



31M04NE0027 63A.306 SOUTH LORRAIN

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REPORT ON

THE GEOLOGY OF THE HAMMERSTROM-OSTIQUY PROPERTY
South Lorraine Township, District of Temiskaming, Ontario

FOR

W. HAMMERSTROM

Halleybury, Ontario
April 16, 1956

E. L. MacVeigh, B.A., M.B.

C O N T E N T S

1. Summary
2. Property & Access
3. Geology & Vein Deposits
4. Recommendations
5. Survey Data & Assessment Work Distribution
6. Certification

The Hammerstrom-Ostiguy property is composed of 6 claims adjoining west of the Keeley Silver Mine, South Lorraine Township, Ontario. Access to the claims is by car drive 23 miles south of the town of Cobalt. The claims are very favourably situated geologically for a repetition of the rich silver and cobalt ore occurrences mined on the Keeley and Frontier (Mining Corporation) properties which closely neighbour on the east and which together produced over 20,000,000 ounces in silver. Geologically the productive zone, which is related to the upper contact of the Nipissing diabase sill, will extend into the Hammerstrom-Ostiguy claims on the dip at a minimum depth of 800 feet. This depth will increase at a 15° dip westward across the property. The presence of the underlying diabase sill has been established at the east boundary of the Hammerstrom-Ostiguy claims by diamond drilling and the Hammerstrom-Ostiguy claims include the projection west of an arched structure in the diabase sill thought to localize the productive veins of the Keeley and Frontier Mines.

While depth is a considerable handicap to exploration for the erratic type of silver occurrence, the Hammerstrom-Ostiguy claims cover a local structure which if correctly interpreted will allow a chance for successful depth exploration by diamond drilling. It is recommended that two diamond drill holes recovering "A" core be drilled to an estimated length of 1750 feet each at an angle of 45° in claim T.34601. These holes will be required to drill through 800 feet of overlying Keewatin greenstone and cross-section as much as possible of the productive zone located within 400 feet of the top of the Nipissing diabase sill. Any success in this drilling will be a great incentive

to further investigate the property. Extension of the cross-section drilling in the productive zone may possibly be accomplished by wedging the initial holes. This procedure may also serve to further outline any drill intersections of interest without repeating the drilling from surface. The cost of the drilling program recommended with supervision would be approximately \$25,000.00.

PROPERTY AND ACCESS

The following report deals with only two claims of the Hammerstrom-Ostiguy group. These are the claims on which detailed geological mapping has been completed and they are recorded in the Temiskaming Mining Division at Haileybury, Ontario as follows:-

T.34601
T.34603

The property is reached by driving 23 miles south from the Cobalt Station to the old transformer house location on the Frontier property. From thence a trail leads around the south end of Beaver Lake to the east boundary of Hammerstrom claim T.34601. Access to the north part of the 6 claim group may be gained by driving out the old station road. Both routes turn west from the Silver Center road near the #3 shaft of the Frontier Mine. The two claims described herein adjoin west of the Keeley Extension property.

The property shows considerable outcrop at moderately high elevation sloping off to the west toward a low north-south trending valley. The claims are for the most part sparsely wooded with second growth and occasional patches of larger spruce, poplar and birch. The Ontario Hydro Power line is one mile west of

the claims. Though the neighbouring properties of the Keeley and Frontier are at present shut down and all buildings have been dismantled, there is a likelihood that mining will be resumed at these two properties in the future. Mining was terminated by the curtailment of development in the face of a very low price for silver and chances are considered good on both properties for additional cobalt and silver ore occurrence.

GEOLOGY AND VEIN DEPOSITS

The country rock of the South Lorraine Area is composed of Keewatin volcanics and cobalt sediments. The Keewatin forms a basement rock of andesitic and basic flows including pillow lavas and massive types. These are overlain unconformably by relatively flat cobalt sediments which include graywacke, arkose, and a prominent basal conglomerate. Intrusives into these rocks in the silver producing locality of South Lorraine, is a 1000 feet thick sheet-like mass of diabase known as the Nipissing diabase sill. The surface outcrop of this sill occurs just east of the Keeley and Frontier properties showing a north-south strike and a dip at surface of 25° to 30° west. This dip has been shown by underground work to flatten out to approximately 15° on the extension of the dip to the west. From an economic standpoint there is a close relationship with this diabase sill of the silver deposits of South Lorraine, Cobalt, Elk Lake and Gowganda. In all cases the silver produced has come from within a distance of 400 feet of the upper and lower contacts of the diabase.

