41P14NE0080 2.2504 HALLIDAY

Suite 1101, 302 Bay Street
Toronto, Ontario
M5H 2P3

September 19, 1977

Dr. J. F. Machamer
Essex Minerals Company
Suite 1208
7 King Street East
Toronto, Ontario M5C 1A2

Dear Dr. Machamer:

Submitted herewith is our report on:

GEOLOGICAL SURVEY
ENGLISH TOWNSHIP PROJECT
DISTRICT OF SUDBURY
ONTARIO

Seven claim blocks totalling forty-nine claims were staked in English, Semple, Hutt and Halliday townships during May, 1976. Geological mapping was undertaken by Mr. B. J. McKay, B.Sc., of W. G. Wahl Limited immediately following the ground geophysical surveys in the spring of 1977.

The geological mapping programme was unable to determine the cause of the conductive zones mapped by the ground geophysical surveys. However, these conductive zones were mapped lying within geological horizons favourable to massive sulphide deposition.

It is therefore recommended that diamond drilling be undertaken to determine the cause of the conductive zones mapped by the ground geophysical surveys.

SEPTEMBER 19, 1977 W. G. WAHL LIMITED

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O N

GEOLOGICAL SURVEY

ENGLISH TOWNSHIP PROJECT

DISTRICT OF SUDBURY

ONTARIO

September 19, 1977

W. G. Wahl Limited

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INTRODUCTION

GENERAL

While examining data in the assessment file at the Toronto office of the Department of Natural Resources, Mr. D. G. Wahl noted that Granges Exploration AB had flown and filed an airborne input electromagnetic survey over an area centered around Semple Township, forty-five miles south of Timmins, Ontario. It was further noted that Granges had not filed any additional assessment work and that their mining claims had been cancelled by the mining recorder on June 27, 1975, for the non-renewal of the staker's mining license.

Dr. W. G. Wahl telephoned Mr. M. Muzylowski, General Manager of Granges in Vancouver, informing him of the cancellation of the claims. When Mr. Muzylowski had no comment to make concerning this matter, W. G. Wahl Limited had seven groups of claims staked to cover favourable geological areas over which anomalous input responses had been mapped.

W. G. Wahl Limited entered into an agreement with Essex Minerals Company whereby Essex acquired the claim blocks consisting of forty-nine claims in English, Semple, Hutt and Halliday townships.

At the request of Essex Minerals Company, W. G. Wahl Limited initiated a geological mapping programme in an attempt to further define the anomalous zones identified during the ground geophysical surveys. The geological mapping

was carried out by Mr. B. J. McKay, B.Sc., of W. G. Wahl Limited immediately following the ground geophysical surveys in the spring of 1977.

ACCESS

Access to this area is via a gravel road (Wick's road) west from Matachewan for thirty-five miles or south from Timmins for thirty-nine miles following the extension of Pine Street in that city. A camp was established at English Lake (see Photo 1) in the northeast corner of Semple Township. From here all claim blocks were accessible by either logging or hydro access roads, and/or canoe via Grassy River and Foy Lake. A 4-wheel drive vehicle is required as road maintenance is minimal.

The topography and geography of this area have been published as maps "Sinclair Lake", NTS No. 41-P/14 and "Peterlong Lake", NTS No. 42-A/3, at a scale of 1:50,000.

GENERAL GEOLOGY

A syncline of intermediate (andesitic) volcanic rocks with interlayered dacites trends easterly through the northern portions of Semple and Hutt townships. The underlying rhyolitic-dacitic volcanic rocks form large domical structures trending easterly through Sothman and Halliday townships to the south and through English Township to the north. (See Figure 1). These volcanic rocks consist of flows, breccias, agglomerates and tuffs. Thin horizons or lenses of graphitic tuffs and slates commonly interstratified with silicic tuffs and breccias contain disseminated and massive

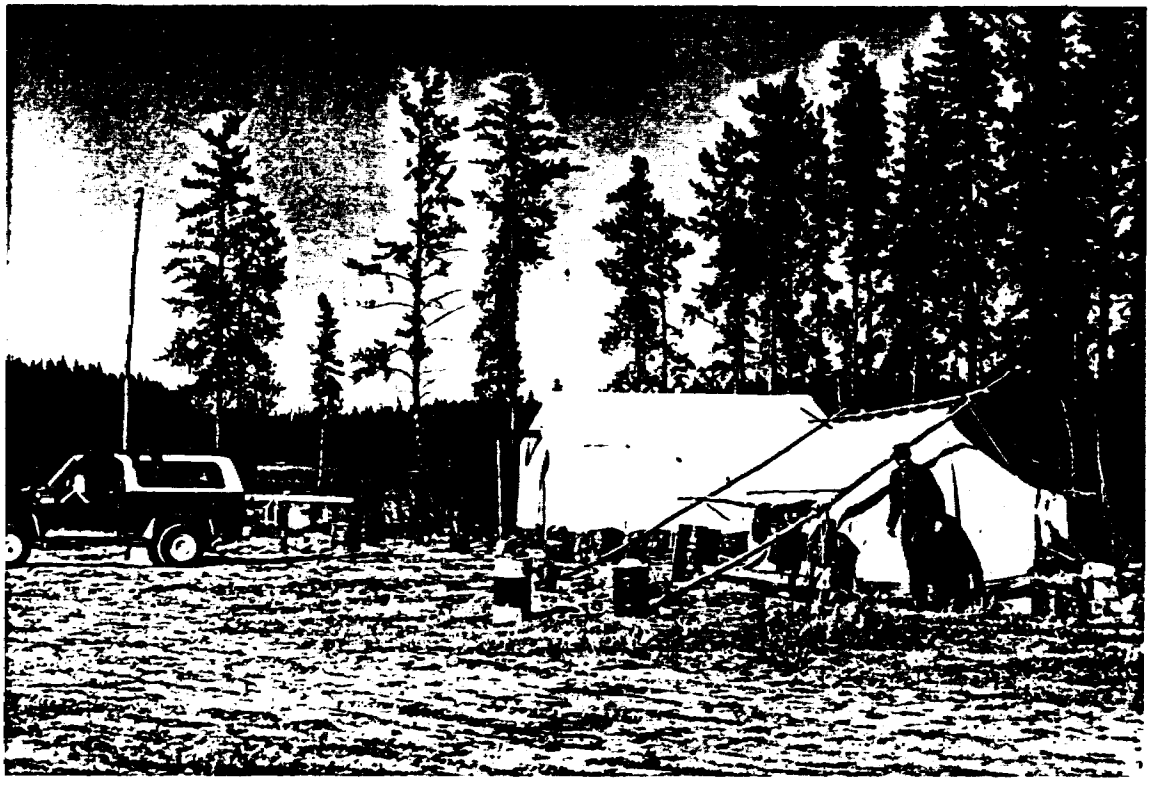


Photo 1. Base Camp, English Lake,
Semple Township, Ontario

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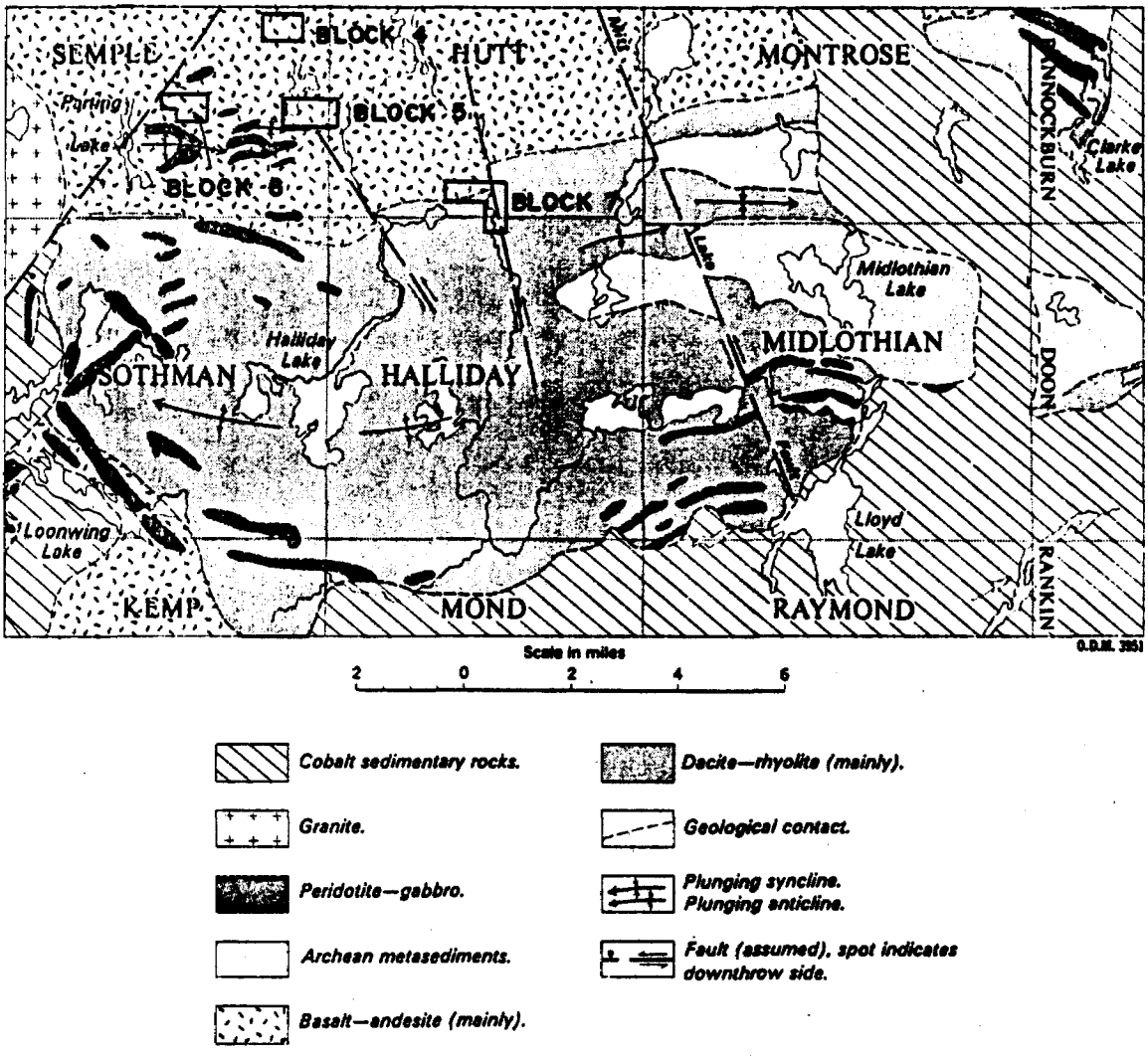


Figure 1. Regional Structural Geology, Halliday Dome, Showing Claim Blocks (after E. G. Bright, 1970).

pyrite, pyrrhotite and marcasite.

Porphyritic granites, quartz diorites and peridotites intrude the volcanic sequence. A large esker-outwash complex trends south through the center of English and Semple townships.

A Table of Lithologic Units follows.

The geology of this area as mapped by the Ontario Department of Natural Resources has been published on or in the following maps and reports:

Gledhill, T. L., 1926: Grassy River Area, Dist. of Sudbury; Ont. Dept. Mines, Vol. 35, pt. 6, p. 57-76. (Pub. 1927). Accomp. by Map. 35j, 1 in. to 1-1/2 mi.

Rickaby, H. C., 1932: Bannockburn Gold Area, Ont. Dept. Mines, Vol. 41, pt. 2, p. 1-24. Accomp. by Map 41a, 1 in. to 3/4 mi.

Marshall, H. I., 1947: Geology of Midlothian Twp,; Ont. Dept. Mines, Vol. 56, pt. 5, p. 1-24. (Pub. 1948). Accomp. by Map 1947-4, 1 in. to 1,000 ft.

Abraham, E. M., 1953: Geology of Sothman Twp., Dist. of Sudbury; Ont. Dept. Mines, Vol. 62, pt. 6, p. 1-33. (Pub. 1954). Accomp. by Map 1953-3, 1 in. to 1,000 ft.

Ginn, R. M., Savage, W. S., Thomson, R., Thomson, J. E., and Fenwick, K. G., 1964: Timmins-Kirkland Lake Sheet, Cochrane, Sudbury, and Timiskaming Dists.; Ont. Dept. Mines, Geol. Comp. Ser., Map 2046, 1 in. to 4 mi.

Bright, E. G., 1967a: Halliday Twp., Dist. of Sudbury; Ont. Dept. Mines, Prelim. Geol. Map P 385, 1 in. to 1/4 mi. Rev. 1968.

ibid., 1967b: Midlothian Twp., Dist. of Timiskaming; Ont. Dept. Mines, Prelim. Geol. Map P 386, 1 in. to 1/4 mi. Rev. 1968.

Prelim. Geol. Map P 385, Halliday Twp., Ont. Dept. Mines, 1 in. to 1/4 mi., 1968.

Prelim. Geol. Map P 454, English Twp., Ont. Dept. Mines, 1 in. to 1/4 mi., 1968.

Prelim. Geol. Map P 490, Semple Twp., Ont. Dept. Mines, 1 in. to 1/4 mi., 1968.

Prelim. Geol. Map P 491, Hutt Twp., Ont. Dept. Mines, 1 in. to 1/4 mi., 1968.

Much data is available in the assessement files and all pertinent reports have been reviewed.

TABLE OF LITHOLOGIC UNITS

CENOZOIC

Recent	Swamp and stream deposits (unconsolidated)
Pleistocene	Glacial drift, eskers, sand (dunes), (unconsolidated)

UNCONFORMABLE CONTACT

PRECAMBRIAN

PROTEROZOIC

Late Intermediate Intrusive Rocks (Keweenawan and Nipissing)

a) Quartz diabase or diorite

INTRUSIVE CONTACT

ARCHEAN

Felsic Intrusive Rocks (Algoman)

a) Granite

b) Quartz-feldspar porphyry

INTRUSIVE CONTACT

Early Mafic and Ultramafic Intrusive Rocks (Haileyburian)

a) Serpentinized peridotite

b) Gabbro

INTRUSIVE CONTACT

Felsic Metavolcanics

a) Rhyolites

b) Rhyodacites

c) Dacites

Iron Formation

Intermediate Metavolcanics

a) Andesites

CLAIM BLOCK I

NORTH CENTRAL ENGLISH TOWNSHIP

LOCATION AND ACCESS

Block I is located in the north central part of English Township and consists of the following four mining claims.

L-476222	L-476224
L-476223	L-476225

The claim block is readily accessible by 4-wheel drive vehicle from the base camp on English Lake via Wick's gravel road west to the Timmins Pine Street South extension, then north for a distance of approximately four miles.

GEOLOGY

PLEISTOCENE AND RECENT

The topography reflects a glacial depositional environment characterized by eskers, esker outwash, kettles and kettle lakes.

Two parallel, southerly trending eskers were mapped in the western portion of the grid area. The western and most prominent esker rises approximately 60 feet above the surrounding terrain and is up to 900 feet wide. The access road to Block I follows this esker. The eastern esker is not as prominent, rising to only 30 feet above the surrounding terrain, but it is up to 1,600 feet wide. Both of these eskers are composed of poorly sorted slightly stratified material.

Dense stands of spruce and pine cover the entire area of Block I. Several areas within this claim block show

evidence of selective tree harvesting resulting in isolated areas of heavy slash and thick secondary growth.

CLAIM BLOCK II

SOUTH CENTRAL ENGLISH TOWNSHIP

LOCATION AND ACCESS

Block II is located in the south central part of English Township and consists of the following four mining claims.

L-476194	L-476196
L-476195	L-476197

The claim block is readily accessible by 4-wheel drive vehicle from the base camp on English Lake by proceeding west along the Wick's gravel road to the Pine Street South extension, then north for a distance of approximately one mile.

GEOLOGY

PLEISTOCENE AND RECENT

As was the case in the preceeding map area, Block II surface features reflect a glacial depositional environment characterized by eskers, esker outwash, kettles, kettle lakes and aeolian sand plains.

The prominent esker trend mapped on Block I continues to be the dominant glacial trend on Block II. This esker mapped along the western boundary of the claim block is flanked on both sides by regions of esker outwash material and aeolian sand. A small kettle lake was mapped in the north central part of the map area lying within the main southerly trending esker. This kettle is extremely shallow and has intense bog development.

Spruce and pine are generally widespread throughout the claim block with the greatest concentration occurring in the well-drained esker and sand plain areas. Alders and willows have been confined to the poorly drained sections of the property.

CLAIM BLOCK III

SOUTH CENTRAL ENGLISH TOWNSHIP

LOCATION AND ACCESS

Block III is located in the southeastern part of English Township and consists of the following six mining claims.

L-476182	L-476185
L-476183	L-476186
L-476184	L-476187

The claim block is partly accessible by 4-wheel drive vehicle, west from the base camp on English Lake along the Wick's gravel road for a distance of approximately one-half mile, then north, on foot, along an old logging-diamond drill road to the property, a distance of approximately one-half mile.

GEOLOGY

PRECAMBRIAN (ARCHEAN)

Felsic Metavolcanics (Rhyolite)

Two different ages of felsic metavolcanics were mapped. The first and older is centered on the axis of a northeasterly trending anticline and outcrops on line 28 northeast at station 1+50 south. The second and younger rhyolite occurs as a band on the northwestern flank of the anticline and along the axis of the syncline located approximately 600 feet southeast of the baseline.

The older felsic member is blue-green, fine-grained and massive, and contains pyrite with minor pyrrhotite. These sulphides make up about 40% of the rock. On the weathered

surface the sulphides are tarnished and rusted. The rock is highly sheared and locally sericitized. A fault zone mapped on the western edge of the outcrop could account for the highly sheared nature of the rock. The breccia zone itself is up to six inches in width and is characterized by numerous infillings of a pale-white, vuggy crystalline quartz.

The younger felsic member is a massive, predominately fine-grained, blue-grey to white rhyolite. It contains minor pyrite, in amounts averaging between three to five percent. The pyrite occurs as minute, discontinuous, erratic veinlets that are less than 1 mm wide, and as scattered fresh and tarnished crystals approximately 1 to 2 mm across. Locally minor sericite is present.

On line 20+00 northeast at station 9+00 northwest flow banding was mapped (see Photo 2) trending N65^{o}E and dipping 52^{o} north. The rock consists of alternate bands, 5 to 8 cm in width, of a fine-grained, massive, red rhyolite with quartz eyes interbanded with a massive blue-grey rhyolite. On weathered surfaces both bands are chalky white.

A partially assimilated fragment of pink, medium-grained rhyolite, 25 feet by 8 feet was mapped within a dike on line 40+00 northeast at station 8+50 northwest. It contains cavities of quartz crystals which are a product of a partial remelting.

Estimated minimum thickness of the rhyolite is 200 feet.

Felsic Metavolcanics (Dacite)

This fine-grained, blue-grey to pale green to white



Photo 2. Rhyolite Flow Banding

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felsic rock occurs along the flanks of the major anticlinal axis and along the southern limb of the syncline. It differs from the rhyolitic unit in that the alteration is more intense and complete. Sericitization is the most prominent alteration, with the ferromagnesium minerals being altered to a low chlorite grade. The alteration mapped in the southern part of the grid area is so complete that the original rock mineralogy is difficult to establish and the structure hard to determine.

Pyrite is present in varying amounts, up to five percent of the rock, and occurs as scattered crystals.

Numerous carbonate stringers were mapped on line 16+00 northeast at station 2+00 southeast, complimenting the direction of the "B" fabric. Elsewhere on the property the carbonate occurs as scattered erratic veinlets, subparallel to the lineation, and in thin section the carbonate occurs as scattered rhombohedral crystals.

On line 24+00 northeast at station 6+50 southeast the dacite is slightly magnetic although no magnetite or pyrrhotite was noted. Minor graphite is found on some of the shear faces and the weathered surfaces are rusted and locally pitted.

The thickness of this unit varies from approximately 200 feet up to 1,400 feet over a strike length of one mile.

Iron Formation

A limited exposure of lean iron formation was mapped on line 46+00 northeast at station 0+90 southeast and on line 48+00 northeast at station 0+90 northwest. This lean iron

formation is thinnly banded. The darker bands are up to 10 mm in width and consist of fine- to medium-grained magnetite with pyrite and minor pyrrhotite. The lighter interbands are highly siliceous and extremely fine-grained. On the weathered surface the magnetite bands have been eroded, accentuating the more resistant siliceous layers.

PRECAMBRIAN (PROTEROZOIC)

Intermediate Intrusive (Quartz Diorite)

The intrusive rock unit is a massive, medium- to coarse-grained, holocrystalline diorite with random subhedral to anhedral crystals of feldspar and hornblende and minor mica and quartz.

The greenish white feldspar is locally altered and comprises up to 50% of the rock. The hornblende occurs as fresh, dark green to black prismatic crystals, 6 to 10 cm long. The biotite occurs as scattered flakes within the hornblende or closely associated with it. The quartz, about 3% of the rock, is creamy white and takes the shape of the voids it fills.

PLEISTOCENE AND RECENT

The southeastern quarter of the map area consists of dense alder and cedar swamp, with numerous windfalls and blowdowns. The remainder of the map area is covered by dense stands of spruce and pine interspersed with isolated patches of cedar swamp.

Several felsic and intermediate erratic boulders, up to four feet in diameter, were noted throughout the grid area.

STRUCTURAL GEOLOGY

FAULTING

Several parallel, westerly trending fault zones were mapped within the grid area. These faults all have a left lateral displacement of up to 300 feet. A faulted contact between the lean iron formation and the younger rhyolite was mapped on line 46+00 northeast at station 1+00 southeast.

The dip of most of the fault zones is indeterminable in the field as the faults are inferred from the geophysical data; however, the fault zone mapped on line 28+00 northeast at station 1+50 southeast has a southwesterly dip of 55°.

Two major jointing patterns are present within the younger rhyolite. One trends westerly, parallel to the major fault zones, and the other, believed to be tension fractures, trends at an azimuth of 60°.

FOLDING

A northeasterly plunging anticline was mapped in the central part of the grid area. A subsidiary tightly folded syncline was mapped southeast of the anticline.

CLAIM BLOCK IV

EAST CENTRAL SEMPLE TOWNSHIP

LOCATION AND ACCESS

Block IV is located in the east central portion of Semple Township and consists of the following six mining claims.

L-476226	L-476229
L-476227	L-476230
L-476228	L-476231

The claim block is accessible by 4-wheel drive vehicle by proceeding east from English Lake base camp along Wick's gravel road for a distance of 1.5 miles to the hydro maintenance road, thence southerly along the maintenance road for 2.1 miles to a westerly trending bush road which is followed for a distance of 0.75 miles. From this point an old logging road and blazed trail leads to the claims, approximately 0.8 of a mile to the northwest.

GEOLOGY

PRECAMBRIAN (ARCHEAN)

Intermediate Metavolcanics (Andesite)

The intermediate metavolcanic rocks are massive, dark to light green, fine- to medium-grained and locally agglomeratic. Chlorite is the main constituent of the rock in both the breccia fragments and the matrix. Minor pyrite occurs as disseminated crystals.

A well developed gossan zone is mapped on the base line at station 32+00 west. The host rock is a massive, light green, medium-grained chloritic andesite containing approximately 10% sulphides which are highly oxidized. South and

east of this exposure are numerous occurrences of a massive, dark green andesite. These occurrences, in contrast to the gossan zone, have an extremely low tenor of sulphides, generally less than one percent.

A mafic flow breccia, believed to be andesitic in composition is mapped on the base line at station 24+00 west. The contained fragments measure up to 8 by 25 cm, and are fine- to medium-grained exhibiting a crude lineation of N70°E.

Felsic Metavolcanics (Rhyolite)

The felsic metavolcanic rocks identified on Block IV consist of fragmentals (pyroclastic), flow breccias and massive rhyolites. The rhyolites are grey-cream through pale green to pale blue, with a fine- to medium-grained texture.

The rhyolite fragmental mapped on line 0+00 at station 7+00 south contains a random density of subrounded to rounded fragments, up to 10 cm in diameter. These fragments locally contain finely disseminated pyrite in amounts up to 5% and are contained in a fine- to medium-grained felsic matrix with minor sericitization.

The flow breccia mapped on line 24+00 west at station 15+00 south differs from the fragmental in that the fragments are elongated and exhibit a definite lineation. The axial ratio of the elongated breccia fragments is from 2:1 to 3:1. The major axis is on average about 50 cm in length, with a northeasterly strike and an apparent dip of 50°. The composition of the matrix is andesitic while the fragments are dacitic to rhyolitic in composition.

The weathered surface of the rhyolite mapped on line 24+00 south is unique in that siliceous nodules 2 to 4 mm in diameter protrude 1 to 2 mm from the weathered exposure. The "nodules" are set in a siliceous matrix. On a fresh surface it is difficult to distinguish the nodules from the surrounding matrix. This outcrop is small and may only be a large fragment; however, none of the fragments previously examined had textures resembling this exposure. Because of similarity to a particular kind of maple tree this rock has become known, by the author and the field crew, as a "bird's eye" rhyolite.

Felsic Metavolcanics (Dacite)

The felsic metavolcanics mapped on Block IV are both massive and fragmental (pyroclastic). On the weathered surfaces they are light brown to chalky white in contrast to the light green, blue-green, blue-grey to white of the unweathered surface.

The rocks near the felsic intrusion, to be described later, appear to be massive but in fact may be pyroclastics that have been altered by the younger intrusion. They are strongly sericitized and exhibit a distinct northeasterly foliation and a steep dip to the southeast. The intense alteration near the contact caused the volcanic rocks to become brittle and highly fractured. These rocks are fine-grained and contain scattered pale white quartz eyes up to 2 mm in diameter. Minor pyrite is also noted.

On line 16+00 west at station 23+00 south a massive felsic unit is mapped on the hanging wall side of a northwest

trending fault zone. Here the texture is medium- to coarse-grained, with phenocrysts of feldspar, quartz and minor pyrite. The feldspar, mostly plagioclase of andesine composition, is highly altered and in thin section has very irregular and jagged boundaries. The quartz phenocrysts are also very irregular and in thin section show a broken crystal structure. These phenocrysts represent remobilized and partially recrystallized quartz eyes that are present in the original, less deformed members of this rock unit. Pyrite appears in hand specimens as euhedral crystals but in thin section some of the pyrite is irregular and contains inclusions of quartz and occasionally feldspar. This rock unit locally contains up to 10% pyrite as cubic crystals 4 mm across. Where this occurs, the unweathered surface shows a granular alteration zone penetrating 2 to 3 cm into the rock. This alteration zone exhibits a rusty brown colouration.

Approximately 65 feet east of the fault zone a small test pit was mapped containing minor specularite as radial crystals approximately 3 mm in diameter. The quartz vein which occupies the fault zone is up to 12 cm wide.

The felsic pyroclastic exposed on line 4+00 west at station 15+00 south is dacitic in composition and contains numerous randomly oriented subangular to subrounded fragments. These fragments are up to 10 cm in length and are slightly sericitized. The matrix is felsic in composition and locally exhibits a crude lineation. Minor pyrite is present.

Early Ultramafic Intrusive (Serpentinized Peridotite)

This rock unit exposed on line 4+00 west at station

17+00 south. It is a fine- to medium-grained, dark green to black serpentinized peridotite. The rock has been intensely fractured and sheared, exhibiting numerous crenulations on the shear planes. Locally the weathered surface is pitted and has a rusty appearance.

Several narrow, randomly oriented quartz-carbonate stringers were mapped within this unit.

Felsic Intrusive (Quartz-Feldspar Porphyry)

A quartz-feldspar porphyry was mapped in the extreme south central portion of the map area. The rock consists of quartz and feldspar phenocrysts in a very fine-grained siliceous matrix. The plagioclase feldspar crystals, of andesine composition, make up only about 5% of the rock. These phenocrysts, which have weathered to a fine white powder, are from 1 x 1 mm to 3 x 2 mm. The quartz phenocrysts are light blue and up to 3 mm in diameter. They make up about 30% of the rock. The remainder of the rock consists of fine-grained quartz with minor pyrite, less than 2%.

The outcrop is highly fractured with several infillings of secondary quartz. Average width of these veins is 1 to 2 cm.

Felsic Intrusive (Granite)

A small pink dike or plug of granitic composition occurs within a large intermediate volcanic outcrop on line 28+00 west at station 5+50 south. This rock is medium- to course-grained and consists of euhedral to subhedral crystals of quartz, K-feldspar, biotite and hornblende.

PLEISTOCENE AND RECENT

Scattered extrusive and intrusive igneous boulders up to one meter occur within the till. Angular boulders of felsic composition consisting of 10% to 12% pyrite occur immediately north of an old diamond drill setup on line 8+00 west at 8+50 south.

The northeast and southwest corners of the grid are covered by tag alder and cedar swamps. The rest of the block is covered by spruce, fir and some birch with labrador tea and mossy undergrowth.

CLAIM BLOCK V

EAST CENTRAL SEMPLE TOWNSHIP

& WEST CENTRAL HUTT TOWNSHIP

LOCATION AND ACCESS

Claim Block V lies astride the boundary between Semple and Hutt Townships and consists of the following eight mining claims.

L-476188	L-476192
L-476189	L-476193
L-476190	L-476220
L-476191	L-476221

The claim block is accessible by 4-wheel drive vehicle from the Engligh Lake base camp by proceeding east along Wick's gravel road to the hydro maintenance road, then south along the maintenance road for approximately 2.1 miles to a westerly trending bush road which is followed past the Block IV cut-off to the Foy Lake landing. From the Foy Lake landing it is approximately 15 minutes by boat to the property.

GEOLOGY

PRECAMBRIAN (ARCHEAN)

Intermediate Metavolcanics (Andesite)

The intermediate metavolcanic rocks mapped on the property are dark blue to green, fine- to medium-grained and generally massive. A highly chloritic andesite, containing between 10% and 13% dark green chlorite, was mapped on line 16+00 east at station 17+00 south. The continuation of this exposure, mapped at station 20+00 south exhibits a moderately weathered surface, characterized by the absence of surface

ferromagnesian minerals and the partial alteration of the feldspars to sericite. Pyrite is locally present, in amounts of up to 2% and occurs as minute veinlets, less than 0.5 mm in width, and as scattered crystals. A relatively fresh andesite was mapped near the base line between lines 12+00 east and 16+00 east. Here the pyrite occurs as scattered distinct crystals.

Felsic Metavolcanics (Rhyolite)

The felsic metavolcanics mapped on the property are blue-grey to light green, fine- to medium-grained and massive to fragmental in appearance.

The massive rhyolite was mapped on line 48+00 east at station 5+20 south, and on line 47+00 east at station 5+20 south. It is also exposed in the test pit mapped on line 20+00 east at station 11+00 south. These rocks are all fine-grained and contain minor pyrite with a trace of chlorite. In the most eastern exposure, mapped on line 48+00 east at station 3+80 south numerous quartz eyes are present within the massive rhyolite. The quartz eyes comprise approximately 5% of the rock and are the most prominent feature on the weathered surface, presenting a slight northwesterly lineation and a northerly dip. No visible mineralization is present, although the weathered surface is locally rusted. On line 47+00 east at station 5+20 south the rhyolite is fractured and contains minor pyrite, up to 5% of the rock, which occurs as weathered crystals. The massive rhyolite exposed in the test pit on line 20+00 east at station 11+00 south is fine-grained and severely fractured. It contains local pyrite concentrations,

up to 12%, in narrow veinlets and as disseminated specks. A random grab sample of the more heavily mineralized material returned the following assay results:

Cu	Ni	Au	Ag
0.01%	0.15%	nil	nil

The massive rhyolite exposed on line 20+00 east at station 7+00 south and on line 46+00 east at station 13+40 south is slightly sericitized, containing a trace of pyrite.

The rhyolite fragmentals are restricted to several exposures mapped in the northeast corner of the property. The outcrop mapped on line 48+00 east near the base line presents the best exposure and is typical of the others mapped to the south. The fragments are subangular to rounded and are up to 100 cm in length. (See Photos 3 and 4). Some of the fragments contain numerous translucent, pale blue quartz eyes up to 2 mm in diameter. Other fragments are chloritic, containing from 3% to 5% chlorite, which occurs as greenish-black patches on the weathered surfaces. The weathered surfaces of these fragments is severely pitted. Minor carbonate occurs as hairline fracture fillings within the fragments as well as within the matrix. The matrix is a very fine-grained, felsic material containing vuggy sections of rusty, crystalline quartz.

Pyrite comprises from 2% to 5% of the rock and occurs as disseminated specks and weathered cubic crystals, 1 to 2 mm across. On the weathered surface the pyrite is rusted and locally pitted.

The rhyolite fragmental mapped on line 48+00 east at station 5+00 south contains smaller fragments which are



Photo 3. Felsic Fragments. (Note vuggy quartz at junction of fragments to left of hammer).

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Photo 4. Felsic Fragments with Fragment Boundaries Indicated by Black Arrows.

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noticeably less felsic in composition.

PRECAMBRIAN (PROTEROZOIC)

Late Intermediate Intrusive (Quartz Diabase)

A fine-grained blue-green quartz diabase intrusive is exposed on line 20+00 east at station 8+75 south. Phenocrysts of quartz and plagioclase feldspar are very prominent in a fine-grained matrix of chlorite, ferromagnesian minerals and quartz. A trace of pyrite is also present.

PLEISTOCENE AND RECENT

In the northeast corner of the grid area the southern limb of a westerly trending esker was mapped rising 25 feet above the surrounding terrain. The esker is up to 600 feet wide and is composed of fine to coarse sand. Numerous felsic and mafic glacial erratics, up to four feet in diameter, were identified during the mapping program.

An extensive area of wet cedar swamp was mapped in the southeastern section of the property. The eastern shore area and the area south of Foy Lake proved to be inaccessible due to the heavy spring runoff. The remaining "high ground" encountered during the survey is densely covered with spruce and isolated stands of birch.

STRUCTURAL GEOLOGY

FAULTING AND FOLDING

A major northwest trending fault zone was mapped in the test pit on line 20+00 east at station 11+00 south. The fault zone cuts diagonally across the west central portion of the map area and is regionally well defined on the government

aeromagnetic map. It extends from a point southeast of Foy Lake to a point west of Block IV. This fault zone has a left lateral displacement of approximately 300 feet.

CLAIM BLOCK VI

CENTRAL SOUTH SEMPLE TOWNSHIP

LOCATION AND ACCESS

Block VI is located in the central southern part of Semple Township and consists of the following seven mining claims.

L-476175	L-476179
L-476176	L-476180
L-476177	L-476181
L-476178	

The claim block is accessible by 4-wheel drive vehicle from the English Lake base camp, by proceeding southwest along Wick's gravel road to Parting Lake; at which point an easterly trending logging road is followed on foot approximately 0.4 miles to the property.

GEOLOGY

PLEISTOCENE AND RECENT

The topography of Block VI reflects a migrating dune environment characterized by broad expanses of sand plain and dune development.

A large sand dune was mapped occupying the central portion of the map area. The leeward side of the dune defines a line trending northeast across the east central portion of the property. The maximum crest elevation of the dune is approximately 80 feet above the leeward terrain and occurs at a point lying immediately west of the small lake mapped along the northern boundary of the claim block. The angle of repose on the leeward side is approximately 30 degrees; whereas on the

windward side the slope is extremely gradual, between 2 and 5 degrees. This dune is one of many reported by the Ontario Department of Mines and presented on Preliminary Map P-490.

The western one-third of the property was mapped as a sand plain and represents the continuation of the major sand plain development mapped to the north by the Ontario Department of Mines.

The eastern one-third of the property consists of dense alder and willow swamp.

CLAIM BLOCK VII

SOUTH CENTRAL HUTT TOWNSHIP &
NORTH CENTRAL HALLIDAY TOWNSHIP

LOCATION AND ACCESS

Block VII straddles the boundary between Hutt and Halliday townships and consists of the following 14 mining claims.

L-476206	L-476213
L-476207	L-476214
L-476208	L-476215
L-476209	L-476216
L-476210	L-476217
L-476211	L-476218
L-476212	L-476219

Access to the western portion of the claim block is by 4-wheel drive vehicle south along the hydro maintenance road for a distance of approximately 6.2 miles. From this point a blazed trail is followed for approximately 0.2 miles to the property.

Access to the eastern portion of the claim block is by canoe along the Grassy River.

GEOLOGY

PRECAMBRIAN (ARCHEAN)

Intermediate Metavolcanics (Andesite)

The andesites mapped on Block VII are dark green to blue-grey, medium- to fine-grained and massive. Minor pyrite is present (up to 3%) and occurs as scattered crystals and erratic, discontinuous veinlets 1 mm in width. The weathered surfaces are locally rusted in the presence of pyrite.

The intermediate metavolcanics are the most

prominent rock unit mapped on the property west of the Grassy River, where it occurs interbedded with the felsic metavolcanics.

On the east side of the Grassy River the andesite is confined to several limited exposures mapped in the vicinity of line 56+00 east at station 15+00 south. This rock unit as a whole exhibits a northeasterly strike and dips steeply to the north.

Felsic Metavolcanics (Dacite)

The rocks of this unit are light brown through pale green to blue-green, fine-grained and massive, containing numerous quartz eyes (measuring 1 to 2 mm in diameter) which are scattered throughout the groundmass. Sericite, chlorite, carbonate, pyrite and malachite occur as secondary minerals.

The dacitic metavolcanics mapped in the southeastern corner of the property are highly sericitized and the rocks are intensely fractured and poorly consolidated. On the western portion of the property the rocks are extremely competent and the sericitization is more localized and not as intense as that in the southeastern part of the property.

