



52G09NE0001 11 EMPIRE LAKE

010

DIAMOND DRILLING

Area: Empire Lake

Report No: 11

WORK PERFORMED FOR: Fred Martinson

RECORDED HOLDER: SAME AS ABOVE [x]

: OTHER []

<u>CLAIM NO.</u>	<u>HOLE NO.</u>	<u>FOOTAGE</u>	<u>DATE</u>	<u>NOTE</u>
TB 851425	EL85-01	158m	Nov/85	(1)
"	85-02	161m	"	(1)
"	85-03	212m	"	(1)
"	85-04	119m	"	(1)
TB 851420,425	85-05	150.7m	"	(1)
TB 851416	85-06	80m	"	(1)

TOTAL

6 DH

8807.7M

NOTES: (1) #80-86

DIAMOND DRILL RECORD

NAME OF PROPERTY Empire Lake, N.W. Ontario, N.T.S. 52 G/9
 HOLE NO. EL-85-01 LENGTH 158.0 m
 LOCATION Claim No. 851425; Thunder Bay Mining Division; Sheet G-718
 LATITUDE 4+26 W DEPARTURE 2+58 N (Beth-Canada 1979 Grid)
 ELEVATION 459.5 m AZIMUTH 330° DIP -45°
 STARTED Nov. 16, 1985 FINISHED Nov. 18, 1985

M	DIP	AZIMUTH	FOOTAGE	DIP	AZIMUTH
Collar	-45°	330°			
60.0 m	-40°				
120.0 m	-34°				

HOLE NO. EL-85-01 SHEET NO. 1

REMARKS Drilled By Midwest
Drilling

Core Size: BQ

LOGGED BY J.G. Bryant

METERAGE		DESCRIPTION	SAMPLE				ASSAYS			
FROM	TO		NO.	% SULPHIDES	Meters		%	%	OZ/TON	OZ/TON
					FROM	TO				
0.0	2.0 m	Overburden and Casing: 0.7m casing above ground; 1.3m boulder till.	EL-series							
2.0	2.7 m	Fine Grained Diorite Fine, locally medium grained, medium to dark grey rock. Not foliated. Locally moderate magnetic zones of disseminated magnetite. Mineralogy: 55% plagioclase, 48% irregular clots/clusters of biotite/phlogopite after hornblende; 1-2% disseminated magnetite; no visible quartz. Minor bands (?) similar to next unit.								
2.7	3.1 m	Granodiorite: Medium to coarse grained, light-medium grey and black "speckled", weakly foliated rock. Mineralogy: 65-85% plagioclase, 15-35% chlorite after (?) hornblende. No magnetite or sulphides.								
3.1	3.6 m	Fine Grained Diorite Similar to 2.0 to 2.7 m but all fine grained. Locally is moderately magnetic. Estimated 1-2% magnetite.	16301		3.0	4.5	1.5			
3.6	7.7 m	Granodiorite: Coarse grained, locally pegmatitic "speckled" rock similar to 2.7 to 3.1 m. Poorly foliated. Minor (1%) disseminated pyrite at 5.05 m and 7.55 m. Locally magnetite bearing (weak to strong magnetic suscept.) from 6.7 to 7.7 m	16302		6.5	8.0	1.5			

DIAMOND DRILL RECORD

NAME OF PROPERTY Empire Lake

MOLE NO. EL-85-01 SHEET NO. 2

METERAGE		DESCRIPTION	SAMPLE			ASSAYS					
FROM	TO		NO	SULPHIDES	Meterage			%	%	G/T ON	G/T ON
					FROM	TO	TOTAL				
7.7	12.0	Granodiorite: Fine to medium grained variety of 2.7 to 3.1 m. Foliation more developed; at 60° to c.a., No magnetite or sulphides.									
12.0	14.8	Fine Grained Diorite Similar to 2.0 to 2.7 m. Locally magnetite bearing (weak to moderate magnetic susceptibility). Irregular upper contact. Sharp lower contact at 60° to core axis.	16303		13.25	14.75	1.5				
14.8	52.9	Granodiorite: Weakly to moderately foliated unit of generally coarse grained rock similar to 2.7-3.1m. Nil to trace fine disseminated py. <ul style="list-style-type: none"> - Narrow (1-2 cm) pink K-feldspar rich syenitic dikelet (s) cut the unit at 5° to c.a. from 24.6 to 25.2 m; 28.6 to 29.9 m and 36.0 to 37.9m. - Potassic alteration (moderate to strong) from 27.3 to 29.0 m in association with syenitic dikelet. Minor K alteration from 29.0 to 32.0 m. - 21.9 to 22.6 m : Similar to 3.1 to 3.6 m - Minor magnetite indicated by weak to moderate magnetic susceptibility at 14.8, 16.8, 19.0, 19.3, 19.55, 21.8, 22.00, 26.7, 32.6, 33.0, 34.1, 35.0 and other locations. Magnetite associated with mafic minerals (biotite and hornblende) - Minor disseminated pyrite in mafic rich laminae at 36.85 m - Foliation: Weak to moderately well developed. Defined by alignment of chlorite (after biotite and hornblende) <ul style="list-style-type: none"> - 45° to c.a. most common. - 55 to 60° to c.a. at 14.8, 23.4, 33 m, 40.4 - 30 to 35° to c.a. at 32-36 m, 38.5-52 m. - Includes several darker, fine grained zones similar to 3.1 to 3.6 m at 40.7-41.2 m, 41.4-41.8 m, 44.7 to 44.9 m 50.5 m (2-10 cm), 50.7-50.9 m, 51.2-51.7 m and at 52.6 m (1-3 cm bands). - One 1 cm "fragment" of dark, fine grained rock aligned parallel to foliation. - Pink pegmatite vein 4 cm wide cuts core at 45° angle at 41.9 m. Some sections in vicinity of 46-50 m contain subhedral plagioclase porphyroblasts to 0.5 and 2.0 cm in size. 	16304		21.5	23.0	1.5				
			16305		27.3	28.8	1.5				
			16306		50.9	51.9	1.0				
			16307		51.9	52.9	1.0				

LANGRIGES - TORONTO - 366-1168

DIAMOND DRILL RECORD

NAME OF PROPERTY Empire Lake
 HOLE NO. EL-85-01 SHEET NO. 3

METERAGE		DESCRIPTION	SAMPLE				ASSAYS			
FROM	TO		NO	SULPHIDES	Meterage		G/T	TOW	G/T	TOW
					FROM	TO				
14.8	52.9	CONT'D Some pseudo augen textures. Lower contact is at 55° to c.a.; with 2 cm wide bleached silicic zone.								
52.9	66.2	Coarse Grained Diorite: Massive medium grey and green, mottled, coarse grained rock comprised of 30% coarse dark green hornblende variably altered to biotite and chlorite and 60-65% light grey plagioclase crystals. Hornblende and plagioclase crystals from 2 mm to 3 & 4 cm clusters. Several almost massive 0.1 to 0.4 m zones of amphiboles at 56.2-56.6 m, 63.8 to 64.0, 66.2 to 66.8 m and 70.2 to 70.36m. Low quartz content difficult to distinguish. Variably magnetic with 1-3% locally 5-8%, fine grained, disseminated and bleb magnetite, distributed in mafic component. Minor to 5% (average 1-2%) sulphides; estimated 60-75% pyrrhotite 10-25% chalcopyrite and 15% pyrite. <u>Best sulphide rich sections at 53.3 and 69.5 m.</u> - Highest magnetite content noted at 53.85 m (3-5% mt), 56.8 m (5-8% mt), 57.9 m (3-5% mt). - Crude elongation of some hornblende at about 45° (30-50°) to c.a. - Narrow, very coarse white plagioclase and grey quartz pegmatite at 65.13 to 65.32 m. Mineralogy 70% plagioclase, 25% quartz and 5% biotite.	16308		52.9	53.9	1.0			
			16309		53.9	54.9	1.0			
			16310		54.9	55.9	1.0			
			16311		55.9	56.9	1.0			
			16312		56.9	57.9	1.0			
			16313		57.9	58.9	1.0			
			16314		58.9	59.9	1.0			
			16315		59.9	60.9	1.0			
			16316		60.9	61.9	1.0			
			16317		61.9	62.9	1.0			
			16318		62.9	63.9	1.0			
			16319		63.9	64.9	1.0			
			16320		64.9	65.9	1.0			
			16321		65.9	66.8	.9			
			16322		66.8	68.5	1.7			
			16323		68.5	68.9	.4			
66.2	66.82	Amphibolitic Rock: Medium to dark green, fine grained rock comprised of 80% amphibole and chlorite alteration minerals, 5% disseminated magnetite and 15% plagioclase.	16324		68.9	69.9	1.0			
			16325		69.9	70.9	1.0			
			16326		70.9	71.9	1.0			
			16327		71.9	72.9	1.0			
			16328		72.9	73.9	1.0			
			16329		73.9	74.9	1.0			
			16330		74.9	75.9	1.0			
66.82	68.48	Pegmatite: Coarse grained light green, microcline (?) (75%), quartz (15%) and biotite(10%). Minor 1-2% very local pyrrhotite and pyrite along fractures and in biotite.	16331		75.9	76.9	1.0			
			16332		76.9	77.9	1.0			

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DIAMOND DRILL RECORD

NAME OF PROPERTY Empire Lake
 HOLE NO. EL-85-01 SHEET NO. 4

METERAGE		DESCRIPTION	SAMPLE			ASSAYS					
FROM	TO		NO	SULPHIDES	Meterage			G	S	OZ TON	OZ TON
					FROM	TO	TOTAL				
68.5	68.9	<p>Pegmatite Indurated Diorite and (?) Fault Zone:</p> <p>Irregular zone of 65% plagioclase, 15% biotite, 15% chlorite (after ? hornblende) and 1-5% magnetite with irregular narrow chlorite-biotite rich "shear" zones at 10-20° to c.a. Chlorite-biotite matrix hosts some 1-3 mm clasts (?) of plagioclase. Also a narrow (1 cm) fault at 68.9 m is at 10° to c.a. and has small enclosed 1-3 mm clasts. Relatively fresh diorite adjoins it on down-hole side.</p>	16333		77.9	78.9	1.0				
			16334		78.9	79.9	1.0				
			16335		79.9	80.9	1.0				
68.9	81.4	<p>Coarse Grained Diorite:</p> <p>Similar to 52.9 to 66.2 m. Crude alignment of longer axis of hornblende crystals at about 70° to c.a. between 78.4 and 81.4 m.</p> <ul style="list-style-type: none"> - 1 to 3% disseminated fine, metallic lustre magnetite grains and aggregates. Locally up to 5-8% magnetite as at 75.3 to 76.0 m and 76.4 to 76.9 m associated with increase in mafic minerals. - 1 to 2% py-po, trace cp common as disseminated crystals/masses and in narrow veinlets. Locally 5-8% sulphides as at 73.3 to 73.85 m. Estimated sulphide distribution 60% po, 25% py, 10-15 % cp. 5% cp in veinlet and blebs over <1 cm at 81.4 m. - Faults: 0.5 cm wide at about 6° to c.a. from 71.7 to 71.95 m. Slickensides on chloritic plane. Annealed by thin bands of chlorite and quartz-plagioclase. Another hairline chlorite-coated fault at 15° to c.a. at 75.2 m; has 15% pyrite smeared on chloritic surface. Set of chlorite annealed hairline fracture at 150° to above fault (75.2 m) and at 15° to c.a. 	16336		80.9	81.9	1.0				
			16337		81.9	82.9	1.0				
			16338		82.9	83.9	1.0				
			16339		83.9	84.9	1.0				
			16340		84.9	85.9	1.0				
			16341		85.9	86.9	1.0				
			16342		86.9	87.6	.7				
			16343		87.6	88.6	1.0				
			16344		88.6	89.6	1.0				
81.4	87.70	<p>Banded Medium Grained Diorite:</p> <p>Finer grained variety of above with about 15 to 30, 0.5 to 3 cm wide magnetite rich bands per metre of core. Magnetite occurs as small (to 1 mm) disseminated grains in hornblende rich sections. Magnetite content varies from 5 to 25% in the bands.</p>									

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DIAMOND DRILL RECORD

NAME OF PROPERTY Empire Lake
 HOLE NO. EL-85-01 SHEET NO. 5

METERAGE		DESCRIPTION	SAMPLE			ASSAYS			
FROM	TO		NO.	SULPHIDES	Meter		%	G/TON	G/TON
					FROM	TO			
81.4	87.70	CONT'D In between, "salt and pepper" diorite often has 1-3% disseminated magnetite. Bands at 65-80° to c.a. Sulphides locally present (as at 85.7m) as 1-3% disseminated pyrite and/or pyrrhotite and trace to 1% chalcopyrite. Locally to 5% pyrite as at 85.02 to 85.24m, associated with mafic minerals. Two + 10 cm plagioclase-quartz and one plagioclase - K feldspar-quartz-garnet (1 mm crystals) pegmatite zones and some biotite rich sweat zones present between 83.0 and 83.60 m. Magnetite and hornblende bands to 1.5 cm border K feldspar rich zone. Fine grained, 4 cm thick chilled margin (?) at bottom of unit forms contact at 20° to c.a. with adjoining pegmatite unit.							
87.70	89.4	Pegmatite: Very coarse, white plagioclase, light green microcline and variable K-spar rich at 20° to c.a. Contains 5% biotite. Finer grained 0.15 m "chilled" contact zone in contact at 20° to c.a. with underlying granite.							
89.4	138.24	Granite: Pink to greyish-pink and grey, fine grained, equigranular granite with 5-10% quartz, 10-12% biotite/hornblende, 60-80% plagioclase and 0-20% K feldspar. Average grain size 1 mm. No sulphides. Weak foliation at 65° to c.a. Coarse plagioclase and coarse K feldspar dominant pegmatitic zones and a 2 cm dyke comprise 20% of section. Similar composition to granite. Some crystals to 4 cm size. Most notable zones from 99.3 to 101.45 m, 97.4 to 97.8 m, 135.1 to 137.4 m. - 136.2 to 136.4 m: Biotite rich zone with 25-30% biotite and minor magnetite.	16345 16346		136.2 137.2	137.2 138.2	1.0 1.0		

