

**GEOLOGICAL BRANCH  
ASSESSMENT REPORT**

**11,481**  
GEOLOGICAL REPORT

on the

LARK 7 MINERAL CLAIM

SKEENA MINING DIVISION

RECORD #1904 (12)

GRAHAM ISLAND

QUEEN CHARLOTTE ISLANDS

BRITISH COLUMBIA

NTS: 103 F/9W

Geographic Coordinates (claim centre)

LAT. 53°32'N LONG. 132°21'W

OWNER/OPERATOR

AMBERHILL PETROLEUMS LIMITED

Author: RALPH SHEARING  
GEOLOGIST

JUNE 1983

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INTRODUCTION

Location and Access

The Lark 7 claim, consisting of 20 metric units, is situated mainly on the west side of Mamin River, and to the north of Pam Lake. The approximate geographic coordinates of the LCP are Lat.  $53^{\circ}31'N$  Long.  $132^{\circ}20'W$ . Access to the property is by way of highway 16 from Queen Charlotte City to Masset through Port Clements to Juskatla. From Juskatla, a MacMillan-Bloedel logging camp, the property is approximately 7 km south along the Juskatla-Queen Charlotte City logging mainline road. A property location map drawn from mineral claim map M 103 F/9W is shown on page 3.

Physiography

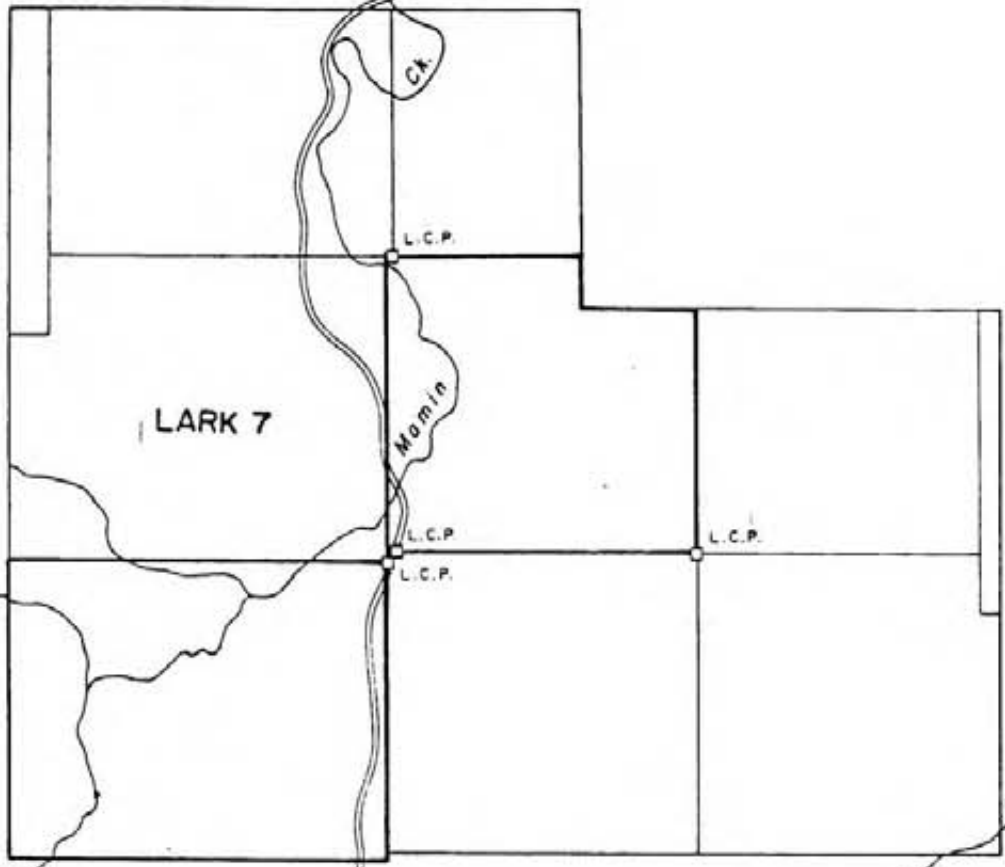
The claim topography varies from moderate to rugged, with some precipitous bluffs in the western portion of the claim. The elevation varies from about 60 m (200 ft) to 610 m (2000 ft). Most of the property was logged off sometime during the 1960's. A small portion in the mid-western claim area has not yet been logged. Where logging has occurred, old logging debris is common. Vegetation consists of a very dense covering of second-growth spruce and hemlock. Considerable scrub vegetation exists and is mostly alder, salmon berry, thimble berry, huckle berry etc. These conditions make prospecting difficult, however there are a number of old logging roads that are usually passable to four wheel drive vehicles. The property is well exposed in its southern and western regions. However it is poorly exposed in the northeast and eastern regions with a moderate to heavy overburden



Fig. 1. Index map of the Queen Charlotte Islands.

