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ARIZONA DEPARTMENT OF MINES AND MINERAL RESOURCES AZMILS DATA

PRIMARY NAME: CUTTER QUARRIES

ALTERNATE NAMES:

GILA COUNTY MILS NUMBER: 62

LOCATION: TOWNSHIP 2 S RANGE 16 E SECTION 4 QUARTER E2

LATITUDE: N 33DEG 17MIN 17SEC LONGITUDE: W 110DEG 42MIN 18SEC

TOPO MAP NAME: CUTTER - 7.5 MIN

CURRENT STATUS: UNKNOWN

COMMODITY:

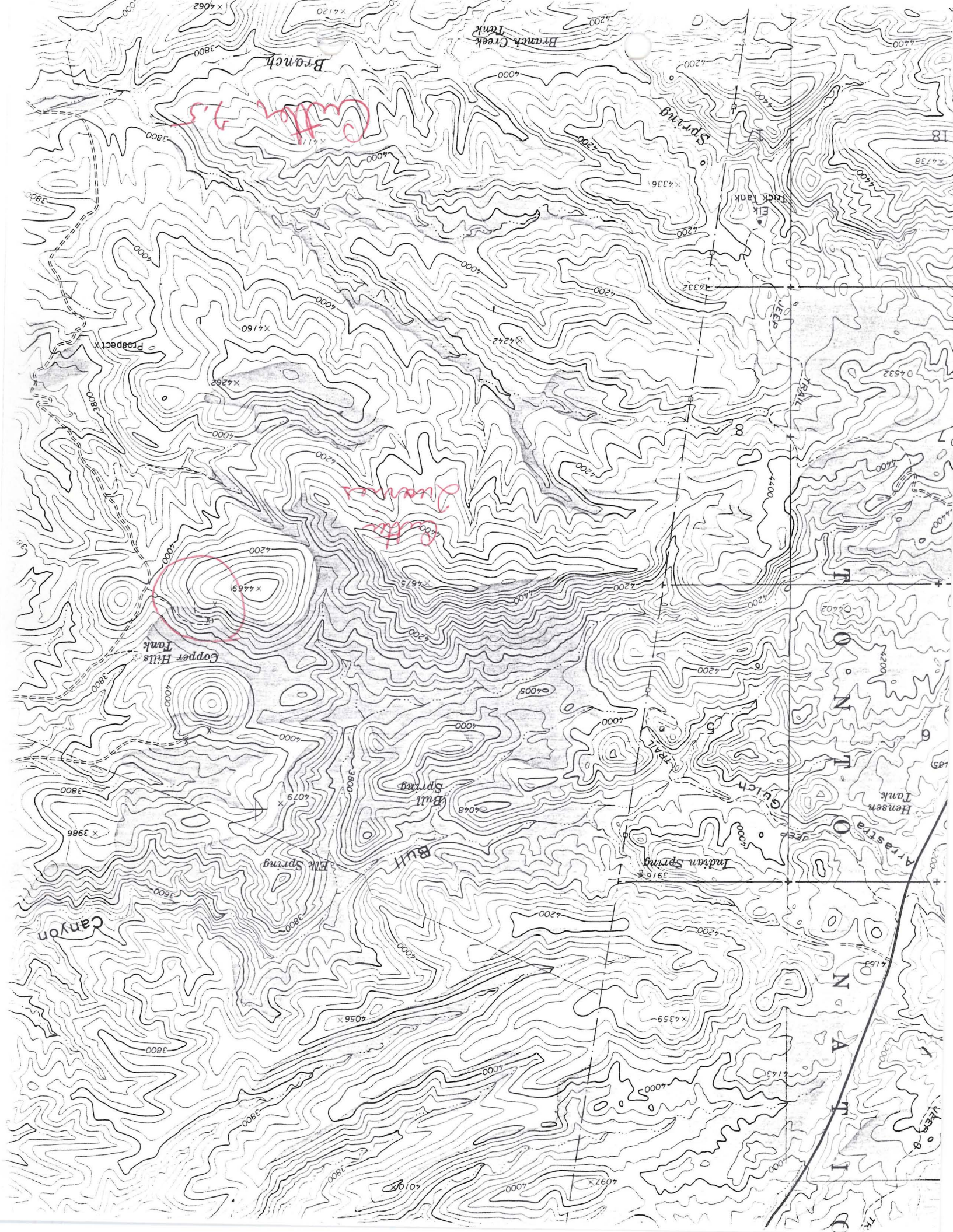
CALCIUM LIMESTONE

BIBLIOGRAPHY:

USGS CUTTER QUAD

ADMMR CUTTER QUARRIES FILE

GEO FILE - MIERITZ, RICHARD, 1970



7 Regd. - Office - 279-2541 - 2846 W. Williams Ave  
Home - 253-1801 2037 W. Williams  
P.O. Box 3707, 85030

GEOLOGIC REPORT

of the

CUTTER QUARRIES

LIESTONE PROPERTY

in the

GLOBE DISTRICT

San Carlos Indian Reservation

Gila County, Arizona

by

R. E. Mieritz  
Mining Consultant  
Sun City, Arizona

March 14, 1972

### INTRODUCTION:

As authorized by Mr. Tom Royden, Phoenix, Arizona, the writer, accompanied by Messrs. Royden and Owen Carolan, revisited the Cutter Quarries limestone and quartzite deposits on March 9, 1972. The writer previously visited and examined the property on May 26, 1970. The property covers 640 acres as a lease and located in parts of Sections 4 and 9, T. 2 S., R. 16 E. (unsurveyed) in the San Carlos Indian Reservation, Gila County, Arizona and approximately 10 airline miles, or 16 miles by road via Cutter southeast of Globe, Arizona.

