



42A11SW0239 2.7155 TISDALE

010

GEOLOGICAL SURVEY

on the

TISDALE #1 GROUP

Tisdale Township

Hollinger Argus Limited

Timmins, Ontario
August 15, 1984

D. R. Alexander

RECEIVED
SEP 1 1984
MINERAL RESOURCES



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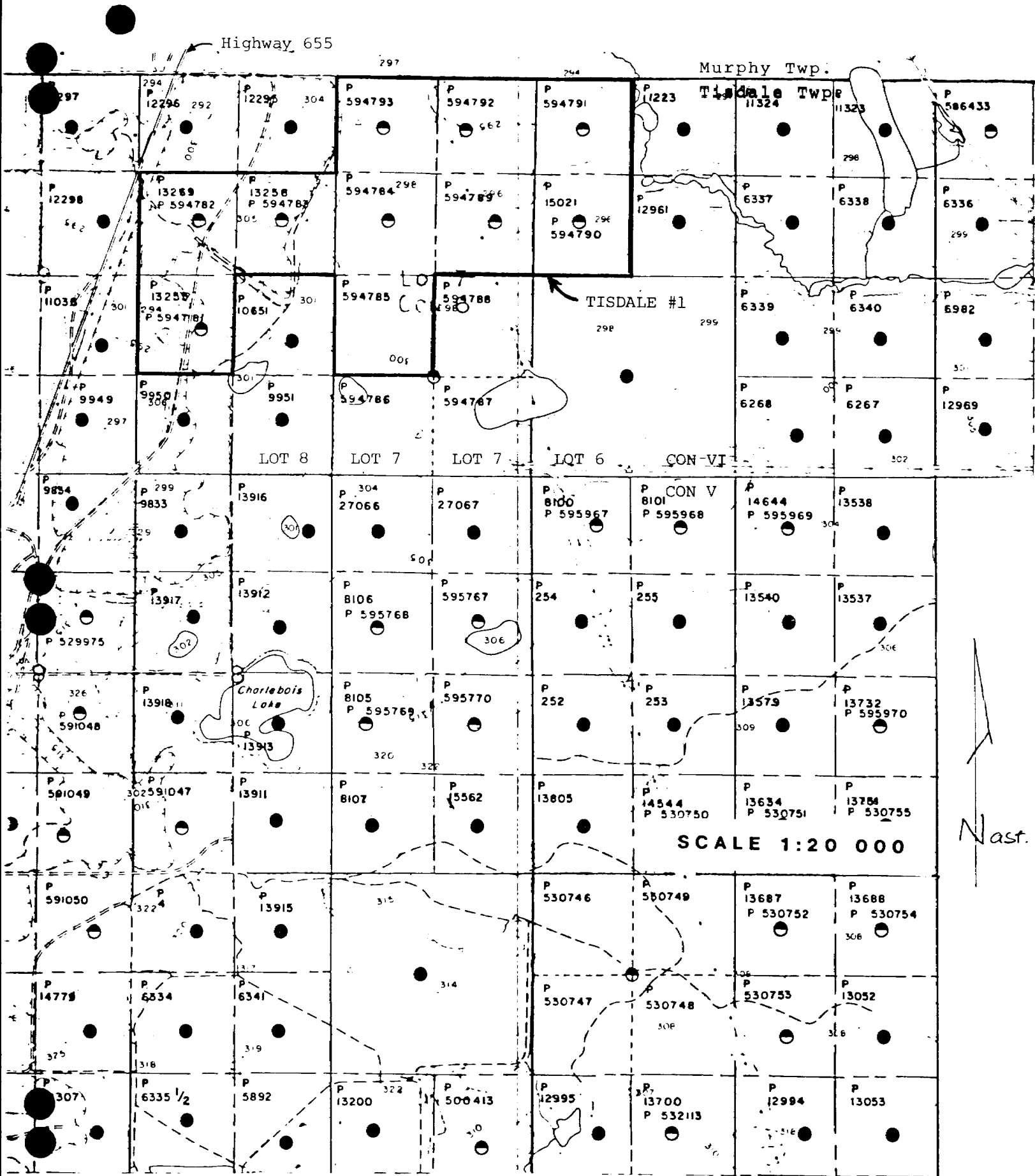
MAPS

Geological Survey - Tisdale Groups 1B and 2 Tisdale Township; Scale 1:2500	(in pocket)
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ACKNOWLEDGMENTS

The author would like to gratefully acknowledge the able assistance provided by Messrs. Larry Ferguson and Roy Shegelski of Esso Minerals Canada - Mr. Ferguson for the reconnaissance workup, and Dr. Shegelski for his aid in interpretation.

