



42A04NW0169 63A.35 KENOGAMING

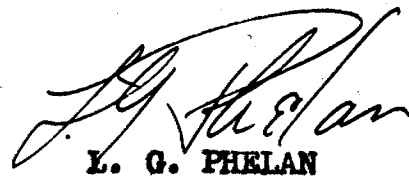
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A G R O U P O F C L A I M S  
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K E N O G A M I N G T O W N S H I P  
  
S U D B U R Y M I N I N G D I S T R I C T

L.G.PHELAN

GEOLOGY  
OF  
A GROUP OF CLAIMS  
IN  
KENOGAMING TOWNSHIP

SUDBURY MINING DISTRICT

  
L. G. PHELAN



42A04NW0189 63A.35 KENOGAMING

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G E O L O G Y  
OF  
A Group of Claims  
IN  
Kenogaming Township  
Sudbury Mining District  
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INTRODUCTION

In the Fall of 1946, Messrs. G.S. Willson & W.F. Morrison staked a group of 35 claims for Little Long Lac Gold Mines, Ltd., in the vicinity of the recent gold discoveries in the Palomar district. Eight of these claims were subsequently dropped. A geological reconnaissance of the property was made by Morrison at this time. The writer has drawn extensively on this work on the following report.

In 1947 further geological mapping and 1900 feet of diamond drilling were carried out under the supervision of Mr. Willson and L.G. Phelan. The results of this survey are herewith presented.

Location & Access

This block of 27 claims, known as the "Kenogaming Property" is located in Kenogaming Township of the Sudbury Mining District, approximately one mile west of Akweskwa Lake (see location map).

Akweskwa Lake is suitable for aircraft operation. Transportation by air may be arranged from Timmins, G汪gama or Sudbury. As an alternative the property may be reached by leaving the C.N.R. main line at Mileage 112 west of Capreol. There is a 6 mile road from this point to the south end of Kenogaming Lake. It is a 15 mile journey from here by canoe north through Kenogaming & Akweskwa Lakes. There are two portages of approximately  $\frac{1}{2}$  mile each between these lakes. A good trail leads west to the property from near the northern end of Akweskwa Lake.

### Topography & Physiography

West of Akweskwa Lake the ground rises rapidly for approximately 100 feet, then levels off. With the exception of some steep bluffs formed by diabase ridges on the south-western claims, there is no relief greater than a few feet above or below the general average. Low gravel hills alternate with extensive wet alder and cedar swamps.

Small muskeg lakes are found along the southern boundary, and a river flows northward through the most westerly claims.

Parts of the area have been burned in the past, but there are excellent stands of jackpine, spruce, birch and poplar, sufficient for building or mining purposes.

GENERAL GEOLOGY

The geological mapping was carried out by pace and compass methods. The rocks and minerals described below have been examined in the hand specimen only. A microscopic study might possibly show features hitherto unrecognized, necessitating a change in the classification.

The rocks of the area are as follows, listed in order of relative age:-

Olivine diabase dikes & boss

Lamprophyre dikes

Acid Intrusives-

Quartz & feldspar porphyry

Granite gneiss

Early Basic Intrusives-

Gabbro

Diorite

Amphibolite

Sedimentary Rocks-

Iron formation

Chert

Slaty graywacke

Intermediate & Basic Volcanics-

Dacite, andesite & basalt flows

Tuffs, agglomerates

Breccias

"Felsite"

## Volcanics & Sediments

The volcanic rocks are typical Keewatin greenstones. They include numerous exposures of fine grained massive andesites and dacites, with basalts in lesser quantities. Horn blende and chlorite schists are common, particularly in the eastern claims, near the granite contact. These last contain considerable siliceous and carbonaceous material. Tuffaceous and fragmental beds are also prominent, while exposures of coarse volcanic breccias were found in claims 44525 and 44516. Some of the rock shown as feldspar porphyry may be albitized or acid flows, otherwise no acid volcanics were noted.