### CONCLUSIONS:

Based on the general examinations (2) completed by the writer and also on the samples taken, the following conclusions are forwarded for your consideration:

- (1) A 40 to 70 foot thick horizon within the 250 foot thick Mescal Limestone formation is the area of interest from the standpoint of lime manufacture. The specific outcropping area (designated on Map No. 2) should contain 1.5 million tons of limestone.
- (2) This "ore" reserve should contain an average 96%+  $\text{CaCO}_3$  and 1.05% silica ( $\text{SiO}_2$ ) as determined by the limited sampling.
- (3) At least 18 holes, approximately 70 to 80 feet deep, should be drilled - preferably diamond drilling to "block out" the good limestone and determine the irregularities of the  $\text{CaCO}_3$  and  $\text{SiO}_2$  content and to aid in mine planning and mine operation.
- (4) Easier access to the property and in particular the area of interest, can be best accomplished by a route from State Highway 77 at a point almost west of the area of interest. An easy grade and approximately a mile and a half of road is anticipated.

### LOCATION and ACCESSIBILITY:

A ten year mineral lease (commencement date January 1, 1969) has been obtained from the San Carlos Indian Council for 640 acres of limestone and quartzite material in parts of Sections 4 and 9, (southern 3/4 of Sec. 4 and northern 1/2 of Sec. 9) in T. 2 S., R. 16 E., G. & S. R. E. and M., Gila County, Arizona..

From Cutter, 9 miles easterly from Globe, travel to the property by Jeep or pickup is south 0.3 mile on old U. S. route 70, thence right, southwest, on a ranch type dirt road for 4.3 miles to a "Y" - this section of road crosses a sandy and gravelly wash several times - thence right at the "Y" for 2.4 miles over a very rocky - Jeep only - road. This point is close to the center of the property of high ridges and steep drainage producing 300 to 400 foot reliefs. This point is 16 miles by road from Globe. The limestone area of interest is approximately 1/2 mile further - up over a high ridge - which must be traversed on foot.

The present route of access is "the long way round". Viewing the area from a distance, it is the opinion of the writer that a very feasible access road route could be located with easy grades and relatively low cost construction. This route would approach the area of interest from the west - a point on State Route 77 - and would require approximately  $1\frac{1}{4}$  miles of road construction. It also appears from a distance that an access road already exists from the State route to a point about a half mile airline from the area of interest. Such a route would materially shorten distance and reduce transportation costs on westward haulage. It is suggested that this proposed route be traversed on foot and flagged from the area of interest to State Route 77.

#### GEOLOGY:

The limestone in the area is that of the Mescal (Devonian) formation which is made up of several members or layers of 40 to 70 foot thicknesses within its 200 to 250 foot overall thickness. These layers vary from light gray to deep brown, from finely crystalline (flint like) to medium crystalline, from high lime content to strongly dolomitic, from moderately soft to extremely hard or tough to fracture and from relatively free of silica to moderately siliceous with abundant chert nodules and bedding seams. No one bedding is completely free of the silica, however, one thin bed (40 to 70 feet thick) does have low silica content. This bed is fine grained to fairly crystalline. There is also a dark gray bed of perhaps a 30 foot thickness which is approximately 100 feet lower stratigraphically than the one of interest but the two beds are separated by a highly siliceous bed or beds.

During the May 1970 visit, the writer took four samples within the Mescal formation, three of which physically appeared to have low silica contents and the fourth sample was from a bedding containing visible silica nodules and seams. This bed lies immediately below the light gray bed of interest. These samples were taken in the area designated by Messrs Royden and Carolan as being the area of low silica content and from which area they obtained the light and dark samples containing the high calcium carbonate.

During the latter visit, the writer took an additional three samples in the area of interest as well as two samples of material approximately  $\frac{1}{3}$  of a mile southeast (#1114) and  $\frac{2}{3}$  of a mile southeast (#1118) representing exposures of lower beds (?) within the Mescal formation. Samples 1115, 16 and 17 were taken in the area of interest with #1115 representing the siliceous bed underlying the good limestone member. The results of all the samples taken are as follows:

	$\%$	$\%$
<u>Good Limestone Bed</u>	<u>CaCO<sub>3</sub></u>	<u>SiO<sub>2</sub></u>
#1073 - Light gray, medium crystalline, surface chip	95.7	0.47
#1075 - Light gray, medium crystalline, cherted chip	99.1	0.33
#1076 - 40° chip, light gray, across dip, cliff face	95.0	1.35
#1116 - Light gray, medium crystalline, surface chip	97.3	1.18
#1117 - Gray, crystalline, fine grained, surface chip	97.6	0.93
<u>Siliceous Underlying Limestone Bed</u>		
#1074 - Dark gray, fine to medium grain, surface chip	69.4	3.37
#1115 - Gray tan, flinty, fine grain, cliff face	61.4	5.56

#### Miscellaneous

	$\%$ <u>CaCO<sub>3</sub></u>	$\%$ <u>SiO<sub>2</sub></u>
#1114 - Light gray, fine grain, flinty, across cliff	97.3	0.61
#1118 - Gray, fine grained, flinty, surface	60.0	5.70

The general strike of the formation is S. 60°E. with a 24°SW dip at the western end and a 36°SW dip at the eastern end. The formation outcrops for approximately 4000 feet along the strike. Due to minor folding and slight displacements, some of the formation has been eroded and thusly exposing the siliceous limestone bedding underlying the high lime - low silica bed. Only a portion of this strike length is thus suitable to mining. In other places along the strike, the bed of interest is overlain by both siliceous and dolomitic beds which require removal.

#### ORE RESERVE:

The area of interest (high lime-low silica) is estimated to be  $\pm$  500 feet along the dip, 1800 feet along the strike and an average thickness of 50 feet. Using a factor of 12 cubic feet to the ton, the resulting in place tonnage is approximately 1,680,000 tons. This volume should average 96.0% CaCO<sub>3</sub> and approximately 1.05% SiO<sub>2</sub>.

#### DEVELOPMENT:

Prior to mining, the area of interest must be partially developed by close spaced drilling. The writer strongly suggests 70 to 80 foot deep holes spaced no more than 100 feet apart in both horizontal directions and at least 18 holes as indicated on Map No. 2 (red circles, diagrammatic only). If the results are too erratic, than "fill-in" holes must be drilled.

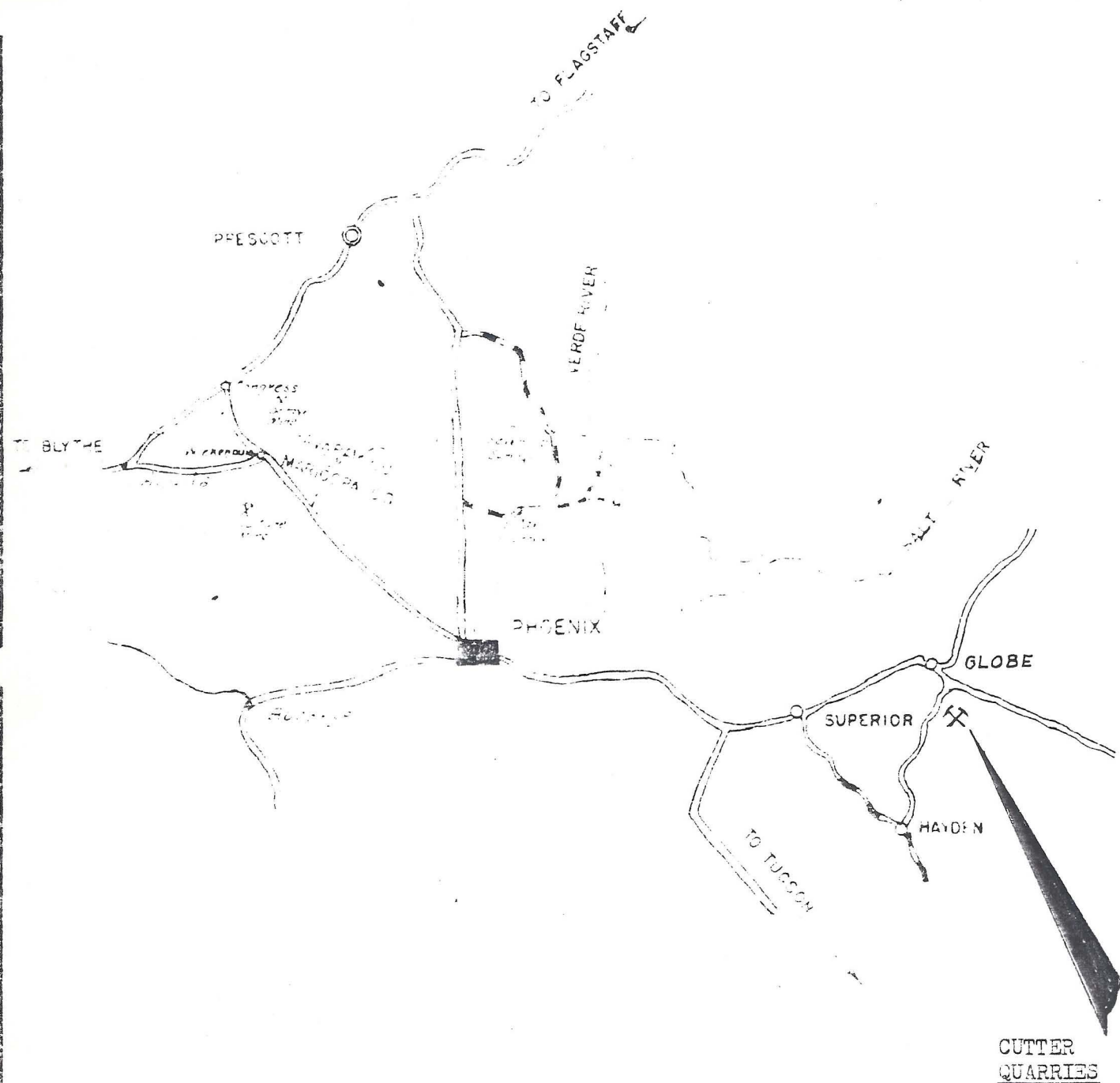
Core drilling is the most satisfactory type because it provides a visual observation of the material which permits determination of the physical characteristics such as grain size, crystallization, hardness, friability and fractures, etc., as well as, of course, a sample that can be assayed for the lime and silica contents. It is the writers opinion these added attributes are essential and worth the extra cost for the core drilling. Professional supervision and core logging is necessary.