For the most part silver production associated with the Nipissing diabase sill has come from fissure vein types. These

are calcite filled (cracks) in the diabase or in the adjacent Keewatin and Cobalt rocks. The fact that these cracks are very persistent frequently extending through the diabase and for hundreds of feet vertically into the country rock has led to the belief that they are a result of subsidence closely following the intrusion of the diabase. Shortly afterwards mineral bearing solutions migrated along the system of fractures resulting in rich cobalt and silver deposits at some locations. Frequently these fractures followed lines of weakness such as pre-existing faults and in this manner allowed mineral bearing solutions to be introduced into the old fault locations which resulted in silver ore occurrence. A geological structure favourable to the development of fractures in the diabase and adjacent rocks is the interruption of the diabase sill by a dome or arch structure near which stresses would form in all rocks concerned. This relationship has been observed as favourable in the Cobalt and Gowganda camps and shows prominently in the Frontier-Keeley area where a bulge westward occurs in the surface outline of the Nipissing diabase-Keewatin contact, and the Keewatin-Cobalt contact. The geology indicates the breadth of this arch to be about 4000 feet in a north-south direction and to strike north 70° west with an axis trending through the approximate center of Beaver Lake as described by W. W. Westaway in a report for Hoyle Mining Company dated May 5th, 1951. This 4000 feet of arched diabase underlies practically all of the productive area of the South Lorraine camp and its extension down dip can be considered a very favourable prospecting area for a repetition of the two general vein types mined on the Keeley and Frontier. These two types are the presence of rich ore in the north-south fault and shear zones such as the Wood's vein and the Watson vein on the Keeley and Frontier.

The faults are regional features which can often be traced on surface as lineal depressions. Other ore sources on the Keeley and Frontier came from east-west fractures approximately normal to the strike of the diabase sill and it is thought that the presence of these generally east-west vein occurrences will be found ore bearing over the arched area which favoured their occurrence and which allows migrating channels for silver and cobalt bearing solutions. In the progress of mining the east-west fracture system on the Keeley property, which may be seen on the accompanying vertical section of the Nos. 16 and 28 veins, ore deposits were worked in the Keewatin near the upper contact of the diabase sill and there would appear to be a very good chance of this relationship continuing to the west over the arched area in the diabase which strikes towards the Hammerstrom-Ostiguy claims.

The surface geology of the two Hammerstrom-Ostiguy claims, Nos. T.34601 and T.34603 shows an area of predominately Keewatin greenstone with the presence of overlying cobalt formation in the southwest corner of claim T.34603 and the northwest corner of claim T.34601. These rocks show the presence of numerous rusty vein fractures striking in both east-west and north-south directions. Some of these are traceable as marked depressions and experience has shown that these types will persist to considerable depth. Inasmuch as the horizon represented at surface of the two claims is 1200 to 1400 feet above the top of the diabase it is very unlikely that any of the veins will be found silver ore bearing at shallow depth. The fracturing and vein occurrence however is possibly indicative of an area which at depth, within 400 feet of the top of the diabase, may be silver ore bearing in the productive zone. Two prominent north-south lineals are present on the claims which

may mark fault zones with possibilities similar to the Wood's and Watson vein in the arched area. These zones are shown on the vertical section in claim T.34601 with an indicated dip of 75° to the east and have interesting exploration possibilities at depth.

Accompanying this report are three geological plans included to show the detailed geology of two Hammerstrom-Ostiguy claims and the relationship of these claims to the geology of the neighbouring Key and Frontier Mines. The maps enclosed in this report are:

- (1) Detailed Geology of Mining Claims T.34601 and T.34603
- (2) General Geology of the Main Productive Area of South Lorraine
- (3) Vertical Section of the Keeley Underground Working along the Nos. 16 and 28 Veins