A band of sedimentary rocks is found extending across the property from claim 44514 through 44524 and eastward. It is composed largely of fine cherty quartz having in places a pronounced banding due to layers of ferruginous material, mainly magnetite, but also hematite, iron carbonate and pyrite. Minor amounts of greywacke and ferruginous slates were also seen. Nowhere is the iron content high and the series is best described as an impure and iron bearing quartzite or chert. Volcanic rocks are conformably interbedded with the sediments, and the two are considered to belong to one series.

The rock called "felsite" is believed to be a highly metamorphosed greenstone. It is found only within or near the diabase base described below, and this latter is thought to have supplied sufficient heat and magnetic solutions to effect a recrystallization of the greenstone. The felsite is a very dense, massive, hard rock, extremely fine grained and homogeneous. It varies from a light grey to greenish in color and weathers a light buff. It has been well carbonated and sericitized. Near the diabase contact fine biotite

Crystals have been developed with a rough parallel alignment, giving the rock a gneissic structure, which disappears away from the contacts.

### Basic Intrusives

This group includes a series of massive coarse grained basic intrusives, probably all related. They range in composition from amphibolite to gabbro, with some dioritic phases. The contact with the greenstones is sharp, and there has been some recrystallization of the volcanics with development of coarser horn blende and biotite. The texture is generally about equivalent to a granite, but occasionally is extremely coarse. Both amphibolite and diorite were noted to grade into gabbro with no apparent intrusive contact.

### Acid Intrusives

Two outcrops of granite gneiss were found, in claims 44519 and 44514. These were both small dikes, medium grained, gneissic and slightly porphyritic in texture. The contact with the granite batholith is some distance to the east of the property.

There are numerous outcrops of quartz and feldspar porphyries in the north-eastern half of the property. This porphyry is generally of a light color, weathering grey-white. It is fairly fine grained, massive, and with a distinctly porphyritic texture, the phenocrysts being of quartz or alkali feldspar. The composition would be about equivalent to a granite or syenite.

Contacts with the gabbro are knife-sharp and show no evidence of chilling or alteration of any kind. As a rule the greenstone contacts are similar, but in claim 44510 gradational contacts were found, with the development of hybrid porphyries of intermediate composition.



On examination of drill cores from claims 44521 and 44514, it was found that at least some of these porphyries were merely albitized greenstone. Quite typical andesites graded by imperceptible stages through greenstone with occasional albite phenocrysts to good porphyries with a composition approximating a monzonite.

Since it was impossible to distinguish macroscopically between intrusive and altered volcanic, all of these porphyries have been shown in red on the accompanying map.

### Diabase

Diabase dikes are found in numerous locations on the property. They vary in width from a few to over a hundred feet in width, and all with a general north-south strike. A large intrusive mass of diabase occupies much of the south-western claims and extends for some distance south. These two are very similar in appearance and composition, both cut all the other rocks, and hence are believed to be one and the same.

The rock is an olivine diabase in composition, serpentinized to some extent, dark green in color, weathering brown. The texture is definitely ophitic and generally fine grained, though occasionally extremely coarse. The boundaries are invariably chilled and very fine for 6 to 12 inches from a knife-sharp contact.

All rocks in contact with the diabase have been altered to a greater or less degree. Greenstones and gabbros are amphibolitized and coarsened and the porphyries reformed in to more basic hybrids. The felsite as described above, is believed to be a metamorphosed greenstone.

On several occasions the diabase was noted to have highly magnetic properties. On a picket line passing over a diabase outcrop, the compass was deflected  $10^{\circ}$  and a dip needle was similarly affected.

This phenomenon was too general to be attributed to an isolated sulfide vein or iron formation boulder. The writer can only explain it by assuming an unusually large percentage of magnetite or pyrrhotite contained in the body of the diabase.

### Lamprophyres

Numerous lamprophyre dikes are found throughout the property, particularly in the most southerly claims. There are all fine grained, vary from a few inches to a few feet in width and, though very irregular, have a rough north-south alignment.

STRUCTURAL GEOLOGY

The sedimentary band through the northern part of the property has an average strike of  $N65^{\circ}E$  and dips to the north at  $85^{\circ}$  to  $65^{\circ}$ . The greenstones to the south have a strike somewhat south of east with dips nearly vertical. Only one determination of flow tops was made, that in claim 44512, and showed the flow to be facing north-east.

