

GEOLOGICAL REPORT - EBY TOWNSHIP PROPERTY

(Preston East Dome Mines, Limited)

LOCATION OF CLAIMS

The property consists of a single group of four claims located in Eby Township, District of Temiskaming, Ontario. The four claims occupy the whole of the northern half of Lot 8, Concession III of Eby Township.

ACCESS TO CLAIMS

The claims are accessible by a road four miles long, passable to motor traffic, which leaves Ontario Highway 11 about half a mile south of the junction of Highways 11 and 11A, and goes south. A turn to the west is made about one and a half miles along this road to reach the property.

OWNERSHIP

All claims were staked by T. Hall for Preston East Dome Mines, Limited, South Porcupine, Ontario, and transferred to R. C. Hart as agent for the Company.

CLAIM NUMBERS

The claims are numbered L54861, L54862, L54863, L54864, a total of four claims.

PURPOSE OF WORK

The property lies 12 miles to the southwest of the Kirkland Lake Gold Camp. The Larder Lake fault crosses Kenogami Lake two miles to the north. Narrow, mineralized shears suggest that a branch of the Larder Lake fault may cross the property. One of these shears contains gold values. The purpose of the work is to trace the possible extension of this shear and relate

it to a possible larger shear, the existence of which is suggested by a low swampy area trending northwest. A further purpose is to provide maps on which a drilling program may be based.

SUMMARY OF WORK

Geological work on the claims was done from August 16 to August 24, 1949, inclusive. The mapping was controlled by tape and compass traverses around claim boundaries. Pace and compass traverses to pick up outcrops were tied into the control traverses.

Office work in the preparation of maps occupied the afternoons of the period from August 26 to September 12, 1949, inclusive. The whole of September 17, 1949 was spent in writing the report.

Work performed is summarized as follows:

Field	9 days
Office	6 days
Report	1 day

TABLE SHOWING BY WHOM AND TO WHAT DEGREE THE ABOVE WORK WAS PERFORMED

Name	Address	Time Spent:			
		Geology	Line Cutting	Office	Supervision
R.C. Hart Geologist	c/o Preston East Dome Mines Ltd., South Porcupine.				3 days
R.E. Jones Geologist	" "	9 days		7 days	
T. Hall Prospector	" "	2 days	7 days		
W. Hall Prospector	" "	6 days	3 days		
Total		17 days	10 days	7 days	3 days
Progressive Total		17 days	27 days	34 days	37 days

Apportionment per claim - $9\frac{1}{4}$ days

MAPS

A geological map on a scale of 200 feet to the inch accompanies this report. All outcrops of mappable size are shown, and where closely spaced small outcrops indicate a large area of bedrock at shallow depth, approximate outlines of the larger area are drawn.

REPORT ON TOPOGRAPHY AND GEOLOGY

TOPOGRAPHY

A draw, the bottom of which is occupied with sparse spruce and in places thick alders, crosses the property from the southeast corner to the centre of the northern boundary. Drainage is to the northwest. Along the western boundary of the claims the ground is generally high. A diabase dyke, the trend of which is slightly west of north, which has resisted erosion better than the surrounding greenstone accounts for the high ground. The northeast corner is on high ground underlain by greenstone.

The road which leads to the property follows most of the northern boundary, but turns away at the northeast and northwest corners to reduce the grade on the high ground there. A ruined barn remains from an attempt to farm the low ground in the centre of the northern two claims. Near the barn is a well suitable for the support for camp of three or four men. This is the only water available on the property in summer.

A wagon road, cleared of stumps, runs close to the western boundary.

Shallow trenching and stripping remains in places, from previous exploration of the property. This is now overgrown and the boundaries are too indefinite to map.

Three small pits on the road near the northwest corner have been the source of a small amount of sand and gravel, probably used for road fill.

ACKNOWLEDGEMENT

The rocks exposed on the property have been identified and named in accordance with the sequence proposed by W. S. Dyer in Vol. XLIV, Part II, Report of the Ontario Department of Mines 1935 -- Geology and Ore Deposits of the Matachewan Kenogami Area.