If the physical characteristics of the material to be mined is of no importance and only the lime and silica content are the ruling factors, then air-track drilling with an excellent sample collection system and professionally supervised, is satisfactory.

Respectfully submitted,

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R. E. Meritz,  
Mining Consultant,  
Mining Engineer and  
Geologist.



# INDEX MAP CENTRAL ARIZ.

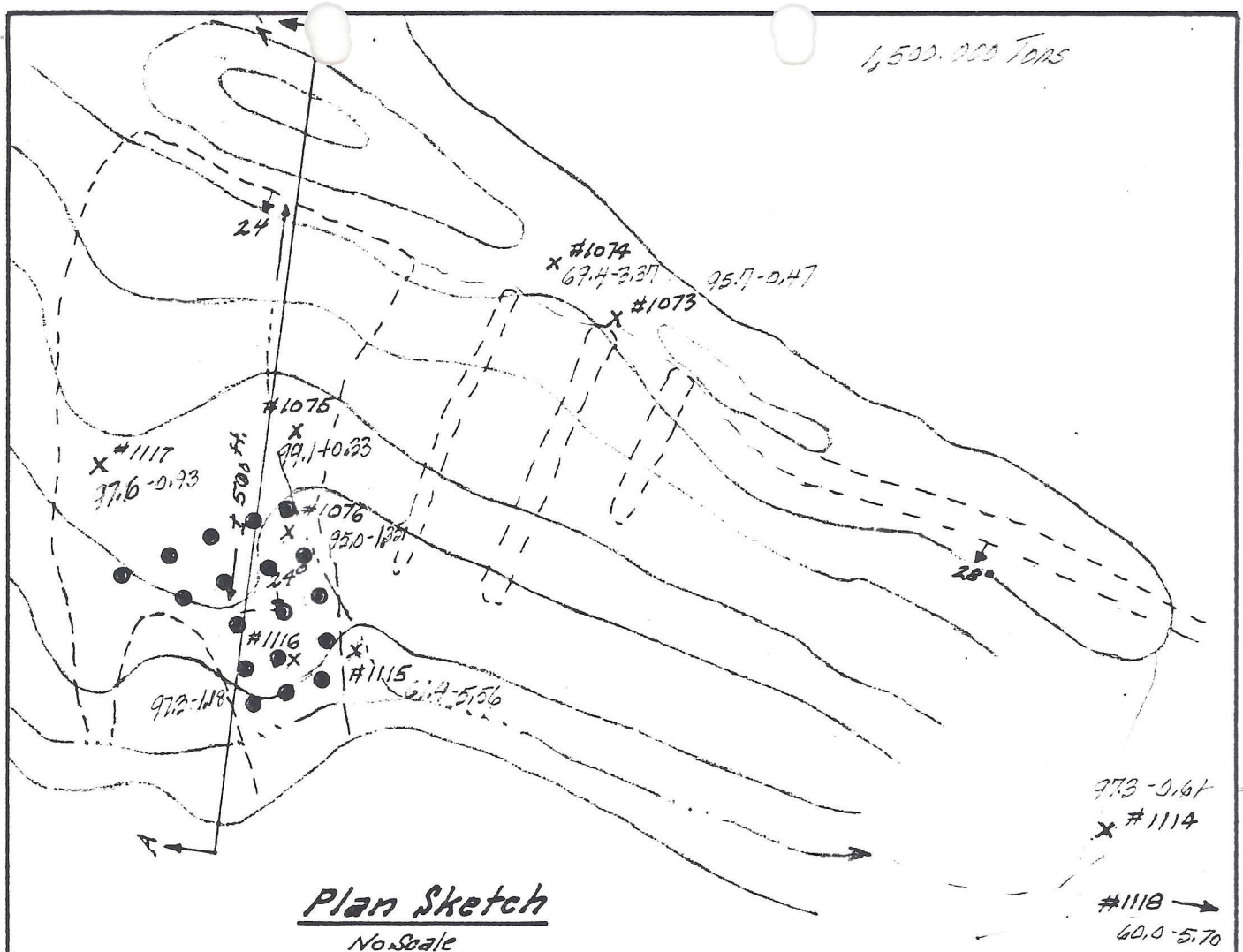
SCALE 1"=27 MI.

