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RECONSTRUCTION FINANCE CORPORATION
MINING SECTION
REPORT OF SUPERVISING ENGINEER
****

Docket No: 6224
Date of Examination: June 11-12, 1947
Date of Report: June 30, 1947

1. NAME AND ADDRESS OF APPLICANT:

Reymert Extension Silver Mines
c/o Whitney, Ironside and Whitney
P. O. Box 521
810 Luhrs Tower
Phoenix, Arizona

Correspondent: Norman De Vaux
Address as above

2. CHARACTER OF PROJECT:

Development of silver deposit.

3. LOCATION OF MINE:

The mine is located in Sections 15, 22, 23, 26 and 27, T. 2 S., R. 11 E., G.&S.R.B.M., the Pioneer (Superior) Mining District in Pinal County, Arizona, and is some 60 miles westerly by road from Phoenix. The nearest market for the ore is the Magma Smelter at Superior, Arizona, 7 miles distant from the mine. Ore is trucked to the smelter over two miles of good dirt road and then 5 miles of paved highway. Elevation at the mine is approximately 3000 feet. The mine is readily accessible at all seasons.

4. APPLICANT:

The applicant is an Arizona corporation, which holds the property under a lease and option to purchase agreement with the owners. Copy of the agreement is attached herewith. The principal in the corporation is Norman De Vaux who is president and managing director of the corporation. Associated with Mr. De Vaux as a director is Fred A. Bennett who, with Mr. De Vaux, operated under an RFC loan and repaid the loan in 1945 (Docket No. ND-5507).

Mr. De Vaux and Mr. Bennett recently terminated an operation on an Old Dominion dump which they sorted and shipped under lease from Miami Copper Company. The venture was highly successful, producing some 450 carloads of ore assaying around 6% Cu. These men are both elderly and each has a long record of successful enterprise in the manufacture and sale of automobiles dating back to the early development of that industry. Mr. De Vaux built and managed the Chevrolet factory in Oakland in 1915, and in 1938, and for several years thereafter he managed the re-organized Hupp Motor Company. Also, during the early 1930's, he put out a car known as the De Vaux. He handles the business details of the corporation and is competent to do so. He knows very little about mining and makes no pretensions in this direction, and for guidance in the mining work he counts upon Frank Carrow, who is a director of the corporation and superintendent of operations, and upon Lynn Hersey, consulting engineer. Mr. Carrow is an old-time practical mining man who has conducted lease operations in Arizona many years, including a number of years as a co-lessee of the subject property. Mr. Lynn Hersey is a well known mining engineer of wide experience. During the war he acted as an assistant to F. H. Hays in the copper division of the W.P.B.

Stock of the Raymert Extension Silver Mines has not been sold indiscriminately to the public but instead to certain friends and former business associates of Mr. De Vaux and Mr. Bennett. Mr. De Vaux states that sufficient additional funds are firmly promised to provide for the installation of a mill (as soon as the metallurgical test work now in progress is completed) to handle the indicated large tonnage of low grade ore throughout extensive mine workings above the water table.

5. LOAN REQUESTED:

$20,000.00 The specific purpose for which the loan funds is to be expended is to dewater the Alaska Shaft and develop the vein at depth below areas which were productive in the upper workings.

6. DESCRIPTION OF PROJECT:

A. General Features:

1. There are no mine workings, mill, etc. which are not confined within the applicant's ownership.

2. The project would comply with State compensation and Safety-first statutes.

3. There are no apparent legal discrepancies in the proposed project.

4. There are no impeded right-of-way facilities.

5. There is no likelihood of surface or sub-surface trespass during the project.

B. Existing Development:

1. The mine is opened by shafts and tunnels.

a. & b. The accompanying sketch was made from a compass survey with paced and taped distances. The workings are very extensive, comprising many shafts, tunnels and open stopes throughout over a mile of length along the lode. No comprehensive set of maps is available, and most of those that are available are incomplete or are small scale generalizations. The best of the maps submitted in the application is a longitudinal section through all the workings (see large rolled blue print marked "A" in green crayon) said to have been made by the Eagle Picher Company. This company made a very thorough examination of the mine about 1937, and evidence of its surveying and sampling is seen throughout the workings. However, except for the longitudinal section, very little of these data are available. The present examination and sampling and report are concerned principally with the 200-foot level of the Alaska workings below which the proposed development with loan funds is to be performed. Samples were cut with pick and moil and gathered on canvas, and the location and assay results are shown on the sketch accompanying this report.

