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SUMMARY REPORT

AND

FALL /88 DRILLING RESULTS

ROBELE JOINT VENTURE

THORNELOE AND BRISTOL TWPS.

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ESSO MINERALS CANADA

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SUMMARY AND RECOMMENDATIONS

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The Fall/88 exploration program on the Robele Joint Venture Lands was carried out between September 1 and October 30, 1988. A total of 2552 metres (8372 feet) were drilled in fourteen (14) holes during this campaign. The contractor was Downing Diamond Drilling of Calumet, Quebec. Total all-in drilling costs were \$57.15/m and total cost of the drill program was \$127,150.00. Total expenditures for the Fall/88 program including time, analytical for drilling, geophysical, land retention costs (Comstate) and DSS was \$196,232 (Appendix B).

Three holes (T-42,43,44) were drilled on the west side of the Tatachikapika River to test the north half of the No. 1 Shear and two magnetic highs. No significant gold mineralization or alteration was encountered in these holes.

Eight holes were drilled on the Discovery Zone on the East Thorneloe Group. The purpose of this drilling was to test the depth and strike extension of the gold mineralization. Significant gold values over narrow widths were encountered 200 metres below surface in the heart of the zone. The west strike extent of gold mineralization was located. The recent drilling has effectively closed off the part of the deposit with the best gold potential to the east and west.

Three holes were drilled to test for lateral continuity of gold values found in T-9 and T-18. Moderate to strong alteration was encountered in holes T-53, 54 and 55 but gold values were erratic and occurred over narrow intervals.

Gold mineralization in the Discovery Zone is associated with pyrite and/or magnetite in a highly altered porphyry body. The porphyry intrudes a regional zone of shearing and alteration trending 105° and dipping vertically to steeply north. Alteration includes pervasive carbonatization, sericitization and local intense silicification. A set of subvertical fractures trending 105° appear to provide the main control on gold mineralization. Two and locally three fractures cut the porphyry intrusion and two are in the hangingwall and footwall respectively. The fractures cutting the porphyry form part of a core of gold mineralization averaging 5 metres in width and grading 2.406 g/tonne. This core, combined with the fracture zone south of the porphyry body, give the deposit a combined geologically indicated tonnage of 292,228 tons grading an average of 2.453 g/tonne.

Individual fractures have a strike length of 80 to 90 metres and average 1.67 metres in width. The main core of mineralizationis elliptical in plan view, 60 metres long, 5 metres wide, and has been defined to 200 metres below topographic surface. This deposit, as presently understood, is subeconomic due to: a) lack of definite continuity between high grade intersections and b) wide intervals of low to moderate grade values. The areas of higher-grade mineralization, although near surface, are too small to be mined economically by open pit methods.

There is still good exploration potential on the property. The Discovery Zone has not been tested below 200 metres. The western extension of the No. 1 Shear has three kilometres of untested strike length. The area of the Destor Porcupine Fault, along the southern boundary of the property, has had limited work done on it.

A program of IP surveys and diamond drilling is recommended for each of the areas mentioned above. A proposed budget of \$490,000 is included in Appendix A for this work program.

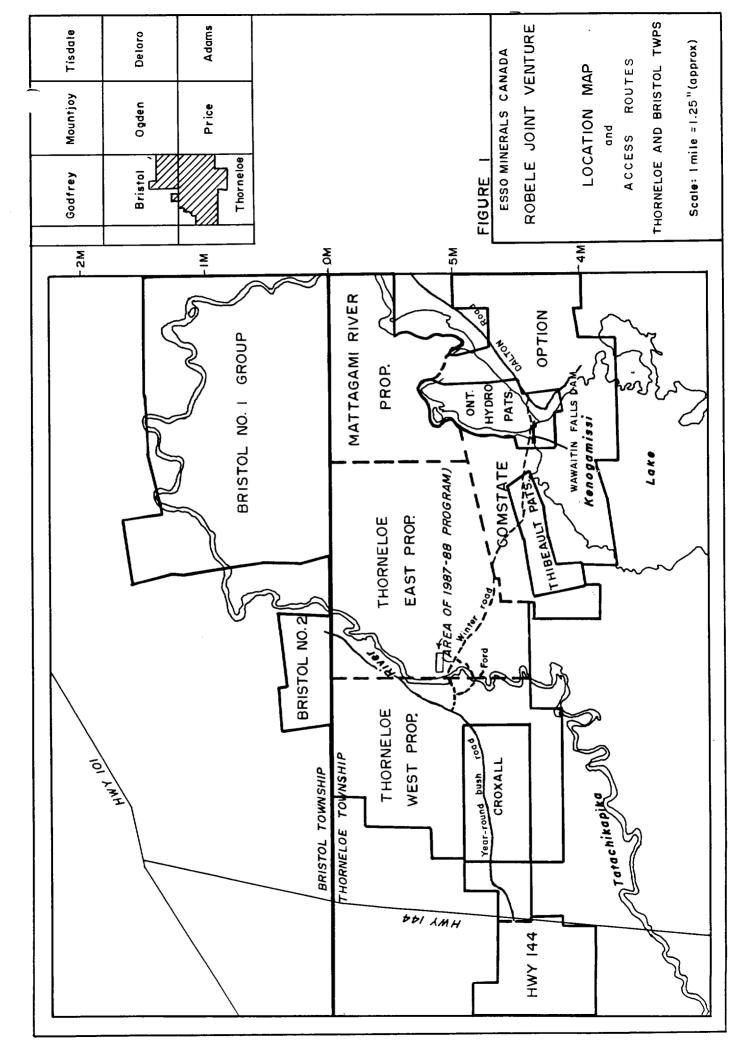
INTRODUCTION

The recent round of diamond drilling on the claims of the Robele Joint Venture took place during the period of September 1 to October 30, 1988. This report summarizes the results of this work and also presents a synopsis of the entire exploration program on the Robele Joint Venture Lands. A preliminary geological grade and tonnage estimate is given for the main discovery zone, and recommendations for future work programs on the property are also presented.

The property is located in the north half of Thorneloe and the southeast corner of Bristol Township (Figure 1). The centre of the property is approximately 28 kilometres by paved highway (24 km) and bush road (4 km) from the City of Timmins. The property consists of 208 claims (see Land Status and Appendix F for details). The main Discovery Zone is located on the east bank of the Tatachikapika River on claim 956079. Access to the drilling area is possible from the east across the Wawaitin Falls Dam on the Mattagami River and along a 2.5 km winter road. Access from the west is via good bush road from Highway 144 to the Tatachikapika River and then across the river by boat (Figure 1).

The Joint Venture Lands have undergone a series of exploration programs consisting of magnetics, IP, reverse circulation drilling and diamond drilling, with expenditures approximating 1.3 million dollars. A total of 10,856 metres (35,610 feet) of diamond drilling have been completed on the property (Table 1, Figures 2A, 2B).

The Fall/88 work program consisted of 2,552 metres (8,373 feet) of diamond drilling. A minimum amount of IP was also carried out on the West Thorneloe Group. Total all-in costs for



DRILL HP COUNHARIES

- .E					LENGTH	HO	LE					LENGTH	
<u></u> 0.	LOCATION	DIP	ELEVATION	AZIMUTH	<u>(m)</u>	<u>_N(</u>	<u>0LGCA</u>	TION	DIP	ELEVATION		<u>(a)</u>	
						.			650	1001 00	Δ	000 04	
	16802,3255	-450	1000.00*	180°	198.17			E,188X+	-550	1001.02	0 1000	263.04 159.75	
	1680E,150S	-450	1000.00*	180°	227.20			12,375N+	-50°	998.44 20 0 .44	180 °		
	2400E,275N	-45 °	1000.00*	180°	78.05)E,375N+	-65°	998.44	180 °	202.59	
	2400E,520N	-450	1000.00*	180°	304.87)E,434N+	-50°	997.62	180°	230.00	
	2160E,425N	-45°	1000.00*	180°	234.20			9E,434N+	-57°	997.52	180°	228.50	
T-5	3369E, 565N+	-45°	993.00	1800	203.00		534 3818		-50°	1000.00*	180 °	107.90	
T-7	3369E,435N÷	-45°	992.05	180°	248.70		54 × 3818	•	-54°	1000.00#	180°	135.64	
	5160E,1525N	-450	1000.00*	180°	170.00	1-:	55 / 3898	3E,263N	-50°	1000.00*	1900	178.90	
	3848E,273N+	-450	1000.40	180°	251.76				• :		. i	10856.90	
	3840E,100N+	-45°	1000.00*	0	446.84		€ CO4	nstate Gr	10	+ estimate		10036.30	
	3616E,375N+	-450	998.44	1800	462.20					elevatio	20		
	3619E,333N+	-50°	999.18	180°	123.40		1	1					
	3552E,337N+	-50°	998.11	160°	154.23		÷ (0)	lars sur	veyed				
	135995,370N+	-450	998.43	180°	145.08								
	3668E,341N+	-45°	1000.06	190 °	160.32								
	3662E,385N+	-45° 500	999.52 000.00	180° 180°	148.13 230.43	00		JMMARIES					
	3608E,442N+	-50° -45°	998.32	180°	230.43 248.18	<u> 7 A</u>		MUNHRIES				METERS	<u>FEET</u>
	3864E,369N+	-43° -45°	1000.53	180°	303.96								
	37885,341N+	-43° -45°	1000.69 1000.00*	180°	345.85	55	стом.	A0 /05 /A	ut-t fa	7-5 incl.)		1042.49	3419.37
	3960E, 325N	-45°	1000.00*	180°	300.91		10,95 (D)		HI 1 90	: J 1861./		170.00	557.60
	4080E,275N 4200E,225N	-45°	1000.00*	180°	252.13				T_G 7 8	T-9 to T-18	line')	2822.27	9257.05
	4320E,225N	-45°	1000.00*	180°	215.55					to 7-41 incl		4269.55	14004.16
	43202,223N 4260E,50N	-45°	1000.00*	0	282.52					to T-55 in		2552.58	8372.46
	4440E,200N	-45°	1000.00*	180°	181.46	46		0 NOV/00	10111 72	90 / 00 IN	•••		
	4550E,175N	-45°	1000.00*	180°	337.50		22015	CT TOTALS	. TA NEC	. 1/88		10856.90	35610.63
	4560E,175%	-450	1000.00*	0	233.34		1.000						
	35452,330N+	-450	1000.00	180 °	35.65								
	3645E,330N+	-659	1000.00	180°	148.78								
7-30	3728E,345N+	-57°	1000.35	180°	185.06								
	3728E,345N+	-45°	1000.35	180°	145.43								
	3305E,475N+	-45°	990.48	180°	233,84								
	3304E,440N+	-450	990.78	0	145.43								
	4620E,1075N	-45°	1000.00*	180 °	i37.5 0								
	5940E,900N	-45°	1000.00*	:80 °	204.88								
	1425N*	-450	1000.00¥	180 °	197.25	27227							
	L13W,1350N*	-45°	1000.00¥	180°		22023							
	1350%,1335N*	-45°	1000.00*	180°	41.16	22224							
7-39	3644E,296N+	-85°	999.67	180 °	75.30								
7-40	3539E,277N+	-85°	999.55	180°	62.50								
T-41	3602E,285N+	-90°	998.84		60.08								
T-42-	· 2400E,495N	-450	1000.00*	Û	195.07								
7-43-	1920E,935N	-45 0	1000.90*	9	188.87								
7-44~	1800E,1490N	-450	1000.00*	0	194.10								
7-45-	∕ 3665E,237N+	-45°	1000.31	0	109.42								
	′3655E,237N+	-60°	1000.31	0	144.79								
7-47~	∕3885E,2 37 N+	-70°	1000.31	0	224.02								
~													

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the diamond drilling program were \$145,833.00, or \$57.15/metre (\$17.43/foot) (Appendix B).