R.E. NIERITZ, P.E.

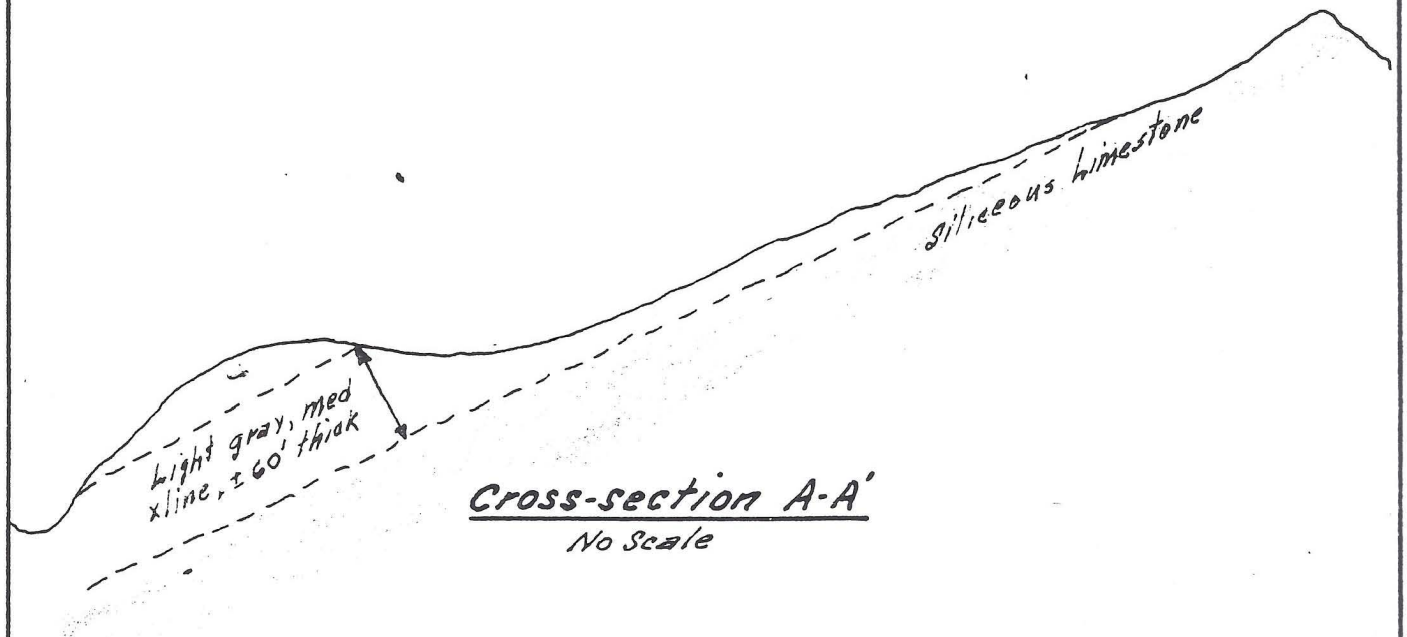
MAR., 1962

MAP No.

1,500,000 TONS



Plan Sketch  
No Scale



Cross-section A-A'  
No Scale

CUTTER QUARRIES LIMESTONE  
Globe District  
Gila County, Arizona

No Scale

May, 1970

R. E. Mieritz

MAD No. 2

June 3, 1970

Home Stake Production Co.  
P. O. Box 7277  
Indian School Station  
Phoenix, Arizona, 85011

Att: Mr. George Freeman

Gentlemen:

Herewith my Geologic Reports of the Cutter Quarries Limestone property, Globe District, Gila County, Arizona and the Queen Creek Limestone property, Superior District, Pinal County, Arizona.

On May 28th, while in the Globe area, and at your request, I contacted Mr. Hoopes, owner-operator, of the Hoopes Lime Plant and Quarry, approximately 4 miles north of U. S. 60-70 on State route 88. I was instructed to use the approach of having a client who was interested in purchasing the Hoopes operation but that the client wished to remain un-identified for the time being.

Mr. Hoopes asked if the client was "the oil people setting up the operation in Tucson?"--since Mr. Jim Girard had visited the operation several weeks ago." "That Mr. Hoopes was, that day, having an appointment with and a visit of a representative of U. S. Lime Co." Mr. Hoopes also stated that "he likes to know who he is dealing with". The net result of the visit and conversation -- information-wise -- was nil. Mr. Hoopes did state "his books were open to a possible serious buyer."