c. A large part of the workings are inaccessible or only partially accessible. The workings in the lower part of the Alaska shaft in the area to be developed are mostly accessible.

d. General Features of the Deposit, etc.:

The property is known as the Reymert mine and comprises at present 7 patented and 10 unpatented claims. The mine was discovered and first worked in 1886. Soon thereafter a roast and pan-amalgamation plant was put into operation several miles south of the mine and the town of Reymert grew up around the mill. The property was worked on a fairly substantial scale until the early 1890's when a sharp decline in the price of silver forced cessation of work. There then followed a long period of inactivity, except for some small desultory lease operation, until 1914-1915 when a group of officials of the Magma Copper Company, operating as the Lincoln Issues, undertook deep development of the property (sinking the present Alaska shaft). The development proved disappointing and work was discontinued. Production was resumed by lessees in 1925, and from that date to October, 1946, inclusive, production was continuous and substantial except during the depression years of the early 1930's. During this period a Mr. Tod, as lessee, operated the property for several years just prior to the recent war and made a large production, with shipments exceeding 20,000 tons in 1939. Mr. Tod sank a new shaft on the Australia claim and his production was derived principally from working from this shaft in the Australia and the adjoining Africa claims.

The applicant took over the Reymert mine in July, 1946. After shipping 8 cars of ore averaging 13.52 oz. Ag. per ton from the Tod shaft workings, operations were suspended (in October, 1946) and the property has been maintained on a stand-by basis since that time. The shipping operations of the applicant-corporation proved uneconomical because of greatly increased labor, hauling and supply costs over those prevailing before the war, and also because of a higher smelter rate ($5.00 per ton base as against the $2.50 rate or less formerly charged.). Metallurgical tests are presently being conducted on the ore and Mr. De Vaux is confident, in view of results obtained to date, that a treatment procedure will soon be worked out which will justify building a concentrator on the property and permit handling the large tonnage of low grade material believed to exist in the mine.

The applicant has submitted a compilation of production to date of September, 1945. The totals are: 162,419 tons of ore assaying approximately 15.0 oz. Ag. per ton. The tabulation carries a note to the effect that some of the silver figures in the tabulation may represent only the silver paid for by the smelter (and therefore not the assay content of the ore). Production beyond the last date of the above compilation (September, 1945) has amounted to some 2000 tons assaying approximately 12.8 oz. Ag. per ton, and the total indicated production of the mine therefore is about

Tons	Av. Oz. Per Ton	Total Oz. Ag.
164,000	15.1	2,480,000

d. The deposit differs from most desert silvers in the almost complete absence of high grade stringers and bonanza pockets. Instead the silver occurs in numerous long ore shoots with widths ranging from 3 feet to 10 feet, and silver content is low to moderate in amount.

Most of the production has been made by lease operators, and maps and records of assays and sources of ore shipped are almost wholly lacking. Only rather general deductions can be drawn from such data as are available, and considerable reliance must be placed upon the memory of people acquainted with certain periods of the older operations. Generally, then, the Tod workings on the Australia and Africa claims produced a large volume of ore which assayed 10 to 11 oz. Ag., and the Alaska claim produced an almost equal amount of ore which assayed 15 to 16 oz. Ag. per ton. Some of the best ore mined in recent years was taken from a long ore shoot in the east vein south of the Alaska shaft. It is said that this ore assayed above 20 oz. Ag. per ton. Also, the very old workings, principally on the America claim, now mostly caved, appear to have produced a large quantity of ore assaying 20 to 30 oz. Ag.

The occurrence of the silver in association with manganese appears to have prevented cyaniding the ore.