TABLE OF FORMATIONS

QUATERNARY	<u>Pleistocene</u>	Glacial sand and gravel.
- - - - -	Great Unconformity	- - - - -
PRECAMBRIAN	<u>Matachewan</u>	Diabase Dykes
- - - - -	Intrusive Contact	- - - - -
	<u>Algoman</u>	Syenite Porphyry Dykes Quartz orthoclase veins
- - - - -	Intrusive Contact	- - - - -
	<u>Keewatin</u>	Basic lavas: meta-andesite meta-diorite (Greenstone) pillow lava, breccia, or pyroclastic.

THE KEEWATIN ROCKS

The volcanic rocks on the property are massive, dark greenish grey in colour, weathering a lighter grey.

Finer grained phases of this rock, of which chlorite is the only recognizable constituent, are probably meta-andesites. A dark medium grained rock, in which also only chlorite can be

recognized, is probably a meta-diorite. These rocks will be generally referred to as "greenstones." There is no evidence for an intrusive relationship for the coarser rock: it nowhere transgresses the flows, and rocks intermediate in grain size between the finest and coarsest occur. The coarser rocks are therefore probably the more slowly cooled interiors of the flows.

The massive flows are interbedded with lighter coloured strata three to ten feet thick containing angular fragments which differ slightly in colour from the matrix. These bands are in places in sharp contact on the north side with a moderately coarse phase of the flows, but the contacts are indistinct to the south where the light coloured bands grade into coarser, darker coloured rock. They may be flow breccias or pyroclastics and the grading downward into flows is taken to indicate that the tops of the flows are facing north. The strike of the flows is N85°W with tops facing north and an overturned dip of 85° to the south. A sharp change from fine grain on the south to coarse grain on the north along a line trending approximately east west occurs in two outcrops. This is taken to indicate a fine grained chilled top in contact with a coarser grained bottom of a flow, indicating tops to the north.

Pillow lavas, which occur just outside the north east corner indicate an east west strike with tops facing north.

THE SYENITE PORPHYRY AND QUARTZ ORTHOCLASE VEINS

A porphyry of pink orthoclase crystals up to 1/4" long in a grey matrix of hornblende needles and dark plagioclase of medium grain size occurs in dykes one foot to four feet wide with

an east-west strike. The dykes differ but slightly in strike from the flows and no definite evidence of intrusion was found. It is probable, however, that they are related to a basic phase of the syenite porphyry which Dyer mentions as occurring elsewhere in the larger region which he discusses.

Veins of quartz nine inches to two feet wide striking near S60°E and dipping 50° to 70° S.W. occur in places in the greenstone in the two western claims. Sparsely scattered in these veins are aggregations of coarse pink orthoclase. The veins contain very little sulphides, sparse pyrite and some galena occurring in one locality. They do not carry gold values.

The veins are sharply truncated by the diabase dykes and do not occur in the diabase except possibly as broken fragments of quartz. The date of intrusion of the veins into the Keewatin greenstone cannot be established further than that they are earlier than the diabase. The source of material may have been the pegmatitic phase of the Algoman granite.

THE DIABASE DYKE

Diabase occurs in a dyke of irregular outline trending N10°W and dipping 50° East on the eastern margin and 80° west indicated by joints on the western margin. The dyke crosses the northwest corner of the property and lies close to the western boundary. The maximum width is 200 feet but fingers of diabase 30 or so feet wide branch away from the main dyke and include large blocks of greenstone so that the dyke is apparently wider. The contact between diabase and greenstone is sharp. The diabase is fine grained near the contact but becomes progressively coarser

towards the centre of the dyke.

The texture is diabasic with laths of waxy feldspar surrounded by large grains of black pyroxene.

Numerous joints occur in diabase close to and parallel the contact with greenstone. Dips are 80° west on the western side and 50° - 60° east on the eastern side. Jointing is less intense in the centre of the dyke. Some cross jointing occurs.