REGIONAL AND PROPERTY GEOLOGY

The purpose for acquiring claims in the Thorneloe-Bristol area was the interpreted presence of the Destor-Porcupine Fault in Thorneloe Township. It is located just north of Kenogamissi Lake to the east, and north of the east-west section of the Tatachikapika River to the west (Map 1). The Destor has been displaced almost six kilometres south to this position by the Mattagami River Fault.

The general geology of the immediate project area is shown on Map 1, back pocket. Summarizing, the Destor-Porcupine Fault occupies the contact between the Deloro felsic calc-alkalic volcanics and oxide iron formation to the south, and Tisdaleequivalent ultramafic and mafic flows and intrusions to the north. A thick wedge of Porcupine and/or Temiskaming Group metasedimentary rocks form the dominant rock type in the area and thin rapidily to the west. A sequence of mafic to ultramafic flows lie at the northwest contact of the metasedimentary group. These have undergone intense hydrothermal alteration to the extent that identification of primary features is difficult. The rocks contain subeconomic amounts of rare earth elements (Y and Ce).

The Tisdale Group equivalents and the metasedimentary package are folded about a subvertical axis tending 080°. The sediments are intruded by late, possibly Temiskaming, porphyry bodies and also by a swarm of north-south subvertical Matachewan diabase dykes.

There is a strong east-west foliation which dips vertically to steeply to the north. A second, much weaker foliation, is oriented approximately east-west as well, and dips 10 to 20° to the south.

The main feature of economic interest on the property is a strong zone of deformation, shearing and alteration which varies in width from 25 to 80 metres. It strikes 105°, dips steeply to the north, and has been defined by drilling for a maximum strike length of 3000 metres. This shear (No. 1 Shear on Map 1) is characterized by intense alteration in the form of sericitization and silicification of fine-grained argillites and medium-grained lithic arenites. Gold is usually associated with secondary pyrite. It occurs in concentrations of 50 to 250 ppb over substantial widths consistently throughout the shear zone. There are at least two subsidiary shears to the main one (Nos. 2 & 3 Shears, Map 1). These shears are less consistent in strike length, width and gold content. Gold is often associated with arsenopyrite in subeconomic quantities. Quartz veining in all three shear zones is minor and late and does not contain any appreciable gold values.

Gold occurs in a zone of porphyry intrusions with intense silicification and hematite alteration within the No. 1 shear and is centered between 3600E and 3700E, 250 to 300N.

SUMMARY OF PREVIOUS EXPLORATION PROGRAMS

The original Thorneloe claims (now part of the Thorneloe West Group, Figure 1), were staked as part of a grass roots exploration program designed to explore the western extension of the Destor-Porcupine Fault Zone which had received little exploration attention to that date. As the exploration program advanced, the results confirmed that the property was located on the north side of the Destor-Porcupine Fault Zone in Temiskaming or Porcupine Group metasedimentary rocks (Pyke, 1982).

A set of at least three sub-parallel shears trending 110° and dipping steeply to the north, were defined by the first three diamond drilling programs (Map 1). The 1985 drilling defined a wide shear zone on the west side of the Tatachikapika River which contained highly anomalous gold values, the best of which was 420 ppb over 42 metres. This particular part of the shear was characterized by a moderately strong IP anomaly.

The November 1986 to February 1987 program extended the strike length of the shearing to the east and indicated the presence of at least two separate shears. During the course of this drilling, a highly altered magnetite/pyrite-bearing quartz feldspar porphyry complex was located (Discovery Zone, 1986-87 on Map 1). Economic gold values over mineable widths were intersected within the Porphyry Complex (MacPherson, 1987), which was located entirely within the most northerly shear (No. 1 Shear). The porphyry body had a minimum strike length of 250 meters, a width of 30 to 40 meters and was open to depth. No. 2 Shear, located 100 meters to the south, contained moderate gold values associated with arsenopyrite in very sericitic finegrained metasedimentary rocks. The strike length of the system of shearing had been extended to 2400 meters as a result of this drill program. Intersections in the 2 to 4 grams/metric tonne range over widths varying from 5 to 20 meters, were intersected in parts of the porphyry complex. These sections also contained shorter intervals of much higher grade material (7 to 9 g/tonne, MacPherson 1987).

The October 1987 to February 1988 program was designed to concentrate on targets other than the main Discovery Zone in the

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No. 1 Shear. Magnetic highs, with similar characteristics to that over the Discovery Zone, on the Thorneloe East Group, were drilled and found to be caused by moderately magnetic linear porphyritic intrusions, with no associated alteration or gold mineralization. Three holes drilled on a similar magnetic feature on the Comstate Option did not explain the magnetic anomaly. They encountered moderate sericite alteration and weak pyrite mineralization associated with quartz porphyry dykes. Gold values were geochemically anomalous.

Stepout drilling eastwards from the discovery zone, confirmed that the sericitic shear continues to the east and that the porphyry-related alteration and mineralization (i.e. magnetite and brick-red colour) pinches out to th east within the shear zone. Several smaller "porphyries" were discovered to the east in and on the margins of the No. 1 Shear, but these did not host significant gold values.

The third phase of drilling was designed to further test the Discovery Zone with two 2-hole fans and three short vertical holes. Significant intersections were obtained in T-28, T-29, T-39, 40 and 41. Holes T-30 and T-31 effectively closed off the mineralized zone to the east, although the porphyry body continues to the east and does contain gold values. Significant gold intersections from this and other programs are listed in Table 2.

RESULTS OF THE FALL/88 PROGRAM

This program consisted of fourteen holes for a total of 2,552 metres (8,373 feet). Drill logs and sections are contained in Appendix G and H, respectively. Three holes were drilled on the west side of the Tatachikapika River. T-42 (see Property Compilation, Map 1, back pocket) was drilled to test the north part of the intense zone of alteration and deformation encountered in hole T-4. The shear zone in T-4 assayed 420 ppb over a core length of 40 metres. T-42 drilled the northern 40 metres of this shear and did not intersect any significant gold values. As shown on Section T-42S, the north contact of the sericitic shear is at approximately 545N. North of this point, the drill hole remained in a fresh to very weakly altered sequence of argillite and fine-grained lithic arenite.

Holes T-43 and T-44 were drilled to test isolated magnetic highs on the Thorneloe West Group. T-43 intersected a weakly magnetic hornblende porphyry with no alteration or gold values. T-44 intersected a sequence of hydrothermally altered komatiitic ultramafics. These massive, featureless rocks, resemble those exposed on the surface at the Rusk Showing 1.5 km to the north. Unlike the Rusk, the core from T-44 did not contain any appreciable amounts of yttrium or cerium.

SIGNIFICANT INTERSECTIONS, DISCOVERY ZONE

HOLE	<u>WIDTH (m)</u>	<u>Au (g/t)</u>
T – 7	3.51 1.80	0.58 1.85
T-9	1.6 3.5 1.5	3.85 3.09 1.02
T-10	2.1	1.99
T-11	0.8	7.45 1.26 2.42
incl.	7.4 2.0 12.2	4.8 1.61
incl.	3.05	3.34
T-12 incl.	26.1 4.1 2.2 0.6 1.8 3.6	2.16 2.16 1.87 7.2 3.18 8.59
T-13	7.3 1.2 0.9 1.2 1.5 1.6	1.66 1.10 1.47 4.24 1.82 1.19
T-14	5.7 3.18	1.31 1.82
T-15	1.5 1.3 9.6	1.41 3.38 3.98
incl.	3.2 3.3 1.5	$7.92 \\ 1.19 \\ 1.13$
T-17	0.6 2.8	1.53 1.28
T-18	1.5 1.0 6.1	4.15 2.14 3.80

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HOLE	<u>WIDTH (m)</u>	<u>Au (g/t)</u>
incl.	3.1	6.18
	1.3	2.09
T-19	7.56	1.33
incl.	0.53	7.66
	0.31	14.5
	0.95	4.99
	0.72	4.03
	4.24	1.93
T-20	6.79	1.19
T-21	1.02	12.4
•	1.50	2.69
T-28	0.33	2.22
	1.80	5.52
	6.14	14.00 (uncut)
incl.	0.60	122.20 (uncut)
or	6.14	5.41 (cut)
incl.	0.60	34.29 (cut)
	1.50	3.28
T-31	2.39	3.42
	3.35	2.32
	3.98	3.29
	1.61	5.97
	1.88	2.92
T-32	1.30	2.70
T_ 20	1.12	4.73
T-39	2.39	3.78
T-40	1.18	3.13
	1.00	3.10
T-41	1.09	4.21
	4.40	2.14
T-45	3.42	1.63
1 40	1.70	2.22
T-46	1.97	6.20
	1.39	4.65
	1.57	3.53
T-47	2.55	4.04
•	4.27	3.42
	5.1	2.59
	2.75	2.02

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HOLE	<u>WIDTH (m)</u>	<u>Au (g/t)</u>
T-47	1.98	9.71
	1.85	8.00
T-48	2.95	2.56
	1.90	2.76
	4.27	1.81
	1.65	5.52
	1.80	3.2
	2.07	5.65
T-49	5.36	7.45
	2.95	3.25
	3.60	1.51
	5.32	2.25
T-50	1.00	12.00
T-51	1.05	2.60
T-54	0.85	1.73
	0.97	5.56
	1.80	1.52

Holes T-45 to T-52 inclusive, were drilled on the Discovery Zone on the Thorneloe East group. T-45 to T-48 were drilled on the same section to test the continuity and depth extent of the gold mineralization. The results of this fence drilling generally suggest that the gold mineralization persists to a depth of 225 metres below topographic surface. The intersections continue to be narrow and somewhat erratic. However, the results do indicate that there is a penetrative structural control to the gold mineralization.

T-49 to T-52 were drilled in two hole fences to the west to determine if there was a plunging structural control on the gold mineralization. The best results were in T-49, which contained an intersection of visible gold, only the second such site in the program to date. T-51 and T-52, drilled 40 metres east of T-49 and T-50, intersected weaker alteration and mineralization and more or less defined a western limit to the area of best gold mineralization.

T-53, 54 and 55 were drilled along strike from the intersections in T-9 and T-189. The purpose of these holes was to determine if there was a second, subparallel zone of gold mineralization south of the main porphyry-related one. All three holes intersected weak to moderate sericite alteration with local moderate silicification. Local increases in pyrite content correlated with elevated to narrow economic gold intersections.

GEOLOGY OF THE EAST THORNELOE GOLD DEPOSIT

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The Thorneloe East Gold Deposit is hosted by an assemblage of turbiditic metasedimentary rocks intruded by quartz and/or feldspar porphyry dykes. Fluids associated with the porphyry are responsible for the alteration and gold mineralization. The alteration assemblage is quartz carbonate (mainly ankerite) pyrite-hematite-magnetite. The altered rock is typically brickred to light orange, massive and aphanitic where it is strongly silicified, locally well foliated, and contains 1 to 3% finegrained to medium-grained disseminated euhedral magnetite. Magnetite is locally replaced by hematite and pyrite. There appears to be at least a spatial relationship between magnetite destruction (and resulting increase in pyrite content) and gold content.