Sincerely yours,

---

R. E. Mieritz,  
Mining Consultant.

GEOLOGIC REPORT

of the

CUTTER QUARRIES

LIMESTONE PROPERTY

in the

GLOBE DISTRICT

San Carlos Indian Reservation

Gila County, Arizona

by

R. E. Mieritz  
Mining Consultant  
Phoenix, Arizona

June 3, 1970

### INTRODUCTION:

Accompanied by Messrs. Owen Carolan and Tom Royden on May 26, 1970, the writer completed a one day cursory examination of the Cutter Quarries Limestone and Quartzite deposits covering 640 acres as a lease and located in parts of Sections 4 and 9, T. 2 S., R. 16 E. (unsurveyed) in the San Carlos Indian Reservation, Gila County, Arizona and approximately 10 airline miles, or 16 miles by road, via Cutter southeast of Globe, Arizona.

### CONCLUSIONS:

Based on the general examination of the square mile area and the analysis of four character samples taken by the writer, the following conclusions are forwarded for your consideration:

- (1) Only a 40 to 70 foot thick horizon within the 250 foot thick Mescal Limestone formation might be suitable for production of lime because of its low silica content.
- (2) At best, there might be 1.5 million tons of fine to dense, medium crystalline, light gray to medium gray limestone which lies close to the surface for quarrying with a minimum amount of overburden removal.
- (3) The property should only be considered if an "extraneous or supplemental" source of raw material is required.

### LOCATION and ACCESSIBILITY:

A ten year mineral lease (commencement date January 1, 1969) has been obtained from the San Carlos Indian Council for 640 acres of limestone and quartzite material in parts of Sections 4 and 9, (southern 3/4 of Sec. 4 and northern 1/4 of Sec. 9) in T. 2 S., R. 16 E., G. & S. R. E. & M., Gila County, Arizona.

From Cutter, 9 miles easterly from Globe, travel to the property by Jeep or pickup truck is south 0.3 mile on old U. S. route 70, thence right (southwest) on a ranch type dirt road for 4.3 miles to a "Y" —this stretch of road crosses a sandy and gravelly wash several times — thence right at the "Y" for 2.4 miles over a very rocky - Jeep only - road. This point is close to the center of the property of high ridges and steep drainage producing 300 to 400 foot reliefs. This point is 16 miles by road from Globe. The limestone area of interest is approximately 1/2 mile further - up over a high ridge - which must be traversed on foot.

### GEOLOGY:

The limestone in the area is that of the Mescal (Devonian) formation which is made up of several members or layers of 40 to 70 foot thicknesses within its 200 to 250 foot overall thickness. These layers

vary from light gray to deep brown, from finely crystalline (flint like) to medium crystalline, from high lime content to strongly dolomitic, from moderately soft to extremely hard or tough to fracture and from relatively free of silica to moderately siliceous with abundant chert nodules and bedding seams. No one bedding is completely free of the silica, although one, relatively thin bed (40 to 70 feet thick) does have low silica content. This bed is moderately crystalline. There is also a dark gray bed of perhaps a 30 foot thickness which is approximately 100 feet lower stratigraphically than the one of interest but the two beds are separated by a highly siliceous bed.

Four samples were taken within the Mescoal formation from the beddings, three of which physically appeared to have low silica contents and the fourth samples was from a bedding containing visible seams and nodules of silica. This bed lies immediately below the light gray bed of interest. The results of these samples are as follows:

	% CaCO <sub>3</sub>	% SiO <sub>2</sub>
#1073 Light gray, medium crystalline	95.7	0.47
#1074 Dark gray, fine to medium grain	69.4	3.37
#1075 Light gray, medium crystalline	99.1	0.33
#1076 40' chip, light gray, across dip	95.0	1.35

(See sketch Map for sample locations)

The above samples were taken in the area designated by Messrs Carolan and Royden as being the area of low silica content and from which area they obtained the light and dark samples containing the high calcium carbonate and low silica.

The general strike of the formation is S 60°E. with a 24° SW dip at the Western end and a 36° SW dip at the Eastern end. The formation outcrops for approximately 3000 feet along the strike. Of this strike length, only a short 700 to 800 foot length, a 400 foot down dip width and a 50 foot thickness of a light gray, medium crystalline bedding of low silica content which forms a dip slope mound, might be amenable to low cost quarrying with minimum overburden. The balance of the bedding strike length-wise, dips into a ridge and is overlain by both siliceous and dolomitic beds which would require removal.