The diabase is fresher in appearance than the meta-diorite of the Keewatin volcanics. Feldspar and pyroxene may be recognized whereas in meta-diorite only chlorite may be recognized. The weathered surface of the diabase is light brown in contrast with grey of greenstone. Some intrusions of quartz and strongly epidotized schlieren, probably torn from the wall, occur in the diabase dyke.

STRUCTURAL GEOLOGY

The strike of the volcanic flows is a little north of west. Flow tops, gradation of grain size and pillows indicate that tops face north and dip is 85° S with slight overturning.

Numerous shear zones occur in places in the greenstone. These are mineralized with pyrite and a little quartz. A large amount of epidote occurs along these shears both as a dissemination in greenstone fading gradually on each side of the shear, and as veins of coarse radiating acicular green and pink epidote, with quartz, in veins. Strikes of the shears are slightly north of west on the western side of the property, east-west in the centre and slightly north of east on the east side, showing that shearing has taken place in a general east-west direction.

Gash fractures striking approximately S60°E and dipping 50° to 70° S.W. now filled with quartz and some orthoclase are of unknown age.

Marked schistosity and strong shearing occurs in the northeast corner of claim number L54861. Thus there may be a fault running into the low ground on the northeast claim.

INTERPRETATION OF STRUCTURE IN KEEWATIN

If the quartz veins indicate gash fractures contemporaneous with the shearing then movement has been south side up and slightly west with respect to the north side.

STRUCTURE OF DIABASE DYKE

A diabase dyke 200 feet wide cuts across the strike of the greenstone. The strike of the dyke is slightly west of north and the dip 50°E on the east flank and probably near 80° west on the west flank. Movement between the walls of the dyke is probably slight since breccia or pyroclastic horizons and quartz veins occur on each side with slight displacement.

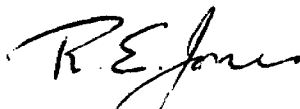
The dyke is irregular in outline with offshoots, some of which rejoin the main body enclosing blocks of greenstone. A shear zone bearing values is contained in such a block about 150 feet wide and 750 feet long in the northwest corner of claim L54864. Estimation of the persistence of this block in depth is impossible from surface indications.

The draw crossing the property in a direction slightly west of north seems to be caused more by the easy erosion of greenstone between more resistant diabase dykes than by erosion along a shear zone. (A diabase dyke parallel to the one described on

the property is shown on Dyer's map near the eastern boundary of the property. This dyke was not seen during this present mapping.)