As the granite contact is approached, to the east, a very pronounced gneissic and schistose character is developed in the flows, striking parallel to the contact ( $N16^{\circ}E$  where noted)

A fairly well developed system of jointing, sometimes quartz-filled was noted in the felsite, with north-south and east-west strike, and vertical dip.

The porphyry south of claim 44513 has a pronounced shearing with small quartz and pyrite stringers.

Shearing was also found in the greenstones at several locations at  $S 35^{\circ}E$  to  $S 75^{\circ}E$  in Claim 44508,  $N78^{\circ}E$  in claim 44514, and  $N 50^{\circ}W$  in Claim 45694. As far as could be determined all of these shear zones were small, only a few feet in width, and could not be traced for any distance.

Small right-hand faults striking  $N 30^{\circ}E$ , and with a horizontal displacement of a few inches up to a foot, were seen in the volcanics of Claim 44514.

Small but pronounced "S" folds were noted in the iron formation and greywacks in Claim 44522, while 200 feet South "Z" folds were seen. There is a wide curve in the bedding of the sediments near number 2 post of claim 44521 where there is a  $20^{\circ}$  change in strike.

A large Z shaped fold may exist in the sediments of claims 44521 and 22. This pattern is indicated by the location of outcrops of iron formation, and the fact that they do not extend westward along the strike into claim 44514. In any case the sedimentary band appears to be much wider here than either to east or west, and the smaller drag folds described above are probably due to thickening of the beds around a major fold.

ECONOMIC GEOLOGY

No mineral deposits approaching commercial size have as yet been <sup>found</sup> on the property.

Massive pyrite and pyrrhotite are found in widths up to 5 feet along the iron formation contacts. These, as did small quartz veins in the iron formation and porphyry, carried a few low gold values (up to .04 oz.).

Hoodoo Gold Mines hold a block of claims about one mile south of the Little Long Lac Group, on which was found a strong shear, in tuffs, carrying high, though spotty, gold values. A pocket line was run along the strike of this shear to claim 45696 (see map) but the younger diabase intrusion cut off the mineralization before the Little Long Lac property was reached.

Recommendations

Assessment work done on the Kenogaming property up to the present totals 94 days per claim. A further 26 days per claim - 702 days in all - is necessary to hold the claims in good standing until August 1949.

It is thought that further surface exploration work is preferable to drilling, with the present limited knowledge of the property. The southern and western claims should be thoroughly examined for possible extensions of the Hoodoo Mines find. The parallel shear, containing small quartz and carbonate stringers, on the southern boundary of claim 45694 could be stripped and sampled. Also the quartz sulfide veinlets in the porphyry near claim 44513 should be examined and the whole and the whole porphyry mass more completely outlined.

The possible fold in the sediments of claims 44521-22 is a potential locus for ore, and could be thoroughly investigated.

SYNOPSIS OF WORK DONE

## Mapping -

W.F. Morrison	-	Nawa, Ont.	Sept. 25 to Oct. 4, 1946	11 days
E. Morin		Foleyet, Ont.	Sept. 25 to Oct. 4, 1946	11 days
G.S. Millson		Geraldton, Ont.	Aug. 25 to Oct. 28, 1947	41 days
J.A. Ross		Geraldton, Ont.	Aug. 25 to Sept. 30, 1947	37 days
L.G. Phelan		Geraldton, Ont.	Aug. 25 to <u>Aug.</u> 28, 1947	53 days

## Office work

L.G. Phelan				<u>10 days</u>
			Total	163 days

For assessment purposes this is equivalent  
to  $163 \times 4 = 652$  days work, or 24 days per claim.