RECOMMENDATIONS

Surface work correlated with the underground records of the Keeley and the Remardo properties has traced the probability of two important vein extensions to Hammerstrom-Ostiguy claim T.34601. The most important of these is the presence of a strong break crossing the east boundary of this claim 500 feet south of the No. 1 corner which is thought to be the western extension of the Keeley No. 16 vein, a substantial silver producer on the Keeley property. The second is the extension to the southeast corner of claim T.34601 of the #2 vein from the Trout Lake No. 2 shaft of the Remardo. Both of these veins would of course have to be explored within a vertical distance of 400 feet of the diabase sill to determine their importance. For preliminary exploration it is recommended that two deep diamond drill holes, each approximately 1700 feet in length, be drilled. The first of these

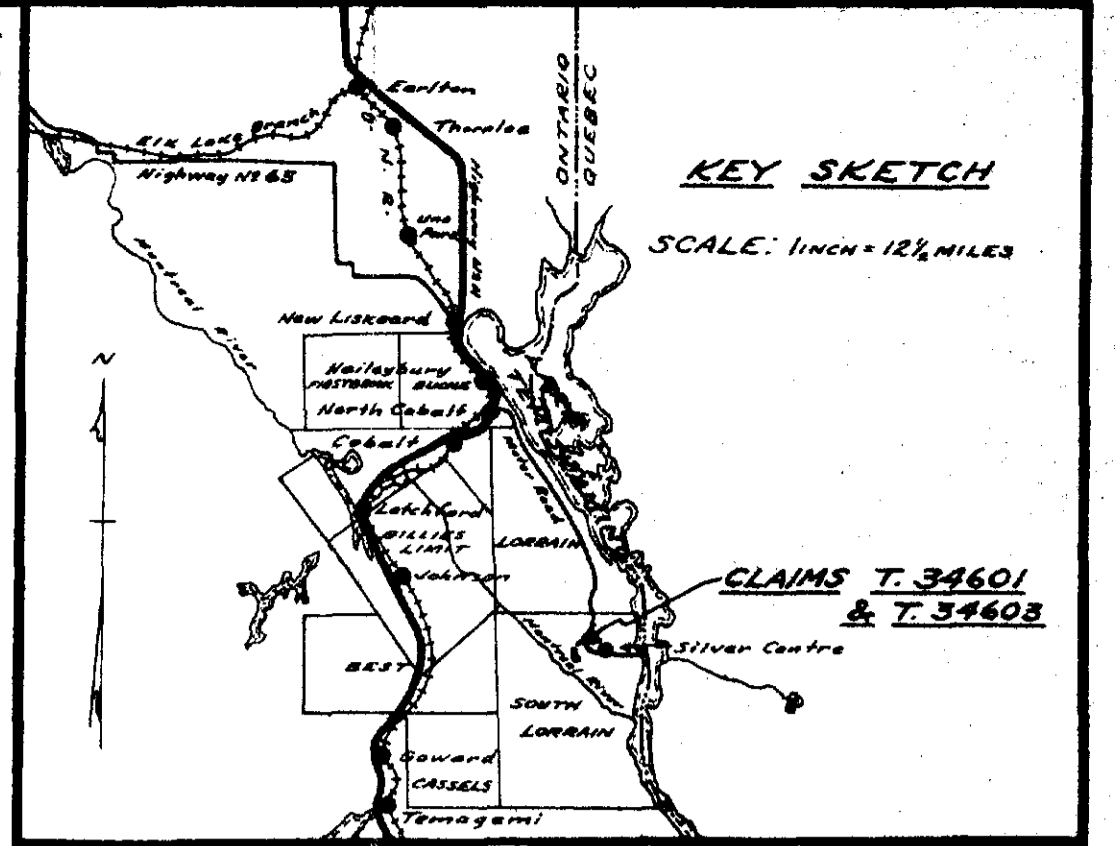
should be directed to intersect the indicated extension of the Keeley No. 10 vein in claim T. 34601 and should be drilled N16°W at an angle of 45° being collared at the north end of claim T. 34603 as shown on the accompanying map. This hole is directed to enter the productive zone (400 feet above the diabase) at a length of 1250 feet and should bottom in the diabase at approximately 1750 feet allowing a length of 500 feet of cross-sectioning in the productive zone at a location calculated to include the No. 10 vein extension. The second hole should be collared in the southeast corner of claim T. 34601 and drilled N80°W at an angle of 45° to intersect the downward extension of the fault zone indicated to cross claim T. 34601 in a northeast-southwest direction. This hole would explore the possibility of gaining ore indications in the productive zone of a north-south vein type similar to the Wood's and Watson veins on the Keeley and Frontier. Additional exploration might be carried on from these two first holes by wedging to obtain a flatter angle for cross-sectioning or to check interesting results at higher or lower horizons. Also, once the depth of the diabase is established and if additional holes are considered, it would be an economy to use a non-coring bullnosed drill bit for the shallow drilling through barren formation. An ore intersection would be of great significance and would prompt further exploration of this promising section. The two recommended holes are shown on the accompanying geological map and could be drilled at an estimated overall cost of \$25,000.00 recovering "A" core and including supervision.