Chloritization is noticeably more intense in the southeastern portion of the property. On line 56+00 east at station 16+80 south chlorite comprises up to 15% of the rock. The chlorite is extremely fine-grained and in thin section the chloritic masses contain altered segments of hornblende, feldspar and occasionally pyrite.

The carbonate occurs as narrow fracture fillings and

is often associated with secondary quartz veins. The secondary quartz veins, as mapped on line 60+00 east at station 16+40 north, are extremely erratic and are up to 5 mm wide.

Minor pyrite is present within the dacitic unit and occurs as disseminated crystals within the ground mass. Locally on the weathered surface the pyrite is severely oxidized, whereas on the unweathered surface the pyrite shows little evidence of any oxidation.

Malachite occurs on line 4+00 east at station 17+50 north as visible specks which are restricted to a very fine-grained, pale green siliceous band within the dacitic meta-volcanics.

On line 12+00 east at station 23+00 north near the andesite contact the dacite exhibits a distinctive and unique lineation pattern. On a polished section siliceous and chloritic bands (less than 1 mm wide) are intensely fractured and distorted. This zone of distortion is outlined by distinctive rows of quartz eyes. The density of the pheno-crysts in each row increases towards the band of distortion. In the field, only a limited portion of the exposure dis-played this particular lineation, mapped at an azimuth of 090 degrees.

Felsic Metavolcanics (Rhyolite)

The felsic metavolcanics are light brown through blue to blue-grey, fine- to medium-grained and massive to fragmental (pyroclastic).

The rhyolite fragmental was mapped in the southeast portion of the grid area and is exposed on line 64+00 east at

station 16+40 south.

The fragments are randomly oriented and are up to 4 cm in length. They are fine-grained and contain a trace of pyrite. The groundmass is a fine-grained quartz-sericite material containing a minor amount of rusted pyrite. Locally, in the absence of the pyrite, the inter-fragmental material is slightly chloritic.

In the northeast portion of the property the felsic metavolcanics are massive and locally sericitized. Minor pyrite occurs as finely disseminated crystals within the inter-fragmental material and on the weathered surfaces the pyrite is locally pitted and rusted.

Secondary quartz veins occur as erratic veinlets up to 2 mm wide.

The felsic metavolcanics mapped on line 9+00 east at station 31+50 north are fine-grained and massive, containing mainly quartz with minor sericite, chlorite and pyrite. The weathered surfaces are slightly rusted. A second exposure mapped on line 4+00 east at station 30+50 north is a pale green, fine-grained massive rhyolite. This outcrop defines the contact between the massive rhyolite and the more mafic chloritic andesite. On a polished section this felsic unit illustrates a poorly defined contact which, on the outcrop, was mapped over several centimeters.

Early Mafic Intrusive (Gabbro)

A dark brown to green, medium- to coarse-grained gabbro was mapped on line 64+00 east at station 20+00 south. This early mafic intrusive is comprised of actinolite and

hornblende with accessory chlorite and quartz, with minor feldspar. Secondary quartz was also mapped as narrow fracture fillings. The rock is locally rusted.

PRECAMBRIAN (PROTEROZOIC)

Late Intermediate Intrusive (Diabase)

The late intermediate intrusive mapped on the property consists of a fine- to medium-grained, grey-green quartz diabase. It is comprised of randomly oriented feldspar and quartz crystals in a matrix of chlorite, scattered pyroxene and minor pyrite. In this section the feldspar is severely altered and has poorly defined crystal boundaries. The pyrite occurs as rounded masses with distinct boundaries, some of which contain minute spherical inclusions of quartz.

PLEISTOCENE AND RECENT

Block VII represents a hummocky bedrock topography. The only glacial features identified during the mapping program were glacial erratics four feet in diameter.

The Grassy River flows through the east central portion of the property along line 48+00 east and 52+00 east. The river is extremely shallow and difficult to navigate.

STRUCTURAL GEOLOGY

FOLDING AND FAULTING

E. G. Bright, 1970, of the Ontario Department of Mines suggests that the Grassy River fault zone identified during the recent mapping program illustrates a left lateral displacement of approximately 7,000 feet. This major fault zone is well defined on the regional aeromagnetic maps.

Numerous parallel, northwesterly trending fault

zones were also mapped on the property and all illustrate left lateral displacement, some in excess of 600 feet.

All of which is respectfully submitted,

Yours very truly,

W. G. WAHL LIMITED

Bryan J. McKay

B. J. McKay, B.Sc.
Project Geologist



David G. Wahl, P. Eng.
Consulting Engineer

BJM/mhc

FORM NO. L42-811-P REPORT PAPER - GRAND & TOY

41P14NE0080 2.2504 HALLIDAY

020

Suite 1101, 302 Bay Street
Toronto, Ontario
M5H 2P3

September 19, 1977

Dr. J. F. Machamer
Essex Minerals Limited
Suite 1208
7 King Street East
Toronto, Ontario M5C 1A2

Dear Dr. Machamer:

Submitted herewith is our report on:

GEOPHYSICAL SURVEYS
ENGLISH TOWNSHIP PROJECT
DISTRICT OF SUDBURY
ONTARIO

Seven blocks of claims totalling forty-nine claims were staked in English, Semple, Hutt and Halliday townships during May, 1976. Magnetometer and electromagnetic survey units were used to map all claims not covered by high waters during the spring of 1977. The geology was mapped on the completion of the geophysical surveys and the geological report will be submitted separately at a later date.

Conductive zones with associated or coincident magnetic relief were mapped on all claim blocks except Claim Block VII where only the magnetic expression of a volcanic dome was mapped.

Diamond drilling is recommended to determine the cause of the conductive zones if further field work shows no evidence of the causative body on the surface or of previous drilling. A total of 2300 feet of diamond drilling is recommended.

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SEPTEMBER 19, 1979

W. G. WAHL
LIMITED

41P14NE0080 2.2504 HALLIDAY

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INTRODUCTION

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INTRODUCTION

GENERAL

While examining data in the assessment file at the Toronto office of the Department of Natural Resources, Mr. D. G. Wahl noted that Granges Exploration AB had flown and filed an airborne input electromagnetic survey over an area centered around Semple Township, forty-five miles south of Timmins, Ontario. It was further noted that Granges had not filed any additional assessment work and that their mining claims had been cancelled by the mining recorder on June 27, 1975, for the non-renewal of the staker's mining license.

Dr. W. G. Wahl telephoned Mr. M. Muzylowski, General Manager of Granges in Vancouver, informing him of the cancellation of the claims. When Mr. Muzylowski had no comment to make concerning this matter, W. G. Wahl Limited had seven groups of claims staked to cover favourable geological areas over which anomalous input responses had been mapped.

W. G. Wahl Limited entered into an agreement with Essex Minerals Company whereby Essex acquired the claim blocks consisting of forty-nine claims in English, Semple, Hutt and Halliday townships.

At the request of the Essex Minerals Company. W. G. Wahl Limited surveyed these claims with a magnetometer and MaxMin II electromagnetic survey unit during the spring of 1977. The geology of these claims was mapped immediately following the geophysical surveys.

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ACCESS

Access to this area is via a gravel road (Wicks Road) west from Matachewan for thirty-five miles or south from Timmins for thirty-nine miles following the extension of Pine Street in that city. A camp was established at English Lake in the northeast corner of Semple Township. From here all claim blocks were accessible by either logging or hydro access roads, and/or canoe via Grassy River and Foy Lake. A 4-wheel drive vehicle is required as road maintenance is minimal.

The topography and geography of this area have been published as maps "Sinclair Lake", NTS No. 41-P/14 and "Peterlong Lake", NTS No. 42-A/3, at a scale of 1:50,000.

GENERAL GEOLOGY

A syncline of intermediate (andesitic) volcanic rocks with interlayered dacites trends easterly through the northern portions of Semple and Hutt townships. The underlying rhyolitic-dacitic volcanic rocks form large domical structures trending easterly through Sothman and Halliday townships to the south and through English Township to the north. These volcanic rocks consist of flows, breccias, agglomerates and tuffs. Thin horizons or lenses of graphitic tuffs and slates commonly interstratified with silicic tuffs and breccias contain disseminated and massive pyrite, pyrrhotite and marcasite.

Porphyritic granites, quartz diorites and peridotites intrude the volcanic sequence. A large esker-outwash complex trends south through the center of English and

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Semple townships.

The detailed geology of the claims as mapped by Mr. B. McKay, B.Sc., of W. G. Wahl Limited is submitted as a separate report. The geology of this area as mapped by the Ontario Department of Natural Resources has been published on or in the following maps and reports:

Gledhill, T. L., 1926: Grassy River Area, Dist. of Sudbury; Ont. Dept. Mines, Vol. 35, pt. 6, p. 57-76. (Pub. 1927.) Accomp. by Map. 35j, 1 in. to 1-1/2 mi.

Rickaby, H. C., 1932: Bannockburn Gold Area, Ont. Dept. Mines, Vol. 41, pt. 2, p. 1-24. Accomp. by Map 41a, 1 in. to 3/4 mi.

Marshall, H. I., 1947: Geology of Midlothian Twp.; Ont. Dept. Mines, Vol. 56, pt. 5, p. 1-24. (Pub. 1948.) Accomp. by Map 1947-4, 1 in. to 1,000 ft.

Abraham, E. M., 1953: Geology of Sothman Twp., Dist. of Sudbury; Ont. Dept. Mines, Vol. 62, pt. 6, p. 1-33. (Pub. 1954.) Accomp. by Map 1953-3, 1 in. to 1,000 ft.

Ginn, R. M., Savage, W. S., Thomson, R., Thomson, J. E., and Fenwick, K. G., 1964: Timmins-Kirkland Lake Sheet, Cochrane, Sudbury, and Timiskaming Dists.; Ont. Dept. Mines, Geol. Comp. Ser., Map 2046, 1 in. to 4 mi.

Bright, E. G., 1967a: Halliday Twp., Dist. of Sudbury; Ont. Dept. Mines, Prelim. Geol. Map P 385, 1 in. to 1/4 mi. Rev. 1968.

ibid., 1967b: Midlothian Twp., Dist. of Timiskaming; Ont. Dept. Mines, Prelim. Geol. Map P 386, 1 in. to 1/4 mi. Rev. 1968

Prelim. Geol. Map P 385, Halliday Twp., Ont. Dept. Mines, 1 in. to 1/4 mi., 1968.

Prelim. Geol. Map P 454, English Twp., Ont. Dept. Mines, 1 in. to 1/4 mi., 1968.

Prelim. Geol. Map P 490, Semple Twp., Ont. Dept. Mines, 1 in. to 1/4 mi., 1968.

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Prelim. Geol. Map P 491, Hutt Twp., Ont. Dept. Mines, 1 in. to 1/4 mi., 1968.

Much data is available in the assessment files and all pertinent reports have been reviewed.

GEOPHYSICAL SURVEYS

The Geological Survey of Canada in conjunction with the Province of Ontario has flown this area twice and the results of the airborne magnetometer survey are published as:

Geol. Surv. Canada, 1956a: Aeromag. Map 286G, Sinclair Lake, Ont.; 1 in. to 1 mi.

Geol. Surv. Canada, 1956b: Aeromag. Map 287G, Matachewan, Ont.; 1 in. to 1 mi.

Geol. Surv. Canada, 1956c: Aeromag. Map 291G, Muskasenda Lake, Ont.; 1 in. to 1 mi.

To our knowledge the area was first covered by an airborne electromagnetic survey by Newmont Mining Company about fifteen years ago employing the Photographic Surveys' electromagnetic surveying unit. This unit was one of the first on the market and had a propensity for mapping horizontal surface conductors. Subsequently, in 1974, Granges Exploration covered this area with an airborne input survey. It was the results of this survey which guided the staking of the claim blocks.

A Geometric, G816, total field proton magnetometer in the gradient mode was used to measure the magnetic intensities in three positions at each fifty foot station. A discussion of the total magnetic field gradient array is attached as Appendix I.

The magnetic data was corrected for diurnal and reduced to a local datum. These data plotted as corrected

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station values and as a contoured interpretation of these values are in the folder at the rear of this report. The magnetic data shown may be raised to the level of the earth's total field by the addition of 59,000 gammas to each station value.

The ground electromagnetic data was measured at 100 foot stations by a MaxMin II horizontal loop survey unit in the maximum couple mode. A coil separation of 400 feet was used and observations were made at frequencies of 444 Hz and 1777 Hz.

The conductivity-thickness (σt) calculations of the different conductive zones are based on the following formula derived for a thin sheet. It is this model which best approximates massive sulphide deposits.

$$\alpha = \mu_0 \omega a \sigma t$$

where

α - Diminsion less response parameter associated with the conductive sheet.

σ - Conductivity of the sheet (mho/metre)

μ_0 - Permeability ($4\pi X 10^{-7}$ henry/metre)

ω - Angular frequency ($2f\pi$ where f is the frequency)

a - Coil separation (metres)

t - Thickness of the sheet (metres)

which by transposition:

$$\text{Conductivity-thickness } (\sigma t) = \frac{\alpha}{\mu_0 \omega a} = \text{mhos}$$

CLAIM BLOCKS

During 1976 the following claims were staked:

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Claim Block I North Central English Township

Claim Number	Recording Date
L - 476 222	June 1, 1976
L - 476 223	June 1, 1976
L - 476 224	June 1, 1976
L - 476 225	June 1, 1976

Claim Block II South Central English Township

Claim Number	Recording Date
L - 476 194	May 31, 1976
L - 476 195	May 31, 1976
L - 476 196	May 31, 1976
L - 476 197	May 31, 1976

Claim Block III South Central English Township

Claim Number	Recording Date
L - 476 182	May 31, 1976
L - 476 183	May 31, 1976
L - 476 184	May 31, 1976
L - 476 185	May 31, 1976
L - 476 186	May 31, 1976
L - 476 187	May 31, 1976

Claim Block IV East Central Semple Township

Claim Number	Recording Date
L - 476 226	June 1, 1976
L - 476 227	June 1, 1976
L - 476 228	June 1, 1976
L - 476 229	June 1, 1976
L - 476 230	June 1, 1976
L - 476 231	June 1, 1976

Claim Block V East Central Semple Township

Claim Number	Recording Date
L - 476 188	May 31, 1976
L - 476 189	May 31, 1976
L - 476 190	May 31, 1976
L - 476 191	May 31, 1976
L - 476 192	May 31, 1976
L - 476 193	May 31, 1976

West Central Hutt Township

Claim Number	Recording Date
L - 476 220	May 31, 1976
L - 476 221	May 31, 1976

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Claim Block VI Central South Semple Township

Claim Number	Recording Date
L - 476 175	May 31, 1976
L - 476 176	May 31, 1976
L - 476 177	May 31, 1976
L - 476 178	May 31, 1976
L - 476 179	May 31, 1976
L - 476 180	May 31, 1976
L - 476 181	May 31, 1976

Claim Block VII South Central Hutt Township

Claim Number	Recording Date
L - 476 206	May 31, 1976
L - 476 207	May 31, 1976
L - 476 208	May 31, 1976
L - 476 209	May 31, 1976
L - 476 210	May 31, 1976
L - 476 211	May 31, 1976
L - 476 212	May 31, 1976
L - 476 213	May 31, 1976
L - 476 214	May 31, 1976
L - 476 215	May 31, 1976
L - 476 216	May 31, 1976
L - 476 217	May 31, 1976

North Central Halliday Township

Claim Number	Recording Date
L - 476 218	May 31, 1976
L - 476 219	May 31, 1976

A claim sketch pertaining to each block is included in their respective sections of this report.

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CLAIM BLOCK I

NORTH CENTRAL ENGLISH TOWNSHIP

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CLAIM BLOCK I

NORTH CENTRAL ENGLISH TOWNSHIP

GENERAL

This claim block consists of four claims in the north central part of English Township numbered L - 476 222 through L - 476 225 inclusive. It is located four miles north along the road to Timmins from the Wicks Road junction. These claims were staked to cover a single input response lying on the northeast flank of a 500 gamma elliptical magnetic anomaly trending slightly west of north.

GEOLOGY

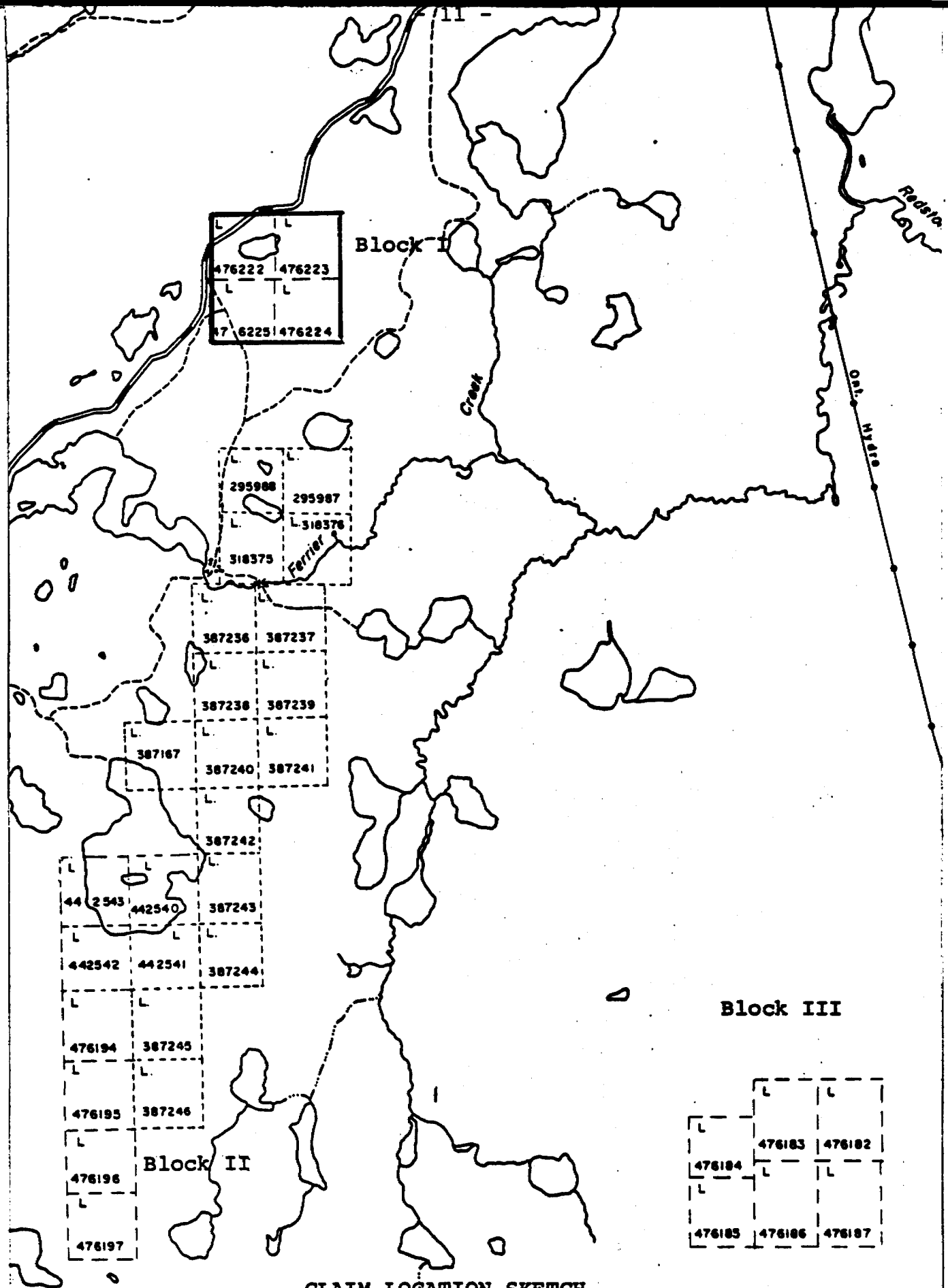
Glacial deposits cover most of the claims and the remainder is covered by tag alder, black spruce and cedar swamps. No rock is exposed.

Two parallel eskers trend southerly across these claims. The westernmost esker is more prominent and continuous, being up to 60 feet high and up to 500 feet wide. The road from Timmins follows this feature. The eastern esker is up to 30 feet high and is very broad. Numerous kettle depressions occur.

GEOPHYSICAL SURVEYS

One excellent conductive contrast was mapped on line 20 south between station 7 + 70 and 7 + 80 east. At 444 Hz the conductivity thickness is about 30 mhos and the conductor is at an indicated depth of 200 feet. At the frequency of 1777 Hz the conductor shows no out-of-phase

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CLAIM LOCATION SKETCH
ENGLISH TOWNSHIP
2 inches to 1 mile

Fig. 1

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response and as a result the conductivity width could not be determined. This configuration indicates that the causative body is an excellent conductor.

On line 20 south the magnetometer data mapped two parallel magnetic horizons trending north. One horizon extends from about station 7 + 30 east to 7 + 80 east and includes the conductive zone. The eastern zone lies between stations 8 + 10 and 8 + 60 east. The magnetic data indicates a depth not in excess of 70 feet. This is at variance with the electromagnetic data and it is felt that the conductor may be "blind" and not exposed at the bedrock surface, or there may be some current gathering which disturbs the depth estimate.

The causes of the magnetic anomalies are magnetite and pyrrhotite enrichments and the conductivity contrast is caused by graphite and/or sulphides.

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INFERRED GEOLOGY

Felsic metavolcanic rocks one-half mile to the north of the claims give rise to a similar magnetic pattern. Here magnetite, pyrrhotite and pyrite are exposed in a trench. The flows and pyroclastic rocks dip 80^{o} to the east.

The felsic volcanic rocks one mile to the south of the claims along the same magnetic trend were drilled. Magnetite, pyrite, chalcopyrite and galena were intersected in two diamond drill holes cutting felsic metavolcanic rocks.

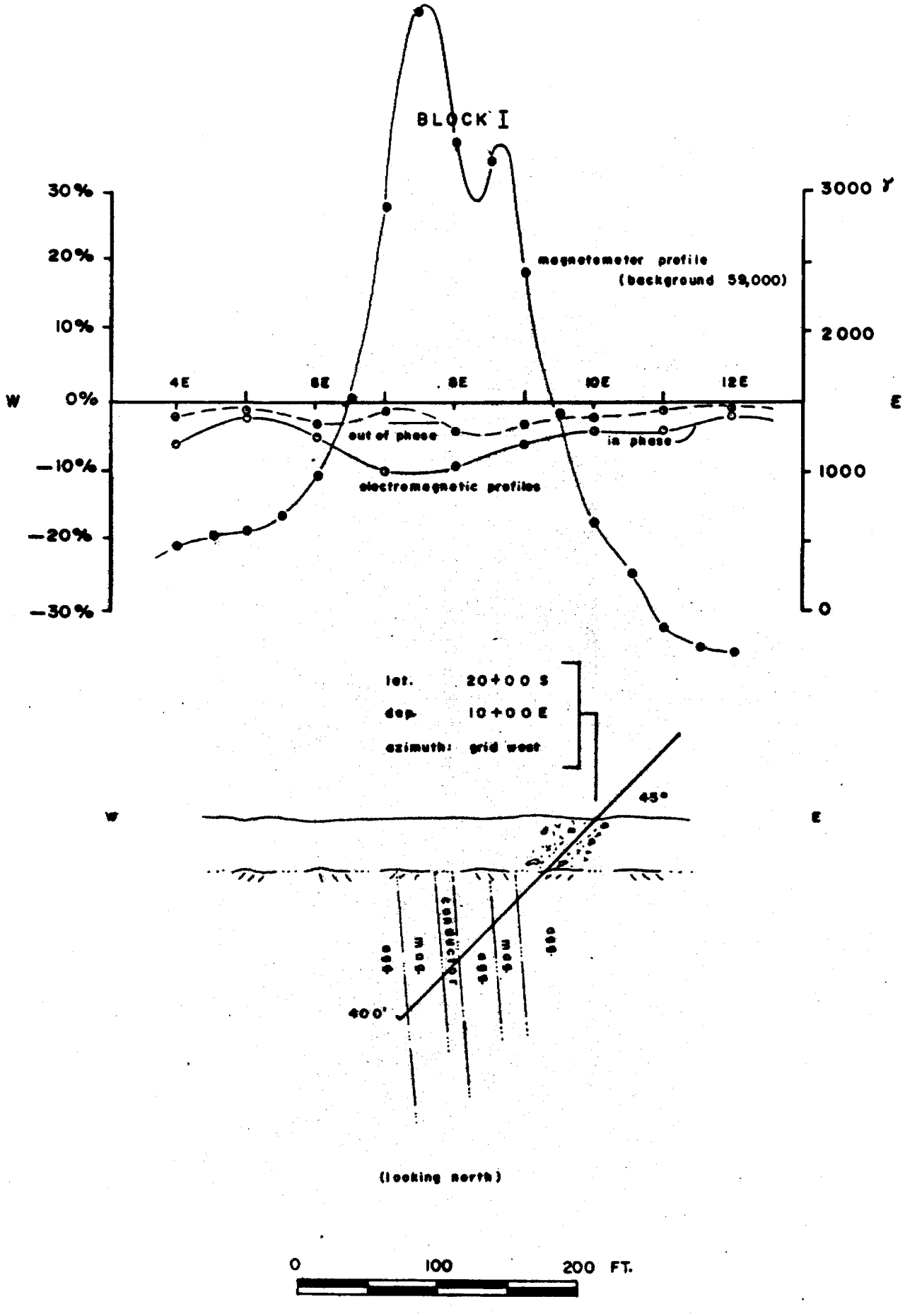
The causes of the geophysical responses on Claim Block I are thought to be parallel zones of felsic tuff

carrying magnetite, pyrite, pyrrhotite, chalcopyrite, galena and/or some graphite with intercalated felsic agglomerates.

RECOMMENDATIONS

It is suggested that a drill hole spotted at station 10 + 00 east on line 20 + 00 south, drilled along a grid azimuth west at 45° for four hundred feet would determine the cause of the geophysical anomalies. The center of the conductive zone should be intersected at 300 feet in the drill hole.

FORM NO. L12-811-P REPORT PAPER - GRAND & TOY



INFERRED DIAMOND DRILL SECTION

CLAIM BLOCK II

SOUTH CENTRAL ENGLISH TOWNSHIP

FORM NO. L42-811-P REPORT PAPER - GRAND & TOY

CLAIM BLOCK II

SOUTH CENTRAL ENGLISH TOWNSHIP

GENERAL

This block of claims is in the south central part of English Township and lies about two miles to the south of Claim Block I. It is immediately to the east of the road to Timmins commencing about one-quarter of a mile to the north of its junction with Wicks Road. Claims numbered L -476 194 through L - 476 197 inclusive constitute this claim group.

GEOLOGY

These claims lie between two south trending ridges of outwash material. Some post glacial wind blown deposits occur. No rock outcrops were found on these claims.

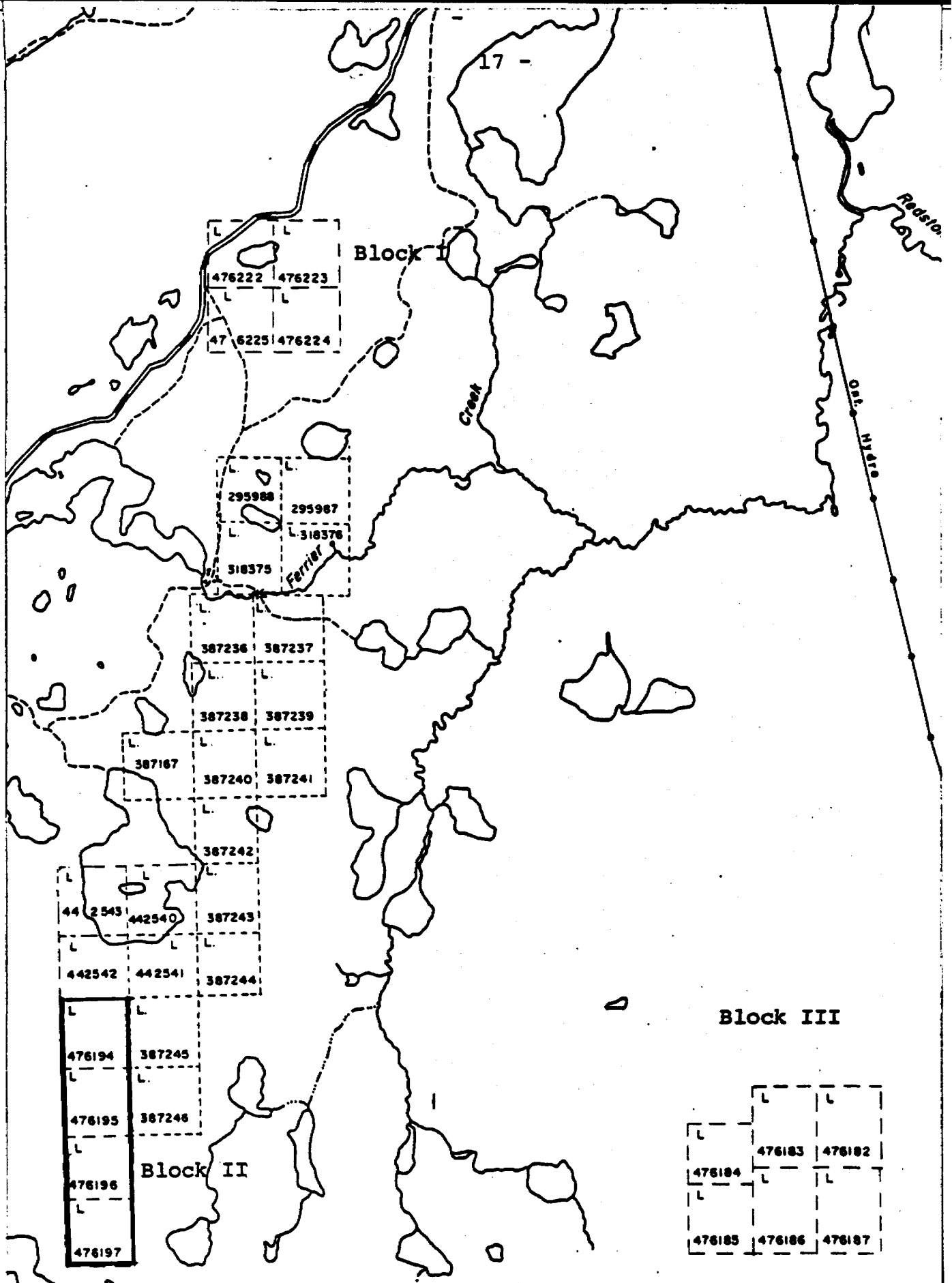
The claims lie midway between felsic metavolcanic rocks exposed in the southwest part of the township and similar rocks cropping out along the eastern edge of English Township. They also lie south of and on the strike of felsic metavolcanic rocks.

GEOPHYSICAL SURVEYS

Claim Block II is astride a north trending linear magnetic anomaly which has anomalous conductivity along its eastern flank.

The ground electromagnetic survey mapped a conductive zone at frequencies of 444 Hz and 1777 Hz from line 16 through line 36 south. The conductive zone is sinuous and is from 300 to 600 feet east of the base line. The conductivity

FORM NO. L42411-P REPORT PAPER - GRAND & TOY



CLAIM LOCATION SKETCH
ENGLISH TOWNSHIP
2 inches to 1 mile

Fig. 2

FORM NO. L42-411-P REPORT PAPER - GRAND & TOY

thickness is 37 mhos on line 20 and 28 south and 30 mhos on line 24 south at 444 Hz. Depth to bedrock surface is about 120 feet. The conductive zone appears to be plunging to the north.

The magnetometer mapped a linear anomaly of 7,000 gammas above the local background level parallel to and east of the base line. The magnetic data confirms the depth to bedrock as calculated on the electromagnetic data, that is, there are about 120 feet of glacial cover at station 6 + 50 east on line 24 south.

On line 24 south there is an indication of two magnetic zones with a conductor lying between them. These conditions are similar to those on Claim Block I, but the greater thickness of cover masks the resolution of the magnetic data.

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INFERRED GEOLOGY

Felsic metavolcanic rocks are thought to underlie these claims and these rocks together with those underlying Claim Block I may be on a drag fold within the regional east-northeast trend.

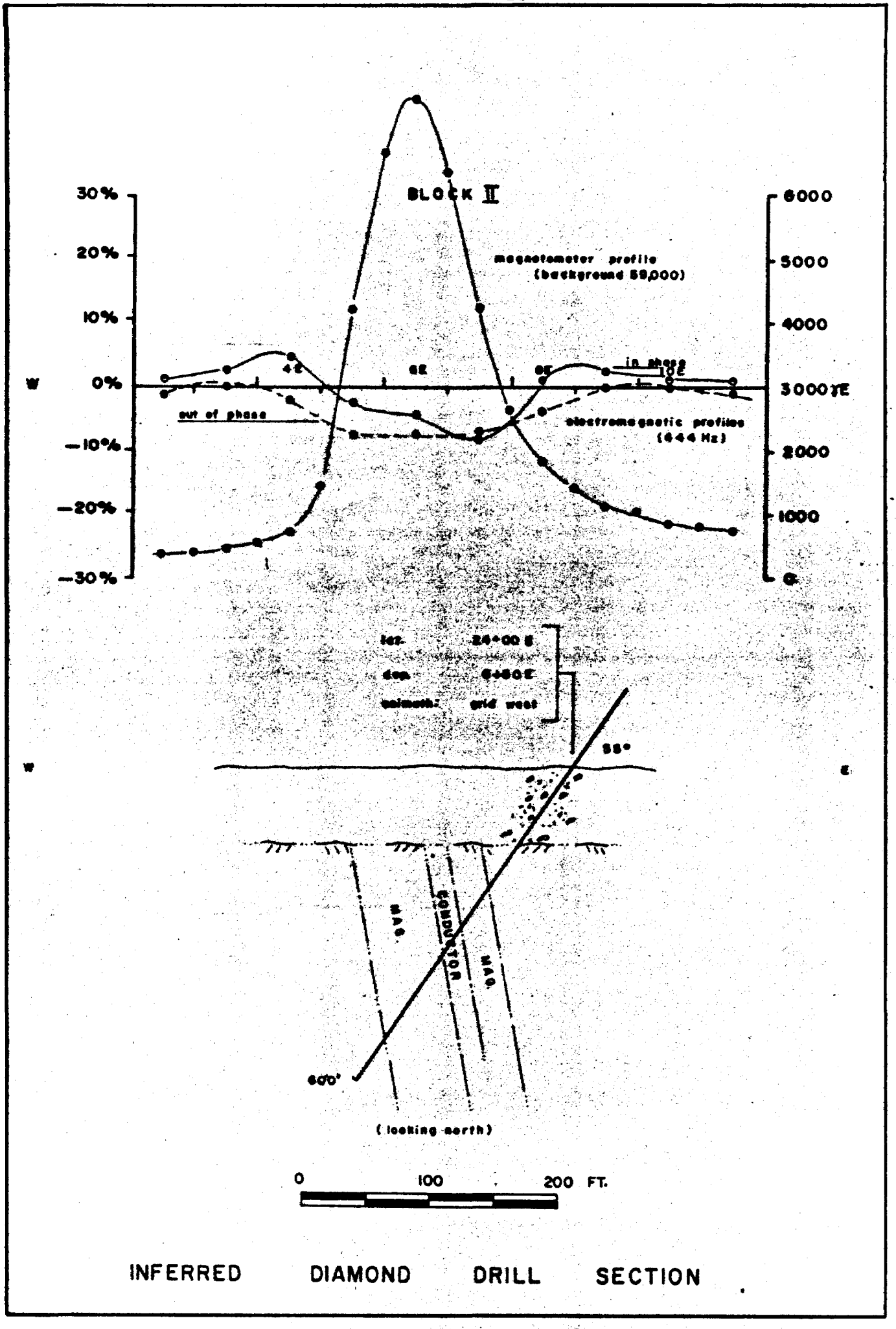
The cause of the geophysical anomalies on this block are thought to be similar to those on Claim Block I, i.e., sulphide mineralization (pyrite, chalcopyrite, galena and pyrrhotite) within felsic volcanic rocks.

RECOMMENDATIONS

A drill hole on line 24 south is suggested. The following figure shows the inferred geology and the proposed

drill hole collared at station 8 + 50 east and drilled on a grid azimuth of 270° at an inclination of 55° for 600 feet. The cause of the conductivity contrast should be intersected at about 320 feet in the hole.

FORM NO. L42-811-P REPORT PAPER - GRAND & TOY



INFERRED DIAMOND DRILL SECTION

CLAIM BLOCK III

SOUTH CENTRAL ENGLISH TOWNSHIP

FORM NO. L42-811-P REPORT PAPER - GRAND & TOY

CLAIM BLOCK III

SOUTH CENTRAL ENGLISH TOWNSHIP

GENERAL

Claim Block III lies in the southeast corner of English Township and consists of six claims numbered L - 476 182 through and and including L - 476 187. Access to these claims is via a logging road north from Wicks Road one-half mile west of English Lake.