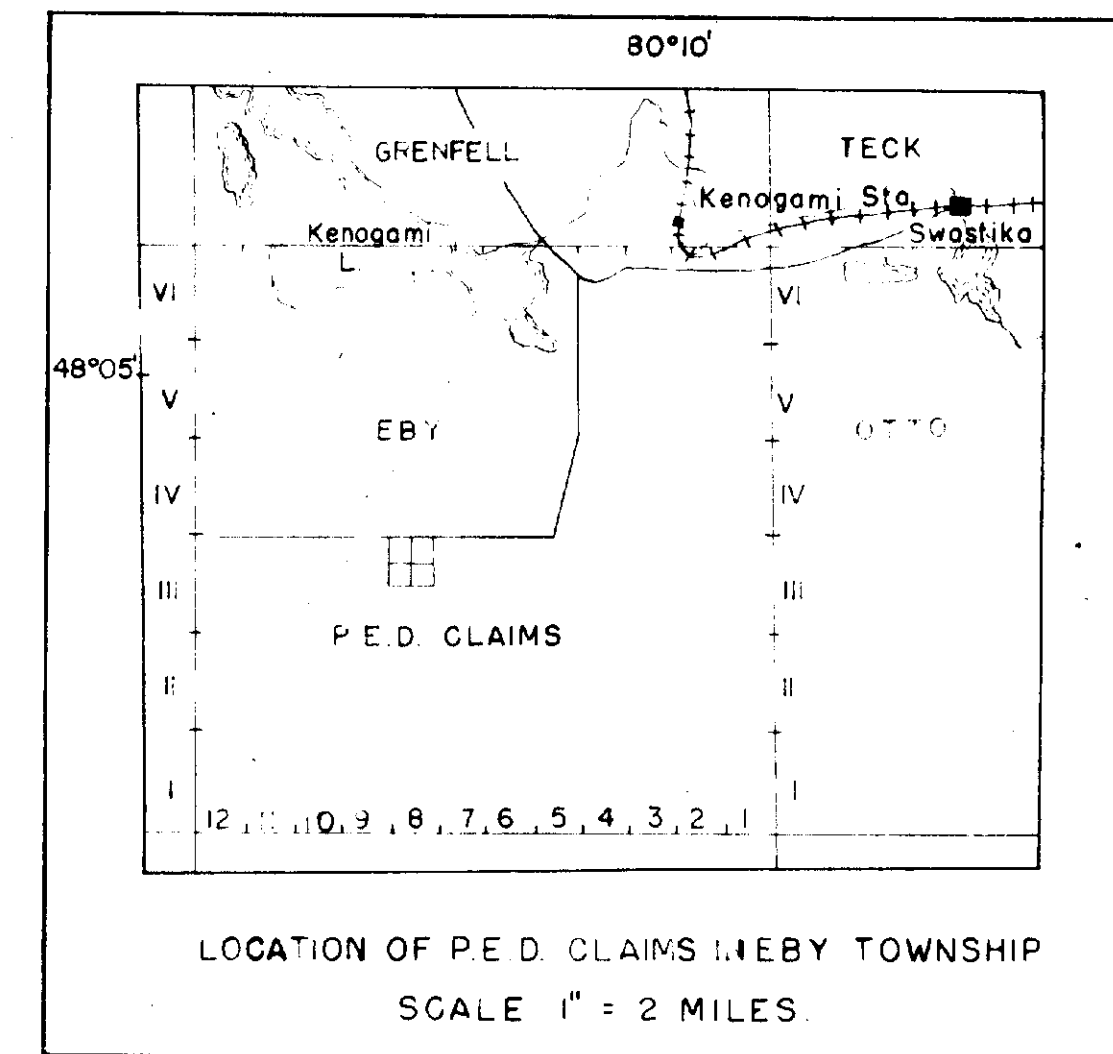
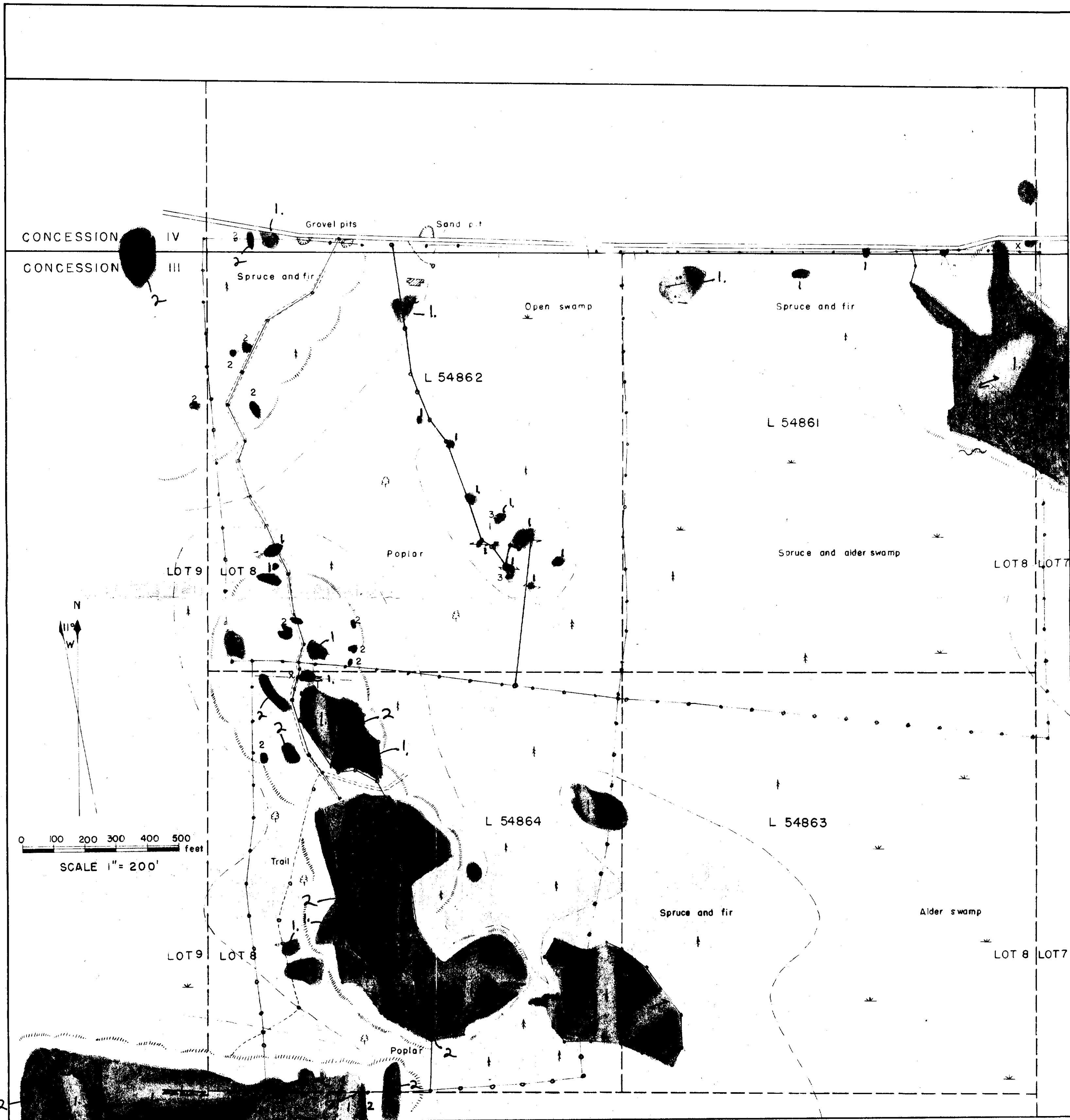
ECONOMIC GEOLOGY