-3-

132° 20'



LARK 7

L.C.P.

Momin

L.C.P.

L.C.P.

L.C.P.

Conoe

53° 30'

# LOCATION PLAN OF LARK 7 CLAIM

GRAHAM ISLAND Q.C.I.

SKEENA MINING DIV. B.C.

SCALE = 1:50,000

NOTE:  
DRAWN FROM MAP  
M103 F/9W

132° 20'

cover.

### Property Status

The Lark 7 mineral claim is presently owned and operated by Amberhill Petroleums Limited of 305-1212 West Broadway St., Vancouver, B.C. V6H 1G6. The claim record number is 1904 and has an expiry date of December 11, 1983.

### Property History

The Lark 7 claim was staked Dec. 1, 1979 by M. Boyle. M. Boyle vended all interests in the property to Rockerfeller Investment Corp., March 30, 1980. D.B. Regan purchased the claim Sept. 3, 1980 from Rockerfeller Investment Corp., and subsequently sold the property to Amberhill Mining And Explorations Ltd., during Sept. 1980.

### Work History

Previous work was performed as a joint venture exploration program on the Lark 1-8 claims. Companies which participated in the 1980 exploration program were Sunatco Development Corp., (Lark 1,4,5,6), Gold Cup Resources Ltd., (Lark 2), Avance International Inc., (Lark 3) and Rockerfeller Investment Corp., (Lark 7,8). Work was performed by M. Boyles Mining Contractors Ltd., and consisted of reconnaissance mapping and soil sampling. Of 252 soil samples only 1 was taken near the Lark 7 claim. Also there was only 1 stream sediment sample within the Lark 7 claim.

In December 1980, an assessment report was prepared on the Lark 1-8 claims by James C. Snell, P. Eng. The report was prepared at the request of Avance International Inc., Suzie Mining Corp.,

Gold Cup Resources Ltd., Sunatco Development Corp., and Rockefeller Investment Corp. The report consisted of an air photo interpretation and a review of previous work.

In January 1981, Columbia Geophysical Services and W.G. Timmins Explorations And Development Ltd., were contracted by Sunatco Development Corp., Gold Cup Resources Ltd., Avance International Inc., and Suzie Mining Corp., to conduct a combined airborne magnetometer and VLF-EM survey over the entire Lark 7 claim group. This survey delineated two anomalies within the Lark 7 claim. One of these anomalies was considered a "prime target" by the geophysical contractors. To the writer's knowledge no other work has been performed on the subject property up to the date of this report.

#### Regional Geology and Economic Mineralization

The regional geology of the area, as described by A. Sutherland Brown, 1968, is underlain by the Paleocene- Miocene (?) Masset Formation in contact, in the southwest, with rocks of the Jurassic Yakoun Formation. The Masset formation consists of subaerial basalt flows and breccias, rhyolite ash flows and lesser dacite. The Yakoun formation consists of porphyritic andesite, agglomerate, tuffs, volcanic sandstones, conglomerate and minor tuffaceous shale. The prominent structure is the strong northwest trending Sandspit fault lying to the east of the Lark 7 claim.

Economic mineralization is present at the Babe gold deposit, Cinola Mines Ltd., situated approximately 7 km to the east of the Lark 7 claim. The Babe gold deposit, with reserves of 30 m tonnes of 0.06 oz Au/tonne, is hosted in a sequence of Neogene Skonum conglomerate and sandstone which are intruded by a rhyolite

porphyry stock and related dykes of mid Miocene age. The rhyolite porphyry is thought to have acted as the "heat pump" for the hydrothermal system which deposited the gold. It is believed that the rhyolite porphyry has intruded along the Specogna fault, a possible splay of the Sandspit fault system.

#### Economic Assessment

At this time, it is not possible to fully assess the economic potential of the Lark 7 mineral claim. However, some conclusions can be drawn from the results of geological mapping. The claim was found to contain a sequence of massive mafic volcanic flows interbedded with pyroclastic volcanics, as well as a felsic sequence of volcanic (rhyolite?) flows and pyroclastics. This felsic sequence is thought to be an attractive gold exploration target. Similar rhyolite intrusions, as that found at the Babe gold deposit, Cinola Mines Ltd., could be associated with the felsic sequence of volcanics found on the Lark 7 claim. Also, two airborne geophysical magnetometer anomalies as well a number of airborne EM-VLF anomalies (Columbia Geophysical Services, 1981) are located in the vicinity of inferred faulting and fracturing, (air photo interpretation by Snell, 1980). Most of the geophysical anomalies, together with inferred faulting and fracturing lie within or close to the felsic sequence of volcanics on the Lark 7 claim. Taking the above into consideration, it is thought that the Lark 7 mineral claim has potential for gold mineralization, but further exploration is needed on the claim.