- ii -
CLAIM MAP



SCALE 1:20 000

Nest.

INTRODUCTION:

During the fall of 1981, and over the summer of 1982, a collection of Tisdale Township properties (groups 1 through 6) were mapped on a reconnaissance scale by Larry Ferguson of Esso Minerals Canada - Esso Minerals are joint venture partners with Hollinger Argus on the Tisdale properties. Subsequently, in the latter part of June and early July, 1984, the reconnaissance data on the Tisdale #1 Group were 'tightened up' with check mapping and topographic work by the author.

The ten claims covered by the geological survey (listed in the accompanying Technical Data Statement) occupy parts of lots 6, 7 and 8, Concession VI, Tisdale Township.

The claim group lies approximately five kilometers north of the City of Timmins proper, and is conveniently accessible via Highway 655 and a combination of gravel roads extending through the original Hollinger gravel claims.

Topographic variations across the property (excluding artificial workings within the gravel pits) are in the order of 15-20 meters, with expectations of bedrock depths from 0-30 meters (average 25-30m). The west part of the property is covered with sand and gravel deposits of the Tisdale esker complex, while the east part of the group (essentially east of the lot 7-8 line) is covered with clays and silts ± sands of glaciolacustrine origin.

The drier, and topographically higher, esker complex is characterized by jackpine vegetation with lesser stands of poplar and birch, while the east part of the property is largely a wet, spruce, spruce-alder swamp, occasionally mixed with fir, larch, poplar and birch vegetation.

PREVIOUS WORK:

Until recent years, most of the land in the north part of Tisdale Township has been patented, with little or no work having been recorded.

One particular group of consequence, in the south half of lot 7, Concession VI, was staked by Keevil in 1965, based on the results of an airborne survey. Follow-up ground magnetics and horizontal loop E.M. better defined an anomaly which had been previously drilled by Canico.

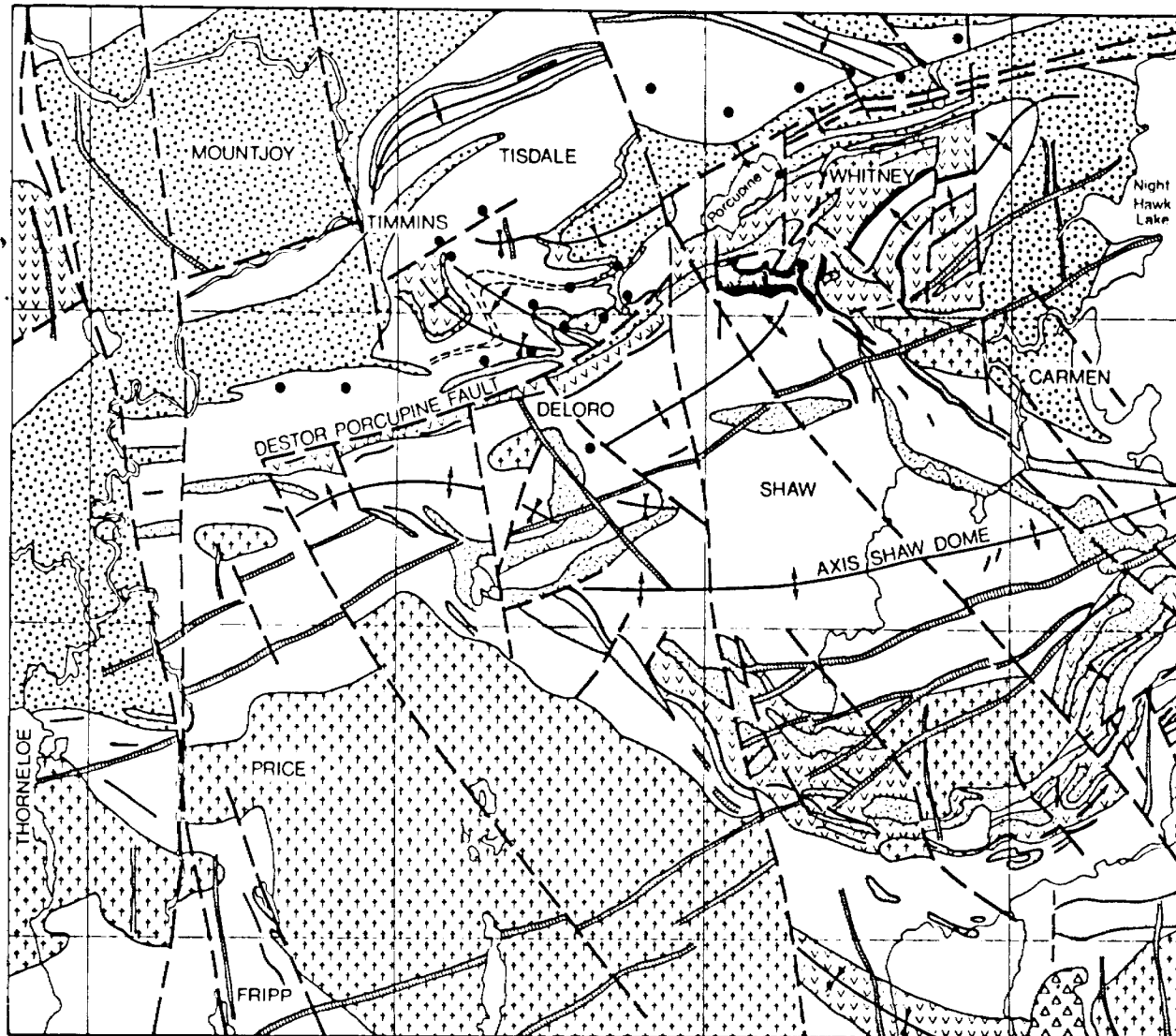
The Canico drill hole is reported (by Keevil) to contain a section of barren graphitic slates/interflow sediments within mafic flows, although none of the Canico data were filed for assessment.