The most important shear zone found to date is located in a block of greenstone surrounded by diabase as noted above. Here minor quartz and heavy pyrite carry values over a width of two feet on a knoll about twenty-five feet in length. Drilling will be required to sample and extend this vein, since overburden is quite heavy in strike east and west.



R. E. Jones,
Geologist.

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LEGEND

- 3 [Symbol] PORPHYRY DYKE
- 2 [Symbol] DIABASE
- 1 [Symbol] BASIC LAVAS
- [Symbol] FLOW BRECCIA
- [Symbol] PILLOWS
- [Symbol] QUARTZ VEIN CONTACT
- [Symbol] SHEAR
- [Symbol] SCHISTOSITY
- [Symbol] JOINT
- X [Symbol] PROSPECT PIT, PIT
- [Symbol] ROCK OUTCROP OR AREA OF SMALL OUTCROPS
- [Symbol] PICKET LINE
- [Symbol] APPROXIMATE BOTTOM OF SLOPE
- [Symbol] TRAVERSE LINE
- [Symbol] LOT BOUNDARY & CLAIM BOUNDARY
- [Symbol] CONCESSION BOUNDARY
- [Symbol] WELL
- [Symbol] BARN
- [Symbol] ROAD
- [Symbol] WAGON ROAD
- [Symbol] SWAMP
- [Symbol] SPRUCE, FIR & PINE
- [Symbol] POPLAR & BIRCH

PRESTON EAST DOME MINES LTD.

PLAN OF EBY TOWNSHIP PROPERTY

DATE, SEPT 9, 1949. SCALE, 1" = 200'