Geology and Veins:

The mine is located in a region of moderately rugged topography. The country rock in the immediate area is a grey-brown fissile to platy and blocky micaceous schist. The schist is cut by a fissure vein, averaging about 70 feet in width, which courses through the length of the property at a strike of approximately N 15° W. The vein stands vertical, or dips slightly toward the east, and cuts across the schistosity of the country rock. The contact walls of the fissure are rough but sharply defined. The vein has been subjected to intense internal movement resulting in brecciation of the vein material; and the period of brecciation was followed by longitudinally fault movement in the brecciated vein mass. This latter phase of activity resulted in the formation of veins within the big vein. The most important of these veins lie along or near the west and east walls of the vein zone. In places some parallel veining occurs in the breccia mass at some distance from the east and west wall veins.

The brecciated material of the vein zone is highly siliceous and somewhat calcareous. The principal gangue minerals are quartz and calcite with lesser amounts of barite and manganese. The silver ore mineral occurs in close association with manganese and is probably cerargyrite. No other metals are present in economic amounts. The individual veins in the vein zone are generally recognizable on the surface by characteristic black, reef-like croppings.

The west or "Black Vein", sometimes called the foot wall vein, has received most attention in the past and has accounted for the major part of the total ore production of the property. This vein has been mined at intervals throughout a length of some 6000 feet - most intensively

d. in the Tod workings in the Africa and Australia claims, and in the Alaska and America claims. The workings along this vein are only partially accessible, and they are evidenced in the mined areas at the surface by long deep open stopes forming frequent narrow slots in the hills. The east vein is less prominent and less continuous and does not appear to have made any important production except in the vicinity immediately south of the new shaft in the Alaska claim. Production from here is reported to have been quite substantial, and the grade of ore higher than the average for the property as a whole.

Development:

The development of the mine is indicated on maps which were submittted with the application, in particular the blue print longitudinal section of the mine (marked "A" with green crayon). Also, the area under consideration with proposed development is shown on the attached sketch made by the writer of this report.

Surveying and sampling during this examination were confined to the 200 foot level north in the Alaska new shaft. This shaft was sunk in 1915 by the "Lincoln Issues" (Magma) group to a depth of 410 feet and a cross-cut was driven 75 feet easterly at this depth. The purpose of the development was to test the vein for a sulphide ore zone below areas which had been productive above the water level (about 230 feet). The accounts of the work are rather vague, but results seem to have been disappointing.

The applicants consider that the mine holds great promise for developing base metals in depth and they assert that the cross-cut at the bottom of the Alaska shaft did not extend far enough easterly to reach the vein and therefore did not accomplish the exploratory purpose of the development. This opinion is based upon an assumed easterly dip of the vein of 79° from the collar of the shaft.

As regards the possibility of finding silver enrichment, or base metals in economic proportions at the 400 foot level horizon, the writer would point out first that there is no evidence that a primary zone was reached at 400 feet, and, second, the vein in the upper workings does not show evidence of intense leaching, and there is no copper staining and little limonite or other iron oxide, and in any event the residual amounts of zinc and lead as shown by sampling on the 200 foot level (described later) are small, and copper is present in only an insignificant amount. While these conditions do not appear favorable, they do not rule out entirely the possibilities. Quartz veins carrying silver and heavy manganese in their croppings have in some localities developed in a surprising fashion in the sulphide zone.

As regards the applicants' contention that the cross-cut on the 400 foot level did not reach the vein, the writer does not find evidence to support this opinion. The applicant assumes a dip of vein from the collar of the shaft which would project the so-called foot wall or west wall of the vein to a point some 65 feet easterly from the shaft at 410 feet. Actually, however, the shaft is collared some 35 to 40 feet easterly from the foot wall

4. of the fissure at the surface. Also, the writer was unable to find vein dips in surface cuts and open stopes in the Alaska shaft area which would indicate any appreciable dip from the vertical. In fact, as many steep westerly dips were noted as easterly. In the Tod workings (Australia claim) some 2500 feet south of the Alaska shaft the vein does dip definitely easterly at 80° or steeper. The 400 foot level cross-cut is reported to have cut an 8 foot breccia zone and a large volume of water at about 50 feet.