Structurally, the zone is complex. The host rock to the porphyry-related alteration and gold mineralization is a highly sericitic shear zone, varying in true width from 20 to 70 metres (Figure 3). The shear zone cuts thinly bedded metasediments with minor conglomerate at a low angle. The strike of the shear zone is 105° and the dip is vertical to steeply north (Cross Section, Figure 4). Foliation within the shear is conformable to the overall orientation. There are local warps within the shear where

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foliation is near horizontal. These warps appear to be later and are penetrative through the shear as well as the porphyry and related alteration and mineralization. These zones are somewhat cryptic and are difficult to correlate from hole to hole. They can be identified in core as zones of 1 to 5 metres in length where the foliation changes (using a 45° inclined hole as an example) from 45 to 60° to the core axis to 0, 45° in the opposite direction, then back through the same pattern to the normal orientation of the foliation (Figure 5).

<u>Figure 5</u> Sketch of horizontal warping of foliation (hole inclined 45°)

The structural feature may be remobilizing and reconcentrating some of the mineralization in relatively flat fractures within the porphyry. The significant intersections in holes T-12, T-28 and T-15 may be related to these flat-lying structures.

<u>Host Rocks for Gold Mineralization</u>

The rock types are mainly 3A (red magnetite-bearing porphyry) and 3C (quartz-carbonate-sericite-schist). The magnetite content is usually a bit lower and the pyrite content correspondingly higher in this section, compared to other less mineralized sections of the porphyry. The quartz-carbonatesericite-schist, which is well banded, may well represent zones of complete magnetite destruction. As well, these may represent the original fracture system which was responsible for the mineralizing event.

<u>Units of the Porphyry Complex, Discovery Zone</u>

1. <u>Red Magnetite-Bearing Porphyry (3A):</u> Light to medium orangered colour, fine-grained to aphanitic. Very little porphyritic texture remains due to intense sericitization and silicification. (In thin section a few highly altered remnant feldspar phenocrysts may be present). Occurs both massive and well foliated, usually dipping steeply to the north. Unit may contain up to 2% euhedral magnetic grains 1-2 millimetres in size. Pyrite is present as coarse cubes and fine disseminations and locally may partially or totally replace magnetite. Specular hematite is also present in minor amounts. Sericite and/or quartz-filled fractures randomly cut the unit. Contacts with the other units in the complex vary from sharp with quartz carbonate sericite schist to gradational with intense silica-carbonate flooding.

- 2. <u>Intense Silica-Carbonate Flooding (3C):</u> Aphanitic, very hard. Colour varies from buff grey to reddish-brown to dark purple. Intensely crackle fractured, with some fractures filled with quartz and/or pyrite. Pyrite also occurs as fine disseminations in amounts up to 15%. The rock is not magnetic, occasionally calcitic, and rarely hosts significant gold values. Contacts with the red magnetitebearing porphyry are gradational and contacts with the quartz carbonate sericite schist are usually sharp.
- 3. <u>Quartz-Carbonate-Sericite-Schist (3B)</u>: Well banded. Bands are 1-3 cm thick and consist of alternating quartz, ankerite, quartz-pyrite and sericite. Colour is usually grey to grey-green. Pyrite content for the unit is usually 10 to 15%. Individual quartz-pyrite bands, a few centimeters thick, may contain up to 50% pyrite. Contacts are usually sharp. This unit hosts or is spatially related to nearly 70% of the significant gold values.

Characteristic of Gold-Bearing Intersections

Some of the better-grade intersections in core are distinguished only by very subtle features from similar-looking un-mineralized core. These are listed below.

- 1. <u>Quartz-carbonate-sericite-pyrite-schist</u>. Buff grey colour, banded appearance, along with pyrite content, are the important mineralization-related characteristics in the unit.
- 2. <u>Magnetite Destruction</u>. Euhedral magnetite is partially or fully replaced by hematite and/or pyrite. Magnetite content is trace, pyrite is >5% and hematite =tr. Locally there are instances where magnetite has reformed from pyrite and hematite. These areas are cut by subtle quartz carbonate veinlets containing large anhedral masses of magnetite (eg, visible gold in DH T-28).
- 3. <u>Buff carbonate alteration.</u> Associated with pyrite replacing magnetite. Typical brick-red colour is somewhat toned down to orange with buff grey overprint. Core is usually massive.
- 4. <u>Sericite.</u> The presence of sericite, especially in foliationparallel fracture fillings, has often been observed in the sections of core that carry significant gold values.

Gold Mineralization

Gold mineralization is spatially associated with increased pyrite content. These zones appear to be vertically oriented and strike 105° (Figure 6). At least five separate zones of gold mineralization have been identified. Three of these occur within the porphyry and related alteration and two zones are in the sericitic shear zone, north and south of the porphyry body.

Grades and tonnages for each of these zones, as well as physical dimensions in true longitudinal sections, are given in Appendix C. Table 3 summarizes the calculations in Appendix C.

Table 3 Su	mmary of Grades	and Tonnages,	<u>Zones 1 to</u>	b
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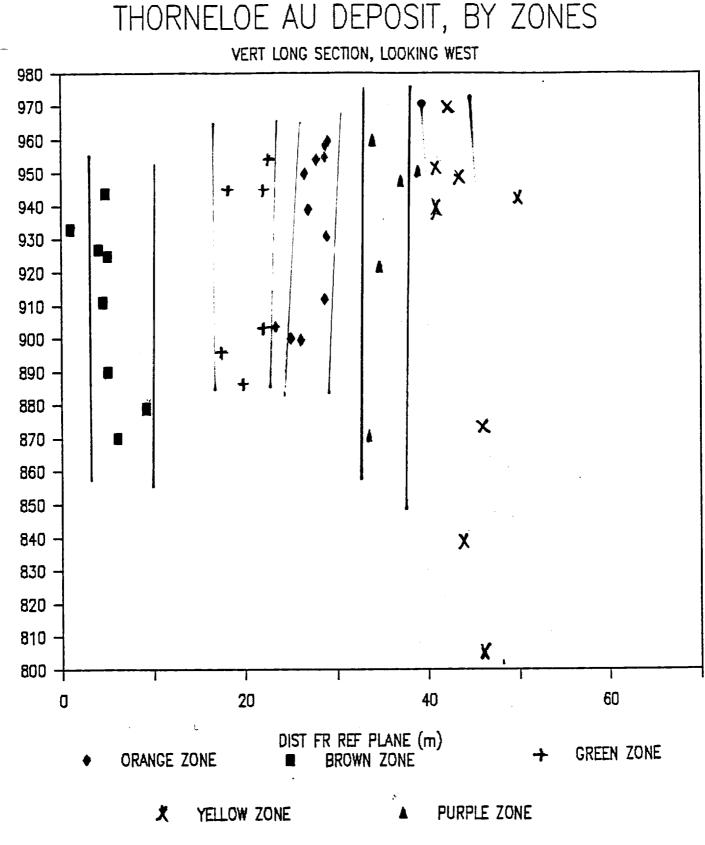
			True	Width	Gra	<u>de</u>	
<u>Zor</u>	10	<u>Distance*</u>	Metres	Feet	g/tonne	oz/ton	<u>Tons</u>
+2 +3 4	(Brown) (Green) (Orange) (Purple) (Yellow)	65.06 48.85 42.47 33.33 25.74	2.132.121.471.690.95	6.99 6.95 4.82 5.54 <u>3.11</u>	2.804.264.292.702.852.30	0.082 0.120 0.130 0.079 <u>0.080</u> 0.096	32,548 32,079 36,598 48,569 <u>48,644</u> 198,43 8
	AVE	RAGE	1.67	5.48	3.30	0.090	T30' 430

* refers to distance from reference plane, located at 3700E, 312N, striking 105 degrees and dipping vertically + porphyry hosted

Zones 2 and 3, wholly contained within the porphyry, show enrichment in grade which is likely due to the brittle, iron-rich host. Zone 4 is along the north edge of the porphyry and is present in the altered sediments as well as the sericitic shear. Zones 1 and 5 are hosted by the sericitic shear. Gold values occur in well banded quartz-sericite-pyrite-carbonate schist, which is often highly deformed.

The relative locations of these zones are shown in the isometric block diagram in Figure 7. The average strike length is approximately 80 to 90 meters. Some of these zones may extend to the east, but values are erratic, occur over narrower widths, and lack continuity.

Figure 8 shows a wide zone of values which contain Zones 2 and 3 above (and locally parts of Zone 4). A number of drill holes intersected values averaging around 2.0 g/tonne over true widths varying from 1 to 7 metres (Appendix D). This zone contains significant gold intersections in the 2 to 5 g/tonne range as well as wide intervals with gold values from 0.15 to 0.70 g/tonne (see Appendix E for examples of holes intersecting this mineralized "core"). These intersections may indicate the presence of a weakly to moderately mineralized "central core" in



Note: Horizontal Scale exaggerated 2.5 times for clarity

ELEVATION (m)

the porphyry which hosts many of the significant gold values. The geometry is somewhat limited by the drilling pattern, but generally it is elliptical in plan view, "averages 5.61 metres in thickness, and has a strike length of about 65 metres. The geological grade and tonnage is 256,680 tons grading 2.406 g/tonne (0.07 oz/ton).

Summarizing, the geologically inferred reserves for the Thorneloe East Deposit come from the main core and Zone 1 (Brown on Figure 6).

	<u>Tons</u>	<u>Grade (</u> g/tonne)	<u>oz/ton</u>
Main Zone No. 1	256,680 <u>35,548</u>	2.406 2.800	0.070 0.082
	292,228	Average 2.453 g/ton	ne (0.072 oz/ton)

Combined geological grade and tonnage is 292,228 tons at 2.453 g/tonne (0.072 oz/ton). Narrow widths on the better grade intersections, and too many low grade intersections over wide intervals, make this deposit uneconomic. Under open pit conditions overburden depth and dilution (not considered in this calculation) would make the final grade lower.

Proposed Origin

Definition of this zone in terms of original rock type has been difficult. The mineralized zone locally exhibits excellent porphyritic textures and elsewhere the mineralized sections are located in well bedded sequences, which give the impression that the host rock is a sediment. Both the intrusive and sedimentary rock are brick-red where altered and contain varying amounts of magnetite and pyrite (after magnetite). The current concept that has been developed for this enigmatic zone is that originally a fluid-rich porphyry body intruded into the main shear zone. Fluid movements continued, including a series of oxidizing and reducing events, in order to obtain the current assemblage of co-existing pyrite, hematite and magnetite. Increased fluid movement occurs in the immediate vicinity of the porphyry body, as there would be a substantial ductility contrast between the porphyry and the soft sediments surrounding it. A combination of this fluid movement and pressure would cause the porphyry to undergo brittle failure while the sediments surrounding it would tend to shear.

Fractures would form within the porphyry and these would be the channelways through which the gold bearing solutions would move. This is supported by the presence of chaotic crackle fracture throughout the core. It is most likely that this system did not have an opportunity to mature fully, as there is little quartz veining found within the body. These fractures were subsequently sealed and their presence now can only be inferred. It is most likely that the area of high pyrite content or magnetite replacement were part of, or very near, the original mineralized fracture system. Diffusion of the mineralized and altering fluids outward from the porphyry body is most likely responsible for similar looking alteration products (i.e. brickred colour and presence of magnetite) found in what appears to have originally been metasedimentary rocks.

Future Exploration Potential

There is still good exploration potential for both the Discovery Zone and elsewhere on the property.