The Hollinger-Esso claims were staked in December 1980, with magnetic (G-816, proton) and electromagnetic (VLF) surveys having been previously filed on the property. The results of those surveys are integrated into the geological background of this report.

GENERAL GEOLOGY:

The regional picture of the Timmins geology is articulated well by Pyke (1982) who subdivides the rocks into a lower Komatiitic - mafic calc-alkaline - felsic calc-alkaline with iron formation sequence designated as the Deloro Group, and and upper Komatiitic - Mg-tholeiite - Fe-tholeiite - felsic calc-alkaline sequence called the Tisdale Group (see Figures 1 and 2).

A more local terminology, utilized by the mines of the area and described by Ferguson (1968), subdivides the Upper (Tisdale) Group into the Northern, McIntyre, Central and Vipond Series overlain by the felsic, calc-alkaline Krist fragmental. A sequence of previously designated ultramafic intrusives, the



LEGEND

MIDDLE PRECAMBRIAN

- Cobalt Formation
greywacke, arkose, argillite, conglomerate
unconformity

EARLY PRECAMBRIAN

- Diabase *
- Intrusive Contact
- Granitic intrusive rocks
Intrusive Contact
- Ultramafic intrusive rocks
Intrusive Contact
- Sediments (dominantly turbidites)
- Iron formation
- Felsic to intermediate volcanics
- Mafic volcanics
- Ultramafic volcanics
- * Some diabase dikes are Middle to Late Precambrian age
- Location of gold mines (present and past producers)
- - - Fault
- + + Anticlinal axis
- + - Synclinal axis