LANGRISHES - TORONTO - 366-1188

DIAMOND DRILL RECORD

NAME OF PROPERTY Empire Lake
 HOLE NO EL-85-01 SHEET NO. 6

METERAGE		DESCRIPTION	SAMPLE			ASSAYS					
FROM	TO		NO.	SULPH IDES	Meterage				GT TON	GT TON	
					FROM	TO					TOTAL
138.24	143.2	<p>Quartz Diorite:</p> <p>Mottled, fine-medium grained rock; 35% relict hornblende crystals (average 1 mm x 4 mm) now variably altered to biotite; 5-8% fine quartz, 55-60% plagioclase, 1-3% very fine disseminated magnetite irregularly distributed through unit, minor to 2% pyrite locally present as disseminations and veinlets.</p> <p>- Upper part of unit is comprised of 0.14 m irregular somewhat pegmatitic, biotite-rich contact zone with overlying granite, then, very fine grained dark, 0.78 m micro-diorite (?) zone that grades into coarser, salt and pepper diorite at 139.07 m. Upper contact at 50° to c.a.; lower contact with narrow sweat pegmatite zone at 70° to c.a.. Locally measureable foliation and banding at 50-70° to c.a.</p>	16347		138.2	139.2	1.0				
			16348		139.2	140.2	1.0				
			16349		140.2	141.2	1.0				
			16350		141.2	142.2	1.0				
			16351		142.2	143.2	1.0				
			16352		143.2	144.2	1.0				
			16353		144.2	145.2	1.0				
143.2	158.0	<p>Granite:</p> <p>Pinkish grey to pink variety. Similar to 89.4 to 138.24 but less pegmatitic. Only pegmatite from 157.15 to 157.35 m; very coarse and similar composition to granite.</p>									
	158.0	<p>End of hole</p> <p>- Excellent core recovery.</p> <p>- Casing recovered.</p>									

J. B. Bryant

DIAMOND DRILL RECORD

NAME OF PROPERTY Empire Lake, N.W. Ontario, N.T.S. 52 G/9
 HOLE NO. EL-85-02 LENGTH 161.0m
 LOCATION Claim 851425; Thunder Bay Mining Division, Sheet G-718
 LATITUDE 3+30W DEPARTURE 2+25N (Beth-Canada 1979 Grid)
 ELEVATION 460.9m AZIMUTH 333° DIP -46°
 STARTED 18 November 1985 FINISHED 20 November 1985

Meters	DIP	AZIMUTH	Meters	DIP	AZIMUTH
Collar	-46°	333°			
74m	-42°				
161m	-35°				

HOLE NO. EL-85-02 SHEET NO. 1

REMARKS Drilled by Midwest Drilling

Core Size : BQ

LOGGED BY J.G. Bryant

METERAGE		DESCRIPTION	SAMPLE				ASSAYS				
FROM	TO		NO.	% SULPHIDES	Meterage			%	%	OZ/TON	OZ/TON
					FROM	TO	TOTAL				
0.0	4.6	Overburden and Casing	EL-series								
4.6	43.9	Granodiorite: Medium to light grey, locally pinkish, medium to coarse grained granodiorite comprised of 70-80% plagioclase, 5-20% K-feldspar, 2-5% quartz, 5-15% biotite. - Medium grained texture (1-3mm crystals) prevalent to about 23.7m. Coarser grained texture (3-8mm crystals) after 23.7m and almost resembles pegmatite. - Compositional (mafic rich vs. felsic rich) gneissic banding at 31.0-31.3m is at 60-68° to core axis. - Fractures present at 50° to core axis but 90° to foliation at 35.0m and 37.5m and light green kaolinitization of feldspar noted. Similar 3-5mm spaced (late stage) fracture set (at 35° to core axis) noted at 38.2m in pegmatite. - Several fine grained diorite/dolerite units are present as darker grey finer grained zones, as at 13.9-14.5m; 15.9-16.9m; 22.7-23.7m; 32.5-33.6m and 34.3-35.9m. They have higher biotite and/or hornblende, are locally magnetic (very fine grained magnetite (?)) and have trace pyrite with exceptional 3% pyrite at 32.6m. These units resemble fine grained diorite and are hornblende rich below 22.7m. Lower contact of zone to 16.9m is 'interbedded' at 30° to core axis with adjoining granodioritic rock. Upper contact is sharper and at 45-50° to core axis. - Weak to moderate foliation at 45°, locally 30° to core axis. Defined by biotite orientation.	16354		15.90	16.90	1.00				
			16355		20.00	21.00	1.00				
			16356		22.80	23.80	1.00				
			16357		32.50	33.50	1.00				
			16358		42.90	43.90	1.00				

LANGRIDDGES - TORONTO - 366-1168

DIAMOND DRILL RECORD

NAME OF PROPERTY Empire Lake
 HOLE NO. EL-85-02 SHEET NO. 2

METERAGE		DESCRIPTION	SAMPLE				ASSAYS				
FROM	TO		NO	SULPH IDES	Meters			%	%	GZ TON	GZ TON
					FROM	TO	TOTAL				
4.6	43.9	CONT'D Pink K-spar and hematite stained medium to coarse grained locally pegmatitic, zones present at 38.2 to 39.3 m, 46.2 to 49.4 m.	16359		45.5	46.1	.6				
			16360		46.1	46.8	.7				
			16361		46.8	47.2	.4				
			16362		47.2	48.2	1.0				
43.9	45.54	Fault: 43.9 to 45.54 m: Crumbly, friable fault zone hosted by biotitic gneiss. Includes 0.2 m pegmatite at 44.2 m and 0.4 m white quartz vein at 44.4 to 44.8 m. Lost 0.25 m core.	16363		48.2	49.6	1.4				
			16364		49.6	50.8	1.2				
			16365		50.8	51.8	1.0				
			16366		51.8	52.9	1.1				
			16367		52.9	53.7	.8				
			16368		53.7	54.7	1.0				
45.54	46.2	Diorite: Biotite (35-40%) after hornblende; 55% plagioclase and 5% (?) quartz, some as sweat segregations. Non-magnetitic. Trace pyrite. Foliation well developed to pseudo gneissic texture at 45° to c.a.	16369		54.7	55.9	1.2				
			16370		55.9	56.6	.7				
			16371		56.6	58.1	1.5				
46.2	46.8	Pegmatite: Coarse plagioclase (85%) biotite (5-10%) and quartz (5%) pegmatite. Hematite stained, particularly on fractures.									
46.8	47.2	Diorite: Similar to 45.54 to 46.2 m but contains 5-10% disseminated magnetite and 1-3% disseminated pyrite.									
47.2	49.8	Pegmatite: Pink, coarse grained plagioclase-biotite (?) quartz pegmatite irregularly stained by hematite. Lower 0.2 m is grey, medium changing to fine grained, with several 2-4 mm plagioclase phenocrysts in chilled zone with irregular impregnation contact with adjoining diorite unit. Several 1 mm and two 0.5 to 1.5 cm magnetite rich laminae/bands incorporated and oriented at about 80° to c.a. Zoned contacts at 80-90° to c.a.									

LANGRISHES - TORONTO - 366-1168

DIAMOND DRILL RECORD

NAME OF PROPERTY Empire Lake
 HOLE NO. EL-85-02 SHEET NO. 3

METERAGE		DESCRIPTION	SAMPLE			ASSAYS				
FROM	TO		NO	Meters			%	G/TON	G/TON	G/TON
				IDES	FROM	TO				
49.8	57.14	<p>Diorite:</p> <p>Mottled salt and pepper texture of dark green-black hornblende commonly altered to biotite and medium to light green plagioclase. Average grain size 2-5 mm.</p> <p>49.8-53.7 : Banded diorite with over 20 magnetite rich mafic zones (5-10% mt) from 0.5 to 2 cm wide and one zone about 14 cm wide. Minor to 3% magnetite variably present in balance of section. Minor to 3% pyrite. Magnetite rich bands at 35° to 40° to c.a. in upper part of unit and at 53.1 m but at 80-85° at 52 m.</p> <p>53.7-54.8 : Fine-medium grained pink to grey pegmatite.</p> <p>54.8-56.16 : Non-magnetic to locally magnetic diorite. Crude alignment of hornblende at 60° to c.a. Locally 1-2% disseminated pyrite.</p> <p>56.16-56.37: Grey pegmatite.</p> <p>56.37-56.60: Magnetite (1-3%) bearing diorite; hornblende altered to biotite.</p> <p>56.60-57.01: Pink and grey fine grained pegmatite/pegmatitic granite.</p> <p>57.01-57.14: Weakly magnetic diorite; all hornblende altered to biotite.</p>								
57.14	99.3	<p>Pegmatitic Granite:</p> <p>Equigranular light grey to pink K-feldspar-plagioclase-biotite granite locally porphyroblastic (1-5 mm plagioclase), intensely indurated (?) with medium (to 5 mm) and coarse (to 1 and 2 cm) grained plagioclase-orthoclase-microcline(?) - biotite (3-8%) - quartz (10-20%) pegmatite that comprises</p>	16372	58.1	59.3	1.2				
			16373	96.7	97.4	.7				
			16374	97.4	97.8	.4				
			16375	97.8	99.2	1.4				
			16376	99.2	100.2	1.0				
			16377	100.2	101.2	1.0				
			16378	101.2	102.2	1.0				
			16379	102.2	103	.8				
			16380	103	103.5	.5				
			16381	103.5	104.5	1.0				
			16382	104.5	106	1.5				
			16383	106.0	107.0	1.0				
			16384	107.0	108.5	1.5				
			16385	108.5	110.0	1.5				
			16386	110.0	111.5	1.5				
			16387	111.5	113.0	1.5				
			16388	113.0	114.5	1.5				
			16389	114.5	116.0	1.5				
			16390	116.0	116.8	.8				
			16391	116.8	117.9	1.1				
			16392	117.9	119.3	1.4				
			16393	119.3	120.3	1.0				
			16394	124.8	126.5	1.7				
			16395	126.5	128.0	1.5				
			16396	128.0	129.5	1.5				
			16397	129.5	131.0	1.5				
			16398	131.0	132.5	1.5				

LANGRISHES - TORONTO - 368-1168

DIAMOND DRILL RECORD

NAME OF PROPERTY Empire Lake
 HOLE NO. EL-85-02 SHEET NO. 4

METERAGE		DESCRIPTION	SAMPLE			ASSAYS			
FROM	TO		NO	SULPH IDES	Meters			GZ TON	GZ TON
					FROM	TO	TOTAL		
57.14	99.3	Con't 35-45% of the unit. Granitic portions weakly foliated at 55° to c.a. as defined by biotite rich bands. Local alteration of K-feldspar to muscovite as at 60.9m. 5 mm magnetite grain in granite at 58 m. Some light green mineral (? dropside?) in with biotite after hornblende. - 76.2 to 77.6 m: Mottled, "salt and pepper" diorite(?) with 5 and 10 cm thick, light grey "granodioritic" margins at 35° to c.a. Weakly magnetic. Disseminated pyrite (1-3% in total) generally concentrated along foliation planes. Almost a biotite gneiss with biotite after hornblende-relict crystals visible.							
99.3	161.0	Diorite: Similar to 49.8 to 57.14 m and with granite/pegmatitic zones noted below. Has irregular contact with above granite. Several "fingers" of diorite were injected into the granite. Diorite at contact is finer grained than rest of diorite and represents chill margin. 99.3-103.0: "Banded" diorite similar to 49.8 to 53.7 m. About 10 mafic rich "bands" from 1-10 cm wide host 5-8% disseminated fine grained magnetite. Balance of zone has minor to 3% disseminated magnetite. Minor to 2% pyrite irregularly distributed. Bands oriented at 70-80° to c.a. General, weak alignment of relict hornblende crystals. 103.0-103.5: Pink granite with pegmatitic margin. 103.5-104.5: Weakly <u>banded diorite</u> similar to 99.3 to 103.0m	16399		132.5	134.0	1.5		
			16400		134.0	135.5	1.5		

LANGRIGES - TORONTO - 366-1108

DIAMOND DRILL RECORD

NAME OF PROPERTY Empire Lake

HOLE NO. EL-85-02

SHEET NO. 5

METERAGE		DESCRIPTION	SAMPLE			ASSAYS			
FROM	TO		NO	SULPH IDES	Meterage		GZ TON	GZ TON	GZ TON
					FROM	TO			
99.3	161.0	CONT'D							
		104.5-107.0: Pink granite. Contacts with adjoining diorite at 30° to c.a.							
		107.0-107.5: <u>Banded diorite</u> similar to 99.3 to 103.0 m.							
		107.5-119.3: <u>Massive diorite</u> with only a few psuedo-bands. Variable disseminated magnetite (trace to 3% locally 5 to 8%). Minor to 2% disseminated pyrite. Includes narrow pegmatite zones at 116.8 to 117.3 and 117.4 to 117.9 m. Contacts at opposing 45 to 60° angles.							
		119.3-124.8: Pegmatite. Coarse grained, grey to pink and locally hematitic. Some k-spar.							
		124.8-141.2: Massive diorite with minor to 3% disseminated magnetite and several more mafic bands with 5 to 15% magnetite near 131.5 m. Apparent angle to c.a. is 70°. Minor to 2% disseminated pyrite.							
		141.2-149.1: Grey and pink pegmatized granite.							
		149.1-150.6: Massive diorite; 1-3% magnetite; minor pyrite.							
		150.6-150.9: Coarse pegmatite.							
		150.9-151.9: Massive diorite similar to 149.1 to 150.6 m							
		151.9-153.7: Pegmatitic granite.							
		153.7-155.7: Massive diorite; 1-3% magnetite.							
		155.7-156.7: Grey granite. Irregular upper contact; lower contact at 60° to c.a. Weak foliation of biotite.							
		156.7-161.0: Massive diorite similar to above but becoming more leucocratic after 158.6 m. Trace to minor pyrite.							