GEOLOGY

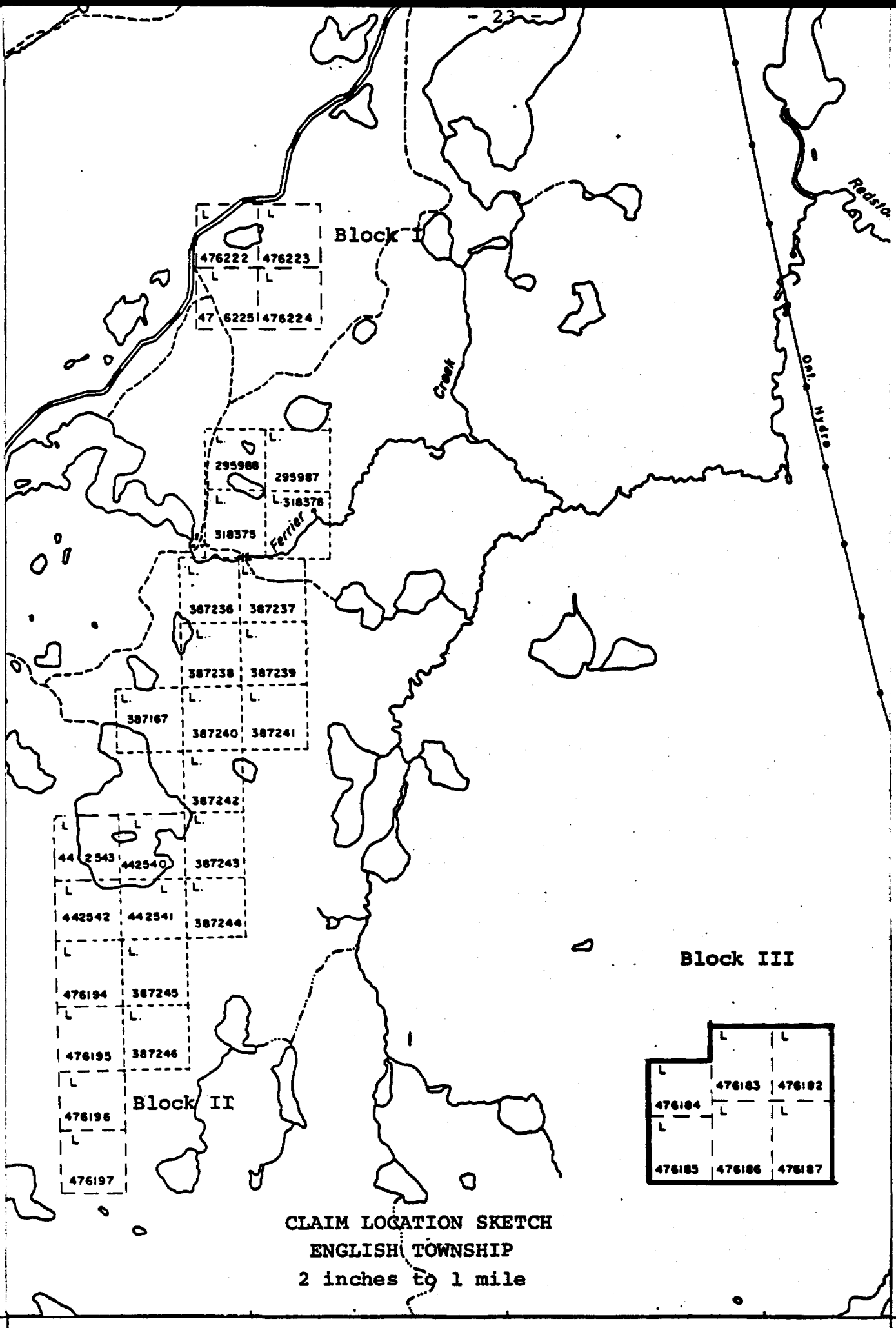
A detailed description of the geology as mapped by Mr. B. McKay, B.Sc., is included in his report which will be forwarded at a later date. Interlayered felsic flows and pyroclastic rocks trend slightly north of east astride a northeast plunging anticline. A dike in the northern part of the claims has a vertical dip, and a strike nearly conformable to the volcanic rocks.

A left hand fault with an apparent movement of 400 feet strikes at an azimuth of 290° through the southern part of the claims.

Semimassive sulphides, up to 40% of the rock, within a siliceous matrix occur on line 28 northeast at station 1 + 50 southeast. Elsewhere pyrite occurs as fresh and tarnished cubic crystals or narrow veinlets 1 - 2 mm wide.

A lean iron formation is exposed at the northeast end of the base line.

FORM NO. L12-811-P REPORT PAPER - GRAND & TOY



CLAIM LOCATION SKETCH
ENGLISH TOWNSHIP
2 inches to 1 mile

Fig. 3

FORM NO. L42-411-P REPORT PAPER - GRAND & TOY

GEOPHYSICAL SURVEYS

The magnetometer survey mapped the individual volcanic horizons beneath the overburden and swamps. The magnetic pattern shows that the thinner units in the south-eastern part of the claims are much more irregular and contoured than the rock units in the northwestern part of the claims.

The northwest trending fault is well mapped and may have resulted from the collapse of a drag fold. On line 16 northeast between stations 3 + 00 to 9 + 50 south-east there is enrichment of magnetic material in the same horizon on each side of the fault. It is of interest to note that a test pit was mapped near 6 + 00 southeast on this line.

The metavolcanic rock horizons in the northwestern part of the claims may be thinner or have a steeper dip as there are many narrow linear anomalies of high magnetic relief.

The electromagnetic survey mapped only one discreet anomaly with a conductivity thickness of 50 mhos at 1777 Hz and 36 mhos at 444 Hz. It is centered over station 6 + 00 south on line 32 northeast. It does not extend to line 28 northeast, but may just reach line 36 northeast. This conductivity response is coincident with a weak magnetic negative.

The electromagnetic data indicates a depth of 180 feet. The magnetic data indicates a depth of less than 50 feet. An outcrop was mapped less than 100 feet to the

FORM NO. L42-811-P REPORT PAPER - GRAND & TOY

west of the conductor. It is thought that the difference in depth is caused by the conductor not reaching the surface of the bedrock, or due to a distortion of the depth estimate by current gathering.

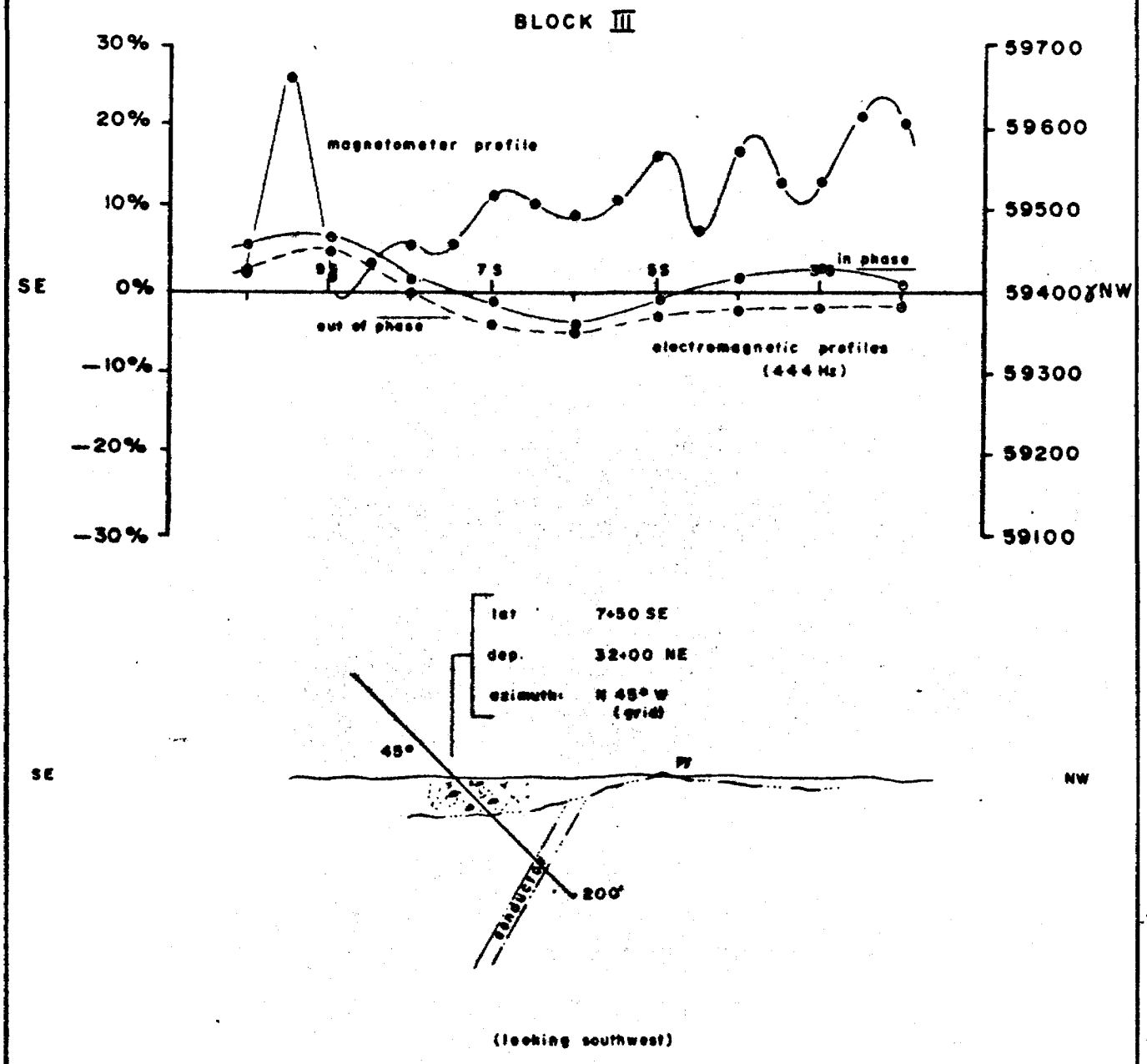
RECOMMENDATIONS

It is suggested that a 200 foot hole be drilled from station 7 + 50 southeast on line 32 northeast at an inclination of 45° northwest, along the picket line. Previous drilling was completed on a hole parallel to the above but 250 feet to the southwest. This hole appears to have overshot the conductor near the southern end of the anomaly.

The gold mineralization at the Matachewan Gold Mine is associated with magnetite enrichment within sheared felsic host rocks.

Additional prospecting and surface sampling must be performed around the test pit near station 6 + 00 southeast on line 16 northeast to determine the cause of the enrichment of magnetic minerals in this vicinity. Diamond drilling may be required to adequately test this area.

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INFERRED DIAMOND DRILL SECTION

CLAIM BLOCK IV

EAST CENTRAL SEMPLE TOWNSHIP

FORM NO. L42-811-P REPORT PAPER - GRAND & TOY

CLAIM BLOCK IV

EAST CENTRAL SEMPLE TOWNSHIP

GENERAL

This block of six claims numbered L - 476 226 through L - 476 231 inclusive are located in the east central part of Semple Township. Access to this area is via a logging road south from Wicks Road.

GEOLOGY

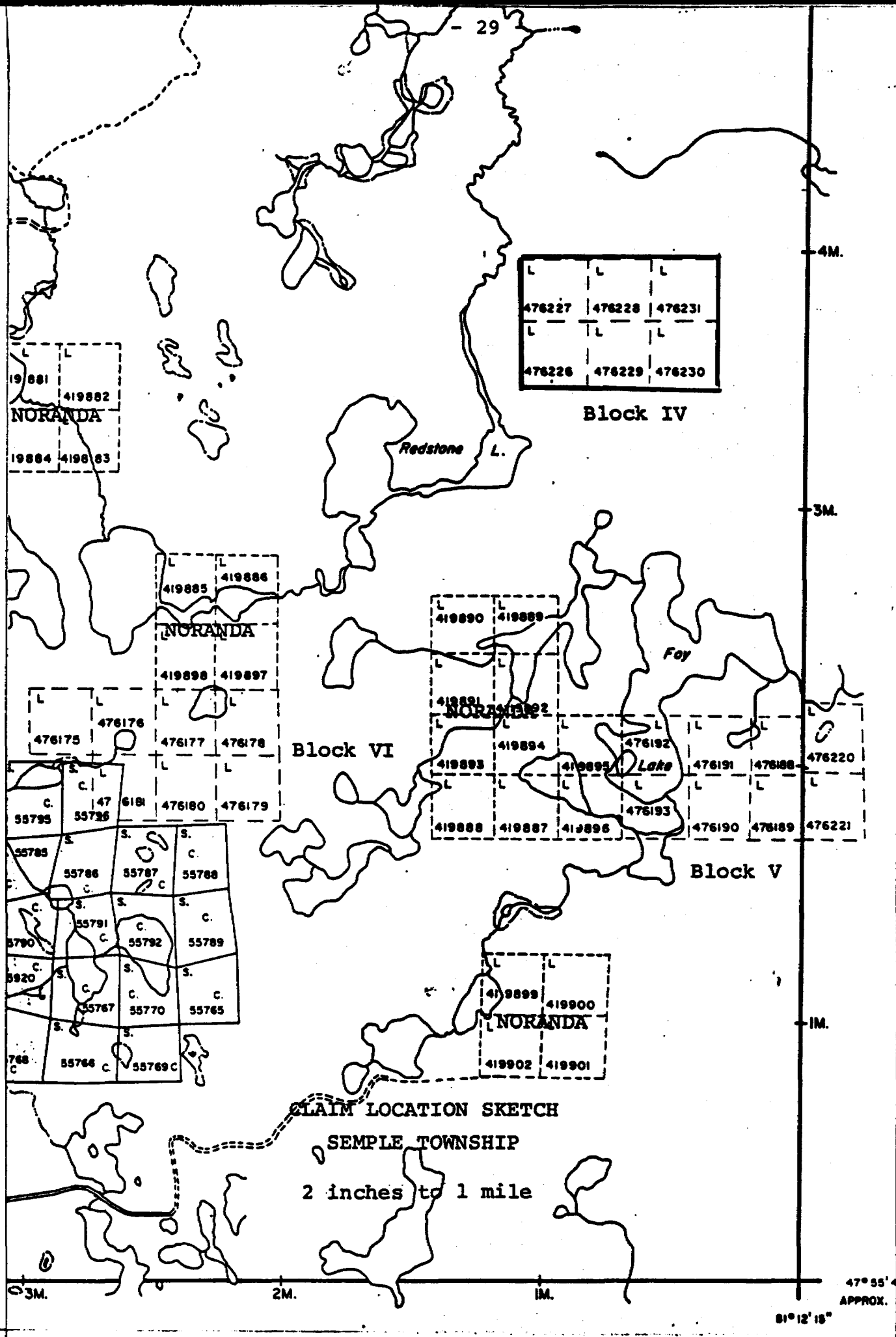
Claim Block IV lies on the north flank of the felsic dome trending easterly through Sothman Township into Halliday Township. The rocks trend easterly to slightly north of east and dip north at about 60°. Rhyolitic flows and pyroclastic rocks predominate the minor dacitic flows and thin dikes of granite and ultrabasic rocks. Andesites are exposed in the northwest corner of the claim group.

GEOPHYSICS

The magnetic data extended the outcrop mapping under the covering of glacial debris. Certain rhyolitic fragmental rocks have above average magnetic susceptibilities. These trends dominate the magnetic pattern on all of the claims except in the northwest corner where andesites are mapped by intensities of more than 3000 gammas, but with an average intensity of about 200 gammas above background.

The electromagnetic survey mapped two anomalous zones of conductivity in the eastern part of the claims. The northernmost conductor trends southwest from 10 + 00 south on

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CLAIM LOCATION SKETCH

SEMPLE TOWNSHIP

2 inches to 1 mile

FORM NO. L42411-P REPORT PAPER - GRAND & TOY

Fig. 4

line 8 west to station 12 + 00 south on line 12 west. The cause of this anomaly is near surface and has a relatively good conductivity contrast with the enclosing rock.

The other conductor trends slightly south of west within the strike of the bedrock. The cause of this conductor is at a depth of greater than 100 feet and may be a thick sheet or a multiple conductor with a low conductivity width factor.

INFERRED GEOLOGY

The first conductor appears to lie on the northwest flank of a rhyolitic fragmental pile and the other conductor lies along the base of the pile. The volcanic pile lies on a thin dacitic flow which, in turn, is conformable upon rhyolitic pyroclastic and metasediments containing iron formations. It appears that there is a build-up of magnetic minerals to the east or towards the center of the pile. The capping of the fragmental pile also has relatively high magnetic susceptibility.

A hole was drilled to intersect the eastern end of the northern conductor. As the azimuth of the hole was at an acute angle to the strike of the conductor, this hole probably did not determine the cause of the anomaly.

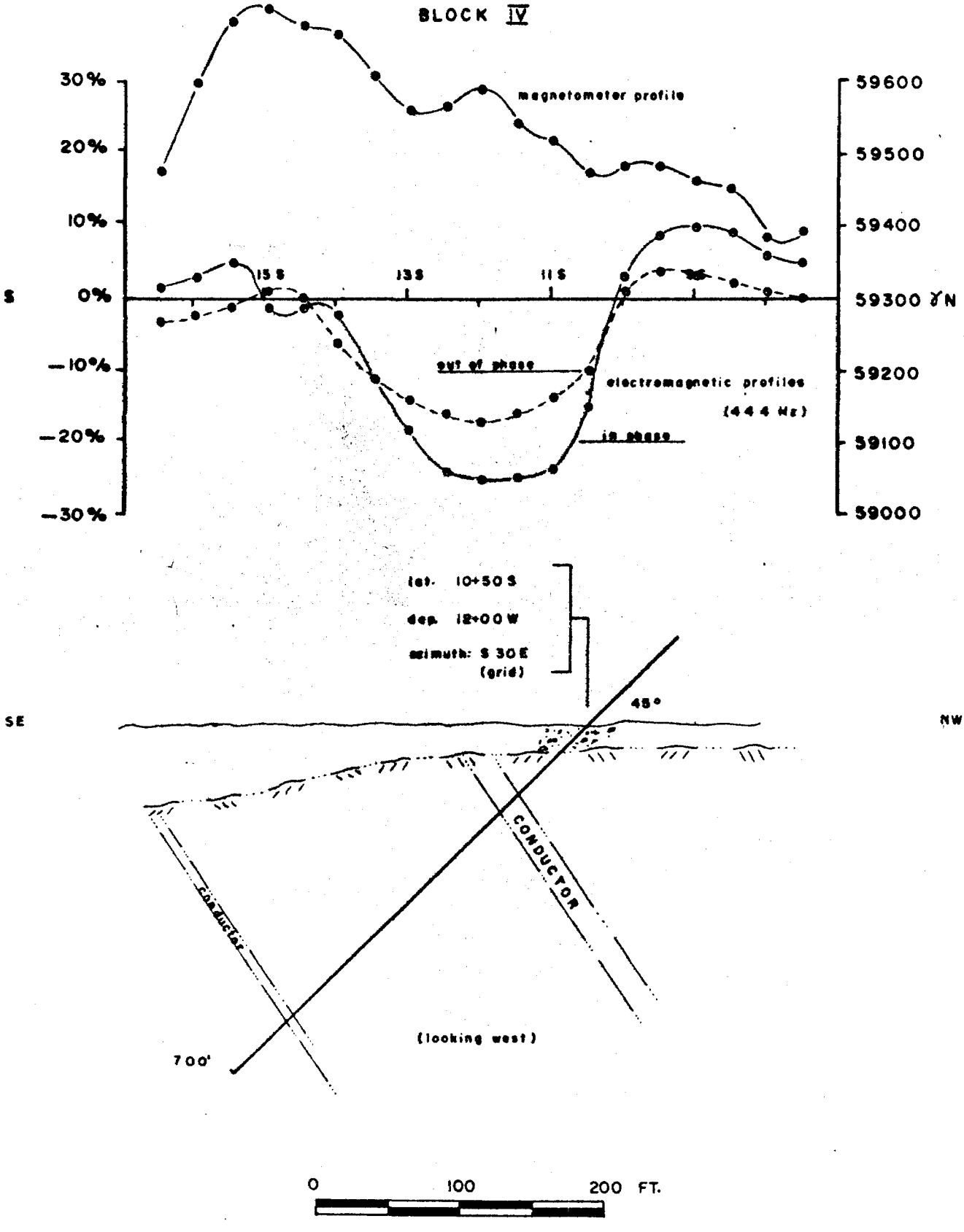
RECOMMENDATIONS

It is suggested that the causes of the conductivity zones be determined as their close relationship to the fragmental pile indicates that they may be exhalative volcanic deposits.

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A diamond drill hole spotted at station 10 + 50 south on line 12 west and drilled on a grid azimuth of 135° or southeast at a dip of 45° for 700 feet would determine the causes of the two anomalies. A proposed drill section follows.

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INFERRED DIAMOND DRILL SECTION

CLAIM BLOCK V

EAST CENTRAL SEMPLE TOWNSHIP

& WEST CENTRAL HUTT TOWNSHIP

FORM NO. L42-811-P REPORT PAPER - GRAND & TOY

CLAIM BLOCK V

EAST CENTRAL SEMPLE TOWNSHIP

& WEST CENTRAL HUTT TOWNSHIP

GENERAL

Claim Block V lies astride the boundary between Semple and Hutt townships and consists of claims numbered L - 476 188 through L - 476 193 inclusive in Semple Township and claims numbered L - 476 220 and L - 476 221 in Hutt Township. These claims may be reached by canoe crossing Foy Lake.

GEOLOGY

These claims lie to the north of the large felsic domical structure trending easterly through Sothman and Halliday Townships. Locally the bedrock under the claims constitutes the north flank of a syncline trending westerly. The axis of this syncline is to the south of the claim block. Felsic volcanic rocks have been mapped in the central and northern part of the claims. Andesite is reported to underlie the southern part. Northwest trending faults have been mapped. Some test pitting and diamond drilling has been completed.

GEOPHYSICAL SURVEYS

The magnetometer survey mapped the different volcanic horizons by the differences in magnetic susceptibility. The rock structures were delineated through the termination, curvature and offset of the magnetic trend.

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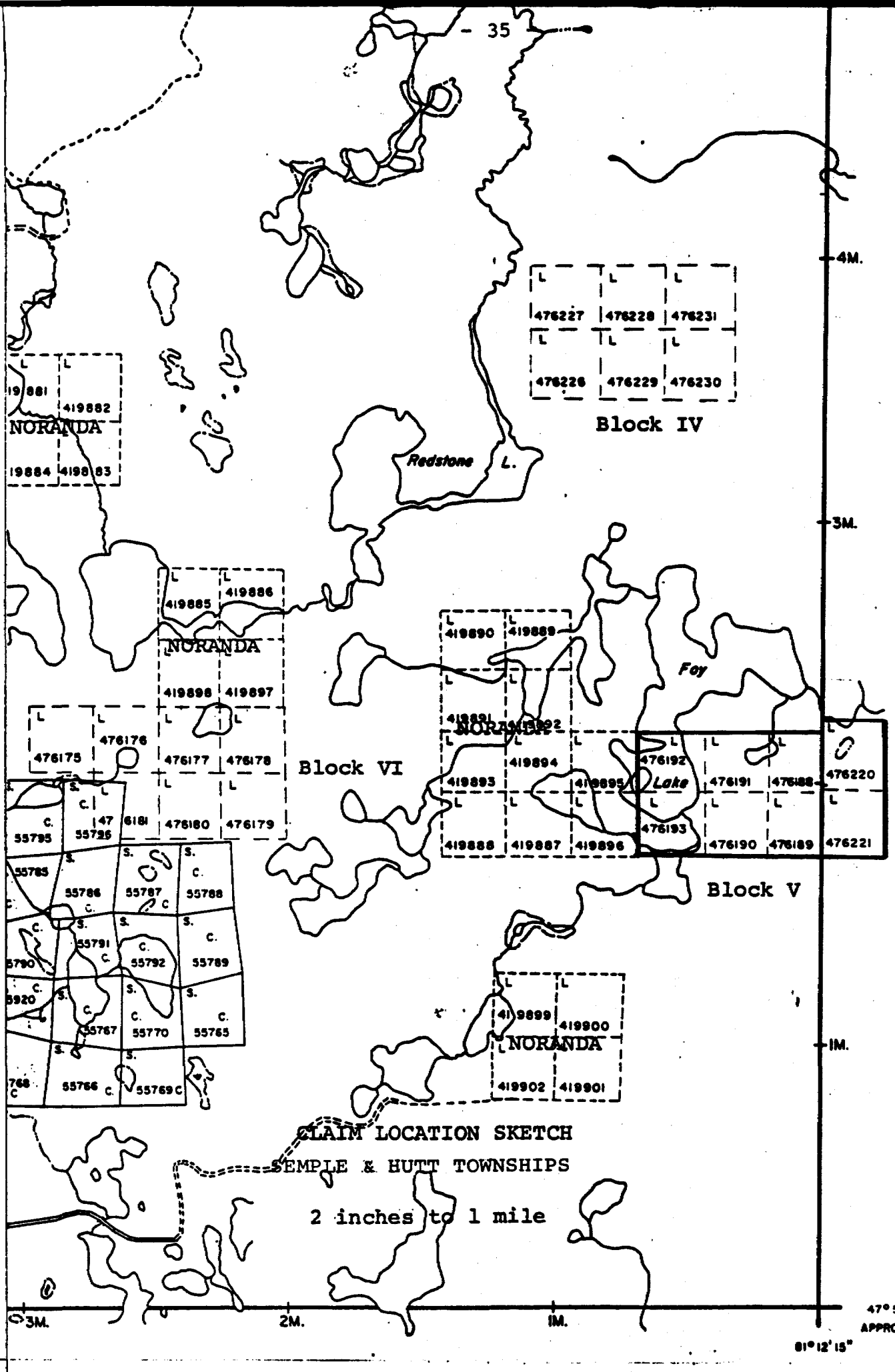


Fig. 5

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The magnetic pattern over the southern part of the claims is uniform and with low gradients. The intensities are typical of the andesitic volcanic rocks in this area.

Trending westerly and then southerly is a narrow linear magnetic anomaly with intensities to 2000 gammas above local background. North of this anomaly there are several narrow linear magnetic trends which together with the strong positive anomaly have been offset along a north-northwest fault trending through station 11 + 00 on line 20 east. This fault has an apparent left hand movement of around 320 feet.

Along line 16 west the magnetic trends seem to terminate in the central part and to bend to the south at the southern end of the line. It is unfortunate, indeed, that line 12 east could not be surveyed because of high water conditions.

Only one electromagnetic anomalous zone was mapped and it trends westerly from station 15 + 00 south on line 40 east to station 12 + 00 south on line 32 east. The conductivity width of the causative body increases towards the middle of the zone. This increase is from 3 mhos on the east and 9 mhos on the west to 20 mhos in the center on line 36 east. The causitive body is covered by up to 100 feet of overburden and is conformable to the enclosing bedrock.

INFERRED GEOLOGY

There may be an intrusive quartz-diorite plug intruding the volcanic rocks on line 16 east and further to the west. The lack of data precludes the confirmation of this

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supposition.

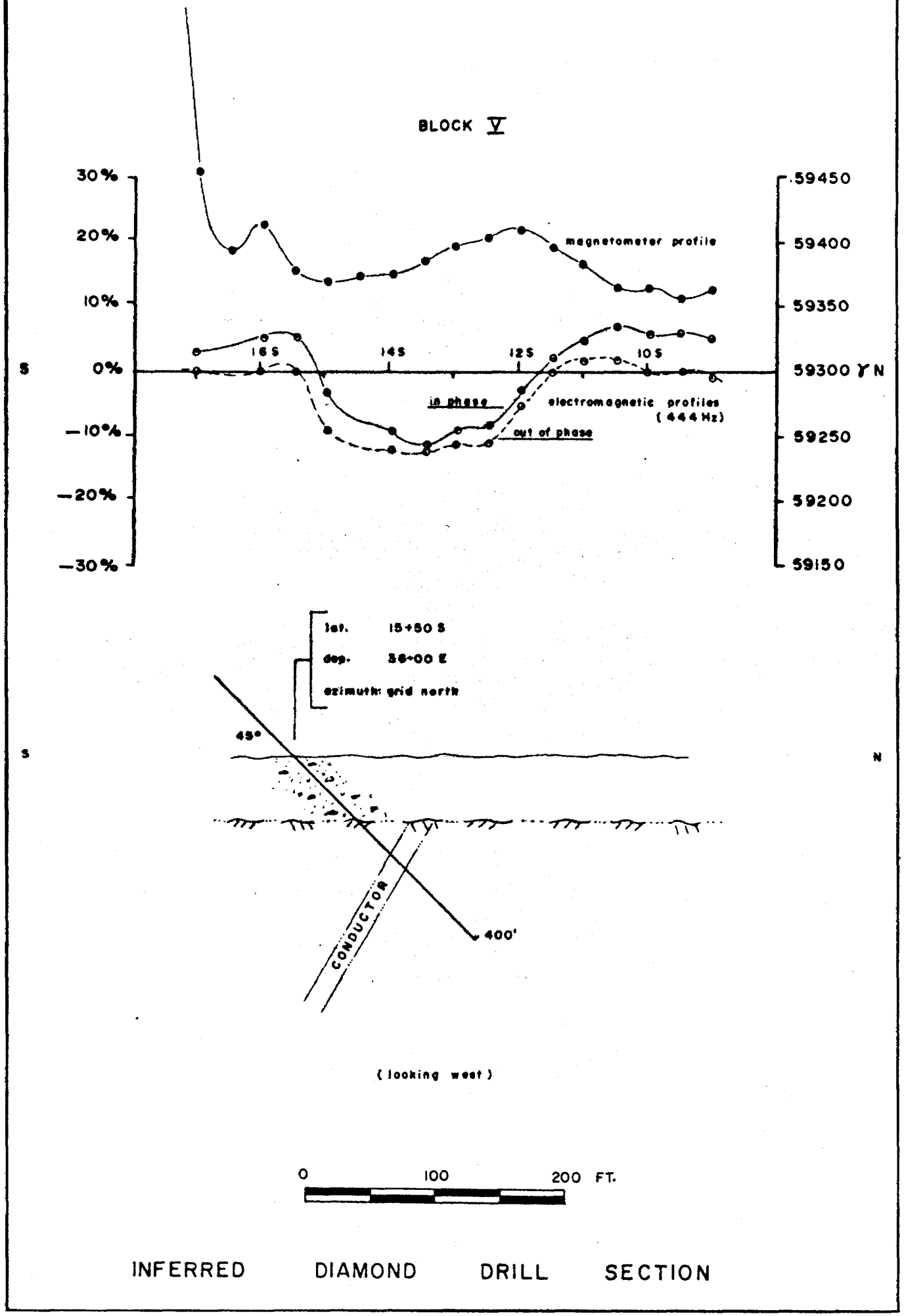
The fault is well defined and shows an apparent left hand movement of about 320 feet. It is felt that there was little lateral movement, and that the apparent offset was caused by a relative down dropping of the eastern block of the southerly dipping volcanic rocks.

The cause of the conductive zone is stratabround in the top of a rhyolite series near its upper contact with an andesitic series. The strong positive anomaly to the south may be caused by a thin, lean iron formation.

RECOMMENDATIONS

The logs of the holes which had been drilled on these claims were not filed as assessment work. Their location, as shown on the township geological map, indicates they were drilled in the vicinity of the test pits and not across the anomaly. The drill sites must be ascertained. If the conductor was not tested, a hole should be drilled on grid azimuth north at an inclination of 45° for 400 feet from station 15 + 50 south on line 36 east. A section of this proposed drill hole follows.

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INFERRED DIAMOND DRILL SECTION

CLAIM BLOCK VI

CENTRAL SOUTH SEMPLE TOWNSHIP

FORM NO. L42-111-P REPORT PAPER - GRAND & TOY

CLAIM BLOCK VI

CENTRAL SOUTH SEMPLE TOWNSHIP

GENERAL

These claims lie in the central southeast part of Semple Township and consist of a group of seven claims numbered L - 476 175 through L - 476 181. Access to these claims is south along the Timmins access road for four and one-half miles from its junction with Wicks Road.

GEOLOGY

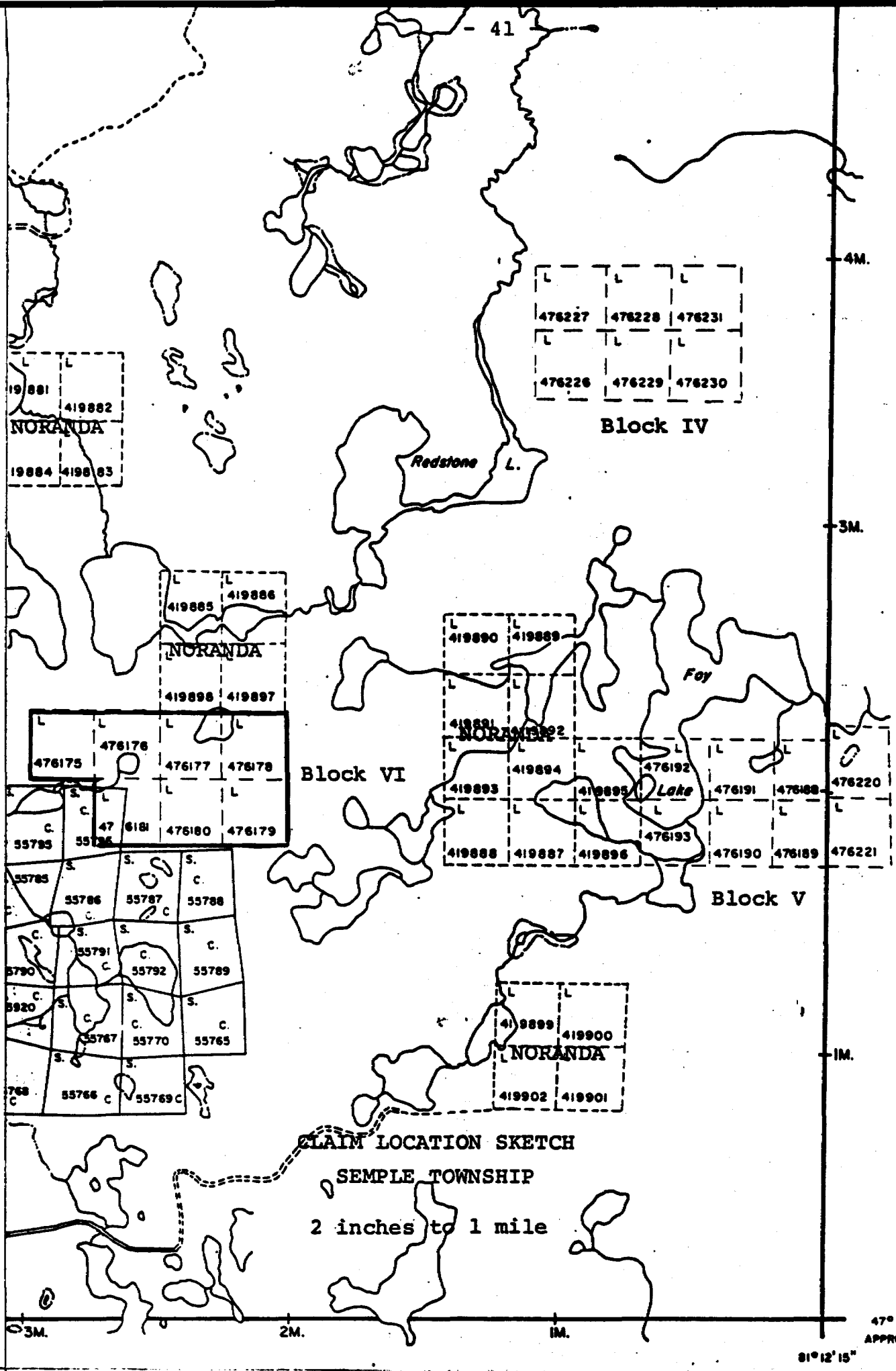
As the claims are covered by outwash and esker deposits, no exposures were mapped. Serpentinized peridotite has been mapped intruding andesitic flows less than one-half mile south of these claims.

GEOPHYSICAL SURVEYS

The magnetometer survey mapped the western end of a broad, high intensity anomaly. The causative body would be within 50 feet of the surface and 500 feet wide on line 12 east. The magnetic pattern over the remainder of the claims has a low smooth relief such as would be caused by a rock unit with a low uniform magnetic susceptibility.

The electromagnetic data mapped a single conductive zone lying on the southwestern flank of the strong positive magnetic anomaly. The conductor is centered on station 1 + 00 north on line 3 east and extends almost to line 0 and to line 6 east. At 444 Hz the causative body has a conductivity thickness of 33 mhos and is covered by about 100 feet of

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Fig. 6

glacial debris. On line 3 east there is a coincident magnetic relief of 275 gammas and on lines 0 and 6 east there is only a slight inflection on the magnetic profile marking the extension of the conductor.