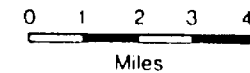
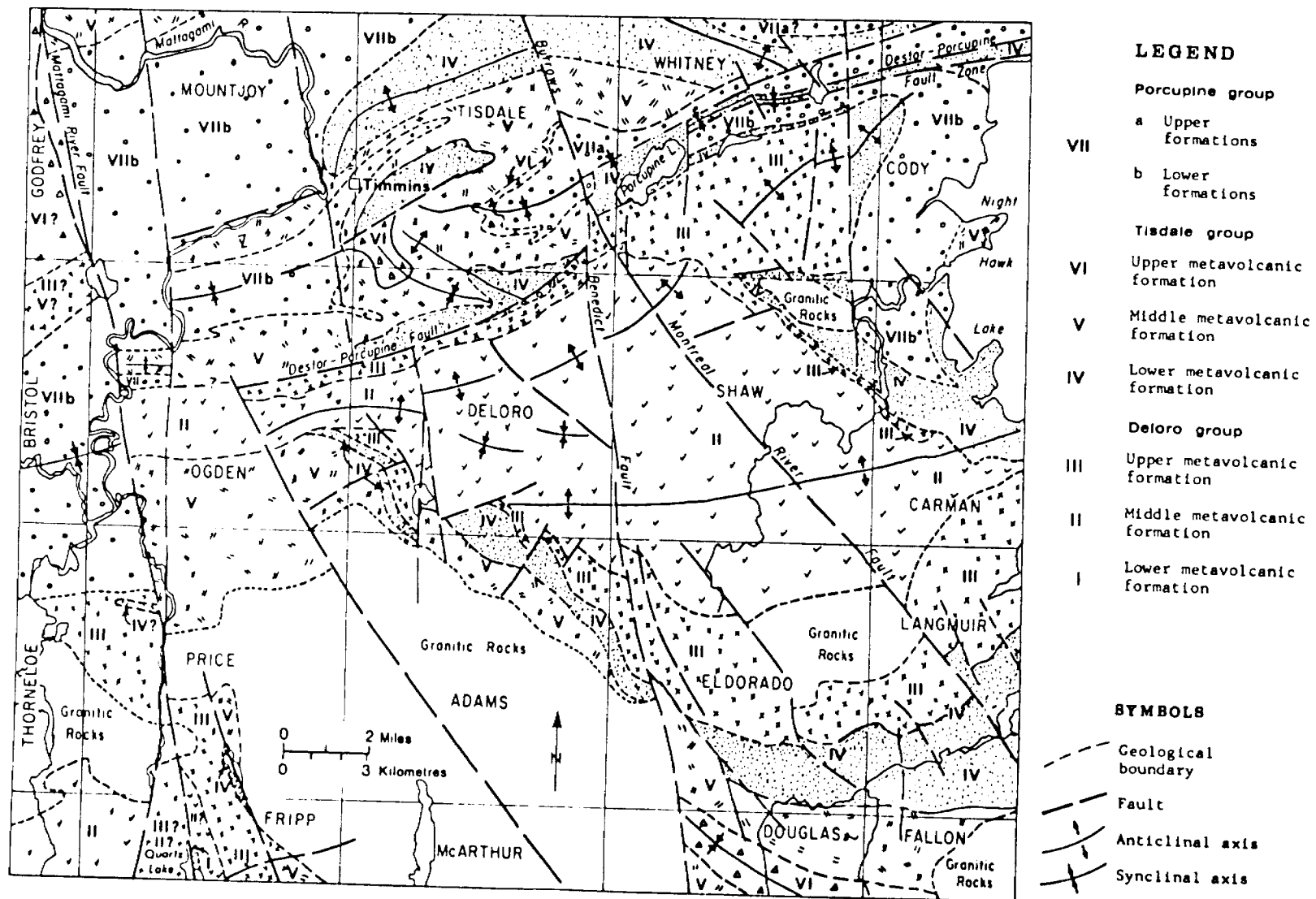


Figure 1—Geological sketch map of the Timmins area.



Northern Series, and part of the McIntyre Series (the 95 Flow portion) define the predominately Komatiitic base of the Tisdale Group, followed by magnesian tholeiitic rocks of the upper McIntyre Series (55 Flow) and the Central Series. The 99 Flow at the base of the Vipond Series marks the onset of iron tholeiitic rocks.

The northern ten claims of the Tisdale #1 property span the upper part of the Komatiitic sequence and most of the magnesian tholeiitic rocks of the Tisdale Group.

Regionally, the Tisdale #1 property is located in a structurally complex area between two distant domal features - the Pamour Dome to the north and the Shaw Dome to the south. The westward extension of a major synformal axis, outlined by the Blake River volcanics in the Kirkland Lake Area, plots north of the Tisdale property, although its precise location is unknown.

Of more local focus, the Tisdale #1 property lies on the north limb of the isoclinal, North Tisdale Anticline. Units on the property dip in a southerly direction and top north.

Fault structures present in the North Tisdale area appear to mainly reflect the north-northwesterly and northwesterly style Burrows-Benedict and Montreal River Systems, although no specific offsets can be delimited on the property.

Economically, the Tisdale #1 property covers a portion of the stratigraphy similar to the settings for most of the major deposits in South Tisdale Township. A lack of exposure, however, in combination with stratigraphic elements not easily detected by geophysical means (i.e. presence of porphyry, folding, dilation), hampers evaluation of the claims. Further, the ability to establish targets via overburden drilling is restricted by the presence of esker and glaciolacustrine deposits.

TABLE OF FORMATIONS:

An abbreviated stratigraphic succession covering the Deloro and Tisdale Group rocks follows, with aside references to the local mine terminology.

