63.4013

WATKIN SAMUEL
CONSULTING MINING ENGINEER

TELEPHONE EM. 4-7313

500 BOLING ARCADE BUILDING
11 ADELAIDE STREET WEST
TORONTO, CANADA

The President and Directors,
New Mylamaque Explorations Ltd.,
Suite 601, 11 Adelaide St. W.,
Toronto, Ontario.

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Dear Sirs:

This report, summarized here, results from a study of your titanium-bearing iron ore deposits located in the Townships of North and South Crosby, near the Village of Newboro, about 30 miles north of Kingston, Ontario. The property is particularly well located with regard to rail transport and hydro-electric power and, being in an old settled area, semi-skilled labour should be readily available without expensive housing projects. The property is close to the Saint Lawrence Seaway, about halfway between Montreal and Toronto.

New Mylamaque Explorations Limited have completed a well laid out programme of diamond drilling to explore the orebodies. The diamond drill core has been carefully split for analysis, and almost all of this analytical work has been done by two of the best known Ontario analytical firms. New Mylamaque has carried out extensive research on concentration of the ore and on the metallurgical treatment of the concentrates; separate reports cover this work, so this report will be confined to the tonnage and grade of ore contained in the deposits and on the layout of possible open pits.

Two iron ore deposits have been explored on the New Mylamaque property, named the Matthews and the Chaffey; these are magmatic segregations, in which the iron ore was formed while the rocks themselves were crystallizing. The Matthews orebody is made up of a central core of higher grade ore, with a narrow eastern and wider western zone of lower grade material. The Chaffey is a smaller orebody with a sharp change from ore to uneconomic rock.

An open pit has been laid out on the Matthews orebody containing 33,727,000 gross tons (37,774,000 net tons) of proven ore averaging 25.08% iron. Contained within this tonnage there is a central higher grade section amounting to 11,861,000 gross tons (13,284,000 net) of ore averaging 31.36% iron. The Matthews open pit does not require the removal of any waste rock other than surface overburden.

Further exploration is necessary before an open pit can properly be laid out on the Chaffey orebody, but the orebody contains 11,110,000 gross tons (12,443,000 net) of probable ore,

averaging 29.76% iron to a depth of 500 feet into bedrock. To remove this ore from the Chaffey orebody it will be necessary to remove some 5,000,000 cubic yards of waste rock.

There are therefore on the property of New Mylamaque Explorations Limited 44,837,000 gross tons (50,217,000 net) of Proven and Probable ore available for open pit mining, averaging 26.24% iron. In addition to the iron, this ore contains from 4% to 10% of titanium dioxide, about 1.00% sulphur and between 0.05% and 0.20% phosphorus.

Detail of the report follows.

Yours very truly,

Watkin Samuel

Watkin Samuel, P.Eng.

5th October, 1959.

NOTE: This was a private report presented to the President & Directors of New Mylamaque Exploration Ltd., p. 1, 10, 11.

NEW MYLAMAQUE EXPLORATIONS LIMITED PROPERTY

Newboro, Ontario

The property of New Mylamaque Explorations Limited covers an approximately square block of ground, a little over 1½ miles in length and width, situated in the Townships of North and South Crosby, Leeds County, Ontario, north of and including a portion of Newboro Lake, about one mile west of the Village of Newboro, 30 miles north of Kingston, Ontario.

The property is in an old settled area. An abandoned roadbed of the Canadian National Railways passes close to the property and, to give the property rail communication, a spur under a mile in length must be built and about 5½ miles of the old track rehabilitated.

A paved highway, #42 connecting Newboro and Westport, touches the north east corner of the property and a farm road runs to the Matthews orebody area. A 230,000 volt transmission line of the Hydro-Electric Power Commission of Ontario crosses the north east corner of the property. There are a number of villages and numerous old, poor farms within ten miles of the property, so a work force of semi-skilled labour should be easily obtained from the district without the necessity of erecting an employees' townsite.

Four days were spent in examination of the property and the diamond drill core, in August 1959. Land in the vicinity of the proposed Matthews open pit is cleared and relatively level; overburden appears to be a heavy clay with relatively few boulders. All diamond drill core from holes cutting the Matthews and the Chaffey orebodies was examined. Core recovery was very good, being in the order of 99%. An excellent job has been done on splitting the core for analysis.

The Matthews Orebody:-

The presence of this orebody was indicated by an old open pit about 300 feet long and 100 feet wide, now filled with water but reported to be 50 feet deep. A magnetic survey was carried out by New Mylamaque Explorations, with magnetometer readings taken at 100 foot intervals along lines spaced 100 feet apart. This survey showed a zone about 2,000 feet long and 300 to 600 feet wide, striking north and south of very strong magnetic readings, many of them over 30,000 gammas. To the east of this zone readings fell rather rapidly to 10,000 gammas or less; to the west, readings of from 10,000 to 20,000 gammas continued for around 1,500 feet. The old open pit had produced titanium-bearing iron ore so the magnetic survey showed up the probability of an extensive titanium-bearing iron deposit in the area.

A programme of diamond drilling was laid out to explore this magnetic zone, and to the present 44 diamond drill holes have been put down for a total footage of 18,901 feet in the exploration of the Matthews orebody to a depth of 500 feet. A map at a scale of 1" to 100' showing the location of diamond drill holes and showing the layout of a possible open pit may be found in the folder at the back of this report. Bound with the report itself are seventeen sections showing exploratory diamond drilling on the Matthews orebody. The plan and the sections show that the drilling programme has been well laid out to economically explore the orebody.

The Matthews orebody occurs within a mass of anorthositic gabbro, striking a little west of north which has a surface width of around 2,000 feet and lies between masses of syenite and granite gneiss to the north east and south west.

The orebody itself was probably formed as a magmatic segregation, that is, the iron-bearing minerals were formed as an end prod-

uct in the crystallization of the anorthositic gabbro, of which the ore minerals form a part. The gabbro is coarse-grained, particularly toward the south end of the orebody, and fresh with crystals of feldspar up to half an inch in length. The magnetite occurs in the groundmass of the gabbro minerals in varying extents, so much so that surface outcrops of the gabbro-magnetite rocks show a marked banding, caused by varying contents of magnetite; these bands strike parallel to the long axis of the orebody and dip very steeply west.

In general in the Matthews orebody there is a central core of higher grade ore, from 200 to 300 feet wide and around 1,900 feet long, shown on the plans and sections. To the east of this higher grade central core the magnetite content of the gabbro falls rather rapidly. To the west of the central core, magnetite mineralization giving a grade of 20% or more iron continues for 300 feet or more. Much of this has been included in the upper parts of the proposed open pit.

Little exploration has been done, but there are possibilities of 18% to 20% iron to the west of the zones described above.

Examination of the drill core from the Matthews orebody showed a few narrow grey basic dykes later than the gabbro and magnetite and barren of mineralization. These, however, would make up considerably less than 1% of the footage drilled, and were included in the sampling. Magnetite was present in varying degrees in all the gabbro recovered in drilling the Matthews orebody, and in most of the core was present to such an extent that pieces of split core three inches long could be picked up with a hand magnet.

All magnetite-bearing gabbro drill core had a remarkably even sparse distribution of the sulphur-bearing mineral iron pyrite.

The pyrite was usually so fine grained that it was invisible to the naked eye. Sulphur content of crude ore from the Matthews orebody is about 1%.

It has been mentioned in the summary that an excellent job has been done on the splitting of the diamond drill core for analysis, and that analytical work had almost all been done by the Bell-White Laboratories, Haileybury, and Technical Service Laboratories, Toronto, two well known and respected Canadian analytical firms. During the examination of the drill core 43 samples were taken to check analytical work. These samples were analysed for iron, titanium, sulphur and phosphorus at the Steep Rock Range Laboratories, Atikokan, Ontario. This firm specializes in the analysis of iron ores. Location, previous analysis and check results follow on the next page:-

Sample No.	Location Hole	Location Footage	Previous Assay Iron	Check Assays Iron	Titanium Dioxide	Sulphur	Phosphorus
1	21	150 - 175	31.68%	32.95%	11.21%	0.98%	0.104%
2	51	50 - 75	45.68	43.63	10.78	0.89	0.096
3	"	200 - 225	38.75	36.20	11.12	0.90	0.110
4	"	325 - 350	23.78	24.02	9.40	1.12	0.113
5	9	95 - 115	25.77	24.67	8.22	1.00	0.120
6	"	305 - 325	37.17	35.38	8.64	0.95	0.116
7	"	425 - 445	28.20	28.57	7.95	1.28	0.128
8	44	250 - 275	23.86	25.32	8.34	1.21	0.139
9	"	475 - 500	24.78	23.05	8.71	1.13	0.125
10	10	175 - 200	28.61	29.05	8.93	1.01	0.116
11	"	325 - 350	27.90	29.22	9.24	0.90	0.121
12	54	150 - 175	26.15	27.11	9.15	0.95	0.130
13	44	75 - 100	24.55	26.54	8.04	1.16	0.108
14	26	175 - 200	26.36	24.51	7.57	1.04	0.138
15	"	375 - 400	27.36	27.27	7.28	0.93	0.097
16	13	50 - 75	39.92	34.00	7.89	1.08	0.118
17	12	50 - 75	29.74	28.32	8.26	0.96	0.123
18	"	225 - 250	28.62	28.03	8.68	1.20	0.118
19	29	175 - 200	45.04	40.09	8.97	0.85	0.173
20	13	200 - 225	25.28	24.35	9.26	1.10	0.162
21	14	75 - 100	26.33	26.78	9.54	0.92	0.159
22	"	300 - 325	31.46	31.81	9.05	1.24	0.140
23	"	500 - 525	32.24	32.79	8.88	1.05	0.155
24	46	125 - 150	22.00	21.34	9.62	0.86	0.163
25	16	75 - 100	26.40	24.67	12.89	1.07	0.246
26	"	250 - 275	40.40	37.17	13.67	0.95	0.178
27	17	75 - 100	41.47	39.52	13.41	1.16	0.150
28	"	225 - 250	28.82	31.16	10.07	0.80	0.147
29	"	350 - 375	27.41	26.13	9.16	1.04	0.168
30	63	250 - 275	17.86	18.26	8.23	0.91	0.185
31	62	100 - 125	31.71	30.68	9.95	0.98	0.185
32	61	75 - 100	29.79	28.24	10.80	0.92	0.156
33	47	50 - 75	34.05	33.60	11.66	1.09	0.179
34	"	175 - 200	24.05	20.70	10.46	0.93	0.167
35	33	75 - 100	31.01	29.63	10.61	1.21	0.183
36	"	350 - 375	30.06	29.08	10.30	0.86	0.160
37	36	150 - 175	32.85	29.97	10.78	1.14	0.209
38	"	375 - 400	30.64	30.04	10.32	1.12	0.197
39	49	75 - 100	32.00	28.73	9.87	0.91	0.203
40	"	175 - 200	17.48	15.93	10.49	1.18	0.196
41	15	175 - 200	27.01	26.01	10.15	0.92	0.167
42	"	400 - 425	40.88	37.44	10.67	1.19	0.202
43	52	75 - 100	27.75	24.54	10.42	1.05	0.160
			1,292.87	1,246.75	418.64	44.14	6.510
Average			30.06%	29.00%	9.74%	1.03%	0.151%

The above check samples were taken from most of the drill holes put down on the Matthews orebody. The average iron content of the original sampling at 30.06% iron was 1.06% above the check iron average analysis of 29.00% iron. The difference, however, is only 3% and is well within the spread that might be expected in taking two separate series of samples from the drilling of an orebody. Original analytical results will therefore be taken in the calculation of average value of the orebody.

The check sampling brings out one very important point and that is the remarkable regularity of the content of impurities in individual samples from the Matthews orebody. (It will be appreciated, for instance, that if the sulphur content of individual samples ranged between 0.04% and 10.00% there would be considerable difficulty in obtaining an even sulphur content in ore going to the treatment plant.) The regularity of the titanium dioxide, sulphur, and phosphorus content in the Matthews orebody makes for simplicity of operation in concentration and in the following metallurgical treatment.

Composite assays were prepared from drill holes 8 to 10 and 12 to 19 on the Matthews orebody. The titanium dioxide content varied between 4.62% and 9.62%, averaging 6.60%. Metallurgical research suggests that there will be a considerable reduction in the content of titanium dioxide, phosphorus and to a lesser extent, sulphur, in the process of concentration. The orebody contains a considerable amount of alumina, lime and magnesia.

Open Pit Layout and Ore Reserves:-

In estimating ore quantities, the following classifications have been used:

Proven Ore - Ore where there is practically no risk of failure of continuity.

Probable Ore - Ore where there is some risk, yet warrantable justification for assumption of continuity.

A proposed open pit has been laid out on the Matthews orebody, shown on the 1 inch to 100 foot plan of the orebody and also shown on the drill sections. The pit has a surface length of 2,200 feet, a surface width at the south end of the pit of 870 feet and at the north end 620 feet. Overburden averages about 9 feet deep, surface area of the open pit is 1,426,000 square feet, so to strip the orebody 475,000 cubic yards of overburden must be removed.

The pit is laid out to mine ore to a depth of 500 feet at the south end and 400 feet at the north end. A road 50 feet wide at a 10% grade starts at the east central side of the pit and winds around the pit, as shown on the plan, ending at the south end at 500 feet. This road is designed to transport men, equipment and supplies only, as ore hoisting by a balanced skip hoist is much the most efficient method of hoisting ore from relatively small, deep open pits. (To illustrate this, when mining from a depth of 500 feet a one-way haul of 7,500 feet would be required from shovel to crusher dump, of which 6,300 feet would be a haul up an 8% grade for the loaded truck, whereas with a skip hoist there would be only a relatively flat haul of less than 1,000 feet one way from shovel to skip dump.)

The Duluth Iron Works, Duluth, Minnesota, manufacture skip hoists that work in balance. The skips vary in size depending on the size of trucks used; Steep Rock Iron Mines has one where the skip handles the full load from a 32-ton Euclid truck which dumps directly into the

skip. The skip should discharge directly into a hopper feeding the primary crusher, where if the crushed ore is taken by conveyor to a conical stockpile large enough so that its active capacity will supply two days' milling, the open pit can operate for five days weekly and the mill seven; in addition the ore in "dead" storage around the edges of the pile, forms a useful reserve supply of mill ore in case of equipment breakdown, when it can be bulldozed into the receiving pocket.

Two of the main advantages of skip hoisting are:- the skips will take any sized pieces of ore handled by the shovels and trucks without crushing; it is also a simple matter to excavate a new loading point one stage deeper as the pit goes down bench by bench.

Rock minerals have a specific gravity of about 2.7, whereas for massive magnetite it is about 5.5; therefore the number of cubic feet required to make one ton of ore varies with the grade of the ore. Technical Service Laboratories determined the specific gravity of a number of samples of diamond drill core and later found the iron content. Results are plotted on the accompanying chart from which the following estimate quantities are taken.

Lower grade ore, 21-22% iron, specific gravity 3.37, 210.382 lbs. per cubic foot, or (10.65) say 11.0 cubic feet to the gross ton (2,240 lbs.).

Medium grade ore, 25-26% iron, specific gravity 3.50, 218.498 lbs. per cubic foot, or (10.25) say 10.5 cubic feet to the gross ton.

Higher grade ore, 29-31% iron, specific gravity 3.71, 231.604 lbs. per cubic foot or (9.67) say 10.0 cubic feet to the gross ton.

The volume and the grade of the higher grade central core

of the Matthews orebody, of the east lower grade and west lower grade sections were determined for the south part and north part of the open pit; the evenness of ore grade was most pronounced:

Higher grade core,	north part of pit	- 31.81% iron
" " "	south part of pit	- 31.05" "
East lower grade,	north part of pit	- 20.58% iron
" " " ,	south part of pit	- 20.46" "
West lower grade,	north part of pit	- 22.18% iron
" " " ,	south part of pit	- 21.75" "

The overall average of the higher grade central core of the Matthews orebody is 31.36% iron and its volume is 118,610,000 cubic feet, or at 10 cubic feet per gross ton, there are 11,861,000 gross tons (13,284,000 net tons).

The total volume of the Matthews open pit was calculated both from the sections and from the plan of the open pit:

Volume from sections	349,542,000 cubic feet
Volume from plan	354,131,000 cubic feet

It is likely the volume from plan is more accurate, so it has been used in the calculation of tonnage, which at 10.5 cubic feet to the gross ton is 33,727,000 gross tons (37,774,000 net tons) of Proven ore averaging 25.08% iron.