The development was done by competent mining people and it is to be presumed that nothing important was uncovered. A 75 foot cross-cut with no drifting does not seem to have been a fair test of such a big vein. It is said that further work was discouraged by a decline in the price of silver in early 1915 coupled with the outbreak of war in Europe.

It is worth noting that the average price for silver in 1914 (the year the work was begun) was 54.8¢ per oz. and that the price dropped to 49.7¢ in 1915 and rose sharply each year thereafter reaching a maximum (av.) of 111.1¢ in 1919.

It is reported that a number of diamond drill holes were put down a good many years ago. No data are available concerning this drilling, but it is said that the holes were deflected by the bedding of the schist and did not reach the vein.

Sampling:

Following is a description of the sampling by the writer on the 200 foot level of the Alaska shaft:

The vein is drifted upon north and south from the shaft. South of the shaft nothing of interest was noted and the vein showing was not attractive, and since no stoping was done above the level no samples were cut here. North from the shaft no ground had been stoped between the 200 foot level and the 135 foot level until at 215 feet from the shaft. Stoping was continuous from a point 235 feet from the shaft to a cave in the drift at 460 feet from the shaft. Old maps show extensive stoping for a considerable distance northerly from this caved place. Samples 18, 19, 20 A and 20 B were cut at random points between the shaft and the beginning of the stopes. Beginning with Sample No. 1, samples were cut at 10 foot intervals, where possible, as far as the caved point. Between samples No. 10 and No. 11 the ground had been underhand stoped below the level, and between samples 11 and 14 the stope was open above with occasional stulls and platforms at varying heights above the level. Samples 11 and 12 were cut in the floor of the drift, but it was impossible to cut floor samples between No. 12 and No. 14 because of a heavy covering of debris on the floor. The weighted average of the samples under the stoped area beginning with sample No. 3 and excluding No. 13, which was not a vein sample, is:

Width	Oz. Au.	Oz. Ag.
58 inches	Trace	13.53

d. A composite (not weighted) of the samples in the stoped area assayed as follows:

Oz. Au.	Oz. Ag.	% Cu.	% Pb.	% Zn.	% $BaSO_4$
Trace	15.0	.05	.70	.61	7.26

C. Ore Reserves and Values:

The applicant claims to have a developed large reserve of low grade milling ore (8 to 12 Oz. Ag. per ton) in the many openings on the property. They plan to build a concentrator which will recover the silver, along with small values in lead, in a lead concentrate. They also believe that the appreciable barite content of the ore can be economically recovered in a marketable concentrate. While maps and assays are not available to support the claims regarding the large volume of material available, the claim does not seem unreasonable in the light of the following considerations: The property has always operated upon a very narrow margin above treatment and transportation and mining costs, and working places have almost always stopped at economic cut-off assays rather than because of exhaustion of silver bearing vein material. The price of silver and the smelter treatment rates available have been the principal governing factors in the mine's production. The ore in the past has been desirable for its fluxing properties, and the smelters have generally set low treatment rates. Most of the ore shipments have gone to the nearby Magma smelter at Superior, but a substantial amount was taken at various times by the International Smelter at Miami. The smelters do not seem disposed to grant low treatment rates at the present, as witness the $5.00 rate charged by Magma on the most recent shipments (September - October, 1946).

The sampling indicates an average width of 58 inches and silver content of 13.53 oz. Ag. per ton for a continuous length of 215 feet. Most of the samples were cut across the full width of the drift, and generally did not cover the full width of vein. Judging by the stope openings above the level, the ore would probably be mined for an average width of at least 6 feet.

The sampling indicates that values have not diminished in depth to this horizon and it would be entirely reasonable to assume a continuance of this condition for some distance - at least to water level some 35 feet deeper. Whether this is the permanent water level marking a change in the character of the vein and whether such a change would be favorable or unfavorable is a matter of conjecture. If, however, it is assumed that values continue about the same to the bottom or 400 foot level, the tonnage in the block under the sampling would be approximately 40,000 tons. A substantial additional tonnage north of the area sampled seems probably indicated by the stoping which was done there in the upper part of the mine.