- 1. <u>The Discovery Zone:</u> It has not been tested below 200 metres, except for one hole. The mineralization appears to continue to depth. Porphyry bodies are notorious for their irregularity in physical size and mineralizing potential, but at the same time can contain significant amounts of economic mineralization (such as the Pearl Lake Porphyry at the McIntyre Mine). Encouraging enough values have been received near surface on the Thorneloe Porphyry to warrant a deep drilling program.
- 2. West Extension of No. 1 Shear: There still remains some 3 kilometers of untested strike length of the shear on the Thorneloe West property west of DHT-4 and T-42. Extensive amounts (420 ppb) over 42 metres) of geochemically anomalous gold was intersected in DH T-4 in a pyritic section of the main shear. Systematic drilling is warranted at depth, and to the west, to test for better-grade mineralization. This shear zone has already been proven to host economic gold intersections over significant widths and deserves further attention.
- 3. <u>Potential In the DPF Zone:</u> Although historically in the Timmins camp the Destor-Porcupine Fault Zone itself has not hosted any significant gold deposits, it still remains as an excellent exploration target. IP surveys and drilling are recommended for this area.
- 4. <u>Trenching</u> along the west bank of the Tatachikapika River, west of the sericitic shear exposed on the bank, is also recommended. Careful geological mapping of these trenches may yield important structural information about the shear zones on the property. Also, the rocks exposed along the river have assayed in the hundreds of ppb's for gold and

there is a possibility of discovering more economic quantities of gold in the trenching program.

A proposed exploration program, involving a thorough investigation of all these areas, would result in a proposed budget of \$490,000.00 (Appendix A). Depending on circumstances, any one of these programs could be initiated as a first phase to a future exploration program.

Land Status

The present Robele Joint Venture Claim Group consists of 172 claims in Bristol (61 claims) and Thorneloe (111 claims) Townships, as well as 37 claims in Thorneloe Township currently in the second year of option from Comstate Resources Ltd. All claims are in good standing until at least April 1990, with the exception of some Comstate claims which will require applications for extension of time to apply for lease, to be filed during 1989.

Over the course of the last three years, all geophysics and the majority of the diamond drilling, have been applied as assessment credits against the claims. This has resulted in the maximum allowable 200 days to be credited against all claims in Thorneloe Township, with the exception of one tie-on group. All Bristol Township claims have at least 60 days assessment credits. The Comstate claims are also in good standing, with most at the maximum of 200 days.

Table 4 summarizes the land status of all claims in the Robele Joint Venture. Drill holes submitted for assessment credit from the Fall/88 drill program are taken into account.

CLAIMS(S)	NO.	RECORDING DATE	DUE DATE	NO. OF DAYS
THORNELOE TWP.	-			
P-792829	1	Apr 2/84	Apr 2/90	200*
P-796729-734	6	Apr 2/84	Apr 2/90	200*
P-796737-740	4	Apr 2/84	Apr 2/90	200*
P-805191-193	3	June 1/84	June 1/90	200*
P-834158-159	2	Dec 4/84	Dec 4/90	200*
P-834367-369	3	Dec 19/84	Dec 19/90	200*
P-838437-448	12	Apr 9/854	Apr 9/91	200*
P-892792-793	2	Feb 6/87	Feb 6/93	200*
P-892796-800	5	Feb 6/87	Feb 6/93	200*
P-923601-618	18	May 12/87	May 12/93	200*
P-923646-648	3	May 26/86	May 26/92	200*
P-923650	ĩ	May 26/86	May 26/92	200*
P-930782-786	5	Feb 12/87	Feb 12/93	200*
P-956076-083	8	Feb 12/87	Feb 12/93	200*
P-956092-100	9	Feb 12/87	Feb 12/93	200*
P-956201-202	2	Feb 12/87	Feb 12/93	200*
P-956207-209	3	Feb 12/87	Feb 12/93	200*
P-956216-219	4	Feb 12/87	Feb 12/93	200*
P-956226-231	6	Feb 12/87	Feb 12/93	200*
P-995645-646	2	May $19/87$	May 19/93	200*
P-1029035-039	5	Apr 6/88	Apr 6/91	60
P-1033819-824	5 6	Apr 6/88	Apr 6/91	60
F-1033813-824	U	Whi aloo		
TOTAL	111			

TABLE 4 Summary of Claims Land Status

LAIM(S)	<u>NO.</u>	RECORDING DATE	DUE I
RISTOL TWP.			
-923649	1	May 26/86	May 2

CLAIM(S)	NO.	RECORDING DATE	DUE	DATE	NO OF DAYS
BRISTOL TWP.					
P-923649 P-930787-791 P-952796-825 P-955374-398	1 5 30 25	May 26/86 May 26/86 Feb 6/87 Feb 6/87	Ma y Feb	26/91 26/91 6/90 6/90	140 140 60 60

TOTAL 61

-22-

COMSTATE OPTION

D 500441	1	July 29/80	July 29/89	200+
P-568441		1 = 1 = 00/80	July 29/89	200+
P-568443-445	3	July 29/80		200+
P-594919	1	Jan 20/81	Jan 20/90	
-	7	Dec 4/80	Dec 4/89	200+
P-595029-032	4		Jan 20/90	200+
P-595997-59600	4	Jan 20/81		
P-804618-619	2	July 13/84	July 13/90	200*
			Nov 15/91	200×
P-832526	1	Nov 15/85		200*
P-832701	1	Nov 15/85	Nov 15/91	
-	_	Oct 22/85	Oct 22/91	200*
P-871712-715	4			180
P-871716-717	2	Nov 4/85	Nov 4/90	
P-901590-593	4	Apr 14/86	Apr 14/91	140
	-		July 11/91	180
P-933333	1	July 11/86		-
P-933334	1	July 11/86	July 11/91	140
	_	July 14/86	July 14/92	200*
P-946108-115	8	aury 14/80		

TOTAL

37

NOTE: * Claims with 200 days are ready for application for extension of time for lease on the due date indicated.

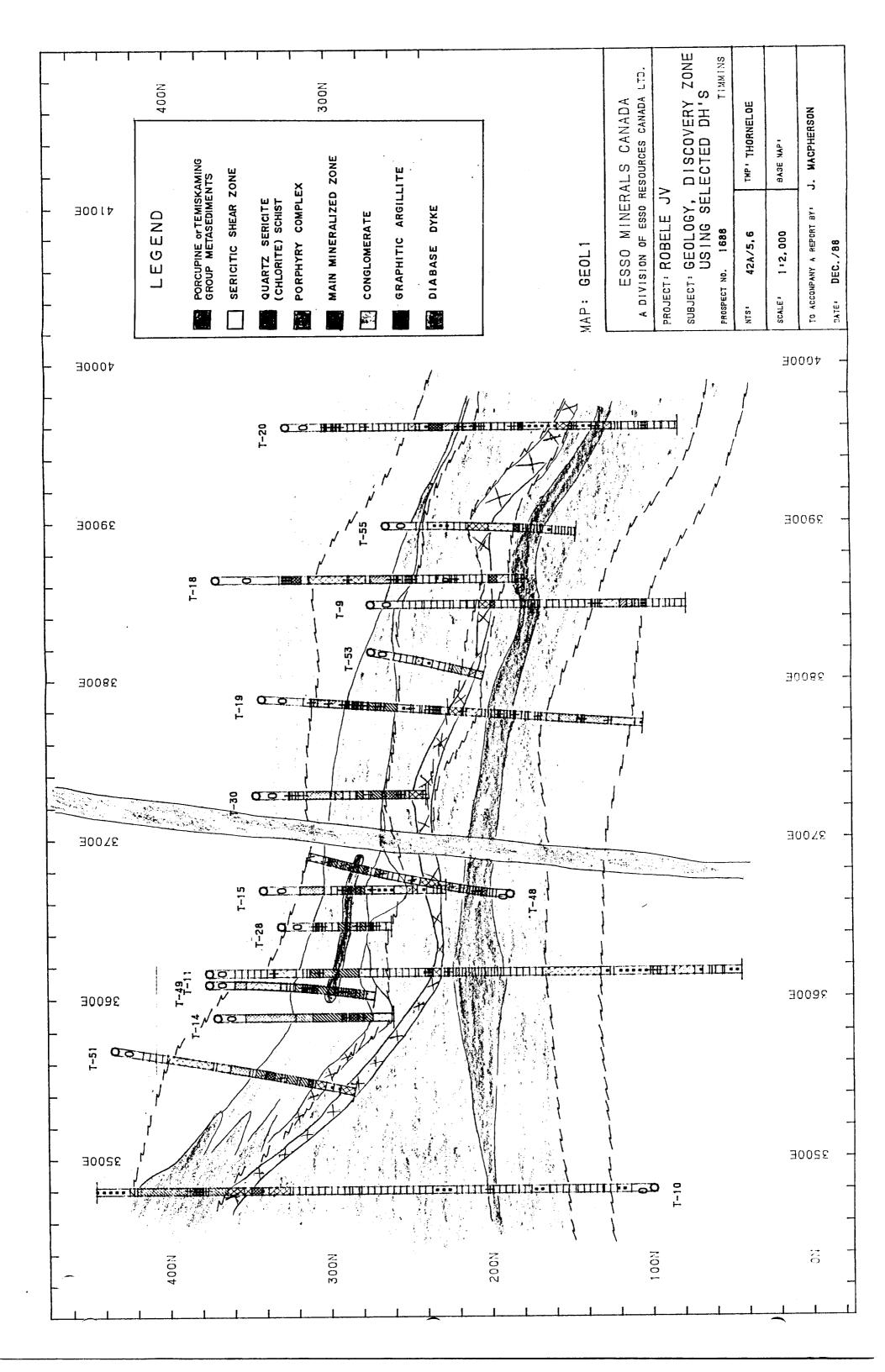
+ on extension, next due date shown

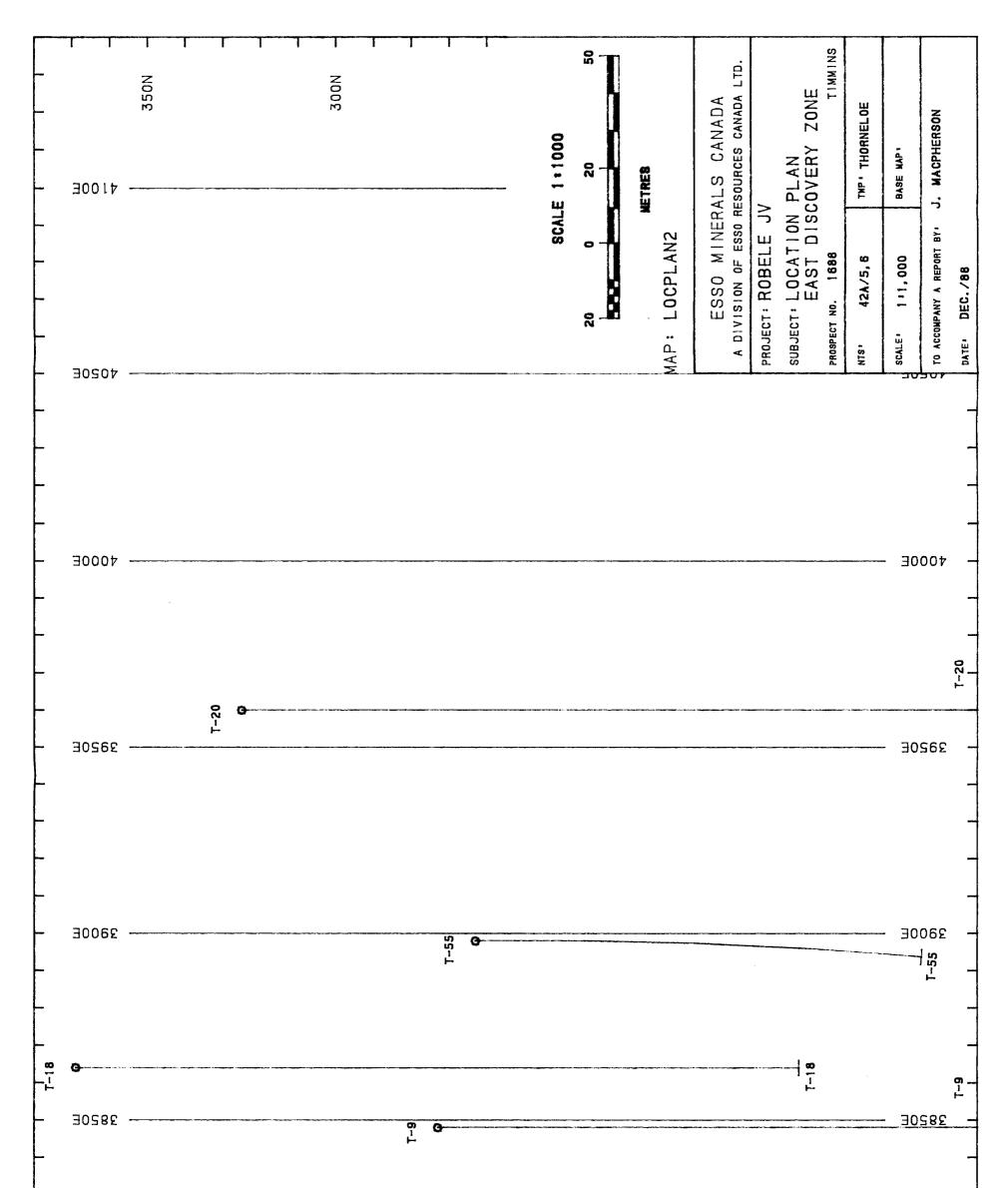
Diamond drill holes T-1 to T-5, T-8, T-19 to T-27, T-30 to T-38, T-42 to T-44 and T-51 to T-55 have all been submitted for assessment credits. A total of 21,134 days credit were obtained from submission of these drill holes. Drill holes T-28,29,39,40, 41,45,46,47,48,49,50 are all available for submission as assessment credits, if required. These have not been submitted previously because most of the holes contain significant and/or economic gold intersections from the Discovery Zone.