Respectfully submitted by


E. L. McVeigh, B.Sc., M.S.

Halleybury, Ontario
April 10, 1956

63A-306



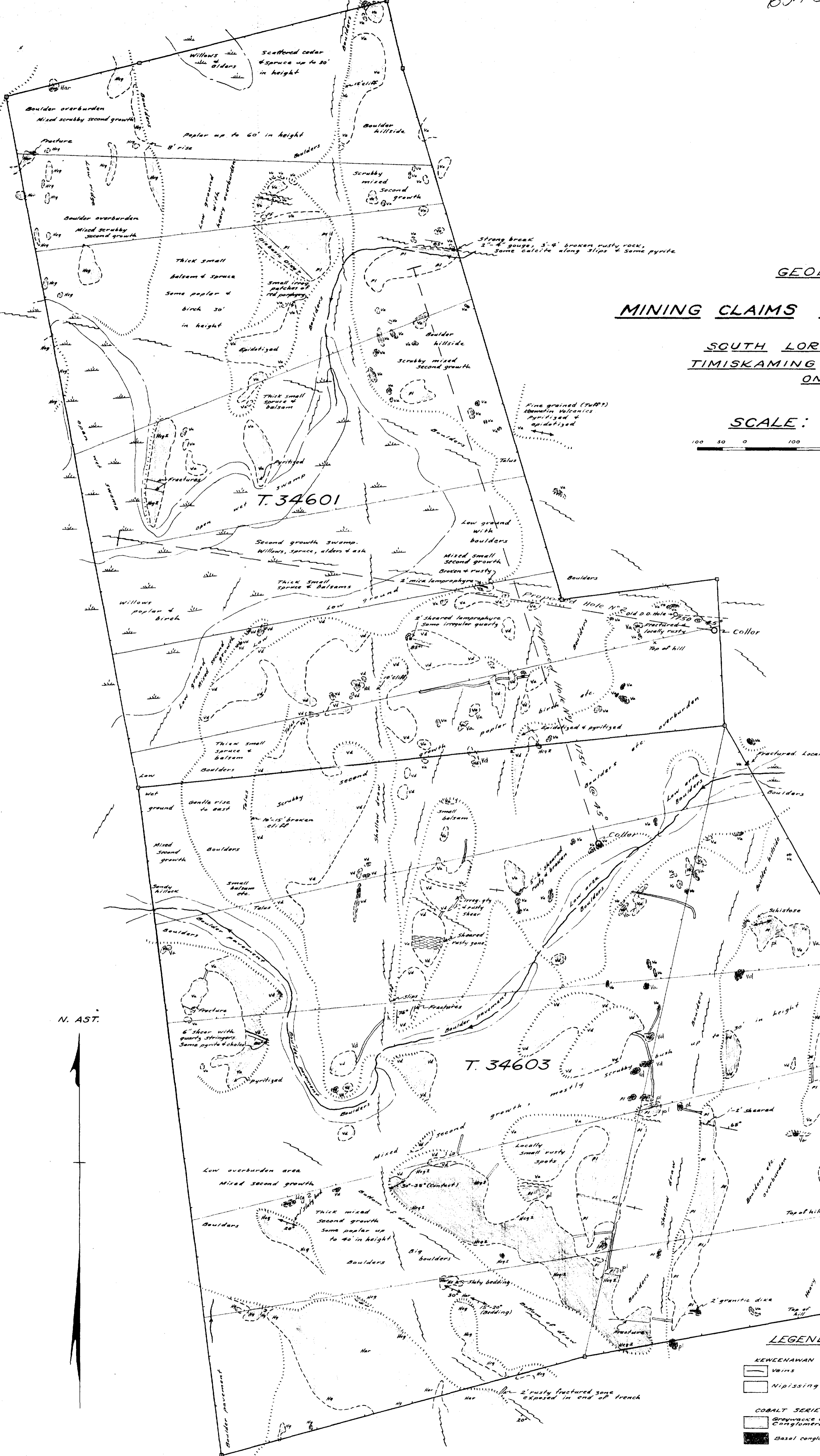
GEOLOGY OF MINING CLAIMS T. 34601 & T. 34603