The 200 foot level south shows no ore, although some very good ore was mined above there. The stoping, however, appears to have been done on a vein which lies at some distance from the 200 foot level south drift in its east wall, which has not been adequately tested by cross-cutting.

D. Costs and Indicated Profit:

Sampling of the ore shoot on the 200 foot level indicated a value of 13.53 oz. Ag. per ton. It will be noted on the sketch that no samples could be taken in a section which was underhand stoped and

D. in a section where no pillars were left above the level. Presumably these were better parts of the ore shoot and the assay value of the material of the ore shoot might therefore be expected to run somewhat higher than that shown by the sampling, and thus more nearly approximate the general average of the past production of the mine, or 15 oz. Ag. per ton. Using the sampling results, however, of 13.53 oz. Ag. per ton the ore would have a smelter net value, based upon silver at 90¢ per oz. and treatment and transportation costs of the last settlements, as follows:

13.53 x .95 x .90¢ or			$ 11.57
Less treatment	$5.00		
trucking	1.00		6.00
		Smelter Net	$ 5.57

After deducting a royalty of 2½% applicable to ore having the above net smelter value, the remainder is $5.57 - .14 or $5.43.

Mining cost would be low considering the fact that the ore shoots are long and continuous and of good mining widths and the vein stands vertical or nearly vertical. Also, the ground, while not hard, stands well as evidenced by the many stopes which are open for great lengths and heights. Shrinkage stoping is the indicated mining method. A mining cost of around $4.00 per ton ought to be attainable on a moderate scale of production, say 100 tons per day, even after giving full consideration to very high present day labor costs. If to this is added $1.00 per ton for general expenses (supervision, clerical, taxes, etc.) the total cost would be $5.00 per ton and indicated profit would be 43¢ per ton.

E. Purpose of Loan and Estimated Cost:

The loan requested is to be used to unwater the shaft and perform 500 feet of development on the 400 foot level. In order to prepare the indicated ore block, between the 400 foot level and the 200 foot level, for mining, some 500 feet of work must be done on a 300 foot level, and working raises driven in the block. Probably another $20,000 would be required for this work, and the total cost of development would therefore be $40,000 or $1.00 per ton for the estimated 40,000 tons in the block. In other words, to break even after providing for repayment of the loan and additional necessary developing the ore would have to return about $1.00 per ton above all costs.

Mr. De Vaux states that if the 400 foot level proves favorable his company will provide whatever additional funds are required for further development to put the property on a self-sustaining basis.

Close estimates of costs are difficult to make in view of the rapidly changing costs for labor (and its availability and efficiency) and supplies. Mr. Lynn Harvey's itemized estimate appears to be conservative enough. The writer would summarize the estimated cost of the project as follows:

Shaft repair, and pumping	$ 3,500.00	
Cross-cut and Drift, 400 foot level, 500 ft. @ $25.00 per foot	12,500.00	
Supervision, transportation, contingencies	4,000.00	$20,000.00

The shaft is in fair condition to water level. Mr. Carrow states positively that he sounded and measured below water and found the shaft to be clear to within several feet of bottom. Timbering under water is generally well preserved, and shaft expense therefore ought not to be a serious item.

F. Equipment:

The property is equipped with hoists, compressors, drills cars, etc, all in good working order, and adequate for the job (except possible rock drills). Bins and mine housing and other structures, and roads, are in good shape. The proposed expenditures with loan funds list a blower and rock drills, but the applicant has recently advised this office that the company will provide, at their own expense, these and any other necessary equipment items.

Camp:

Camp housing comprises several cottages and a number of cabins sufficient for a crew of about a dozen men. However, the camp is only 7 miles by good road from Superior, and it is expected that most of the working force will live there.

7. RECOMMENDATIONS OF SUPERVISING ENGINEER:

The Raymart mine has been a steady and substantial shipper of low grade silver ore for many years. Most of the past production has been made under lease operators, generally by an individual lessee, and sometimes by a partnership. The profit margin has been small, and the volume and grade of ore shipped have been governed closely by the price of silver and the treatment rate granted by the receiving smelter, generally Magma. The present settlement price of 90¢ per ounce for silver is the highest price paid during the recent production history of the mine and compares with an average price for all production of less than 70¢ per ounce. However, the favorable silver price situation is more than offset by a large increase in the smelting rate, a large increase in labor, and all other costs entering into mining. The present smelter rate, at $5.00 per ton, is almost double the average rate paid for the past production. The Magma smelter is not now inclined toward granting a more favorable rate. Possibly, in time, if the mine offered a large sustained rate of production a more favorable contract could be arranged.