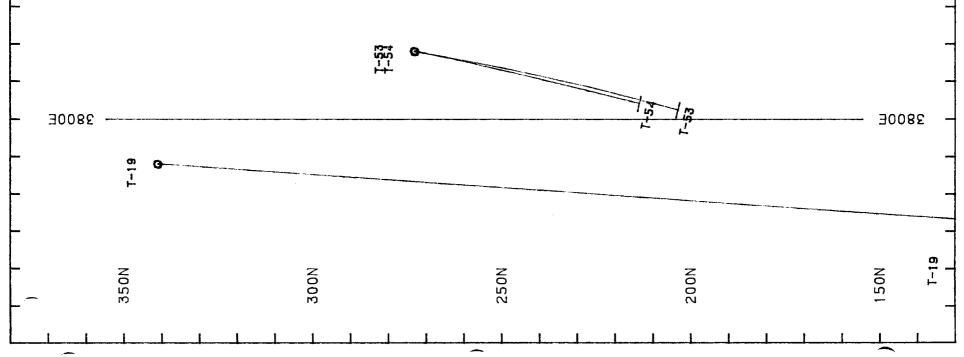
Drill holes T-6, T-7 and T-9 to T-18 inclusive are not eligible for assessment credits. These holes were drilled on the original Thorneloe claims which were cancelled and restaked at the Mining Recorder's order. A claims inspection indicated that the original claims did not meet the minimum staking requirements of the Mining Act. Thus, in effect, the holes were drilled before the current claims came into existence.

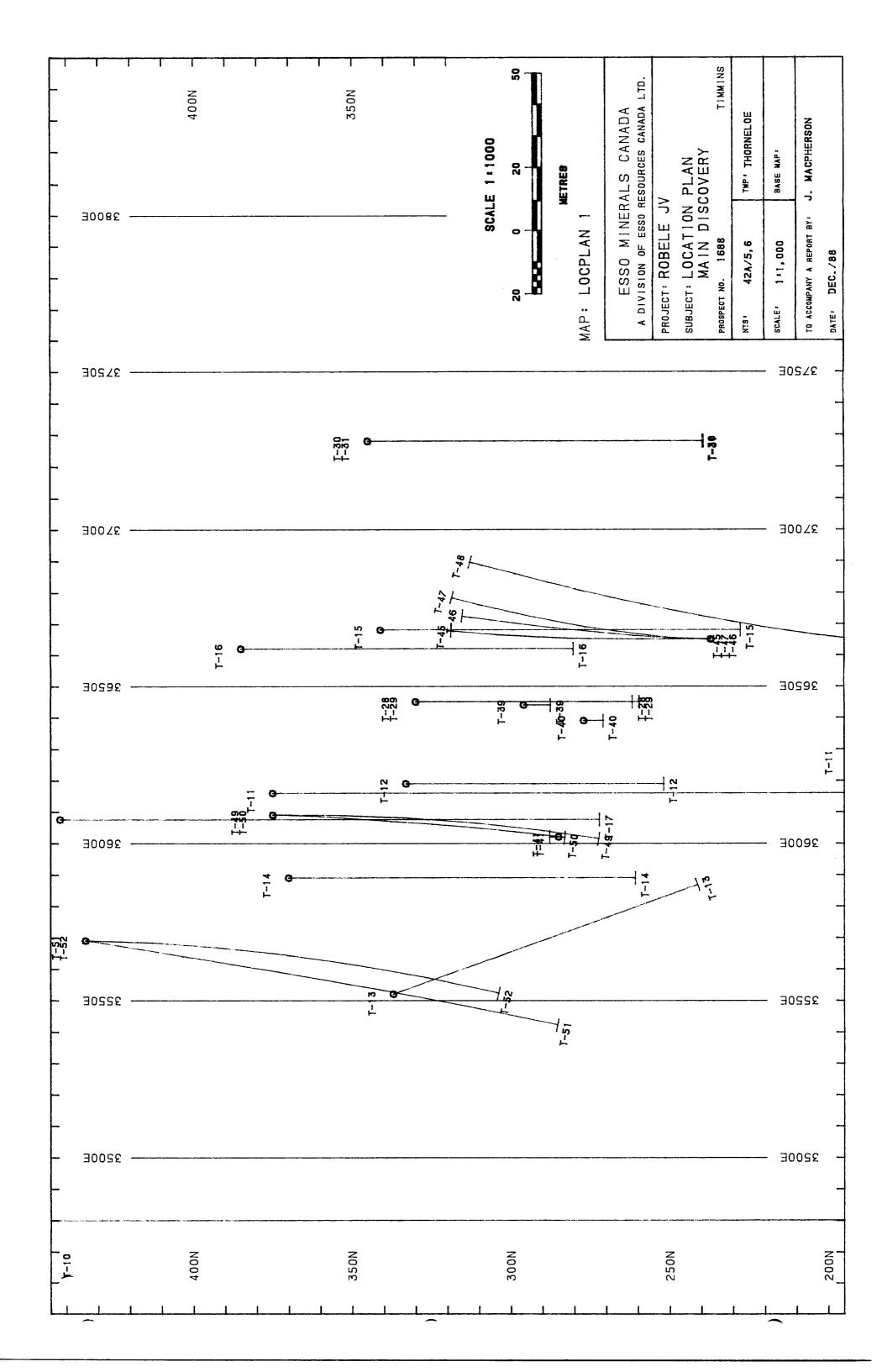
A Certificate of Record has been acquired for each of the significant claims covering the gold deposit and strike extensions. This certificate renders the claim immune from any third party dispute and makes the leasing process, if desired, a little easier.

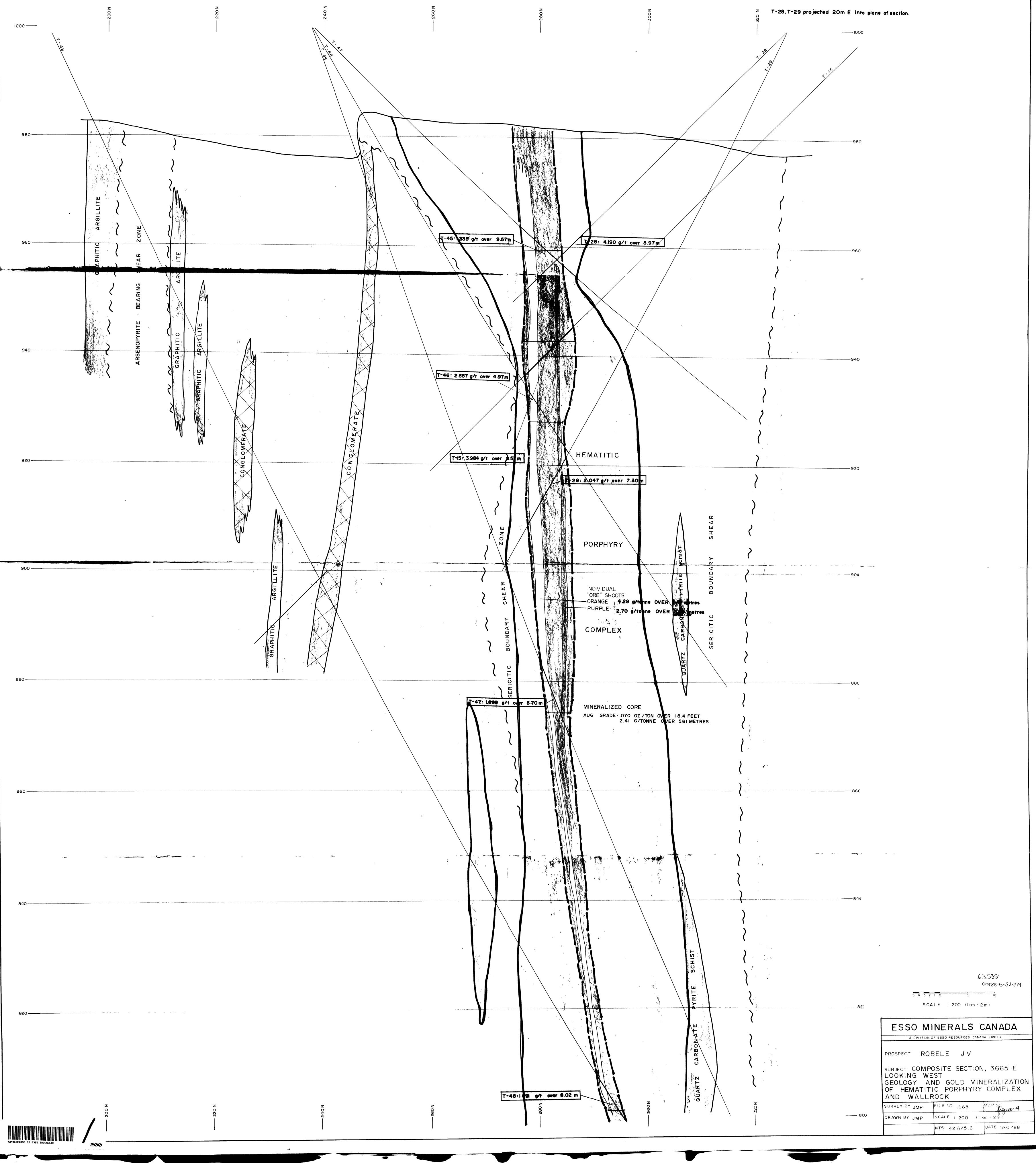
Updated claim status and assessment work breakdowns are included in Appendix F, along with a Claim Map at a scale of 1:20,000, showing all claims which are part of the Robele J.V.