TABLE OF FORMATIONS

PLEISTOCENE and RECENT - esker and glaciolacustrine deposits of the Tisdale esker complex and the (Lake) Barlow-Ojibway formation

--- great unconformity---

PRECAMBRIAN

ARCHEAN

- faulting and diabase intrusion -
(may locally be synchronous)
- folding, carbonitization, porphyry intrusion -
(precise and sometimes relative timing unknown, although certain carbonate units appear crudely stratabound)

Tisdale Group

- | | | |
|--------------------------------|--|--|
| Calc-alkaline felsic volcanics | - | Krist fragmental |
| Fe-tholeiite suite | - | Vipond Series |
| Mg-tholeiite suite |] portion of stratigraphy underlying Tisdale #1 property | - Central Series
C16 Flow
C15 Flow
C14 Flow |
| | | McIntyre Series
55 Flow |
| Komatiitic volcanics | | - McIntyre Series
95 Flow |
| | | Northern Series
N63 pillow lava
N63 Dacite |

Deloro Group

- Felsic calc-alkaline volcanics
with oxide iron formation (older) and
sulphide iron formation (younger) near top of sequence
- Mafic calc-alkaline volcanics
- Komatiitic volcanics

DESCRIPTION OF UNITS:

The only bedrock exposed on the property occurs on Claim 594789 circa line 19E at 10+00m North. The exposure is low-lying in the spruce, spruce-alder swamp, and is interpreted to be part of the 55 Flow system (i.e. Mg-tholeiite).

Most of the outcrop is medium grained, moderately soft, grey green in colour, and weathers pale buff to brownish. The rock is essentially composed of plagioclase, tremolite/actinolite, hornblende and chlorite, with minor accessory quartz in 1-2mm grains. The rock exhibits a fine felted texture (locally appears finely sheared) from the presence of tremolite/actinolite, and contains assorted coarser grains of plagioclase and dark green hornblende. Near the eastern end of the outcrop there are scattered, tiny, sometimes rusted vesicles, along with trace amounts of pyrite.

The southeast margin of the outcrop is cut by a partially exposed flow-top breccia that is a rather homogenous mixture of mafic fragments, with rare siliceous fragments and small bun-shaped pillows. The contact of the breccia zone, although irregular, averages 60° - the zone dips south, but tops north. It is not expected that the flow-top breccia represents the top of the adjacent and stratigraphically lower 95 Flow system.

The majority of the outcrop is also fractured in two directions (Azimuths 15° and 75°), such that the exposure is blocky in appearance.

By integrating the geophysical results with the outcrop exposures, drill-hole geology available, and the stratigraphic thicknesses proposed by Ferguson (1968)

: geophysical anomaly A appears to represent the carbonaceous tuff/argillite at the 95 Flow-Northern Series contact;

: anomaly B is suggested to follow the carbonaceous tuffs along the upper part of the 55 Flow, and

: anomaly C is interpreted to outline the top of the Central Series, pillowed Mg-tholeiites.

Considering that most of the stratigraphic sections presented by Ferguson (1968) indicate that the 95 and 55 Flows are of near equal thickness, the contact between the two systems is arbitrarily placed midway between the two electromagnetic anomalies (A and B) with only minor input from the total field magnetics.

Thus, the claims are interpreted to be underlain by mainly pillowed, amygdaloidal Mg-tholeiites of the Central Series, Mg-tholeiites and carbonaceous tuffs of the 55 Flow system, and Komatiitic volcanics with carbonaceous horizons of the 95 Flow-Northern Series rocks.

Of note is the location of the Canico drill hole proposed by Keevil (assessment files, Resident Geologist's Office), which does not appear to have tested any of the geophysical anomalies outlined.

CONCLUSIONS/RECOMMENDATIONS:

The Tisdale #1 property is underlain by an important sequence of rocks which, at this point, yield little information towards defining a target that has not previously been tested. To that end, an induced polarization survey will be undertaken shortly.



Dale R. Alexander

SELECTED BIBLIOGRAPHY

Ferguson, S.A.

- 1968: Geology and Ore Deposits of Tisdale Township, District of Cochrane; Ontario Department of Mines Geological Report 58, 177p. Accompanied by Map 2075, Scale 1"=1000', 12 Charts.

Lee, Hulbert A.

- 1979: Northern Ontario Engineering Geology Terrain Study, Data Base Map, Pamour. Ontario Geological Survey, Map 5026, Scale 1:100 000.