Particular note must be taken that, other than overburden removal, no waste rock of any sort has to be moved; all material included in the Matthews open pit is ore, so mining cost should be very low, in the vicinity of $0.70 per ton.

The Chaffey Orebody:-

The Chaffey orebody occurs in the same anorthositic gabbro mass 2,500 feet to the south east of the Matthews orebody. Outcrops of ore, some of which have been mined to a very minor extent, occur on an island in Newboro Lake. This lake was raised in the construction of the Rideau Canal and Chaffey Island was originally part of the north shore of the old lake. Should open pit operations be considered on the Chaffey orebody, it will be a simple matter to isolate Chaffey Island and the water surrounding it from the main part of the lake, by constructing several short, shallow fill dams and pumping out the area about one-half mile square thus isolated. In fact, it may be best to use the overburden removed in stripping the Matthews orebody in the construction of dams, and use the area around Chaffey Island at first as a tailings disposal area.

Over the Chaffey orebody the magnetic survey showed a zone of high magnetic readings about 700 feet square, with readings falling rapidly to the south and east and at a lesser rate to the north and west. Eleven diamond drill holes, for a total of 5,551 feet of drilling, have been put down to explore the Chaffey orebody, and more exploratory work is necessary before the orebody is properly outlined. However, drilling done to the present suggests an orebody roughly triangular in shape, with sides about 750 by 750 by 650 feet, as shown on the 1 inch to 100 foot plan of the Chaffey orebody to be found in the folder, and also shown on the three sections showing diamond drill holes put down to explore this orebody.

The plan and sections show that the orebody dips or plunges to the north and west and that it has a mean horizontal area of around 220,200 square feet; drilling shows that the orebody continues for more than 500 feet into bedrock, and has a grade of 29.76% iron. In addition, the orebody has a titanium dioxide, sulphur, phosphorus, alumina, lime

and magnesia content, somewhat similar to that of the Matthews orebody.

To a depth of 500 feet into bedrock the volume of the Chaffey orebody as presently explored is 111,100,000 cubic feet or, at 10 cubic feet to the gross ton, there are 11,110,000 gross tons (12,443,000 net) of Probable ore averaging 29.76% iron. To obtain this ore from open pit mining operations it will be necessary to remove in the order of 5,000,000 cubic yards of waste rock.

There are therefore on the Newboro property of New Mylamaque Explorations Limited 44,837,000 gross tons (50,217,000 net tons) of Proven and Probable ore averaging 26.24% iron. In addition to the iron, this ore contains from 4 to 10% of titanium dioxide, about 1.00% sulphur and between 0.05 and 0.20% phosphorus.

V [illegible]

The ore minerals [illegible] coarse grained matrix [illegible] diorite to gabbro. Gangue minerals are [illegible] hornblende, and/or [illegible], with minor [illegible] pyrite. The plagioclases are variable [illegible] are, on the mean, intermediate between [illegible] (3). Quartz is present locally. [illegible] of small inclusions of spinel [illegible] is suggested also by the high [illegible] higher-grade magnetite [illegible] reduced to negligible proportion[illegible].

The mineralogy of a [illegible] shipped to Lakefield, of which 30 tons [illegible] preliminary milling at the Department [illegible] prior to the main run there, [illegible] (4), that of later, higher-grade [illegible] concentrations of the same minerals, as [illegible] to all.

HEMATITE (?) the major [illegible] to anhedral grains [illegible] averaging 1/8" to 1" in [illegible] of the ore, the greater is the [illegible] disseminated in the gangue, so that [illegible] required

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(3) Letter from Dr. [illegible]

(4) A [illegible] Iron Ore from [illegible] Report, [illegible]-51-23, [illegible]

to liberate it on [illegible] Conversely, the [illegible] grade [illegible] may be minor, and a [illegible] in the grade of the concentrate [illegible] to a [illegible] may be expected. This is [illegible] under GRINDABILITY.

Microexamination reveals that the massive magnetite is not clean, but that it contains many small inclusions of siliceous gangue and of pyrite. It penetrates and corrodes gangue minerals, even invading the plagioclase along cleavage planes. The resulting ore is very compact and strongly bonded. Because of this intimate association of the component minerals the ore is not amenable to concentration by magnetic cobbing at coarse sizes.

The major portion of the ILMENITE occurs as round grains within the magnetites as discrete grains, and as small grains in the gangue. It is also present persistently as exsolution [illegible], a few microns thick, on the octahedral planes of the magnetite. Because of this intimate association of the magnetite and ilmenite it is not feasible to recover a titanium-free magnetite concentrate at any practical degree of comminution. On the other hand, at this point regard to effect recovery of a concentrate of acceptable grade, reasonably free ilmenite, particularly 100-mesh and finer, the ilmenite can be rejected to the non-magnetic tailings. This constitutes the major loss of iron from the ore. Dr. Nichol has also responded to this in the report cited above.

PYRITE, the only sulphide present in significant amount, comprises about 2 per cent of the ore. The indicated average sulphur content of the orebody is 1.03 per cent, equivalent to 2.93 per cent pyrite. The amount of this mineral varies considerably, but there appears to be no definite correlation between the properties of pyrite and total iron in the ore. It is associated mainly with the magnetite, but is found in the gangue also. The grains, most of which are anhedral, range in size from 2mm, to less than 10 microns. Because of the inclusions of very fine pyrite within the magnetite grains it is difficult to recover a magnetite concentrate with a sulphur content less than 0.3 per cent, at a practical degree of 2

APATITE, the phosphorous-bearing mineral of the ore, occurs as very fine, needle-shaped erratic(?) associated with, but not within the magnetite. It is liberated in milling and rejected in the non-magnetite tailing, so that the phosphorous content of a magnetite concentrate may be expected to be in the order of 0.03 per cent.

ELEMENTS: minerals containing MANGANESE or VANADIUM were identified. As far as is known, oxides of these metals are in solid solution in the magnetite, and report with it. Both COPPER and NICKEL are present in such small amounts, much less than 0.01 per cent, that they create no problems metallurgically. Neither CERUSSITE? nor ARSENIC are in ore or concentrate in amounts greater than 0.005 per cent.

ANIONIC MINERALS, CALCITE (or other carbonate) occurs sparingly in the ore, and most of it is rejected to the tailing.

Almost all of the calcium in the concentrate is confined in plagioclase and, on this account, is non-reactive with sulphur dioxide in a reactor. SILICATE MINERALS, mostly LIME-SODA FELDSPARS and PYROXENE, are aluminous(?), and, in the preparations contained in magnetite concentrate(?) of average grade, constitute nearly a self-fluxing slag for smelting.

On the basis of the analyses listed in Table No. I, Page 11, and as indicated by micro-examination of thin, and polished-sections, the calculated mineralogical compositions of ores 1, 2, and 3 are given in Table II, Page 16.

The ore is medium-hard, comparable to a relatively hard taconite. It is tough rather than brittle. High-grade ore fractures into blocky lumps; lean ore breaks into slabs. The specific gravity varies according to the iron content, the range is suggested by the figures in Table No. III, Page 16.

VII DISPOSITION OF PRODUCTS

397 gross tons of concentrate were shipped to Niagara Falls, Ontario for smelting tests, and 208 tons to storage in Lakefield for further work if required.

Analyses of these respective lots are listed on Table No. IV, Page 17.

Table No. II CALCULATED MINERALOGICAL COMPOSITIONS OF ORES

	1.		2.		3.	
	Wt. %	Vol. %	Wt. %	Vol. %	Wt. %	Vol. %
Magnetite (a)	30.9	20.3	30.9	22.6	38.4	25.6
Ilmenite.	12.3	9.9	11.2	8.3	14.0	10.7
Pyrite.	1.9	1.3	0.9	1.3	1.9	1.4
Apatite.	0.4	0.4	0.9	1.0	0.2	0.3
Calcite.	1.9	2.3	5.2	2.8	1.8	2.4
Silicates (b)	52.5	66.2	52.4	65.8	43.7	59.6

(a) Includes manganese and vanadium.

(b) About 60-65% plagioclase, 30-35% pyroxenes, with minor accessory minerals, average specific gravity of silicates about 2.7%.

Note: In the above table the minerals are calculated in their theoretical compositions; Ilmenite $FeO.TiO_2$; Pyrite FeS_2; Apatite $3(Ca_3F_2O_3).CaF_2$) Calcite $CaCO_3$.

Table No. III SPECIFIC GRAVITIES OF ORE

Table Fe ?

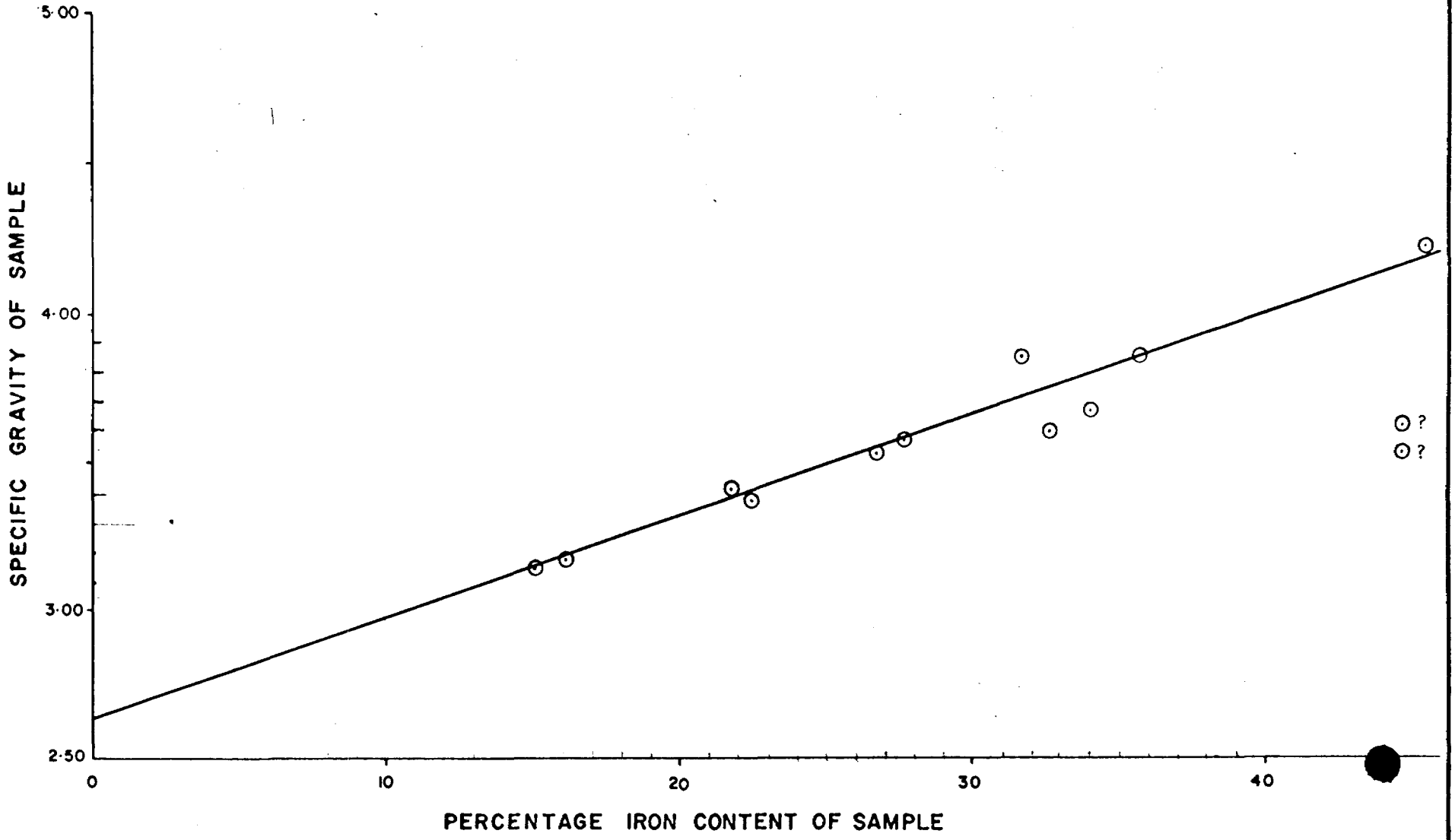
	Specific Gravity	lbs/cu. ft in place	Cu. ft/gross ton in place	
27.5	3.32	227		10.8
28.5	3.42	213		10.5
32.6	3.62	326		9.9
34.6	3.68	229		9.8
35.8	3.75	235		9.3

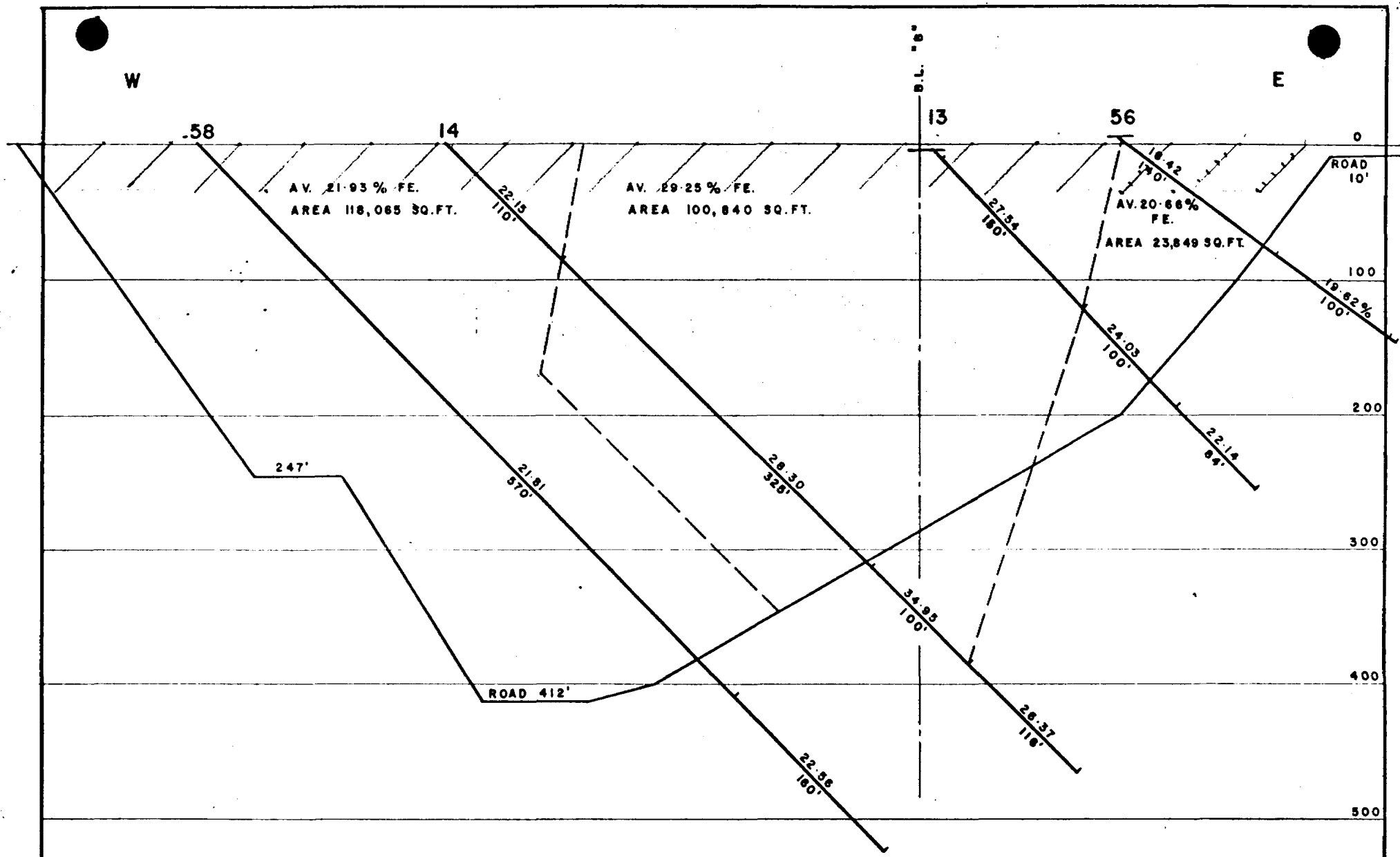
NEW MYLAMAQUE EXPLORATIONS LTD.