INFERRED GEOLOGY

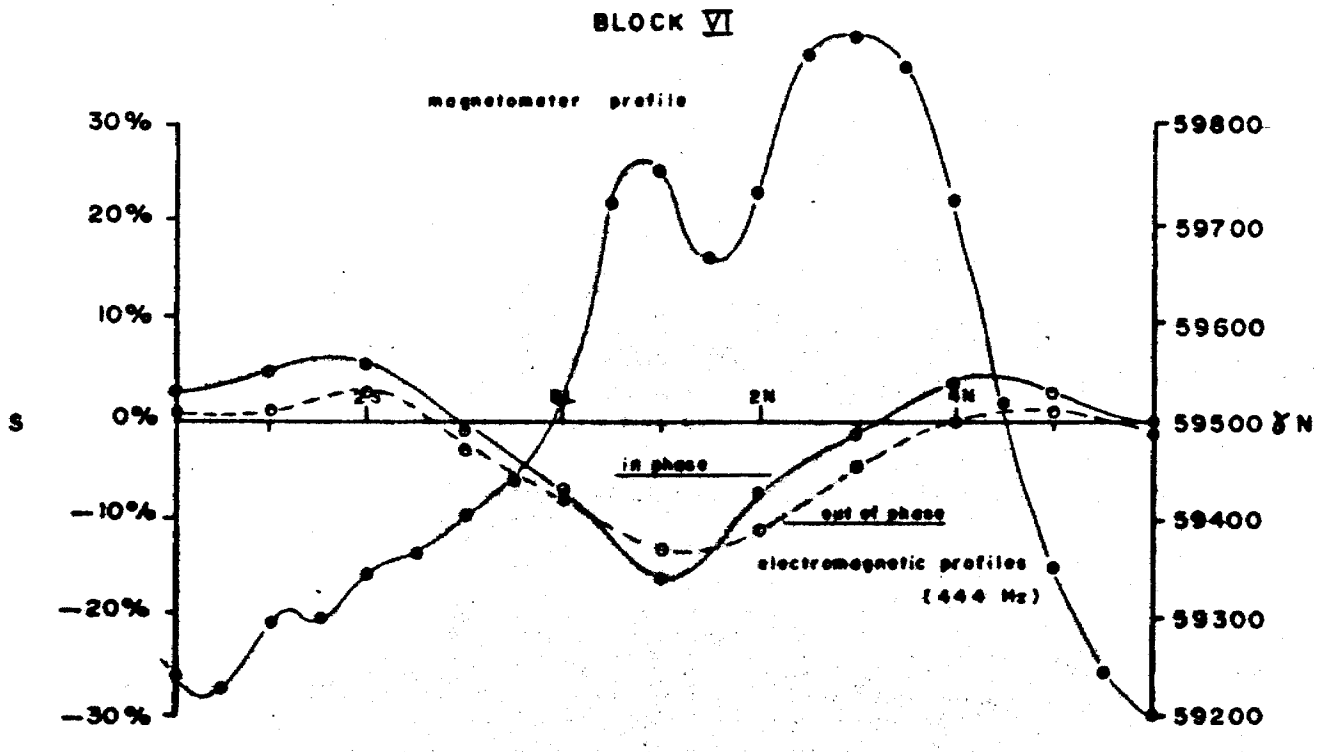
A serpentinized peridotite causes the high intensity, positive anomaly in the east central part of the claims. It is thought that felsic flows, possibly dacite, underlie the remainder of the claims. The conductive zone is thought to be caused by a sulphide occurrence. Elsewhere in Semple Township some of the serpentinized peridotites carry asbestos.

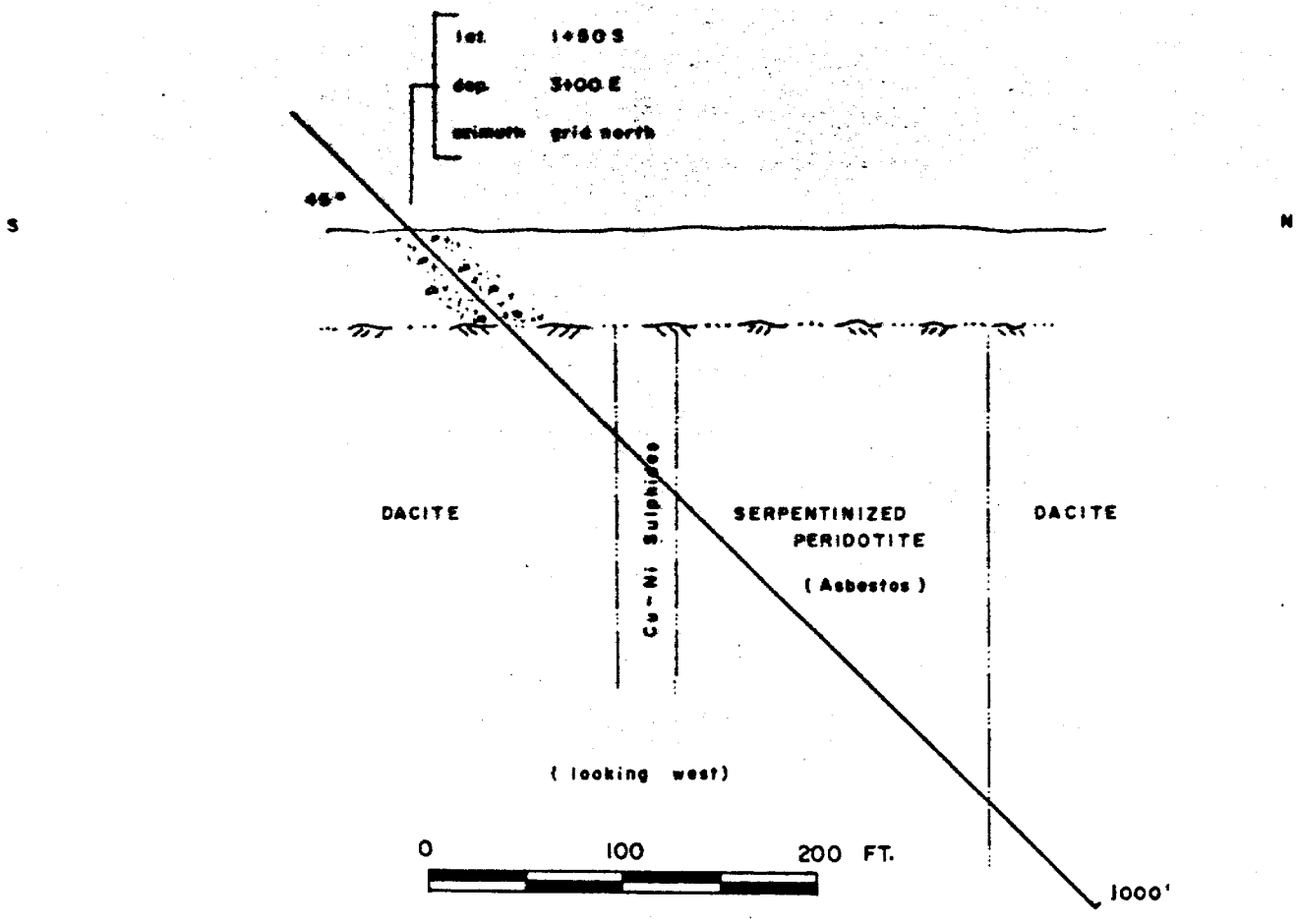
RECOMMENDATIONS

A hole has been drilled to the south from station 2 + 50 north on line 3 east and would have intersected the cause of the anomaly. As this drilling was not filed as assessment work, the cause of the anomalous conductivity is not known. This hole would not have adequately tested the serpentinized peridotite for asbestos. A section follows, showing the coincidence of the anomalous magnetic and conductivity responses.

No further work is recommended.

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INFERRED DIAMOND DRILL SECTION

CLAIM BLOCK VII

SOUTH CENTRAL HUTT TOWNSHIP &

NORTH CENTRAL HALLIDAY TOWNSHIP

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CLAIM BLOCK VII

SOUTH CENTRAL HUTT TOWNSHIP &
NORTH CENTRAL HALLIDAY TOWNSHIP

GENERAL

Block VII was staked to cover a strong magnetic anomaly near the southern boundary of Hutt Township. Twelve claims were staked in this township and two in Halliday Township to the south, numbered L - 476 206 through L - 476 219 inclusive. Access to this area is via canoe on the Grassy River.

GEOLOGY

The geological compilation of Hutt Township shows the area of Claim Block VII to be underlain by basic to felsic volcanic rocks trending slightly north of east with a dip to the south. A graphitic horizon carrying differing tenors of pyrite, marcasite, chalcopyrite and pyrrhotite trends southwesterly from just south of a point midway along the southern boundary of the claims.

GEOPHYSICS

No electromagnetic response was mapped on either of 444 HZ or the 1777 Hz frequencies.

The magnetic data outlined a domical magnetic pattern in the south-central part of the claims. Minor changes in magnetic relief were mapped over the remainder of the claims except on lines 48 through 64 where all or parts of the lines could not be surveyed because of high waters.

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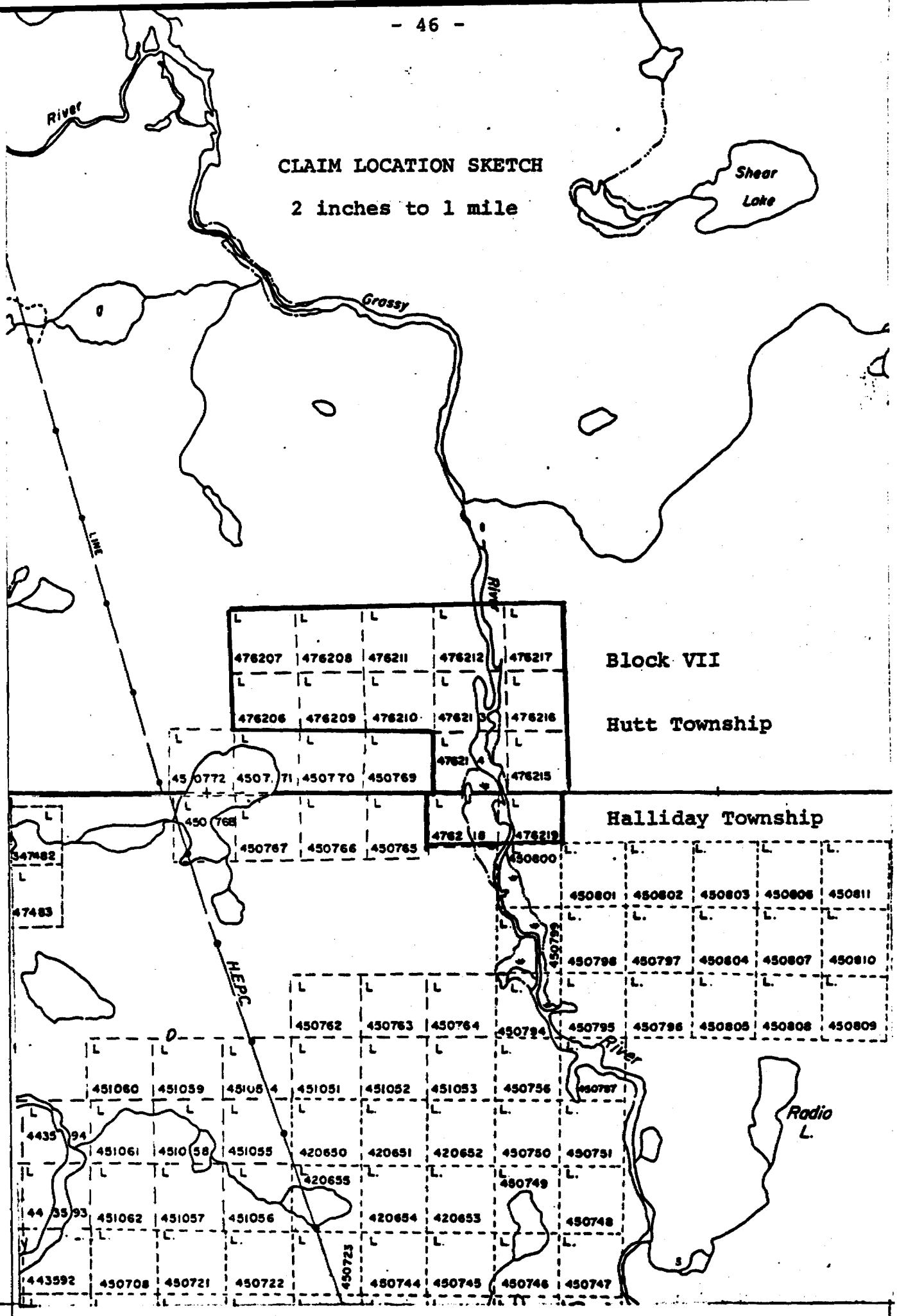


Fig. 7

FORM NO. L42-411-P REPORT PAPER - GRAND & TOY

INFERRED GEOLOGY

The volcanic rocks on these claims dip to the south and in the northern part of the claims consist of alternating andesitic and dacitic flows of uniform thickness with a continuity along their strike. In the southern part of the claims west of the Grassy River a dome of alternating layers of andesite and dacite which have strongly contrasting magnetic susceptibilities may be inferred. This dome was buried by dacitic flows which just covered the dome. The cessation of dacitic flows marked a hiatus in the volcanism. To the south-west a metavolcanic horizon was deposited carrying low tenors of chalcopyrite, pyrite, marcasite and graphite.

The present erosional level is not necessarily a section through the center of the dome, but more probably a section through the side. The center of the dome may be at depth and may extend further to the south. Thus, it could be inferred that the vent of the cone would extend above the dacitic flows and emanations during the final stages of the volcanism, and would give rise to sulphide occurrences in this area.

RECOMMENDATIONS

No further work is suggested for these claims, but the ground west of Grassy River and south of the claims should be acquired if and when it reverts to the Crown.

All of which is respectfully submitted,

W. G. WAHL LIMITED

W. G. Wahl PhD, P. Eng.

FORM NO. L12-411-P REPORT PAPER - GRAND & TOY

FORM NO. L42411-P REPORT PAPER - GRAND & TOY

APPENDIX I

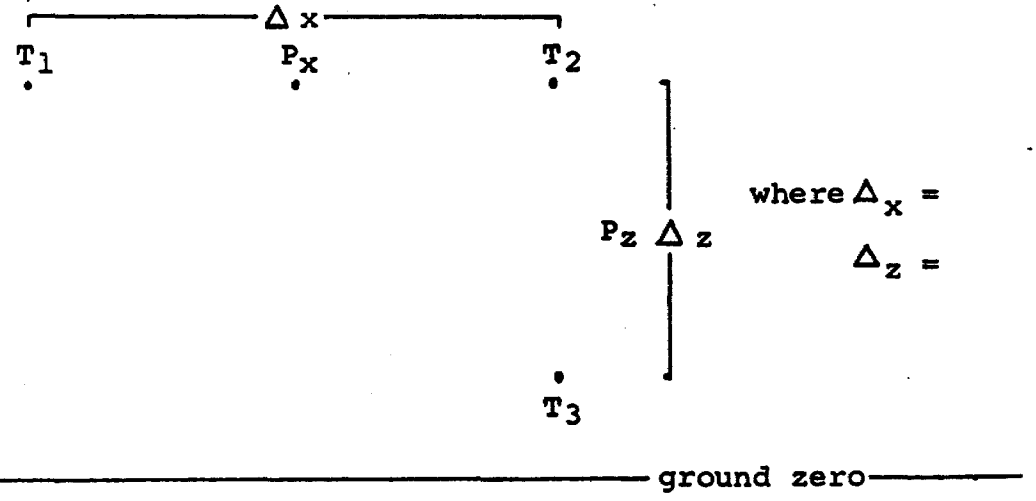
TOTAL MAGNETIC FIELD GRADIENT STUDY

GRADIENT MAGNETOMETER PROFILE STUDY

The total magnetic field intensities were recorded with a sensitivity of ± 1 gamma at two elevations, one at 6 feet above ground level and the second at 9 feet above ground level at each station employing a Geometric total field proton magnetometer.

By observing the magnetic field intensities at two elevations and knowing the distance between the two observations, the vertical and horizontal gradients of the total magnetic field were calculated.

The gradient measurement geometry appears as follows:



The observed total magnetic field data was adjusted for magnetic diurnal and reduced to a local datum. Reduction of the vertical and horizontal gradient components was achieved by the following expressions:

FORM NO. L4; 81-P REPORT PAPER · GRAND & TOY

$$\frac{T_1 - T_2}{\Delta x} = \frac{dT}{dx}\Bigg|_{P_x}$$ which equates to the horizontal gradient measured at point P_x.

$$\frac{T_3 - T_2}{\Delta z} = \frac{dT}{dz}\Bigg|_{P_z}$$ which equates to the vertical gradient measured at point P_z.

FORM NO. L42-811-P REPORT PAPER - GRAND & TOY

EXEMPLARY GRADIENT PROFILE

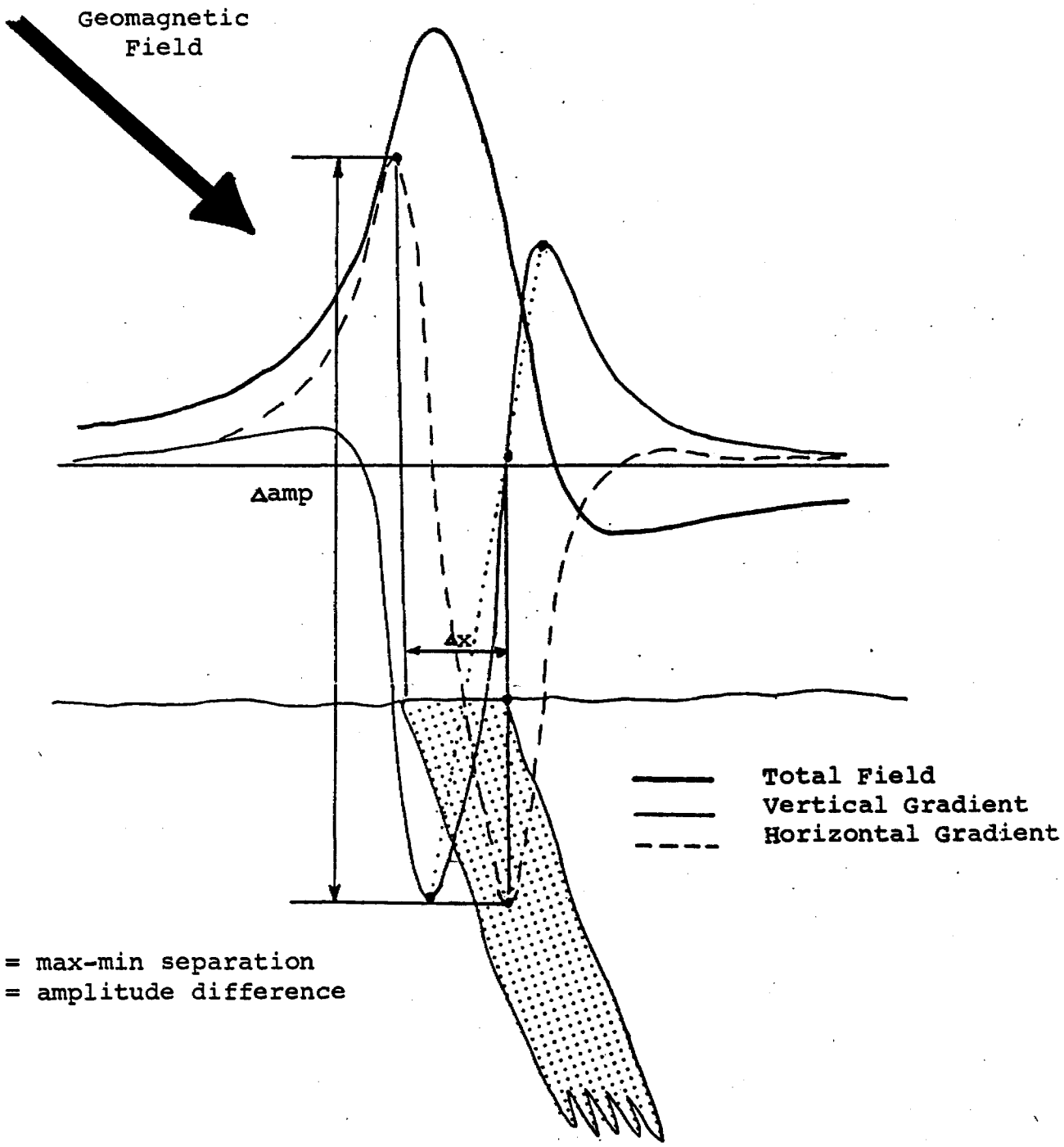


FIGURE 1

Ontario

Ministry of Natu

41P14NE0080 2.2504 HALLIDAY

900

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 MAPPING

Township or Area HUTT

Claim Holder(s) W.G. WAHL LTD

1101, 302 BAY ST, TORONTO ONT M5H 2P3

Survey Company W.G. WAHL LTD

Author of Report MR. B. MCKAY AND MR. D WAHL

Address of Author 1101, 302 BAY ST, TORONTO ONT M5H 2P3

Covering Dates of Survey FIELD MAY 1988 - JUNE 1989 OFFICE JUNE 1988 - SEPTEMBER 1989
(linecutting to office)

Total Miles of Line Cut

SPECIAL PROVISIONS CREDITS REQUESTED		DAYS per claim
ENTER 40 days (includes line cutting) for first survey.	Geophysical	
	–Electromagnetic	
	–Magnetometer	
	–Radiometric	
ENTER 20 days for each additional survey using same grid.	–Other	
	Geological	20
	Geochemical	

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

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

DATE: Sept 19/89 SIGNATURE: _____
Author of Report or Agent

Res. Geol. _____ Qualifications 63.1121

Previous Surveys

File No.	Type	Date	Claim Holder

OFFICE USE ONLY

MINING CLAIMS TRAVERSED
List numerically

	(prefix)		(number)
BLOCK I	L	✓	476220
	L		476221
	L	✓	476206
	L	✓	476207
	L	✓	476208
	L	✓	476209
	L	✓	476210
BLOCK III	L	✓	476211
	L	✓	476212
	L	✓	476213
	L	✓	476214
	L	✓	476215
	L	✓	476216
	L	✓	476217

TOTAL CLAIMS 14

If space insufficient, attach list

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 _____

File 2.2504

Ministry of Natural Resources

Ontario

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 MAPPING.

Township or Area ENGLISH

Claim Holder(s) W.G. WAHL LTD,
1101, 302 BAY ST TORONTO ONT M5H 2R3

Survey Company W.G. WAHL LTD

Author of Report MR. B. MCKAY AND MR. D. WAHL

Address of Author 1101, 302 BAY ST TORONTO ONT M5H 2P3

Covering Dates of Survey FIELD MAY 1977 - JUNE 1977 OFFICE JUNE 1977 - SEPT 1977
(linecutting to office)

Total Miles of Line Cut

SPECIAL PROVISIONS CREDITS REQUESTED		DAYS per claim
ENTER 40 days (includes line cutting) for first survey.	Geophysical	
	--Electromagnetic	
	--Magnetometer	
	--Radiometric	
ENTER 20 days for each additional survey using same grid.	--Other	
	Geological	20
	Geochemical	

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

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

DATE Sept 19/77 SIGNATURE _____
Author of Report or Agent

Res. Geol. _____ Qualifications _____

Previous Surveys

File No.	Type	Date	Claim Holder

MINING CLAIMS TRAVERSED
List numerically

	(prefix)		(number)
	L		476222
BLOCK I	L		476223
	L		476224
	L		476225
	L		476194
	L		476195
BLOCK II	L		476196
	L		476197
	L	✓	476182
	L	✓	476183
	L	✓	476184
BLOCK III	L	✓	476185
	L	✓	476186
	L	✓	476187

TOTAL CLAIMS 14

If space insufficient, attach list

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 _____

File 2.2504

Ministry of Natural Resources

Ontario

GEOPHYSICAL – GEOLOGICAL – GEOCHEMICAL TECHNICAL DATA STATEMENT

TO BE ATTACHED AS AN APPENDIX TO TECHNICAL REPORT
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TECHNICAL REPORT MUST CONTAIN INTERPRETATION, CONCLUSIONS ETC.

Type of Survey(s) GEOLOGICAL MAPPING

Township or Area TEMPLE

Claim Holder(s) W.G. WAHL LTD

1101, 302 BAY ST TORONTO ONT M5H 2P3

Survey Company W.G. WAHL

Author of Report MR. B. MCKAY AND MR. D. WAHL

Address of Author 1101, 302 BAY ST, TORONTO ONT M5H 2P3

Covering Dates of Survey FIELD MAY 1977 - JUNE 1977 OFFICE JUNE 1977 - SEPT 1977.
(linecutting to office)

Total Miles of Line Cut

SPECIAL PROVISIONS CREDITS REQUESTED

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

ENTER 20 days for each additional survey using same grid.

	DAYS per claim
Geophysical	
--Electromagnetic	
--Magnetometer	
--Radiometric	
--Other	
Geological	40
Geochemical	

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

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

DATE: Sept 19/77 SIGNATURE: _____
Author of Report or Agent

Res. Geol. _____ Qualifications _____

Previous Surveys

File No.	Type	Date	Claim Holder

OFFICE USE ONLY

MINING CLAIMS TRAVERSED
List numerically

(prefix) (number)

	L ✓	476226
	L ✓	476227
	L ✓	476228
BLOCK II	L ✓	476229
	L ✓	476230
	L ✓	476231
	L ✓	476188
	L ✓	476189
	L ✓	476190
BLOCK I	L ✓	476191
	L ✓	476192
	L ✓	476193
	L ✓	476175
	L ✓	476176
	L ✓	476177
BLOCK III	L ✓	476178
	L ✓	476179
	L ✓	476180
	L ✓	476181

If space insufficient, attach list

TOTAL CLAIMS 19

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 _____

File 2.2504

Ministry of Natural Resources

Ontario

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) MAGNETIC AND ELECTROMAGNETIC

Township or Area ENGLISH

Claim Holder(s) W.G. WAHL LTD

1101-302 BAY ST TORONTO ONT M5H 2P3

Survey Company W.G. WAHL LTD

Author of Report DR. W.G. WAHL

Address of Author 1101-302 BAY ST. TORONTO ONT M5H 2P3

Covering Dates of Survey FIELD JANUARY 1977 - MAY 1977 OFFICE MAY 1977 - SEPTEMBER 1977
(linecutting to office)

Total Miles of Line Cut 16.6

SPECIAL PROVISIONS CREDITS REQUESTED

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

ENTER 20 days for each additional survey using same grid.

	DAYS per claim
Geophysical	
–Electromagnetic	40
–Magnetometer	20
–Radiometric	
–Other	
Geological	
Geochemical	

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

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

DATE: Sept 19/77 SIGNATURE: _____
Author of Report or Agent

Res. Geol. _____ Qualifications _____

Previous Surveys

File No.	Type	Date	Claim Holder

OFFICE USE ONLY

MINING CLAIMS TRAVERSED
List numerically

	(prefix)	MAG	EM	(number)	
BLOCK I	L	✓		476222	1/4
	L	✓		476223	1/3
	L	✓		476224	1/4
	L	✓		476225	1/4
BLOCK II	L	✓		476194	✓
	L	✓		476195	1/4
	L	✓		476196	1/4
	L	✓		476197	1/4
BLOCK III	L	✓		476182	✓
	L	✓		476183	✓
	L	✓		476184	✓
	L	✓		476185	✓
	L	✓		476186	✓
	L	✓		476187	✓

If space insufficient, attach list

TOTAL CLAIMS 14

GEOPHYSICAL TECHNICAL DATA

GROUND SURVEYS – If more than one survey, specify data for each type of survey

Number of Stations MAG 1747, EM 614 Number of Readings MAG 3494, EM 2456

Station interval MAG 50', EM 100' Line spacing 400'

Profile scale 1 INCH = 20% (EM)

Contour interval AS INDICATED (MAG)

MAGNETIC

Instrument GEOMETRICS G-816 MAGNETOMETER

Accuracy – Scale constant ± 1 GAMMA, +59,000 GAMMAS

Diurnal correction method TIME EXTRAPOLATION

Base Station check-in interval (hours) ½ HOUR - 1 HOUR

Base Station location and value ALL BASELINE STATIONS HAVE BEEN STANDARDIZED AND ARE INDICATED BY Δ

ELECTROMAGNETIC

Instrument APEX MAXMIN II

Coil configuration HORIZONTAL

Coil separation 400'

Accuracy ±½% TO ±1%

Method: ☐ Fixed transmitter ☐ Shoot back ☑ In line ☐ Parallel line

Frequency 444 Hz AND 1777 Hz (specify V.L.F. station)

Parameters measured IN PHASE COMPONENT AND QUADRATURE COMPONENT

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

Ontario

Ministry of Natural Resources

File 2.2504

GEOPHYSICAL – GEOLOGICAL – GEOCHEMICAL TECHNICAL DATA STATEMENT

TO BE ATTACHED AS AN APPENDIX TO TECHNICAL REPORT
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Type of Survey(s) MAGNETOMETER AND ELECTROMAGNETIC

Township or Area SEMPLE

Claim Holder(s) W.G. WAHL LIMITED

1101-302 BAY ST. TORONTO ONT M5H 2P3

Survey Company W.G. WAHL LIMITED

Author of Report DR. W.G. WAHL

Address of Author 1101-302 BAY ST. TORONTO ONT M5H 2P3

Covering Dates of Survey FIELD JANUARY 1977 - MAY 1977 OFFICE MAY 1977 - SEPTEMBER 1977
(linecutting to office)

Total Miles of Line Cut 21.0

SPECIAL PROVISIONS CREDITS REQUESTED		DAYS per claim
ENTER 40 days (includes line cutting) for first survey.	Geophysical	
	--Electromagnetic	40
	–Magnetometer	20
ENTER 20 days for each additional survey using same grid.	–Radiometric	
	–Other	
	Geological	
	Geochemical	

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

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

DATE Sept 19/77 SIGNATURE: _____
Author of Report or Agent

Res. Geol. _____ Qualifications _____

Previous Surveys

File No.	Type	Date	Claim Holder

OFFICE USE ONLY

MINING CLAIMS TRAVERSED
List numerically

	(prefix)	(number)	MAG	EM
	L	476226	✓	✓
	L	476227	✓	✓
	L	476228	✓	✓
BLOCK IV	L	476229	✓	✓
	L	476230	✓	✓
	L	476231	✓	✓
	L	476188	✓	1/3
	L	476189	✓	✓
	L	476190	✓	✓
BLOCK V	L	476191	✓	1/3
	L	476192	3/4	3/4
	L	476193	N.C	N/C
	L	476175	✓	1/3 N/C
	L	476176	✓	1/4
	L	476177	✓	✓
BLOCK VI	L	476178	✓	✓
	L	476179	✓	✓
	L	476180	✓	✓
	L	476181	✓	✓

If space insufficient, attach list

TOTAL CLAIMS 19

GEOPHYSICAL TECHNICAL DATA

GROUND SURVEYS – If more than one survey, specify data for each type of survey

Number of Stations MAG. 1651, EM. 583 Number of Readings MAG. 3312, EM. 2332

Station interval MAG. 50', EM 100' Line spacing 400'

Profile scale 1 inch = 20% (EM)

Contour interval as indicated (MAG)

MAGNETIC

Instrument GEOMETRICS G-816 MAGNETOMETER

Accuracy – Scale constant ± 1 GAMMA, +59,000 GAMMAS

Diurnal correction method TIME EXTRAPOLATION

Base Station check-in interval (hours) ½ HOUR - 1 HOUR

Base Station location and value ALL BASE LINE STATIONS HAVE BEEN STANDARDIZED AND ARE INDICATED BY △

ELECTROMAGNETIC

Instrument APEX MAXMIN II

Coil configuration HORIZONTAL

Coil separation 400'

Accuracy ± ½% to ± 1%

Method: ☐ Fixed transmitter ☐ Shoot back ☑ In line ☐ Parallel line

Frequency 444 Hz AND 1777 Hz (specify V.L.F. station)

Parameters measured IN PHASE COMPONENT AND QUADRATURE COMPONENT

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

File 2.2504

Ontario

Ministry of Natural Resources

GEOPHYSICAL – GEOLOGICAL – GEOCHEMICAL TECHNICAL DATA STATEMENT

TO BE ATTACHED AS AN APPENDIX TO TECHNICAL REPORT
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TECHNICAL REPORT MUST CONTAIN INTERPRETATION, CONCLUSIONS ETC.

Type of Survey(s) MAGNETIC AND ELECTROMAGNETIC

Township or Area HUTT

Claim Holder(s) W.G. WAHL LIMITED

1101-302 BAY ST, TORONTO, ONT M5H 2P3

Survey Company W.G. WAHL LIMITED

Author of Report DR. W.G. WAHL

Address of Author 1101-302 BAY STREET TORONTO M5H 2P3

Covering Dates of Survey FIELD JANUARY 1977 - MAY 1977 OFFICE MAY 1977 - SEPTEMBER 1977
(linecutting to office)

Total Miles of Line Cut 13.5

SPECIAL PROVISIONS CREDITS REQUESTED

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

ENTER 20 days for each additional survey using same grid.

	DAYS per claim
Geophysical	
–Electromagnetic	40
–Magnetometer	20
–Radiometric	
–Other	
Geological	
Geochemical	

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

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

DATE: Sept 19/77 SIGNATURE: W.G. Wahl
Author of Report or Agent

Res. Geol. _____ Qualifications _____

Previous Surveys

File No.	Type	Date	Claim Holder

MINING CLAIMS TRAVERSED
List numerically

MAG EM

BLOCK V (Prefix)	L	✓	476220 ✓ (number)
	L	✓	476221 ✓
	L	✓	476206 ✓
	L	✓	476207 ✓
	L	✓	476208 ✓
	L	✓	476209 ✓
	L	✓	476210 ✓
BLOCK VII	L	✓	476211 ✓
	L	N.C	476212 N.C
	L	N.C	476213 N.C
	L	N.C	476214 N.C
	L	✓	476215 ✓
	L	✓	476216 ✓
	L	✓	476217 ✓

If space insufficient, attach list

TOTAL CLAIMS 14

OFFICE USE ONLY

GEOPHYSICAL TECHNICAL DATA

GROUND SURVEYS – If more than one survey, specify data for each type of survey

Number of Stations MAG 1102, EM. 471 Number of Readings MAG 2204, EM 1884

Station interval MAG 50', EM. 100' Line spacing 400'

Profile scale 1 inch = 20% (E.M)

Contour interval AS INDICATED (MAG)

MAGNETIC

Instrument GEOMETRICS G-816 MAGNETOMETER

Accuracy – Scale constant ±1 GAMMA + 59,000 GAMMAS

Diurnal correction method TIME EXTRAPOLATION

Base Station check-in interval (hours) ½ HOUR - 1 HOUR.

Base Station location and value ALL BASE LINE STATIONS HAVE BEEN STANDARDIZED AND ARE INDICATED BY △

ELECTROMAGNETIC

Instrument APEX MAXMIN II

Coil configuration HORIZONTAL

Coil separation 400'

Accuracy ± ½% TO ± 1%

Method: ☐ Fixed transmitter ☐ Shoot back ☑ In line ☐ Parallel line

Frequency 444 Hz AND 1777 Hz
(specify V.L.F. station)

Parameters measured IN PHASE COMPONENT AND QUADRATURE COMPONENT

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

File 2.2504

Ministry of Natural Resources

Ontario

GEOPHYSICAL – GEOLOGICAL – GEOCHEMICAL TECHNICAL DATA STATEMENT

TO BE ATTACHED AS AN APPENDIX TO TECHNICAL REPORT
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Type of Survey(s) MAGNETIC AND ELECTROMAGNETIC

Township or Area HALLIDAY

Claim Holder(s) W.G. WAHL LIMITED

1101-302 BAY ST. TORONTO ONT M5H 2R3

Survey Company W.G. WAHL LIMITED

Author of Report DR. W.G. WAHL

Address of Author 1101-302 BAY ST. TORONTO ONT M5H 2R3

Covering Dates of Survey FIELD JANUARY 1977 – MAY 1977 OFFICE MAY 1977 – SEPTEMBER 1977
(linecutting to office)

Total Miles of Line Cut 2.0

SPECIAL PROVISIONS CREDITS REQUESTED

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

ENTER 20 days for each additional survey using same grid.

	DAYS per claim
Geophysical	
–Electromagnetic	40
–Magnetometer	20
–Radiometric	
–Other	
Geological	
Geochemical	

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

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

DATE: Sept 19/77 SIGNATURE: _____
Author of Report or Agent

L.D.

Res. Geol. _____ Qualifications _____

Previous Surveys

File No.	Type	Date	Claim Holder

MINING CLAIMS TRAVERSED
List numerically

	MAG	EM
BLOCK (prefix)		
L 476.218 (number)	NC ✓	NC
L 476.219	✓	

If space insufficient, attach list

TOTAL CLAIMS 2.

OFFICE USE ONLY

GEOPHYSICAL TECHNICAL DATA

GROUND SURVEYS – If more than one survey, specify data for each type of survey

Number of Stations MAG 103, EM 53 Number of Readings MAG 206, EM 106

Station interval MAG 50', EM 100' Line spacing 400'

Profile scale 1 INCH = 20% (E.M)

Contour interval AS INDICATED (MAG)

MAGNETIC

Instrument GEOMETRIC G-816 MAGNETOMETER

Accuracy – Scale constant 1 GAMMA, +59,000 GAMMAS

Diurnal correction method TIME EXTRAPOLATION

Base Station check-in interval (hours) ½ HOUR - 1 HOUR

Base Station location and value ALL BASELINE STATIONS HAVE BEEN STANDARDIZED AND ARE INDICATED BY Δ

ELECTROMAGNETIC

Instrument APEX MAXMIN II

Coil configuration HORIZONTAL

Coil separation 400'

Accuracy 1½% TO 1 1%

Method: ☐ Fixed transmitter ☐ Shoot back ☑ In line ☐ Parallel line

Frequency 444 Hz AND 1977 Hz
(specify V.L.F. station)

Parameters measured IN PHASE COMPONENT AND QUADRATURE COMPONENT

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

File 2.2504

Ministry of Natural Resources

GEOPHYSICAL – GEOLOGICAL – GEOCHEMICAL TECHNICAL DATA STATEMENT

TO BE ATTACHED AS AN APPENDIX TO TECHNICAL REPORT
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Type of Survey(s) Geological + Geo. Mapping.