Pyke, D.R.

- 1981: Relationship of Gold Mineralization to Stratigraphy and Structure in Timmins and Surrounding Area; P.1-15 in Genesis of Archean, Volcanic-Hosted Gold Deposits, Symposium Held at the University of Waterloo, March 7, 1980, O.G.S. MP97, 175p.
- 1982: Geology of the Timmins Area, District of Cochrane; Ontario Geological Survey Report 219, 141p. Accompanied by Map 2455, Scale 1:50 000, 3 Charts, and 1 Sheet Microfiche.

Assessment files, Resident Geologist's Office.

In-house files, Hollinger Argus Limited.



42A11SW0239 2.7155 TISDALE

900

Mining Lands Section

File No 2.7155

Control Sheet

TYPE OF SURVEY GEOPHYSICAL
 ✓ GEOLOGICAL
 GEOCHEMICAL
 EXPENDITURE

MINING LANDS COMMENTS:

L.B.

J. Hurst

Signature of Assessor

04-09-17

Date

334/84

Instructions: - Please type or print. **Oct-22**
- If number of mining claims traversed exceeds space on this form, attach a list.
Note: - Only days credits calculated in the "Expenditures" section may be entered in the "Expend. Days Cr." columns.
- Do not use shaded areas below.

The Mining Act

Type of Survey: Geological Survey	Township or Area Tisdale Township
Surveyor's Name: Hollinger Argus Limited	Prospector's Licence No. A-20822
Address: P.O. Box 320, TIMMINS, Ontario P4N 7E2	
Company Name: Hollinger Argus Limited	Date of Survey (from & to): 07 10 81 03 07 84 Day Mo. Yr. Day Mo. Yr.
Address of Author (of Geo-Technical report): Dale R. Alexander, c/o Hollinger Argus Limited	
Total Miles of line Cut: 16.033 kms.	

Credits Requested per Each Claim in Columns at right

Special Provisions	Geophysical	Days per Claim
For first survey: Enter 40 days. (This includes line cutting)	- Electromagnetic	
	- Magnetometer	
For each additional survey: Use a different grid. Enter 20 days for each	- Radiometric	
	- Other	
	Geological	4-20
	Geochemical	
Airborne Surveys	Geophysical	Days per Claim
Complete reverse side and enter total(s) here	- Electromagnetic	
	- Magnetometer	
	- Radiometric	
	- Other	
	Geological	
	Geochemical	
Airborne Credits	Geophysical	Days per Claim
Note: Special provisions credits do not apply to Airborne Surveys.	- Electromagnetic	
	- Magnetometer	
	- Radiometric	

Mining Claims Traversed (List in numerical sequence)

Mining Claim Prefix	Mining Claim Number	Expend. Days Cr.
P	594781	20
	594782	20
	594783	20
	594784	20
	594785	20
	594789	20
	594790	-20
	594791	20
	594792	-20
	594793	20

Mining Claim Prefix	Mining Claim Number	Expend. Days Cr.
(See attached letter)		

RECORDED
AUG 21 1984
Receipt No. cl.

RECEIVED
AUG 30 1984

RECEIVED
AUG 21 1984
A.M. 7 8 9 10 11 12 P.M. 1 2 3 4 5 6

Expenditures (excludes power stripping)

Type of work Performed

Information on Claims

Calculation of Expenditure Days Credits

Total Expenditures ÷ 15 = Total Days Credits

Instructions:
Total Days Credits may be apportioned at the claim holder's choice. Enter number of days credits per claim selected in columns at right.

Total number of mining claims covered by this report of work. **10**

Date: **Aug. 15, 1984**

Recorded Holder or Agent (Signature): *W. H. King*

For Office Use Only

Total Days Cr. Recorded: 400	Date Recorded: Aug 21/84	Mining Recorder: <i>[Signature]</i>
	Date Approved as Recorded: 84.9.21	Branch Director: <i>[Signature]</i>

Certification: I hereby certify that I have a personal and intimate knowledge of the facts set forth in the Report of Work annexed hereto, having performed the work and that the information contained therein and the computation on the annexed report is true.

Dale R. Alexander, c/o Hollinger Argus Limited,
P.O. Box 320, Timmins, Ont.