## Drilling

1897 feet

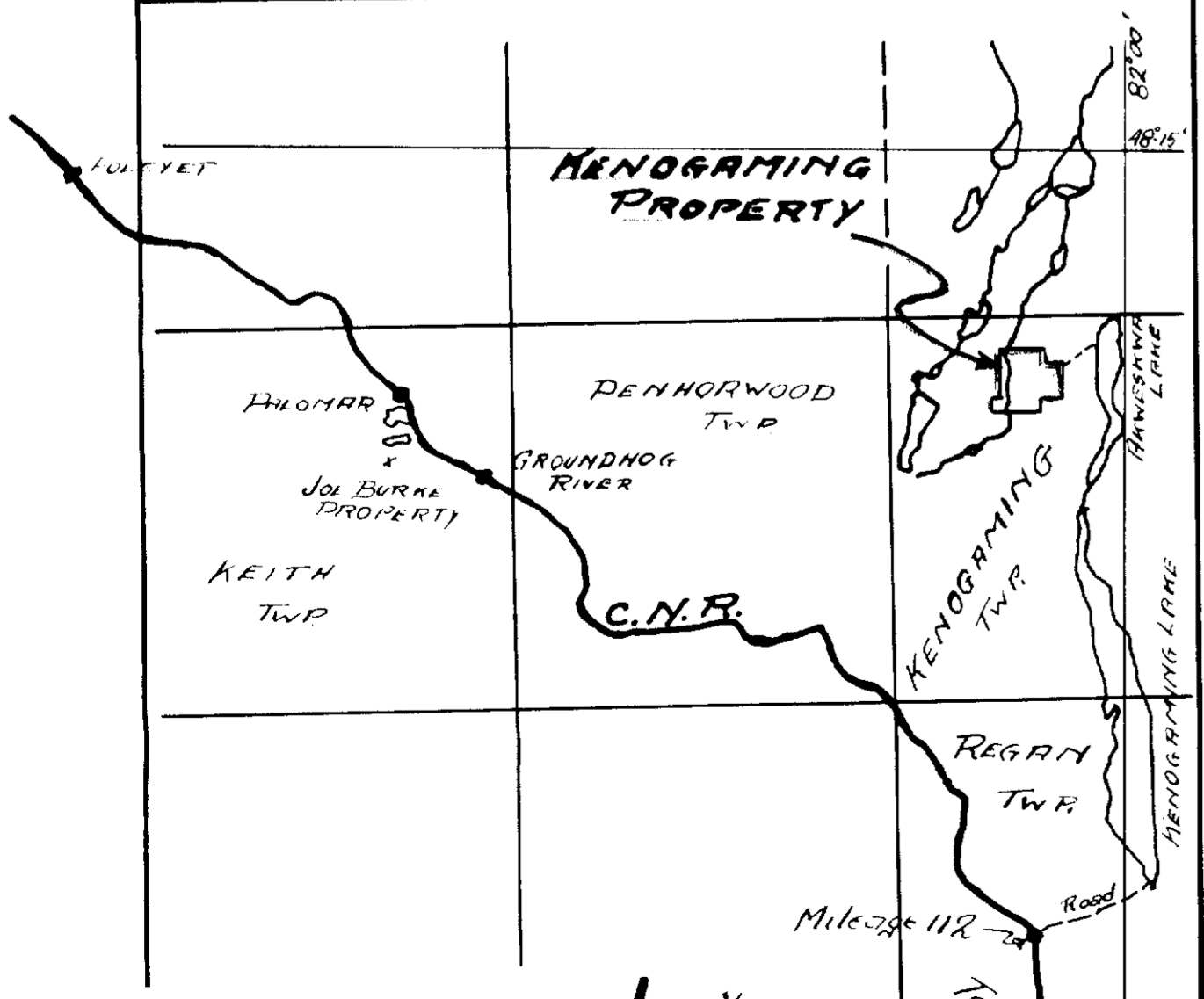
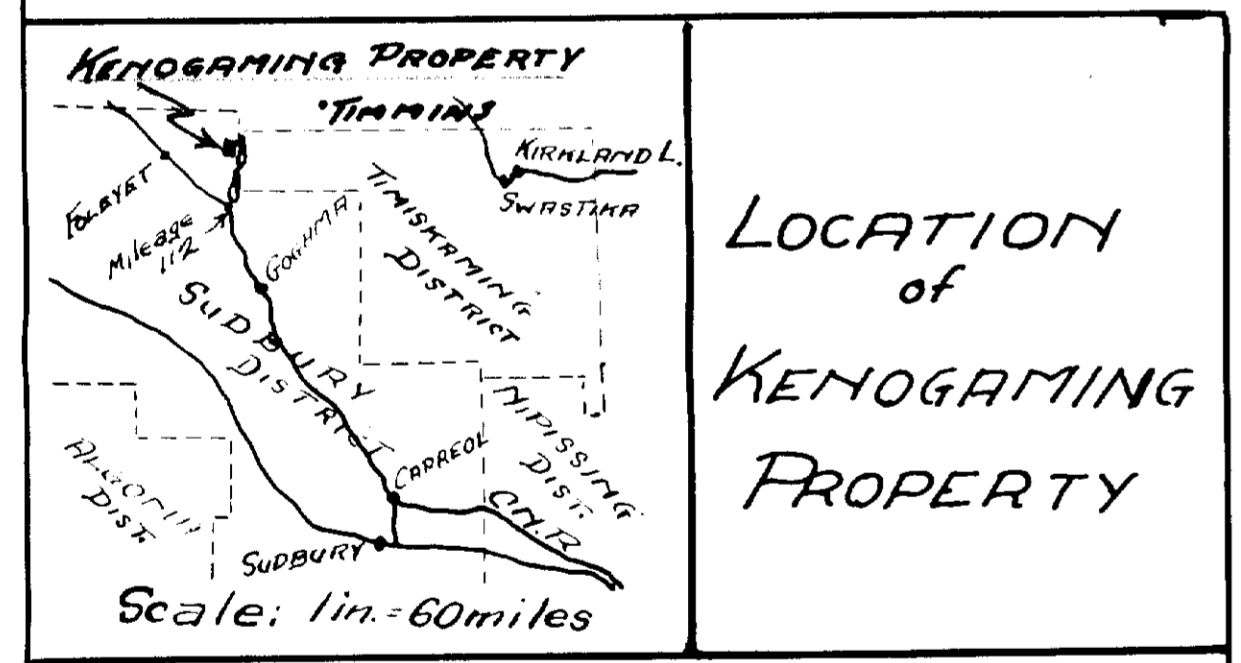
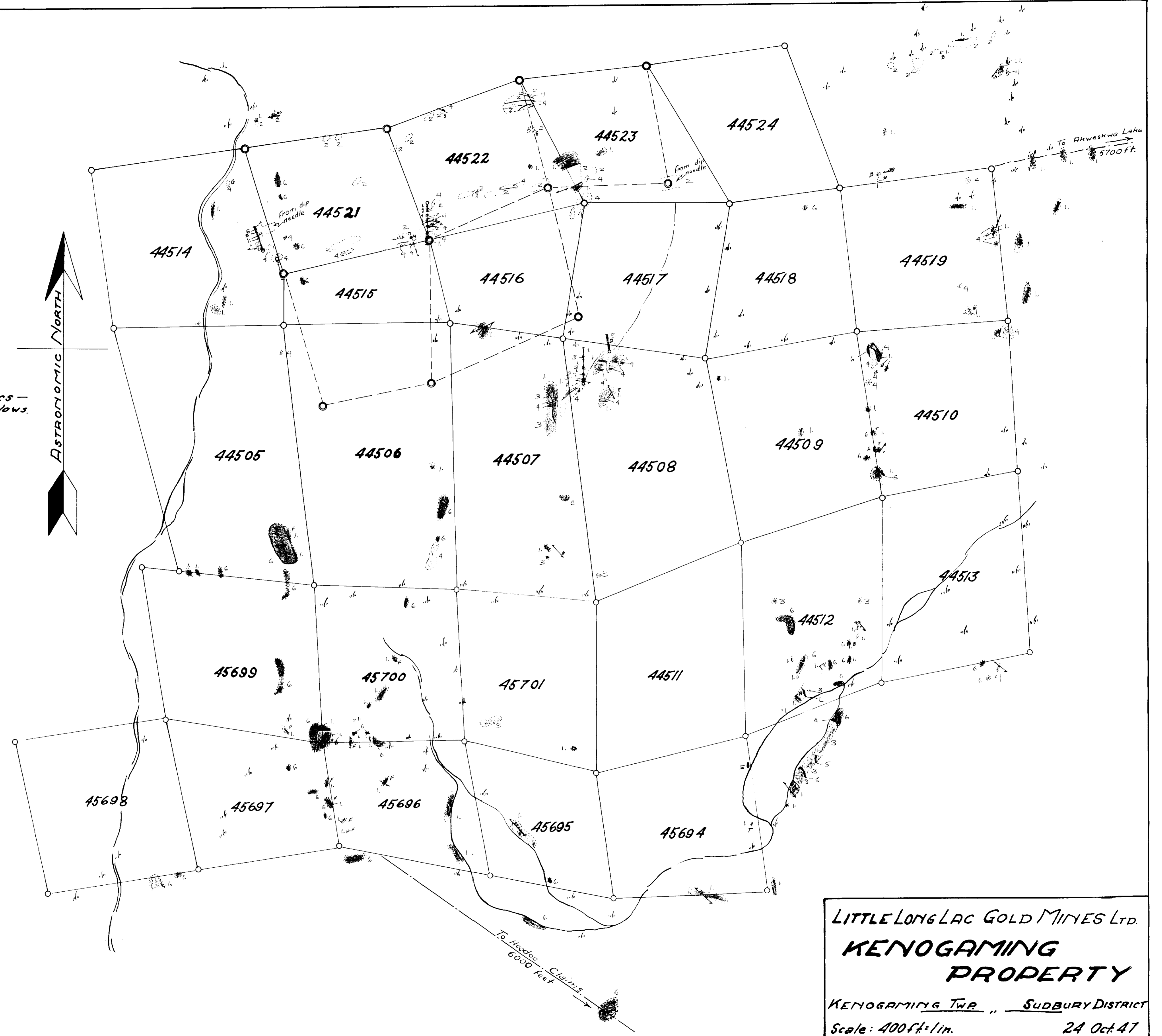
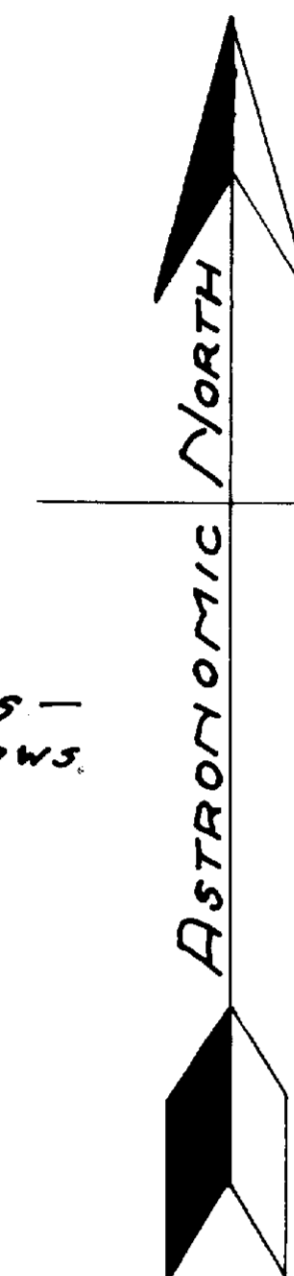
Total assessment work - 2549 days or 94 days per claim

QUALIFICATIONS OF THE WRITER

The writer holds the degree of Bachelor of Applied  
Science (Mining Geology, 1947) from the University  
Toronto.

L.G.Phelan

- 63435
- LEGEND**
- 6 Olivine diabase
  - 5 Lamprophyre
  - 4 Acid Intrusives - quartz & feldspar porphyry granite gneiss
  - 3 Early basic intrusives - gabbro diorite amphibolite
  - 2 Sediments - iron formation greywacke
  - 1 Intermediate & Basic Volcanics - dacite, andesite, & basalt flows. breccia tuff, agglomerate "felsite"
- Surveyed claim
  - Outcrop boundary
  - Geological boundary
  - ↖ Strike & dip
  - Diamond drill hole
  - Picket Line, trail.
  - Swamp, muskeg



LITTLE LONG LAC GOLD MINES LTD.  
**KENO GAMING PROPERTY**  
 KENO GAMING TWP. " SUDBURY DISTRICT  
 Scale: 400 ft. = 1 in. 24 Oct 47  
 L.G.P.