CHART SHOWING SPECIFIC GRAVITY OF ORE

SPECIFIC GRAVITY OF DRILL CORE SAMPLES TAKEN BY

TECHNICAL SERVICE LABORATORIES THEN IRON CONTENT DETERMINED.



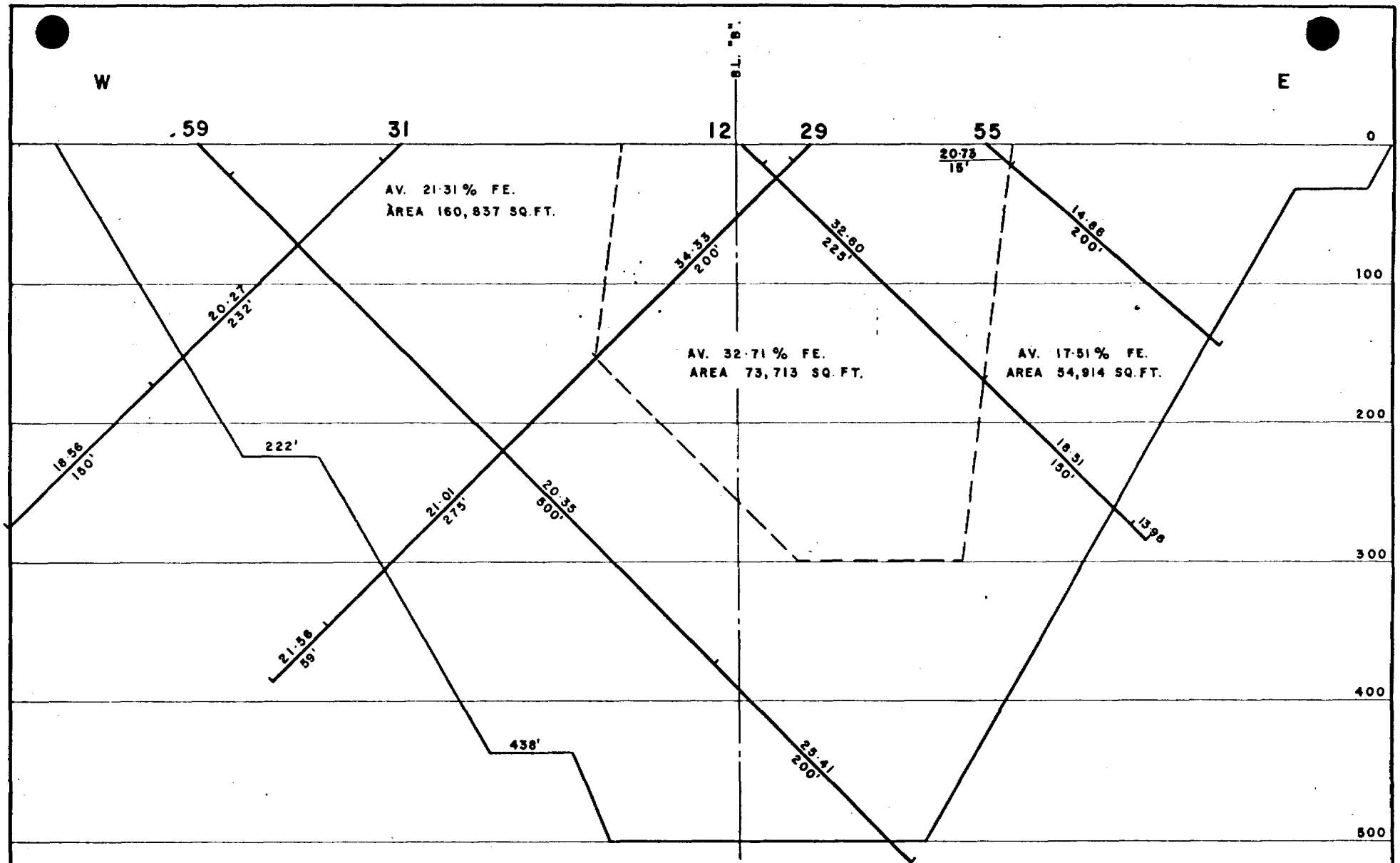


NEW MYLAMAQUE EXPLORATIONS L[illegible].

MATTHEWS OREBODY

SECTION OF HOLES 13, 14, 56, 58.

1" = 100'

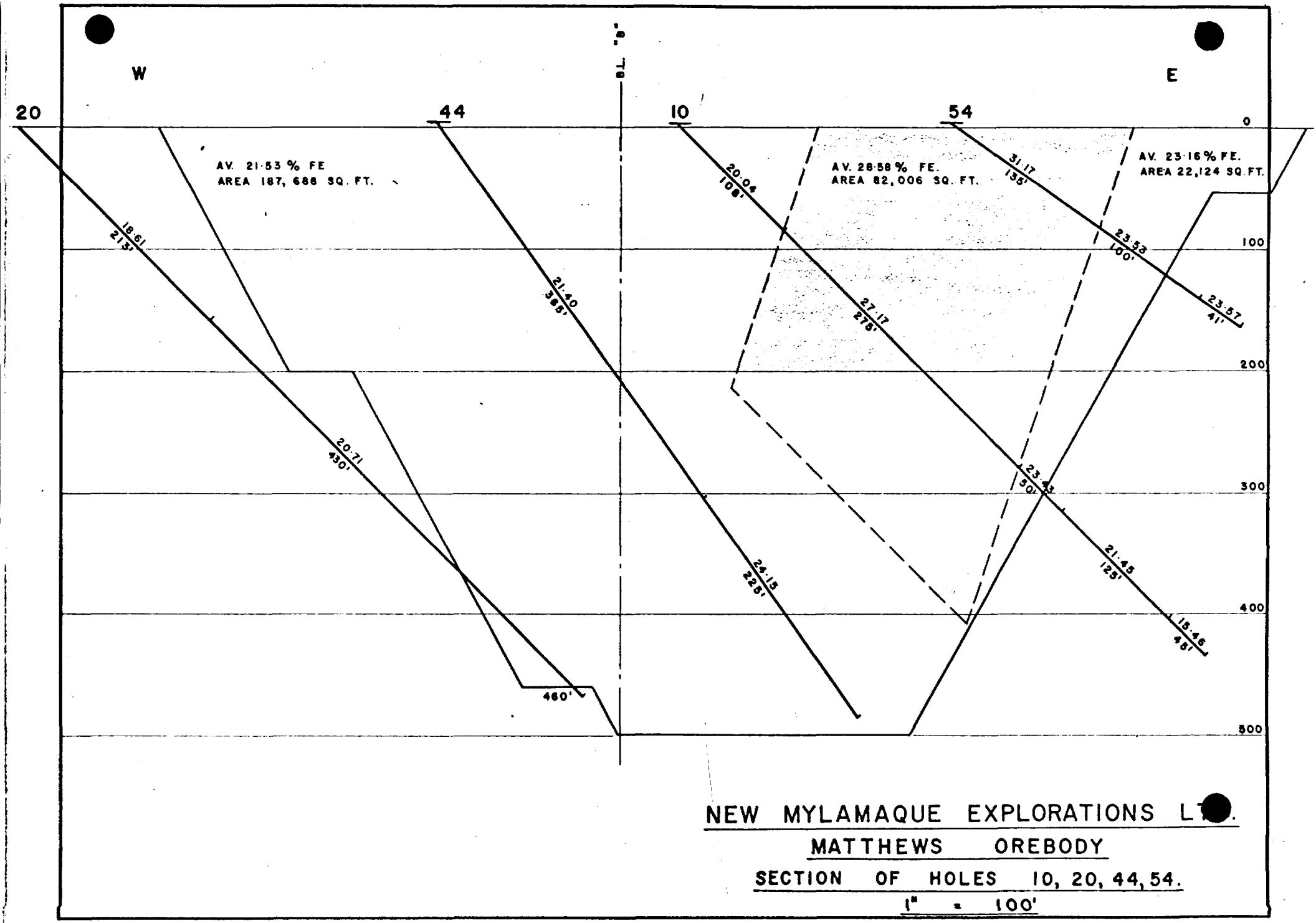


NEW MYLAMAQUE EXPLORATIONS LTD.

MATTHEWS OREBODY

SECTION OF HOLES 12, 29, 31, 55, 59.

1" = 100'

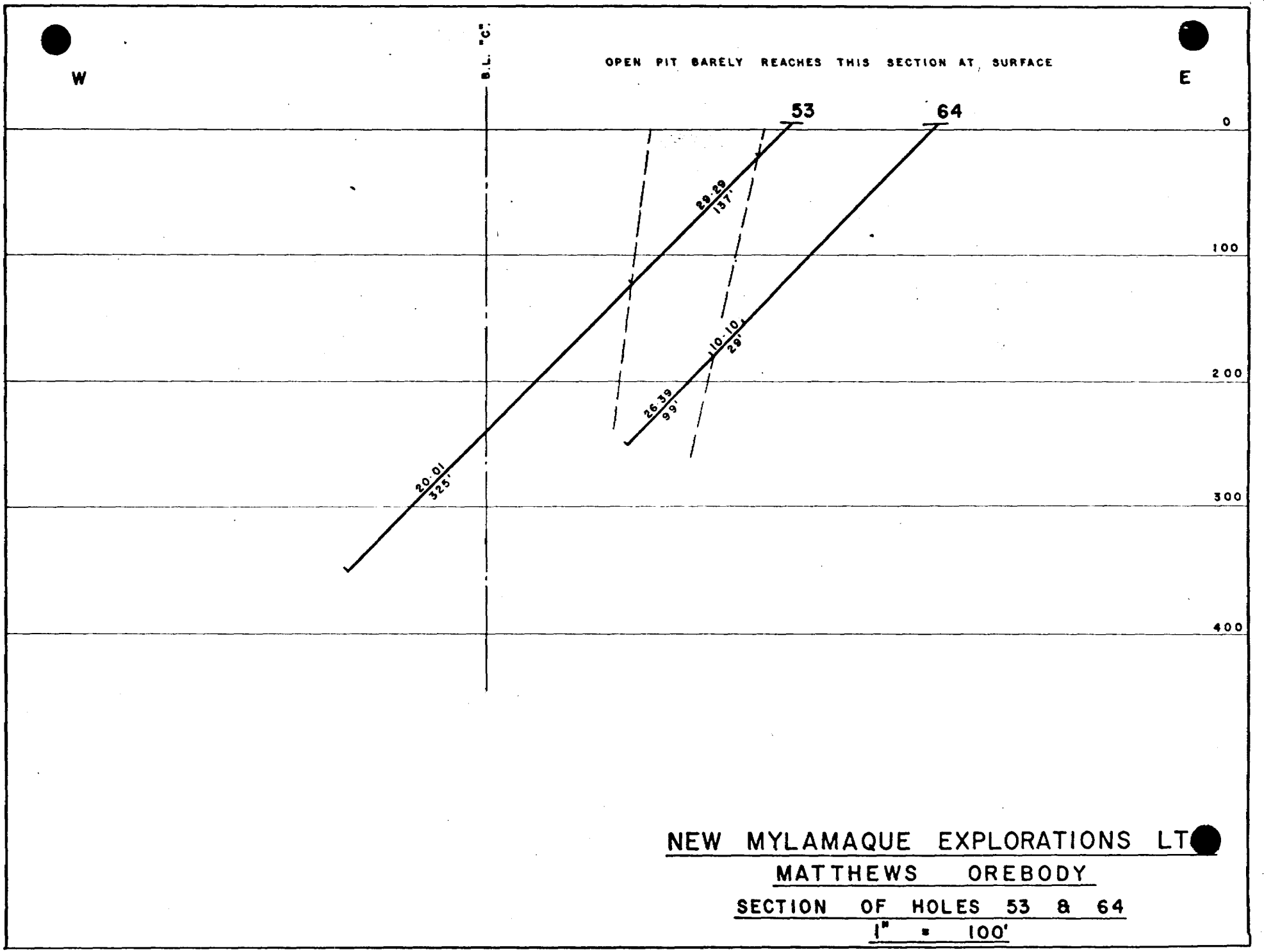


NEW MYLAMAQUE EXPLORATIONS LT[illegible].

MATTHEWS OREBODY

SECTION OF HOLES 10, 20, 44, 54.

1" = 100'

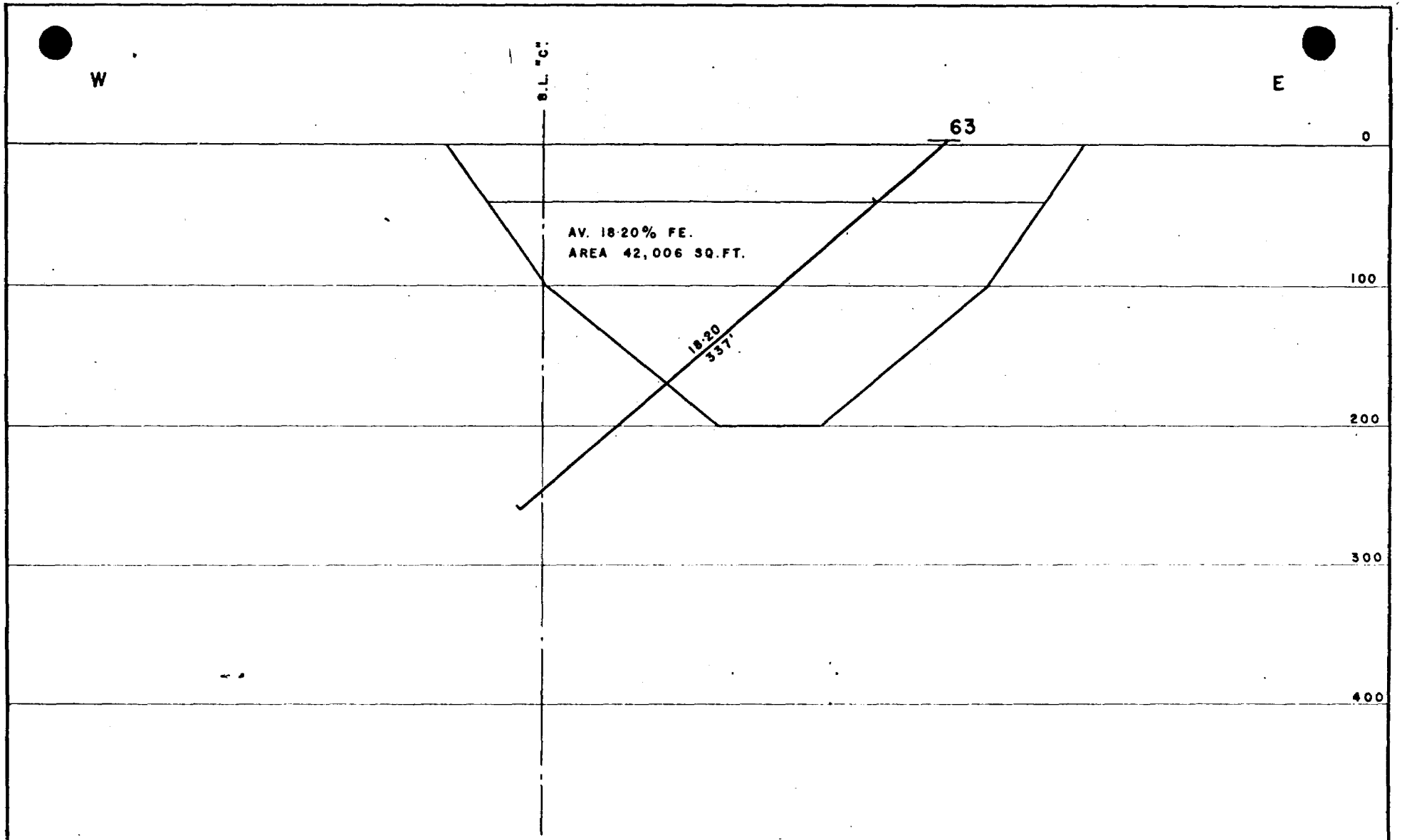


NEW MYLAMAQUE EXPLORATIONS LTD.