DIAMOND DRILL RECORD

NAME OF PROPERTY Empire Lake

HOLE NO. EL-85-02

SHEET NO. 6

METERAGE		DESCRIPTION	SAMPLE			ASSAYS				
FROM	TO		NO	SULPH IDES	Meters		%	%	GZ TON	GZ TON
					FROM	TO				
	161.0	End of Hole - Excellent core recovery except at 43.9 to 45.54 m - Casing recovered. <div style="text-align: center; font-family: cursive; font-size: 2em;">J. H. Bryant</div>								

DIAMOND DRILL RECORD

NAME OF PROPERTY Empire Lake, N.W. Ontario, N.T.S. 52 G/9
 HOLE NO. EL-85-03 LENGTH 212.0 m
 LOCATION Claim 851425; Thunder Bay Mining Division; Sheet G-718
 LATITUDE 2+23 W DEPARTURE 2+00 N (Beth-Canada 1979 Grid)
 ELEVATION 462.6 m AZIMUTH 320° DIP -45°
 STARTED Nov. 20, 1985 FINISHED Nov. 23, 1985

M	DIP	AZIMUTH	FOOTAGE	DIP	AZIMUTH
Collar	-45°	320°			
100 m	-40°				
212 m	-29°				

HOLE NO. EL-85-03 SHEET NO. 1

REMARKS Drilled by Midwest Drilling

Core Size: BQ

LOGGED BY J.G. Bryant

METERAGE		DESCRIPTION	SAMPLE				ASSAYS			
FROM	TO		NO.	Meters			%	%	OZ/TON	OZ/TON
				% SULPHIDES	FROM	TO				
0.0	2.0	Overburden and Casing								
2.0	17.06	Granodiorite: Light grey, massive to weakly foliated to locally gneiss rock. Foliation and gneissic banding defined by biotite. Foliation at 50 to 65° to c.a. and very locally at 35° to c.a. Some zones with plagioclase porphyroblasts to 3 cm. Minor pyrite at 14.3 and 15.7 m and 1-2% pyrite over 1-2 cm at 2.95 m.								
17.06	18.5	Diorite: Coarse grained massive hornblende-plagioclase diorite with hornblende variably altered to biotite. Last 0.5 m is moderately to intensely altered with the plagioclases saussuritized and hornblende altered to biotite. No magnetite or sulphides.								
18.5	38.4	Granodiorite: 18.5-34.8: Pink medium grained rock with plagioclase-K feldspar-biotite (1-5%) and quartz (<5%), commonly pegmatite. 34.8-38.4: Grey, gneissic, biotitic (5-10%) with local pink pegmatitic zones. Gneissic bands at 50° to c.a. Includes a narrow quartz vein (from 35.7 to 39.35 m) with numerous healed fractures.								

DIAMOND DRILL RECORD

NAME OF PROPERTY Empire Lake

HOLE NO. EL-85-03 SHEET NO. 2

METERAGE		DESCRIPTION	SAMPLE			ASSAYS				
FROM	TO		NO	Meters		G/TOM	U/TOM			
				FROM	TO					TOTAL
38.4	57.9	<p>Diorite:</p> <p>Variably magnetic, medium grained, massive unit of hornblende (variably altered to biotite) and plagioclase. Contains irregularly distributed 1-3% magnetite and several magnetite rich (5-15% mt) zones from 1 to 3 cm wide at 39.5, 44.1, 45.5, 47.05 and 53.9 m. No significant sulphide content.</p> <p>38.4-49.7: Similar to non-banded zones in holes 01 and 02.</p> <p>49.7-57.9: More leucocratic diorite than above. Contains as little as 10% mafics in vicinity of 53.2 and 54.5 m but in general has 15-30% mafics, usually hornblende, but variable increased alteration to biotite towards lower end of unit where last 0.2 m is almost biotite gneiss. Contains 2 cm band with 5-8% disseminated pyrite at 54.55 m.</p>								
57.9	64.5	<p>Pegmatitic Granodiorite:</p> <p>Section comprised of 70% coarse grained pink to grey plagioclase-K-feldspar-biotite pegmatite with minor hematite alteration on fractures, and 30% grey, locally pink, fine grained, equigranular granodiorite.</p> <p>63.6-63.8: Diorite zone with 1% magnetite. No significant sulphides.</p>								
64.5	67.9	<p>Diorite:</p> <p>Similar to 38.4 to 49.7 m. Minor (1%) magnetite except for section 65.4 to 65.7 m which has 60% mafic content and 3% magnetite. Trace to minor pyrite. Moderate biotite alteration of hornblende.</p>								
67.9	84.1	<p>Pegmatitic Granodiorite:</p> <p>60% pinkish grey granodiorite and 40% coarse pegmatite.</p>								

LANGRIGES - TORONTO - 366-1166

DIAMOND DRILL RECORD

NAME OF PROPERTY Empire Lake
 HOLE NO EL-85-03 SHEET NO. 3

METERAGE		DESCRIPTION	SAMPLE			ASSAYS					
FROM	TO		NO	SULPHIDES	Meters			%	%	G/TON	G/TON
					FROM	TO	TOTAL				
84.1	85.3	<p>Diorite:</p> <p>Weakly magnetic (1 to 3% magnetite) in fine grained diorite changing to medium grained diorite in lower half of zone. Contacts at 30° (upper) and 5° (lower) to c.a. Irregular fault zone sub-parallel lower contact from 84.8 to 85.3 m. Minor pyrite. Biotite alteration prominent and some kaolinization of plagioclase.</p>									
85.3	101.6	<p>Granodiorite:</p> <p>Pinkish grey colour, fine medium grained, equigranular. No pegmatite, no sulphides and no magnetite. Estimated 30% of feldspar is K-feldspar. Zone is grey coloured near lower contact - possibly a contact zone phenomena.</p>									
101.6	110.7	<p>Diorite:</p> <p>Similar to 38.4 to 49.7 m. Generally 1-3%, locally 5% as at 107.8 to 110.7 m, disseminated magnetite. Locally 1 to 3% pyrite as in 0.5 cm margin around 0.1 m granodiorite inclusion and at 108.5 m. Trace pyrite or chalcopyrite at 109.4 m. Some apparently quartz diorite in composition.</p>									
110.7	115.5	<p>Granodiorite:</p> <p>Pinkish grey to grey granodiorite; fine-medium grained, equigranular.</p>									
115.5	184.0	<p>Diorite:</p> <p>Similar to 38.4 to 49.7 m. Minor to 3% magnetite from 115.5 to about 143 m, then a general increase to 3 to 8% magnetite to 184.0 m; local zones of up to 15% magnetite at 139.6 m (2 cm) and generally about 164 m, 167 m, 169.5 m, 175.4 m, and 181.9 m (3 cm band). Diorite is medium grained and hornblende variably altered to biotite. Most magnetite rich sections are usually finer grained and darker in colour. No significant banding.</p>									

LANGRICES - TORONTO - 366-1168

DIAMOND DRILL RECORD

NAME OF PROPERTY Empire Lake
 HOLE NO. EL-85-03 SHEET NO. 4

METERAGE		DESCRIPTION	SAMPLE			ASSAYS				
FROM	TO		NO	SULPHIDES	Meters		%	%	G/TON	GZ TON
					FROM	TO				
115.5	184.0	CONT'D - Minor pegmatite zones at 125.4 m (0.1 m), 124.7 (0.2 m), 126.1 m (0.4 m), 143.4 m (0.1 m), 147.8 (.05 m), 183.6 m (0.1 m) - Minor granodioritic sections at 117.5 m (0.4 m), 135.4 m (0.2 m), 135.7 m (0.08 m), 149.9 m (0.1 m), 183.22 (0.13 m) - Quartz veins at 116 m (infill 0.5 to 1 cm fracture fault sub-parallel to c.a. over 0.5m) & 136.1 m (0.4 m with some granodiorite and coarse biotite).								
184.0	187.3	Granodiorite: Pinkish grey granodiorite with minor pegmatite.								
187.3	190.4	Diorite: Fine to coarse grained, 1-3% disseminated magnetite. Very little pyrite.								
190.4	190.96	Pegmatite: Grey, coarse, biotitic.								
190.96	212.0	Diorite: Medium to coarse grained, generally massive, some minor mafic rich zones at 70° to c.a. Average 1-3% disseminated magnetite. No significant sulphides. Appears to be more leucocratic towards end of hole.								
	212.0	End of Hole - Excellent core recovery (99.9%) - Casing left in hole.								

LANGRISHES - TORONTO - 366-1168

J. B. Bryant

DIAMOND DRILL RECORD

NAME OF PROPERTY Empire Lake, N.W. Ontario, N.T.S. 52 G/9
 HOLE NO. EL-85-04 LENGTH 119.0 m
 LOCATION Claim 851425; Thunder Bay Mining Division; Sheet G-718
 LATITUDE 5+18 W DEPARTURE 3+40 N (Beth-Canada 1979 Grid)
 ELEVATION 464.0 m AZIMUTH 320° DIP -45°
 STARTED Nov. 25, 1985 FINISHED Nov. 26, 1985

M	DIP	AZMUTH	FOOTAGE	DIP	AZMUTH
Collar	-45°	320°			
116 m	-36°				

HOLE NO. EL-85-04 SHEET NO. 1

REMARKS Drilled by Midwest Drilling

Core Size: BQ

LOGGED BY J.G. Bryant

METERAGE		DESCRIPTION	SAMPLE				ASSAYS			
FROM	TO		NO.	SULPHIDES	Meters		%	%	oz/TON	oz/TON
					FROM	TO				
0.0	2.0	Overburden and casing.								
2.0	12.8	Granodiorite: Grey, coarse grained with plagioclase porphyroblasts to 5 cm and hornblende crystal variably altered to biotite. Weakly foliated at 50 to 60° to c.a. and increasing to 70-75° to c.a.								
12.8	17.0	Fine Grained Diorite Light-medium grey, finely foliated at 55 to 65° to c.a. Coarser grained middle of unit resembles fine grained diorite with hornblende crystals variably altered to biotite. Upper contact at 75° to c.a.; lower at 55°. Minor to 2% pyrite at 15.2 m and 2% pyrite over 3 cm at 16.5 m. Minor to trace py elsewhere. Gross resemblance to siltstone.								
17.0	20.3	Granodiorite: Similar to 0.0 to 12.8 m. Foliation at 70° to c.a.								
20.3	20.8	Fine Grained Medium Grey Diorite (?): Similar to "marginal" zones in interval 12.8 to 17.0 m. Pseudo sucrosic texture. Upper contact at 80° to c.a., lower contact near 90°; both slightly "irregular".								
20.8	29.0	Granodiorite: Similar to 0.0 to 12.8 m. Foliation weakly to moderately developed at 65-70° to c.a.								

DIAMOND DRILL RECORD

NAME OF PROPERTY Empire Lake

HOLE NO. EL-85-04 SHEET NO. 2

METERAGE		DESCRIPTION	SAMPLE			ASSAYS					
FROM	TO		NO.	SULPHIDES	METERS			%	%	G/T ON	G/T ON
					FROM	TO	TOTAL				
29.0	30.7	<p>Leucodiorite:</p> <p>Medium grained salt and pepper texture with biotite altered hornblende irregularly distributed; poorly foliated. Upper portion more like granodiorite except for relict hornblende (now biotitic). No magnetite.</p>									
30.7	117.15	<p>Diorite:</p> <p>30.7-43.6 : Coarse grained, poorly foliated. Locally coarse hornblende grains from 1.0 to 2.5 cm diameter. Magnetite content variable from trace to 3%; most abundant towards base. No significant sulphides.</p> <p>43.6-67.1 : Magnetite-rich, banded unit. Up to 60% magnetite in magnetite-rich zones which are 0.5 to 4 cm thick but may be very closely spaced over sections to 0.5 m.</p> <p>Bands at 75-80° to c.a. with local variations to 60° and 70°, particularly at end of unit.</p> <p>Trace to 1% py-po-cp scattered through unit. Locally 1-3% cp and po at 47.24 to 47.76 m, 51.08 to 51.66 m, and 52.98 to 53.0 m. Locally to 10-15% pyrite smeared on foliation planes as at 61.25 and 62.18 m.</p> <p>67.1-117.15 : Massive, coarse to medium grained salt and pepper textured diorite. Minor to 1% disseminated magnetite; locally 3%. Locally 3-5% disseminated pyrite as at 82.3 m, 86.9 m and 106.2 m. General trend to slightly more sulphide with depth.</p>									
117.15	117.6	<p>Granodiorite:</p> <p>Medium to light grey, medium to fine grained, possible chill margin to diorite.</p>									

LANGRISHES - TORONTO - 366-1164

DIAMOND DRILL RECORD

NAME OF PROPERTY Empire Lake
 HOLE NO. EL-85-04 SHEET NO. 3

METERAGE		DESCRIPTION	SAMPLE			ASSAYS					
FROM	TO		NO	SULPH IDES	Meters			%	G/TON	G/TON	G/TON
					FROM	TO	TOTAL				
117.15	117.6	CONT'D Upper contact pseudo-gradational, lower contact razor sharp at 70°.									
117.6	118.0	Diorite: Massive, moderately foliated, medium to coarse grained, mottled white and green. Moderate alteration of hornblende to biotite. Weakly magnetic -trace to 1% magnetite.									
118.0	119.0	Granite: Pinkish grey, medium grained with some plagioclase porphyroblasts and minor pegmatite sweat. Biotite is mafic mineral. Weak foliation at 80° to c.a.									
	119.0	End of hole. - Excellent core recovery (99.9%) - Casing left in hole.									