Date Certified: **Aug. 15, 1984**

Certified by (Signature): *Dale R. Alexander*



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) Geological
Township or Area Tisdale Township
Claim Holder(s) Hollinger Argus Limited
Box 320, Timmins, Ontario P4N 7E2
Survey Company Hollinger Argus Limited
Author of Report Dale R. Alexander
Address of Author c/o Hollinger Argus Limited
Covering Dates of Survey Oct. 7, 1981 - July 3, 1984
(linecutting to office)
Total Miles of Line Cut 16.033 kms.

MINING CLAIMS TRAVERSED
List numerically

(prefix)	(number)
P.	594781
	594782
	594783
	594784
	594785
	594789
	594790
	594791
	594792
	594793

If space insufficient, attach list

SPECIAL PROVISIONS
CREDITS REQUESTED

DAYS
per claim

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

ENTER 20 days for each
additional survey using
same grid.

Geophysical _____
 -Electromagnetic _____
 -Magnetometer _____
 -Radiometric _____
 -Other _____
 Geological _____ 20
 Geochemical _____

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

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

DATE: Aug. 15, 1984 SIGNATURE: Dale R. Alexander
Author of Report or Agent

Res. Geol. _____ Qualifications BS

Previous Surveys

File No.	Type	Date	Claim Holder

TOTAL CLAIMS 10

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SEP 11 1984

MINING CLAIMS SECTION

OFFICE USE ONLY

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 _____

1984 09 17

Your File: 334
Our File: 2.7155

Mining Recorder
Ministry of Natural Resources
60 Wilson Avenue
Timmins, Ontario
P4N 2S7

Dear Sir:

We have received reports and maps for a Geological Survey submitted under Special Provisions (credit for Performance and Coverage) of Mining Claims P 594781 et al in the Township of Tisdale.

This material will be examined and assessed and a statement of assessment work credits will be issued.

Yours sincerely,

S.E. Yundt
Director
Land Management Branch

Whitney Block, Room 6643
Queen's Park
Toronto, Ontario
M7A 1W3
Phone: (416)965-6918

A.Barr:sc

cc: Hollinger Argus
P.O. Box 320
Timmins, Ontario
P4N 7E2
Attn: Dale R. Alexander.

HOLLINGER MINES LIMITED

TIMMINS, ONTARIO - TELEPHONE: (705) 264-1313
P4N 7E2

August 15, 1984.

Mr. Bruce Hanley,
Mining Recorder, Porcupine Division,
Ministry of Natural Resources,
60 Wilson Avenue,
TIMMINS, Ontario.
P4N 2S7

Dear Bruce:

Attached is a 'Report of Work' for a geological survey covering ten claims in Tisdale Township.

Hollinger Argus Limited would like to transfer the linecutting credit (previously filed with the geophysical surveys) to the geological survey currently being filed. This would facilitate filing induced polarization and resistivity surveys on the claim group.

The geophysical surveys will get under way shortly.

The claims are on extension until the end of August, 1984.

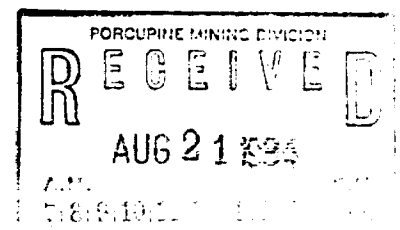
I trust that all is in order, and I thank you for your co-operation.

Sincerely,

Dale R. Alexander

Dale R. Alexander,
Exploration Geologist.

Encl.



HOLLINGER ARGUS LIMITED

P.O. BOX 320
TIMMINS, ONTARIO P4N 7E2

TELEPHONE: (705) 264-1313

September 6, 1984.

Mr. E.F. Anderson,
Director, Lands Administration Branch,
Ministry of Natural Resources,
Whitney Block, Room 6450,
Queen's Park,
TORONTO, Ontario.
M7A 1W3

Dear Mr. Anderson:

Re: 10 claims - Tisdale Township,
P.594781-785, P.594789-793

Enclosed you will find duplicate copies of a report of a Geological Survey for our Tisdale #1 group which is in Tisdale Township. Also enclosed is a copy of the Report of Work which was filed with the Mining Recorder of the Porcupine Mining Division in Timmins.