MATTHEWS OREBODY

SECTION OF HOLES 53 & 64

1" = 100'

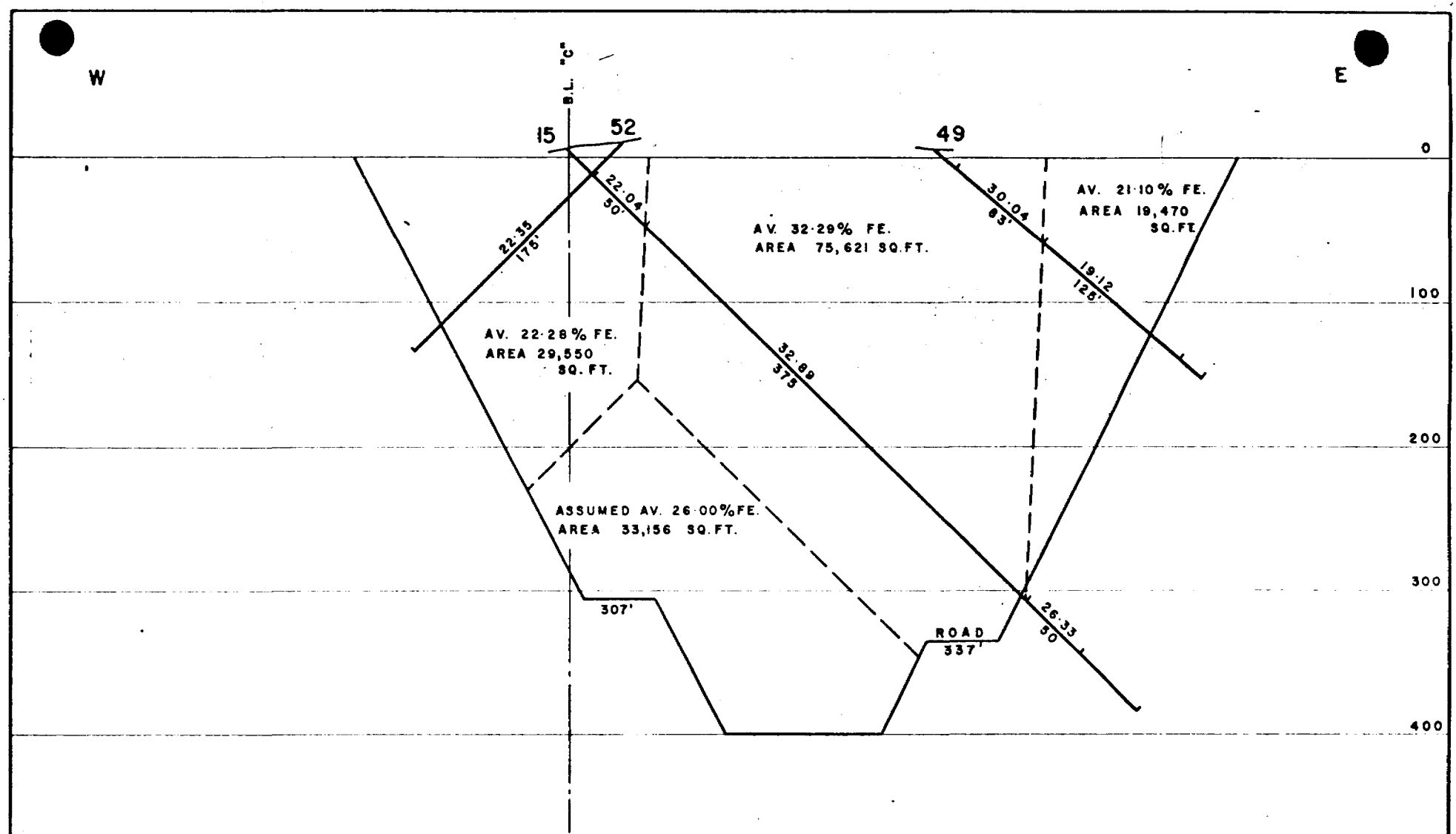


NEW MYLAMAQUE EXPLORATIONS LTD.

MATTHEWS OREBODY

SECTION OF HOLE 63

1" = 100'

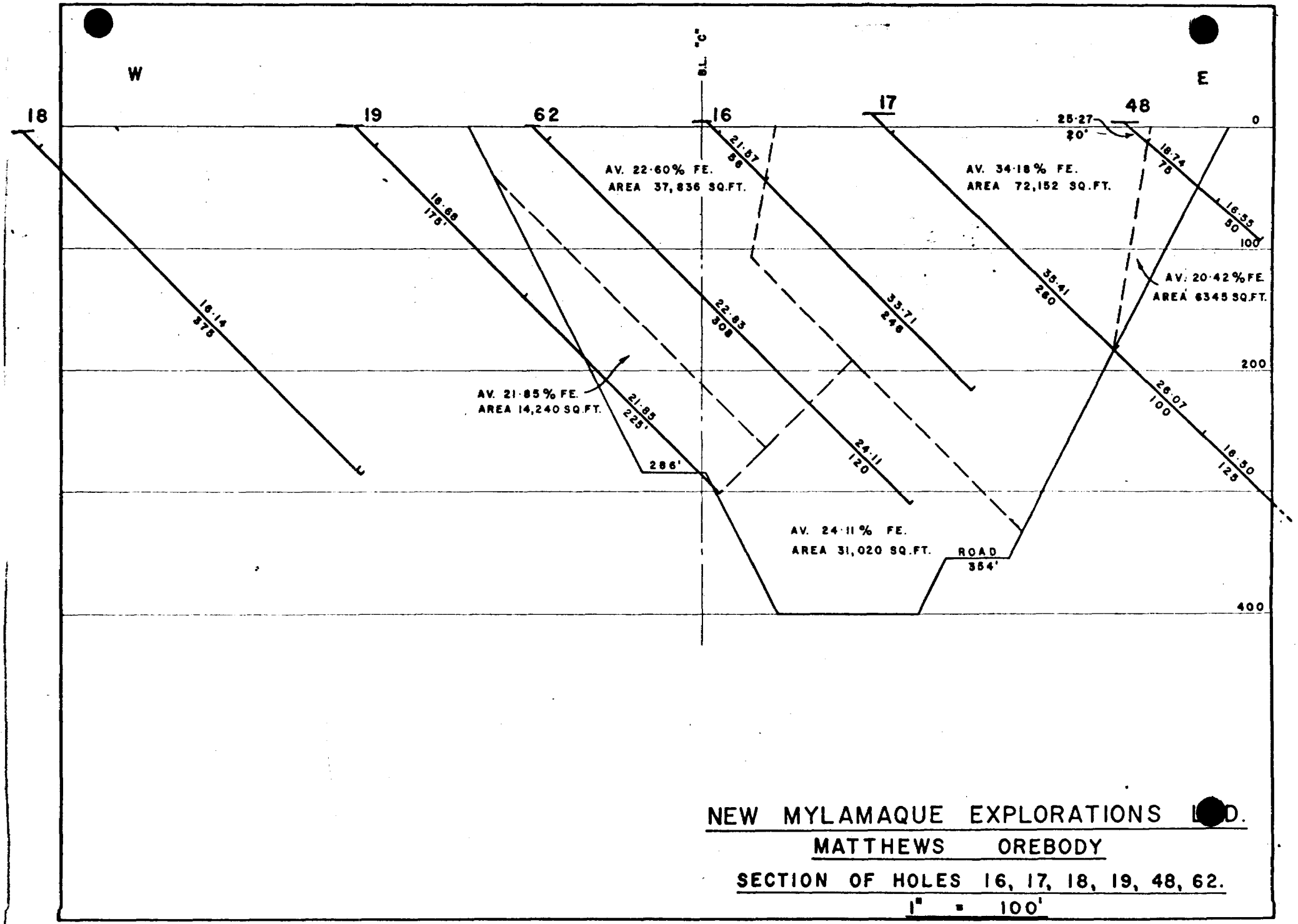


NEW MYLAMAQUE EXPLORATIONS LTD.

MATTHEWS OREBODY

SECTION OF HOLES 15, 49, 52.

1" = 100'

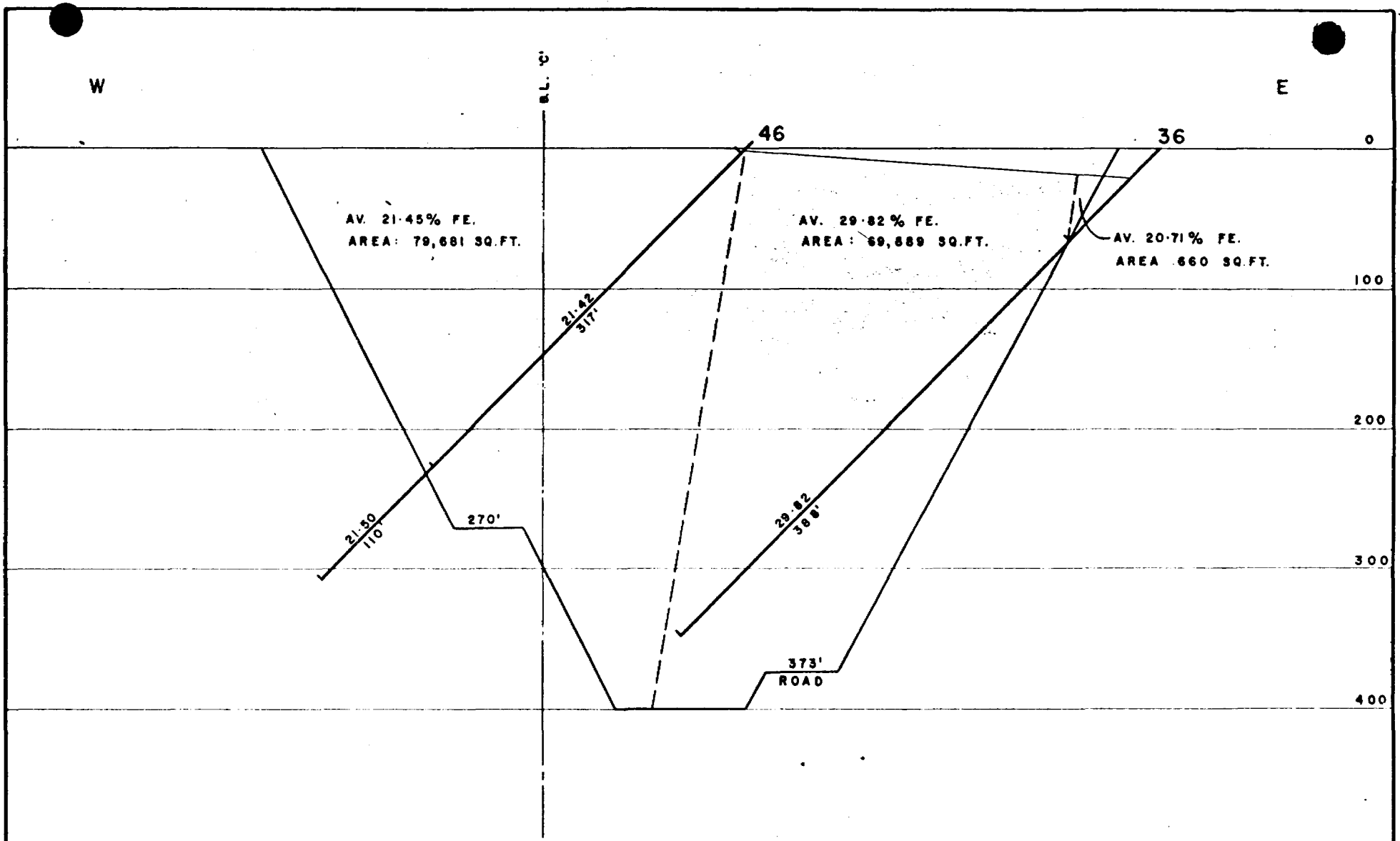


NEW MYLAMAQUE EXPLORATIONS LTD.

MATTHEWS OREBODY

SECTION OF HOLES 16, 17, 18, 19, 48, 62.

1" = 100'

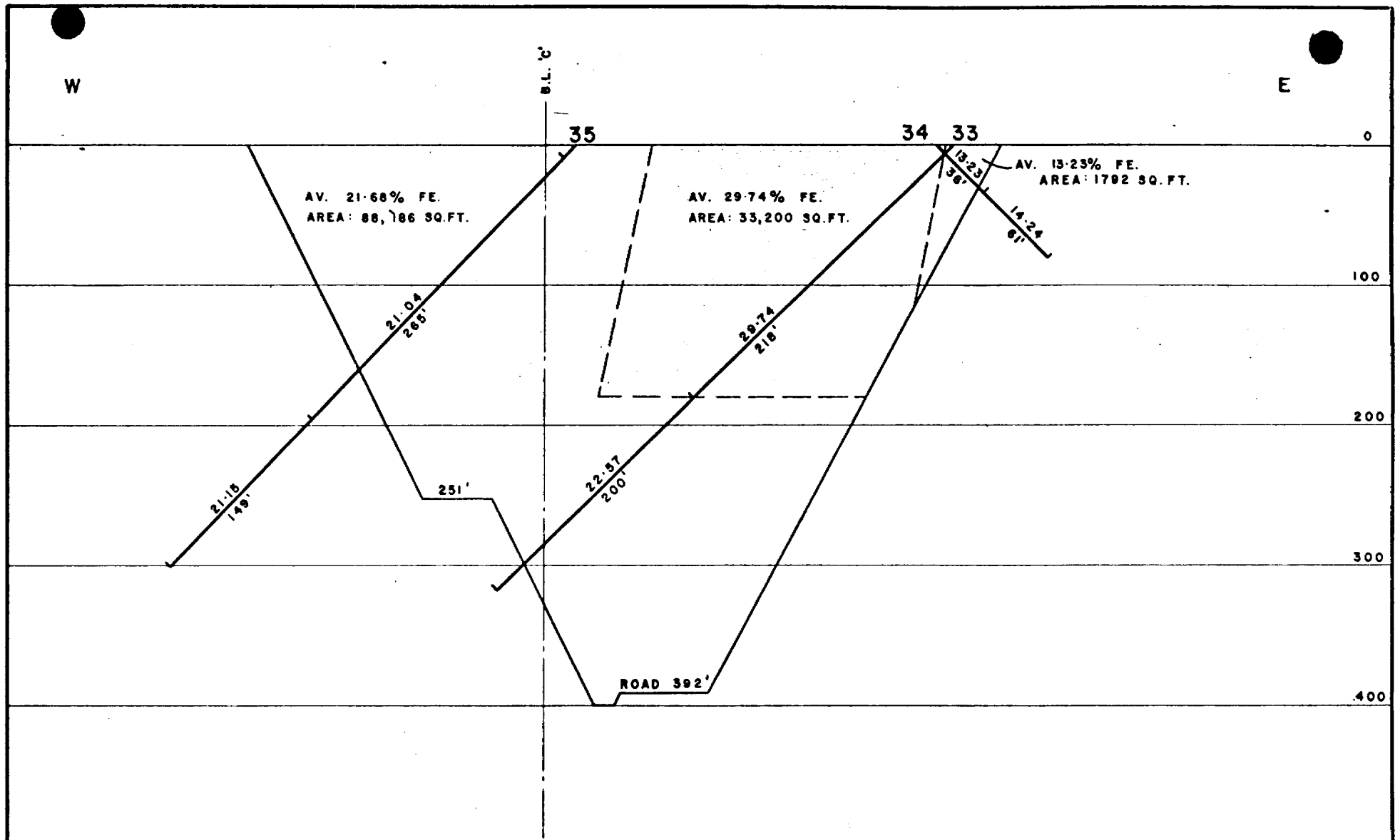


NEW MYLAMAQUE EXPLORATIONS LTD.