Former mining operations have been carried down to within a short distance above the water level at a number of places on the property. No real test of the vein below water appears to have been made with the possible exception of the 400 foot shaft sunk by the "Lincoln Issues Company" in 1914-1915, and this test does not appear to have been very thorough, and, in fact, it is claimed by some that the vein was not reached in exploratory work from the bottom of the shaft.

Sampling on the 200 foot level north in the Alaska shaft indicates that at this place the ore continues to this horizon with about the same silver content as in the area that was stoped above. If it is assumed that the ore extends on down to the 400 foot level, the indicated probable profit from mining ore of the grade shown by the sampling is quite low and the estimated total profit in the indicated ore block would be insufficient to repay the cost for developing the block. It seems probable that the ore in this ore shoot would extend for a considerable distance northerly beyond the area sampled, and the chances for opening ore south of the shaft appear good. Also, it is possible that the ore developed by the proposed work would be somewhat higher grade than that shown by the sampling (for reasons discussed earlier in this report).

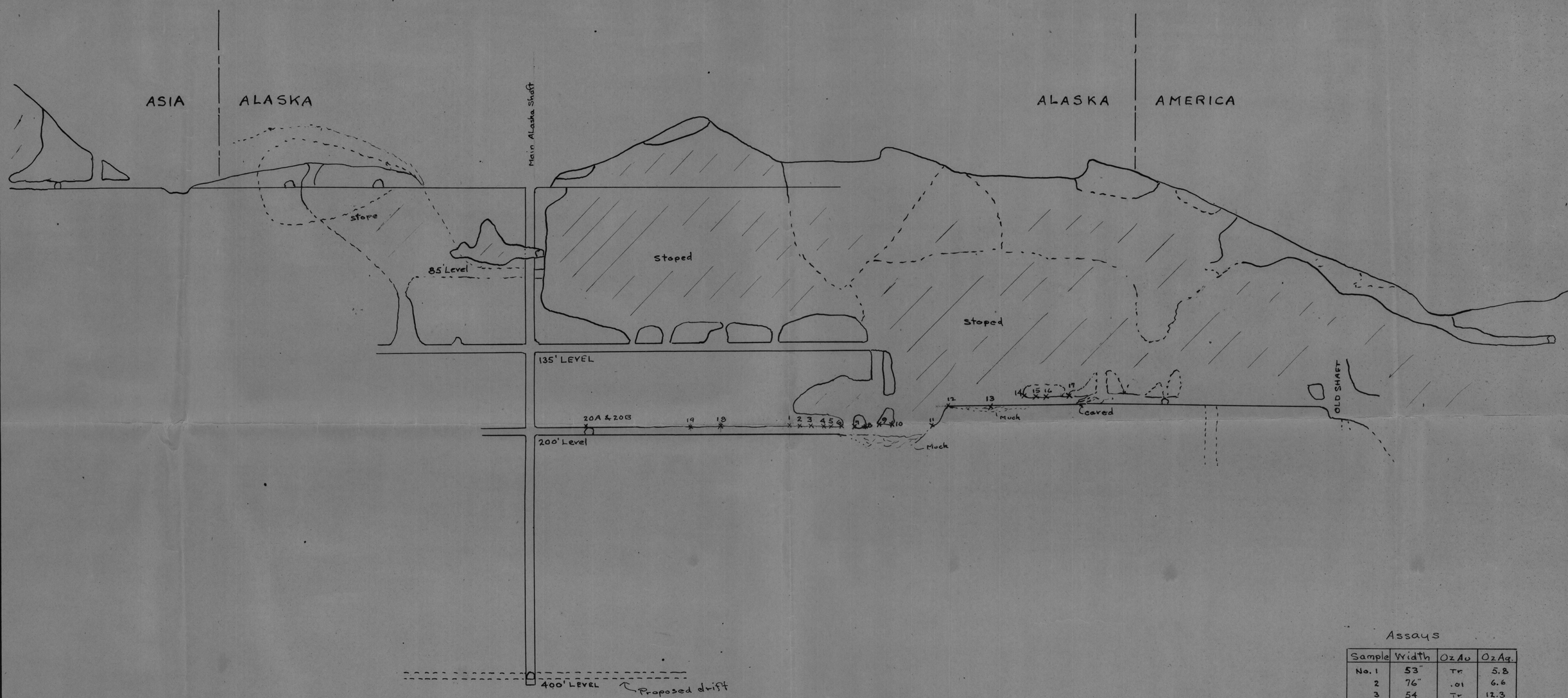
7. The most speculative feature of the project is, of course, what if any change will take place in the character and value of the vein below water. In the absence of evidence to the contrary, the writer believes the outlook in this respect is more favorable than not for finding values at least as good as those shown by the sampling on the 200 foot level.