GEOLOGICAL SURVEY

Work Performed

Geological mapping was performed at a scale of 1:5000. The mapping program covered all twenty units of the claim.

Purpose

Geological mapping on the subject claim was carried out to investigate the bedrock geology and to determine whether the rocks present are favourable hosts for a "Cinola type" gold deposit. In the course of mapping a number of geophysical anomalies were to be investigated. Also, the location of several inferred faults, (Snell, 1980), were to be examined.

Results

The Lark 7 mineral claim was found to be underlain by volcanic rocks, mafic to felsic in composition. The eastern portion of the claim is generally underlain by massive mafic volcanics of andesitic to basaltic composition with related pyroclastic agglomerates and ash tuffs. The middle and western claim area is underlain more commonly by a felsic phase of volcanics believed to be of rhyolitic composition with considerable mafic agglomerates, tuffs and basalts.

Descriptions of the bedrock types found on the property are as follows (refer to map in pocket for location):

- V7 Mafic Fine Grained Volcanic;  
Weathers grey-brown with a commonly green to grey-black fresh surface. Mostly fine grained sometimes aphanitic with up to 10% tabular feldspar phenocrysts. Sometimes contains up to 5% amphiboles (likely hornblende). Rock is variably vesicular, commonly with calcite filled

amygdales and less common amorphous silica filled amygdales.

- V2 Siliceous Trap (likely rhyolite);  
Light grey weathering, durable (hardness > 6), black, siliceous aphanitic volcanic. Rock is sub-vitreous with a sub-conchoidal fracture, and sometimes contains spherulitic texture. Variably vesicular with amorphous silica filled amygdales. Outcrops often display a poorly developed columnar jointing with joints not larger than 0.3 m across. Sometimes displays well developed flow banding.
- rV10 Red Agglomerate;  
Very red oxidized agglomerate with assorted pyroclastic debris. Volcanic bombs and blocks up to 0.5 m across in a matrix of red basaltic fragments and ash. This rock is easily recognized by its red colour.
- gV10 Green to Grey Agglomerate;  
Highly unsorted with up to 70% fragments from 1 mm to 30 cm in size. Fragments are sub-rounded to angular with a variable composition. Fragments are basaltic, siliceous trap, and red pyroclastic material. Rock usually appears green, likely due to chlorite alteration.
- pV2 Porphyritic Siliceous Volcanic (rhyolite? porphyry);  
Rock contains approximately 50% feldspar phenocrysts up to 3 mm in length in a black to burgandy coloured aphanitic siliceous groundmass. Also contains minor xenoliths of a fine grained mafic volcanic which contains well developed acicular hornblends crystals less than 2 mm in length. Some small, amorphous silica filled, 1-4 cm sized vugs are present.
- V9i Intermediate Red Ash Tuff;  
Black weathering, (lichen coated), fine grained, red coloured volcanic. Occasional euhedral feldspar phenocrysts up to 3 mm. Approximately 10% < 0.5 mm white euhedral and anhedral phenocrysts, some may be small vesicle fillings. Rock is moderately vesicular and contains many 1-3 cm sized dark green-black mottled patches on broken surface.
- V9f Felsic Ash Tuff;  
Rusty weathering, fine grained, white, felsic tuff. Moderately vesicular with a fine-grained rough texture.
- Vbrx Volcanic Breccia;  
Sub-rounded to angular fragments. Fragments are up to 0.5 m across with larger fragments (>0.2m) being predominantly acidic volcanic porphyry (pV2). pV2 fragments are supported in a pinkish breccia matrix with angular fragments up to 4 cm composed of pV2, V2, V7. Rock is very hard with some silica infilling.

Bedding angles and contacts measured were highly irregular

and no prominent bedding direction is suggested. However, with the outcrop pattern encountered in stream cuts, the volcanic flows appear to be relatively flat lying. The geophysical anomalies could not be explained due to the overburden cover. The existence of the inferred faults could not be confirmed since evidence of movement was lacking or hidden under overburden.