SOUTH LORRAIN TOWNSHIP
TIMISKAMING MINING DIVISION
ONTARIO

SCALE: 1 inch = 100 FEET



BY: W. Hammerstrom
November 17, 1954



SYMBOLS

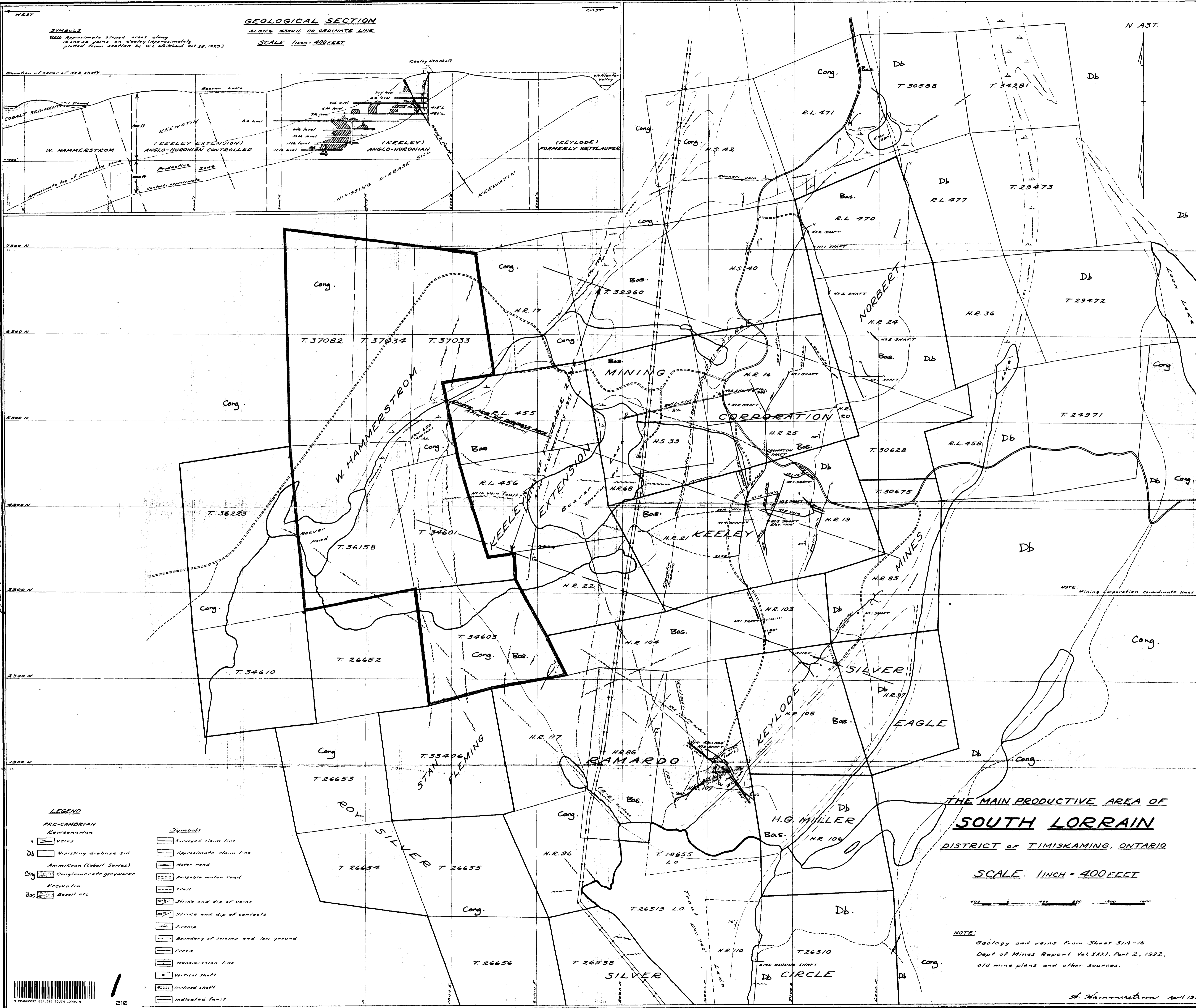
- Swamp
- Outcrop boundary
- Swamp boundary
- Open swamp boundary
- Contact, defined
- Contact, approximate
- Fault indicated or assumed
- Lower edge of rise in elevation
- Pit and dump
- Trench
- Strike and dip of veins, faults and shears
- Strike of vertical veins, faults and shears
- Strike and dip of formation, beds, etc.
- Strike of vertical formation, beds, etc.
- Claim post
- Surveyed claim boundary
- Picket line
- Diamond drill hole
- Trail
- Shearing
- Small creek