Township or Area Halliday

Claim Holder(s) W.G. Wahl Ltd

1101, 302 Bay St., Toronto, Ont. M5H-2P3

Survey Company W.G. Wahl Ltd

Author of Report Ms. B. McKay and Mr. P. Wahl

Address of Author 1101, 302 Bay St, Toronto Ont M5H 2P3

Covering Dates of Survey FIELD May 1977 - June 1977 OFFICE June 1977 - September 1977
(linecutting to office)

Total Miles of Line Cut

SPECIAL PROVISIONS CREDITS REQUESTED		DAYS per claim
ENTER 40 days (includes line cutting) for first survey.	Geophysical	
	–Electromagnetic	
	–Magnetometer	
	–Radiometric	
ENTER 20 days for each additional survey using same grid.	–Other	
	Geological	20
	Geochemical	

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

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

DATE: Sept 19/77 SIGNATURE: _____
Author of Report or Agent

Res. Geol. _____ Qualifications _____

Previous Surveys

File No.	Type	Date	Claim Holder

OFFICE USE ONLY

MINING CLAIMS TRAVERSED
List numerically

	(prefix)	(number)
BLOCK XX	L	476218
	L	476219

If space insufficient, attach list

TOTAL CLAIMS 2

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 _____

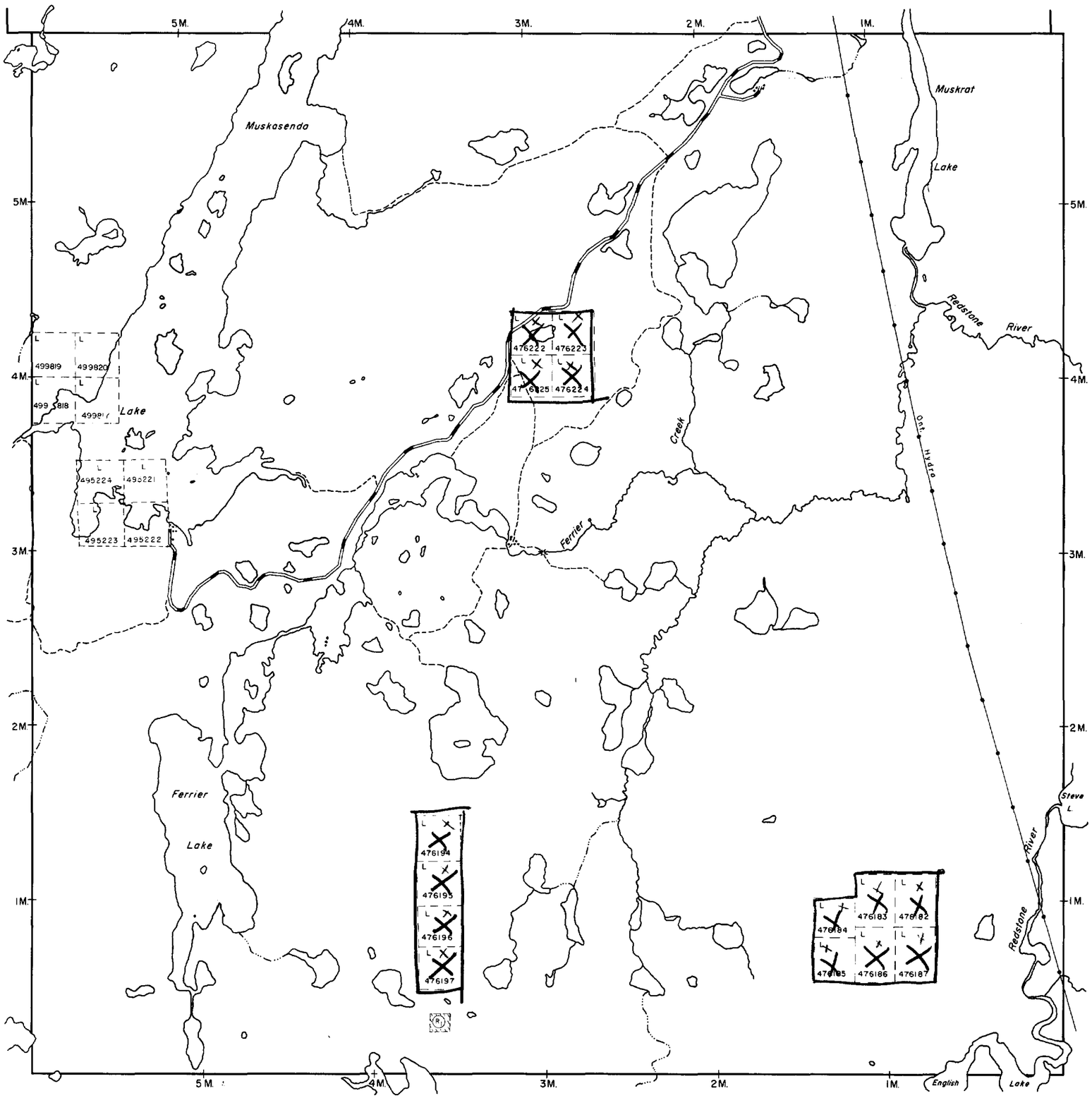
X= geological
X= mag + EM

Bartlett Twp. – M.262

Beemer Twp. – M.656

Zavitz Twp. – M.1189

Semple Twp. – M.1100



THE TOWNSHIP OF

ENGLISH

DISTRICT OF SUDBURY

LARDER LAKE MINING DIVISION

SCALE: 1-INCH=40 CHAINS

LEGEND

PATENTED LAND	(P)
CROWN LAND SALE	C.S.
LEASES	(L)
LOCATED LAND	Loc.
LICENSE OF OCCUPATION	L.O.
MINING RIGHTS ONLY	M.R.O.
SURFACE RIGHTS ONLY	S.R.O.
ROADS	
IMPROVED ROADS	
KING'S HIGHWAYS	
RAILWAYS	
POWER LINES	
MARSH OR MUSKEG	
MINES	
CANCELLED PATENTED S.R.O.	C.

NOTES

400' surface rights reservation along the shores of all lakes and rivers.

Areas withdrawn from staking under Section 43 of the Mining Act (R.S.O. 1970).

	Order No.	File	Date	Disposition
(R1)	W.16/77	83582	28/2/77	S.R.O.

2.2504

DATE OF ISSUE
OCT 17 1977
SURVEYS AND MAPPING BRANCH

PLAN NO.- M.787

ONTARIO
MINISTRY OF NATURAL RESOURCES
SURVEYS AND MAPPING BRANCH

41P14NE0080 2.2504 HALLIDAY

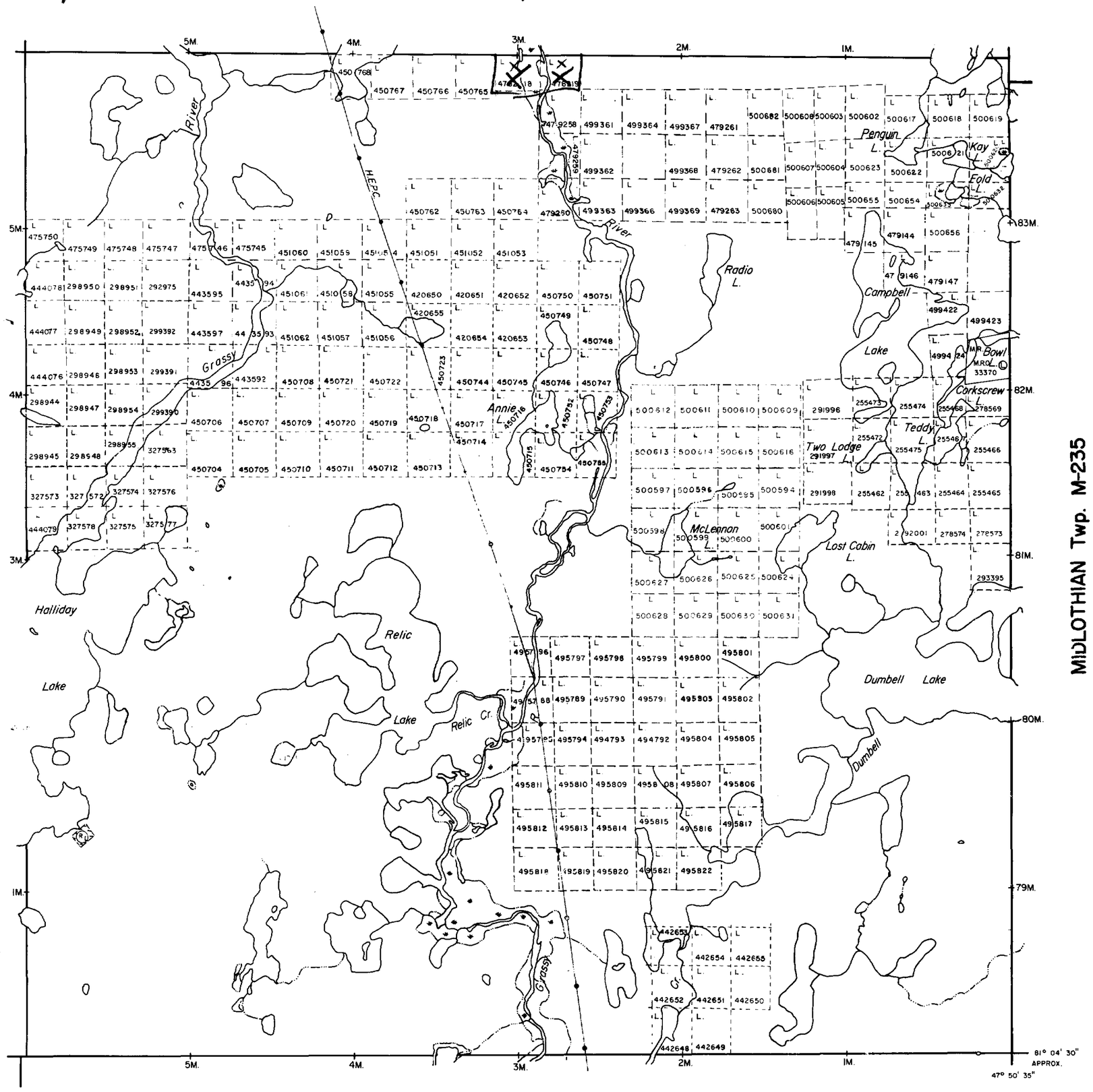
X = geological
X = Mag & EM

HUTT Twp. M-943

SOTHMAN Twp. M-1121

MIDLOTHIAN Twp. M-235

MOND Twp. M-870



NOTES

400' surface rights reservation along the shores of all lakes and rivers.

Areas withdrawn from staking under Section 43 of the Mining Act (R.S.O. 1970).

Order No.	File	Date	Disposition
(P) W 32/77	189266	4/3/77	S.R.O.

DATE OF ISSUE
OCT 17 1977
SURVEYS AND MAPPING BRANCH

LEGEND

PATENTED LAND	(P) or ●*
PATENTED FOR SURFACE RIGHTS ONLY	◑*
LEASE	(L)
LICENSE OF OCCUPATION	L.O.
CROWN LAND SALES	C.S.
LOCATED LAND	Loc.
CANCELLED	C.
MINING RIGHTS ONLY	M.R.O.
SURFACE RIGHTS ONLY	S.R.O.
HIGHWAY & ROUTE NO.	(17)
ROADS	
TRAILS	
RAILWAYS	
POWER LINES	
MARSH OR MUSKEG	
MINES	

*used only with summer resort locations or when space is limited

TOWNSHIP OF
2.2504
HALLIDAY

DISTRICT OF
SUDBURY

LARDER LAKE
MINING DIVISION

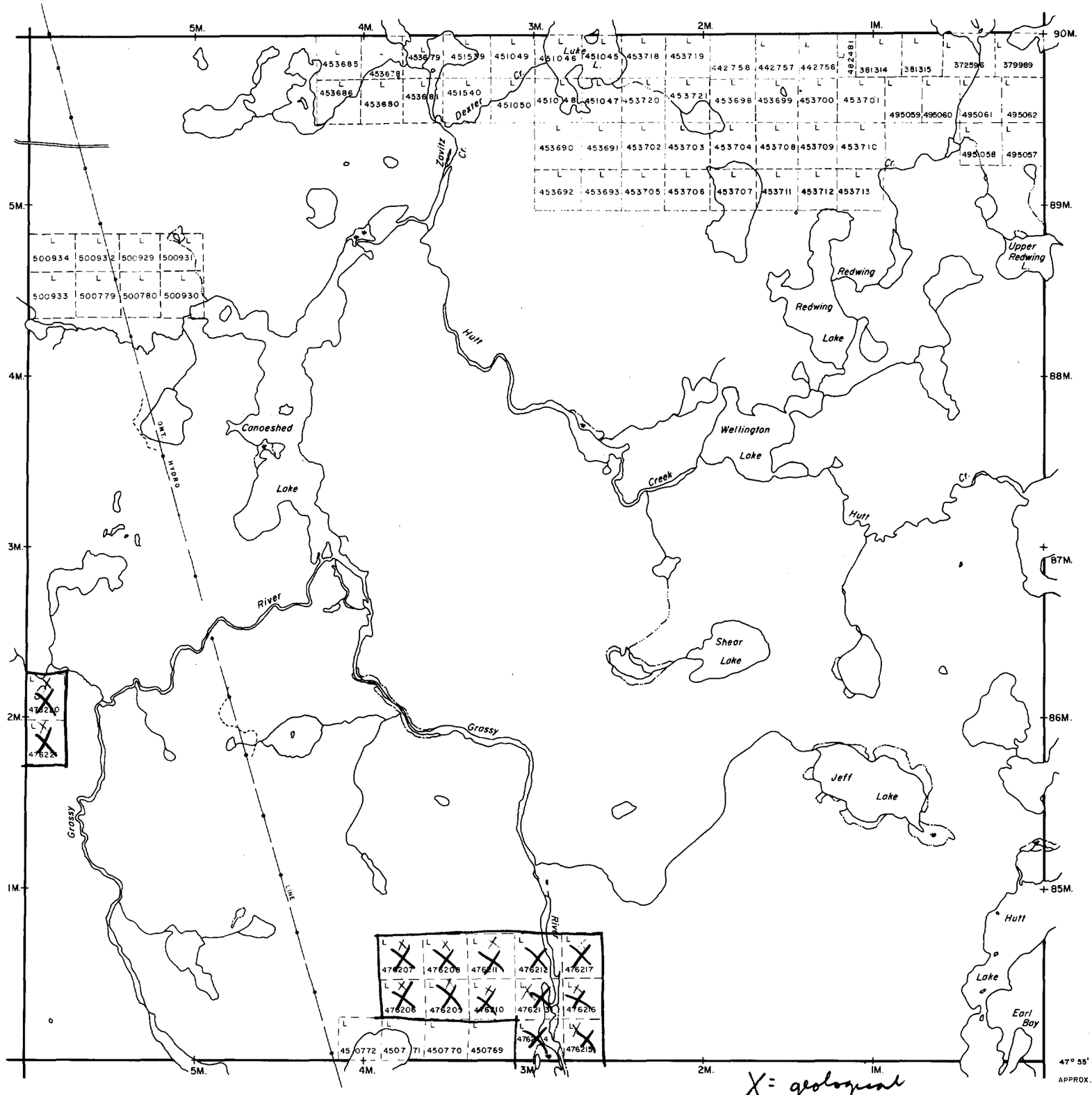
SCALE : 1 INCH = 40 CHAINS (1/2 MILE)

DR. R.W.N
DATE FEB. 2, 71.
PLAN NO. M-910

ONTARIO
MINISTRY OF NATURAL RESOURCES
SURVEYS AND MAPPING BRANCH

41P14NE0080 2.2504 HALLIDAY

ZAVITZ TWP. M-1189



SEMPLE TWP. M-1100

MONTROSE TWP. M-237

HALLIDAY TWP. M-910

X = geological

X = Mining Claims

NOTES

400' surface rights reservation along the shores of all lakes and rivers.

DATE OF ISSUE
OCT 17 1977
SURVEYS AND MAPPING BRANCH

LEGEND

PATENTED LAND	(P) or ●
PATENTED FOR SURFACE RIGHTS ONLY	◒
LEASE	(L)
LICENSE OF OCCUPATION	L.O.
CROWN LAND SALES	C.S.
LOCATED LAND	Loc.
CANCELLED	C.
MINING RIGHTS ONLY	M.R.O.
SURFACE RIGHTS ONLY	S.R.O.
HIGHWAY & ROUTE NO.	17
ROADS	
TRAILS	
RAILWAYS	
POWER LINES	
MARSH OR MUSKEG	
MINES	

*used only with summer resort locations or when space is limited

TOWNSHIP OF

HUTT

DISTRICT OF SUDBURY 2.2504

LARDER LAKE
MINING DIVISION

SCALE : 1 INCH 40 CHAINS (1/2 MILE)

DR. R. NOBLE	PLAN NO. M-943
DATE MAY 5, 71.	

ONTARIO
MINISTRY OF NATURAL RESOURCES
SURVEYS AND MAPPING BRANCH

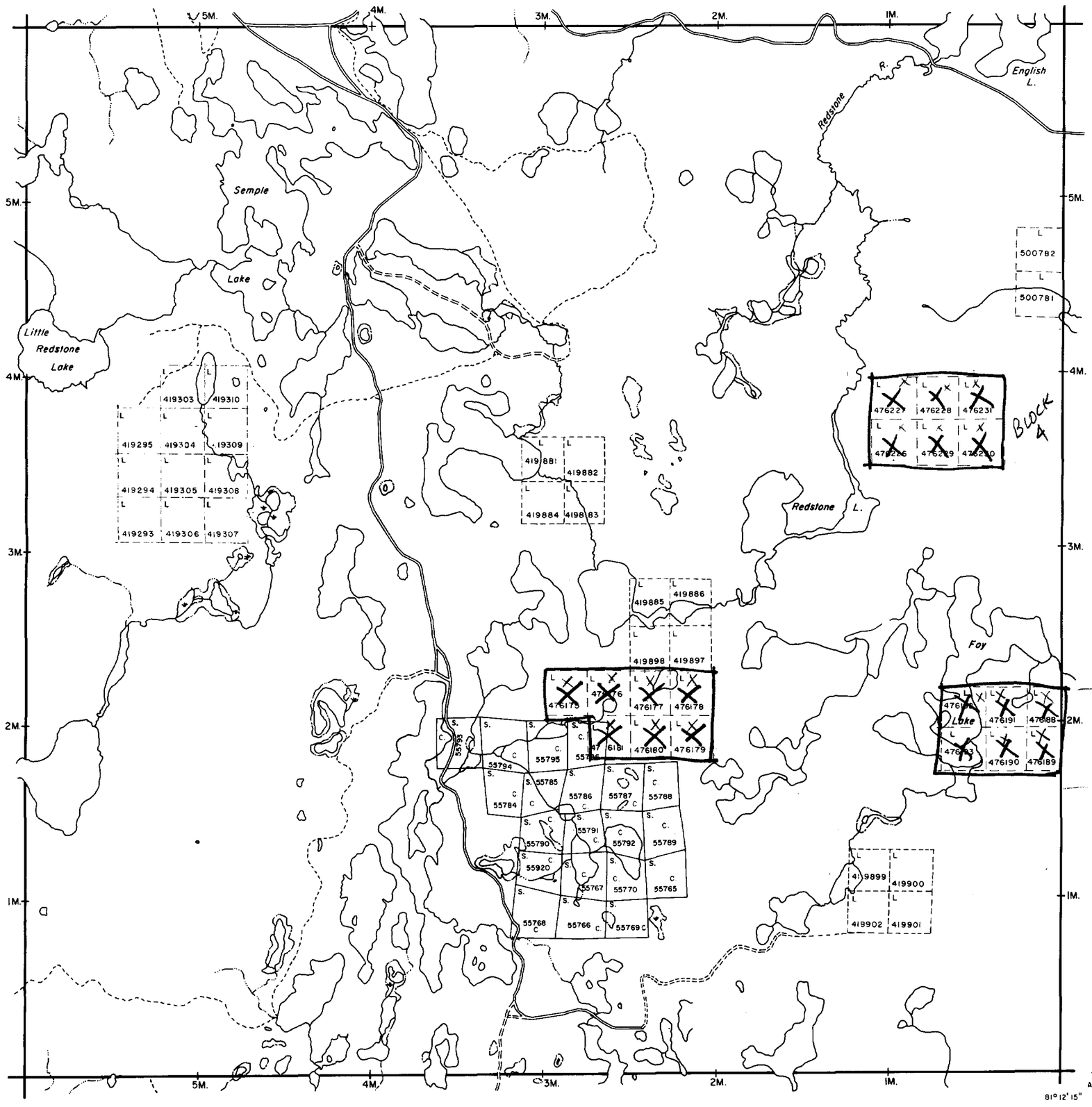
41P14NE0080 2.2504 HALLIDAY

ENGLISH TWP. M-787

MOHER TWP. M-868

HUTT TWP. M-943

SOTHMAN TWP. M-1121



NOTES

400' surface rights reservation along the shores of all lakes and rivers.

X = hwy + RR
X = geological

DATE OF ISSUE
OCT 17 1977
SURVEYS AND MAPPING BRANCH

LEGEND

PATENTED LAND	Ⓟ or ●
PATENTED FOR SURFACE RIGHTS ONLY	◒*
LEASE	Ⓛ
LICENSE OF OCCUPATION	L.O.
CROWN LAND SALES	C.S.
LOCATED LAND	Loc.
CANCELLED	C.
MINING RIGHTS ONLY	M.R.O.
SURFACE RIGHTS ONLY	S.R.O.
HIGHWAY & ROUTE NO.	(17)
ROADS	
TRAILS	
RAILWAYS	
POWER LINES	
MARSH OR MUSKEG	
MINES	

*used only with summer resort locations or when space is limited

TOWNSHIP OF

SEMPLE

2.2504 DISTRICT OF SUDBURY

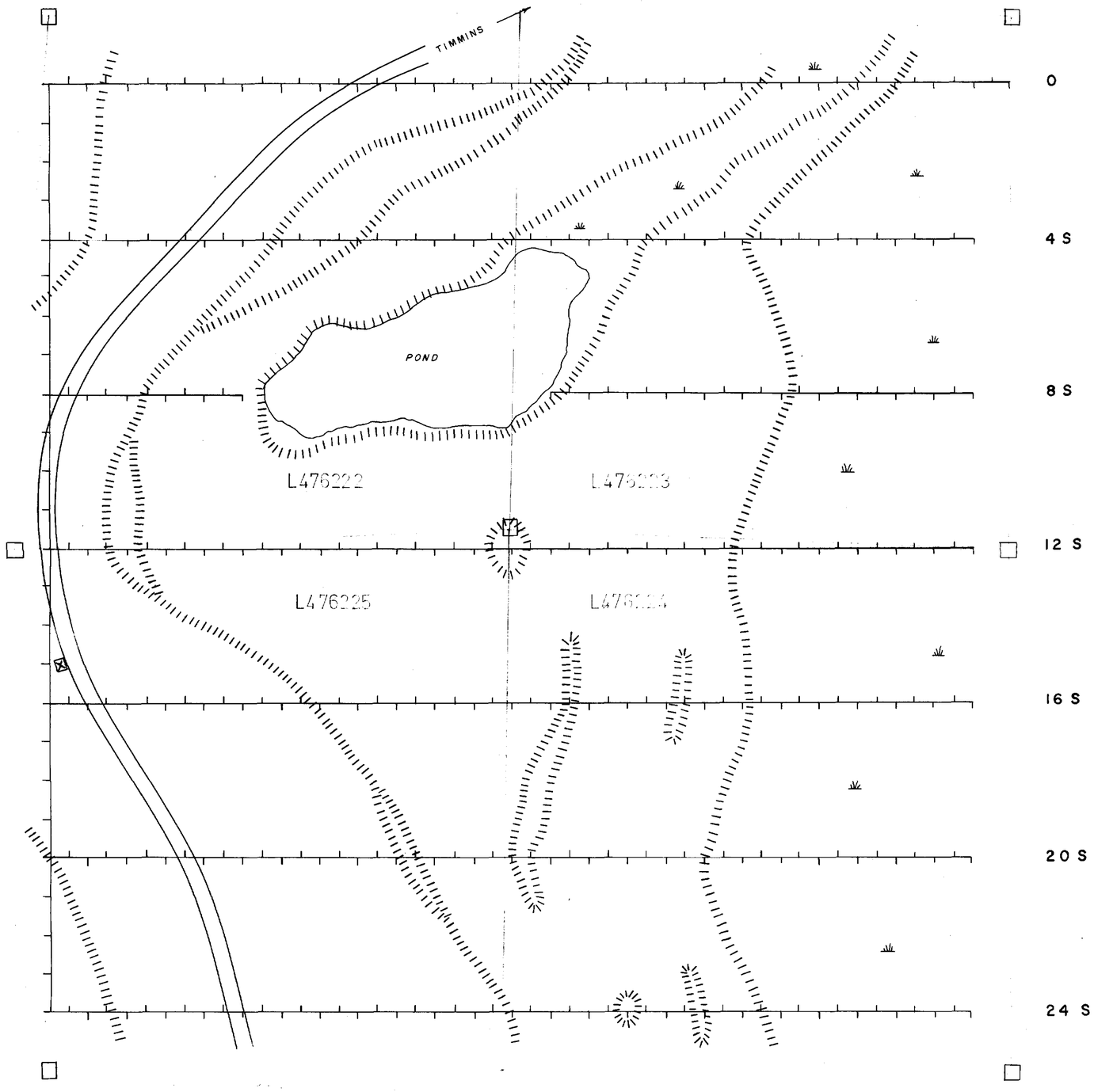
LARDER LAKE
MINING DIVISION

SCALE : 1 INCH 40 CHAINS (1/2 MILE)

DR. R.W. NOBLE	PLAN NO. M-1100
DATE APR. 22, 71	

ONTARIO
MINISTRY OF NATURAL RESOURCES
SURVEYS AND MAPPING BRANCH

41P14NE0080 2.2504 HALLIDAY



N

LEGEND

CENOZOIC

RECENT
Swamp and stream deposits (unconsolidated)

PLEISTOCENE
Glacial drift, eskers, sand (unconsolidated)

SYMBOLS

- Known Claim Post
- Inferred Claim Post
- Kettle depression
- Depression
- Esker
- Swamp
- Old boiler (scrap metal)
- Access road

ESSEX MINERALS COMPANY

ENGLISH TOWNSHIP PROJECT

BLOCK I

GEOLOGY

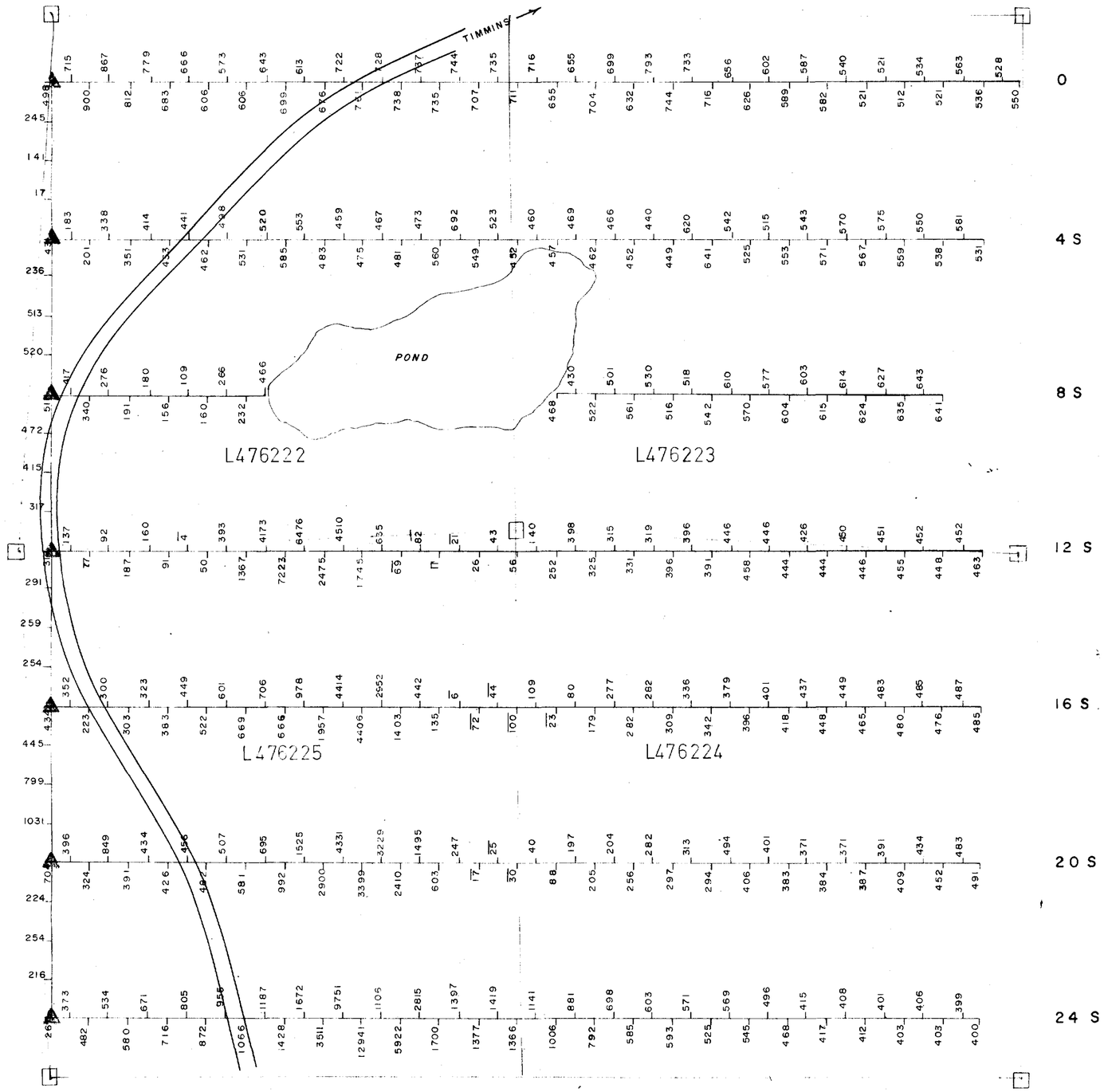
REGISTERED PROFESSIONAL ENGINEER D. G. WAHL PROVINCE OF ONTARIO

DRAWN BY	REV.
BJM	
TRACED BY	REV.
APPROVED	REV.
N.T.S. 42 A/14	REV.
DWG. NO.	

W. G. WAHL LIMITED

1 inch = 200 feet

41P14NE0008 2.2504 HALLIDAY



N

SYMBOLS

- Known Claim Post
- Inferred Claim Post
- Base Station

ESSEX MINERALS COMPANY

REGISTERED PROFESSIONAL ENGINEER
D. G. WAHL
PROVINCE OF ONTARIO

ENGLISH TOWNSHIP PROJECT

DRAWN | REV.

PLOTTED BY | REV.

BLOCK I
MAGNETOMETER SURVEY

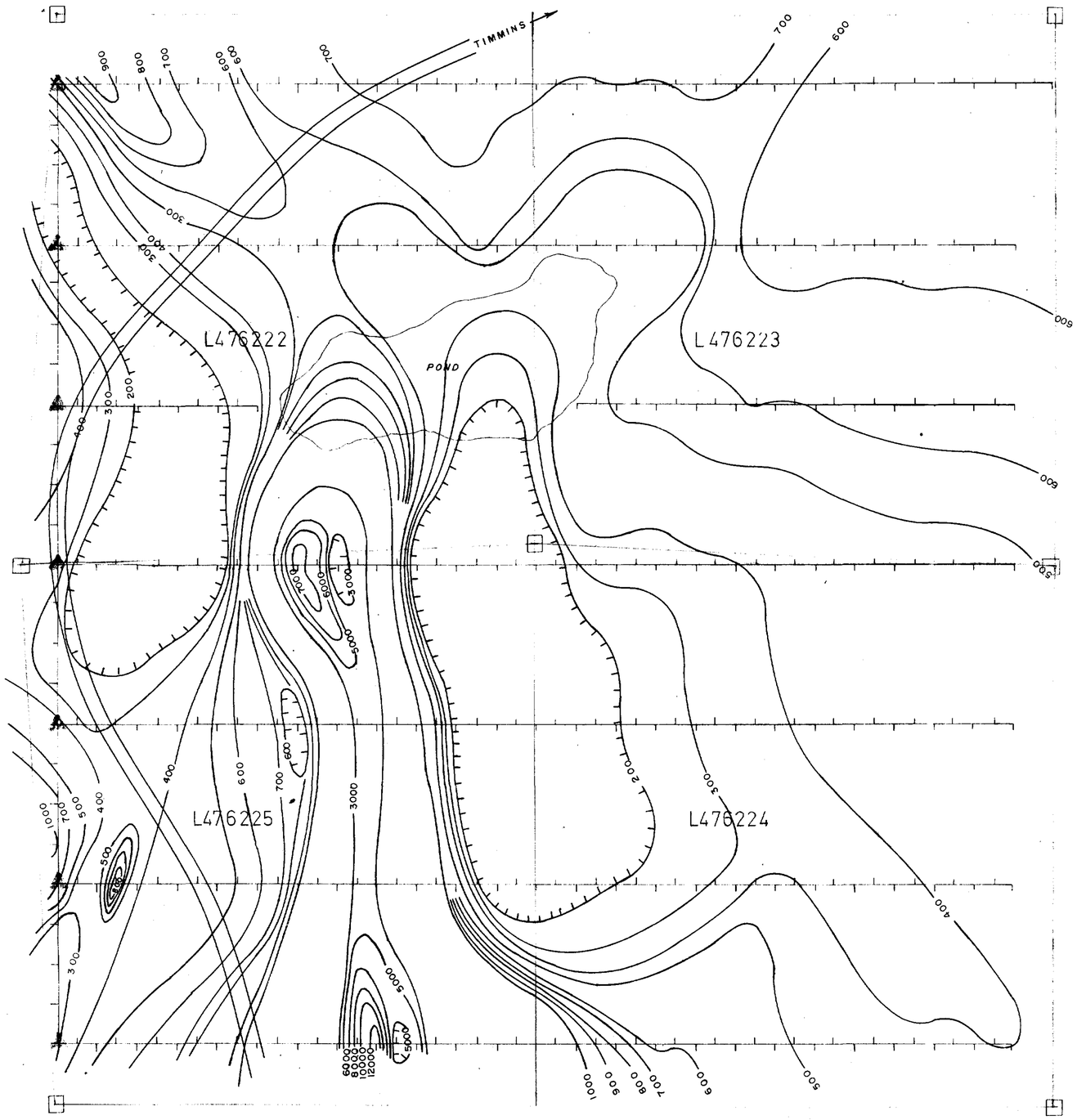
APPROVED | REV.

Corrected Total Field Values in Gammas
(Background 59,000 gammas)

NTS 42 A/3 | REV.

W. WAHL LIMITED | 1 inch = 200 feet | WG NO

41P14NE0080 2.2584 HALLIDAY



N

SYMBOLS

- Known Claim Post
- Inferred Claim Post
- Base Station

ESSEX MINERALS COMPANY

REGISTERED PROFESSIONAL ENGINEER
D. G. WAHL
PROVINCE OF ONTARIO

ENGLISH TOWNSHIP PROJECT

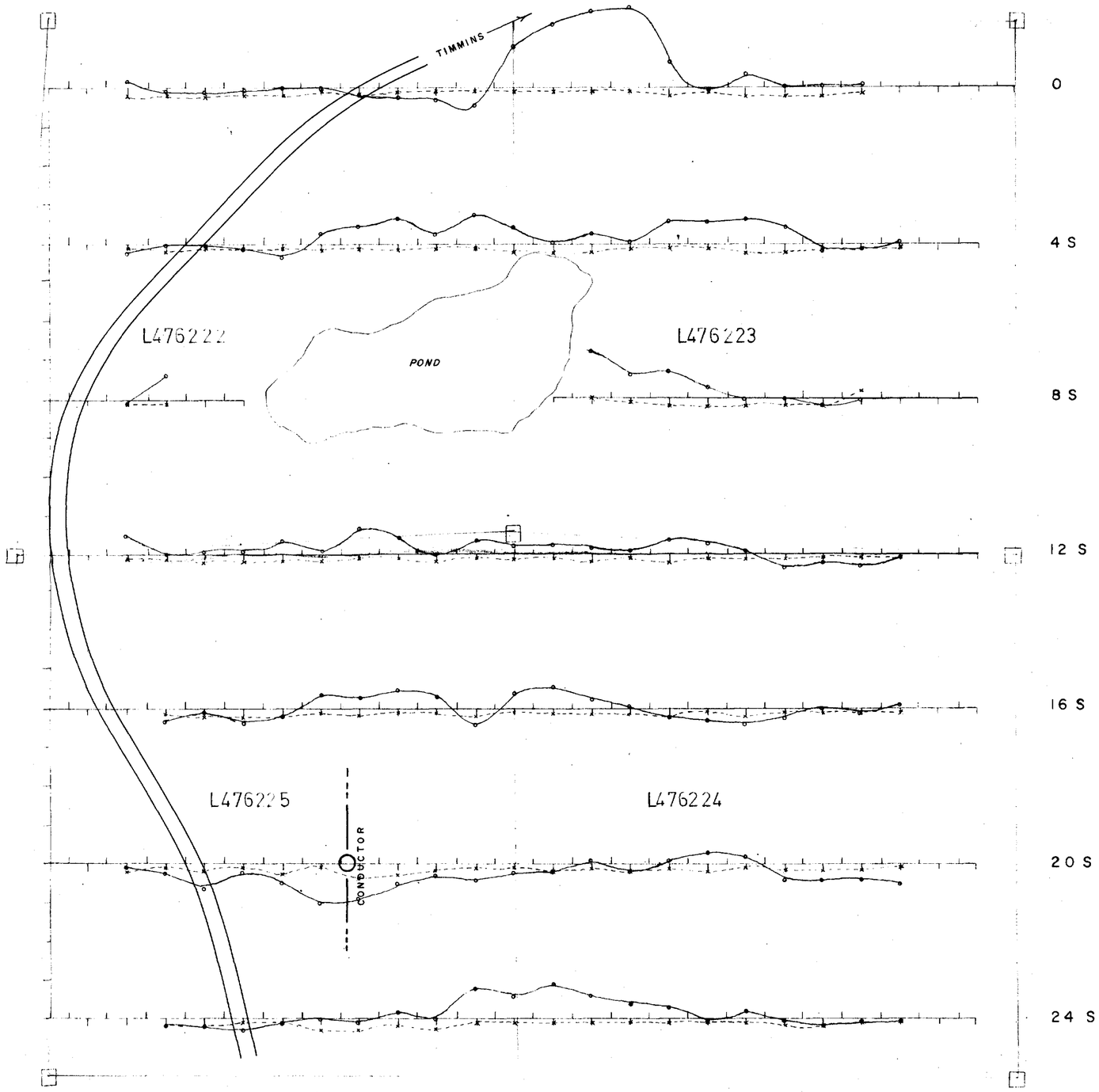
BLOCK I
CONTOURED MAGNETIC DATA
Corrected Total Field Values in Gammas
(Background 59,000 gammas)

DRAWN BY	REV
TRACED BY	REV
APPROVED	REV
NTS 42 A/3	REV
DWG. NO.	