#### Interpretation and Conclusions

The Lark 7 mineral claim is partly underlain by a felsic phase of volcanics and has an outcrop of acidic volcanic porphyry (rhyolite?porphyry ). It is highly unlikely that this porphyry is genetically related to the one found 7 km distant at the Babe gold deposit, however this rock type is considered to be a good exploration target for gold mineralization in the general area around the Babe deposit.

The existence of a number of conductive zones, as determined by previous EM-VLF geophysical surveys, is interesting in that they occur within the felsic phase of volcanics and might define shear zones or possibly sulphides. However, neither were found in outcrop while mapping. The main geophysical magnetic and EM-VLF anomaly, considered a prime target by Columbia Geophysical Services Ltd., could not be examined due to overburden cover. The mafic volcanic phase is considered to be a poor exploration target and further exploration should be concentrated on that area underlain by felsic volcanics and near the geophysical magnetic anomaly in the north eastern claim area.

RECOMMENDATIONS

A 2 stage exploration program is recommended for the 1984 field season. The second stage is to be contingent upon the results of the first.

- Stage 1:
- a) Establish a cut grid over the area underlain by the felsic volcanic phase and over the main geophysical magnetic anomaly. Cross lines should be every 100 m with a station interval of 50 m.
  - b) Soil sample on the above grid and analyze for Au, Hg and As.
  - c) Perform geophysical ground magnetometer and EM-VLF surveys on grid.

- Stage 2:
- a) Trenching and diamond drilling dependent upon encouraging results from stage 1.

STATEMENT OF COSTS

Labour:

1 geologist @ \$150.00/day for 9 days (May 26-June 3, 1983) \$1350.00  
1 assistant @ \$100.00/day for 9 days (May 26-June 3, 1983) 900.00

Accommodation:

Trailer rental @ \$20.00/day for 9 days 180.00

Food:

2 men @ \$15.00/man/day for 9 days 270.00

Transportation:

Rental for 4x4 pick-up @ \$25.00/day for 9 days 225.00

Mileage charge @ \$.15/km for 1550 km 232.00

Fuel 219.00

B.C. Ferry fare 109.00

Report Preparation and Drafting 515.00

Total \$4000.00

REFERENCES

- Brown, A.S. (1968): Geology of the Queen Charlotte Islands, British Columbia, B.C. Department of Mines and Petroleum Resources. Bulletin No. 54.
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- Elwell, J.P. (1983): Summary Report on the Exploration of the Lark 1 Claim, Graham Island Q.C.I., B.C. For Goldhaven Resources Ltd. Unpublished property report.
- Timmins, W.G. (1981): Geophysical Report on The Mamin River Airborne Project, 1981. Graham Island, Queen Charlotte Islands, B.C. Unpublished property report.
- Snell, J.C. (1980): Geological Assessment Report on the Lark 1 to 8 Claims, #9512.

STATEMENT OF QUALIFICATIONS

I, Ralph Shearing, of 3433 West 12 Avenue, Vancouver, B.C.,

DO HEREBY CERTIFY THAT:

- 1) I am president of Spirex Enterprises Ltd., a geological services company, with business office at 3433 West 12 Avenue, Vancouver, B.C., V6R 2N2.
- 2) I am a graduate of The University of British Columbia with a degree of B.Sc. Geology.
- 3) I have been active in mineral exploration since 1979.
- 4) My experience in mineral exploration has encompassed a wide range of geological environments and techniques. I have also gained significant experience in the use of geophysical exploration methods.
- 5) This report is based on personal examination of the property between May 26 and June 1, 1983, and on available reports, maps and published geological reports for the area.
- 6) I own no direct, indirect or contingent interest in the Lark 7 mineral claim, nor in shares or securities of Amberhill Petroleums Limited, nor do I expect to receive any interest.

DATED AT VANCOUVER, BRITISH COLUMBIA, this 27<sup>th</sup> day of June 1983.

*Ralph Shearing*

Ralph Shearing, Geologist

AMBERHILL PETROLEUMS LIMITED

VANCOUVER, B.C.

# LARK 7 PROPERTY

QUEEN CHARLOTTE ISLAND

SKEENA MINING DIVISION

DATE: JUNE 15, 1983

NTS: 103 F/9W

DWN BY KJB

## GEOLOGICAL BRANCH ASSESSMENT REPORT




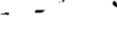

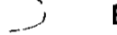
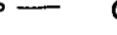