J. B. Boyd

DIAMOND DRILL RECORD

NAME OF PROPERTY Empire Lake, N.W. Ontario, N.T.S. 52 G/9
 MOLE NO. EL-85-05 LENGTH 150.7 m
 LOCATION Claim 851420 & 851425; Thunder Bay Mining Division: Sheet G-817
 LATITUDE 2+70 W DEPARTURE 0+60 N (Beth-Canada 1979 Grid)
 ELEVATION 460.0 m AZIMUTH 320° DIP -45°
 STARTED Nov. 23, 1985 FINISHED Nov. 24, 1985

M	DIP	AZIMUTH	FOOTAGE	DIP	AZIMUTH
Collar	-45°	320°			
100 m	-38°				

MOLE NO. EL-85-05 SHEET NO. 1

REMARKS Drilled by Midwest Drilling

Core Size: BQ

LOGGED BY J.G. Bryant

METERAGE		DESCRIPTION	SAMPLE				ASSAYS					
FROM	TO		NO.	SULPHIDES	Meters			%	%	OZ/TON	OZ/TON	
					FROM	TO	TOTAL					
0.0	3.9	Overburden and Casing: Casing extend m above ground level.										
3.9	29.3	Grey Granodiorite: Medium to coarse grained, moderately foliated, locally almost gneissic; plagioclase - rich (80%), biotite (10-15%), quartz (5%?). Some plagioclase porphyroblasts to 7 mm. Minor sericitization of feldspars. Foliation commonly at 40-50° to c.a. with local variation to 35° at 7.5 m, 60° at 13.5 and 15.5 m and 80° from 26.5 to 29.3 m. Trace pyrite.										
29.3	31.6	Pegmatite: Light pink, coarse grained, locally myrmekitic plagioclase, K-feldspar, quartz and minor biotite. Contacts at 60 and 70° to c.a.										
31.6	32.5	Grey Granodiorite: Medium changing to fine grained variety of 3.9 to 29.3 m. Lower contact at 50° to c.a.										
32.5	34.7	Pegmatite: Similar to 29.3 to 31.6 m.										
34.7	39.2	Grey Granodiorite: Similar to 3.9 to 29.3 m but with moderate foliation at 75-80° to c.a. Some hematization and clay alteration										

DIAMOND DRILL RECORD

NAME OF PROPERTY Empire Lake
 HOLE NO. EL-85-05 SHEET NO. 2

METERAGE		DESCRIPTION	SAMPLE			ASSAYS			
FROM	TO		NO	SULPHIDES	Meters			G/TON	G/TON
					FROM	TO	TOTAL		
34.7	39.2	CONT'D from 38.5 to 39.2 m.							
39.2	40.5	Pegmatite: Similar to 29.3 to 31.6 but with hematitic stain and some clay alteration of feldspars. Locally fractured.							
40.5	46.9	Grey Granodiorite: Similar to 3.9 to 29.3 m; moderately foliated at 60° to 75° to c.a.							
46.9	49.8	Diorite: Fine grained, massive, dark green-black, salt and pepper textured hornblende and plagioclase rock with minor magnetite content. Several more felsic (segregation) bands at 60° to c.a. No significant sulphides.							
49.8	51.3	Grey Granodiorite: Similar to 3.9 to 29.3 m. Some gneissic banding at 35° to c.a.							
51.3	51.6	Diorite: Very fine grained, massive, dark-grey version of 46.9 to 49.8 m. Upper contact at 80° to c.a. and lower contact at 25° to c.a.							
51.6	54.3	Grey Granodiorite: Similar to 3.9 to 29.3 m. Weak foliation at 70° to c.a.							

LANGRIGES - TORONTO - 366-1168

DIAMOND DRILL RECORD

NAME OF PROPERTY Empire Lake
 HOLE NO. EL-85-05 SHEET NO. 3

METERAGE		DESCRIPTION	SAMPLE			ASSAYS			
FROM	TO		NO	% SULPHIDES	Meters		%	GZ TON	GZ TON
					FROM	TO			
54.3	66.0	<p>Diorite:</p> <p>54.3-55.0 : Fine grained, similar to 46.9 to 49.8 m. Weakly magnetic and with trace to 1% magnetite.</p> <p>55.0-58.8 : Coarse grained, weakly to moderately magnetic (1-3%, locally 8% magnetite).</p> <p>58.8-66.0 : Banded unit-coarse grained with over 36 magnetite-rich (10-35% magnetite) mafic bands from 0.5 to 7 cm thick and oriented at 65-70° to c.a.</p> <p>Sulphides generally trace to 1%, mostly pyrite but more abundant at 62.3 to 62.6 m where 1-3% po, 1-2% cp and 1% pyrite are present.</p>							
66.0	68.4	<p>Pegmatite:</p> <p>Pink, weakly hematized, coarse grained plagioclase, quartz and 3-5% biotite.</p>							
68.4	69.5	<p>Banded Diorite:</p> <p>Similar to 58.8 to 66.0 m; bands at 35-40° to c.a.; 1-5% total sulphides including py (1-3%); cp (1-2%) and po (1%). Upper contact at 60° to c.a. and lower at 10° to c.a. Magnetite to 35 and 60% in bands.</p>							
69.5	75.6	<p>Pegmatite:</p> <p>Similar to 66.0 to 68.4 m</p>							
75.6	80.5	<p>Magnetite-Rich Mafic Banded Diorite:</p> <p>Similar to 58.8 to 66.0 m. Over 40 individual bands. Upper contact irregular. Lower contact, at 10° to c.a., extends from 80.2 to 80.5m and resembles a chlorite coated fracture/fault.</p>							

LANGRISHES - TORONTO - 366-1168

DIAMOND DRILL RECORD

NAME OF PROPERTY Empire Lake

HOLE NO. EL-85-05 SHEET NO. 4

METERAGE		DESCRIPTION	SAMPLE				ASSAYS				
FROM	TO		NO	% SULPHIDES	Meters			G	%	GZ TON	GZ TON
					FROM	TO	TOTAL				
75.6	80.5	CONT'D 1-3% (py, cp and po) total sulphides finely and irregularly disseminated.									
80.5	82.6	Pegmatite: Similar to 66.0 to 68.4 m.									
82.6	84.8	Magnetite-Rich Mafic Banded Diorite: Several narrow pegmatite veins at 70° and 10° to c.a.. Sulphides (po, cp, py = 3:1:0.5) up to 3% as disseminations and veinlets, primarily in close association with a pegmatite veinlet. Locally 7-10% cp, but only 2-3% as % of total core.									
84.8	85.9	Pegmatite: Similar to 66.0 to 68.4 m.									
85.9	150.7	Diorite: 85.9-127.6 : Magnetite-rich mafic banded unit similar to 58.8 to 66.0 m with alternating mafic and more (plagioclase-rich) felsic-rich bands up to 13 cm wide. Nil to 1% sulphide and very locally 5% sulphide (mainly pyrite) as at 105.1 m. Unit medium grained and more like quartz diorite from 100.7 to 110.0 m. Unit averages one magnetite-rich band every 0.1 m with magnetite content up to 25-30% and commonly to 60%. Narrow (0.5 m) pegmatite zone at 93.5 m. Bands at the following angles to c.a. 35-40° at 89 m 60° at 104-107 m 55° at 92-95 m 35-45° at 110 m 45° at 96.5 m 50-60° at 116 to 140 m 50° at 99.5 m 70° at 137 m and 147 m 10-20° at 143 to 144 m									

LANGRAGES - TORONTO - 366-1166

DIAMOND DRILL RECORD

NAME OF PROPERTY Empire Lake

HOLE NO. EL-85-05 SHEET NO. 5

METERAGE		DESCRIPTION	SAMPLE			ASSAYS					
FROM	TO		NO	SULPHIDES	Meters			%	%	GZ TON	GZ TON
					FROM	TO	TOTAL				
85.9	150.7	<p>CONT'D</p> <p>127.6-150.7 : More massive, generally non-banded, medium to coarse grained diorite. Disseminated magnetite content variable from minor to 3% in general, to 5-8% (locally 10-20%) in fine grained massive section from 134.8 to 136.5 m, about 140 m and in 1.5 cm band at 147.6 m.</p> <p>About six 2 cm plagioclase-quartz veinlets in section.</p> <p>150.7 End of Hole</p> <ul style="list-style-type: none"> - Excellent core recovery (+99%) - Lost water return at about 23 m - Casing left in hole <p>Note: Most magnetite-rich "bands" encountered in 1985 drill programme.</p>									

J. B. Bryant

LANGRIDDGES - TORONTO - 366-1168

DIAMOND DRILL RECORD

NAME OF PROPERTY Empire Lake, N.W. Ontario, N.T.S 52 G/9
 HOLE NO. EL-85-06 LENGTH 80.0 m
 LOCATION Claim 851416; Thunder Bay Mining Division; Sheet G-817
 LATITUDE 4+00 E DEPARTURE 2+15N (Beth-Canada 1979 Grid)
 ELEVATION 465.8 m AZIMUTH 300° DIP -46°
 STARTED Nov. 26, 1985 FINISHED Nov. 26, 1985

M	DIP	AZIMUTH	FOOTAGE	DIP	AZIMUTH
Collar	-46°	300°			
80 m	-39°				

HOLE NO. EL-85-06 SHEET NO. 1
 REMARKS Drilled by Midwest Drilling
 Core Size: BQ
 LOGGED BY J.G. Bryant

METERAGE		DESCRIPTION	SAMPLE				ASSAYS			
FROM	TO		NO.	Meters			%	%	OZ/TON	OZ/TON
				SULPHIDES	FROM	TO				
0.0	4.2	Overburden, casing and some ground core.								
4.2	20.1	<p>Diorite:</p> <p>Weakly banded mottled medium-coarse grained diorite. Magnetite-rich bands are 0.5 to 2 cm wide with exception of several in vicinity of 11.4 m. Generally 8-20% finely disseminated metallic magnetite. The most magnetite-rich zones, as at 11.4 m, are almost black and have up to 60% magnetite. Intensity of bands varies from one every 3 cm to one every 0.2 to 0.5 m. Amphiboles commonly altered to biotite.</p> <p>Minor sulphide (pyrite) common. Locally several percent pyrite. Several sub-parallel pyrite (5-8%) + 1-2% cp veinlets sub-parallel to c. a. between 11.3 and 11.8 m; associated with most magnetite-rich section..</p> <p>The banding is at 70-80° to c.a.</p>								
20.1	20.5	<p>Granodiorite:</p> <p>Grey to pinkish grey, fine-medium grained, equigranular, biotitic. Gradational (?) lower contact at 80° to c.a.. Upper contact at 50° to c.a.</p>								
20.5	27.4	<p>Diorite:</p> <p>Minor magnetite-rich bands (10-25% mt). Similar to 4.2 to 20.1 m. Sulphides (1-3% py/po and minor to 1% cp) present over section 23.8 to 25.4 m. Bands at 75-80° to core axis.</p>								

LANGRANGES - TORONTO - 366-1188

DIAMOND DRILL RECORD

NAME OF PROPERTY Empire Lake
 HOLE NO. EL-85-06 SHEET NO. 2

METERAGE		DESCRIPTION	SAMPLE			ASSAYS					
FROM	TO		NO.	% SULPHIDES	Meters			1	2	07 TON	02 TON
					FROM	TO	TOTAL				
27.4	28.9	Diorite: Massive variety; 1 to 3%, local 5%, disseminated magnetite.									
28.9	30.8	Pegmatite: White to light-green, medium grained plagioclase-quartz-biotite pegmatite. Upper and lower contacts at 10° to c.a.									
30.8	80.0	Diorite: 30.8-38.8 : Massive medium to coarse grained variety. Minor sulphides. Averages 5% disseminated magnetite. 38.8-52.0 : Weakly banded diorite. Modest (10-25%) magnetite in widely spaced more mafic bands. Similar to 4.2 to 20.1 m. Averages 5-8% disseminated magnetite in non-banded portions. 52.0-69.48 : Massive unit with only several magnetite-rich zones. Pegmatite vein 3 cm thick at 20° to c.a. from 67.8 to 68.2 m. Averages 5% magnetite. Trace to minor sulphides. 69.48-74.2 : Banded magnetite-rich zone. About 26 bands from 2 mm to 7 cm wide. Bands at 80° to c.a. Similar to 4.2 to 20.1 m. 74.2-80.0 : Massive medium to coarse grained unit with 5% locally 8%, disseminated magnetite. Narrow quartz and quartz-plagioclase biotite pegmatite zones with magnetite at 77.0 to 77.28 and 77.38 to 77.5 m. Lower contact of upper pegmatite is a shear/fault contact (chlorite coated and slickensided) at 25° to c.a. Lower pegmatite has 70° and 45° contacts and minor to 1% (local) chalcopyrite.									

DIAMOND DRILL RECORD

NAME OF PROPERTY Empire Lake

HOLE NO. EL-85-06 SHEET NO. 3

METERAGE		DESCRIPTION	SAMPLE				ASSAYS					
FROM	TO		NO.	% SULPHIDES	Meters		%	%	G/T 10m	G/T 10m		
					FROM	TO						TOTAL
30.8	80.0	CONT'D										
	80.0	End of Hole - Excellent core recovery - Casing removed from hole.										

Some en-echelon chloritic fractures at 10 to 35° to c.a. Minor pyrite.