W. G. WAHL LIMITED

1inch : 200 feet

41P14NE0080 2.2584 HALLIDAY



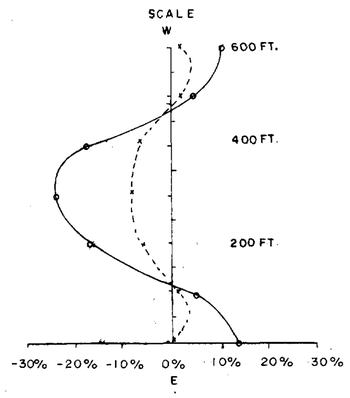
N

SYMBOLS

- Known Claim Post
- Inferred Claim Post
- IP Profile
- OP Profile

Tx or Rx — HL mode 400 ft. — Rx or Tx

Tx-Rx Separation
Drawn to Scale



ESSEX MINERALS COMPANY

REGISTERED PROFESSIONAL ENGINEER
D. G. WAHL
PROVINCE OF ONTARIO

ENGLISH TOWNSHIP PROJECT

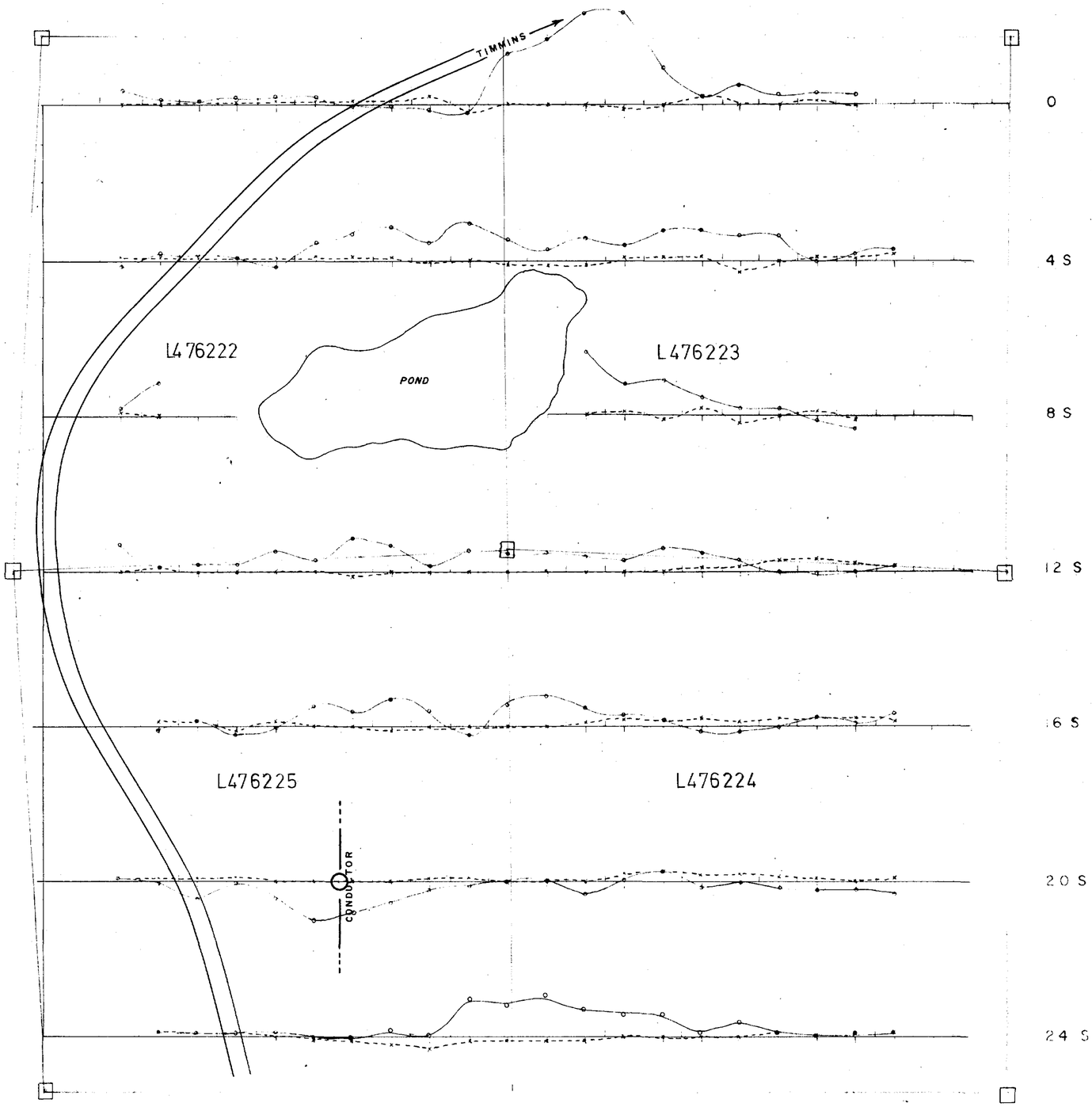
BLOCK I
MAX - MIN II
HORIZONTAL LOOP SURVEY
444 HZ

W. G. WAHL LIMITED

1 inch : 200 feet

DRAWN BY RJM	REV.
TRACED BY KEH	REV.
APPROVED	REV.
NTS 42 A/3	REV.
DWG. NO.	

41P14NE0080 2.2584 HALLIDAY



SYMBOLS

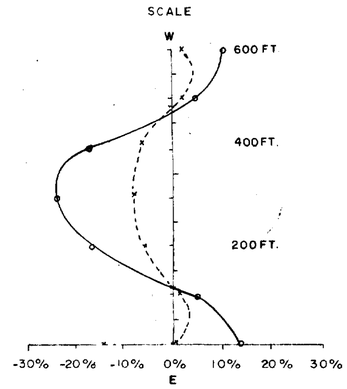
Known Claim Post

Inferred Claim Post

IP Profile

OP Profile

Tx-Rx Separation
Drawn to Scale



ESSEX MINERALS COMPANY

ENGLISH TOWNSHIP PROJECT

BLOCK I

MAX-MIN II

HORIZONTAL LOOP SURVEY

1777 HZ

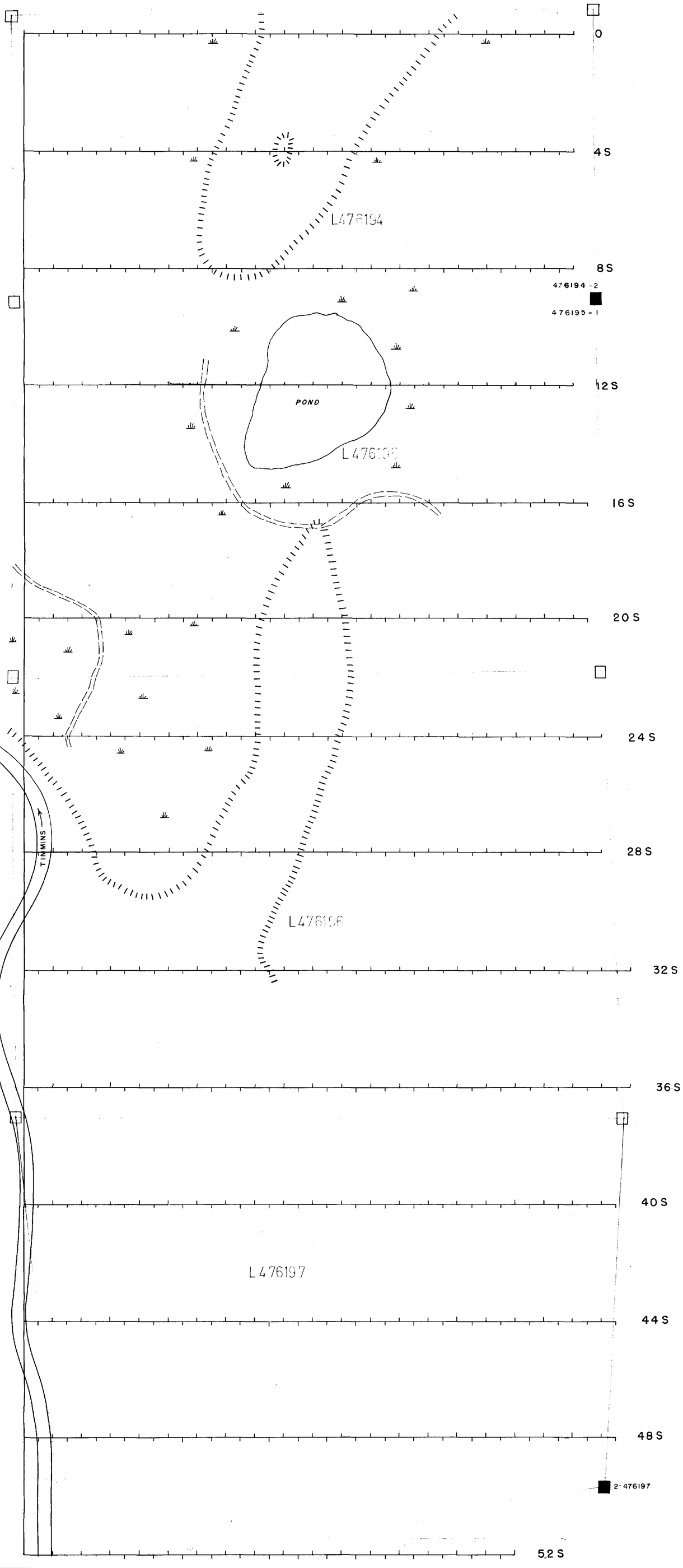
REGISTERED PROFESSIONAL ENGINEER
D. G. WAHL
PROVINCE OF ONTARIO

W. G. WAHL LIMITED

1 inch to 200 feet

DRAWN BY BJM	REV.
TRACED BY KEH	REV.
APPROVED	REV.
NTS 42 A/3	REV.
DWG. NO.	

41P14NE0080 2.2504 HALLIDAY



N

LEGEND

CENOZOIC

RECENT
Swamp and stream deposits (unconsolidated)

PLEISTOCENE
Glacial drift, eskers (unconsolidated)

SYMBOLS

- Known Claim Post
- Inferred Claim Post
- Kettle depression
- Esker
- Swamp
- Winter road
- Access road

D. G. WAHL — REGISTERED PROFESSIONAL ENGINEER — PROVINCE OF ONTARIO

ESSEX MINERALS COMPANY

ENGLISH TOWNSHIP PROJECT

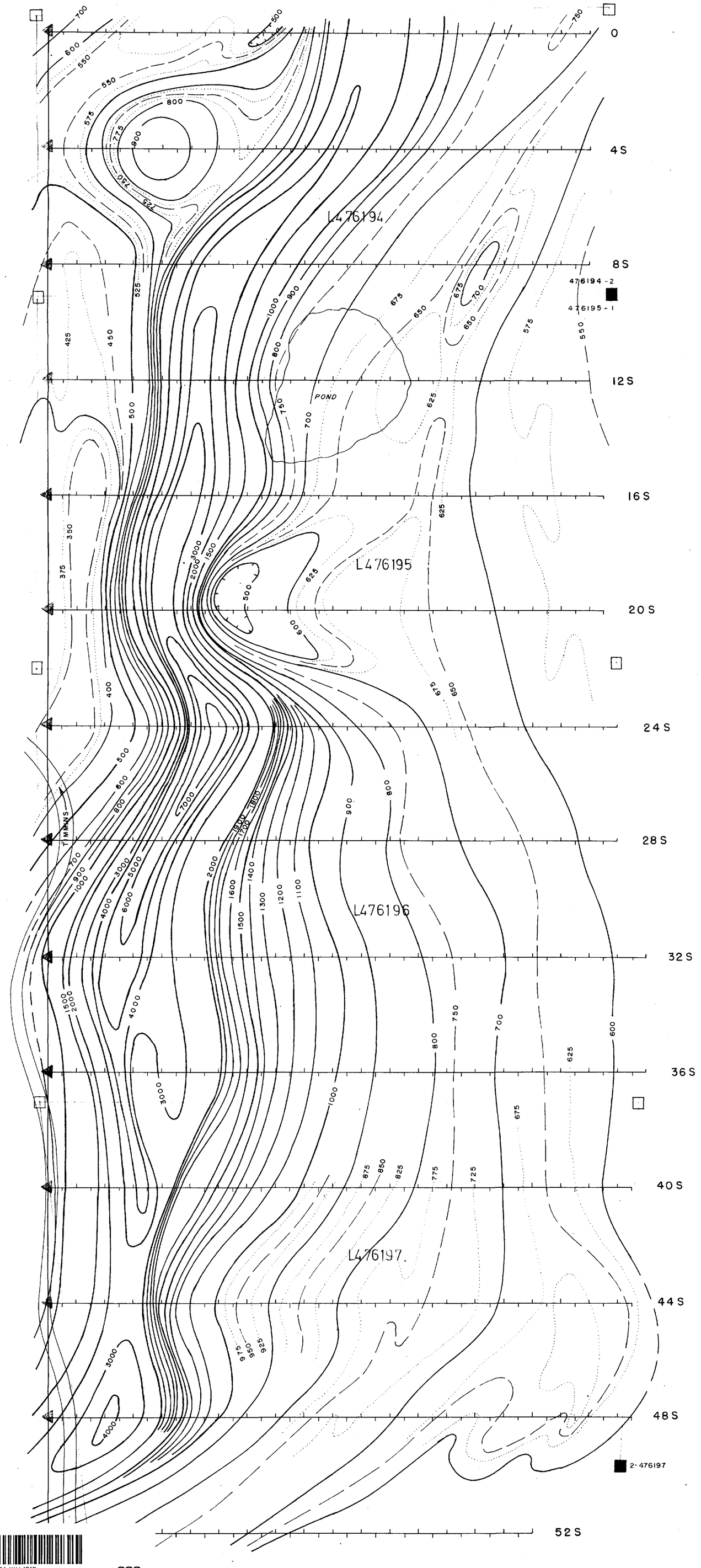
BLOCK 2

GEOLOGY

DRAWN BY	REV.
BJM	
TRACED BY	REV.
APPROVED	REV.
N.T.S. 42 A/3	REV.
DWG. NO.	

W. G. WAHL LIMITED — 1 inch = 200 feet

41P14NE0080 2.2584 HALLIDAY



N

SYMBOLS

- Known Claim Post
- Inferred Claim Post
- Base Station

ESSEX MINERALS COMPANY

ENGLISH TOWNSHIP PROJECT

BLOCK 2
CONTOURED MAGNETIC DATA
Corrected Total Field Values in Gammas
(Background 59,000 gammas)

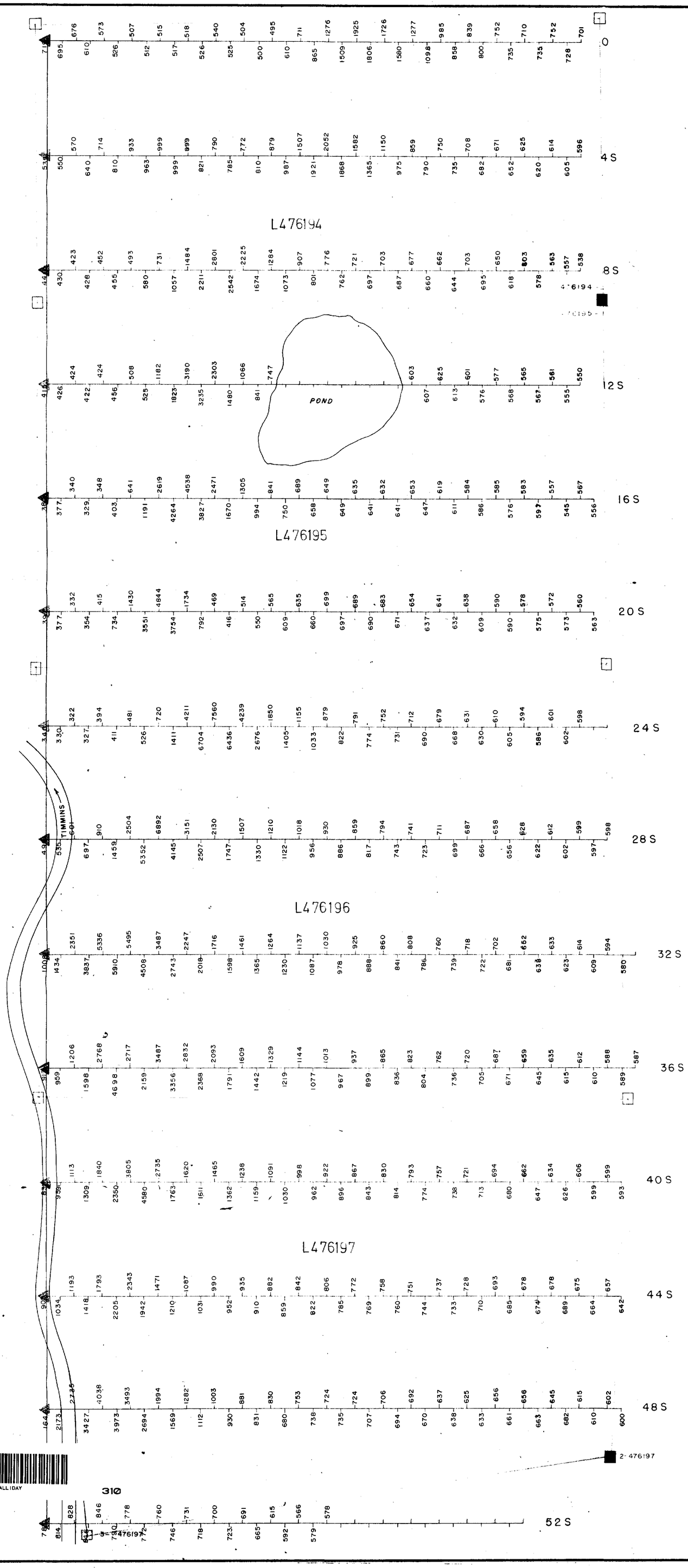
REGISTERED PROFESSIONAL ENGINEER
D. G. WAHL
PROVINCE OF ONTARIO

DRAWN BY	REV.
TRACED BY	REV.
APPROVED	REV.
N.T.S. 42 A/3	REV.
DWG. NO.	

W. G. WAHL LIMITED

1 inch = 200 feet

41P14NE0080 2.2584 HALLIDAY



41P14NE0080 2.2504 HALLIDAY

ESSEX MINERALS COMPANY

ENGLISH TOWNSHIP PROJECT

BLOCK 2
MAGNETOMETER SURVEY
Corrected Total Field Values in Gammas
(Background 59,000 gammas)

REGISTERED PROFESSIONAL ENGINEER
D. G. WAHL
PROVINCE OF ONTARIO

DRAWN BY	REV.
TRACED BY	REV.
APPROVED	REV.
N.T.S. 42 A/3	REV.
DWG. NO.	

W. G. WAHL LIMITED — 1 inch = 200 feet

0

4S

L476194

8S

4-76194-2

-76195-1

POND

12S

16S

L476195

20S

24S

CONDUCTOR

TIMMINS

28S

L476196

32S

36S

40S

L476197

44S

48S

2-476197

320

52S

3-476197

41P14NE0080 2.2504 HALLIDAY

N

LEGEND

- Known Claim Post
- Inferred Claim Post

IP Profile

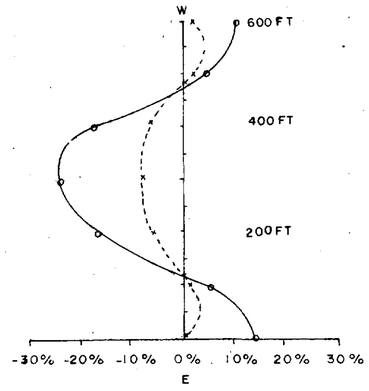
OP Profile

Tx or Rx — HL mode — Rx or Tx

400 ft.

Tx-Rx Separation
Drawn to Scale

SCALE



ESSEX MINERALS COMPANY

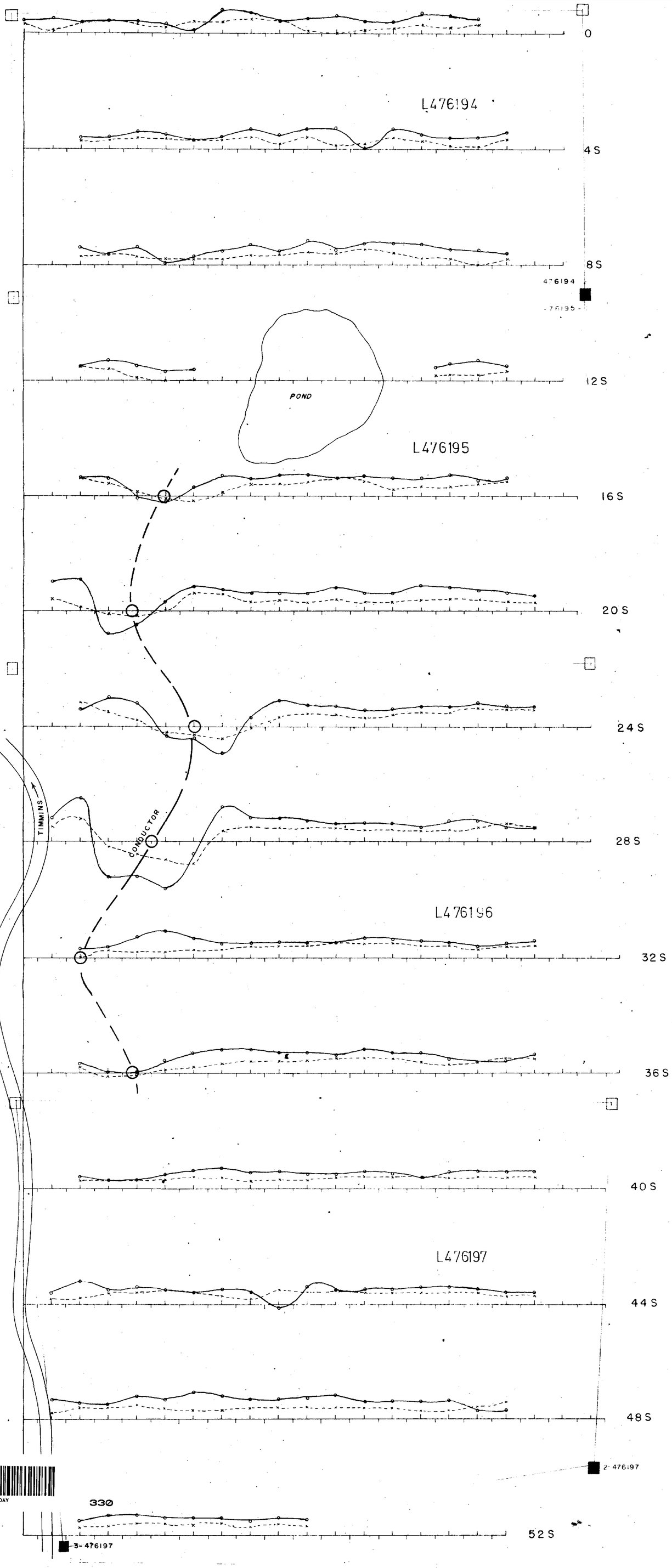
REGISTERED PROFESSIONAL ENGINEER
D. G. WAHL
PROVINCE OF ONTARIO

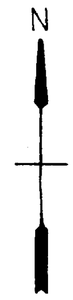
ENGLISH TOWNSHIP PROJECT

BLOCK 2
MAX-MIN II
HORIZONTAL LOOP SURVEY
444 HZ

DRAWN BY	REV.
TRACED BY KEH	REV.
APPROVED	REV.
N.T.S 42 A/3	REV.
DWG. NO.	

W. G. WAHL LIMITED — 1 inch = 200 feet





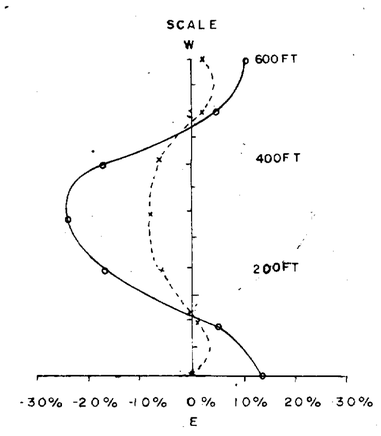
LEGEND

- Known Claim Post
- Inferred Claim Post

IP Profile
OP Profile

Tx or Rx — HL mode 400 ft. — Rx or Tx

Tx - Rx Separation
Drawn to Scale



ESSEX MINERALS COMPANY

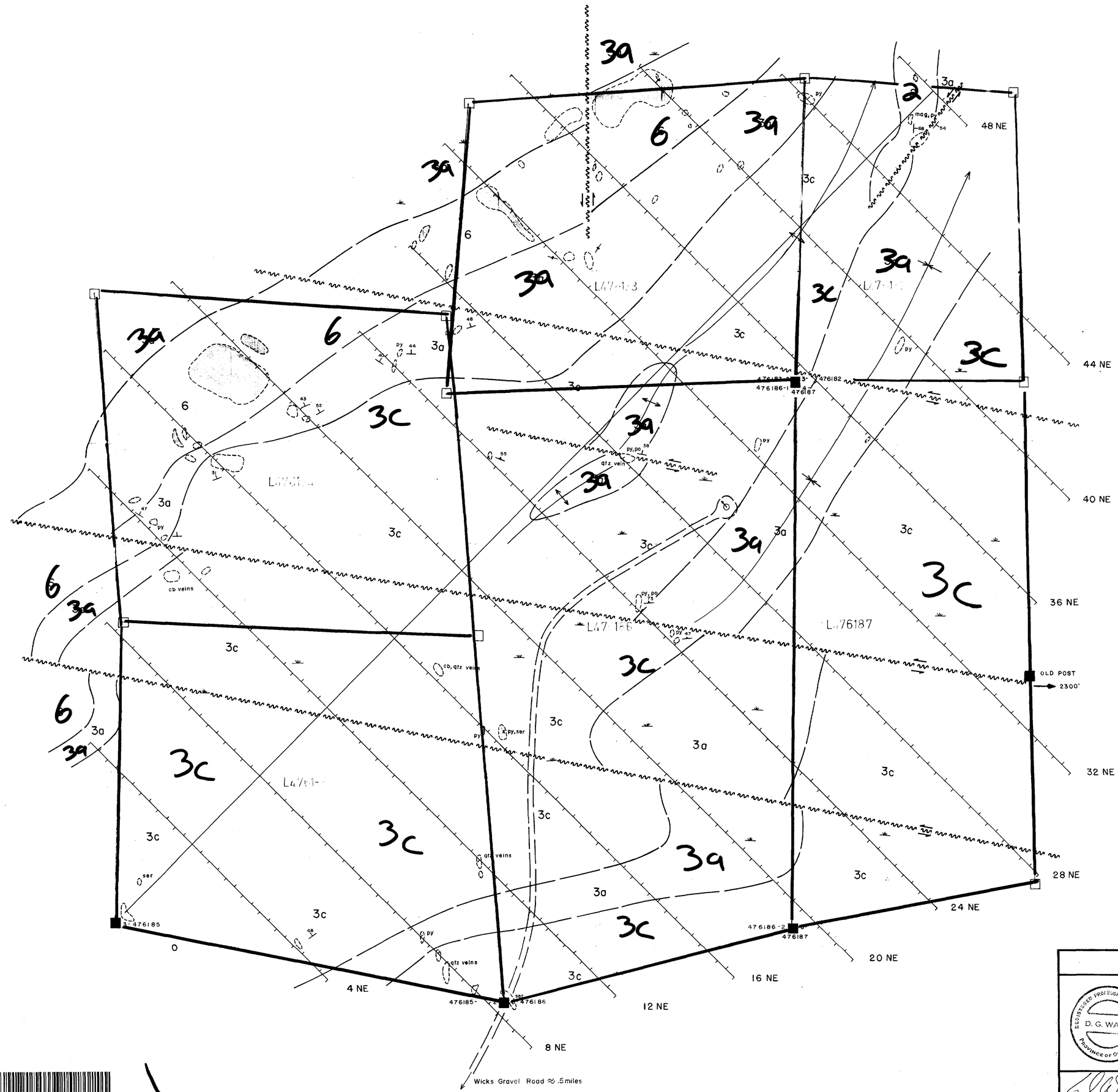
ENGLISH TOWNSHIP PROJECT

BLOCK 2
MAX-MIN II
HORIZONTAL LOOP SURVEY
1777 HZ

REGISTERED PROFESSIONAL ENGINEER — D. G. WAHL — PROVINCE OF ONTARIO

DRAWN BY BJM		REV
TRACED BY KEH		REV
APPROVED		REV
N.T.S. 42 A/3		REV
W. G. WAHL LIMITED	1 inch = 200 feet	DWG NO

41P14NE0080 2.2504 HALLIDAY



LEGEND

CENOZOIC

RECENT
Swamp (unconsolidated)

PLEISTOCENE
Glacial drift (unconsolidated)

PRECAMBRIAN

PROTEROZOIC

6 Late Intermediate Intrusives
(a) Quartz diorite

ARCHEAN

Felsic Metavolcanics
3a (a) Rhyolite flows, flowbreccias, and massive rhyolite
3c (c) Dacite flows, dacitic agglomerates, and massive dacite

2 Lean Iron Formation

SYMBOLS

- Known Claim Post
- Inferred Claim Post
- Outcrop
- Geological boundary, assumed
- Bedding and banding, inclined, vertical
- Lineation (schistosity), inclined
- Fault, relative movement
- Fault, inclined, vertical
- Syncline, plunging
- Anticline, plunging
- Jointing, vertical
- Diamond drill hole, amount of dip unknown
- Diamond drill and access road
- Swamp

py Pyrite
ser Sericite
cb Carbonate
mag Magnetite
po Pyrrhotite
qtz Quartz

ESSEX MINERALS COMPANY

ENGLISH TOWNSHIP PROJECT

BLOCK 3

GEOLOGY

REGISTERED PROFESSIONAL ENGINEER D. G. WAHL PROVINCE OF ONTARIO

DRAWN BY	REV.
TRACED BY	REV.
APPROVED	REV.
N.T.S. 42 A/3	REV.
DWG. NO.	

W.G. WAHL LIMITED — 1inch = 200 feet

41P14NE0088 2.2504 HALLIDAY

N

L476183

L476182

L476184

L476186

L476187

L476185

48 NE

44 NE

40 NE

36 NE

32 NE

28 NE

24 NE

20 NE

16 NE

12 NE

8 NE

4 NE

0

476183-2 3- 476182
476186-1 476187

476186-2 3- 476187

476185-2 3-476186

3-476185

CONDUCTOR

LEGEND

Known Claim Post

Inferred Claim Post

IP Profile

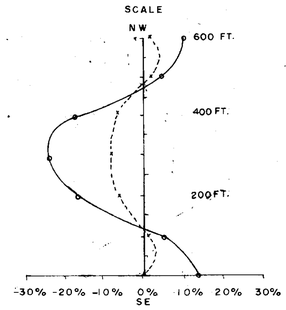
OP Profile

Tx or Rx HL mode Rx or Tx
400 ft.

Tx-Rx Separation
Drawn to Scale

OLD POST
2300' TO SOUTH END OF LAKE

SCALE



ESSEX MINERALS COMPANY

ENGLISH TOWNSHIP PROJECT

BLOCK 3
MAX-MIN II
HORIZONTAL LOOP SURVEY
444 HZ

REGISTERED PROFESSIONAL ENGINEER
D. G. WAHL
PROVINCE OF ONTARIO

DRAWN BY	REV.
TRACED BY KFH	REV.
APPROVED	REV.
N.T.S. 42 A/3	REV.
DWG. NO.	

W. G. WAHL LIMITED

1 inch = 200 feet

41P14NE0030 2.2584 HALLIDAY

N

L476183

L476182

L476184

L476186

L476187

L476185

CONDUCTOR

48 NE

44 NE

40 NE

36 NE

32 NE

28 NE

24 NE

20 NE

16 NE

12 NE

8 NE

4 NE

LEGEND

Known Claim Post

Inferred Claim Post

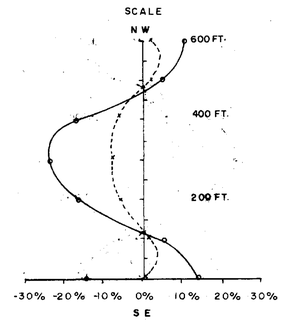
IP Profile

OP Profile

Tx or Rx HL mode Rx or Tx
400 ft.

Tx-Rx Separation
Drawn to Scale

SCALE



ESSEX MINERALS COMPANY

ENGLISH TOWNSHIP PROJECT

BLOCK 3

MAX-MIN II

HORIZONTAL LOOP SURVEY

1777 HZ

REGISTERED PROFESSIONAL ENGINEER
D. G. WAHL
PROVINCE OF ONTARIO

W. G. WAHL LIMITED

1 inch = 200 feet

DRAWN BY 8/79	REV
TRACED BY KEH	REV
APPROVED	REV
NTS 42 A/3	REV
DWG. NO.	

41P14NE0058 2.2584 HALLIDAY

N

SYMBOLS

■ Known Claim Post

□ Inferred Claim Post

Base Station

L476183

L476182

L476184

L476185

L476186

L476187

48 NE

44 NE

40 NE

36 NE

32 NE

28 NE

24 NE

20 NE

16 NE

12 NE

8 NE

4 NE

0

476183-2 3-476183

476186-1 476187

476186-2 3-476186

476184 3-476184

3-476185

476186-2 3-476186

OLD POST
→ 2300' TO SOUTH END OF LAKE

ESSEX MINERALS COMPANY

ENGLISH TOWNSHIP PROJECT

BLOCK 3

MAGNETOMETER SURVEY

Corrected Total Field Values in Gammas

(Background 59,000 gammas)

REGISTERED PROFESSIONAL ENGINEER — D. G. WAHL — PROVINCE OF ONTARIO

DRAWN BY		REV.
TRACED BY		REV.
APPROVED		REV.
N.T.S. 42 A/3		REV.
W.G WAHL LIMITED	1 inch = 200 feet	DWG. NO.