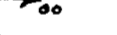

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### LEGEND

#### ROADS

— MAINLINE    - - - SECONDARY

#### GEOLOGICAL FEATURES

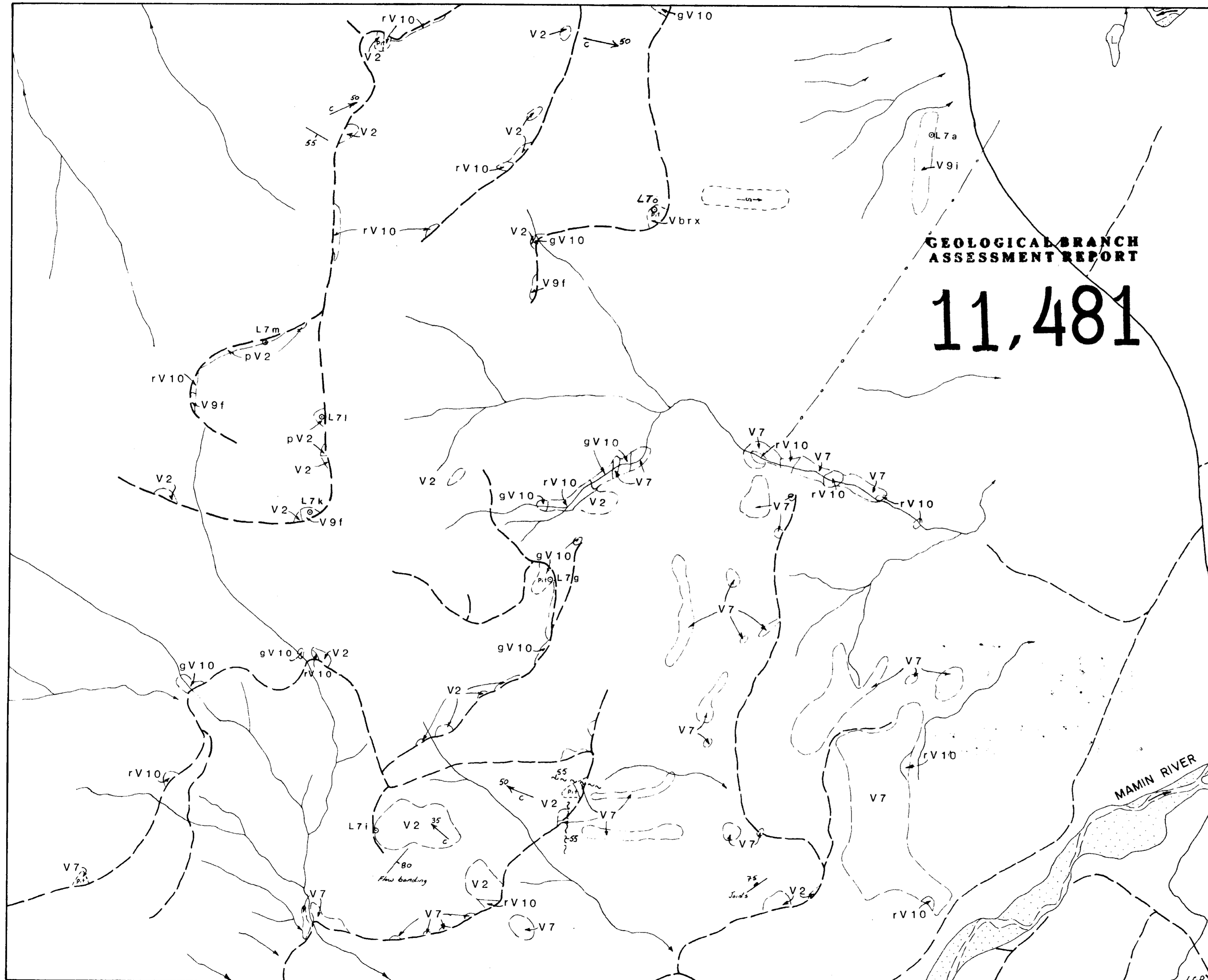
-  STREAM
-  SWAMP
-  SANDBAR
-  SLIDE
-  POND
-  EXPOSED OUTCROP
-  GEOPHYSICAL ANOMALY
-  ROCK SAMPLE LOCATION
-  TREND, PLUNGE OF COLUMNAR JOINTS
-  MINOR FAULT

#### ROCK TYPE

- Vbrx VOLCANIC BRECCIA
- pV2 PORPHYRITIC SILICEOUS VOLCANIC (Rhyolite Porphyry?)
- V2 SILICEOUS TRAP (Rhyolite?)
- V7 MAFIC FINE GRAINED VOLCANIC
- rV10 RED AGGLOMERATE
- gV10 GREEN to GREY AGGLOMERATE
- V9f FELSIC ASH TUFF
- V9i INTERMEDIATE RED ASH TUFF



SCALE 1:5000



53° 32' 05"  
132° 19' 35"