J. B. Bryant

RECEIVED
 APR 9 1985
 RESEARCH OFFICE
 ASSIGNMENT # 11
 OF THE GEOLOGICAL SURVEY

90°15'W

49°44'N

49°43'N

Empire

Lake

29M

30M

31M

BASE

32M

24M

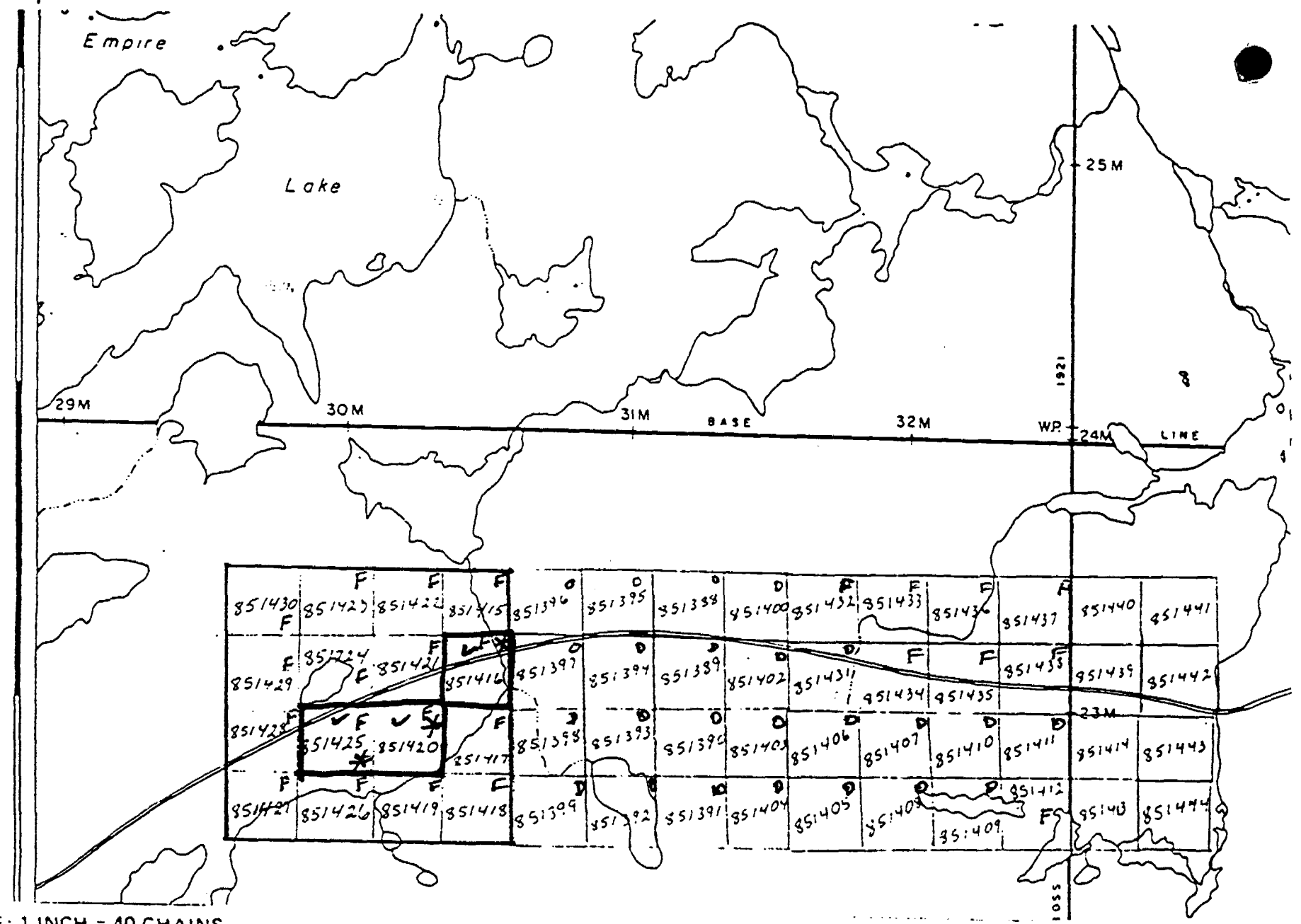
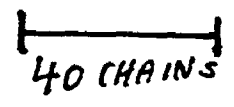
LINE

25M

1261

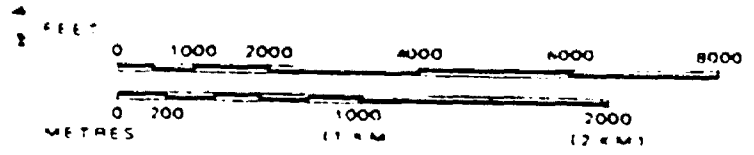
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EMPIRE LAKE
M-2812
SCALE: 1" = 40 CHAINS



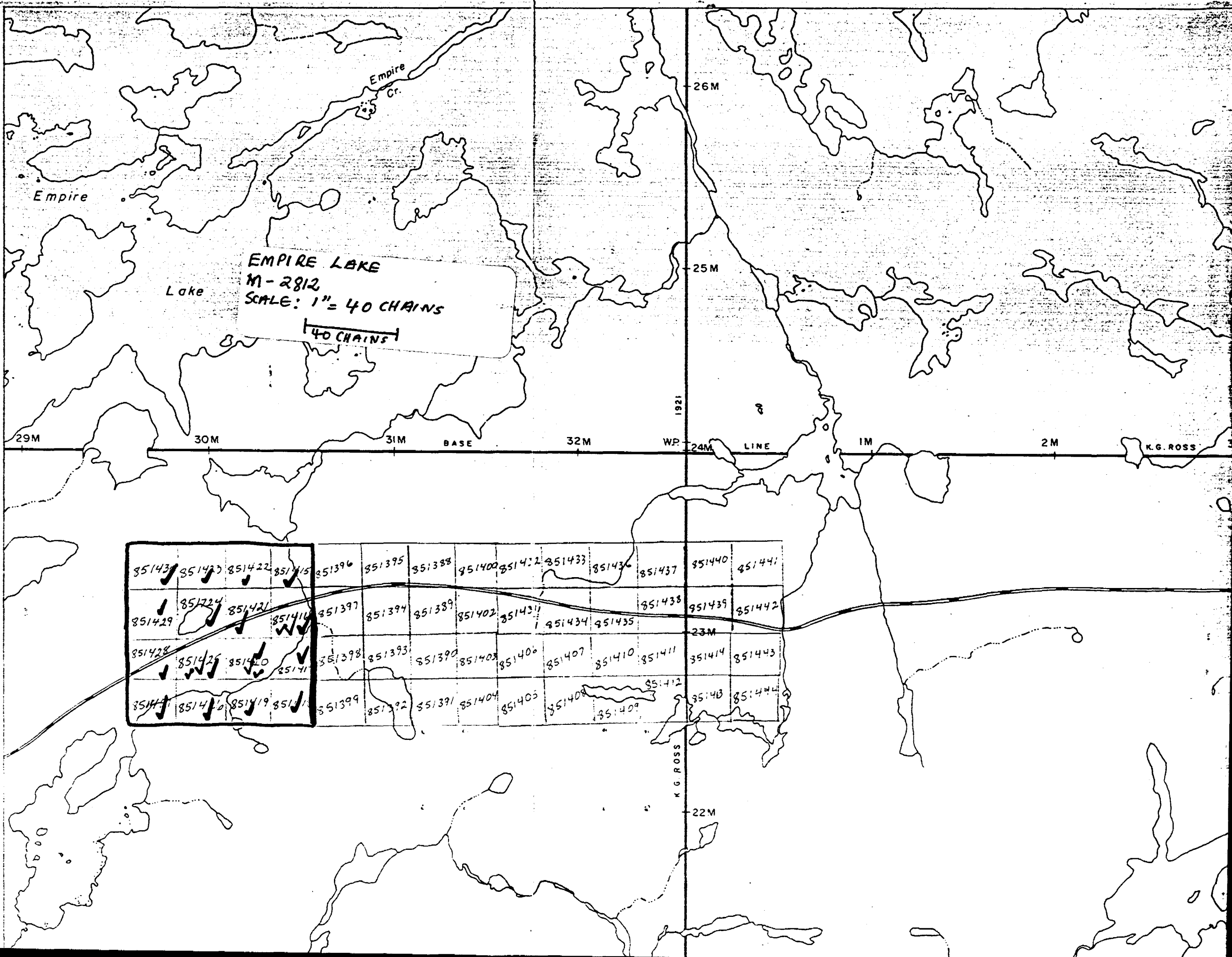
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F	851423	851422	851415	851396	851395	851398	851400	851432	851433	851436	851437	851440	851441
F	851424	F	851421	851397	851394	851399	851402	851431	F	F	851435	851439	851442
851429	E	851421	851416	851397	851394	851399	851402	851431	F	F	851435	851439	851442
851428	F	851425	851420	851398	851393	851396	851403	851406	851407	851410	851411	851414	851443
851428	F	851425	851420	851398	851393	851396	851403	851406	851407	851410	851411	851414	851443
851421	F	851426	851419	851418	851399	851392	851391	851404	851405	851408	851412	851418	851444
851421	F	851426	851419	851418	851399	851392	851391	851404	851405	851408	851412	851418	851444

SCALE: 1 INCH = 40 CHAINS



Source: Ontario Ministry of Natural Resources
Claim map G-718
Empire Lake Area
Thunder Bay Mining Division

EMPIRE LAKE
CLAIM GROUP



EMPIRE LAKE
M-2812
SCALE: 1" = 40 CHAINS

40 CHAINS

85143	85143	851422	851415	851396	851395	851388	851400	851412	851433	851436	851437	851440	851441
851429	851424	851421	851414	851397	851394	851389	851402	851431	851434	851435	851438	851439	851442
851428	851425	851420	851411	851398	851393	851390	851403	851406	851407	851410	851411	851414	851443
851417	851416	851419	851413	851399	851392	851391	851404	851405	851408	851409	851412	851413	851444

80



52G09NE0001 11 EMPIRE LAKE

900

File: 851416 W3604-280 Minin

Name and Postal Address of Recorded Holder: Mr. Fred Martinson, c/o Martinson Linecutting & Staking Ltd. 6860. Fairmont Street, Powell River, B.C. V8A 1T2

Prospector's Licence No. H 11683

Summary of Work Performance and Distribution of Credits

Total Work Days Cr. claimed 2988	Mining Claim			Mining Claim			Mining Claim		
	Prefix	Number	Work Days Cr.	Prefix	Number	Work Days Cr.	Prefix	Number	Work Days Cr.
for Performance of the following work. (Check one only) <input type="checkbox"/> Manual Work <input type="checkbox"/> Shaft Sinking Drifting or other Lateral Work. <input type="checkbox"/> Compressed Air, other Power driven or mechanical equip. <input type="checkbox"/> Power Stripping <input checked="" type="checkbox"/> Diamond or other Core drilling <input type="checkbox"/> Land Survey	TB	851415	180	TB	851423	180			
		851416	188		851424	180			
		851417	180		851425	180			
		851418	180		851426	180			
		851419	180		851427	180			
		851420	180		851428	180			
		851421	180		851429	180			
		851422	180		851430	180			

All the work was performed on Mining Claim(s): TB 851416, 851420 and 851425

Required Information eg: type of equipment, Names, Addresses, etc. (See Table Below)

Drill Contractor : Midwest Drilling
180 Cree Crescent
Winnipeg, Manitoba
R3J 3W1

Equipment : BBS 35A (skid mounted)

Drilling Dates : November 16 to 26, 1985
(not including mobilization and demobilization time)

Project Geologist : J.G. Bryant
c/o St. Joe Canada Inc.

Work Assignments:
TB 851416 - 74 days - Balance - 3924
TB 851420 - 66 days - Balance - 3924
TB 851425 - 2198.7 days - Balance - 1801.3

THUNDER BAY MINING DIVISION
RECEIVED
MAR 19 1986
AM 7 8 9 10 11 12 1 2 3 4 5 6 PM

Date of Report: January 2, 86
Recorded Holder or Agent (Signature): [Signature]

Certification Verifying Report of Work

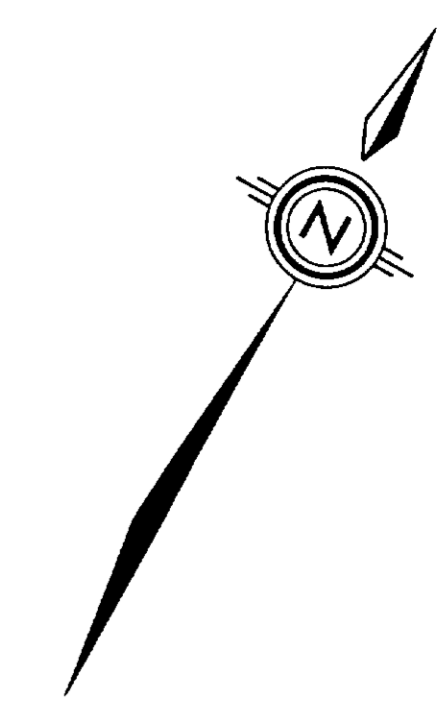
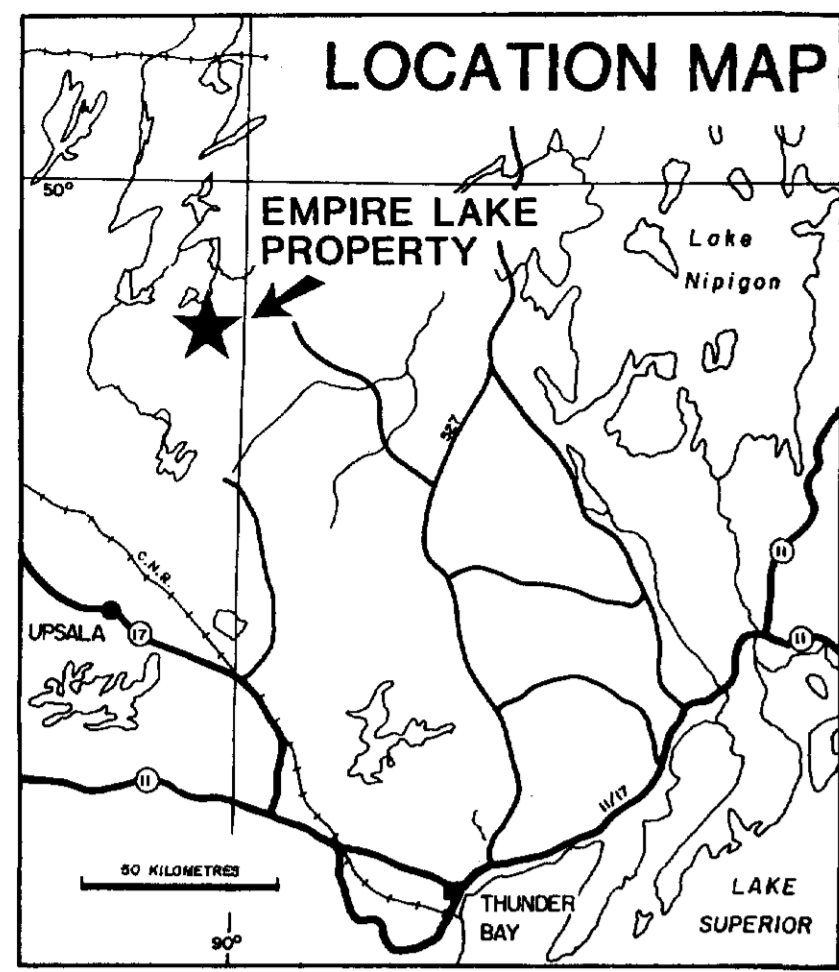
I hereby certify that I have a personal and intimate knowledge of the facts set forth in the Report of Work annexed hereto, having performed the work or witnessed same during and/or after its completion and the annexed report is true.

