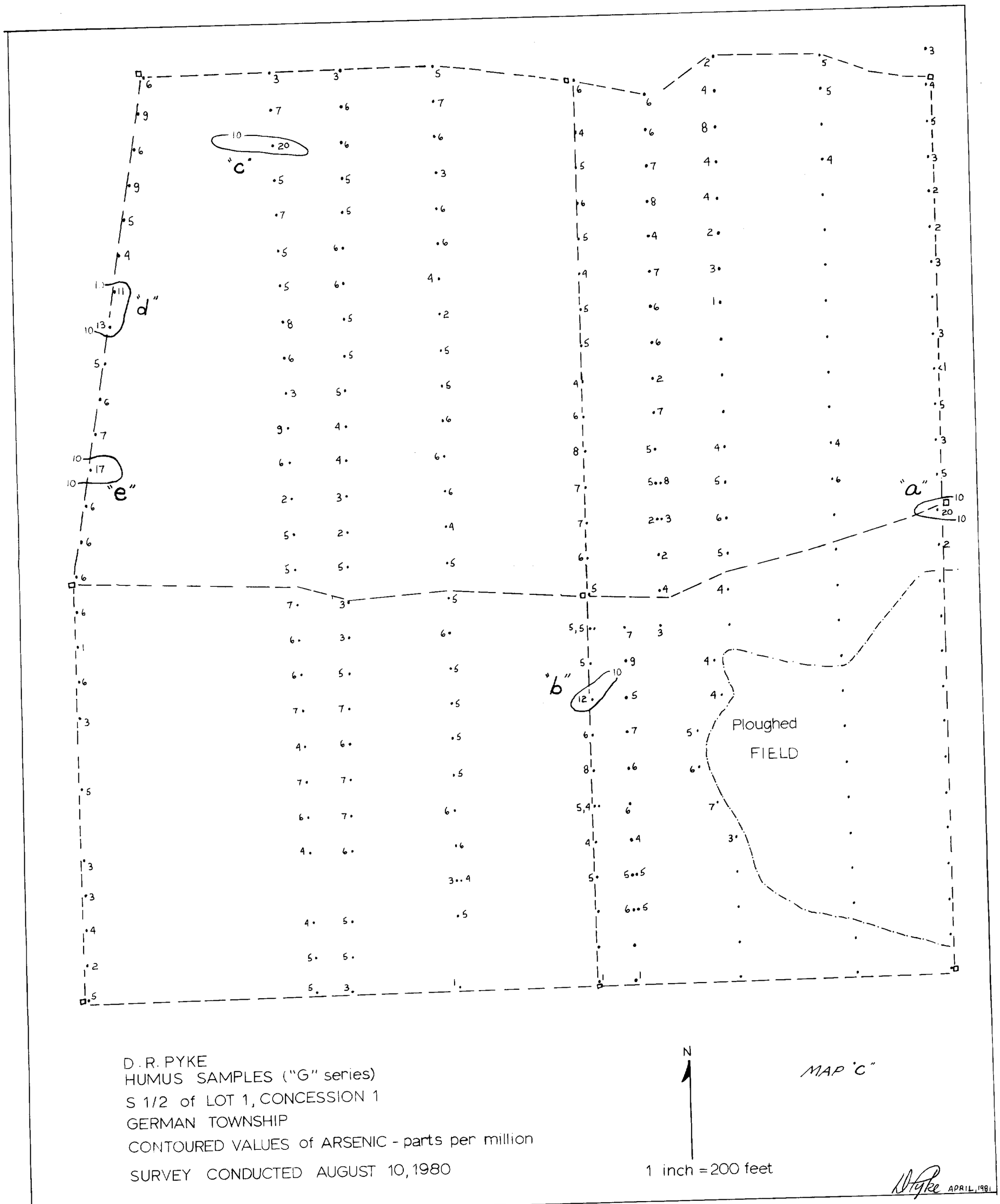
_____

Aircraft altitude _____ Line Spacing _____

Miles flown over total area _____ Over claims only _____



2.3899



D.R. PYKE
HUMUS SAMPLES ("G" series)
S 1/2 of LOT 1, CONCESSION 1
GERMAN TOWNSHIP
CONTOURED VALUES of ARSENIC - parts per million
SURVEY CONDUCTED AUGUST 10, 1980