MATTHEWS OREBODY

SECTION OF HOLES 36 & 46

1" = 100'

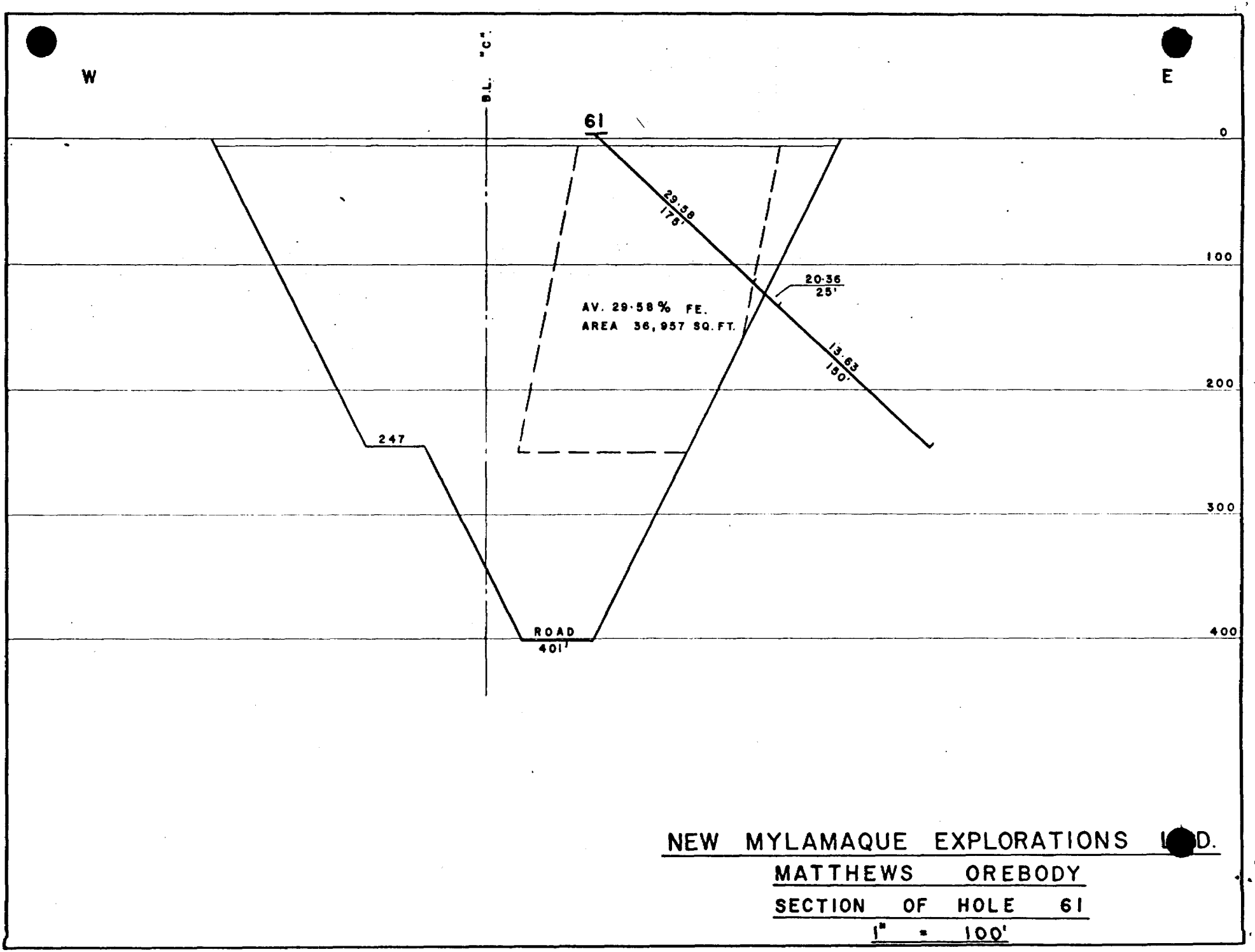


NEW MYLAMAQUE EXPLORATIONS LTD.

MATTHEWS OREBODY

SECTION OF HOLES 33, 34, 35.

1" = 100'

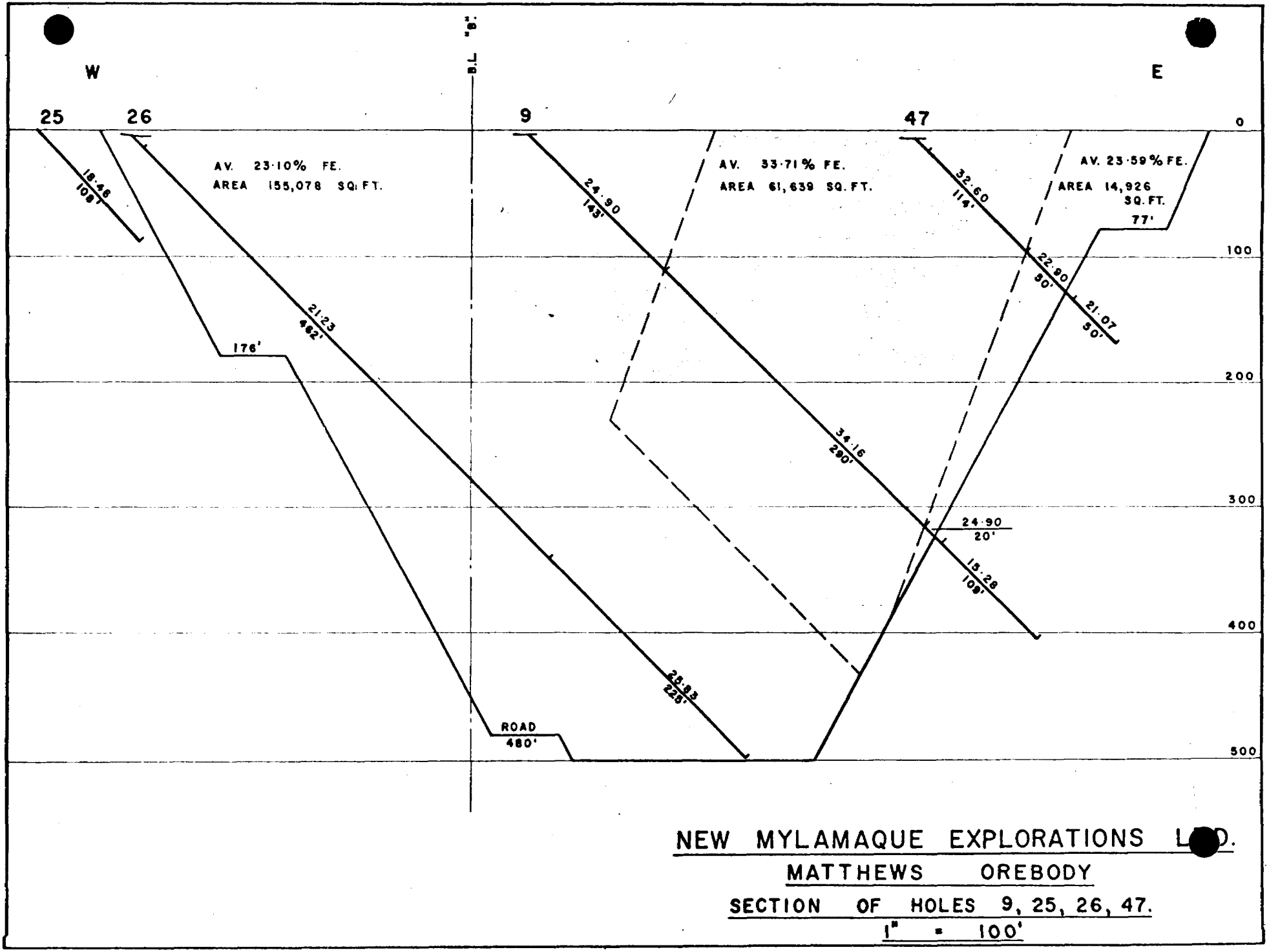


NEW MYLAMAQUE EXPLORATIONS LTD.

MATTHEWS OREBODY

SECTION OF HOLE 61

1" = 100'

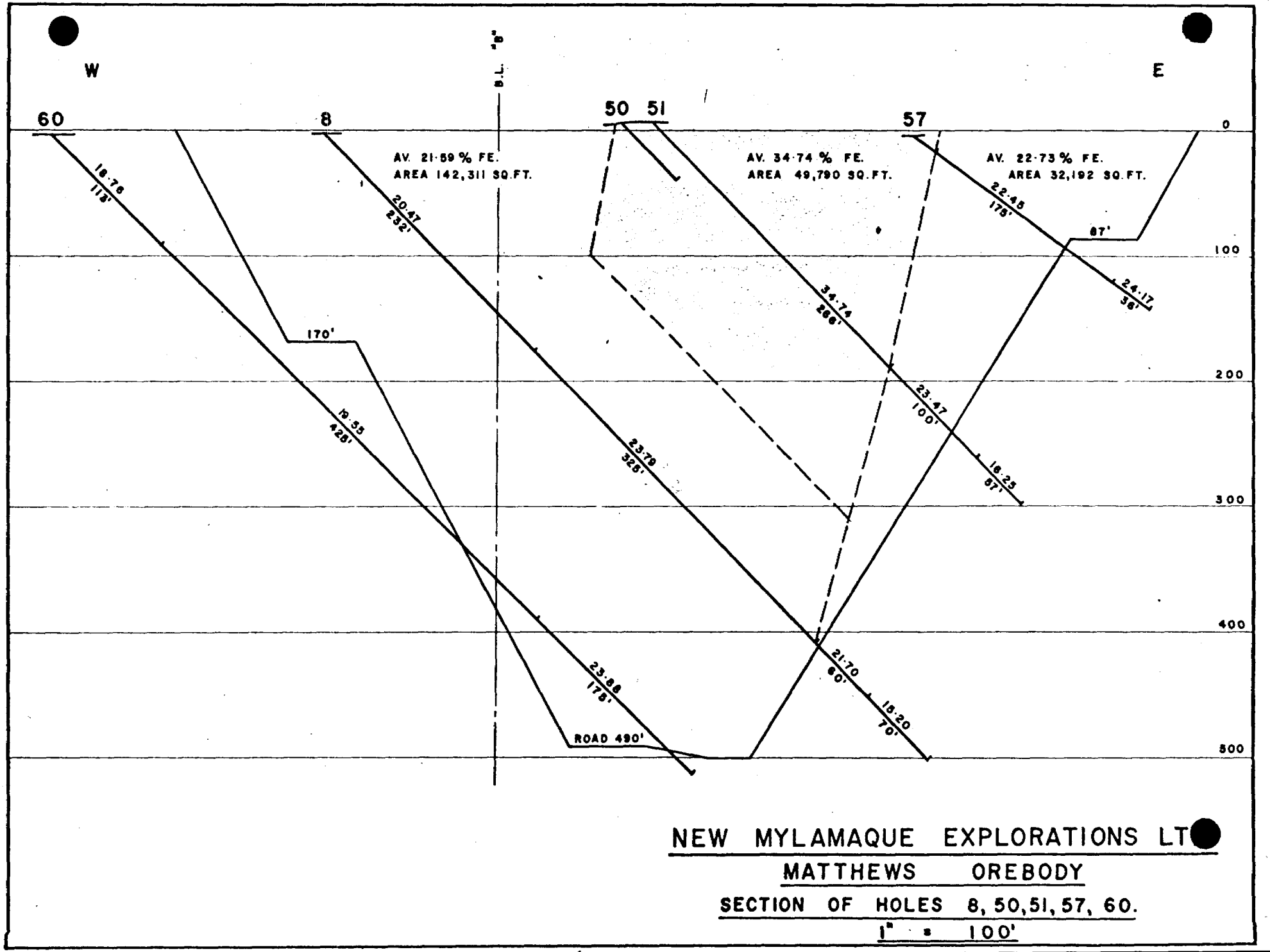


NEW MYLAMAQUE EXPLORATIONS LTD.

MATTHEWS OREBODY

SECTION OF HOLES 9, 25, 26, 47.

1" = 100'

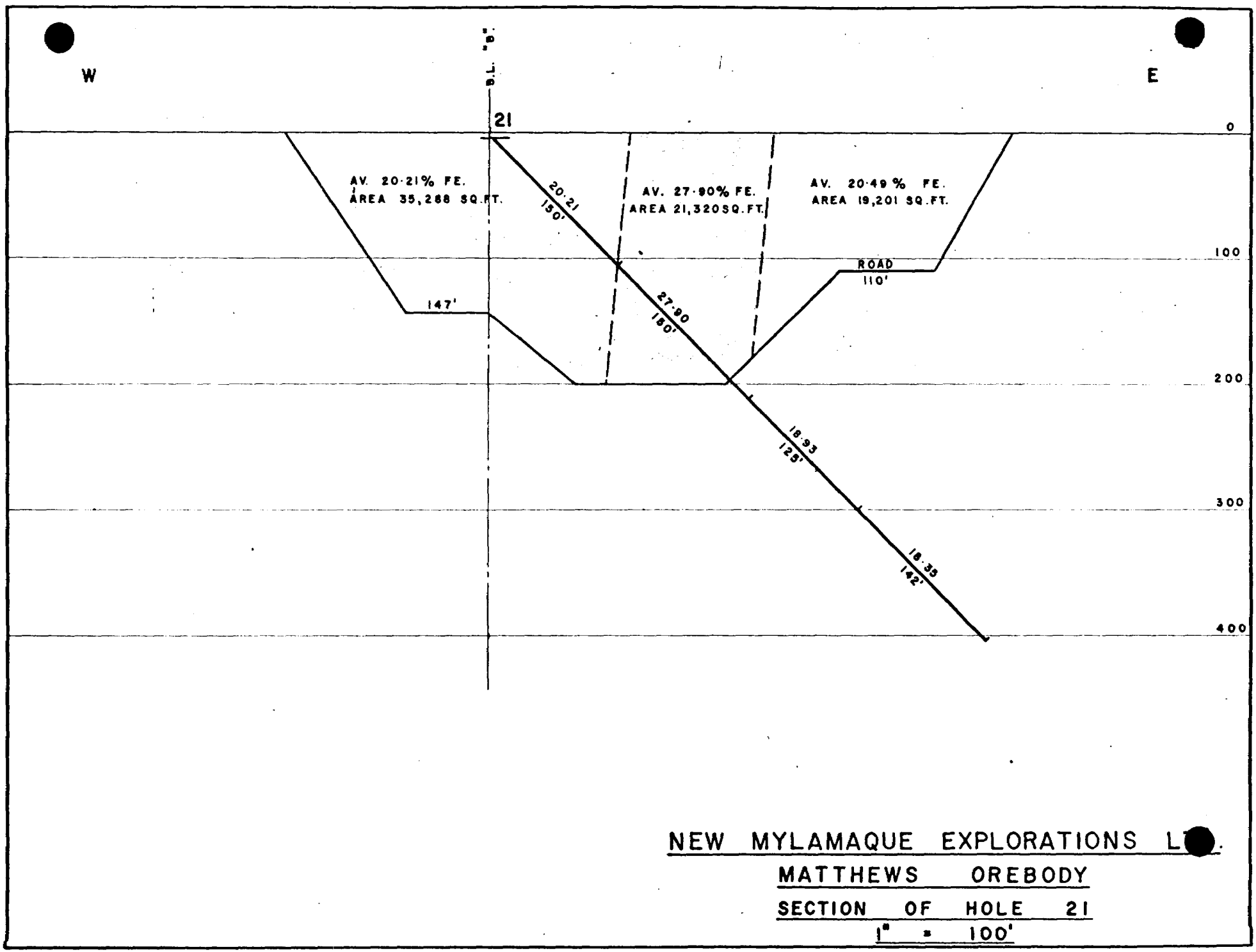


NEW MYLAMAQUE EXPLORATIONS LT

MATTHEWS OREBODY

SECTION OF HOLES 8, 50,51, 57, 60.