Name and Postal Address of Person Certifying: Mr. D. Molloy, 49 Normandale Rd, Unionville, Ontario
c/o St. Joe Canada Inc., Ste. 1116, 111 Richmond St. W., Toronto, Ontario M5H 2Jr

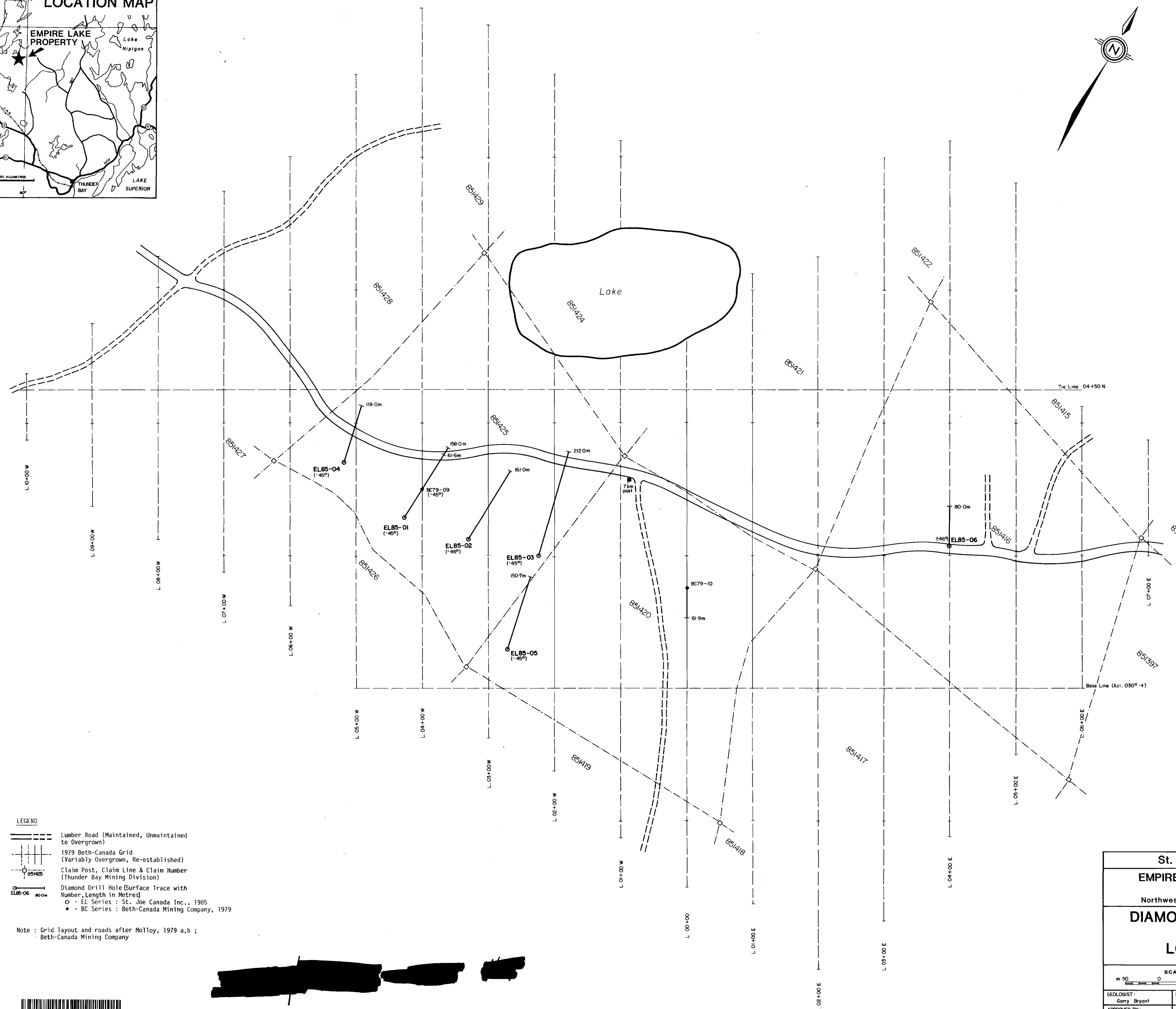
Date Certified: March 10, 86
Certified by (Signature): [Signature]

Table of Information/Attachments Required by the Mining Recorder

Type of Work	Specific information per type	Other information (Common to 2 or more types)	Attachments
Manual Work	Nil	Names and addresses of men who performed manual work/operated equipment, together with dates and hours of employment.	Work Sketch: these are required to show the location and extent of work in relation to the nearest claim post.
Shaft Sinking, Drifting or other Lateral Work	Type of equipment		
Compressed air, other power driven or mechanical equip.	Type of equipment and amount expended. Note: Proof of actual cost must be submitted within 30 days of recording.	Names and addresses of owner or operator together with dates when drilling/stripping done.	Work Sketch (as above) in duplicate
Power Stripping	Signed core log showing: footage, diameter of core, number and angles of holes.		
Diamond or other core drilling	Name and address of Ontario land surveyor.	Nil	Nil



11+00 N
10+00 N
09+00 N
08+00 N
07+00 N
06+00 N
05+00 N
04+00 N
03+00 N
02+00 N
01+00 N
00+00
01+00 S
02+00 S

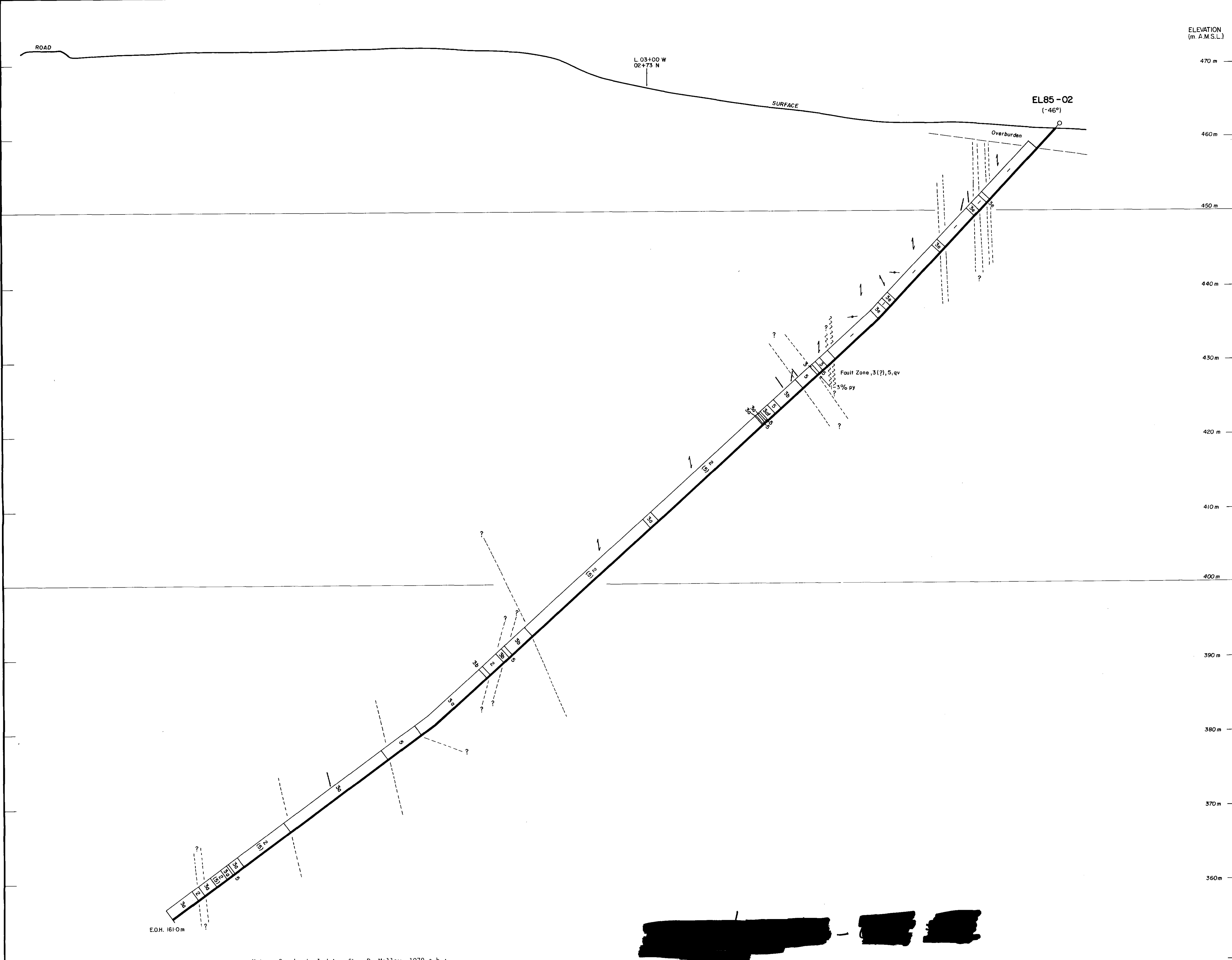
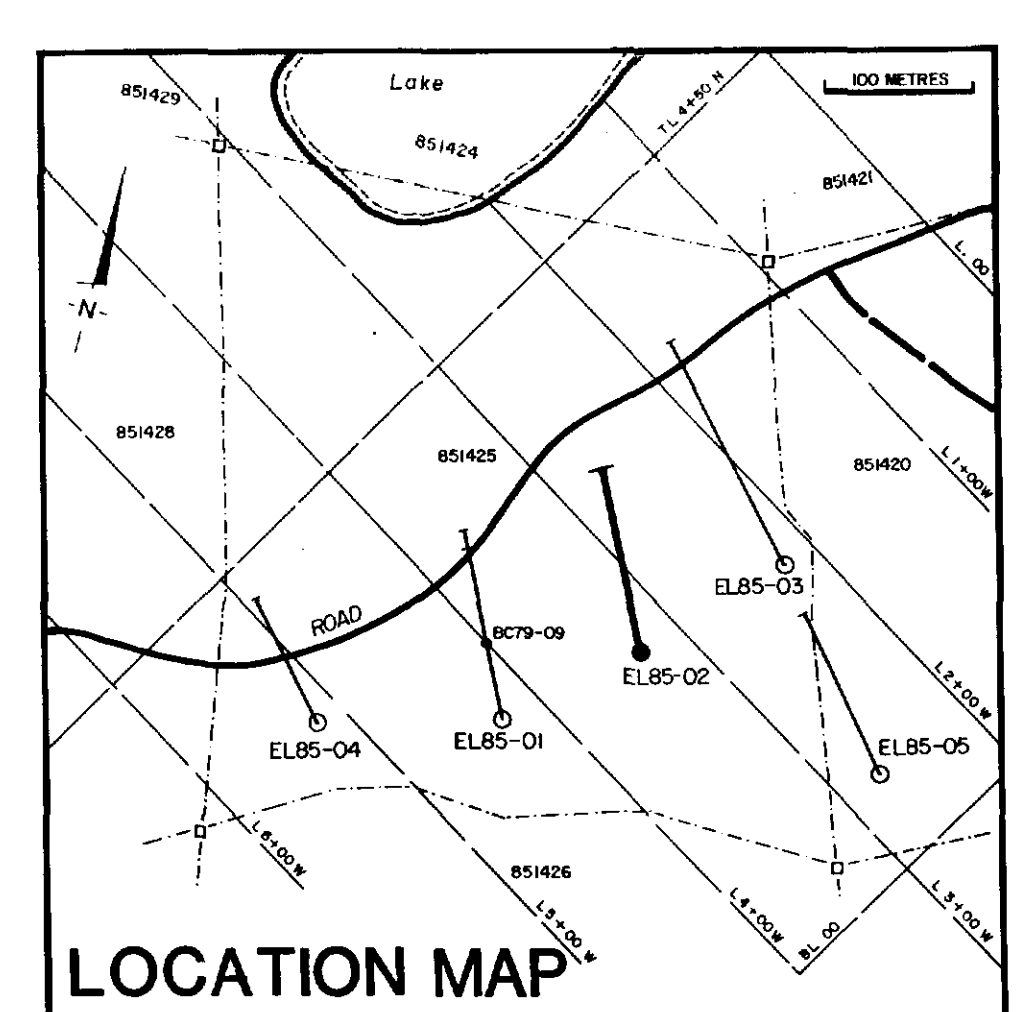
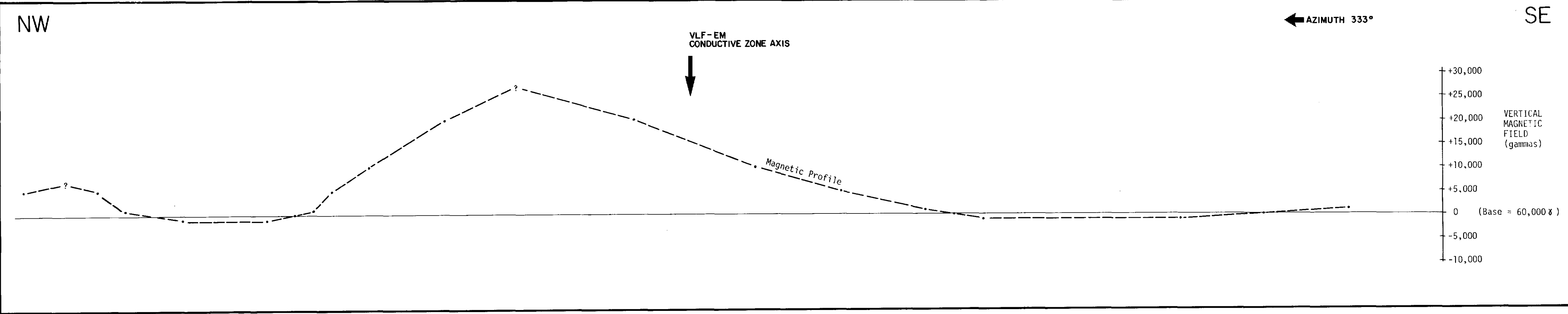