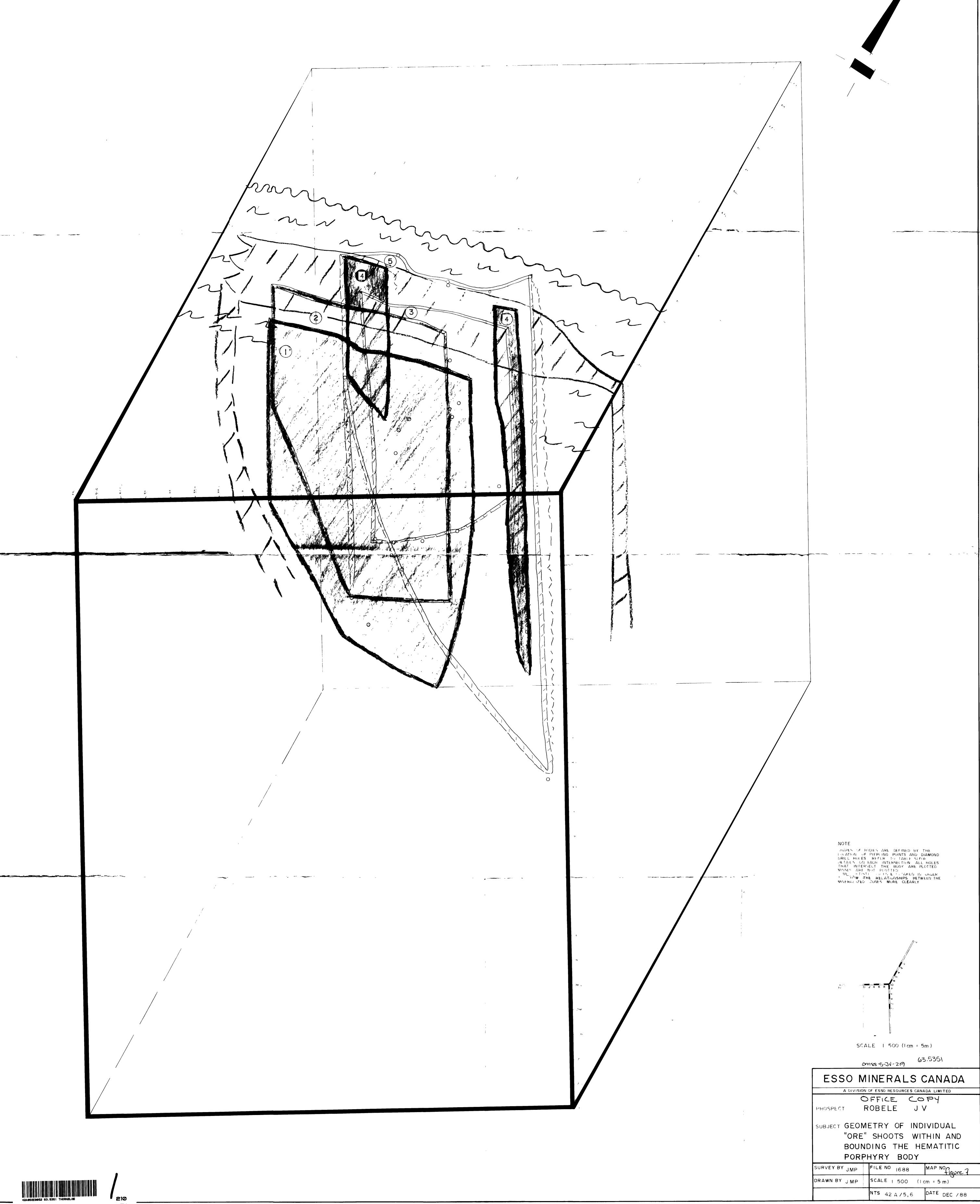




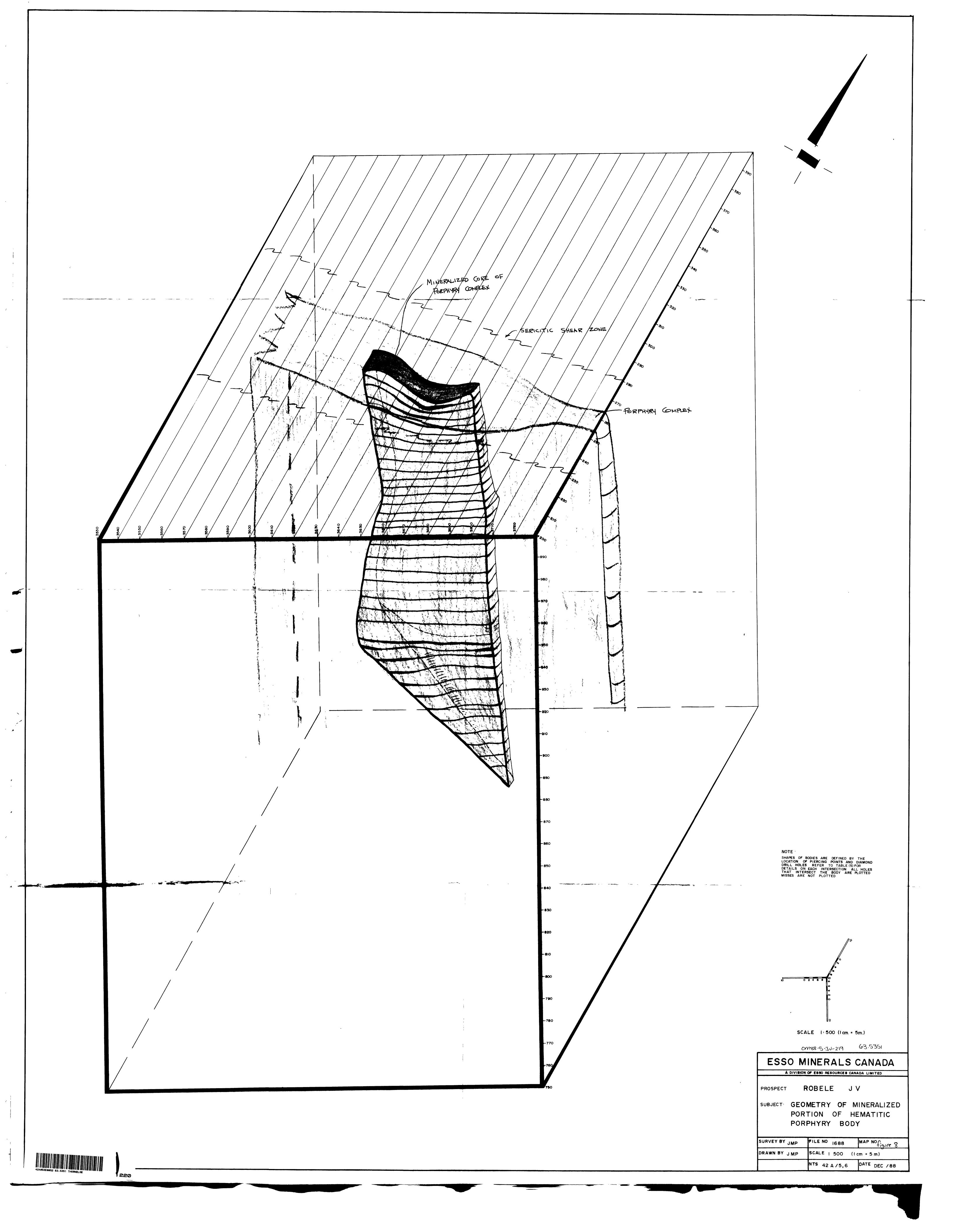


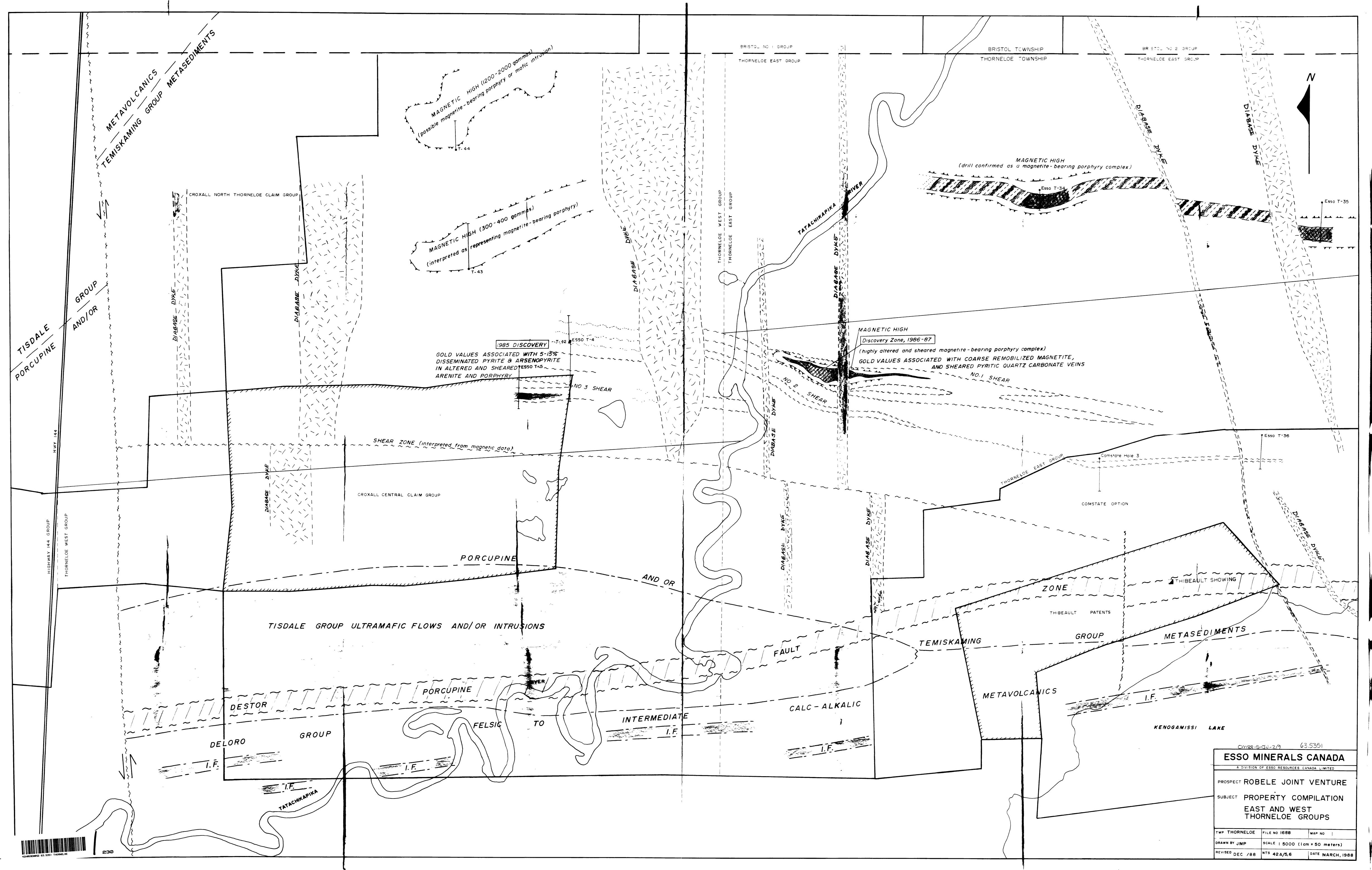


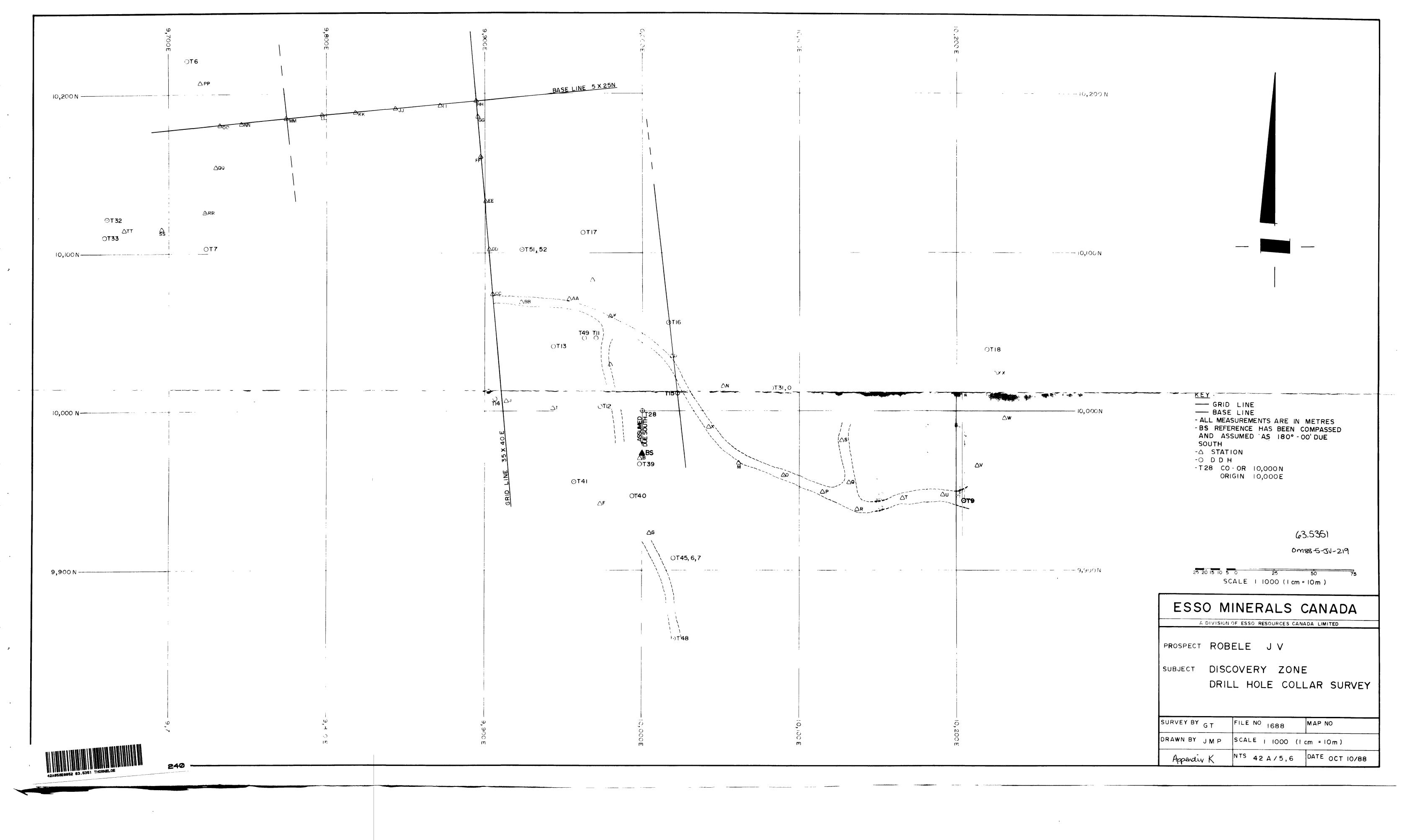