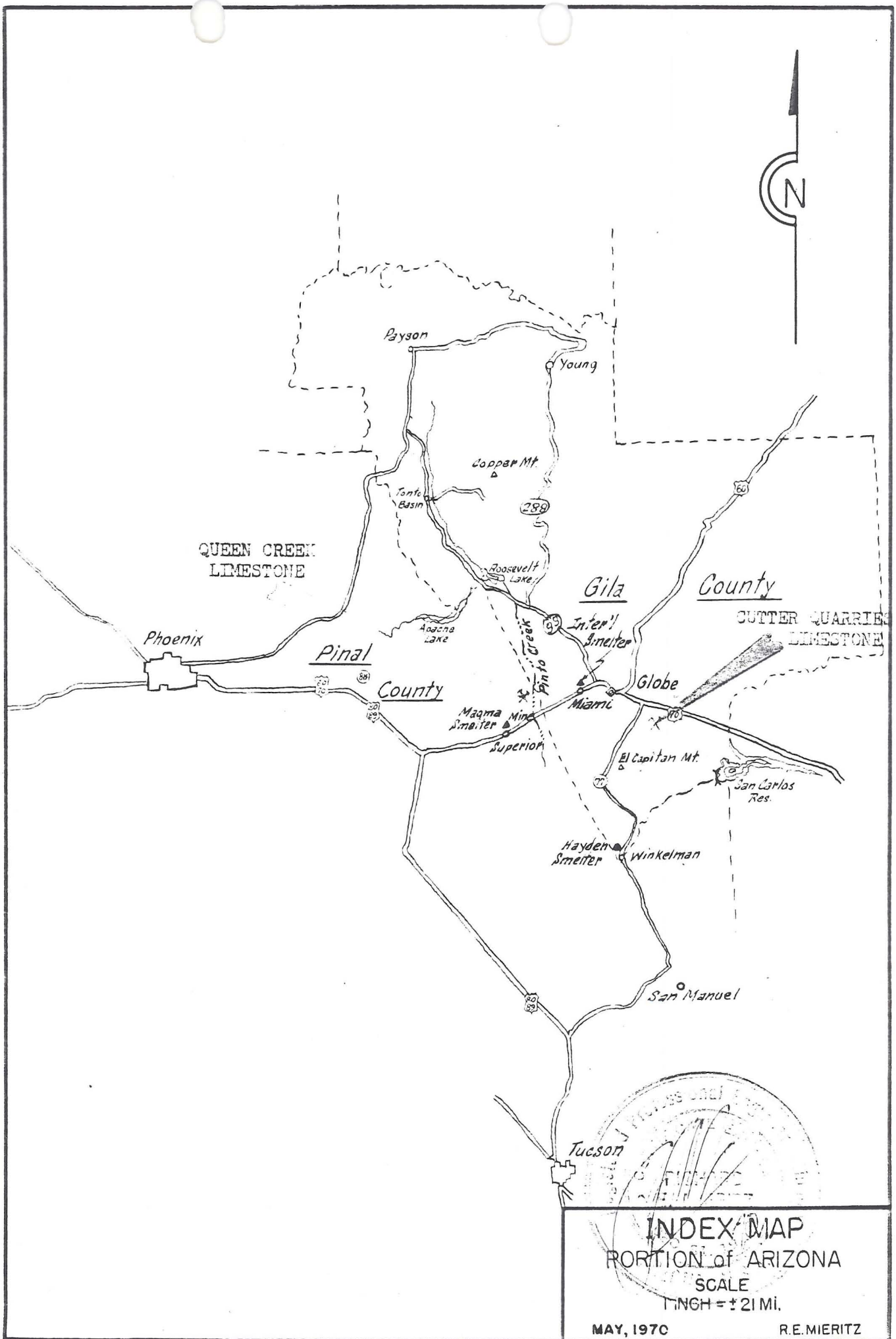
#### DEVELOPMENT:

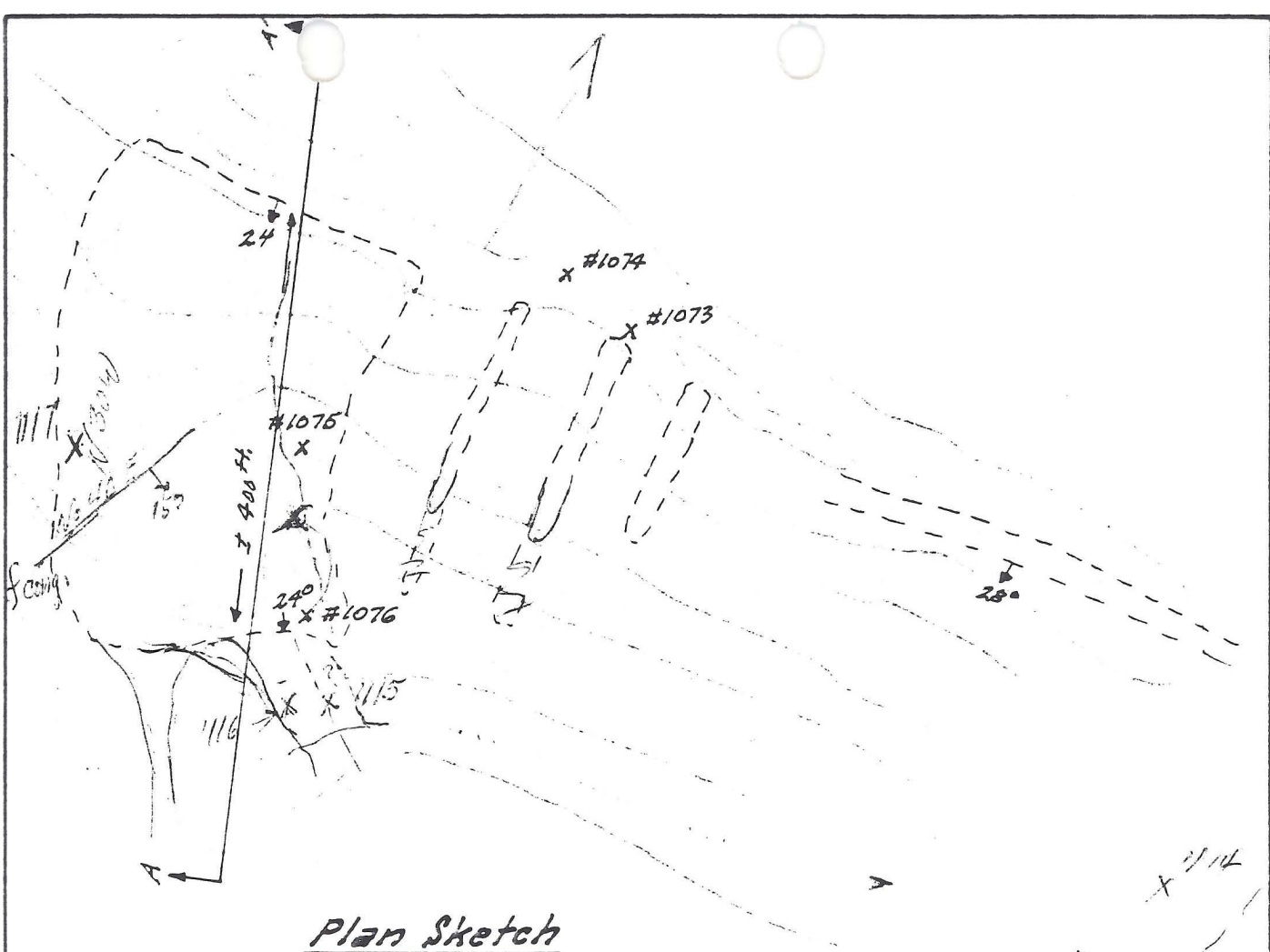
The property is void of development - only outcrops. No exploration of the limestone has been completed.