Sincerely,

W. H. King

W. H. King,
Records Officer.

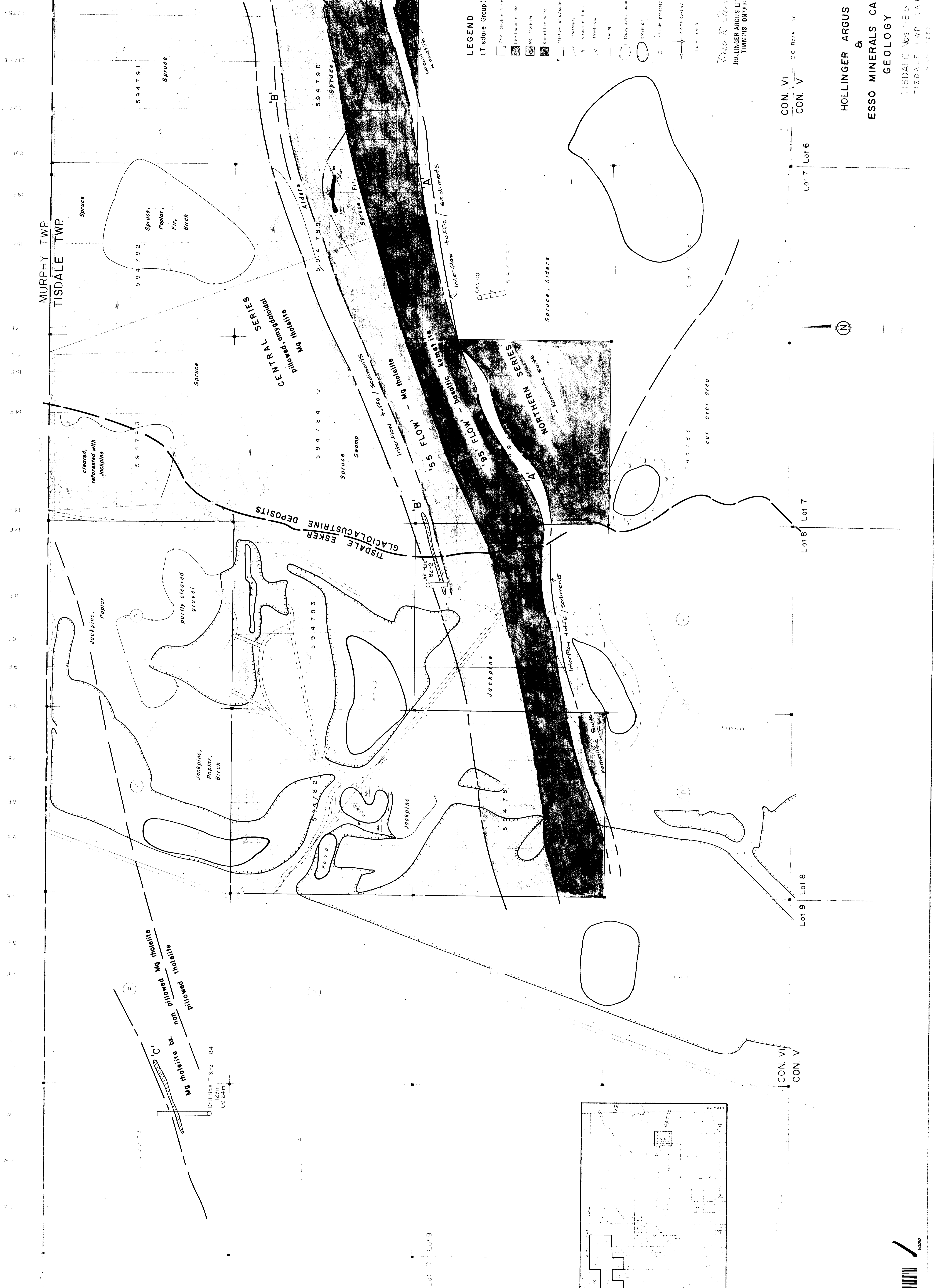
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SEP 11 1984

MINING DIVISION

Encls.

MURPHY TWP
TISDALE TWP



LEGEND (Tisdale Group)

- CGL - drainage, basic volcanics
- K - tholite suite
- Mg - tholite
- Kamatitic suite
- Interflow tufts / sediments
- boundary
- direction of flow
- stone dip
- bearing
- topographic feature
- gravel pit
- drill hole projected up site
- claim covered by survey
- BA - BRCCO

Scale: 1:2500

David R. Alexander
HOLLINGER ARGUS LIMITED
TIMMINIUS ON/T100

CON VI
CON V

Lot 9 Lot 8
Lot 8 Lot 7
Lot 7 Lot 6

00 Base Line

HOLLINGER ARGUS LTD.
8
ESSO MINERALS CANADA
GEOLOGY

TISDALE Nos. 116 & 12
TISDALE TWP. ONT.
Scale: 1:2500