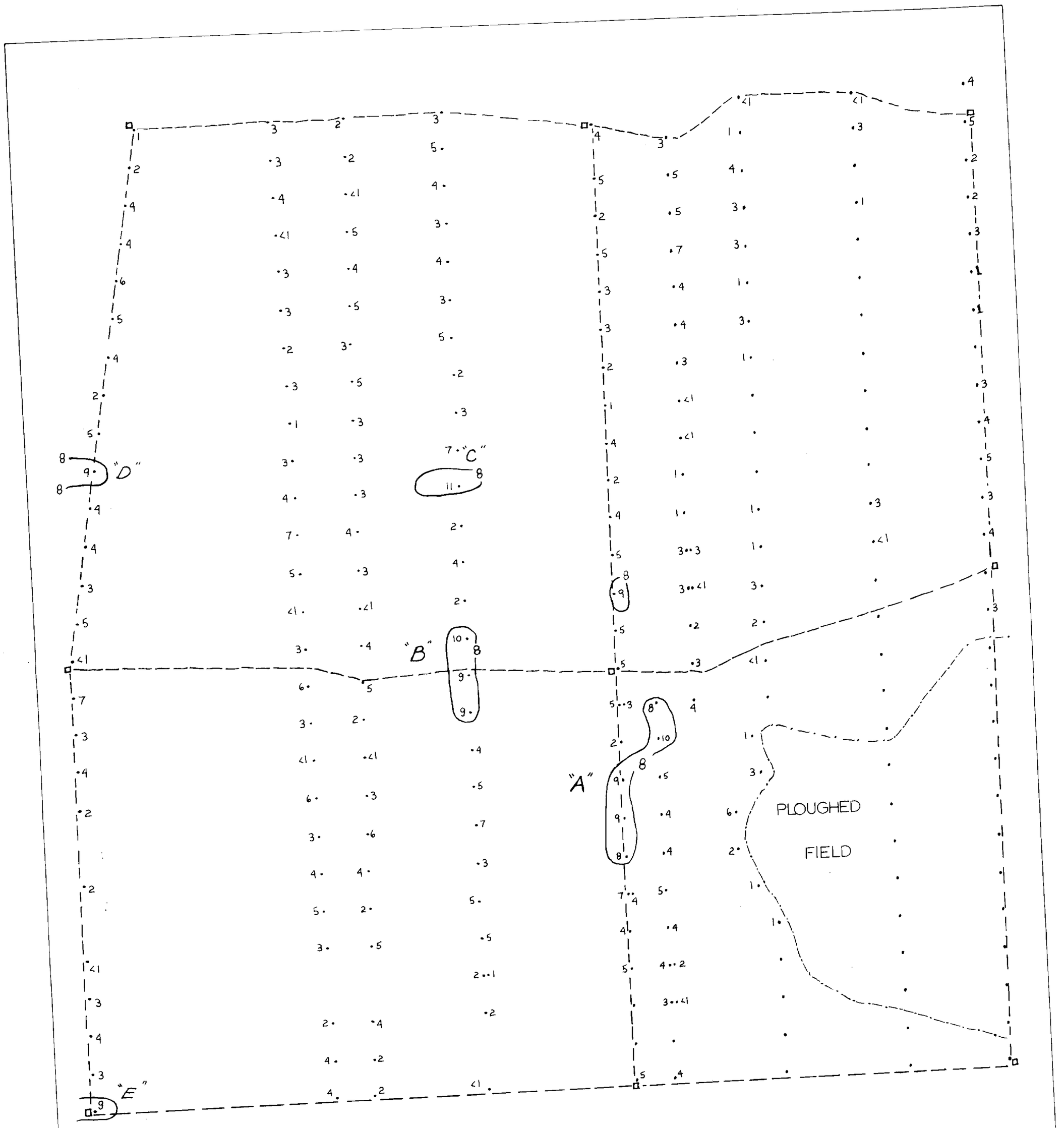
N

1 inch = 200 feet

MAP "C"

DRPyke APRIL, 1981

2.3899



D.R. PYKE
HUMUS SAMPLES ("G" series)
SOUTH HALF of LOT 1, CONCESSION 1
GERMAN TOWNSHIP
CONTOURED VALUES of GOLD - parts per billion

SURVEY CONDUCTED AUGUST 10, 1980

N

1 inch = 200 feet

MAP "B"

D Pyke APRIL, 1981

2.3899