The suspected low silica content, relatively thin, light gray, medium crystalline bedding must be drilled to ascertain the continuity of the low silica content and the tonnage available.

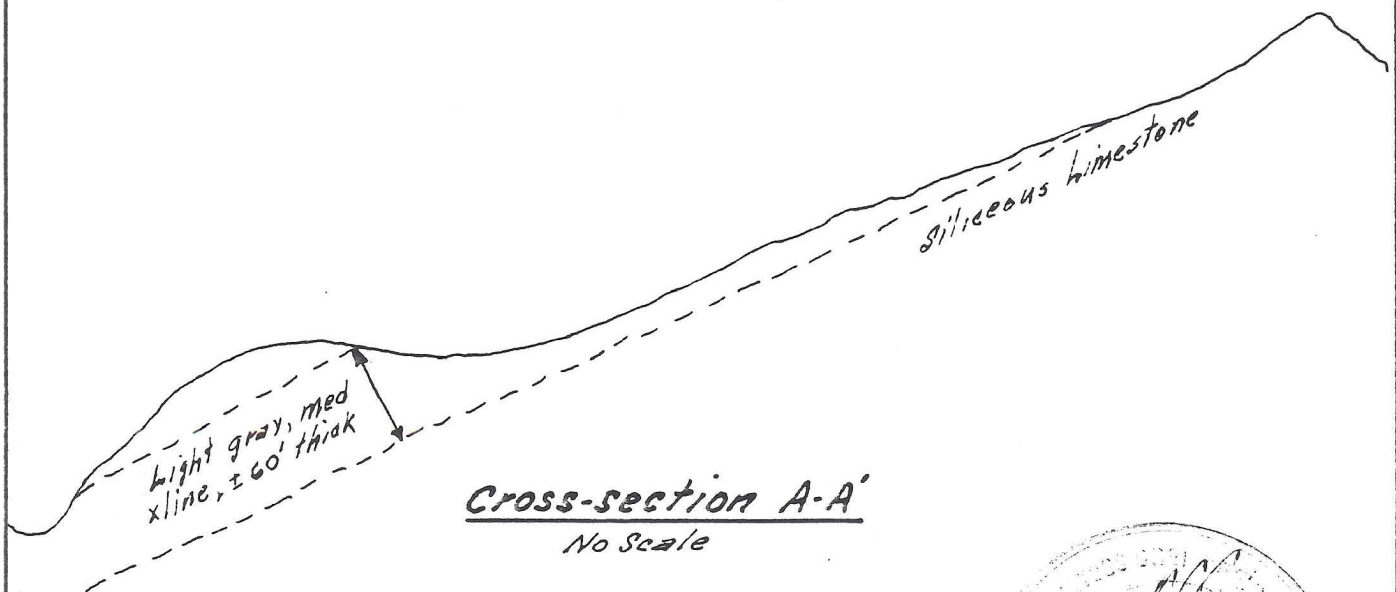
Respectfully submitted,

R. E. Mieritz,  
Mining Consultant  
June 3, 1970





Plan Sketch  
No Scale



Cross-section A-A'  
No Scale

CUTTER QUARRIES Limestone  
Globe District  
Gila County, Arizona  
No Scale  
May, 1970 R. E. Mieritz