- LEGEND**
- Lumber Road (Maintained, Unmaintained to Overgrown)
 - 1979 Beth-Canada Grid (Variably Overgrown, Re-established)
 - Claim Post, Claim Line & Claim Number (Thunder Bay Mining Division)
 - Diamond Drill Hole (Surface Trace with Number, Length in Metres)
 - - EL Series : St. Joe Canada Inc., 1985
 - - BC Series : Beth-Canada Mining Company, 1979

Note : Grid layout and roads after Molloy, 1979 a,b ; Beth-Canada Mining Company

St. Joe Canada Inc.		
EMPIRE LAKE PROPERTY (West Part)		
Northwestern Ontario, N.T.S. 52G/9		
DIAMOND DRILL HOLE & CLAIM LOCATIONS		
SCALE IN METRES (1:2,500)		
<small>GEOLOGIST:</small> Garry Bryant	<small>DRAWN BY:</small> 201 Mining & Associates Ltd. Drafting & Cartographic Services	<small>DATE:</small> December 1985
<small>APPROVED BY:</small> Garry Bryant	<small>REVISED:</small>	<small>DRAWING NO.:</small>





- LEGEND**
- Precambrian
Archean
- 5 Pegmatite
 - 4 Amphibolite
 - 3 Diorite
 - a) massive & undifferentiated
 - b) banded - with magnetic rich bands
 - c) quartz diorite
 - d) leucocratic
 - e) fine grained (doleritic)
 - f) medium grained
 - g) coarse grained
 - 2 Granite
 - 1 Granodiorite
- SYMBOLS**
- Diamond Drill Hole
 - EL Series : St. Joe Canada Inc
 - Geological Contact
 - Bedding/Banding
 - Foliation
 - Fault or Shear Zone
 - Fractures/Joints
- ABBREVIATIONS**
- E.O.H. - End of Hole
 - cp - Chalcopyrite
 - mt - Magnetite
 - py - Pyrrhotite
 - qv - Quartz Vein

St. Joe Canada Inc.		
EMPIRE LAKE PROPERTY (West Part) Northwestern Ontario, N.T.S. 52G/9		
GEOLOGICAL CROSS SECTION DRILL HOLE EL85-02 Facing Northeast		
SCALE IN METRES (1 : 250)		
GEOLOGIST: Garry Bryant	DRAWN BY: J.H. Mack & Associates Ltd. Drafting & Cartographic Services	DATE: December 1985
APPROVED BY: Garry Bryant	REVISED:	DRAWING NO.:

Note : Geophysical data after D. Molloy, 1979 a,b :
Beth-Canada Mining Company

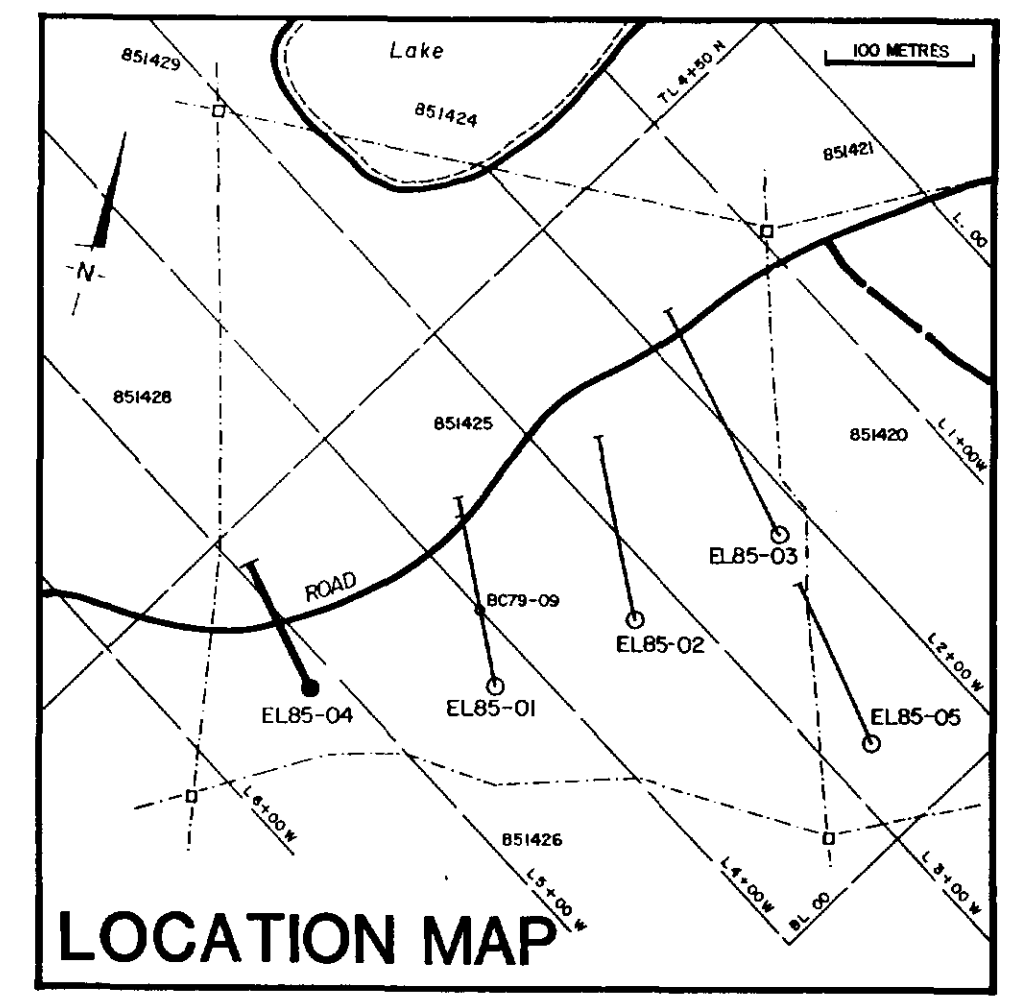
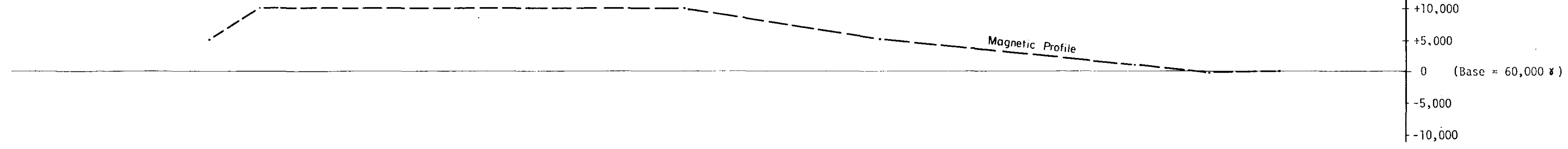


NW

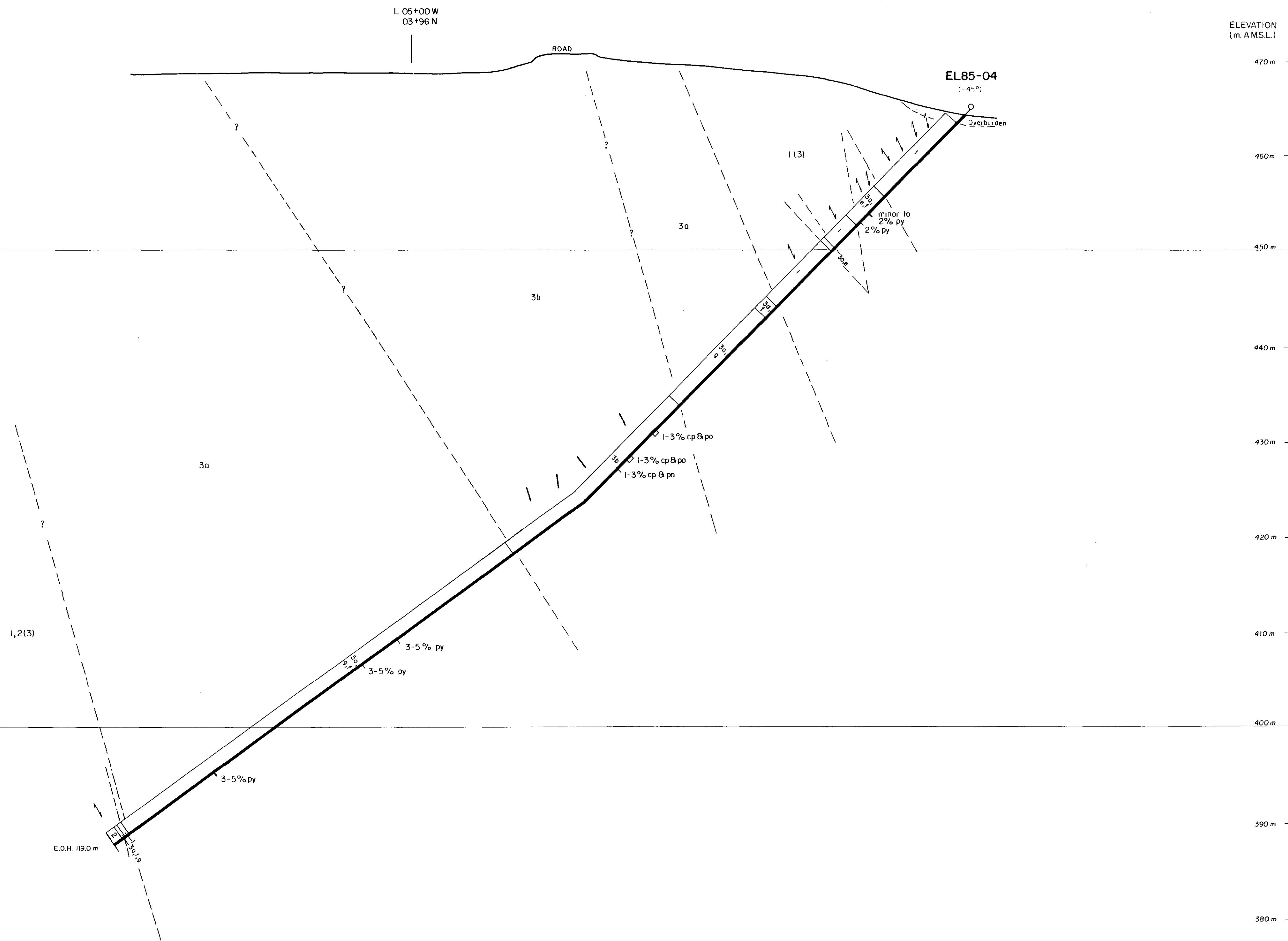
← AZIMUTH 320°

SE

VLF-EM
CONDUCTIVE ZONE AXIS



LOCATION MAP



- LEGEND**
- Precambrian
- Archean
- 5 Pegmatite
 - 4 Amphibolite
 - 3 Diorite
 - a) massive & undifferentiated
 - b) banded - with magnetic rich bands
 - c) quartz diorite
 - d) leucocratic
 - e) fine grained (doleritic)
 - f) medium grained
 - g) coarse grained
 - 2 Granite
 - 1 Granodiorite

- SYMBOLS**
- Diamond Drill Hole
 - EL Series : St. Joe Canada Inc
 - Geological Contact
 - Bedding/Banding
 - Foliation
 - Fault or Shear Zone
 - Fractures/Joints

- ABBREVIATIONS**
- E.O.H. - End of Hole
 - cp - Chalcopyrite
 - mt - Magnetite
 - po - Pyrrhotite
 - py - Pyrite
 - qv - Quartz Vein

Note: Geophysical data after D. Mollay, 1979 a,b :
Beth-Canada Mining Company

St. Joe Canada Inc.