However, because of high treatment and other costs, the indicated profit in the ore sampled appears to be too marginal to justify its further development, particularly in view of the manifest speculative nature of the development. A loan is therefore not recommended.

If, in the future, a reduction in the smelter rate to $3.00, or at most $3.50 per ton, could be obtained, the writer believes the request for loan would deserve reconsideration.

T. P. LANE
Supervising Engineer

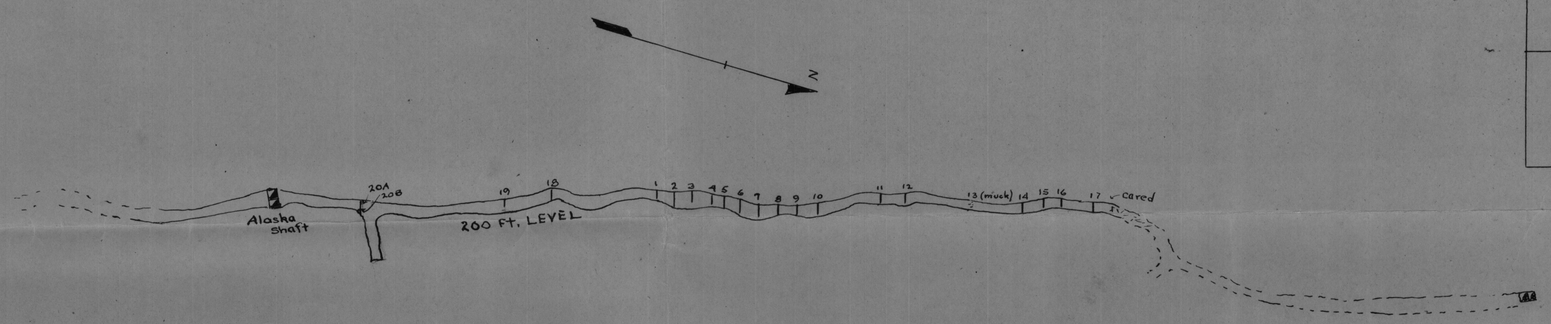
TPL:gmk



DOCKET NO. 6224
REYMERT EXT. SILVER MINES
Pinal Co. ARIZONA
SCALE: 1" = 50'
Ore:

Assays

Sample	Width	Oz Au	Oz Ag.
No. 1	53"	Tr.	5.8
2	76"	.01	6.6
3	54	Tr.	12.3
4	50	Tr.	28.4
5	92	Tr.	14.3
6	66	Tr.	17.5
7	52	Tr.	10.0
8	63	Tr.	9.8
9	66	Tr.	16.9
10	66	Tr.	17.4
11	52	Tr.	8.0
12	28	Tr.	15.2
13	Muck	.01	7.6
14	66	.01	4.0
15	42	.01	22.5
16	66	Tr.	6.9
17	48	Tr.	10.6
18	48	Tr.	3.4
19	63	.01	6.5
20A	72	.01	3.5
20B	27	.01	4.0



T.P.L.
6-30-47