41P14NE0088 2.2584 HALLIDAY

N

L476183

L476182

L476184

L476186

L476187

L476185

48 NE

44 NE

40 NE

36 NE

32 NE

28 NE

24 NE

20 NE

16 NE

12 NE

8 NE

4 NE

0

476183-2 3-476182
476186-1 4-476187

3-476185

476186-2 3-476187

476185-2 3-476186

SYMBOLS

■ Known Claim Post

□ Inferred Claim Post

Base Station

■ OLD POST
→ 2300' TO SOUTH END OF LAKE

ESSEX MINERALS COMPANY

ENGLISH TOWNSHIP PROJECT

BLOCK 3
CONTOURED MAGNETIC DATA
Corrected Total Field Values in Gammas
(Background 59,000 gammas)

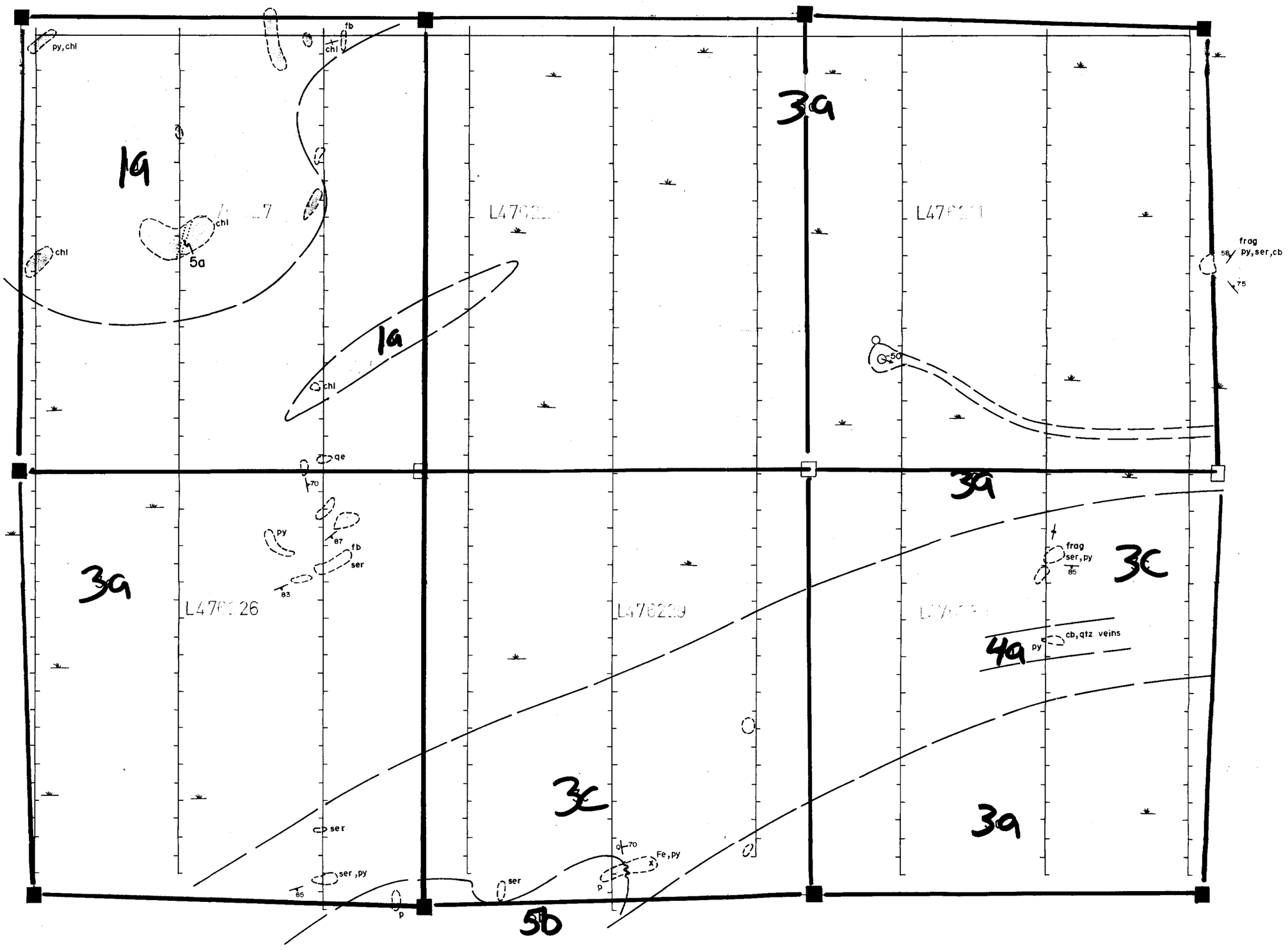
REGISTERED PROFESSIONAL ENGINEER
D. G. WAHL
PROVINCE OF ONTARIO

W.G. WAHL LIMITED

1 inch = 200 feet

DRAWN BY	REV.
TRACED BY	REV.
APPROVED	REV.
N.T.S. 42 A/3	REV.
DWG. NO.	

41P14NE0008 2.2584 HALLIDAY



32 W 28 W 24 W 20 W 16 W 12 W 8 W 4 W 0

LEGEND

CENOZOIC

RECENT
Swamp deposits (unconsolidated)

PLEISTOCENE
Glacial drift (unconsolidated)

PRECAMBRIAN

ARCHEAN

5 Felsic Intrusives
(a) Granite
(b) Quartz-feldspar porphyry

4 Early Mafic Intrusives
(a) Peridotite, serpentinized

Felsic Metavolcanics
3a (a) Rhyolite flows, breccias, fragmentals, and massive rhyolite
3c (c) Dacite flows, fragmentals, and massive dacite

1 Intermediate Metavolcanics
(a) Andesite, massive, and flowbreccias

SYMBOLS

- Known Claim Post
- Inferred Claim Post
- Float
- Outcrop
- Geological boundary, assumed, observed
- 35 Lineation (schistosity), inclined
- 47 Jointing, vertical, inclined
- 58 Quartz vein, inclined
- Flowbreccia, vertical
- 50 Diamond drill hole, inclined
- x Test pit
- Diamond drill road
- Swamp

py	Pyrite	qe	Quartz eyes
ser	Sericite	frag	Fragmental
chl	Chlorite	fb	Flowbreccia
qtz	Quartz	p	Porphyritic
cb	Carbonate		
Fe	Iron		

N

ESSEX MINERALS COMPANY

ENGLISH TOWNSHIP PROJECT

BLOCK 4

GEOLOGY

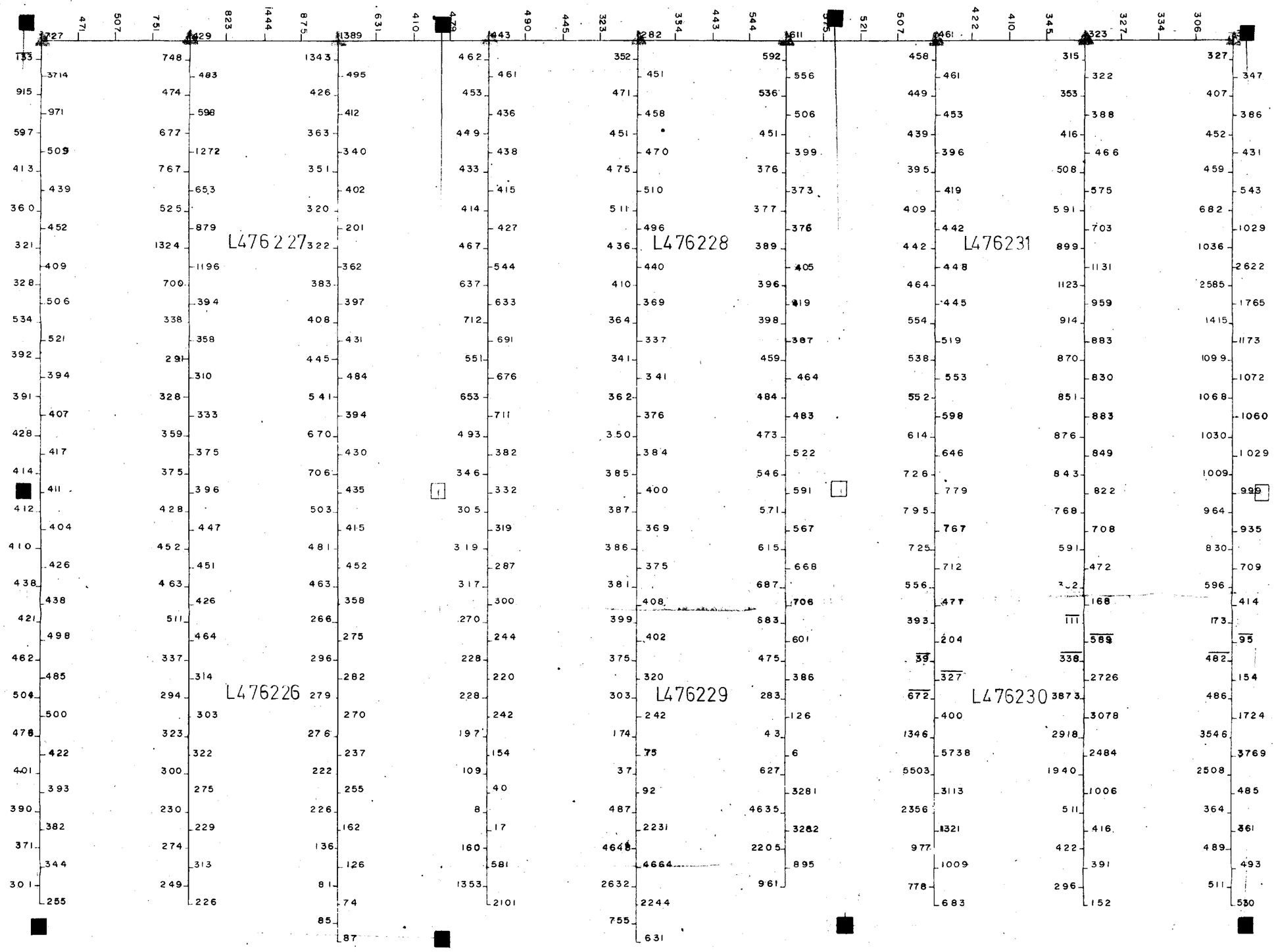
REGISTERED PROFESSIONAL ENGINEER D. G. WAHL PROVINCE OF ONTARIO

W. G. WAHL LIMITED

1 inch = 200 feet

DRAWN BY RJM	REV.
TRACED BY MEH	REV.
APPROVED	REV.
N.T.S. 41 P/14	REV.
DWG. NO.	

41P14NE0080 2.2504 HALLIDAY



SYMBOLS

- ■ Known Claim Post
- □ Inferred Claim Post
- Base Station

N

ESSEX MINERALS COMPANY

ENGLISH TOWNSHIP PROJECT

BLOCK 4

MAGNETOMETER SURVEY

Corrected Total Field Values in Gammas

(Background=59,000 gammas)

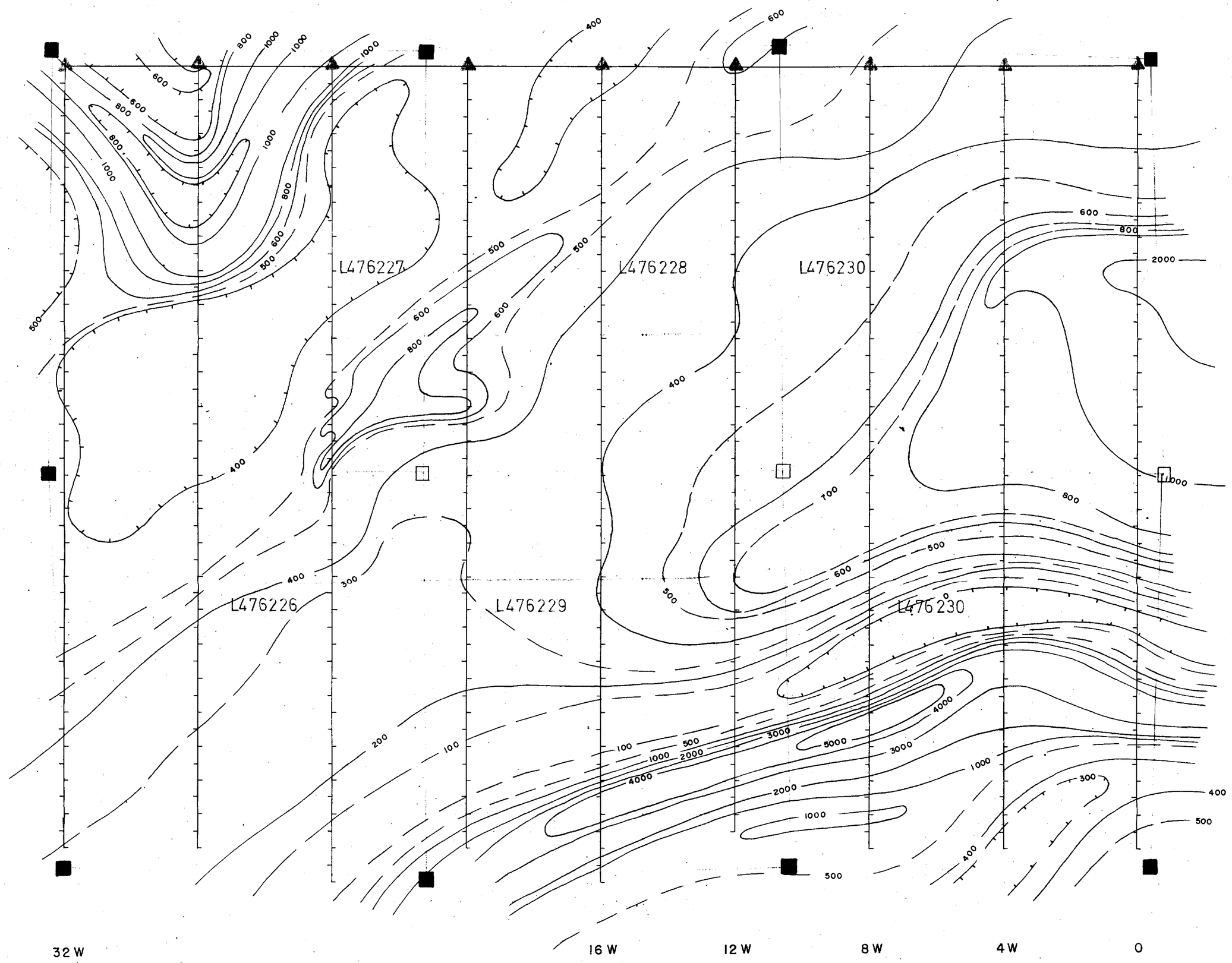
REGISTERED PROFESSIONAL ENGINEER D. G. WAHL PROVINCE OF ONTARIO

W. G. WAHL LIMITED

1 inch = 200 feet

DRAWN BY	REV.
TRACED BY	REV.
APPROVED	REV
N.T.S. 41 P/14	REV
DWG. NO.	

41P14NE0080 2.2504 HALLIDAY



LEGEND

- ■ Known Claim Post
- □ Inferred Claim Post
- ▲ Base Station

N

ESSEX MINERALS COMPANY

ENGLISH TOWNSHIP PROJECT

BLOCK 4

CONTOURED MAGNETIC DATA

Corrected Total Field Values in Gammas

(Background 59,000 gammas)

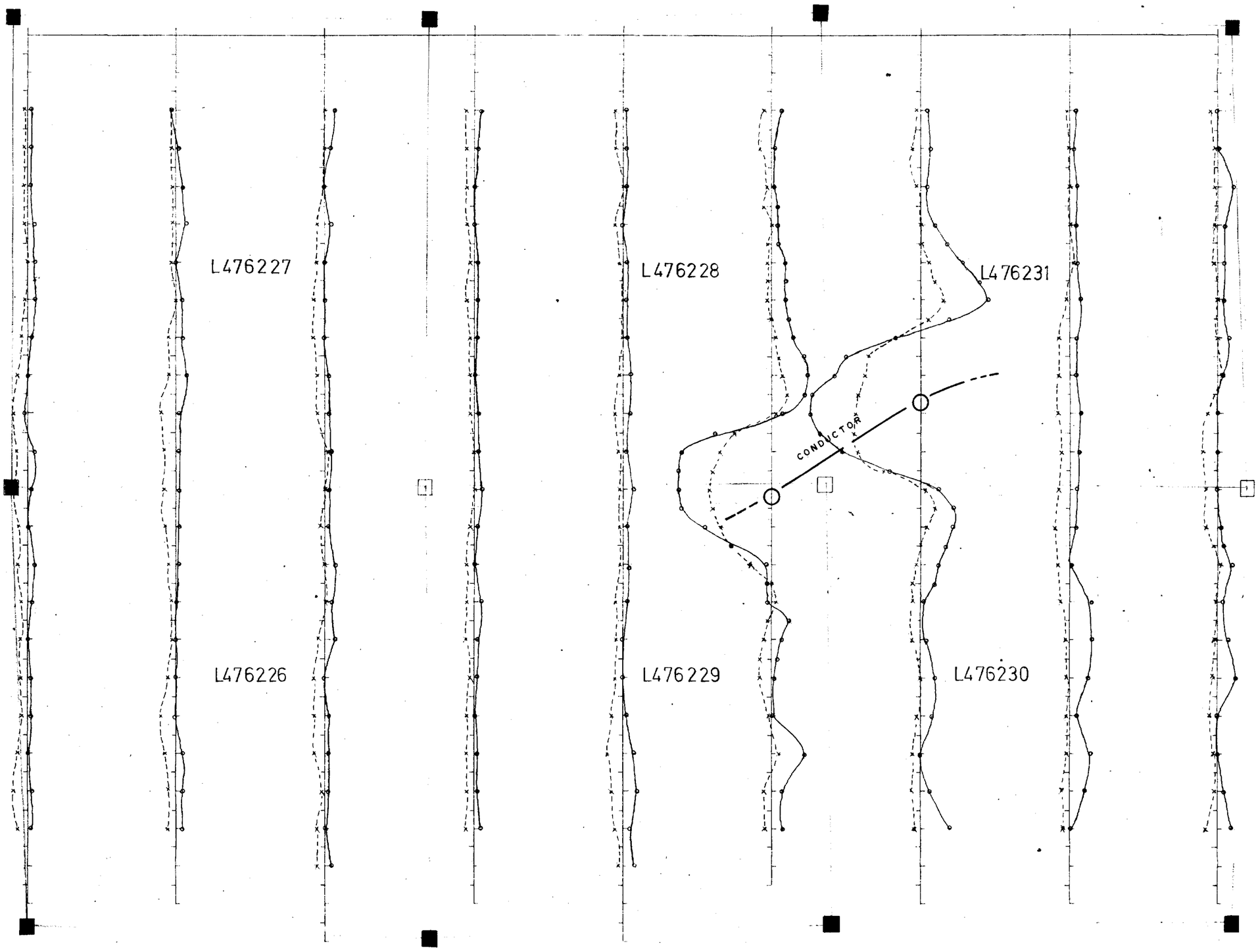
REGISTERED PROFESSIONAL ENGINEER D. G. WAHL PROVINCE OF ONTARIO

W. G. WAHL LIMITED

1 inch = 200 feet

DRAWN BY	REV.
TRACED BY	REV.
APPROVED	REV.
N.T.S. 41 P/14	REV.
DWG. NO.	

41P14NE0080 2.2504 HALLIDAY



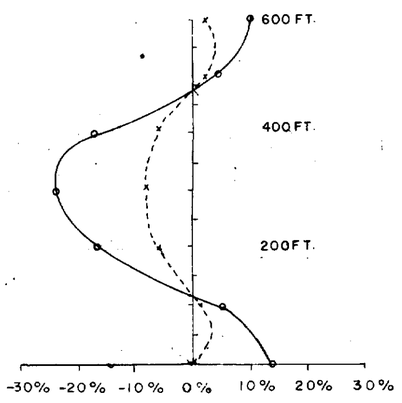
LEGEND

- Known Claim Post
- Inferred Claim Post
- IP Profile
- OP Profile

Tx or Rx — HL mode 400 ft. — Rx or Tx

Tx–Rx Separation Drawn to Scale

SCALE



N

ESSEX MINERALS COMPANY

D. G. WAHL — REGISTERED PROFESSIONAL ENGINEER — PROVINCE OF ONTARIO

ENGLISH TOWNSHIP PROJECT

BLOCK 4
MAX - MIN II
HORIZONTAL LOOP SURVEY
444 HZ

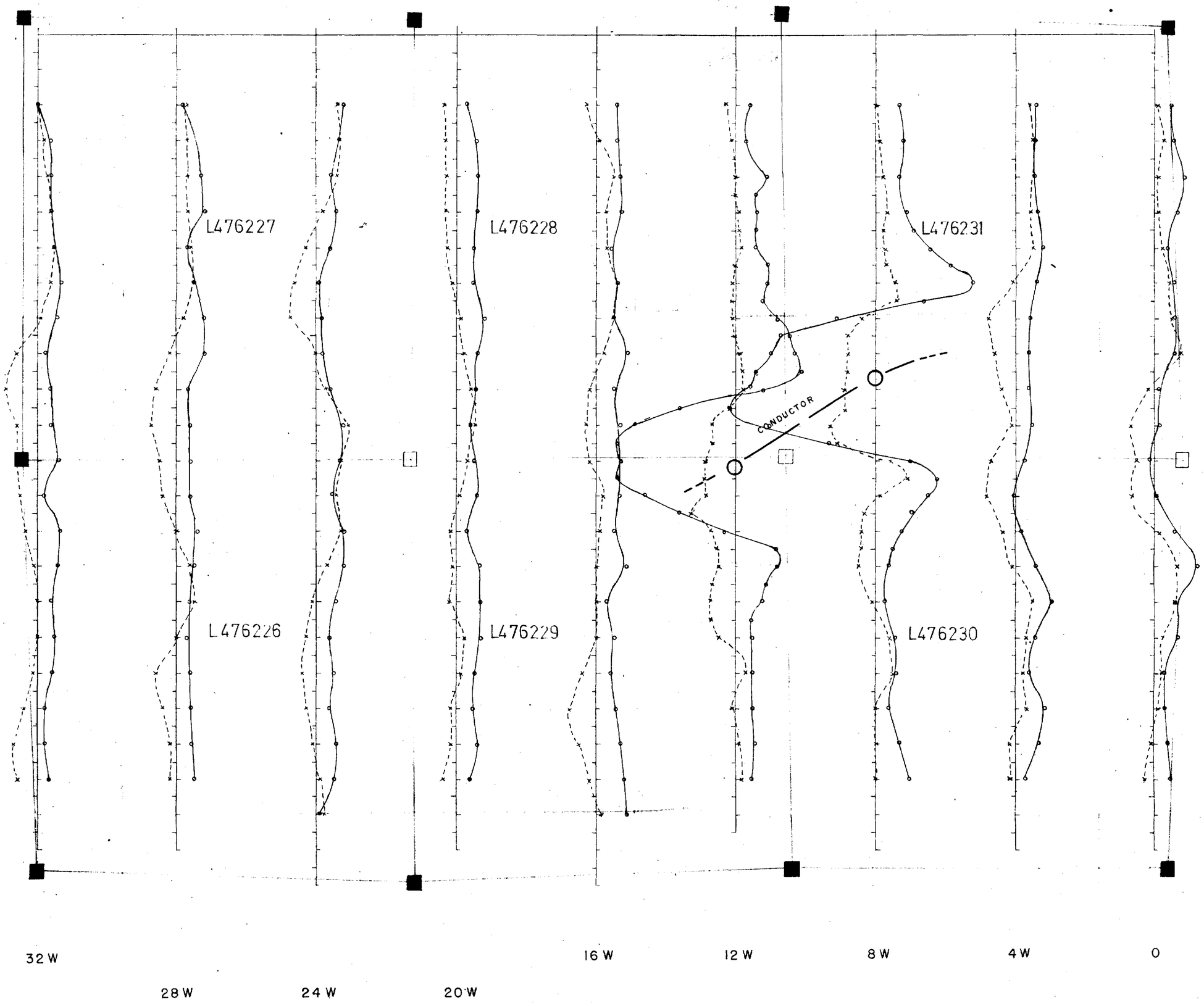
DRAWN BY: RM
TRACED BY: KEH
APPROVED:
N.T.S. 41 P/14
REV

W G WAHL LIMITED

1 inch = 200 feet

DWG. No.

41P14NE0080 2.2504 HALLIDAY



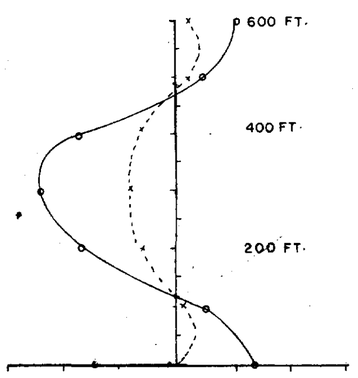
LEGEND

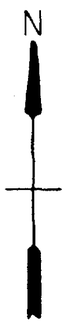
- Known Claim Post
- Inferred Claim Post
- IP Profile
- OP Profile

Tx or Rx — HL mode 400 ft. — Rx or Tx

Tx - Rx Separation Drawn to Scale

SCALE





ESSEX MINERALS COMPANY

ENGLISH TOWNSHIP PROJECT

BLOCK 4
MAX-MIN II
HORIZONTAL LOOP SURVEY
1777 HZ

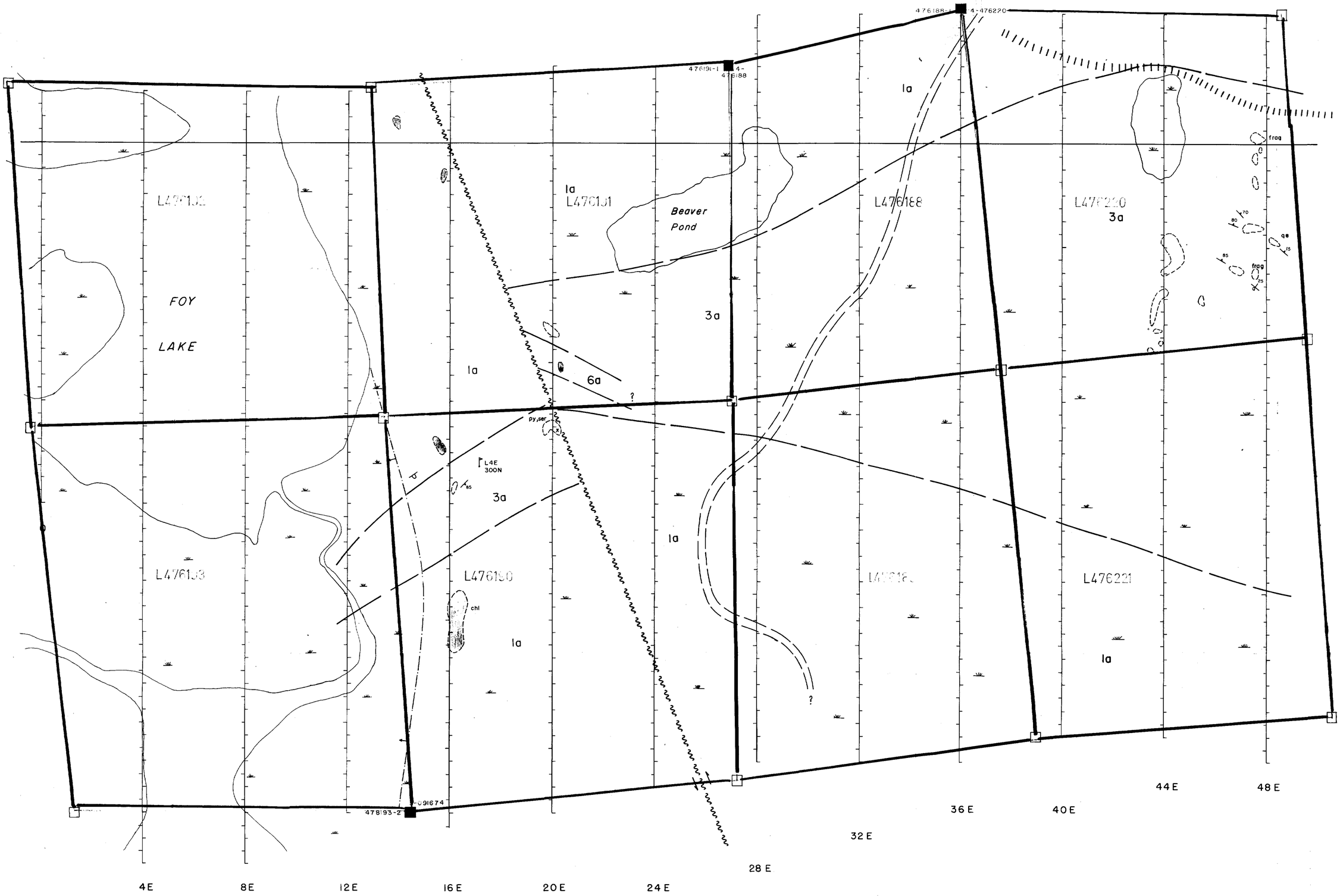
D. G. WAHL — REGISTERED PROFESSIONAL ENGINEER — PROVINCE OF ONTARIO

W. G WAHL LIMITED

1 inch = 200 feet

DRAWN BY: BJM
PLOTTED BY: KEH
CHECKED BY:
DWG. NO: 41 P/14
REV.

41P14NE0080 2.2504 HALLIDAY



LEGEND

CENOZOIC

RECENT
Swamp and stream deposits (unconsolidated)

PLEISTOCENE
Glacial drift and eskers (unconsolidated)

PRECAMBRIAN

PROTEROZOIC

6 Late Intermediate Intrusives
(a) Quartz diabase

ARCHEAN

3 Felsic Metavolcanics
(a) Rhyolite flows, flowbreccias, fragmentals, and massive rhyolite

1 Intermediate Metavolcanics
(a) Andesite flows, pillows, and flowbreccias

SYMBOLS

- Known Claim Post
- Inferred Claim Post
- Outcrop
- Geological boundary
- Lineation (schistosity), inclined, vertical
- Fault, relative movement
- Pillows, inferred top direction
- Quartz vein, inclined, vertical
- Test pit
- Esker boundary
- Swamp
- Diamond drill road
- Old flagging (picket line)
- Limit of spring flooding
- py Pyrite
- ser Sericite
- chl Chlorite
- frag Fragmental
- qe Quartz eyes

N

ESSEX MINERALS COMPANY

ENGLISH TOWNSHIP PROJECT

BLOCK 5

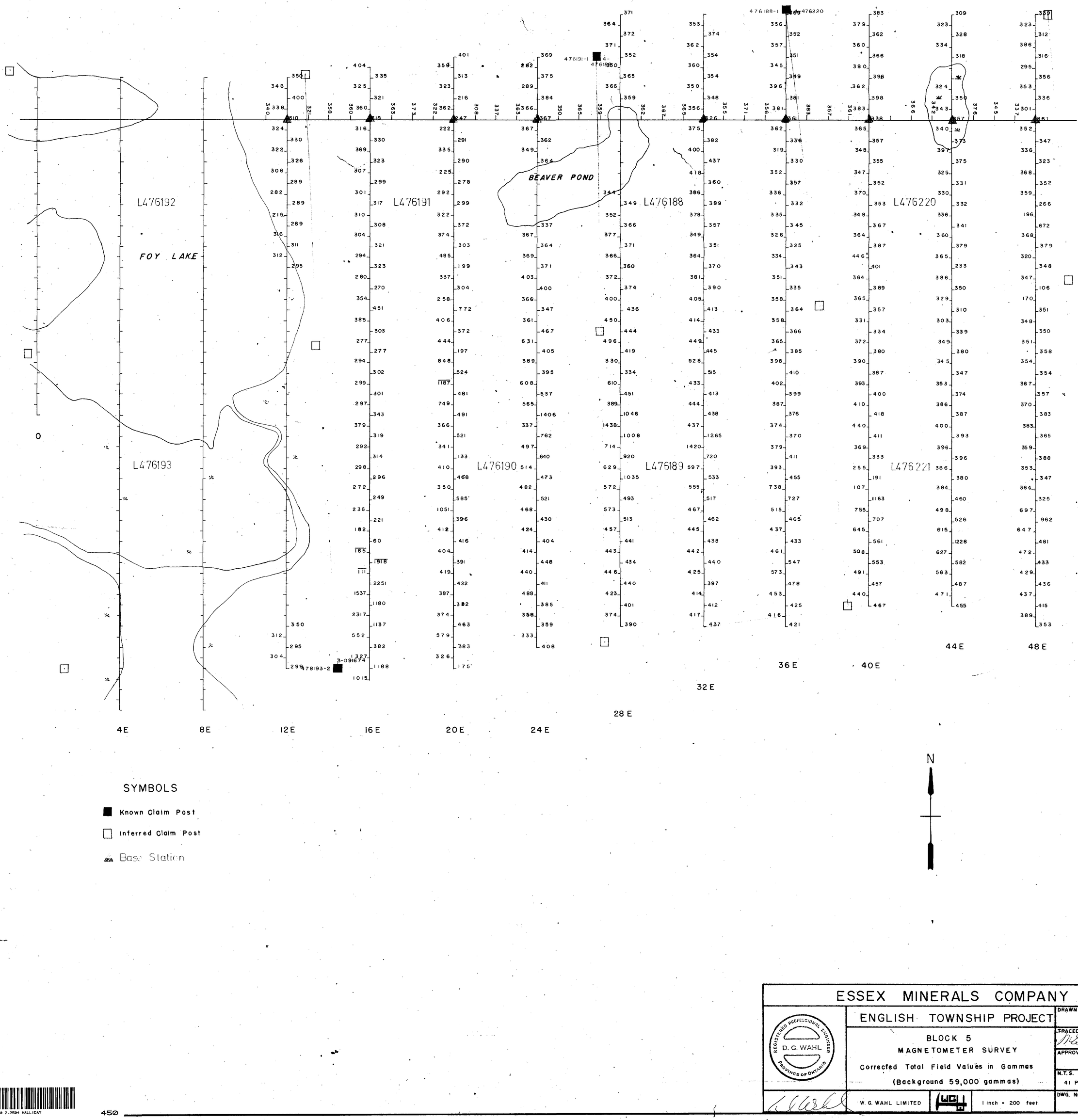
GEOLOGY

D. G. WAHL
REGISTERED PROFESSIONAL ENGINEER
PROVINCE OF ONTARIO

DRAWN BY RJM | REV.
TRACED BY | REV.
APPROVED | REV.
N.T.S. 41 P/14 | REV.
DWG. NO.

W. G. WAHL LIMITED | 1 inch = 200 feet

41P14NE0088 2.2564 HALLIDAY



SYMBOLS

- Known Claim Post
- Inferred Claim Post
- Base Station

N

ESSEX MINERALS COMPANY		
ENGLISH TOWNSHIP PROJECT	DRAWN BY	REV.
BLOCK 5 MAGNETOMETER SURVEY Corrected Total Field Values in Gammas (Background 59,000 gammas)	TRACED BY	REV.
	APPROVED	REV.
	N.T.S. 41 P/14	REV.
W. G. WAHL LIMITED	1 inch = 200 feet	DWG. NO.

REGISTERED PROFESSIONAL ENGINEER D. G. WAHL PROVINCE OF ONTARIO

41P14NE0098 2.2504 HALLIDAY

L476192

L476191

L476188

L476220

L476193

L476190

L476185

L476221

FOY LAKE

FOY LAKE

BEAVER POND

POND

4-476188

4-476220

4-476191-1

4-476188

4-476193-2

4-476190-1

4E 8E 12E 16E 20E 24E 28E 32E 36E 40E 44E 48E

LEGEND

- Known Claim Post
- Inferred Claim Post
- Base Station

N

ESSEX MINERALS COMPANY

ENGLISH TOWNSHIP PROJECT

BLOCK 5

CONTOURED MAGNETIC DATA

Corrected Total Field Values in Gammas

(Background 59,000 gammas)

D. G. WAHL — REGISTERED PROFESSIONAL ENGINEER — PROVINCE OF ONTARIO

W. G. WAHL LIMITED

1 inch = 200 feet

DRAWN BY | REV.

TRACED BY | REV.

APPROVED | REV.

N.T.S. 41 P/14 | REV.

DWG. NO.

41P14NE0058 2.2584 HALLIDAY

460

L476192

FOY LAKE

L476191

BEAVER POND

L476188

L476220

POND

L476193

FOY LAKE

L476190

L476189

L476221

CONDUCTOR

478 93-2 .91674

4E 8E 12E 16E 20E 24E 28E 32E 36E 40E 44E 48E

LEGEND

- Known Claim Post
- Inferred Claim Post
- IP Profile
- OP Profile.

Tx or Rx — HL mode 400 ft. — Rx or Tx

Tx -Rx Separation

Drawn to Scale

SCALE

600 FT.
400 FT.
200 FT.

-30% -20% -10% 0% 10% 20% 30%

N

ESSEX MINERALS COMPANY

ENGLISH TOWNSHIP PROJECT

BLOCK 5
MAX-MIN II
HORIZONTAL LOOP SURVEY
444 HZ

D. G. WAHL — REGISTERED PROFESSIONAL ENGINEER — PROVINCE OF ONTARIO

W G WAHL LIMITED

1 inch = 200 feet

DRAWN BY AJM	REV.
TRACED BY KEH	REV.
APPROVED	REV.
N.T.S. 41 P/14	REV.
DWG. NO.	