LEGEND

- KEWEENAWAN**
 - Veins
 - Nipissing diabase (Ndb)
- COBALT SERIES SEDIMENTS**
 - Conglomerate (Cg)
 - Sandstone (Ss)
 - Siltstone (Sl)
 - Shale (Sh)
 - Basal conglomerate (Nc-2)
- ALGOMAN(?)**
 - Feldspar porphyry (FP)
- HAILEYBURIAN(?)**
 - Lamprophyre (Lp)
- KEEWATIN**
 - Fine grained volcanics, pillow lavas (Fv)
 - Coarse grained, massive type (Vc)
 - Andesite (Va)

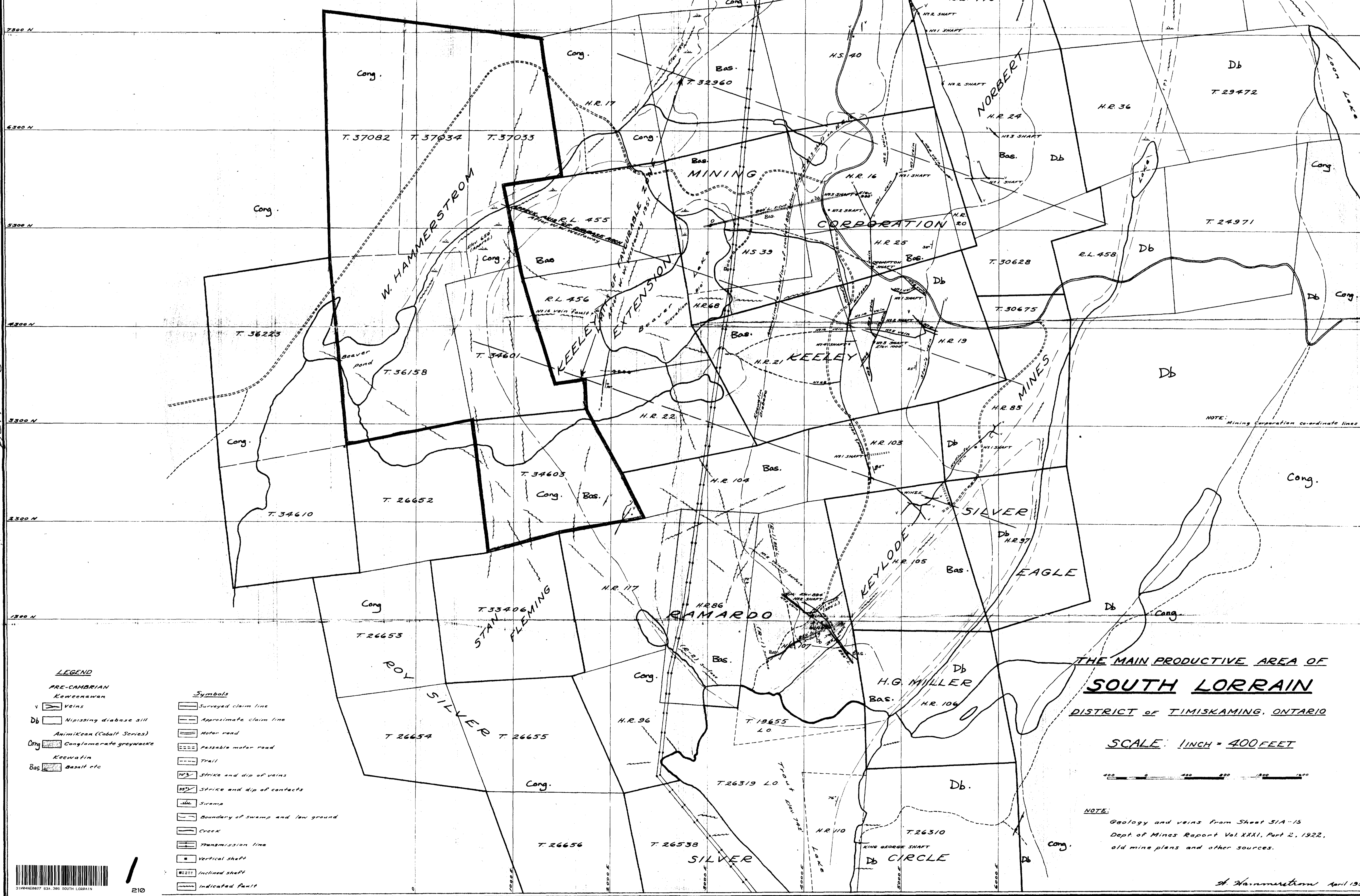
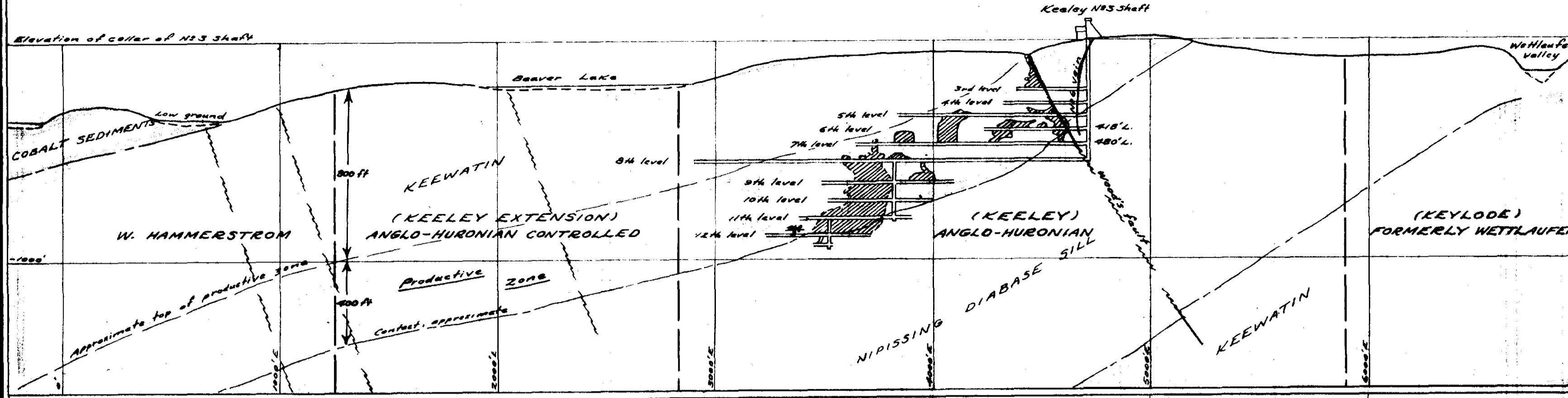
OWNERSHIP: AS ON NOV. 16, 1954
CLAIM T. 34601 — W. Hammerstrom
Haileybury, Ont.
CLAIM T. 34603 — J. Marcel Ostiguy,
Montreal, P.Q.