EMPIRE LAKE PROPERTY
(West Part)
Northwestern Ontario, N.T.S. 52G/9

GEOLOGICAL CROSS SECTION
DRILL HOLE EL85-04
Facing Northeast

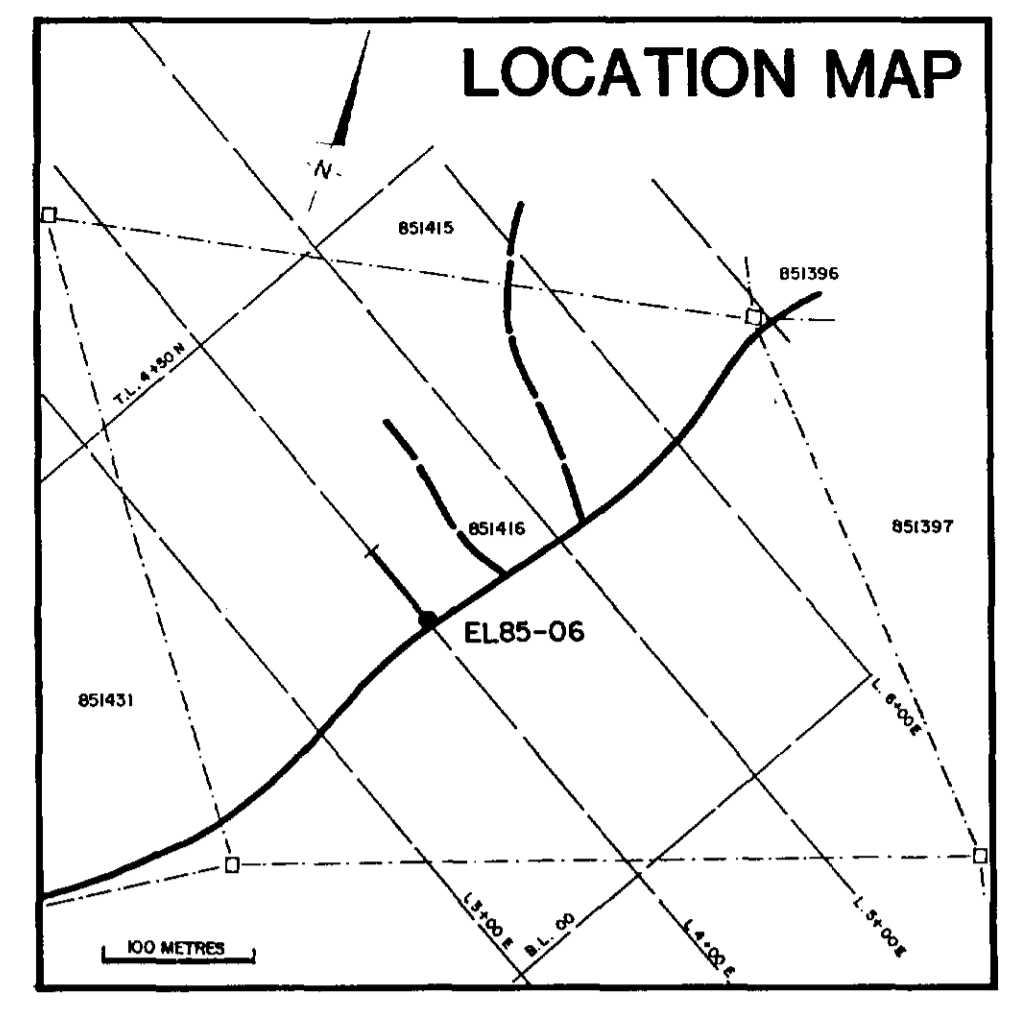
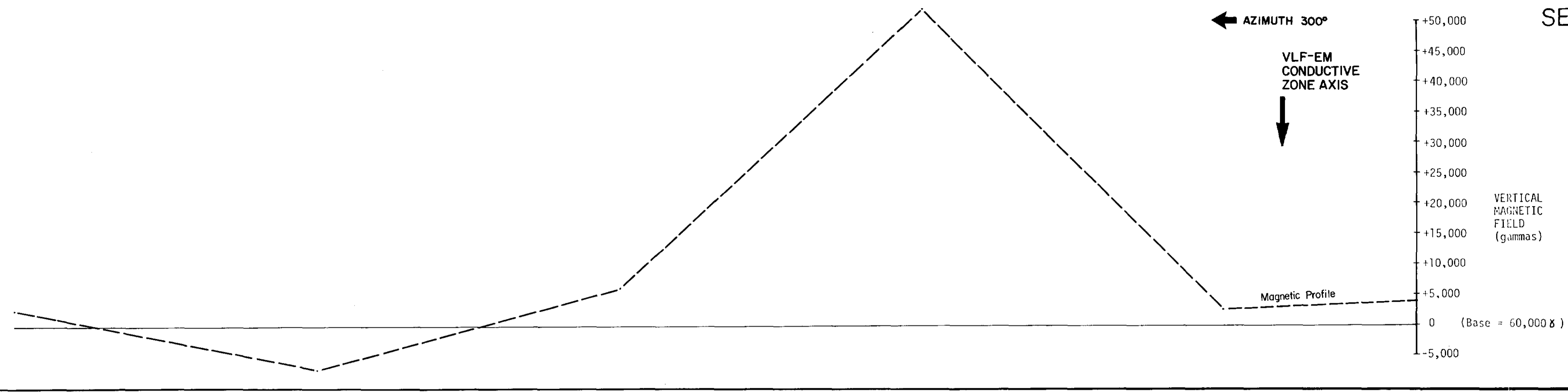
SCALE IN METRES (1 : 250)

GEOLOGIST: Gorry Bryant	DRAWN BY: Jill Mink & Associates Ltd. Dianne & Catherine Services	DATE: December 1985
APPROVED BY: Gorry Bryant	REVISED:	DRAWING NO.:



NW

SE



- LEGEND**
- Precambrian
- 5 Pegmatite
 - 4 Amphibolite
 - 3 Diorite
 - a) massive & undifferentiated
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 - f) medium grained
 - g) coarse grained
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 - 1 Granodiorite
- SYMBOLS**
- Diamond Drill Hole - EL Series : St. Joe Canada Inc
 - Geological Contact
 - Bedding/Banding
 - Foliation
 - Fault or Shear Zone
 - Fractures/Joints
- ABBREVIATIONS**
- E.O.H. - End of Hole
 - cp - Chalcopyrite
 - mt - Magnetite
 - po - Pyrrhotite
 - py - Pyrite
 - qv - Quartz Vein

Note : Geophysical data after D. Molloy, 1979 a,b :
Beth-Canada Mining Company

St. Joe Canada Inc.

**EMPIRE LAKE PROPERTY
(West Part)**
Northwestern Ontario, N.T.S. 52G/9

**GEOLOGICAL CROSS SECTION
DRILL HOLE EL85-06**

Facing Northeast

SCALE IN METRES (1 : 250)

m 5 0 5 10 15 20 m

GEOLOGIST: Garry Bryant	DRAWN BY: Garry Bryant & Associates Ltd. Drainage & Cartographic Services	DATE: December 1985	
APPROVED BY: Garry Bryant	REVISED:	DRAWING N°:	

J. P. Bryant

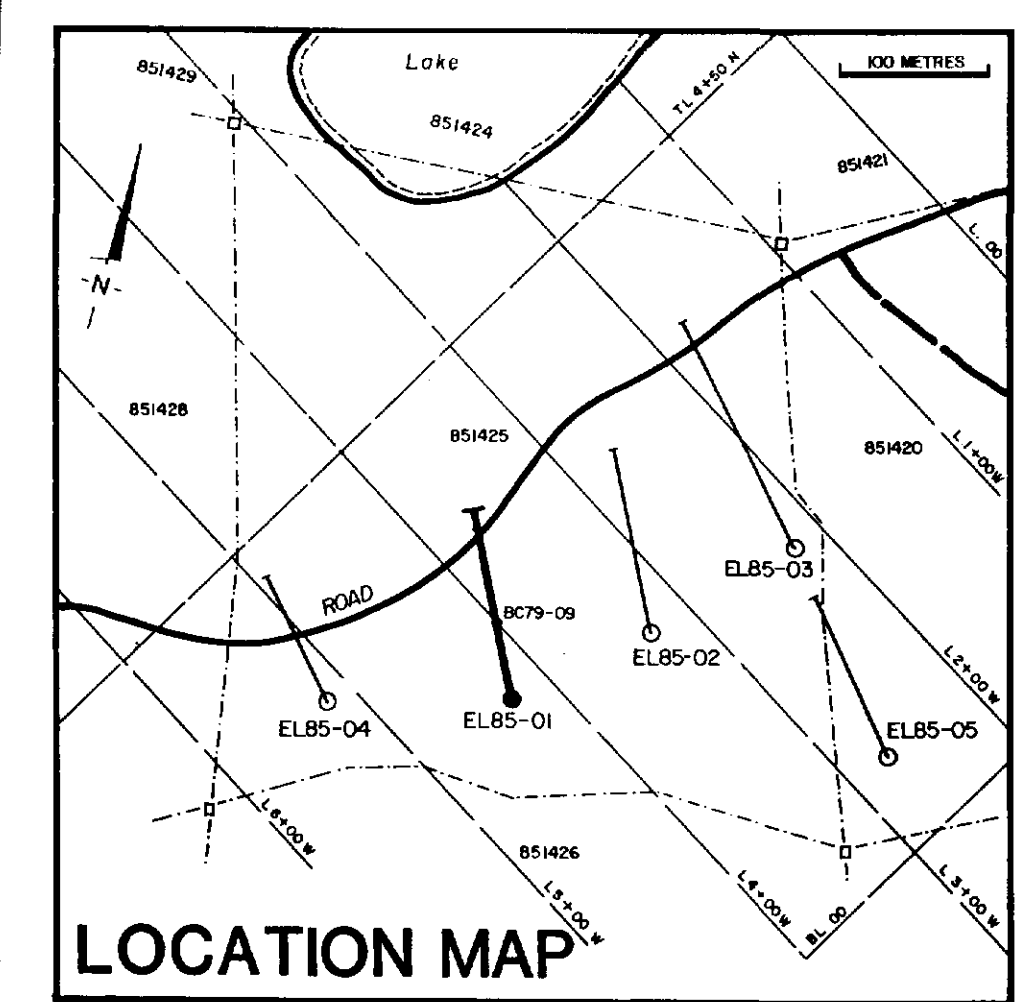
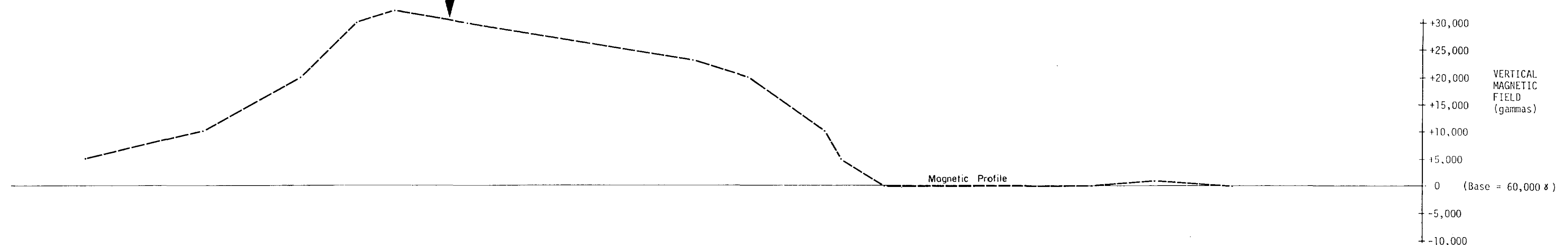


NW

SE

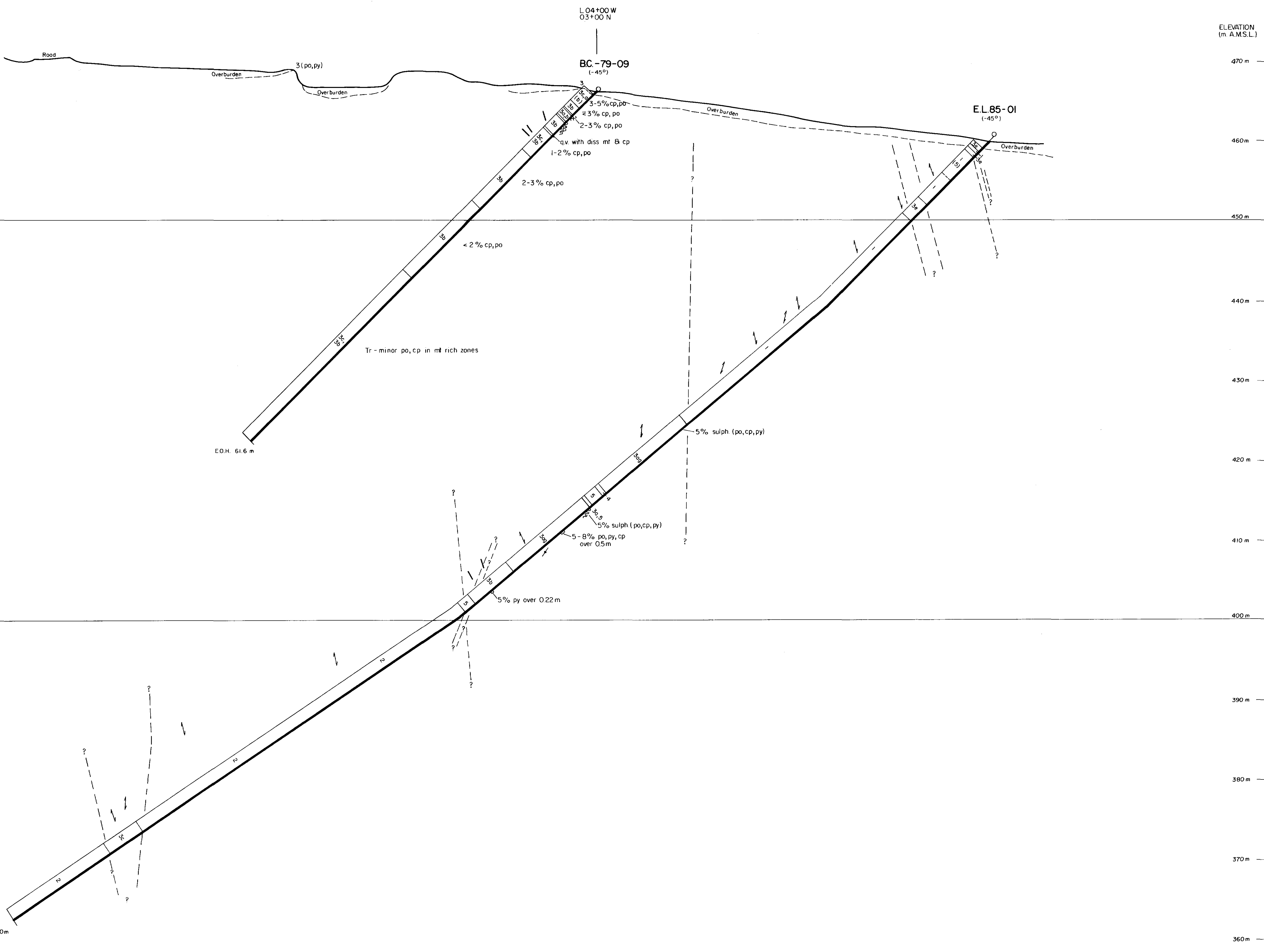
← AZIMUTH 330°

VLF-EM CONDUCTIVE ZONE AXIS



- LEGEND**
- Precambrian
 - Archean
 - 5 Pegmatite
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 - py - Pyrite
 - qv - Quartz Vein



Note: Geophysical data and DDH section BC-79-09 after D. Molloy, 1979 a, b and 1980; Beth Canada Mining Company

St. Joe Canada Inc.

EMPIRE LAKE PROPERTY (West Part)
Northwestern Ontario, N.T.S. 52G/9

GEOLOGICAL CROSS SECTION
DRILL HOLE EL85-01
BC-79-09
Facing Northeast

SCALE IN METRES (1 : 250)

GEOLOGIST: Garry Bryant	DRAWN BY: St. Joe Canada Inc. & Associates Ltd. Drilling & Cartographic Services	DATE: December 1985	
APPROVED BY: Garry Bryant	REVISED:	DRAWING NO.:	