41P14NE0008 2.2504 HALLIDAY

L476192

L476191

L476188

L476220

L476193

L476190

L476189

L476221

FOY LAKE

BEAVER POND

POND

CONDUCTOR

FOY LAKE

4E 8E 12E 16E 20E 24E 28E 32E 36E 40E 44E 48E

LEGEND

- Known Claim Post
- Inferred Claim Post
- IP Profile
- OP Profile

Tx or Rx — HL mode 400 ft. — Rx or Tx

Tx-Rx Separation

Drawn to Scale

SCALE

600 FT.

400 FT.

200 FT.

-30% -20% -10% 0% 10% 20% 30%

N

ESSEX MINERALS COMPANY

ENGLISH TOWNSHIP PROJECT

BLOCK 5

MAX-MIN II

HORIZONTAL LOOP SURVEY

1777 HZ

D. G. WAHL — REGISTERED PROFESSIONAL ENGINEER — PROVINCE OF ONTARIO

W G WAHL LIMITED

1 inch = 200 feet

DRAWN BY: RJM

TRACED BY: KEH

APPROVED:

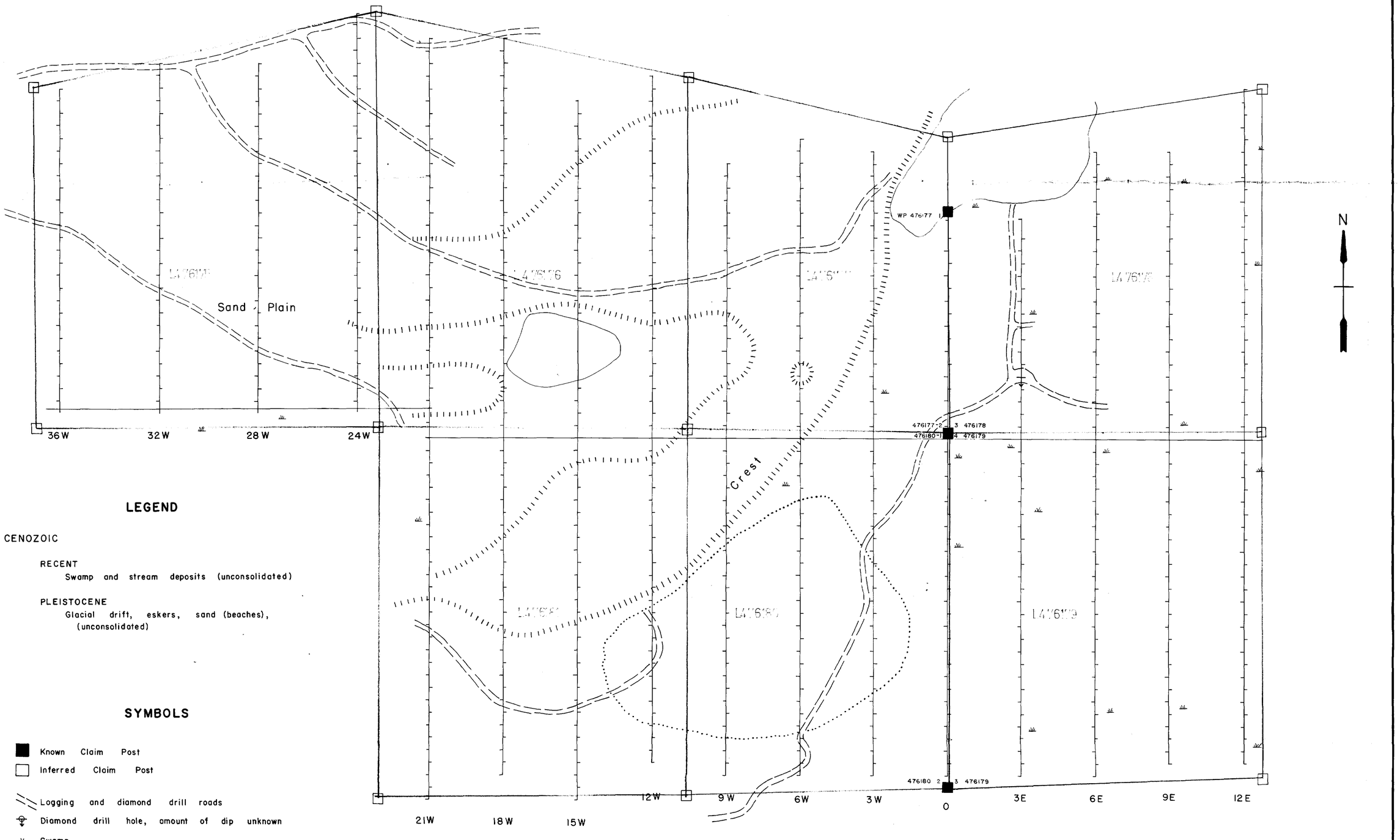
N.T.S. 41 P/14

REV.

LAWS. NO.

41P14NE0080 2.2504 HALLIDAY

480



LEGEND

CENOZOIC

RECENT

Swamp and stream deposits (unconsolidated)

PLEISTOCENE

Glacial drift, eskers, sand (beaches), (unconsolidated)

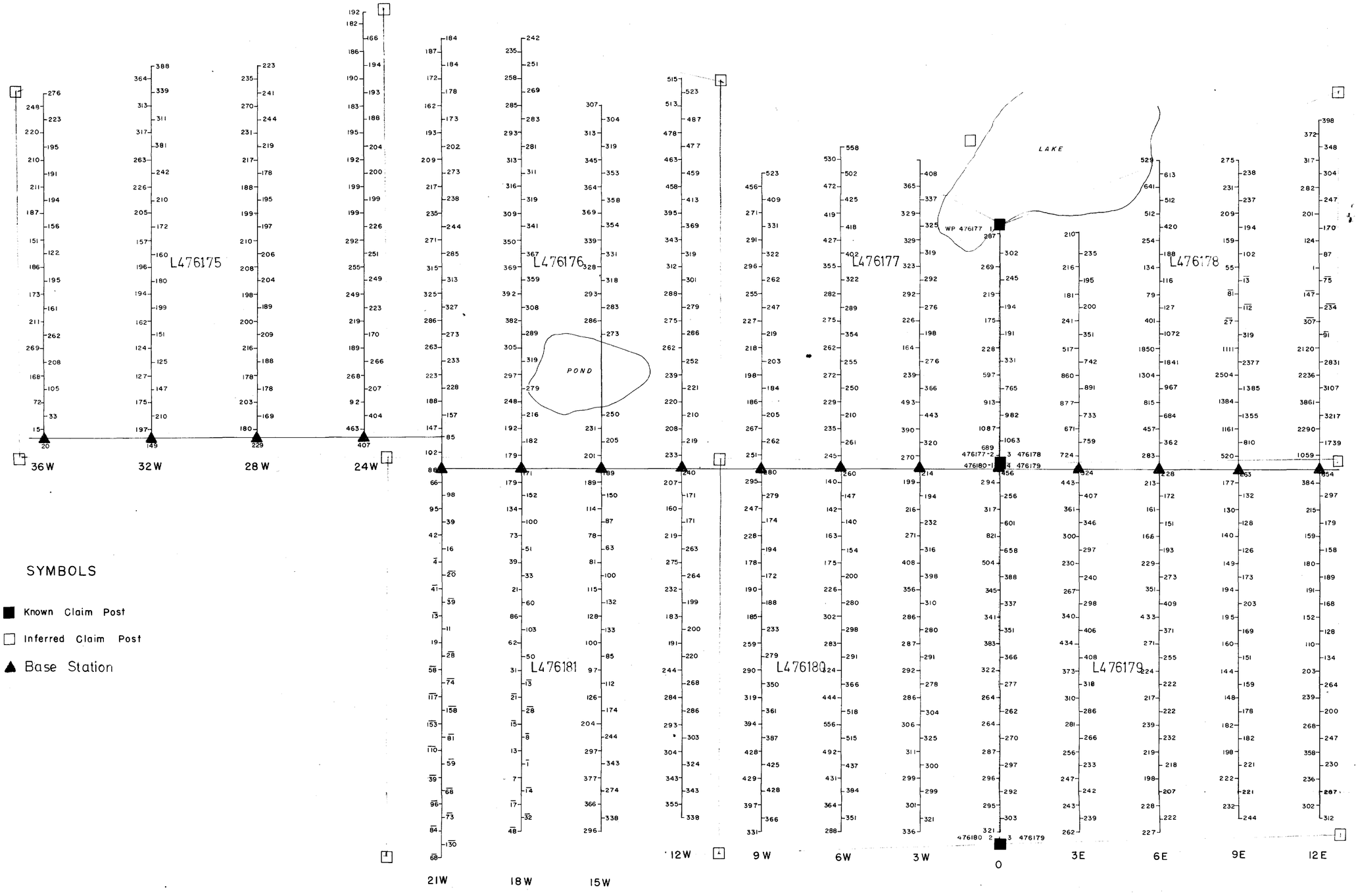
SYMBOLS

- Known Claim Post
- Inferred Claim Post
- Logging and diamond drill roads
- Diamond drill hole, amount of dip unknown
- Swamp
- Sand depression
- Sand dune
- Tall spruce grove

ESSEX MINERALS COMPANY			
ENGLISH TOWNSHIP PROJECT		DRAWN BY DSM	REV.
BLOCK 6		TRACED BY MBJ	REV.
GEOLOGY		APPROVED	REV.
		N.T.S. 41 P/14	REV.
W.G. WAHL LIMITED	1 inch = 200 feet	DWG. NO.	

REGISTERED PROFESSIONAL ENGINEER D. G. WAHL PROVINCE OF ONTARIO

41P14NE0068 2.2584 HALLIDAY



SYMBOLS

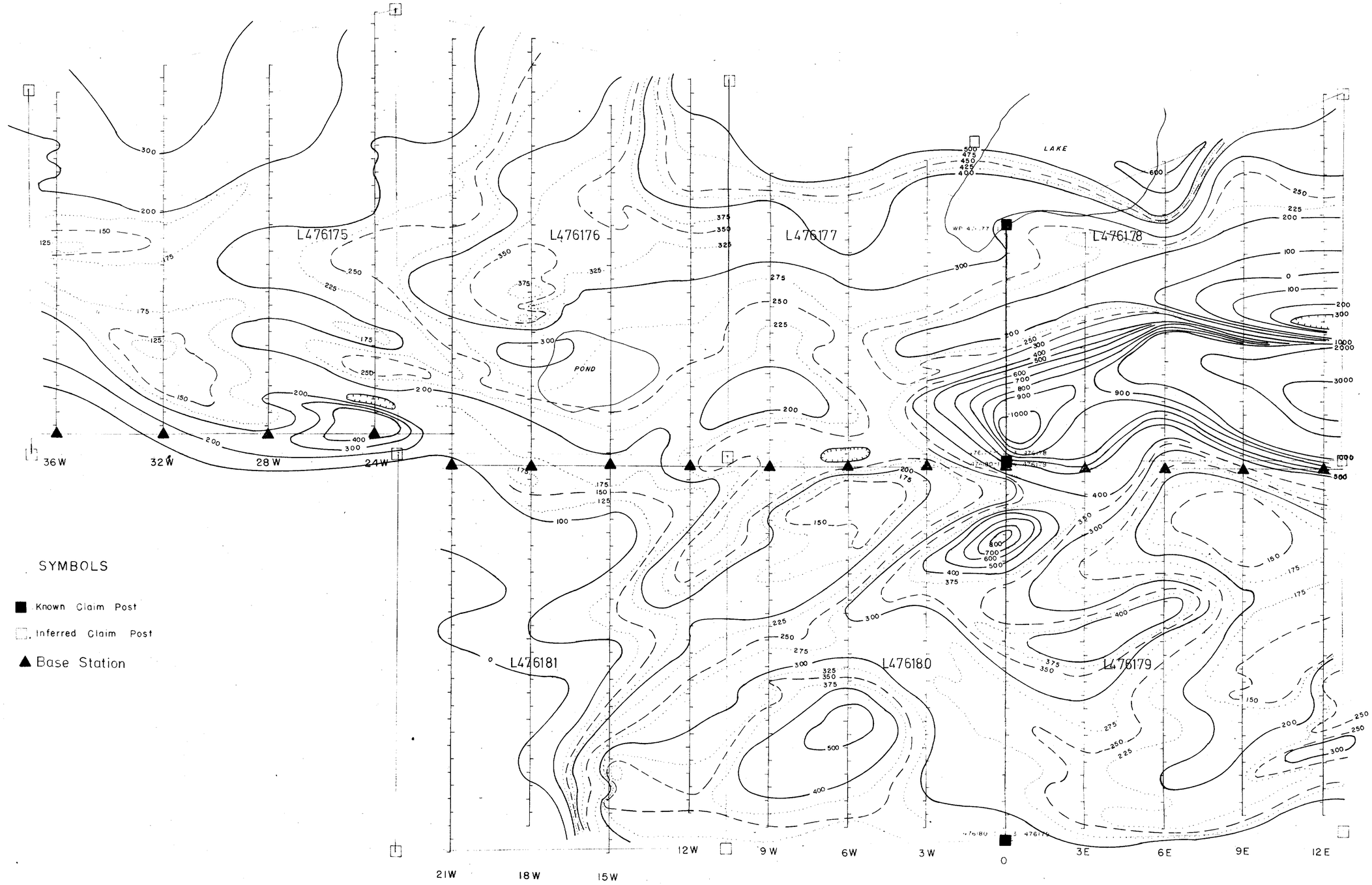
- ■ Known Claim Post
- □ Inferred Claim Post
- ▲ Base Station

ESSEX MINERALS COMPANY	
ENGLISH TOWNSHIP PROJECT	DRAWN BY / REV.
BLOCK 6	TRACED BY / REV.
MAGNETOMETER SURVEY	APPROVED / REV.
Corrected Total Field Values in Gammas	N.T.S. 41 P/14 / REV.
(Background 59,000 gammas)	
W. G. WAHL LIMITED — 1 inch : 200 feet	DWG. NO.

REGISTERED PROFESSIONAL ENGINEER — D. G. WAHL — PROVINCE OF ONTARIO

41P14NE0080 2.2504 HALLIDAY

500



SYMBOLS

■ Known Claim Post

□ Inferred Claim Post

▲ Base Station

ESSEX MINERALS COMPANY

ENGLISH TOWNSHIP PROJECT

BLOCK 6

CONTOURED MAGNETIC DATA

Corrected Total Field Values in Gammas

(Background 59,000 gammas)

41 P/14

W.G. WAHL LIMITED

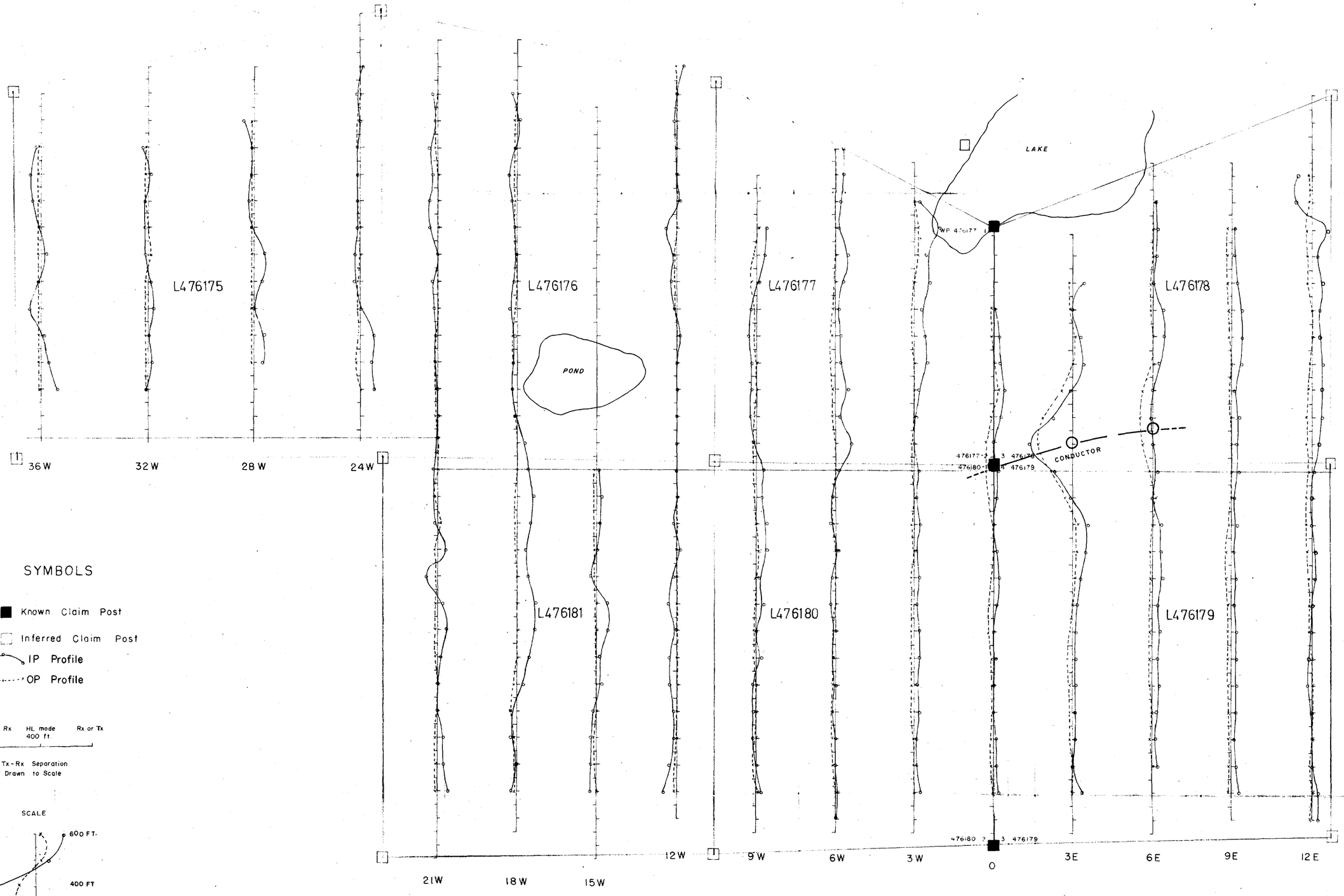
1 inch : 200 feet

RJM

KEH

REGISTERED PROFESSIONAL ENGINEER D. G. WAHL PROVINCE OF ONTARIO

41P14NE0008 2.2504 HALLIDAY



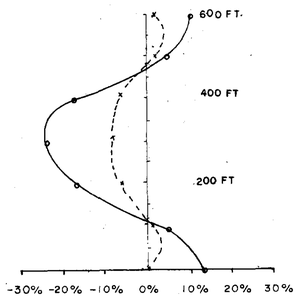
SYMBOLS

- Known Claim Post
- Inferred Claim Post
- IP Profile
- OP Profile

Tx or Rx — HL mode 400 ft — Rx or Tx

Tx - Rx Separation Drawn to Scale

SCALE



ESSEX MINERALS COMPANY

ENGLISH TOWNSHIP PROJECT

BLOCK 6
MAX - MIN II
HORIZONTAL LOOP SURVEY
444 HZ

REGISTERED PROFESSIONAL ENGINEER
D. G. WAHL
PROVINCE OF ONTARIO

DRAWN BY RJM	REV.
TRACED BY KEH	REV.
APPROVED	REV.
N.T.S. 41 P/14	REV.
W. G. WAHL LIMITED	1 inch to 200 feet
DWG. NO.	

41P14NE0080 2.2504 HALLIDAY

L476175

L476176

L476177

L476178

L476179

L476180

L476181

LAKE

POND

CONDUCTOR

N

16W 32W 28W 24W

12W 8W 4W 0 4E 8E 12E 16E

SYMBOLS

- Known Claim Post
- Inferred Claim Post
- IP Profile
- OP Profile

Tx or Rx — HL mode 400 ft. — Rx or Tx

Tx-Rx Separation Drawn to Scale

SCALE

600 FT.
400 FT.
200 FT.

-30% -20% -10% 0% 10% 20% 30%

ESSEX MINERALS COMPANY

ENGLISH TOWNSHIP PROJECT

BLOCK 6

MAX-MIN II

HORIZONTAL LOOP SURVEY

1777 HZ

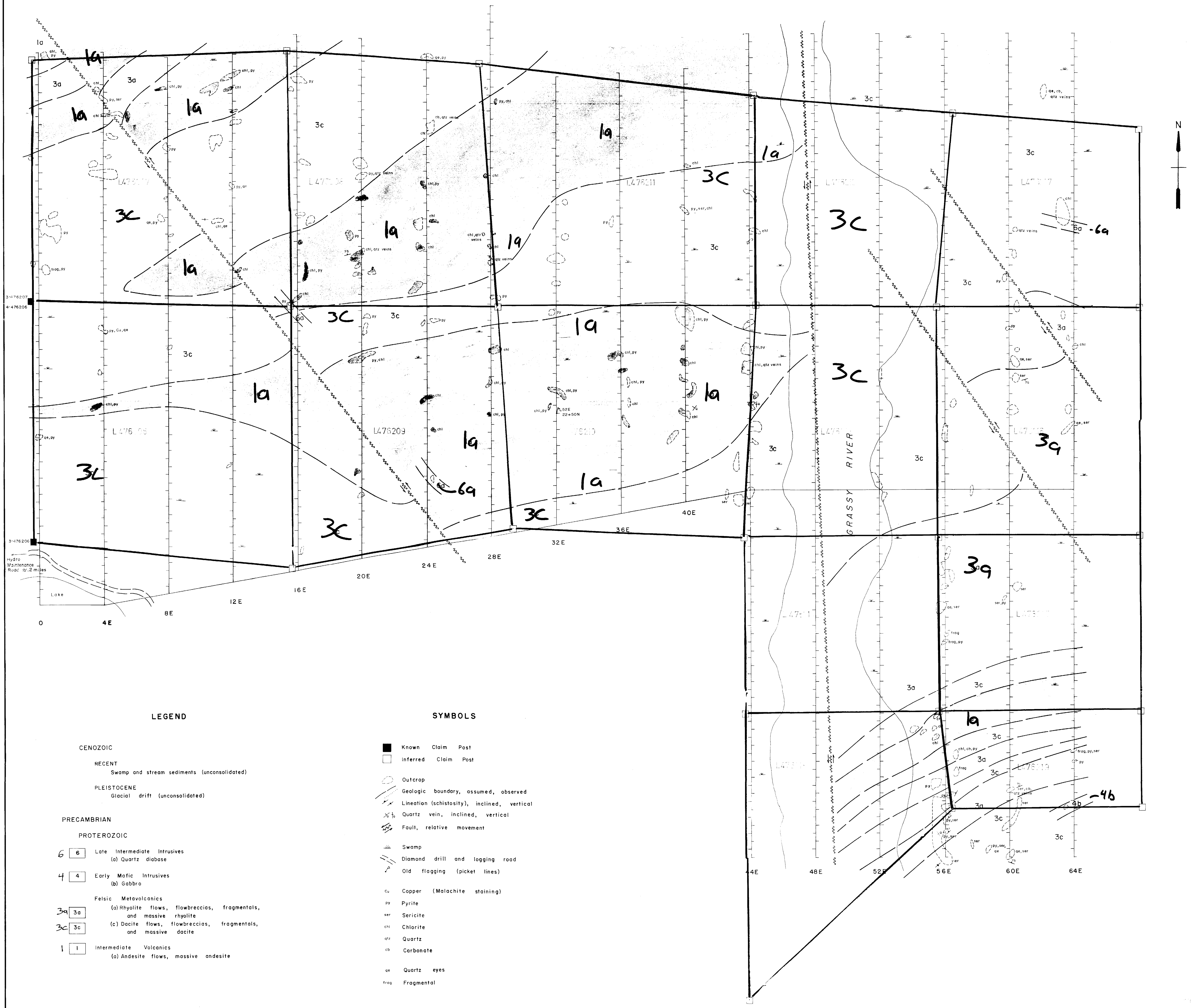
REGISTERED PROFESSIONAL ENGINEER D. G. WAHL PROVINCE OF ONTARIO

W. G. WAHL LIMITED

1inch : 200 feet

DRAWN BY WM	REV	
TRACED BY KEH	REV	
APPROVED	REV	
NTS 41 P/14	REV	
DWG. NO.		

41P14NE0888 2.2504 HALLIDAY



LEGEND

CENOZOIC

RECENT
Swamp and stream sediments (unconsolidated)

PLEISTOCENE
Glacial drift (unconsolidated)

PRECAMBRIAN

PROTEROZOIC

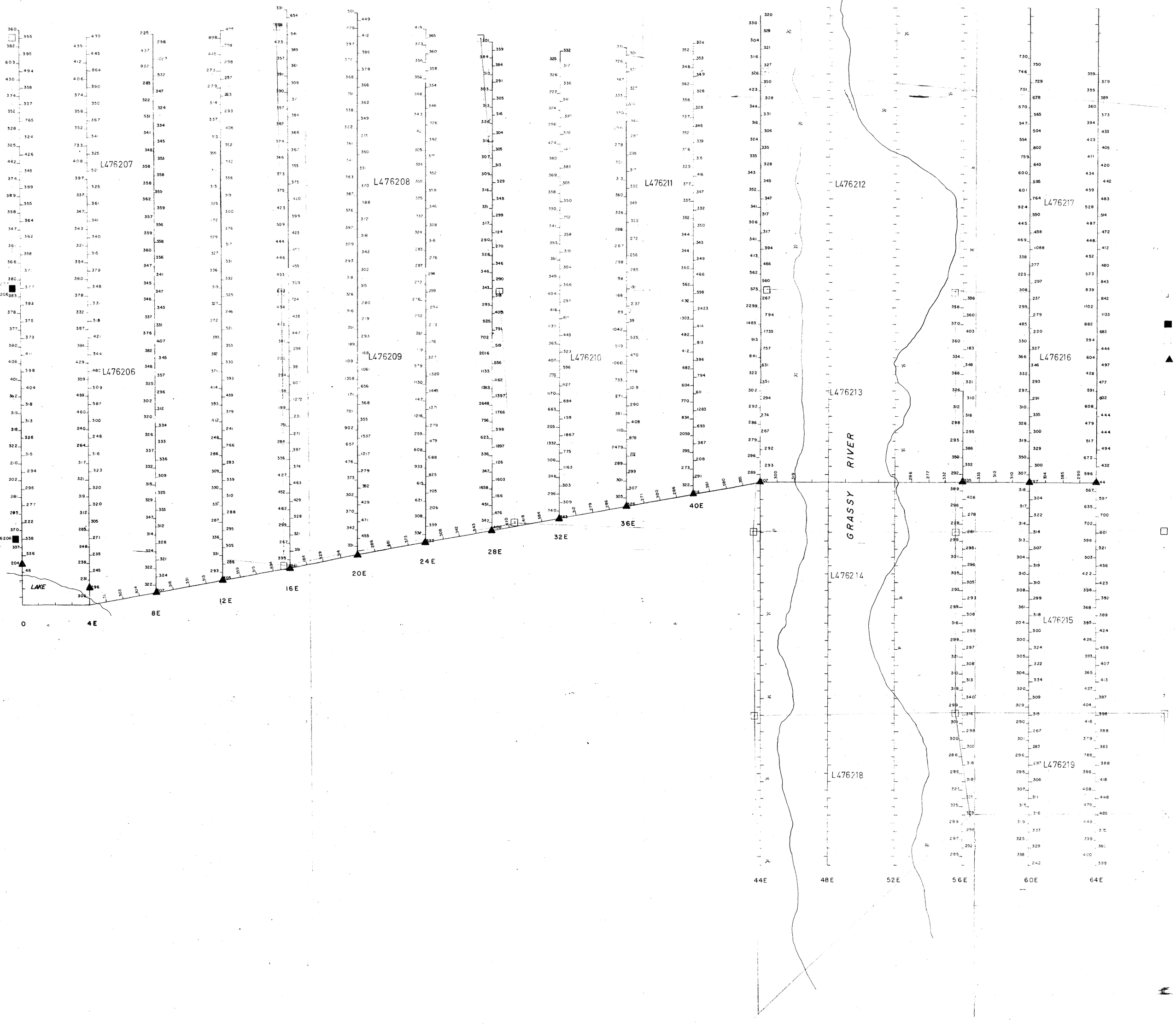
6	Late Intermediate Intrusives (a) Quartz diabase
4	Early Mafic Intrusives (b) Gabbro
	Felsic Metavolcanics
3a	(a) Rhyolite flows, flowbreccias, fragmentals, and massive rhyolite
3c	(c) Dacite flows, flowbreccias, fragmentals, and massive dacite
1	Intermediate Volcanics (a) Andesite flows, massive andesite

SYMBOLS

- Known Claim Post
- Inferred Claim Post
- Outcrop
- Geologic boundary, assumed, observed
- Lineation (schistosity), inclined, vertical
- Quartz vein, inclined, vertical
- Fault, relative movement
- Swamp
- Diamond drill and logging road
- Old flagging (picket lines)
- cu Copper (Malachite staining)
- py Pyrite
- ser Sericite
- chl Chlorite
- qtz Quartz
- cb Carbonate
- qe Quartz eyes
- frag Fragmental

ESSEX MINERALS COMPANY		
ENGLISH TOWNSHIP PROJECT	DRAWN BY DM	REV.
BLOCK 7	TRACED BY	REV.
GEOLOGY	APPROVED	REV.
	N.T.S. 41 P/14	REV.
W.G. WAHL LIMITED — 1 inch = 200 feet	DWG. NO.	

540



ESSEX MINERALS COMPANY

ENGLISH TOWNSHIP PROJECT

BLOCK 7
MAGNETOMETER SURVEY

Corrected Total Field Values in Gammas
(Background 59,000 gammas)

D. G. WAHL
REGISTERED PROFESSIONAL ENGINEER
PROVINCE OF ONTARIO

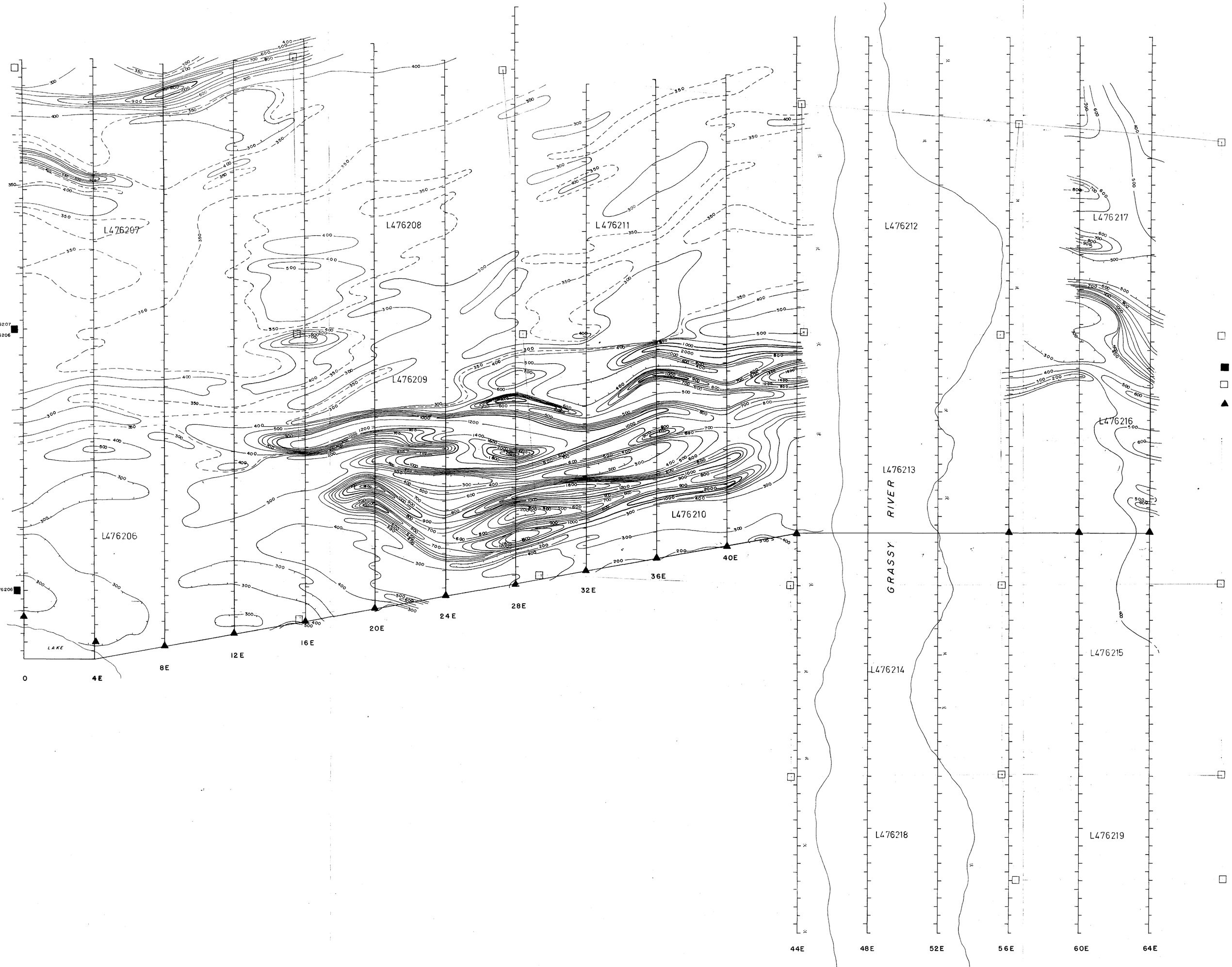
W. G. WAHL LIMITED

1 inch = 200 feet

DRAWN BY	REV
TRACED BY	REV
APPROVED	REV
N.T.S. 41 P/14	REV
DWG. NO.	

41P14NE0008 2.2564 HALLIDAY

550



ESSEX MINERALS COMPANY

ENGLISH TOWNSHIP PROJECT

BLOCK 7
CONTOURED MAGNETIC DATA
Corrected Total Field Values in Gammas
(Background 59,000 gammas)

REGISTERED PROFESSIONAL ENGINEER
D. G. WAHL
PROVINCE OF ONTARIO

DRAWN BY	REV.
TRACED BY	REV.
APPROVED	REV.
N.T.S. 41 P/14	REV.
DWG. NO.	

W·G· WAHL LIMITED | 1 inch = 200 feet

41P14NE0000 2.2584 HALLIDAY

L476207

L476208

L476211

L476212

L476217

L476206

L476209

L476210

L476213

L476216

L476215

L476214

L476219

L476218

GRASSY RIVER

LAKE

3-476207

4-476206

3-476206

0 4E 8E 12E 16E 20E 24E 28E 32E 36E 40E 44E 48E 52E 56E 60E 64E

N

SYMBOLS

- Known Claim Post
- Inferred Claim Post
- IP Profile
- OP Profile

Tx or Rx — HL mode — Rx or Tx
400 ft.
Tx-Rx Separation
Drawn to Scale

SCALE

600FT
400FT
200FT

-30% -20% -10% 0% 10% 20% 30%

ESSEX MINERALS COMPANY

ENGLISH TOWNSHIP PROJECT

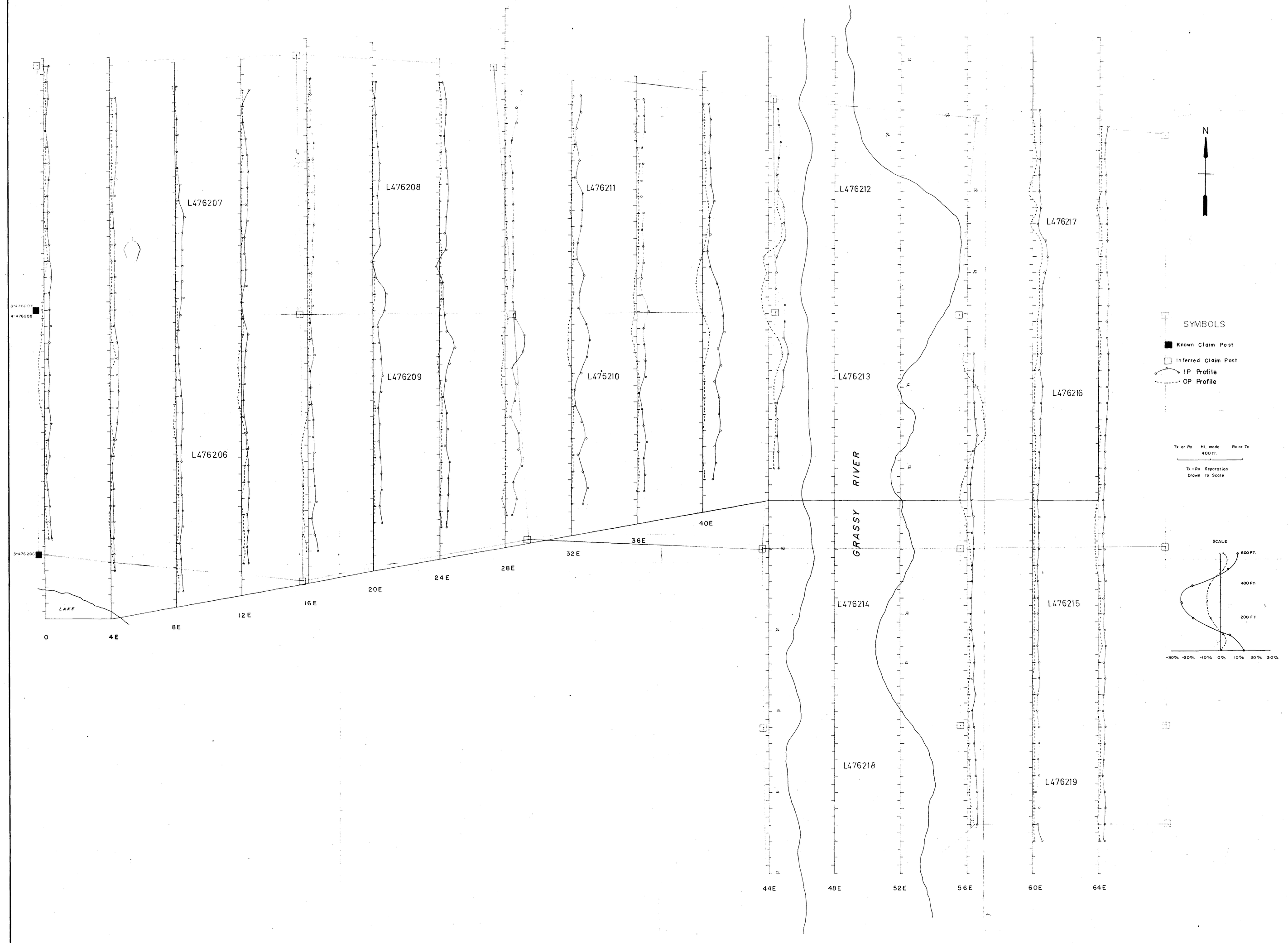
BLOCK 7
MAX-MIN II
HORIZONTAL LOOP SURVEY
444 HZ

REGISTERED PROFESSIONAL ENGINEER D. G. WAHL PROVINCE OF ONTARIO

DRAWN BY	REV.
BM	
TRACED BY	REV.
KEH	
APPROVED	REV.
N.T.S. 41 P/14	REV.
DWG. NO.	

W.G. WAHL LIMITED — 1 inch = 200 feet

41P14NE0008 2.2584 HALLIDAY



ESSEX MINERALS COMPANY

ENGLISH TOWNSHIP PROJECT

BLOCK 7
MAX-MIN II
HORIZONTAL LOOP SURVEY
1777 HZ

REGISTERED PROFESSIONAL ENGINEER
D. G. WAHL
PROVINCE OF ONTARIO

DRAWN BY BJM		REV.
TRACED BY KEH		REV.
APPROVED		REV.
N.T.S. 41 P/14		REV.
DWG. NO.		

W. G. WAHL LIMITED — 1 inch = 200 feet

41P14NE0069 2.2584 HALLIDAY
580