1" = 100'

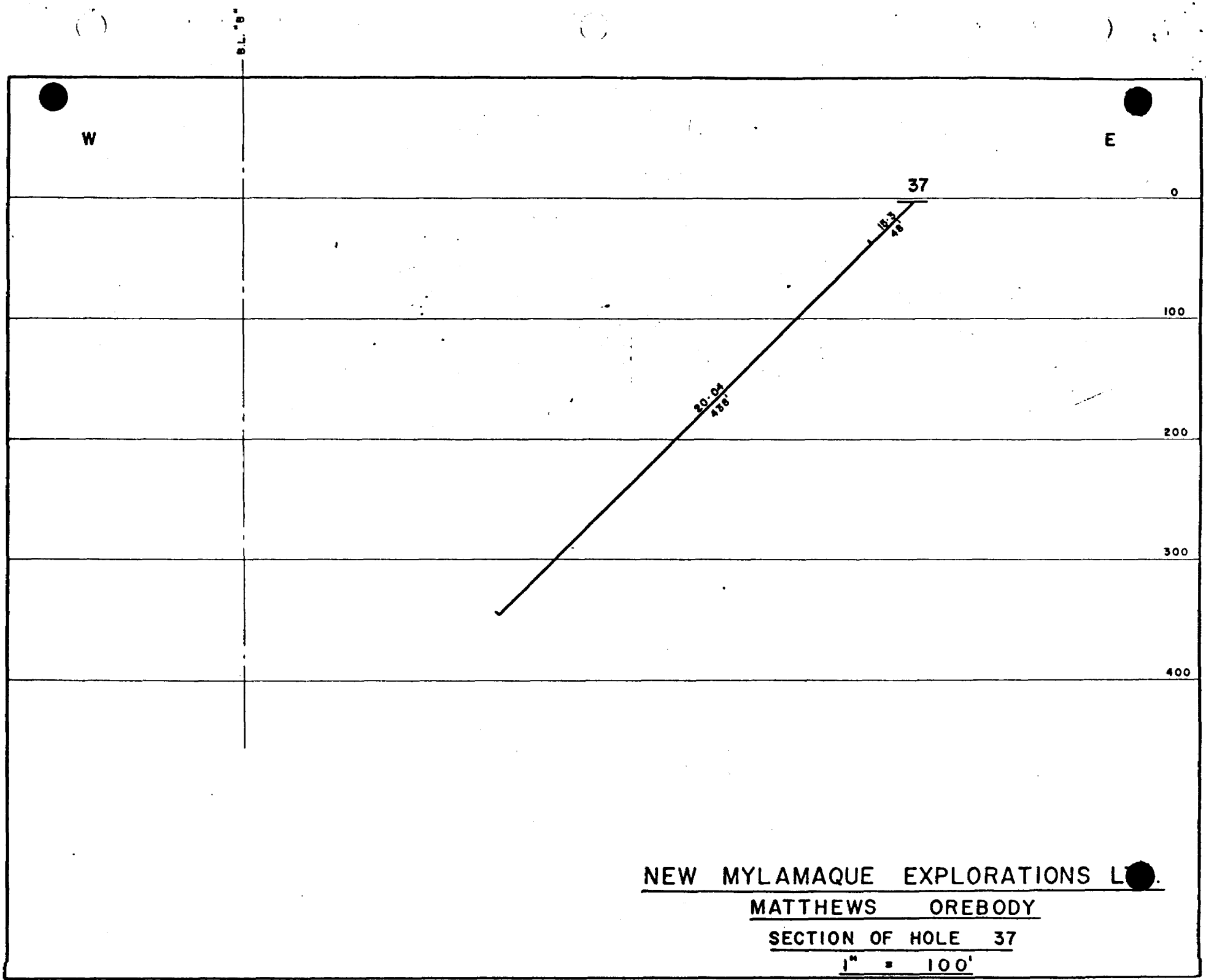


NEW MYLAMAQUE EXPLORATIONS L[illegible].

MATTHEWS OREBODY

SECTION OF HOLE 21

1" = 100'

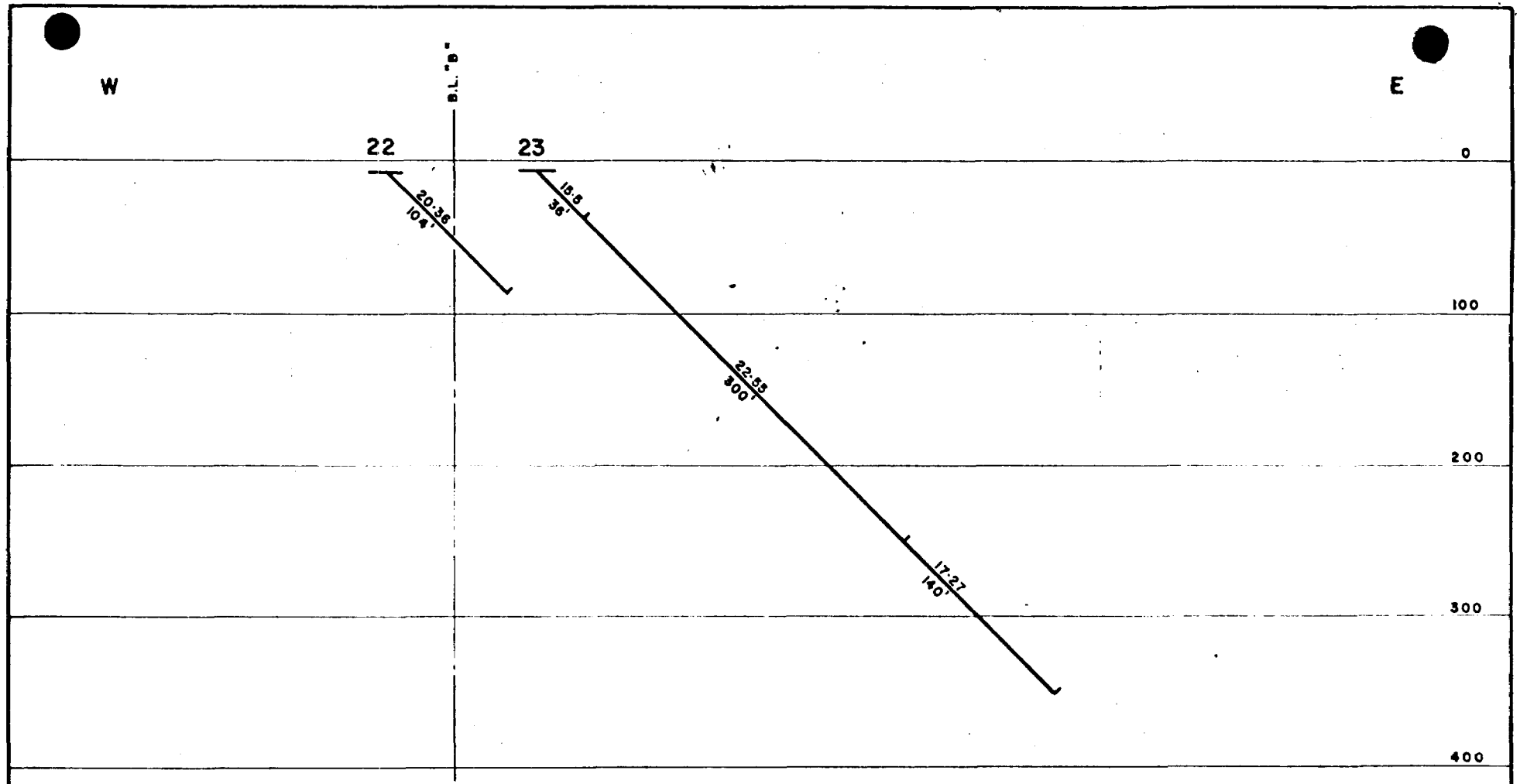


NEW MYLAMAQUE EXPLORATIONS L[illegible].

MATTHEWS OREBODY

SECTION OF HOLE 37

1" = 100'

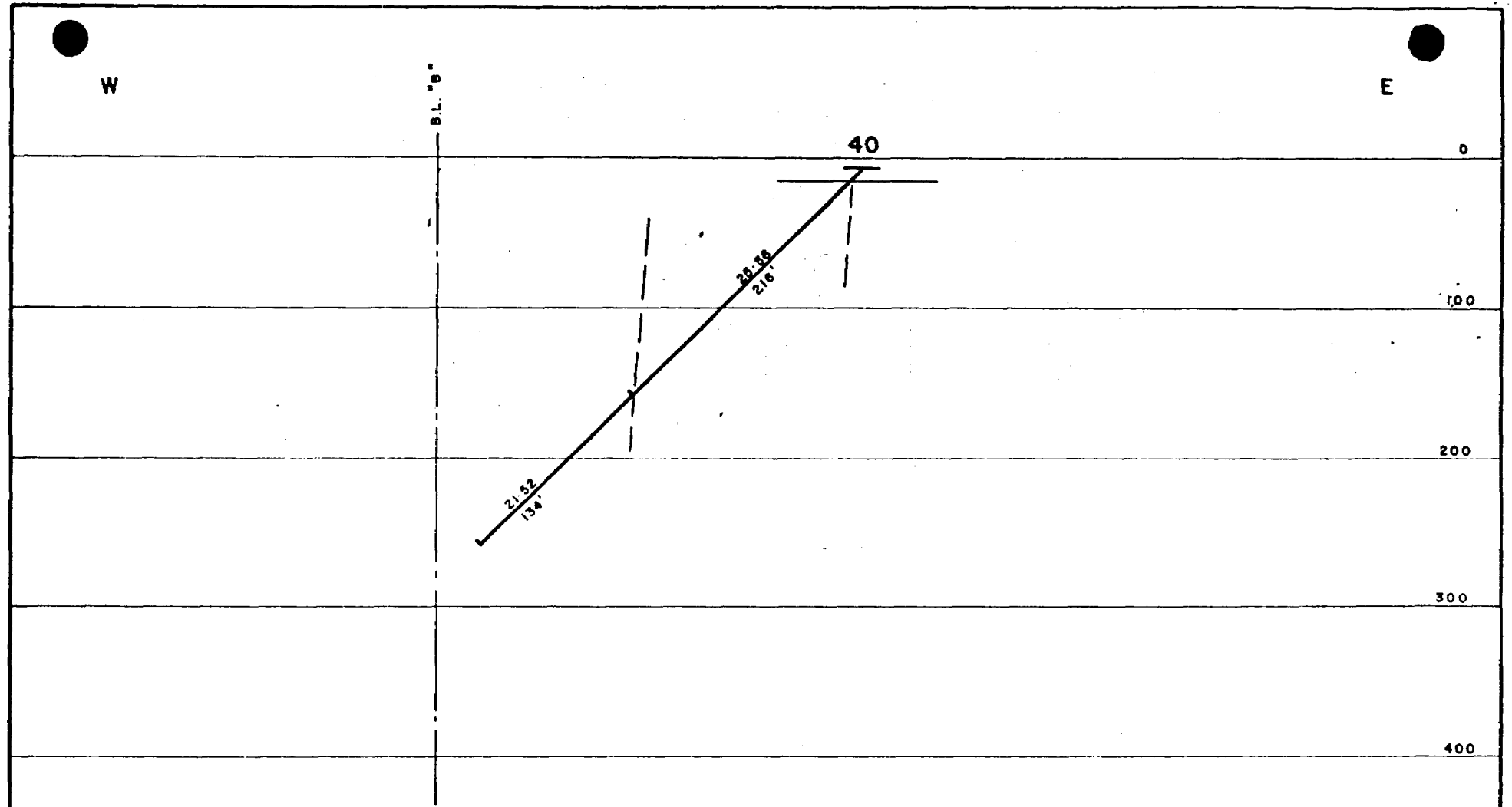


NEW MYLAMAQUE EXPLORATIONS LTD.

MATTHEWS OREBODY

SECTION OF HOLES 22, 23

1" = 100'

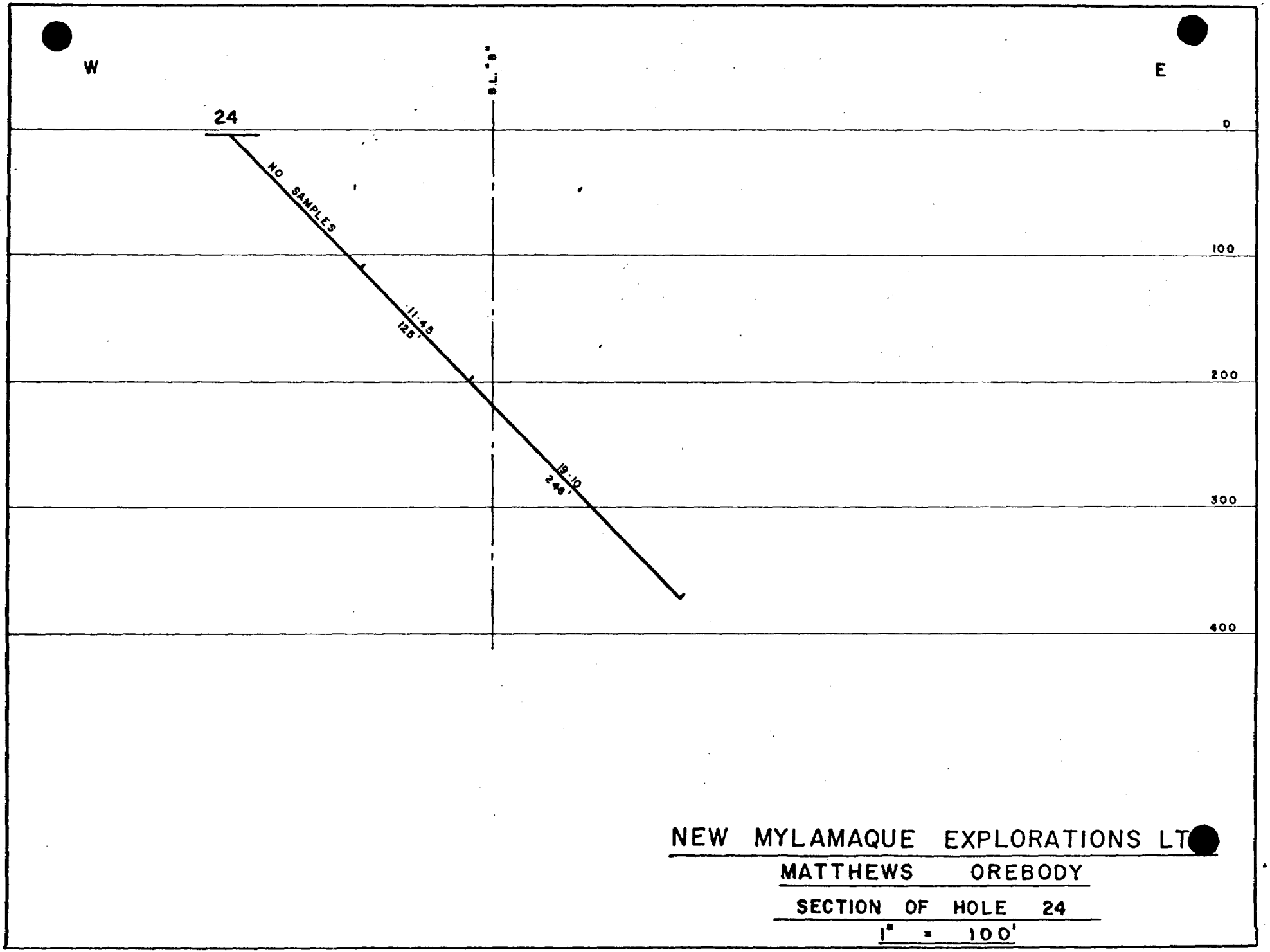


NEW MYLAMAQUE EXPLORATIONS LTD.

MATTHEWS OREBODY

SECTION OF HOLE 40

1" = 100'

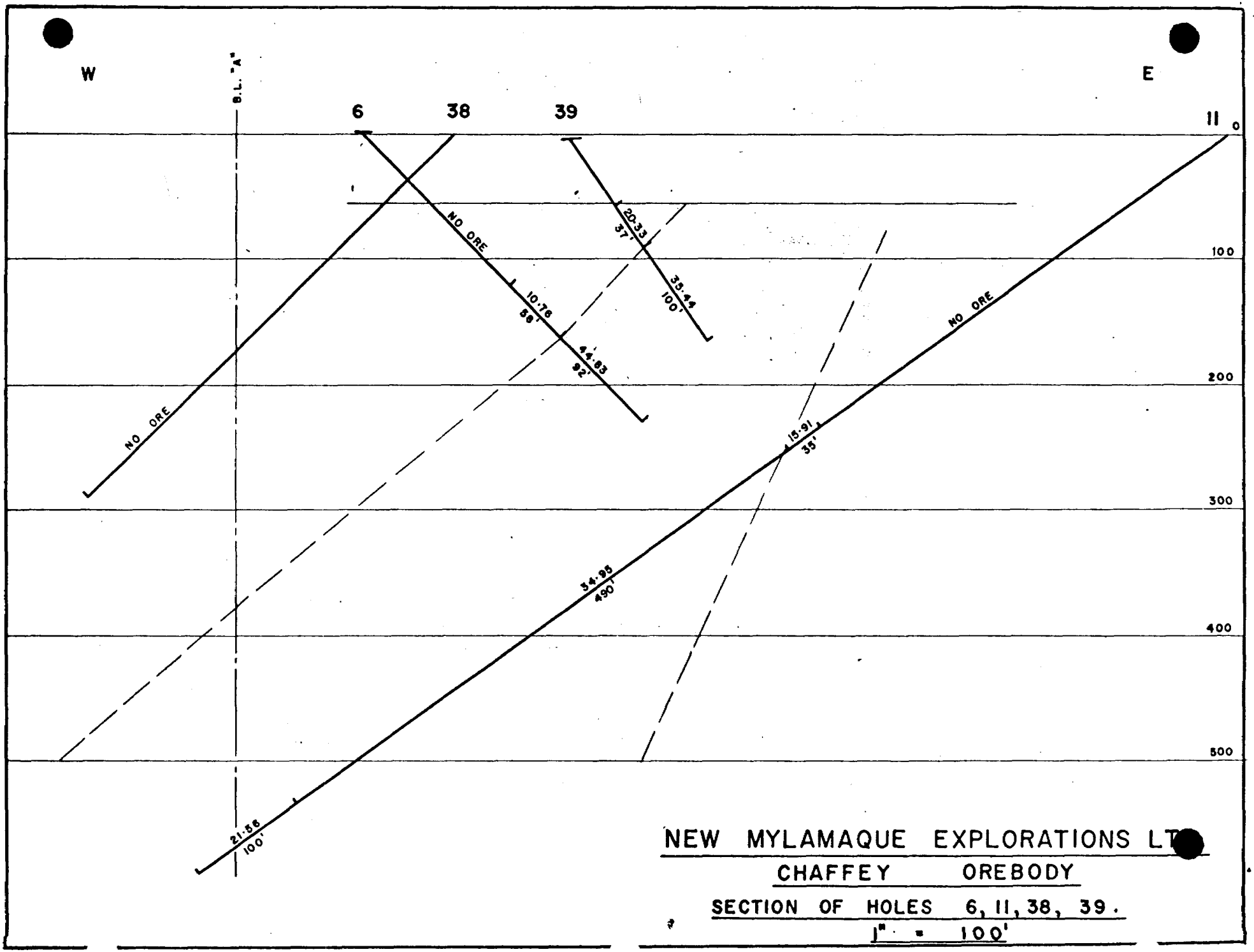


NEW MYLAMAQUE EXPLORATIONS LTD.