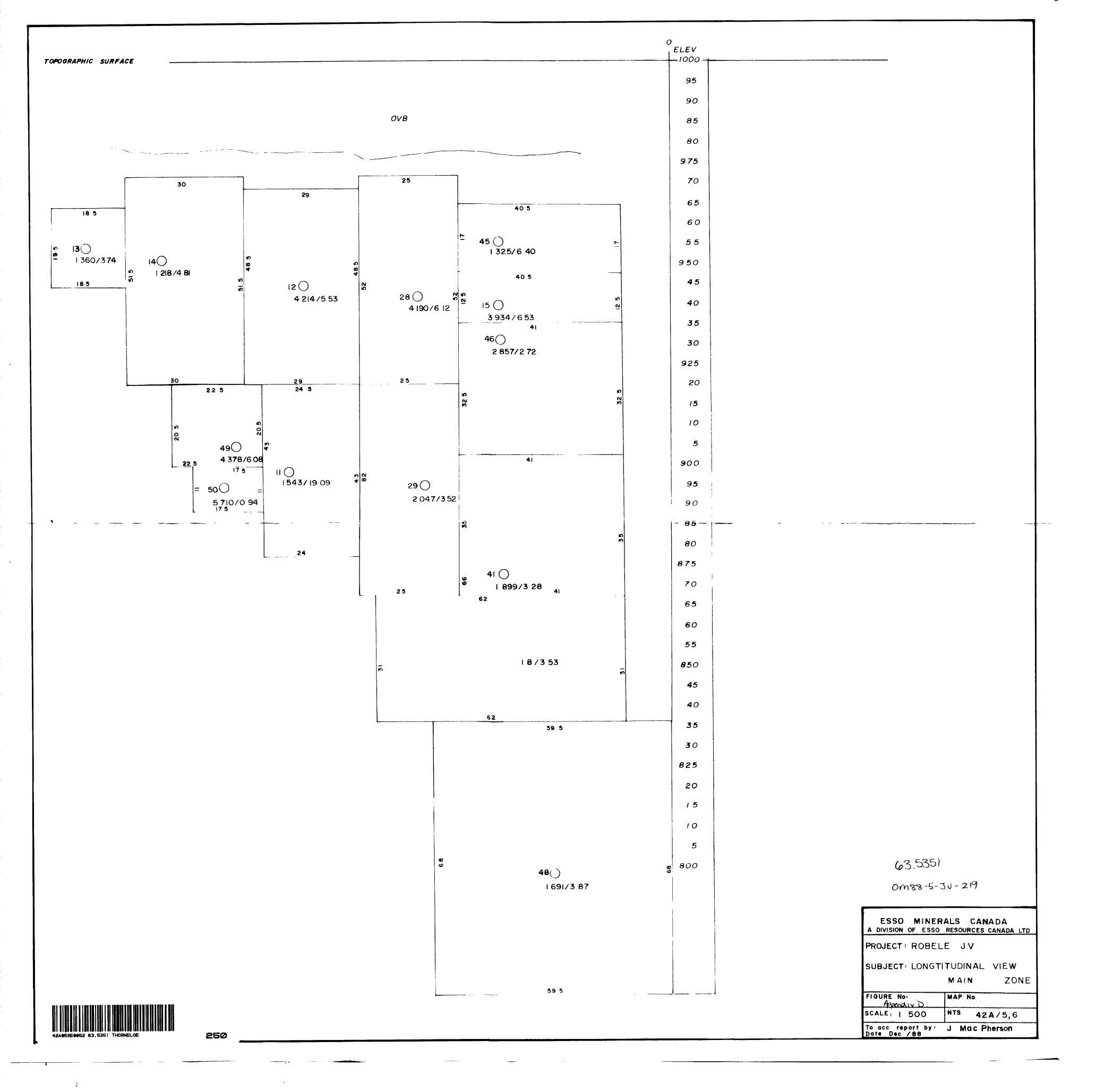


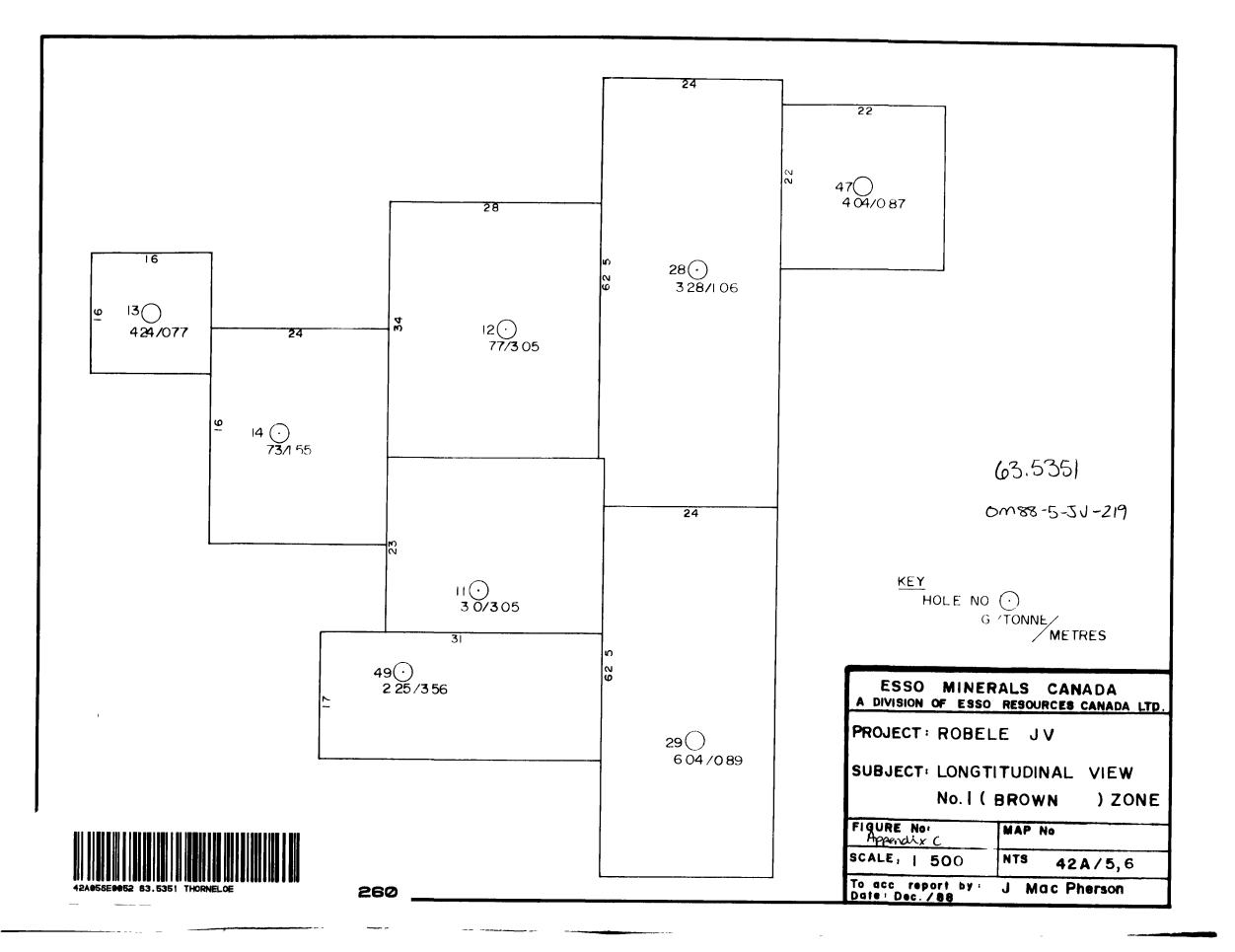
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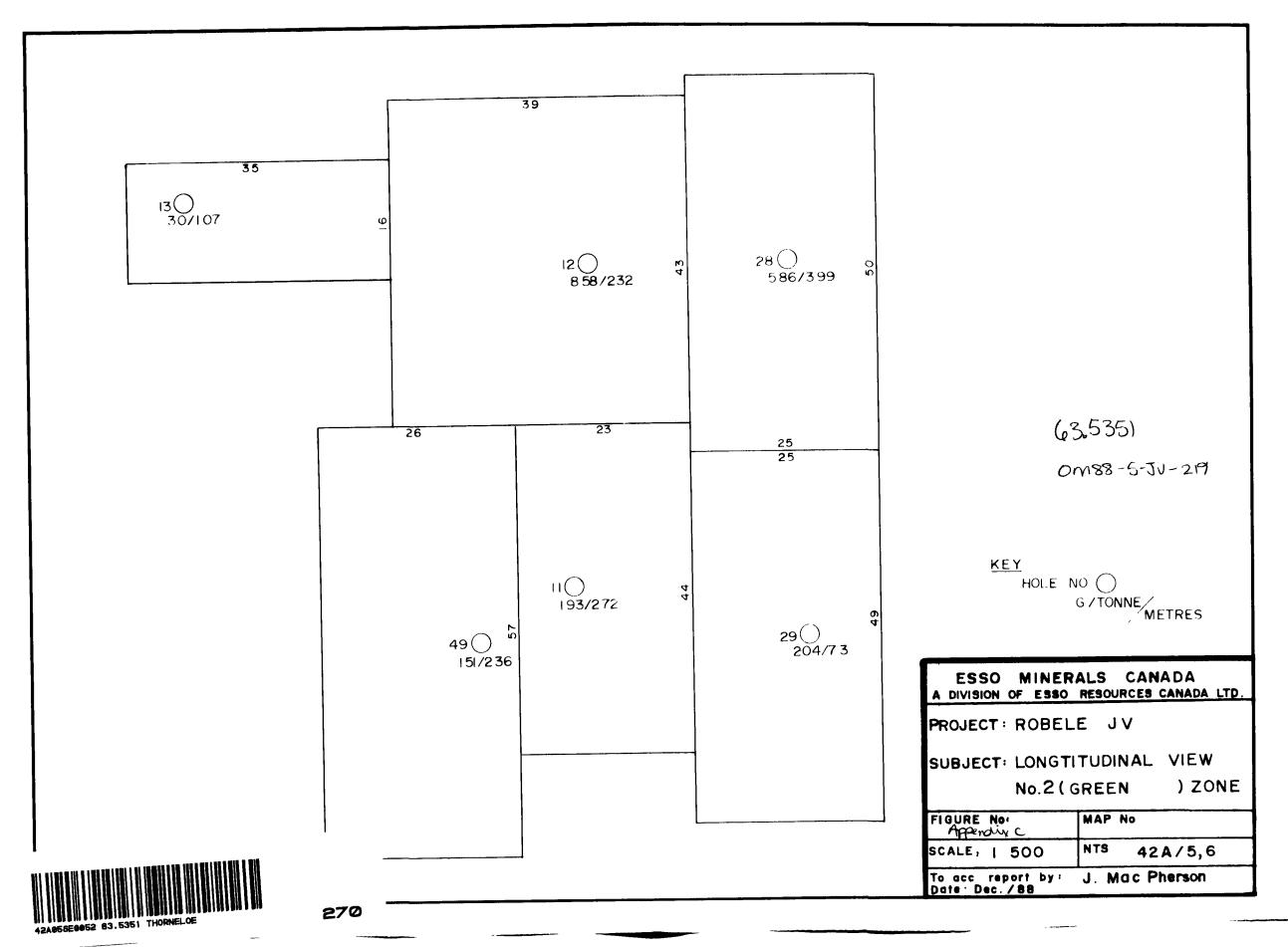