GEOLOGICAL SECTION
ALONG 4300N CO-ORDINATE LINE
SCALE 1 INCH = 400 FEET

SYMBOLS
Approximate sloped areas along
Main 28 veins on Keeley (approximately
plotted from section by N.L. Whithead Oct. 26, 1929)



LEGEND

PRE-CAMBRIAN
Keewawan

Db Nipissing diabase sill
Cong Animiakan (Cobalt Series)
Cong Conglomerate greywacke
Keewatin
Bas Basalt etc

Symbols

— Surveyed claim line
- - - Approximate claim line
— Motor road
- - - Passable motor road
- - - Trail
- - - Strike and dip of veins
- - - Strike and dip of contacts
- - - Stream
- - - Boundary of swamp and low ground
- - - Creek
- - - Transmission line
• Vertical shaft
• Inclined shaft
- - - Indicated fault

THE MAIN PRODUCTIVE AREA OF
SOUTH LORRAIN
DISTRICT OF TIMISKAMING, ONTARIO

SCALE: 1 INCH = 400 FEET



NOTE:
Geology and veins from Sheet 31A-15
Dept. of Mines Report Vol. XXXI, Part 2, 1922,
old mine plans and other sources.

St. Hammerstrom April 1934

WEST

EAST

CLAIM T. 34534

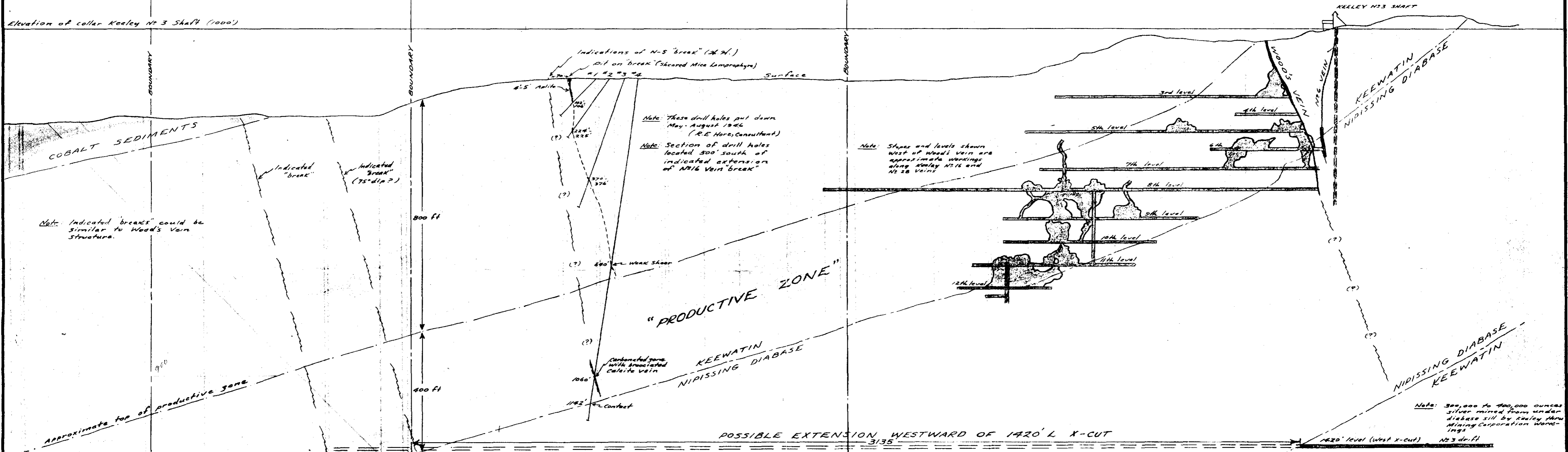
CLAIM T. 34601

KEELEY EXTENSION

KEELEY

63A-306

Elevation of collar Keeley No 3 Shaft (1000')



Indications of N-S "break" (A.H.)
 Pit on "break" (Sheared Mica Lamophyre)
 #1 #2 #3 #4

Note: These drill holes put down May-August 1946 (R.E. Hore, Consultant)
 Note: Section of drill holes located 500' south of indicated extension of N°16 Vein "break"

Note: Stages and levels shown West of Wood's Vein are approximate workings along Keeley N°16 and N°28 Veins

Note: 300,000 to 400,000 ounces silver mined from under diabase sill by Keeley thru Mining Corporation workings

Note: Indicated "breaks" could be similar to Wood's Vein structure.

VERTICAL SECTION OF
KEELEY WORKINGS ALONG N°16 AND N°28 VEINS,
KEELEY EXTENSION 1946 DRILL HOLES ETC.

SOUTH LORRAIN TOWNSHIP - ONTARIO

SCALE: 1 INCH = 200 FEET



31M04E0227 63A.306 SOUTH LORRAIN