MATTHEWS OREBODY

SECTION OF HOLE 24

1" = 100'

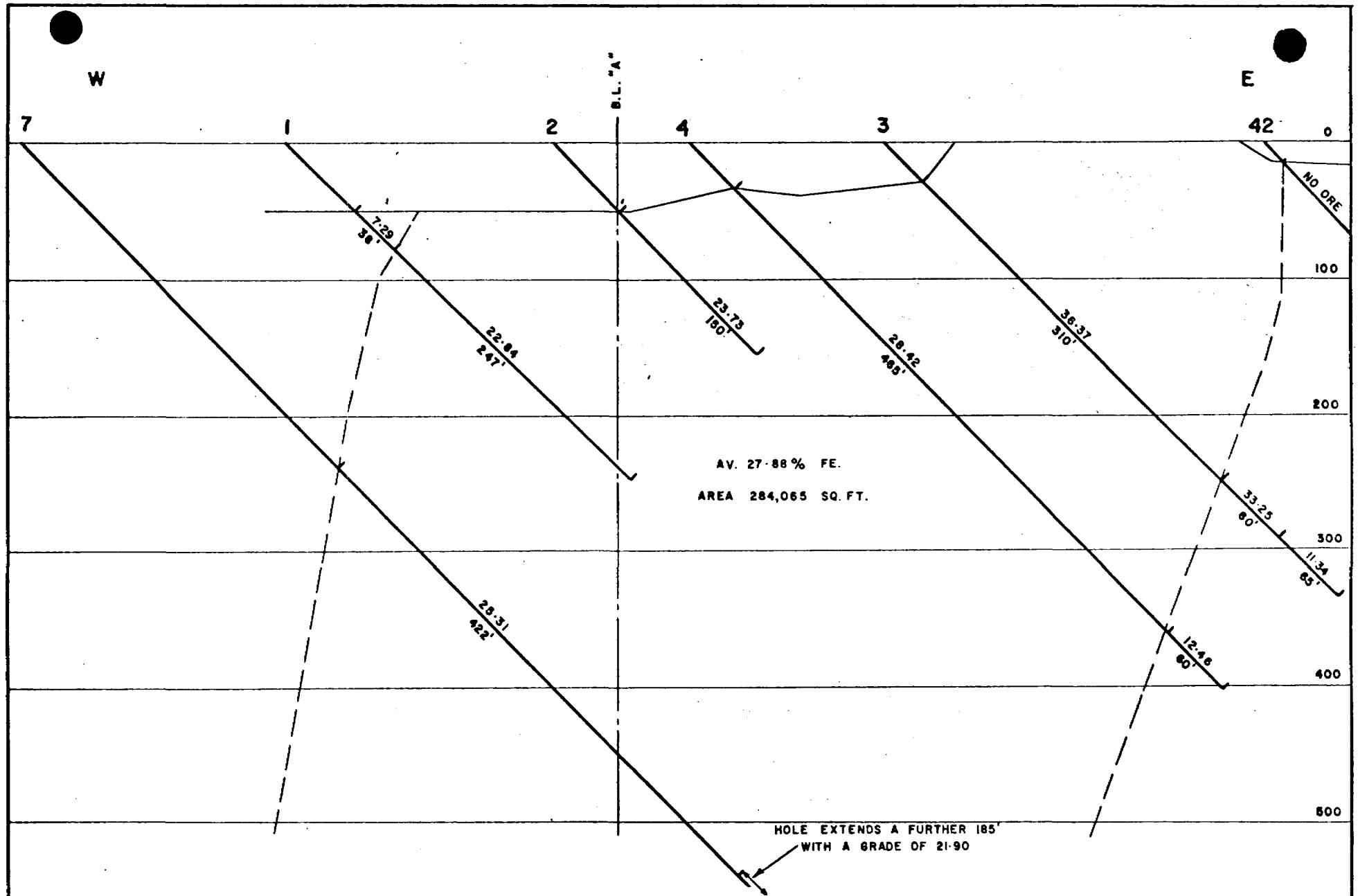


NEW MYLAMAQUE EXPLORATIONS LTD.

CHAFFEY OREBODY

SECTION OF HOLES 6, 11, 38, 39.

1" = 100'

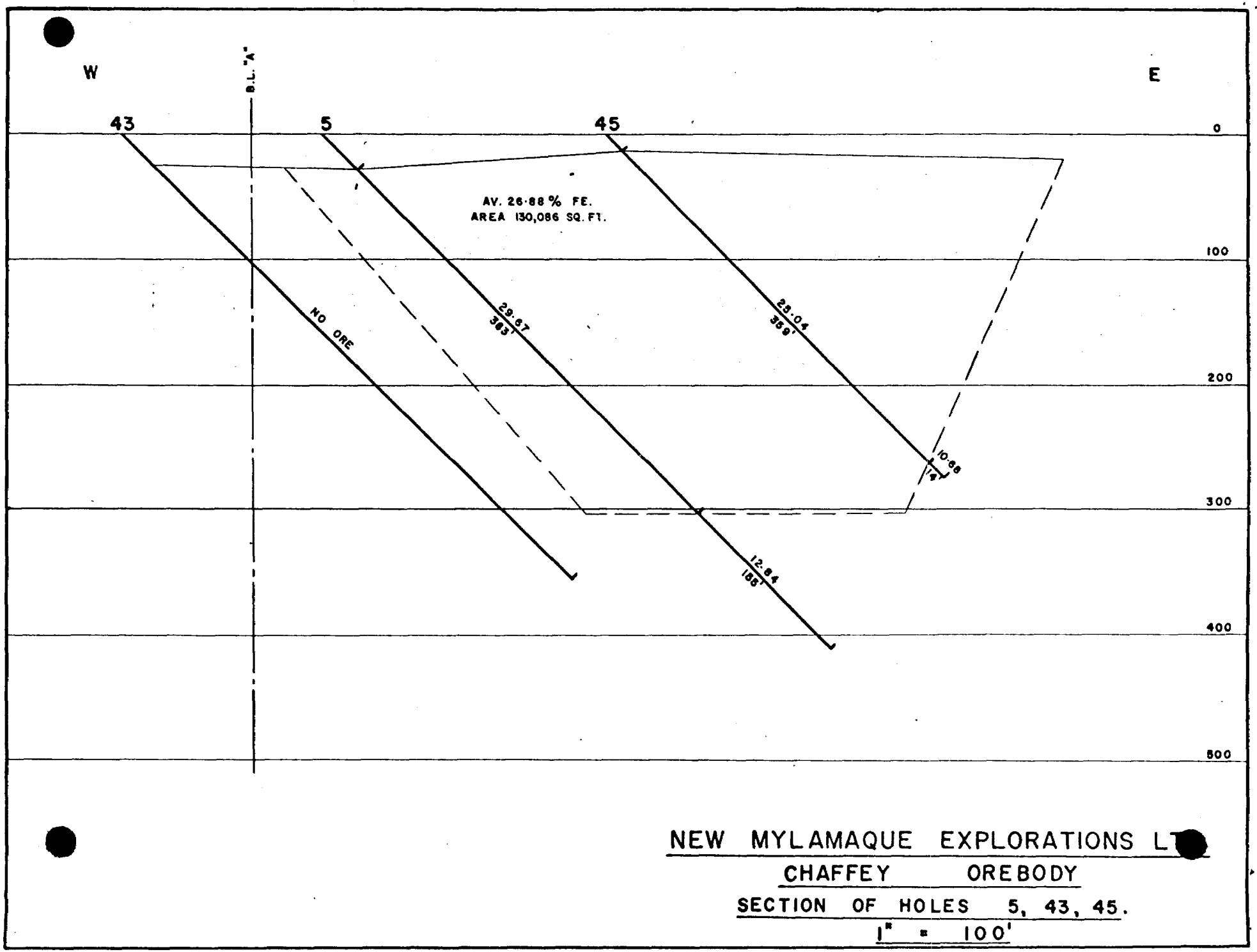


NEW MYLAMAQUE EXPLORATIONS LTD.

CHAFFEY OREBODY

SECTION OF HOLES 1, 2, 3, 4, 7, 42.

1" = 100'



NEW MYLAMAQUE EXPLORATIONS LT

CHAFFEY OREBODY

SECTION OF HOLES 5, 43, 45.

1" = 100'

NEW MYLAMAQUE MINING & SMELTING LIMITED

THE BOARD OF DIRECTORS PRESENTS
THE ANNUAL REPORT FOR THE
YEAR ENDED DECEMBER 31, 1966.

NEW MYLAMAQUE MINING & SMELTING LIMITED

EXECUTIVE OFFICES
SUITE 601, 11 ADELAIDE STREET WEST
TORONTO 1, ONTARIO

DIRECTORS' REPORT

To the Shareholders:

The Directors are pleased to present the audited financial statements of your company for the year ended December 31, 1966.

As previously reported, your company received a letter of intent from Rio Algom Mines Limited (on behalf of its Atlas Steels Company Limited division) and Lake Ontario Steel Company Limited, in connection with a proposal for a long term contract to purchase improved iron pellets.

Briefly summarized, the proposed contract is for the purchase of a minimum 275,000 tons per year of such pellets, for a period of ten years commencing in 1968. The contract proposal included a provision whereby these two companies would, independently, have the prior right to purchase the annual output of pellets in excess of the contract amount of 275,000 tons per year.

The proposal stipulated the customary grade specifications and limits to the content of metal impurities, with provisions for bonus or penalties for variations of grade and impurities within certain acceptable limits.

The 1965 Annual Report noted that the project was contingent upon certain factors including a detailed feasibility study, additional testing to establish engineering and design criteria, as well as the financing arrangements to cover the capital costs of the proposed beneficiation complex to produce the iron pellets. The Annual Report also noted that financing concept of the foregoing plant is based on the formation of a new company to own and operate the mine and plant, with your company retaining a substantial equity interest.

Feasibility Study

Canadain Bechtel Limited was awarded a contract on July 5, 1966, to prepare a preliminary engineering study and cost estimate for the proposed open pit mine and beneficiation complex to produce reduced iron pellets at the company's property at Newboro Lake, Ontario. The cost of the feasibility study was $50,000.00, as shown in the financial statements. Canadian Bechtel Limited submitted its detailed feasibility study to your company under date of November 29, 1966.

As a result of the feasibility study, certain of the former criteria relating to the type of ore to be treated, the open pit design and development, and the treatment process, have now been revised.

Metallurgical Tests

Previous tests performed at the Ontario Research Foundation employing fine grinding and magnetic concentration demonstrated that a concentrate assaying 65.5% total iron could be obtained by magnetic separation after conventional grinding and milling. Additional metallurgical tests were carried out by Lakefield Research of Canada Limited under the supervision and direction of Canadian Bechtel Limited. The objectives were to minimize grinding costs and maximize concentrate grade.

The proposed flowsheet developed as a result of the testing carried out by Lakefield Research consists of primary wet autogenous grinding, two-stage wet magnetic separation followed by regrinding of the rougher concentrate in a ball mill. The reground material is further upgraded in magnetic finishers to produce a final filtered concentrate assaying 65% total iron.

NEW MYLAMAQUE MINING & SMELTING LIMITED

(Incorporated Under the Laws of the Province of Ontario)

STATEMENT OF DEVELOPMENT AND ADMINISTRATIVE EXPENDITURES DEFERRED

For the year ended December 31, 1966

DEVELOPMENT EXPENDITURES			
Newboro Area, Ontario			
Cost of feasibility study		$50,000.00	
Engineering—salaries	$15,000.00		
—expenses	2,901.25	17,901.25	
Transportation		1,293.91	
Field office expense		332.14	
Property taxes and sundry expenses		2,835.89	
Concentration and smelting tests		12,063.18	
Diamond drilling		1,248.00	$ 85,674.37
ADMINISTRATIVE AND CORPORATE EXPENSES			
Management, accounting and secretarial services		$ 3,000.00	
Office rent and expenses		4,707.54	
Legal and audit		2,044.20	
Telephone and telegraph		623.18	
Registrar and transfer agents' fees and expenses		2,550.41	
Annual meeting and reports		1,788.97	
Sundry expenses		994.79	
		$15,709.09	
Deduct: Investment income	$ 4,405.03		
Miscellaneous income	611.97	5,017.00	10,692.09
Expenditures for the year			$ 96,366.46
BALANCE DEFERRED AT JANUARY 1, 1966			1,028,049.37
BALANCE DEFERRED AT DECEMBER 31, 1966			$1,124,415.83

NEW MYLAMAQUE MINING & SMELTING LIMITED

STATMENT OF DEFICIT

For the year ended December 31, 1966

BALANCE — January 1, 1966		$1,321,349.14
Add: Oil lease rentals and expenses written-off	$ 187.17	
Cost of interest in other mining company written down to nominal value	37,499.00	
Cost of mining claims abandoned	14,000.00	51,686.17
BALANCE — December 31, 1966		$1,373,035.31

NEW MYLAMAQUE MINING & SMELTING LIMITED

(Incorporated Under the Laws of the Province of Ontario)

$ 27,581.43		
6,127.18		
35,000.00	$ 68,708.61	
$ 306,444.40		
1,127.00		
1,050.00	308,621.40	
$ 19,980.05		
1.00		
1,124,415.83	1,144,396.88	
		$1,521,726.89
	$ 19,008.57	
Net		
$2,789,503.63		
86,250.00		
$2,875,753.63		
1,373,035.31	1,502,718.32	
		$1,521,726.89

AUDITORS' REPORT

To the Shareholders

We have examined the balance sheet of New Mylamaque Mining & Smelting Limited as at December 31, 1966 and the statement of development and administrative expenditures deferred for the year ended on that date. Our examination included a general review of the accounting procedures and such tests of accounting records and other supporting evidence as we considered necessary in the circumstances.

In our opinion, the accompanying balance sheet and statement of development and administrative expenditures deferred present fairly the financial position of the company as at December 31, 1966 and the results of its operations for the year ended on that date, in accordance with generally accepted accounting principles applied on a basis consistent with that of the preceding year.

Respectfully submitted,

SOUPCOFF, STARKMAN, KRAFT & CO.
Chartered Accountants.

Toronto, Ontario.
April 3, 1967.

APPROVED ON BEHALF OF THE BOARD OF DIRECTORS:

"J. R. Booth," Director.

"M. Goldhar," Director.

To be read in conjunction with the Auditors' Report to the Shareholders attached hereto dated April 5, 1967.