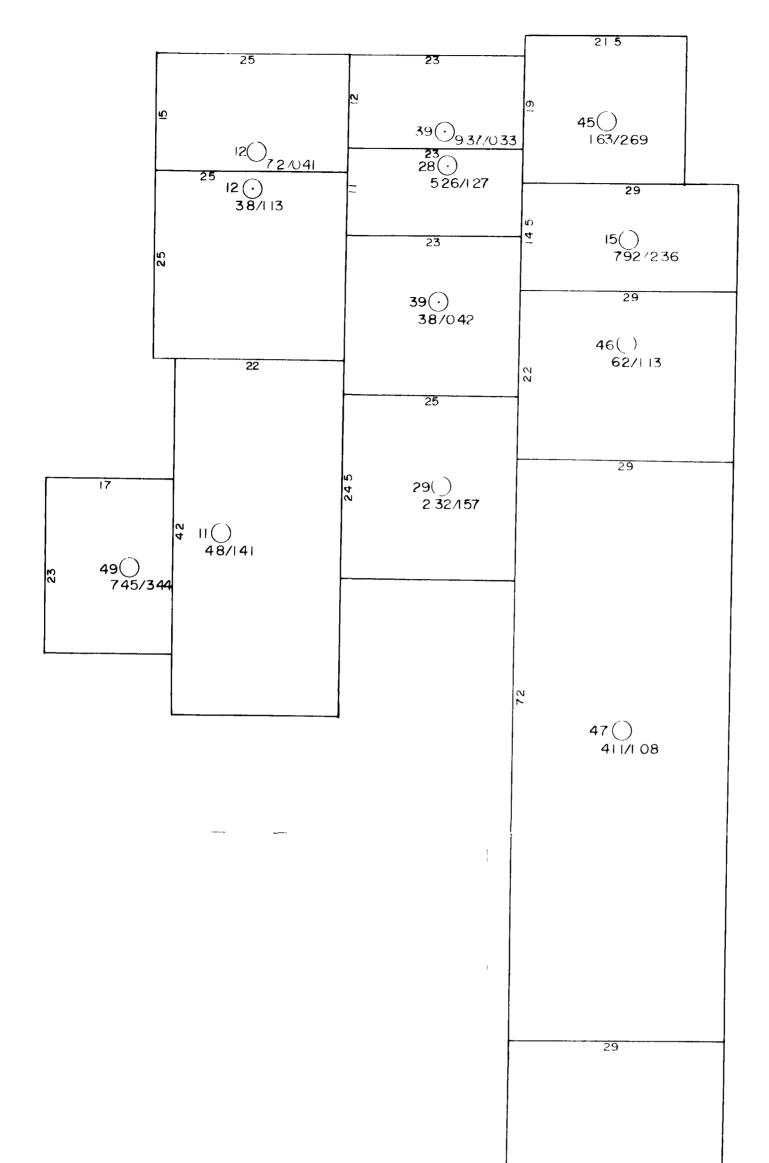


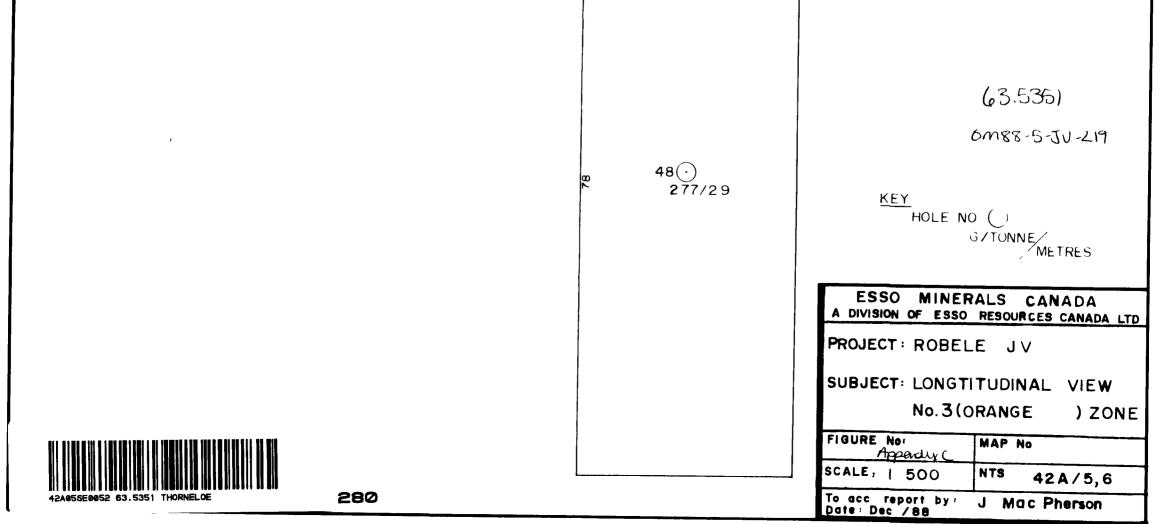


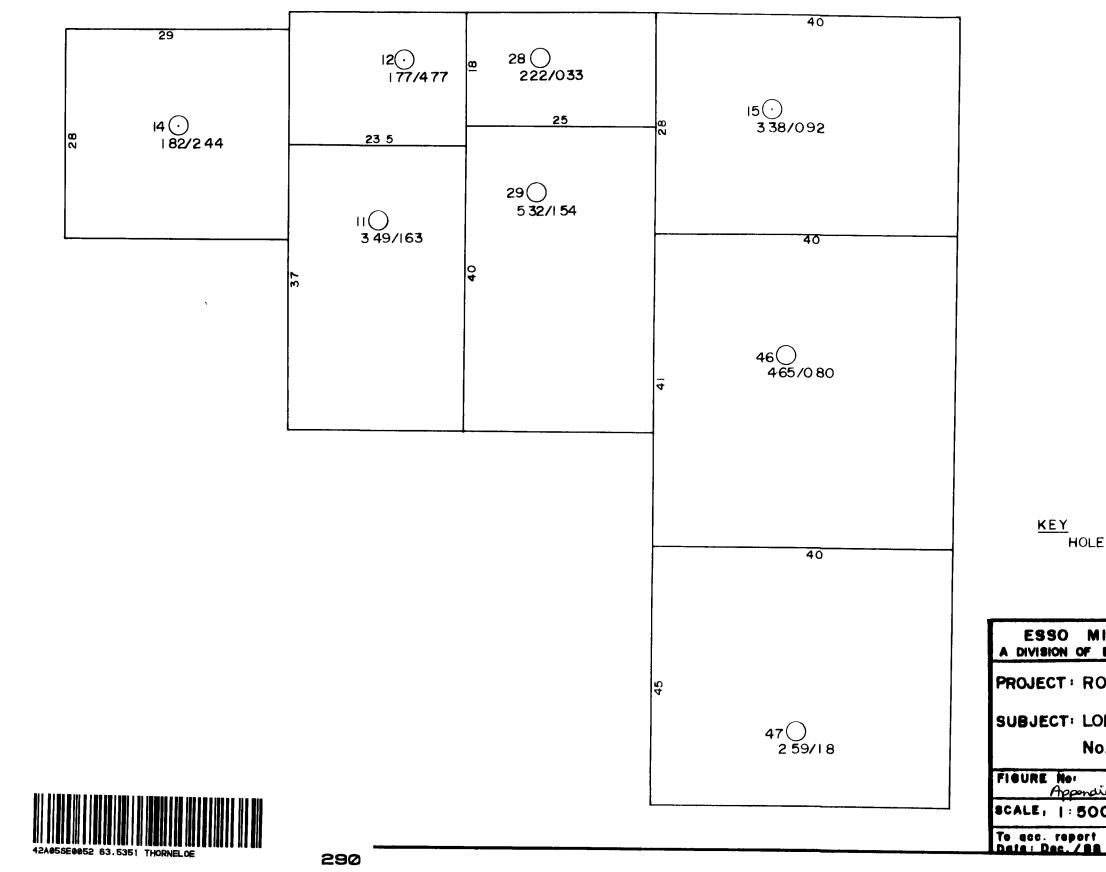




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