BALANCE SHEET AS AT DECEMBER 31, 1966

ASSETS

CURRENT ASSETS
Cash
Accounts receivable
Short term notes (at cost)

FIXED ASSETS (At Cost)
Mining property and claims—Newboro Area, Ontario
Office furniture and fixtures
Truck

OTHER ASSETS AND DEFERRED CHARGES
Interest in other mining companies and claims, at cost and nominal values
Interest in oil and gas leases, Alberta, at nominal value
Exploration and administrative expenditures deferred, (at cost)

LIABILITIES AND SHAREHOLDERS' EQUITY

CURRENT LIABILITIES
Accounts payable and accrued liabilities

SHAREHOLDERS' EQUITY
Capital Stock
Authorized
10,000,000 shares of $1.00 each

Issued

	Par Value	Discount
7,300,000 shares as at Jan. 1, 1966	$7,300,000.00	$4,510,496.37
450,000 shares issued for cash during year	450,000.00	363,750.00
7,750,000 shares issued Dec. 31, 1966	$7,750,000.00	$4,874,246.37

Deficit

NEW MYLAMAQUE MINING & SMELTING LIMITED

(Incorporated Under the Laws of the Province of Ontario)

STATEMENT OF DEVELOPMENT AND ADMINISTRATIVE EXPENDITURES DEFERRED

For the year ended December 31, 1966

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ADMINISTRATIVE AND CORPORATE EXPENSES			
Management, accounting and secretarial services		$ 3,000.00	
Office rent and expenses		4,707.54	
Legal and audit		2,044.20	
Telephone and telegraph		623.18	
Registrar and transfer agents' fees and expenses		2,550.41	
Annual meeting and reports		1,788.97	
Sundry expenses		994.79	
		$15,709.09	
Deduct: Investment income	$ 4,405.03		
Miscellaneous income	611.97	5,017.00	10,692.09
Expenditures for the year			$ 96,366.46
BALANCE DEFERRED AT JANUARY 1, 1966			1,028,049.37
BALANCE DEFERRED AT DECEMBER 31, 1966			$1,124,415.83

NEW MYLAMAQUE MINING & SMELTING LIMITED

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Cost of mining claims abandoned	14,000.00	51,686.17
BALANCE — December 31, 1966		$1,373,035.31

NEW MYLAMAQUE MINING & SMELTING LIMITED

OFFICERS AND DIRECTORS

Maxwell Goldhar	Chairman of the Board and Director
John R. Booth	President and Director
Robert E. Fasken	Sr. Vice-President and Director
Patrick J. Hughes	Vice-President and Director
Kenneth Kelman	Director
Jean A. Kerr	Secretary-Treasurer and Director
A. Goldhar	Director

AUDITORS

Soupcoff, Starkman, Kraft & Co. ..... Toronto, Ontario

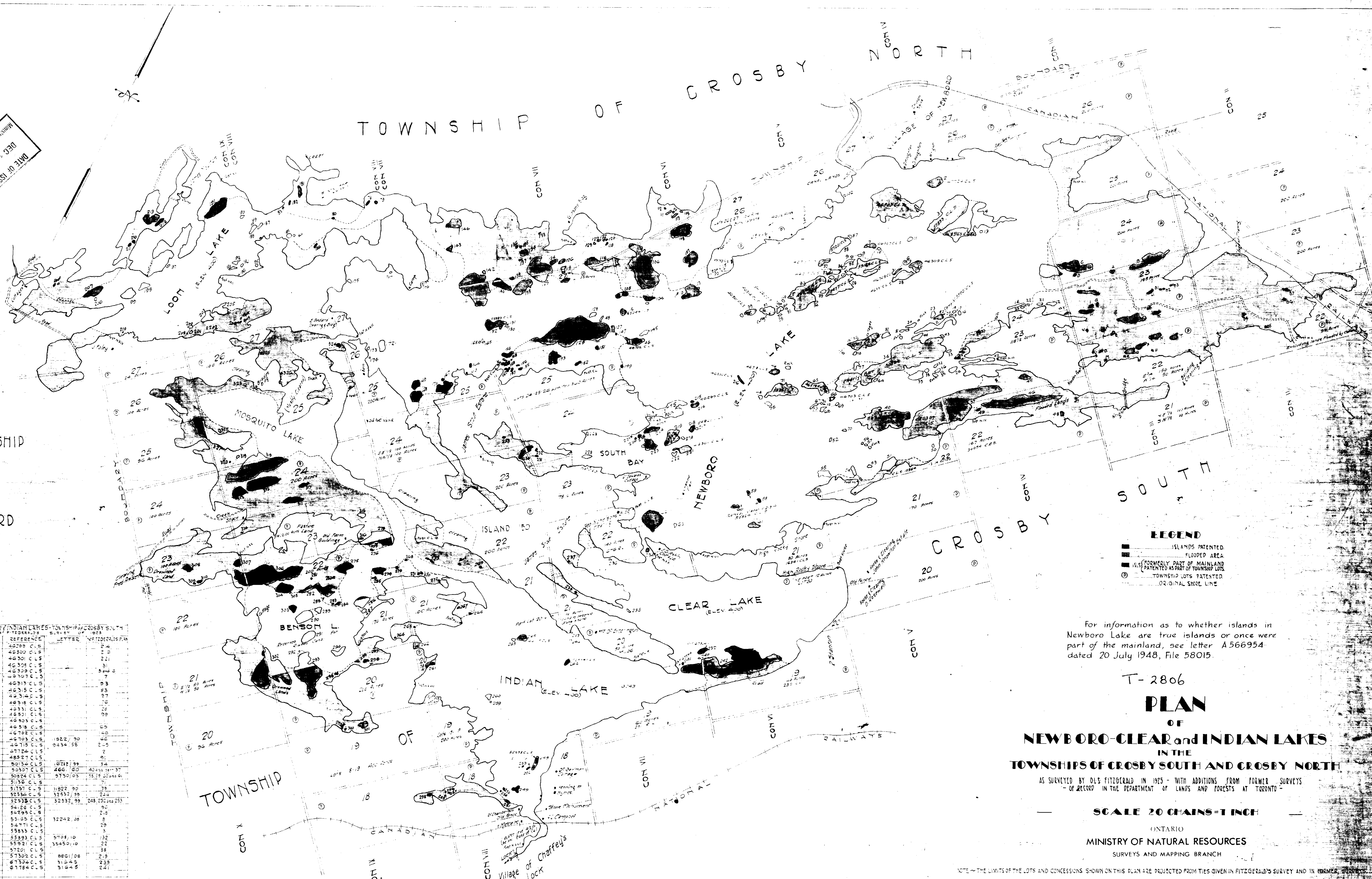
BANKERS

Bank of Nova Scotia ..... Toronto, Ontario

TRANSFER AGENT AND REGISTRAR

The Crown Trust Co. ..... Toronto

The Company's shares are listed on the Toronto Stock Exchange



LEGEND

- ISLANDS PATENTED
- FLOODED AREA
- ISLS { FORMERLY PART OF MAINLAND / PATENTED AS PART OF TOWNSHIP LOTS
- (P) TOWNSHIP LOTS PATENTED
- ORIGINAL SHORE LINE

For information as to whether islands in Newboro Lake are true islands or once were part of the mainland, see letter A566954 dated 20 July 1948, File 58015.

T-2806

PLAN OF NEWBORO-CLEAR and INDIAN LAKES IN THE TOWNSHIPS OF CROSBY SOUTH AND CROSBY NORTH

AS SURVEYED BY O.L.S. FITZGERALD IN 1925 - WITH ADDITIONS FROM FORMER SURVEYS - OF RECORD IN THE DEPARTMENT OF LANDS AND FORESTS AT TORONTO -

SCALE 20 CHAINS = 1 INCH

ONTARIO
MINISTRY OF NATURAL RESOURCES
SURVEYS AND MAPPING BRANCH

NOTE — THE LIMITS OF THE LOTS AND CONCESSIONS SHOWN ON THIS PLAN ARE PROJECTED FROM TIES GIVEN IN FITZGERALD'S SURVEY AND IN FORMER SURVEYS.

APPROVED ....
SURVEYOR GENERAL - DEPUTY MINISTER

DEPARTMENT OF SURVEYS
PARLIAMENT BUILDINGS
TORONTO - DECEMBER 1931

ISLANDS IN NEWBORO-CLEAR & INDIAN LAKES - TOWNSHIP of CROSBY SOUTH
PATENTED PRIOR TO FITZGERALD'S SURVEY OF 1923

ISLAND	SURVEYED	REFERENCE	LETTER	Nº FITZGERALD'S PLAN
LIZZIE	Nº 27 W. Beatty	46299 C.L.S.		214
IDA	Nº 22 W. Beatty	46300 C.L.S.		2 2
BUNNY	Nº 25 W. Beatty	46301 C.L.S.		221
BELLEVIEW	Nº 6 W. Beatty	46308 C.L.S.		31
SUNRISE	Nº 5 W. Beatty	46309 C.L.S.		5 and 6
STURGEON	Nº 8 W. Beatty	46307 C.L.S.		7
COVE	Nº 11 W. Beatty	46313 C.L.S.		93
GLENCAIRN	Nº 12 W. Beatty	46315 C.L.S.		83
IDALIA	Nº 16 W. Beatty	46314 C.L.S.		97
ISLE of WIGHT	Nº 18 W. Beatty	46318 C.L.S.		76
GRAPE	Nº 7 W. Beatty	46331 C.L.S.		28
PRESTON	Nº 17 W. Beatty	46501 C.L.S.		99
McCASKILLS	Nº 1 W. Beatty	46503 C.L.S.		
TRALEE	Nº 20 W. Beatty	46518 C.L.S.		65
	Nº 29 W. Beatty	46702 C.L.S.		146
MEADOWS	Nº 31 W. Beatty	46703 C.L.S.	1822/90	66
FETERCAIRN	T.W. Nash	46715 C.L.S.	9434/58	245
CHERRY	Nº 2 W. Beatty	47724 C.L.S.		2
EMERALD	Nº 14 W. Beatty	48527 C.L.S.		90
CHARLY BARR	McPherson	50134 C.L.S.	16212/99	34
GIFFORDS (2)	W. Beatty	50307 C.L.S.	4661/60	40 and part 37
RAMSAY (1,2,3 & 4)	W. Beatty	50824 C.L.S.	9730/03	58, 59, 60 and 61
	Nº 19 W. Beatty	51136 C.L.S.		71
	Nº 32 W. Beatty	51757 C.L.S.	11822/90	79
TERRYMORE	W. Beatty	52534 C.L.S.	32532/99	244
ROCK	W. Beatty	52535 C.L.S.	32532/99	248, 252 and 253
SPIDER	Nº 15 W. Beatty	54126 C.L.S.		96
SHADOW GLEN	Nº 26 W. Beatty	54295 C.L.S.		218
RABBIT	S.B. Code	55165 C.L.S.	32242/08	8
ROCKY BLUFF	Nº 13 W. Beatty	54771 C.L.S.		29
	Nº 3 W. Beatty	55833 C.L.S.		3
MIDWAY	S.B. Code	55893 C.L.S.	5708/10	132
CAMP	S.B. Code	55921 C.L.S.	35450/10	22
LEWIS	Nº 10 W. Beatty	57201 C.L.S.		88
BELLE	S.B. Code	57302 C.L.S.	8861/08	219
ISL. in CLEAR LAKE	G.L. Brown	67304 C.L.S.	31645	239
ISL. in CLEAR LAKE	G.L. Brown	67784 C.L.S.	31645	241

200

NEWBORO LAKE

CHAFFEY ISLAND

LEGEND

- MONZONITE, SYENITE, & GRANITE (MINOR)
- GABBRO - MONZONITE CONTACT ZONE (HYBRID ROCKS)
- WHITE PERTHITE - QUARTZ PEGMATITE
- HYBRID GRANITOID GNEISS, INTERLAYERED W. BIOTITE SCHIST
- MASSIVE IMPURE QUARTZ W. BIOTITE SCHIST & GRANIT. GNEISS
- LAYERED MAGNETITE - ILMENITE ORE
- ANORTHOSITIC GABBRO W. DISSEMINATED ORE MINERALS (10-20% Fe)
- ANORTHOSITIC GABBRO

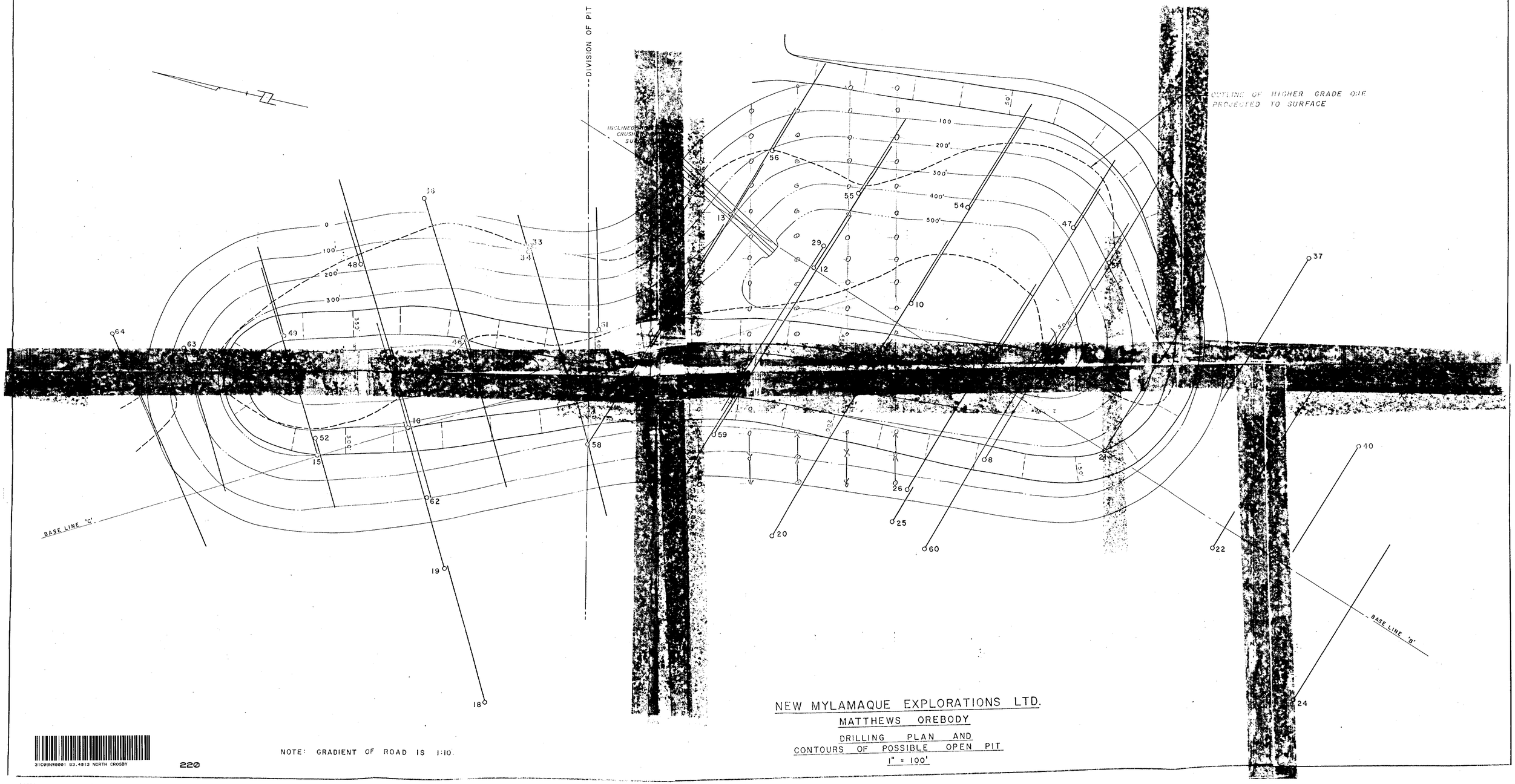
- ASSUMED GEOLOGICAL BOUNDARIES (GRADATIONAL CONTACTS)
- MAGNETIC CONTOURS
- ASSUMED FAULT (MYLONITE)
- STRIKE OF ORE LAYERS & GNEISSIC LINEATION; DIP NEARLY VERTICAL
- FOLIATION

NEW MYLAMAQUE EXPLORATIONS LTD.
NEWBORO - ONTARIO

GEOLOGIC MAP

SCALE - 1in.=200ft.
DATE - JULY 8, 1959
REVISED -
DRAWN BY - R & S
& RAMES
APPROVED -

REDUCED TO 1"=500'



NOTE: GRADIENT OF ROAD IS 1:10.

NEW MYLAMAQUE EXPLORATIONS LTD.

MATTHEWS OREBODY

DRILLING PLAN AND
CONTOURS OF POSSIBLE OPEN PIT
1" = 100'